



# TRAYPANEL SYSTEM

## System Overview & Installation Guide



## General Information

1. The system is a drained rear-ventilated rainscreen façade. Air pressure in the cavity behind the panels generally equalises with pressure outside to prevent wind-driven rain from entering the cavity. Any moisture which does enter the cavity, drains down the back of the panels and exits in a controlled fashion at horizontal or vertical joints and the base of the façade.
2. System materials can be supplied in either A1 or A2 fire classification as per BS EN 13501-1:2018 subject to specification. The support structure comprises of aluminium helping hand brackets and support rails fixed utilising stainless steel self-drive screws which do not corrode, even under the most extreme atmospheric conditions.
3. In order for the rainscreen principle to function, the backing wall from which it is supported must achieve certain standards of air permeability, stipulated in The Building Regulations, and be capable of accommodating transmitted live and dead loads. The backing wall must also achieve specified performance requirements for fire, acoustics, and condensation risk.
4. The system meets the standards stipulated by The Centre for Window and Cladding Technology at Bath University in the UK and has been fully tested in accordance with their recommendations.
5. 20mm standard joints with a discreet colour coated fixing to match the panel. Larger joints are available upon request. CGL do not recommend smaller joints on this system as this does not leave enough room for a secure fixing to be applied.
6. System components are supplied utilising wooden pallets that are then crated and shrink wrapped to offer additional protection. Pallets are typically 3000mm Long x 1200mm Wide x 1200mm High and no heavier than 500kg, each pallet is weighed in the factory before dispatch and the pallet weights are displayed on individual pallet labels attached to each crate.
7. Safety data sheets are supplied to suit project specific materials for inclusion in the O&M manual.

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## System Components

The components supplied are -

### 1. Wall brackets and support rails:

These are extruded aluminium sections, complete with thermal isolator pads and holed on the base for fixing to steel or masonry structures. Holes to the projecting flange allow fixed point or sliding points to be created, to accommodate deflection and thermal expansion within the rainscreen cladding system. Brackets are available in a wide variety of sizes and interlock with horizontal or vertical laid 6063 T6 extruded aluminium angle or tee-rails generally 60mm x 40mm, to provide a series of optional zones from 60 to 340mm, each having an adjustability as shown in table below. The cavity zone is defined as dimension from face of substrate to face of support rail and should be a minimum of **25mm** to allow the system to function as a rainscreen, **38mm** on residential buildings. Spacing of brackets is designed by CGL to accommodate transmitted wind loads.

