

## Study Session

# 3

## 2012 IFGC Sections 305 – 310 General Regulations II

**OBJECTIVE:** To gain an understanding of the general code requirements governing the installation and location of equipment and appliances, access to appliances, electrical requirements, condensation provisions for high efficiency appliances, and clearances to equipment.

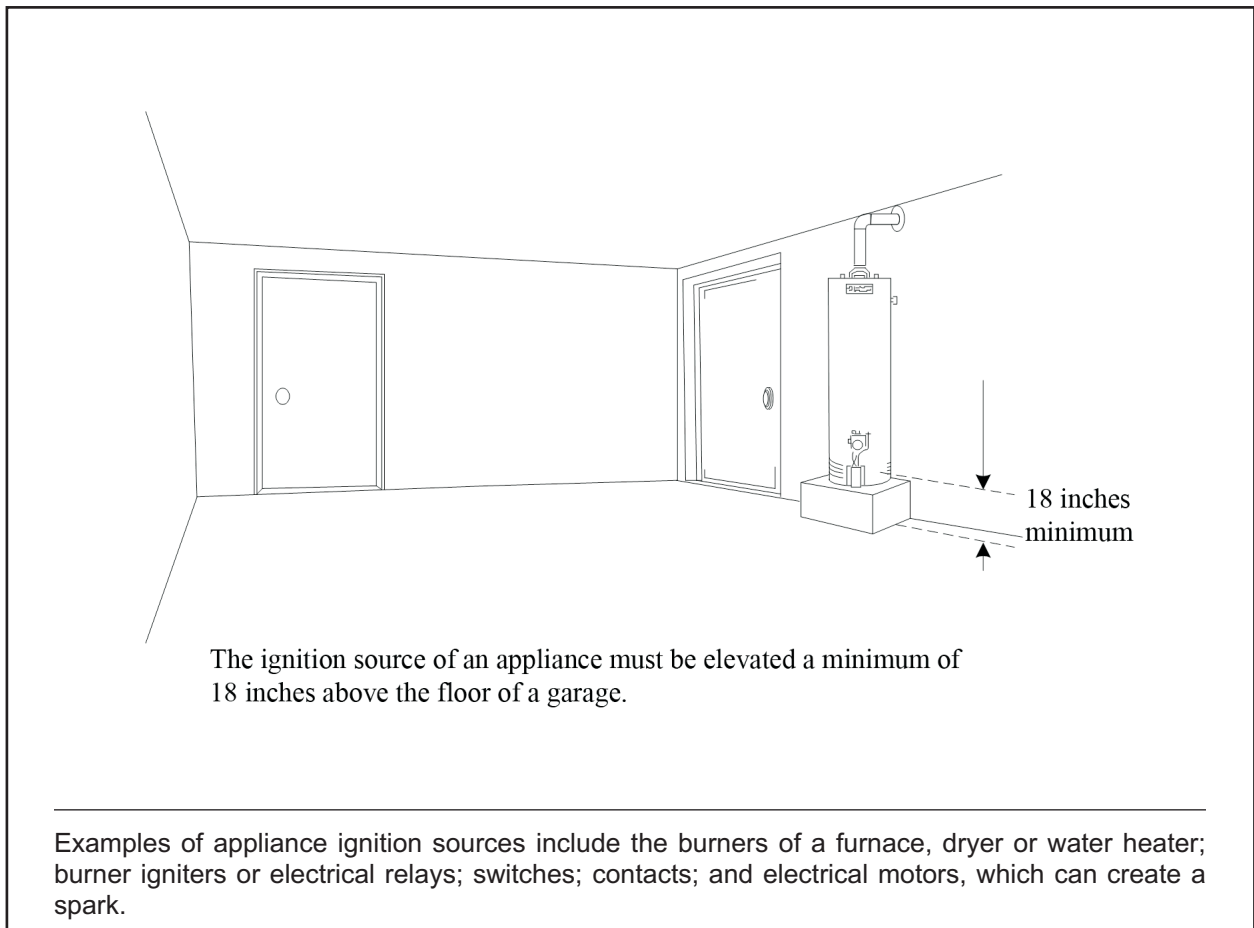
**REFERENCE:** Sections 305 to 310, 2012 *International Fuel Gas Code*

