

# MINNESOTA STATE DEPARTMENT OF PUBLIC SAFETY



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## State Fire Marshal Division

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### ASSEMBLY (GROUP A) OCCUPANCIES

#### SECTION 1 – INTRODUCTION

This fire safety information sheet is based on the 2007 Minnesota State Fire Code (MSFC). The requirements outlined in this information sheet apply only to Assembly (Group A) occupancies as defined below:

**Assembly Group A.** Group A occupancy include, among others, the use of a building or structure, or a portion thereof, for the gathering together of persons for purposes such as civic, social or religious functions, recreation, food or drink consumption, or awaiting transportation. A room or space for assembly purposes by less than 50 persons and accessory to another occupancy shall be included as a part of that occupancy. Assembly occupancies shall include the following:

**A-1** Assembly uses, usually with fixed seating, intended for the production and viewing of performing arts or motion pictures including but not limited to:

Motion picture theaters  
Symphony and concert halls  
Television and radio studios admitting an audience  
Theaters

**A-2** Assembly uses intended for food and/or drink consumption including, but not limited to:

Banquet halls  
Night clubs  
Restaurants  
Taverns and bars

**A-3** Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere Group A, including, but not limited to:

Amusement arcades  
Art galleries  
Bowling alleys  
Churches  
Community halls  
Courtrooms  
Dance halls (not including food or drink consumption)  
Exhibition halls  
Funeral parlors  
Gymnasiums (without spectator seating)  
Indoor swimming pools (without spectator seating)

Indoor tennis courts (without spectator seating)  
Lecture halls  
Libraries  
Museums  
Waiting areas in transportation terminals  
Pool and billiard parlors

**A-4** Assembly uses intended for viewing of indoor sporting events and activities with spectator seating including, but not limited to:

Arenas  
Skating rinks  
Outdoor swimming pools  
Tennis courts

**A-5** Assembly uses intended for participation in or viewing outdoor activities including, but not limited to:

Amusement park structures  
Bleachers  
Grandstands  
Stadiums

**Unless specifically mentioned below, the provisions outlined in this information sheet apply to both new (built on or after May 31, 2007) and existing (built before May 31, 2007) assembly occupancies.** Assembly (Group A) occupancies are required to meet other code provisions that are not listed in this publication. This information sheet provides an overview of the major code requirements that apply in this type of occupancy and does not attempt to cover every situation. References to the applicable code sections are found in brackets, [ ].

More information is available from the Minnesota State Fire Marshal Division at [www.fire.state.mn.us](http://www.fire.state.mn.us). Questions can be e-mailed to our office to [firecode@state.mn.us](mailto:firecode@state.mn.us).

## **SECTION 2 – EXITING PROVISIONS**

### **2.1 Number of exits required**

MSFC (07) Section 1015.1 requires a minimum of two exits when the occupant load for the space exceeds 49 people. For information on how to determine occupant load please refer to section 3. When two exits are required, the exit doors shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exit doors. When a building is protected throughout by an approved automatic sprinkler system, the separation distance between the exit doors may be reduced to not less than one-third of the length of the maximum overall diagonal dimension of the area served.

### **2.2 Exit doors**

Exit doors shall be side-hinged swinging doors [MSFC Section 1008.1.2].

### **2.3 Door swing and opening force**

Exit doors shall swing in the direction of egress travel when serving an occupant load of 50 or more persons [MSFC (07) Section 1008.1.2]. For information on how to determine occupant load please refer to section 3.

Exit doors shall open when subjected to a 30-pound force. The door shall open to a full-open position.

#### **2.4 Locks, latches, bolts, and other locking mechanisms**

Exit doors shall be openable from the inside without the use of a key, special knowledge or effort. Exit doors shall NOT be locked, chained, bolted, barred, latched or otherwise rendered unusable.

*Exception:* In Group A occupancies having an occupant load of 300 or less, and in all churches, key-locking hardware is permitted on the main exit only when the main exit consists of a single door or pair of doors if there is a readily visible sign on or adjacent to the door stating “THIS DOOR TO REMAIN UNLOCKED DURING BUSINESS HOURS”. The sign shall be in letters not less than 1 inch high on a contrasting background. When unlocked, the single door or pair of doors must be free swinging without operation of a latching device. The use of this exception may be revoked by the fire chief or building official for due cause.

