

## 2020 MINNESOTA BUILDING CODE SECTION 3103

### TEMPORARY STRUCTURES

#### 3103.1 General.

The provisions of Sections 3103.1 through 3103.4 shall apply to structures erected for a period of less than 180 days. **Tents**, umbrella structures and other membrane structures erected for a period of less than 180 days shall comply with the *International Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.

#### 3103.1.1 Conformance.

Temporary structures and uses shall conform to the structural strength, fire safety, *means of egress*, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.

#### 3103.1.2 Permit required.

Temporary structures that cover an area greater than 120 square feet, including connecting areas or spaces with a common *means of egress* or entrance that are used or intended to be used for the gathering together of 10 or more persons, **shall not be erected, operated or maintained for any purpose without obtaining a permit from the building official.**

#### 3103.2 Construction documents.

**A permit application and construction documents shall be submitted for each installation of a temporary structure.** The *construction documents* shall include a site plan indicating the location of the temporary structure and information delineating the *means of egress* and the *occupant load*.

#### 3103.3 Location.

Temporary structures shall be located in accordance with the requirements of Table 602 based on the *fire-resistance rating* of the *exterior walls* for the proposed type of construction.

#### 3103.4 Means of egress.

Temporary structures shall conform to the *means of egress* requirements of Chapter 10 and shall have an *exit access* travel distance of 100 feet or less.

## 2020 MINNESOTA FIRE CODE SECTION 3103

### TEMPORARY TENTS AND MEMBRANE STRUCTURES

#### 3103.1 General.

**Tents** and membrane structures used for temporary periods shall comply with this section and Section 3106. Other temporary structures erected for a period of 180 days or less shall comply with the *International Building Code*.

#### 3103.2 Approval required.

**Tents** and membrane structures having an area in excess of 400 square feet shall not be erected, operated or maintained for any purpose without first obtaining a permit and approval from the *fire code official*.

##### Exceptions:

1. **Tents** used exclusively for recreational camping purposes.
2. **Tents** open on all sides that comply with all of the following:
  1. 2.1. Individual tents having a maximum size of 700 square feet.

2. 2.2. The aggregate area of multiple tents placed side by side without a fire break clearance of 12 feet, not exceeding 700 square feet total.
3. 2.3. A minimum clearance of 12 feet to all structures and other tents.

### **3103.3 Outdoor assembly event.**

For the purposes of this chapter, an outdoor assembly event shall include a circus, carnival, tent show, theater, skating rink, dance hall or other place of assembly in or under which persons gather for any purpose.

#### **3103.3.1 Special amusement building.**

**Tents** and other membrane structures erected as a special amusement building shall be equipped with an *automatic sprinkler system* in accordance with Section 411.3 of the *International Building Code*.

#### **3103.4 Permits.**

Permits shall be required as set forth in Sections 105.6 and 105.7.

#### **3103.5 Use period.**

Temporary tents, air-supported, air-inflated or tensioned membrane structures shall not be erected for a period of more than 180 days within a 12-month period on a single premises.

#### **3103.6 Construction documents.**

A detailed site and floor plan for **tents** or membrane structures with an *occupant load* of 50 or more shall be provided with each application for approval. The **tent** or membrane structure floor plan shall indicate details of the *means of egress* facilities, seating capacity, arrangement of the seating and location and type of heating and electrical equipment. The *construction documents* shall include an analysis of structural stability.

#### **3103.7 Inspections.**

The entire **tent**, air-supported, air-inflated or tensioned membrane structure system shall be inspected at regular intervals, but not less than two times per permit use period, by the permittee, *owner* or agent to determine that the installation is maintained in accordance with this chapter. **Exception:** Permit use periods of less than 30 days.

##### **3103.7.1 Inspection report.**

Where required by the *fire code official*, an inspection report shall be provided and shall consist of maintenance, anchors and fabric inspections.

#### **3103.8 Access, location and parking.**

Access, location and parking for temporary **tents** shall be in accordance with this section.

##### **3103.8.1 Access.**

Fire apparatus access roads shall be provided in accordance with Section 503.

##### **3103.8.2 Location.**

**Tents** or membrane structures shall not be located within 20 feet of *lot lines*, buildings, other **tents** or membrane structures, parked vehicles or internal combustion engines. For the purpose of determining required distances, support ropes and guy wires shall be considered as part of the temporary membrane structure or **tent**.

##### **Exceptions:**

1. 1. Separation distance between membrane structures and **tents** not used for cooking is not required where the aggregate floor area does not exceed 15,000 square feet.
2. 2. Membrane structures or **tents** need not be separated from buildings where all of the following conditions are met:
  1. 2.1. The aggregate floor area of the membrane structure or **tent** shall not exceed 10,000 square feet.

2. 2.2. The aggregate floor area of the building and membrane structure or **tent** shall not exceed the allowable floor area including increases as indicated in the *International Building Code*.
3. 2.3. Required *means of egress* are provided for both the building and the membrane structure or **tent** including travel distances.
4. 2.4. Fire apparatus access roads are provided in accordance with Section 503.

