Lab 2

宽度 $W_n - 44$

宽度 > 44 in 用 $C = 146.7 + \left(\frac{W_n - 44}{0.218}\right)$ NFPA

数

截止时间 :30 之后

时间限制

stair

min 44in

		corridor	= door	stair
NFPA 101	with	0.2	0.2	0.3
NFPA 101	without	0.2	0.2	0.3
IBC	with	0.15	0.15	0.2
IBC	without	0.2	0.2	0.3

min	door	door leaf	corridor
exist	28 in		
new	32 in	34 in	44 in

尝试历史

最新

2022/9/6 22:04 测验: Lab 2 Egress Components Calculations

Lab 2 Egress Components Calculations

已开始： 9月4日 14:45

测验说明

此测验的

人数 进位取整

提交时间

此尝试进行了 3,470 分钟。

door

问题 1

1.25 / 1.25 分

What is the minimum clear width (in inches) of a corridor serving 251 persons in a new building following NFPA101 if a door in the fully open position sticks out 18 in?

您已回答

61.2

正确回答

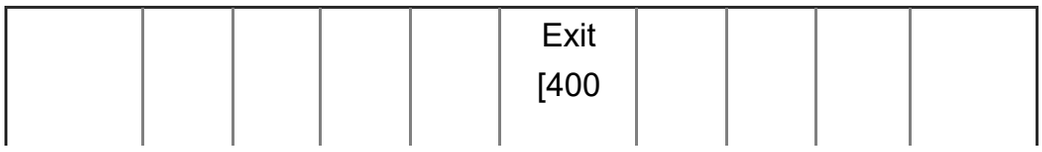
61

$251 \times 0.2 + (18 - 7) = 61.2 \rightarrow 61$

问题 2

0 / 1.25 分

What is wrong with the corridor designed in accordance with NFPA101 shown below? The corridor is 150 in wide on the right side and 50 in wide on the left side.



					persons]				
					^				
Exit [200 persons]	<							<-	600 persons start here

正确!

- [x] Corridor cannot decrease in size in the direction of travel
- [ ] The corridor is fine as drawn
- [x] A corridor with 600 people must have three exits
- [ ] The exits should have the people split evenly between them
- [ ] The width should be changed to 120 in and 40 in
- [ ] The width should be changed to 90 in and 36 in

您已回答

问题 3

1.25 / 1.25 分

<44in

A 43.8 in clear width corridor in a new building with a sprinkler system and voice alarm system is built in accordance with the IBC. How many people can be assigned to the exit that the corridor leads to?

正确!

292

43.8 ÷ 0.15 = 292

正确回答

292

		最小44" corridor	最小32" door	stair
NFPA 101	with	0.2	0.2	0.3
NFPA 101	without	0.2	0.2	0.3
IBC	with	0.15	0.15	0.2
IBC	without	0.2	0.2	0.3

问题 4

1.25 / 1.25 分

注意单位

What is the minimum width (in cm) of a stair serving 159 persons in a nonsprinklered building built in accordance with NFPA101?

159 × 0.3 = 47.7 in

→ 121 cm

正确!

121

正确回答

121

		最小44" corridor	最小32" door	stain
NFPA 101	with	0.2	0.2	0.3
NFPA 101	without	0.2	0.2	0.3
IBC	with	0.15	0.15	0.2
IBC	without	0.2	0.2	0.3

问题 5

0 / 1.25 分

What is the minimum width (in inches) of a stair serving 221 persons in a new sprinklered board and care facility with a voice alarm system in accordance with NFPA101?

221 × 0.4 = 88.4

您已回答

66.3

正确回答

88

问题 6

1.25 / 1.25 分

A 57 in stair is in a sprinklered building with a voice alarm system is built in accordance with the IBC. What is the maximum number of people that can be assigned to it?

57 ÷ 0.2 = 285

正确!

285

正确回答

285

宽度 > 44 in 用 $C = 146.7 + \left(\frac{W_n - 44}{0.218}\right)$ NFPA

宽度

人数

问题 7

0 / 1.25 分

What is the clear width (in inches) of a stair if the treads are 49 in wide and the handrails project out 2.9 in on each side?

您已回答

36

正确回答

49

问题 8

0 / 1.25 分

What is the minimum width (in inches) of a stair serving 77 persons in a nonsprinklered building built in accordance with the IBC?

您已回答

23.1

77 x 0.3 = 23.1 → 44

正确回答

44

问题 9

2706 x 0.2 = ~~541.2~~ → 541

1.25 / 1.25 分

0.2

What is the minimum width of a ramp (in inches) that serves 2,706 people at a new sports stadium? The building is built in accordance with NFPA101 with sprinkler and voice alarm systems. The slope of the ramp is 1 in 19 and has an elevation change of 15 ft.

您已回答

541.2

正确回答

541

问题 10

1.25 / 1.25 分

A corridor in a new building with a sprinkler system and voice alarm system is built in accordance with NFPA101. A door leaf that is 34 inches wide swings across the corridor and can be held against the

door leaf

wall. What is the minimum width (in inches) of the corridor if it must accommodate 226 people.

正确!

57

$\frac{226 \times 0.2}{2} + 34 = 56.6 = 57$

正确回答

57

不减了.

先算一半的宽, 再加door leaf宽

问题 11

1.25 / 1.25 分

>44

A 60.5 in stair is in a sprinklered building with a voice alarm system is built in accordance with NFPA101. What is the maximum number of people that can be assigned to it?

正确!

222

$146.7 + \frac{60.5-44}{0.218} = 222.388$

$\rightarrow 222$

正确回答

222

问题 12

0 / 1.25 分

Of the options provided, which door leaf is the minimum size that is acceptable for use in a new building?

- 28 in
- 34 in
- 32 in
- 36 in
- 44 in

door leaf 在new building 中最小为 34 in

正确回答

您已回答

$C = 146.7 + \frac{44.1-44}{0.218}$

≈ 147.16

≈ 147

问题 13

0 / 1.25 分

44.1 in > 44 in

A 112 cm wide corridor in a new building with a sprinkler system and voice alarm system is built in accordance with NFPA101. How many people can be assigned to the corridor?