#### **2.5 Panic hardware**

Panic hardware shall be required on exit doors when the occupant load is 50 or more. Panic hardware would not be necessary on the main exit door of Group A occupancies serving an occupant load of 300 or less when using the exception in section 2.4. However, panic hardware would still be required on all other exit doors from the building when the occupant load is 50 or more.

#### **2.6 Exit signs**

Where any assembly occupancy has two or more required exits, the means of egress must be provided with illuminated signs that readily identify the location of the exits and indicate the path of travel to the exits. The signs must be illuminated with letters reading “EXIT”. The illumination may be internal or external to the sign. The signs should be visible from all directions in the exit route. In cases where the signs are not visible to the occupants because of turns in the corridor or for other reasons, additional illuminated signs must be provided indicating the direction of egress to an exit. Exit signs must be located so that, where required, the nearest one is within 100 feet of the sign’s viewing distance.

Every exit sign and directional sign located in the exit route is required to have a color contrast vivid enough to make the signs readily visible, even when not illuminated. Letters must be at least 6 inches high and their stroke not less than 3/4-inch wide. The sizing of the letters is predicated on the readability of the wording from a distance of 100 feet. While red letters are common for exit signs, sometimes green on black is used in auditorium areas with low lighting levels, such as theaters, because that color combination tends not to distract the audience’s attention. It is more important that the exit sign be readily visible with respect to the background.

#### **2.7 Emergency Lighting**

The means of egress in assembly occupancies shall be equipped with approved emergency lighting when required to have two or more exits. The power supply for means of egress

illumination shall normally be provided by the premise's electrical supply. In the event of power supply failure, an emergency electrical system shall automatically illuminate the following areas:

1. Exit access corridors, passageways and aisles in rooms and spaces which require two or more means of egress.
2. Exit access corridors and exit stairways located in buildings required to have two or more exits.
3. Exterior egress components at other than the level of exit discharge until exit discharge is accomplished for buildings required to have two or more exits.
4. Interior exit discharge elements, as permitted in MSFC Section 1023, in buildings required to have two or more exits.
5. The portion of the exterior exit discharge immediately adjacent to exit discharge doorways in buildings required to have two or more exits.

The emergency power system shall provide power for a duration of not less than 90 minutes for new buildings and 30 minutes for existing buildings and shall consist of storage batteries, unit equipment or an on-site generator.

## **SECTION 3 – OCCUPANT LOAD**

### **3.1 Determining occupant load for assembly occupancies**

The design occupant load is the number of people that are intended to occupy a building, or portion thereof, at any one time; consequently, the number for which the means of egress is to be designed. There is a limit to the density of occupants permitted in an area to enable a reasonable amount of freedom of movement and ensuring the appropriate number of exits for all the occupants. To determine the occupant load for an assembly area, a determination must first be made as to how the space will be used.

The MSFC (07) assigns the following occupant factors determined on how the space will be utilized:

