ARCHI TECTURAL .75

BALUSTRADE & PRIVACY SCREEN SYSTEMS

INSTALLATION REFERENCE

ULLRICH ALUMINIUM


Ultimate Systems.
Complete Solutions.

INTRODUCTION

SERVICE + SUPPORT

At Ullrich Aluminium we believe that it is not just all about the product, but that service and support to the customers, architects, designers, councils and fabricators is also very important. We strive to make dealing with Ullrich Aluminium an enjoyable experience.

APPLICATIONS

Ullrich Aluminium balustrades have been designed to suit a wide range of applications, from private residences to commercial developments, including such diverse projects as high-rise apartments, motels, retail premises, of pieces and municipal facilities.

BALUSTRADE .75 ARCHITECTURAL SYSTEMS

Ullrich Aluminium specialises in the design and supply of architectural balustrades. With origins dating back to the early '80s, Ullrich Aluminium has supplied balustrading to thousands of projects in Australia and abroad. As a result Ullrich Aluminium has acquired extensive experience.

ULLRICH ALUMINIUM DISTRIBUTION NETWORK

Ullrich Aluminium distributes the Architectural .75 balustrade system throughout Australia through a network of local fabricators and balustrade companies. The role of the local fabricator and balustrade companies is to liaise with customer's, and to fabricate and install the product in accordance with the Ullrich Aluminium technical specifications and engineering.

ENGINEERING

The 'safety of the end-user' is Ullrich Aluminium Systems number one priority. Engineering plays an integral part of balustrade design, as the product must be able to with-stand the loads stipulated in the Australian Building Code.

Ullrich Aluminium has a strong background in structural design. Product is not only designed with experienced engineering expertise, it is also physically tested. Ullrich Aluminium has in-house facilities set up especially for testing balustrade products.

MAINTENANCE

MAINTENANCE

Safety barriers shall be maintained in a structurally sound condition and, where applicable, self-closing gates and other components required for the protection of children shall be kept operable. Defects shall be remedied immediately they are apparent.

SURFACE FINISH

While surface finishes do not last forever, observance of these instructions will maintain their appearance and significantly extend their useful life. Observance of these instructions is also required to achieve Durability performance and for surface finish warranties to be valid (where applicable). They apply to both anodized and powder coated surfaces.

CARE AND PROTECTION

Protect the balustrades at all times from contact with:

Wet cement or plaster splashes, chemicals, solvents, stains and fertilisers. If contact does occur, remove the contaminant immediately and wash as described below.

Copper, brass, lead, mild steel, CCA treated timber, cement or concrete less than 1 month old, and water which has contacted any of these substances.

CLEANING

The balustrade and its fixing points must be cleaned down at least every six months.
In areas where pollutants are common such as industrial or geothermal areas, and for all sites within 1 km from the sea or in any sea spray zone cleaning must be carried out more frequently as required, but not less than every three months.

CLEANING PROCEDURE

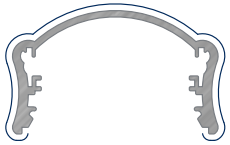
Remove loose deposits with a wet sponge. Do not dry dust, or the surfaces will be scratched. Remove any moss growth, and ensure that all drain holes are unblocked, particularly those at the base of the posts.

Using a soft brush and a mild household detergent in warm fresh water, clean the surface to remove any dust, salt, or other deposits. Pay particular attention to any areas not washed naturally by the rain.

Always rinse well after cleaning with fresh water to remove any remaining detergent.

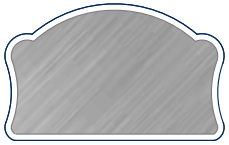
Warning: Solvents! Household cleaners! Bleaches! Abrasive cleaners! are possibly harmful to the surface finish! and must not be used. Accordance with the manufacturer's instructions.