### **3103.8.3 Location of structures in excess of 15,000 square feet in area.**

Membrane structures having an area of 15,000 square feet or more shall be located not less than 50 feet from any other tent or structure as measured from the sidewall of the **tent** or membrane structure unless joined together by a corridor.

### **3103.8.4 Membrane structures on buildings.**

Membrane structures that are erected on buildings, balconies, decks or other structures shall be regulated as permanent membrane structures in accordance with Section 3102 of the *International Building Code*.

### **3103.8.5 Connecting corridors.**

**Tents** or membrane structures are allowed to be joined together by means of corridors. *Exit* doors shall be provided at each end of such corridor. On each side of such corridor and approximately opposite each other, there shall be provided openings not less than 12 feet wide.

### **3103.8.6 Fire break.**

An unobstructed fire break passageway or fire road not less than 12 feet wide and free from guy ropes or other obstructions shall be maintained on all sides of all tents and membrane structures unless otherwise *approved* by the *fire code official*.

### **3103.9 Structural stability and anchorage required.**

**Tents** or membrane structures and their appurtenances shall be designed and installed to withstand the elements of weather and prevent collapsing. Documentation of structural stability shall be furnished to the *fire code official*.

### **3103.9.1 Tents and membrane structures greater than one story.**

**Tents** and membrane structures exceeding one story shall be designed and constructed to comply with Sections 1606 through 1609 of the *International Building Code*.

### **3103.9.2 Tents and membrane structures greater than 7,500 square feet.**

**Tents** and *membrane structures* greater than 7,500 square feet shall be designed and constructed to comply with Sections 1606 through 1609 of the *International Building Code*.

### **3103.9.3 Tents and membrane structures with an occupant load greater than 1,000.**

**Tents** and *membrane structures* with an occupant capacity greater than 1,000 persons shall be designed and constructed to comply with Sections 1606 through 1609 of the *International Building Code*.

### **3103.10 Temporary air-supported and air-inflated membrane structures.**

Temporary air-supported and air-inflated membrane structures shall be in accordance with Sections 3103.10.1 through 3103.10.4.

#### **3103.10.1 Door operation.**

During high winds exceeding 50 miles per hour or in snow conditions, the use of doors in air-supported structures shall be controlled to avoid excessive air loss. Doors shall not be left open.

**3103.10.2 Fabric envelope design and construction.**

Air-supported and air-inflated structures shall have the design and construction of the fabric envelope and the method of anchoring in accordance with Architectural Fabric Structures Institute FSAAS.

**3103.10.3 Blowers.**

An air-supported structure used as a place of assembly shall be furnished with not less than two blowers, each of which has adequate capacity to maintain full inflation pressure with normal leakage. The design of the blower shall be so as to provide integral limiting pressure at the design pressure specified by the manufacturer.

**3103.10.4 Auxiliary inflation systems.**

Places of public assembly for more than 200 persons shall be furnished with an auxiliary inflation system capable of powering a blower with the capacity to maintain full inflation pressure with normal leakage in accordance with Section 3103.10.3 for a minimum duration of 4 hours. The auxiliary inflation system shall be either a fully automatic auxiliary engine-generator set or a supplementary blower powered by an internal combustion engine that shall be automatic in operation. The system shall be capable of automatically operating the required blowers at full power within 60 seconds of a commercial power failure.

**3103.11 Seating arrangements.**

Seating in tents or membrane structures shall be in accordance with Chapter 10.

**3103.12 Means of egress.**

Means of egress for temporary tents and membrane structures shall be in accordance with Sections 3103.12.1 through 3103.12.8.

**3103.12.1 Distribution.**

Exits shall be spaced at approximately equal intervals around the perimeter of the tent or membrane structure, and shall be located such that all points are 100 feet (30 480 mm) or less from an exit.

**3103.12.2 Number.**

Tents, or membrane structures or a usable portion thereof shall have not less than one exit and not less than the number of exits required by Table 3103.12.2. The total width of means of egress in inches shall be not less than the total occupant load served by a means of egress multiplied by 0.2 inches per person.

**TABLE 3103.12.2  
MINIMUM NUMBER OF MEANS OF EGRESS AND MEANS OF EGRESS WIDTHS FROM  
TEMPORARY MEMBRANE STRUCTURES AND TENTS**

OCCUPANT LOAD	MINIMUM NUMBER OF MEANS OF EGRESS	MINIMUM WIDTH OF EACH MEANS OF EGRESS (inches)	
		Tent	Membrane Structure
10 to 199	2	72	36
200 to 499	3	72	72
500 to 999	4	96	72
1,000 to 1,999	5	120	96

2,000 to 2,999	6	120	96
Over 3,000 <sup>a</sup>	7	120	96

For SI: 1 inch = 25.4 mm.

