CLEARFORM

INSTALLATION MANUAL

V3.0 MARCH 2024

CLEAR FORM WALL SYSTEMS PTY LTD
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APPENDICES

- MSDS SAFETY DATA SHEET

Date: March 2024

Version: 3.0

Disclaimer: The details in this document are to be treated as general guidance and not project specific.

INTRODUCTION AND INSTALLERS LIABILITY

CLEARFORM is a Polyvinyl Chloride (PVC) permanent formwork wall system for structural elements which is concrete filled.

The installation of CLEARFORM should only be undertaken by people with building industry knowledge and who have a trade background.

While every effort has been taken to make this guide as comprehensive as possible, it is not feasible to produce a document that pre-empts every detail and circumstance that could arise in the process of installing CLEARFORM.

This document is produced solely as a guide. It is the responsibility of the installer to read and understand this manual thoroughly.

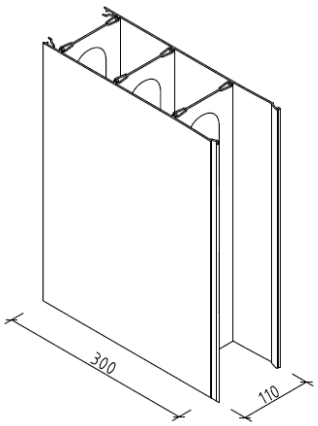
To ensure the successful installation of CLEARFORM, builders and trades people must follow the recommended practices within and in conjunction with the CLEARFORM design manual. Installers of CLEARFORM should either be - or be supervised by – those with conventional form-working, carpentry or foreman qualifications to adhere to safe construction practices.

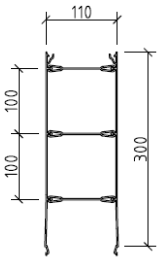
These include the requirements of the applicable local authority's Occupational Health and Safety rules and building codes of practice for form-working and concrete steel placement.

As the manufacturer, Clear Form Wall Systems P/L T/A CLEARFORM accepts no liability for any consequences whatsoever that arise because of the use of CLEARFORM on any site or in any application.

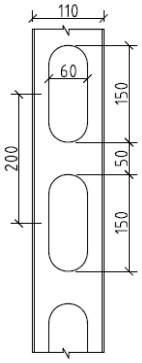
By undertaking to install CLEARFORM, the persons doing so acknowledge they have the skills, knowledge, experience, and ability to safely, efficiently and professionally install CLEARFORM; thereby indemnifying Clear form Wall Systems P/L T/A CLEARFORM from any claim that arises from such installation except to make good or replace (at their discretion) any product that has failed as a result of defective materials or manufacture.

110MM SYSTEM PROFILE COMPONENTS





PLAN

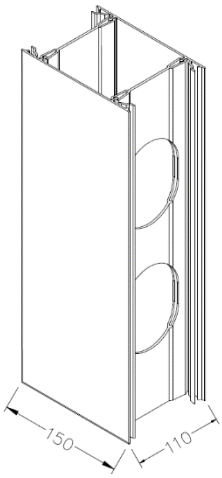


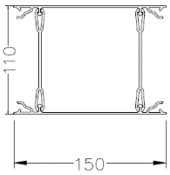
ELEVATION

110mm Profile Panel

The 110mm profile panel can be installed vertically to act as the main form for the wall or horizontally for beam applications.

Panels can be provided with clear or white faces.

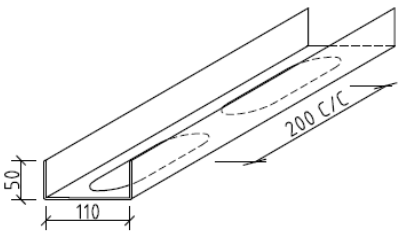


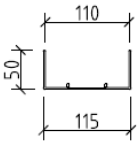


PLAN

PS-110 Panel Spacer

The Panel Spacer is installed in a vertical direction. Used as a 150mm spacer within the main form and is clipped into the male anchors on both ends.

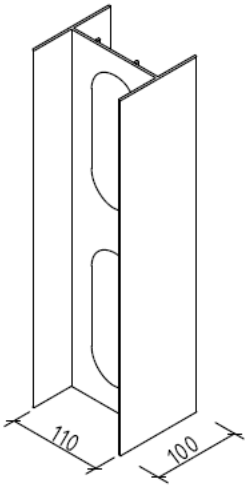


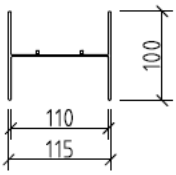


PLAN

BT-110 Bottom Track

The Bottom Track is installed in a horizontal direction and is used as a guide for the bottom of the wall to keep the panels into alignment.

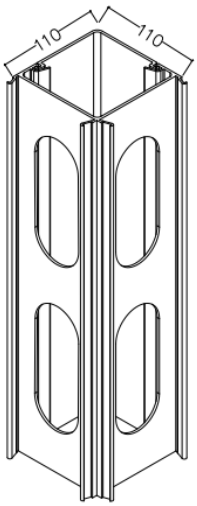


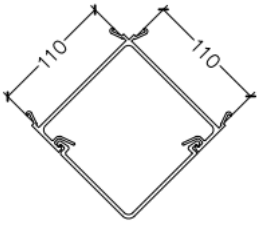


PLAN

PC-110 Panel Connector

The Panel Connector can be used both vertically and horizontally when joining the panels where no anchors are available. Use screws to fasten.

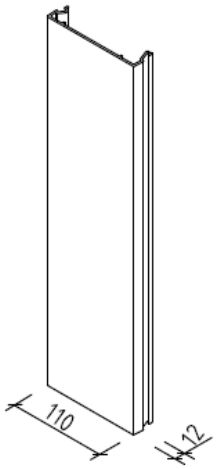


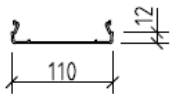


PLAN

CP-110 Corner Piece

The Corner Piece is installed vertically and is clipped into the Profile Panel to create a 90-degree corner.

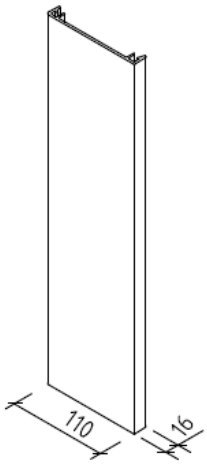




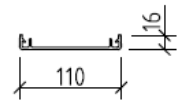
PLAN

ECM-110 End Cap Male

The Male End Cap is installed in a vertical direction. Used to cap off the end of the panel and is clipped into the female anchor.

