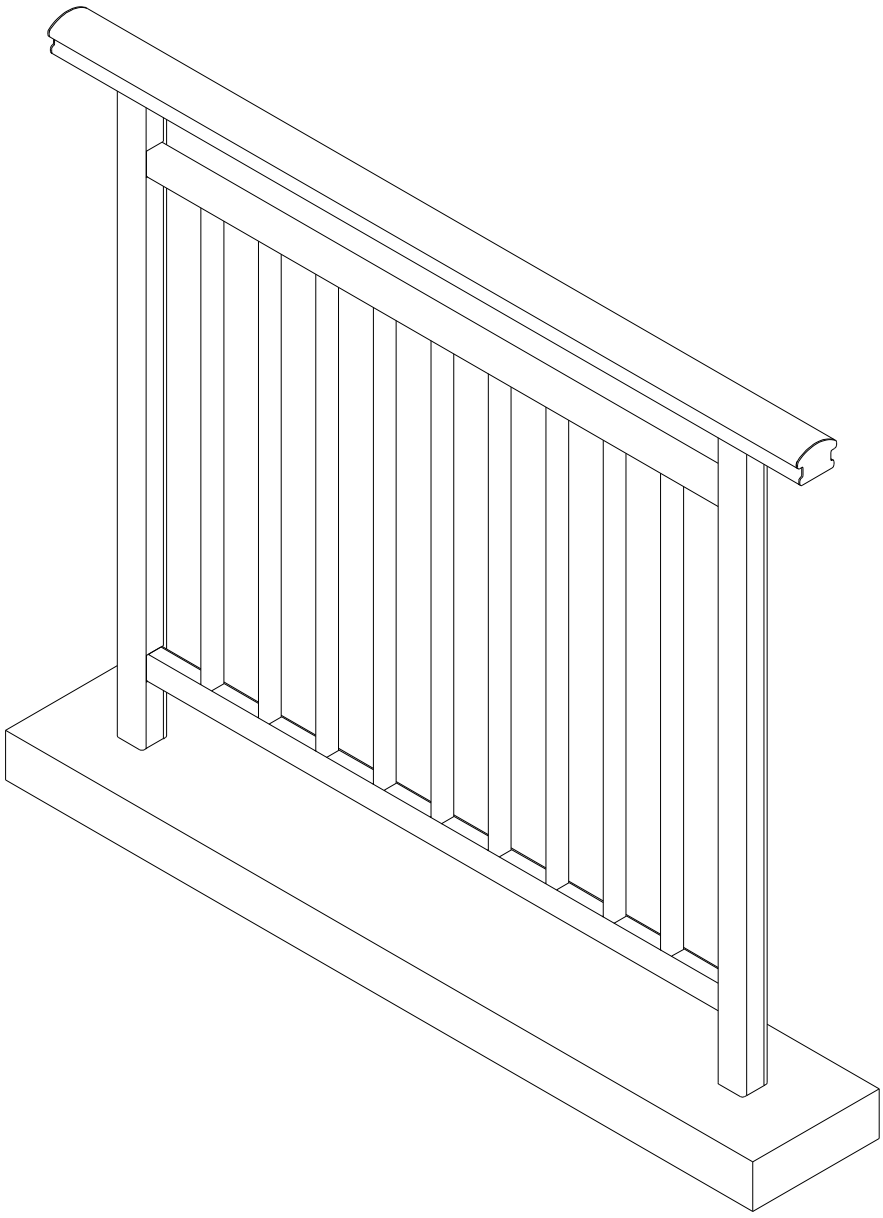
crealco | NEW YORK

NEW YORK BALUSTRADE



PRODUCT MANUAL

Revision : April 2013

Index

This manual must be read in conjunction with the Installation, Cleaning and Maintenance Document, BEE Certificates and the Performance Certificates for the relevant system. The manual must also be used in conjunction with the design and cutting list from the latest version of StarFront.

LEGAL DISCLAIMER

All information, recommendations or advice contained in this documentation is given in good faith to the best of Wispeco's knowledge and is based on current procedures in effect.

Since the actual use of this documentation by the user is beyond the control of Wispeco, such use is within the exclusive responsibility of the user. Wispeco cannot be held responsible for any loss incurred through incorrect or faulty use of this documentation.

Great care has been taken to ensure that the information provided is correct. Wispeco will accept no responsibility for any errors and/or omissions, which may have inadvertently occurred.

All mechanical joints must be sealed with a Wispeco approved joint sealer.

Laminated glass must not stand in water.

All drawings in the Wispeco Documentation are shown NOT to scale.

Wispeco cannot accept responsibility for the use of standard products since Wispeco does not know where these products are being installed.

The use of anti-magnetic stainless steel screws and pop rivets is recommended to reduce galvanic corrosion in harsh environments.

The hardware recommended in this documentation is suitable for use in most atmospheric environments. When hardware is used in severe costal environments the manufacturer of the hardware must be consulted.

Fixing lugs on frames must be positioned as per the user manual and used in accordance to the AAAMSA specifications. When profiles are screwed together the screw centers must also be according to the user manual.

All glass used within Wispeco products must comply with SAGGA regulations.

All glazing above 10m from ground level must be signed off by a competent person (Glazing) in accordance with the national building regulations

By continuing to use this documentation you acknowledge that you understand and accept the legal disclaimer.

NEW YORK BALUSTRADE SYSTEM RESTRICTIONS

When manufacturing and/or installing the NewYork Balustrade System, it needs to comply with the National Building Regulations of South Africa.

The regulations that apply, is as follows:

1. All balustrades, except for swimming pools, shall have a height of not less than 1m from ground level and shall not have any openings that allow a 100mm diameter steel ball to pass through.

2. All balustrades for swimming pools, shall have a height of not less than 1.2m from ground level and shall not have any openings that allow a 100mm diameter steel ball to pass through.

3. All balustrades are subject to a maximum allowable deflection of 1/125th of height or span or 25mm, whichever is the lesser one.

4. Any secondary rail on a balustrade with vertical bars, must be able to withstand a vertical load of 1kN to avoid damage by a person standing on it.

5. Any balustrade containing glass must be fitted with laminated or toughened glass, which has to withstand an impact of 400J delivered by means of a 250mm diameter bag filled with dry sand to a mass of 30Kg.

Wispeco Aluminium STRONGLY recommend that a qualified structural engineer be consulted on ALL balustrade installations. It is the manufacturer's sole responsibility to ensure that the manufacturing and installation of the balustrade complies totally with the National Building Regulation -SANS 10160 and SANS 10137.

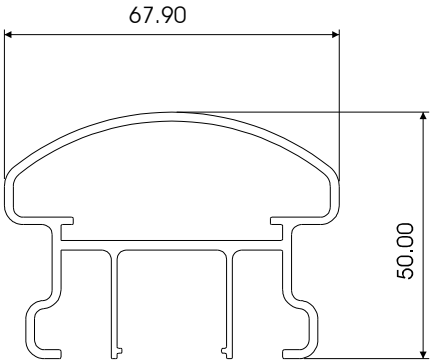
1. CORROSION RESISTANCE

Balustrade that is exposed to an external or aggressive environment shall be treated to resist corrosion.
Regular inspections need to be done for possible corrosion.

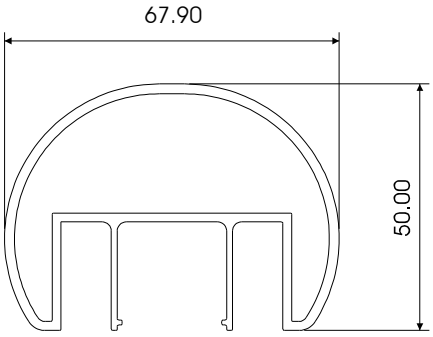
2. MAINTENANCE

Balustrade shall be periodically inspected for evidence of excessive wear, damage or reduced strength.
Any element, connection or anchorage that shows a loss of strength or a loss of stiffness of 20% or more shall be either replaced or restored to its initial condition. The loss of strength shall be determined by comparing the deflection of the balustrade under a certain load with the deflection of a new replicate under the same load.

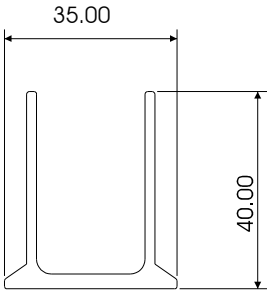
NEW YORK
BALUSTRADE
PROFILE IDENTIFICATION



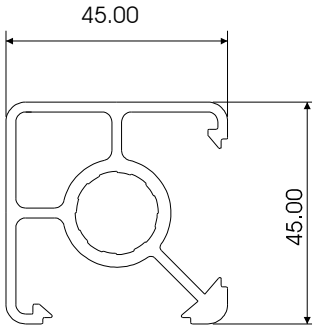
HAND RAIL
W55828



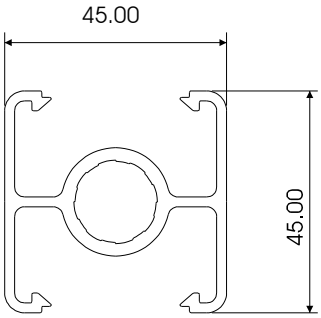
*ROUNDED HAND RAIL
W55830



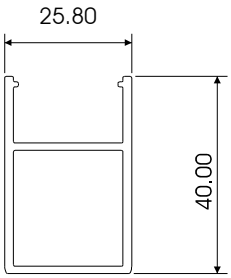
SIDE BRACKET
W32324



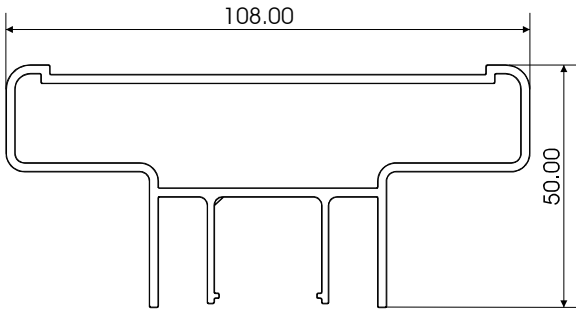
CORNER STANCHION
W55827



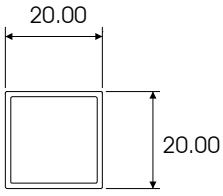
STANCHION
W55826



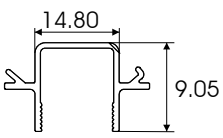
BOTTOM RAIL
W55829



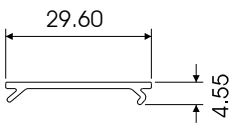
YORK RAIL FLAT
W56812



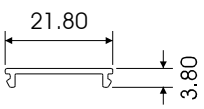
20x20 SQUARE TUBE
W42179



YORK CLIP SMALL
W32323A



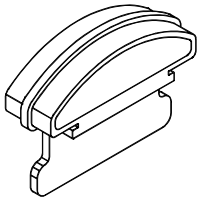
BIG COVER
W32320



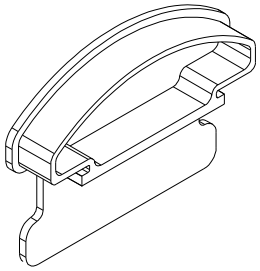
SMALL COVER
W32321

*Non-Stock Items

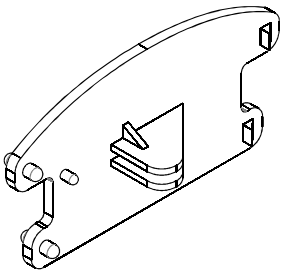
NEW YORK
BALUSTRADE
HARDWARE IDENTIFICATION



