TECHNICAL DATA

RELEASE PLACEMENT CLOSED STRUCTURES

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

CAUTION

THESE DESIGN PROCEDURES ARE PROVIDED ONLY FOR THE GENERAL GUIDANCE OF SYSTEM DESIGNERS. THEY CONTAIN BROAD OUTLINES OF THE TYPES OF CONSIDERATIONS WHICH ENTER INTO THE DESIGN OF SYSTEMS. BECAUSE OF THE MANY DIFFERENT TYPES OF EQUIPMENT AND APPLICATIONS ENCOUNTERED IN PRACTICE, NO GENERAL SYSTEM DESIGN CAN BE PROVIDED, WHICH WILL SATISFY ALL OF THE VARYING NEEDS. THEREFORE, RELIANCE MUST BE PUT IN THE EXPERTISE OF A SYSTEM DESIGNER WHO SHOULD BE ENCOURAGED TO USE ALL AVAILABLE INFORMATION FROM THE OWNER, INSURANCE AUTHORITIES AND LOCAL GOVERNMENTAL UNITS. VIKING DOES NOT WARRANT OR GUARANTEE THAT FOLLOWING THESE PROCEDURES WILL RESULT IN SATISFACTORY SYSTEM DESIGN FOR ANY PARTICULAR PROJECT.

A. LOCATION OF VIKING MODEL C THERMOSTATIC RELEASES INSIDE CLOSED STRUCTURES. (For buildings with partial walls or roofs, see outside spacing).

1. First determine the atmosphere the Model C Release is used for. The Model C-1 is used for general purposes, non-corrosive atmospheres and is more sensitive to response of heat. Model C-2 release shall be used for corrosive or seawater air atmospheres and as indicated by spacing information is less sensitive to heat. See technical data pages for Model C-1 and C-2 Thermostatic Release devices for specific details of product.

B. GENERAL PROCEDURE

1. Determine:
   Room size and shape
   Room height
   Pitch of roof
   Type of ceiling construction
   Beam size (also called joists or purlins)
   Beam spacing
   Beam direction
   Girder size
   Girder spacing
   Girder direction
   Whether or not beams are framed into girders
2. Note characteristics of and locations of special building features:
   Monitors and skylights – note size and depth
   Ventilators – note size, capacity and direction of input and output
   Decks – size and height
   Heat producing equipment – note direction of normal heat output
   Probable sources of fire
3. Select the release spacing chart for the type of roof. (See charts on Pages 207b, 207c, and 207d.) Determine the maximum release spacing for the type of roof or ceiling construction and release used.
4. Consider the maximum allowable spacing, lay out the releases. Avoid heat-producing equipment. Try to put lines of releases in the center of bays formed by framed in girders. If release pattern does not adequately protect the following, additional releases may be required:
   Monitors
   Skylights of more than 50 sq ft (15.2 sq m) and 4’ (1.2m) deep
   Probable sources of heat
   Area around mechanical ventilation
   NOTE: It may be advantageous to stagger release spacing across joists or beams.
5. Place releases under decks larger than 10’ (3,0m) in width. Fixed temperature heads may be used in place of releases in small rooms if slower response can be tolerated.
6. If releases are installed behind grills, reduce spacing 50%.
7. Releases should be placed on underside of beams. If necessary, releases can be placed just above underside of beams for protection, although this may slow the response.
8. Review the layout to see that it is reasonable and maximum spacings are not exceeded. Spacings and locations are such that the release will operate before a 160 °F (71 °C) sprinkler located on 10’ (3.0 m) x 10’ (3.0 m) spacing. Keep in mind, however, that local conditions may greatly affect the response time. Thus in high hazard areas, it may be wise to reduce the spacing. Likewise, releases should be located as close as possible to the probable source of fire. The spacing requirements