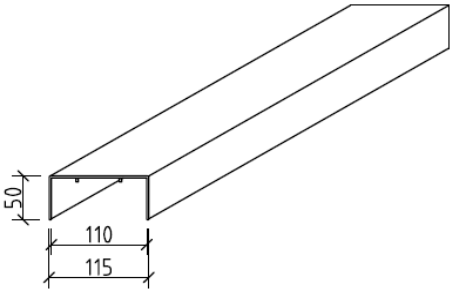


ECF-110 End Cap Female

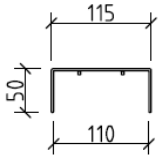


PLAN

The Female End Cap is installed in a vertical direction. Used to cap off the end of the panel and is clipped into the male anchor.

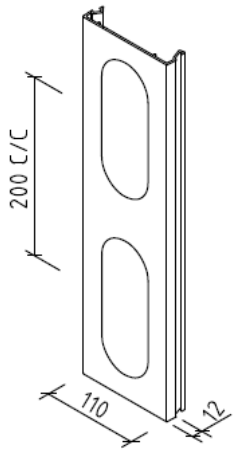


TC-110 Top Cap

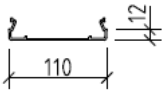


PLAN

The Top Cap can be installed in both horizontal and vertical directions and is used to cap off the top or end of a wall.

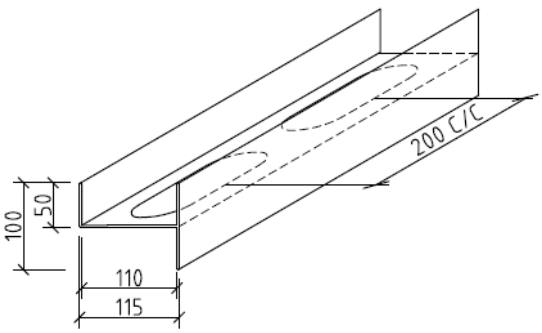


JT-110 Junction Track

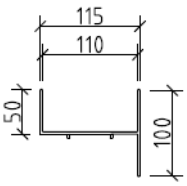


PLAN

The Junction Track is installed in a vertical direction at wall intersections to create a T-Junction or corner off the main form.



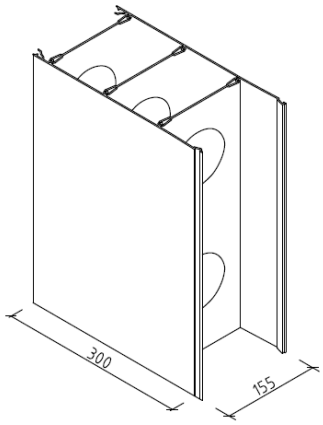
EF-110 Edge Flashing

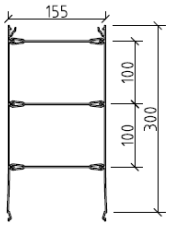


PLAN

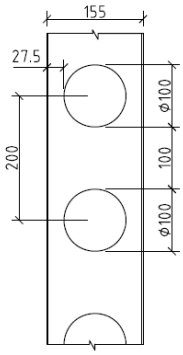
The Edge Flashing is used similarly as the Bottom Track on perimeter applications. Commonly used for perimeter walls, lift shafts and stairwells whereby the double flanged side is designed to cover the cold joint where the wall meets the concrete slab.

155MM SYSTEM PROFILE COMPONENTS





PLAN

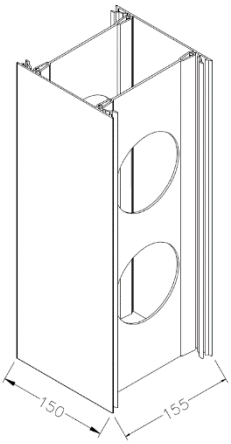


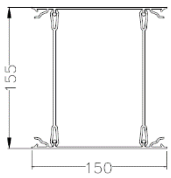
ELEVATION

155mm Profile Panel

The 155mm profile panel can be installed vertically to act as the main form for the wall or horizontally for beam applications.

Panels can be provided with clear or white faces.

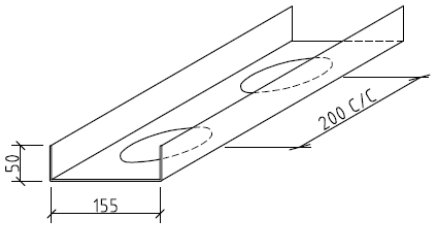


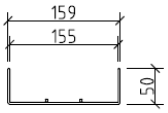


PLAN

PS-155 Panel Spacer

The Panel Spacer is installed in a vertical direction. Used as a 150mm spacer within the main form and is clipped into the male anchors on both ends.

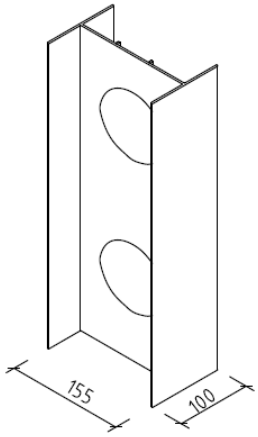


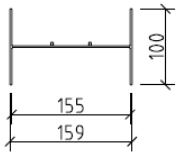


PLAN

BT-155 Bottom Track

The Bottom Track is installed in a horizontal direction and is used as a guide for the bottom of the wall to keep the panels in alignment.

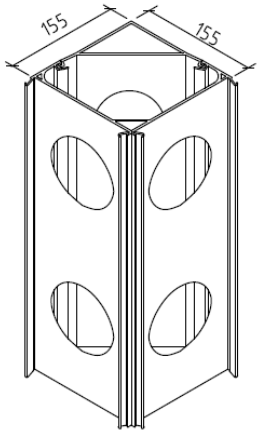


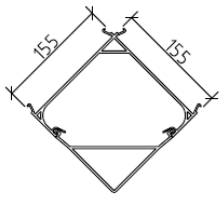


PLAN

PC-155 Panel Connector

The Panel Connector can be used both vertically and horizontally when joining the panels where no anchors are available. Use screws to fasten.

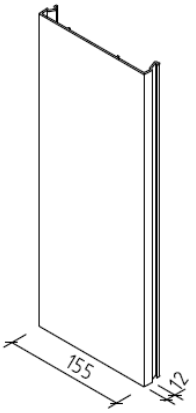




PLAN

CP-155 Corner Piece

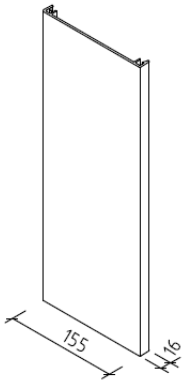
The Corner Piece is installed vertically and is clipped into the Profile Panel to create a 90-degree corner.

