EDGEWORK & PROCESSING

EDGEWORK

CLEAN CUT

Edges are cut clean and sharp.

ROUGH ARRIS STANDARD ARRIS

This edge is produced by a rough stone, wet belt or vertical machine arriser. The edge of the glass is left with a white arrised edge. This type of edge is typically used for toughened glass, edges not exposed 3mm–8mm.

FLAT GRIND

This edge is produced on a straight line rectilinear or CNC machine leaving a diamond smooth unpolished finish. It is the normal type of finish for silicone butt glazing. It is available on glass thicknesses of 4mm–25mm.

Minimum size 250mm x 100mm

FLAT POLISH

This is the standard edge produced by a straight line rectilinear or CNC machine and produces a fine polished flat edge suitable for all furniture glass and frameless toughened panels 4mm–25mm.

Minimum size 250mm x 100mm

LOUVRE GRIND AND POLISH

This edge is produced for 6mm louvre blades only. Available as a polished edge.

MITRES

Rectilinear machines produce mitred edges with a ground or polished edge. These edges are used for glass silicone butt joints at all angles and exposed edges. They are available on thicknesses of 6mm+ thicknesses.

ORDERING MITRES

- Mitres are calculated by how many degrees taken off the 90° square edge or angle.

  (see Diagram 1.0 - Fig 1)

- Mitres should be expressed as the angle taken off. e.g. 15°, 22.5°, 45° etc.

  (see Diagram 1.0 - Fig 2)

- Glass width measurements shall be given from long points of glass as shown.

  (see Diagram 1.0 - Fig 3)

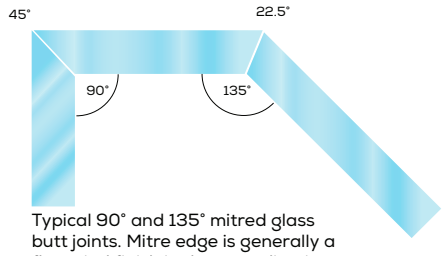
- Drawings sent should indicate back or face mitre view with degrees.

  (see Diagram 1.0 - Fig 4 and Fig 5)

For reflective, low-E, Sunergy®, acid etched and patterned glass refer page 118 for drawing presentation.

DIAGRAM 1.0: MITRE DETAILS

FIGURE 1:



Typical 90° and 135° mitred glass butt joints. Mitre edge is generally a flat grind finish in these applications. Exposed mitres are generally flat polished.

FIGURE 2:

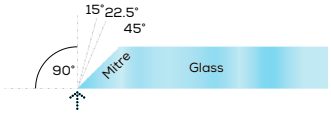
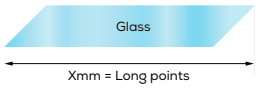


FIGURE 3:



EDGEWORK & PROCESSING

MITRES continued

DIAGRAM 1.0: MITRE DETAILS

Figure 4:

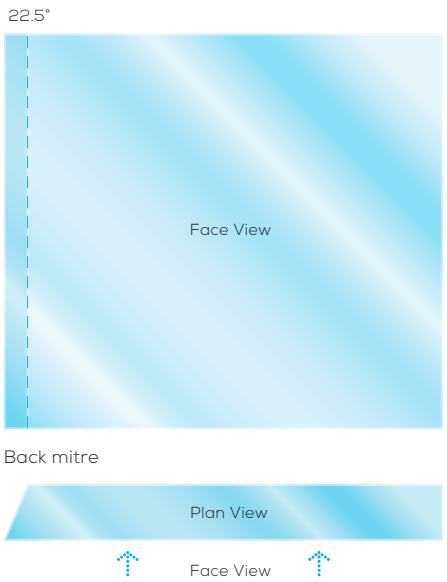
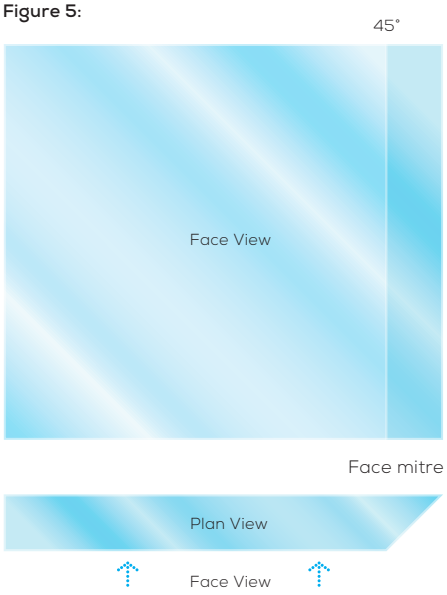