#### Assembly without fixed seating: Occupant Load Factor

Concentrated (standing, dance floors, chair seating – not fixed) 7 net

Standing space (waiting areas – lobbies, etc.) 5 net

Un-concentrated-tables and chairs (most restaurants & bars) 15 net

Exercise areas (i.e. gymnasium, fitness area, etc.) 50 gross

#### Library:

Reading room 50 net

Stack area 100 gross

Gaming floors ('blackjack', slots, poker, etc.) 11 gross

#### Airport:

Concourse 100 gross

Waiting areas 15 gross

Baggage claim 20 gross

Baggage handling 300 gross

Bowling alleys 7 net

Courtroom (without fixed seating) 40 net

#### Swimming pools/skating rinks:

Pool/rink 50 gross

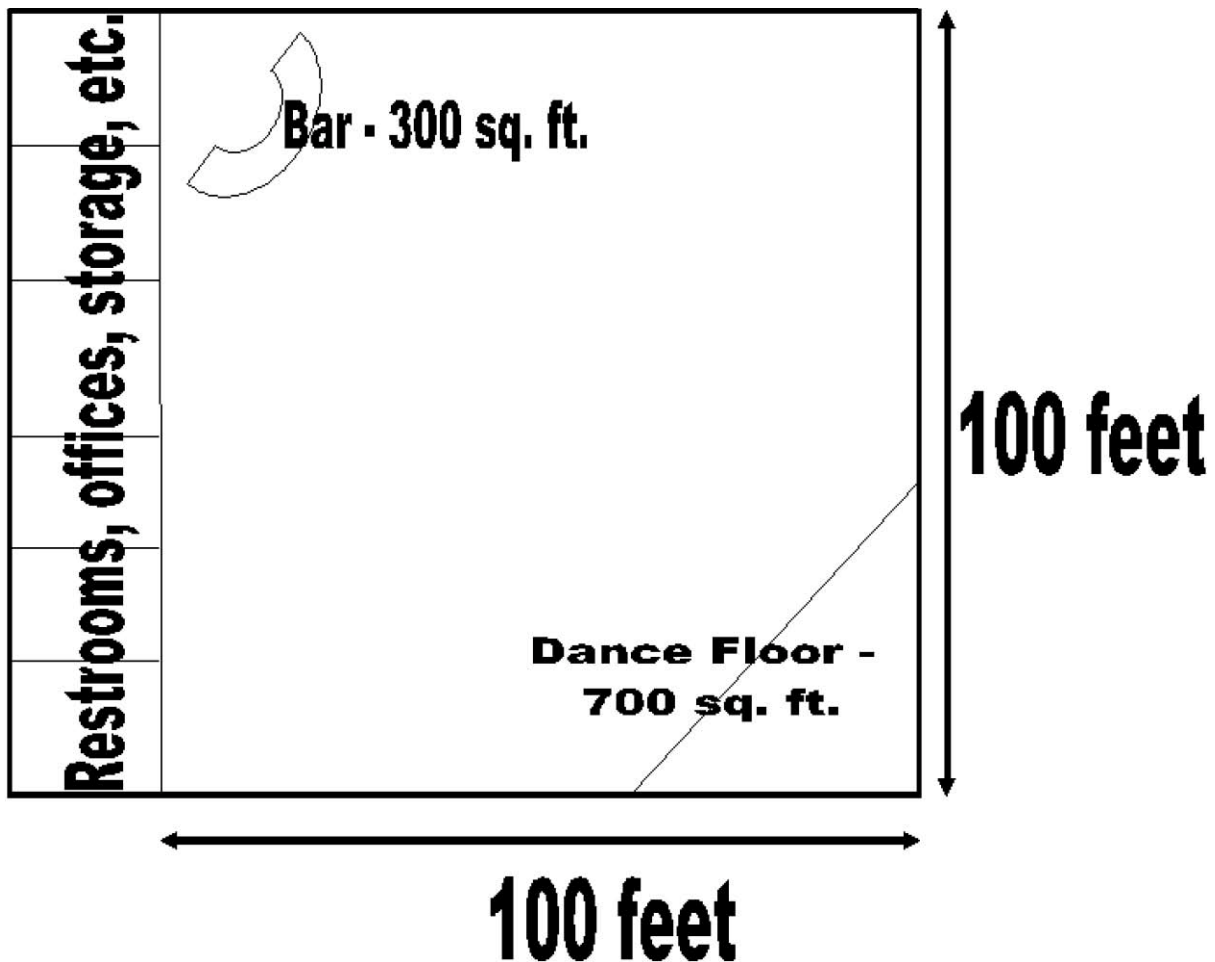
Decks 15 gross

Floor area, net- The actual occupied area not including unoccupied accessory areas such as corridors, stairways, restrooms, closets, mechanical/electrical rooms, etc.

Floor area, gross- The floor area within the inside perimeter of the exterior walls of the building under consideration, exclusive of vent shafts and courts, without deduction for corridors, stairways, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include shafts with no openings or interior courts.

Once the use has been determined, take the net square footage (subtracting the unoccupied spaces listed above) and divide that by the appropriate occupant load factor above.

