

FIRE SAFETY

STANDBY ENGINES

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FIRE SAFETY

STANDBY ENGINES

1. INTRODUCTION

- 1.01** This practice outlines fire protection measures in connection with the installation of internal combustion engines and turbines employing gasoline, kerosene, diesel oil, or LPG (Liquefied Petroleum Gas) as fuel. this practice applies to all standby engines except those which are addressed in AT&T Practice 760-620-905, Fire Pumps.
- 1.02** This practice has been issued to standardize the loss prevention guidelines throughout the corporation and to reflect changes in the fire codes and corporate policy. This practice replaces the canceled AT&T Practice 760-610-400, Considerations for Standby Engines, Issue 1.
- 1.03** This practice does not contain admonishments.
- 1.04** We want your comments on this practice. We would like to know if the coverage of the subject was thorough, if you could find the information easily, and if the content was easily understood. For information on how to comment, refer to AT&T Practice 000-010-015.
- 1.05** The terms in this document that have a specific meaning are defined as follows:
- *Shall* indicates a requirement for compliance with this practice.
 - *Should* indicates a strong recommendation that is not required.
 - *Listed* refers to a requirement which is satisfied if the device or procedure of interest is either listed by Underwriters' Laboratories (UL Listed) or approved by Factory Mutual (FM Approved). Listings or approvals granted by similar recognized agencies (e.g., CSA) also satisfy this requirement.
 - *Approved* refers to acceptance by the Authority Having Jurisdiction at the particular company location.
- 1.06** This practice is based on the national Fire Codes of the NFPA (National Fire Protection Association), including NFPA 37, Stationary Combustion Engines and Gas Turbines, the various model building and fire protection codes, OSHA (Occupational Safety and Health Act) regulations, and on the requirements of our corporate insurance carriers. Consult them for additional information if desired.

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- 1.07 Where any local or state codes, laws, rules, or regulations of the public Authorities Having Jurisdiction at the location impose more stringent requirements than those cited in this practice, those codes, laws, rules, or regulations shall be followed.**

Exception: Where a legally authorized variance has been granted by the Authority Having Jurisdiction, in writing, to specific requirements of a local code, law, rule, or regulation that is more stringent than this practice.

- 1.08 Where local conditions indicate the practical desirability to deviate from the requirements of this practice, the Fire Protection Engineering Manager should be consulted for guidance in achieving equivalent levels of protection by alternate means.**

2. GENERAL REQUIRMENTS

- 2.01 An early warning fire detection system shall be installed in accordance with AT&T Practice 760-630-105, General Requirements for Alarm and Detection Systems.**
- 2.01 Distribution of portable fire extinguishers shall be in accordance with AT&T Practice 760-640-105, Portable Fire Extinguishers.**
- 2.02 Distribution of portable fire extinguishers shall be in accordance with AT&T Practice 760-640-105, Portable Fire Extinguishers.**
- 2.03 Engine protective devices shall be provided as required by NFPA 37, Stationary Combustion Engines and Gas Turbines.**
- 2.04 All related electrical installations shall comply with the latest issue of NFPA 70, National Electrical Code.**

3. INSTALLATION

- 3.01 Gasoline engines are not recommended for installation any building due to the higher degree of hazard presented by the use of gasoline over diesel fuel. However, should a gasoline fueled standby engine be installed, it shall be in a minimum 2-hour, fire-rated compartment in accordance with AT&T Practice 760-610-505, Compartmentation. Penetrations of this compartment from other areas of the building shall be held to a minimum. All penetrations shall be properly firestopped in accordance with AT&T Practice 760-650-205, Firestopping of Penetrations.**

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- 3.02 Diesel engines and turbines shall be installed in a compartment having a 1-hour fire resistance rating and in accordance with AT&T Practice 760-610-505, Compartmentation. Small standby engines (such as 40 kilowatts and below) that are in a noncombustible enclosure where the supply and exhaust air is ducted to the outside need not be in a rated compartment. Where standby engines are installed on the roof or external from the building, they may be placed within a noncombustible enclosure.**
- 3.03 LPG fueled engines shall not be installed within the building. These units shall be located externally from the building.**

4. FUEL SUPPLY

A. Gasoline

- 4.01 All fuel piping should be installed in accordance with NFPA 30, Flammable and Combustible Liquid Code, and NFPA 37, Stationary Combustion Engines and Gas Turbines.**
- 4.02 Gasoline shall not be stored within any building except where gasoline standby engines are installed. At these locations, the amount stored shall not exceed 1 quart (1 liter[L]) and shall be kept in a safety can in a closed metal cabinet designated for the storage of flammable materials within the standby engine room.**

B. LPG

- 4.03 All LPG installations shall comply with the current editions of NFPA 54, National Fuel Gas Code and/or NFPA 58, Storage and Handling of Liquefied Petroleum Gases.**
- 4.04 LP Gas shall not be stored in any building. Where needed for maintenance purposes, a small quantity of 1 lb. (0.45 kg) LP Gas containers may be stored in a listed flammable liquid storage cabinet.**

C. Diesel

- 4.05 Day tanks and supply tanks installed for any purpose above the lowest level shall have a dike constructed around the tank area sufficient to contain the entire contents of the tank or tanks.**

Note: Consideration should be given to provide a float alarm within the diked area.