Figure 5:

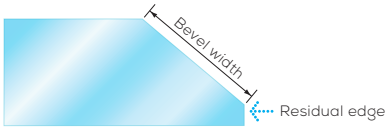


BEVELLED EDGES

Bevelled edges are produced on specialty machinery at various widths dependent on glass thickness. Available on thicknesses of 6mm–19mm.

- All bevelled glass 6mm thick has a satin ground edge as a standard finish. Flat polishing is an optional extra;
- 8–19mm glass is always priced with flat polished edges in addition to the bevelled edge price.

SINGLE BEVEL



- Minimum glass of 350mm x 350mm
- Maximum size of 2400mm x 2400mm - 6mm-19mm glass, and up to maximum weight of 250kg.
- Tempered glass with bevels not permissible due to high risk of breakage during furnacing and inconsistent residual edge.

BEVEL WIDTHS

- 6mm-19mm glass - 10/20/25mm bevel widths.

BEVELLED TRUNCATED CORNERS

- Minimum 200mm truncated corners (X) on 10mm and 12mm glass up to a maximum size of 2000mm x 1200mm;
- Minimum 100mm truncated corners (X) on 10mm and 12mm glass up to a size of 1500mm x 1000mm.

EXPOSED CUTOUTS

EXPOSED SIDE/CORNER/CENTRE CUTOUTS

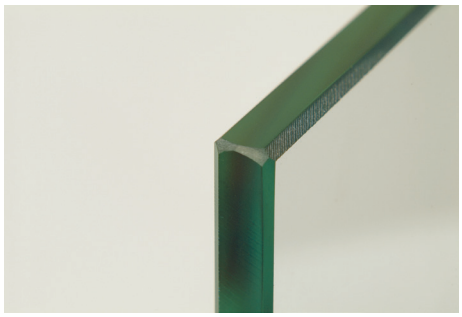
For a consistent high quality edge finish, specify a 'CNC' flat polished finish where glass edge is seen or exposed. For corners, where a 'CNC' flat polished finish is specified, request 'CNC' external radius corners (see following page).

Cutouts for splashbacks may be produced on a waterjet cutter, which leaves a white coloured ground edge. This is generally acceptable as the edge is painted and covered by powerpoint.

EDGEWORK & PROCESSING

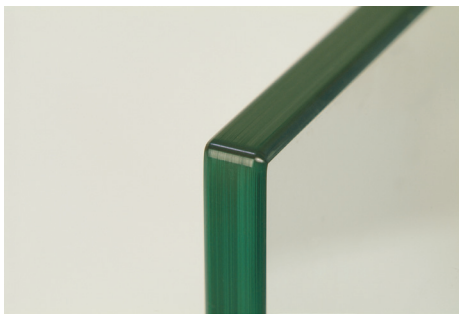
CORNER FINISHES

- **Standard tipped corner** – 2mm across the face as shown in a white colour arrised finish which is supplied on all 8mm+ toughened glass with rough/standard arris peripheral edge (see Photo A). Where two flat polish edges meet, the minimum corner finish is a polish tipped;
- **Polish tipped corner** –up to 2mm across the face as a manual 'buffing' of tip (see Photo B);
- Polish radius corner - up to 3mm across the face as a manual process (see Photo B);
- **CNC external radius corners** – Minimum size is 5mm for flat ground and polished high quality corner finishes. Flat polish ideal for exposed edges (see Photo C);
- **≤6mm glass** – Corners not tipped unless requested.