### 3.1.1 Occupant load example using a bar/restaurant scenario



- $100 \times 100 = 10,000$  sq. ft.
- $10,000 - 700$  (dance floor)  $- 300$  (bar) =  $9,000$  sq. ft. (seating area).
- $9,000 / 15$  sq. ft. per person = 600 persons (seating area).

- 700 / 7 sq. ft. per person = 100 persons (dance floor).
- TOTAL Occupant Load = 700 persons (600 + 100).

### **3.1.2 Assembly areas with fixed seating**

For areas having fixed seats and aisles, the occupant load shall be determined by the number of fixed seats installed therein.

For areas having fixed seating without dividing arms, the occupant load shall not be less than the number of seats based on one person for each 18 inches (457 mm) of seating length.

The occupant load for seating booths shall be based on one person for each 24 inches of booth seat length.

### **3.1.3 Outdoor areas**

Yards, patios, courts and similar outdoor areas accessible to and usable by the building occupants shall be provided with a means of egress. The occupant load of such outdoor areas shall be assigned by the fire code official in accordance with the anticipated use as determined by the appropriate occupant load factor in section 3.1. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, means of egress requirements for the building shall be based on the sum of the occupant loads of the building plus the outdoor areas.

### **3.2 Posting of occupant load**

Every room or space meeting the definition of an assembly occupancy shall have the occupant load of the room or space posted in a conspicuous place, near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or authorized agent.

## **SECTION 4 – SPECIAL REQUIREMENTS**

### **4.1 Premises identification**

Approved numbers or addresses shall be placed on all new and existing buildings in such a position as to be plainly visible and legible from the street or road fronting the property. The premises identification numbers shall contrast with their background. In rural areas, the use of fire numbers is acceptable [MSFC (07) Section 505.1].

### **4.2 Fueled equipment storage**

Fueled equipment (motorcycles, lawnmowers, etc.) shall not be stored, operated or repaired within the facility [MSFC (07) Section 313.1].

Exceptions:

1. Rooms or areas specifically constructed for the purpose of fueled equipment.
2. Where allowed by section 314 (Indoor displays)
3. Storage of equipment utilized for maintenance purposes is allowed in approved locations when the aggregate fuel capacity of the stored equipment does not exceed 10 gallons (38 L) and the building is equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13 (02).

### **4.3 Combustible Waste Material**

Combustible waste material creating a fire hazard shall not be allowed to accumulate in buildings [MSFC (07) Section 304.1].

### **4.4 Candles and other open flame decorative devices**

Open-flame devices are permitted to be used in Group A occupancies when done in accordance with the provisions of the MSFC (07). For additional information on this subject please review our information sheet titled *Candles and Decorative Open Flame Devices*.

### **4.5 Miscellaneous combustible materials storage**

Storage of combustible materials shall be orderly. Storage shall be separated from heaters or other ignition sources in an approved manner such that ignition cannot occur [MSFC (07) Section 315.2].

#### **4.5.1 Ceiling clearance**

Storage shall be maintained 2 feet or more below the ceiling in nonsprinkled areas of buildings or a minimum of 18 inches (457 mm) below sprinkler head deflectors in sprinkled areas of buildings [MSFC (07) Section 315.2.1].

#### **4.5.2 Means of egress**

Combustible materials shall not be stored in the means of egress [MSFC (07) Section 315.2.2].

#### **4.5.3 Equipment rooms**

Combustible storage in boiler rooms, mechanical rooms, electrical equipment rooms and elevator equipment rooms shall be in accordance with the following. Storage not in conformance with these sections shall be removed or the condition abated. For purposes of these sections, storage does not include materials necessary for the construction, maintenance, or operation of the equipment.

##### **4.5.3.1 Boiler/Furnace rooms**

Storage in boiler and furnace rooms shall be neat and orderly. Access to electrical panels shall be maintained in accordance with Section 605.3. At least 36 inches (914 mm) shall be maintained for access to equipment. Combustible storage in boiler and furnace rooms shall be in accordance with Section 315.2.3.1.1 or 315.2.3.1.2.