您已回答

147

正确回答

224

问题 14

0 / 1.25 分

What is the minimum width of an exit door (in inches) in an existing building following the IBC with no sprinkler system if 125 persons are assigned to use the exit?

$125 \times 0.2 = 25 < 28$

您已回答

25

正确回答

28

问题 15

1.25 / 1.25 分

A 35 in clear width door in a new building with a sprinkler system and voice alarm system is built in accordance with NFPA101. How many people can be assigned to the exit?

正确!

175

$35 \div 0.2 = 175$

正确回答

175

问题 16

1.25 / 1.25 分

垂直总高度

What is the minimum plan view area (in ft^2) of a flight of stairs that descends 8 ft and is 57 in wide?

横向宽度

正确!

61

正确回答 61

测验

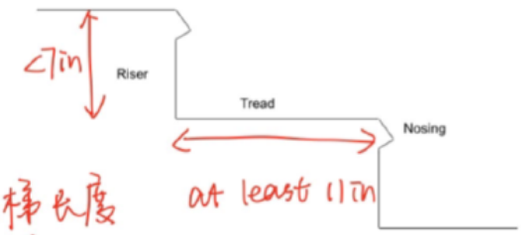
Stairs

20 分

- Size
- Usage
- Slip resistant
- Marked
- Changes in size
  - 3/16 in
  - 3/8 in

no higer than 7in (max)

高度和楼梯长度的允许变化量.



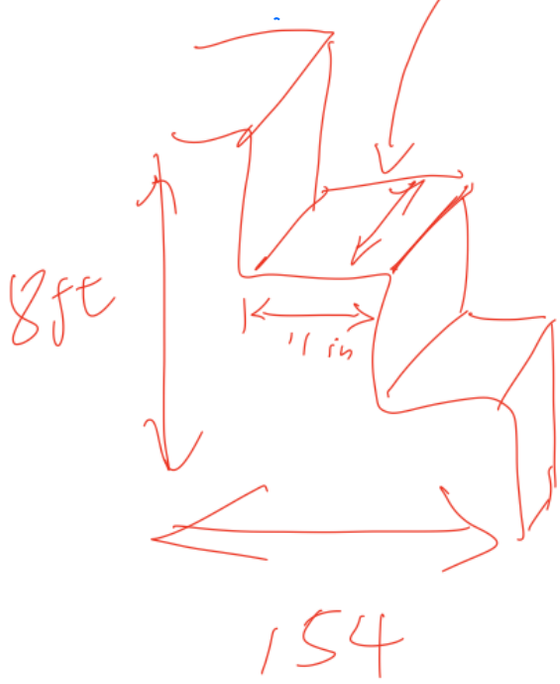
8ft

57in

进位

$\frac{8ft \times 12}{7in} \Rightarrow 14个$

$14个 \times 11in = 154in$



$S = 154in \times 57in$

Lab 3 Occupant Loads

截止时间 9月13日 4:20 **得分** 20 **问题** 16 **可用** 9月10日 1:30 之后
时间限制 无

人数进位取整

尝试历史记录

	尝试	时间	分数
最新	尝试 1	1,956 分钟	18.75，满分 20 分

此测验的分数： **18.75**，满分 20 分
提交时间 9月12日 21:31
此尝试进行了 1,956 分钟。

问题 1

1.25 / 1.25 分

What occupant load factor (in ft^2/person) should you use for a courtroom without fixed seating?

正确!

15

正确答案

15 (带页边距： 0)
20 (带页边距： 0)
40 (带页边距： 0)
50 (带页边距： 0)

问题 2

1.25 / 1.25 分

A stadium with only bench style seating consists of 42 sections with 30 benches per section. If each bench is 53 ft long, what is the occupant load?

您已回答

44,100

53×12÷18 =35.33 → 35

18m/人 55×50×42=44100

正确回答 44,520

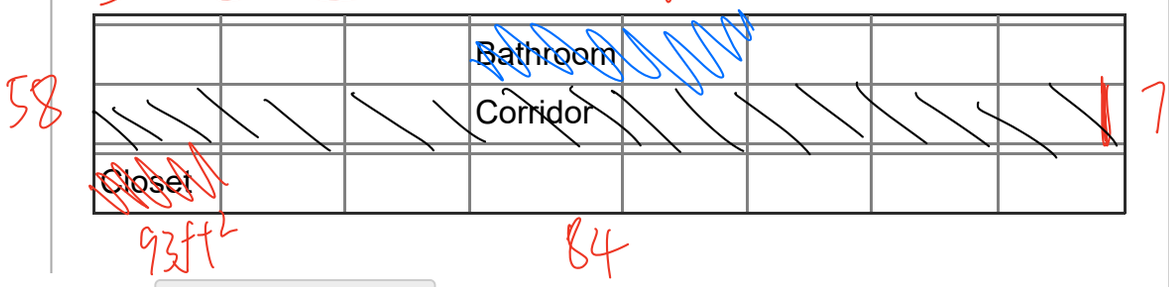
问题 3

无net直接总5除，net要减后除

1.25 / 1.25 分

A building is 84 ft east to west and 58 ft north to south. A 7 ft wide corridor runs east to west through the center of the building for 84 ft. On the north side of the corridor there is a bathroom area that occupies 274 ft^2. In the southeast corner of the building there is a closet that is 93 ft^2. What is the total occupant load if the area is used as college science laboratories?

274ft^2



正确！ 79

50net 减.

正确回答 79

58×84 − 7×84 − 274 − 93 = 3917

3917÷50 = 78.34 → 79

问题 4

1.25 / 1.25 分

What occupant load factor (in ft^2/person) shall be used for a hallway outside of a classroom? Enter 999 if no occupant load is calculated for that space.

正确！ 999

正确答案 999 (带页边距： 0)

问题 5

1.25 / 1.25 分

A building is 106 ft east to west and 55 ft north to south. A 8 ft wide corridor runs east to west through the center of the building for 106 ft. On the north side of the corridor there is a bathroom area that occupies 323 ft^2. In the southeast corner of the building there is a closet that is 108 ft^2. What is the total occupant load if the area is used as reading rooms at a library? 50 net

			Bathroom				
			Corridor				
Closet							

正确!