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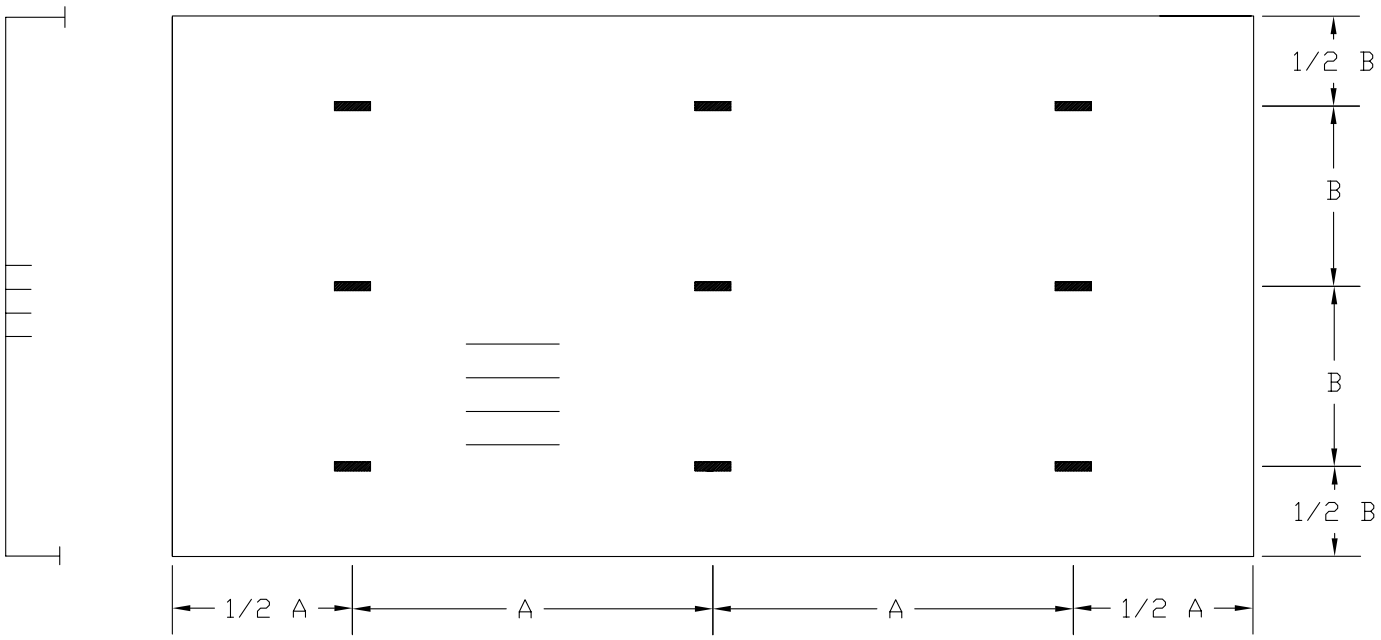
should be regarded as maximums. Releases should be located away from areas of rapidly changing ambient temperatures such as heaters, lights, oven doors and even outside doors. In the event that it is impossible to completely shield the release from these rapid temperature changes, it may be necessary to decrease the sensitivity of the release by increasing the setting.



1. Maximum spacing for closed structure with level roof, shed or peaked roof where pitch does not exceed 1 in 8 for Viking Model C Thermostatic Releases with factory setting .025 (0.63 mm) for Model C-1 and .018 (0.46 mm) for Model C-2.

Figure 1

TYPE OF CEILING CONSTRUCTION	A		B	
	(ft)	(m)	(ft)	(m)
	C1/C2	C1/C2	C1/C2	C1/C2
Smooth - Bar Joist - Open Web - No Beam Depth over 4” (100 mm)	50/40	15.2/12.2	50/40	15.2/12.2
Joists 0 to 3 ft (.9 m) Joist Depth More Than 4” (100 mm)	45/36	13.7/11	40/32	12.2/10
Beams 3 to 5 ft (.9 to 1.5 m) C to C				
Beam Depth 4” to 14” (100 to 355 mm)	45/36	13.7/11	40/32	12.2/10
14” to 18” (355 to 457 mm)	40/32	12.2/10	40/32	12.2/10
18” to 22” (457 to 560 mm)	40/32	12.2/10	35/28	10.7/8.5
22” to 24” (560 to 610 mm)	40/32	12.2/10	30/24	9.1/7.3
Beams More Than 5 ft (1.5 m) C to C				
Beam Depth 4” to 14” (100 to 355 mm)	45/36	13.7/11	45/36	13.7/11
14” to 18” (355 to 457 mm)	45/36	13.7/11	40/32	12.2/10
18” to 22” (457 to 560 mm)	45/36	13.7/11	35/28	10.7/8.5
22” to 24” (560 to 610 mm)	45/36	13.7/11	30/24	9.1/7.3

