Chapter 38

Marijuana Growing, Processing or Extraction Facilities

**3801.1 Scope**. Marijuana growing, 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 growing, 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 buildings, existing processing, and extraction areas.** Existing buildings, growing facilities, processing areas, and extraction areas, shall comply with this chapter.

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

SECTION 3802

DEFINITIONS

**Marijuana extraction facility (MEF):** a building ~~or portion thereof~~ used for the solvent-based extraction process of marijuana. ~~This includes portion of the facilities that are exterior to a building or outside.~~

**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 ~~is above 70 degrees or pressurized above 1atm after the solvent has been discharged from its original container~~ –based extractions occur.

**~~Marijuana extraction area (MEA):~~** ~~The room or area in which the solvent-based extractions occur.~~ (REMOVED DUE TO REQUIREMENT FOR EXTRACTION PROCESS TO OCCUR IN A ROOM LATER IN DOCUMENT)

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

**Finding:** the results of an inspection, examination, analysis or review that could adversely affect safety as related to products, persons or property; or impact the usability of the product. SUGGESTED REVISION

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

**Observation:** a recommendation for process or design improvements, but does not adversely affect the safety of the system. SUGGESTED REVISION

**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 3803

GROWING OR PRODUCTION OF MARIJUANA

**3803.1 Controlled egress or access.** Egress doors, whether access-controlled or electromagnetically locked egress doors shall comply with the respective section of Chapter 10 of the International Building Code.

**3803.2 Ventilation for light fixtures.** Light fixture ductwork shall be installed in accordance with manufacturer and International Mechanical Code.

**3803.3 Odor control.** The use of ozone generators used for odor control shall be in accordance with Section 6005.

**3803.4 Interior Finish.** The use of any plastic including mylar or panda sheeting to enclose rooms or cover any walls or ceilings must be installed in accordance with the International Building Code and this code. If plastic materials are used, the material shall have a flame spread of less than 200, and a smoke development index of less than 450. The hanging of plastic from ceiling or from suspended overhead structures to create wall dividers is not allowed.

**3803.5 Fumigation.** Any marijuana growing, processing, extraction or retail facility that is fumigated shall comply with Chapter 26 in addition to the following requirements. Fumigation for marijuana facilities includes the production or use of sulfur dioxide.

**3803.5.1 Usage warning signs.** Where fumigants and thermal insecticidal fogging products are used, approved warning signs bearing the “skull and crossbones” emblem with the warning “DANGER! POISON GAS! KEEP OUT!” shall be posted. Such signage shall be posted at all doors and enterances to the premises ionluding interior rooms and areas, and along the exterior wall of the building or tenant space being fumigated at not less than 25 foot intervals. Such signage shall not be less than 7 inches in width and not less than 10 inches in height.

**3803.5.2 Warning signs.** 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.

**3803.5.3 Description and duration of posting.** Signage shall be located at the exterior main entry and at the entries to those area being fumigated indicating the duration of the fumigation. Signage shall indicate the following information, written in English as the primary language, red lettering on a white background, and with the lettering height as described:

1. The date and time of the operation in lettering not less than 2 inches in height.
2. Type of chemical involved in lettering of not less than 1 inch.
3. Necessary precautions for the chemical used.
4. The name and address of the person responsible for the fumigation in lettering of not less than 1 inch in height.
5. A warning stating the occupied premises shall be vacated at least one (1) hour prior to beginning of operation and shall not be reentered until danger signs have been removed by the responsible party, in lettering of not less than 2 inches in height.

3803.6 Use of carbon dioxide for growing operations. Growing operations utilizing carbon dioxide shall comply with Section 3804.4.

**SECTION 3804**

**PROCESSING OR EXTRACTION OF MARIJUANA**

**3804.1 Location.** Marijuana processing shall be located in a building complying with the International Building Code and this code. The ~~location of~~ marijuana extraction process shall be located ~~within a building and~~ in a room dedicated to the extraction process. The extraction room shall not be used for any other purpose including storage.

**3804.2 Staffing.** The extraction process shall be continuously staffed by personnel train~~ing~~ed in the extraction process, the transfer of LP-gas where applicable, and all emergency procedures. All ~~Records of~~ staff training records ~~on both the extraction process and associated emergency procedures~~ shall be maintained on-site by the owner and made available upon request from the fire code official.

