Amendment to Chapter 128 Fire Prevention Adding Article X of the City of Sanford Code. Part of City Council Order #: 18-553-01 adopted on 3/5/2019.

Chapter 128. Fire Prevention

Article X. Medical Marijuana Operations

§ 128-33. In general.

A. Scope. This article shall apply to all occupancies engaging in marijuana (i.e. cannabis and extract derivatives), growing, processing, extraction, and/or testing. These occupancies shall comply with this chapter and other applicable provisions of this Code.

B. Permits. Permits shall be required as set forth in this article and in accordance with Sanford Fire Department Policy.

C. Pursuant to 30-A M.R.S.A. § 3003, NFPA 1, Uniform Fire Code, 2018 edition, Chapters 38, 60, 63, 66, as amended in this Article are adopted by reference.

D. Buildings containing existing growing or extraction operations shall comply with this Code by 24 months after this Code is adopted.

E. The structure where marijuana is grown, cultivated, and/or processed shall be constructed of building materials approved by the Code Enforcement Officer and Fire Chief, or their designees. If the structure is 6,000 square feet or larger, it shall be required to include a compliment, NFPA fire sprinkler system approved by the Sanford Fire Marshal.

F. Any building used for sale of marijuana in any form shall have a compliment, NFPA fire sprinkler system and fire alarm approved by the Sanford Fire Marshal.

§ 128-34. Chemical fume hood extraction; post oil processing; extraction operations

A. Construction Requirements.

(1) Location. Extraction processes shall be performed in a room dedicated to the extraction process.

(2) Exit doors from extraction rooms utilizing hazardous materials shall swing in the direction of egress and be self-closing. Panic hardware shall be provided on doors in liquefied petroleum gas (LPG) extraction rooms. Where latching door hardware is provided on extraction rooms utilizing hazardous materials, panic hardware shall be provided.

(3) Extraction Rooms. Extraction room shall be fully enclosed. The floor, ceiling, and walls of extraction rooms shall be constructed in accordance with NFPA Type 1 or 2 building and be continuous, non-combustible, and smooth. Rooms designed shall be constructed to permit the free passage of exhaust air from all parts of the room. All extraction rooms shall be on the ground floor. Exception: CO2 extraction rooms and extraction rooms containing processes not utilizing hazardous materials.

(4) Openings and penetrations. Openings and penetrations into extraction rooms utilizing hazardous materials shall only be provided for egress, mechanical, electrical, or plumbing systems serving the extraction room. Penetrations into LPG extraction rooms shall be sealed vapor tight. Non-operable glazing is permitted where glazing does not interfere with required exhaust systems.

(5) Extraction room illumination. Luminaires inside the extraction room shall comply with § 116-20 as a Class I Division I location. Luminaires attached to the walls or ceilings of an extraction room or booth, but outside of any classified area and separated from the flammable vapor areas by vapor-tight glass panels, shall be

suitable for use in ordinary hazard locations. Such luminaires shall be serviced from outside the flammable vapor areas.

(6) Fire protection. Extraction rooms, booths, or hoods, including ductwork where required for hazardous exhaust systems, shall be protected by an approved automatic fire extinguishing system where any of the following exist:

(a) Extraction processes utilizing LPG or off gassing LPG from spent plant material or oil.

(b) Vapors are released exceeding 25% of the lower flammable limit from flammable liquid extraction processes or flammable liquid post oil processing.

(c) All building housing extraction operations shall have a compliment, NFPA fire sprinkler system and fire alarm approved by the Sanford Fire Marshal.

(7) Sources of ignition. Extraction or post oil processing operations which use flammable liquids or liquefied petroleum gas (LPG) shall comply with this Article and § 116-20.

B. Open flame and sparks. Smoking, open flames, direct fired heating devices, etc. shall be prohibited in areas where flammable vapors exist.

C. Electrical equipment. Electrical equipment installed in rooms designed in accordance with § 128-34I. Electrical Interlocks; hoods, or booths containing LPG extraction processes shall be in accordance with § 116-20 as a Class I Division I location. Areas adjacent to classified locations shall be wired in accordance with § 116-20. Electrical equipment installed in areas of flammable liquid extractions or post oil processing shall be in accordance with this Article, and § 116-20. Exception: Subject to approval of the Sanford Fire Marshal, rooms or booths containing LPG extraction equipment that is not normally opened within the room or booth for oil or plant material retrieval, and frequent leakage in the closed system does not occur, may be considered a Class I Division II location.

