

# Design & Installation Guide



Logicwall® Design Guide Incorporating: Applications, Properties, Structural Design, Internal & External Design, Performance, Architectural Detail, Trade - Coordination, Installation & Certification

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# LEGAL STATEMENTS

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## IMPORTANT LEGAL STATEMENTS

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## DEFINITIONS

The use of the terms ‘AFS Logicwall®’ and ‘AFS Logicwall® Walls’ throughout the AFS Logicwall® Design Guide are as follows;

AFS Logicwall®: Refers to AFS Logicwall® panels as permanent formwork prior to being installed & corefilled with concrete. AFS Logicwall® Walls: Refers to AFS Logicwall® walls installed with concrete corefill incorporated.





Logicwall® Introduction, Product Description, Product Benefits, Dimensions and Components, Typical Panel, Construction Process overview.

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# INTRODUCTION

AFS has a history in the construction industry of manufacturing and supplying innovative prefabricated building systems.

AFS has focused on its major product, AFS Logicwall®, which through much research and development has become a leading proprietary walling system for the multi-unit residential construction market. The buildings which make up this market are apartments, hotels/motels, accommodation buildings, nursing homes, aged care facilities, office blocks and shopping

centres, etc.

These buildings require large amounts of party/separation walls, corridor walls and lift and stair shafts. In most cases they also require boundary walls, external facade walls and blade walls, balcony upstands, basement and retaining walls. AFS Logicwall® can be utilised effectively in all these areas, providing benefits for all parties concerned whilst complying with the relevant NCC requirements.

## Product Description

AFS Logicwall® is a CodeMark certified permanent formwork system for load bearing reinforced concrete walls.

It consists of lightweight sandwich panels created by bonding hard-wearing fibre cement sheets to galvanised steel stud frames. The panels are quickly and simply hand erected on site and then core-filled with concrete to achieve load bearing walls. The fibre cement sheeting remains in place as sacrificial formwork, and provides an excellent substrate for applied finishes such as skim coating, acrylic render and paint.

The panels can vary in size and thickness to suit a variety of architectural and engineering design requirements. The structural capability of the product when filled with concrete makes it an ideal solution for the construction of buildings such as:

- Multi-unit residential apartments
- Hotels and motels
- Commercial offices
- Shopping centres
- Hospitals
- Correctional centres

## Product Benefits

### Speed

The system is renowned for its fast and simple construction leading to earlier project completion.

### Structural Capacity

The high strength, thinner walls provide more internal space and reduce the dead load on the structure. The walls act as deep beams and transfer walls, which reduce floor slab thickness and eliminates conventionally formed beams and column. The system offers high lateral load resistance and wind and seismic load capacity.

### Performance

The monolithic character of the system offers consistent, performance for acoustic, weather tightness, fire and thermal to meet the requirements of the NCC.

### Quality

The system delivers finished, solid-feel concrete walls lined both sides with durable, finished fibre cement sheets ready for skim coating and painting. The system provides accuracy in floor to floor wall alignment resulting in straight and plumb walls.

### Efficiency

There is a reduction of trades including blockwork, rendering and plasterboard, resulting in major cost and time savings. There is minimal wastage on site leading to a cleaner, safer workplace. Materials handling, including cranes, is reduced significantly, by up to 80%.

## Dimensions and Components

AFS Logicwall® comes in five panel thicknesses: 120mm, 150mm, 162mm, 200mm and 262mm. The standard panel width is 1100mm. However, the panels can be manufactured to any width from 200mm up to

1100mm and any height from 200mm up to 4200mm. Heights exceeding 4200mm can be manufactured upon request and will be regarded as a special order to suit the architectural requirements for each project.

