VIKING®

TECHNICAL DATA

RELEASE PLACEMENT OPEN 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 IN OPEN STRUCTURES OR OUTSIDE.

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

B. GENERAL PROCEDURE

1a. If semi-enclosed building, determine:
   a. Location of grating floors.
   b. All information required under inside spacing.

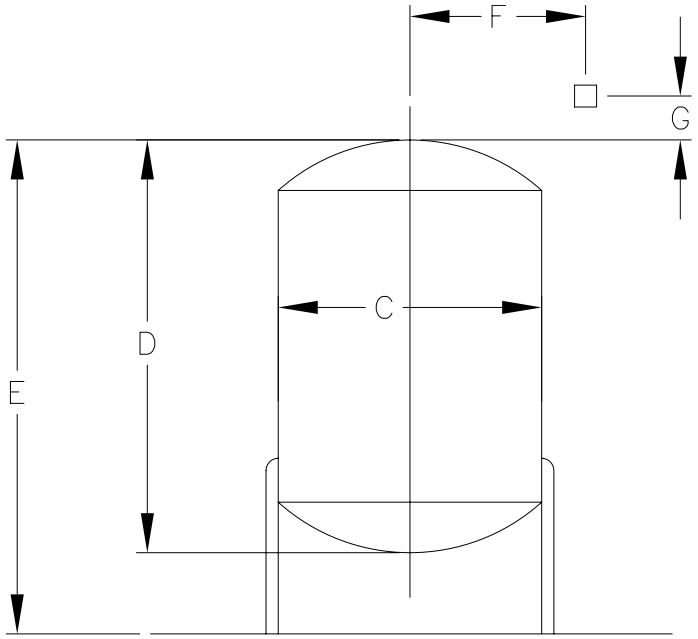
1b. If individual or groups of equipment, determine:
   a. Size and shape.

2. Note characteristics of and location of special features:
   a. Monitors and skylights – note size and depth.
   b. Decks – size and height.
   c. Heat producing equipment – note direction of normal heat output.
   d. Probable sources of fire.
3. Select the release spacing chart for the type of situation.
4. If a large semi-enclosed building is involved, follow the rules for inside spacing when placing the interior releases.
5. In covering individual pieces or groups of equipment initially, lay out the releases so they will be as close as possible to the probable source of fire. Then fill out coverage using the appropriate chart. Try to put releases so they are in the path of fire spread and/or downwind from fire.
6. When covering a number of individual pieces of equipment in an area, check to see if releases protect more than one piece of equipment. Area coverage may be more desirable.
7. Release hoods should be used for protection of the release from weather or physical damage such as under grating floors or where release may be subject to accumulation of dirt. Hoods have little or no value as “heat collectors”.
8. It may be desirable to place 160 °F (71 °C) fixed temperature release at preferred locations where the fire may originate or be confined for a short time. In particular, fixed temperature release may be located under tanks and under inside equipment. Also, fixed temperature release may be located inside small rooms.
9. Review the layout to see that it is reasonable. The maximums stated are conservative, but due to variance in natural weather conditions, maximum and minimum spacing is recommended to be used.

TECHNICAL DATA

RELEASE PLACEMENT OPEN 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



Maximum spacing of Viking Model C Thermostatic Release factory setting 0.025 (0.63 mm) for Model C-1 or 0.018 (0.46 mm) for Model C-2 for vertical tanks located outside or in open structures.

Figure 1

Maximum Tank Diameter C		Maximum Ht. of Tank D		Maximum Ht. Above Ground E		Maximum Distance from C of Tank to Release F		Minimum Ht. of Release Above Tank G		Number of Releases Required	
ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	C-1	C-2
5	1.5	20	6.1	24	7.3	0	0	1	.30	1	1
8	2.4	20	6.1	24	7.3	7	2.1	1	.30	2	2
12	3.7	20	6.1	24	7.3	9.5	2.9	1	.30	3	3
20	6.1	20	6.1	24	7.3	14.	4.3	1	.30	4	4
28	8.5	20	6.1	24	7.3	17	5.2	1	.30	5	6
35	10.7	20	6.1	24	7.3	20	6.1	1	.30	6	7
41	12.5	20	6.1	24	7.3	23	7.0	1	.30	7	8
48	14.6	20	6.1	24	7.3	26	7.9	1	.30	8	10
55	16.8	20	6.1	24	7.3	29	8.8	1	.30	9	11
62	18.9	20	6.1	24	7.3	32	9.8	1	.30	10	12