Where only one row is required, the end release is limited to 1/3 A
If ceiling or roof height is over 35 ft (10.67 m), reduce A & B dimensions to 87% of maximum.

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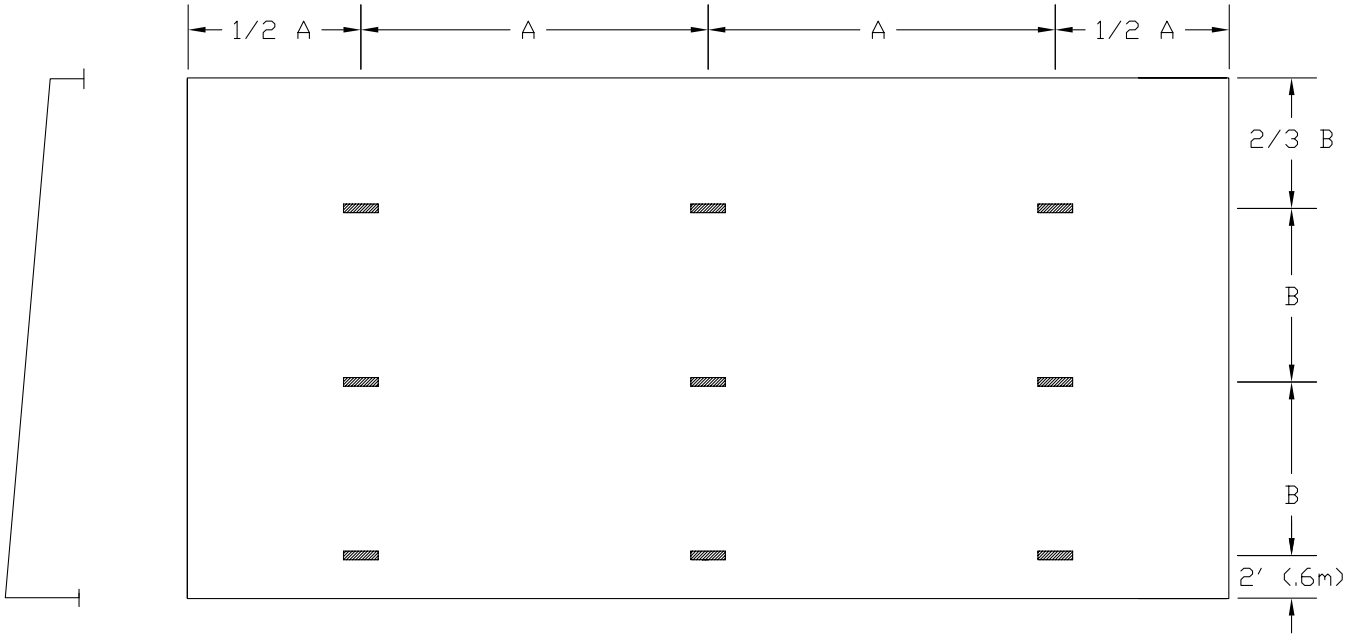

2. Maximum spacing for closed structure with shed roof where pitch is 1 in 8 or greater for Viking Model C Thermostatic Releases with factory setting .025 (0.63 mm) for Model C-1 and .018 (0.46 mm) for Model C-2.