92

$$\frac{106\times55-8\times106-323-108}{50}$$

$= 91.02 \rightarrow 92$

正确回答

92

问题 6

1.25 / 1.25 分

18.6

What is the occupant load for a hotel floor that is 975 m^2?

正确!

53

单位!

$975 \div 18.6 = 52.42$

$\rightarrow 53$

正确回答

53

问题 7

1.25 / 1.25 分

上课 固定座位

A lecture hall on campus has 6 rows of seats with 10 seats per row and one row with 6 seats and places for two wheel chairs. At the front of the room is an area that is 23 ft by 19 ft. What is the occupant load for the room?

正确!

69

$6\times10+6+2+1$

$= 69$

正确回答

69

问题 8

1.25 / 1.25 分

What occupant load factor (in ft^2/person) shall be used for a theater lobby? Enter 999 if no occupant load is calculated for that space.

<=> waiting space

正确!

3

正确答案

3 (带页边距： 0)

问题 9

0 / 1.25 分

The seating area in a restaurant is 41 ft by 41 ft. When reviewing the plans, the owner has 44 tables in the space with 7 seats per table. What is the design occupant load?

<=> 固定座位

您已回答

113

问 design occupant load

正确回答

308

44 x 7 = 308

问题 10

1.25 / 1.25 分

What is the occupant load for a 3,460 ft^2 hotel ballroom that is normally set up for banquets (tables and 160 chairs), but once a year is used for a high school dance?

集中使用 · 无固定座位

您已回答

495

7 net

正确回答

494

3460 ÷ 7 = 494.29

→ 495

问题 11

1.25 / 1.25 分

What is the occupant load for a mall with 252,837 ft^2 of gross leasable area?

<15,0000 ft^2 30 ft^2/人

>15,0000 ft^2 7.3.1.2 (a)

正确!

5,619

正确回答

5,619

45 ft^2/人

252837 ÷ 45 = 5618.6

→ 5619

问题 12

1.25 / 1.25 分

What occupant load factor (in ft^2/person) shall be used for a basement level of a store? Enter 999 if no occupant load is calculated for that space.

正确!

30

正确答案

30 (带页边距： 0)

问题 13

1.25 / 1.25 分

非集中使用 无固定座位

The seating area in a restaurant is 56 ft by 55 ft. When reviewing the plans, the owner has 11 tables in the space with 5 seats per table. What is the design occupant load?

15 net

您已回答

206

56 x 55 ÷ 15 = 205.3

→ 206

正确回答

205

问题 14

1.25 / 1.25 分

What occupant load factor (in ft^2/person) shall be used for the water surface at a swimming pool? Enter 999 if no occupant load is calculated for that space.

正确!

50

正确答案

50 (带页边距： 0)

问题 15

1.25 / 1.25 分

A building is 91 ft east to west and 64 ft north to south. A 8 ft wide corridor runs east to west through the center of the building for 91 ft. On the north side of the corridor there is a bathroom area that occupies 285 ft^2. In the southeast corner of the building there is a closet that is 82 ft^2. What is the total occupant load if the area is used as a casino? 11

			Bathroom				
			Corridor				
Closet							

正确!

530

91x64÷11 =529.45

→530

正确回答

530

问题 16

1.25 / 1.25 分

A building is 119 ft east to west and 73 ft north to south. A 8 ft wide corridor runs east to west through the center of the building for 119 ft. On the north side of the corridor there is a bathroom area that occupies 263 ft^2. In the southeast corner of the building there is a closet that is

分半

with 50

without 15

83 ft^2. What is the total occupant load if the north half are exercise rooms with equipment and the south half is exercise rooms without equipment ?

			Bathroom				
			Corridor				
Closet							

正确!

377

正确回答 377

$$\frac{\frac{1}{2}\times 119\times 73}{50} + \frac{\frac{1}{2}\times 119\times 73}{15}$$

测验分数： **18.75**，满分 20 分

$= 376.44$

$\rightarrow 377$

Lab 4 Distances

截止时间 9月20日 4:20 **得分** 20 **问题** 16 **可用** 9月17日 1:30 之后
时间限制 无

尝试历史记录

Landing 最大 48in

	尝试	时间	分数
最新	尝试 1	2,883 分钟	18.75，满分 20 分

此测验的分数： **18.75**，满分 20 分
提交时间 9月19日 14:29
此尝试进行了 2,883 分钟。

问题 1

1.25 / 1.25 分

选最小

A building has 1,781 occupants and five exits. From the most remote location, the exits are 55 ft, 75 ft, 96 ft, 63 ft, and 89 ft away. When verifying that the maximum travel distance is within the acceptable range allowed by the code, which distance (in ft) is being compared to the value in the code?

55 ft

正确!

55

正确回答 55

问题 2

1.25 / 1.25 分

A room is 57 ft long by 55 ft wide. A 40 in clear width door is centered on one of the 57 length walls. What is the maximum travel distance (in ft) if the furniture in the room is not considered?

正确!

62

center one 无家具

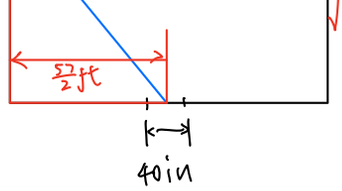
57 ft

Solution:

55ft

$\sqrt{(\frac{2\times12}{12})+55} = 61.946 \to 62$ ft

正确回答 62



问题 3

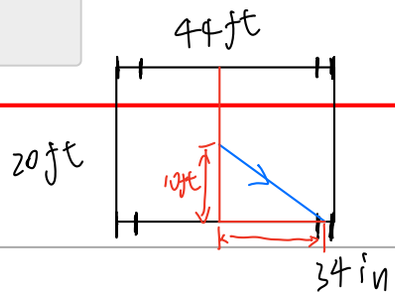
1.25 / 1.25 分

A room is 44 ft long by 20 ft wide. A 34 in clear width door is located on both ends of both of the 44 length walls. What is the maximum travel distance (in ft) if the furniture in the room is not considered?

