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ARE 5.0 Exam Review Guide: Project Planning & Design

Errata

(Updated 1/11/23)

This page will be updated regularly.

CHAPTER 9: Determining Building Area

(1) p. 9-8: Example 9.5 solution contains multiple errors. See corrections in red below.

Example 9.5: Calculating Occupancy

Solve for the occupancy of a floor consisting of the following uses and quantities:

8 office spaces at 200 square feet each
1 conference room at 500 square feet
2 storage rooms at 50 square feet each
1 reading room at 100 square feet

Refer to chapter 10 of the IBC.

Solution

Per the IBC, business areas have an occupancy of 150 gross square feet per person, accessory storage areas or mechanical equipment rooms have an occupancy of 300 gross square feet per person, and reading rooms have an occupancy of 50 net square feet per person.

Use these numbers to solve for the number of occupants:

Offices:

$(200 \text{ ft}^2 \times 8 \text{ spaces})/150 = 10.6$, or 11 occupants (round up)

Conference room:

$(500 \text{ ft}^2 \times 1 \text{ space})/150 = 3.3$, or 4 occupants (round up)

Storage rooms:

$(50 \text{ ft}^2 \times 2 \text{ spaces})/300 = 1$ occupant

Reading room:

$(100 \text{ ft}^2 \times 1 \text{ space})/50 = 2$ occupants

Occupancy of the floor = 11 occupants + 4 occupants + 1 occupant + 2 occupants

Answer:
Occupancy of the floor = 18 occupants

(2) p. 9-16: Example 9.13 solution contains multiple errors. See corrections in red below.

Solution

The first step is to determine the net and gross floor areas based on the current efficiency factor.

Efficiency ratio = 1/efficiency factor

$1/1.7 = 0.59$

The efficiency factor of 1.7 is an efficiency ratio of 0.59. To find the net floor area, multiply the GSF by this efficiency ratio

$100,000$ square feet $\times 0.59 = 59,000$ square feet of net floor area. ~~Subtract 59,000 from the gross floor area of 100,000 for a result of 41,000 net square feet.~~

If the objective is to reduce the ~~,000, the amount of reduction in gross square feet is~~ calculated by dividing the amount over budget by the cost per square foot:

$456,000/$150 per square foot = 3,040 square foot reduction

If the net, or usable, square footage is to remain to not reduce the function of the space, then the gross floor area requires a reduction.

100,000 original gross square feet $-$ 3,040 square feet $=$ 96,960 gross square feet

To calculate the efficiency factor:

96,960/59,000 = 1.64

Answer:
Efficiency factor = **1.64**