

# **General Guidelines for Medical Marijuana Growing Operation**

Detailed Mechanical plans prepared by a State of Michigan Licensed Mechanical Engineer or Architect must be submitted for Plan Review.

The following items must be addressed in the plans submitted:

1. Michigan Mechanical Code 2015
  - A. Section MMC 403 Ventilation Rate.
  - B. Section MMC 501.4 Pressure Equalization.
  - C. Section MMC 502.9.9 Ozone Gas Generators.
  - D. Section MMC 502.1 General Odors.
  - E. Section MMC 510 Hazardous Exhaust / CO2
  
2. International Fuel Gas Code 2015
  - A. Section IFGC 621 Unvented Appliances/Ozone Generators.
  - B. Section IFGC 402 Gas Pipe Sizing.
  
3. International Fire Code 2015
  - A. Section IFC 908.7 Carbon Dioxide Systems.
  - B. Section IFC 6005 Ozone Gas Generators.
  
4. ASHRAE 62-2013 Standard of Ventilation Levels.
  
5. ASHRAE 15-2013 Refrigeration Standards.
  
6. Detail Carbon Monoxide and Carbon Dioxide Monitoring and Alarm Systems.

### Chapter 37 Fixed Guideway Transit and Passenger Rail Systems

Δ 37.1 General. Fixed guideway transit and passenger rail system facilities shall comply with NFPA 130.

### Chapter 38 Marijuana Growing, Processing, or Extraction Facilities

#### N 38.1\* Application.

N 38.1.1\* Chapter 38 shall apply to the growing and processing of marijuana within new and existing buildings.

N 38.1.2 The use, storage, transfilling, and handling of hazardous materials shall comply with this chapter, and other applicable provisions of this Code.

N 38.1.3 Chapter 38 shall not apply to the retail sale of marijuana where growing and processing does not occur.

N 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.

N 38.1.5\* The occupancy of buildings or portions of buildings where the growing or processing of marijuana occurs shall be in accordance with Chapter 6 and the applicable building code.

N 38.2 Permits. Permits, where required, shall comply with Section 1.12.

N 38.3 Fire Protection Systems. Fire protection systems shall be provided in accordance with Chapter 13.

N 38.4\* Means of Egress. Means of egress shall be in accordance with Chapter 14.

#### N 38.5 Growing or Production of Marijuana.

N 38.5.1 Ventilation for Light Fixtures. Light fixture ductwork shall be installed in accordance with the manufacturer and NFPA 90A.

N 38.5.2 Odor Control. The use of ozone generators used for odor control shall comply with Chapter 54.

#### N 38.5.3 Interior Finish, Contents, and Furnishings.

N 38.5.3.1 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.

N 38.5.3.2 Hanging of plastic from ceiling or from suspended overhead structures to create wall dividers shall not be permitted.

#### N 38.5.4 Fumigation.

N 38.5.4.1\* General. Any marijuana growing facility that is fumigated shall comply with 38.5.4.

N 38.5.4.2\* Sources of Ignition. Sources of ignition shall be shut off during the fumigation activity and remain shut off until the required ventilation is completed.

#### N 38.5.4.3 Notification.

N 38.5.4.3.1 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.

N 38.5.4.3.2 Notification, as required by 38.5.4.3.1, shall include the following:

- (1) The location of the enclosed space to be fumigated or fogged
- (2) The occupancy
- (3) The fumigants or insecticides to be utilized
- (4) The person or persons responsible for the operation
- (5) The date and time at which the operation will begin

N 38.5.4.3.3 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.

N 38.5.4.3.4 Written notice, as required by 38.5.4.3.3, shall inform the occupants as to the purposes, anticipated duration, and hazards associated with the fumigation or insecticidal fogging operation.

#### N 38.5.4.4 Signage.

N 38.5.4.4.1 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.

N 38.5.4.4.2 Signage shall be located at the exterior main entry and at the entries to those areas being fumigated indicating the duration of the fumigation.

#### N 38.5.4.5 Watch Personnel.

N 38.5.4.5.1 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.

N 38.5.4.5.2 Sufficient watchpersons shall be provided to prevent any person from entering the enclosed space under fumigation unobserved.

N 38.5.4.6 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.