BALUSTRADE SECTION PROFILES



AP 309mm
PP 130mm

UA7090
HAND RAIL

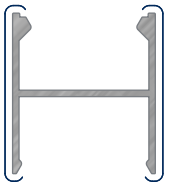


AA 6161mm
PA 3038mm

UC1501
END CAP

AP 135mm
PP 60mm

UA7087
FLUSH INFILL HAND RAIL



AP 258mm
PP 97mm

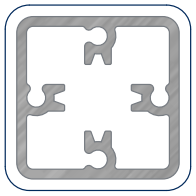
UA10423
HEAVY DUTY RAIL

AP 182mm
PP 95mm

UA3616
LIGHT DUTY RAIL

AP 101mm
PP 41mm

UA10424
FLUSH INFILL



AP 521mm
PP 191mm

UA7085
POST 50MM X 50MM

AP 172mm
PP 55mm

UA10414
BALUSTER INFILL 20MM

AP 110mm
PP 53mm

UA10415
BALUSTER POCKET CAP

AA 24822mm

PA 24822mm

ARCHI.75 BASEPLATE

STANDARD BASE PLATE

AA 23932mm

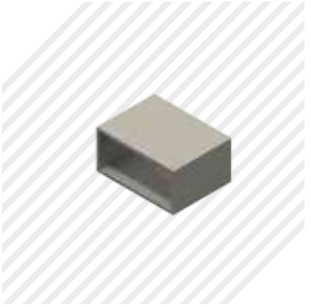
PA 23932mm

ARCHI.75 CNRBASEPLATE

CORNER BASE PLATE

AP 226mm

PP 119mm



UA1988

BALUSTER 40MM X 20MM

AP 139mm

PP 0mm

UA7091

FIXING BLOCK

AP 103mm

PP 0mm

UA10421

LOCKING PLATE

AP 400mm

PP 0mm

0.75 CORNER

CORNER LOCKING PLATE

AP 324mm

PP 0mm

UA10422A

HINGE PART A

AP 311mm

PP 0mm

UA10422B

HINGE PART B

AP 151mm

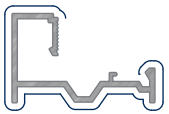
PP 0mm

UA4008

POST SPIGOT

NOT DRAWN TO SCALE

BALUSTRADE GLAZING ADAPTERS



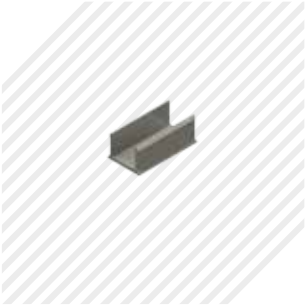
AP 210mm
PP 104mm

UA7088
POST SIDE GLAZING

