

WORKSHEET 3-1

THE MANITOBA OFFICE OCCUPANCY FIRE RISK INDEX

FIRE SAFETY PARAMETER VALUES

TABLE 3.1 CONSTRUCTION OF STRUCTURAL MEMBERS AND FLOOR AND ROOF⁽¹⁾ ASSEMBLIES (Applies to each fire zone)

Building Height, Storeys	Combustible Construction				Protected ⁽⁴⁾ Heavy Timber FRR	Heavy Timber FRR	Noncombustible Construction			
	<45 min ⁽²⁾ FRR	45 min FRR	1 h FRR	2 h FRR			<45 min ⁽²⁾ FRR	45 min FRR	1 h FRR	2 h FRR
1 to 3	-2	0	1	2	2	1	0	1	2	3
4	-3	-2	0	1	1	0	-2	-1	1	2
5 to 6	-8	-6	-4	-2	-2	-4	-4	-2	0	1
>6	NP ⁽³⁾	-7	-6	-4	-4	-6	-8	-3	-2	0

Notes:

⁽¹⁾ *Fire resistance ratings* for roof assemblies are required only when the applicable article in Subsection 3.2.2. of the MBC requires a rated roof assembly.

⁽²⁾ <45 min requires a minimum FRR equivalent to 1 layer of regular, 12.7 mm thick, gypsum board covering the structural member or assembly.

⁽³⁾ NP = not permitted.

⁽⁴⁾ Protected Heavy Timber means heavy timber construction as per the MBC protected by 2 layers of 15.9 mm thick Type X gypsum board or equivalent thermal protection.

TABLE 3.2 HAZARDOUS AREAS IN OFFICE BUILDINGS
(Applies to each fire zone)

	No Fire Separations No Sprinklers	No Fire Separations ⁽⁴⁾ + Sprinklers	Non-Rated Fire Separations ⁽¹⁾ No Sprinklers	Non-Rated Fire Separations ⁽¹⁾ + Sprinklers	Fire Separations ≥1 h No Sprinklers	Fire Separations ≥1 h + Sprinklers
Furnace/Service Rooms	-4	0	-1	1	0	2
Common Janitors' Rooms	-4	-2	-2	0	0 ⁽³⁾	2 ⁽³⁾
Residential, Assembly, or Light Industrial Occupancy in building	-4	-2	-2	0	0	2
Mercantile Occupancy or Storage Garage in Building	-5	-4	-3	-2	-1 ⁽⁵⁾	1
Elevator Machine Rooms ⁽²⁾	-4	-2	-2	0	0 ⁽³⁾	2 ⁽³⁾
Refuse Storage Rooms	-7	-2	-3	-1	-2	0

Notes:

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

⁽²⁾ Elevator Machine Rooms need not be separated from the elevator hoistway provided both the room and the hoistway are fire separated from the remainder of the building as per the MBC.

⁽³⁾ Where the MBC permits floor assemblies to have a 45 min fire resistance rating, rated enclosures of 45 min FRR shall be considered to be 1 h FRR for the purposes of application of this parameter.

⁽⁴⁾ Where hazardous areas are located immediately adjacent to exits, exit lobbies or public corridors, no credit is to be given for sprinklers for the purposes of this parameter if there is no smoke separation present. Such situations shall be considered "No Fire Separations, No Sprinklers" for the purposes of application of this parameter.

⁽⁵⁾ If the FRR of the Storage Garage fire separations is at least 90 min, the score for this parameter should be "0".

TABLE 3.3 VERTICAL OPENINGS (Applies to entire building)

Vertical Opening Types	Unenclosed ⁽²⁾ - Number of storeys ⁽¹⁾ open to a vertical service space			Enclosed ⁽³⁾ – Fire Resistance Rating of Enclosure		
	>3 sto	2-3 sto	1 sto	<1 h ⁽⁶⁾	1 h ⁽⁵⁾⁽⁶⁾	>1 h
Exit Stair Shafts	NP ⁽⁴⁾	-7	-2	-1	0	1
Refuse Chutes/Linen Chutes	-10	-8	-3	-1	0	1
Vertical Service Spaces	-10	-7	-2	-1	0	1
Elevator Shafts	-10	-7	-2	-1	0	1
Existing Stair/Elevator Shafts (combined)	-10	-7	-2	-1	0	1

Notes:

⁽¹⁾Includes basement storeys and roof spaces.