N 38.5.4.7 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.

N 38.5.4.8 Maintenance of Openings. All openings to the building, structure, or space to be fumigated or fogged shall be kept securely closed during such operation.

N 38.5.4.9 Venting and Cleanup. At the end of the exposure period the following procedures shall be followed:

- (1) Fumigators shall safely and properly ventilate the premises and contents.
- (2) Fumigant containers, residues, debris, and other materials used for such fumigation shall be properly disposed.

- (3) Obstructions shall be cleared from gas-fired appliance vents.

#### **N 38.5.5 Pesticide Application.**

**N 38.5.5.1** A warning sign shall be provided to indicate that pesticides have been applied.

**N 38.5.5.2** A record of pesticide application shall be provided and shall include the following:

- (1) The pesticide product or chemical used
- (2) The date and time the pesticide was applied
- (3) When the room or area is safe to reoccupy

#### **N 38.6\* Processing or Extraction.**

##### **N 38.6.1 General.**

##### **N 38.6.1.1 Extraction Room.**

**N 38.6.1.1.1** Extraction rooms in a marijuana extraction facility shall be constructed in accordance with the building code and this Code.

**N 38.6.1.1.2\*** For other than CO<sub>2</sub> and nonhazardous extraction process, the marijuana 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.

**N 38.6.1.1.3** Marijuana 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.

**N 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:

- (1) The door shall swing in the direction of egress travel.
- (2) The door shall be provided with a self-closing or automatic closing device.
- (3) The door shall be equipped with panic or fire exit hardware.

##### **N 38.6.1.2 Staffing.**

**N 38.6.1.2.1\*** For other than approved, unattended processes, the extraction process shall be continuously staffed.

**N 38.6.1.2.2\*** Staff monitoring the extraction process shall be trained in the following:

- (1) The extraction process
- (2)\* The transfer of solvents, where applicable
- (3) All emergency procedures

**N 38.6.1.2.3** All staff training records shall be maintained on-site and made available to the AHJ upon request.

##### **N 38.6.1.3 Operator Training.**

**N 38.6.1.3.1** In addition to the provisions of 38.6.1.2, the operator of the marijuana extraction equipment shall also receive training in safe operation of the equipment.

**N 38.6.1.3.2\*** Documentation of training required by 38.6.1.3.1 shall be maintained on-site and made available to the AHJ upon request.

##### **N 38.6.1.4 Signage.**

**N 38.6.1.4.1** All applicable safety data sheets (SDS) shall be posted in the extraction room.

**N 38.6.1.4.2** The NFPA 704 hazard rating diamond sign and no smoking signs shall be posted on the exterior of the extraction room door.

**N 38.6.1.4.3** Applicable hazard warning signage shall be posted throughout the facility as applicable for emergency equipment.

##### **N 38.6.1.5 Systems, Equipment, and Processes.**

##### **N 38.6.1.5.1 General.**

**N 38.6.1.5.1.1** Systems, equipment, and processes shall be in accordance with 38.6.1.5.1 through 38.6.1.5.6.3.

**N 38.6.1.5.1.2** Systems, equipment, and processes shall include, but are not limited to, vessels, chambers, containers, cylinders, tanks, piping, tubing, valves, fittings, and pumps.

**N 38.6.1.5.1.3** In addition to the requirements in 38.6.1.5, systems, equipment, and processes shall also comply with 60.5.1.6, other applicable provisions of this Code, the building code, and NFPA 90A.

**N 38.6.1.5.1.4** Systems or equipment used for the extraction of marijuana/cannabis oils and products from plant material shall be performed using equipment that has been listed or approved.

##### **N 38.6.1.5.2 Equipment.**

**N 38.6.1.5.2.1** 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.

**N 38.6.1.5.2.2** 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.

**N 38.6.1.5.2.3\*** LPG tanks shall comply with 69.2.1.

##### **N 38.6.1.5.3 Approval for Systems and Equipment with No Listing.**

**N 38.6.1.5.3.1** Where the system used for extraction of marijuana oils and products from plant material is not listed, the system shall have a designer of record.