1. a. When the occupant load exceeds 3,000, the total width of means of egress (in inches) shall be not less than the total occupant load multiplied by 0.2 inches per person.

### 3103.12.3 Exit openings from tents.

*Exit* openings from tents shall remain open unless covered by a flame-resistant curtain. The curtain shall comply with the following requirements:

- 1.1. Curtains shall be free sliding on a metal support. The support shall be not less than 80 inches above the floor level at the *exit*. The curtains shall be so arranged that, when open, no part of the curtains obstructs the *exit*.
- 2.2. Curtains shall be of a color, or colors, that contrasts with the color of the **tent**.

### 3103.12.4 Doors.

*Exit* doors shall swing in the direction of *exit* travel. To avoid hazardous air and pressure loss in air-supported membrane structures, such doors shall be automatic closing against operating pressures. Opening force at the door edge shall not exceed 15 pounds.

### 3103.12.5 Aisle.

The width of *aisles* without fixed seating shall be in accordance with the following:

- 1.1. In areas serving employees only, the minimum *aisle* width shall be 24 inches but not less than the width required by the number of employees served.
- 2.2. In public areas, smooth-surfaced, unobstructed *aisles* having a minimum width of not less than 44 inches shall be provided from seating areas, and *aisles* shall be progressively increased in width to provide, at all points, not less than 1 foot of *aisle* width for each 50 persons served by such *aisle* at that point.

#### 3103.12.5.1 Arrangement and maintenance.

The arrangement of *aisles* shall be subject to approval by the *fire code official* and shall be maintained clear at all times during occupancy.

### 3103.12.6 Exit signs.

*Exits* shall be clearly marked. *Exit* signs shall be installed at required *exit* doorways and where otherwise necessary to indicate clearly the direction of egress where the *exit* serves an *occupant load* of 50 or more.

#### 3103.12.6.1 Exit sign illumination.

*Exit* signs shall be either *listed* and *labeled* in accordance with UL 924 as the internally illuminated type and used in accordance with the listing or shall be externally illuminated by luminaires supplied in either of the following manners:

- 1.1. Two separate circuits, one of which shall be separate from all other circuits, for *occupant loads* of 300 or less.
- 2.2. Two separate sources of power, one of which shall be an *approved* emergency system, shall be provided where the *occupant load* exceeds 300. Emergency systems shall be supplied from storage batteries or from the on-site generator set, and the system shall be installed in accordance with NFPA 70. The emergency system provided shall have a minimum duration of 90 minutes when operated at full design demand.

### **3103.12.7 Means of egress illumination.**

*Means of egress* shall be illuminated with light having an intensity of not less than 1 foot-candle (11 lux) at floor level while the structure is occupied. Fixtures required for *means of egress* illumination shall be supplied from a separate circuit or source of power.

### **3103.12.8 Maintenance of means of egress.**

The required width of *exits*, *aisles* and passageways shall be maintained at all times to a *public way*. Guy wires, guy ropes and other support members shall not cross a *means of egress* at a height of less than 8 feet. The surface of *means of egress* shall be maintained in an *approved* manner.

## **SECTION 3104 TEMPORARY AND PERMANENT TENTS AND MEMBRANE STRUCTURES**

### **3104.1 General.**

Tents and membrane structures, both temporary and permanent, shall be in accordance with this section and Sections 3106 and 3107. Permanent tents and membrane structures shall also comply with the *International Building Code*.

### **3104.2 Flame propagation performance treatment.**

Before a permit is granted, the *owner* or agent shall file with the *fire code official* a certificate executed by an *approved* testing laboratory. The certificate shall indicate that the floor coverings, **tents**, membrane structures and their appurtenances, which include sidewalls, drops and tarpaulins, are composed of materials meeting the flame propagation performance of Test Method 2 of NFPA 701.

Additionally, it shall indicate that the bunting and combustible decorative materials and effects are composed of material meeting the flame propagation performance criteria of Test Method 1 or Test Method 2 of NFPA 701, as applicable. Alternatively, the materials shall be treated with a flame retardant in an *approved* manner and meet the flame propagation performance criteria of the applicable test method of NFPA 701. The flame propagation performance criteria shall be effective for the period specified by the permit.

### **3104.3 Label.**

Membrane structures or tents shall have a permanently affixed label bearing the identification of size and fabric or material type.

### **3104.4 Certification.**

An affidavit or affirmation shall be submitted to the *fire code official* and a copy retained on the premises on which the tent or air-supported structure is located. The affidavit shall attest to all of the following information relative to the flame propagation performance criteria of the fabric:

1. 1.Names and address of the *owners* of the **tent** or air-supported structure.
2. 2.Date the fabric was last treated with flame-retardant solution.
3. 3.Trade name or kind of chemical used in treatment.
4. 4.Name of person or firm treating the material.
5. 5.Name of testing agency and test standard by which the fabric was tested.