**Chapter 38 Cannabis Growing, Processing, or Extraction Facilities**

38.1\* Application

38.1.1\*

Chapter 38 shall apply to the growing and processing of cannabis within new and existing buildings.

38.1.2

The use, storage, transfilling, and handling of hazardous materials shall comply with this chapter, and other applicable provisions of this Code.

38.1.3

Chapter 38 shall not apply to the retail sale of cannabis where growing and processing does not occur.

38.1.4

Where a material, its use, or associated process poses multiple hazards, all hazards shall be addressed in accordance with applicable requirements of this Code.

38.1.5\*

The occupancy of buildings or portions of buildings where the growing or processing of cannabis occurs shall be in accordance with Chapter 6 and the applicable building code.

38.2 Permits

Permits, where required, shall comply with Section 1.12.

38.3 Fire Protection Systems

Fire protection systems shall be provided in accordance with Chapter 13.

38.4\* Means of Egress

Means of egress shall be in accordance with Chapter 14.

38.5 Growing or Production of Cannabis

38.5.1 Ventilation for Light Fixtures

Light fixture ductwork shall be installed in accordance with the manufacturer and NFPA 90A.

38.5.2 Odor Control

The use of ozone generators used for odor control shall comply with Chapter 54.

38.5.3 Carbon Dioxide Enrichment Equipment

The design, installation, and maintenance of equipment utilized for a carbon dioxide enrichment process with more than 100 lb (45.4 kg) of carbon dioxide or utilizing any quantity of carbon dioxide having a remote fill connection shall comply with 38.5.3.1 through 38.5.3.5.

38.5.3.1 Equipment

Pressure relief, vent piping, fill indicators, fill connections, vent terminations, piping systems, and the storage, use, and handling of the carbon dioxide shall be in accordance with NFPA 55.

38.5.3.2 Gas Detection System

A gas detection system complying with NFPA 55 shall be provided in rooms or indoor areas in which the carbon dioxide enrichment process is located, in rooms or indoor areas in which container systems are located, and in other areas where carbon dioxide could accumulate.

38.5.3.2.1 System Design

The system shall be designed as follows:

Activates a low-level alarm upon detection of a carbon dioxide concentration of 5000 ppm (9000 mg/m3).

Activates a high-level alarm upon detection of a carbon dioxide concentration of 30,000 ppm (54,000 mg/m3).

38.5.3.2.2 System Activation

38.5.3.2.2.1

Activation of the low-level gas detection system alarm shall automatically initiate the following:

Stop the flow of carbon dioxide to the piping system.

Activate the mechanical exhaust ventilation system.

Activate an audible and visible supervisory alarm signal at an approved location within the building.

38.5.3.2.2.2

Activation of the high-level gas detection system alarm shall automatically initiate the following:

Stop the flow of carbon dioxide to the piping system.

Activate the mechanical exhaust ventilation system.

Activate an audible and visible evacuation alarm both inside and outside of the carbon dioxide enrichment area and the area in which the carbon dioxide containers are located.

38.5.3.3 Pressurization and Ventilation

Rooms or indoor areas in which carbon dioxide enrichment is provided shall be maintained at a negative pressure in relation to the surrounding areas in the building. A mechanical ventilation system shall be provided in accordance 3.3.56.3, mechanical code, and complies with all of the following:

Mechanical ventilation in the room or area shall be at a rate of not less than 1 cfm/ft2 [0.00508 m3/(s • m2)].

When activated by the gas detection system, the mechanical ventilation system shall remain on until manually reset.

The exhaust system intakes shall be taken from points within 12 in. (305 mm) of the floor.

The ventilation system shall discharge to the outdoors in an approved location.

