

100MM SINGLEDISC MB100 BALUSTRADE SYSTEM

Design Tables

Safety From Falling Barriers

Side Fix – Occupancy A/C3/B/E

SAFELITE® laminated toughened safety glass and TEMPAFLOAT® monolithic toughened safety glass, fixed to steel and concrete only.

Glass Thickness t (mm)	Occupancy	Substrate Material	Maximum Design Height H (mm)	MB75 Disc Spacing (mm) Max	Design loads to deck structure		Max Imposed Wind Loads	
					M* (kNm/m)	T* (kN)	SLS Wind (kPa)	ULS Wind (kPa)
12, 13.52, 15.2	A	C, S	1150	400	1.04	17.31	-	-
	C3/B/E	C, S	1000	400	1.13	17.66	1.60	2.25
			1100	400	1.24	19.42	1.46	2.05
1125	400	1.27	19.86	1.42	2.00			
15, 17.2, 17.52	A	C, S	1250	400	1.13	18.18	-	-
	C3/B/E	C, S	1150	400	1.29	20.30	1.39	1.96
			1200	400	1.35	19.14	1.34	1.88
1250			400	1.41	17.82	1.28	1.80	

Side Fix

Free Standing Pool Fences (not protecting a fall of 1.0m or more) fixed to steel and concrete only.

Glass Thickness t (mm)	Substrate Material	Maximum Design Height H (mm)	MB75 Disc Spacing (mm) Max	Design loads to deck structure		Max Imposed Wind Loads	
				M* (kNm/m)	T* (kN)	SLS Wind (kPa)	ULS Wind (kPa)
12	C, S	1300	400	1.27	19.86	1.07	1.50
12	C, S	1350	400	1.00	17.66	0.84	1.18
15	C, S	1350	300	1.41	17.82	1.10	1.55

Key:

T = Timber, C = Concrete, S = Steel

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Glass thickness key:

Glass Thickness t (mm)	Inner layer ³ glass thickness (mm)	Interlayer thickness (mm) and type	Outer layer glass thickness (mm)	Panel size requirements	
				Minimum panel width (mm)	Maximum panel width (mm)
12	-	-	-	1000	1700/1900 (see below)
13.52	6	1.52 SAFELITE® STF (Sentry®)	6	2000	Refer manufacturing limits
15.2	8	1.2 SAFELITE® EVA	6	1000	1700/1900 (see below)
15	-	-	-	1000	1700/1900 (see below)
17.52	8	1.52 SAFELITE® STF (Sentry®)	8	1500	Refer manufacturing limits
17.2	8	1.2 SAFELITE® EVA	8	1000	1700/1900 (see below)

Note: Inner layer refers to balcony/floor side

Maximum panel widths for Interlinking Rail/Bracket systems:

Applies where barrier is protecting a fall of 1.0m or more.

Interlinking Rail System	Maximum panel width (mm)	Position
S25 S40 Edgetec®220	1700 1700/1900 1700/1900	on glass only HB50 bracket/on glass HB50 bracket/on glass
MFG SB Bracket on SAFELITE® only	1900	100 - 200mm from top of glass

Post failure requirements:

Applies where barrier is protecting a fall of 1.0m or more.

Glass Type	Requirement
TEMPAFLOAT®	Interlinking rail required in all cases
SAFELITE® EVA	Interlinking rail or SB brackets required all cases
SAFELITE® STF (Sentry®)	No interlinking rail required, minimum panel widths apply

NOTES:

- Design tables only valid for use with Metro MB100 balustrade system.
- Refer to installation and elevation drawings for Height 'H'.
- The specifier must ensure the balustrade height above floor level requirements as per the NZ Building Code are complied with.
- Design loads are in accordance with AS/NZS 1170.1:2002 table 3.3 and NZBC B1/VM1 and DBH Guidance on Barrier Design (March 2012).
- M* & T* denote bending moment (kNm/m width) and tension loads (kN/fixing) respectively to be supported by the sub structure.
- Capacity of all substructure is to be verified by building engineer prior to fixing.
- Fixing centres in tables above are applicable to concrete and steel only. Refer to fixing detail drawings for further details.
- All glass is to be toughened safety glass supplied by Metro Performance Glass, in either TEMPAFLOAT Monolithic, SAFELITE EVA Laminated or SAFELITE® STF (Sentry®) Laminated variants subject to requirements of the tables above.
- Glass & interlayer thicknesses shown are nominal thickness. Table is based on glass minimum tolerance as per NZS 4223.1:2008.
- Refer to the relevant fixing details on drawings: MB100/C/M12, MB100/S/RM(Open), MB100/S/RN(Hollow).
- The tables for this balustrade system are based on an SLS deflection limit of 50mm. While greater than the suggested limit of height/60 as specified in NZS1170.0 for post and rail handrail systems, this is deemed acceptable based on the nature of the cantilevered glass system.
- In all cases the MB100 fixings must be fixed with washer directly to the relevant supporting structure.
- For designs outside the scope of these tables and ULS wind pressures exceeding those shown, specific design is required.
- Minimum glass strength 100MPa, all edges polished.
- Maximum 10mm tolerance allowed to H heights noted in table.
- Monolithic glass options only applicable for situations where all parts of glazing are within 5000mm of adjacent lower floor/ground below.
- Pool fences listed above refer to free standing structures where safety from falling is not applicable.