

SECTION 3801—ADMINISTRATION

3801.1 Scope. Marijuana processing or extraction facilities shall comply with this chapter and the International Building Code. The extraction process includes the act of extraction of the oils and fats by use of a solvent, desolventizing of the raw material and production of the miscella, distillation of the solvent from the miscella and solvent recovery. The use, storage, transfilling, and handling of hazardous materials in these facilities shall comply with this chapter, other applicable provisions of this code and the International Building Code.

3801.2 Application. The requirements set forth in this chapter are requirements specific only to marijuana processing and extraction facilities and shall be applied as exceptions or additions to applicable requirements set forth elsewhere in this code.

3801.3 Multiple hazards. Where a material, its use or the process it is associated with poses multiple hazards, all hazards shall be addressed in accordance with Section 5001.1 and other material specific chapters.

3801.4 Existing building or facilities. Existing buildings or facilities used for the processing of marijuana shall comply with this chapter. Existing buildings or facilities used for marijuana

extraction shall comply with the requirements of this chapter by July 1, 2016.

3801.5 Permits. Permits shall be required as set forth in Section 105.6 and 105.7.

SECTION 3802—DEFINITIONS

Marijuana extraction facility (MEF): A building used for the solvent-based extraction process of marijuana.

Marijuana extraction equipment (MEE): Equipment or appliances used for the extraction of botanical material such as essential oils, from marijuana.

Marijuana extraction room (MER): The room or space in which the solvent-based extractions occur.

Finding: The results of an inspection, examination, analysis or review.

Observation: A practice or condition not technically noncompliant with other regulations or requirements, but could lead to noncompliance if left unaddressed.

Desolventizing: The act of removing a solvent from a material.

Miscella: A mixture, in any proportion, of the extracted oil or fat and the extracting solvent.

Transfilling: The process of taking a gas source, either compressed or in liquid form (usually in bulk containers), and transferring it into a different container (usually a smaller compressed cylinder).

SECTION 3802—PROCESSING OR EXTRACTION OF MARIJUANA

3802.1 Location. Marijuana processing shall be located in a building complying with the International Building Code and this code. The marijuana extraction process shall be located in a room dedicated to the extraction process. The extraction room shall not be used for any other purpose including storage.

3802.2 Staffing. The extraction process shall be continuously staffed by personnel trained in the extraction process, the transfer of LP-gas where applicable, and all emergency procedures. All staff training records shall be maintained on-site by the owner and made available upon request from the fire code official.

3802.3 Systems, equipment and processes. Systems, equipment, and processes shall be in accordance with Sections 3802.3.1 through 3802.3.3.7.

3802.3.1 Application. Systems, equipment and processes shall include, but are not limited to, vessels, chambers, containers, cylinders, tanks, piping, tubing, valves, fittings, and pumps.

3802.3.2 General requirements. In addition to the requirements in Section 3802, systems, equipment and processes shall also comply with Section 5003.2, other applicable provisions of this code, the International Building Code, and the International Mechanical Code.

3802.3.3 Additional requirements for marijuana extraction. In addition to the requirements of Section 3802.3, marijuana extraction systems, equipment and process shall comply with this section.

3802.3.3.1 General requirements. The requirements set forth in Section 5003.2 shall apply to vessels, chambers, containers, cylinders, tanks, piping, tubing, valves, fittings, and pumps used in the extraction process. The use of ovens in post-process purification or winterization shall comply with Section 3802.3.3.7.

3802.3.3.2 Systems and equipment. Systems or equipment used for the extraction of marijuana/cannabis oils from plant material shall be listed for the specific use. If the system used for extraction of marijuana/cannabis oils and products from plant material is not listed, then the system shall have a designer of record. If the designer of record is not a licensed Washington professional engineer, then the system shall be peer reviewed by a licensed Washington professional engineer. In reviewing the system, the licensed professional engineer shall review and consider any information

provided by the system's designer or manufacturer. For systems and equipment not listed for the specific use, a technical report documenting the design or peer review as outlined in Section 3802.3.3.4.2 shall be prepared and submitted to the fire code official for review and approval for systems and equipment used for the extraction of marijuana/cannabis oils and products from plant material. The firm or individual performing the engineering analysis for the technical report shall be approved by the fire code official prior to performing the analysis.

3802.3.3.3 Change of extraction medium. 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, submitted for review and approval by the fire code official prior to the use of the equipment with the new medium or solvent. If the original engineer of record is not available, then new engineer of record shall comply with Section 3802.3.3.4.1.

3802.3.3.4 Required technical report. The technical report documenting the design or peer review shall be submitted for review and approval by the fire code official prior to the equipment being located or installed at the facility.

