

Plan Review Committee Supported responses for the February Question

Given: Mixed occupancy with a single shared corridor, where no single occupant load exceeds the occupant load that would require two exits by CBC Table 10-A.

When the total number of occupants exiting through the corridor exceeds the minimum number of occupants requiring two exits for either occupancy type in Table 10-A

1 Are two exits required from the corridor? Yes No

Case #1

One building containing an office with an O/L of 15 (O/L of 30 req. for 2 exits) and a classroom with an O/L of 30 (O/L of 50 req. for 2 exits). Yes

Case #2

One building containing an office with an O/L of 18 (O/L of 30 req. for 2 exits) and a classroom with an O/L of 25 (O/L of 50 req. for 2 exits). Yes

Case #3

One building containing an office with an O/L of 14 (O/L of 30 req. for 2 exits) and a classroom with an O/L of 24 (O/L of 50 req. for 2 exits). No

The absence of specific requirements for mixed occupants entering into a corridor or hallway means that the building official must make a determination as to the number of exits required from the hallway or corridor.

Arguments:

1. Some respondents indicated that in the absence of specific requirements, they would use the literal requirements specified in the code. In other words; since there is no occupant load factor given for hallways or corridors in Table 10-A, they would not require two exits from the hallway/corridor unless one of the two occupancies required two means of egress from that space.

PRC response:

Using this logic one could have a series of offices on one side of a 200 foot (1004.2.5.2.1) hallway each containing 29 occupants each with a series of classrooms on the other side each containing 49 occupants each with only one exit from the hallway. The width of the hallway would increase but it would not be required to be rated.

If there was one additional occupant in any one of those spaces, a second means of egress for that space would be required, the hallway would become a rated corridor, and dead ends (1004.2.6) would not be allowed.

2. Some respondents stated that they would require two exits from the hallway/corridor whenever the cumulative occupant load of all the spaces served by such hallway/corridor exceeded the occupant for the most restrictive occupancy. In other words; the most restrictive use in our example is the office space requiring two exits when the occupant load exceeds 29.

PRC response:

We do not feel this logic meets the intent of the code either in that it is too restrictive. An example would be a *classroom* with an OL of 28 (2 exits required when >49 Occ.) sharing a hallway with an office with an OL of 2 (2 exits required when >29 Occ.). The classroom, by itself could have an additional 21 occupants before needing a second exit out of the space and a second exit out of the corridor.

Conclusion:

We feel that the only logical way to provide adequate and justifiable exiting from mixed use building sharing a means of egress system is to use a rational approach such as calculating the sum of the ratios (actual OL / maximum OL for one exit). In our first example it would be $15/30 + 30/50 = 1.1$ therefore, two exits required from a corridor and no dead ends allowed. Our second example would be $18/30 + 25/30 = 1.1$ therefore, two exits required from a corridor and no dead ends allowed. In our last example it would be $14/30 + 24/50 = .95$ a hallway would be sufficient.

(see attached Excel worksheet)

Note: if any one of the spaces described had two exits where it was not required and one went directly to the outside or another acceptable means of egress system (as in our 2nd example: a classroom having an OL of 30 with one exit into the hallway and one directly to the outside) we would not include this space in the ratio.

Jurisdictional Spokespersons Responses

	1		2		3		4A		4B		4C		5		6A		6B		7A		7B		7C		8		9			
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
CASE # 1	X		X		X		X			X	X			X	maybe		X		X			X		X		X		X		X
CASE # 2	X		X		X					X	X			X	maybe		X		X			X		X		X		X		X
CASE # 3	X		X		X					X	X			X	maybe		X		X			X		X		X		X		X

	10A		10B		11		12		13		14	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
CASE # 1	X		X		X			X		X		X
CASE # 2	X		X		X			X		X		X
CASE # 3	X		X			X		X		X		N

** A, B, and C answers are from the same jurisdiction

Other Responders

	15		16		17		18		19		20		21		22	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
CASE # 1	X		X		X		X		X		X		X		X	
CASE # 2	X		X		X		X		X		X		X		X	
CASE # 3	X		X		X		X		X		X		X		X	

Summary of Responses

	Jurisdictional Spokespersons Responses	Other Responders
	Y	N
CASE # 1	12	5
CASE # 2	12	6
CASE # 3	14	4

Responses correspond to numbered results above.

