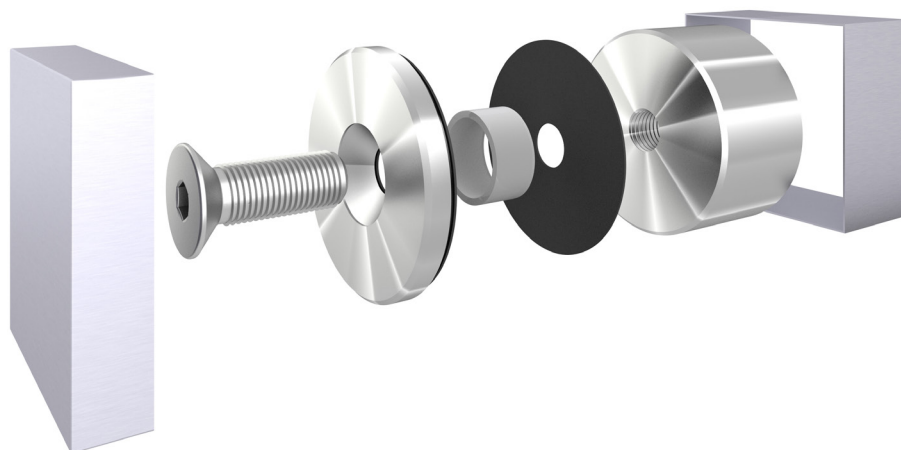




50mm DoubleDisc SD50 System (Side Fix)

The DoubleDisc SD50 series is a range of disc fittings for point fixing cantilevered glass balustrades. Round and square cover plates & design options are available.

- ▶ **FULLY ADJUSTABLE DURING INSTALLATION** A multi-directional wall aligning adjustment option is available for easier glass alignment and faster installations.
- ▶ **ENGINEERED** solid 316 Marine Grade stainless steel or 2205 Duplex Stainless Steel anchor fixing.



Key Features

- ▶ The DoubleDisc SD50 Balustrade System is side fixed for (face) mounted applications.
- ▶ Range of options from a contemporary squared edge look through to the latest adjustable spacer option.

Material Finish

- ▶ Made from 316 grade stainless steel and/or 2205 Duplex stainless steel.
- ▶ Available in machined, satin, polished or black finish (model dependant)
- ▶ Can be Powdercoated upon request.
- ▶ All fixings must be Stainless Steel.

Occupancy Type

- ▶ Suitable for occupancy types A, A Other B, E, and C3.
- ▶ Occupancy Types as per AS/NZ 1170.1.2002.

Windzone

- ▶ Exceeds the wind loading for all Wind Zones up to and Including Extra High Wind Zone as set out in NZS 3604:2011.
- ▶ Max design Wind pressure subject to glass type and fixing method.

The system is only to be glazed with panels supplied by Glass Suppliers who comply with AS/NZ 2208:1996 as follows:

- ▶ 12mm & 15mm nominal thickness, monolithic (Mono) toughened safety glass, with an interlinking rail.
- ▶ 15.2mm & 17.2mm nominal thickness, (EVA) toughened laminated safety glass, with either an interlinking rail or stiffener brackets.
- ▶ SENTRY GLASS 13.52mm & 17.52mm nominal thickness, toughened laminated safety glass with sentry interlayer. No rail or bracket required subject to minimum width met.

EVA Toughened Laminated Safety Glass

Glass Thickness (Nominal mm)	Inner Layer of Glass Thickness (Nominal mm)	Interlayer Thickness (Nominal mm) and Type	Outer Layer glass Thickness (Nominal mm)
15.2	8	1.2 EVA	6
17.2	8	1.2 EVA	8

- ▶ Brackets are required when specifying Laminated Structural Glass with a EVA Interlayer (minimum panel widths apply)

SENTRY GLASS - Toughened Laminated Safety Glass with rigid interlayer

Glass Thickness (Nominal mm)	Inner Layer of Glass Thickness (Nominal mm)	Interlayer Thickness (Nominal mm) and Type	Outer Layer glass Thickness (Nominal mm)
13.52	6	1.52 Sentry Interlayer	6
17.52	8	1.52 Sentry Interlayer	8

- ▶ An interlinking rail is not required when specifying Sentry (SENTRY GLASS) interlayer. (minimum panel widths apply).

Note: Inner layer refers to the balcony side.

Interlinking Hand Rail

- ▶ All monolithic toughened frameless glass balustrades must have an Interlinking Rail to conform to NZS 4223.3.2016, including the latest amendment of NZBC B1.

Compliance

- ▶ Complies with AS/NZS 1170:2002, NZS 4223.3.2016, NZ Building Code B1, F2, F4 and F9.

Scope of Use

- ▶ The DoubleDisc Anchor is a 50mm diameter traditional stainless steel anchor fixing offering, ideal for those seeking a more industrial looking Frameless Glass Balustrade aesthetic.
- ▶ The 25/30-50mm long bodies sets the 12mm/17.52mm toughened glass panels out from the deck to assist with water draining and cleaning.
- ▶ The DoubleDisc Anchor system is ideal for external balconies and stairs - as well as for internal stairs and landings. It can be fixed directly to either timber, steel or concrete surfaces.
- ▶ An interlinking top rail finishes off the system, producing a low profile modern look.

Support Inquiries

- ▶ Opus Hardware phone (0800 40 40 43) or email sales@opushardware.co.nz

SD50 DISC ASSEMBLIES

PRODUCT	DESCRIPTION	STANDOFF SIZE	FINISH	CODE
	SD50 Screw Head 50mm diameter assembly with stand-off, and flat edge screw head.	30mm	Polished Stainless	SD5030-SH-PS
			Satin Stainless	SD5030-SH-SS
		25mm	Polished Stainless	SD5025-SH-PS
			Satin Stainless	SD5025-SH-SS
	SD50 Flat Head 50mm diameter assembly with stand-off, and flat edge concealed stepped head.	30mm	Polished Stainless	SD5030-FH-PS
			Satin Stainless	SD5030-FH-SS
	SD50 Beveled Head 50mm diameter assembly with stand-off, and beveled flat edge concealed head.	30mm	Polished Stainless	SD5030-BH-PS
			Satin Stainless	SD5030-BH-SS
		25mm	Black (PVD)	SD5030-BH-BK
			Polished Stainless	SD5025-BH-PS
Satin Stainless	SD5025-BH-SS			
		SSD50 Square Anchor 50mm Square assembly with stand-off, and flat edge concealed head.	25mm	Polished Stainless
Satin Stainless				SSD5025-FH-SS
	SD50/A Adjustable Anchor 50mm diameter assembly with an adjustable stand-off, and flat edge screw head.	Adjustable (40-50mm)	Polished Stainless	ASD5030-SH-PS
			Satin Stainless	ASD5030-SH-SS
	Glass to Cleat Anchor 50mm diameter with round edge head and standoff. Glass to cleat fixing. To suit 10, 12 and 15mm toughened glass.	6mm	Satin Stainless	CA50-SS
	Square Cover Kit To Convert SD50 Fittings Round Fixings to Square Sets.	30mm	Polished Stainless	SD50SCK-PS
			Satin Stainless	SD50SCK-SS

*Fixings ordered separately, see M10 Rod and Lag Screw options over the page (page 29)

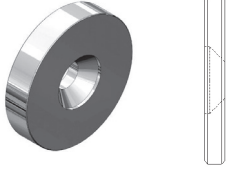
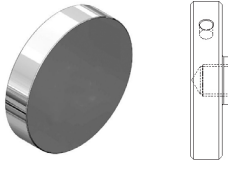
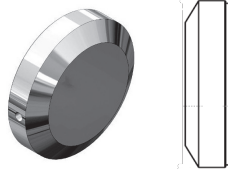
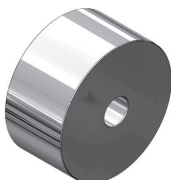

*Options for up to 12 - 17.5mm glass.

*SPECIFY GLASS THICKNESS ON ORDER.

BALUSTRADE SYSTEM COMPONENTS



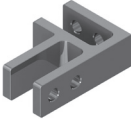
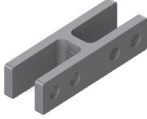
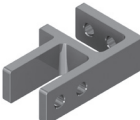
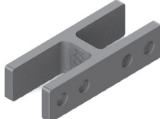
50MM DISC COMPONENTS

PRODUCT	DESCRIPTION	FINISH	CODE
	50mm CSK Head Only 50mm Dia x 6mm M10	Polished Stainless	SDSH-PS
		Satin Stainless	SDSH-SS
	50mm Flat Stepped Head Only 50mm Dia x 10mm M10	Polished Stainless	SDFH-PS
		Satin Stainless	SDFH-SS
	50mm SD50 Button Beveled Head 50mm diameter assembly with 30mm stand-off, and beveled flat edge concealed head.	Polished Stainless	SDBH-PS
		Satin Stainless	SDBH-SS
		Black (PVD)	SDBH-BK
	50mm Threaded Body Only 50mm Dia M10 - SS Finish	BODY WIDTH	CODE
		6mm	SDB6-SS
		20mm	SDB20-SS
		25mm	SDB25-SS
		30mm	SDB30-SS
		40mm	SDB40-SS
		50mm	SDB50-SS
50mm Spacer Only 50mm Dia 10.5mm Through Hole SS Finish	6mm	SDS6-SS	
	20mm	SDS20-SS	
	25mm	SDS25-SS	
	30mm	SDS30-SS	
	50mm Weatherboard Shim 8 degree angle, 12mm tapered to 5mm, 10.5mm dia. through hole, SS.	12mm > 5mm	SP505WBSS

BALUSTRADE SYSTEM COMPONENTS

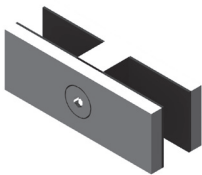
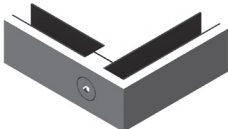
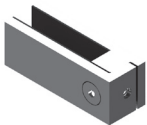


BALUSTRADE STIFFENER BRACKETS

PRODUCT	DESCRIPTION	SIZE	CODE
	Suit glass 12 - 15mm	90° glass to wall. 65mm x 55mm x 25mm.	SBW-15
	Stiffener bracket - No holes required. Duplex 2205. Stainless Steel Satin finish.	90° glass to glass. 82mm x 55mm x 25mm.	SB90-15
		180° glass to glass. 103mm overall x 25mm.	SB180-15
	Suit glass 17.5 - 21.5mm	90° glass to wall. 65mm x 55mm x 25mm.	SBW-21
	Stiffener bracket - No holes required. Duplex 2205. Stainless Steel Satin finish.	90° glass to glass. 88mm x 55mm x 25mm.	SB90-21
		180° glass to glass. 103mm overall x 25mm.	SB180-21

All brackets are supplied with a selection of gaskets to suit glass thickness and includes stainless steel clamping plates.



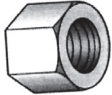





PANEL CLAMPS

PRODUCT	DESCRIPTION	CODE
	Balustrade Panel Clamp 180° Will help align & stiffen 12-13.5mm Balustrade Panels No holes required 316SSS	BC25-180
	Balustrade Panel Clamp 90° Will help align & stiffen 12-13.5mm Balustrade Panels External screws. No holes required 316SSS	BC25-90
	Balustrade Panel Clamp Wall Mount Will help align & stiffen 12-13.5mm Balustrade Panels External screws. No holes required 316SSS	BC25-WM

BALUSTRADE FIXING INDIVIDUAL COMPONENTS



50MM DISC FIXINGS

PRODUCT	DESCRIPTION	M SIZE	LENGTH	CODE
	Stainless Steel Rods	M10	50mm	M10-R50
			100mm	M10-R100
			115mm	M10-R115
			140mm	M10-R140
	SS Lag Screw (External Application)	M10	100mm	M10-100SL
			120mm	M10-120SL
	Zinc Plated Lag Screw (Internal Application)	M10	70mm	M10-70ZLL
100mm	M10-100ZL			
			120mm	M10-120ZL
PRODUCT	DESCRIPTION	SIZE	CODE	
	Hex Nut	M10	M10-HN	
	Dome Nut	M10	M10-DN	
	Nylon Bush to suit M10 Rod	19.5mm Dia	NB-20	
	Black Fibre Gasket 0.8mm Thick, for Exterior and Interior Applications	50mm Dia	FG-50	
	Opaque LDPE Gasket 0.8mm Thick, for Interior Applications	50mm Dia	LG-50	
	Washers	M10 x 30mm dia washers 2.5mm SS	M10-30	
		50 x 50 x 3 Flat Square Washer SS	M10-SQ	
	Spring Washer	M10 Spring Washer SS	M10-5HR	

BALUSTRADE RAIL SYSTEM

S40/25 HANDRAIL FITTINGS



- 25 x 21mm & 30 x 40mm 2205 Stainless Steel.
- Suitable for 10-21.5mm Glass Thickness.
- Rail Components available for 90 degree corners, adjustable corners (180 degrees to 90 degrees), stairway link connectors (Maximum 35 degrees), inline joiner.
- Wall mount brackets available including end caps.
- Satin & Polished Stainless Steel finish standard, can be Powdercoated upon request.

Compliance

- Complies with NZS 4223.3:2016 and the latest amendment of New Zealand Building Code B1.

PRODUCT	DESCRIPTION	TYPE	CODE
	S40 Squareline Interlinking Handrail Capping 5.8m stock lengths, 40mm wide x 30mm high, easy to install using simple tools, no on site welding required. Squareline is easily attached to the glass using a compression fit rubber molding. 2205 Duplex	Satin Stainless	S40-SS
	Suitable for 12-21.5mm glass Joiners, end caps and wall mount brackets are glued together using tube lock.	Polished Stainless	S40-PS
	S25 Slimline Interlinking Handrail Capping 5.8m stock lengths, 25mm wide x 21mm high, easy to install using simple tools, no on site welding required. Squareline is easily attached to the glass using a compression fit rubber molding. 2205 Duplex	Satin Stainless	S25-SS
	Suitable for 10-12mm glass Joiners, end caps and wall mount brackets are glued together using tube lock.	Polished Stainless	S25-PS

SD50 SYSTEM

Disc Options



SD50 Screw Head



SD50 Flat Head



SD50 Beveled Head



SD50/A Adjustable

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Design Tables

Safety From Falling Barriers

Occupancy A

All areas within or serving one dwelling including stairs, landings etc. but excluding external balconies and edges of roofs.

