This policy is meant to provide basic information in any given occupancy, all other Fire Code requirements will be enforced, these will be addressed by the Fire Inspector during inspections. Questions can be addressed to the Fire Prevention Division office between 7 a.m. to 3 p.m. Monday thru Friday, at (720) 913-3474 or at DENFPB@DENVERGOV.ORG. Permits may be obtained via E-Permits – Accela Citizen Accela available at Denver Fire Department - Fire Safety Operational Permits.

I. General Information

Although most individuals who are currently using long-term oxygen therapy (LTOT) do so in a safe manner, LTOT-related accidents resulting in serious injury and death are a significant safety concern. All too frequent responses to accidents involving home oxygen – such as an individual’s hair or clothing catching on fire from a lethal combination of LTOT static electricity, hair spray use or fires triggered by individuals using LTOT while smoking cigarettes – have prompted the Denver Fire Department to issue an alert. It is critical that individuals who use LTOT and home care workers such as nurses, respiratory therapists, and technicians who are involved in providing LTOT and maintain its equipment, understand how to follow all safety precautions for this type of therapy and equipment.

One critical component of safe LTOT use is ensuring that patients receive proper education and training in using the oxygen equipment. This can be accomplished only if home care workers effectively explain how to operate LTOT. They also need to educate patients and their families properly about possible hazards. Home care workers and others who are involved in providing, supplying and maintaining its equipment—including replacing portable oxygen bottles—need to educate patients and their families about the issues listed below.

A. No smoking guidelines must be complied with:
   1. Patients must never smoke while using oxygen.
   2. If a patient must smoke, he/she must remove the delivery device and turn off the oxygen flow.
3. In designated smoking areas, the patient should be at least 20 feet away from the oxygen equipment.

4. **In any residential building, the patient shall not smoke within his/her living unit, and only in designated smoking areas.** (This includes patients using oxygen concentrators).

5. The patient must never smoke in bed, while resting on a couch, even when not using the oxygen therapy.

6. “No Smoking” signs shall be posted and clearly visible.

7. The residence shall have a functional smoke detector and fire extinguisher.

8. The seller of liquid oxygen shall provide the user with information in written form that includes, but is not limited to, the following:
   a. Manufacturer’s instructions and labeling for safe storage and use of the containers.
   b. Locating containers away from ignition sources, exits, electrical hazards and high temperature devices.
   c. Restraint of containers to prevent falling.
   d. Requirements for handling containers.
   e. Safeguards for refilling containers.
   f. Signage requirements.

B. **Maximum Individual Capacity.** Liquid oxygen home care containers shall not exceed an individual capacity of 15.8 gallons (60L) in Group I-1, I-4, and R occupancies. Liquid Oxygen ambulatory are allowed in Group I-1, I-4, and R occupancies. Containers of liquid oxygen in home health care shall also be stored, used and filled with section 6306 and sections 5503.1 and 5503.2

C. **Manufacturer’s instructions and labeling.** Containers shall be stored, used and operated in accordance with the manufacturer’s instructions and labeling.

D. **Locating containers.** Containers shall not be located in areas where any of the following conditions exist.
   1. They can be overturned by the operation of a door.
   2. They are in the direct path of egress.
   3. They are subject to falling objects.
   4. They can become part of an electrical circuit.
   5. Open flames and high-temperature devices can cause a hazard.

E. **Restraining Containers.** Liquid oxygen home care containers shall be restrained while in storage or use to prevent falling caused by contact, vibration or seismic activity. Containers shall be restrained by one of the following methods.
   1. Restraining containers to a fixed object with one or more restraints.
2. Restraining containers with a framework, stand or assembly designed to secure the container.
3. Restraining containers by locating a container against two points of contact such as the walls of a corner of a room or a wall and a secure furnishing or object such as a desk.

F. Container handling. Containers shall be handled by use of a cart or hand truck designed for such use.
   Exceptions:
   1. Liquid oxygen home care containers equipped with a roller base.
   2. Liquid oxygen ambulatory containers are allowed to be hand carried.

G. Filling location. Liquid oxygen home care containers and ambulatory containers shall be filled outdoors.
   Exceptions:
   1. Liquid oxygen ambulatory containers are allowed to be filled indoors where the supply container is specifically designed for filling such containers and written instructions are provided by the container manufacturer.

H. Incompatible surfaces. A drip pan compatible with liquid oxygen shall be provided under home care container fill and vent connections during the filling process in order to protect against liquid oxygen spillage from coming into contact with combustible surfaces, including asphalt.

I. Open Flames and High temperatures. Open flames and high temperature devices shall not be used in a manner that creates a hazardous condition and shall be listed for use with the hazardous materials stored or used.