AP 113mm
PP 29mm

UA7089
POST SIDE GLAZING BEAD

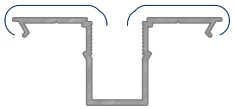
AP 77mm
PP 20mm



UA1333
GLAZING POCKET INFILL

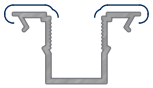
AP 159mm
PP 0mm

UA1280
TOP RAIL STIFFENER



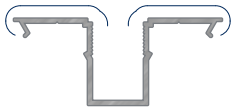
AP 117mm
PP 24mm

UA7086
GLAZING INFILL HAND RAIL



AP 171mm
PP 25mm

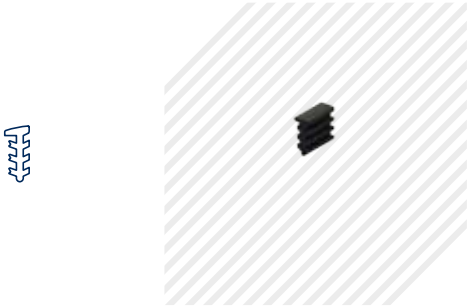
UA3617
GLAZING INFILL



AP 117mm
PP 24mm

UA7086
GLAZING INFILL HAND RAIL

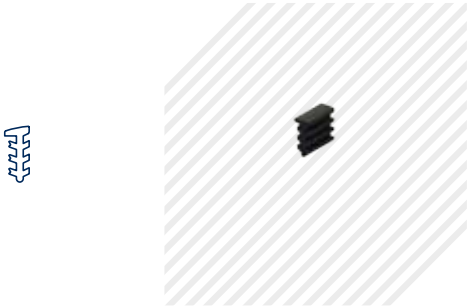
BALUSTRADE
GLAZING ACCESSORIES



4402
GLAZING WEDGE 6MM

4403
GLAZING WEDGE 8MM

4404
GLAZING WEDGE 10MM



4405
GLAZING WEDGE 12MM

9031
SETTING BLOCK 10MM X 3MM

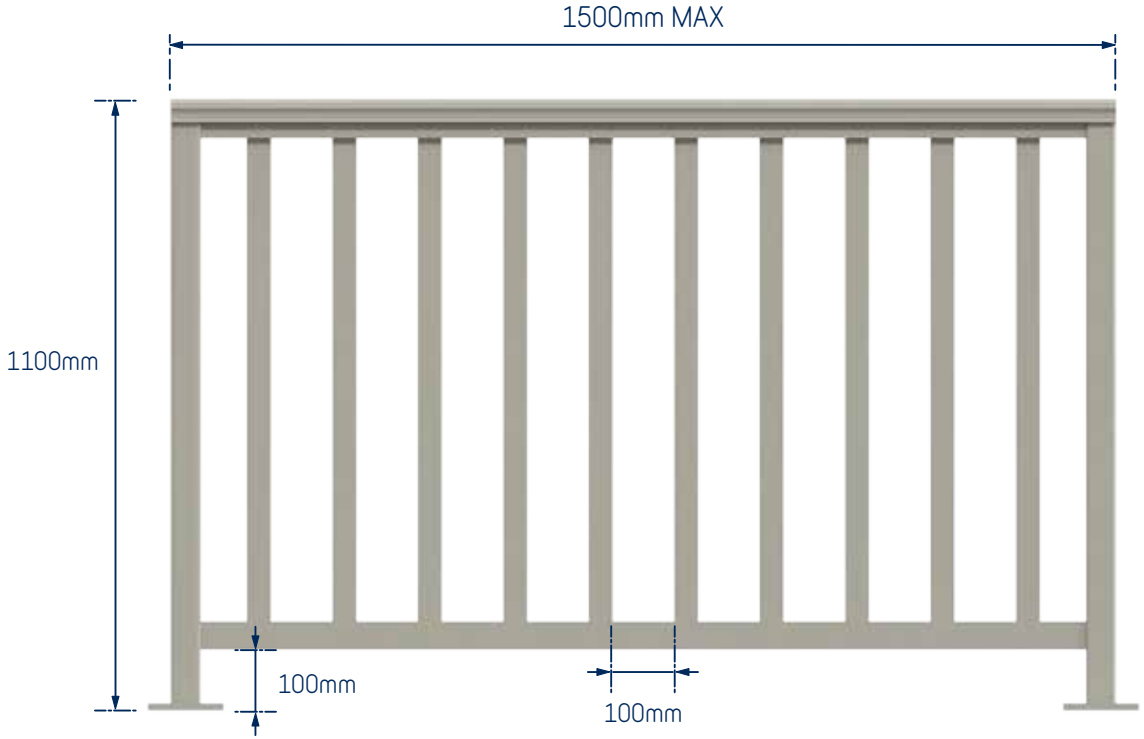
9032
SETTING BLOCK 10MM X 6MM

NOT DRAWN TO SCALE


Comply with AS/NZS1170
Requirements

CONFIGURATIONS

BALUSTRADE SLAT INFILL - 40mm x 20mm



CONFIGURATIONS

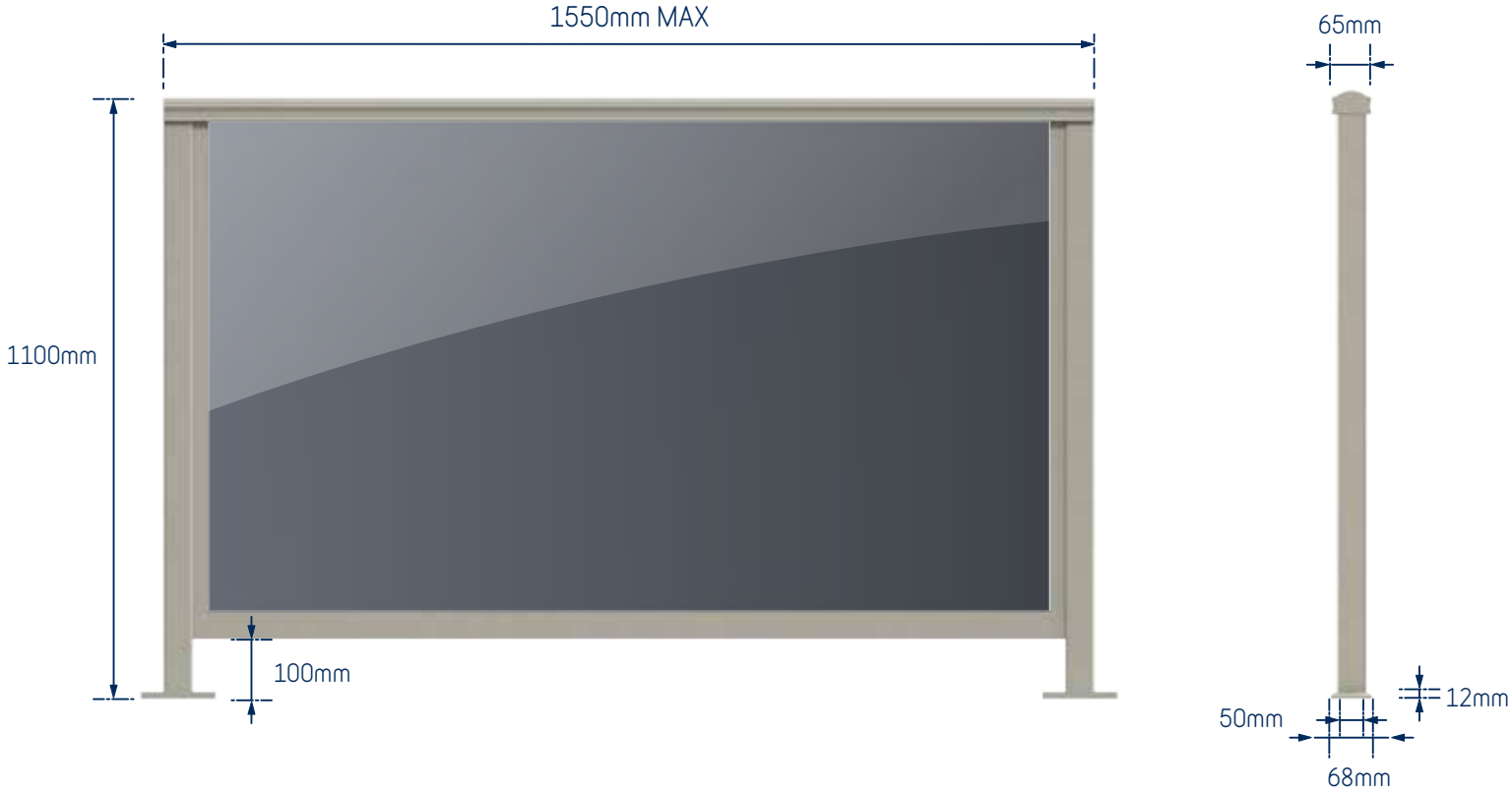
BALUSTRADE FULL GLAZING

A - AS/NZS 1170 OCCUPANCY

6mm LAMINATED SAFETY GLASS
6mm TOUGHENED / LAMINATED SAFETY GLASS

A (OTHER) & C3 - AS/NZS 1170 OCCUPANCY

8mm LAMINATED SAFETY GLASS
6mm TOUGHENED / LAMINATED SAFETY GLASS



CONFIGURATIONS