⁽²⁾Unenclosed means no fire or smoke separation exists between a storey and vertical service space, or it is incomplete.

⁽³⁾Enclosed means a fire or smoke separation exists and is continuous throughout the enclosure.

⁽⁴⁾NP = Not Permitted.

⁽⁵⁾Existing wired glass or glass block enclosures, regardless of area of glass, are considered to have a rating of 1 h.

⁽⁶⁾Where the MBC permits floor assemblies to have a 45 min fire resistance rating, rated enclosures of 45 min FRR shall be considered to be 1 h FRR for the purposes of application of this parameter.

TABLE 3.4 AUTOMATIC SPRINKLERS⁽¹⁾ (Applies to entire building)

None, Incomplete or Partial	Unsupervised ⁽¹⁾ using NFPA 13 with Std Sprinklers	Unsupervised ⁽¹⁾ using NFPA 13 with Quick Response Sprinklers	Supervised ⁽²⁾ using NFPA 13 with Std Sprinklers	Supervised ⁽²⁾ using NFPA 13 with Quick Response Sprinklers
0	4	6	8	10

Note:

⁽¹⁾Only refurbished automatic sprinkler system installations are permitted to be unsupervised.

⁽²⁾Supervision as described in the MBC.

TABLE 3.5 FIRE ALARM SYSTEMS (Applies to entire building)

None	Incomplete ⁽¹⁾	2 Stage System ⁽³⁾	Single Stage System			
			Without Voice Comm	+ Voice Comm ⁽²⁾ or Supervision ⁽²⁾	+ Voice Comm ⁽²⁾ or Supervised ⁽²⁾ + FD Notification ⁽²⁾	+ Voice Comm ⁽²⁾ + Supervised ⁽²⁾ + FD Notification ⁽²⁾ + Fire Detectors ⁽²⁾
-4	-2	-1	0	1	2	3

Note:

⁽¹⁾Incomplete means that the existing system does not meet all of the requirements of the MBC related to the specific building, but that a fire alarm system exists in the building and is operational (see Article 3.2.5.3).

⁽²⁾As per MBC

⁽³⁾Where a 2-stage fire alarm system is continuously monitored by supervisory staff such that there is no delay in evacuation of occupants or notification of the fire department, a 2-stage system can be treated as a single-stage system for the purposes of this parameter.

TABLE 3.6A SUITE TO PUBLIC CORRIDOR FIRE COMPARTMENTATION – FIRE ZONE NOT SPRINKLERED THROUGHOUT (Applies to each fire zone)

Incomplete/None ⁽¹⁾	Walls <45 min FRR ⁽²⁾		Walls ≥45 min FRR ⁽⁶⁾		Walls ≥1 h FRR ⁽³⁾⁽⁶⁾⁽⁷⁾	
	Doors ⁽⁴⁾ <20 min FPR	Doors ⁽⁵⁾ ≥20 min FPR	Doors ⁽⁴⁾ <20 min FPR	Doors ⁽⁵⁾ ≥20 min FPR	Doors ⁽⁴⁾ <20 min FPR	Doors ⁽⁵⁾ ≥20 min FPR
-6	-3	-2	-2	-1	-1	0

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 regular gypsum board on both sides of steel or wood studs.

⁽³⁾Existing wired glass or glass block enclosures, regardless of area of glass, are considered to have an FRR of 1 h.

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

⁽⁵⁾Conforming to the MBC.

⁽⁶⁾Where the MBC permits floor assemblies to have a 45 min fire resistance rating, walls having an FRR of 45 min shall be considered to be 1 h FRR for the purposes of application of this parameter. The assigned score will therefore be "0" or "-1" depending on the type of door.

⁽⁷⁾Where suite to suite fire separations of at least 1 h are also provided for all suites, one (1) additional point may be added to this score.