- KEY POINTS:**
- Under what circumstances are appliance locations restricted?
  - When are appliances required to have their ignition source located 18 inches above the floor?
  - When is the ignition source of an appliance permitted to be located at the floor level in a hazardous location?
  - When does the code require a boiler or furnace room to be separated from other occupancies?
  - Appliances are required to be installed what distance above the adjoining grade level?
  - What requirements apply to appliances serving repair garages?
  - What are the access requirements to appliances and equipment installed in a room?
  - What are the access requirements to appliances and equipment installed in attics?
  - What are the access requirements to appliances and equipment installed in under-floor spaces?
  - What code or standard governs the requirements for luminaires when an appliance is located in an attic or under floor space?
  - Under what condition is an access ladder required?
  - When is a working platform required for appliances located on roofs?
  - When are guards required around a working platform when equipment is located on the roof of a building?
  - Condensate piping serving condensing appliances shall be of what material?
  - What is the minimum internal diameter for a condensate drain line?
  - When are condensate drain lines required to be trapped?

- KEY POINTS:**
- When are auxiliary drain pans required?
- (Cont'd)**
- When are reduced clearances permitted?
  - Is gas piping permitted to be used as a grounding electrode?
  - What are the bonding requirements for CSST gas piping?

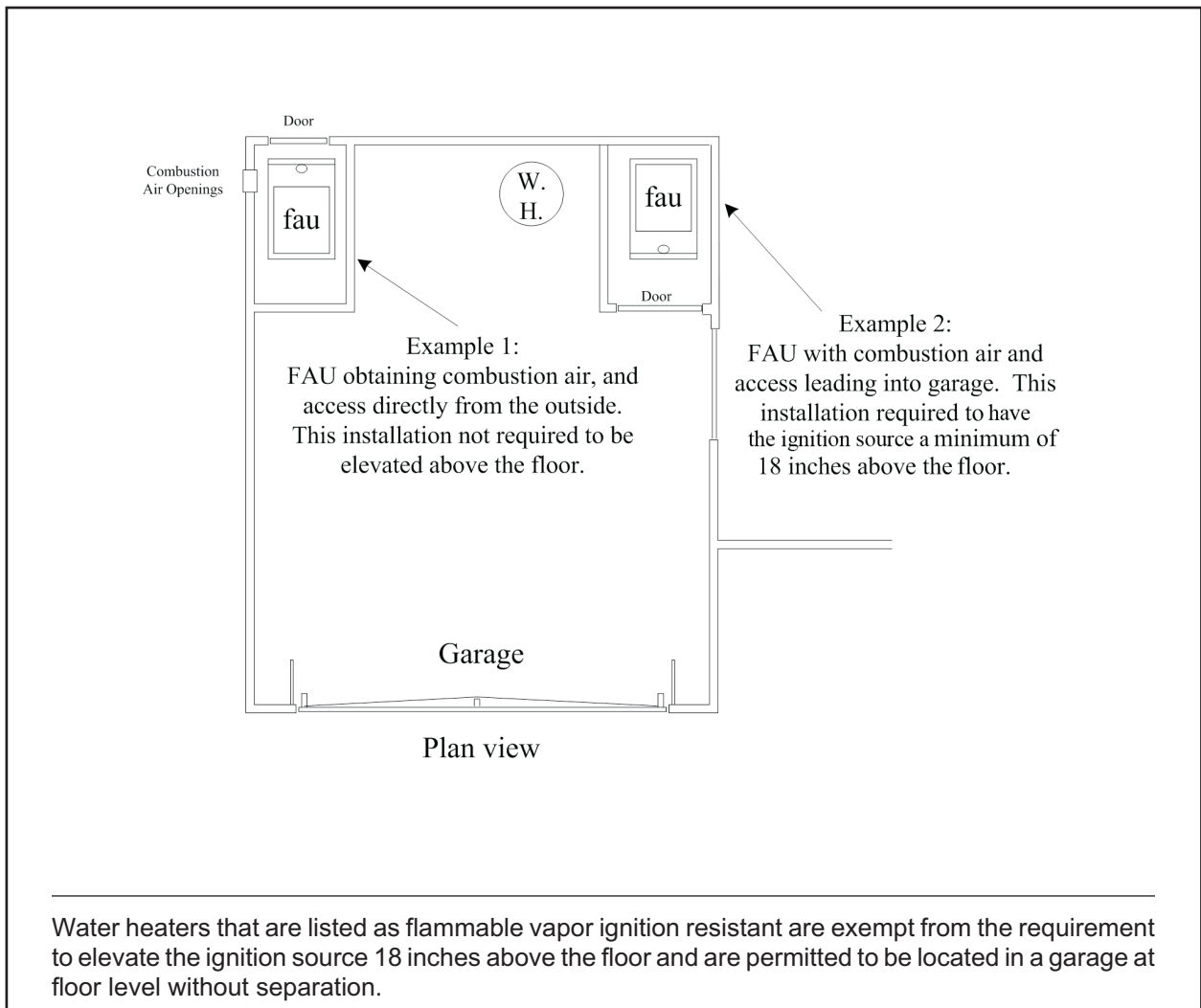
**Code Text:** *Equipment and appliances having an ignition source shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor in hazardous locations and public garages, private garages, repair garages, motor fuel-dispensing facilities and parking garages. For the purpose of this section, rooms or spaces that are not part of the living space of a dwelling unit and that communicate directly with a private garage through openings shall be considered to be part of the private garage. See exception for appliances that are listed as flammable vapor ignition resistant.*