TABLE A1: Logicwall® Single Reinforcement Carriers



Logicwall® System		Sheet Thickness (mm)	Stud Width (mm)	Cavity Size (mm)	Overall Thickness (mm)	Filled Wall Mass (kg/m <sup>2</sup> )	Unfilled Wall Mass (kg/m <sup>2</sup> )
LW120		6mm x 2 layers = 12 mm	108	108	120	290	26
LW150		6mm x 2 layers = 12 mm	136	136	148	360	26.5
LW162		6mm x 2 layers = 12 mm	150	150	162	394	26.5
LW200		6mm x 2 layers = 12 mm	188	188	200	480	27

TABLE A2: Logicwall® Double Reinforcement Carriers







Logicwall® System		Sheet Thickness (mm)	Stud Width (mm)	Cavity Size (mm)	Overall Thickness (mm)	Filled Wall Mass (kg/m <sup>2</sup> )	Unfilled Wall Mass (kg/m <sup>2</sup> )
LW200D		6mm x 2 layers = 12 mm	188	188	200	480	27
LW262D		6mm x 2 layers = 12 mm	250	250	262	630	27.5

TABLE A3: Components and Accessories

Item	Description	
Standard Logicwall® Panel	6mm fibre cement sheet bonded to galvanised steel stud frame	
Corner Panel	Prefabricated 90° corner panel with factory installed horizontal corner reinforcement	
Sills and Lintels	Infill panels for above and below window and door openings	
Floor Track	To secure the panel to the slab or footing	
Floor Track Pin	For fastening floor track to slab	
Panel End Caps	To close the panel ends and finish windows and door openings	
Squints	Temporary galvanised angle used for providing temporary additional support where walls change direction at angles other than 90°	



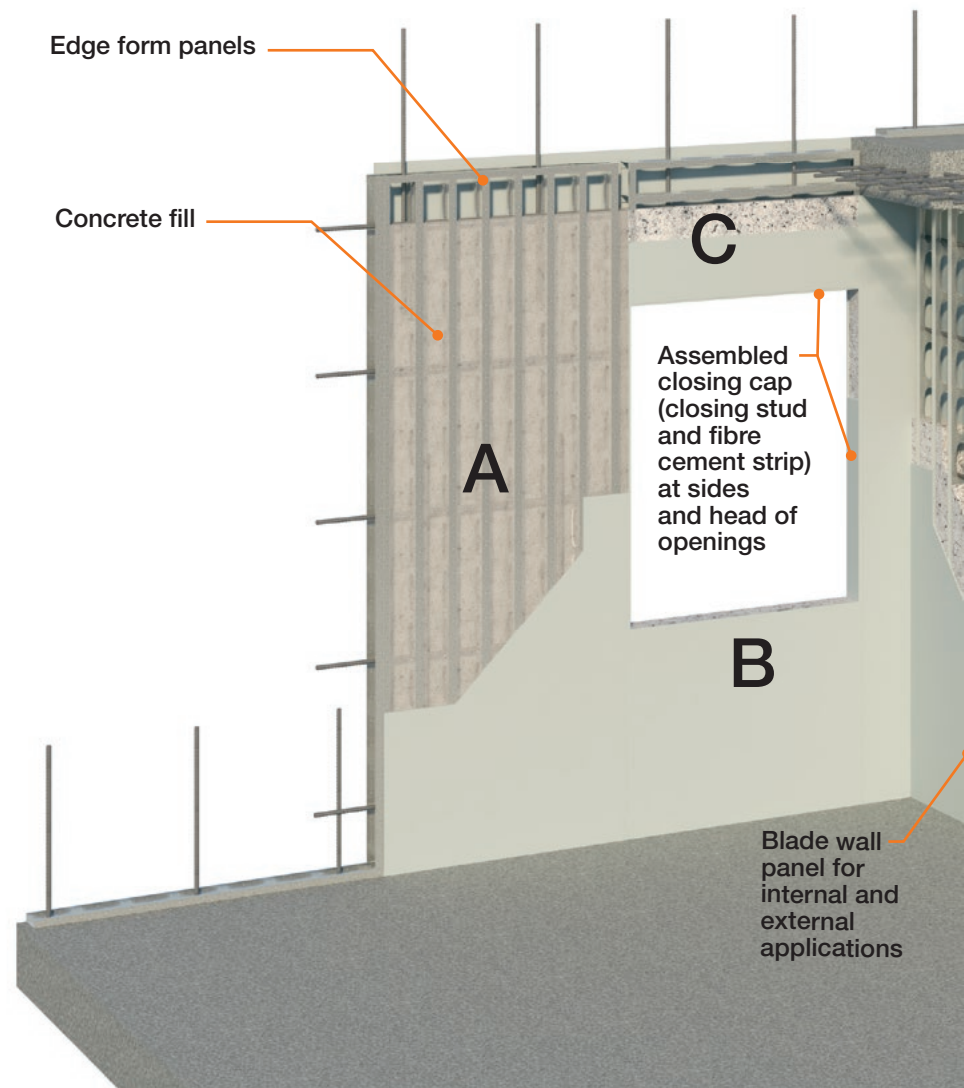
Table A3: Components and Accessories (continued)

