Study Session

3

2012 IMC Sections 304.6 – 312
General Regulations II

OBJECTIVE: To gain an understanding of the general code requirements governing the support of piping, access and service to appliances and equipment, the disposal of condensate, and reductions to the required clearances to combustible materials.

REFERENCE: Sections 304.6 to 312, 2012 *International Mechanical Code*

KEY POINTS:

- If a motor vehicle is able to pass under an appliance, what additional requirement has to be met?
- How high above the floor does an appliance have to be installed in a private garage? When does the exception apply?
- What regulates the protection for boiler rooms and furnace rooms?
- What governs the clearances from combustibles to heat-producing equipment and appliances? Is it possible to reduce such clearances?
- What is the requirement for the placement of equipment and appliances at grade level?
- If equipment or appliances are suspended above grade, what is the minimum required clearance?
- What loads are taken into account when determining the strength of pipe hangers and supports?
- Pipe hangers and supports are required to be of compatible material to prevent what from occurring?
- Which code table is used for regulating the spacing of supports? Is there another standard that may be used for the installation of supports?
- Clearances around appliances and equipment are for what purposes?
- What minimum working spaces are required for central furnaces located within compartments or alcoves?
- What is the minimum clearance for a furnace having a firebox open to the atmosphere?
- When combustion air openings are at the rear or side of the compartment, what provisions apply?
- What is the minimum required size of an attic access opening where an appliance is located in the attic space?

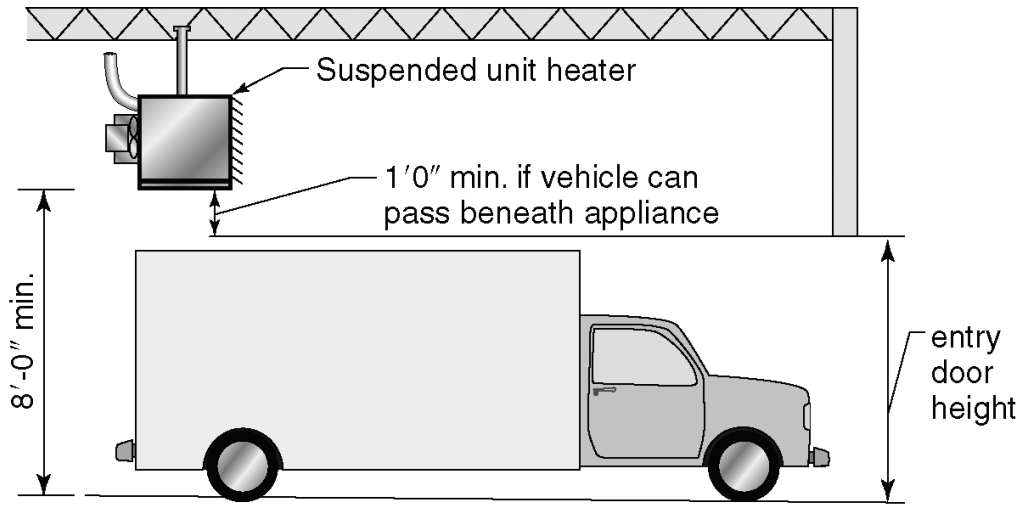
KEY POINTS: (Cont'd)

- What is the maximum distance from an attic access opening to an appliance located in the attic?
- What is the minimum required size of the access opening serving an appliance located under the floor? How close is it required to be to the appliance?
- When appliances requiring access are installed on roofs, at what height is permanent access required?
- What is the maximum height of any obstruction to rooftop access? What is the maximum slope permitted for a roof used for access purposes?
- What are the minimum requirements for permanent ladders used to provide access?
- Ladders over 30 feet in height are required to comply with what additional provisions?
- How are by-products of condensing appliances to be handled and controlled?
- What type of material is required for the condensate piping? What is the minimum size required?
- What is the minimum size of the drain line? What limitation applies?
- What is required when drain pipes are manifolded together?
- When are auxiliary drain pans required?
- In the case where an auxiliary pan cannot be used, what is required?
- Reduced clearances are to be achieved through the use of what type of material?
- Spacers used for reduced clearances shall be of what type of material?
- What governs the reduction of required clearances to combustible assemblies or combustible materials?
- Where required clearances are not listed in Table 308.6, is linear interpolation permitted? Is extrapolation below the range of the table permitted?
- What resources are to be used for determining the size of heating and cooling systems?
- What alternatives may be used for determining design loads?

