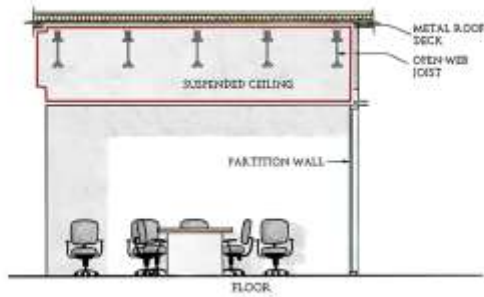


# LAYOUT EXAMPLE: CONFERENCE ROOM

1. ARE SPRINKLERS REQUIRED?
2. HAZARD CLASSIFICATION
3. UNOBSTRUCTED OR OBSTRUCTED?
4. COMBUSTIBLE OR NONCOMBUSTIBLE?
5. PIPE SCHEDULE OR HYDRAULICALLY CALCULATED SYSTEM?  
• EXTRA HAZARD OR STORAGE
6. SELECT AN APPROPRIATE SPRINKLER TYPE & ORIENTATION
7. FIND THE LIMITS FOR SPRINKLER SPACING
8. POSITION THE SPRINKLERS



**TABLE**

Fire-rated openings in noncombustible and limited-combustible construction with limited access and not permitting occupancy of storage of combustibles shall not require fire-rated protection.

**8.2.1.1**  
The opening shall be surrounded by **1.5-hour fire-rated** wall and **1.5-hour fire-rated** ceiling with an **hourly** fire-rated door or window.

**8.2.1.2**  
The opening shall be surrounded by **1.5-hour fire-rated** wall and **1.5-hour fire-rated** ceiling.

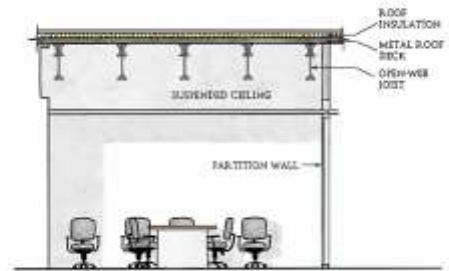
**TABLE**

**8.2.2**  
Fire-rated openings formed by studs or joists with less than 6 in. (152 mm) between the vertical or horizontal edges of the studs or joists shall not require fire-rated protection. (See Figure 18.5.4.1.1.)

**8.2.4**  
Ceilinged openings formed by bar joists with less than 6 in. (152 mm) between the roof or floor deck and ceiling shall not require fire-rated protection.

## NOTES

A large grid of dotted lines for taking notes.



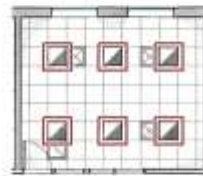
Code No.	Description	Area	Value
1000-101	Minimum Storage, 1000	1000-101	14.00
1000-102	Minimum Storage, 1000	1000-102	14.00
1000-103	Minimum Storage, 1000	1000-103	14.00
1000-104	Minimum Storage, 1000	1000-104	14.00
1000-105	Minimum Storage, 1000	1000-105	14.00
1000-106	Minimum Storage, 1000	1000-106	14.00
1000-107	Minimum Storage, 1000	1000-107	14.00
1000-108	Minimum Storage, 1000	1000-108	14.00
1000-109	Minimum Storage, 1000	1000-109	14.00
1000-110	Minimum Storage, 1000	1000-110	14.00

**4.2.1.7.2**  
The protection criteria for miscellaneous storage with tanks determined by in-rack sprinklers shall be in accordance with 4.2.2.

**4.2.1.7.3**  
The maximum height for miscellaneous storage shall not exceed 5.00 m (170 ft).

**4.2.1.7.2 Protection Criteria for Low-Piled Storage**

**4.2.1.7.3.1**  
The protection criteria for low-piled storage of tanks through-truss racking shall be in accordance with 4.2.2 and 4.2.1.7.2. The protection criteria for low-piled storage of tanks through-truss racking shall be in accordance with 4.2.2 and 4.2.1.7.2 in accordance with the limitations portion of 4.2.2.



NOTES

A large grid of dotted lines for taking notes, spanning most of the page width and height.

# LAYOUT EXAMPLE: CONFERENCE ROOM



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**Exception:** For 2' finished ceiling speakers with a different ceiling or shall be acceptable for both of the protection area when installed in accordance with this listing.

**6.6.2.1\*** When calculating flow from an orifice, the total pressure (P<sub>2</sub>) shall be used.

**Exception:** For the normal pressure (P<sub>1</sub>) calculated by reducing the static pressure from the total pressure shall be permitted, where the normal pressure is used, it shall be used in all branch line and cross-main values applicable.

**6.6.2.2** Maximum static water pressure of any speaker shall be 7 psi (0.5 bar).

**Exception:** When higher maximum operating pressure for the device is permitted as specified in the listing of the speaker.

**6.5 Pipe Schedules.** Pipe schedules shall not be used, except in existing systems and in new systems or retrofits to existing systems described in Chapter 9. Water supplies shall conform to 9.2.2.

**6.5.1P General.** The pipe schedule rating provisions shall not apply to hydraulic calculated systems. Speaker systems having speakers with orifices other than 1/4 in. (3.2 mm) nominal, listed piping material other than that covered in Table 6.5.1, Extra Hazard Groups 1 and 2 systems, and exposure protection systems shall be hydraulically calculated.

**6.5.1.1** The number of automatic speakers on a given pipe size on one floor shall not exceed the number given in 6.5.1.1.1, 6.5.1.1.2, or 6.5.1.1.3 for a given occupancy.