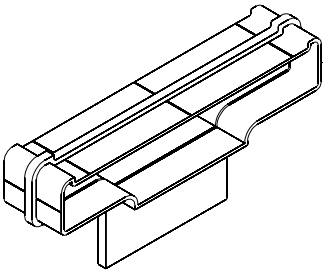
RAIL EXTENDER
MUSHROOM 900
NYEX03MB



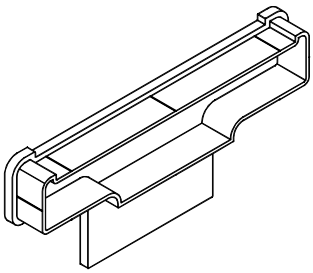
RAIL ENDCAP
MUSHROOM 500
NYEC02MB



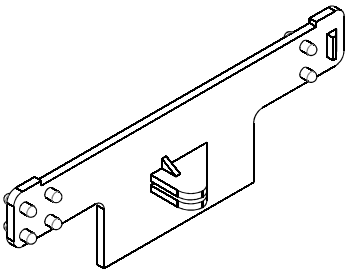
MUSHROOM RAIL
45° JOINT
NYEX04MB



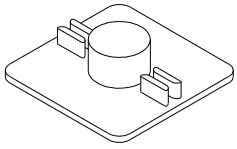
RAIL EXTENDER
FLAT
NYEX06FB



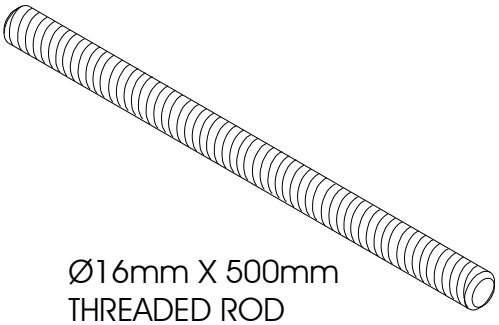
RAIL END
CAP FLAT
NYEC05FB



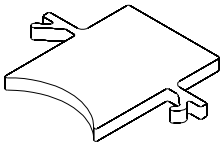
FLAT RAIL
45° CORNER JOINT
NYEX07FB



STANCHION
ENDCAP 300
NYSC01B

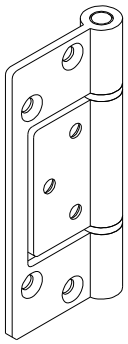


Ø16mm X 500mm
THREADED ROD
TR16mm

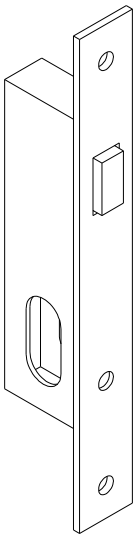


GLASS PACKER
NYGP04B

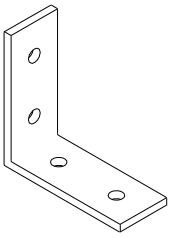
NEW YORK
BALUSTRADE
HARDWARE IDENTIFICATION



