

WORKSHEET 4-1

THE MANITOBA FIRE RISK INDEX FOR THE RESIDENTIAL OCCUPANCY OF HERITAGE BUILDINGS

FIRE SAFETY PARAMETERS

TABLE 4.1 CONSTRUCTION OF STRUCTURAL MEMBERS AND FLOOR AND ROOF ASSEMBLIES (Applies to each fire zone)

Building Height	Construction Type						
	Heavy Timber	Combustible			Noncombustible		
		<45 min FRR ⁽¹⁾	45 min FRR	>45 min FRR	<45 min FRR ⁽¹⁾	45 min FRR	>45 min FRR
1-3 storeys	0	-1	0	2	-1	0	2
4-6 storeys	0	-3	0	1	-2	0	1
>6 ≤7 storeys	0	-5	0	0	-3	0	1

Note:

⁽¹⁾This Table assumes that while the FRR may be less than 45 min, it is at least equivalent to the FRR typically provided by 12.7 mm thick gypsum board on wood or steel joists.

TABLE 4.2 HAZARDOUS AREAS
(Applies to each fire zone)

	MBC Requirement	No Fire Separations No Sprinklers	No Fire Separations + Sprinklers	Fire Separations ⁽¹⁾ <45 min No Sprinklers	Fire Separations ⁽¹⁾ <45 min + Sprinklers	Fire Separations ≥45 min No Sprinklers	Fire Separations ≥45 min + Sprinklers
Tenant Storage Rooms	3.3.4.3	-7	-2	-2	-1	-1	0
Furnace/Service Rooms	3.6.2.1	-7	-2	-2	-1	-1	0
Common Laundry Rooms	3.3.1.22	-7	-2	-1	0	0	1
Common Janitors' Rooms	3.3.1.21	-7	-2	-1	0	0	1
Mercantile, Office, Assembly, or Light Industrial Occupancy on Ground Floor	3.1.3.1	-7	-2	-2	-1	-1	0
Elevator Machine Rooms	3.5.3.3	-7	-2	-2	-1	-1	0
Refuse Storage Rooms	3.6.2.5	-7	-2	-2	-1	-1	0
Artist Live/Work Spaces	Higher Hazard ⁽²⁾	-7	-2	-2	-1	-1	0

Notes:

⁽¹⁾Fire separations must be present to act as smoke separations regardless of the FRR.

⁽²⁾Higher hazard Artist Live/Work Spaces are those in which the materials used create a greater hazard than a normal residential occupancy.

TABLE 4.3 VERTICAL OPENINGS
(Applies to entire building)

	Unenclosed ⁽¹⁾			Enclosed ⁽²⁾		
	>3 sto	2-3 sto	1 sto ⁽³⁾	<45 min	45 min ⁽⁴⁾	>45 min
Exit Stair Shafts	-10	-7	-2	-1	0	1
Refuse Chutes	-10	-7	-3	-1	0	1
Vertical Service Spaces	-10	-7	-3	-1	0	1
Elevator Shafts	-10	-7	-2	-1	0	1
Existing Stair/Elevator Shafts (combined)	-10	-7	0	0	0	1
Heavy Timber Floors ⁽⁵⁾	-10	-7	N/A	0	0	1

Notes:

⁽¹⁾Unenclosed means no fire or smoke separation exists

⁽²⁾Enclosed means a fire or smoke separation exists

⁽³⁾An unenclosed opening on one storey means that the shaft or chute has no fire or smoke separation on one storey but is enclosed on all other storeys.

⁽⁴⁾Wired glass enclosures, regardless of area of wired glass, are considered to have a rating of 45 min

⁽⁵⁾Untopped heavy timber floors which have openings due to shrinkage or warpage are considered to be unenclosed. If one floor is unenclosed (i.e., no topping), then 2-storeys are exposed to the same fire.

TABLE 4.4 AUTOMATIC SPRINKLERS
(Applies to entire building)

Incomplete	Unsupervised ⁽¹⁾ with Std Sprinklers	Unsupervised ⁽¹⁾ with Residential Sprinklers	Supervised with Std Sprinklers ⁽¹⁾	Supervised with Residential Sprinklers ⁽¹⁾
0	3	7	6	10

Note:

⁽¹⁾Supervision for water flow and valve tamper as required in the MBC.

