

MULTI-COMPONENT EGRESS

A USER'S GUIDE

1

US

SI

MULTI-COMPONENT EGRESS CAPACITY

2

Standards

☒ IBC ☒ NFPA 101

3

Sprinklers + EVACS (IBC reduction)

No

Yes

IBC only; permits 0.2 in/occ (stairs) and 0.15 in/occ (level) when fully sprinklered and with EVACS.

4

Assembly Occupancy

☒ Enable Assembly checks

5

Calculation Direction

Size → Capacity

Capacity → Min Size

6

Total Occupant Load

200

occ

7

Reset

Print

8

IBC Summary

Total Capacity

326 occ

180 + 146 = 326 occ

Occupant Load Distribution Check: Pass / Fail (IBC 1005.5: loss of any one egress path leaves ≥ 100 occ) Pass

9

NFPA 101 Summary

Total Capacity

327 occ

180 + 147 = 327 occ

Occupant Load Distribution Check: Pass / Fail (NFPA 101 7.3.1.1.2: loss of any one egress path leaves ≥ 100 occ) Pass

10

Notes: Common capacity factors — IBC: stairs 0.3 in (or 0.2 in with sprinkler + EVACS); level components 0.2 in (or 0.15 in with sprinkler + EVACS). NFPA 101: stairs 0.3 in; level & ramps 0.2 in. Stairways over 44 in may use 7.3.3.2. Minimum clear widths still apply (e.g., IBC stair 44 in; door 32 in).

11

Path	Component	Clear Width	IBC Result	NFPA 101 Result	
1 Main Exit	Door Stair Level	36 in	180 occ 0.20 in/occ	180 occ 0.20 in/occ	Remove
2	Door Stair Level	44 in	146 occ 0.30 in/occ	147 occ NFPA 101 7.3.3.2 large-stair formula	Remove
+ Add Component					

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DESCRIPTION

PURPOSE: The Multi-Component Egress Capacity tool sizes a whole set of egress paths at once and finds the limiting one. It adds up the capacity, or the required width, of every door, stair, and level component you enter, for the IBC and NFPA 101 side by side, and then runs the code checks that a single-component calculation misses: whether the main exit carries its required share of the load, and whether the loss of any one path still leaves enough capacity for the rest. Switch between US and metric units, apply the IBC sprinkler and EVACS reduction where it is permitted, and print a clean report.

#1 UNITS (US / SI): Switch the whole tool between US units (inches) and metric units (millimeters). Every input, result, and note updates to match.

#2 STANDARDS: Choose which codes to check: the IBC, NFPA 101, or both. Each code gets its own summary panel and its own result column in the table, so you can compare them side by side.

#3 SPRINKLERS + EVACS (IBC REDUCTION): For the IBC only. Set it to Yes when the building is fully sprinklered and has an emergency voice/alarm communication system, which allows the reduced capacity factors (0.20 inch per occupant for stairs and 0.15 for level components). NFPA 101 has no equivalent reduction.

#4 ASSEMBLY OCCUPANCY: Turn this on for assembly occupancies. It enables the main-exit checks that apply once the total occupant load is over 300: the IBC half-load main exit (Section 1030.2) and the NFPA 101 main-exit checks for dance halls and other assembly (Section 12.2.3.6.2).

#5 CALCULATION DIRECTION: Choose which way to calculate. Size to Capacity takes each component's clear width and reports the occupants it serves. Capacity to Min Size takes an occupant load for each component and reports the minimum width required.

#6 TOTAL OCCUPANT LOAD: Enter the occupant load for the space. This is the basis for the main-exit and distribution checks, for example the rule that the main exit must handle at least half of it.

#7 RESET & PRINT: Reset returns every input to its starting values. Print formats the current results into a clean report you can print or save as a PDF.

#8 IBC SUMMARY: Adds up the capacity, or the required width, of every component for the IBC and shows the total with its running math. Below it, the Occupant Load Distribution Check (Section 1005.5) confirms that losing any one path still leaves capacity for at least half the load, and an Assembly Main Exit Check (Section 1030.2) appears for assembly occupancies over 300.

#9 NFPA 101 SUMMARY: The same totals and checks under NFPA 101, using its capacity factors from Section 7.3.3 and the wide-stair formula in Section 7.3.3.2. Its distribution check is Section 7.3.1.1.2, and for assembly over 300 it adds the main-exit checks in Section 12.2.3.6.2 (two-thirds for dance halls, one-half for other assembly).

#10 NOTES: A plain-language summary of the capacity factors, the sprinkler reduction, the wide-stair provision, and the minimum clear widths, so the numbers behind each result are easy to check.

#11 COMPONENT TABLE: The heart of the tool. Each row is one egress path: pick the component (Door, Stair, or Level), enter its clear width or occupant load, and read the IBC and NFPA 101 result for that path. The first path is flagged as the Main Exit. Use Add Component to add paths and Remove to drop them, and every summary and check updates automatically.