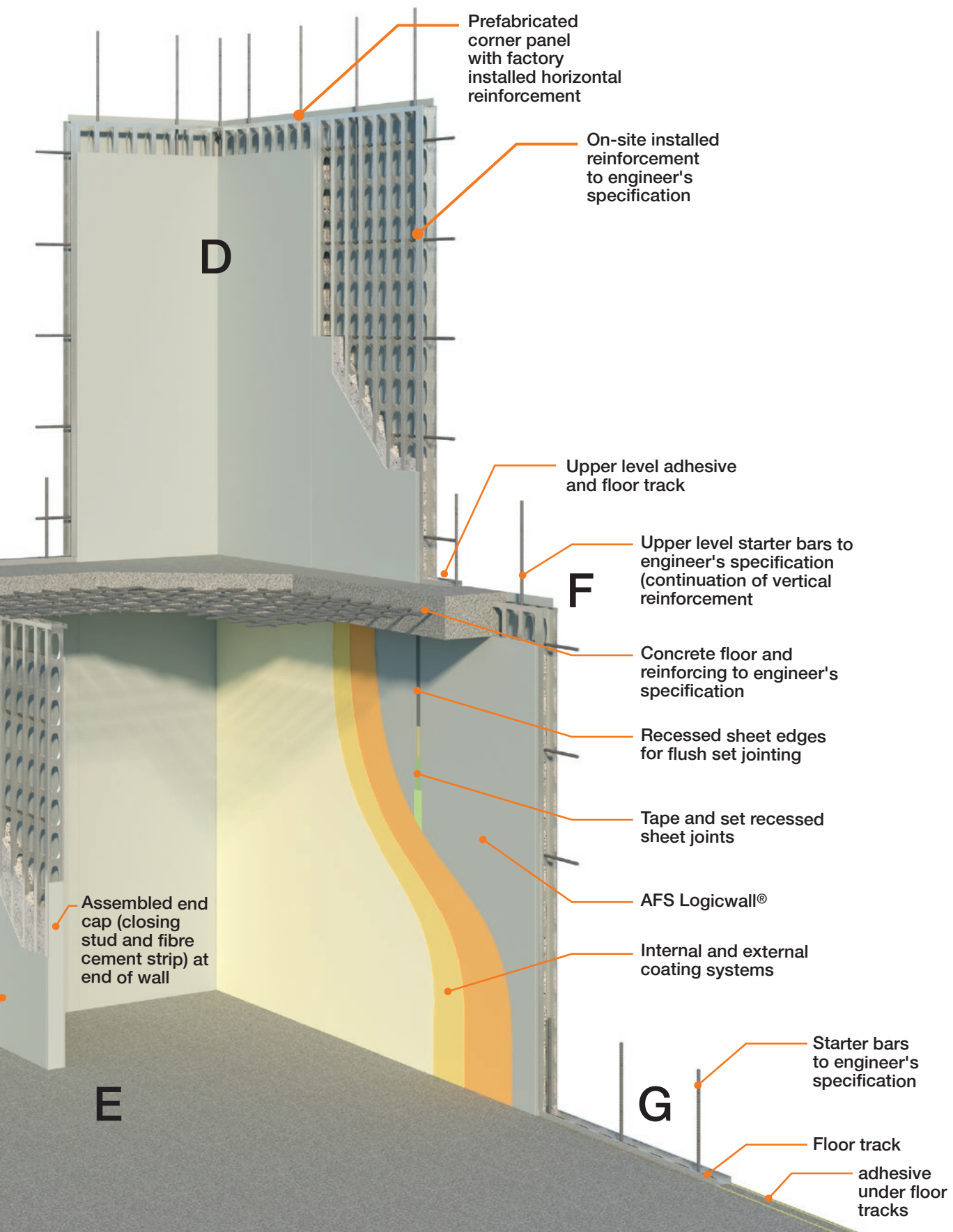
Item	Description	
Screws	For mechanically fixing panel joints, end caps and panels to floor track.	
Panel Adhesive	For bonding end caps, floor track and panel joints.	
Wall Braces	Purpose engineered adjustable braces for supporting and plumbing walls during core fill process	
Brace Screws	For temporary fixing of wall braces to AFS Logicwall® panels	
Panel Lifter	For safe and easy installation of AFS Logicwall® panels	
Excalibur Bolts	For temporary fixing of wall braces to floor slab	



