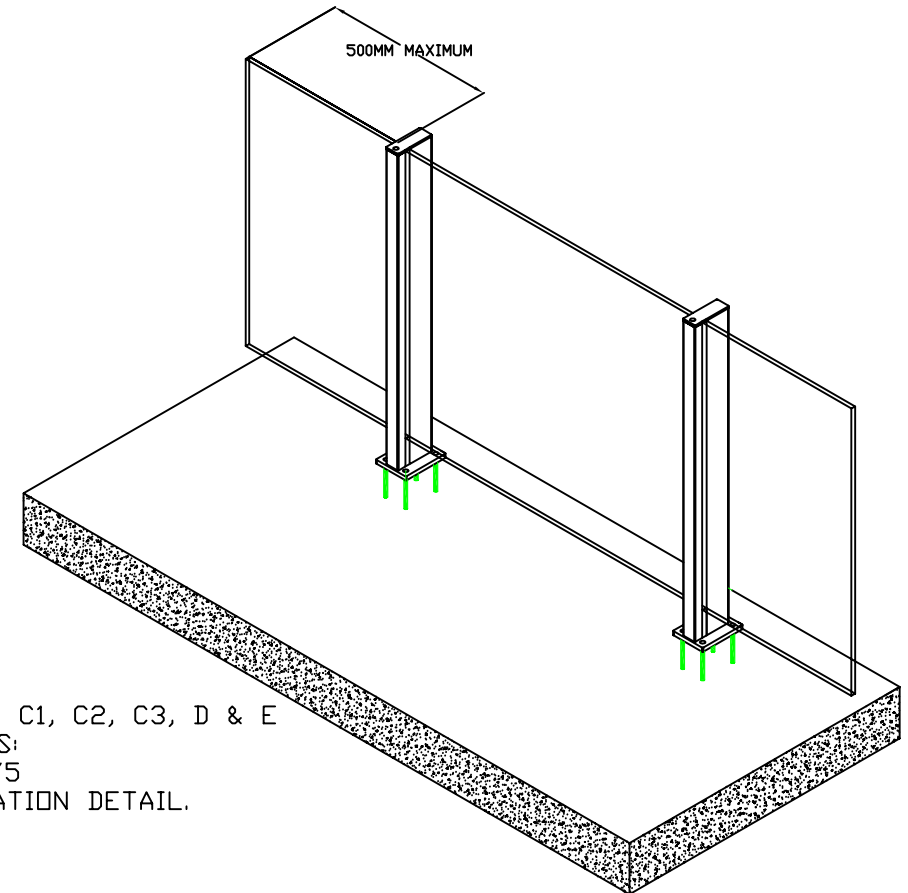
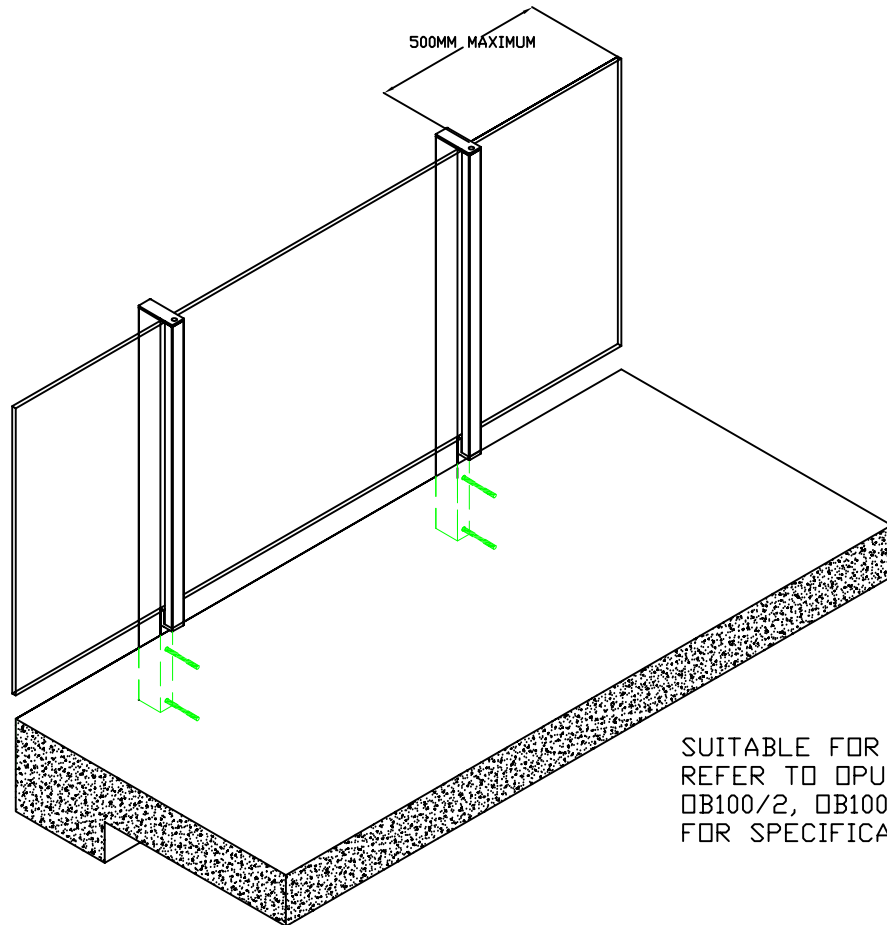


# OPUS SEMI FRAMELESS BALUSTRADE SYSTEMS



SUITABLE FOR OCCUPANCIES A, B, C1, C2, C3, D & E  
REFER TO OPUS DRAWING NUMBERS:  
OB100/2, OB100/3, OB101/4, OB101/5  
FOR SPECIFICATION AND INSTALLATION DETAIL.

THIS DESIGN HAS BEEN VERIFIED BY AN INDEPENDENT ENGINEERING CONSULTANT AND A PRODUCER STATEMENT PS1 DESIGN IS AVAILABLE.

## **OPUS MANUFACTURING LTD.**

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## **OPUS PROPRIETARY SEMI - FRAMELESS BALUSTRADE SYSTEMS**

**DRAWING NUMBER: OB100/1**

DOMESTIC, RESIDENTIAL & NON RESIDENTIAL GLASS INFILL BALUSTRADES COVERING OCCUPANCIES A, B, C3 & E OF TABLE AS/NZS 1170.1:2002 UP TO A MAXIMUM HEIGHT OF 1100MM ABOVE GROUND LEVEL.