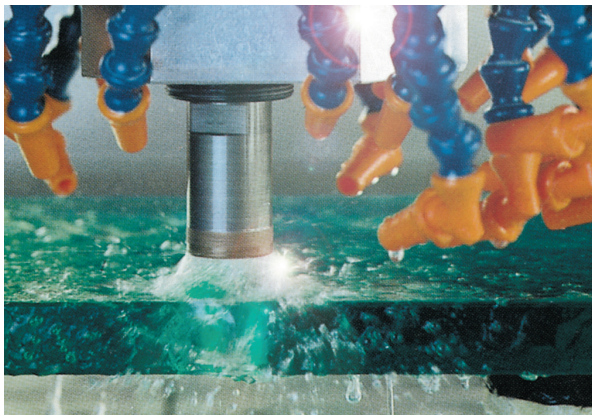


(A) Standard tipped corner

(B) Polish tipped corner



(C) CNC external radius corner



DRILLED HOLES LESS THAN 74MM

DRILLED HOLE SIZES	
Small	6
Medium	8, 10, 12, 13, 14, 16, 17, 18 19, 20, *21, 23, 26, 30, 31, 32
Large	36, 40, 45, 50, 57, 60, 65, 74

*21mm Ringset

DIAGRAM 1.2:

- Holes will have a ground finish with arris.
- Other drill hole sizes are available POA.

FLAT GROUND AND POLISHED HOLES

- For exposed holes requiring a flat ground or polished finish, CNC machine drilled holes are available per the following:
  - **Flat ground finish** – Holes greater than 40mm diameter
  - **Flat polished finish** – Holes greater than 50mm diameter

COUNTERSUNK HOLES

- Available on glass thicknesses 10mm and over and countersunk to 45°. (On application for glass thicknesses under 10mm)
- Holes will have a ground finish arris.

SIZING AND LOCATION (SEE DIAGRAM 13.3)

- X = Distance between hole edge and glass edge:
  - 3-6mm thickness – 6mm minimum
  - 8mm thickness – 8mm minimum
  - 10-12mm thickness – 1.5x the glass thickness
  - 15-19mm thickness – 2.0x the glass thickness
- A = Distance between hole edge and glass corner point shall be at least 4.0x the glass thickness.

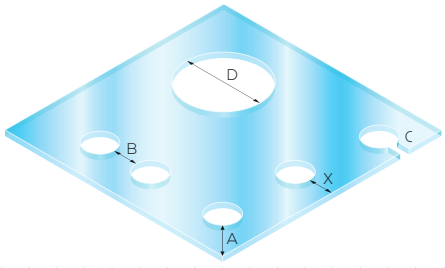
EDGEWORK & PROCESSING

- B = Distance between holes shall be no less than 2.0x the glass thickness.
- C = If a hole is placed in a position closer than the above recommendations, a saw cut slot can be made to minimise the stresses and chances of breakages. Width of slot shall be at least 1/2 the glass thickness and hole radius must be the same as glass thickness.
- D = Diameter of hole shall be a minimum of 6mm or no less than the glass thickness, and no greater than 1/3 of the panel's measurement at its narrowest point.

OTHER POINTS

- The minimum width of a panel with a hole shall be 8.0x the glass thickness.

