



Design Guidance - Site Works

Prestressed and Precast Concrete Wall Panels

Panel Support

The minimum support area for each end of the panel is as follows:

- 145mm panels – 150mm x 150mm
- 180mm panels – 180mm x 180mm
- 280mm panels – 250mm x 280mm

The support area must be designed to carry the full line load of the wall panels without bending and must be a smooth flat surface.

Horizontal Joints

- Panels have a male/female joint detail. Horizontal joints should lock together providing a structural connection.
- Any foreign material should be removed from the joints prior to assembly.
- Variations in panel cross sectional dimensions will produce small deviation of the panel joints.
- Mastic sealant applied to joint recess is designed to accommodate these variation.

Vertical Joints

- Panel lengths are calculated to produce a theoretical 10mm to 15mm vertical gap between panel stacks.
- Tolerance in the erection of the steel supporting structure and the cross section of the precast units will result in this gap varying from 0mm to 35mm.
- This variation may occur joint to joint or within any individual vertical joint.
- Mastic sealant applied to the joint is designed to accommodate these variations.

FOR FIREWALLS ONLY - Intumescent mastic sealant applied to the joint is designed to accommodate these variations.

Fixing Plates

- Panels are clamped to the steel columns using 8mm thick steel plate and M12 bolt fixed to a case in M12 socket. Standard socket positions are 140mm x 140mm from unit corners.
- Fixing plates are zinc plated finish and may vary in colour and texture.
- Bolts are BZP finished.
- Standard fixing plates are suitable for column sizes

Fixing Plates ...continued

- up to 406 x 178 UB
- L shaped fixing plates are suitable for 456 x 191 UB columns and above.
- Local fixing clashes may be overcome with M12 concrete anchors and fixing plates

FOR FIREWALLS ONLY - Consideration must be made to fire protection to fixing materials.

Erection Systems

- Panels are erected using either D-shackles located in cast holes or clutches located in cast inserts.
- Formed holes may contain a thin grout skin to the mould face that should be tapped out prior to fitting lifting shackles.
- Erection inserts may require cleaning prior to attaching lifting clutches.

Vertical Internal Joint Sealant

- Internal joint seal is provided with a one-part polyurethane mastic sealant (where included in the quotation). **FOR FIREWALLS ONLY** - Internal joint seal is provided with intumescent mastic sealant (where included in the quotation).
- Joints must be filled with backing material (not supplied) prior to sealant application. **FOR FIREWALLS ONLY** - Joints must be filled with fire retardant foam backing material (not supplied) prior to sealant application.
- Masking tape strips should be laid on panel surface to cover joint variations and to provide a uniform visual appearance.
- Sealant should be gunned to vertical joints and tooled into recess and up to masking tape.
- Masking tape should be removed prior to full cure of sealant
- Sealant is supplied to provide a moisture and dust barrier and is not designed to produce an aesthetic jointing detail. **FOR FIREWALLS ONLY** - Sealant is supplied to provide a moisture, fire and heat barrier and is not designed to produce an aesthetic jointing detail
- Some curling of sealant edges may be expected during curing.

HORIZONTAL PRESTRESSED PRECAST CONCRETE WALL PANELS

Heavy Duty Applications

Horizontal Internal Joint Sealant

- Internal joint seal is provided with a one part polyurethane mastic sealant (where included in our quotation).
- Sealant is gunned to horizontal joints and tooled into recessed “V” shaped joint.
- Sealant is supplied to provide a moisture and dust barrier and is not designed to produce an aesthetic jointing detail.
- Some curling of sealant edges may be expected during curing.
- The horizontal joint is not designed to be full filled with sealant

External Joint Sealant

- Internal joint seal is provided with a one-part polyurethane mastic sealant (where included in the quotation). **FOR FIREWALLS ONLY** - Internal joint seal is provided with intumescent mastic sealant (where included in the quotation).
- Joints must be filled with backing material (not supplied) prior to sealant application. **FOR FIREWALLS ONLY** - Joints must be filled with fire retardant foam backing material (not supplied) prior to sealant application.
- Masking tape strips should be laid on panel surface to cover joint variations and to provide a uniform visual appearance.
- Sealant should be gunned to vertical joints and tooled into recess and up to masking tape.
- Masking tape should be removed prior to full cure of sealant
- Sealant is supplied to provide a moisture and dust barrier and is not designed to produce an aesthetic jointing detail. **FOR FIREWALLS ONLY** - Sealant is supplied to provide a moisture, fire and heat barrier and is not designed to produce an aesthetic jointing detail
- Some curling of sealant edges may be expected during curing.
- ACP cannot be held responsible for any lack of adhesion between sealant and steel sections.

Strand Ends

Prestressing tendons or strands are visible at the unit ends. The density of the concrete means that no further treatment of the strand ends is required to ensure the serviceability and durability of the units.

DISCLAIMER: Please note that any information provided is to be used as a guide only. Any lifting/handling operations should be carried out by trained and competent personnel only. ACP (Concrete) Limited will not be held responsible for any damage or injuries in connection with handling or installation not carried out by ACP (Concrete) Limited.

Strand Ends...continued

FOR FIREWALLS ONLY - Prestressing tendons or strands are visible at the unit ends. The density of the concrete means that no further treatment of the strand ends is required to ensure the serviceability and durability of the units however the cut ends should be protected with intumescent paint if likely to be exposed to fire.

Panel Openings

It is usual to cut panel openings on site. Where openings are cast-in at production, these will conform with the dimension tolerances listed in BS8110.

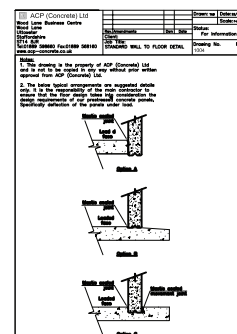
Damage

- It is highly likely that precast units will suffer small chips and superficial damage to unit surface. This damage should not compromise the unit’s structural integrity.
- Any areas should be repaired with a high strength mortar.
- Colour matching of suitable repair mortar and the precast unit is not possible due to high strength requirements of the repair.
- Once the repair is fully cured, the panel joint should be cut and mastic applied as above..

Floor Joint

Attention should be paid to the design to the floor to wall joint detail. Prestressed wall panels are designed to flex under load and the joint sealant detail must accommodate this movement.

Refer to: CAD Drawing Horizontal Panels to Floor Detail



Rodent Protection

Where considered necessary, especially in grain and feed store situations, it is recommended that a steel cap be fitted to the top of vertical joints to prevent possible rodent attack down through the joint backing material.