###### **4.5.3.1.1 Boiler rooms with equipment at 400,000 BTU's per hour input or less**

Combustible storage is allowed in boiler and furnace rooms equipped throughout with an approved automatic fire-extinguishing system and where the fuel-fired equipment is 400,000 BTU's per hour input or less. No combustible storage shall be within 36 inches (914 mm) of fuel-fired equipment.

###### **4.5.3.1.2 Boiler rooms with equipment over 400,000 BTU's per hour input**

Combustible storage is allowed in boiler and furnace rooms equipped throughout with an approved automatic fire-extinguishing system and

where the fuel-fired equipment exceeds 400,000 BTU's per hour input. No storage shall be within 10 feet (3048 mm) of the boiler.

#### **4.5.3.2 Mechanical rooms**

Combustible storage is allowed in mechanical rooms with or without fuel-fired equipment when equipped throughout with an approved automatic fire-extinguishing system. Storage shall be neat and orderly. A 3-foot aisle shall be maintained to all equipment. No storage shall be allowed within 3 feet of fuel-fired equipment. Access to electrical service panels shall be maintained per Section 605.3.

#### **4.5.3.3 Electrical equipment rooms**

No combustible storage or any other type of storage shall be allowed in electrical distribution equipment rooms.

#### **4.5.3.4 Elevator equipment rooms**

No combustible storage or any other type of storage shall be allowed in elevator equipment rooms or elevator machine rooms.

#### **4.5.3.5 Shafts**

No combustible storage shall be allowed in mechanical rooms such as penthouses with shafts open to multiple floors.

#### **4.5.4 Attic, under-floor and concealed spaces**

Attic, under-floor and concealed spaces used for storage of combustible materials shall be protected on the storage side as required for 1-hour fire-resistance-rated construction. Openings shall be protected by assemblies that are self-closing and are of noncombustible construction or solid wood core not less than 1.75 inches (44.5 mm) in thickness. Storage shall not be placed on exposed joists.

*Exception:* Areas protected by an approved automatic sprinkler system.

### **4.6 Fire safety and evacuation plans**

An approved fire safety and evacuation plan shall be in place for all assembly occupancies

*Exception:* A occupancies used exclusively for religious worship with an occupant load less than 2,000.

Floor plans shall include:

- Exits
- Primary evacuation routes
- Secondary evacuation routes
- Manual fire alarm boxes
- Portable fire extinguishers

#### **4.6.1 Fire and evacuation drill frequency**

Employees of the assembly occupancy shall conduct regular fire drills at least quarterly. Documentation including the date of the drill, time of the drill and total evacuation time shall be kept on-hand.



## **SECTION 5 – FIRE SERVICE FEATURES (for Group A occupancies built on or after May 31, 2007)**

### **5.1 Fire department access roads**

New assembly occupancies shall be provided with approved fire department access roads. Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

#### *Exception:*

The fire code official is authorized to increase the dimension of 150 feet (45 720 mm) where:

1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.
2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternative means of fire protection is provided.

#### **5.1.1 Fire department access road dimensions**

Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm) [MSFC (07) Section 503.2.1].

##### **5.1.1.1 Authority of the code official to increase dimensions**

The fire code official shall have the authority to require an increase in the minimum access widths where they are inadequate for fire or rescue operations [MSFC (07) Section 503.2.2].

#### **5.1.2 Surface**

Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities [MSFC (07) Section 502.2.3].

#### **5.1.3 Turning radius and dead-ends**

The required turning radius of a fire apparatus access road shall be determined by the fire code official.

Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) in length shall be provided with an approved area for turning around fire apparatus.

### **5.2 Water supply**

An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction [MSFC (07) Section 508.1]. A water

supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.

## **SECTION 6 – ELECTRICAL SERVICES/SAFETY**

### **6.1 Electrical hazards**

Electrical hazards shall be corrected according to MSFC (07) Section 605.1.

### **6.2 Multi-plug adapters**

Multi-plug adapters, such as multi-plug extension cords, cube adapters, strip plugs and other devices shall comply with the MSFC (07) and the Electrical Code [MSFC (07) Section 605.4].