1. The corridor is not an occupied space and has no exiting requirement based on use, it is a protected exit path to the exterior of the building. Therefore, two exits would not be required. In each case, the occupant load for the building is higher than the single means of egress occupant load limit for the most restrictive occupancy (30 for the office). CBC section 1003.2.2.2.1 requires that "all portions of a building shall be presumed to be occupied at the same time" (the exception here is not applicable in the cases described above). Further, sections 1003.2.2.3.1 and 1003.2.2.3.2 require that, in all cases, the means of egress in all occupancies be sufficient for the maximum occupant load served.

When considering the means of egress for the cases described, one must consider the classroom separately, the office separately, AND the building containing the separate uses. While each use requires only one means of egress the combination of the two requires two means of egress based on the combined occupant load.

I am imagining a corridor, though in the cases described a hall is probably sufficient, that is part of the exit access with an exit at each end.

2. Under general access requirements in 1003, specifically 1003.2.2.2.2 paragraph three, " Where an individual area has more than one proposed use, the occupant load for such area shall be determined based on that use that yields the largest occupant load" we believe only one exit is required. Additionally, sorry for our tardiness in responding to this query.

3. 1004.2.3.3 - Cumulative load and assuming no other exit doors from the individuals spaces.

4A. I would think the more relevant question to answer first is how many exits are required for the building, then the answer to what happens in the hypothetical corridor would be more clear.

4B. Question indicates that we are in a corridor. Are we really in a required corridor or hallway? (i.e. because of travel distance) When an occupant load of 10 or more is accumulated the occupants can only exit through one intervening room to an exit or corridor leading to an exit. The hallway is viewed as an intervening room.

4C. This is page 2 of my response, or where I avoid any specific answer that would be wrong. Need to see floor plan for building. (Building total occupant load would create need for 2 exits for building).

5. It is my opinion that even though the code does not appear to require two exits from the corridor it may require two exits from the building. Although not specifically addressed in the code I would probably apply a rational such as calculating the sum of the ratios of (actual OL/max. OL for one exit) for each type of use. (Case #1 $15/30 + 30/50 = 1.1$) If it adds up to one or more I would then require two exits from the building.

6A. I am assuming the occupancies listed are separate, but they comprise the entire building. I am also assuming they are located on the first floor.

Case 1: Maybe

Case 2: Maybe

Case 3: Maybe

***I look at the building as a whole. Could the entire building in any of these cases require two exits? I say yes. However, the corridor could serve as only one of them if other exterior exits were provided.

***If the two occupancies were combined as a single tenant, it is possible that one occupancy could be deemed as an accessory to the other which would allow the the non-inclusion of the accessory occupant load in the total. In this case, one exit would be fine.

In any case, the building official is charged with interpreting the code, and this is a prime example of when his knowledge and experience will determine the answer.

6B. Exits must comply with both the requirements of the building itself and the area under consideration. The examples do not require a 2nd exit from the building. Exit components are accessory to the use and do not add to the OL of the building. I believe they need only be sized to accommodate the number of people using them. If the entire building does not need 2 exits, a hallway would not need 2 exits.

7A. The maximum number of exits required from any story, basement or individual space shall be maintained until arrival at grade or public way. The word "or" indicates a story must maintain the exits from the story would be the aggregate number of the story exceeding the most restrictive minimum requirement of the occupancy load. 30 is the minimum in all cases exceeded by the total.

7B. Number of required exits are from the spaces, not from the corridors.