Topic: Public Garages | **Category:** General Regulations
Reference: IMC 304.6 | **Subject:** Installation

Code Text: *Appliances located in public garages, motor fuel-dispensing facilities, repair garages or other areas frequented by motor vehicles, shall be installed a minimum of 8 feet (2438 mm) above the floor. Where motor vehicles are capable of passing under an appliance, the appliance shall be installed at the clearances required by the appliance manufacturer and not less than 1 foot (305 mm) higher than the tallest vehicle garage door opening.* See exception for appliances protected from motor vehicle impact.

Discussion and Commentary: Protection of suspended appliances is necessary, as impact from a vehicle could not only cause damage to the appliance, but also initiate a fire or explosion. The 8-foot (2438 mm) measurement is intended to prevent vehicle impact; however, the requirement for the 1 foot (305 mm) minimum clearance above the tallest vehicle garage door opening should assure the necessary protection.



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

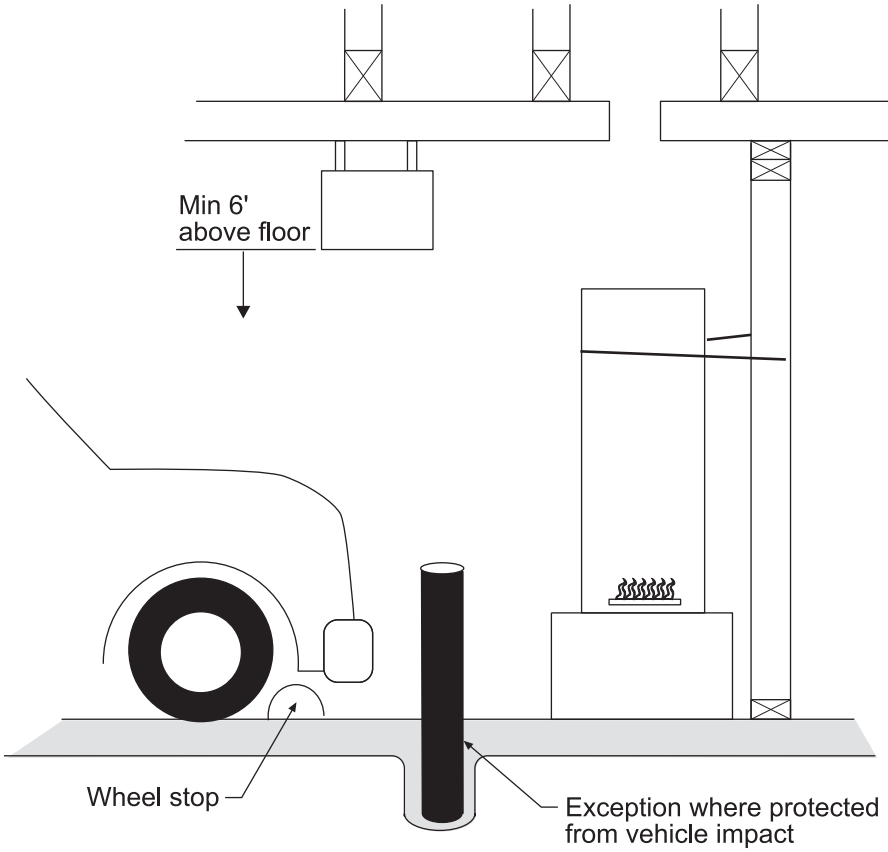
Appliance Installation in a Public Garage

