Guide to NBS Clause H13 STRUCTURAL GLASS ASSEMBLIES (Double Glazed U value 1.7 W/m^{2}K)

TYPE(S) OF STRUCTURAL GLASS ASSEMBLY

115 STRUCTURAL GLASS ASSEMBLY

Supporting structure: Steelwork / Glass Mullions (Delete as Appropriate)
Structural glass system: Pilkington **Planar™** Structural Glazing System
Manufacturer and reference: Pilkington Architectural, Alexandra Works, Borough Road, St. Helens, England WA10 3WA
Tel: 01744 692559 Email: Planar@nsg.com

Contact for Accredited Installer List-
Lee Shaw – Business Development Manager – Pilkington **Planar™** - South
Email: Lee.Shaw@nsg.com / Mobile: +44 (0) 7967 660230

Gary Stonelake – Business Development Manager – Pilkington **Planar™** - North
Email: Gary.Stonelake@nsg.com / Mobile: +44 (0) 7773 186533

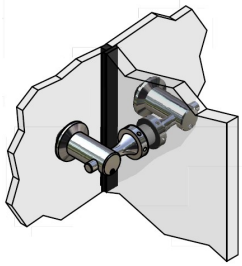
Note: For project specific specifications please contact one of the above

12 year Product and Engineering warranty to be provided from the system designer/manufacturer with all components sole sourced.

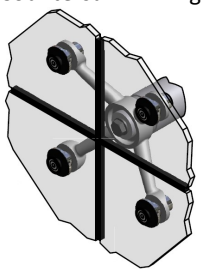
Type: Double glazed wall.

Assembly fixings: (Delete as Appropriate)

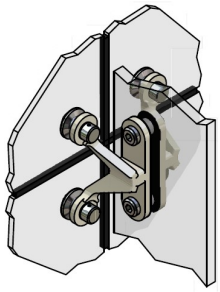
1. Countersunk Pilkington **Planar™** 905J assemblies and spring plate brackets.



2. Countersunk Pilkington **Planar™** 902 bolt with Nexus Casting



3. Countersunk Pilkington **Planar™** 902 bolt with Wooten St. Casting



Material: Stainless steel to BS EN 10088-1, grade 1.4401.

Finish: As Machined (Standard for 902 and 905J fittings)
Bright polished 2P to BS EN 10088-2

Assembly supports: (Delete as Appropriate)

1. Steelwork (By Others)
Material: Mild steel
Finish: Galvanized and painted or powder coated.

Or

2. Pilkington **Planar™** Glass mullions/Fins.
Material: Toughened or Toughened Laminated glass as clauses 610, 620, and 630
Thickness and Mullion/Fin depth to be determined by a Pilkington Planar™ Engineer.
Finish: Pilkington **Optifloat™** or Pilkington **Optiwhite™** (Delete as Appropriate)
Fin Connections to Structure: (Delete as Appropriate)
1. Mild Steel (with one coat of protective paint)
2. Mild Steel (Polyester Powder Coated)
3. Stainless Steel

Façade Glass: Pilkington **Planar™** single glazing with toughened/Laminated glass as clauses 610, 620 and 630.
Substrate: (Delete as Appropriate)

Outer Pane - Pilkington **Optifloat™** or Pilkington **Optiwhite™**
Cavity – 16mm Air Space (Black Spacer)
Inner Pane - Pilkington **Optifloat™** K or Pilkington **Optiwhite™** K

Available Thickness Outer Pane: 10mm, 12mm, 15mm or 19mm
Available Thickness Inner Pane: 6mm or 13.5mm (Laminated) (Delete as Appropriate)
Thickness to be determined by a Pilkington Planar™ Engineer.

Glass to glass jointing:
Silicone to be one of the Pilkington **Planar™** approved/tested products (Available on request)
Nominal joint width: 12 mm.

Performance Requirements: (Add as required)
Minimum Light Transmission: XX%
G Value: 0.XX
U Value: 1.7 W/m^{2}K

Sound Reduction of assembly must be not less than XXdB RW

Other requirements: Perimeter Glazing Channel to be manufactured from Polyester Powder coated Aluminium or Stainless Steel.

GENERAL REQUIREMENTS

DESIGN:
Complete the detailed design of the structural glass assembly in accordance with the general arrangement drawings and this specification.
Coordinate detailed design with that for all related works.