**Discussion and Commentary:** By definition, an ignition source is a flame, spark or hot surface capable of igniting flammable vapors. Because flammable vapors are heavier than air and collect near the floor of a garage or hazardous location, the code requires any source of ignition that is part of an appliance to be elevated at least 18 inches above the floor. Note that the minimum elevation distance is measured to the lowest ignition source and not to the base of the appliance. Appliances that are listed as flammable vapor ignition resistant are designed to control the intake of combustion air and prevent the escape of any ignited vapors to outside the combustion chamber. With safeguards built in to the appliance, elevation of the ignition source is not necessary.



**Code Text:** *In residential garages where appliances are installed in a separate, enclosed space having access only from outside of the garage, such appliances shall be permitted to be installed at floor level, provided that the required combustion air is taken from the exterior of the garage.*

**Discussion and Commentary:** Appliances that are installed in residential garages and have an ignition source are permitted to be installed at floor level only if the appliance is in an enclosed space without any openings or access into the garage. Access to the appliance enclosure must be from outside the garage. Combustion air also must be obtained directly from the outside. This separation adequately isolates the ignition source from the garage area, and elevation of the appliance is not necessary.



**Topic:** Clearances from Grade  
**Reference:** IFGC 305.7

**Category:** Installation  
**Subject:** General Regulations

**Code Text:** *Equipment and appliances installed at grade level shall be supported on a level concrete slab or other approved material extending not less than 3-inches (76 mm) above adjoining grade or shall be suspended not less than 6 inches (152 mm) above adjoining grade. Such supports shall be installed in accordance with the manufacturer's installation instructions.*

**Discussion and Commentary:** Appliances installed outdoors or underneath a building are subject to deterioration and corrosion when installed on soil or rocks. The IFGC requires equipment be elevated to provide safe operation and to prolong the life of the appliance. When supported by a level concrete slab on the ground, the appliance must maintain a clearance of at least 3 inches above grade. Equipment suspended underneath a building or supported by brackets on the side of a building requires a minimum clearance of 6 inches above the ground.