DIAGRAM 1.3:



OTHER HOLES GREATER THAN 74MM AND NON CIRCULAR CENTRE CUTOUTS (SEE DIAGRAM 13.5)

SIZING AND LOCATION

- XX = Distance between hole/cutout and glass edge shall be:
  - For hole/cutouts less than 150mm diameter or dimension - No less than 2.0x the glass thickness;
  - For holes/cutouts over 150mm diameter or dimension - No less than 100mm from both edges.
- YY = The height and width of hole/cutout shall not exceed:
  - For hole/cutouts less than 150mm diameter or dimension - 1/3 of the overall panel height or width dimension;
  - For hole/cutouts over 150mm diameter or dimension - 1/4 of the overall panel height or width dimension.
- AA = Distance between hole/cutout and glass corner point shall be:
  - For hole/cutouts less than 150mm diameter or dimension - No less than 4.0x the glass thickness. If glass edge is flat ground or polished, the minimum distance shall be 100mm from one edge;
  - For holes/cutouts over 150mm diameter or dimension - No less than 5.0x the glass thickness. If glass edge is flat ground or polished, the minimum distance shall be 100mm from one edge.
- BB = Distance between hole/cutouts shall be:
  - For hole/cutouts less than 150mm diameter or dimension - No less than 2.0x the glass thickness;
  - For hole/cutouts over 150mm diameter or dimension - Refer to our staff for technical advice..

TABLE A

R = INTERNAL RADIUS CORNER MINIMUMS

Glass (mm)	Flat grind (FG)	Flat polish (FP)
4/5/6	9mm	20mm
8	12mm	20mm
10	12mm	20mm
12	12mm	20mm
15	15mm	20mm
19	19mm	20mm

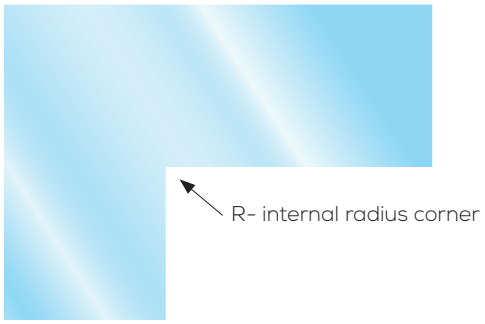
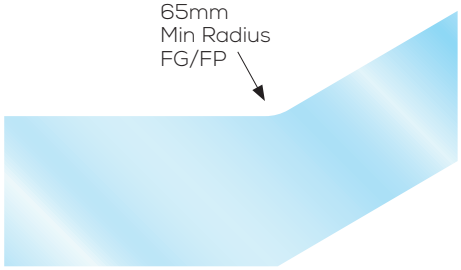


DIAGRAM 1.4:

RADIUS MINIMUM FG/FP ON INVERTED RAKES.



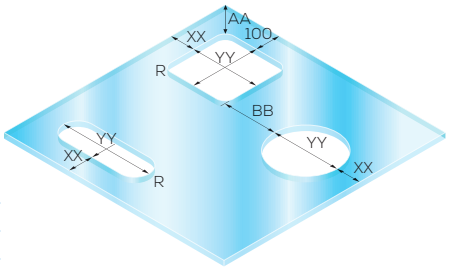
EDGEWORK & PROCESSING

SMALLEST SIZED CUTOUTS

› Diameter or width (YY):

- Flat ground finish – 40mm diameter or 40mm x 40mm
- Flat polish finish – 60mm diameter or 60mm x 60mm

DIAGRAM 1.5:



SIDE CUTOUTS

SIZING AND LOCATION (SEE DIAGRAM 1.6)

› X1 = Distance from glass corner to cutout edge shall be no less than 100mm. Two side cutouts next to each other shall have a minimum distance of 100mm between them.

› Z1 = Height of cutout shall not be wider than 1/3 of the glass panel's measurement at its narrowest points.

› Y1 = Width of cutout shall be no wider than 2/3 of the glass panel's longest measurement.