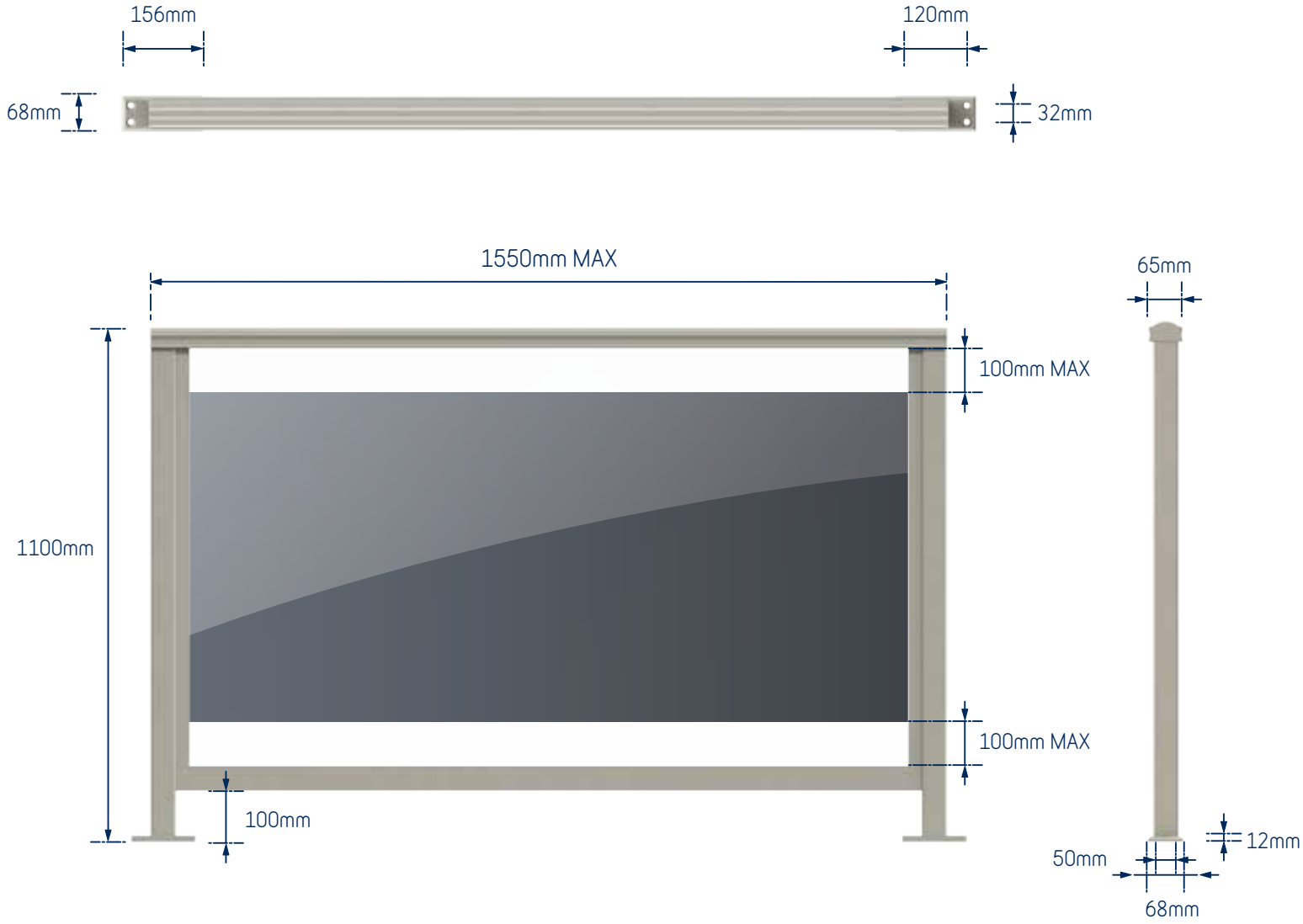
BALUSTRADE HORIZONTAL GLAZING

A - AS/NZS 1170 OCCUPANCY

12mm LAMINATED SAFETY GLASS
8mm TOUGHENED / LAMINATED SAFETY GLASS

A (OTHER) & C3 - AS/NZS 1170 OCCUPANCY

10mm TOUGHENED / LAMINATED SAFETY GLASS



CONFIGURATIONS

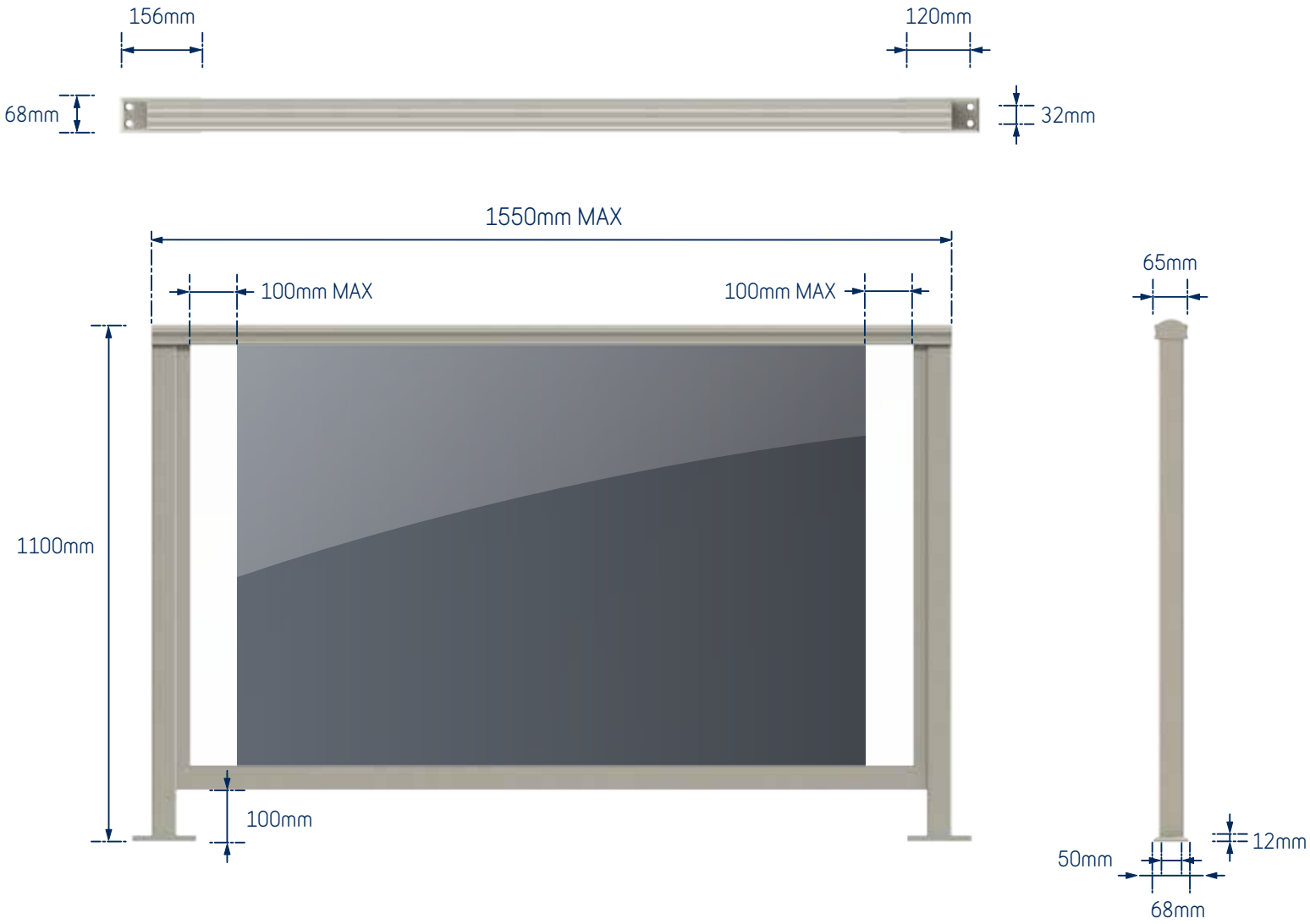
BALUSTRADE VERTICAL GLAZING

A - AS/NZS 1170 OCCUPANCY

12mm LAMINATED SAFETY GLASS
6mm TOUGHENED / LAMINATED SAFETY GLASS

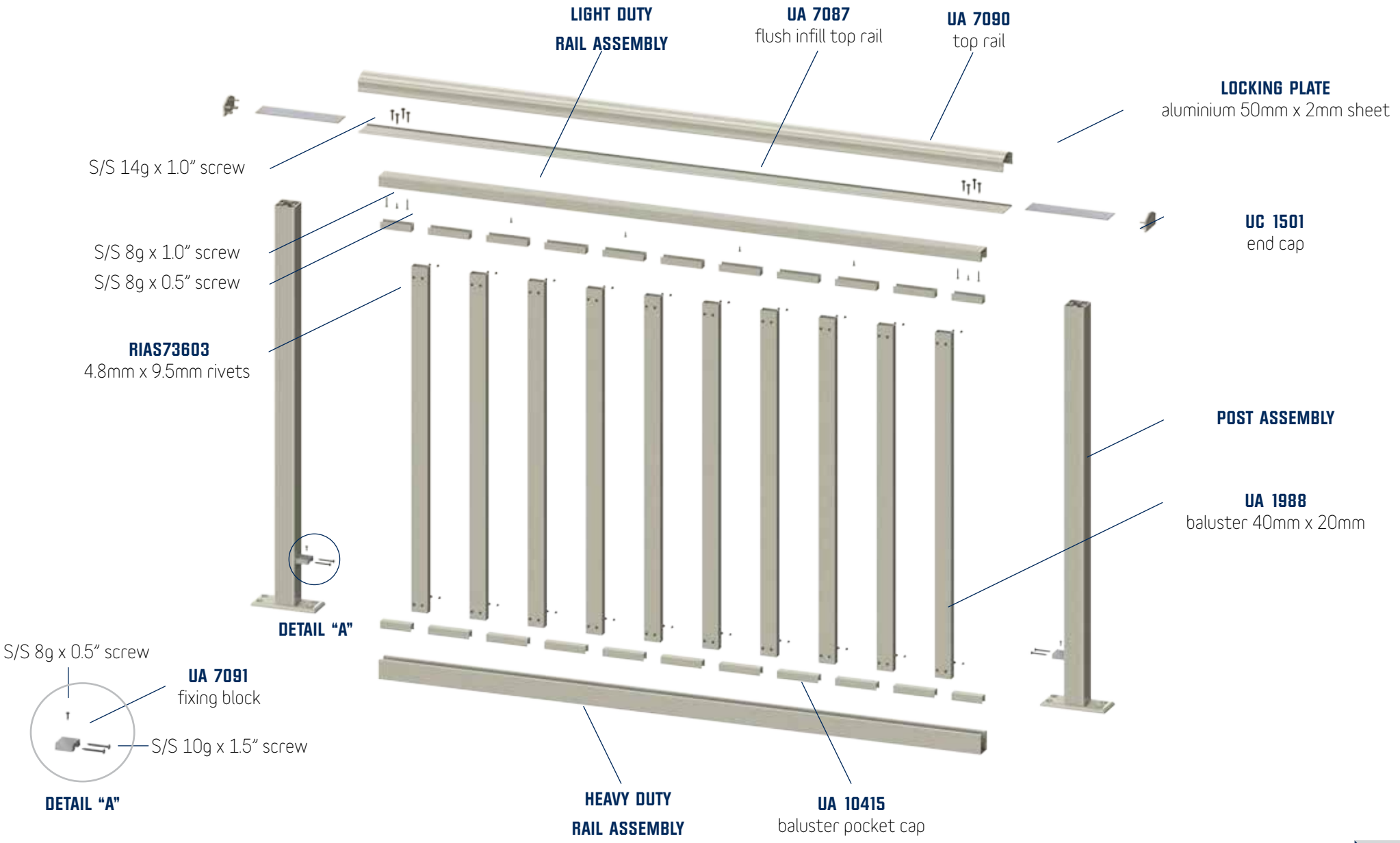
A (OTHER) & C3 - AS/NZS 1170 OCCUPANCY

8mm TOUGHENED / LAMINATED SAFETY GLASS



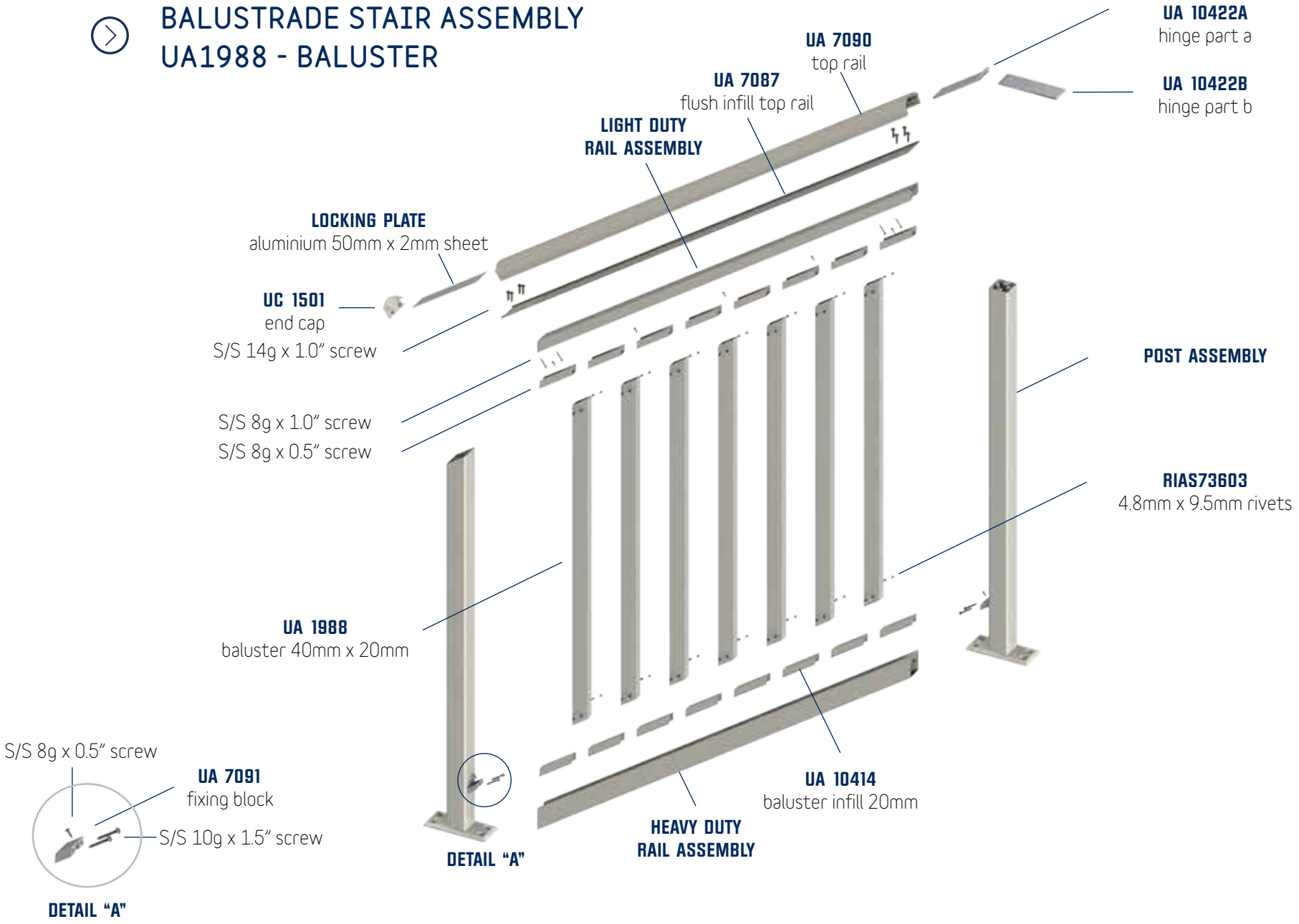
EXPLODED VIEW

BALUSTRADE ASSEMBLY
UA1988 - BALUSTER



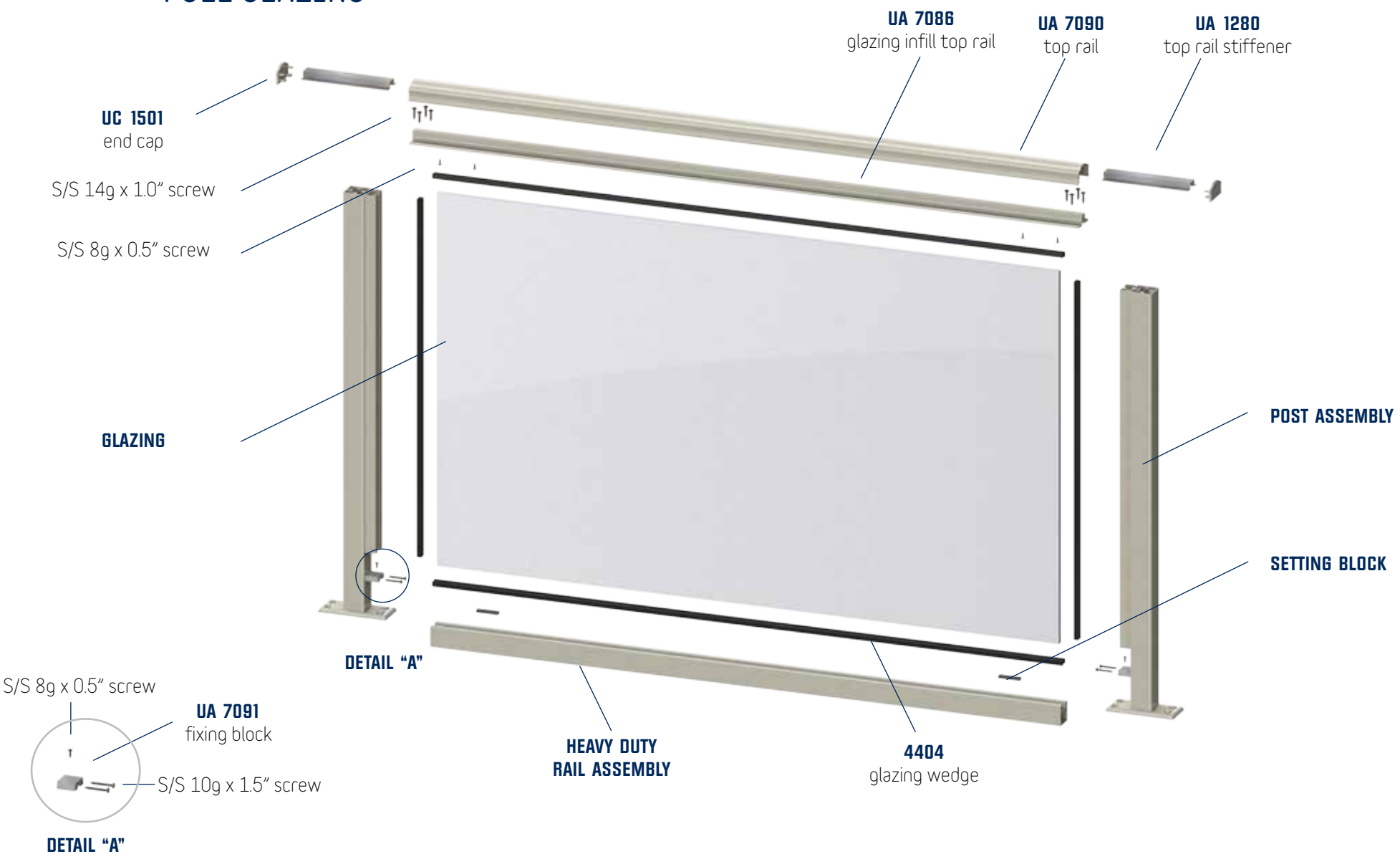
EXPLODED VIEW

BALUSTRADE STAIR ASSEMBLY
UA1988 - BALUSTER



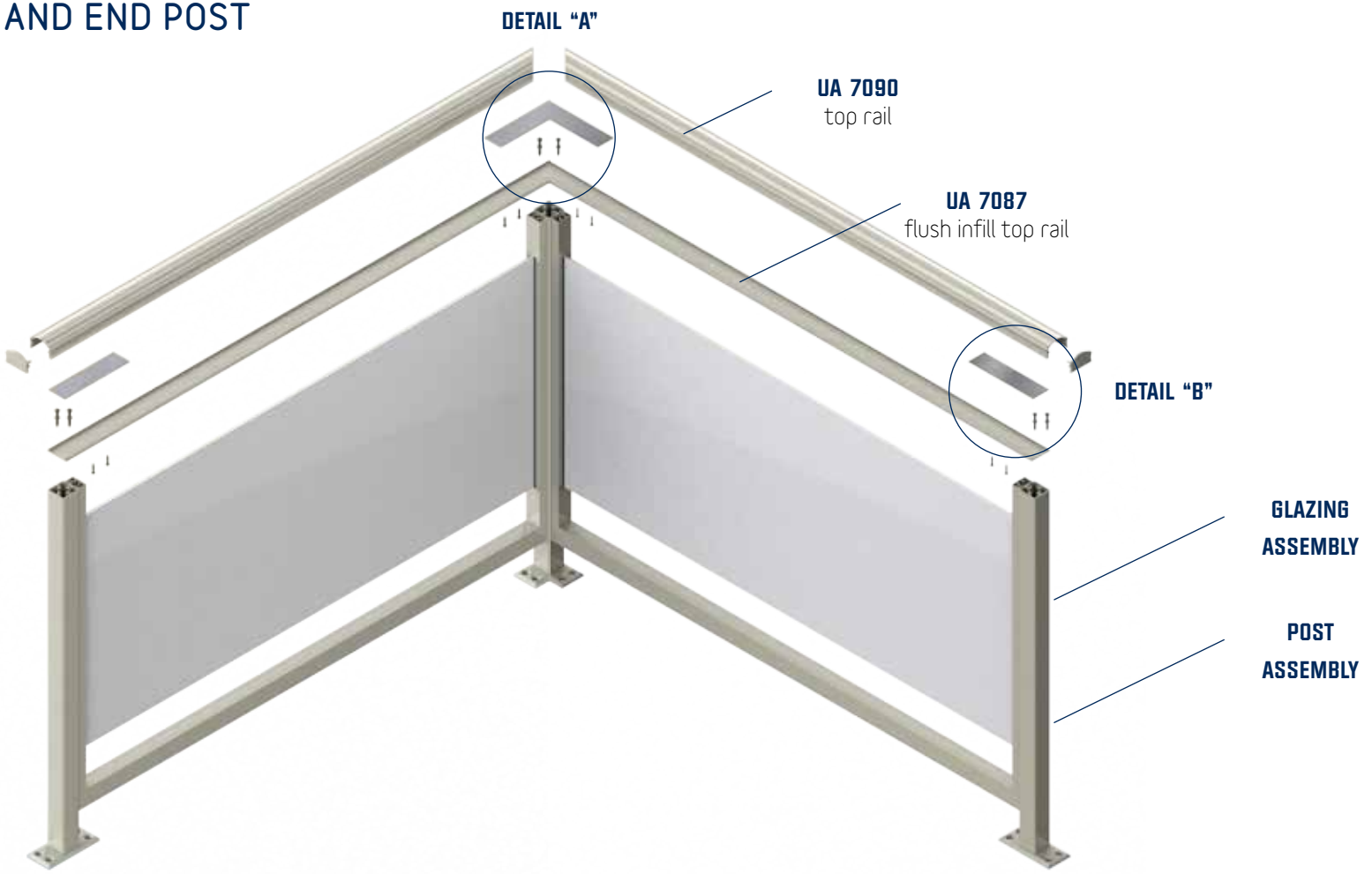
EXPLODED VIEW

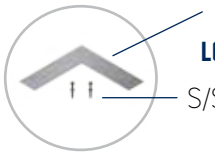
BALUSTRADE ASSEMBLY
FULL GLAZING



EXPLODED VIEW

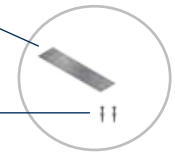
BALUSTRADE ASSEMBLY
CORNER AND END POST





CORNER
LOCKING PLATE
S/S 14g x 1.0" screw

DETAIL "A"



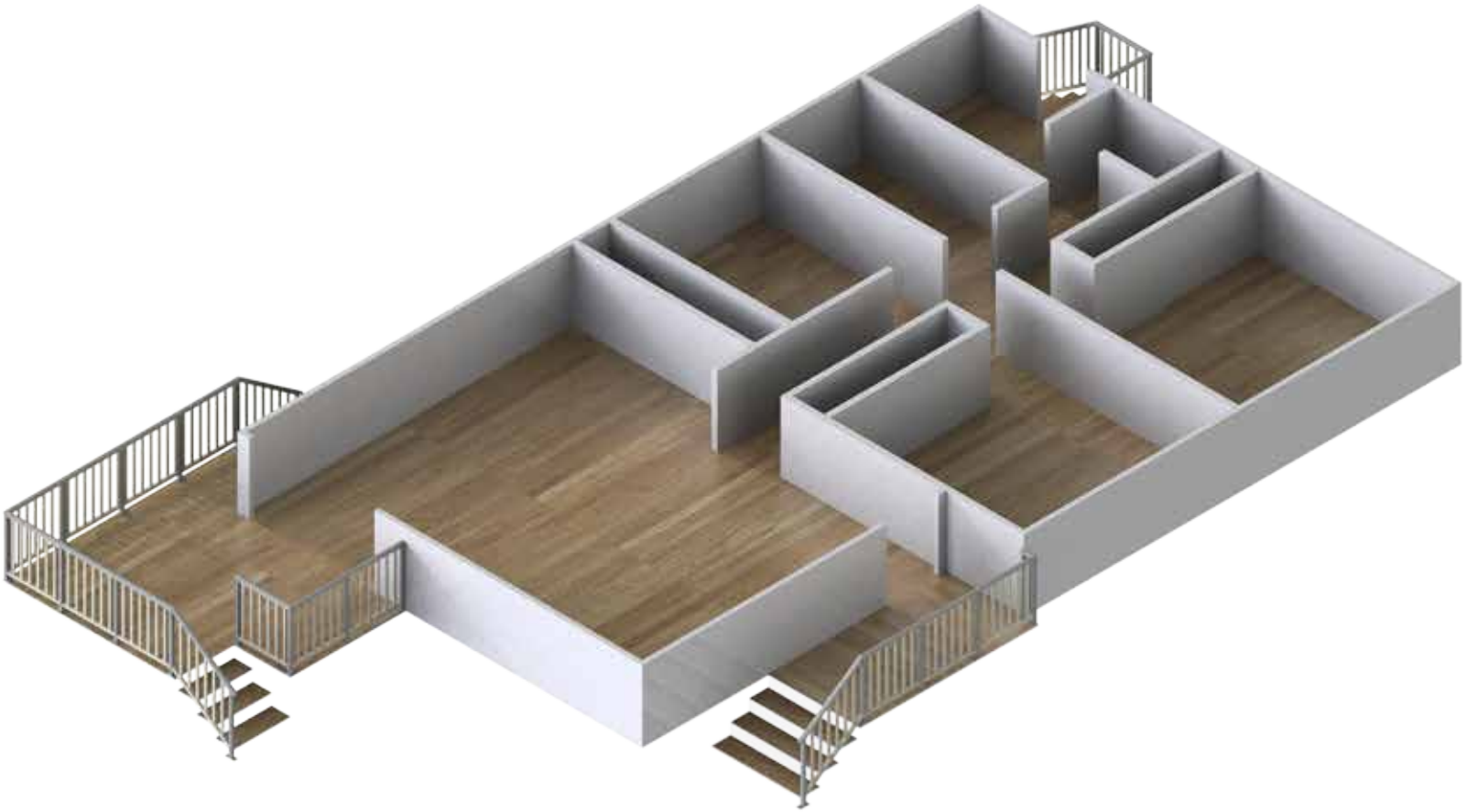
LOCKING
PLATE
S/S 14g x 1.0" screw

DETAIL "B"


Innovative Systems.
Reliable Solutions.

