

Garage Firewall

When a garage is attached to a house or otherwise integrated with the home, special consideration is required with respect to the potential of fire and dangerous fumes.

Fire

Garages are a fire concern. In addition to the car, there may be gas-powered yard equipment, containers of gas and oil, oil soaked rags and other combustibles. A serious fire can start very easily in a garage. Once started, it can spread to the rest of the house.



Wall separating an attached garage from the rest of the home

Carbon Monoxide

Carbon monoxide (CO) is very dangerous. In higher doses it can cause headaches, dizziness, nausea, vomiting and ultimately death. It's invisible, odorless, tasteless and flows in abundance from car exhaust. Every time you start your car and pull out of the garage, CO is produced. The driver needs to remember to open the garage vehicle door before starting the car. Sometimes the car is started with the vehicle door closed and the car is left idling in the garage while the driver is distracted by something in the house. There are many ways to create a dangerous situation that can lead to CO poisoning but this can be avoided by taking proper precautions.

Protecting the House and People

When homes are built, measures are taken to:

- Delay the spread of fire from the garage to the home
- Keep structural elements from burning and collapsing
- Keep fumes such as carbon monoxide from getting into the house from the garage.

Exactly how this is done differs by jurisdiction. Let's have a look at some of the measures used to protect single family homes and the people in it.

United States:

- *Garage to house walls:* 1/2-inch gypsum board is required on the garage side of any walls common to the house. The gypsum board will prevent fire from immediately igniting wall studs and spreading to the house.
- *Walls supporting the ceiling:* 1/2-inch gypsum board is also required on both sides of any wall in the garage that supports a ceiling in the garage common to the house.

- *Garage ceiling:* For a garage ceiling common to the house, 5/8 Type X gypsum board is required. Type X is a fire-resistant gypsum board.
- *Garage door to interior of house:* The door from the garage into the house must resist the spread of fire. The door must have a 20-minute burn rating or, if it is not specifically rated, it must be a solid door 1-3/8 inch thick. It must not open into an area used for sleeping.
- *Ducting:* There should be no supply or return air registers in the garage. Any ducting that passes through the garage should have no openings in it. Where ducting penetrates the wall from house to garage, the wall should be well sealed to the duct with firestop caulking. The ducting itself must be 26-gauge steel.
- *Floor:* The floor of the garage must be non-combustible.

Canada:

For single-family homes in Canada the requirements are different. Where the garage serves only the dwelling unit to which it is attached, a fire separation is not required. The garage is treated as part of the dwelling unit. There are specific requirements for surfaces that separate the garage from the living area but the requirements revolve around gas-proofing to prevent car exhaust and gas fumes from getting into the home.

- The door between the garage and the home's interior must be tight fitting and must be weather stripped to be an effective barrier against the passage of gases and exhaust fumes.
- This door must have a self-closing device and cannot open into a living space intended for sleeping.
- There must be an air barrier system between the garage and the remainder of the building to form an effective barrier to gas and exhaust fumes.

Discussion of Local Requirements

In the last two sections we looked at the general requirements for both the United States and Canada. However, local codes may be very different. For example, many local codes in the United States required 5/8-inch type X drywall for all areas separating the garage from the house. Some municipalities are much stricter than this. Remember that local code trumps national. Furthermore, practices and requirements have changed over the years. A house built just a few years ago may have different requirements than a home built today.

This Info Series discusses some of the features that can make a home safer regardless of where you live.



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