3802.3.3.4.1 Approval of the engineer of record. Where a technical report is required to be submitted for review and approval by the fire code official to meet the requirements of 3802.3.3.2, the following actions shall occur:

1. Prior to submittal of the technical report, the engineer shall submit educational background and professional experience specific to the review and approval of system, equipment and processes with like hazards of those associated with the marijuana extraction system to the fire code official.

2. Once the proof of qualifications are found acceptable by the fire code official, the engineer of record shall produce the technical report and the report shall be signed and sealed in accordance with Washington state requirements.

The proof of qualifications shall include documentation indicating the person is a professional engineer licensed in Washington state.

3802.3.3.4.2 Content of technical report and engineering analysis.

All, but not limited to, the items listed below shall be included in the technical report.

1. Manufacturer information.
2. Engineer of record information.

3. Date of review and report revision history.

4. Signature page shall include:

a. Author of the report;

b. Date of report;

c. Seal, date and signature of engineer of record performing the design or peer review; and

d. Date, signature, and stamp of the professional engineer performing the engineering document review of the report. The engineering document review cannot be performed by the authoring engineer.

5. Model number of the item evaluated. If the equipment is provided with a serial number, the serial number shall be included for verification at time of site inspection.

6. Methodology of the design or peer review process used to determine minimum safety requirements. Methodology shall consider the basis of design, and shall include a code analysis and code path to demonstrate the reason as to why specific code or standards are applicable or not.

7. Equipment description. A list of every component and subassembly (clamp, fittings, hose, quick disconnects, gauges, site glass, gaskets, valves, pumps, vessels, containers, switches, etc.) of

the system or equipment, indicating the manufacturer, model number, material, and solvent compatibility. Vendor cut sheets shall be provided.

8. A general flow schematic or general process flow diagram (PFD) of the process. Post-processing or winterization may be included in this diagram. All primary components of the process equipment shall be identified and match the aforementioned list. Operating temperatures, pressures, and solvent state of matter shall be identified in each primary step or component. A piping and instrumentation diagram (PID or PI&D) may be provided but is not required.

9. Analysis of the vessel(s) if pressurized beyond standard atmospheric pressure. Analysis shall include purchased and fabricated components.

10. Structural analysis for the frame system supporting the equipment.

11. Process safety analysis of the extraction system, from the introduction of raw product to the end of the extraction process.

12. Comprehensive process hazard analysis considering failure modes and points of failure throughout the process. This portion of the review should include review of emergency procedure information

provided by the manufacturer of the equipment or process and not that of the facility, building or room.

13. Review of the assembly instructions, operational and maintenance manuals provided by the manufacturer.

14. Report shall include findings and observations of the analysis.

15. List of references used in the analysis.

3802.3.3.5 Building analysis. If the technical report, or manufacturers literature indicate specific requirements for the location, room, space or building, where the extraction process is to occur, the engineer of record, as approved in 3802.3.3.4.1 shall review the construction documents of such location, room, space or building and provide a report of their findings and observations to the fire code official.

Analysis shall include:

1. Process safety analysis of the entire process from raw material to finished product.

2. Comprehensive process hazard analysis considering failure modes and points throughout the process. Should include review of emergency procedures as related to the equipment or process, and the facility.

3802.3.3.6 Site inspection. Prior to operation of the extraction equipment, if required by the fire code official, the engineer of record, as approved in 3802.3.3.4.1 shall inspect the site of the extraction process once equipment has been installed for compliance with the technical report and the building analysis. The engineer of record shall provide a report of findings and observations of the site inspection to the fire code official prior to the approval of the extraction process. The field inspection report authored by engineer 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.

3802.3.3.7 Post-process purification and winterization. Post-processing and winterization involving the heating or pressurizing of the miscella to other than normal pressure or temperature shall be approved and performed in an appliance listed for such use. Domestic or commercial cooking appliances shall not be used. The use of industrial ovens shall comply with Chapter 30.

EXCEPTION: An automatic fire extinguishing system shall not be required for batch-type Class A ovens having less than 3.0 cubic feet of work space.

3802.4 Construction requirements.

3802.4.1 Location. Marijuana extraction shall not be located in any building containing a Group A, E, I or R occupancy.

3802.4.1.1 Extraction room. The extraction equipment and extraction process shall be located in a room dedicated to extraction.

3802.4.2 Egress. Each marijuana extraction room shall be provided with at least one exit, swinging in the direction of travel provided with an automatic closer and panic hardware.