D. Grounding and Bonding. Precautions shall be taken within LPG extraction rooms to minimize the possibility of ignition by static electrical sparks through static bonding and grounding of extraction equipment, ducts, and piping etc. installed in accordance with § 116-20.

E. Equipment. Extraction process equipment utilizing hazardous materials shall be listed or approved by the Sanford Fire Marshal.

F. Exhaust required. Extraction and post oil processing, utilizing LPG or flammable liquids shall be provided with an exhaust system. The exhaust system shall be in operation at all times when extractions or post oil processing is being performed and until LPG is off gassed from oil and/or plant material removed from LPG extraction equipment. Fans shall be of the type approved for use when flammable or explosive vapors are present and shall be UL listed for flammable and explosive vapors and approved by the Sanford Fire Marshall. Capture and containment air velocity shall be provided across booths, hoods, or exhausted enclosures to capture and convey emissions to the exhaust system and shall be no less than 75 fpm.

G. Exhaust for LPG extraction processes. A hazardous exhaust system engineered by a Fire Protection Engineer shall be provided for LPG extraction processes including LPG degassing from processed plant material or oil removed from extraction equipment.

H. Electrical Interlocks. The exhaust system shall be interlocked with the room power, such that when the exhaust system is not operating, power and lighting will be disabled.

I. Exhaust for Flammable Liquid Extraction processes. A hazardous exhaust shall be provided for flammable liquid extraction processes.

J. Gas Detection. A continuous gas detection system shall be provided within rooms, booths or hoods, containing CO2 or LPG extraction processes. Actuation of the gas detection system shall initiate a local alarm within the room. CO2 gas detection systems shall alarm at 5000ppm. LPG gas detection systems shall alarm at no greater than 20% of the LFL. Portable LPG gas detection shall be utilized by the extraction system operator to verify local hydrocarbon levels, including system leaks.

K. Extraction Equipment Process Discharge. CO2 discharges shall be piped to the exterior.

L. All extraction, and/or testing equipment must have a stamped letter from a Mechanical Engineer and a Fire Protection engineer that has been approved by the Sanford Fire Marshal's Office.

M. Refrigeration and Cooling Equipment. Refrigerators, freezers, and other cooling equipment used to store or process flammable liquids shall be in accordance with NFPA 45 and be UL listed.

§ 128-35. Marijuana Growing Operations

A. All Grow operation shall be set up in such a way that 3 foot pathway can be maintained at all stages of plant growth.

B. All equipment used in a growing operation shall meet UL listed and the listing provided to the Fire Marshal.

C. All grow operations shall comply with this Article and § 128-25 A.(2), Industrial Occupancy.

§ 128-36. Carbon Dioxide Gas Enrichment Systems Using On-site Supply Tanks and/or Cylinders in Plant Growing (Husbandry) Applications

A. General. Carbon dioxide enrichment systems with more than 100 pounds (45.4 kg) of carbon dioxide or any system using any amount of carbon dioxide (CO2) below grade used in plant growing (husbandry).

B. Equipment. The storage, use, and handling of carbon dioxide shall be in accordance with IFC Chapter 53, as amended, and the applicable requirements of NFPA 55, Chapter 13. All equipment utilized in compressed gas systems shall be compatible with the intended gas and use.

C. Containers, cylinders and tanks. Gas storage containers, cylinders and tanks shall be designed, fabricated, tested and labeled with manufactures' specifications and shall be maintained in accordance with the regulations of DOTn 49 CFR, Parts 100-185 or the ASME Boiler and Pressure Vessel Code, Section VIII.

D. Location. Location of gas storage containers, cylinders and tanks, inside or outside the building, shall be in an approved location By the Sanford Fire Marshal.

(1) Security. Gas storage containers, cylinders and tanks shall be secured in an approved manner to prevent overturning. Containers, cylinders and tanks located outside shall be secured and safeguarded against tampering and protected from physical damage if exposed to vehicle traffic.