TABLE 4.5 FIRE ALARM SYSTEMS (Applies to entire building)

Incomplete ⁽¹⁾	2 Stage	Single Stage			
		Without Voice Comm	+ Voice Comm	+ Voice Comm + Supervised with FD Notification	+ Voice Comm + Supervised with FD Notification + Smoke Detectors ⁽²⁾
-2	-1	0	1	2	3

Note:

⁽¹⁾Incomplete means that the system does not meet the requirements of Section 4.3 related to the specific building.

⁽²⁾With smoke detectors in corridors and exit stairs as per MBC

TABLE 4.6 SMOKE ALARMS (Applies to each fire zone)

Single Station Units ⁽¹⁾		Interconnected Units ⁽¹⁾	
Every Level	Every Level and Bedrooms	Every Level	Every Level and Bedrooms
0	2	0	4

Note:

⁽¹⁾Hard-wired units are required. For smoke alarms with non-tamper, lithium batteries subtract two (2) points.

TABLE 4.7 SUITE FIRE COMPARTMENTATION (Suite-Suite and Suite-Corridor)
(Applies to each fire zone)

Incomplete/ None ⁽¹⁾	Walls <45 min FRR ⁽²⁾		Walls ≥45 min FRR ⁽³⁾		Walls ≥1 h FRR	
	Doors ⁽⁴⁾ <20 min	Doors ≥20 min	Doors ⁽⁴⁾ <20 min	Doors ≥20 min	Doors ⁽⁴⁾ <20 min	Doors ≥20 min
-6	-2	-1	0	1	1	2

Notes:

⁽¹⁾Incomplete/none refers to the case where there is no smoke separation between the spaces.

⁽²⁾At least equivalent to 12.7 mm thick gypsum board on both sides of steel or wood studs

⁽³⁾Wired glass enclosures, regardless of area of wired glass, are considered to have an FRR of 45 min.

⁽⁴⁾These door assemblies are not required to have a fire protection rating and do not necessarily need a rated frame or rated hardware but should have self-closing devices to ensure that they can prevent smoke movement into the corridor following occupant egress.

TABLE 4.8 TEMPORARY REFUGE PARAMETER (Applies to each fire zone)

Incomplete/No Door ⁽¹⁾	Walls + Door		Exterior Balconies ⁽³⁾
	<20 min FRR	≥20 min FRR ⁽²⁾	
-1	0	1	1

Notes:

⁽¹⁾Incomplete/no door refers to the case where there is no smoke separation between the spaces.

⁽²⁾Wired glass or glass block, regardless of the area, is considered to have an FRR ≥20 min.

⁽³⁾See Article 4.4.10.5.

TABLE 4.9 ACCESS TO EXITS FROM SUITES (Applies to each fire zone)

Apartment Direct Access to Fire Escape + Dead End Corridor	Apartment on Dead End Corridor ⁽¹⁾ >6 m +		Apartment on Dead End Corridor ≤6 m +			2 Directional Corridor +		
	≤15 m Travel ⁽²⁾	>15 m Travel ⁽²⁾	≤15 m Travel ⁽²⁾	≤45 m Travel ⁽²⁾	≤70 m Travel ⁽²⁾	≤15 m Travel ⁽²⁾	≤45 m Travel ⁽²⁾	≤70 m Travel ⁽²⁾
0	-2	-4	0	-1	-2	2	1	0

Note:

⁽¹⁾Dead end corridor must lead to 2-directional corridor or 2 exits.

⁽²⁾Travel is the same distance an occupant must walk to move from the most remote point in a suite to an exit door.

TABLE 4.10 EXITS (Applies to each fire zone)

2 Enclosed Stairs ⁽¹⁾				1 Enclosed Stair ⁽¹⁾ + 1 Fire Escape (FE) ⁽²⁾ + Cross Corridor Barrier ⁽³⁾		
Stairs Direct to Outside	Stairs Through Complying Lobby ⁽⁴⁾	Stairs Through Non-Complying Lobby ⁽⁴⁾	With Cross Corridor Barrier ⁽³⁾	Stair Direct to Outside + FE	Stair Through Complying Lobby ⁽⁴⁾ + FE	Stair Through Non-Complying Lobby ⁽⁴⁾ + FE
2	1	0	4	1	0	-1

Notes:

⁽¹⁾Enclosure by a fire separation with ≥45 min FRR. Unlimited area wired glass permitted.

⁽²⁾Fire escape conforms to Article 4.4.12.5.

⁽³⁾Cross corridor barriers are smoke partitions and need not have an FRR nor do doors in them need to have an FRR (see Article 4.4.12.4).