### **6.3 Extension cords**

Extension cords and flexible cords shall not be used as a substitute for permanent wiring [MSFC (07) Section 605.5]. Receptacles and outlets serviced by extension cord-type wiring are prohibited [MSFC (07) Section 605.5.1]

### **6.4 Power strips**

Power taps are permitted when polarized or grounded and protected with listed over current protection [MSFC (07) Section 605.4.1].

## **SECTION 7 – FIRE RESISTIVE CONSTRUCTION AND INTERIOR FINISH**

### **7.1 Fire resistive construction**

Required fire resistive construction, including occupancy separations, area separation walls, exterior walls due to location on property, draft-stop partitions, separations of special hazards and hazardous areas, vertical opening protection and smoke barriers shall be provided and maintained as specified in the Minnesota State Building Code and this code and shall be properly repaired, restored or replaced when damaged, altered, breached, penetrated, removed or improperly installed.

*Exception:* Fire resistive construction installed and maintained in conformance with the code under which it was constructed shall be considered as complying with this code unless, in the opinion of the code official, the existing conditions constitute a distinct hazard to life and property.

### **7.2 Incidental use areas**

Shops, laboratories containing hazardous materials, storage rooms exceeding 100 square feet in size and rooms containing boilers or central heating plants in Group A occupancies shall be separated from the rest of the building by not less than 1-hour fire resistive construction. When approved by the fire chief, existing wood, lath and plaster in good condition or ½ inch gypsum wall board may be acceptable where one-hour occupancy separations are required.

*Exceptions:*

1. A separation need not be provided if the largest piece of fueled equipment does not exceed 400,000 Btu's per hour input.
2. A separation need not be provided if the hazardous area is protected with approved automatic sprinklers and the doors to such areas are equipped with solid-core wood doors or insulated steel doors with self-closers or automatic closing by smoke detection.

### 7.3 Interior finish in assembly occupancies

Interior finish on walls and ceilings shall be Class A, B, or C (Class I, II, or III) [MSFC (07) Section 803.3].

**Interior Wall and Ceiling Finish Requirements for Assembly Occupancies**

<b>Table 806.3</b>						
<b>Group</b>	<b><u>Sprinklered</u></b>			<b><u>Unsprinklered</u></b>		
	<b>Vertical exits and exit passageways</b>	<b>Exit access corridors and other exitways</b>	<b>Rooms and enclosed spaces</b>	<b>Vertical exits and exit passageways</b>	<b>Exit access corridors and other exitways</b>	<b>Rooms and enclosed spaces</b>
<b>A-1 &amp; A-2</b>	B	B	C	A	A	B
<b>A-3, A-4 &amp; A-5</b>	B	B	C	A	A	C

### 7.4 Vertical Opening & Shaft Construction – New Occupancies

Vertical openings and shafts within assembly occupancies shall be constructed in accordance with the MN State Building Code [MSFC (07) Section 701.1]. Generally, all openings through a floor/ceiling assembly shall be protected with a fire-resistance rated construction. Vertical openings and shafts shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and 1 hour where connecting less than four stories. Shaft enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours.

#### 7.4.1 Vertical Opening & Shaft Construction – Existing Occupancies

Vertical openings and shafts within existing assembly occupancies shall be protected with fire-resistance rated construction in accordance with table 5.5.1 [MSFC (07) Section 704.1].

**Table 7.4.1 Required Protection for Vertical Openings and Shafts**

<b>Occupancy Classification</b>	<b>Conditions</b>	<b>Protection Required</b>
Group A	vertical openings connecting 2 stories	no protection required
Group A	vertical openings connecting 3 to 5 stories	1-hour protection or automatic sprinklers throughout
Group A	vertical openings connecting more than 5 stories	1-hour protection

## SECTION 8 – FIRE PROTECTION

### **8.1 Automatic sprinkler protection (section 8.1 and following subsections only applies to Group A occupancies built on or after May 31, 2007)**

New assembly occupancies shall be provided with an approved automatic sprinkler system throughout when meeting one of the conditions in the applicable section below.

