

# tech tip

do you know?



**T**his Tech Tip continues on in Chapter 4 General Requirements of the National Fire Protection Association **NFPA 80 2007 Edition**. Again the purpose is to seek out differences in this latest version from the last edition of 1999. We will look at what it has to say about sills and clearances.

Before we begin it is important to be clear about the definition of three terms that can be confusing and typically are misinterpreted. Those terms are sill, clearance and undercut.

Definitions are from The Door and Hardware Institute's Self Study Course, *The Fundamentals of Architectural Doors and Hardware*.

**Undercut** is a term used to describe the dimension from the bottom of the door to the *bottom of the frame*. Doors are undercut to provide clearance above the finish floor material. Typically they are undercut  $\frac{5}{8}$  inches to  $\frac{3}{4}$  inches from the bottom of the frame.

**Clearance** is defined as the dimension from the bottom of the door to the *bottom of the finished floor material*. Note the difference between undercut and clearance. The undercut dimension is to the *bottom of the frame*, the clearance dimension is to the *bottom of the finished floor material*. As an example, if a door was undercut  $\frac{3}{4}$  inches, there is  $\frac{3}{4}$  inches from the bottom of the door to the bottom of the frame. If the floor has no other additions then the clearance is also  $\frac{3}{4}$  inches. If a  $\frac{1}{2}$  inch threshold was added to the floor with the same  $\frac{3}{4}$  inch undercut, the clearance is now the difference between the  $\frac{3}{4}$  inch undercut and the  $\frac{1}{2}$  inch threshold, which represents the bottom of the finished floor now, and the difference between the two is  $\frac{1}{4}$  inch which now is the clearance.

**Sill** is defined as the bottom member on which a frame rests. An additional definition is the stone or wood member across the bottom of a door or window opening. Sill elevations are typically found in the Architectural blueprint

drawings to indicate what material is used on the finished floor under a door. This sill elevation would be a view of the bottom of the door and the floor and any material such as carpet, thresholds or tile which influence the clearance. The sill elevation is where the information is found to determine the clearance and undercut.

Here are some of the more relevant items about what NFPA 80 2007 says about sills and clearance.

## 4.8.2 Sills

**4.8.2.1** In buildings with non combustible floors, special sill construction shall not be required, provided the floor structure is extended through the door opening.

**4.8.2.2** In buildings with combustible floors or combustible floor coverings, special sill construction shall be required if the structure is extended through the door opening, as combustible floor construction shall not be permitted to extend through the opening.

**4.8.2.3** Door openings required to be protected by  $\frac{1}{2}$  hour or  $\frac{1}{3}$  hour rated fire protection door assemblies shall be exempted from the requirements of **4.8.2.2**.

**4.8.2.4** Sills shall be constructed of noncombustible materials.

**4.8.2.5** For swinging doors with builders hardware and special purpose horizontally sliding accordion or folding doors with frames having a jamb depth of 4 inches or less, the sill width shall be equal to the jamb depth.

**4.8.2.6** Where frames have a greater jamb depth, the sills shall have a minimum width of 4 inches and shall be installed so that the sill extends from the face of the frame on the door side into the frame.

**4.8.2.7** For swinging doors with fire door hardware, sills shall extend at least the depth of the door frame for flush mounted doors.

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There is additional information about lap-mounted and horizontally and vertically sliding doors, which is not covered in this article. NFPA defines lap-mounted doors as “Doors mounted on the face of a wall and overlapping the opening by a prescribed dimension. (Sliding door, vertical door, horizontal door and swinging door).”

The information about sills in **4.8.2** of the 2007 edition, (with the exception of clearance) is the same as currently found in the 1999 edition except it is located in Chapter **1-11.2** in the 1999 edition.

**4.8.4 Clearance** in the 2007 edition does represent a significant change. It has been simplified. Here is what it says:

**4.8.2.1** The clearance under the bottom of a door shall be a maximum of  $\frac{3}{4}$  inches.

*The 1999 edition information on clearances is found in 1-11.4 and referred to **Table 1-11.4** which gave more detail and listed different clearances for different sill conditions.*

Space does not permit us to print the table; however we recommend you take a look at the table to note the major simplification of the requirements for clearance in this 2007 edition.

Information in this *Tech Tip* is not all inclusive. You must consult the relevant standards for additional information which may apply for your project.

**Now for the exercise fill in the blanks to these questions:** \_\_\_\_\_

1. Undercut is the term used to describe the distance from the bottom of the door to

\_\_\_\_\_

2. Clearance is defined as the dimension from the bottom of the door to

\_\_\_\_\_

3. Sill is defined as \_\_\_\_\_.

4. NFPA 80 2007 edition indicates the clearance under the bottom of the door shall be a maximum of

\_\_\_\_\_ inches.

You will earn 3 CEP points by reading the article and answering the problems. Upon completion, copy or detach this page, fill in the form below, and submit your answers by mailing or faxing the page to DHI.



**Door and Hardware Institute**  
Education and Technical Services Department  
14150 Newbrook Drive, Suite 200, Chantilly, VA 20151-2232  
703/222-2010; Fax: 703/222-2410

**Name:** \_\_\_\_\_ **DHI ID number:** \_\_\_\_\_

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*Retain a copy of this exercise for your Continuing Education renewal application. Answers to these problems will be posted on our website ([www.dhi.org](http://www.dhi.org)) on the first day of the next month following the issue month of the magazine.*

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Now for the exercise fill in the blanks to these questions: \_\_\_\_\_

1. Undercut is the term used to describe the distance from the bottom of the door **to the bottom of the frame.**
2. Clearance is defined as the dimension from the bottom of the door to **the bottom of the finished floor material.**
3. Sill is defined as. **Sill is defined as the bottom member on which a frame rests.**
4. NFPA 80 2007 edition indicates the clearance under the bottom of the door shall be a maximum of **3/4** inches.



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703/222-2010; Fax: 703/222-2410