

WORKSHEET 5-1

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

FIRE SAFETY PARAMETERS

TABLE 5.1 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
1-4 storeys	0	-1	1	2	-1	1	2
5-6 storeys	0	-3	0	1	-2	0	1
7 storeys	0	-5	-1	0	-3	-1	0

Note:

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

TABLE 5.2 HAZARDOUS AREAS (Applies to each fire zone)

	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
Assembly or Retail Occupancy	-7	-2	-2	-1	-1	0
Common Janitors' Rooms	-7	-2	-1	0	0	1
Elevator Machine Rooms	-7	-2	-2	-1	-1	0
Furnace/Service Rooms	-7	-2	-2	-1	-1	0
Refuse Storage Rooms	-7	-2	-2	-1	-1	0

Notes:

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

TABLE 5.3 VERTICAL OPENINGS
(Applies to entire building)

	Unenclosed ⁽¹⁾					Enclosed ⁽²⁾		
	>4 sto	4 sto	3 sto	2 sto	1 sto ⁽³⁾	<45 min	45 min ⁽⁴⁾	>45 min
Exit Stair Shafts	-10	-7	-5	-4	-2	-1	0	1
Refuse Chutes	-10	-7	-5	-4	-3	-1	0	1
Vertical Service Spaces	-10	-7	-5	-4	-3	-1	0	1
Elevator Shafts	-10	-7	-5	-4	-2	-1	0	1
Existing Stair/Elevator Shafts (combined)	-10	-7	-5	-4	0	0	0	1
Heavy Timber Floors ⁽⁵⁾	-10	-7	-5	-4	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 5.4 AUTOMATIC SPRINKLERS
(Applies to entire building)

Incomplete	Unsupervised with Std Sprinklers	Unsupervised with Quick Response Sprinklers	Supervised with Std Sprinklers ⁽¹⁾	Supervised with Quick Response Sprinklers ⁽¹⁾
0	4	7	8	10

Note:

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

TABLE 5.5 FIRE ALARM SYSTEMS (Applies to entire building)

None	Incomplete ⁽¹⁾	2 Stage	Single Stage		
			With Voice Communication	+ Supervised with FD Notification	+ Supervised with FD Notification + Smoke Detectors ⁽²⁾
-4	-2	-1	0	1	2

Note:

⁽¹⁾Incomplete means that the system does not meet the requirements of Section 5.3 related to the specific building.

⁽²⁾With smoke detectors in exit stairs and return air ducts as per MBC

TABLE 5.6 OFFICE SUITE FIRE COMPARTMENTATION (Office Suite-Office Suite and Office Suite-Corridor) (Applies to each fire zone)

Incomplete/None ⁽¹⁾	Walls <45 min FRR ⁽²⁾		Walls ≥45 min FRR ⁽³⁾	
	Doors ⁽⁴⁾ Without Closers	Doors With Closers	Doors ⁽⁴⁾ Without Closers	Doors With Closers
-4	-1	0	0	2

Notes:

⁽¹⁾Incomplete/none refers to the case where there is no smoke separation between the spaces or where there are through openings such as louvres.

⁽²⁾At least equivalent to a smoke separation.

⁽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.

TABLE 5.7 ACCESS TO EXITS FROM OFFICE SUITES (Applies to each fire zone)

Direct Access to Fire Escape from Office Suite + Dead End Corridor (≤45 m Travel)	Office Suite on Dead End Corridor ⁽¹⁾ >6 m long +		Office Suite on Dead End Corridor ⁽¹⁾ ≤6 m long +			Office Suite on 2 Directional Corridor +		
	≤25 m Travel ⁽²⁾	>25 m Travel ⁽²⁾	≤25 m Travel ⁽²⁾	≤70 m Travel ⁽²⁾	≤90 m Travel ⁽²⁾	≤25 m Travel ⁽²⁾	≤70 m Travel ⁽²⁾	≤90 m Travel ⁽²⁾
0	-2	-4	2	1	0	2	1	0

Note:

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

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

TABLE 5.8 EXITS (Applies to each fire zone)

2 Enclosed Stairs ⁽¹⁾				1 Enclosed Stair ⁽¹⁾ + 1 Fire Escape (FE) ⁽²⁾ + Cross Corridor Barrier ⁽³⁾			1 Enclosed Stair ⁽¹⁾ + 1 Fire Escape (FE) ⁽²⁾ + Direct Access to Both for All Occupants of Floor Area		
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 + FE	Stair Direct to Outside	Stair Through Complying Lobby ⁽⁴⁾	Stair Through Non-Complying Lobby
2	1	0	4	1	0	-1	1	0	-1

Notes:

⁽¹⁾Enclosure by a fire separation with ≥ 45 min FRR. Unlimited area of wired glass permitted.⁽²⁾Fire escape conforms to Section 5.3.⁽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 5.4.10.4).⁽⁴⁾Lobby complying with MBC.**TABLE 5.9 INTERIOR FINISHES OF WALLS AND CEILINGS** (Applies to each fire zone)

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

Notes:

⁽¹⁾Does not apply to exposed heavy timber construction.**TABLE 5.10 SMOKE CONTROL** (Applies to each fire zone)

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

TABLE 5.11 FIRE SAFETY PLANNING (Applies to entire building)

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

Notes:

⁽¹⁾Fire safety plan as per MFC.⁽²⁾Approved by fire department.

TABLE 5.12 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 5.13 BASIC REQUIREMENTS FOR HERITAGE OFFICE BUILDINGS**

The following must conform to the MBC or MFC or Section 5.3 of these Guidelines:

Basic Requirement	Compliant	
	Yes	No
Fire Department response ≤ 6 min to building		
Occupants must care for themselves in evacuation, except infants in care of responsible persons. (No trained staff to assist egress.)		
Utilities Installation (MBC)		
HVAC Installation (MBC)		
Elevator Installation (except heritage elevators) ⁽¹⁾ (MBC)		
Refuse Chutes (if installed) (MBC)		
Exposure Protection (except existing facades) ⁽²⁾ (MBC)		
Testing/Maintenance of fire safety equipment as per MFC		

Notes:

⁽¹⁾See Section 5.3 for provisions for heritage elevators.⁽²⁾See Section 5.3 for provisions for windows etc. in heritage facades.

WORKSHEET 5-2

FIRE SAFETY EVALUATION FOR HERITAGE OFFICE 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		
Office Suite Compartmentation			/2=	
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		
EVALUATION TOTALS⁽¹⁾				

Notes:

⁽¹⁾Totals to be transferred to Worksheet 5-3

WORKSHEET 5-3

BENCHMARKS FOR FIRE SAFETY FOR HERITAGE OFFICE BUILDINGS

Building Height	Fire Control Benchmark	Refuge Provided Benchmark	Egress Provided Benchmark	Overall Fire Safety Benchmark
1-4 storeys	5	4	3	7
5-6 storeys	5	3	3	6
7 storeys	7	3.5	5	8

EQUIVALENCY EVALUATION FOR HERITAGE OFFICE BUILDINGS

Fire Safety Provided (Totals from Table 5-2)	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	