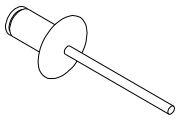
HRA1040NATFG



HL410SP WITH
CYLINDER LOCK

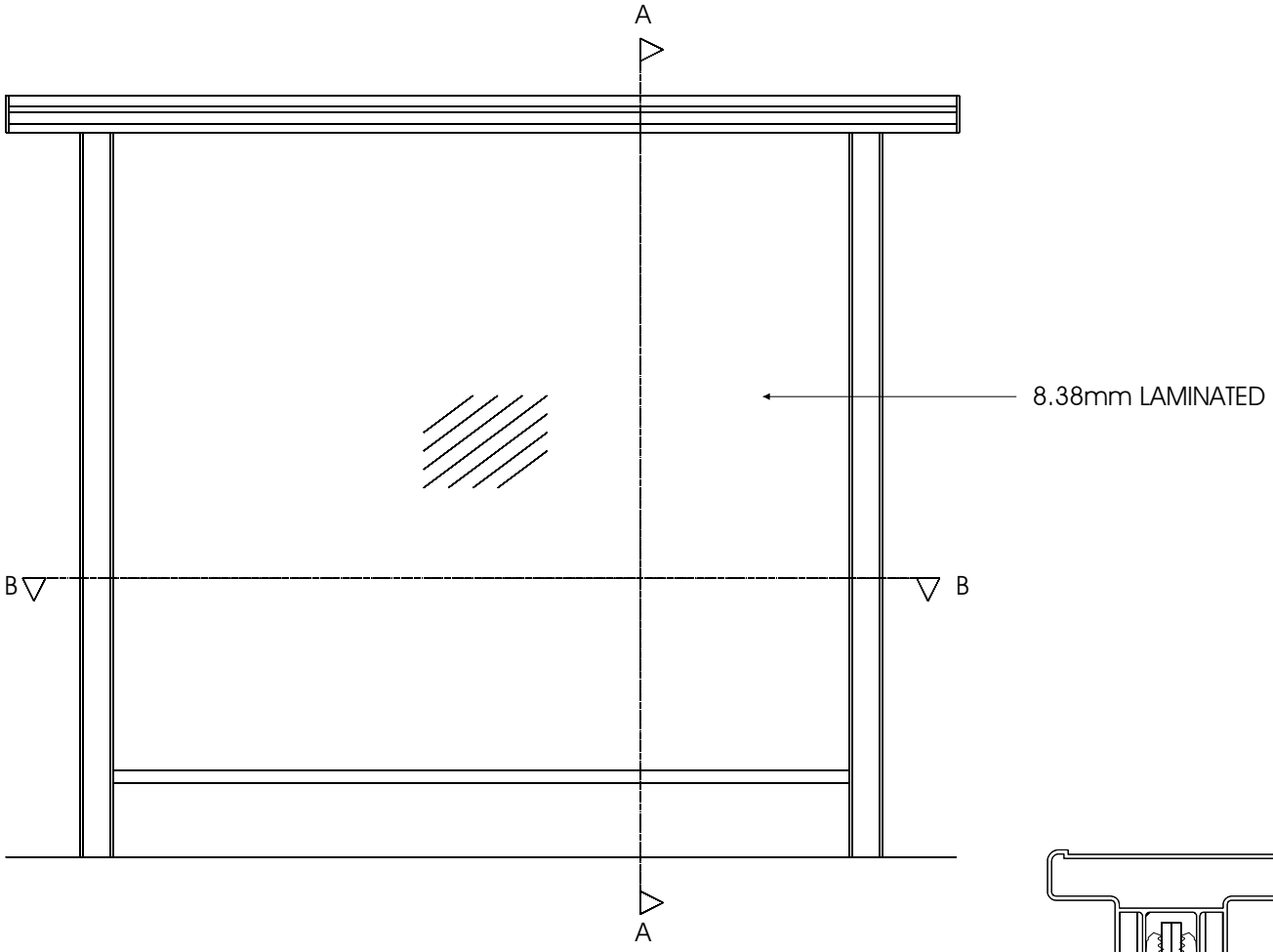


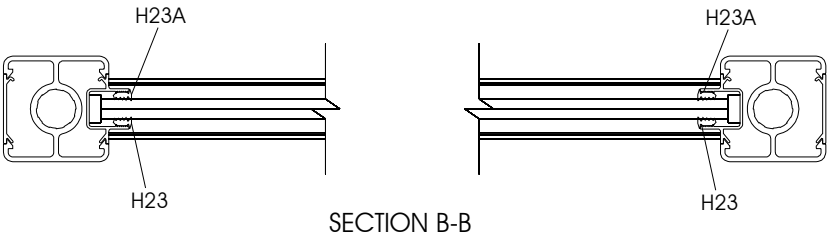
EQUAL ANGLE
50x50x3 20mm



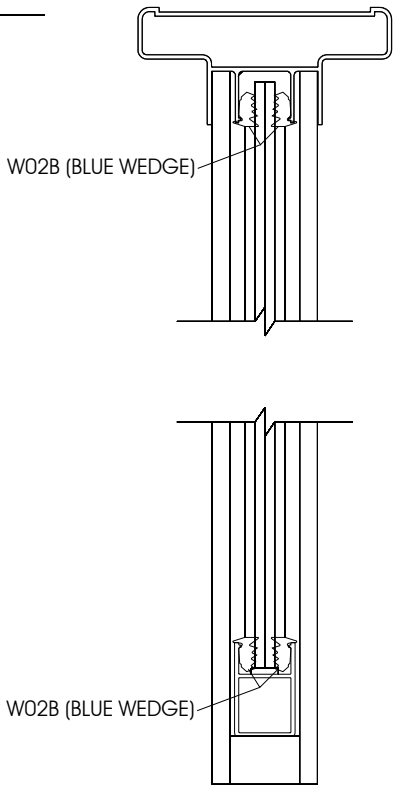
4.8mm RIVET

NEW YORK
BALUSTRADE
LOCATION OF WEDGES





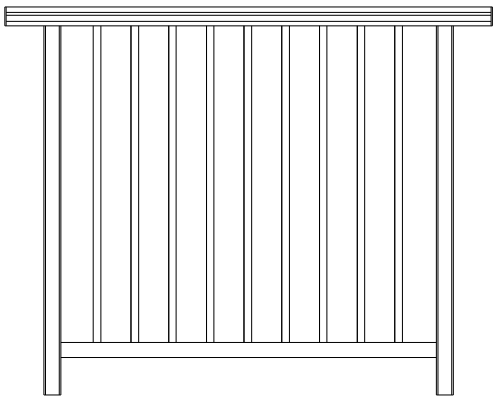
SECTION B-B



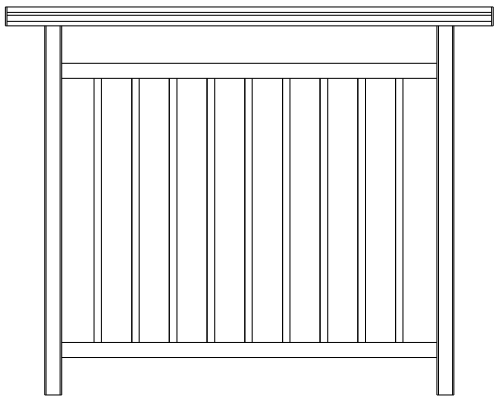
SECTION A-A

NEW YORK
BALUSTRADE
TYPICAL CONFIGURATIONS

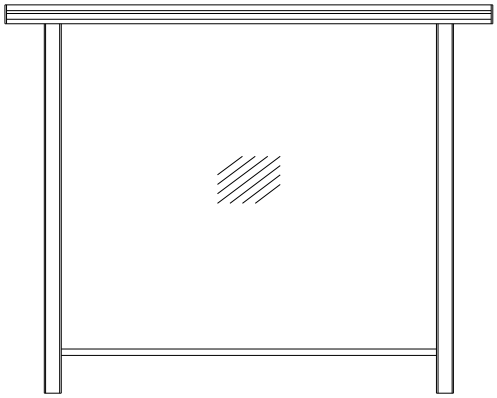
SQUARE TUBE RAILING NO GAP



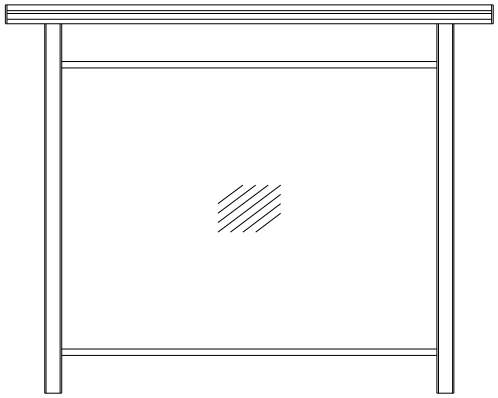
SQUARE TUBE RAILING WITH GAP



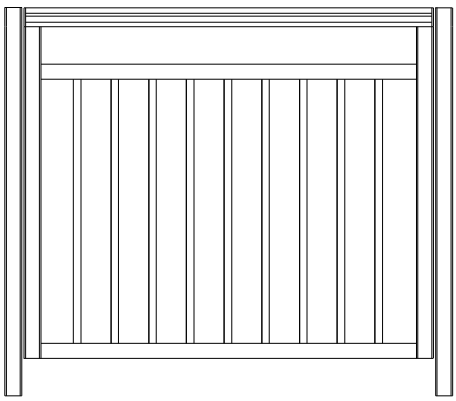
GLASS RAILING NO GAP



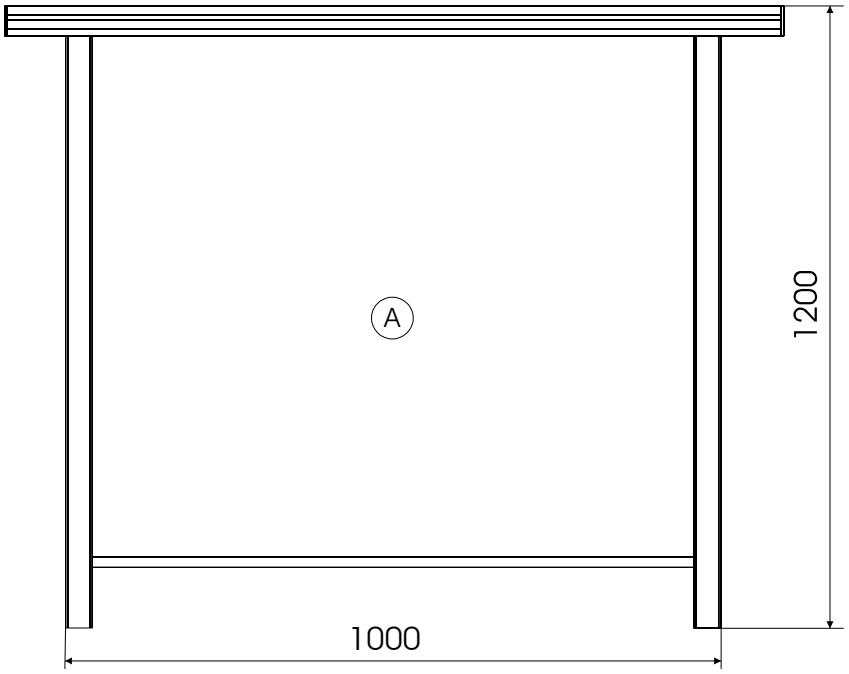
GLASS RAILING WITH GAP



SQUARE TUBE GATE

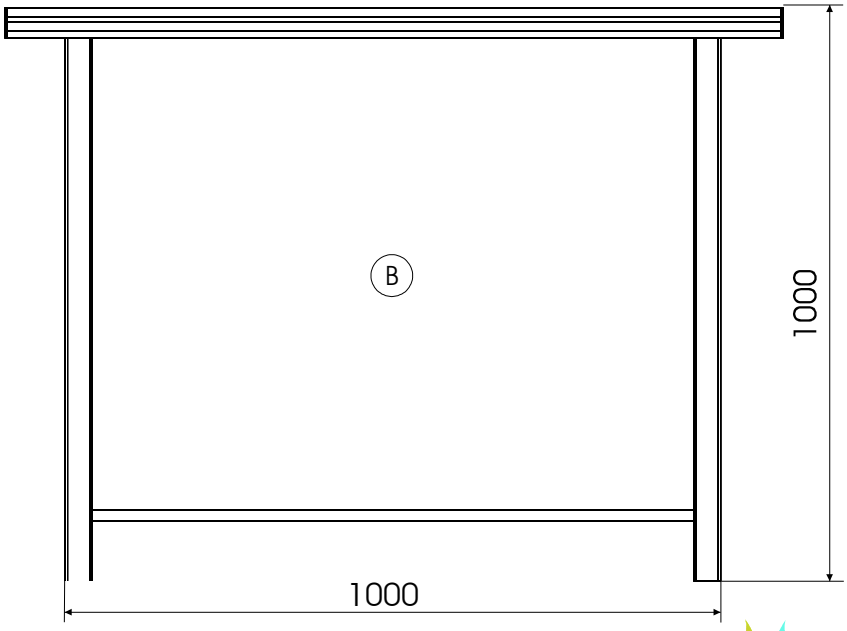


NEW YORK
BALUSTRADE
BALUSTRADE LIMITATIONS

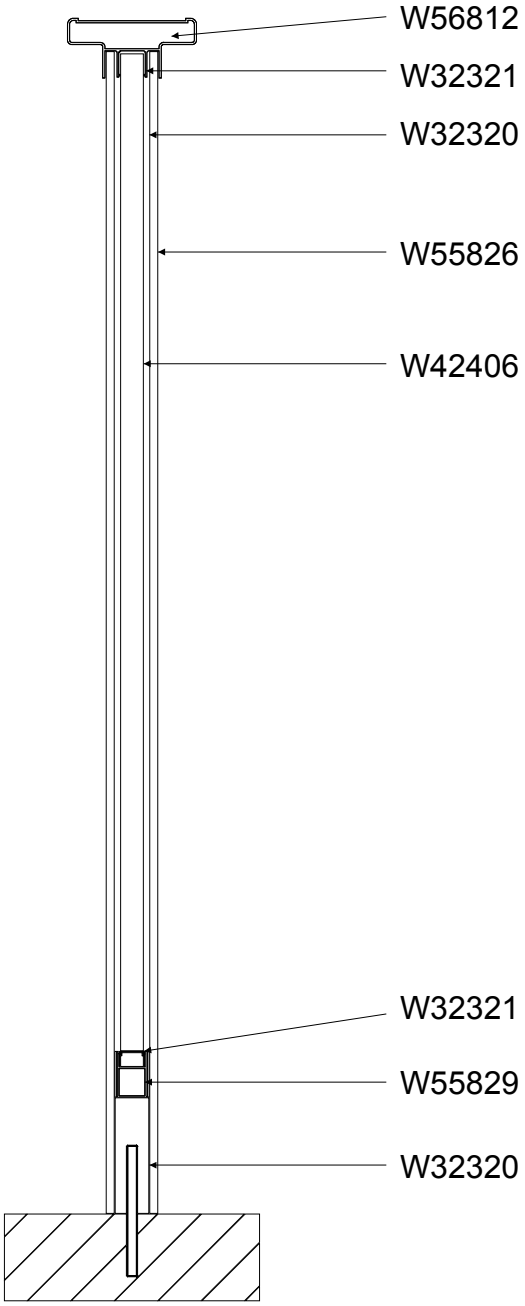


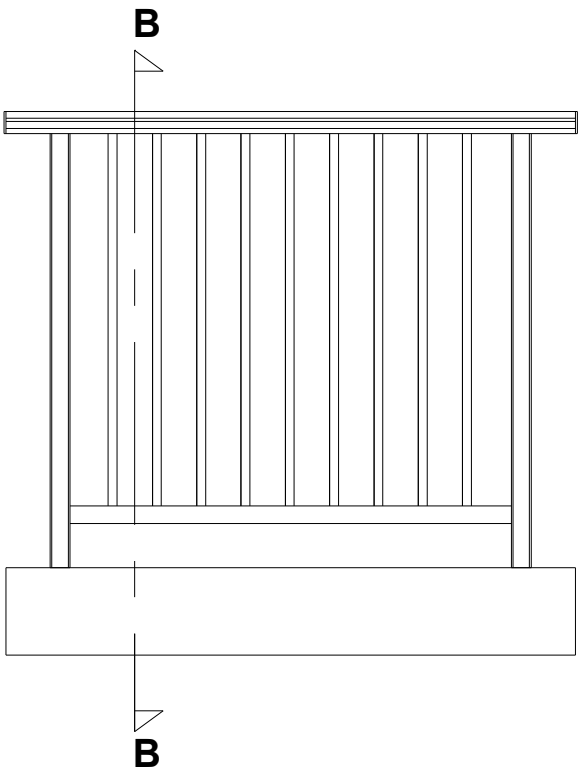
MINIUM HEIGHT : (A) 1.2m ABOVE FFL FOR SWIMMING POOL ENCLOSURES
(B) 1m ABOVE FFL FOR ALL OTHER ENCLOSURES
MAXIMUM WIDTH : 1m BETWEEN STANCHIONS

