



**COMMUNITY AND ECONOMIC DEVELOPMENT DEPARTMENT
BUILDING DIVISION**

**PO Box 1609, Mammoth Lakes, CA 93546
www.townofmammothlakes.ca.gov/building
buildingtech@townofmammothlakes.ca.gov
(760) 965-3632**

FREQUENTLY ASKED QUESTIONS
PROPANE (LPG) DETECTORS AND ALARMS

TOML Staff Contact Information:

- **Tom Perry**, Building Official: 760-965-3635
- **Ron Haskins**, Building Inspector: 760-965-3634
- **Bailey Thompson**, Plans Examiner/Permit Technician: 760-965-3643
- **Kevin Bessenbacher**, Permit Technician: 760-965-3632
- **Website:** <https://www.townofmammothlakes.ca.gov/building>

GENERAL INFORMATION

1. Why does the Town have propane (LPG) requirements in the Municipal Code?

Unfortunately, the Town has a history of propane-related accidents. In the winter of 1992/1993, there were three recorded incidents that involved the explosions of buildings, one of which killed two persons. There have been several similar incidents since then that included the full explosion of buildings in 2017 and in 2023 which resulted in serious injuries. During this time, there have been numerous additional incidents that involved LPG leaks in structures that fortunately did not result in explosions but still required emergency responses and actions to mitigate the danger.

2. How do propane explosions occur?

A propane explosion occurs when unburned, vaporized propane enters the interior of a structure and comes into contact with a flame source, such as a water heater pilot light. In Town, this is most often caused by structural damage to the exterior propane riser assembly, which is the service entrance to a building for LPG service that includes the meter, shut-off, and regulator. When damage to this assembly occurs, unburned propane can enter the structure and/or the under-floor space because the riser assembly is encased in dense ice and snow and there is no other path for the gas to escape to the atmosphere. The unburned LPG will then accumulate in the under-floor space and/or lowest floor of the building because propane is heavier than air.

3. What are the Town's general local requirements for propane (LPG) detectors and alarms?

[Chapter 15.28](#) of the Town's Municipal Code contains the local requirements for Liquefied Petroleum Gas (LPG) facilities and section 15.24.090 for the installation of LPG sensors and alarms in residential buildings that have propane service to them. For new residential construction, relocation of gas service, or new gas service to an existing residential building; or when alterations, additions, or repairs of over \$1,000 are performed on existing residential buildings, the Town's requirements for LPG sensors and alarms will apply. LPG sensors and alarms are required in the lowest point of the under-floor area and at the first floor of the dwelling at or near the floor level. Additionally, an exterior audible and visual alarm must be installed at or near the front of the building. The exterior alarm shall be mounted a minimum of 17 feet above grade on snow-shedding sides of a building, and a minimum of 12 feet above grade on non-snow-shedding sides.



SPECIFIC INFORMATION

4. Who can install LPG sensors and alarms?

Currently licensed California C20 HVAC or C10 Electrical contractors may do the installation of propane sensors and alarms and the associated components. A licensed California B General Contractor may do the installation but only if the contractor performs at least one other trade along with the sensor/alarm installation with the additional trade not being carpentry. Property owners may also do the installation, but given the technical nature of the installation, it is highly recommended that property owners hire a licensed contractor.

5. What is involved in the installation?

There is typically a hard-wired sensor in the lowest area of the building's crawlspace, and a second hard-wired sensor at or near the floor on the first floor of the dwelling. LPG sensors and alarms shall be hard wired and interconnected in new construction and when ceiling/wall finishes are removed in alterations and additions. The first-floor sensor shall be connected to an audible alarm that can be heard within the entire residence. Plug in type sensors are allowed in residential buildings where the wall and ceiling finishes are not being removed. Given the propane sensor/alarm requirement has been locally codified since the mid-1990s, approximately 75 percent of the residences in Mammoth already have propane sensors and alarms. For residences that already have functional sensors and alarms, the exterior visual/audible alarm must be connected to the underfloor sensor such that when the under-floor sensor activates, the exterior alarm will also activate. The exterior alarm must be located at or near the front of the house that faces the street or the side of the building that fronts the parking lot serving that building. For residences that do not already have functional sensors, they will need properly operating sensors to be installed in the required locations along with the exterior visual/audible alarm.

6. What components are usually involved in the installation?

The sensors are typically made by Macurco, an industry leader for combustible gas sensors and alarms, although there are other companies that make these products such as Seco-Larm, First Alert and others. All components of the propane detection system must be listed and labeled for that specific use and must be installed per the Manufacturer's installation instructions. More information for Macurco products can be found at <https://macurco.com/products/homebuilding/>. For dwelling units that are required to be accessible, both visual and audible alarms shall be installed.

7. What are the approximate costs for the installation?

Individual sensors range from \$120 to \$200, and the exterior audible/visual alarm ranges from \$170 to \$215 depending on the manufacturer and vendor. For single family residences (SFRs), according to local contractors, the typical cost for a contractor to install the exterior alarm with existing functioning sensors in the residence is approximately \$1,500. For SFRs that require the installation of new sensors within the residence in addition to an exterior alarm, the cost will typically range from \$2,500 to \$3,000. However, existing conditions such as electrical infrastructure, location of existing sensors, and distance from a power source to the front of the residence can affect the cost of labor and overall installation. Installations in multi-family buildings, such as apartments and condominiums, may also vary more in costs given the building and unit layout.