BALUSTRADE GLASS - 10MM & 12MM TOUGHENED, OR 12MM TOUGHENED LAMINATE.

POOL FENCING - 12MM TOUGHENED, OR 12MM TOUGHENED LAMINATE TO A MAXIMUM HEIGHT OF 1200MM ABOVE GROUND LEVEL

MAXIMUM POST CENTERS WITH OR WITHOUT OPTIONAL HANDRAIL

INTERIOR BALUSTRADE 1650MM

EXTERIOR BALUSTRADE 1650MM

POOL FENCE MAXIMUM HEIGHT OF 1200MM ABOVE G.L. PLEASE NOTE: POOL FENCING SUBJECT TO ULS LOADS EXCEEDING 1.76KPa TO 2.1KPa POST TO BE INSTALLED AT-

1650MM  
1500MM

COMMERCIAL AND OFFICES WITHOUT CROWDING, RETAIL, RESTAURANTS & BARS COVERING OCCUPANCIES C1, C2 & D OF TABLE AS/NZS 1170.1:2002 UP TO A MAXIMUM HEIGHT OF 1100MM ABOVE GROUND LEVEL.

GLASS - 15MM TOUGHENED OR 16MM TOUGHENED LAMINATE.

MAXIMUM POST CENTERS WITH OR WITHOUT OPTIONAL HANDRAIL

INTERIOR BALUSTRADE 1200MM

EXTERIOR BALUSTRADE 1200MM

NOTES:

CALCULATIONS ARE BASED ON 25MPA CONCRETE. SUITABILITY IS THE RESPONSIBILITY OF OTHERS AND AN ENGINEERS REPORT IS RECOMMENDED.

ALL FIXING HARDWARE TO BE GRADE 316 STAINLESS STEEL.

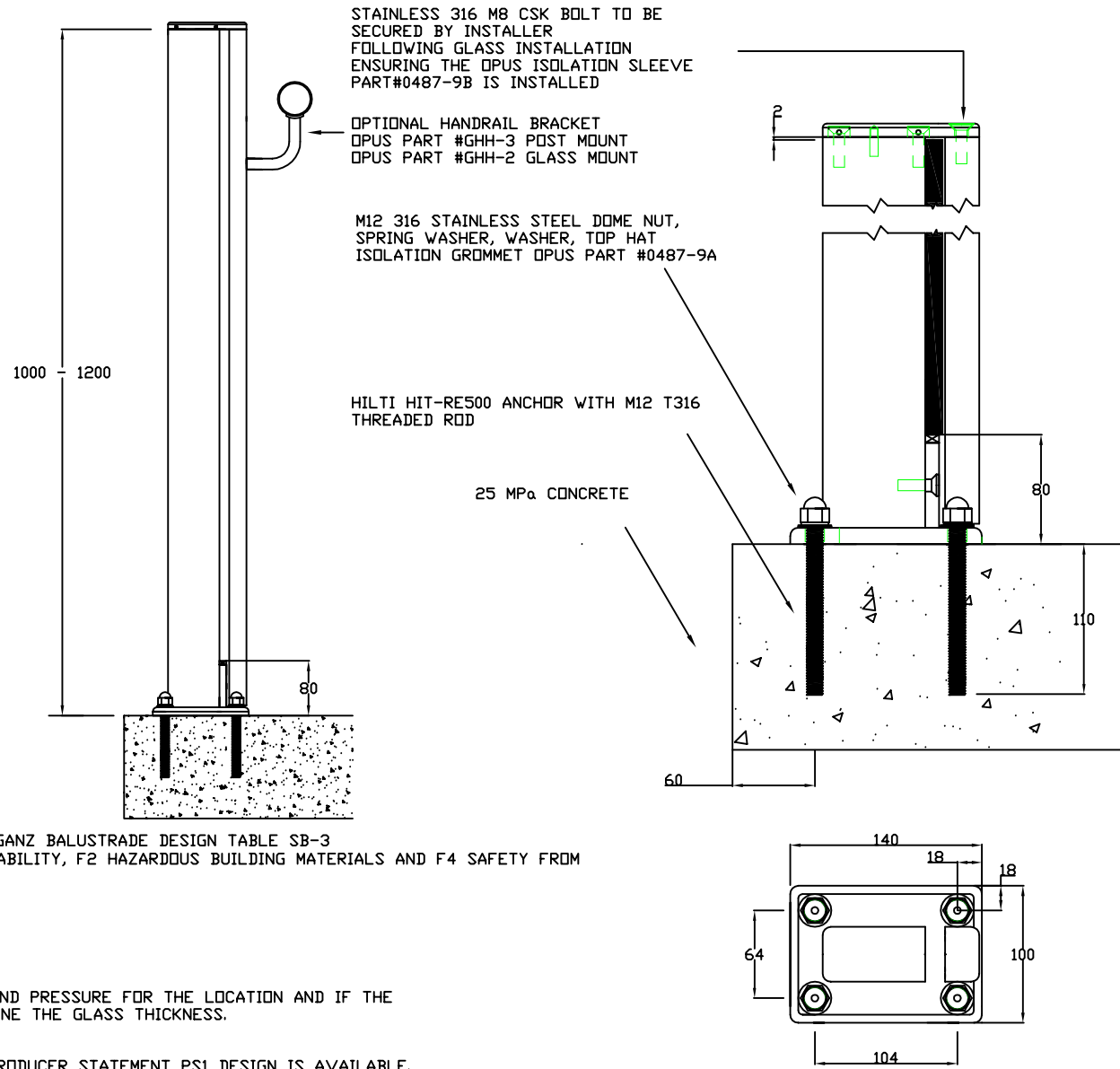
DURATEC POWDERCOAT OR 25 MICRON ANODISED FINISH IS RECOMMENDED FOR ALL INSTALLATIONS ESPECIALLY WITHIN COASTAL AREAS.