INSTALLATION GUIDE

BALUSTER SYSTEM



CALCULATION REFERENCE

STRAIGHT RUN BALUSTER SPACINGS

The balustrade for a floor or landing must be not less than 1000mm measured vertically above the top of the finish floor.

Balustrade spacing should be equal, and the gap between must not permit a 100mm sphere to pass though.

To calculate the number of gaps, balusters and an even spacing of the balusters apply the following steps.

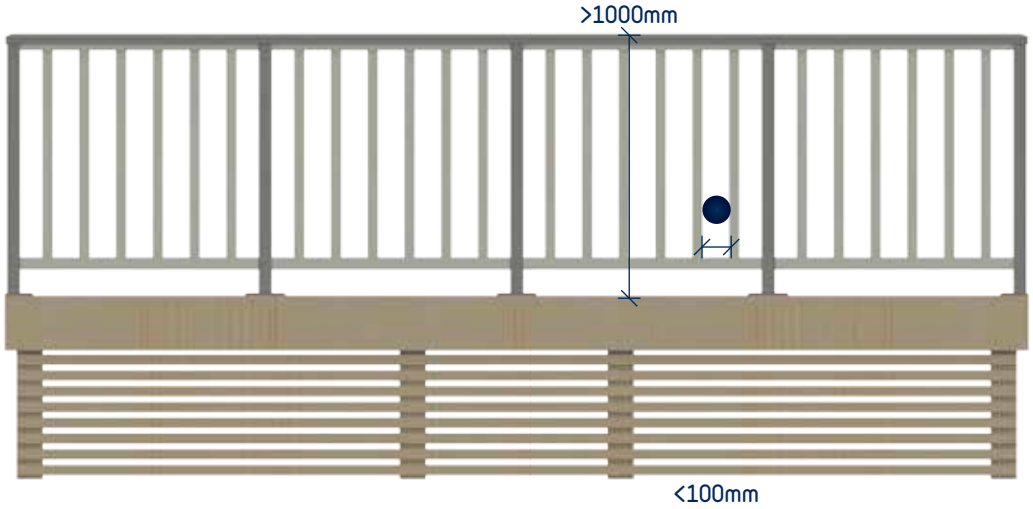


ILLUSTRATION ONE

- Divide the newel opening width plus one baluster cover width by the maximum allowable gap plus one baluster cover width.
- You can see this measurement will give us an equal number of gaps and balusters.
- In this case the newel open width is 792mm, the baluster cover width on the angle is 40mm and the maximum allowable gap specified is 100mm.

(Opening Width + Baluster Width)
÷ (Maximum Gap + Baluster Width)

=(989mm + 40mm) ÷ (100mm + 40mm)
=938mm ÷ 140mm
=6.70

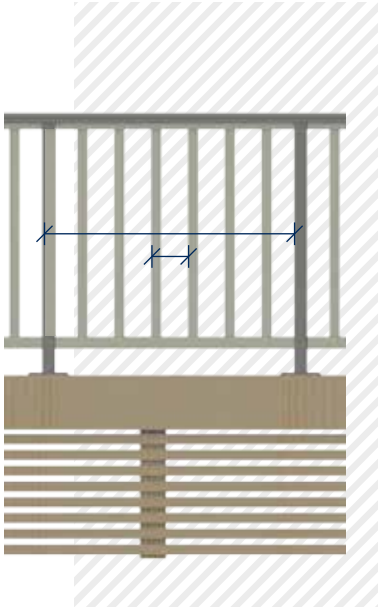


ILLUSTRATION TWO

- Round up your answer to get the number of gaps,
- Rounding up will ensure the gaps between the balusters does not exceed the maximum specified so there will be seven gaps.

Round Up = Number of Gaps

= 938mm ÷ 140mm
= 6.70
= 7 Gaps

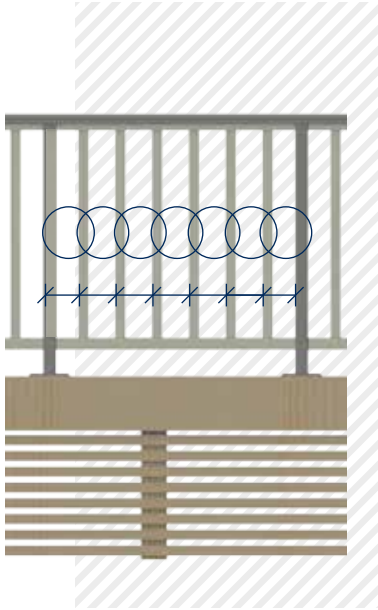


ILLUSTRATION THREE

- Deduct one from the number of gaps to calculate the number of balusters.
- You will have one less baluster than the number of gaps.
- This will make six balusters.

Deduct 1 = Number of Balusters

= 7 Gaps - 1
= 6 Balusters

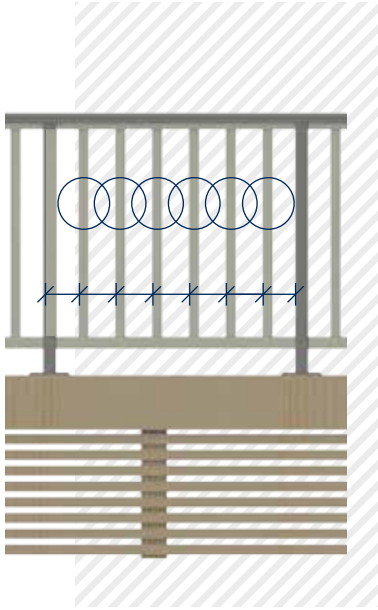


ILLUSTRATION FOUR

- Divide the newel opening width, plus one baluster cover width, by the number of gaps.
- Thus will calculate an even spacing of balusters,
- In this case baluster spacing is 151mm.

(Opening Width + Baluster Width) ÷ Number of Gaps = Baluster Width

= (989mm + 40mm) ÷ 7
= 938mm ÷ 7
= 134mm spacing

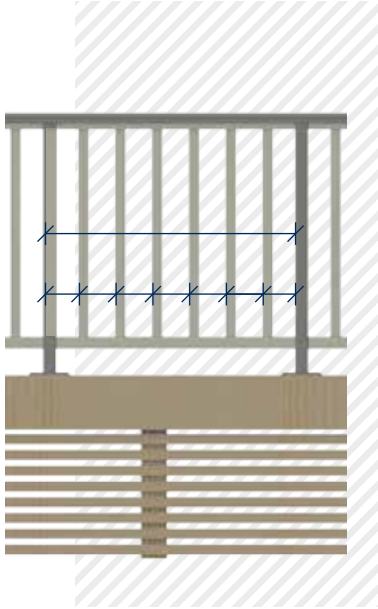
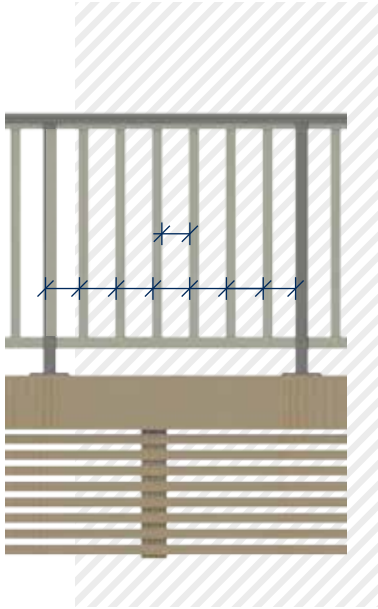


ILLUSTRATION FIVE

- To check your gap has not exceeded the maximum specified,
- Deduct one baluster width from the baluster spacing you have calculated
- This will give you the gap between the balusters.

Baluster Spacing - Baluster width = Gap

= 134mm spacing -1 baluster width
= 134mm - 40mm
= 94mm gap



CALCULATION REFERENCE

STAIR RUN BALUSTER SPACINGS

Simplifying stair calculations by using the angle of the total rise of the stairs, or run of the stairs to solve the baluster spacing.

Using the rake angle we can convert all measurements to determines how many balusters you need as well as where to mark and install each one.

This will give us the widths of the light and heavy duty rails, balusters and infills.

ILLUSTRATION ONE

- To calculate the angle of the balustrade stair (rake angle) we use Pythagorean theorem.
- On a calculator we the features:

  - Cosine [COS]
  -Inverse Tangent [TAN-1]
  -Square Root [SQRT]

- To start we must calculate the stair opening width, measure the two sides (SIDE X) & (SIDE Y).

SIDE Y = 950mm
SIDE X = 665mm

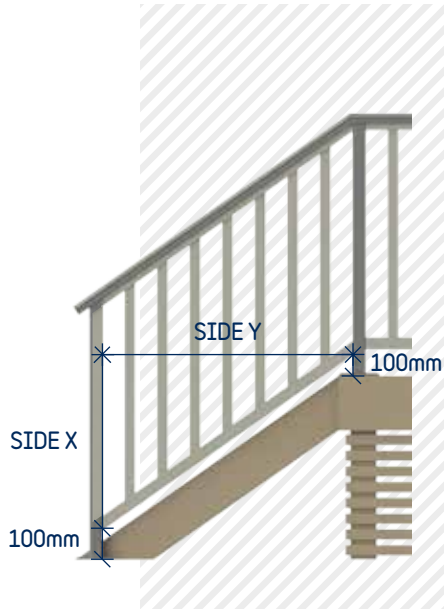


ILLUSTRATION TWO

- We require is the angle of the stair which gives us the pitch.
- Calculate the angle of the stair, this angle will be used to cut all balusters, infills, top and bottom rails.

[TAN-1] (Stair Rise ÷ Stair Run)
= Rake Angle

= TAN-1 (700 ÷ 950)
ANGLE X = 36.38°

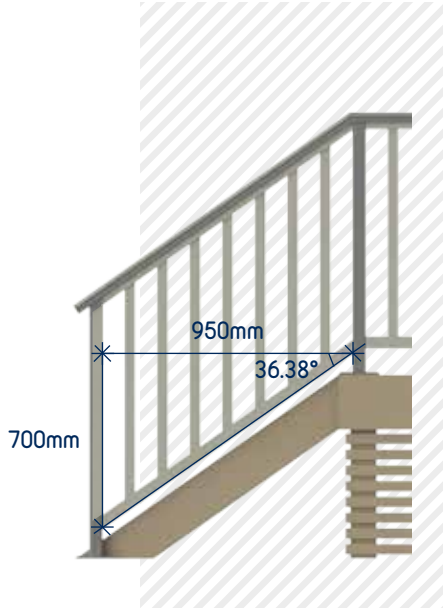


ILLUSTRATION THREE

- From this angle we can calculate the diagonal which is then useful for the following applications.
- Calculate the stair opening width (Z), this will be the cut length of the top and bottom rails.

