

INTERNATIONAL BUILDING CODE (2009)

This document is intended to provide general guidelines only and specific requirements can vary on a project by project basis.

Contact the authorities having jurisdiction for official code information and all local amendments / adoptions.

Membrane covered frame structures are classified by the International Building Code
 As per **Chapter 31 Special Construction**

Values are in Square Feet (ft²) Allowable Uses and Area (one story building) Table 503 and Article 903

USE CLASSIFICATION Article 302.1	NON FR FABRIC (TYPE VB)	FR FABRIC (TYPE IIB)			
		BASIC AREA BEFORE SPRINKLER REQUIREMENT	MAX AREA WITH SPRINKLERS	60' ALL SIDES	SPRINKLERS AND 60' ALL SIDES
A-1	Assembly	8,500	34,000		
A-2	Assembly	5,000*	38,000		
A-3	Assembly	9,500	38,000		Unlimited***
A-4	Assembly (arenas)	9,500	38,000		Unlimited
B	Business	23,000	92,000		Unlimited
E	Educational	14,500	58,000		
F-1	Industrial Moderate Hazard	12,000*	62,000		Unlimited
F-2	Industrial Low Hazard	23,000	92,000	Unlimited	Unlimited
H	Hazardous		7,000*		
M	Retail	12,000*	50,000		Unlimited
S-1	Storage Moderate Hazard	12,000*	70,000		Unlimited
S-2	Storage Low Hazard	26,000	104,000	Unlimited	Unlimited
U	Agricultural	5,500	8,500	34,000	Unlimited

*Article 903 Fire Area requirements take precedence over basic area allowances (as per Chapter 5)

**See Comparison in Fire Area Requirements Table (page 3)

*** A-3 - Unlimited area if used as a place of religious worship, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor swimming pool or tennis court.

Type of Construction

Non-combustible frame structures covered by a membrane and or liner that meet the fire propagation performance criteria of NFPA 701 shall be classified Type IIB non-combustible unprotected construction.

Article 3102.3

Membrane Material

Membrane material shall be flame retardant conforming to NFPA 701 fire propagation performance criteria.

Duraweave® FR meets this requirement. NON FR fabric (Type VB) is only allowable by local authority approval.

Article 3102.3.1

Maximum Floor Area

Membrane structures allowable areas are based on Table 503 of the code.

Article 3102.4

Exceptions

One storey buildings of an A-4, B, F, M, and S occupancy may have an unlimited area provided they are sprinklered and have a 60' clear access on all sides.

An automatic fire suppression system is not required for buildings classified as U, F-2, S-2 if they have a 60' clear access on all sides.

Article 506.3/507

Maximum Heights

Membrane structures shall not exceed one story in height.

Article 3102.5

Controlled Interior Finish

Interior finish materials applied to walls and ceilings must be Class A material as tested by ASTM E-84.

Article 803.1

Travel Distance

Chapter 10

USE CLASSIFICATION		Table 1004.1.1	Table 1015.1	Table 1021.2	Table 1016.1	
		Floor area allowed/ Person (Ft ²)	Max occupant load with 1 exit (ft)	Max. Travel Distance with 1 exit (ft)	Exit Access Travel Distance > 1 exit (No Sprinklers)	Exit Access Travel Distance > 1 exit (Sprinklers)
A	Assembly	7	49	75	200	250
B	Business	100	49	75	200	300
E	Educational	20	49	75	200	250
F-1	Industrial Moderate Hazard	100	49	75	200	250
F-2	Industrial Low Hazard	100	49	75	300	400
H	Hazardous	100	3	75	Not Permitted	75
M	Retail	30	49	75	200	250
S-1	Storage Moderate Hazard	300	29	75	200	250
S-2	Storage Low Hazard	300	29	75	300	400
U	Agricultural	300	49	75	300	400

** Values are in Feet (ft)

Panic Hardware

All "A" Assembly and "E" Educational occupancies with occupant loads in excess of 100 people and any "H" Hazard occupancies require panic hardware.

Article 1008.1.10

Exit Signs

Exit Signs are required in all buildings that require more than one exit. These signs can be self-illuminating.

Article 1011.1

Barrier Free Accessibility

Required in all new buildings. Some discretion is used for industrial and warehouse occupancies; however assembly type occupancies must be barrier free.

Chapter 11

Approved Fabricators

Special inspections by a structural engineer are not required where the work is done on the premises of a AWS qualified fabricator registered and approved by the building official.

Article 1704.3.1.1

Fire Alarm System

Required in buildings with a sprinkler system, or a "H" High Hazard, "E" Educational, or "A" Assembly.

Article 907

Sprinkler System

Article 903

Automatic sprinkler systems shall comply with section 903.

Fire Area is defined as "the aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls or fire-resistance rated horizontal assemblies of a building."

The Fire Area of a Norseman building would be calculated using the exterior walls which is the same as the total area of the building. Interior fire walls and fire barriers are not a feasible option with a Norseman building.

Fire Area Requirements

Article 903

Comparison of Basic Area Allowances vs. Maximum Fire Area – Table 503 vs. Article 903

USE CLASSIFICATION		Table 503 Basic Area (ft ²) Allowance Before Sprinklers (Type IIB Construction)	Max Fire Area (ft ²) Before Sprinklers Required (All Types of Construction Including Type IIB)
A-1	Assembly	8,500	12,000
A-2	Assembly	9,500	5000
A-3	Assembly	9,500	12,000
A-4	Assembly (arenas)	9,500	12,000
B	Business	23,000	N/A
E	Educational	14,500	20,000
F-1	Industrial Moderate Hazard	15,500	12,000
F-2	Industrial Low Hazard	23,000	N/A
H	Hazardous	7,000	0
M	Retail	12,500	12,000
S-1	Storage Moderate Hazard	17,500	12,000
S-2	Storage Low Hazard	26,000	N/A
U	Agricultural	8,500	N/A

***NOTE: The smaller of the two areas shown is required and highlighted in grey.**

Sprinkler System

Article 903

A-1, A-3, and A-4 Assembly occupancies require sprinkler systems if the Occupant Load is > 300.

A-2 Assembly occupancies require sprinkler systems if the Occupant Load is > 100.

Group "H" occupancies require an automatic sprinkler system.

NOTE: In IBC 2009, Group A-3 and A-4 occupancies are no longer provided with an exemption from sprinklers if the area is used exclusively for participant sports.