Glass Thickness t (mm)	Maximum Height H (mm)	Substrate Material	Fixing Dimensions (mm)			Design loads to deck structure			
			Max x	Min y	Max y	M* (kNm/m)	T* (kN)	SLS Wind (kPa)	ULS Wind (kPa)
12, 13.52, 15.2	1150	T, C, S	500	110	600	1.04	5.60	-	-
15, 17.2, 17.52	1150		500	110	600	1.04	5.60	-	-

Occupancy A/C3/B/E

As per NZS1170.1 Table 3.3

Glass Thickness t (mm)	Maximum Height H (mm)	Substrate Material	Fixing Dimensions (mm)			Design loads to deck structure			
			Max x	Min y	Max y	M* (kNm/m)	T* (kN)	SLS Wind (kPa)	ULS Wind (kPa)
12, 13.52, 15.2	950	T, C, S	425	110	600	1.07	5.09	1.68	2.37
	1150	T, C, S	400	110	600	1.18	5.20	1.52	2.14
13.52, 15.2	1100	T, C, S	400	110	600	1.24	5.40	1.45	2.05
	1150	C, S	400	110	600	1.29	5.60	1.39	1.96
15, 17.2, 17.52	950	T, C, S	475	110	600	1.07	5.68	1.68	2.37
	1050	T, C, S	425	110	600	1.18	5.52	1.52	2.14
	1100	T, C, S	400	110	600	1.24	5.40	1.45	2.05
	1150	C, S	400	110	600	1.29	5.60	1.39	1.96
	1250	C, S	400	110	600	1.41	6.01	1.28	1.80

Side Fix Free Standing Pool Fences

(Not protecting a fall of 1.0m or more) Steel, Concrete and Timber

Glass Thickness t (mm)	NZS3604 Wind Zone	Maximum Height H (mm)	Substrate Material	Fixing Dimensions (mm)			Design loads to deck structure	
				Max x	Min y	Max y	M* (kNm/m)	T* (kN)
12	Up to High	1250	T, C, S	400	110	600	0.90	3.85
15	Very High	1250	T, C, S	400	110	600	1.16	4.97
17.2	Extra High	1250	T, C, S	400	110	600	1.41	6.01

Key:

T = Timber, C = Concrete, S = Steel

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Design Tables

Glass thickness key:

Glass Thickness t (mm)	Inner layer ^a 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 (SENTRY GLASS)	6	1700	Refer manufacturing limits
15	-	-	6	1000	1700/1900 (see below)
15.2	8	1.2 EVA	-	1000	1700/1900 (see below)
17.2	8	1.2 EVA	8	1000	1700/1900 (see below)
17.52	8	1.52 (SENTRY GLASS)	8	1100	Refer manufacturing limits

Note: Inner layer refers to balcony 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	1700 1700/1900	on glass only HB50 bracket/on glass
Opus SB Bracket on EVA Panels only	1900	Max 200mm from top of glass

Post failure requirements:

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

Glass Type	Requirement
Mono Toughened Safety Standard	Interlinking rail required in all cases
EVA Toughened Laminated Safety	Interlinking rail or SB brackets required all cases
SENTRY GLASS	No interlinking rail required, minimum panel widths apply

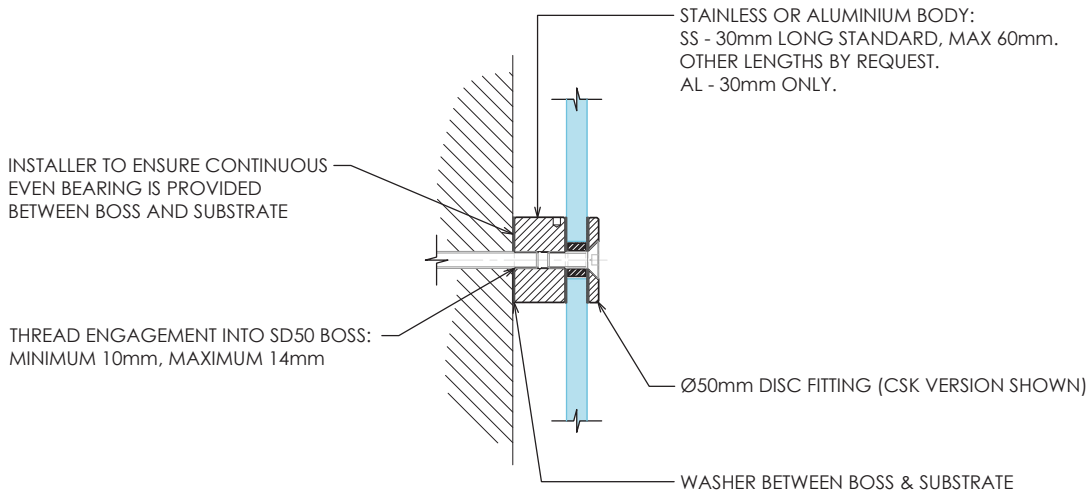
NOTES:

- Refer to 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 deck/pool structure.
- Capacity of all substructure is to be verified by building engineer or checked for accordance with NZS3604 (where applicable) prior to fixing.
- Fixing centres in tables above are applicable to concrete, steel and (where allowed) timber. Refer to fixing detail drawings for further details.
- All glass is to be toughened safety glass supplied by Glass Suppliers who comply with AS/NZ 2208:1996. To be glazed with the following Glass options: Monolithic, EVA Laminated or SENTRY GLASS. 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: SD50/C/RA, SD50/S/RN (Open), SD50/S/RN (Hollow), SD50/T/RN, SD50/T/LS
- Design tables only valid for use with SD50 balustrade system.
- SLS Deflection in this instance is above recommended limit of 30mm excluding rotation in the supporting structure.
- In all cases the SD50 fixings must be fixed with Nylon 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, design is based on Importance Level 1.
- For safety from falling barriers other than 'A occupancy', fixing to timber only suitable for H ≤ 1100mm.

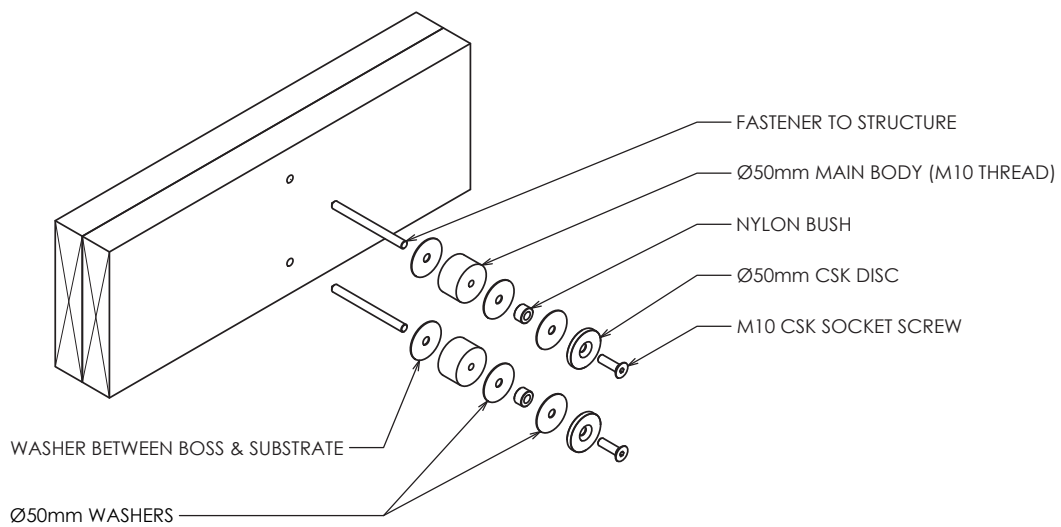
50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Section & Exploded Views

DOUBLEDISC SD50 STANDARD FITTING SECTION VIEW



DOUBLEDISC SD50 STANDARD FITTING EXPLODED VIEW

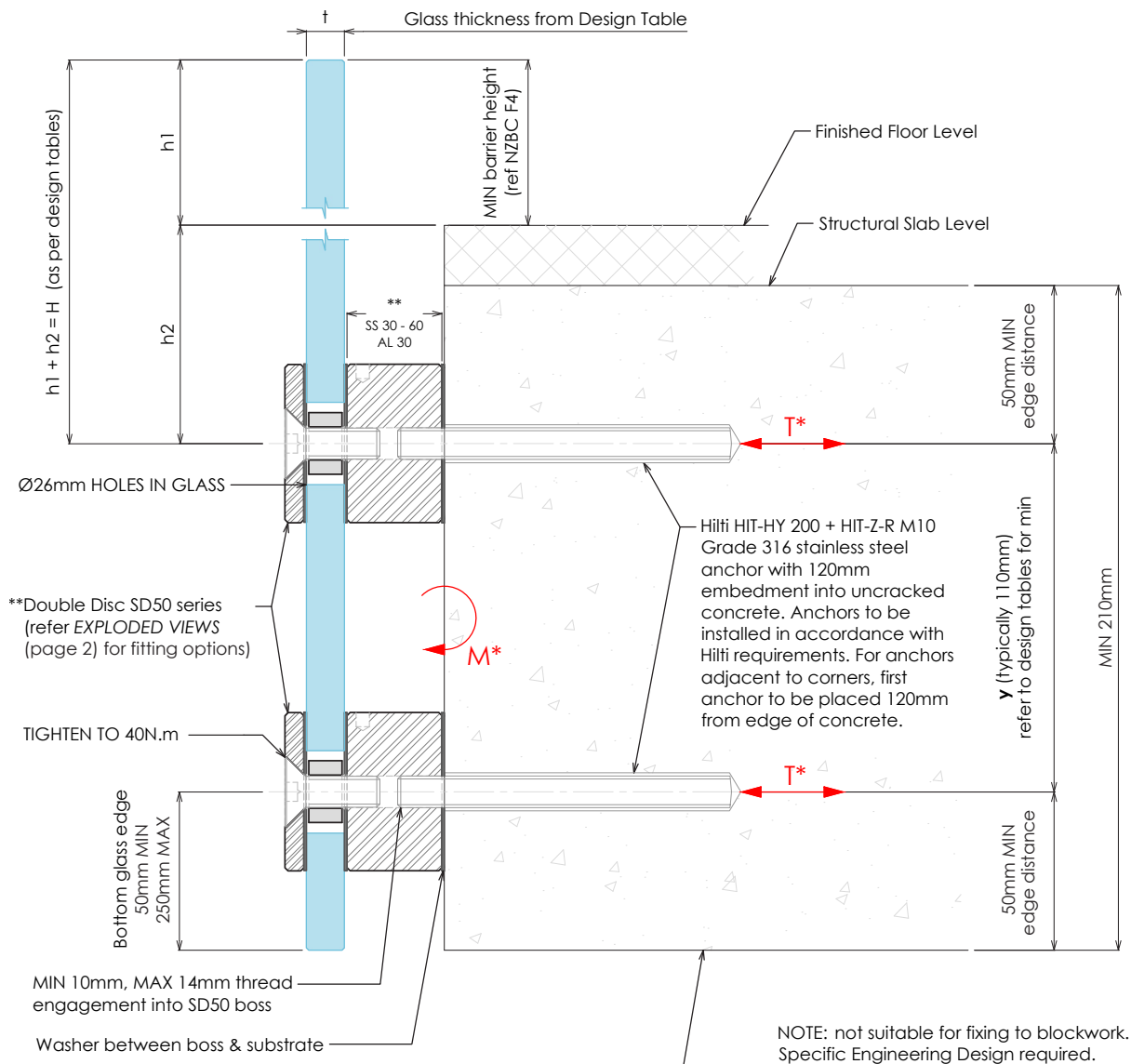


50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Concrete Fixing Detail

Drawing No.	Revision	Fixing Type	Occupancy
SD50 / C / RA	R10	SD50 with rod anchor	A, B, E, C3

NOT SUITABLE FOR OCCUPANCY C1/C2, D OR C5



Concrete building structure to be designed by building engineer to support loads as specified on Double Disc SD50 balustrade system design table. Minimum 25MPa uncracked concrete, 210mm Min thickness.

Refer to DoubleDisc SD50 balustrade system design table for required glass thickness, fixing spacings and fixing loads according to AS/NZS 1170.1:2002 for the occupancies listed above. Refer to design tables and elevations for post failure requirements. Interlinking rail / clips not shown for clarity. 'H' refers to top of barrier.

NOTES:

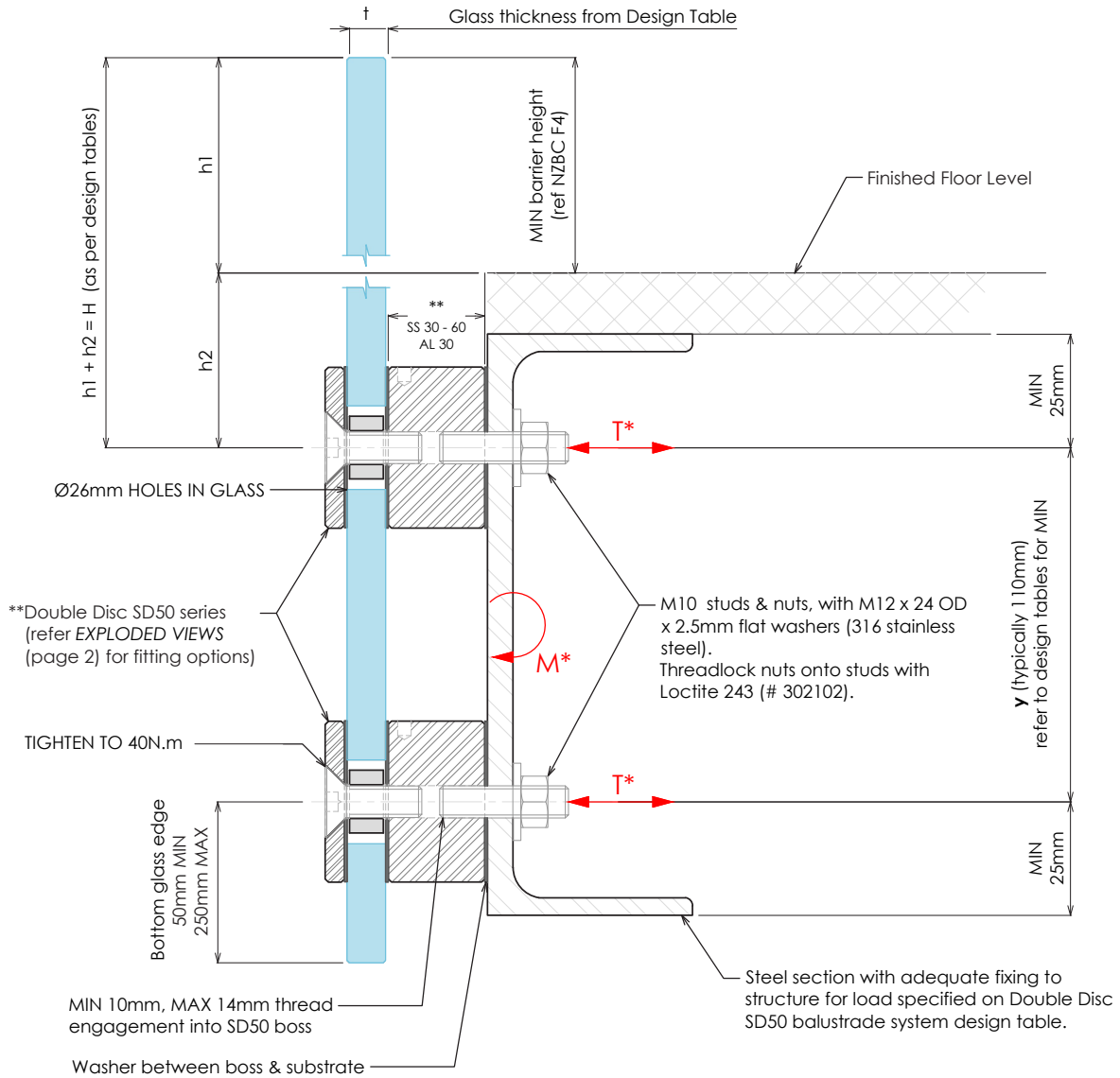
- Capacity of structure is to be of sufficient strength to support loads M^* and T^* specified on DoubleDisc SD50 balustrade system design table. Structure capacity to be verified by building engineer prior to fixing balustrade.
- Max loading to comply with AS/NZS 1170.1:2002 Minimum Imposed Actions for Barriers Occupancy, shown at top of drawing, for design in accordance with DoubleDisc SD50 balustrade system design table.
- Penetration through a membrane must be completed in accordance with written instructions of the membrane manufacturer.
- No substitution allowed - any variation from the details above and design tables will require specific design.

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Steel Fixing Detail

Drawing No.	Revision	Fixing Type	Occupancy
SD50 / S / RN (OPEN)	R10	SD50 with rod & nut	A, B, E, C3

NOT SUITABLE FOR OCCUPANCY C1/C2, D OR C5



Refer to DoubleDisc SD50 balustrade system design table for required glass thickness, fixing spacings and fixing loads according to AS/NZS 1170.1:2002 for the occupancies listed above. Refer to design tables and elevations for post failure requirements. Interlinking rail / clips not shown for clarity. 'H' refers to top of barrier.