**6.5.1.1.1** Size of Orifices. Each system floor shall be sized to support all speakers on the floor on any one floor as determined by the standard schedules of pipe sizes in 6.5.1.1.1.1, 6.5.1.1.1.2, or 6.5.1.1.1.3.

**Table 6.5.1.1.1 Light Hazard Pipe Schedules**

Steel		Copper	
1 in.	1 speaker	1 in.	2 speakers
1 1/2 in.	1 speaker	1 1/2 in.	5 speakers
2 in.	2 speakers	2 in.	12 speakers
2 1/2 in.	5 speakers	2 1/2 in.	25 speakers
3 in.	10 speakers	3 in.	45 speakers
3 1/2 in.	20 speakers	3 1/2 in.	115 speakers
4 in.	See 4.2.1	4 in.	See 4.2.1

For 10 Orifices - 1 in. or 3/4 in.

Branch lines from a common cross main, each branch line shall not exceed 8 speakers above and 8 speakers below any ceiling on either side of the cross main. Pipe sizing up to and including 2 1/2 in. (64 mm) shall be as shown in Table 6.5.1.1.1 listing the greatest number of speakers to be found on any two adjacent levels.

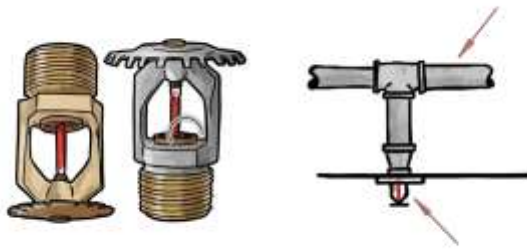
**Exception:** Branch line and cross main supplying speaker installed ceiling above, or ceiling below, ceiling shall be sized in accordance with Table 6.5.1.1.2.

**Table 6.5.1.2 Number of Speakers Above and Below a Ceiling**

Steel		Copper	
1 in.	2 speakers	1 in.	2 speakers
1 1/2 in.	2 speakers	1 1/2 in.	4 speakers
2 in.	5 speakers	2 in.	10 speakers
2 1/2 in.	10 speakers	2 1/2 in.	20 speakers
3 in.	20 speakers	3 in.	45 speakers

For 10 Orifices - 1 in. or 3/4 in.

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**Table 6.5.1.3 Minimum Protection Area**

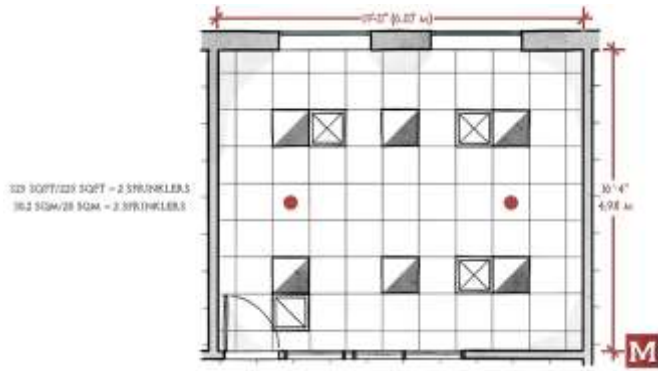
**Table 6.5.1.3.1 The Protection Area Attribution**  
 Division of Protection Area and Weight Rating Speakers for Light Hazard

Orifice Type	Speaker Type	Minimum Protection Area		Minimum Spacing	
		sq ft	sq m	ft	m
Standard	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
Standard	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
Standard	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
Standard	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0
	Standard	100	9.3	10	3.0

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## NOTES

Grid of dotted lines for notes.



**10.2.5.2.1**

The distance from sprinklers to walls shall not exceed one-half of the allowable distance between sprinklers as indicated in Table 10.2.4.2.1(a) through Table 10.2.4.2.1(c).

**10.2.5.2.2**

The requirements of 10.2.5.2.1 shall not apply where walls are angled or irregular, and the maximum horizontal distance between a sprinkler and any point of their area protected by that sprinkler shall not exceed 0.75 times the allowable distance permitted between sprinklers, provided the maximum perpendicular distance is not exceeded.

**10.2.5.2.3**

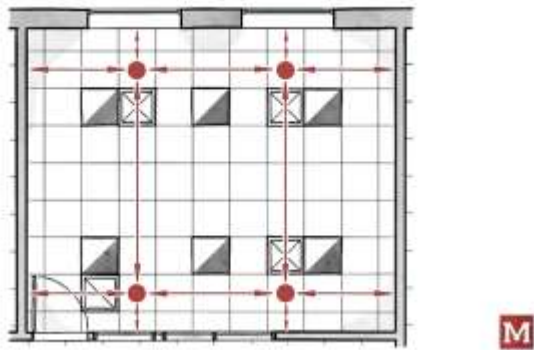
The requirements of 10.2.5.2.1 shall not apply within small rooms as defined in 3.3.206.

**10.2.5.2.3.1**

Sprinklers shall be permitted to be located not more than 0'6" (2.7 m) from any single wall.

**10.2.5.2.3.2**

Sprinkler spacing limitations of 10.2.5 and area limitations of Table 10.2.4.2.1(a) shall not be exceeded.



**EIGHT STEPS OF LAYING OUT SPRINKLERS FOR A SPACE:**

- ① WHAT NEEDS SPRINKLERS
- ② HAZARD CLASSIFICATION
- ③ OBSTRUCTED OR UNOBSTRUCTED
- ④ COMBUSTIBLE OR NONCOMBUSTIBLE
- ⑤ PIPE SCHEDULE OR HYDRAULICALLY CALCULATED
- ⑥ SELECTED A SPRINKLER TYPE
- ⑦ FOUND LIMITS
- ⑧ POSITIONED THE SPRINKLERS

**NOTES**

A large grid area for taking notes, consisting of a series of small squares.