38.5.3.4 Signage

Hazard identification signs shall be posted at the entrance to the room and indoor areas where the carbon dioxide enrichment process is located, and at the entrance to the room or indoor area where the carbon dioxide containers are located, The sign shall be not less than 8 in. (200 mm) in width and 6 in. (150 mm) in height and indicate the following:

CAUTION: CARBON DIOXIDE GAS VENTILATE THE AREA BEFORE ENTERING. A HIGH CARBON DIOXIDE (COa)GAS CONCENTRATIONIN THIS AREACAN CAUSE ASPHYXIATION.

38.5.3.5 Container Refilling

Carbon dioxide containers located indoors shall not be refilled unless filled from a remote connection located outdoors.

38.5.4 Interior Finish, Contents, and Furnishings

38.5.4.1

Interior finish, including the use of any plastic, mylar, or other thin film sheeting to enclose rooms or cover any walls or ceilings shall be in accordance with Sections 12.5 and 12.6.

38.5.4.2

Hanging of plastic from ceiling or from suspended overhead structures to create wall dividers shall not be permitted.

38.5.5 Fumigation

38.5.5.1\* General

Any cannabis growing facility that is fumigated shall comply with 38.5.5.

38.5.5.2\* Sources of Ignition

Sources of ignition shall be shut off during the fumigation activity and remain shut off until the required ventilation is completed.

38.5.5.3 Notification

38.5.5.3.1

The AHJ and fire department shall be notified in writing not less than 48 hours before the building, structure, or space is to be closed in connection with the utilization of any toxic or flammable fumigant.

38.5.5.3.2

Notification, as required by 38.5.5.3.1, shall include the following:

The location of the enclosed space to be fumigated or fogged

The occupancy

The fumigants or insecticides to be utilized

The person or persons responsible for the operation

The date and time at which the operation will begin

38.5.5.3.3

Written notice of any fumigation or insecticidal fogging operation shall be given to all affected occupants of the building, structure, or space in which such operations are to be conducted with sufficient advance notice to allow the occupants to evacuate the building, structure, or space.

38.5.5.3.4

Written notice, as required by 38.5.5.3.3, shall inform the occupants as to the purposes, anticipated duration, and hazards associated with the fumigation or insecticidal fogging operation.

38.5.5.4 Signage

38.5.5.4.1

Approved warning signs indicating the danger, type of chemical involved, and necessary precautions shall be posted on all doors and entrances to the premises, including interior rooms and areas.

38.5.5.4.2

Signage shall be located at the exterior main entry and at the entries to those areas being fumigated indicating the duration of the fumigation.

38.5.5.5 Watch Personnel

38.5.5.5.1

During the period fumigation is in progress a watchperson shall remain on duty at the entrance or entrances to the enclosed fumigated space until after the fumigation is completed and the building, structure, or space is properly ventilated and safe for occupancy.

38.5.5.5.2

Sufficient watchpersons shall be provided to prevent any person from entering the enclosed space under fumigation unobserved.

38.5.5.6 Occupancy During Fumigation

Occupants of the building, structure, or space to be fumigated, except the personnel conducting the fumigation, shall be evacuated from such building, structure, or space prior to commencing fumigation operations.

38.5.5.7 Sealing of Building Structure, or Space

Paper, and other similar materials, used to wrap or cover a building, structure, or space in excess of that required for the sealing of cracks, casements, and similar openings shall meet the flame propagation performance criteria of Test Method 1 or Test Method 2 of NFPA 701.

38.5.5.8 Maintenance of Openings

All openings to the building, structure, or space to be fumigated or fogged shall be kept securely closed during such operation.

38.5.5.9 Venting and Cleanup

At the end of the exposure period the following procedures shall be followed:

Fumigators shall safely and properly ventilate the premises and contents.

Fumigant containers, residues, debris, and other materials used for such fumigation shall be properly disposed.

Obstructions shall be cleared from gas-fired appliance vents.

38.5.6 Pesticide Application

38.5.6.1

A warning sign shall be provided to indicate that pesticides have been applied.