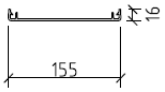


PLAN

ECM-155 End Cap Male

The Male End Cap is installed in a vertical direction. Used to cap off the end of the panel and is clipped into the female anchor.

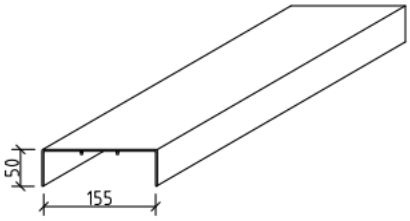


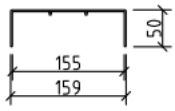


PLAN

ECF-155 End Cap Female

The Female End Cap is installed in a vertical direction. Used to cap off the end of the panel and is clipped into the male anchor.

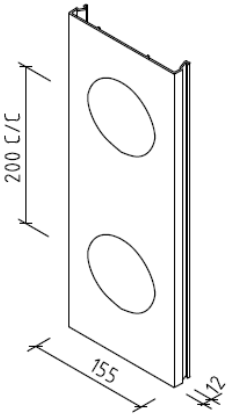


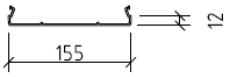


PLAN

TC-155 Top Cap

The Top Cap can be installed in both horizontal and vertical directions and is used to cap off the top or end of a wall.

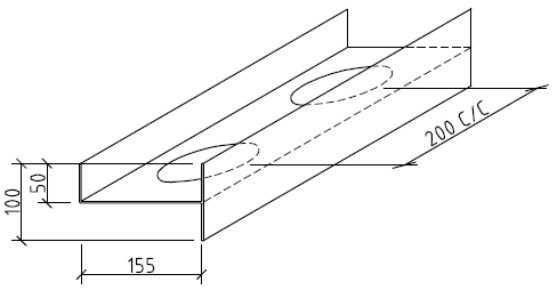


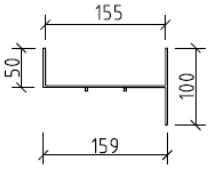


PLAN

JT-155 Junction Track

The Junction Track is installed in a vertical direction at wall intersections to create a T-Junction or corner off the main form.



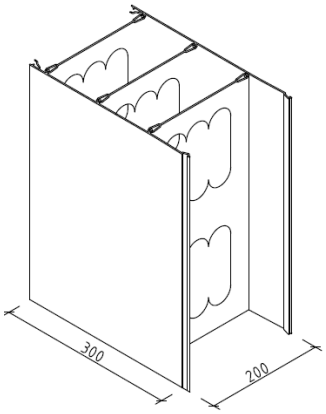


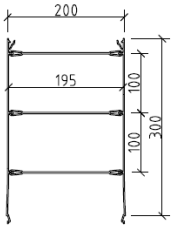
PLAN

EF-155 Edge Flashing

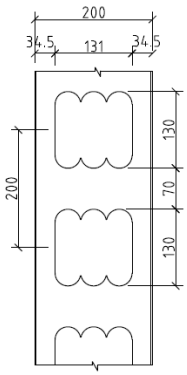
The Edge Flashing is used similarly as the Bottom Track on perimeter applications. Commonly used for perimeter walls, lift shafts and stairwells whereby the double flanged side is designed to cover the cold joint where the wall meets the concrete slab.

200MM SYSTEM PROFILE COMPONENTS





PLAN

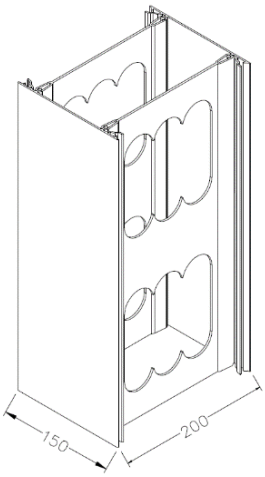


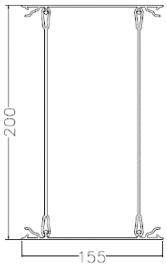
ELEVATION

200mm Profile Panel

The 200mm panel can be installed vertically to act as the main form for the wall or horizontally for beam applications.

Panels can be provided with clear or white faces.

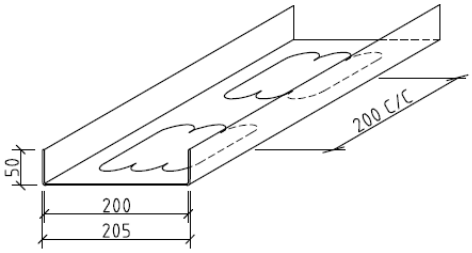


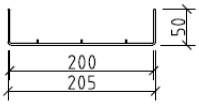


PLAN

PS-200 Panel Spacer

The Panel Spacer is installed in a vertical direction. Used as a 150mm spacer within the main form and is clipped into the male anchors on both ends.

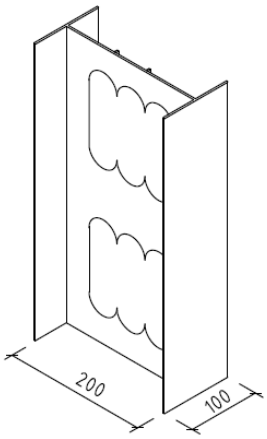


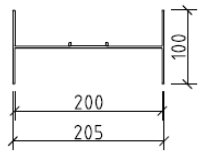


PLAN

BT-200 Bottom Track

The Bottom Track is installed in a horizontal direction and is used as a guide for the bottom of the wall to keep the panels in alignment.

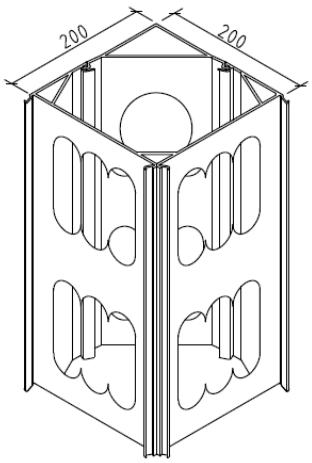


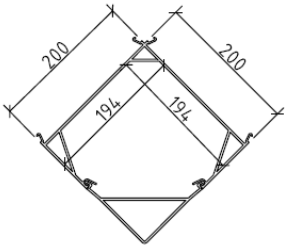


PLAN

PC-200 Panel Connector

The Panel Connector can be used both vertically and horizontally when joining the panels where no anchors are available. Use screws to fasten.