THIS PROPRIETARY BALUSTRADE SYSTEM HAS BEEN DESIGNED IN CONJUNCTION WITH THE GANZ BALUSTRADE DESIGN TABLE SB-3 AND COMPLIES WITH THE NEW ZEALAND BUILDING CODE CLAUSES B1 STRUCTURAL, B2 DURABILITY, F2 HAZARDOUS BUILDING MATERIALS AND F4 SAFETY FROM FALLING THIRD ADDITION, SUBJECT TO:

- ALL PRODUCTS MEETING THEIR PERFORMANCE SPECIFICATION.
- INSTALLATIONS MUST BE IN ACCORDANCE WITH THE INTENT OF THIS DRAWING.

THE GANZ TABLE SB-3 ALLOWS A MAXIMUM ULS OF 2.1KPa AND SLS OF 1.5KPa DESIGN WIND PRESSURE FOR THE LOCATION AND IF THE SITE DESIGN WIND PRESSURE EXCEEDS THESE, SPECIFIC DESIGN IS REQUIRED TO DETERMINE THE GLASS THICKNESS.

THE DESIGN HAS BEEN VERIFIED BY AN INDEPENDENT ENGINEERING CONSULTANT AND A PRODUCER STATEMENT PS1 DESIGN IS AVAILABLE.



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**OPUS SEMI - FRAMELESS BALUSTRADE POST OB100 SHOWING RECOMMENDED FIXING FOR TOP FIX CONCRETE**

**DRAWING NUMBER: OB100/2**

DOMESTIC, RESIDENTIAL & NON RESIDENTIAL GLASS INFILL BALUSTRADES COVERING OCCUPANCIES A, B, C3 & E OF TABLE AS/NZS 1170.1:2002 UP TO A MAXIMUM HEIGHT OF 1100MM ABOVE GROUND LEVEL.

BALUSTRAD GLASS - 10MM & 12MM TOUGHENED, OR 12MM TOUGHENED LAMINATE.

|  |  |
|--|--|
| POOL FENCING - 12MM TOUGHENED, OR 12MM TOUGHENED LAMINATE TO A MAXIMUM HEIGHT OF 1200MM ABOVE GROUND LEVEL | MAXIMUM POST CENTERS WITH OR WITHOUT OPTIONAL HANDRAIL |
|--|--|

|                    |        |
|--------------------|--------|
| INTERIOR BALUSTRAD | 1650MM |
|--------------------|--------|

|                    |        |
|--------------------|--------|
| EXTERIOR BALUSTRAD | 1650MM |
|--------------------|--------|

|  |        |
|--|--------|
| POOL FENCE MAXIMUM HEIGHT OF 1200MM ABOVE G.L<br>PLEASE NOTE:<br>POOL FENCING SUBJECT TO ULS LOADS EXCEEDING 1.76KPa TO 2.1KPa, POST TO BE INSTALLED AT- | 1500MM |
|--|--------|

COMMERCIAL AND OFFICES WITHOUT CROWDING, RETAIL, RESTAURANTS & BARS COVERING OCCUPANCIES C1, C2 & D OF TABLE AS/NZS 1170.1:2002 UP TO A MAXIMUM HEIGHT OF 1100MM ABOVE GROUND LEVEL.

|  |  |
|--|--|
| GLASS - 15MM TOUGHENED OR 16MM TOUGHENED LAMINATE. | MAXIMUM POST CENTERS WITH OR WITHOUT OPTIONAL HANDRAIL |
|--|--|

|                    |        |
|--------------------|--------|
| INTERIOR BALUSTRAD | 1200MM |
|--------------------|--------|

|                    |        |
|--------------------|--------|
| EXTERIOR BALUSTRAD | 1200MM |
|--------------------|--------|

**NOTES:**

TIMBER/STEEL CALCULATIONS ARE THE RESPONSIBILITY OF OTHERS.

ALL FIXING HARDWARE TO BE GRADE 316 STAINLESS STEEL.

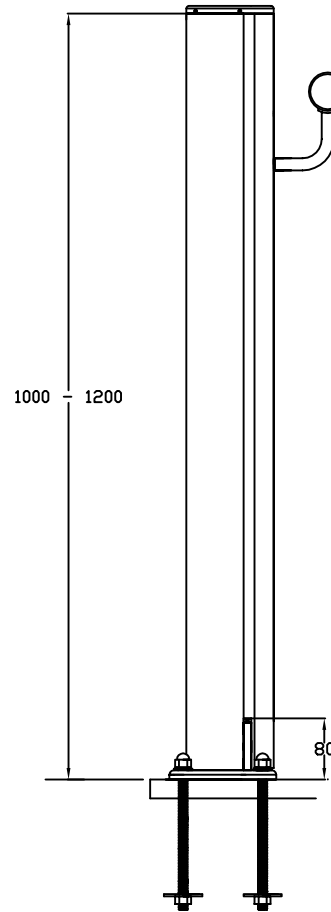
DURATEC POWDERCOAT OR 25 MICRON ANODISED FINISH IS RECOMMENDED FOR ALL INSTALLATIONS ESPECIALLY WITHIN COASTAL AREAS.

THIS PROPRIETARY BALUSTRAD SYSTEM HAS BEEN DESIGNED IN CONJUNCTION WITH THE GANZ BALUSTRAD DESIGN TABLE SB-3 AND COMPLIES WITH THE NEW ZEALAND BUILDING CODE CLAUSES B1 STRUCTURAL, B2 DURABILITY, F2 HAZARDOUS BUILDING MATERIALS AND F4 SAFETY FROM FALLING THIRD ADDITION, SUBJECT TO:

- ALL PRODUCTS MEETING THEIR PERFORMANCE SPECIFICATION.
- INSTALLATIONS MUST BE IN ACCORDANCE WITH THE INTENT OF THIS DRAWING.

THE GANZ TABLE SB-3 ALLOWS A MAXIMUM ULS OF 2.1KPa AND SLS OF 1.5KPa DESIGN WIND PRESSURE FOR THE LOCATION AND IF THE SITE DESIGN WIND PRESSURE EXCEEDS THESE, SPECIFIC DESIGN IS REQUIRED TO DETERMINE THE GLASS THICKNESS.

THE DESIGN HAS BEEN VERIFIED BY AN INDEPENDENT ENGINEERING CONSULTANT AND A PRODUCER STATEMENT PS1 DESIGN IS AVAILABLE.