**TABLE 3.6B SUITE TO PUBLIC CORRIDOR FIRE COMPARTMENTATION
FIRE ZONE SPRINKLERED THROUGHOUT**
(Applies to each fire zone)

Incomplete/None ⁽¹⁾	Walls <45 min FRR ⁽²⁾		Walls ≥45 min FRR ⁽³⁾⁽⁶⁾	
	Doors ⁽⁴⁾ <20 min FPR	Doors ⁽⁵⁾ ≥20 min FPR	Doors ⁽⁴⁾ <20 min FPR	Doors ⁽⁵⁾ ≥20 min FPR
-2	0	1	1	2

Notes:

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

⁽²⁾A minimum smoke separation is required between the corridor and the adjacent suites.

⁽³⁾Existing wired glass or glass block enclosures, regardless of area of 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 require a rated frame or rated hardware but must have self-closing and latching devices to ensure that they can prevent smoke movement into the corridor.

⁽⁵⁾Conforming to the MBC.

⁽⁶⁾Where suite to suite fire separations of at least 45 min FRR are also provided for all suites in a fire zone, one (1) additional point may be added to this score.

TABLE 3.7A ACCESS TO EXITS – BUILDING NOT SPRINKLERED THROUGHOUT
(Applies to each fire zone)

Suite Has Direct Access to 2 Exits + ≤40 m Travel ⁽²⁾	Suite Has Direct Access to 1 Exit + Dead End Public Corridor + ≤40 m Travel ⁽²⁾	Suite Has Direct Access to Fire Escape ⁽³⁾ + Dead End Public Corridor + ≤40 m Travel ⁽²⁾	Suite on Dead End Public Corridor ⁽¹⁾ >6 m +		Suite on Dead End Public Corridor ⁽¹⁾ ≤6 m +			Suite on 2 Directional Public Corridor +		
			≤25 m Travel ⁽²⁾	>25 m Travel ⁽²⁾	≤25 m Travel ⁽²⁾	≤65 m Travel ⁽²⁾	≤80 m Travel ⁽²⁾	≤25 m Travel ⁽²⁾	≤65 m Travel ⁽²⁾	≤80 m Travel ⁽²⁾
0	0	0	-2	-4	2	1	0	2	1	0

Note:

⁽¹⁾Dead end public 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 a suite to an exit door.

⁽³⁾Existing fire escapes are permitted on buildings 6-storeys and less in height and other aspects conform to MBC. New fire escapes must conform to MBC.

TABLE 3.7B ACCESS TO EXITS – BUILDING SPRINKLERED THROUGHOUT
(Applies to each fire zone)

Suite Has Direct Access to 2 Exits + ≤45 m Travel ⁽²⁾	Suite Has Direct Access to 1 Exit + Dead End Public Corridor + ≤45 m Travel ⁽²⁾	Suite Has Direct Access to Fire Escape ⁽³⁾ + Dead End Public Corridor + ≤45 m Travel ⁽²⁾	Suite on Dead End Public Corridor ⁽¹⁾ >6 m +		Suite on Dead End Public Corridor ⁽¹⁾ ≤6 m +			Suite on 2 Directional Public Corridor +		
			≤25 m Travel ⁽²⁾	>25 m Travel ⁽²⁾	≤25 m Travel ⁽²⁾	≤70 m Travel ⁽²⁾	≤90 m Travel ⁽²⁾	≤45 m Travel ⁽²⁾	≤70 m Travel ⁽²⁾	≤90 m Travel ⁽²⁾
0	0	0	-1	-3	2	1	0	2	1	0

Note:

⁽¹⁾Dead end public 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 a suite to an exit door.

⁽³⁾Existing fire escapes are permitted on buildings 6-storeys and less in height and other aspects conform to MBC. New fire escapes must conform to MBC.

TABLE 3.8 EXITS (Applies to each fire zone)

<2 Exits	Enclosed Stairs ⁽¹⁾ + Horizontal Exit ⁽⁵⁾			2 or more Enclosed Stairs ⁽¹⁾				1 Enclosed Stair ⁽¹⁾ + 1 Fire Escape (FE) ⁽²⁾ + Cross Corridor Barrier ⁽³⁾		
Stair Direct to Outside	Stairs Direct to Outside	Stairs Through Complying Lobby ⁽⁴⁾	Stairs Through Non-Complying Lobby	All Stairs Direct to Outside	One Stair Through Complying Lobby ⁽⁴⁾	One Stair Through Non-Complying Lobby	With Cross Corridor Barrier ⁽³⁾	Stair Direct to Outside + FE	Stair Through Complying Lobby ⁽⁴⁾ + FE	Stair Through Non-Complying Lobby + FE
-8	2	1	0	1	0	-1	4	1	0	-1

Notes:

⁽¹⁾Enclosure by a fire separation conforming to MBC. Existing wired glass assemblies with unlimited areas of glass are permitted where required FRR is 1 h or less.