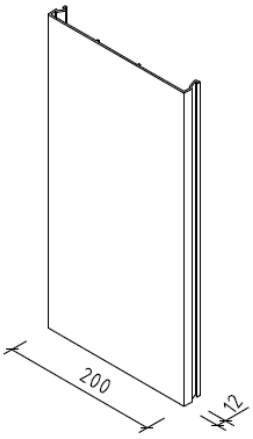


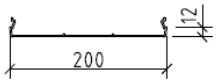


PLAN

CP-200 Corner Piece

The Corner Piece is installed vertically and is clipped into the Profile Panel to create a 90-degree corner.

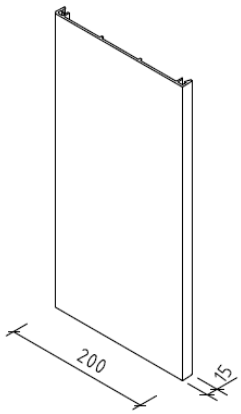


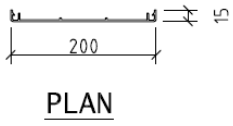


PLAN

ECM-200 End Cap Male

The Male End Cap is installed in a vertical direction. Used to cap off the end of the panel and is clipped into the female anchor.

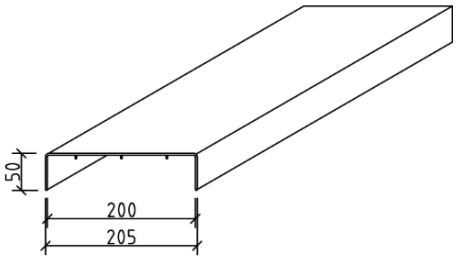


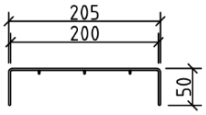


PLAN

ECF-200 End Cap Female

The Female End Cap is installed in a vertical direction. Used to cap off the end of the panel and is clipped into the male anchor.

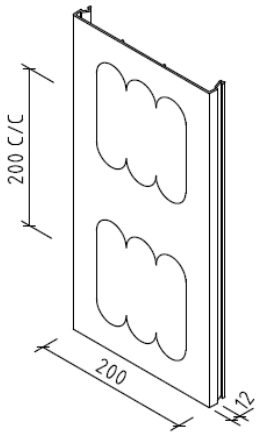


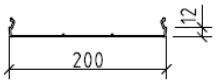


PLAN

TC-200 Top Cap

The Top Cap can be installed in both horizontal and vertical directions and is used to cap off the top or end of a wall.

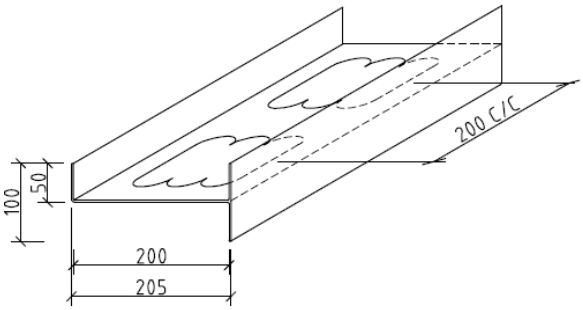


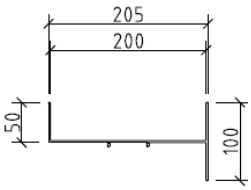


PLAN

JT-200 Junction Track

The Junction Track is installed in a vertical direction at wall intersections to create a T-Junction or corner off the main form.



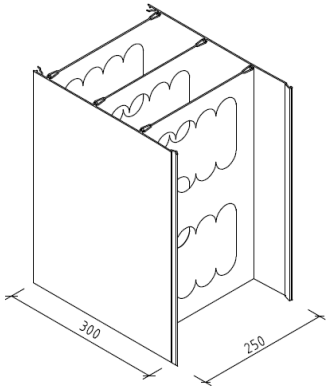


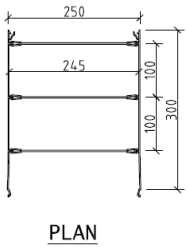
PLAN

EF-200 Edge Flashing

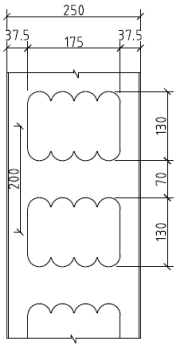
The Edge Flashing is used similarly as the Bottom Track on perimeter applications. Commonly used for perimeter walls, lift shafts and stairwells whereby the double flanged side is designed to cover the cold joint where the wall meets the concrete slab.

250MM SYSTEM PROFILE COMPONENTS





PLAN

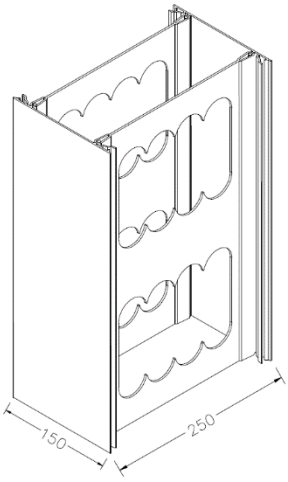


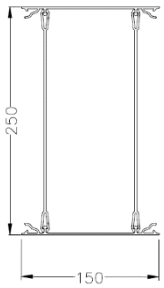
ELEVATION

250mm Profile Panel

The 250mm profile panel can be installed vertically to act as the main form for the wall or horizontally for beam applications.

Panels can be provided with clear or white faces.

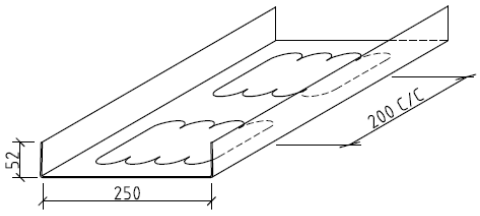


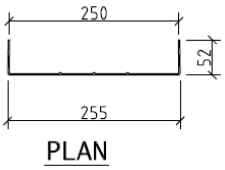


PLAN

PS-250 Panel Spacer

The Panel Spacer is installed in a vertical direction. Used as a 150mm spacer within the main form and is clipped into the male anchors on both ends.

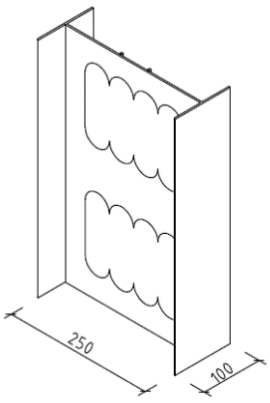


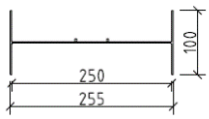


PLAN

BT-250 Bottom Track

The Bottom Track is installed in a horizontal direction and is used as a guide for the bottom of the wall to keep the panels in alignment.