[SQRT] (Stair Rise^2 + Stair Run^2)
= Opening Width on Rake Angle

Z = (700^2) + (950^2)
Z = √1392500
Z = 1180.04mm

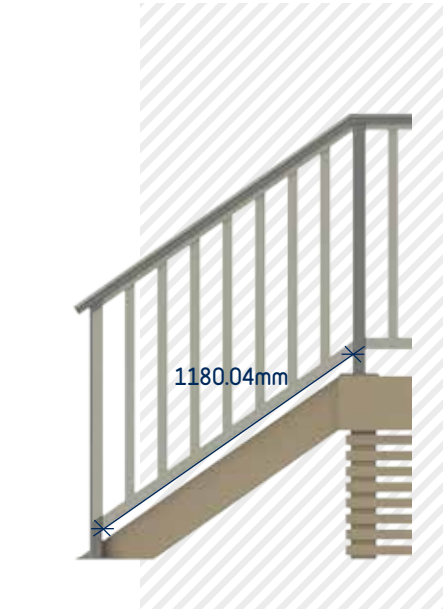


ILLUSTRATION FOUR

- Calculate the width of the baluster cut on an angle.
- This measurement will be used later in steps as the new width of the baluster.

SIDE Y = 40mm
ANGLE = 36.38°

Baluster Width ÷ [COS] Rake Angle = Baluster Width on Rake Angle

Z = 40 ÷ COS 36.38
Z = 49.68mm

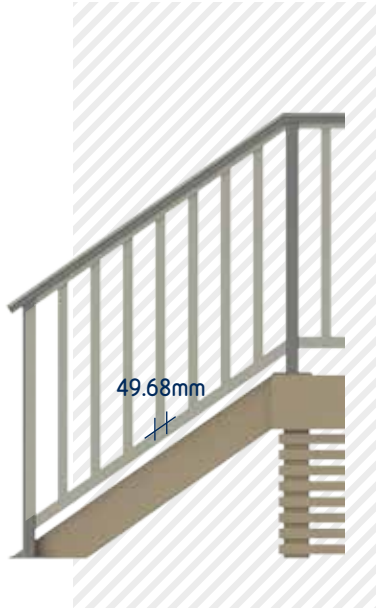


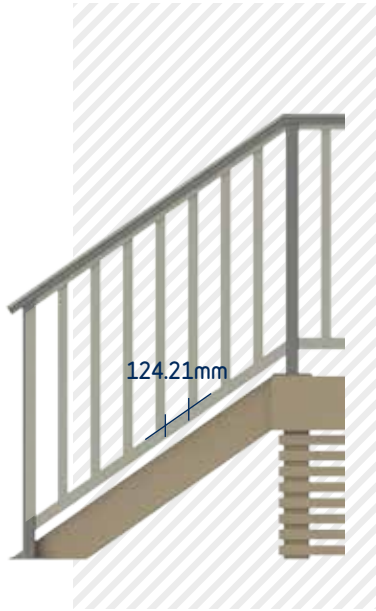
ILLUSTRATION THREE

- Calculate the maximum specified gap between balusters on an angle.
- This measurement will be used later in steps as the maximum allowable gap between balusters.

GAP = 100mm
ANGLE X = 36.38°

Max Specified Gap ÷ [COS] Rake Angle = Max Specified Gap on Rake Angle

Z = 100 ÷ COS 36.38
Z = 124.21mm



CALCULATION REFERENCE

STAIR RUN BALUSTER SPACINGS

The height of the balustrade for a stair must be not less than 865mm measured vertically above the nose line.

Balustrade spacing should be equal, and the gap between must not permit a 100mm sphere to pass though.

To calculate the number of gaps, balusters and an even spacing of the balusters on a stair apply the following steps.

ILLUSTRATION SIX

- Divide the newel opening width plus one baluster cover width by the maximum allowable gap plus one baluster cover width.
- You can see this measurement will give us an equal number of gaps and balusters.
- In this case the newel open width is 792mm, the baluster cover width on the angle is 40mm and the maximum allowable gap specified is 100mm.

(Opening Width + Baluster Width)
÷ (Maximum Gap + Baluster Width)

=(1180.04mm + 49.68mm) ÷ (124.21mm + 49.68mm)
=1229.72mm ÷ 173.89mm
=7.072

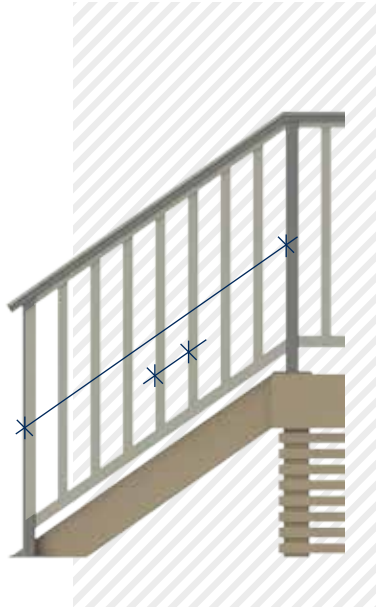


ILLUSTRATION SEVEN

- Round up your answer to get the number of gaps,
- Rounding up will ensure the gaps between the balusters does not exceed the maximum specified so there will be seven gaps.

Round Up = Number of Gaps

= 1229.72mm ÷ 173.89mm
= 7.072
= 8 Gaps

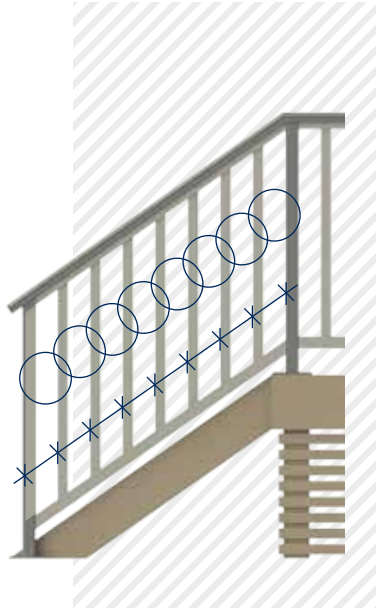


ILLUSTRATION EIGHT

- Deduct one from the number of gaps to calculate the number of balusters.
- You will have one less baluster than the number of gaps.
- This will make six balusters.

Deduct 1 = Number of Balusters

= 8 Gaps - 1
= 7 Balusters

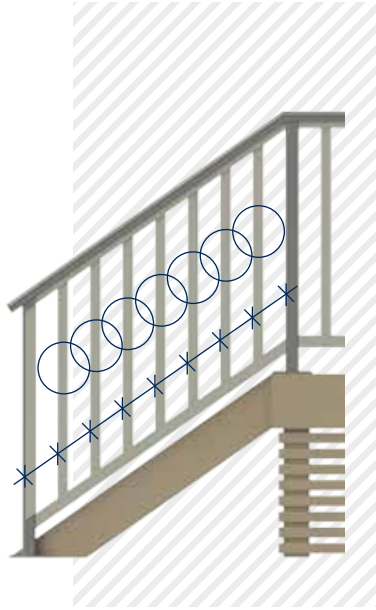


ILLUSTRATION NINE

- Divide the newel opening width, plus one baluster cover width, by the number of gaps.
- Thus will calculate an even spacing of balusters,
- In this case baluster spacing is 151mm.

(Opening Width + Baluster Width)
÷ Number of Gaps = Baluster Width

= (1180.04mm + 49.68mm) ÷ 8
= 1229.72mm ÷ 8
= 153.72mm spacing on the rake angle

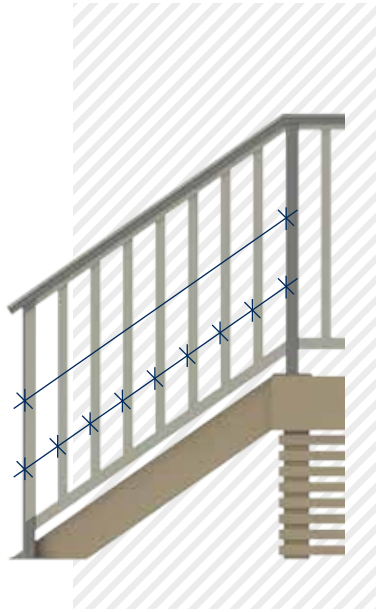


ILLUSTRATION TEN

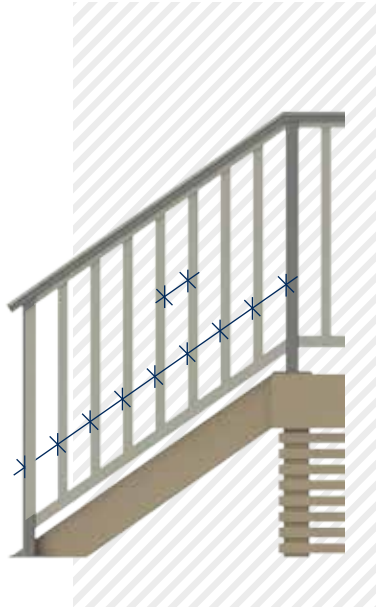
- To check your gap has not exceeded the maximum specified,
- Deduct one baluster width from the baluster spacing you have calculated
- This will give you the gap between the balusters.

  Note: To confirm your answer is not greater than the allowable gap use example illustration three method.

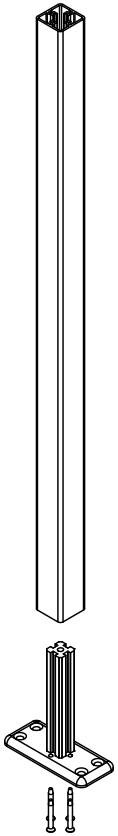
  z = 100 ÷ cos (rake angle)

Baluster Spacing - Baluster width = Gap

= 153.72mm spacing -1 baluster width
= 153.72mm - 49.68mm
= 104.04mm gap on the rake angle



D.01
INSTALLATION DETAIL



UA7085
1000mm post

BASE ASSEMBLY
standard base

S/S CS 14g x 1.5" - screws

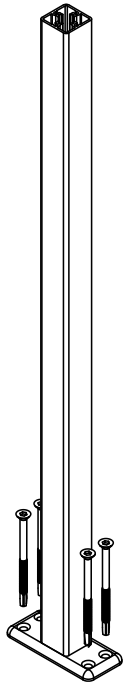
- Once posts have been assembled, measure and mark the position of all posts, and space them equally making sure the space between each posts is no more than 1500mm.

D.02
INSTALLATION DETAIL

The first step of the installation is where we fasten all posts in to position, ensuring the post is plumb. The size of the hole will depend on the type of fasteners used for the specific deck structure.