TESTED WITH 8.38mm LAMINATED GLASS

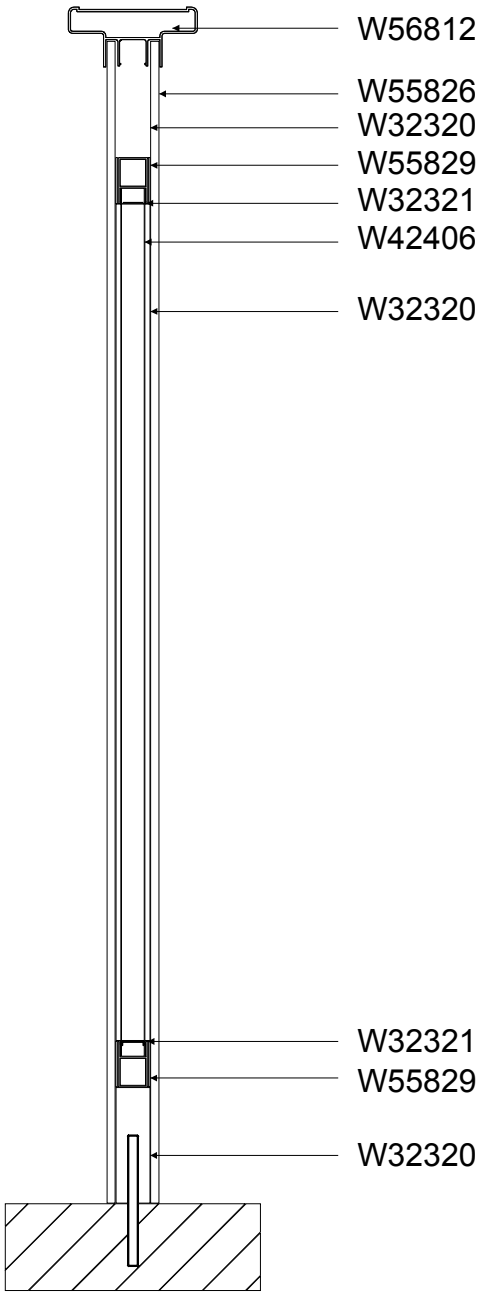


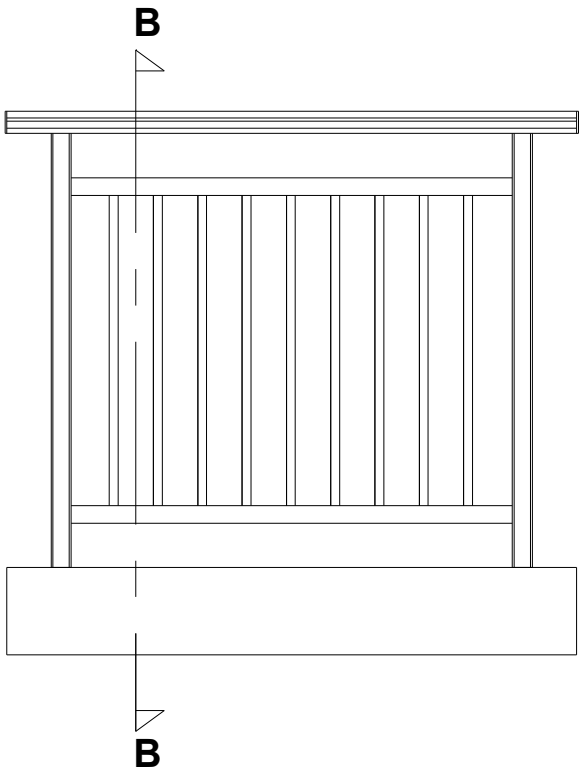
NEW YORK
BALUSTRADE
VERTICAL CROSS SECTIONAL DETAIL
SQUARE TUBE DROPPERS



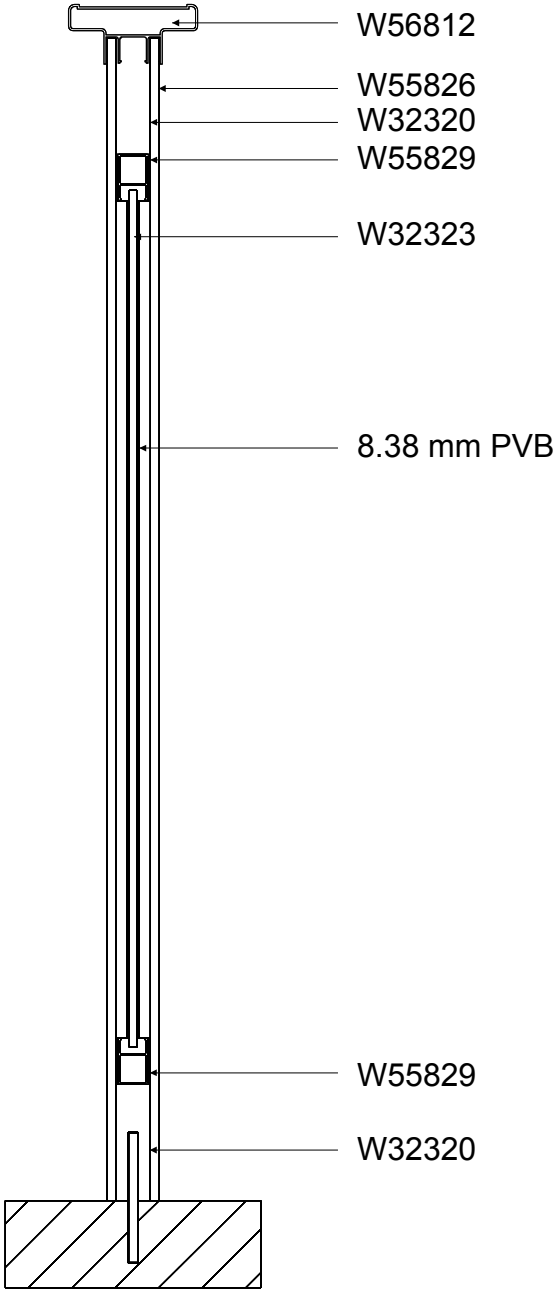


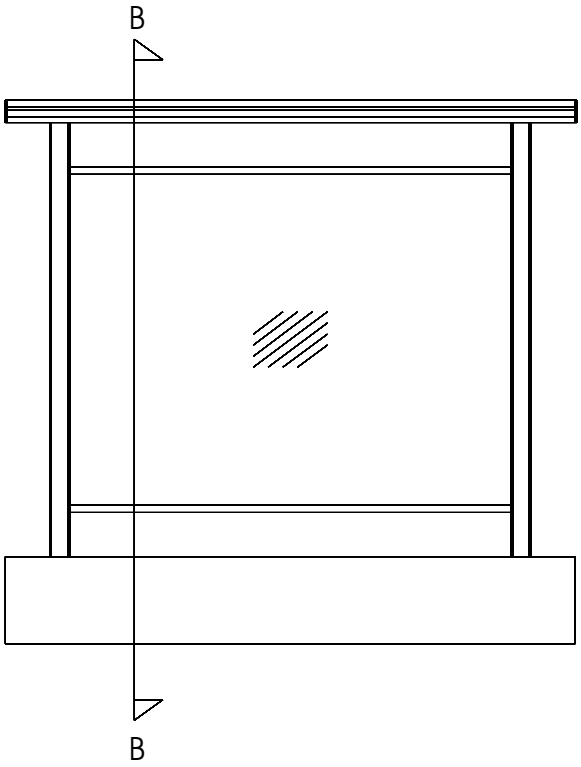
NEW YORK
BALUSTRADE
VERTICAL CROSS SECTIONAL DETAIL
SQUARE TUBE DROPPERS WITH GAP