38.5.6.2

A record of pesticide application shall be provided and shall include the following:

The pesticide product or chemical used

The date and time the pesticide was applied

When the room or area is safe to reoccupy

38.6\* Processing or Extraction

38.6.1 General

38.6.1.1 Extraction Room

38.6.1.1.1

Extraction rooms in a cannabis extraction facility shall be constructed in accordance with the building code and this Code.

38.6.1.1.2\*

For other than CO2 and nonhazardous extraction process, the cannabis extraction equipment and process shall be located in a room of noncombustible construction dedicated to the extraction process and the room shall not be used for any other purpose.

38.6.1.1.3

Cannabis extraction shall not be located in any building containing assembly, educational, day care, health care, ambulatory health care, residential board and care, residential, or detention and correctional facilities.

38.6.1.1.4\* Means of Egress

For extraction rooms using hazardous materials, each room shall be provided with at least one exit access door complying with the following:

The door shall swing in the direction of egress travel.

The door shall be provided with a self-closing or automatic closing device.

The door shall be equipped with panic or fire exit hardware.

38.6.1.2 Staffing

38.6.1.2.1\*

For other than approved, unattended processes, the extraction process shall be continuously staffed.

38.6.1.2.2\*

Staff monitoring the extraction process shall be trained in the following:

The extraction process

\* The transfer of solvents, where applicable

All emergency procedures

38.6.1.2.3

All staff training records shall be maintained on-site and made available to the AHJ upon request.

38.6.1.3 Indoor Horticultural Grow Structures

38.6.1.3.1

Indoor horticultural grow structures installed and operated inside all occupancies covered by this Code that exceed 5 ft (1524 mm) in height and 32 ft2 (3.0 m2) in floor area shall comply with the building code and this Code.

38.6.1.3.2 Materials

Horticultural grow structures shall be constructed of noncombustible materials or of combustible materials that comply with the following:

Textiles and films complying with Test Method 2 of NFPA 701

Plastic materials having a maximum heat-release rate not greater than 100 kW when tested in accordance with UL 1975, Fire Tests for Foamed Plastics Used for Decorative Purposes, or when tested in accordance with NFPA 289, using the 20 kW ignition source

Exterior fire-retardant-treated wood complying with NFPA 703

Light-transmitting plastics complying with 12.5.5.15 of this Code

Aluminum composite material (ACM) meeting the requirements of Class A interior finish in accordance with Chapter 10 of NFPA 101 when tested as an assembly in the maximum thickness intended for use

38.6.1.3.3 Electrical Wiring and Equipment

Electrical wiring, luminaires, and equipment shall be listed and labeled for the intended use and installed in accordance with NFPA 70.

38.6.1.3.4 Heating Appliances

Where heating appliances are installed, these devices shall be installed in accordance with the manufacturer's instructions and comply with the requirements in Section 11.5 of this Code.

38.6.1.3.5 Fire Protection Systems

All required fire protection systems shall be in accordance with Chapter 13 of this Code. Clearance shall be maintained between automatic sprinklers and the top of horticultural grow structures in accordance with NFPA 13.

38.6.1.3.6 Clearance From Ignition Sources

Clearance between indoor horticultural grow structures and ignition sources such as luminaires, heaters, and grow lamps shall be maintained in an approved manner.

38.6.1.3.7 Area Limits

Indoor horticultural grow structures shall not exceed an aggregate 200 ft2 (18.6 m2) of floor area per fire area, unless a special investigation, approved by the AHJ, has demonstrated adequate fire safety.

38.6.1.4 Operator Training

38.6.1.4.1

In addition to the provisions of 38.6.1.2, the operator of the cannabis extraction equipment shall also receive training in safe operation of the equipment.

38.6.1.4.2\*

Documentation of training required by 38.6.1.4.1 shall be maintained on-site and made available to the AHJ upon request.

38.6.1.5 Signage

38.6.1.5.1

All applicable safety data sheets (SDS) shall be posted in the extraction room.