NOTES:

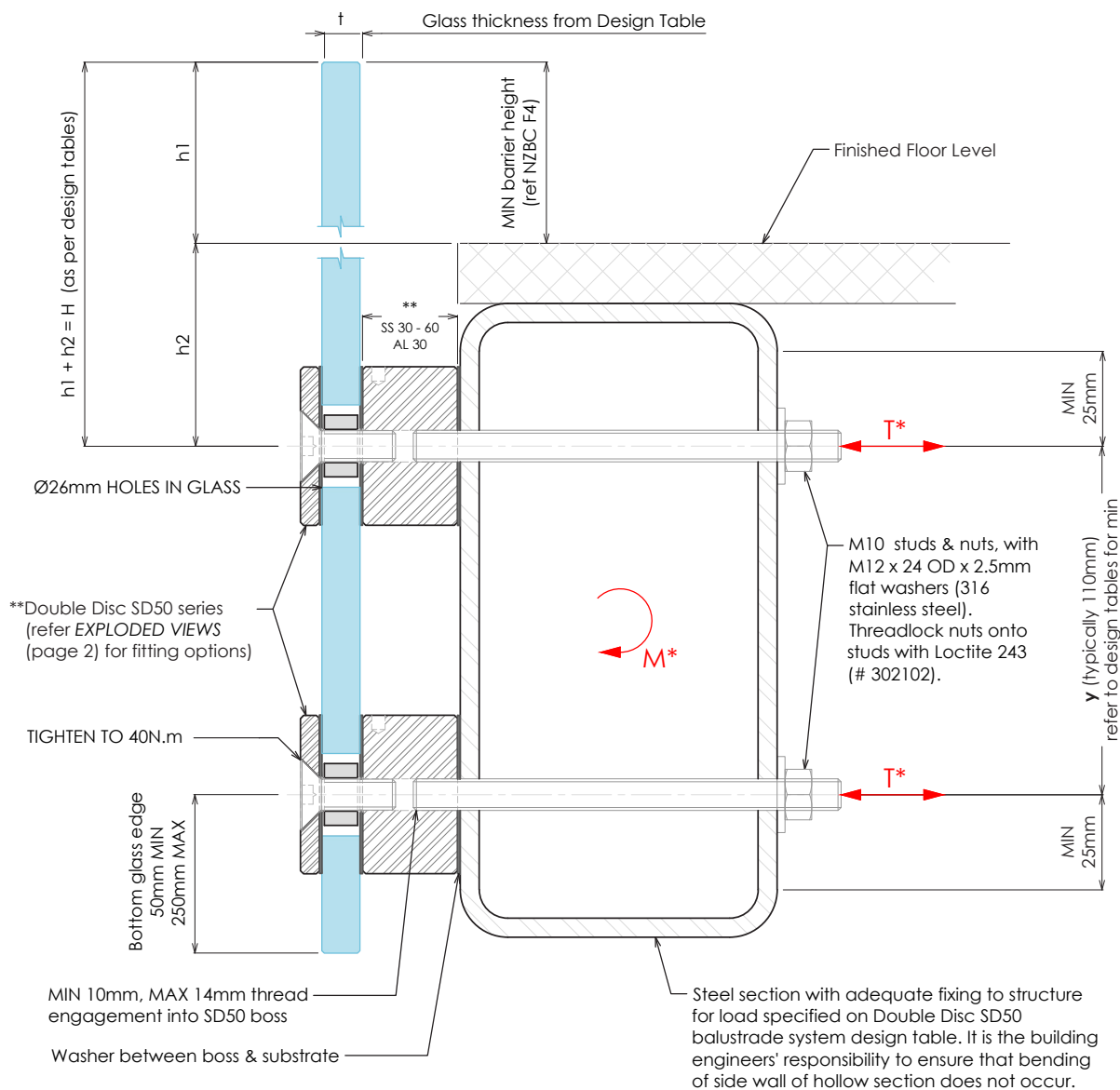
- Capacity of structure is to be of sufficient strength to support loads M^* and T^* specified on DoubleDisc SD50 balustrade system design table. Structure capacity to be verified by building engineer prior to fixing balustrade.
- Max loading to comply with AS/NZS 1170.1:2002 Minimum Imposed Actions for Barriers Occupancy, shown at top of drawing, for design in accordance with DoubleDisc SD50 balustrade system design table.
- Penetration through a membrane must be completed in accordance with written instructions of the membrane manufacturer.
- For fixing to steel substrates, the installer shall ensure the bolts are tightened to a "snug-tight" level as defined in NZS3404.
- No substitution allowed - any variation from the details above and design tables will require specific design.

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Steel Fixing Detail

Drawing No.	Revision	Fixing Type	Occupancy
SD50 / S / RN (HOLLOW)	R10	SD50 with rod & nut	A, B, E, C3

NOT SUITABLE FOR OCCUPANCY C1/C2, D OR C5



Refer to DoubleDisc SD50 balustrade system design table for required glass thickness, fixing spacings and fixing loads according to AS/NZS 1170.1:2002 for the occupancies listed above. Refer to design tables and elevations for post failure requirements. Interlinking rail / clips not shown for clarity. 'H' refers to top of barrier.

NOTES:

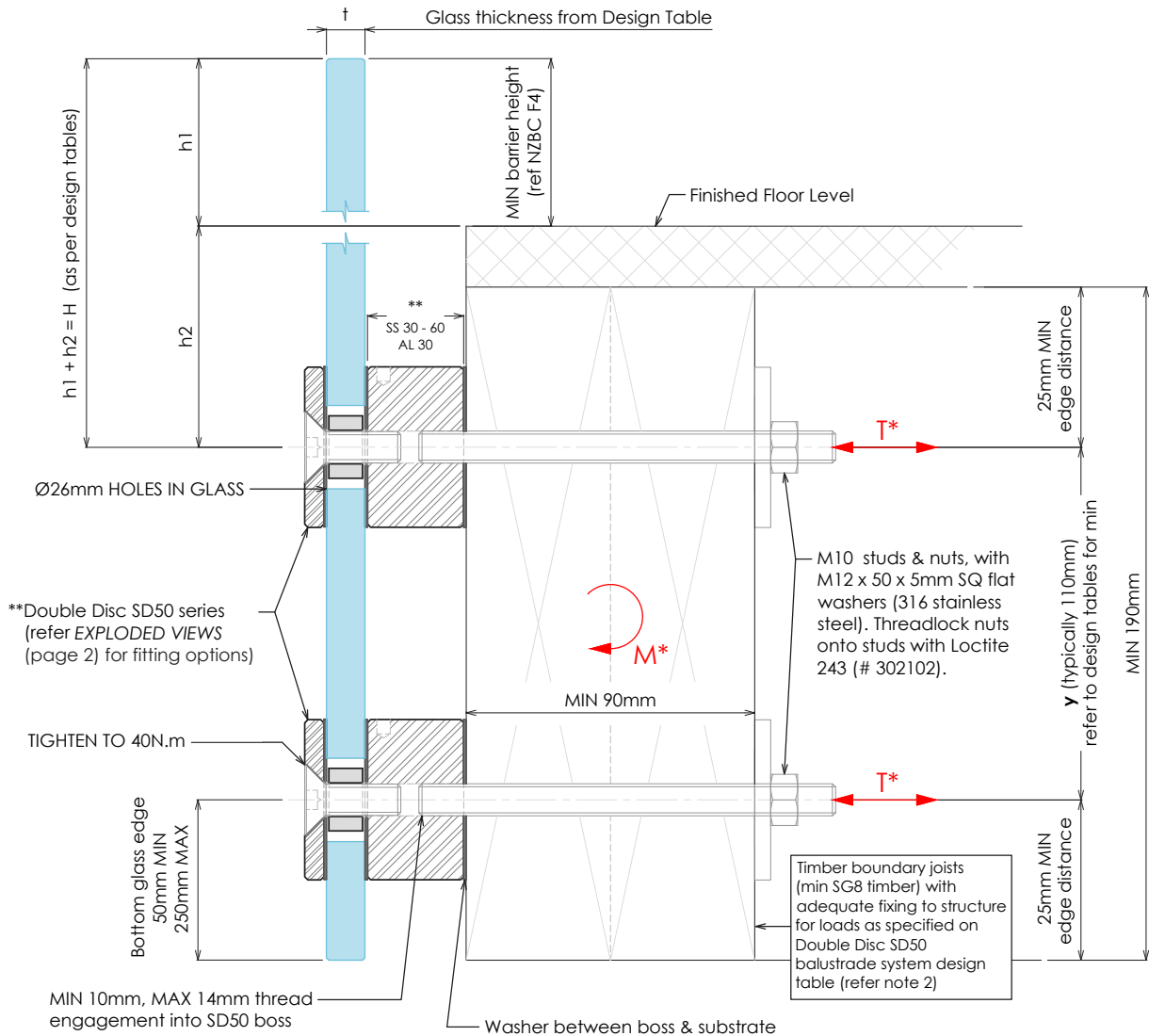
- Capacity of structure is to be of sufficient strength to support loads M^* and T^* specified on DoubleDisc SD50 balustrade system design table. Structure capacity to be verified by building engineer prior to fixing balustrade.
- Max loading to comply with AS/NZS 1170.1:2002 Minimum Imposed Actions for Barriers Occupancy, shown at top of drawing, for design in accordance with DoubleDisc SD50 balustrade system design table.
- Penetration through a membrane must be completed in accordance with written instructions of the membrane manufacturer.
- For fixing to steel substrates, the installer shall ensure the bolts are tightened to a "snug-tight" level as defined in NZS3404.
- No substitution allowed - any variation from the details above and design tables will require specific design.

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Timber Fixing Detail

Drawing No.	Revision	Fixing Type	Occupancy
SD50 / T / RN	R10	SD50 with rod & nut	A, B, E, C3

NOT SUITABLE FOR OCCUPANCY C1/C2, D OR C5



Refer to DoubleDisc SD50 balustrade system design table for required glass thickness, fixing spacings and fixing loads according to AS/NZS 1170.1:2002 for the occupancies listed above. Refer to design tables and elevations for post failure requirements. Interlinking rail / clips not shown for clarity. 'H' refers to top of barrier.

NOTES:

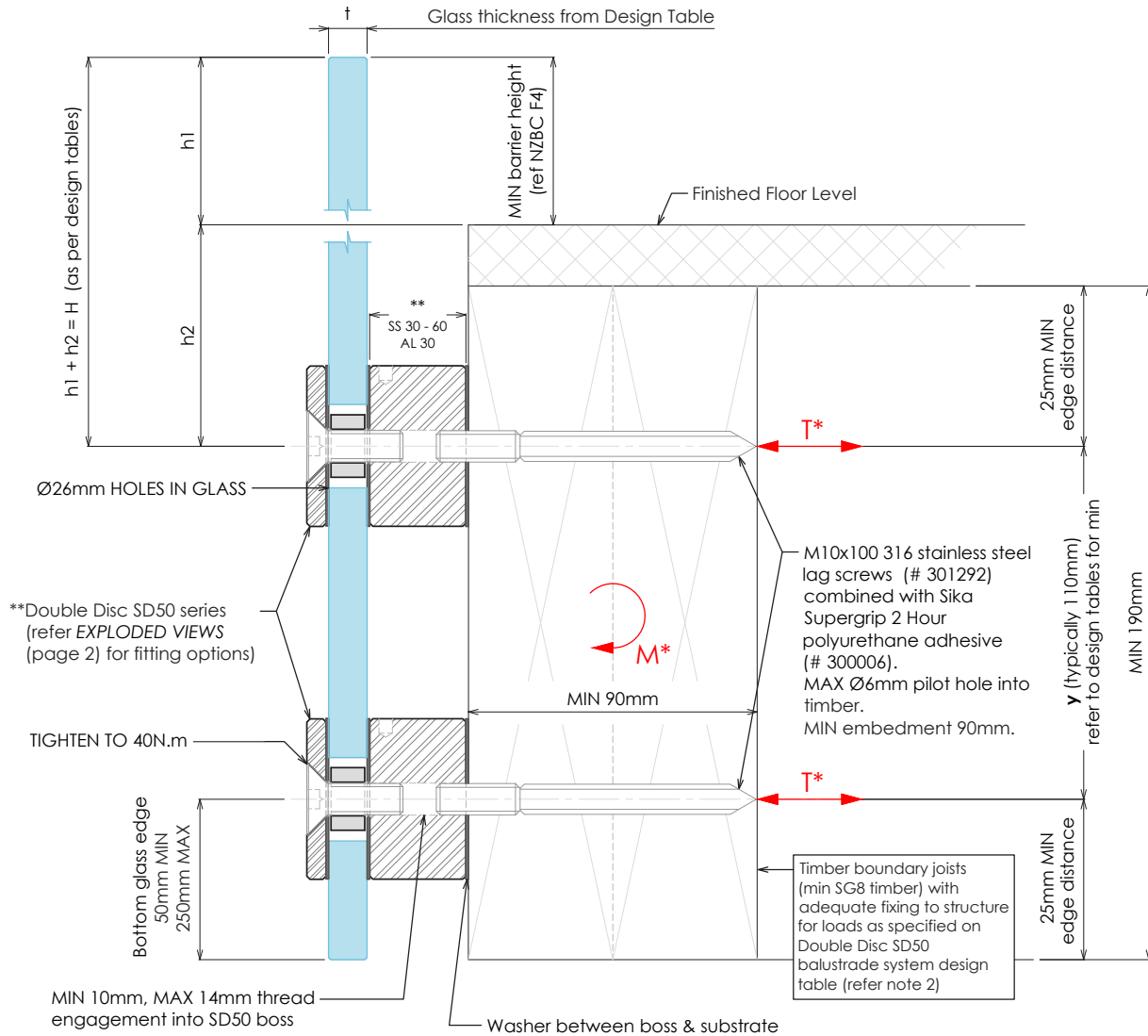
- Capacity of structure is to be of sufficient strength to support loads M^* and T^* specified on DoubleDisc SD50 balustrade system design table. Structure capacity to be verified by building engineer where applicable or checked to NZS3604 requirements prior to fixing balustrade.
- Timber decks designed to NZS 3604:2011 guidelines will meet loading requirement, **except for decks including cantilever floor joists where specific design is required.**
- Max loading to comply with AS/NZS 1170.1:2002 Minimum Imposed Actions for Barriers Occupancy, shown at top of drawing, for design in accordance with DoubleDisc SD50 balustrade system design table.
- Penetration through a membrane must be completed in accordance with written instructions of the membrane manufacturer.
- For fixing to timber substrates, the installer shall ensure that the bolt / coach screw is sufficiently tightened to reduce movement of the bolt head and washer. Care should be taken not to over tighten the fixings that would cause crushing of the timber or compromise the thread leading to anchor pull-out.
- No substitution allowed - any variation from the details above and design tables will require specific design.
- Fixings to timber must be re-tightened 2 months after installation and periodically thereafter to allow for timber shrinkage.

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Timber Fixing Detail

Drawing No.	Revision	Fixing Type	Occupancy
SD50 / T / LS	R10	SD50 with lag screw	A, B, E, C3

NOT SUITABLE FOR OCCUPANCY C1/C2, D OR C5



Refer to DoubleDisc SD50 balustrade system design table for required glass thickness, fixing spacings and fixing loads according to AS/NZS 1170.1:2002 for the occupancies listed above. Refer to design tables and elevations for post failure requirements. Interlinking rail / clips not shown for clarity. 'H' refers to top of barrier.

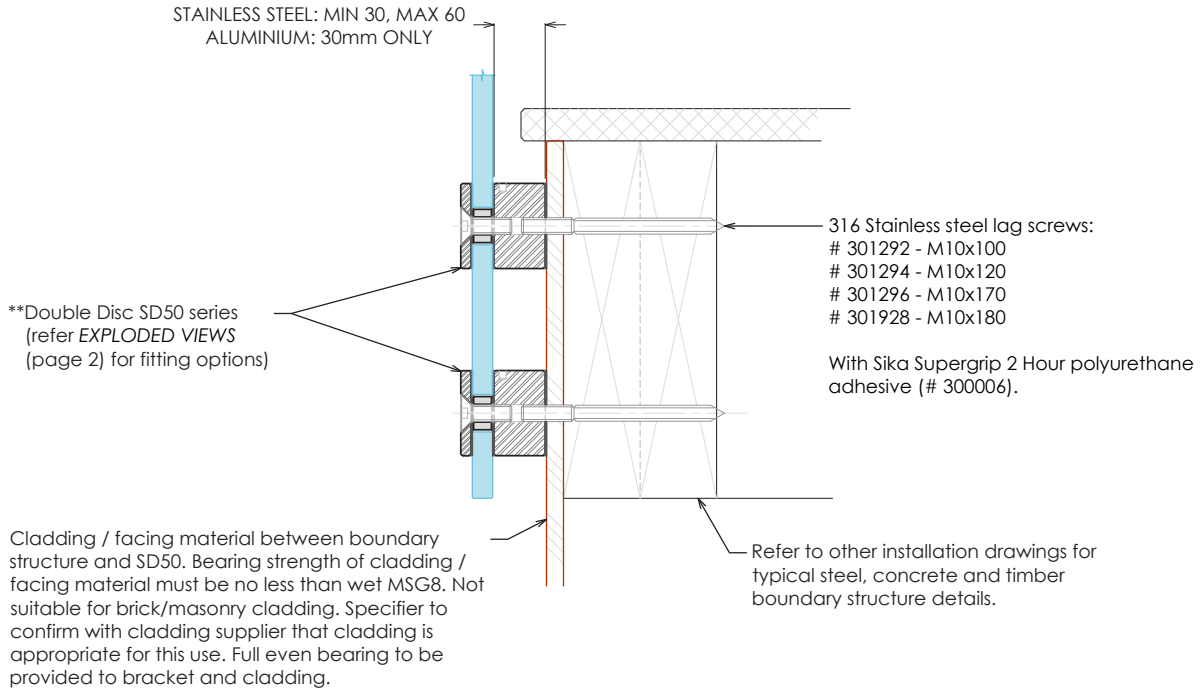
NOTES:

- Capacity of structure is to be of sufficient strength to support loads M^* and T^* specified on DoubleDisc SD50 balustrade system design table. Structure capacity to be verified by building engineer where applicable or checked to NZS3604 requirements prior to fixing balustrade.
- Timber decks designed to NZS 3604:2011 guidelines will meet loading requirement, **except for decks including cantilever floor joists where specific design is required.**
- Max loading to comply with AS/NZS 1170.1:2002 Minimum Imposed Actions for Barriers Occupancy, shown at top of drawing, for design in accordance with DoubleDisc SD50 balustrade system design table.
- Penetration through a membrane must be completed in accordance with written instructions of the membrane manufacturer.
- For fixing to timber substrates, the installer shall ensure that the bolt / coach screw is sufficiently tightened to reduce movement of the bolt head and washer. Care should be taken not to over tighten the fixings that would cause crushing of the timber or compromise the thread leading to anchor pull-out.
- No substitution allowed - any variation from the details above and design tables will require specific design.
- Fixings to timber must be re-tightened 2 months after installation and periodically thereafter to allow for timber shrinkage.