**N 38.6.1.5.3.2** The designer of record shall be a registered design professional.

**N 38.6.1.5.4\* 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.

##### **N 38.6.1.5.5 Change of Extraction Medium.**

**N 38.6.1.5.5.1** 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.

*N* 38.6.1.5.5.2 If the original designer of record is not available, then the new designer of record shall comply with 38.6.1.5.3.1.

*N* 38.6.1.5.6 Equipment Field Verification.

*N* 38.6.1.5.6.1 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.

*N* 38.6.1.5.6.2 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.

*N* 38.6.1.5.6.3 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.

*N* 38.6.2 Liquefied Petroleum Gas (LPG) Extraction.

*N* 38.6.2.1 General. Marijuana extraction facilities using liquefied petroleum gas solvents shall comply with 38.6.1 and 38.6.2.

*N* 38.6.2.2 Exhaust.

*N* 38.6.2.2.1 An approved exhaust system shall be provided for LPG extractions.

*N* 38.6.2.2.2 The exhaust systems shall be installed and maintained accordance with NFPA 91 or the mechanical code.

*N* 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.

*N* 38.6.2.3 Electrical.

*N* 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  $1.0 \times 10^6$  ohms in accordance with NFPA 70.

*N* 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.

*N* 38.6.2.3.3 Areas adjacent to Class I, Division 1 locations shall be classified in accordance with NFPA 70.

*N* 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.

*N* 38.6.2.3.5 An automatic emergency power system shall be provided for the following items, when installed:

- (1) Extraction room lighting
- (2) Extraction room ventilation system
- (3) Solvent gas detection system

*N* 38.6.2.4 Extraction Room Gas Detection System.

*N* 38.6.2.4.1 An approved continuous gas detection system shall be provided.

*N* 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.

*N* 38.6.2.4.3 Gas detection systems shall be provided with constant noninterlocked power.

*N* 38.6.2.5 Protection. An automatic suppression system shall be provided within hoods or enclosures, including ductwork, in accordance with the following:

- (1) An automatic water sprinkler system that meets all applicable requirements of NFPA 13
- (2) A carbon dioxide extinguishing system that meets all applicable requirements of NFPA 12
- (3) A dry chemical extinguishing system that meets all applicable requirements of NFPA 17
- (4) A gaseous agent extinguishing system that meets all applicable requirements of NFPA 2001

*N* 38.6.2.6 Storage. LPG containers not in use shall not be stored within extraction rooms.

*N* 38.6.2.7 Facility Piping Systems. LPG liquid piping systems shall be in compliance with NFPA 58.

*N* 38.6.3 Flammable and Combustible Liquid Extraction.

*N* 38.6.3.1 General. Marijuana extraction facilities using flammable and combustible liquid solvents shall comply with 38.6.1 and 38.6.3.

*N* 38.6.3.2 Exhaust.

*N* 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:

- (1) A chemical fume hood in accordance with Chapter 7 of NFPA 45
- (2) An approved exhaust system installed in accordance with NFPA 91 or the mechanical code

*N* 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.

*N* 38.6.3.2.3 Classified electrical systems shall be in accordance with NFPA 70.

*N* 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.

*N* 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.

*N* 38.6.3.4 Heating of flammable or combustible liquids over an open flame shall be prohibited.

*N* 38.6.4 Carbon Dioxide Extraction.

*N* 38.6.4.1 General. Marijuana extraction facilities using carbon dioxide solvents shall comply with 38.6.1 and 38.6.4.

*N 38.6.4.2 Storage and Handling.* All CO<sub>2</sub> compressed gas cylinders shall be secured to a fixed object to prevent falling.

*N 38.6.4.3 CO<sub>2</sub> Gas Detection.*

*N 38.6.4.3.1* An approved, listed CO<sub>2</sub> detector shall be installed in the CO<sub>2</sub> extraction room.

*N 38.6.4.3.2* Auto calibrating and self-zeroing devices or detectors shall be prohibited.

*N 38.6.4.3.3* The detector shall be set to alarm at 5000 ppm of CO<sub>2</sub>.

*N 38.6.4.4\* CO<sub>2</sub> Discharges.* The extraction equipment pressure relief devices and blow-off valves shall be piped to the exterior of the building.

*N 38.7\* Transfilling.* Filling LPG extraction equipment supply containers shall be in compliance with 69.3.5, 69.4.2, and NFPA 58.