您已回答 23

both ends both
no furniture

正确回答 24



$\sqrt{10^2+(\frac{\frac{44}{2}\times12-\frac{34}{2}}{12})^2} = 22.88 \to 23$ ft

问题 4

1.25 / 1.25 分

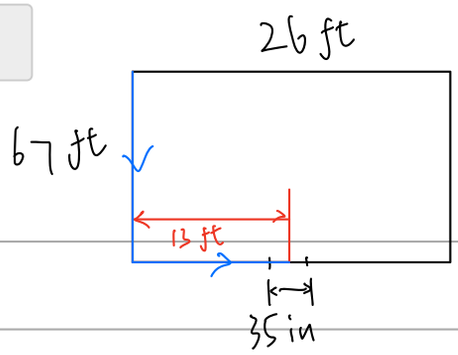
A room is 26 ft long by 67 ft wide. A 35 in clear width door is centered on one of the 26 length walls. What is the maximum travel distance (in ft) if the furniture in the room is considered?

center one
有家具

正确! 80

Solution:

正确回答 80



13+67=80 ft

问题 5

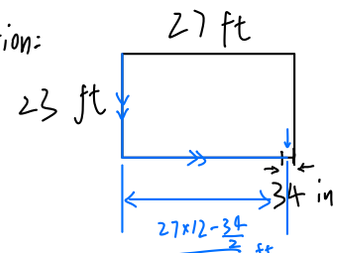
1.25 / 1.25 分

A room is 27 ft long by 23 ft wide. A 34 in clear width door is at the far end of one of the 27 length walls. What is the maximum travel distance (in ft) if the furniture in the room is considered?

正确! 49

Solution:

far end of one
有 furniture



正确回答 49

$23 + \frac{27\times12 - \frac{34}{2}}{12} = 48.58$

$\rightarrow 49$ ft

问题 6

1.25 / 1.25 分

stair 0.3

An open stair in a new building is used as an accessible route by 239 occupants. There are two flights of 7 steps each in a dog-leg configuration with dimensions of 5.5 in high and 12.5 in deep. What is the maximum travel distance (in ft) for the stair from the top step to the bottom step assuming that people walk along a natural path of travel?

$r = \frac{\text{width}}{2} = \frac{239\times0.3}{2}$ in $= 2.9875$ ft

正确!

25

正确回答 25

$\frac{2\times7\times\sqrt{5.5^2+12.5^2}}{12} + \frac{2\cdot\pi\cdot2.9875}{2} = 25.32$

$\rightarrow 25$

换ft

$\frac{\pi r^2}{2}$

问题 7

1.25 / 1.25 分

In reviewing floor plans, a dead end corridor is identified. What is a possible solution aside from changing the location of rooms? Select all that apply.

- [ ] Add an exit access door somewhere along the corridor
- [x] Add a sprinkler system — 正确!
- [x] Add an exit door somewhere along the corridor in question — 正确!
- [x] Place automatic closing doors across the corridor with a "No Exit" sign — 正确!
- [ ] Increase the fire resistance rating of the walls

问题 8

1.25 / 1.25 分

A room is 71 ft long by 73 ft wide. A 40 in clear width door is at the far end of one of the 71 length walls. The door leads into a 3 ft wide corridor with an exit at the other end of the room. What is the maximum travel distance (in ft) if the furniture in the room is <u>not</u> considered?

正确!

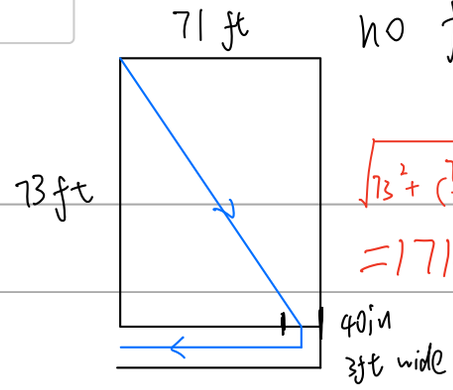
172

正确回答

172

for end of one
no furniture

出口在 end of room



$\sqrt{73^2 + \left(\frac{71\times12-\frac{40}{2}}{12}\right)^2} + 1.5 + \left(\frac{71\times12-\frac{40}{2}}{12}\right)$

$= 171.51 \rightarrow 172\text{ft}$

问题 9

1.25 / 1.25 分

An open stair in a new building is used as an accessible route by 294 occupants. There are two flights of 8 steps each in a straight run with dimensions of 6.8 in high and 12.4 in deep. What is the maximum travel distance (in ft) for the stair from the top step to the bottom step?

非 dog-leg

正确!

23

landing

正确回答

23

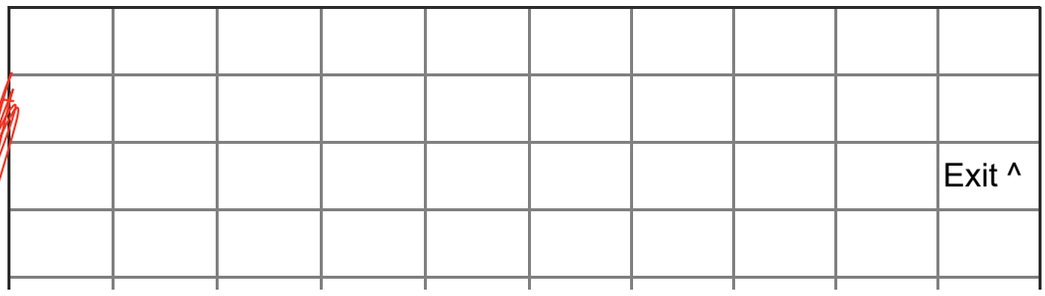
$\frac{2\times8\times\sqrt{6.8^2+12.4^2} + 48\text{in}}{12} = 22.86 \rightarrow 23$

$294\times0.3 = 88.2 > 48\text{in} \rightarrow$ 用 48in

问题 10

1.25 / 1.25 分

What is the length of the dead end corridor (in m) in the building below. Each cell is 4.7 m wide and 2.5 m high (grid 10 cells by 10 cells). The colored cells are rooms and the gray cells are corridors. Doors from each room are centered on the corridor wall. The distance accounts for the location of furniture.