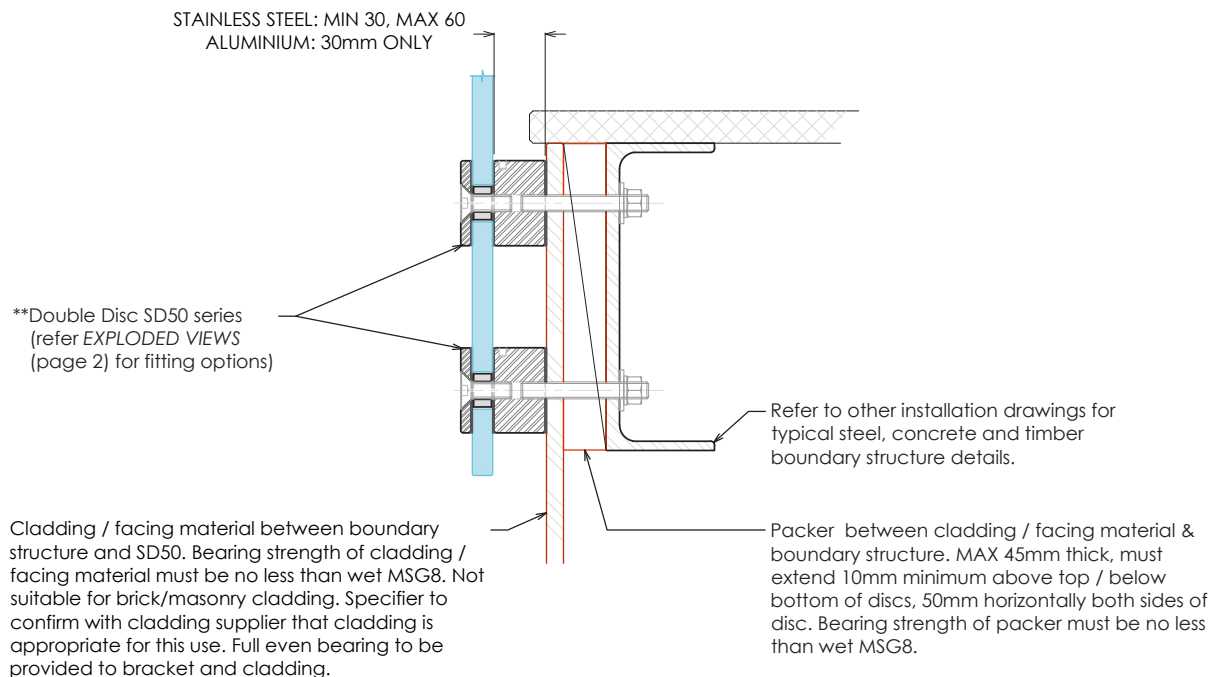
50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Cladding / Fascia Installation Details

CLADDING / FASCIA PANEL DETAIL



CLADDING / FASCIA PANEL DETAIL WITH CAVITY



50MM DOUBLEDISC SD50 ELEVATION

SENTRY GLASS

50mm DOUBLEDISC SD50 SYSTEM

SENTRY GLASS 13.52mm

PANEL WIDTH NOTES:

Balustrade stiffener brackets or interlinking rail required for panels <1700mm.

Minimum panel width where two or more panels are in a straight line = 1000mm.

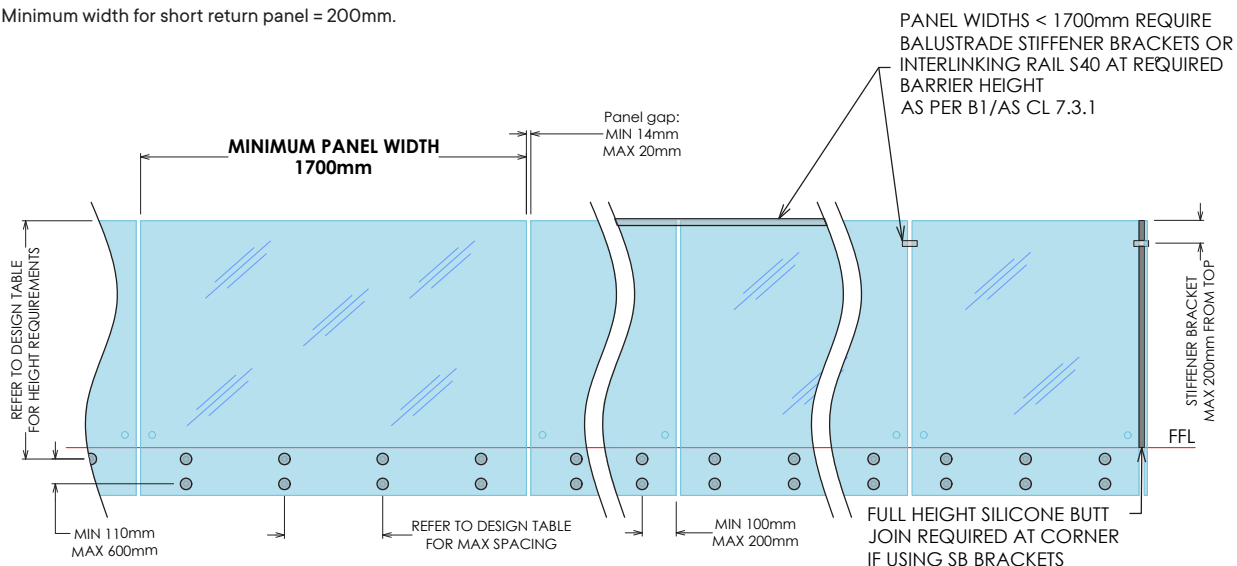
Minimum width for short return panel = 200mm.

Residential & Commercial

Occupancy types A, A other, C3, B and E.

GLASS & FIXING SPECIFICATIONS:

Refer to design table for maximum glass height, maximum fixing spacing and design loads to structure.



50mm DOUBLEDISC SD50 SYSTEM

SENTRY GLASS 17.52mm

PANEL WIDTH NOTES:

Balustrade stiffener brackets or interlinking rail required for panels <1100mm.

Minimum panel width where two or more panels are in a straight line = 1000mm.

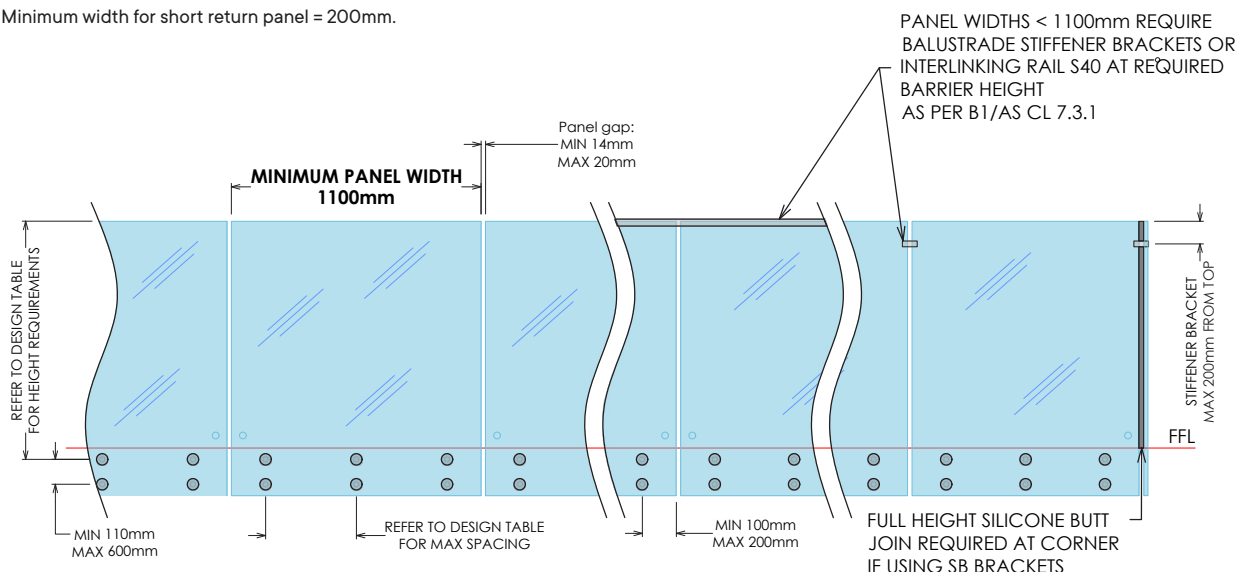
Minimum width for short return panel = 200mm.

17.52mm - Residential & Commercial

Occupancy types A, A other, C3, B and E.

GLASS & FIXING SPECIFICATIONS:

Refer to design table for maximum glass height, maximum fixing spacing and design loads to structure.



IMPORTANT NOTE: The substructure to which the balustrade is to be attached must be designed by a structural engineer to resist the relevant balustrade actions as per B1/VM1.

50MM DOUBLEDISC SD50 ELEVATION

EVA Toughened Glass

50mm DOUBLEDISC SD50 SYSTEM

EVA Toughened 15.2mm

EVA Toughened 17.2mm

PANEL WIDTH NOTES:

Minimum panel width where two or more panels are in a straight line = 1000mm.

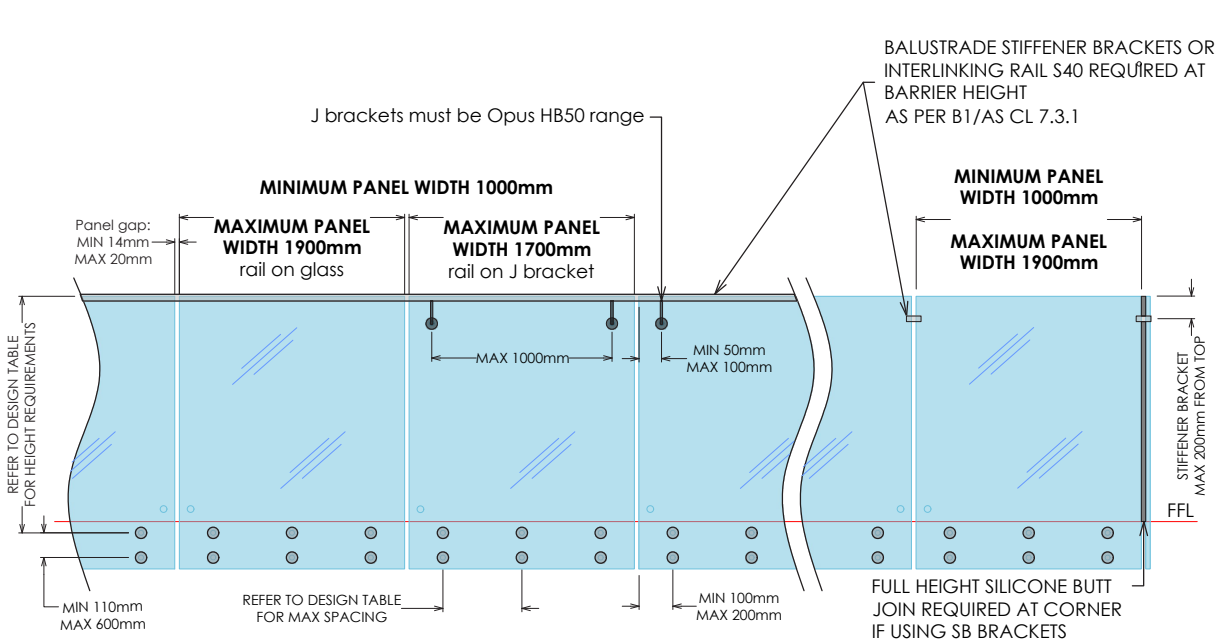
Minimum width for short return panel = 200mm.

Residential & Commercial

Occupancy types A, A other, C3, B and E.

GLASS & FIXING SPECIFICATIONS:

Refer to design table for maximum glass height, maximum fixing spacing and design loads to structure.



IMPORTANT NOTE: The substructure to which the balustrade is to be attached must be designed by a structural engineer to resist the relevant balustrade actions as per B1/VM1.

50MM DOUBLEDISC SD50 ELEVATION

MONO Toughened Glass

50mm DOUBLEDISC SD50 SYSTEM

MONO Toughened 12mm

PANEL WIDTH NOTES:

Minimum panel width where two or more panels are in a straight line = 1000mm.

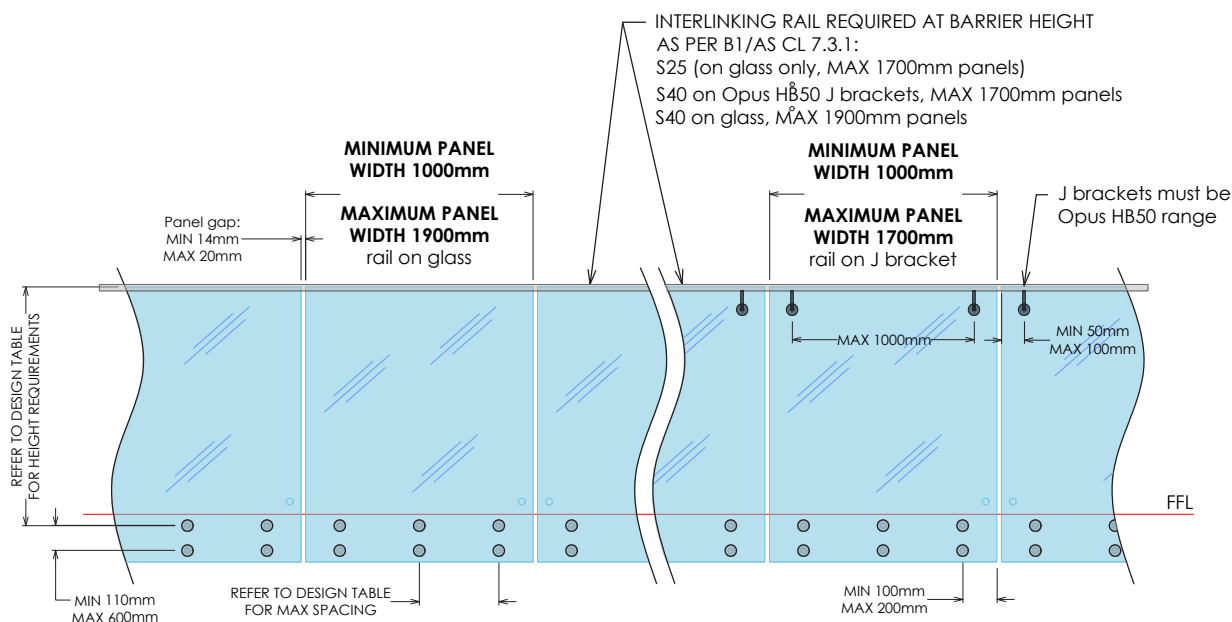
Minimum width for short return panel = 200mm.