SMALLEST SIZED CUTOUTS

› Width (Y1) and height (Z1):

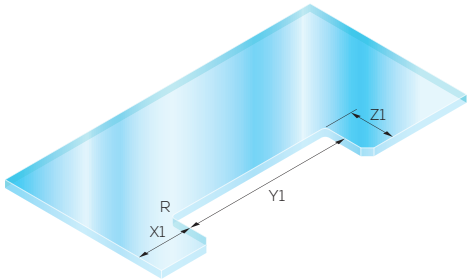
- Flat ground finish – 9mm
- Flat Polish finish – 20mm

OTHER POINTS

› Observe internal radius (r) rules as previously detailed (See table A & diagram 1.4).

› External corners of cutouts shall be standard tipped, polished tipped or specify CNC minimum radius flat ground or polished finish.

DIAGRAM 1.6:



CORNER CUTOUT

SIZING AND LOCATION (SEE DIAGRAM 1.7)

› Less than 2 square metres – Total area of all cutouts must not exceed 1/2 of total glass area. The minimum size of (X2) can be 100mm when the length of (Z2) does not exceed 1000mm. If the length of (Z2) exceeds 1000mm then (X2) must not be less than 1/3 width of the glass.

› More than 2 square metres – Total area of all cutouts must not exceed 1/4 of total glass area. The minimum size of (X2) must not be less than 1/3 of the length or width of the panel.

SMALLEST SIZED CUTOUTS

› Width (Y2) and height (Z2):

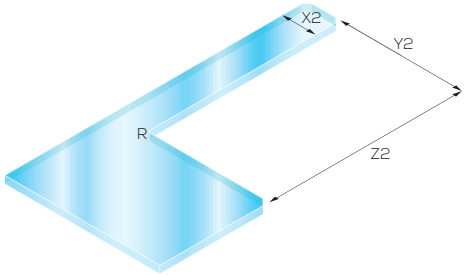
- Flat ground finish – 9mm
- Flat Polish finish – 20mm

OTHER POINTS

› Observe internal radius (r) rules as previously detailed (see table A & diagram 1.4).

› External corners of cutouts shall be standard tipped, polished tipped or specify CNC minimum radius flat ground or polished finish.

DIAGRAM 1.7:

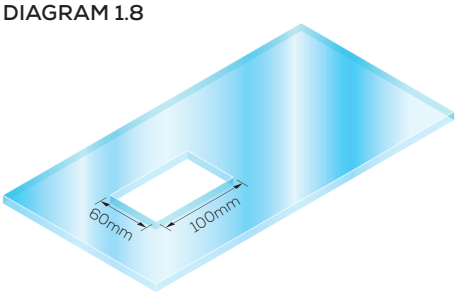


EDGEWORK & PROCESSING

POWER POINT CUTOUTS (SEE DIAGRAM 1.8)

Standard size of 100mm x 60mm.

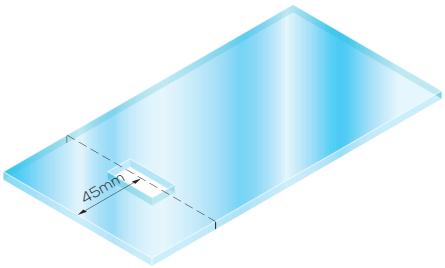
DIAGRAM 1.8



FINGER SLOT GUIDELINES (SEE DIAGRAM 1.9)

Single slots are only available on annealed glass thicknesses of 4mm+ and laminated glass 10.38mm+. Not available on toughened glass. Slots are positioned 45mm from edge of glass to centre line of slot.

DIAGRAM 1.9:



EDGEWORK & PROCESSING

RAKED, OUT OF SQUARE AND SHAPED DRAWINGS

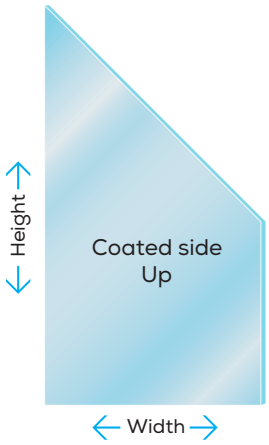
The drawings by product below, show the way we would like you to present your raked, out of square, shaped orders to our glass cutters and cutting machines:

- Reflective, low-E, Sunergy® cut on the coated side;
- Acid etched is cut on the smooth non-etched side (to avoid cutting oil marks on etched surface);
- Patterned is always cut on the smooth side;
- Mirror is cut on the mirror face (non-paint side);
- Lacobel is cut glass up (non-paint side).