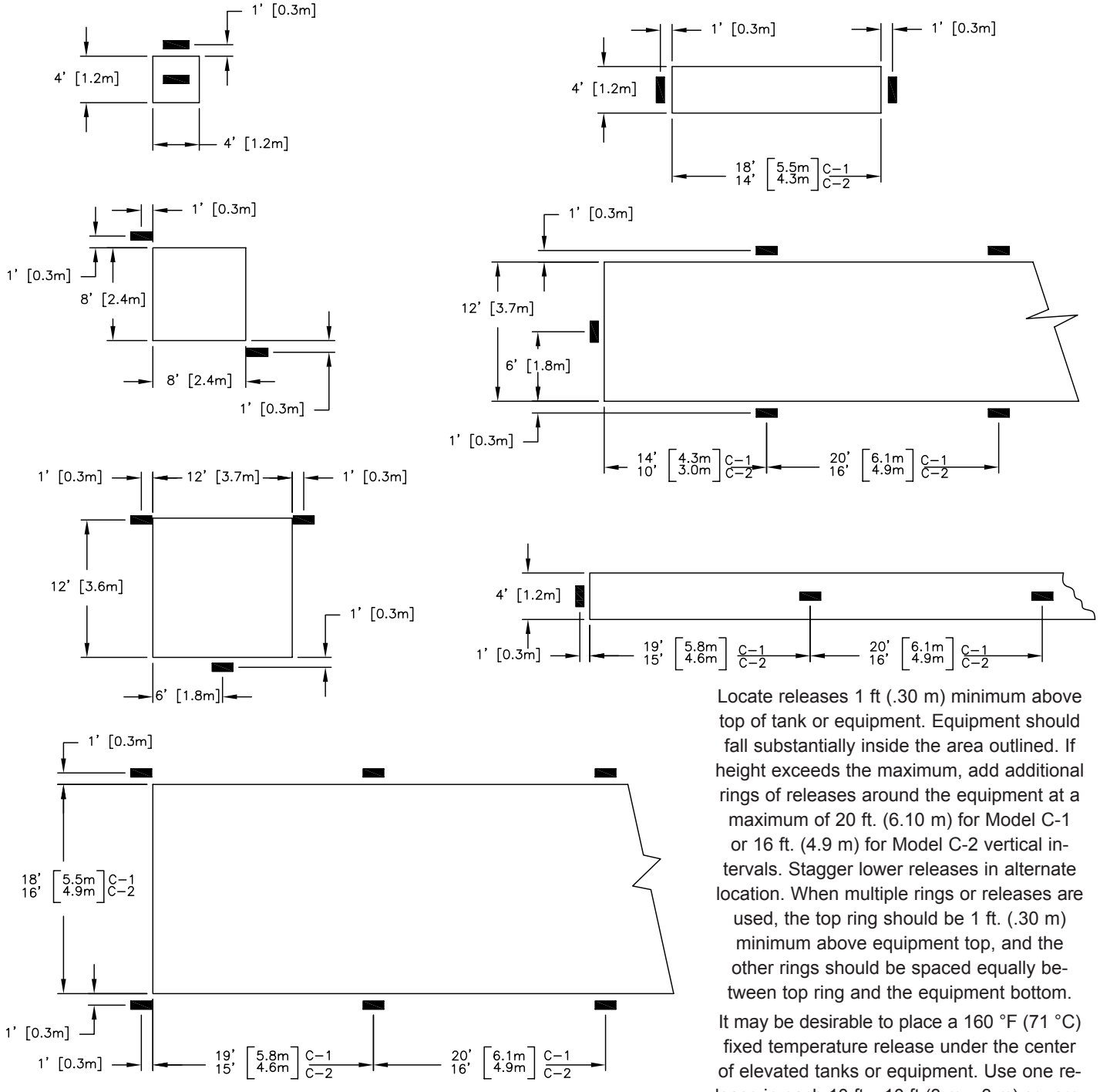
When tank height exceeds 20 ft, (6.1 m) add additional rings around the tank at a maximum of 20 ft. (6.1 m) for Model C-1 or 16 ft (4.9 m) for Model C-2 vertical intervals. Stagger the releases. When multiple rings or releases are used, the top ring should be 1 ft (.30 m) minimum above top of tank. The other release rings should be spaced equally between bottom of tank and top ring. On tanks over 30 ft (9.1 m) and to 60 ft (18.3 m) in diameter, locate a release over top or center. Over 60 ft (18.3 m), use three releases in a triangular pattern. If possible, space releases around tank so they can “see” each other. Use a 160 °F (71 °C) fixed temperature release under the center of a small elevated tank or pilot heads on 10 ft (3.0 m) centers for a larger elevated tanks. For high risks, use releases under tanks.