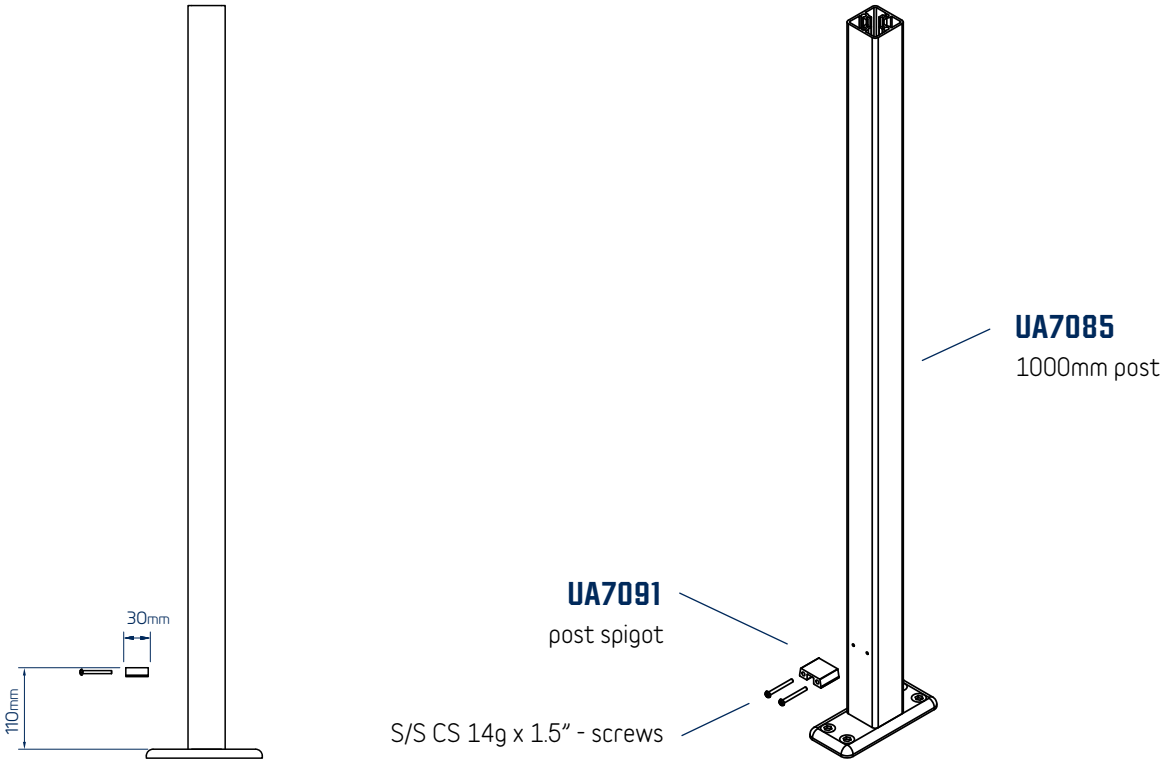
POST ASSEMBLY
post assembly with standard base

S/S M10 x 120mm - countersunk screws



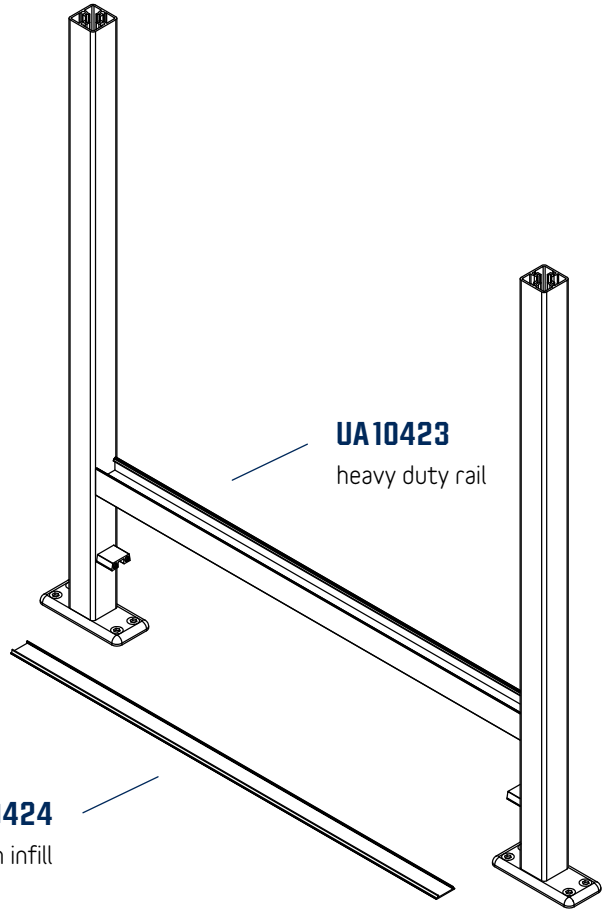
D.03
INSTALLATION DETAIL

- Drill 5.5mm pilot holes in to the post, then use the required drill attachment required screws to secure the spigots to the posts.



D.04
INSTALLATION DETAIL

- Install the heavy duty base rail onto the spigots, and insert the flush infill onto the bottom of each rail.



D.05
INSTALLATION DETAIL

BALUSTER ASSEMBLY
fabricate baluster assembly

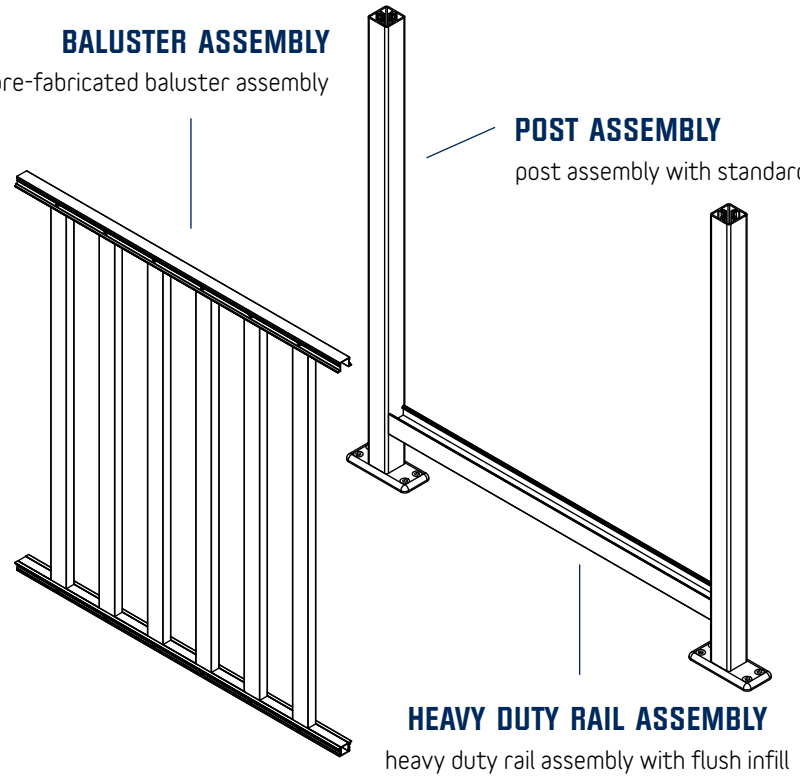
UA10414
baluster infill 20mm

4.8mm x 9.5mm rivets

UA1988
baluster 40mm x 20mm

UA10415
baluster pocket cap

UA10414
baluster infill 20mm



BALUSTER ASSEMBLY
pre-fabricated baluster assembly

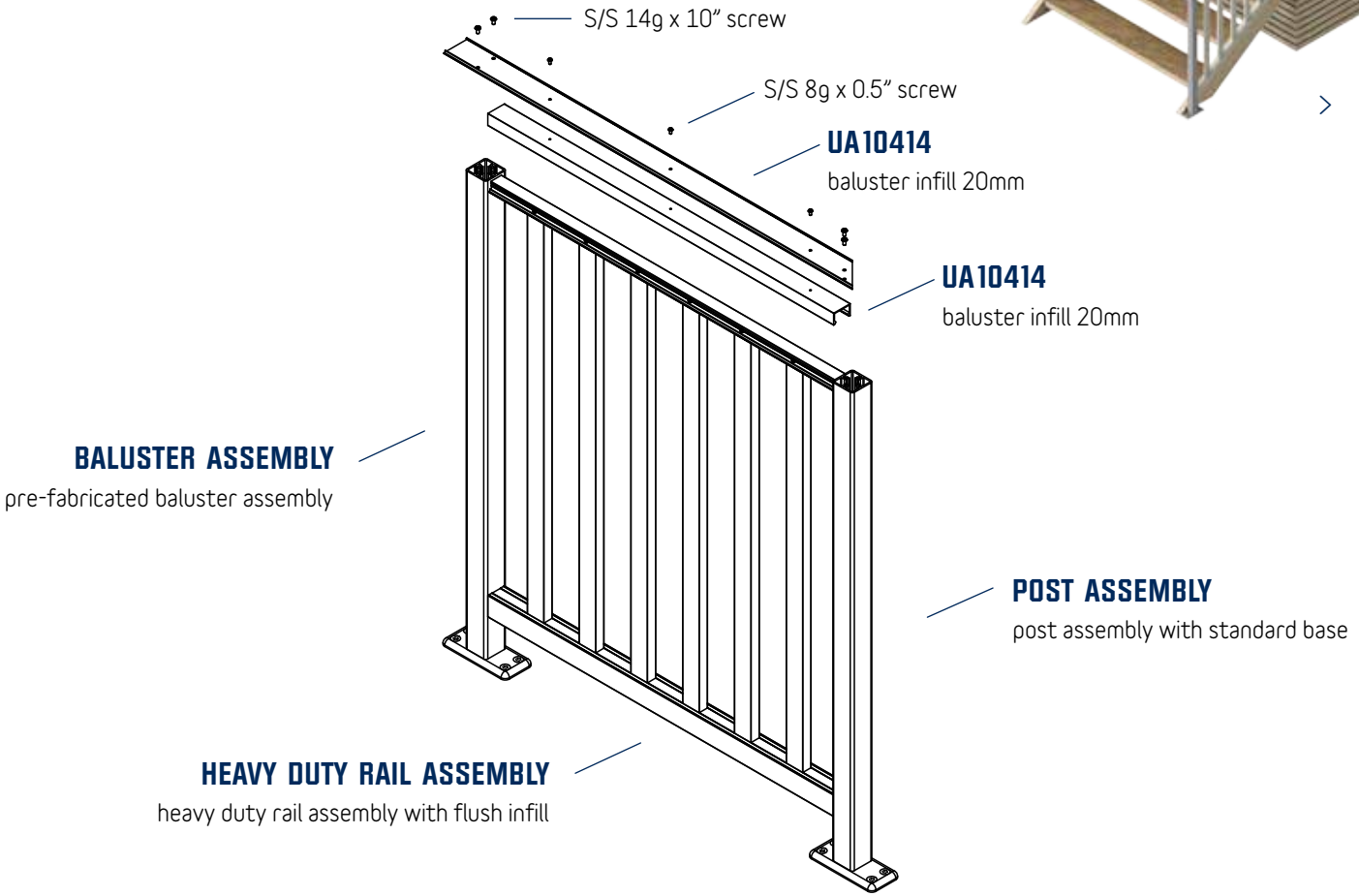
POST ASSEMBLY
post assembly with standard base

HEAVY DUTY RAIL ASSEMBLY
heavy duty rail assembly with flush infill

› Insert the pre-fabricated baluster assemblies into position, Repeat this steps until all panels have been inserted.