STAINLESS 316 M8 CSK BOLT TO BE SECURED BY INSTALLER FOLLOWING GLASS INSTALLATION ENSURING THE OPUS ISOLATION SLEEVE PART#0487-9B IS INSTALLED

OPTIONAL HANDRAIL BRACKET  
OPUS PART #GHH-3 POST MOUNT  
OPUS PART #GHH-2 GLASS MOUNT

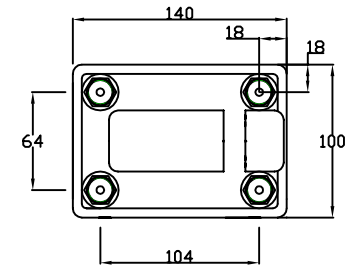
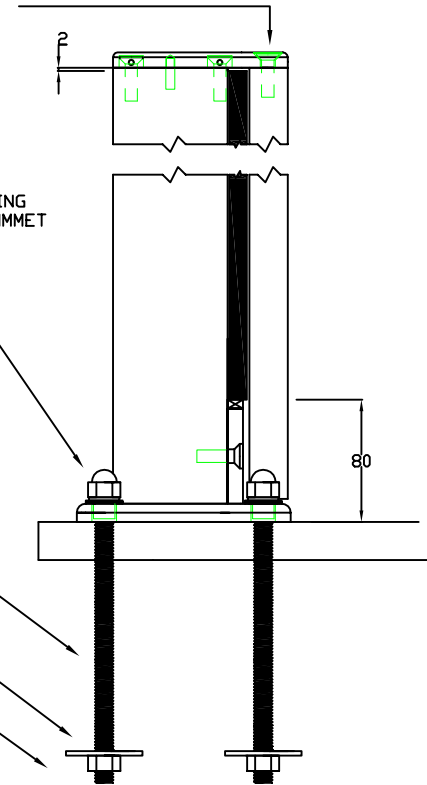
M12 316 STAINLESS STEEL DOME NUT, SPRING WASHER, WASHER, TOP HAT ISOLATION GROMMET  
OPUS PART #0487-9A

STAINLESS STEEL STUD M12

STAINLESS STEEL 50x50x3  
M12 FLAT WASHER

STAINLESS STEEL M12 NUT

TIMBER/STEEL BY OTHERS



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**OPUS SEMI - FRAMELESS BALUSTRAD POST OB100 SHOWING RECOMMENDED FIXING FOR TOP FIX TIMBER/STEEL**

**DRAWING NUMBER: OB100/3**

DOMESTIC, RESIDENTIAL & NON RESIDENTIAL GLASS INFILL BALUSTRADES COVERING OCCUPANCIES A, B, C3 & E OF TABLE AS/NZS 1170.1:2002 UP TO A MAXIMUM HEIGHT OF 1100MM ABOVE GROUND LEVEL.

BALUSTRADE GLASS - 10MM & 12MM TOUGHENED, OR 12MM TOUGHENED LAMINATE.

POOL FENCING - 12MM TOUGHENED, OR 12MM TOUGHENED LAMINATE TO A MAXIMUM HEIGHT OF 1200MM ABOVE GROUND LEVEL

MAXIMUM POST CENTERS WITH OR WITHOUT OPTIONAL HANDRAIL

INTERIOR BALUSTRADE

1650MM

EXTERIOR BALUSTRADE

1650MM

POOL FENCE MAXIMUM HEIGHT OF 1200MM ABOVE G.L PLEASE NOTE: POOL FENCING SUBJECT TO ULS LOADS EXCEEDING 1.76KPa TO 2.1KPa POST TO BE INSTALLED AT-

1500MM

COMMERCIAL AND OFFICES WITHOUT CROWDING, RETAIL, RESTAURANTS & BARS COVERING OCCUPANCIES C1, C2 & D OF TABLE AS/NZS 1170.1:2002 UP TO A MAXIMUM HEIGHT OF 1100MM ABOVE GROUND LEVEL.

GLASS - 15MM TOUGHENED OR 16MM TOUGHENED LAMINATE.

MAXIMUM POST CENTERS WITH OR WITHOUT OPTIONAL HANDRAIL

INTERIOR BALUSTRADE

1200MM

EXTERIOR BALUSTRADE

1200MM

NOTES:

TIMBER/STEEL CALCULATIONS ARE THE RESPONSIBILITY OF OTHERS.

ALL FIXING HARDWARE TO BE GRADE 316 STAINLESS STEEL.

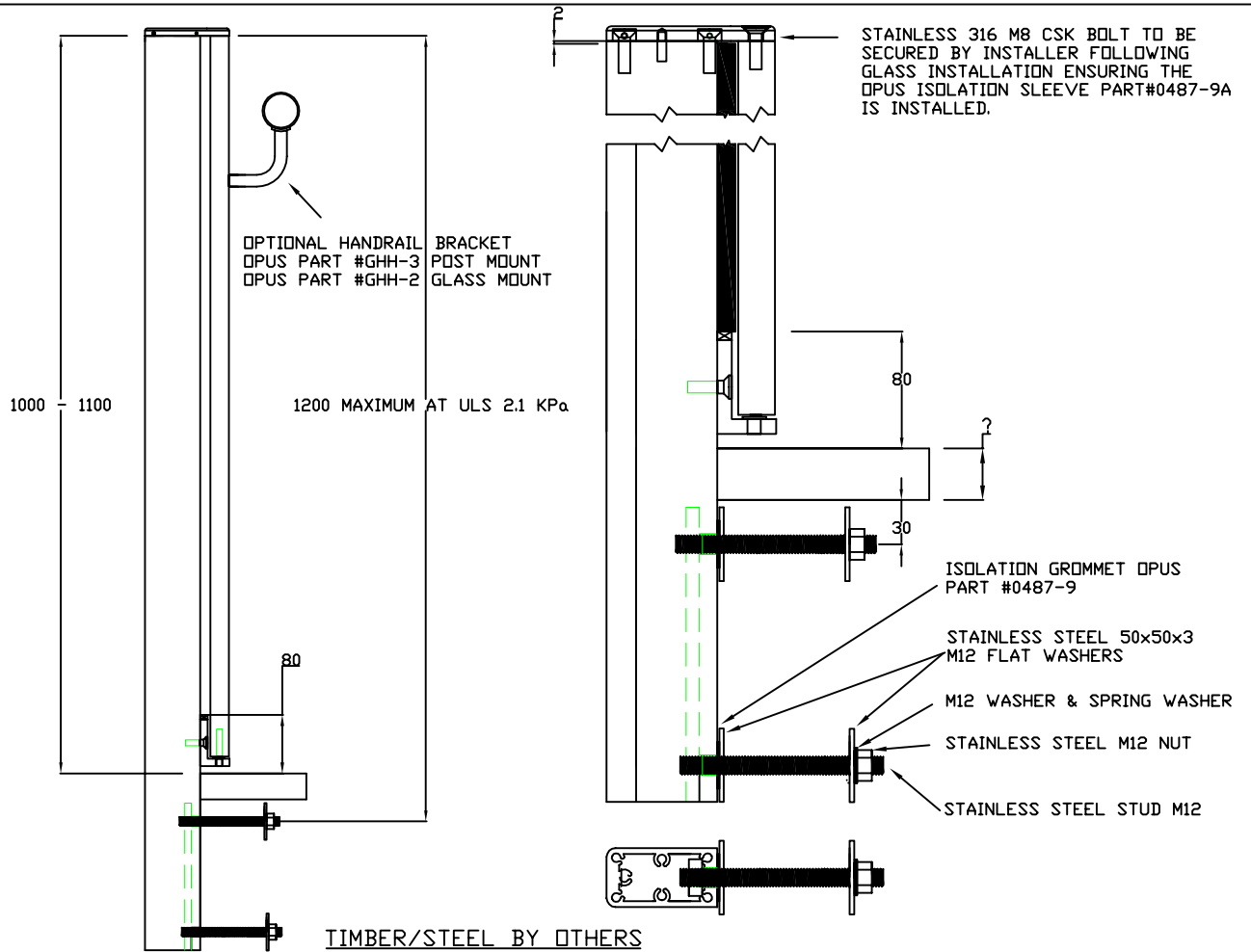
DURATEC POWDERCOAT OR 25 MICRON ANODISED FINISH IS RECOMMENDED FOR ALL INSTALLATIONS ESPECIALLY WITHIN COASTAL AREAS.