TECHNICAL DATA

RELEASE PLACEMENT OPEN 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

Maximum spacing of Viking Model C Thermostatic Releases factory setting 0.025 (0.63 mm) for Model C-1 or 0.018 (0.46 mm) for Model C-2. For small individual horizontal tanks or small groups of equipment, plan views are shown.



Locate releases 1 ft (.30 m) minimum above top of tank or equipment. Equipment should fall substantially inside the area outlined. If height exceeds the maximum, add additional rings of releases around the equipment at a maximum of 20 ft. (6.10 m) for Model C-1 or 16 ft. (4.9 m) for Model C-2 vertical intervals. Stagger lower releases in alternate location. When multiple rings or releases are used, the top ring should be 1 ft. (.30 m) minimum above equipment top, and the other rings should be spaced equally between top ring and the equipment bottom.

It may be desirable to place a 160 °F (71 °C) fixed temperature release under the center of elevated tanks or equipment. Use one release in each 10 ft x 10 ft (3 m x 3 m) square. For high risks, use releases under tanks.

Figure 2

VIKING®

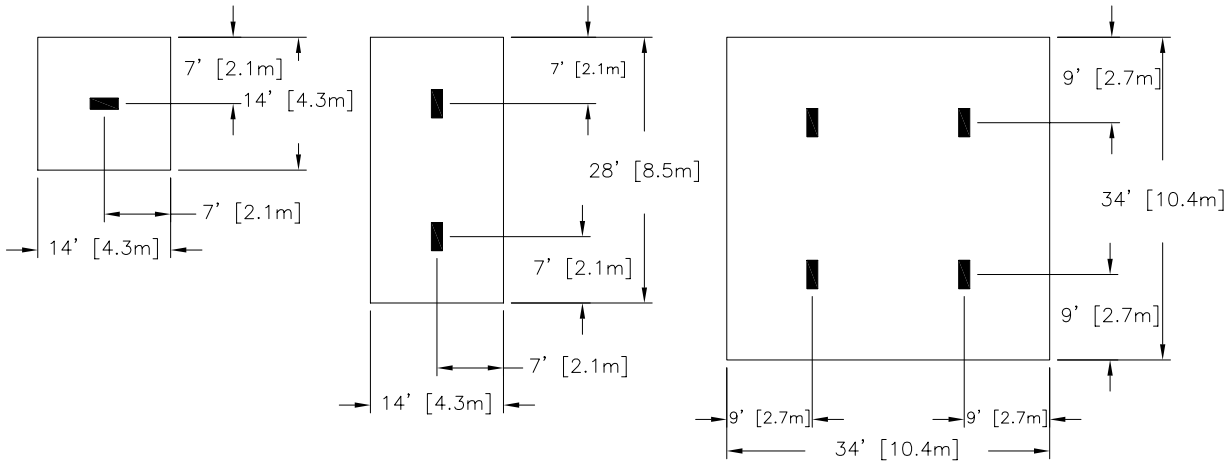
TECHNICAL DATA

RELEASE PLACEMENT OPEN STRUCTURES

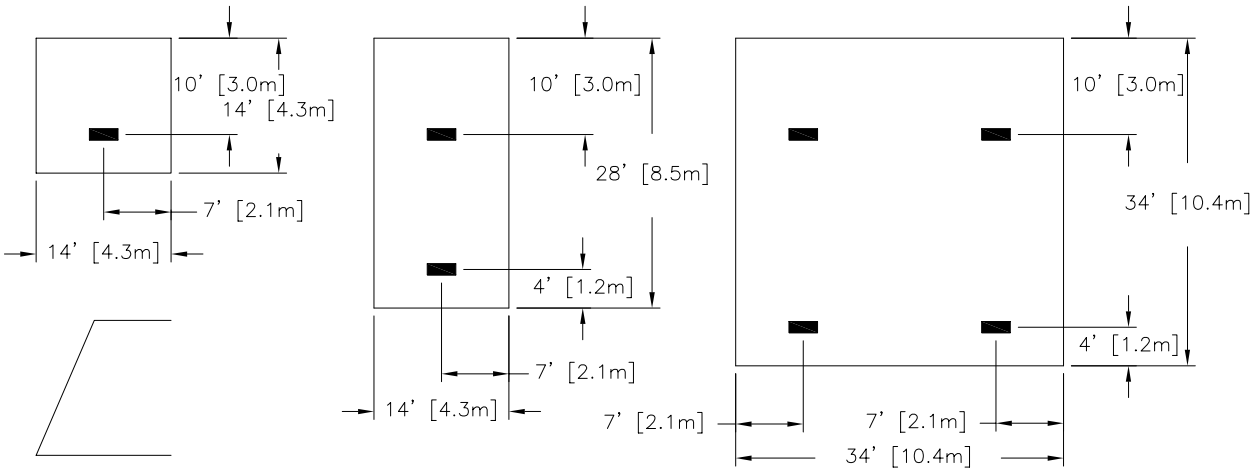
The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Maximum spacing of Viking Model C Thermostatic Releases factory setting 0.025 (0.63 mm) for Model C-1 or 0.018 (0.46 mm) for Model C-2 solid roofs, no walls.

LEVEL ROOF, SHED OR PEAK ROOF - Where Slope does not exceed 1 in 8.



SHED ROOF - Roof Pitch 1 in 8 or greater.



PEAK ROOF - Roof Pitch 1 in 8 or greater.