Residential & Commercial

Occupancy types A, A other, C3, B and E.

GLASS & FIXING SPECIFICATIONS:

Refer to design table for maximum glass height, maximum fixing spacing and design loads to structure.



50mm DOUBLEDISC SD50 SYSTEM

MONO Toughened 15mm

PANEL WIDTH NOTES:

Minimum panel width where two or more panels are in a straight line = 1000mm.

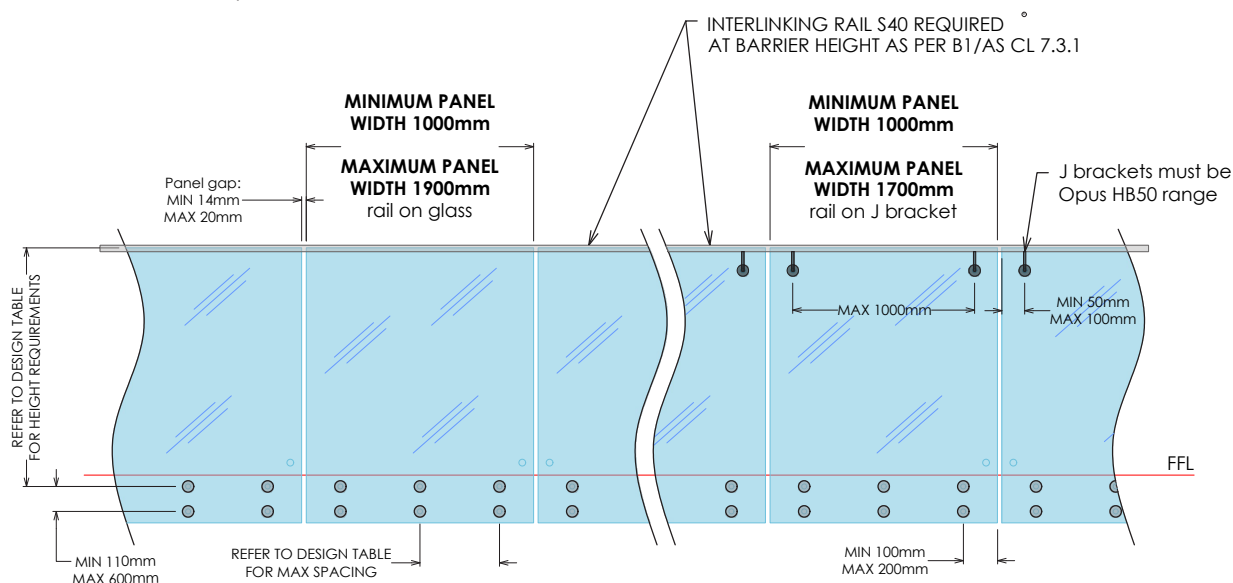
Minimum width for short return panel = 200mm.

Residential & Commercial

Occupancy types A, A other, C3, B and E.

GLASS & FIXING SPECIFICATIONS:

Refer to design table for maximum glass height, maximum fixing spacing and design loads to structure.



IMPORTANT NOTE: The substructure to which the balustrade is to be attached must be designed by a structural engineer to resist the relevant balustrade actions as per B1/VM1.

50MM DOUBLEDISC SD50 ELEVATION

Pool Fence

50mm DOUBLEDISC SD50 SYSTEM

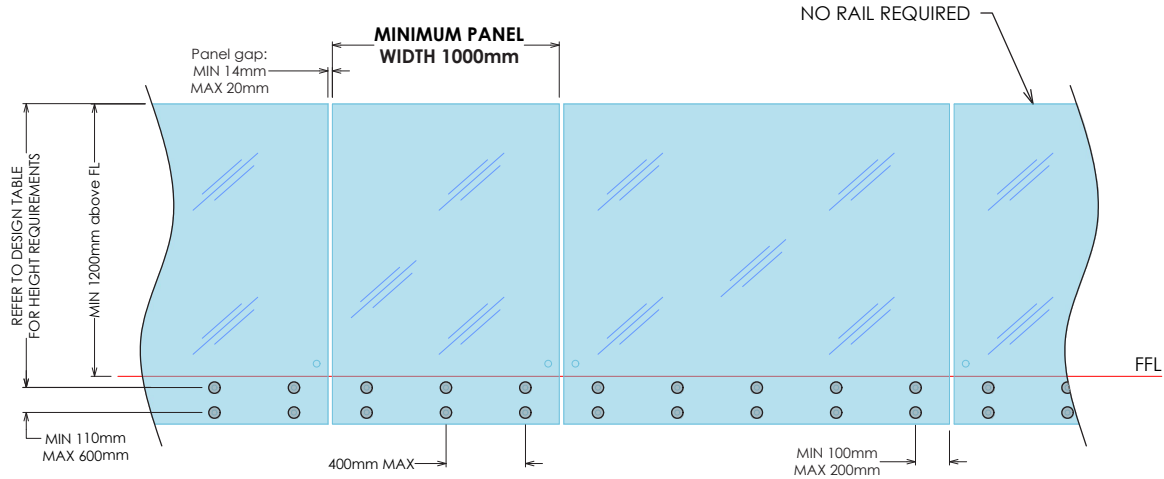
POOL FENCE ONLY MONO Toughened 12 & 15mm

APPLIES TO FREE STANDING POOL FENCES NOT PROTECTING A FALL OF > 1000mm.

As of Jan 2017, complies with Building Code clause F9 & section 162C of the building Act.

GLASS & FIXING SPECIFICATIONS:

Refer to design table for maximum glass height, maximum fixing spacing and design loads to structure.



50mm DOUBLEDISC SD50 SYSTEM

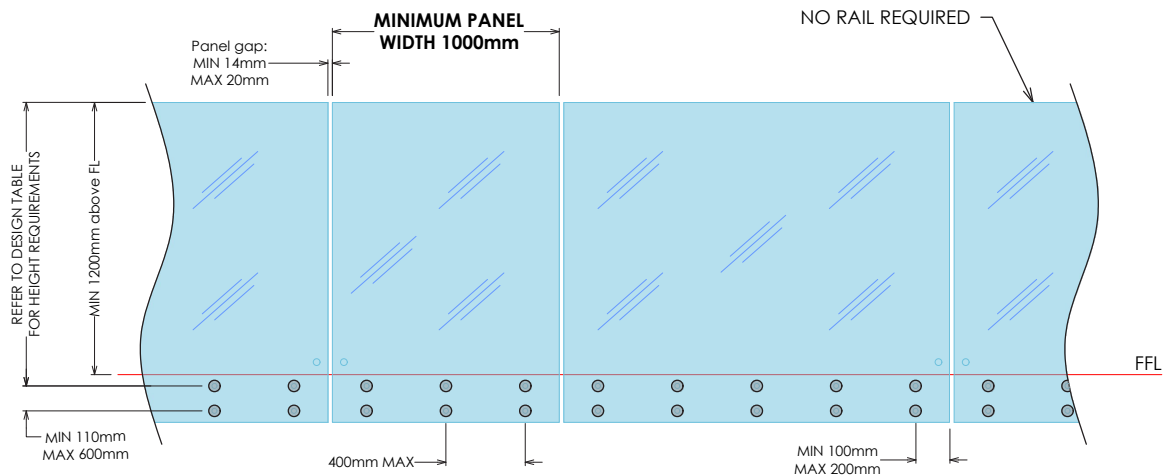
POOL FENCE ONLY EVA Toughened 17.2mm

APPLIES TO FREE STANDING POOL FENCES NOT PROTECTING A FALL OF > 1000mm.

As of Jan 2017, complies with Building Code clause F9 & section 162C of the building Act.

GLASS & FIXING SPECIFICATIONS:

Refer to design table for maximum glass height, maximum fixing spacing and design loads to structure.



IMPORTANT NOTE: The substructure to which the balustrade is to be attached must be designed by a structural engineer to resist the relevant balustrade actions as per B1/VM1.

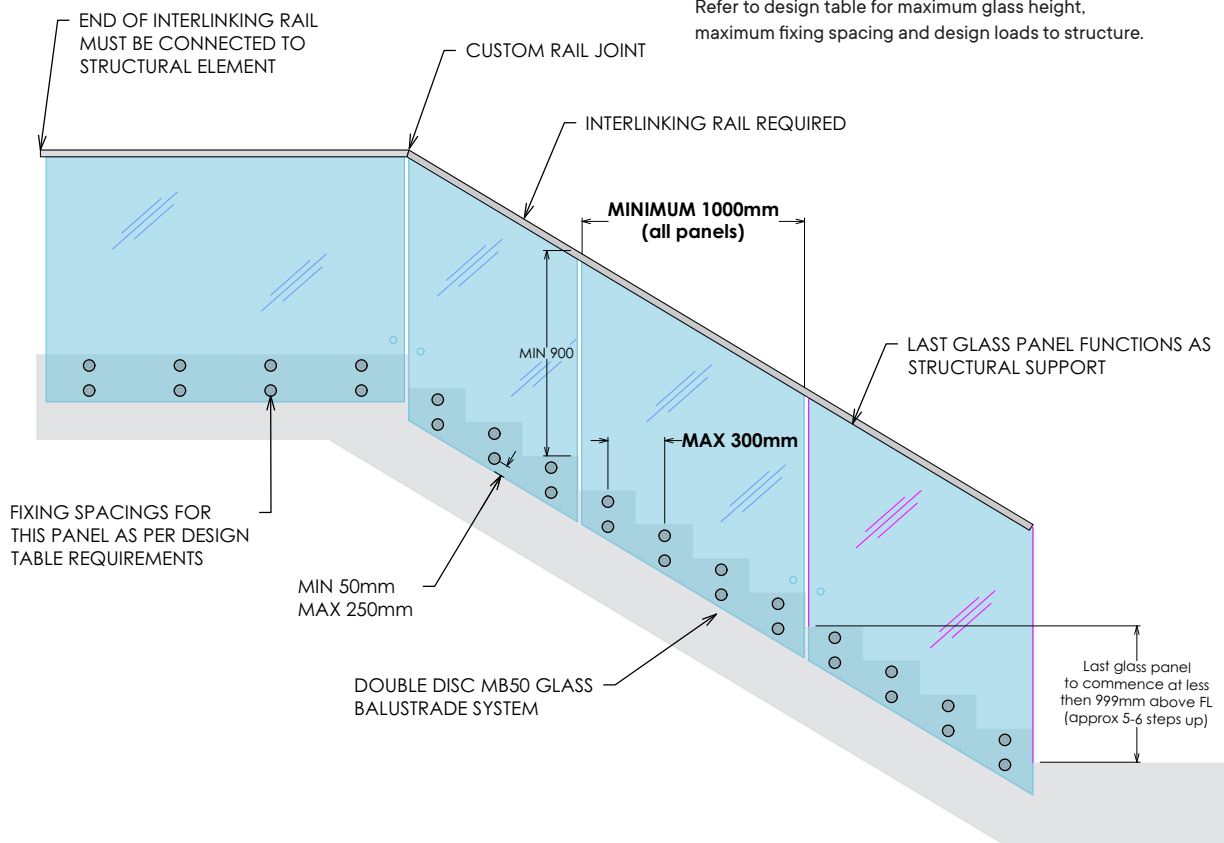
50MM DOUBLEDISC SD50 ELEVATION

Stair Balustrade

50mm DOUBLEDISC SD50 SYSTEM

STAIR BALUSTRADE

GLASS & FIXING SPECIFICATIONS:
Refer to design table for maximum glass height,
maximum fixing spacing and design loads to structure.



IMPORTANT NOTE: The substructure to which the balustrade is to be attached must be designed by a structural engineer to resist the relevant balustrade actions as per B1/VM1.

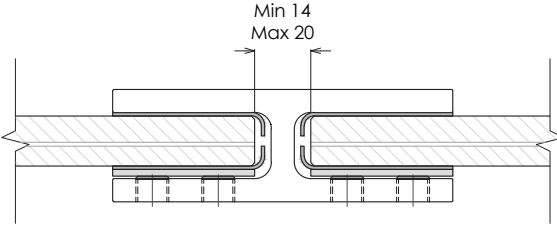
50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Stiffener Brackets