THIS PROPRIETARY BALUSTRADE SYSTEM HAS BEEN DESIGNED IN CONJUNCTION WITH THE GANZ BALUSTRADE DESIGN TABLE SB-3 AND COMPLIES WITH THE NEW ZEALAND BUILDING CODE CLAUSES B1 STRUCTURAL, B2 DURABILITY, F2 HAZARDOUS BUILDING MATERIALS AND F4 SAFETY FROM FALLING THIRD ADDITION, SUBJECT TO:

- ALL PRODUCTS MEETING THEIR PERFORMANCE SPECIFICATION.
- INSTALLATIONS MUST BE IN ACCORDANCE WITH THE INTENT OF THIS DRAWING.

THE GANZ TABLE SB-3 ALLOWS A MAXIMUM ULS OF 2.1KPa AND SLS OF 1.5KPa DESIGN WIND PRESSURE FOR THE LOCATION AND IF THE SITE DESIGN WIND PRESSURE EXCEEDS THESE, SPECIFIC DESIGN IS REQUIRED TO DETERMINE THE GLASS THICKNESS.

THE DESIGN HAS BEEN VERIFIED BY AN INDEPENDENT ENGINEERING CONSULTANT AND A PRODUCER STATEMENT PSI DESIGN IS AVAILABLE.



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**OPUS SEMI - FRAMELESS BALUSTRADE POST OB101-C SHOWING RECOMMENDED FIXING FOR FACE FIX TIMBER/STEEL**

**DRAWING NUMBER: OB100/4**

|   |  |
|---|--|
| DOMESTIC, RESIDENTIAL & NON RESIDENTIAL GLASS INFILL BALUSTRADES COVERING OCCUPANCIES A, B, C3 & E OF TABLE AS/NZS 1170.1:2002 UP TO A MAXIMUM HEIGHT OF 1100MM ABOVE GROUND LEVEL. |  |
| BALUSTRADE GLASS - 10MM & 12MM TOUGHENED, OR 12MM TOUGHENED LAMINATE.   |  |
| POOL FENCING - 12MM TOUGHENED, OR 12MM TOUGHENED LAMINATE TO A MAXIMUM HEIGHT OF 1200MM ABOVE GROUND LEVEL  | MAXIMUM POST CENTERS WITH OR WITHOUT OPTIONAL HANDRAIL |
| INTERIOR BALUSTRADE   | 1650MM   |
| EXTERIOR BALUSTRADE   | 1650MM   |
| POOL FENCE MAXIMUM HEIGHT OF 1200MM ABOVE G.L PLEASE NOTE: POOL FENCING SUBJECT TO ULS LOADS EXCEEDING 1.76KPa TO 2.1KPa POST TO BE INSTALLED AT-                                   | 1500MM   |

|  |  |
|--|--|
| COMMERCIAL AND OFFICES WITHOUT CROWDING, RETAIL, RESTAURANTS & BARS COVERING OCCUPANCIES C1, C2 & D OF TABLE AS/NZS 1170.1:2002 UP TO A MAXIMUM HEIGHT OF 1100MM ABOVE GROUND LEVEL. |  |
| GLASS - 15MM TOUGHENED OR 16MM TOUGHENED LAMINATE.   | MAXIMUM POST CENTERS WITH OR WITHOUT OPTIONAL HANDRAIL |
| INTERIOR BALUSTRADE  | 1200MM   |
| EXTERIOR BALUSTRADE  | 1200MM   |

**NOTES:**

CALCULATIONS ARE BASED ON 25MPa CONCRETE. SUITABILITY IS THE RESPONSIBILITY OF OTHERS AND AN ENGINEERS REPORT IS RECOMMENDED.

ALL FIXING HARDWARE TO BE GRADE 316 STAINLESS STEEL.