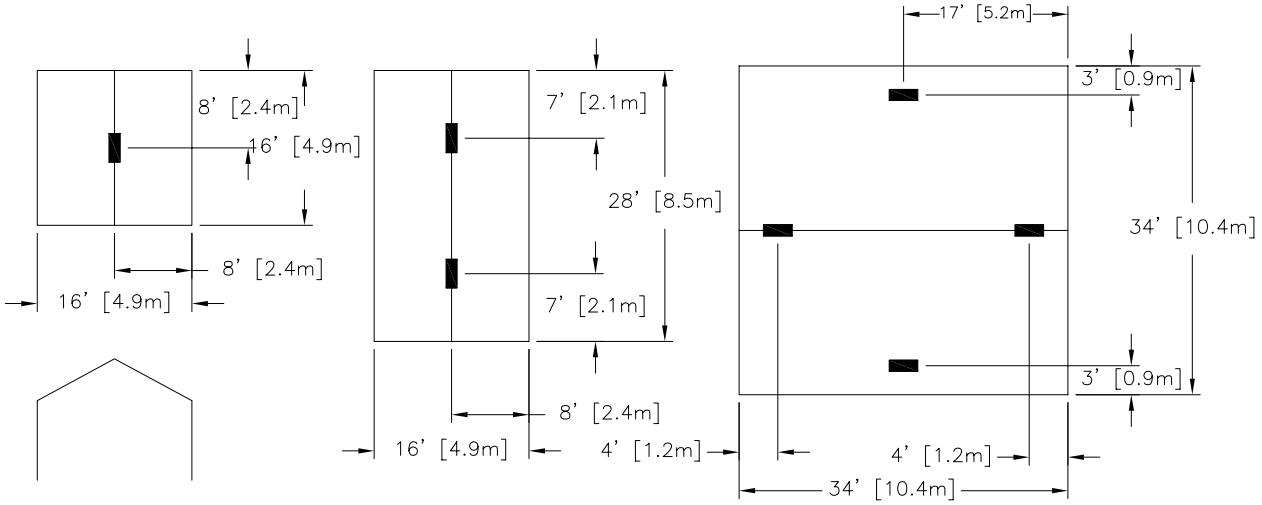


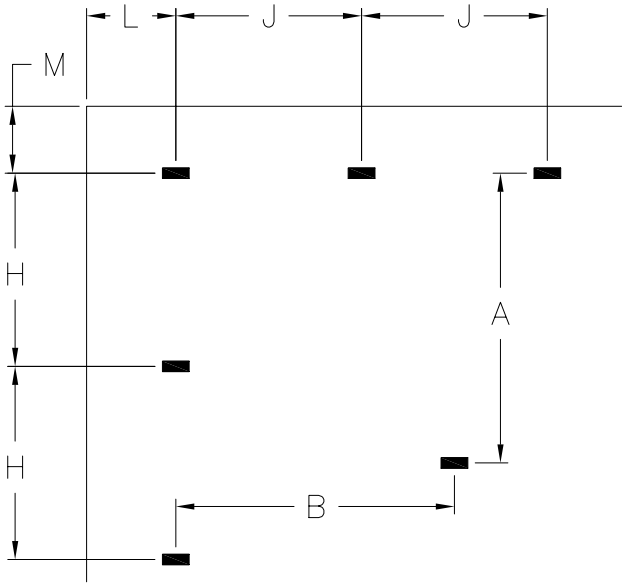
Figure 3

TECHNICAL DATA

RELEASE PLACEMENT OPEN 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

Maximum spacing of Viking Model C-1 Thermostatic Releases factory setting 0.025 (0.63 mm) for large areas outdoors or semi-enclosed buildings.



NOTES:
1. Locate releases close to underside of solid floor or roof.
2. If maximum allowable, A and B dimensions, place interior release outside of exterior line of releases, then interior releases are not needed.
3. Where multiple floors are involved, treat each floor as a separate building. If height between floors exceeds the maximum, add additional releases below in such a manner that vertical distance between releases does not exceed maximum height between floors.
4. Where top of building is open or grating, locate releases 1 ft (.30 m) minimum above top of grating. Locate releases below intermediate grating floors.
5. Locate releases 1 ft (.30 m) minimum above top of equipment.
6. If height of equipment exceeds the maximum, add additional releases directly above lower releases at a maximum of 20 ft (6.10 m); vertical intervals. Space releases equally between the top row and the equipment bottom.

Figure 4: Release Placement for Model C-1 Thermostatic Release