STRAIGHT BRACKET

13.5-15.5mm GLASS

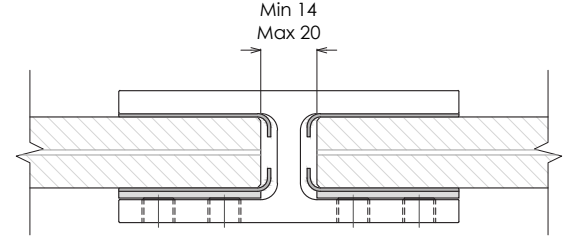
300149



STRAIGHT BRACKET

17.52 - 21.52mm GLASS

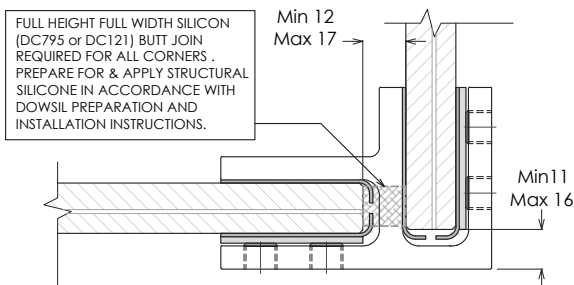
300150



CORNER BRACKET

13.5-15.5mm GLASS

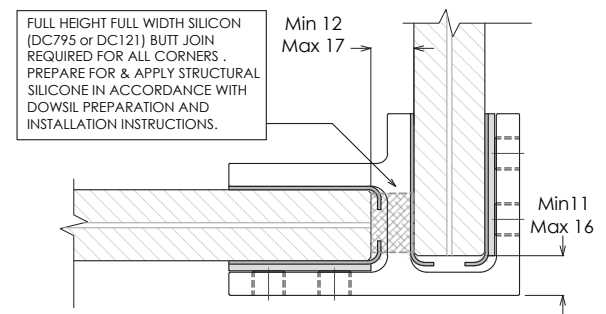
300151



CORNER BRACKET

17.52 - 21.52mm GLASS

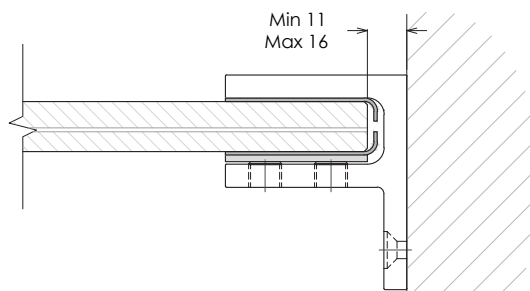
300152



WALL BRACKET

13.5-15.5mm GLASS

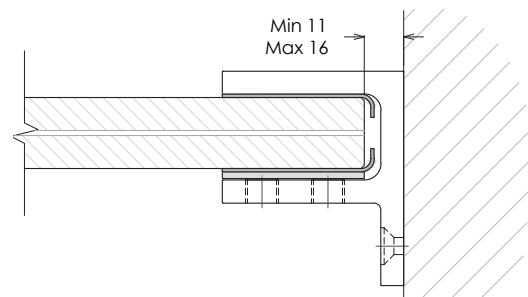
300153



WALL BRACKET

17.52 - 21.52mm GLASS

300154

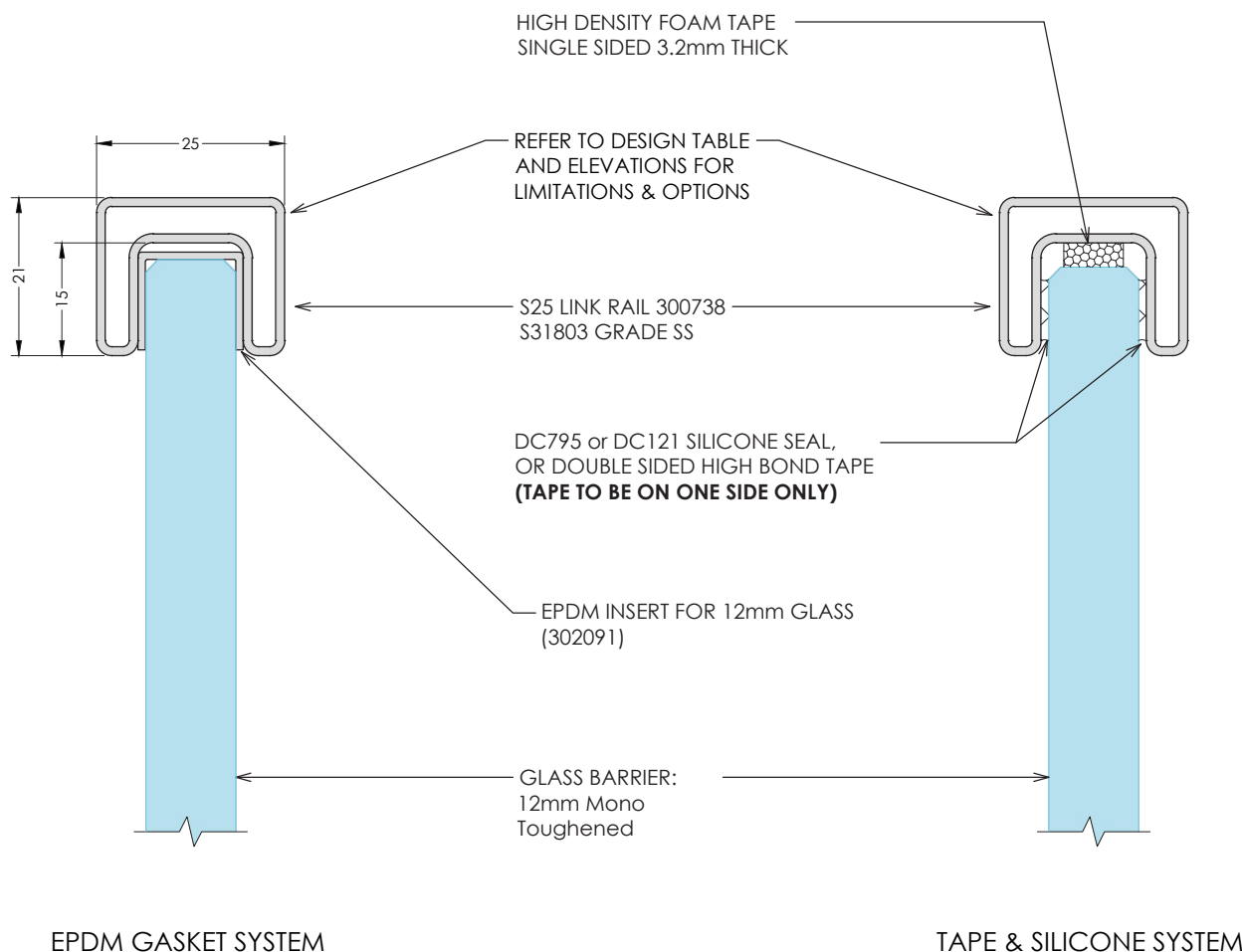


50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

S25 Link Rail

S25-01

S25 RAIL - TYPICAL INSTALLATIONS



EPDM GASKET SYSTEM

TAPE & SILICONE SYSTEM

NOTES:

1. Interlinking rail details are only to be used on Opus Hardware Limited. Cantilevered glass balustrades.
2. Prepare for and apply DC795 & DC121 structural silicone in accordance with dow. Corning preparation and installation instructions.
3. Interlinking rail splice & corner connections are shown on drawings S25-02 & S25-03
4. Interlinking rail end connection brackets & attachment details are shown on drawings S25-04 to S25-08.
5. All screws to be stainless steel with a minimum ultimate shear strength of 3.5kN (per Screw).
6. Link rail section and connection pieces to be S31803 grade stainless steel. In accordance with NZS 4673:2001.
7. Refer to warranty & maintenance pages for periodic inspection, cleaning & maintenance requirements.

IMPORTANT NOTE: Conforming to NZS 4223.3.2016 and Building Code Clause B1/AS1 Cl 7.3.1

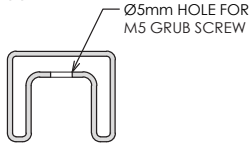
50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

S25 Link Rail

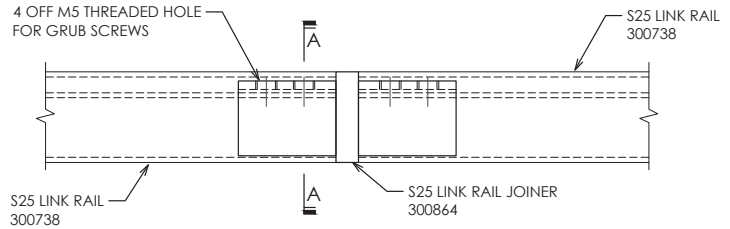
S25-02 S25 RAIL - SPLICE CONNECTION DETAIL

All fixings to be stainless steel

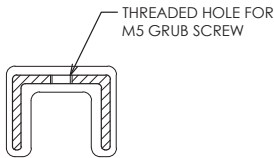
S25 LINK RAIL SECTION 300738



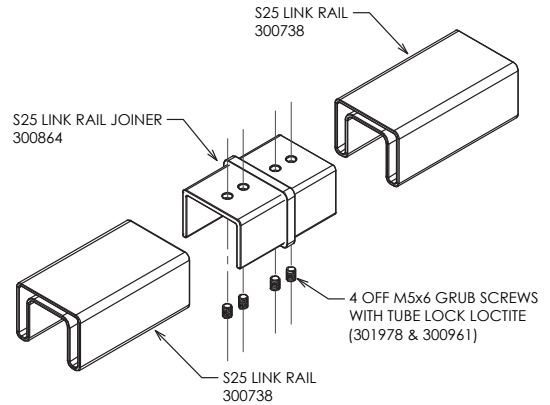
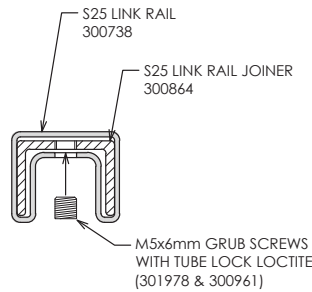
S25 LINK RAIL - SPLICE CONNECTION ELEVATION



S25 LINK RAIL INLINE JOINER 300864



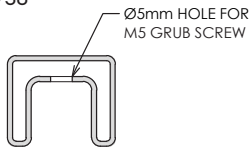
SECTION A-A



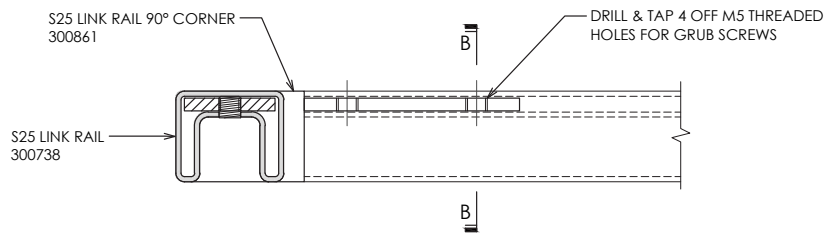
S25-03 S25 RAIL - 90° CORNER CONNECTION DETAIL

All fixings to be stainless steel

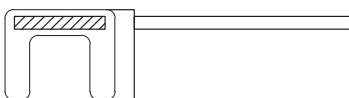
S25 LINK RAIL SECTION 300738



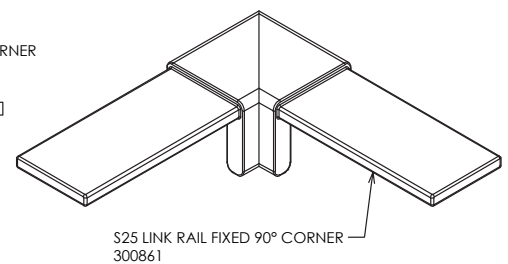
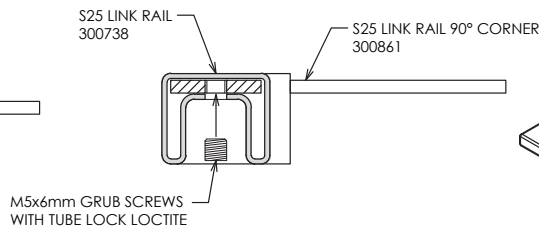
S25 LINK RAIL - 90° CORNER CONNECTION ELEVATION



S25 LINK RAIL 90° CORNER 300861



SECTION B-B



IMPORTANT NOTE: Conforming to NZS 4223.3.2016 and Building Code Clause B1/AS1 Cl 7.3.1

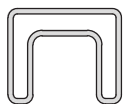
50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

S25 Link Rail

S25-04 S25 RAIL WALL BRACKET

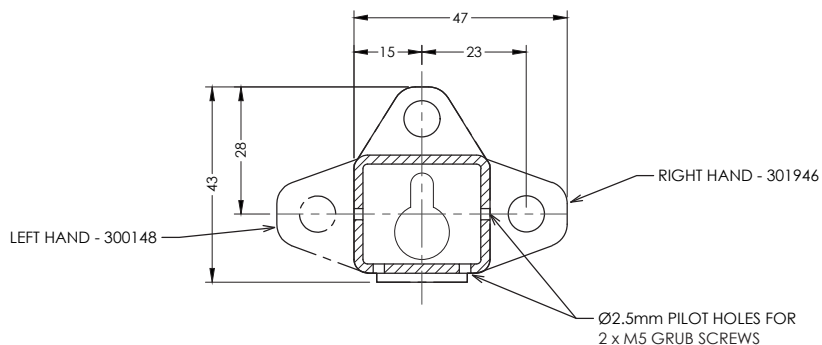
All fixings to be stainless steel

S25 LINK RAIL SECTION 300738

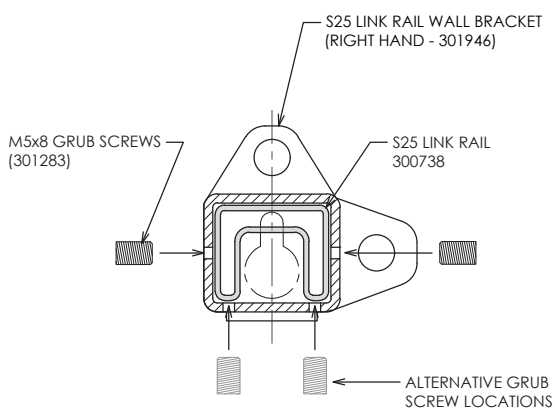


S25 LINK RAIL WALL BRACKET

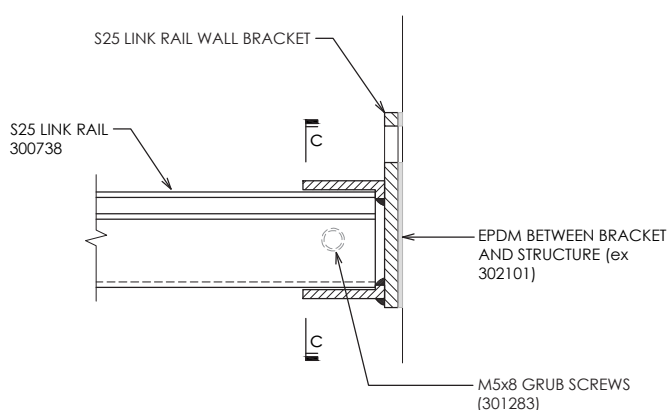
RIGHT HAND - 301946 LEFT HAND - 300148



SECTION C-C



S25 LINK RAIL - END BRACKET SECTION

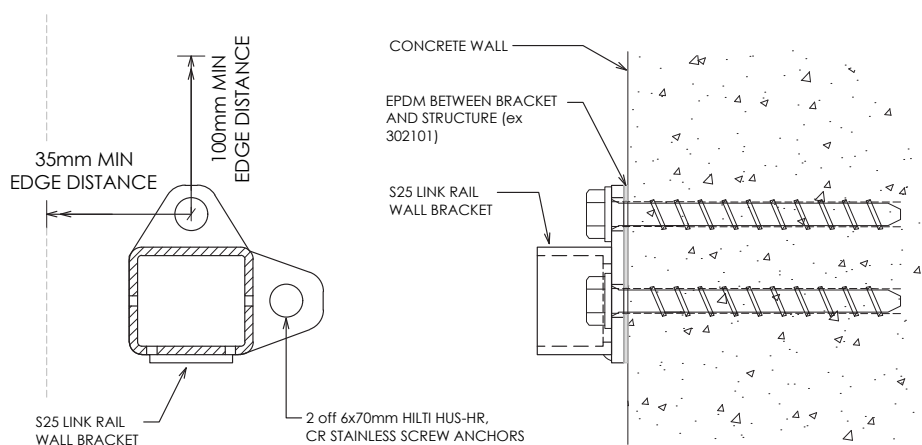


S25-05 S25 RAIL - END BRACKET CONCRETE WALL ATTACHMENT

All fixings to be stainless steel

NOTES:

1. Concrete wall is to be designed by project structural engineer for loads Imposed by balustrade. ULS Point load, $n^* = 0.9kN$ - Inwards, outwards or down.
2. Concrete wall to be minimum 140mm thick.
3. Concrete wall must be reinforced & is to be designed & detailed in accordance with NZS3101.
4. Minimum concrete strength = 20MPa.



IMPORTANT NOTE: Conforming to NZS 4223.3.2016 and Building Code Clause B1/AS1 CI 7.3.1

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

S25 Link Rail

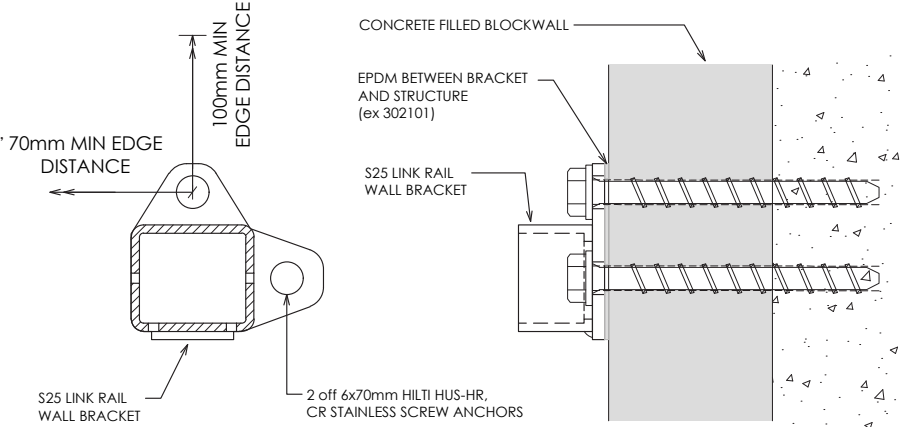
S25-06

S25 RAIL - END BRACKET BLOCKWALL ATTACHMENT

All fixings to be stainless steel

NOTES:

1. Blockwall is to be designed by Project structural engineer for loads imposed by Balustrade. ULS point load, $n^* = 0.9kN$ - inwards, outwards or down.
2. Minimum blockwall thickness = 140mm.
3. Blockwall must be corefilled / Reinforced & is to be designed & detailed in Accordance with NZS4230 or NZS4229.
4. Minimum corefill concrete strength = 17.5MPa.



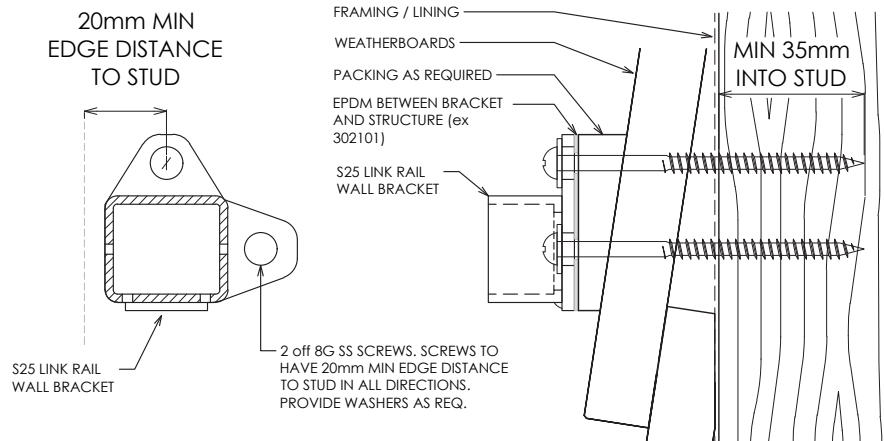
S25-07

S25 RAIL - END BRACKET WEATHERBOARD ATTACHMENT

All fixings to be stainless steel

NOTES:

1. Timber stud wall is to be designed by project Structural engineer for loads imposed by balustrade. ULS Point load, $n^* = 0.9kN$ - Inwards, outwards or down.
2. Minimum stud size = 90x45.
3. Minimum timber grade = SG8.
4. Timber stud wall to be designed & detailed in accordance with NZS3603 or NZS3604.