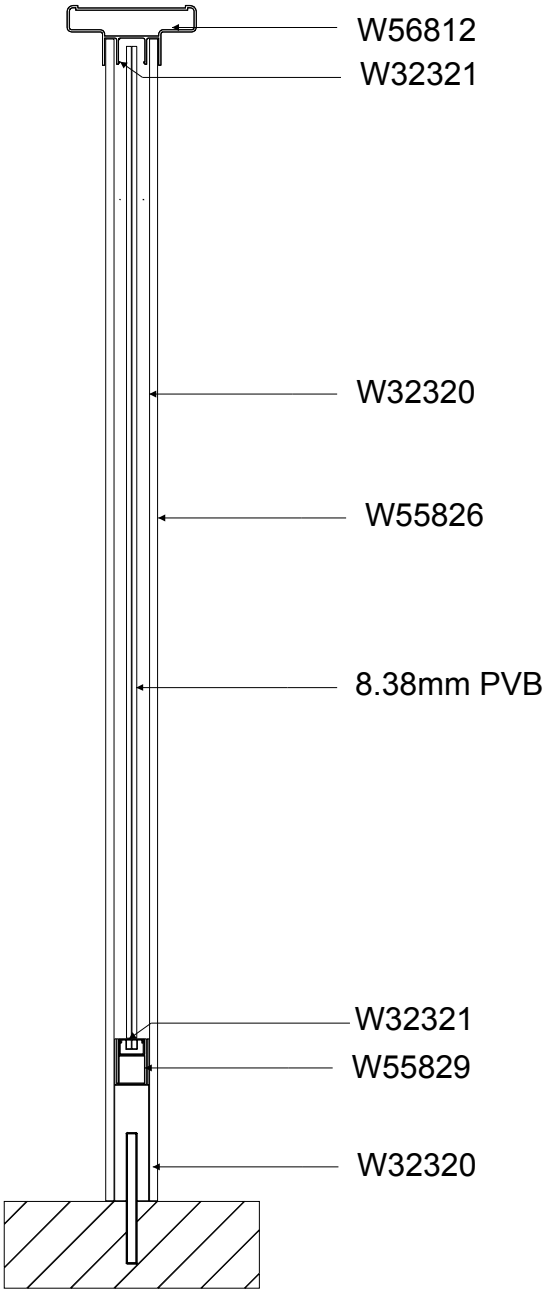


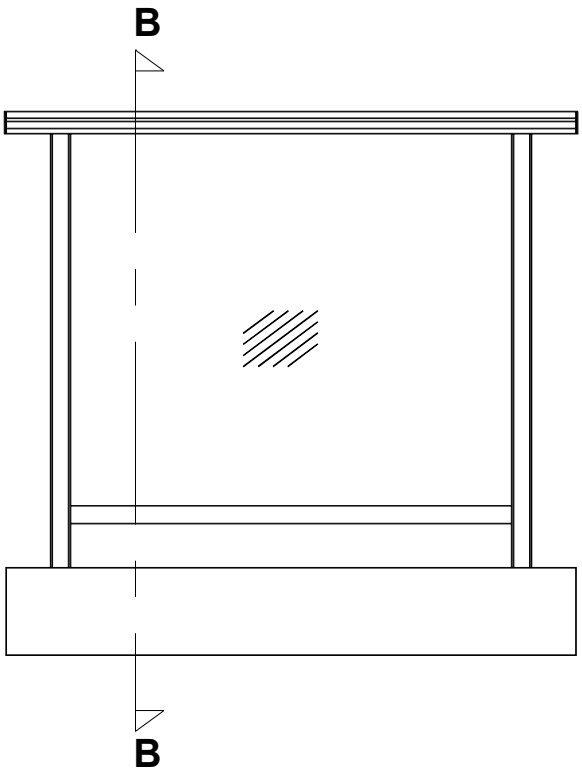
NEW YORK
BALUSTRADE
VERTICAL CROSS SECTIONAL DETAIL
GLASS RAILING WITH GAP



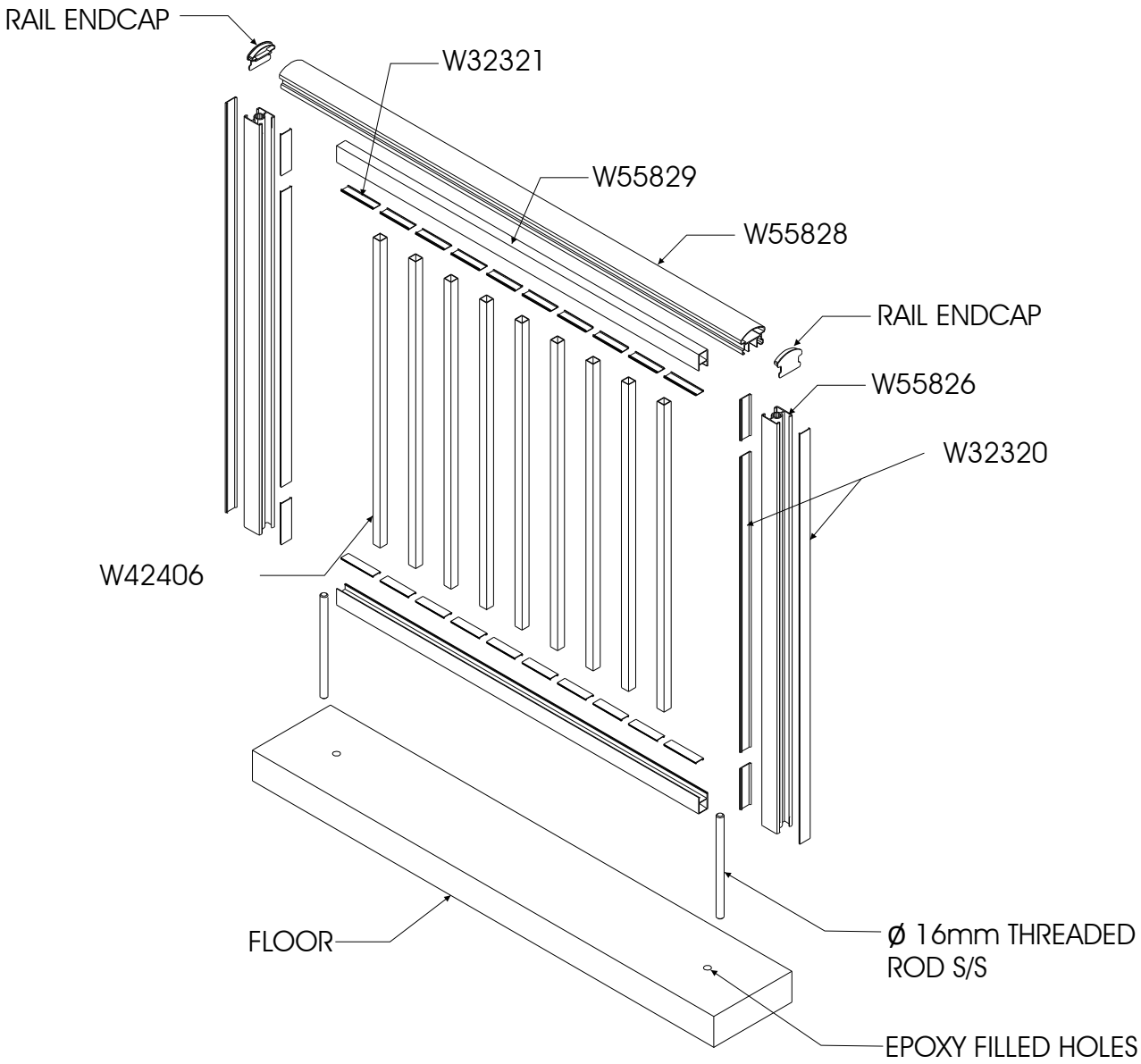


NEW YORK
BALUSTRADE
GLASS PANEL EXPLODED DETAIL

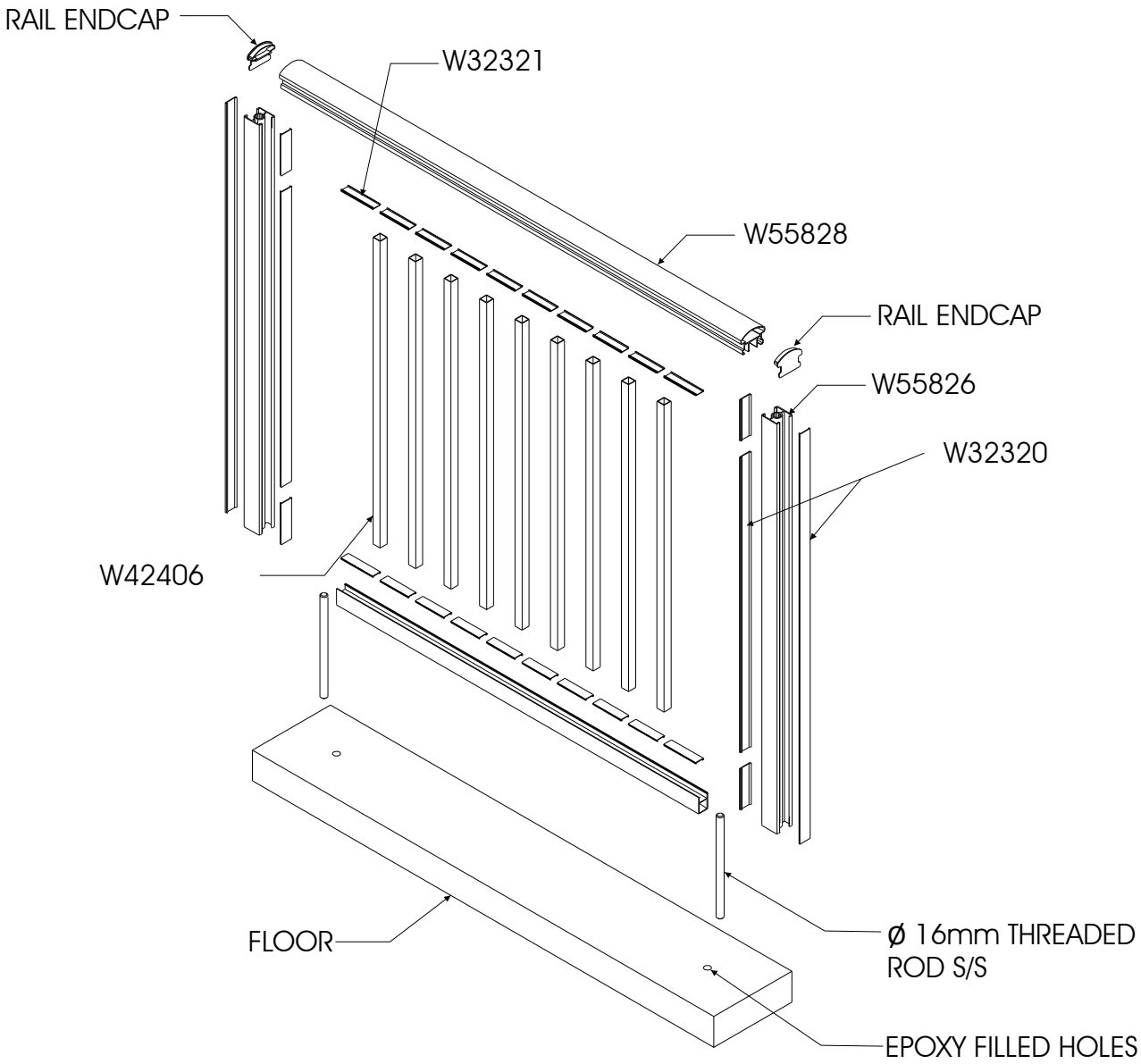




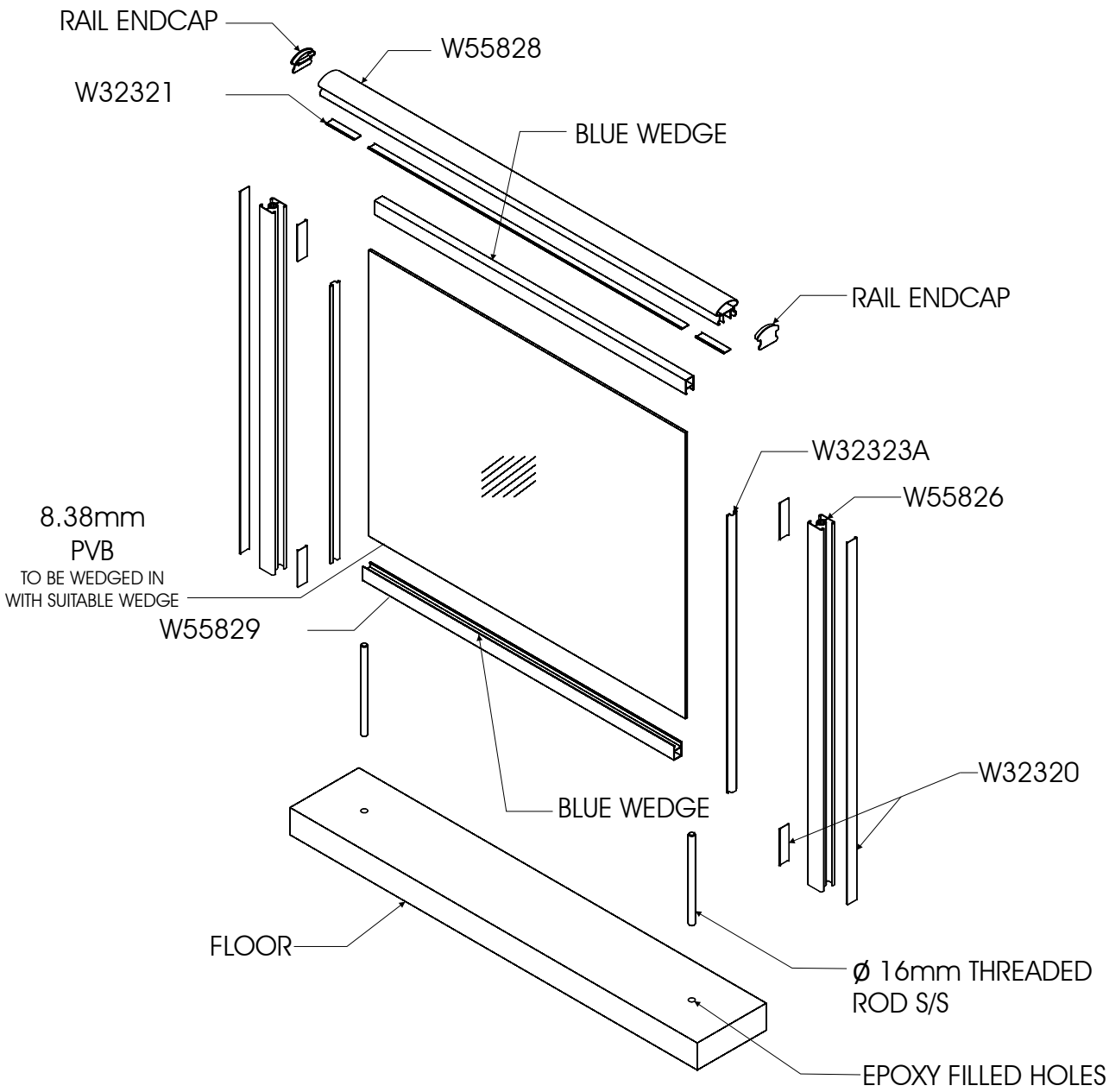