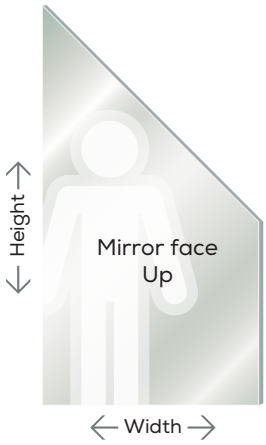
Please note you may need to reverse the drawing depending on which view was drawn originally from your measure or take-off. The drawings sent to us would not necessarily reflect how the glass is placed in the opening. For example reflective, low-E and Sunergy® have the coated side glazed to the inside of the building, meaning you may have to reverse your drawing in order for us to cut it.

CUTTING ORIENTATION - RAKES

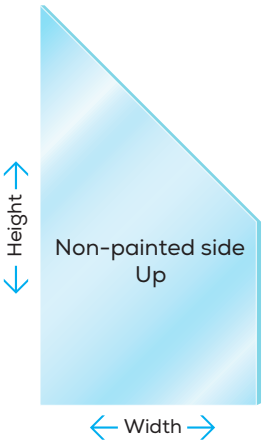
LOW-E, SUNERGY®, REFLECTIVES



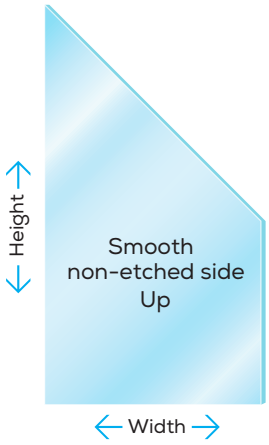
MIRROR



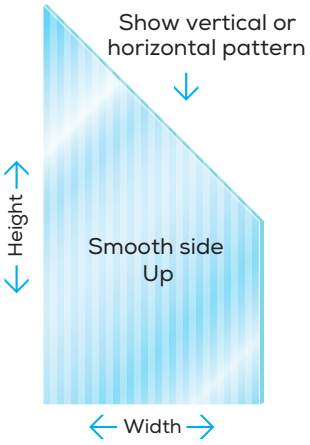
LACOBEL PAINTED



ACID ETCHED



PATTERNED GLASS



EDGEWORK & PROCESSING

MINIMUM / MAXIMUM WIDTH TO HEIGHT PROCESSING GUIDELINES

This table is a guide to min/max width to height cutting and processing for either float or toughened glass. It does not take into account requirements as per AS1288 including maximum areas of glass, whether safety glass is required or any other imposed load including windloads.

TABLE B:
WIDTH TO HEIGHT PROCESSING GUIDELINES (SLENDER RATIOS)*

Glass thickness	Width	Max Height
4/5mm	Minimum 100mm - 150mm	2000mm
	Over 150mm	2400mm
6mm	Minimum 100mm - 150mm	2100mm
	150mm - 250mm	2500mm
	250mm - 300mm	2700mm
	300mm - 350mm	3500mm
8 to 19mm	Minimum 100mm - 150mm	2400mm
	150mm - 250mm	2800mm
	250mm - 300mm	3000mm
	300mm - 350mm	4500mm
	On application	5000mm

TEMPLATE GUIDELINES

Due to advances in technology, templates are no longer required in most cases. Simple shapes with straight edges and curved edges with a true radius can be drawn for processing. For processing of glass to templates please refer to guidelines as set out below.