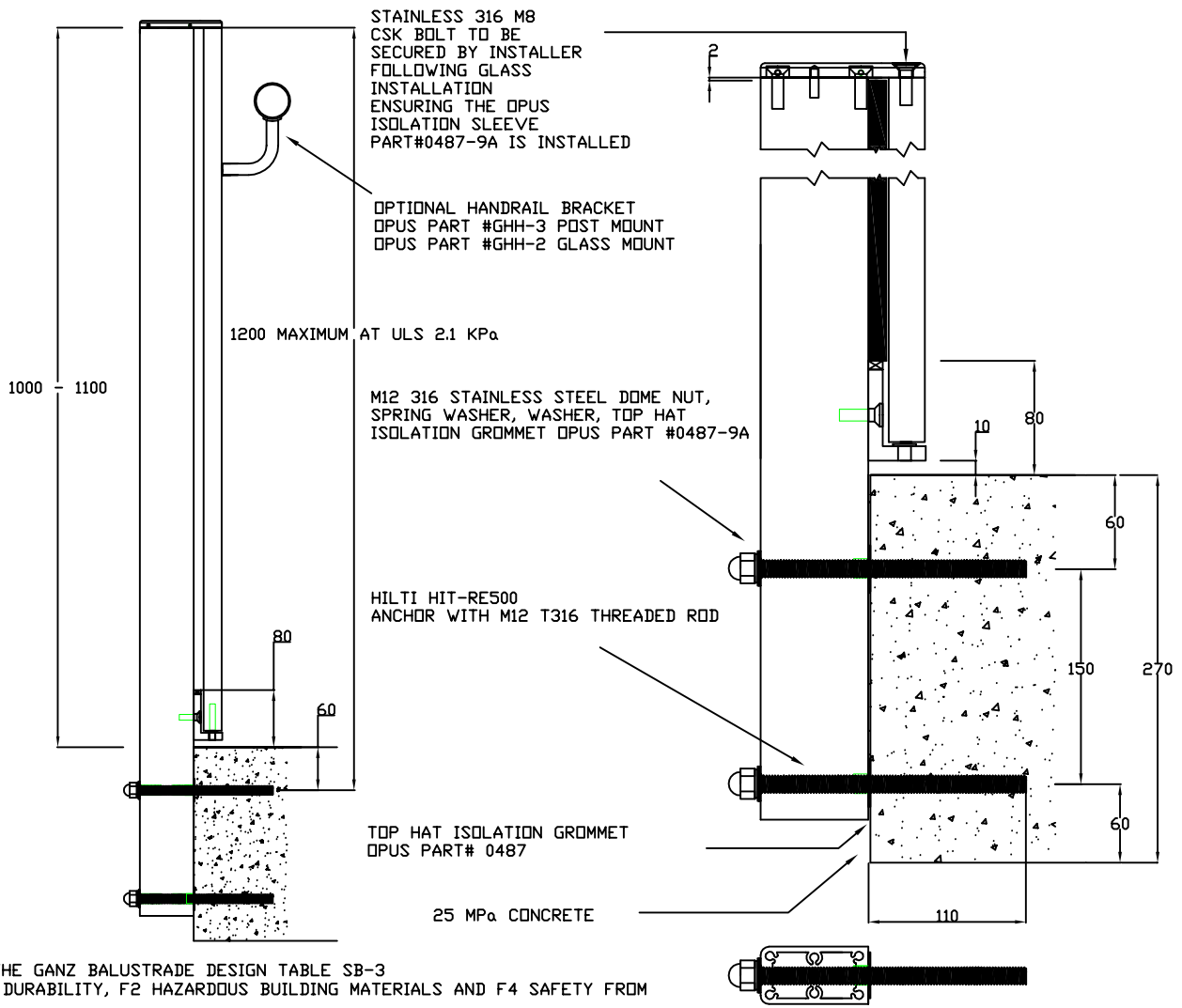
DURATEC POWDERCOAT OR 25 MICRON ANODISED FINISH IS RECOMMENDED FOR ALL INSTALLATIONS ESPECIALLY WITHIN COASTAL AREAS.

THIS PROPRIETARY BALUSTRADE SYSTEM HAS BEEN DESIGNED IN CONJUNCTION WITH THE GANZ BALUSTRADE DESIGN TABLE SB-3 AND COMPLIES WITH THE NEW ZEALAND BUILDING CODE CLAUSES B1 STRUCTURAL, B2 DURABILITY, F2 HAZARDOUS BUILDING MATERIALS AND F4 SAFETY FROM FALLING THIRD ADDITION, SUBJECT TO:

- ALL PRODUCTS MEETING THEIR PERFORMANCE SPECIFICATION.
- INSTALLATIONS MUST BE IN ACCORDANCE WITH THE INTENT OF THIS DRAWING.

THE GANZ TABLE SB-3 ALLOWS A MAXIMUM ULS OF 2.1KPa AND SLS OF 1.5KPa DESIGN WIND PRESSURE FOR THE LOCATION AND IF THE SITE DESIGN WIND PRESSURE EXCEEDS THESE, SPECIFIC DESIGN IS REQUIRED TO DETERMINE THE GLASS THICKNESS.

THE DESIGN HAS BEEN VERIFIED BY AN INDEPENDENT ENGINEERING CONSULTANT AND A PRODUCER STATEMENT PSI DESIGN IS AVAILABLE.



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**OPUS SEMI - FRAMELESS BALUSTRADE POST OB101 SHOWING RECOMMENDED FIXING FOR FACE FIX CONCRETE**

**DRAWING NUMBER: OB100/5**

INTERMEDIATE POST OR WHEN GLASS  
IS TO EXTEND PAST POST  
( MAXIMUM DISTANCE 500MM )

CONCEALED GLASS JOINT

BACKING SEAL SUPPLIED AND FITTED  
TO POST BY OPUS MANUFACTURING.

APPLY PREMIER PS257/9  
SINGLE SIDED ADHESIVE  
TAPE OR SIMILAR TO ONE  
EDGE OF GLASS PRIOR TO  
INSTALLING GLASS

BACKING SEAL SUPPLIED AND FITTED  
TO POST BY OPUS MANUFACTURING.