⁽²⁾Existing fire escapes permitted only on buildings 6-storeys or less and other aspects conform to MBC. New fire escapes must conform to the MBC.

⁽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 3.2.8.4).

⁽⁴⁾Lobby complying with MBC.

⁽⁵⁾Horizontal exit conforms to MBC except that, for the purposes of this parameter, exiting through a vertical fire separation with a 2 h FRR, which divides all floors of a building, shall be considered as horizontal exiting (see Article 3.2.8.2).

TABLE 3.9 INTERIOR FINISHES OF WALLS AND CEILINGS⁽¹⁾ (Applies to each fire zone)

Exits FSR ⁽²⁾⁽³⁾			Public Corridors FSR ⁽²⁾		Other Spaces, including corridors in suites and suites FSR ⁽²⁾	
≤25	>25≤75	>75≤150	≤75	>75≤150	≤150	≤200
0	-1	-2	0	-1 ⁽⁴⁾	0	-1

Note:

⁽¹⁾For high buildings, required to conform to Subsection 3.2.6 of the MBC, requirements for smoke developed classifications of interior finishes must also be met.

⁽²⁾Does not apply to exposed heavy timber construction.

⁽³⁾Includes exit lobbies where exits are permitted to discharge through a lobby.

⁽⁴⁾For sprinklered buildings, interior finishes in public corridors with FSR ≤ 150 shall be scored as "0".

TABLE 3.10A SMOKE CONTROL FOR BUILDINGS WHOSE UPPERMOST FLOOR LEVEL IS 36 m OR LESS ABOVE GRADE (Applies to each fire zone)

None	Vented Stairwells ⁽¹⁾	Mechanical Pressurization of Stairwells ⁽¹⁾	Cross Corridor Barriers	Pressurized Corridors	Pressurized Corridors + Cross Corridor Barriers ⁽²⁾
0	1	1	1	2	3

Note:

⁽¹⁾As per Subsection 3.2.6 of MBC

⁽²⁾Cross corridor barriers are smoke partitions and need not have an FRR nor do doors in them need to have an FPR (see Article 3.2.8.4).

TABLE 3.10B SMOKE CONTROL FOR BUILDINGS WHOSE UPPERMOST FLOOR LEVEL IS GREATER THAN 36 m ABOVE GRADE (Applies to entire building)

None	Vented Stairwells (VS) ⁽¹⁾	Mechanical Pressurization (MP) of Stairwells ⁽¹⁾	VS ⁽¹⁾ or MP ⁽¹⁾ + Cross Corridor Barriers ⁽³⁾	VS ⁽¹⁾ or MP ⁽¹⁾ + Pressurized Corridors	VS ⁽¹⁾ or MP ⁽¹⁾ + Pressurized Corridors + Cross Corridor Barriers ⁽³⁾
NP ⁽²⁾	0	0	1	1	2

Note:

⁽¹⁾As per Subsection 3.2.6 of MBC

⁽²⁾NP = Not Permitted

⁽³⁾Cross corridor barriers are smoke partitions and need not have an FRR nor do doors in them need to have an FPR (see Article 3.2.8.4).

TABLE 3.11 FIRE SAFETY PLANNING
(Applies to entire building)

No FSP ⁽¹⁾ or No Exit Drills	FSP ⁽¹⁾ Developed & Approved ⁽²⁾ + 1 Exit Drill/Year Involving Staff Only	FSP ⁽¹⁾ Developed & Approved ⁽²⁾ + 1 Exit Drill/Year involving Staff and Occupants
-2	0	2

Notes:

⁽¹⁾Fire safety plan as per MFC.

⁽²⁾Approved by fire department.