Where another means of protection is provided to eliminate the potential for vehicle impact, such as a vehicle barrier, the appliance need not be located at the minimum prescribed height. It is, however, necessary that the appliance comply with Section 304.3 (elevation of ignition source) and NFPA 30A (*Code for Motor Fuel-dispensing Facilities and Repair Garages).*

Topic: Private Garages | **Category:** General Regulations
Reference: IMC 304.7 | **Subject:** Installation

Code Text: *Appliances located in private garages and carports shall be installed with a minimum clearance of 6 feet (1829 mm) above the floor.* See exception addressing appliances that are protected from motor vehicle impact and installed in accordance with Section 304.3 (elevation of ignition source).

Discussion and Commentary: The limitation addressing appliance clearance in private garages and carports applies when the appliance is located in an area where impact from a vehicle may occur. It is possible, however, that the 6-foot minimum height requirement may not be adequate when considering the height of sport/utility and recreational vehicles.



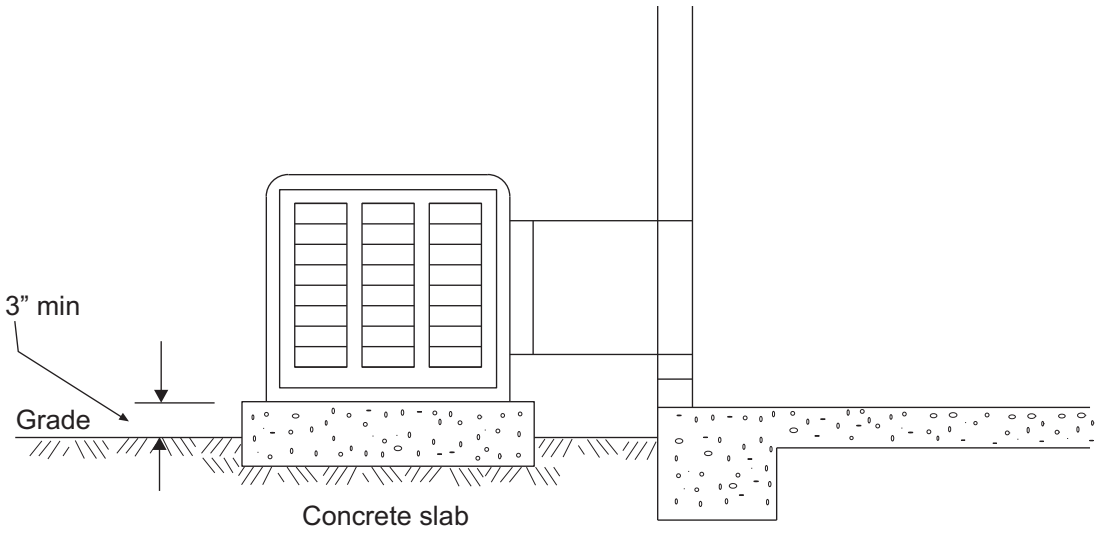
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Locating an appliance where it is not subject to vehicle impact complies with the exception. The height of the garage door also limits the height of the vehicle and potential impact problems.

Topic: Clearances from Grade | **Category:** General Regulations
Reference: IMC 304.10 | **Subject:** Installation

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.*

Discussion and Commentary: Where located on grade in exterior locations, the equipment or appliances must be a minimum of 3 inches above the adjacent grade. Where suspending the equipment or appliance, a minimum clearance of 6 inches is mandated. Under both conditions, the resulting clearance will help protect the appliance or equipment from damage and prevent soil or water contact, and must comply with the manufacturer's instructions.



Verification of the minimum clearances is an important part of the “final” inspection. These clearances are necessary for the protection of the appliances and equipment.