1. A full, finished size template must accompany all orders for glass to templates, with no taped, nailed or screwed joints with protruding metal edges.
2. Templates are acceptable in any 4mm thick material excluding paper and corrugated cardboard. Where flat cardboard is used it must be a minimum of 6mm thick.
3. Glass templates will not be accepted, due to the risk of breaking or damaging customer's templates (Broken glass templates are not acceptable).
4. All templates must have smooth and clearly defined edges.
5. Templates must be clearly marked with the client's name, order number (if applicable), contact name for any queries and accompanied by a written order.
6. Templates for products involving coated, patterned or mirrored glass must clearly state which surface is the coated, smooth or mirrored face.
7. All orders cut from templates will incur a complex shape charge, plus a Template Handling Fee – please ask your sales representative for more information.
8. Holes and cut out positions on templates must have a clearly defined centre point marked with a cross.
9. Stamp positions for Toughened Safety Glass and Automotive Glass must be clearly marked on template.
10. Standard industry tolerances apply to all glass produced to templates. (As per AS4667-2000).

Templates will be handled with all care but no responsibility. If you have a template outside these guidelines which you believe is acceptable, please contact our sales team for approval.

EDGEWORK & PROCESSING

EDGEWORK - MINIMUM BY GLASS TYPE (EDGES FRAMED)

The Tables below list different requirements and recommendations of edgework for single glass and glass in IGU's. Reference is also made to our order entry process for the different glass types (See Order Entry Process column).

'Default' - refers to our order software system assigning the edgework automatically for standard products. For example 6mm toughened glass, typically fully framed defaults to standard arris as the minimum edgework. If different edgework is required, this must be specified at time of order.

'Edgework optional' - Some glass products such as Clear laminated and annealed float do not require edgework normally so are 'optional' on order. Another example is single Tinted laminated glass which is often requested by customer as clean cut, but to lessen the chance of thermal breakage, FG edge is 'optional' or recommended.

'Add to order' - requires our order entry team to enter the required edgework manually as requested eg, For customised products such as custom laminated panels.

TABLE C:
MINIMUM EDGEWORK BY GLASS TYPE – SINGLE GLASS (EDGES FRAMED)

Single Glass Type	Min Edge Finish	Order Entry Process
4 to 8mm TGH, HS, HSK	Std Arris	Default
10 & 12mm TGH, HS, HSK	FG	Default
15 & 19mm TGH, HSK	FG	Default
6mm Extra Clear TGH for splashback applications	FP	Default
6mm Lacobel T TGH, HS, HSK	FG	Default
6mm SplashGuard TGH for splashback applications	FP	Default
Float annealed including clear, tint, lowE, patterned and acid etch	Clean Cut	Edgework Optional
Laminated annealed including clear, tinted PVB and translucent	Clean Cut	Edgework Optional
SOL-R Clear lowE laminated annealed	Clean Cut	Edgework Optional
Tinted laminated lowE including SOL-R, SOL-XT, Sunergy	FG	Default
Laminated with a body tinted float glass	FG	Add to order
6.38mm Solarplus S108	FG	Default

TGH = Toughened / HS = Heat Strengthend / HSK = Heat Soaked Toughened

TABLE D:
MINIMUM EDGEWORK BY GLASS TYPE DUO PLUS IGU (EDGES FRAMED)

IGU Type	Min Edge Finish	Order Entry Process
Float annealed including clear, tint, lowE, patterned and acid etch	Std Arris	Default
Laminated annealed including clear, tinted PVB, clear lowE (SOL-R Clear)	Std Arris	Default
Tinted laminated lowE including SOL-R, SOL-XT, Sunergy	FG	Default
Laminated with a body tinted float glass	FG	Add to order

TABLE E:
MINIMUM EDGEWORK BY GLASS TYPE DUO ULTRA (EDGES FRAMED)

IGU Type	Min Edge Finish	Order Entry Process
All combinations and options	Std Arris	Default