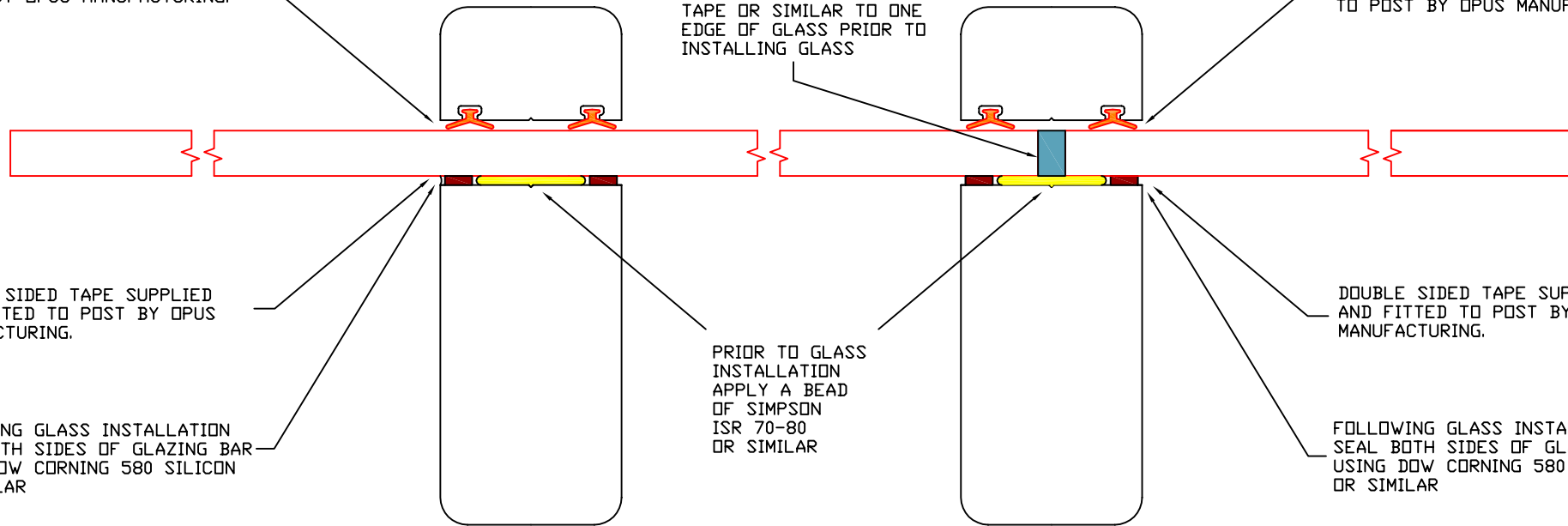
DOUBLE SIDED TAPE SUPPLIED  
AND FITTED TO POST BY OPUS  
MANUFACTURING.

FOLLOWING GLASS INSTALLATION  
SEAL BOTH SIDES OF GLAZING BAR  
USING DOW CORNING 580 SILICON  
OR SIMILAR

PRIOR TO GLASS  
INSTALLATION  
APPLY A BEAD  
OF SIMPSON  
ISR 70-80  
OR SIMILAR

DOUBLE SIDED TAPE SUPPLIED  
AND FITTED TO POST BY OPUS  
MANUFACTURING.

FOLLOWING GLASS INSTALLATION  
SEAL BOTH SIDES OF GLAZING BAR  
USING DOW CORNING 580 SILICON  
OR SIMILAR

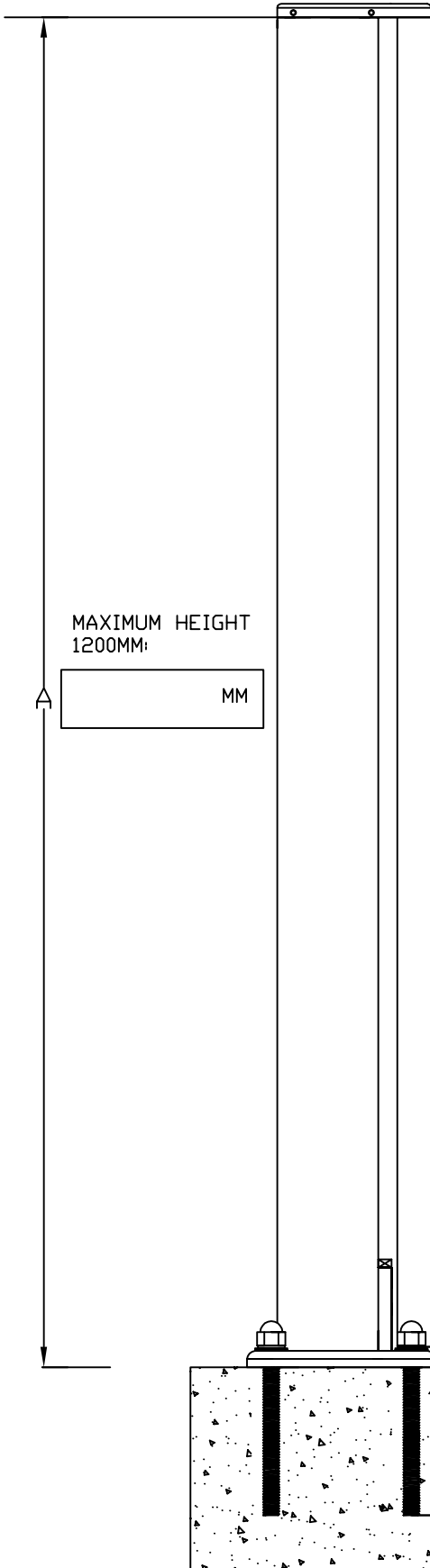


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**OPUS SEMI - FRAMELESS BALUSTRADES SERIES OB100 & OB101  
SUGGESTED GLAZING DETAIL**