Figure 2

TYPE OF CEILING CONSTRUCTION			A (ft) C1/C2	A (m) C1/C2	B (ft) C1/C2	B (m) C1/C2
Smooth - Bar Joist - Open Web - No Beam Depth over 4" (100 mm)			50/40	15.2/12.2	50/40	15.2/12.2
Beams Parallel to Peak	Joists 0 to 3 ft (.9 m) C to C	Joist Depth More Than 4" (100 mm)	45/36	13.7/11	40/32	12.2/10
	Beams 3 to 5 ft (.9 to 1.5 m) C to C	Beam Depth 4" to 14" (100 to 355 mm)	45/36	13.7/11	40/32	12.2/10
		14" to 18" (355 to 457 mm)	40/32	12.2/10	40/32	12.2/10
		18" to 22" (457 to 560 mm)	40/32	12.2/10	35/28	10.7/8.5
		22" to 24" (560 to 610 mm)	40/32	12.2/10	30/24	9.1/7.3
	Beams More Than 5 ft (1.5 m) C to C	Beam Depth 4" to 14" (100 to 355 mm)	45/36	13.7/11	45/36	13.7/11
		14" to 18" (355 to 457 mm)	45/36	13.7/11	40/32	12.2/10
		18" to 22" (457 to 560 mm)	45/36	13.7/11	35/28	10.7/8.5
		22" to 24" (560 to 610 mm)	45/36	13.7/11	30/24	9.1/7.3
Beams Perpendicular to Peak	Joists 0 to 3 ft (.9 m) C to C	Joist Depth More Than 4" (100 mm)	40/32	12.2/10	40/32	13.7/11
	Beams 3 to 5 ft (.9 to 1.5 m) C to C	Beam Depth 4" to 14" (100 to 355 mm)	40/32	12.2/10	40/32	13.7/11
		14" to 18" (355 to 457 mm)	40/32	12.2/10	40/32	12.2/10
		18" to 22" (457 to 560 mm)	35/28	10.7/8.5	40/32	12.2/10
		22" to 24" (560 to 610 mm)	30/24	9.1/7.3	40/32	12.2/10
	Beams More Than 5 ft (1.5 m) C to C	Beam Depth 4" to 14" (100 to 355 mm)	45/36	13.7/11	45/36	13.7/11
		14" to 18" (355 to 457 mm)	40/32	12.2/10	45/36	13.7/11
		18" to 22" (457 to 560 mm)	35/28	10.7/8.5	45/36	13.7/11
		22" to 24" (560 to 610 mm)	30/24	9.1/7.3	45/36	13.7/11
If ceiling or roof height is over 35 ft (10.67 m), reduce A & B dimensions to 87% of maximum.						

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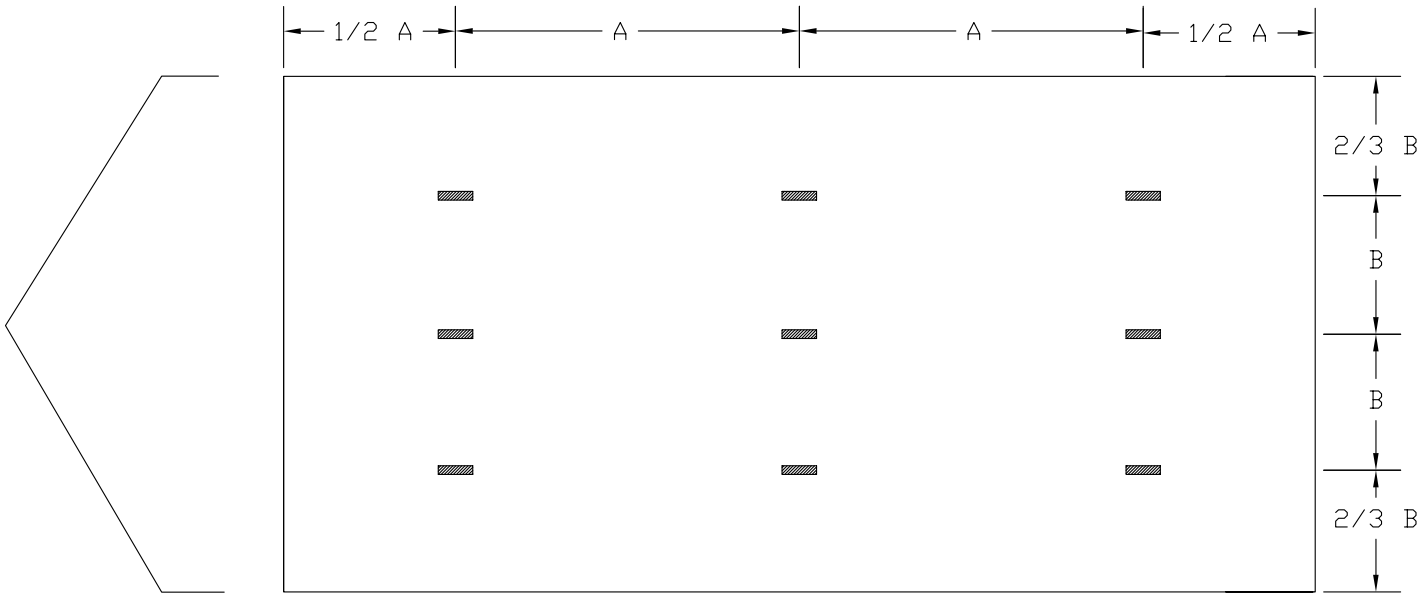