## Chapter 39 Reserved

## Chapter 40 Dust Explosion and Fire Prevention

**Δ 40.1 Application.** Equipment, processes, and operations that involve the manufacture, processing, blending, repackaging, or handling of combustible particulate solids or combustible dusts regardless of concentration or particle size shall be installed and maintained in accordance with this chapter.

*N 40.1.1* All facilities and operations that manufacture, process, blend, convey, repackage, generate, or handle combustible dusts or combustible particulate solids shall be in compliance with NFPA 652 and, as applicable, NFPA 61, NFPA 69, NFPA 85, NFPA 120, NFPA 484, NFPA 654, NFPA 655, and NFPA 664.

**40.2 Permits.** Permits, where required, shall comply with Section 1.12.

*N 40.3 Retroactivity.* This chapter shall apply to new and existing facilities and processes. [652:9.1]

*N 40.3.1* Existing facilities shall perform a dust hazards analysis (DHA) in accordance with Chapter 7 of NFPA 652.

*N 40.4\* General.* The procedures and training in this chapter shall be delivered in a language that the participants can understand. [652:9.2]

***N 40.5 Operating Procedures and Practices.***

*N 40.5.1\** The owner/operator shall establish written procedures for operating its facility and equipment to prevent or mitigate fires, deflagrations, and explosions from combustible particulate solids. [652:9.3.1]

*N 40.5.2\** The owner/operator shall establish safe work practices to address hazards associated with maintenance and servicing operations. [652:9.3.2]

*N 40.5.2.1* The safe work practices shall apply to employees and contractors. [652:9.3.2.1]

***N 40.6 Inspection, Testing, and Maintenance.***

*N 40.6.1\** Equipment affecting the prevention, control, and mitigation of combustible dust fires, deflagrations, and explo-

sions shall be inspected and tested in accordance with the applicable NFPA standard and the manufacturers' recommendations. [652:9.4.1]

*N 40.6.2* The inspection, testing, and maintenance program shall include the following:

- (1) Fire and explosion protection and prevention equipment in accordance with the applicable NFPA standards
  - (2) Dust control equipment
  - (3) Housekeeping
  - (4) Potential ignition sources
  - (5)\* Electrical, process, and mechanical equipment, including process interlocks
  - (6) Process changes
  - (7) Lubrication of bearings
- [652:9.4.2]

*N 40.6.3* The owner/operator shall establish procedures and schedules for maintaining safe operating conditions for its facility and equipment in regard to the prevention, control, and mitigation of combustible dust fires and explosions. [652:9.4.3]

*N 40.6.4\** Where equipment deficiencies that affect the prevention, control, and mitigation of dust fires, deflagrations, and explosions are identified or become known, the owner/operator shall establish and implement a corrective action plan with an explicit deadline. [652:9.4.4]

*N 40.6.5\** Inspections and testing activities that affect the prevention, control, and mitigation of dust fires, deflagrations, and explosions shall be documented. [652:9.4.5]

*N 40.6.6* A thorough inspection of the operating area shall take place on an as-needed basis to help ensure that the equipment is in safe operating condition and that proper work practices are being followed. [652:9.4.6]

***N 40.7 Training and Hazard Awareness.***

*N 40.7.1\** Employees, contractors, temporary workers, and visitors shall be included in a training program according to the potential exposure to combustible dust hazards and the potential risks to which they might be exposed or could cause. [652:9.5.1]

*N 40.7.2\** General safety training and hazard awareness training for combustible dusts and solids shall be provided to all affected employees. [652:9.5.2]

*N 40.7.2.1\** Job-specific training shall ensure that employees are knowledgeable about fire and explosion hazards of combustible dusts and particulate solids in their work environment. [652:9.5.2.1]

*N 40.7.2.2* Employees shall be trained before taking responsibility for a task. [652:9.5.2.2]

*N 40.7.2.3\** Where explosion protection systems are installed, training of affected personnel shall include the operations and potential hazards presented by such systems. [652:9.5.2.3]

*N 40.7.3* Refresher training shall be provided as required by the AHJ and as required by other relevant industry- or commodity-specific NFPA standards. [652:9.5.3]

*N 40.7.4* The training shall be documented. [652:9.5.4]