#### **8.1.1 Group A-1 Occupancies:**

An automatic sprinkler system shall be provided throughout the fire area containing a Group A-1 occupancy when one of the following conditions exists:

1. The fire area exceeds 12,000 square feet;
2. The fire area has an occupant load of 300 or more;
3. The fire area is located on a floor other than the level of exit discharge; or,
4. the fire area contains a multi-theater complex

#### **8.1.2 Group A-2 Occupancies:**

An automatic sprinkler system shall be provided throughout the fire area containing a Group A-2 occupancy when one of the following conditions exists:

1. The fire area exceeds 5,000 square feet;
2. The fire area has an occupant load of 100 or more; or,
3. The fire area is located on a floor other than the level of exit discharge.

#### **8.1.3 Group A-3 Occupancies:**

An automatic sprinkler system shall be provided throughout the fire area containing a Group A-3 occupancy when one of the following conditions exists:

1. The fire area exceeds 12,000 square feet;
2. The fire area has an occupant load of 300 or more; or,
3. The fire area is located on a floor other than the level of exit discharge.

*Exception:* Areas used exclusively as participant sports areas where the main floor is located at the same level of exit discharge of the main entrance and exit.

#### **8.1.4 Group A-4 Occupancies:**

An automatic sprinkler system shall be provided throughout the fire area containing a Group A-4 occupancy when one of the following conditions exists:

1. The fire area exceeds 12,000 square feet;
2. The fire area has an occupant load of 300 or more; or,
3. The fire area is located on a floor other than the level of exit discharge.

*Exception:* Areas used exclusively as participant sports areas where the main floor is located at the same level of exit discharge of the main entrance and exit.

#### **8.1.5 Group A-5 Occupancies:**

An automatic sprinkler system shall be provided in concession stands, retail areas, press boxes, and other accessory use areas in excess of 1,000 square feet.

### **8.1.6 Windowless stories**

Assembly occupancies shall be provided with an approved automatic sprinkler system when any of the conditions outlined in MSFC (07) Sections 903.2.10 – 903.2.10.2 have been met.

### **8.2 Basement access or sprinkler protection in existing Assembly occupancies**

An approved automatic sprinkler system shall be provided in existing basements of Group A occupancies used as commercial drinking and dining establishments and bowling alleys when such areas exceed 2,500 square feet in size and do not have 20 square feet of opening entirely above the adjoining ground level in each 50 lineal feet or fraction thereof of exterior wall on at least one side of the building. Openings required by this section shall have a minimum dimension of 30 inches.

If any portion of the basement is located more than 75 feet from required openings, the basement shall be provided with an approved automatic sprinkler system throughout.

### **8.3 Commercial cooking operations**

An approved hood suppression system is required for all commercial cooking operations that produce grease-laden vapors. Cooking that includes deep-fat frying, griddle frying, pan frying, range top frying, woks, grilling, broasting or broiling all produce grease-laden vapors and an approved hood system would be required. Cooking such as baking, warming, steaming, or micro-waving traditionally does not create grease-laden vapors.

The automatic fire-extinguishing system for commercial cooking systems shall be of a type recognized for protection of commercial cooking equipment and exhaust systems of the type and arrangement protected. Pre-engineered automatic dry- and wet-chemical extinguishing systems shall be tested in accordance with UL 300 and listed and labeled for the intended application. Other types of automatic fire-extinguishing systems shall be listed and labeled for specific use as protection for commercial cooking operations. The system shall be installed in accordance with this code, its listing and the manufacturer's installation instructions. Automatic fire-extinguishing systems of the following types shall be installed in accordance with the referenced standard indicated, as follows:

1. Carbon dioxide extinguishing systems, NFPA 12 (2000 Edition).
2. Automatic sprinkler systems, NFPA 13 (2002 Edition).
3. Foam-water sprinkler system or foam-water spray systems, NFPA 16 (2003 Edition).
4. Dry-chemical extinguishing systems, NFPA 17(2002 Edition).
5. Wet-chemical extinguishing systems, NFPA 17A (2002 Edition).

### **8.4 Portable Fire Extinguishers**

Approved portable fire extinguishers are required in all assembly occupancies. However, if a building is equipped throughout with automatic sprinklers, fire extinguishers are only necessary in the special hazard areas of the building (boiler/furnace rooms, mechanical/electrical rooms, trash-collection rooms, kitchens, etc.). The extinguishers must be appropriately spaced so one does not have to travel more than 75 feet to access the extinguisher.