(2) Design and construction. Bulk tank installations over 2,000 pounds will require an engineered foundation and construction permit.

E. Piping systems. Piping, tubing, fittings, valves and pressure regulating devices shall be designed and installed in accordance with approved standards and manufacturers' recommendations.

(1) Piping, tubing and hoses. Piping, tubing and hose materials shall be compatible with carbon dioxide and rated for the temperatures and pressures encountered in the system. All hoses and tubing used in carbon dioxide service shall be designed for a bursting pressure of at least four times their design pressure. PVC/ABS and other types of rigid plastic piping are not approved materials. Acceptable piping for carbon dioxide shall be the following:

[1] Stainless steel A269 grade, which is either seamless or welded drawn over mandrel

[2] Copper K grade, hard drawn seamless

[3] Copper ACR grade (1/2 inch outside diameter or less) annealed seamless

[4] Plastic/polymer materials rated for use with carbon dioxide

(2) Support. Gas piping shall not be attached or supported by any electrical light supports or wiring sprinkler or pluming piping.

(3) Identification. Markings for carbon dioxide (CO2) piping systems shall consist of the content's name (carbon dioxide or CO2) and direction-of-flow arrow. Markings shall be provided at each valve; at wall, floor or ceiling penetrations; at each change of direction; and at not less than every 20 feet or fraction thereof throughout the piping run.

(4) Fittings, joints and connections. Fittings, joints and connections shall be subject to the approval of the fire and building departments.

(5) Fittings and joints between gas supply containers and automatic shutoff valve. Joints and fittings on the supply piping or tubing between the CO2 supply source and the automatic system shutoff valve shall be threaded, compression or welded.

(6) Unused connections. Unused piping or tubing connected to the supply system shall be capped or plugged. A closed valve will not be allowed in lieu of a cap or plug.

(7) Concealed connections. All fittings and joints shall be exposed and located adjacent to the supply source or points of use and shall be protected by a detector.

(8) Valves. Piping systems shall be provided with valves and shall comply with the following:

(a) Pressure relief valves. Pressure relief valves shall be provided and piped to the outdoors.

(b) System shutoff valve. An automatic system shutoff valve shall be provided as near to the supply pressure regulator as possible and shall be designed to fail to a closed condition closing on loss of electrical power to the valve and gas detection. Additional automatic shutoff valves may be provided at each point of use. Automatic shutoff valves shall be designed and located so that all phases (i.e., gas, liquid and solid) of carbon dioxide (CO2) will not interfere with the operation of the device.

(c) Appliance shutoff valves. Each appliance shall be provided with a shutoff valve within 3 feet of the appliance. All shutoff valves shall be capable of being locked or tagged in the closed position for servicing.

F. Accessibility and identification. Valves and controls shall be readily accessible at all times. Normal and emergency system shut-off valves shall be clearly identified. All valves shall be designed or marked to indicate clearly whether it is open or closed.

G. Venting. Venting of gases shall be directed to an approved location outside the building. Insulated liquid carbon dioxide systems shall have pressure relief devices vented in accordance with NFPA 55.

H. 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.

I. 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 grow room/areas where carbon dioxide is released and can collect shall be provided with an emergency alarm system in accordance with Section 128.36.10

J. Emergency alarm system. An emergency alarm system shall comply with all of the following:

(1) Continuous gas detection shall be provided to monitor areas where carbon dioxide (CO2) can accumulate. Detection equipment shall be provided to indicate carbon dioxide (CO2) levels in each grow cultivation area/room and interior carbon dioxide (CO2) storage location.

(2) Detectors shall be:

(a) Listed or approved devices

(b) Permanently mounted

(c) Installed at a height of no more than 48 inches above the floor or as approved by the Sanford Fire Marshal.