3802.4.2.1 Facility egress. The marijuana extraction room shall not enter directly into an exit, exit passageway, horizontal exit or along the sole egress path from another portion of the building.

3802.4.3 Ventilation. Each marijuana extraction room shall be provided with a dedicated hazardous exhaust system complying with Section 5004.3 for all solvents other than water. The operation of the hazardous exhaust system shall be continuous.

3802.4.4 Control area. Each marijuana extraction room shall be considered a single control area and comply with Section 5003.8.3.

3802.4.5 Ignition source control. Extraction equipment and extraction processes using a hydrocarbon-based liquid or gas solvent shall be provided with ventilation rates for the room to maintain the concentration of flammable constituents in air below 25% of the lower flammability limit of the respective solvent. If not provided with the required ventilation rate, then Class I Division II electrical requirements shall apply to the entire room.

3802.4.6 Interlocks. All electrical components within the extraction room shall be interlocked with the hazardous exhaust system and when provided, the gas detection system. When the hazardous exhaust system is not operational, then light switches and electrical outlets shall be disabled. Activation of the gas detection system shall disable all light switches and electrical outlets.

3802.4.7 Emergency power.

3802.4.7.1 Emergency power for extraction process. Where power is required for the operation of the extraction process, an automatic emergency power source shall be provided. The emergency power source shall have sufficient capacity to allow safe shutdown of the extraction process plus an additional 2 hours of capacity beyond the shutdown process.

3802.4.7.2 Emergency power for other than extraction process. An automatic emergency power system shall be provided for the following items when installed.

3802.4.7.2.1 Required electrical systems.

1. Extraction room lighting;
2. Extraction room ventilation system;
3. Solvent gas detection system;
4. Emergency alarm systems;

5. Automatic fire extinguishing systems.

3802.4.8 Continuous gas detection system. For extraction processes utilizing gaseous hydrocarbon-based solvents, a continuous gas detection system shall be provided. The gas detection threshold shall be no greater than 25% of the LEL/LFL limit of the materials.

3802.4.9 Liquefied-petroleum gases shall not be released to the atmosphere.

3802.5 Carbon dioxide enrichment or extraction. Extraction processes using carbon dioxide shall comply with the section.

3802.5.1 Scope. Carbon dioxide systems with more than 100 pounds of carbon dioxide shall comply with Sections 3802.5 through 3802.5.8. This section is applicable to carbon dioxide systems utilizing compressed gas systems, liquefied-gas system, dry ice, or on-site carbon dioxide generation.

3802.5.2 Permits. Permits shall be required as set forth in Section 105.6 and 105.7.

3802.5.3 Equipment. The storage, use, and handling of liquid carbon dioxide shall be in accordance with Chapter 54 and the applicable requirements of NFPA 55, Chapter 13. Insulated liquid carbon dioxide system shall have pressure relief devices in accordance with NFPA 55.

3802.5.5 Protection from damage. Carbon dioxide systems shall be installed so the storage tanks, cylinders, piping and fittings are protected from damage by occupants or equipment during normal facility operations.

3802.5.7 Signage. At the entrance to each area using or storing carbon dioxide, signage shall be posted indicating the hazard. Signs shall be durable and permanent in nature and not less than 7 inches wide by 10 inches tall. Signs shall bear the "skull and crossbones" emblem with the warning "DANGER! POTENTIAL OXYGEN DEFICIENT ATMOSPHERE." NFPA 704 signage shall be provided at the building main entry and the rooms where the carbon dioxide is used and stored.

3802.5.8 Ventilation. Mechanical ventilation shall be in accordance with the International Mechanical Code and shall comply with all of the following:

1. Mechanical ventilation in the room or area shall be at a rate of not less than 1 cubic foot per minute per square foot.
2. The exhaust system intake shall be taken from a point within 12 inches of the floor.
3. The ventilation system shall be designed to operate at a negative pressure in relation to the surrounding area.

3802.6 Flammable or combustible liquid. The use of a flammable or combustible liquid for the extraction of oils and fats from marijuana shall comply with this section.

3802.6.1 Scope. The use of flammable and combustible liquids for liquid extraction process where the liquid is boiled, distilled, or evaporated shall comply with this section and NFPA 30.

3802.6.2 Location. The process using a flammable or combustible liquid shall be located within a hazardous exhaust fume hood, rated for exhausting flammable vapors. Electrical equipment used within the hazardous exhaust fume hood shall be rated for use in flammable atmospheres. Heating of flammable or combustible liquids over an open flame is prohibited.

Exception: The use of a heating element not rated for flammable atmospheres may be approved where documentation from the manufacturer or an approved testing laboratory indicates is it rated for heating of flammable liquids.