求死胡同长度

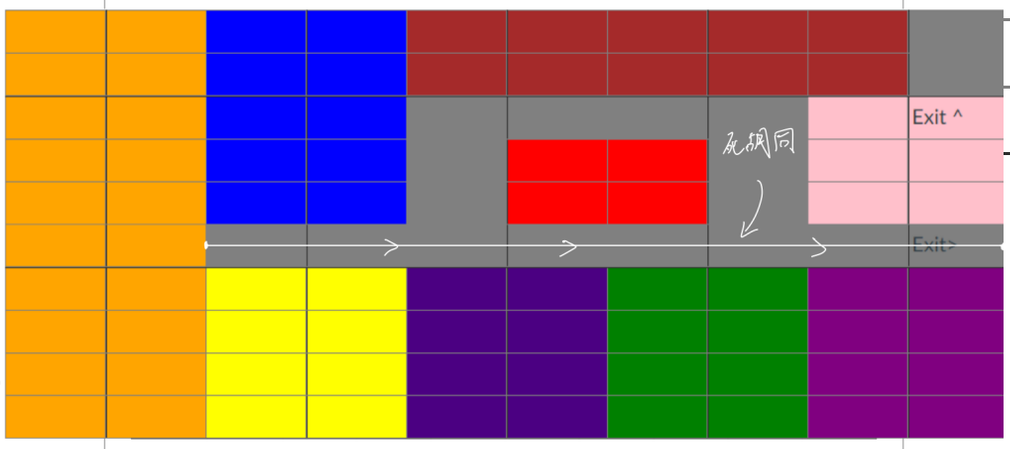
What is the length of the dead end corridor (in m) in the building below. Each cell is 4.7 m wide and 2.5 m high (grid 10 cells by 10 cells). The colored cells are

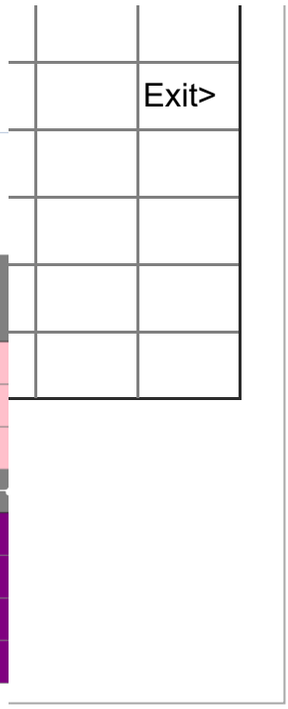
2.5m
4.7m

有 furniture

4.7×8 = 37.6 → 38

rooms and the gray cells are corridors. Doors from each room are centered on the corridor wall. The distance accounts for the location of furniture.





38

问题 11

1.25 / 1.25 分

A room is 23 ft long by 56 ft wide. A 35 in clear width door is at the far end of one of the 23 length walls. The door leads into a 4 ft wide corridor with a horizontal exit at the middle of the room. What is the maximum travel distance (in ft) if the furniture in the room is not considered?

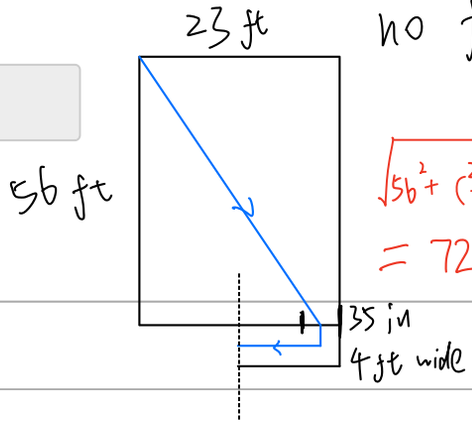
far end of one
no furniture
出口在中间

正确!

72

正确回答

72



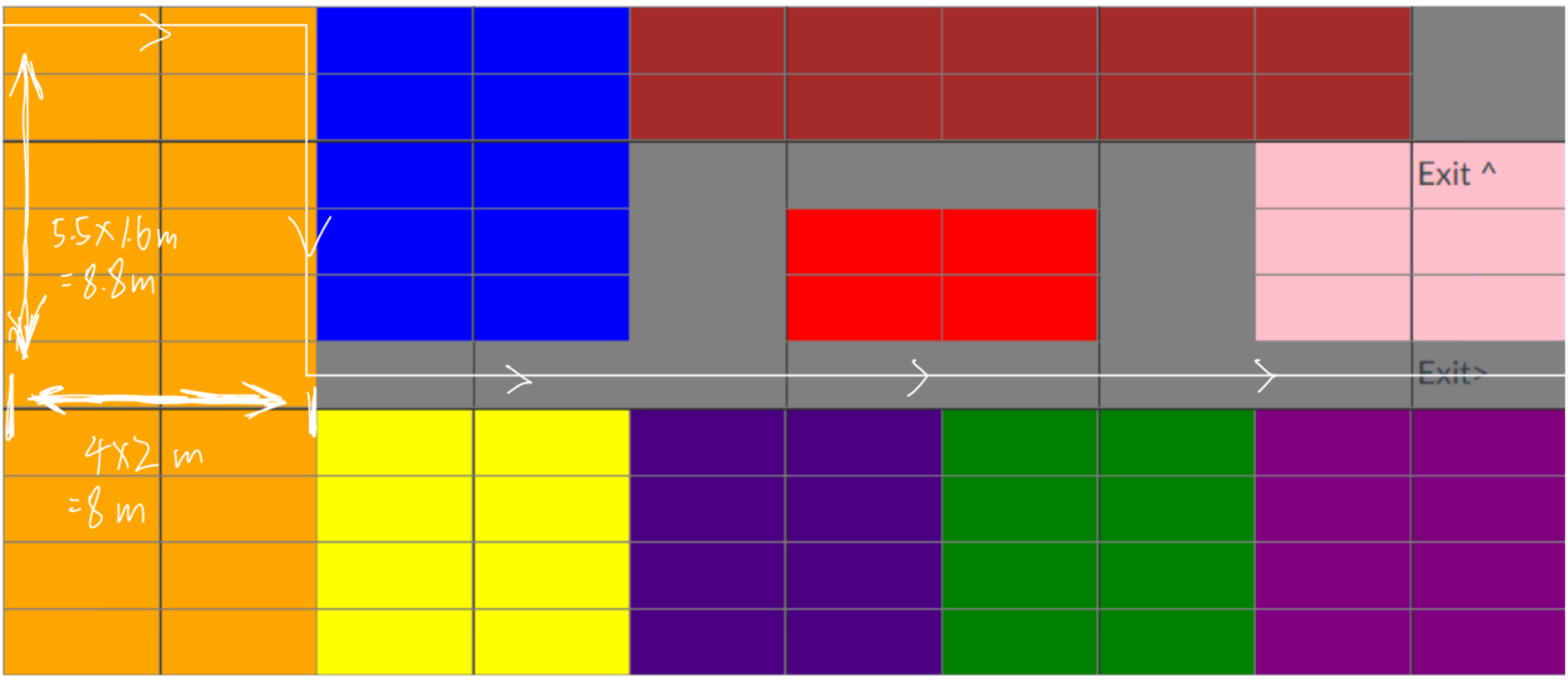
$$\sqrt{56^2+\left(\frac{23\times12-\frac{35}{2}}{12}\right)^2}+2+\left(\frac{23\times12-\frac{35}{2}}{12}\right)-\frac{23}{2}$$