J. Maximum aggregate quantity. The maximum aggregate quantity of liquid oxygen allowed in storage and in use in each dwelling unit shall be 31.6 gallons (120L).
   Exceptions:
   1. The maximum aggregate quantity of liquid oxygen allowed in Group I-4 Occupancies shall be limited by the maximum allowable quantity set forth in Table 5003.1.1.
   2. Where individual sleeping rooms are separated from the remainder of the dwelling unit by fire barriers constructed in accordance with section 707 of the International Building Code, and horizontal assemblies constructed in accordance with section 711 of the International building code, or both, having a minimum fire resistance rating of 1 hour, the maximum aggregate quantity per dwelling unit shall be increased to allow not more than 31.6 gallons (120L) of liquid oxygen per sleeping room.
K. **Smoking prohibited.** Smoking shall be prohibited in rooms or areas where liquid oxygen is in use.

L. **Signs.** Warning signs for occupancies using home health care liquid oxygen shall be in accordance with the following:
   1. **No Smoking Sign.** A sign stating “Oxygen- No Smoking” shall be posted in each room or area where liquid oxygen containers are stored, used, or filled.
   2. **Premises signage.** Where required by the fire code official, each dwelling unit or sleeping unit shall have an approved sign indicating that the unit contains liquid oxygen home care containers.

M. **Fire Department Notification.** Where required by the fire code official, the liquid oxygen seller shall notify the fire department of the locations of liquid oxygen home care containers.
   1. **NFPA 55, Compressed Gases and Cryogenic Fluids Section 6.3.1.3.1:**
      “Flammable and oxidizing gases shall not be stored or used other than in industrial and storage occupancies.”
   2. Denver Fire Code Section 5306.1.1.3 and Table allow for a maximum quantity of 504 cubic feet of oxidizing compressed gas (including oxygen) in residential occupancies “when approved by the Fire Code Official. **Cylinders shall not exceed a combined total of 504 cubic feet (a typical portable tank holds 22.4 cubic feet in a E type cylinder) with one in use and the rest secured in storage.** The Denver Fire Department has agreed to consider any residential storage of oxygen up to 504 cubic feet to be “approved by the Fire Code Official.
   3. Therefore, within the City and County of Denver, each residence is allowed to have a maximum of 504 cubic feet of compressed oxygen. Any quantity exceeding that amount requires a Denver Fire Department permit.
   4. Aerosol sprays such as hairspray should never be used near a patient using oxygen therapy because static electricity, heat, or a flame could cause an explosive fire.
   5. Because petroleum-based products under pressure are explosive, it is important to ensure that oil or grease do not come into contact with oxygen. Patients using LTOT should be instructed never to use petroleum-based products such as lotions or creams that can be applied to the body. Instead, patients should use only water-soluble lotions and creams. Patients should never apply oil or grease to oxygen equipment.
   6. Patients should be instructed to keep oxygen equipment away from heat sources. Oxygen equipment should not be stored near a radiator, hot-air
register, space heater, or fireplace. Oxygen cylinders should not be exposed to direct sunlight while stored in a parked vehicle.

7. It is also critical that oxygen equipment is stored in a well-ventilated area. Oxygen should never be stored inside closets or closed vehicles. This includes oxygen concentrators when in use, cylinders, or liquid oxygen canisters. Oxygen must never be stored in the trunk of a vehicle; In fact, cylinders should be transported in a vehicle only if they can be secured. Window(s) should be left open for ventilation when the vehicle is parked.

8. Electrical extension cords shall not be used to operate the oxygen concentrator. If extension cords become necessary, they should be limited to cords having a diameter at least equal to that of the cord that was provided with the machine.

9. The patient should be instructed and assisted in planning an escape route in case of fire.

10. The oxygen equipment should be positioned in a convenient, safe place. The patient should have enough tubing length to reach areas of his/her residence. If an oxygen concentrator is in use, it is important that someone be able to hear the power failure alarm throughout the home and be capable of correcting the problem and/or applying the backup oxygen system if needed.

11. The external filter(s) on an oxygen concentrator should be cleaned weekly or more often if needed. The concentrator should be kept at least 8 inches away from walls or curtains that would obstruct air flow.

12. The patient must understand the risks of falls while walking throughout the house, as entanglement in the long oxygen extension tubing becomes problematic.

N. Appeals
Either the Executive Director of Safety, or if delegated by the Director, a board of appeals, may hear and decide appeals of orders, decisions, or determinations made by the fire code official relative to the application and interpretation of this Code. The board of appeals shall consist of members who are qualified by experience and training to make decisions pertinent to hazards of fire, explosions, hazardous conditions, flammable and combustible liquids and gases, the use, storage and production of hazardous materials, or fire protection and other life safety systems and features. Prior to any action by the Executive Director of Safety, an application in writing shall be filed in the office of the Director within thirty (30) days after receiving the order, decision, or determination made by the fire code
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<td>Number:</td>
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official on a form provided by the Director providing the necessary information required. A copy of such application shall be furnished to the fire code official by the applicant. Payment of the fee established by the Executive Director of Safety, in the form a check made payable to the Denver Manager of Finance, must accompany the application.

END OF DOCUMENT