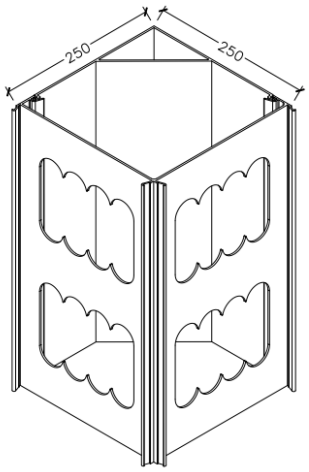


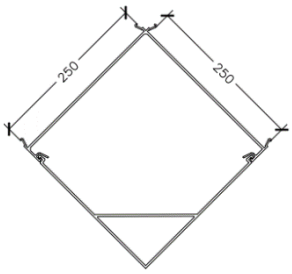


PLAN

PC-250 Panel Connector

The Panel Connector can be used both vertically and horizontally when joining the panels where no anchors are available. Use screws to fasten.

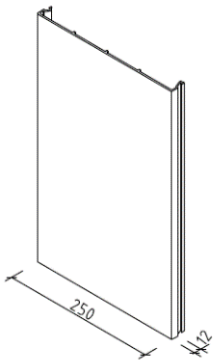


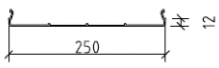


PLAN

CP-250 Corner Piece

The Corner Piece is installed vertically and is clipped into the Profile Panel to create a 90-degree corner.

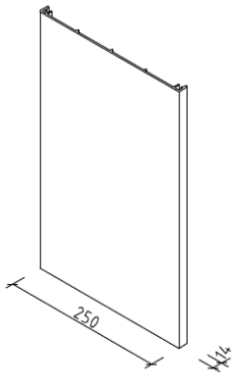


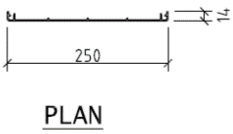


PLAN

ECM-250 End Cap Male

The Male End Cap is installed in a vertical direction. Used to cap off the end of the panel and is clipped into the female anchor.

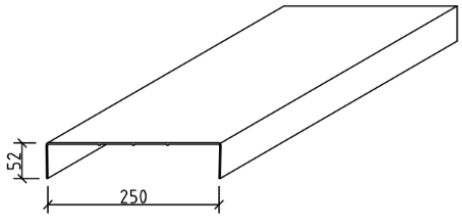


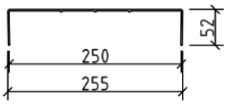


PLAN

ECF-250 End Cap Female

The Female End Cap is installed in a vertical direction. Used to cap off the end of the panel and is clipped into the male anchor.





PLAN

TC-250 Top Cap

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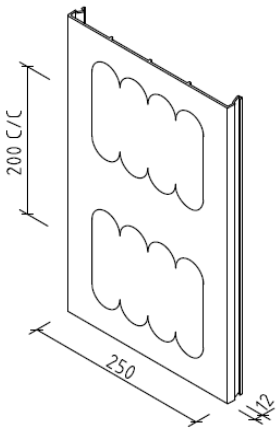
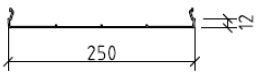
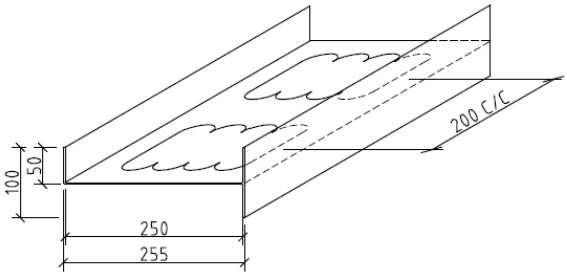


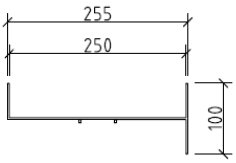


PLAN

JT-250 Junction Track

The Junction Track is installed in a vertical direction at wall intersections to create a T-Junction or corner off the main form.