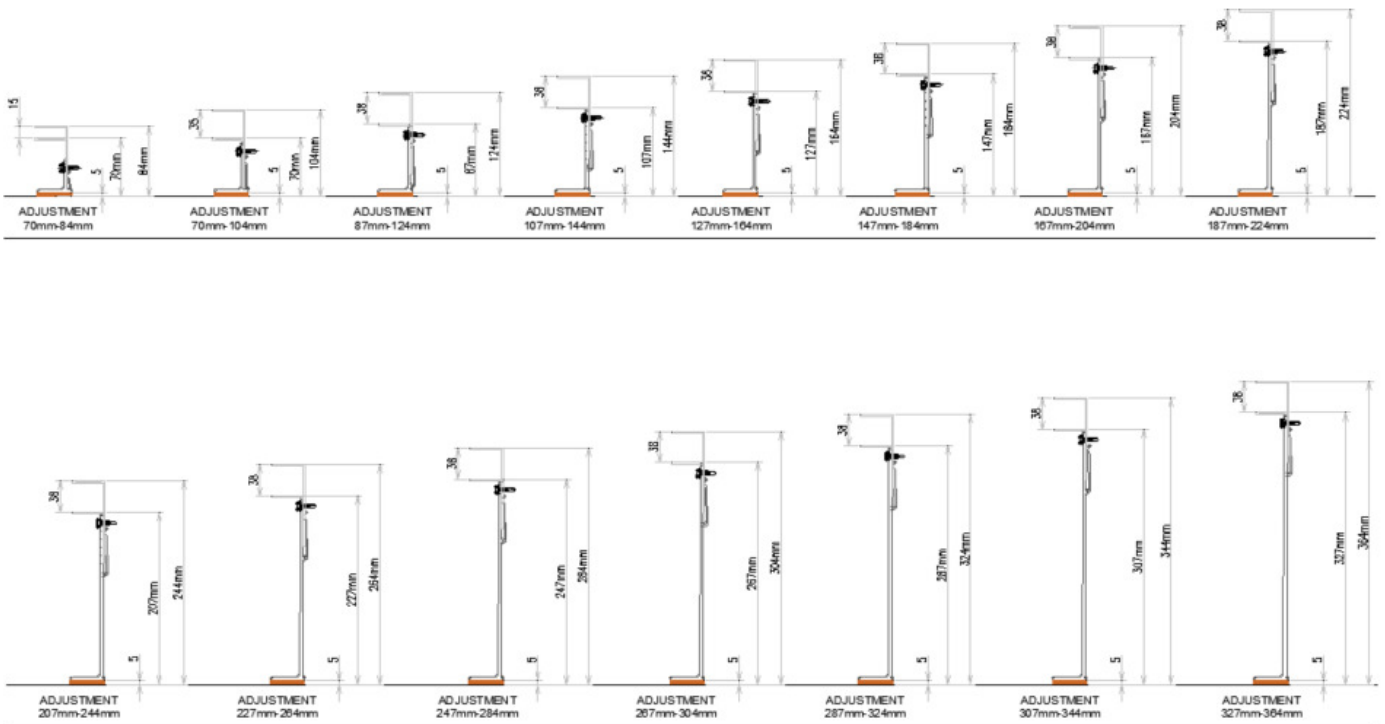
Bracket reference	Adjustment range for each bracket (mm)	
EP - 40	From 70	To 84
EP - 60	From 70	To 104
EP - 80	From 87	To 124
EP - 100	From 107	To 144
EP - 120	From 127	To 164
EP - 140	From 147	To 184
EP - 160	From 167	To 204
EP - 180	From 187	To 224
EP - 200	From 207	To 244
EP - 220	From 227	To 264
EP - 240	From 247	To 284
EP - 260	From 267	To 304
EP - 280	From 287	To 324
EP - 300	From 307	To 344
EP - 320	From 327	To 364
<b>NOTE: - BASED ON 60 X 40mm ANGLE SECTIONS DIMENSION RANGES DOES INCLUDE FOR 5mm THERMAL PADS</b>		

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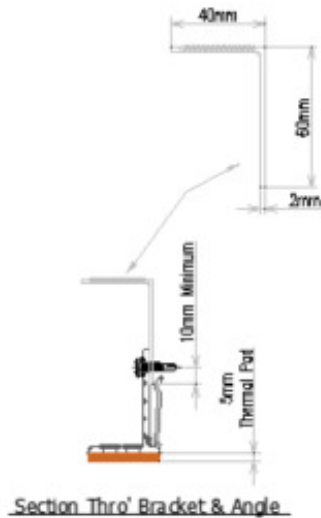
**RANGE OF BRACKET SYSTEM**



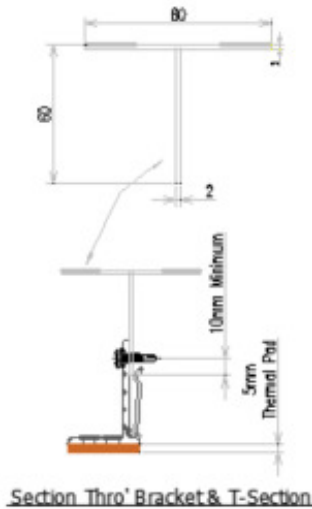
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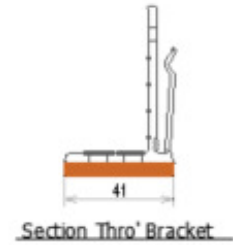
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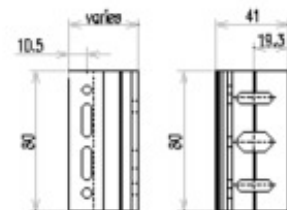
Section Thro' Bracket & Angle



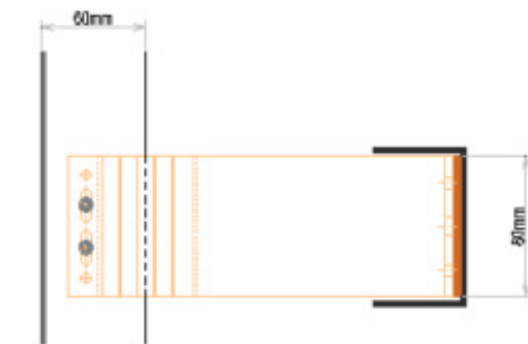
Section Thro' Bracket & T-Section



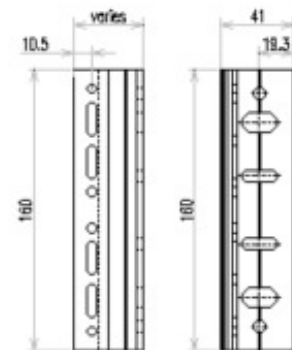
Section Thro' Bracket



Details on 80mm Long Bracket



Bracket with Angles and Channel



Details on 160mm Long Bracket

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2. Fixings:

A2 or A4 Stainless-steel self-drive fixings are supplied to connect rail to bracket. Pan-head stainless steel fixings are supplied to connect panels to vertical support rails. Coloured-head fixings can also be supplied at an additional cost.