DRAWING NUMBER: OB100/6



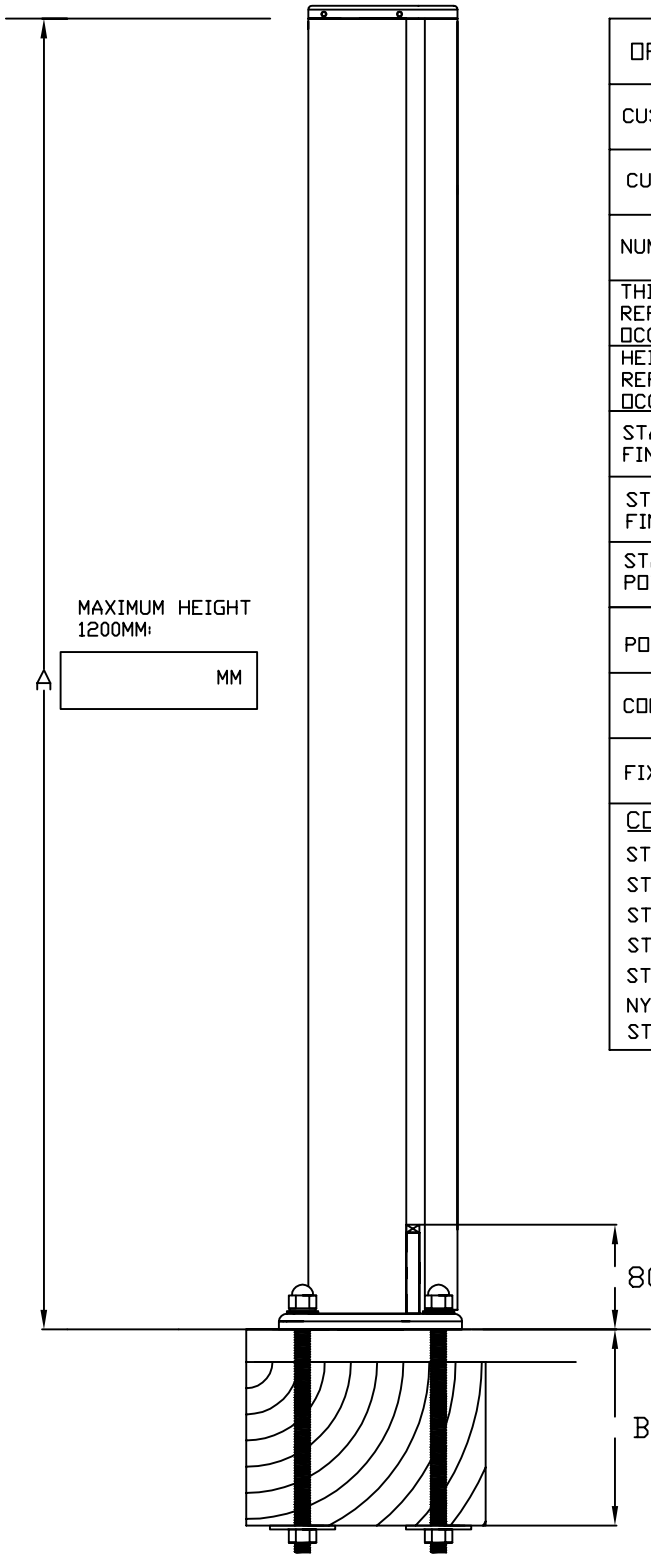
|  |             |
|--|-------------|
| OPUS ORDER FORM FOR TOP FIX CONCRETE   |             |
| CUSTOMER NAME:   |             |
| CUSTOMER ORDER NUMBER:   |             |
| NUMBER OF POSTS REQUIRED:  |             |
| THICKNESS OF GLASS BEING USED<br>REFER OPUS DRAWING OB100/2 FOR<br>OCCUPANCY TYPE.                 | 10-12-15-16 |
| HEIGHT FROM FLOOR TO TOP OF GLASS<br>REFER OPUS DRAWING OB100/2 FOR<br>OCCUPANCY TYPE - (A ON DWG) | MM          |
| STAINLESS STEEL TOP CAP<br>FINISH - MIRROR POLISH  | YES/NO      |
| STAINLESS STEEL TOP CAP<br>FINISH - SATIN (BRUSHED)  | YES/NO      |
| STAINLESS STEEL TOP CAP FINISH<br>POWDERCOATED TO MATCH POST                                       | YES/NO      |
| POWDERCOAT.  | YES/NO      |
| COLOUR REQUIRED:   |             |
| FIX KIT #1 REQUIRED:   | YES/NO      |
| <u>CONTENTS OF OPTIONAL FIXING KIT #1</u>  |             |
| STAINLESS STEEL M12 DOME NUTS - 4NO  |             |
| STAINLESS STEEL SPRING WASHERS M12 - 4NO   |             |
| STAINLESS STEEL FLAT WASHER M12 X 24MM - 4NO   |             |
| NYLON TOP HAT INSERTS M12 X 24 - 4NO   |             |
| STAINLESS STEEL STUD M12 X 140MM X 4NO   |             |

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**ORDER FORM FOR OPUS MANUFACTURING  
 TOP FIX BALUSTRADE SYSTEM OB100  
 FOR INSTALLATION ON CONCRETE**

OPUS PART NUMBER OB100

DRAWING NUMBER: OB100/7



|  |             |
|--|-------------|
| OPUS ORDER FORM FOR TOP FIX TIMBER/STEEL   |             |
| CUSTOMER NAME:   |             |
| CUSTOMER ORDER NUMBER:   |             |
| NUMBER OF POSTS REQUIRED:  |             |
| THICKNESS OF GLASS BEING USED<br>REFER OPUS DRAWING OB100/3 FOR<br>OCCUPANCY TYPE.                     | 10-12-15-16 |
| HEIGHT FROM FLOOR TO TOP OF GLASS<br>REFER OPUS DRAWING OB100/3 FOR<br>OCCUPANCY TYPE - (SEE A ON DWG) | MM          |
| STAINLESS STEEL TOP CAP<br>FINISH - MIRROR POLISH  | YES/NO      |
| STAINLESS STEEL TOP CAP<br>FINISH - SATIN (BRUSHED)  | YES/NO      |
| STAINLESS STEEL TOP CAP FINISH<br>POWDERCOATED TO MATCH POST   | YES/NO      |
| POWDERCOAT FINISH.   | YES/NO      |
| COLOUR REQUIRED:   |             |
| FIX KIT #2 REQUIRED:   | YES/NO      |
| <u>CONTENTS OF OPTIONAL FIXING KIT #2</u>  |             |
| STAINLESS STEEL M12 DOME NUTS - 4NO  |             |
| STAINLESS STEEL SPRING WASHERS M12 - 4NO   |             |
| STAINLESS STEEL FLAT WASHER M12 X 24MM - 4NO   |             |
| STAINLESS STEEL WASHERS M12 50MM X 50MM - 4NO  |             |
| STAINLESS STEEL M12 NUTS X 4NO   |             |
| NYLON TOP HAT INSERTS M12 X 24 - 4NO   |             |
| STAINLESS STEEL STUD M12 X 300MM - 4NO - (B ON DWG)  |             |

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**ORDER FORM FOR OPUS MANUFACTURING  
 TOP FIX BALUSTRADE SYSTEM OB100  
 FOR INSTALLATION ON TIMBER/STEEL**

OPUS PART NUMBER OB100      DRAWING NUMBER: OB100/8