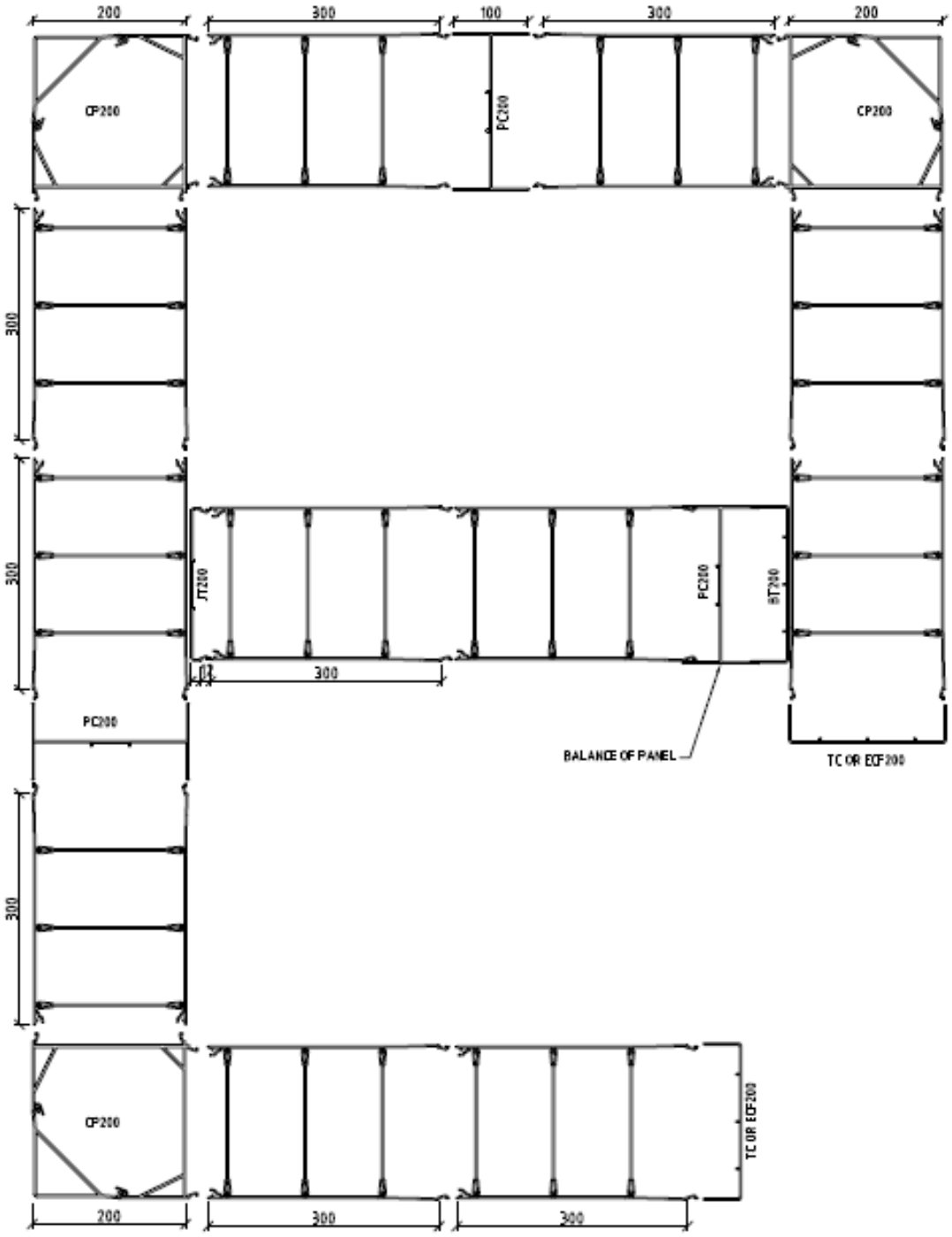


PLAN

EF-250 Edge Flashing

The Edge Flashing is used similarly as the Bottom Track on perimeter applications.
Commonly used for perimeter walls, lift shafts and stairwells whereby the double flanged side is designed to cover the cold joint where the wall meets the concrete slab.

TYPICAL PROFILE PANEL ARRANGEMENT



WORKPLACE HEALTH & SAFETY

CLEARFORM has been designed with workplace health & safety guidelines at front of mind.

It is of priority when planning the installation process to have all hazards and risks pre identified prior to commencement.

Both builder and installer are dually responsible for the identification and assessment of all risks and hazards.

A project specific safety risk matrix must be developed prior to starting the installation of the CLEARFORM system. It is strongly advised that CLEARFORM panels not be installed in high-wind conditions.

As Personal Protective Equipment (PPE) requirements may vary from site to site, it is the responsibility of every individual to ensure that they use the appropriate equipment to safeguard themselves and those around them.

If the product needs to be cut or drilled, installers must wear appropriate PPE including dust-proof respirators and protective eyewear.

Appropriate, safety-tagged cutting tools – drills, grinders and circular saws – must only be used.

Reference to the CLEARFORM Material Safety Data Sheet can be found in the appendices.

For further information please visit SafeWork Australia
https://www.safeworkaustralia.gov.au/risk

PANEL WEIGHTS

Depending on profile width, panels typically weigh between 13.6kgs and 16.6kgs per square meter.

Panels up to 20kgs can be safely handled by one person, 20kgs and above should be handled by two people.

Always follow safe manual handling practices.

Further information can be found in the Tech Specs Data Sheet found in the appendices.

TYPICAL WEIGHTS FOR HANDLING	
Profile	Weight per sqm
110mm	13.6 kg
155mm	15.0 kg
200mm	15.7 kg
250mm	16.6 kg

DELIVERY AND UNLOADING

PACKAGING

CLEARFORM is typically delivered to the site in packs by either a rigid or semi-trailer. The panels are packaged in timber frames, nailed together, and secured by steel strapping.

The number of panels and configuration in each pack – and on each truck - will vary depending on the profile width and length and accompanying accessories.

Quantity of panels in a pack			
110 Profile	155 Profile	200 Profile	250 Profile
27	18	15	12

Pictured – Example of 200mm profile 3m long packs stacked 2 x high and 2 x wide.

Truck	Packs	Panels (up to)	Sqm of product
Rigid	8	120	108
Semi	16	240	216

UNLOADING

Prepare an appropriately sized space onsite for bundles to be unloaded to (refer to dimensions guide below). The space should be a level surface, clear of debris and hazards.

Packs can be unloaded by Hiab, forklift or crane. Lift no more than four bundles at a time. If lifting by Hiab or crane, strap cranage soft slings to the bottom outside faces of timber frames to minimise the risk of damaging panels.

ACCEPTANCE

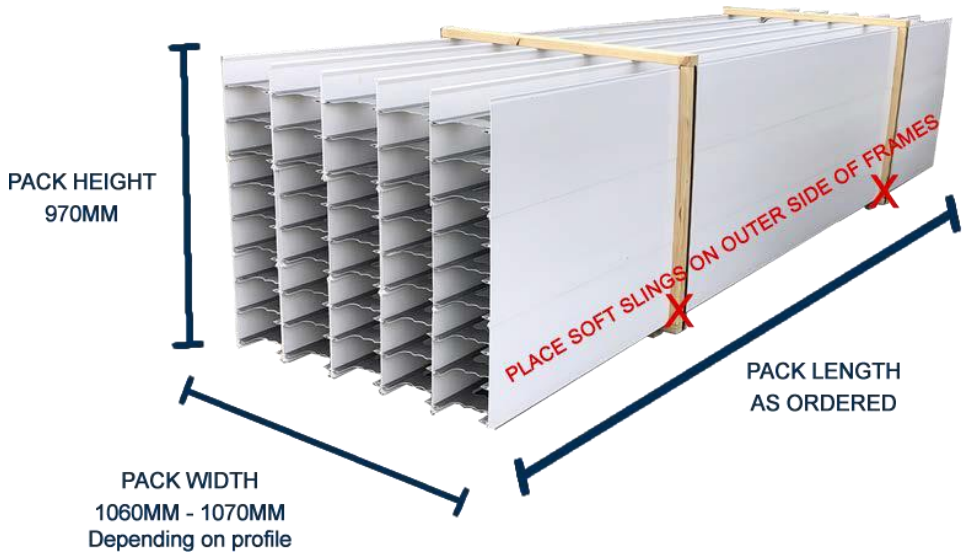
Care must be taken by the client (or representative) to ensure the unloading and storage of the product on site does not incur damage to the product.

Clients are required to sign a Proof of Delivery Docket upon receipt of their order confirming the order has been received in good condition.

Once products are inspected, signed for, and accepted on-site – Clear Form Wall Systems P/L T/A CLEARFORM is indemnified from any claim that arises.

This is particularly important as installing damaged products can lead to blow-outs, bulging and other defects which CLEARFORM cannot accept liability for once acceptance of the product is signed for.

Please refer to the Clear Form Wall Systems Pty Ltd Terms and Conditions.



Packs should be stacked no greater than two packs high with spacers. Spacers should be at four (4) points for even distribution of dead weight, particularly to prevent distortion in extreme heat.

Packs with stock measuring greater than 5m in length should be lifted two packs at a time.

The licensed forklift driver/crane operator must ensure packs are placed carefully on the ground and not dropped from height.

INSTALLATION

HAND TOOLS REQUIRED

Using the correct tools and equipment is essential for an efficient installation.