3. Maximum Spacing for closed structure with peak roof where pitch is 1 in 8 for Viking Model C Thermostatic Releases with factory setting .025 (0.63 mm) for Model C-1 and .018 (0.46 mm) for Model C-2.

Figure 3

TYPE OF CEILING CONSTRUCTION			A (ft) C1/C2	A (m) C1/C2	B (ft) C1/C2	B (m) C1/C2
Smooth - Bar Joist - Open Web - No Beam Depth over 4” (100 mm)			50/40	15.2/12.2	50/40	15.2/12.2
Beams Parallel to Peak	Joists 0 to 3 ft (.9 m) C to C	Joist Depth More Than 4” (100 mm)	45/36	13.7/11	40/32	12.2/10
	Beams 3 to 5 ft (.9 to 1.5 m) C to C	Beam Depth 4” to 14” (100 to 355 mm)	45/36	13.7/11	40/32	12.2/10
		14” to 18” (355 to 457 mm)	40/32	12.2/10	40/32	12.2/10
		18” to 22” (457 to 560 mm)	40/32	12.2/10	35/28	10.7/8.5
		22” to 24” (560 to 610 mm)	40/32	12.2/10	30/24	9.1/7.3
	Beams More Than 5 ft (1.5 m) C to C	Beam Depth 4” to 14” (100 to 355 mm)	45/36	13.7/11	45/36	13.7/11
		14” to 18” (355 to 457 mm)	45/36	13.7/11	40/32	12.2/10
		18” to 22” (457 to 560 mm)	45/36	13.7/11	35/28	10.7/8.5
		22” to 24” (560 to 610 mm)	45/36	13.7/11	30/24	9.1/7.3
Beams Perpendicular to Peak	Joists 0 to 3 ft (.9 m) C to C	Joist Depth More Than 4” (100 mm)	40/32	12.2/10	40/32	13.7/11
	Beams 3 to 5 ft (.9 to 1.5 m) C to C	Beam Depth 4” to 14” (100 to 355 mm)	40/32	12.2/10	40/32	13.7/11
		14” to 18” (355 to 457 mm)	40/32	12.2/10	40/32	12.2/10
		18” to 22” (457 to 560 mm)	35/28	10.7/8.5	40/32	12.2/10
		22” to 24” (560 to 610 mm)	30/24	9.1/7.3	40/32	12.2/10
	Beams More Than 5 ft (1.5 m) C to C	Beam Depth 4” to 14” (100 to 355 mm)	45/36	13.7/11	45/36	13.7/11
		14” to 18” (355 to 457 mm)	40/32	12.2/10	45/36	13.7/11
		18” to 22” (457 to 560 mm)	35/28	10.7/8.5	45/36	13.7/11
		22” to 24” (560 to 610 mm)	30/24	9.1/7.3	45/36	13.7/11

If ceiling or roof height is over 35 ft (10.67 m), reduce A & B dimensions to 87% of maximum.