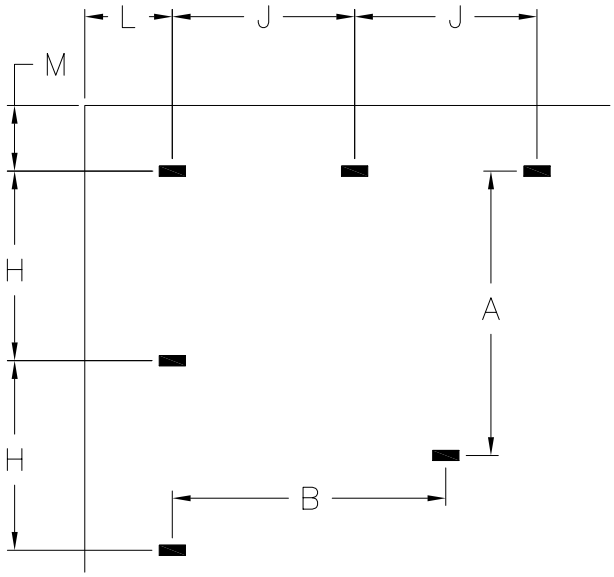
Condition	Larger Than		A Max.		B Max.		H Max.		J Max.		L Max.		M Max.		Max. Height Between Floors or to Top		Max. Height to Peak		See Notes
	ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	
Building without Walls With Roof or Solid Floors	34x34	10.4x10.4	Inside Spacing				25	7.6	25	7.6	7	2.1	7	2.1	24	7.3	30	9.1	1,2,3
Building with Walls Down to 10 ft or Less From Grade - Solid Roof	34x34	10.4x10.4	80% Inside Spacing				25	7.6	25	7.6	7	2.1	7	2.1	24	7.3	30	9.1	1,2,3
Buildings with Walls Extending Down to More Than 10 ft Above Grade with Roof or Solid Floors	34x34	10.4x10.4	75% Inside Spacing				25	7.6	25	7.6	7	2.1	7	2.1	24	7.3	30	9.1	1,2,3
Buildings with Full Walls or with Walls Extending Down to 10 ft or Less Above Grade with no Roof or with Grating Floors	50x50	15.2x15.2	25	7.6	25	7.6	25	7.6	25	7.6	12.5	3.8	12.5	3.8	24	7.3	--	--	3,4
Buildings with Walls Extending Down to More Than 10 ft Above Grade with No Roof or with Grating Floors	40x40	12.2x12.2	20	6.1	20	6.1	20	6.1	20	6.1	7	2.1	7	2.1	24	7.3	--	--	3,4
Buildings with No Walls and Grating Floors	18x18	5.5 x 5.5	20	6.1	20	6.1	20	6.1	20	6.1	1	.30	1	.30	19	5.8	--	--	3,4
Large Equipment or Groups of Equipment in the Open	20x20	6.1 x 6.1	20	6.1	20	6.1	20	6.1	20	6.1	0	0	0	0	19	5.8	--	--	3,4