## Typical Panel and Component Layout

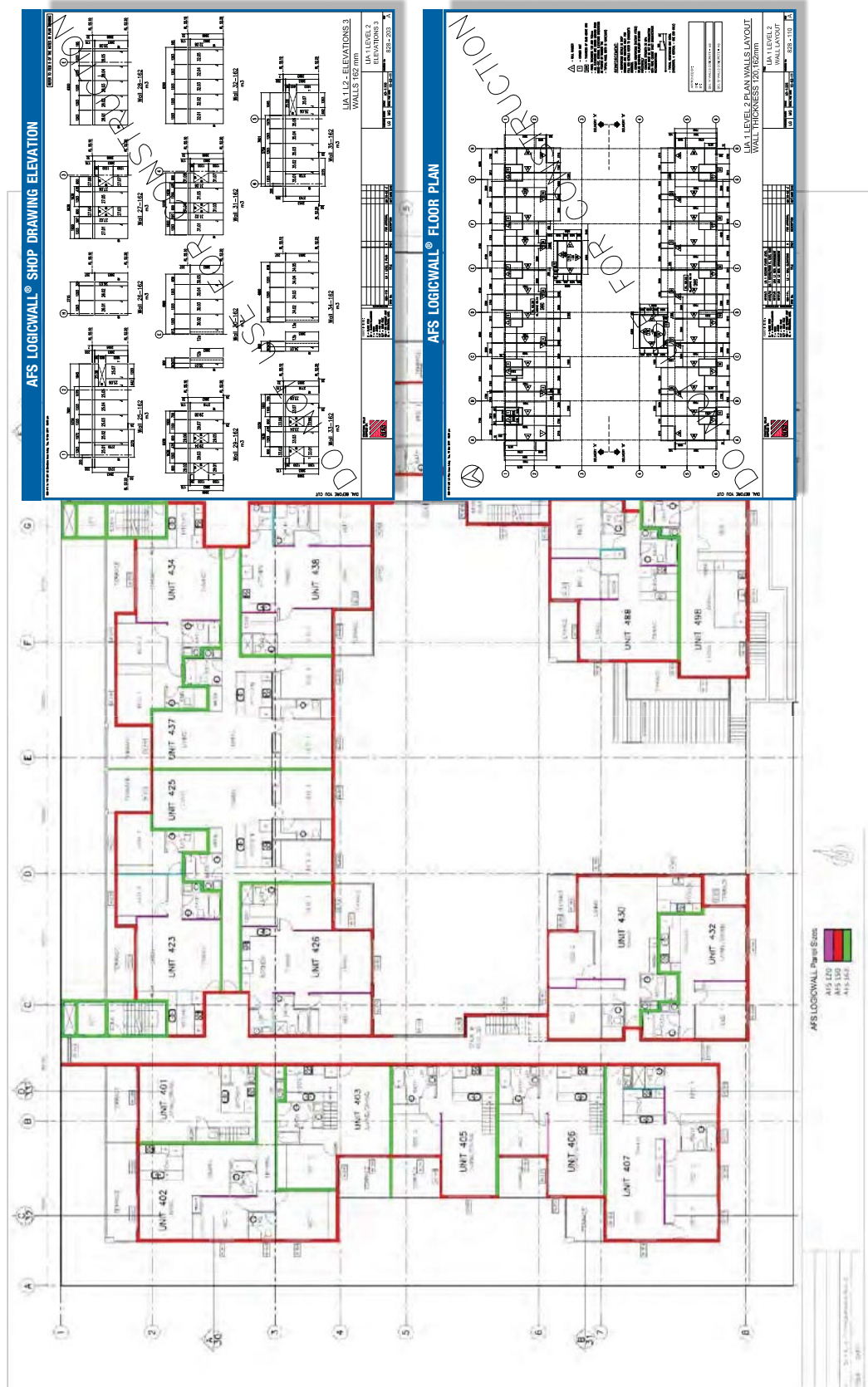
- A Standard Panel
- B Sill Panel
- C Lintel Panel
- D Corner Panel
- E End Cap
- F Edge Form
- G Floor Track