**3804.3 Systems, equipment and processes.** Systems, equipment, and processes shall be in accordance with Sections 3804.3.1 through 3804.3.3.6

**3804.3.1 Application.** Systems, equipment and processes shall include, but are not ~~no~~ limited to vessels, chambers, containers, cylinders, tanks, piping, tubing, valves, fittings, and pumps ~~and ovens~~.

**3804.3.2 General requirements.** In addition to the requirements in Section 3804 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.

**3804.3.3 Additional requirements for Marijuana Extraction.** In addition to the requirements of Section 3804.3, marijuana extraction systems, equipment and process shall comply with this section.

**3804.3.3.1 General requirements.** The requirements set forth in Section 5003.2 shall apply to vessels, chambers, containers, cylinders, tanks, piping, tubing, valves, fittings, and pumps~~, and ovens~~ used in the extraction process. The use of ovens in post-process purification or winterization shall comply with Chapter 30. ~~Section X.X.~~ Chapter 30 REFERS TO INDUSTRIAL OVENS

**3804.3.3.2 Systems and equipment.** 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 for the specific use. If the system used for extraction of marijuana/cannabis oils and products from plant material is not listed, then 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. A technical report documenting the design or peer review as outlined in 3804.3.3.3 ~~as detailed below~~ 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 that is not listed for the specific use. The firm or individual performing the performing the engineering analysis for the technical report shall be approved by the fire code official prior to performing the analysis.

**3804.3.3.2 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 3804.3.3.3.1.

**3804.3.3.3 Required technical report.** The technical report documenting the design or peer review shall be submitted for review and approval by the local fire code official prior to the equipment being located or installed at the facility.

**3804.3.3.3.1 Approved 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 3803.3.3.2, the following items 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.

**3804.3.3.3.2 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:
   1. Author of the report
   2. Date of report
   3. Seal, date and signature of engineer of record performing the design or peer review.
   4. Date and signature of the engineer performing the engineering check of the report. The engineering check cannot be performed by the authoring engineer.
5. Model ~~and serial~~ 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 ~~engineering technical~~ peer review ~~of the~~ process used ~~and equipment design 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 schematic or process flow diagram of the process. The diagram shall start at the raw product introduced into the extraction process and cover one complete evolution of the entire 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. MAY BE ALTERED TO PROTECT OEM DESIGNS
9. Analysis of the vessel(s) if pressurized beyond ~~exposed to pressure other than~~ 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 ~~entire process from raw material to finished produc~~t.
12. Comprehensive process hazard analysis considering failure modes and points of failure throughout the process. This portion of the review should ~~Should~~ include review of emergency procedures as related to the equipment or process and not 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.

**3804.3.3.4 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 **3804.3.3.3.1** 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.*

**3804.3.3.5 Site Inspection.** Prior to operation of the extraction equipment, if required by the fire code official, the Engineer of Record, as approved **3804.3.3.3.1** 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. T*he 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.*

**3804.3.3.6 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.

**3804.3.3 Construction requirements**

**3804.3.3.1 Location.** Marijuana extraction shall not be located in any building containing a Group A, E or I occupancy.

**3804.3.3.1.1 Extraction room.** The extraction equipment and process shall be located in a room dedicated to extraction.

**3804.3.3.2 Egress.** Each marijuana extraction room shall be provided with at least one exit, swinging in the direction of travel, ~~and~~ provided with an automatic closure and panic hardware.

**3804.3.3.2.1 Facility egress.** The marijuana extraction room shall not ~~be~~ enter directly into an exit, exit passageway, horizontal exit~~, located along an exit,~~ or along the sole egress path from another portion of the building ~~unless separated from the exit in accordance with the International Building Code.~~

**3804.3.3.3 Ventilation.** Each marijuana extraction room shall be provided with a dedicated hazardous exhaust ~~ventilation~~ system~~s~~ complying with Section 5004.3 for all solvents other than water. The operation of the hazardous exhaust system shall be continuous.

**3804.3.3.4 Control area.** Each marijuana extraction room shall be considered a single control area and comply with Section 5003.8.3.

**3804.3.3.5 Ignition source control ~~Electrical Requirements~~.** Extraction equipment and 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. ~~Electrical equipment within the extraction room shall be Class I, Division 2 and shall be installed in accordance with Washington State electrical code.~~

**3804.3.3.6 Interlocks.** All electrical components within the extraction room shall be interlocked with the hazardous exhaust system, and the gas detection system ~~if provided~~. 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 ~~The marijuana extraction equipment shall be interlocked such that the equipment will not operate unless the ventilation provisions of this chapter are operating.~~

**3804.3.3.7 Emergency power**

**3804.3.3.7.1 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. REVISED AND CLARIFYING EMERGENCY POWER REQUIREMENT. NOT ALL EXTRACTION PROCESSES USE POWER.