**TABLE 3.12A FIRE BRIGADE RESPONSE
BUILDING NOT SPRINKLERED THROUGHOUT**
(Applies to entire building)

FD Response ⁽¹⁾ ≤6 min		FD Response ⁽¹⁾ >6 min but ≤ 9 min		FD Response ⁽¹⁾ >9 min	
With FD Elevator ⁽²⁾	Without FD Elevator	With FD Elevator ⁽²⁾	Without FD Elevator	With FD Elevator ⁽²⁾	Without FD Elevator
1	0	-1	-2	-2	-3

Notes:

⁽¹⁾Fire department response time means processing time plus travel time from the fire station to the building and excludes setup time which is estimated as 5 additional minutes

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

**TABLE 3.12B FIRE BRIGADE RESPONSE
BUILDING SPRINKLERED THROUGHOUT**
(Applies to entire building)

FD Response ⁽¹⁾ ≤6 min		FD Response ⁽¹⁾ >6 min but ≤ 9 min		FD Response ⁽¹⁾ >9 min	
With FD Elevator ⁽²⁾	Without FD Elevator	With FD Elevator ⁽²⁾	Without FD Elevator	With FD Elevator ⁽²⁾	Without FD Elevator
2	1	0	-1	-1	-2

Notes:

⁽¹⁾Fire department response time means processing time plus travel time from the fire station to the building and excludes setup time which is estimated as 5 additional minutes

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

TABLE 3.13 BASIC REQUIREMENTS

The following must conform to the MBC or MFC:

Basic Requirement	Yes – Complies with MBC/MFC	No – Requires Upgrading to Comply with MBC/MFC
Utilities Installation, including electrical equipment vaults		
HVAC Installation		
New Elevator Installation		
Fire-stopping		
Standpipe System		
New Sprinkler Systems comply with MBC		
Fire Alarm Audibility in all spaces		
New Fire Alarm Systems comply with MBC		
Testing/Maintenance of fire safety equipment complies with MFC and MBC testing requirements for control of smoke movement and mechanical venting		
Occupants must care for themselves in evacuation, except infants in care of responsible persons. (No trained staff to assist egress.)		
Non-sprinklered fire zones provided with protection for a floor area, with a barrier free path of travel, in conformance with the MBC.		
High buildings, as defined in MBC, conform to MBC additional requirements for high buildings, except for parameters addressed in this Guide.		

WORKSHEET 3-2

FIRE SAFETY EVALUATION FOR OFFICE OCCUPANCIES

Table No.	Occupant Safety Parameter	Fire Control Provided	Refuge Provided	Egress Provided	Overall Fire Safety
B-1	Construction			N/A	
B-2	Hazardous Areas			/2 =	
B-3	Vertical Openings				
B-4	Automatic Sprinklers		/2 =	/2 =	
B-5	Fire Alarm	/2 =	N/A		
B-6	Suite/Corridor Fire Compartmentation			/2 =	
B-7	Access to Exits	N/A	N/A		
B-8	Exits	N/A	/2 =		
B-9	Interior Finishes	/2 =	N/A		
B-10	Smoke Control	N/A			
B-11	Fire Safety Planning	N/A	N/A		
B-12	Fire Brigade Response		N/A		
	EVALUATION TOTALS⁽¹⁾				

Notes:

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

WORKSHEET 3-3

BENCHMARKS FOR OFFICE OCCUPANCY BUILDINGS⁽¹⁾

MBC Reference ⁽²⁾	Building Height	Fire Control Benchmark	Refuge Benchmark	Egress Benchmark	Overall Fire Safety Benchmark
3.2.2.58	1-3 storeys	-1.5	-0.5	-0.5	-1.5
3.2.2.57	4 storeys – combustible construction	3.5	2	2	4
3.2.2.55	4-6 storeys – non-combustible construction	-2.5	0	-3	-2
3.2.2.54	>6 storeys	7	4	4	8

Notes:

⁽¹⁾Scores shown are those calculated for a typical building of the same height complying with the MBC.

⁽²⁾While building heights were used in determining applicable MBC 2011 article for reference, building areas are not considered in determining benchmark values.

EQUIVALENCY EVALUATION FOR OFFICE OCCUPANCY BUILDINGS

Fire Safety Provided (Total from above)	Fire Safety Required (Benchmark from above)	Column 1 ≥ Column 2	
		Yes	No
	Fire Control Benchmark =		
	Refuge Benchmark =		
	Egress Benchmark =		
	Overall Fire Safety Benchmark =		
Column 1	Column 2	Column 3	