Below is a typical range of tools required:

- Tape measures
- Hand saws
- Chalk lines
- String lines
- Hammers
- Rubber Mallets
- Markers
- Spirit Levels
- Pliers and nips
- Laser level equipment
- Squares

POWER TOOLS REQUIRED

- Grinders
- Circular saws
- Concrete nail gun
- Screw gun
- Hammer drills

CONCRETING TOOLS REQUIRED

- Shovels
- Wheelbarrow
- Hand trowels
- Concrete vibrator 25-40mm

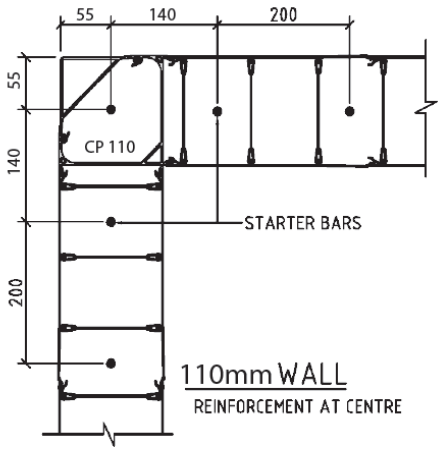
SETOUT

Using the pins and markings provided by the surveyor, ensure the walls are clearly and accurately set out. The builder should be responsible for this – and should sign off on the set out.

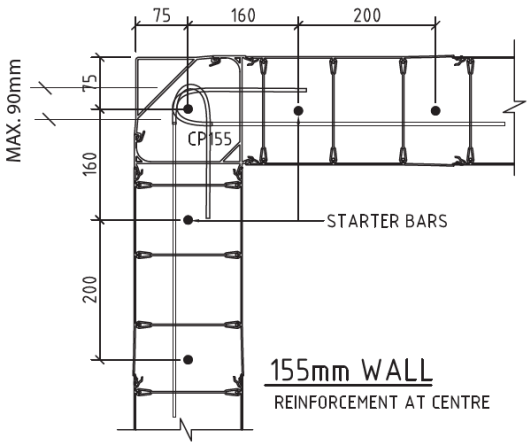
It is important to consider the wall layout and to establish the best starting point and sequence in which to proceed with the installation of panels, to ensure that the most working space possible is kept clear.

Consideration should also be given to the positioning of braces to provide the best results, minimising the restriction of free movement of trades around the site.

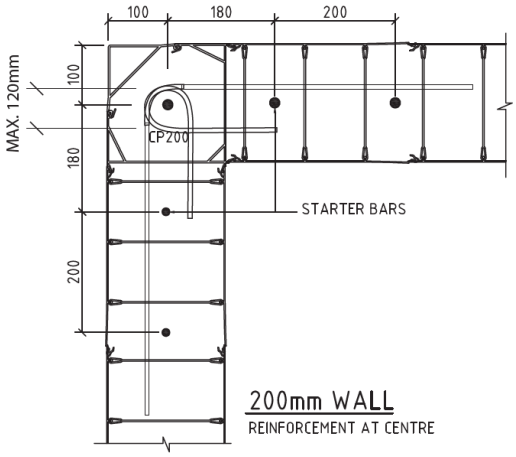
The starter bars must be installed in the correct position to ensure a smooth installation process.



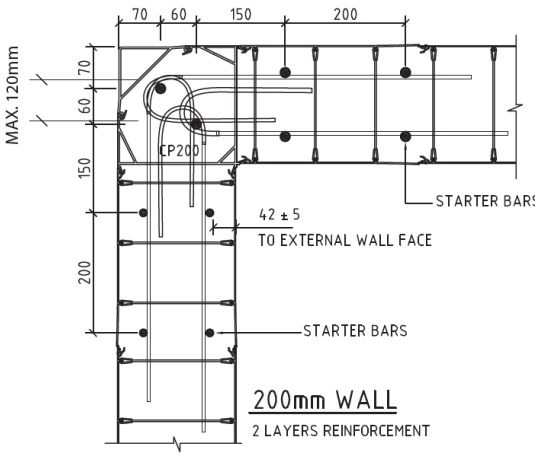
110mm WALL
REINFORCEMENT AT CENTRE



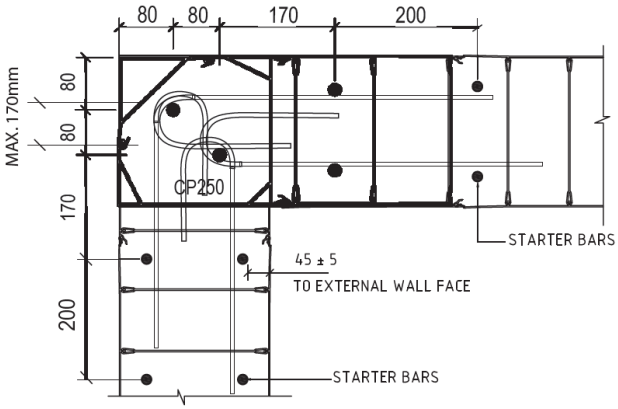
155mm WALL
REINFORCEMENT AT CENTRE



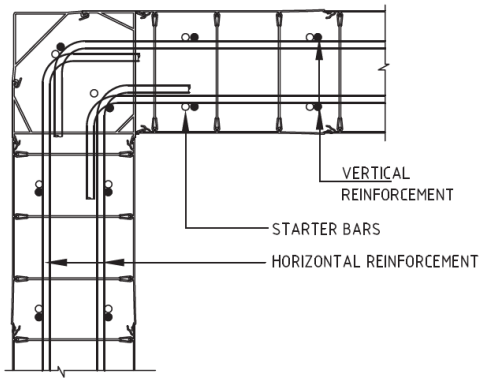
200mm WALL
REINFORCEMENT AT CENTRE



200mm WALL
2 LAYERS REINFORCEMENT



250mm WALL
2 LAYERS REINFORCEMENT



STARTER BARS AND WALL REINFORCEMENT AT CORNER OF 200mm WALLS
2 LAYERS REINFORCEMENT

BOTTOM TRACKS

Before beginning the installation of Bottom Tracks, ensure the concrete footing/slab is clean, flat and free of debris.

Using pins/markings provided by the surveyor, ensure that the walls are clearly and accurately set out.

If specified, waterproofing detail must be applied on all external walls and any portion of the wall that separates or adjoins wet areas.

- Fix the Bottom Track in place using either concrete nails, gas-powered installed pins with washers or concrete screws.
- Apply fasteners to ensure the Bottom Track is securely fastened to the slab/footing on each side of the track at a maximum of 600mm centers.
- Cut the Bottom Track to accommodate any fouling starter bars if required.
- Where tracks meet at corners, mitre the ends to neatly join.