TECHNICAL DATA

RELEASE PLACEMENT OPEN 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

Maximum spacing of Viking Model C-2 Thermostatic Releases factory 0.018 (0.46 mm) for Model C-2 for large areas outdoors or semi-enclosed buildings.



NOTES:

1. Locate releases close to underside of solid floor or roof.
2. If maximum allowable, A and B dimensions, place interior release outside of exterior line of releases, then interior releases are not needed.
3. Where multiple floors are involved, treat each floor as a separate building. If height between floors exceeds the maximum, add additional releases below in such a manner that vertical distance between releases does not exceed maximum height between floors.
4. Where top of building is open or grating, locate releases 1 ft (.30 m) minimum above top of grating. Locate releases below intermediate grating floors.
5. Locate releases 1 ft (.30 m) minimum above top of equipment.
6. If height of equipment exceeds the maximum, add additional releases directly above lower releases at a maximum of 16 ft (4.8 m); vertical intervals. Space releases equally between the top row and the equipment bottom.

Figure 5: Release Placement for Model C-2 Thermostatic Rrelease

Condition	Larger Than		A Max.		B Max.		H Max.		J Max.		L Max.		M Max.		Max. Height Between Floors or to Top		Max. Height to Peak		See Notes
	ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	ft	(m)	
Building without Walls With Roof or Solid Floors	34x34	10.4x10.4	Inside Spacing				20	6.1	20	6.1	7	2.1	7	2.1	24	7.3	30	9.1	1, 2, 3
Building with Walls Down to 10 ft or Less From Grade - Solid Roof	34x34	10.4x10.4	80% Inside Spacing				20	6.1	20	6.1	7	2.1	7	2.1	24	7.3	30	9.1	1, 2, 3
Buildings with Walls Extending Down to More Than 10 ft Above Grade with Roof or Solid Floors	34x34	10.4x10.4	75% Inside Spacing				20	6.1	20	6.1	7	2.1	7	2.1	24	7.3	30	9.1	1, 2, 3
Buildings with Full Walls or with Walls Extending Down to 10 ft or Less Above Grade with no Roof or with Grating Floors	50x50	15.2x15.2	20	6.1	20	6.1	20	6.1	20	6.1	8	2.4	8	2.4	24	7.3	--	--	3, 4
Buildings with Walls Extending Down to More Than 10 ft Above Grade with No Roof or with Grating Floors	40x40	12.2x12.2	16	4.8	16	4.8	16	4.8	16	4.8	7	2.1	7	2.1	24	7.3	--	--	3, 4
Buildings with No Walls and Grating Floors	18x18	5.5 x 5.5	16	4.8	16	4.8	16	4.8	16	4.8	1	.30	1	.30	19	5.8	--	--	3, 4
Large Equipment or Groups of Equipment in the Open	20x20	6.1 x 6.1	16	4.8	16	4.8	16	4.8	16	4.8	0	0	0	0	19	5.8	--	--	3, 4