NEW YORK
BALUSTRADE
SQUARE TUBE DROPPERS
WITH GAP AND DOUBLE RAILING
ASSEMBLY DETAIL



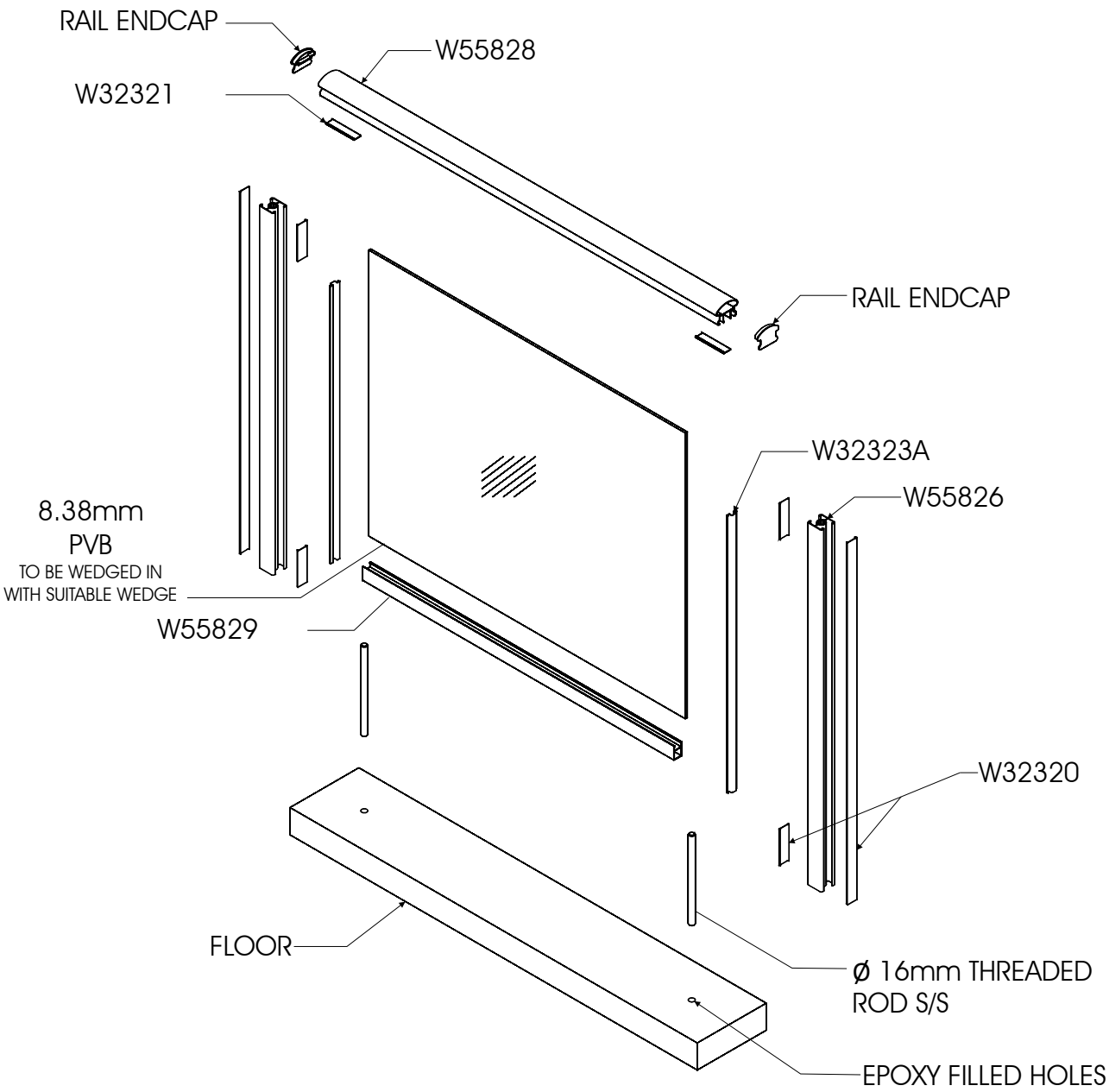
NEW YORK
BALUSTRADE
SQUARE TUBE DROPPERS
NO GAP AND SINGLE RAILING
ASSEMBLY DETAIL



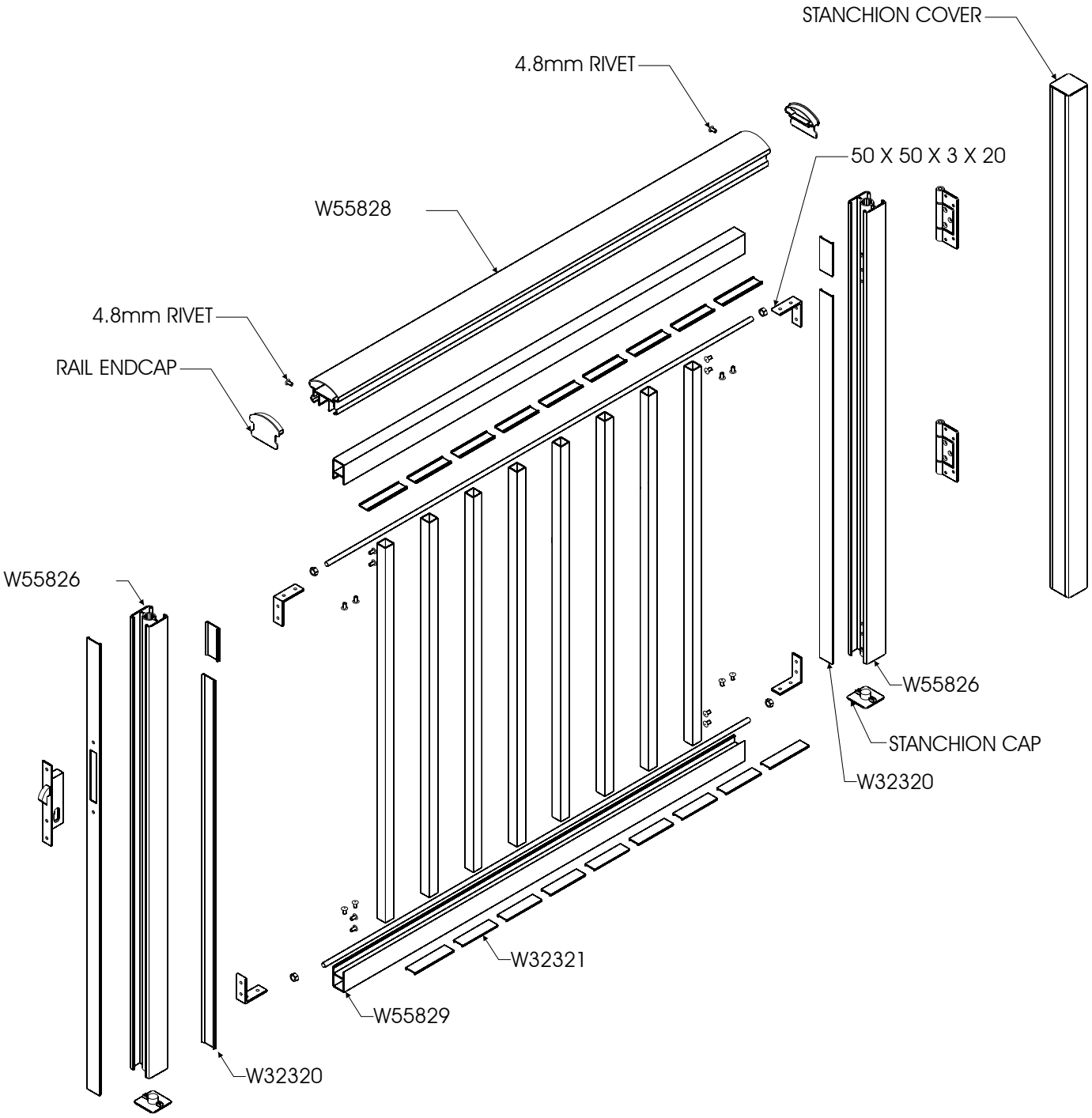
NEW YORK
BALUSTRADE
GLASS RAIL WITH GAP
ASSEMBLY DETAIL