7C. The required number of exits relates to the loading of the individual occupancies. Once in the corridor, the requirements for corridors govern (1004.3.4).

8. Table 10A doesn't specify any level at which 2 exits are required from a corridor. Nor can I find any other applicable section which requires 2 exits from a corridor. As long as the corridor and the exit from the corridor have the required width I would approve it. Since corridors are intended to be safer than rooms (exiting is allowed through corridors in cases where it's not allowed through rooms) I wouldn't apply the rules for rooms to corridors.

9. No cumulative occupant loads need be considered when determining the number of exits required. While no reference to this can be found in 1004.2.3.3. It is referenced in 1004.2.3.2. It is not intended that we be more restrictive in this interpretation.

10A. Would require posting of the maximum occupant load in the (entire) building or floor, based the larger occupancy's O/L.

10B. Follow up comment:

In my last response I answered NO to all three cases. Based on an existing building, with the requirements that occupancy signage for the larger of the two be posted. If it was new construction then the answer would likely be Yes to all three cases, depending on site factors etc.

*** not all responders commented**

*15. In an emergency both areas would empty into the corridor at the same time, thus exceeding the min. required by the lesser occ. load requirement. The most stringent rule applies.

16. Using 2001 CBC, 1004.2.2

17. 1004.2.3.3 From individual spaces. All occupied portions of the building shall have access to not less than one exit or exit-access doorway. Access to not less than two exits, exit-access doorways or combination thereof shall be provided when the individual or cumulative occupant load served by a portion of the exit access is equal to, or greater than, that listed in Table 10-A.

18. Drawings would be better.

19. In each case, the occupant load for the building is higher than the single means of egress occupant load limit for the most restrictive occupancy (30 for the office). CBC section 1003.2.2.2.1 requires that "all portions of a building shall be presumed to be occupied at the same time" (the exception here is not applicable in the cases described above). Further, sections 1003.2.2.3.1 and 1003.2.2.3.2 require that, in all cases, the means of egress in all occupancies be sufficient for the maximum occupant load served.

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Number of Occ. in B	Occ./30	Number of Occ. in E	Occ./50	Any of these combinations would require rated corridors and two exits.		Total Occupants (Mixed)
				B Occupants	E Occupants	
1	0.03	1	0.02	1	49	50
2	0.07	2	0.04	2	47	49
3	0.10	3	0.06	3	46	49
4	0.13	4	0.08	4	44	48
5	0.17	5	0.1	5	42	47
6	0.20	6	0.12	6	41	47
7	0.23	7	0.14	7	39	46
8	0.27	8	0.16	8	37	45
9	0.30	9	0.18	9	36	45
10	0.33	10	0.2	10	34	44
11	0.37	11	0.22	11	32	43
12	0.40	12	0.24	12	31	43
13	0.43	13	0.26	13	29	42
14	0.47	14	0.28	14	27	41
15	0.50	15	0.3	15	26	41
16	0.53	16	0.32	16	24	40
17	0.57	17	0.34	17	22	39
18	0.60	18	0.36	18	21	39
19	0.63	19	0.38	19	19	38
20	0.67	20	0.4	20	17	37
21	0.70	21	0.42	21	16	37
22	0.73	22	0.44	22	14	36
23	0.77	23	0.46	23	12	35
24	0.80	24	0.48	24	11	35
25	0.83	25	0.5	25	9	34
26	0.87	26	0.52	26	7	33
27	0.90	27	0.54	27	6	33

28	0.93
29	0.97
30	1.00

28	0.56
29	0.58
30	0.6
31	0.62
32	0.64
33	0.66
34	0.68
35	0.7
36	0.72
37	0.74
38	0.76
39	0.78
40	0.8
41	0.82
42	0.84
43	0.86
44	0.88
45	0.9
46	0.92
47	0.94
48	0.96
49	0.98
50	1

28	4	32
29	2	31
30	1	31