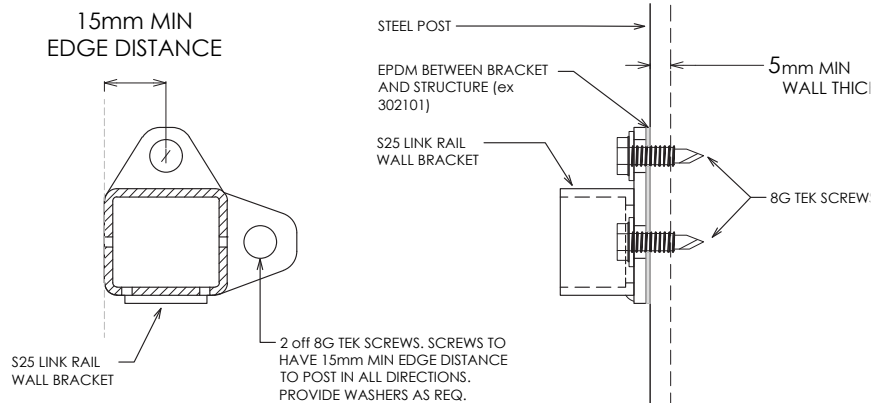
S25-08

S25 RAIL - END BRACKET STEEL POST ATTACHMENT

All fixings to be stainless steel

NOTES:

1. Steel post is to be designed by project structural engineer for loads imposed by balustrade. ULS point load, $n^* = 0.9kN$ - inwards, outwards or down.
2. Building designer to ensure durability requirements of connection are met.
3. Minimum steel post wall thickness = 5mm.
4. Minimum steel grade = 300MPa.



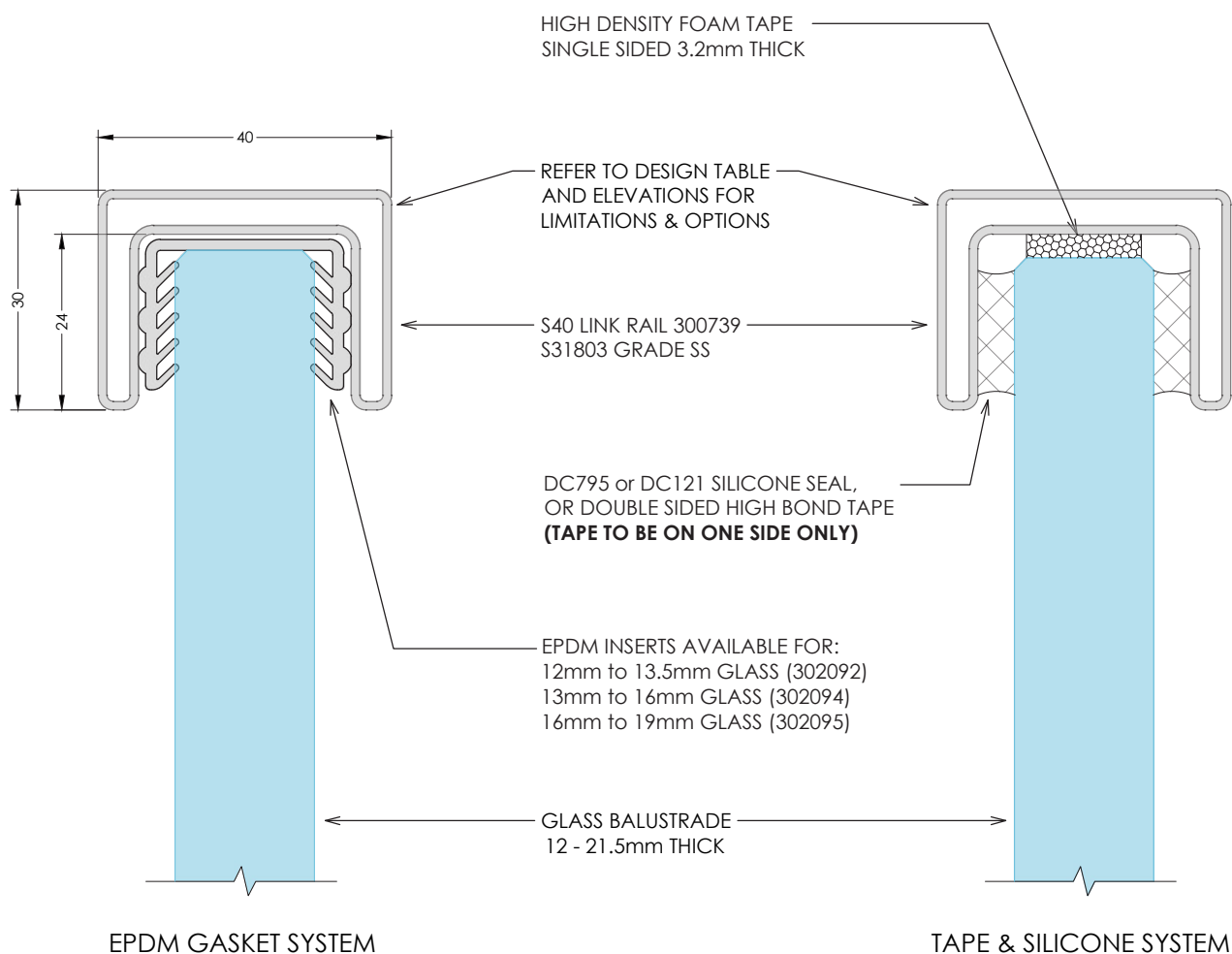
IMPORTANT NOTE: Conforming to NZS 4223.3.2016 and Building Code Clause B1/AS1 Cl 7.3.1

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

S40 Link Rail

S40-01

S40 RAIL - TYPICAL INSTALLATIONS



NOTES:

1. Interlinking rail details are only to be used on Opus Hardware Limited cantilevered glass balustrades.
2. Prepare for and apply DC795 & DC121 structural silicone in accordance with dow corning preparation and installation instructions.
3. Interlinking rail splice & corner connections are shown on drawings S40-02 & S40-03.
4. Interlinking rail end connection brackets & attachment details are shown on drawings S40-04 to S40-08.
5. All screws to be stainless steel with a minimum ultimate shear strength of 3.5Kn (per screw).
6. Link rail section and connection pieces to be S31803 grade stainless steel, in accordance with NZS 4673:2001.
7. Refer to warranty & maintenance pages for periodic inspection, cleaning & maintenance requirements.

IMPORTANT NOTE: Conforming to NZS 4223.3:2016 and Building Code Clause B1/AS1 Cl 7.3.1

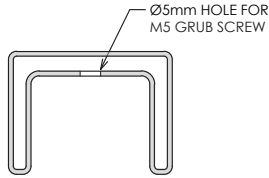
50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

S40 Link Rail

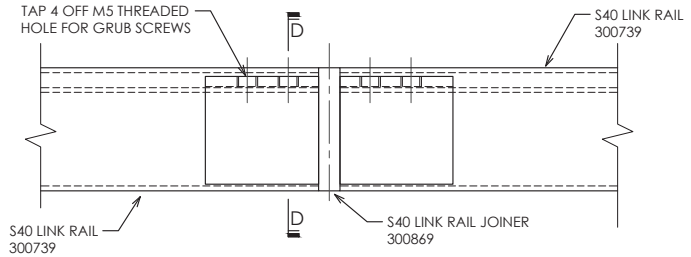
S40-02 S40 RAIL - SPLICE CONNECTION DETAIL

All fixings to be stainless steel

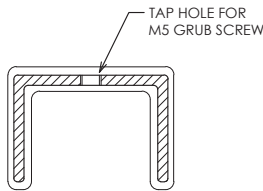
S40 LINK RAIL SECTION 300739



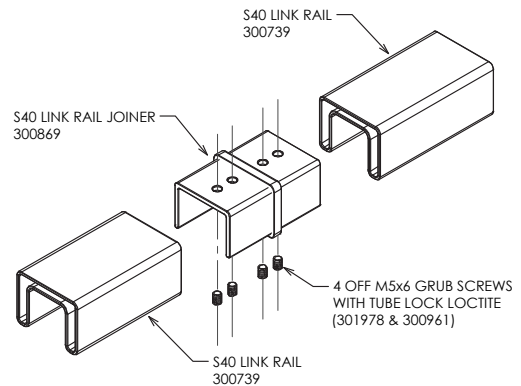
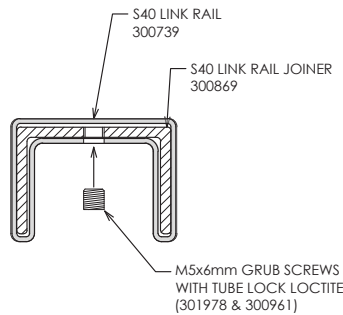
S40 LINK RAIL - SPLICE CONNECTION ELEVATION



S40 LINK RAIL INLINE JOINER 300869



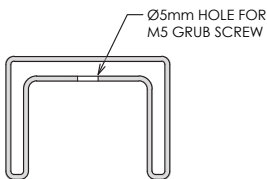
SECTION D-D



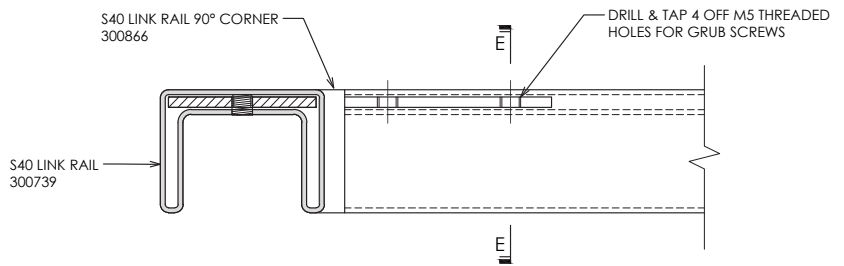
S40-03 S40 RAIL - 90° CORNER CONNECTION DETAIL

All fixings to be stainless steel

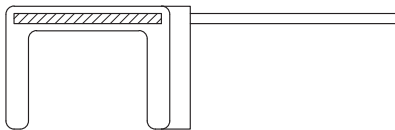
S40 LINK RAIL SECTION 300739



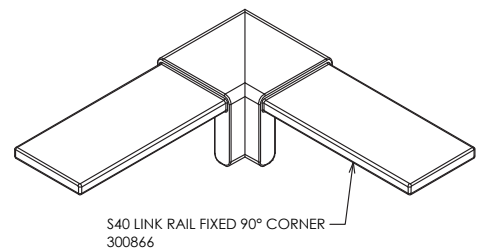
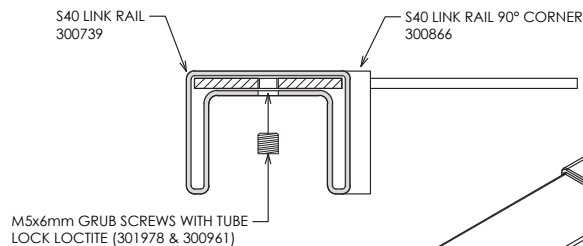
S40 LINK RAIL - 90° CORNER CONNECTION ELEVATION



S40 LINK RAIL 90° CORNER 300866



SECTION E-E



IMPORTANT NOTE: Conforming to NZS 4223.3.2016 and Building Code Clause B1/AS1 Cl 7.3.1

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

S40 Link Rail

S40-04 S40 RAIL WALL BRACKET

All fixings to be stainless steel

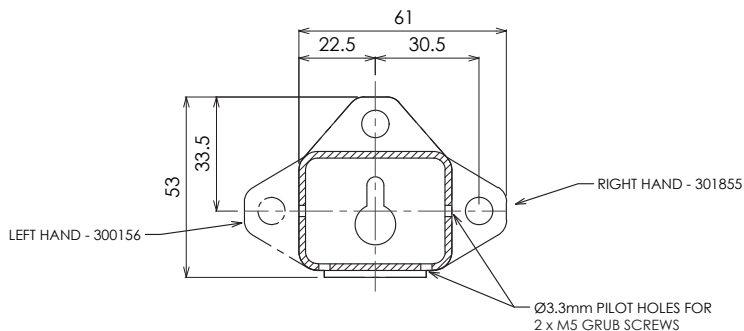
S40 LINK RAIL SECTION 300739



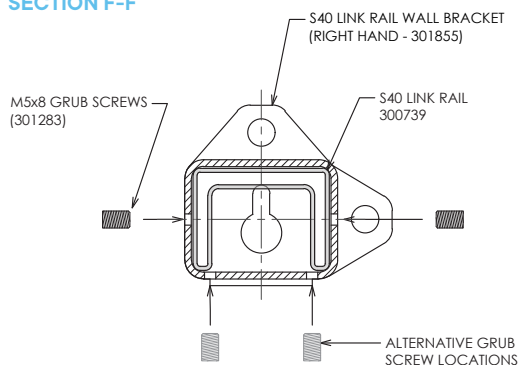
S40 LINK RAIL WALL BRACKET

RIGHT HAND - 301855

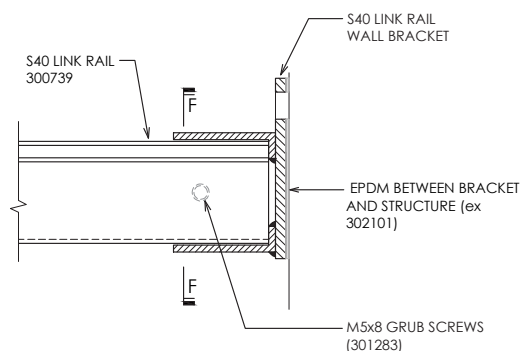
LEFT HAND - 300156



SECTION F-F



S40 LINK RAIL - END BRACKET SECTION

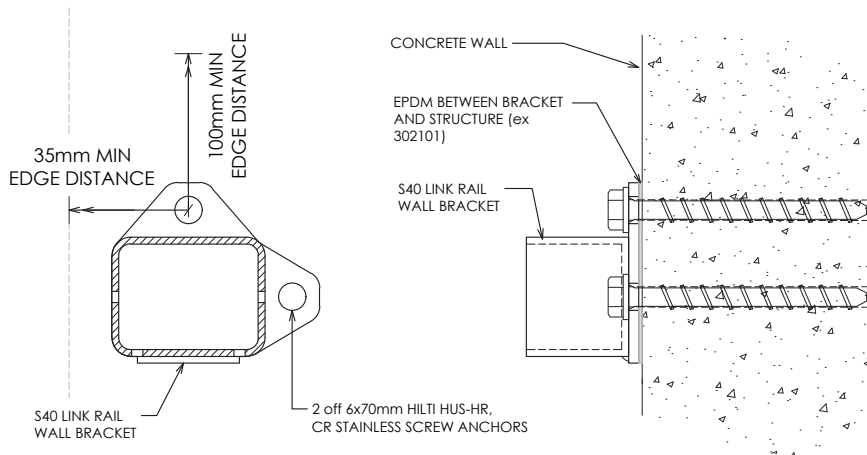


S40-05 S40 RAIL - END BRACKET CONCRETE WALL ATTACHMENT

All fixings to be stainless steel

NOTES:

1. Concrete wall is to be designed by project structural engineer for loads imposed by balustrade. ULS point load, $n^* = 0.9kN$ - inwards, outwards or down.
2. Concrete wall to be minimum 140mm thick.
3. Concrete wall must be reinforced & is to be designed & detailed in accordance with NZS3101.
4. Minimum concrete strength = 20MPa.