38.6.1.5.2

The NFPA 704 hazard rating diamond sign and no smoking signs shall be posted on the exterior of the extraction room door.

38.6.1.5.3

Applicable hazard warning signage shall be posted throughout the facility as applicable for emergency equipment.

38.6.1.6 Systems, Equipment, and Processes

38.6.1.6.1 General

38.6.1.6.1.1

Systems, equipment, and processes shall be in accordance with 38.6.1.6.1 through 38.6.1.6.6.3.

38.6.1.6.1.2

Systems, equipment, and processes shall include, but are not limited to, vessels, chambers, containers, cylinders, tanks, piping, tubing, valves, fittings, and pumps.

38.6.1.6.1.3

In addition to the requirements in 38.6.1.6, systems, equipment, and processes shall also comply with 60.5.1.6, other applicable provisions of this Code, the building code, and NFPA 90A.

38.6.1.6.1.4

Systems or equipment used for the extraction of cannabis oils and products from plant material shall be performed using equipment that has been listed in accordance with UL 1389, Outline of Investigation for Plant Extraction, or approved.

38.6.1.6.2 Equipment

38.6.1.6.2.1

Where an explosion condition exists, heating equipment such as vacuum ovens, heating mantels, heat guns, or other equipment shall not be used to heat flammable or combustible liquids or oils containing liquefied petroleum gasses.

38.6.1.6.2.2

Refrigerators, freezers, and other cooling equipment used to store or cool flammable liquids shall be listed for the storage of flammable/combustible liquids or be listed for Class I, Division 1 locations, as described in Article 501 of NFPA 70.

38.6.1.6.2.3\*

LPG tanks shall comply with 69.2.1.

38.6.1.6.3 Approval for Systems and Equipment With No Listing

38.6.1.6.3.1

Where the system used for extraction of cannabis oils and products from plant material is not listed, the system shall have a designer of record.

38.6.1.6.3.2

The designer of record shall be a registered design professional.

38.6.1.6.4\* Documentation for Equipment With No Listing

For systems and equipment not listed for the specific use, a technical report in accordance with Section 1.15 documenting the design or peer review of the equipment shall be prepared and submitted to the AHJ for review and approval.

38.6.1.6.5 Change of Extraction Medium

38.6.1.6.5.1

Where the medium of extraction or solvent is changed from the material indicated in the technical report or as required by the manufacturer, the technical report shall be revised at the cost of the facility owner and submitted for review and approval by the AHJ prior to the use of the equipment with the new medium or solvent.

38.6.1.6.5.2

If the original designer of record is not available, then the new designer of record shall comply with 38.6.1.6.3.1.

38.6.1.6.6 Equipment Field Verification

38.6.1.6.6.1

Prior to operation of the extraction equipment, the designer of record for the equipment shall inspect the site of the extraction process once equipment has been installed for compliance with the technical report and the building analysis.

38.6.1.6.6.2

The designer of record performing the field verification shall provide a report of findings and observations of the site inspection to the AHJ for review and approval prior to the approval of the extraction process.

38.6.1.6.6.3

The field inspection report authored by designer of record shall include the serial number of the equipment used in the process and shall confirm the equipment installed is the same model and type of equipment identified in the technical report.

38.6.2 Liquefied Petroleum Gas (LPG) Extraction

38.6.2.1 General

Cannabis extraction facilities using liquefied petroleum gas solvents shall comply with 38.6.1 and 38.6.2.

38.6.2.2 Exhaust

Upcodes Diagrams

38.6.2.2.1

An approved exhaust system shall be provided for LPG extractions.

38.6.2.2.2

The exhaust systems shall be installed and maintained accordance with NFPA 91 or the mechanical code.

38.6.2.2.3

All LPG extraction operations, including processes for off-gassing spent plant material and oil retrieval, shall be conducted within a chemical fume hood or enclosure in compliance with NFPA 91 or the mechanical code.