3. Panels:

Panels are formed from flat sheet to suit project specification. Vertical Traypanels are 50mm deep, formed in portrait format and Horizontal Traypanels are 40mm deep, formed in landscape format. Large panels can be made but CGL recommend that face dimensions do not exceed 3800mm length or 1300mm width. CGL will undertake structural design of the panels which will position stiffening struts on the panel back to inhibit deflection under load to allowable limits for the material.

4. Joint backing plates:

If landscape panel orientation is chosen, then these plates are supplied for site fixing to the vertical tee rails. The plates are the same material as the panels and thus colour consistency of panels and joints is assured. The tee rails can also be painted or anodised to suit the panel colour as another option.

5. Protective film:

With the exception of Cor-Ten Steel, A removable protective film is supplied on all panels and remains in place through the installation processes to inhibit damage. CGL recommend the film be removed on the day of panel installation otherwise there is the risk that adhesive residue/staining will remain on the panels after later removal.

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## Design

1. [Structural:](#)  
CGL offers structural design of the system based upon supplied wind load information. If this is not available at tender stage, CGL will calculate a load from building shape and location details although the contractor will have to verify this load prior to order. Structural design incorporates rail and bracket centres plus any necessary strengthening of the panels. Tenders will indicate typical calculated rail and bracket centres. Post-order, our design review will give exact grid positions plus bracket loads.
2. [Interface:](#)  
Design of interfaces between other wall/structure components are displayed on CGL indicative details. These details provide a guide for the design of interfaces, which will be required to be adapted to suit specific projects.
3. [Bi-Metallic Corrosion:](#)  
Certain metals can react corrosively with other metals and materials, however, due care must be adhered to prevent this.

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## Ancillary Materials

Although the following items form parts of the overall wall construction, they are not included in CGL's supply. However, we are often consulted on their use and comment as follows –

- 1. [Wall fixings:](#)**  
Depending on the substrate, it may be necessary to commission pull-out tests to establish the strength of block/concrete walls. Screw fixings are more common for attachment to light-weight metal framed walls. In all cases, stainless steel should be used if the fixings are in the “wet” zone. CGL will provide system bracket loads post-order to allow calculation of number and type of fixings.
- 2. [Cavity closures/fire breaks:](#)**  
In order to inhibit the spread of fire and smoke through the ventilated cavity, it is required to break the cavity with non-flammable closures. These can be made from rock-fibre bats or perforated intumescent sheeting and are usually fitted at floor slab levels, compartment walls, building corners, and around window penetrations.
- 3. [Insulation:](#)**  
An essential part of the backing wall is the wall insulant. Insulation should never be applied to the Traypanels themselves, but always to or into the backing wall. The insulation should be resistant to moisture and provide adequate fire performance, based on the building construction and end use. Calculations are required to ensure that the overall construction achieves the specified U-value and include the effect of any regular cold-bridging of wall components. Often, metal members are embedded in the insulant to provide bracket supports - these can be galvanised steel if protected by an external membrane but should be stainless steel or aluminium if exposed.
- 4. [Membranes:](#)**  
It is regarded as good practice to apply breather membrane to the cold side of the wall insulant. If properly fitted and joint-sealed, this membrane will stop moisture penetrating the backing wall. Where wall brackets penetrate the insulation layer, particular care should be taken to seal the membrane around these penetrations. Vapour barrier membranes may also require to be fitted on the warm side of the insulant and a condensation risk analysis will identify whether this membrane is necessary.
- 5. [Thermal-break pads:](#)**  
Depending on the thermal evaluation of the wall build-up, thermal-break pads may be incorporated between components (such as wall brackets and substrate). CGL brackets are supplied with these as standard.
- 6. [Flashings, fascia's, window pods, soffits, etc:](#)**  
In order to maintain colour and texture consistency, these accessories should be manufactured from the same material as the panels. CGL's indicative details show a variety of such arrangements.