(d) Directly connected to building electrical supply and or fire alarm systems and protected from accidental disconnection or damage

(e) Auto calibrating and self “zeroing” devices are not permitted unless they can be zeroed and spanned

(f) Located within manufacturers specified detection range for each point of use and storage location

(3) Activation of the emergency alarm system shall initiate amber strobes and audible horns provided in the vicinity of each interior storage container, cylinder or tank and at each point of release. Additional amber strobes and audible horns shall be placed at the entrances to below grade locations and confined spaces. The notification devices shall be rated a minimum of 80cd for a visible effect and 75 dBA for an audible effect and shall be mounted in accordance with NFPA 72 requirements. Provide audible visual devices at the following locations:

(a) Inside an interior storage room/area and outside the room/area at each entrance.

(b) Inside grow cultivation room/areas.

(4) Local alarm set points shall be set at:

(a) 5,000 PPM – Latching Alarm

(b) Visual and audible notification in approved locations at room or area in alarm

(c) Activation of automatic system shut off valve

(d) Evacuate the room in alarm and contact a qualified service company to investigate and address the condition.

(e) Reset of the emergency alarm to be conducted by qualified personnel.

(5) Signage shall be required adjacent to each horn/strobe as follows.

(a) Storage area/room: "DO NOT ENTER WHEN LIGHT IS FLASHING - CARBON DIOXIDE LEAK DETECTED"

(b) Grow cultivation room/area dispensing: "FLASHING LIGHT MEANS CARBON DIOXIDE LEAK DETECTED – EVACUATE ROOM"

(c) The sign shall have a minimum 1-inch block lettering with a minimum ¼ -inch stroke. The sign shall be on a contrasting surface of black on yellow and shall be of durable construction.

(d) Signage on entrance doors to grow cultivation and storage rooms: Signage shall be provided at entrance doors to each grow cultivation room/area and at each entrance to storage rooms/areas:

(e) NFPA 704 placards for simple asphyxiants shall also be provided at the exterior main entrance and at each entrance to storage rooms/areas.

(6) A minimum of one portable carbon dioxide (CO2) meter shall be in use during business hours.

K. Trans filling. Filling and trans filling of gases between storage containers, cylinders and tanks and delivery vehicles shall be performed by qualified personnel using equipment and operating procedures in accordance with CGA P-1. Interior storage containers, cylinders and tanks shall be filled via remote fill ports on the exterior of the building at grade level. Exterior remote fill ports shall be fitted with a vent line to the outside. Delivery personnel shall have access to interior storage areas to inspect valves and piping prior to initiating filling operations.

L. Inspection and testing. All piping installations shall be visually inspected, calibrated, and pressure tested to determine that the materials, design, fabrication and installation practices comply with the requirements of this code.

M. Records. A written record of all required inspections, testing, calibration, and maintenance shall be maintained in a log book on the premises containing the three (3) most current years of records and be available for review by fire inspection personnel.

N. Acceptance testing. Appliances and equipment shall not be placed in operation until after the piping system has been checked for leakage and detectors, notification devices and automatic shutoff valves have been tested by a qualified service company. All piping installations shall be visually inspected and pressure tested prior to initial operation. The test pressure downstream of the pressure regulator shall be not less than 110% of the operating pressure. Joints shall be checked with a bubble-forming solution. Acceptance testing is required to be witnessed by Sanford Fire Marshal's office Provide an inspection report to the fire and/or building officials for the piping and joint visual inspection and pressure test.

O. Daily inspections. All detectors and alarms shall be visibly inspected daily. These inspections are permitted to be conducted by trained employees.

P. Monthly inspections. All storage vessels, piping, and appurtenances shall be visibly inspected monthly. These inspections are permitted to be conducted by trained employees. Logs shall be kept and presented on demand of the Sanford Fire Marshal

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Q. Annual inspections. Systems shall be visually inspected, gas detectors calibrated in accordance with manufacturer specification, alarms tested, and tested for leaks annually by a qualified service company.

R. Calibration. Detectors shall be checked for accuracy, calibrated to a reference gas concentration, and span reset.

S. Pressure testing. Pipe joints shall be exposed for examination during the test.

T. Test medium. The test medium shall be air, nitrogen, carbon dioxide, or an inert gas.

U. Test duration. The test duration shall be not less than 10 minutes.

V. Carbon Dioxide (CO_2) Gas Enrichment Systems Using a Natural Gas/Propane Burner in Plant Growing (Husbandry) not permitted.