## Sample Plan Layout



## Construction Process Overview

### Shop Drawings

AFS Logicwall® panels are custom made to schedules prepared from the construction drawings of the project and each panel is shop drawn and coded for easy identification on site.

### Production

AFS Logicwall® is precision manufactured in facilities capable of producing large volumes of panels with short lead times. The controlled environment and automated machinery helps deliver quality with consistency.

### Delivery

AFS's in house transportation and logistics team ensures that orders are shipped arriving onsite securely and on time. The panels are flat stacked, creating pallets which are easily delivered to site and craned onto the floor slab ready for placement.

### Unloading

AFS recommends the use of an approved and certificate pallet lifter for the unloading of panels and packs on site. Pallet lifter safety guide handbook is available upon request. Care must be taken to avoid damage to the panel edges, ends and surfaces. To ensure optimum performance, store panels under cover and keep them dry prior to erecting. If the panels become wet, allow to dry before erecting and core filling.

### Site Erection

Following set out, the Logicwall® panels are hand lifted into place over a steel floor track and reinforcement starter bars. The panels are braced with adjustable braces and then plumbed and straightened.

### Openings and Services

Window and doorway openings are formed with sill and lintel panels which are also scheduled and manufactured to size. Steel door frames are installed with the panels. Horizontal and vertical reinforcement steel and electrical services are placed in the walls. The panel openings and ends are closed with the end cap system.

### Concrete Core Filling

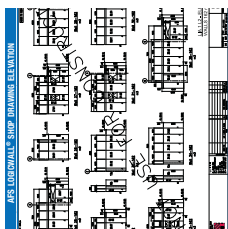
The erected panels are then core filled with concrete with a mix design that is suitable for filling AFS Logicwall® using concrete pumping methods. This is mostly done from the formed deck of the next slab or off a scaffold. The concrete walls are then ready to perform as a load bearing structure for the next floor slab or roof structure.

### Finishing of Walls

Once the concrete core fill has gained strength and the walls are permanently braced by the floor or roof structure at the top of the walls the temporary braces are removed. The panels are then prepared and joints set with specified setting methods. The walls are then ready for applied finishes such as skim coating and painting.

The AFS Logicwall® system has contributed to the delivery of quality structural internal and external finished walls for buildings ready to occupy.

#### Shop Drawings



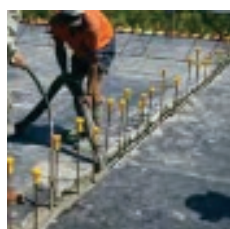
#### Openings/Services



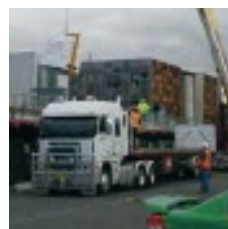
#### Production



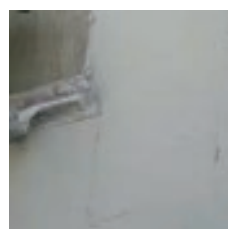
#### Concrete Core Fill



#### Delivery



#### Finishings of Walls



#### Site Erection



#### Completion