38.6.2.3 Electrical

38.6.2.3.1

All conductive equipment and conductive objects within the exhaust room shall be bonded and grounded with a resistance of less than 1.0 x 106 ohms in accordance with NFPA 70.

38.6.2.3.2

The area within a hood or enclosure used for LPG extractions shall be classified as a Class I, Division 1 hazardous location in accordance with NFPA 70.

38.6.2.3.3

Areas adjacent to Class I, Division 1 locations shall be classified in accordance with NFPA 70.

38.6.2.3.4

All electrical components within the extraction room shall be interlocked with the hazardous exhaust system such that room lighting and other extraction room electrical equipment will only operate when the exhaust system is in operation.

38.6.2.3.5

An emergency power system in accordance with Section 11.7 shall be provided for the following items:

Extraction room lighting

Extraction room ventilation system

Solvent gas detection system

38.6.2.4 Extraction Room Gas Detection System

38.6.2.4.1

An approved continuous gas detection system shall be provided.

38.6.2.4.2\*

The gas detection system shall alert the extraction operator in an approved manner at a gas detection threshold no greater than 25 percent of the gas LEL/LFL.

38.6.2.4.3

Gas detection systems shall be provided with constant noninterlocked power.

38.6.2.5 Protection

An automatic suppression system shall be provided within hoods or enclosures, including ductwork, in accordance with the following:

An automatic water sprinkler system that meets all applicable requirements of NFPA 13

A carbon dioxide extinguishing system that meets all applicable requirements of NFPA 12

A dry chemical extinguishing system that meets all applicable requirements of NFPA 17

A gaseous agent extinguishing system that meets all applicable requirements of NFPA 2001

38.6.2.6 Storage

LPG containers not in use shall not be stored within extraction rooms.

38.6.2.7 Facility Piping Systems

LPG liquid piping systems shall be in compliance with NFPA 58.

38.6.3 Flammable and Combustible Liquid Extraction

38.6.3.1 General

Cannabis extraction facilities using flammable and combustible liquid solvents shall comply with 38.6.1 and 38.6.3.

38.6.3.2 Exhaust

38.6.3.2.1\*

Extraction and post oil processing operations, including dispensing of flammable liquids between containers, shall be performed in one of the following locations:

A chemical fume hood in accordance with Chapter 7 of NFPA 45

An approved exhaust system installed in accordance with NFPA 91 or the mechanical code

38.6.3.2.2

Unheated processes at atmospheric pressure using less than 16 oz (473 ml) of flammable liquids shall not be required to comply with 38.6.3.2.1.

38.6.3.2.3

Classified electrical systems shall be in accordance with NFPA 70.

38.6.3.2.4

All electrical components within the chemical fume hood or exhausted enclosure shall be interlocked such that the exhaust system shall be in operation for lighting and components to be used.

38.6.3.3 Storage and Handling

The storage, use, and handling of flammable liquids shall be in compliance with this chapter and Chapter 66.

38.6.3.4

Heating of flammable or combustible liquids over an open flame shall be prohibited.

Cannabis extraction facilities using carbon dioxide solvents shall comply with 38.6.1 and 38.6.4.

38.6.4.2 Storage and Handling

All C02 compressed gas cylinders shall be secured to a fixed object to prevent falling.

38.6.4.3 CO2 Gas Detection

38.6.4.3.1

An approved, listed C02 detector shall be installed in the C02 extraction room.

38.6.4.3.2

Auto calibrating and self-zeroing devices or detectors shall be prohibited.

38.6.4.3.3

The detector shall be set to alarm at 5000 ppm of CO2.

38.6.4.4\* C02 Discharges

The extraction equipment pressure relief devices and blow-off valves shall be piped to the exterior of the building.

38.7\* Transfilling

Filling LPG extraction equipment supply containers shall be in compliance with 69.3.5, 69.4.2, and NFPA 58.