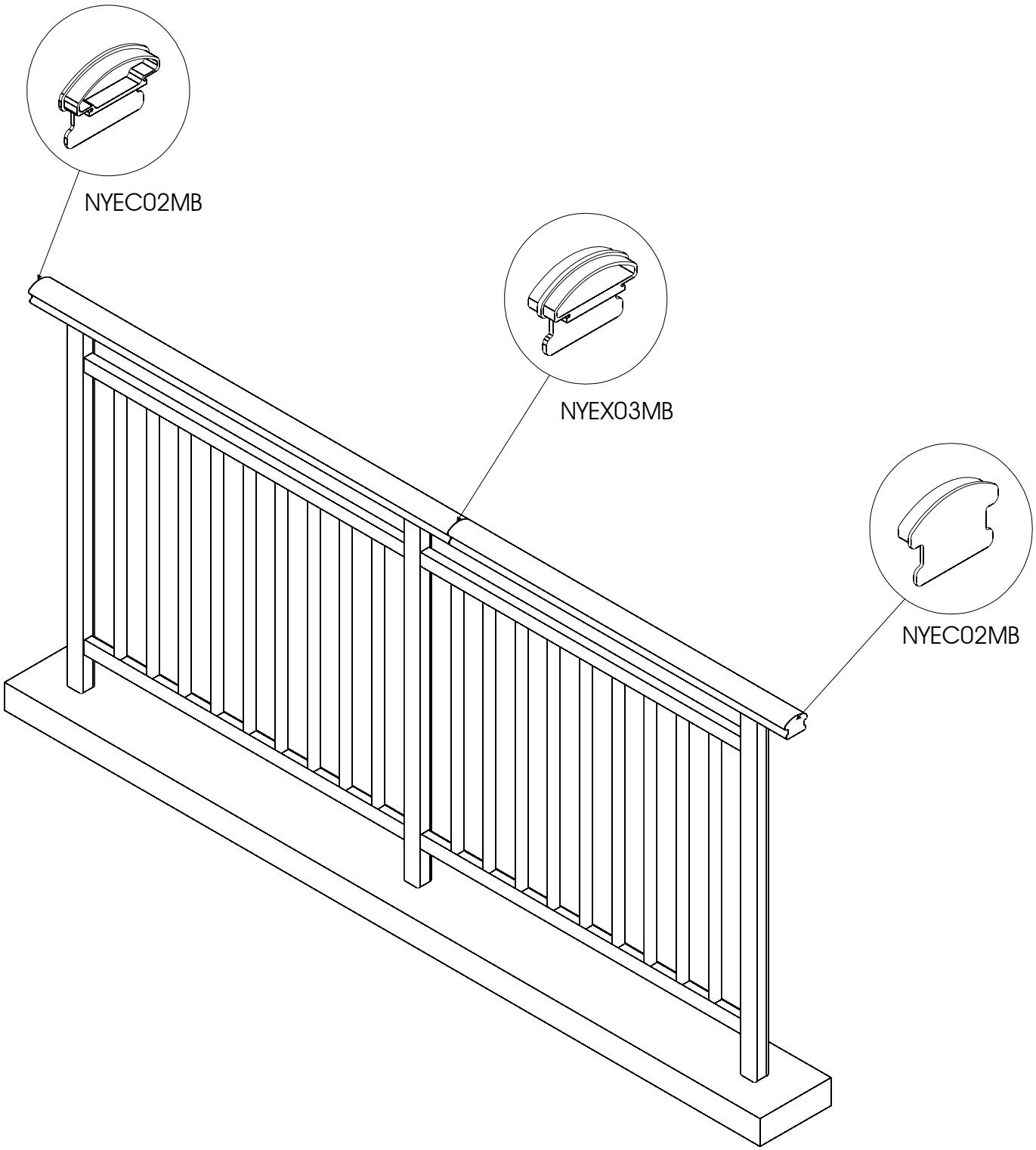
NEW YORK
BALUSTRADE
GLASS PANEL
EXPLODED DETAIL



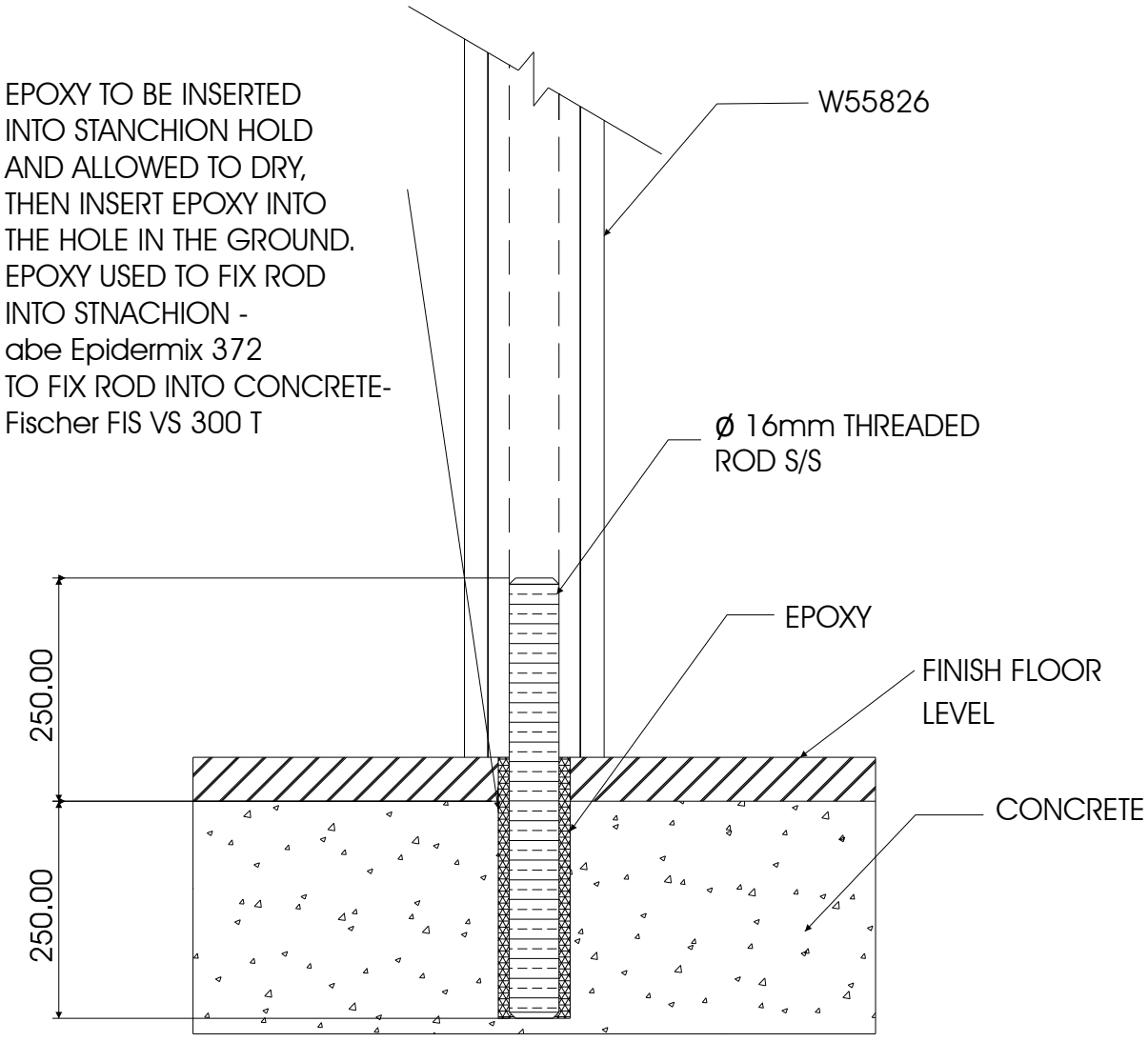
NEW YORK
BALUSTRADE
SQUARE TUBE GATE
ASSEMBLY DETAILS