IMPORTANT NOTE: Conforming to NZS 4223.3.2016 and Building Code Clause B1/AS1 Cl 7.3.1

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

S40 Link Rail

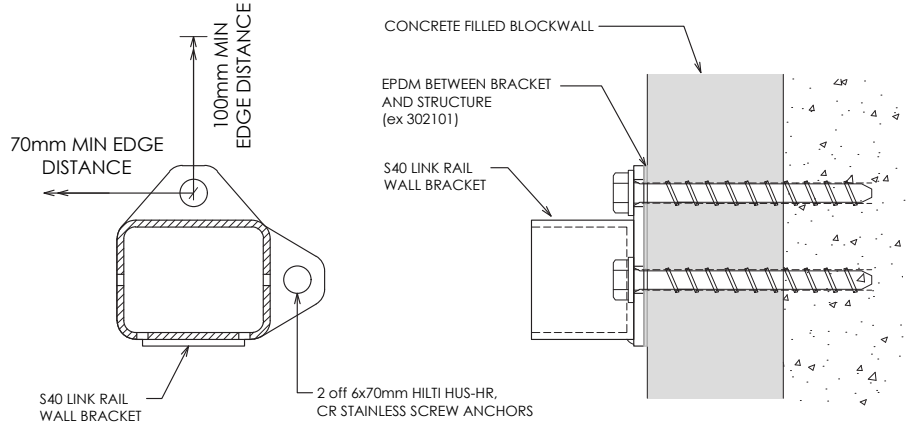
S40-06

S40 RAIL - END BRACKET BLOCKWALL ATTACHMENT

All fixings to be stainless steel

NOTES:

1. Blockwall is to be designed by project structural engineer for loads imposed by balustrade. ULS point load, $n^* = 0.9\text{kN}$ - inwards, outwards or down.
2. Minimum blockwall thickness = 140mm.
3. Blockwall must be corefilled / reinforced & is to be designed & detailed in accordance with NZS4230 or NZS4229.
4. Minimum corefill concrete strength = 17.5MPa.



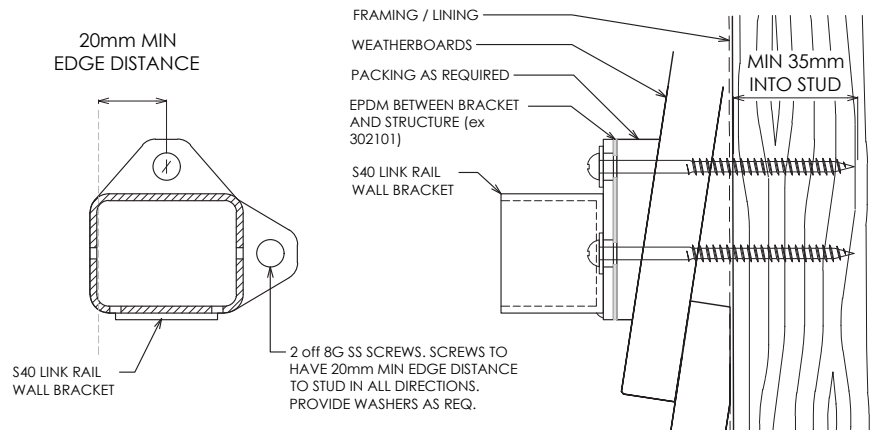
S40-07

S40 RAIL - END BRACKET WEATHERBOARD ATTACHMENT

All fixings to be stainless steel

NOTES:

1. Timber stud wall is to be designed by project structural engineer for loads imposed by balustrade. ULS point load, $n^* = 0.9\text{kN}$ - inwards, outwards or down.
2. Minimum stud size = 90x45.
3. Minimum timber grade = SG8.
4. Timber stud wall to be designed & detailed in accordance with nzs3603 or NZS3604.



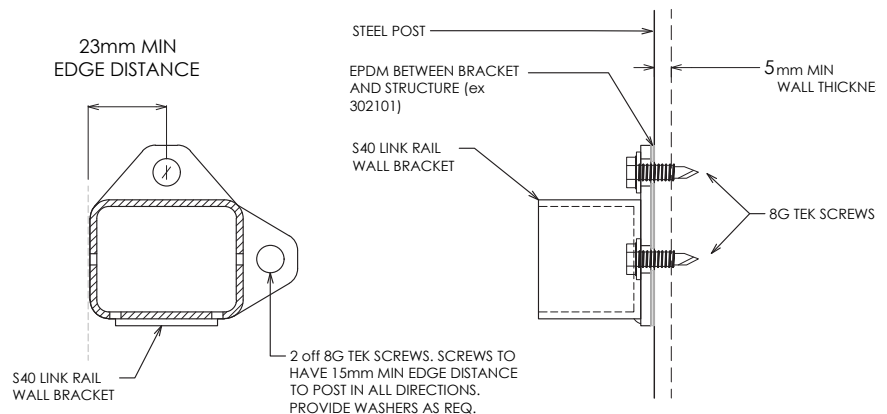
S40-08

S40 RAIL - END BRACKET STEEL POST ATTACHMENT

All fixings to be stainless steel

NOTES:

1. Steel post is to be designed by project structural engineer for loads imposed by balustrade. ULS point load, $n^* = 0.9\text{kN}$ - inwards, outwards or down.
2. Building designer to ensure durability requirements of connection are met.
3. Minimum steel post wall thickness = 5mm.
4. Minimum steel grade = 300MPa.



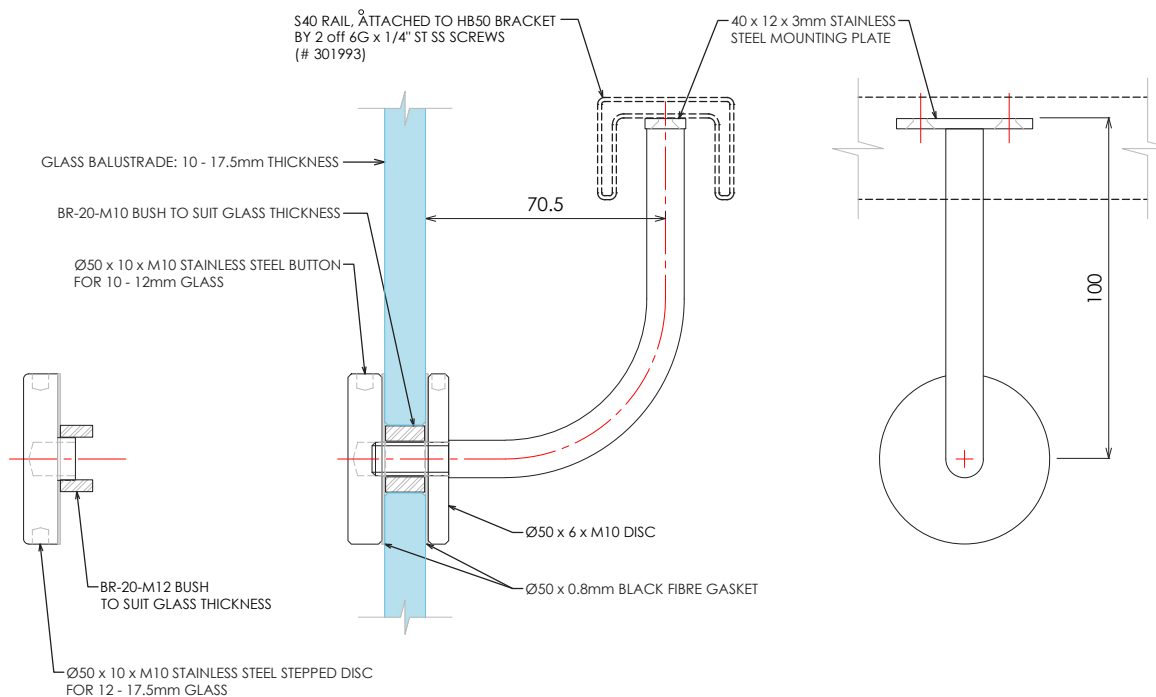
IMPORTANT NOTE: Conforming to NZS 4223.3.2016 and Building Code Clause B1/AS1 Cl 7.3.1

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

HB50 Rail Brackets

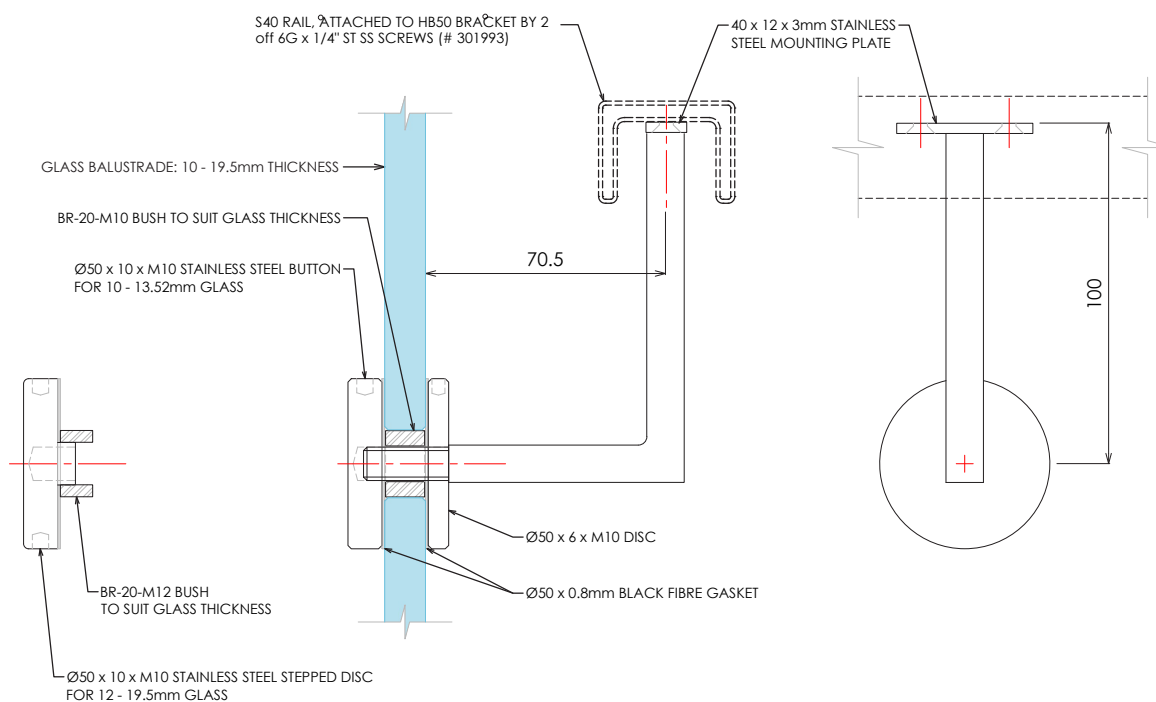
HB50-R-90 HANDRAIL BRACKET

All fixings to be stainless steel



HB50-S-90 HANDRAIL BRACKET

All fixings to be stainless steel

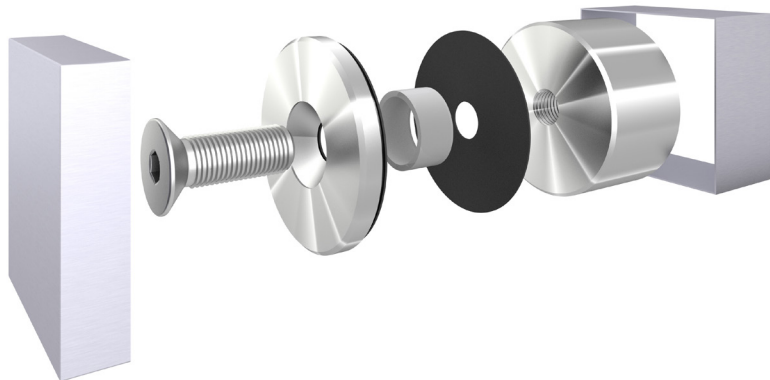



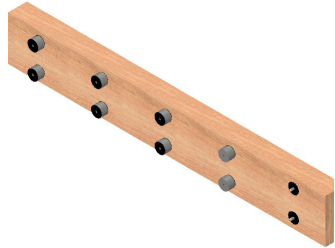
50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Installation / Fitting Instructions

SIDE FIX

(SD50) – Heavy Weight Anchor

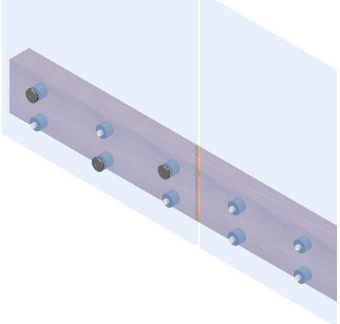
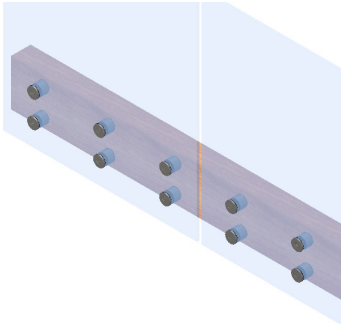


Product	Installation/Fitting Instructions
<p>Structure Fastening Installation</p> <p>Typical Layout of SD50 – Double Disc Anchors.</p> 	<ul style="list-style-type: none"> • Verify the deck capacity can withstand the loads required for installation prior to fixing balustrade. • Using laser level or string line, cast level lines horizontally and vertically to find the centre points of the fastenings required for the building structure as detailed in the PS1. <ul style="list-style-type: none"> – Minimum edge distance from top of structure to centre line of fixing is 50mm. – Fixing layout centres are calculated as: 200mm in from glass edges; Equal spacing's between corner fixings to match PS1 design tables. – Height distances between rows are calculated as: 75mm for Residential purposes; 100mm for Commercial purposes.
<p>Backing Disc Installation</p> <p>Structural fastening into backing Disc Tolerance.</p> 	<ul style="list-style-type: none"> • Install fastenings as per the given PS1 for structure type. • Fix SD50 backing disc to the fastening, tightening to 40Nm (If using the square cover kit option insert this as required). <ul style="list-style-type: none"> – Ensure the backing discs are all on a level plane. If the building structure is not level: <ul style="list-style-type: none"> – For SD50 Heavy Weight Anchor – add fibre gaskets (3 gaskets max.) or additional custom disc to a maximum of 100mm. – For SD50 Adjustable Heavy Weight Anchor – adjust the backing disc within its designed tolerance of 10mm.

IMPORTANT NOTE: The guide above is simplified, and should in no way be referenced in isolation. For full comprehensive substrate fixing details please refer through to the PS1.

50MM DOUBLEDISC SD50 BALUSTRADE SYSTEM

Installation / Fitting Instructions

Product	Installation/Fitting Instructions
<p>Glass Installation</p> 	<ul style="list-style-type: none"> • NOTE: when ordering glass ensure the hole diameters are 26mm. • Check that the hole locations in the glass panels align with the backing disc fastening locations. <ul style="list-style-type: none"> - SD50 Adjustable Heavy Weight Anchor comes with preformed 15mm diameter bush. Tolerance is taken up in the 20mm diameter glass hole. - SD50 Heavy Weight Anchor M10 bushes should be changed to BE20-M10 (eccentric) or BS20-M10 (slotted) bushes to allow for 2.0mm adjustment horizontally if required. • Install glass panels. <ul style="list-style-type: none"> - For SD50 Heavy Weight Anchor – use black fibre gasket to backing disc surface, suitable bush for tolerance (thickness to suit the glass t), black fibre gasket to outer disc and M10 fastening (length to suit the glass t). <ul style="list-style-type: none"> - M10 fastening must not clash with building structure fastening inside the backing disc. - For SD50 Adjustable Heavy Weight Anchor – use gaskets and M10 fastening supplied with the anchor. <p>Fix the SD50 front disc through the glass panel to the backing disc, tightening to 40Nm (If using the square cover kit option insert this as required).</p>
<p>Final Adjustment</p> 	<ol style="list-style-type: none"> 1. Check Glass panel gaps, levels and alignments of frit or similar pattern details. Align with setting blocks and/ or spacers to suit. 2. Check SD50 Double Disc anchors have been torqued to 40Nm.
<p>Cleaning</p>	<p>Once everything is correctly in place and the job is complete, the glass and disc need to be cleaned. Use a non-abrasive glass cleaner on the glass and warm soapy water on the SD50 disc. We also recommend a soft sponge or cloth, again to avoid any risk of scratching. For full care and maintenance guidelines please refer to our comprehensive guide page 716.</p>

IMPORTANT NOTE: The guide above is simplified, and should in no way be referenced in isolation. For full comprehensive substrate fixing details please refer through to the PS1.