
FIRE PREVENTION AND BUILDING SAFETY COMMISSION
Department of Homeland Security

Written Interpretation of the State Building Commissioner

Interpretation #: CEB-2020-25-2014 IBC-T1004.1.2

Building or Fire Safety Law Interpreted

[675 IAC 13-2.6](#), 2014 Indiana Building Code, Table 1004.1.2 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

Issue

What occupant load factor is required for laboratory classrooms in E occupancies?

Interpretation of the State Building Commissioner

Science laboratories with non-fixed seating in E occupancies shall have their occupant load calculated at 50 net square feet per occupant.

Rationale

The question has arisen whether non-fixed seating science laboratories in E occupancies should have their occupant load calculated in accordance with the 20 net square feet per occupant tabular entry for classrooms, or at the 50 net square feet per occupant tabular entry for shops and vocational spaces. In the case at the center of this dispute, the local building official required the load to be calculated in accordance with the 20 SF figure for classrooms, prompting the interpretation request.

Table 1004.1.2 has a finite number of entries, and for educational occupancies, the available choices are limited to 20 net square feet per occupant for classrooms, and 50 net square feet for shops and vocational rooms.

Laboratories are not mentioned by name in Table 1004.1.2, however Section 1004.1.2 states "where an intended function is not listed in Table 1004.1.2, the *building official* shall establish a function based on a listed function that most nearly resembles the intended function." Although this section provides that the building official shall establish the function when not specifically listed in Table 1004.1.2, this language does not give the building official unbridled discretion. The function established by the building official must correspond with the function that it most nearly resembles.

In searching for a resemblance to the intended function among the tabular entries, the focus should be placed on the phrase "intended function," and not simply the name of the room. While it is true that a laboratory is a type of classroom, so are shops and vocational areas classrooms, albeit specialized examples. Clearly the mere fact that the space is a type of classroom cannot be the sole determining factor. The key should be in how the room functions, and how its space is allocated and utilized.

Laboratories typically have large tables and even fixed casework for the demonstrating and teaching of scientific principles, resulting in each student space occupying more square footage than it would in a typical classroom with small, individual desks and aisles. In actual space allocation layout, the furniture used in laboratories shares more in common with that of library reading rooms than it does with that of standard classrooms. Such reading rooms are a specific entry in Table 1004.1.2, where they are listed at the same 50 net square feet per occupant factor as educational shops and vocational rooms. Consequently, among the table's educational categories, science laboratory spaces more closely resemble shops and vocational areas in function than standard classrooms, and they shall be calculated at 50 net square feet per occupant.

This approach is reinforced by the occupant load table found in the *NFPA 101 Life Safety Code*, which includes laboratories in the same line category as school shops and vocational areas, calculated at 50 net square feet per occupant. While the occupant load table of *NFPA 101* is not part of the *2014 Indiana Building Code (IBC)*, it is a nationally recognized building industry life safety standard, and its intent is worthy of consideration when corresponding intent of the *IBC* is less than clear.

It is worth noting that, as always, it is the use of the space that matters and not simply its name. This 50 net square feet laboratory occupant load should only be applied to areas that are actually utilized as laboratories. If a single classroom contains areas for both laboratory tables and standard desk-and-aisle layouts, as some do, each area should be calculated accordingly at their respective rates to arrive at a total occupant load for the room.