⁽⁴⁾Lobby complying with MBC.

TABLE 4.11 INTERIOR FINISHES OF WALLS AND CEILINGS
(Applies to each fire zone)

Exits FSR ⁽¹⁾		Public Corridors FSR ⁽¹⁾			Suites FSR ⁽¹⁾	
≤25	>25≤150	≤75	>75≤150	>150≤200	≤150	>150≤200
0	-2	1	0	-3	0	-3

Note:

⁽¹⁾Does not apply to exposed heavy timber construction

TABLE 4.12 SMOKE CONTROL
(Applies to each fire zone)

None	Cross Corridor Barriers	Pressurized Corridors	Pressurized Corridors + Cross Corridor Barriers
0	1	2	3

TABLE 4.13 FIRE SAFETY PLANNING
(Applies to entire building)

No FSP ⁽¹⁾	FSP ⁽¹⁾ Developed & Approved ⁽²⁾	FSP Developed & Approved ⁽²⁾ + 1 Exit Drill/Year
-2	0	2

Notes:

⁽¹⁾Fire safety plan as per MFC.

⁽²⁾Approved by fire department.

TABLE 4.14 FIRE BRIGADE RESPONSE
(Applies to entire building)

One Street ⁽¹⁾ Access		Two or Three Street ⁽¹⁾ Access	
With FD Elevator ⁽²⁾	Without FD Elevator	With FD Elevator ⁽²⁾	Without FD Elevator
1	0	2	1

Notes:

⁽¹⁾Conforms to MBC for buildings facing streets.

⁽²⁾Conforms to MBC requirements for fire department elevators.

TABLE 4.15 BASIC REQUIREMENTS FORE HERITAGE RESIDENTIAL BUILDINGS

The following must conform to the MBC or MFC or Section 4.3 of these Guidelines:

Basic Requirement	Compliant	
	Yes	No
Utilities Installation		
Electrical equipment vaults, required by the Canadian Electrical Code, Part 1, are protected as required in Article 3.6.2.7 of MBC.		
HVAC Installation		
Elevator Installation (except heritage elevators) ⁽¹⁾		
Refuse Chutes		
Exposure Protection (except existing facades) ⁽²⁾		
Fire-stopping		
Standpipe System		
Fire Alarm Audibility in all spaces		
Testing/Maintenance of fire safety equipment		
Occupants must care for themselves in evacuation, except infants in care of responsible persons. (No trained staff to assist egress.)		
Fire Department response ≤ 6 min to building		

Notes:

⁽¹⁾ See Section 4.3 for provisions for heritage elevators.

⁽²⁾ See Section 4.3 for provisions for windows etc. in heritage facades.

WORKSHEET 4-2

FIRE SAFETY EVALUATION FOR HERITAGE RESIDENTIAL BUILDINGS

Occupant Safety Parameter	Fire Control Provided	Refuge Provided	Egress Provided	Overall Fire Safety
Construction			N/A	
Hazardous Areas			/2 =	
Vertical Openings	/2 =			
Automatic Sprinklers		/2 =	/2 =	
Fire Alarm	/2 =	N/A		
Smoke Alarms	/2 =	N/A		
Suite Compartmentation			/2	
Bedroom Compartmentation	N/A		N/A	
Access to Exits	N/A	N/A		
Exits	N/A	/2 =		
Interior Finishes	/2=	N/A		
Smoke Control	N/A			
Fire Safety Planning	N/A	N/A		
Fire Brigade Response		N/A		
TOTALS⁽¹⁾				

Notes:

⁽¹⁾Totals to be transferred to Worksheet 4-3.

WORKSHEET 4-3

BENCHMARKS FOR FIRE SAFETY FOR HERITAGE RESIDENTIAL BUILDINGS

Building Height	Control Benchmark	Refuge Benchmark	Egress Benchmark	Overall Fire Safety Benchmark
1-3 storeys	1	-0.5	3	2
4-6 storeys	13	5	7.5	12
7 storeys	13	5	7.5	12

EQUIVALENCY EVALUATION FOR HERITAGE RESIDENTIAL BUILDINGS

Fire Safety Provided (Totals from Table 4-2)	Fire Safety Required (Benchmark from above)	Column 1 \geq Column 2	
		Yes	No
	Fire Control Benchmark =		
	Refuge Benchmark =		
	Egress Benchmark =		
	Overall Fire Safety Benchmark =		
Column 1	Column 2	Column 3	