$= 72.04 \rightarrow 72\text{ ft}$

问题 12

1.25 / 1.25 分

What is the length of the common path of travel (in m) in the building below. Each cell is 4 m wide and 1.6 m high (grid 10 cells by 10 cells). The colored cells are rooms and the gray cells are corridors. Doors from each room are centered on the corridor wall. The distance accounts for the location of furniture.



求 common path 长度 1.6m 4 m 有 furniture

49

4×8+8+8.8 = 48.8 m

走廊

→ 49 m

问题 13

1.25 / 1.25 分

A room is 44 ft long by 49 ft wide. A 36 in clear width door is centered on both of the 44 length walls. What is the maximum travel distance (in ft) if the furniture in the room is not considered?

center both

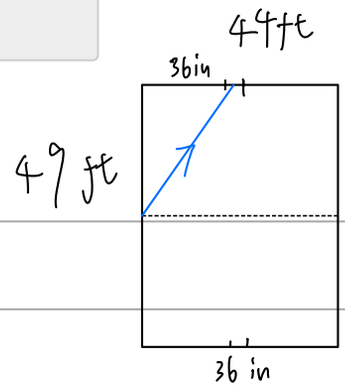
no furniture

正确!

33

正确回答

33



$\sqrt{(\frac{49}{2})^2+(\frac{44}{2})^2} = 32.93$

→ 33ft

问题 14

0 / 1.25 分

A ramp in a new building is used as an accessible route by 224 occupants to descend 41 in. What is the maximum travel distance (in ft) for the ramp?

< 30 in 不拆

> 30 in 拆三段

60

12.04

60×3 + 12.04×4

12 | 60 ft

12

=56

您已回答

41

正确回答

56

问题 15

1.25 / 1.25 分

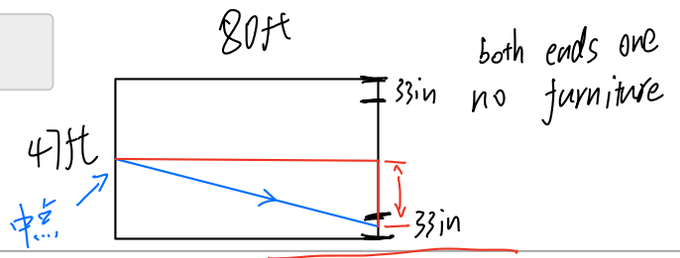
A room is 47 ft long by 80 ft wide. A 33 in clear width door is located on both ends of one the 47 length walls. What is the maximum travel distance (in ft) if the furniture in the room is not considered?

正确!

83

正确回答

83



$\sqrt{80^2 + \left(\frac{\frac{47}{2}\times 12 - \frac{33}{2}}{12}\right)^2} = 83.003 \to 83\,ft$

问题 16

1.25 / 1.25 分

A room is 78 ft long by 70 ft wide. A 39 in clear width door is at the far end of one of the 78 length walls. What is the maximum travel distance (in ft) if the furniture in the room is not considered?

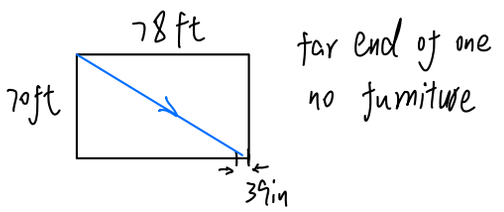
正确!

104

正确回答

104

Solution:



$\sqrt{\left(\frac{78\times 12 - 19.5}{12}\right)^2 + 70^2} = 103.6 \to 104\,ft$

测验分数： **18.75**，满分 20 分

Lab 9 Building Height and Area

已开始： 10月23日 18:00

测验说明

问题 1 **2 分**

A two story office building is 500 ft by 250 ft. Another building is located along one of the 500 ft walls, a second building is 11 ft from the other 500 ft wall, and no other buildings within 30 ft. The office building has a sprinkler system and is a steel frame building with a brick exterior wall. What is the minimum construction type?

Type I

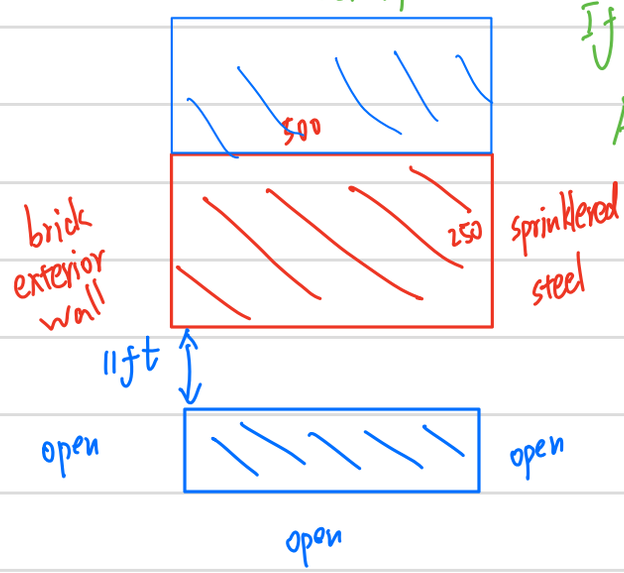
砖

2层 sprinkler $I_s=2$

$I_f = \left(\frac{500}{1500} - 0.25\right)\frac{20}{30} = 0.06$

$A_t + 0.06A_t + 2A_t = 500\times250$

$A_t = 4084.97$



- V-A
- IV-B
- II-B
- IV-HT
- II-A
- IV-C
- V-B
- ✓ I-B UL
- III-B
- III-A
- IV-A
- I-A

$I_f = \left(\frac{1500-1000}{1500} - 0.25\right)\frac{20}{30} = 0.06$

$A_t + A_t I_f + A_t I_s = 500\times250 = 125000$

$A_t = \frac{125000}{1+0.06+2} = 40849.7$

问题 2 **2 分**

table是大于它的最小值.