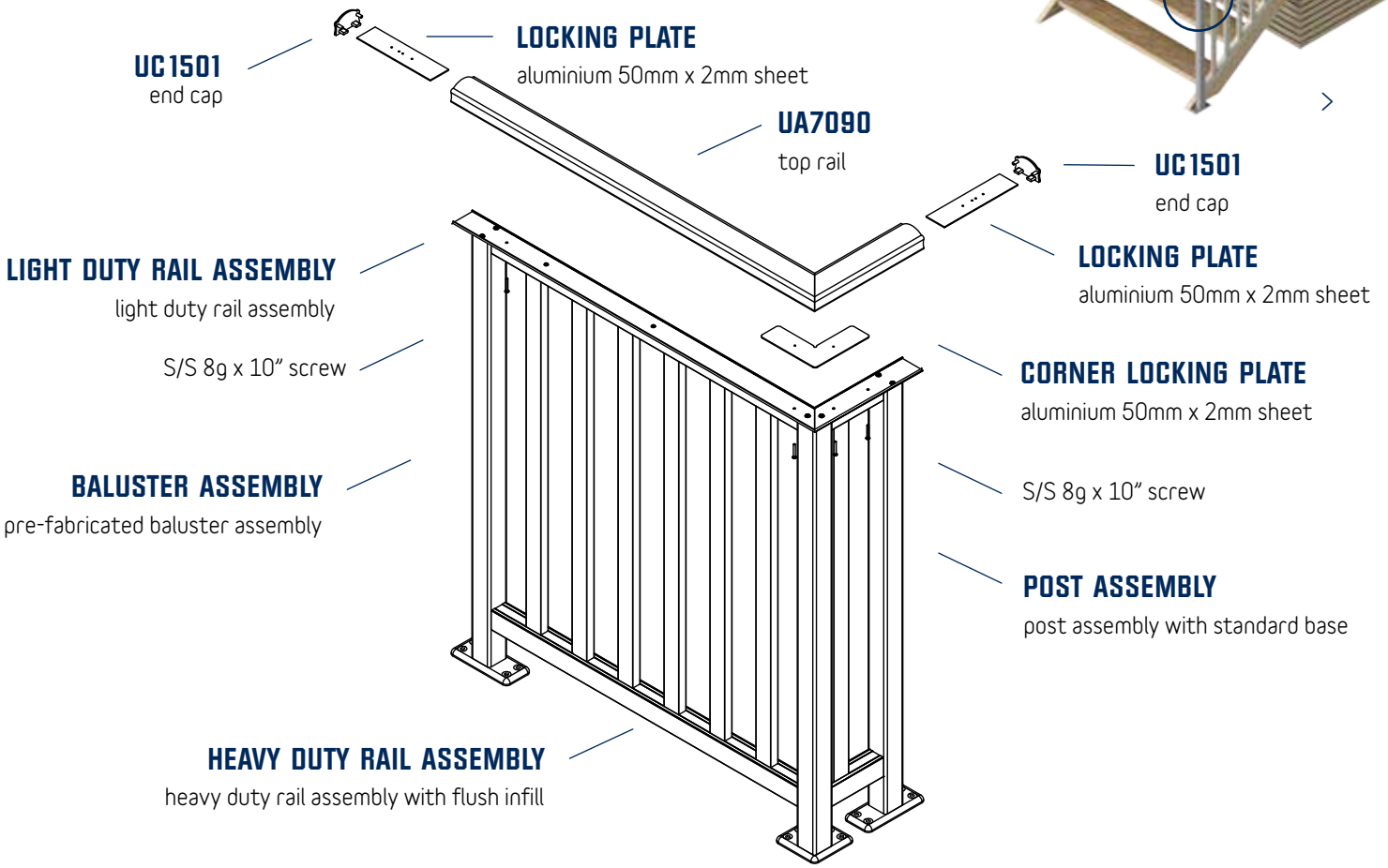
D.06
INSTALLATION DETAIL

- Clip the light duty rails onto the baluster assemblies, secure them to the posts using the light duty flush infill with self drilling screws.



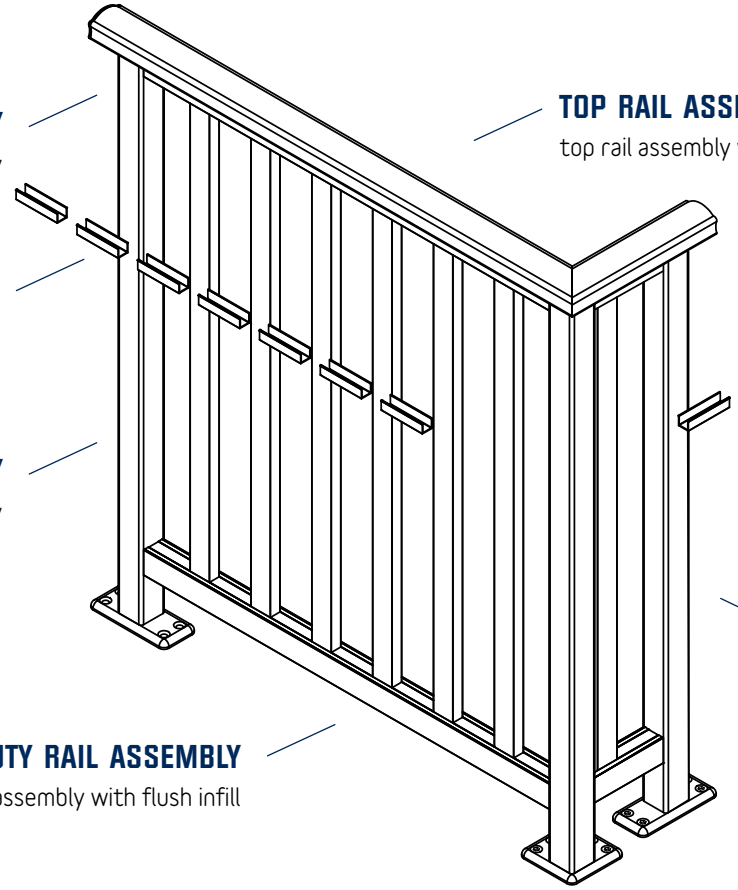
D.07
INSTALLATION DETAIL

Now its time to position the end locking plates, corner locking plate and stair hinges.



D.08
INSTALLATION DETAIL

While securing the locking plates, starting from one end clip the top rail onto position, then finally clip all remaining baluster pocket caps and end caps.



LIGHT DUTY RAIL ASSEMBLY
light duty rail assembly

UA10415
baluster pocket cap

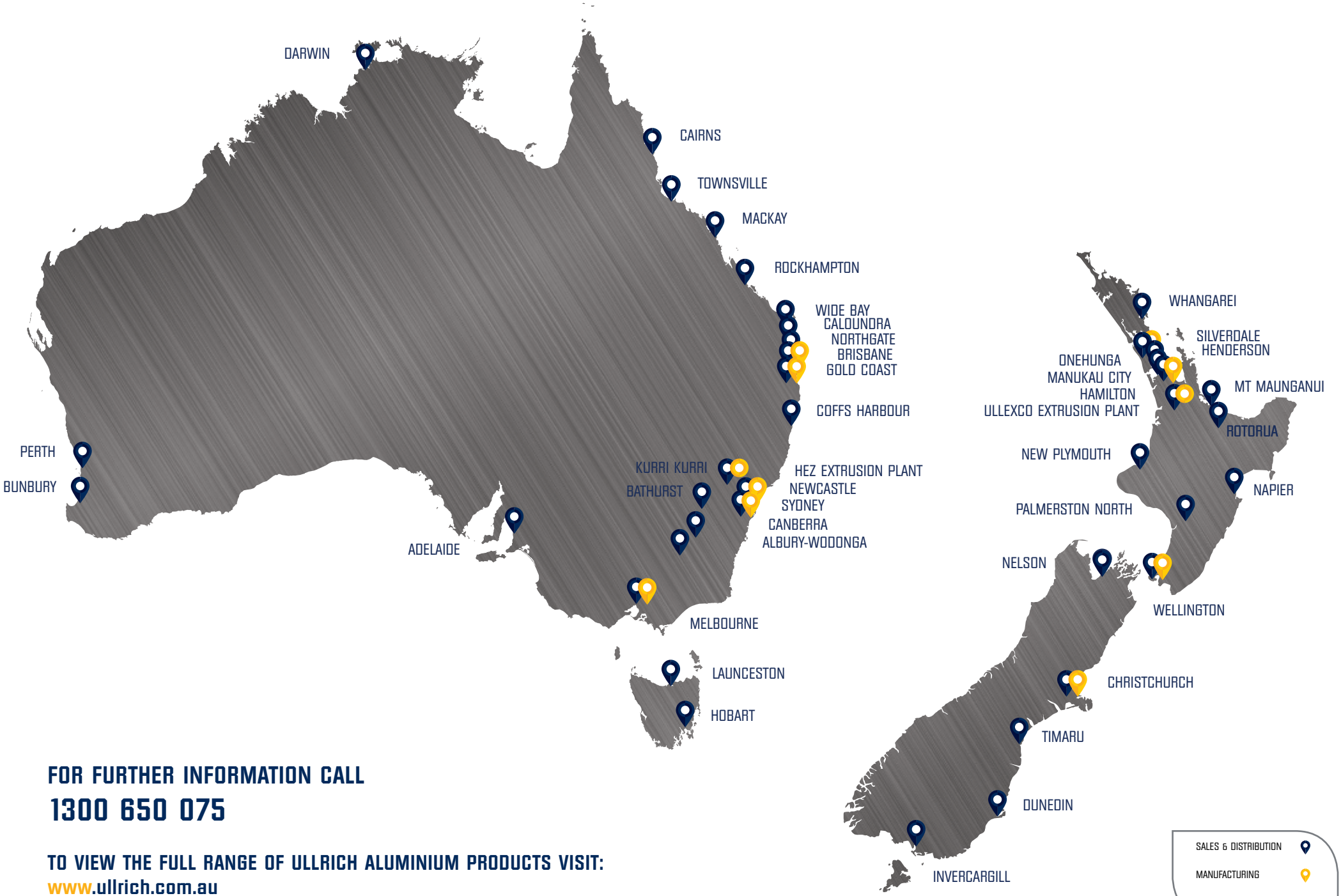
BALUSTER ASSEMBLY
pre-fabricated baluster assembly

HEAVY DUTY RAIL ASSEMBLY
heavy duty rail assembly with flush infill

TOP RAIL ASSEMBLY
top rail assembly with end caps

UA10415
baluster pocket cap

POST ASSEMBLY
post assembly with standard base



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