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## TRAYPANEL SYSTEM HANDLING, INSTALLATION AND MAINTENANCE

### Handling

All supplied materials are delivered on protected pallets which are easily off-loaded by forklift. The pallets are also suitable for crane lifting; however, care should be taken by use of lifting beams to ensure pallet contents are not damaged by carrying slings or straps. All material/packages should be handled with care and appropriately stored in accordance with the printed instructions on the pallet labels. Once the pallets are opened and materials distributed for installation, additional care of individual items is necessary for protection of the goods prior to installation. The products are thin gauge metals and should be treated as such. Gloves should be worn when handling the products.

### Support System Installation

Specific installation information should be available from construction drawings i.e. -

- Datum level for base of carrier rails.
- Datum levels for intermediate joint and top of carrier rails.
- Horizontal centres of location of carrier rails and where appropriate specific rail offsets adjacent to openings etc.
- Wall bracket holing and fixings to be used, vertical and horizontal positions / centres.
- Panel modules and specific interfaces.

The above information together with the rainscreen zone to be achieved is the minimum requirement to enable installation to be undertaken.

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## Procedure

1. A survey of the structure should be carried out as a priority before commencing operations to establish that it is within specified tolerances.
2. If the survey identifies areas of conflict from construction issue drawings, discuss and agree a solution suitable to all parties before commencing with the works.
3. The following units are supplied as detailed on the contractor's detailed information utilising CGL standard fabrication templates -

### Brackets:

Extruded aluminium helping hand bracket to designed length and zone depth, with fixing holes for attachment to backing wall and vertical support rails. Polypropylene isolator pad attached as standard.

### Carrier Rails:

CS1 tee and angle extruded aluminium rails 6m maximum lengths.

### Joint backing plates:

May be required for landscape-format system option in lieu of painted or anodised rails.

### Traypanels and associated metalwork:

Fully manufactured panels incorporating stiffening struts if required.

### Fixings

A2 or A4 Stainless Steel Self Drilling Tek Screws for helping hand to rail and panel to rail

4. Wall bracket fixings to substructures are **not** included in the system. However, we do provide design information in respect of loadings to assist a selection to be made.
5. The system is fitted to the structure in the following manner:
  - Working from construction drawings, establish bracket centres (horizontally and vertically), and carry out initial fix to substrate via slotted holes. Ensure that brackets are lined properly in vertical plane and then dead hole fix. Torque tight all fixings.
  - Apply relevant vertical rail back leg into temporary holding slots in brackets.

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- Establish rail datum line and required construction zone (structure to rail face) and then apply 2 no self-drill screws per bracket to secure. It is critical to ensure that the faces of rails are in perfect horizontal plane.
- Rivet-fix joint backing plates to vertical support rails (landscape format only if required).
- Panel installation can now proceed. Protective foil will require to be stripped back from panel returns to allow installation.
- Panels are applied to the support rail evenly and fixed in place by application of the panel-fixing screws through the horizontal joint for landscape format and vertical joint for portrait format.

### Panel Removal

#### Procedure

1. Panels need to be removed from left to right (Vertical Tray Panel) or bottom to top (Horizontal Tray Panel)
2. Remove Discreet Fixings in the module gap.
3. Pull panel forwards and lift away. Repeat until the damaged panel is accessible.
4. To reinstate, line panel back up and Re-insert discreet fixing.

#### Maintenance

Generally, metal facades should be washed down with warm soapy water utilising a soft non-abrasive applicator and then rinsed down with clean water. The frequency of this depends on the material chosen and project location. Specific cleaning and maintenance instructions will be provided with the project specific O&M information. During cleaning and maintenance, the company conducting this are required to carry out suitable and sufficient project specific risk assessments.

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### Product Safety Information

The products relating to the system are manufactured from externally supplied materials. These materials are not altered during the manufacturing process. As such, the products are considered intrinsically safe and do not present any major hazards when correctly installed and used under normal conditions.

Potential hazards during installation:

- Sharp edges.
- Some components are considered heavy (Depending on project specific panel sizes)
- To comply with current health and safety legislation, the cladding contractor installing the system are required to carry out suitable and sufficient project specific risk assessments for installation of this product.

### Disposal

All aluminium components are fully recyclable and can be taken to suitable recycling centres. All other components should be disposed of in accordance with current environmental waste disposal legislation.

### Warranty

CGL offers warranty over system design and performance for varying periods dependent on location and material used.

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