N_s

What is the maximum height (in stories) of a new, sprinklered school building with a steel frame and one hour protection to the structural members?

E类

Type II

A

Table 601

4

问题 3

2 分

What is the minimum rating of a wall (in hr) between two occupancies if Occupancy 1 is a 90 ft x 300 ft large supervised living community and Occupancy 2 is a 100 ft x 300 ft moderate hazard storage? The building is a nonsprinklered steel frame building with 2 hr rated structural members.

I-2

S-1

Table 508.4

- 1 hr
- Not allowed
- [redacted] hr
- No separation required
- 3 hr

问题 4

2 分

A multi-story office building is 300 ft by 150 ft. Another building is located along one of the 150 ft walls with no other buildings within 30 ft. The office building has no sprinkler system and is a steel frame building with a brick exterior wall. What is the minimum construction type?

B

NS

Type I Type II

- IV-HT
- III-A
- IV-A
- V-B
- II-A
- III-B
- II-B

$I_f = \left[\frac{900-150}{900} - 0.25\right]\frac{30}{30}$

$= 0.58$

300

150

I_s

$A_t + A_t I_f + A_t \cdot 0 = 300 \times 150$

$(1+0.58) \cdot A_t = 45000$

300

150

$A_t = 28481$

- I-B
- I-A
- V-A
- IV-C
- IV-B

找 Table 里大于它的最小值

↓

37500

Type II-A

问题 5

2 分

B

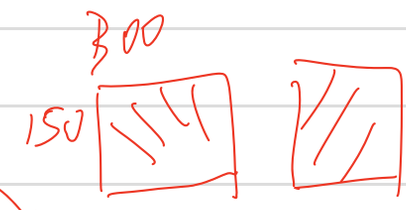
NS

A multi-story office building is 300 ft by 150 ft. Another building is located along one of the 150 ft walls with no other buildings within 30 ft. The office building has no sprinkler system and is a wood frame building with a brick exterior wall. What is the minimum construction type?

Type III

$I_f = \left[\frac{900-150}{900} - 0.25\right]\frac{30}{30}$

$= 0.58$



I_s

$A_t + A_t I_f + A_t 0 = 300 \times 150$

$(1+0.58) \cdot A_t = 45000$

$A_t = 28481$

- II-A
- III-B
- I-A
- V-B
- IV-C
- IV-A
- IV-HT
- IV-B
- V-A
- II-B
- III-A
- I-B

找 Table 里大于它的最小值

↓

28500

Type III-A

问题 6

2 分

What is the minimum rating of a wall (in hr) between two occupancies if Occupancy 1 is a 75 ft x 100 ft department store and Occupancy 2 is a 80 ft x 120 ft hotel? The building is a nonsprinklered heavy timer building where the members are exposed, but have been tested and shown to have a 2 hr fire resistance.

R-1 or R-2

M

NS

Type IV-B

- 3 hr
- 1 hr
- 2 hr
- No separation required
- Not allowed

M	R-1	
41000	41000	Table
7500	9600	

7500+9600 < 41000 not required

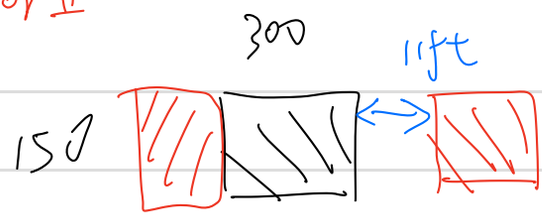
问题 7

2 分

B

SM $I_s = 2$

A multi-story office building is 300 ft by 150 ft. Another building is located along one of the 150 ft walls, a second building is 11 ft from the other 150 ft wall, and no other buildings within 30 ft. The office building has a sprinkler system and is a steel frame building with a brick exterior wall. What is the minimum construction type? Type I or II



- I-B
- V-B
- II-B
- I-A
- IV-C
- III-A
- IV-HT
- IV-B
- III-B
- II-A
- IV-A

$$I_f = \left[\frac{900-150-150}{900}\right]\frac{20}{30} = 0.44$$

$$A_t + A_t \times 2 + A_t \times 0.44 = 300 \times 150$$

$$A_t = 13081$$

找Table里大于它的最小值 与NS比

23000

Type II-B

Type

- V-A

问题 8

2 分

What is the minimum rating of a wall (in hr) between two occupancies if Occupancy 1 is a 50 ft x 80 ft theater and Occupancy 2 is a 60 ft x 150 ft low hazard storage? The building is a nonsprinklered steel frame building with nonrated rated structural members.

A-1 S-2

Table 508.4 NS Type II-B

- 2 hr
- 3 hr
- 1 hr
- No separation required
- Not allowed

A-1 S-2

8500 26000 Table

4000 + 9000

8500 < 13000 < 26000

Table 508.4

$\frac{4000}{8500} + \frac{9000}{26000} = 0.82 < 1$ →

问题 9

2 分

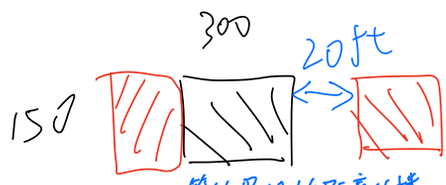
SM B

A multi-story office building is 300 ft by 150 ft. Another building is located along one of the 150 ft walls, a second building is located 20 ft from one of the 300 ft walls, and no other buildings within 30 ft. The office building has no sprinkler system and is a wood frame building with a brick exterior wall. What is the frontage factor?

open

Type III

0.39



算的是没给距离的楼

$I_f = \left[\frac{900-150}{900} - 0.25\right]\frac{20}{30} = 0.39$

问题 10

2 分

What is the maximum allowable area (in ft^2) for a one story, wood frame hospital? I-2

$I_s = 3$

S1 Type V

$I_f = 0.75 = (1-0.25)\frac{30}{30}$

$= U_{max}$

45125

$A_t(1+3+0.75) = 45125$ ✓

$N_5 = 12000$ or 950

IV ✓

Table 506

没有要保存的新数据。最后检查时间是 18.23

提交测验

没说重木就是 ✓

(IV)

Lab 11 ASET and RSET 16/20

已开始： 11月7日 14:18

测验说明

问题 1 1.25 分

What is the movement speed (in m/s) in a room if the extinction coefficient in the room is 0.01 m^{-1}?