NEW YORK
BALUSTRADE
ENDCAP AND EXTENDER

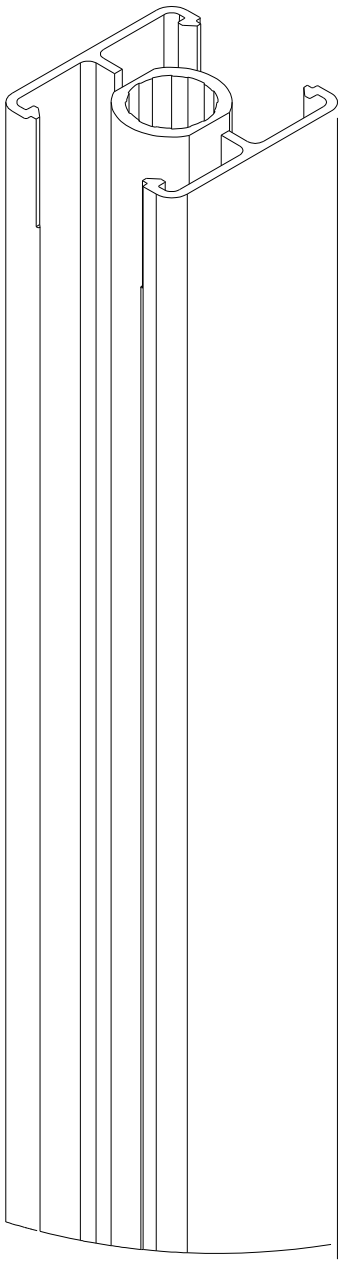


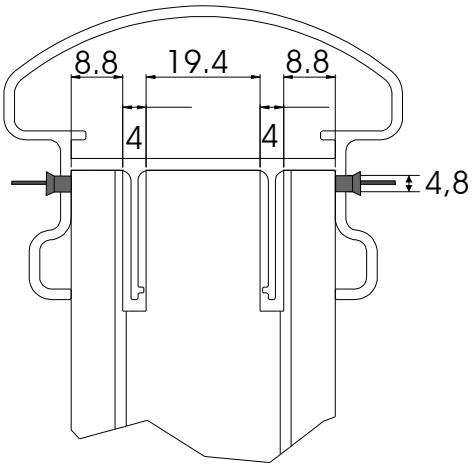
NEW YORK
BALUSTRADE
STANCHION FIXING DETAIL

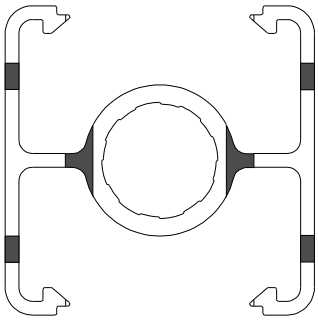


NB: EPOXY INSERTED INTO STANCHION & HOLE

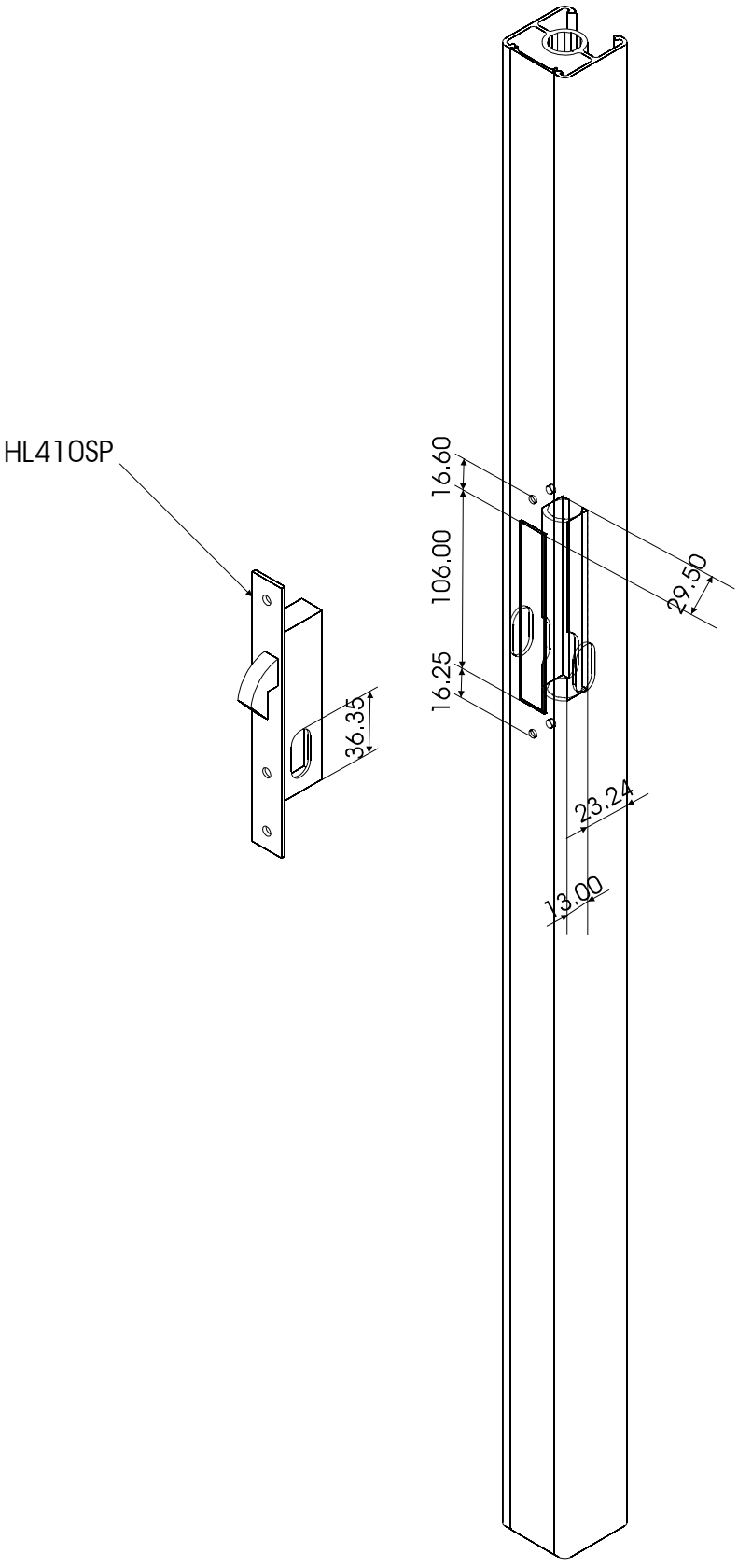
NEW YORK
BALUSTRADE
STANCHION MACHINING DETAIL







NEW YORK
BALUSTRADE
GATE LOCK
MACHINING DETAIL



GLAZING

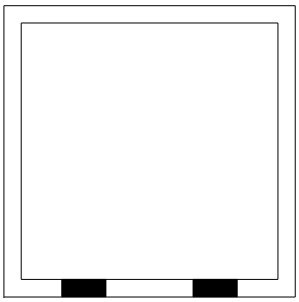
1. SELECTION OF GLAZING METHODS

1.1 SETTING AND LOCATION BLOCKS

Glass-to-metal contact must be avoided at all times by using setting and location blocks having a hardness of 50° to 90° shore A durometer. Use only blocks made of Neoprene, EPDM, Silicone or other elastomeric material.

Setting blocks are to have a minimum thickness of 3mm and must be at least 27mm in length per square metre of glass area.

The position of the setting and location blocks is illustrated in Figure 2.



a) Fixed Light

FIGURE 2 - POSITION OF SETTING AND LOCATION BLOCKS

NickWrightConsulting

Consultation

Impact test was conducted on the prototype aluminium balustrade to be offered by Wispeco, at Wispeco premises Alrode on Monday 28th November 2011.

The sand bag impact test was applied to a balustrade panels. Sand bag was weighed at 30 kg and dropped from the height of no less than 1.36 metres to impart impact energy of 400 joules as required for SANS 10160 Part 2 for perpendicular approach distance of more than 1.5 metres.

The following comments apply:

1. In the first test the impact point was at the geometric centre of the aluminium droppers.
2. The second test the impact point was at the middle of the top edge of the balustrade just below the hand rail.
3. The aluminium balustrade glass was 1040mm above nominal finished floor height and the stanchion posts were 1045mm apart (centre to centre). The test is considered to be critical as there was only one balustrade section installed and therefore lacked the mutual support of adjacent balustrade panels.
4. The balustrade stanchion poles were fixed to the concrete slab using 16mm threaded rod into epoxy filled holes.

Both impacts were successfully withstood by the balustrade though at each impact the balustrade was bent. Between first and second impacts the balustrade was straightened up as the threaded rod was bent.

Because the bag did not pass through the plane of the balustrade the tests are considered to be satisfactory.

It is recommended that the following be investigated:

1. Changing the floor fixing by assessing the performances of the aluminium stanchion pole core drilled directly into the floor, omitting the threaded rod and fixed used epoxy. This may speed up and strengthen the base fixing whilst reducing the complexity of the installation.
2. Installation method must be accurately and simply documented such that any customer can install this system once trained.

Videos of the impact tests are attached.

Do not hesitate to contact me if you need more information or clarification.

President and Member South African Glass Institute.

1. The test site

2. After the first impact - the impactor is hanging vertically

3. After second impact. Note the position of the impactor and the bend from this and the previous test.

NickWrightConsulting

Consultation

Impact test was conducted on two "New York" prototype glass balustrade framed in aluminium to be offered by Wispeco, at Wispeco premises Alrode on Monday 23rd July 2012.
The sand bag impact test was applied to a balustrade panel. Sand bag was weighed at 30 kg and dropped from the height of no less than 1.36 meters to impart impact energy of 400 joules as required for SANS 10160 Part 2 for perpendicular approach distance of more than 1.5 metres.

The following comments apply:

1. The impact point toward the bottom edge of the glazed panel.
2. The glass as installed was 8.38 mm laminated safety glass.
3. The glass was framed all around using two part gaskets of PVC.

Both of the impacts caused the glass to fracture. However the bottom rails stayed in place and did not appear to be permanently distorted. A new bottom rail has been used and this has been fixed into position.

Both balustrade arrangements are therefore considered to be suitable for the requirements of the impact section of the National Building Regulations.

On the second test the gaskets fell from the aluminium sections and the bag nearly passed through the plane of the balustrade. This was attributed to the smaller gaskets used in the installation.

It is recommended that the following be considered:

1. The use of 6.38 mm glass should be considered as this is significantly cheaper than 8.38 mm glass. Impact resistance is unlikely to be affected too much.
2. The use of PVC gaskets must be discussed. PVC shrinks over time and it is likely that given the choice a client may be tempted to use cheap grade PVC. The glass panels may then over time rattle in the frame and impact resistance will be compromised. Other gasket material should therefore be investigated. The second test indicates the effect of smaller gaskets - the glass was not retained in the frame to the same extent, even though the test was successful.
4. Installation method must be accurately and simply documented such that any customer can install this system once trained.

Videos of the impact tests are attached.

Do not hesitate to contact me if you need more information or clarification.

President and Member South African Glass Institute.

1. The test site

2. First glass after impact - note that the glass and gaskets are retained in position.

3. Second test. Note the glass and gaskets have pulled loose.

4. Second test from the other side.

5. After the impact - second installation was not tested as the results were expected to be similar as the bottom rail is identical.