If the commercial cooking operation has a hood suppression system installed, the MSFC requires a Class K portable fire extinguisher within 30 feet travel distance of the cooking equipment. For additional information on Class K fire extinguishers please review our information sheet titled [Class K Fire Extinguishers](#).

## **8.5 Fire alarm systems**

The MSFC requires both new and existing assembly occupancies to be equipped with an approved fire alarm system in accordance with the Minnesota State Fire Code and National Fire Protection Association (NFPA) 72 (2002 Edition).

### **8.5.1 Fire alarm requirements for new Assembly Occupancies (constructed on or after March 31, 2003)**

A fire alarm system shall be installed in Group A occupancies having an occupant load of 300 or more.

*Exceptions:*

1. Assembly areas used solely for worship purposes.
2. A fire alarm system is not required when an approved automatic sprinkler system is installed throughout the building.
3. Group A portions of E occupancies are allowed to have fire alarms required for Group E occupancies.
4. Group A-5 occupancies.

#### **8.5.1.1 Initiation of the fire alarm system**

Initiation of the fire alarm system shall be by automatic means. Approved automatic fire detectors (smoke or heat) shall be installed in all laundry rooms, boiler and furnace rooms, mechanical and electrical rooms, shops, kitchens, trash-collection rooms, storage rooms and other similar areas.

#### **8.5.1.2 Notification of the fire alarm system**

The required fire alarm system shall activate an audible and visible notification appliance at a constantly attended location within the building for the purpose of initiating emergency action. A presignal feature and positive alarm sequencing in accordance with NFPA 72 (2002 Edition) are permitted.

Occupant notification shall be by means of voice announcement, either live or prerecorded, initiated by a person in the constantly attended location.

*Exception:* Where no constantly attended location exists, an automatic fire alarm system providing a general evacuation signal or an approved emergency voice alarm communications system is permitted.

#### **8.5.1.3 System initiation in Group A occupancies with an occupant load of 1,000+**

Activation of the fire alarm system in Group A occupancies with an occupant load of 1,000 or more shall immediately initiate an approved prerecorded message announcement using an approved emergency voice alarm communications system in accordance with NFPA 72.

*Exception:* Where approved, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed three minutes, for the sole purpose of allowing a live voice announcement from an approved, constantly attended location.

### **8.5.2 Fire alarm requirements for existing assembly occupancies (constructed before May 31, 2007)**

A fire alarm system shall be installed in Group A occupancies having an occupant load of 300 or more.

*Exceptions:*

1. Assembly areas used solely for worship purposes.
2. A fire alarm system is not required when an approved automatic sprinkler system is installed throughout the building.
3. Group A portions of E occupancies are allowed to have fire alarms required for Group E occupancies.
4. Group A-5 occupancies.

#### **8.5.2.1 Initiation of the fire alarm system**

Initiation of the fire alarm system shall be by automatic means. Approved automatic fire detectors (smoke or heat) shall be installed in all laundry rooms, boiler and furnace rooms, mechanical and electrical rooms, shops, kitchens, trash-collection rooms, storage rooms and other similar areas.

#### **8.5.2.2 Notification of the fire alarm system**

The required fire alarm system shall activate an audible and visible notification appliance at a constantly attended location within the building for the purpose of initiating emergency action. A presignal feature and positive alarm sequencing in accordance with NFPA 72 (2002 Edition) are permitted.

Occupant notification shall be by means of voice announcement, either live or prerecorded, initiated by a person in the constantly attended location.

*Exception:* Where no constantly attended location exists, an automatic fire alarm system providing a general evacuation signal or an approved emergency voice alarm communications system is permitted.

## **SECTION 9 –HEATING APPLIANCES**

### **9.1 Heating appliances**

All heating appliances and related equipment including, but not limited to, furnaces, water heaters, ovens, deep-fat fryers, stoves, grills, woks, broilers and steam kettles shall be installed in accordance with the manufacturer's listing, the MSBC (07), the State Mechanical Code and the State Electrical Code.