1.27

(or 1.2)

W=−0.1364·ln(0.01)+0.643=1.27

问题 2 1.25 分

63 − 6 − 6 = 51

If a 63 in wide 7 in x 11 in stair that has an average of one person every 3 tread, how fast are people expected to move in ft/min?

k=212, a=2.86,

160

D=1(person)/[11in*~~63~~51in*3(段) /144(换单位)]

$S = 212 - \frac{144}{11 \times 51 \times 3} \times 212 \times 2.86 = 160$

问题 3 1.25 分

What heat flux (in kW/m^2) will cause a person to become incapacitated in 1.6 s due to pain?

18.9

(or 18.91)

1.6/60 [min]=1.33*(q)^(-1.33)

heat flux(q)=18.9kW/m2

问题 4 1.25 分

What speed should you use for the building population in order to calculate RSET?

Elderly care facility	[选择] slower speed
Business office	[选择] slower speed

问题 5

1.25 分

People are evacuating from corridors A and B into corridor C. If corridors A and B are 46 in wide with a flow of 34 persons/min and 42 persons/min respectively, what is the width of corridor C (in inches) that will prevent a queue from forming? The maximum specific flow is 24.0 persons/ft-min.

34 persons/min

42 persons/min

46in A	->		<-	B 46in
		C		
		v 24 persons/min		Fs=Fc/We

求width

54

W_e_A and B=46-8-8=30in

Fsa*Wea+Fsb*Web=Fsc*Wec
Fca+Fcb=Fsc*Wec
34+42=24*Wec
W_e_C=19/6ft=38in

width_C=W_e_C+8+8=54in

问题 6

1.25 分

If the CO concentration is a constant 15,776 ppm, the breathing rate is 8.5 L/min, and incapacitation is when the %COHB is 30 %, how long (in s) does the person have to escape?

30=3.32*10^(-5)*15776^1.036*8.5*t

t=4.758min=285s

285

问题 7

1.25 分

What temperature (in °C) of smoke will cause a person to become incapacitated in 1 min?

1=5*10^7*T^(-3.4)

183.8

T=183.8℃

(or 184)

问题 8

$1.11\times10^{-2}\times t^{2.0}=1874$

1.25 分

After how long (in s) is a medium t^2 fire expected to reach 1,874 Btu/s?

1.11*10^(-2)*t^2=1874

t

411

t=411s

问题 9

1.25 分

What is the specific flow (in persons/ft-min) if the density is 0.166 persons/ft^2 and people are in a corridor that is 55 in wide?

S=275-2.86*275*0.166=144.441 ft/min
F_s=Density*S=0.166*144.441=23.9 persons/ft-min

23.9

(or 24)

问题 10

1.25 分

What is the calculated flow (in persons/min) if the density is 0.143 persons/ft^2 and people are in a corridor that is 48 in wide?

S=275-2.86*275*0.143=162.53 ft/min
F_s=Density*S=0.143*162.53=23 persons/ft-min

61.3

F_c=23*(48-8-8/12)=61.33 persons/min

(or 62)

问题 11

1.25 分

If the concentration of CO is given by $C=4.4*t^3*10^{-7}$ where t is in s and C is in ppm, when does incapacitation occur (in s) if the endpoint criteria is 35,000 ppm-min? Assume that the person is exposed to smoke starting at t=0.

2089 (2090. ±1%)

Excel . 3143 — Exam — 迭代.xlsx

问题 12

1.25 分

How long (in s) will the evacuation of 238 people take? They have to evacuate from a room into a 110 cm corridor to a 75 cm wide stair door (19 m travel distance), down the 122 cm wide stair (14 m travel distance), and out an 75 cm wide exit door. Assume that all widths are effective, the maximum specific flow for corridors and doors is 1.30 persons/m-s and for stairs is 1.01 persons/m-s, and that the maximum speeds are 1.19 m/s for the corridors and doors and 0.95 m/s for the stairs.

275

问题 13

1.25 分

What is the visibility (in m) in a room if K=6 and the optical density is 0.2 m^{-1}?

Vis=0.43*6/0.2=12.9

12.9

(or 13)

问题 14

1.25 分

k=212

If people are descending a 47 in wide 7 in by 11 in stair from floors above with a density of 0.13 persons/ft^2 and 4 persons/min are entering from the landing, how

fast is the queue growing in persons/min? Assume that the maximum flow is 46.5 persons/min

7.67

(or 8)

① k=212, D=0.13persons/ft2,
② S=212-2.86*212*0.13=133.18 ft/min

③ Fs=S*D=133.18 ft/min*0.13persons/ft2
=17.3persons/ft-min

④ W_e=(47-6-6)/12=2.9ft
⑤ F_c=F_s/W_e=17.3*2.9=50.17 persons/ft-min
⑥ 50.17+4-46.5=7.67persons/min

问题 15

1.25 分

What is the RSET value (in s) if the travel distance is 79 ft and the density in the corridor is at its maximum (0.175 persons/ft^2)?

$$\frac{79[\text{ft}]}{275-275*2.86*0.175[\text{ft/min}]}=34.5\text{s}$$

34.5

(or 35)

问题 16

1.25 分

What is the RSET value (in s) if the travel distance is 6.5 m and the person is the only person in a room that is 12 m by 9 m?

5.4

(or 5)

D=1/（12*9）=1/108 persons/m2<0.54mpersons/m2

S=1.4-0.266*1.4*0.54=1.2m/s
REST_Time=6.5[m]/1.2[m/s]=5.4[s]

在 15:29 保存测验

提交测验