**3804.3.3.7.2 Emergency power for other than extraction process.** An emergency power system shall be provided for the following items when installed. REVISED EMERGENCY POWER AND CLARIFY FOR SPECIFIC SYSTEM WHEN INSTALLED.

**3804.3.3.7.2.1 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.

**3804.3.3.8 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. ~~The gas detection system shall be interlocked with the equipment so as to shut down the equipment is activated.~~

**~~3804.3.3.9 Fire protections systems.~~** ~~The marijuana extraction room shall be provided with an automatic fire extinguishing system, and a manual and automatic fire detection system. The fire extinguishing system shall be installed in accordance with Section 903.2.5 and in accordance with the solvent used in the process. The fire detection system shall be installed in accordance with Section 907.2.5 and in accordance with the solvent used in the process. Notification of the operation of either fire protection system shall activate the occupant notification system throughout the building.~~

**3804.3.3.10** Liquefied petroleum gases shall not be released to the atmosphere.

**3804.4 Carbon dioxide enrichment.** Extraction processes using carbon dioxide shall comply with the section.

**3804.4 Scope**. Carbon dioxide systems with more than 100 pounds of carbon dioxide shall comply with Sections 3804.4 through 3804.4.8. This Section is applicable to carbon dioxide systems utilizing compressed or liquefied system or on-site carbon dioxide generation. The use of dry ice shall comply with this section. Carbon dioxide systems shall not produce a concentration level of greater than 1,500 ppm.

**3804.4.1 Permits**. Permits shall be required as set forth in Section 105.6

**3804.4.2 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.

**3804.4.3 Carbon dioxide generation:** Appliances used for generation of carbon dioxide shall comply with the International Mechanical Code as a non-vented fuel-fired appliance.

**3804.4.4 Protection from damage.** Carbon dioxide systems shall be installed so the storage tanks, cylinders, pipi*n*g and fittings are protected from damage by occupants or equipment during normal facility operations.

**3804.4.4.1 Required protection.** Where carbon dioxide storage tanks, cylinders, piping and equipment are located indoors, rooms or areas containing carbon dioxide storage tanks, cylinders, piping and fittings and other areas where a leak of carbon dioxide can collect shall be provided with either ventilation in accordance with Section 3804.4.7 and an emergency alarm system in accordance with Section 3804.4.8.

**3804.4.5 Carbon dioxide systems.** Equipment, meters or gauges, shall be provided in each area where carbon dioxide is used or stored to indicate the level of carbon dioxide. The meters or gauges shall be calibrated and inter-connected to the gas supply solenoids located at the storage container or generator to limit a maximum level of carbon dioxide to not more than 1,500 ppm.

**3804.4.5.1 Carbon dioxide system valving.** The carbon dioxide system shall be provided with valves, located at the point of storage or generation, and that positively close in the event of loss of power, or in the event of an alarm activation. The valves shall be manually reset.

**3804.4.5.2 Carbon dioxide system piping**. The piping system used to distribute the carbon dioxide within the building shall be of an approved type. Piping shall be label in accordance with 5303.4.3. All shutoff valving of the piping system shall be labeled as such.

**3804.4.5.3 Pressure relief systems.** Pressure relief devices shall be vented to the exterior of the building.

**3804.4.6 SIGNAGE**. At the entrance to each area using or storing carbon dioxide, signage shall be posted indicating the hazard. Sign shall be durable and permanent in nature and not less than 7 inches wide by 10 inches tall. Sign 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.

**3804.4.7 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. Exhaust 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.

**3804.4.8 Emergency alarm system.** A carbon dioxidedetection system shall be provided in each area where carbon dioxide is used and or stored. The emergency alarm system shall comply with all of the following:

1. Continuous gas detection shall be provided to monitor areas where carbon dioxide can accumulate.
2. The threshold for activation of an alarm shall not exceed 1,500 parts per million.
3. Activation of the emergency alarm system shall initiate a local alarm within the room or area in which the system is installed.

**3804.5 Flammable or combustible liquid**. The use of a flammable of combustible liquid for the extraction of oils and fats from marijuana shall comply with this section.

**3804.5.1 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 of NFPA 30.

**3804.5.2 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.