- 4.06 Unenclosed day tanks or supply tanks supplying engines that drive generators, alternators, or other equipment used for emergency purposes shall not exceed 660 gallons (2498 L). Not more than one unenclosed 660-gallon (2498 L) capacity tank or two or more unenclosed tanks, with an aggregate capacity of not more than 660 gallons (2498 L), shall be connected to one engine. The aggregate capacity of all unenclosed day and supply tanks in a building shall not exceed 1320 gallons (4996 L).**

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- 4.07 Day and supply tanks with individual capacities larger than 660 gallons (2498 L), or those tanks that cause the unenclosed aggregate capacity to exceed 1320 gallons (4996 L) in a building, shall be enclosed in accordance with NFPA 37.
- 4.08 All piping shall be in accordance with NFPA 37.
- 4.09 Fill pipes for storage tanks shall be terminated outside the building at a point at least 5 feet (1.5 meters[m]) away from building openings at the same or lower level.

D. Venting of Tanks

- 4.10 Each tank shall be vented through piping adequate in size to prevent blowback of vapor or liquid at the fill opening and to permit proper inflow of liquid while the tank is being filled.
- 4.11 Vent pipes from tanks storing gasoline shall be located so that the discharge point is outside the buildings, not less than 12 feet (3.6m) above the top of the fill pipe, and not less than 12 feet (3.6 m) above the ground level adjacent to the vent pipe. Vent pipe outlets for gasoline tanks shall be located so that flammable vapors will not enter building openings (at least 5 feet [1.5 m] from building openings) or be trapped under eaves or other obstructions. If the vent pipe for a gasoline tank is less than 10 feet (3 m) in length or greater than 2 inches (50 millimeters[mm]) nominal inside diameter, the outlet shall be provided with a vacuum and pressure relief device, or a listed flame arrestor shall be located in the vent line at the outlet or within the approved distance from the outlet. In no instance, should a flame arrestor be located more than 15 feet (4.6 m) from the outlet end of a vent line. Permanently open vent pipes shall be provided with weatherproof fittings at the outlets.
- 4.12 Vent pipes from tanks storing fuel oil or kerosene shall:
- terminate outside of buildings,
 - be higher than the fill pipe opening, and
 - be located at least 5 feet (1.5 m) from building openings.

5. EXHAUST PIPING

- 5.01 Engine exhaust discharge systems shall be designed on the basis that the flue gas temperature normally does not exceed 1000°F (760°C) except for infrequent brief periods. Such engines shall be classified as low heat appliances. If these temperatures are exceeded, special considerations shall be given to the higher temperatures.
- 5.02 Clearance from combustibile material for low heat appliances shall conform to the requirements of NFPA 37, Chapter 6.

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6. PORTABLE GASOLINE ENGINES

- 6.01** Portable gasoline engines and their particular type of fuel system are considered more hazardous than stationary engines. These hazards should be recognized.
- 6.02** The term “portable,” as applied to engines in this section, includes those gasoline engines mounted on skids, as well as those mounted on wheels, or otherwise so arranged that they can be moved from place as the necessities of service demand.
- 6.03** Where portable engines are operated outside of buildings, they may be housed in a metal enclosure on a concrete pad. Such locations, outside of buildings, should be adjacent to but at least 5 feet (1.5 m) from a masonry wall without openings. Where it is not possible to avoid wall openings, a minimum clear distance of 10 feet (3 m) shall be maintained. Where the exterior wall is of frame construction, a minimum distance of 15 feet (4.6 m) should be maintained. Engine locations should not be near low areas and sewers where gas pockets might develop. The hazard potential of gasoline vapors accumulating should be considered for each location.
- 6.04** Gasoline may be supplied from buried tanks or from tanks mounted integrally with the engine. Engines having fuel supply tanks mounted on the engine are a greater hazard than those using underground or separate fuel tanks.
- 6.05** Where portable engines are stored within the building when not in use, all gasoline shall be removed from the tank, fuel line, and carburetor before the engine is placed within the building. After draining, at least one complete filling with kerosene and a subsequent draining should be accomplished to flush out the remaining traces of gasoline and gasoline vapors before the unit is placed in storage.

7. EMERGENCY SHUTDOWN FOR STATIONARY STANDBY ENGINES

- 7.01** A means for remotely shutting down the stationary standby engine at a readily accessible location remote from the engine shall be provide. The remote shutdown control shall be located at each entrance to the engine room, immediately inside and adjacent to the door or outside the door. Each remote shutdown control shall shutdown all engines or turbines within the room.

8. MAINTENANCE AND TESTING

- 8.01** Standby engines driving generators shall be tested and maintained in accordance with AT&T Practice 760-610-805, Emergency Electrical Power.
- 8.02** All other standby engines shall be tested and maintained in accordance with the manufacturer’s recommendations.

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9. NOTICE OF ISSUANCE

- 9.01 This practice applies to all AT&T locations (rational and international). Any questions concerning its content may be referred to:**

**Fire Protection Engineering Manager
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- 9.02 This practice was issued by the Corporate Fire Protection Engineering Organization and produced by the Document Development Organization.**

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