INFORMATION TO BE PROVIDED WITH TENDER: Submit to the CA the following structural glass assembly particulars:
Typical plan, section, and elevation drawings at suitable scales.
Outline reports and calculations demonstrating compliance with this specification.
Proposals for connections to and support from the building structure and building components.
Proposals for any secondary supporting structure additional to that shown on general arrangement drawings.
Areas of non-compliance with this specification.

INFORMATION TO BE PROVIDED BEFORE COMMENCEMENT OF STRUCTURAL GLAZING: Submit to the CA the following structural glass assembly particulars:
Detailed drawings to fully describe fabrication and installation.
Detailed reports and calculations to prove compliance with all design/performance requirements. Reports and calculations must be based on approved laboratory testing or computer modelling.
Project specific fabrication, handling and installation method statements.
A detailed fabrication and installation programme in compliance with the Main Contract master programme.
Full details of any structural sealant glazing design.
Recommendations for safe dismantling and recycling or disposal of all products.

PRODUCTS

610 GLASS GENERALLY:

- To BS 952 and the relevant parts of BS EN 572, free from scratches, bubbles, cracks, rippling, dimples and other defects.
- Edges must be free from vents, shelling, and severe feathering. They must be flat ground with a small arris, suitable for sealant jointing.
- Dimensional tolerances measured before any heat toughening/heat strengthening are:
  Pane size: +/- 1 mm of dimension required.
  Pane squareness: Not more than 3 mm difference in diagonal measurement when the diagonal is less than 4 m.
  Not more than 4 mm difference in diagonal measurement when the diagonal is more than 4 m.
  Pane thickness: +/- 0.2 mm for 6 mm glass.
  +/- 0.3 mm for 10/12 mm glass.
  +/- 0.5 mm for 15 mm glass.
  +/- 1.0 mm for 19 mm glass.
  Hole positional tolerance: +/- 1.0 mm from single datum point.
  Hole diameter tolerance: +/- 1.0 mm
- Dimensional tolerances measured after any heat toughening/heat strengthening are:
  Maximum bow: 0.2% of pane dimension.
  Mean roller wave: 0.02 mm peak to trough variation.

0.25 mm edge dip.

620 HEAT TOUGHENED GLASS:

- To BS EN 12150.
- To BS EN 12600:2002, Class 1.
- All edgework and holes must be completed before toughening.
- The toughening process must be horizontal to eliminate tong marks and minimize dimensional inaccuracies.
- All toughened glass must be subjected to a heat soaking test to BS EN 14179, designed to remove 90% of nickel sulfide inclusions which may otherwise cause spontaneous breakage in situ. (Minimum 8 Hours at temperature)

630 LAMINATED GLASS:

- Glass leaves must be heat toughened as clause 620, heat strengthened or annealed, combined to retain integrity of the laminated pane in case of breakage.
- Interlayers to glass leaves must be polyvinyl butyral (pvb) or sentry glass(sgp).

640 INSULATING DOUBLE GLAZED UNITS:

- To BS EN 1279.
- Colour of aluminium perimeter spacers: [_____]
- Unit perimeter seals must be compatible with glass joint sealant.
- Assembly fixings must be hermetically sealed through units.
- Fabricate units to transfer loads safely from both glass panes to assembly fixings.
- Any perimeter taping must be transparent to permit inspection of unit edge condition.

650 STAINLESS STEEL ASSEMBLY FIXINGS:

- Castings and machined fittings: To BS EN 10088-1, grade 1.4401 (BS 1449:Part 2, grade 316)
- Plate and strip: To BS EN 10088-2, grade 1.4401 (BS 1449:Part 2, grade 316).
- Bars, rods and sections: To BS EN 10088-3, grade 1.4401 (BS 1449:Part 2, grade 316).
- Fasteners: Austenitic stainless steel to BS EN ISO 3506-1:2009, grade A4.

FABRICATION AND INSTALLATION

WORKMANSHIP GENERALLY:

Fabricate and install structural glass assemblies in accordance with specified requirements.
Fabricators and installers must employ competent structural glass assembly operatives. Provide records of their experience to the CA on request.
Machine cut and drill all glass, assembly fixings and assembly supports in the workshop.
Site drill or cut into structure only in approved locations.