BOTTOM TRACKS WITH WATERSTOPS

When applying water stops at the base of the wall it is recommended to use a Bottom Track cut down the middle and fastened to the slab/footing and on the outside of the panels.

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Note: Any waterproofing application must be carried out by an approved waterproofing contractor and installed as per the manufacturer's specifications.

STARTING YOUR PANEL INSTALLATION

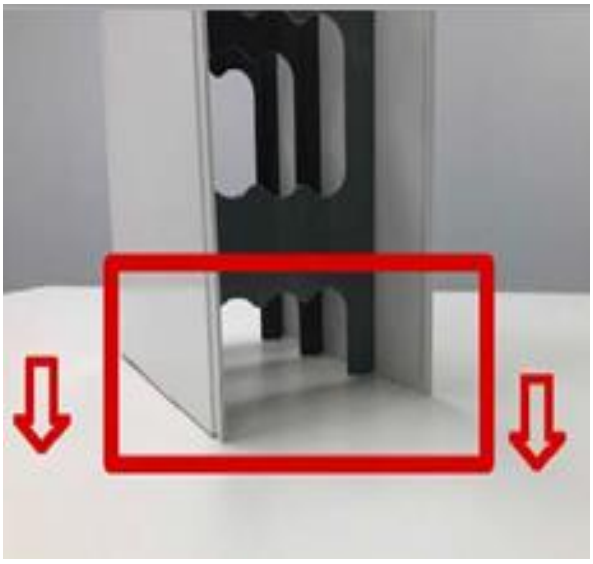
It's recommended to start at a corner with a Corner Piece and two adjoining panels then plumb from adjacent faces.

- Working in a two-man team, adhering to safe manual handling procedures, lift the panels clear of the starter bars, align with the Bottom Track and lower into position.
- Brace the first panel using one screw per brace. The base of the brace is then fixed to the slab using an anchor-style bolt.
- The panel is then plumbed with a spirit level before the brace is fixed.
- Apply screws into each panel at the base through the upturned flange of Bottom Track.

PANEL TO PANEL

- The next panel is now brought alongside the Bottom Track and lifted clear of the starter bars.
- Place panels carefully to accommodate starter bars. Panels clip and slide into place and lock together with ease.
- Should any of the starter bars foul on the internal ribs, the bar can be adjusted by being pulled or pushed clear of the rib.
- Continue to place panel-to-panel, repeating the process of bracing and propping to ensure plumb. Screw off at Bottom Track.
- Ensure all internal rib holes are aligned with each other to ensure correct, unobstructed placement of reinforcing bars.
- Use one screw at the base of every panel into the Bottom Track flange to ensure no lift is experienced throughout the concrete pouring process.

Note: Care must be taken when feeding the horizontal reinforcement through the internal ribs so that the ribs are not damaged. Damaged ribs increase the risk of bulging and blowouts when the wall is poured with concrete.



Note: Always install panels with the half rib hole to the bottom. This is necessary for the correct alignment of rib holes so there are no obstructions when installing the horizontal reinforcement.

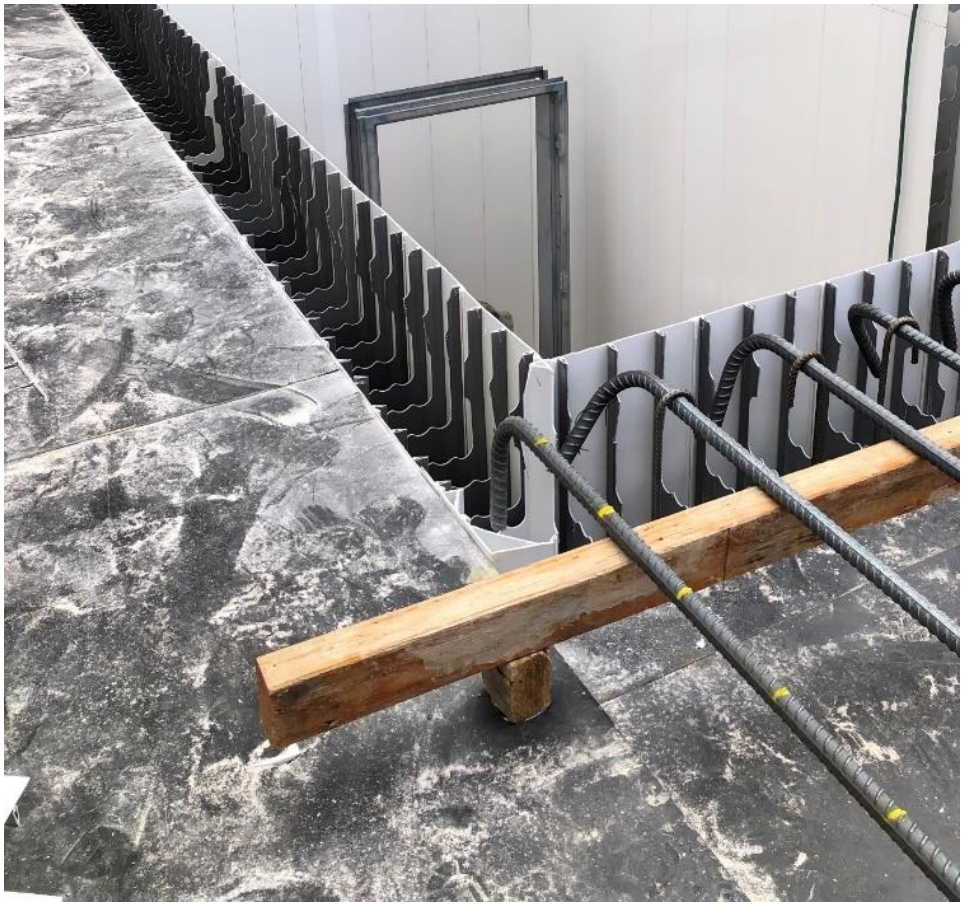
BALLUSTRADE AND PARAPET WALLS

Easily create balustrade and parapet walls by continuing the panels past your slab level to the desired height reducing concrete pour frequencies and external construction joints.

- Cut the panel face both at the top and bottom of the slab.
- Cutting depth of 15mm is recommended to not impact the ribs' integrity.
- Remove the face offcut from the rib, allowing reinforcing and concrete placement.

SLAB EDGE FORMWORK

The CLEARFORM system allows you to save money in costly edge-form applications by incorporating the use of the outside face of the panels.



- Install and brace panels to the height of the concrete slab to be poured.
- Cut the internal face of the panel to the underside of the slab level.
- Insert reinforcing as per engineers' specifications.
- Brace the outside of the panel via conventional formwork methodologies.

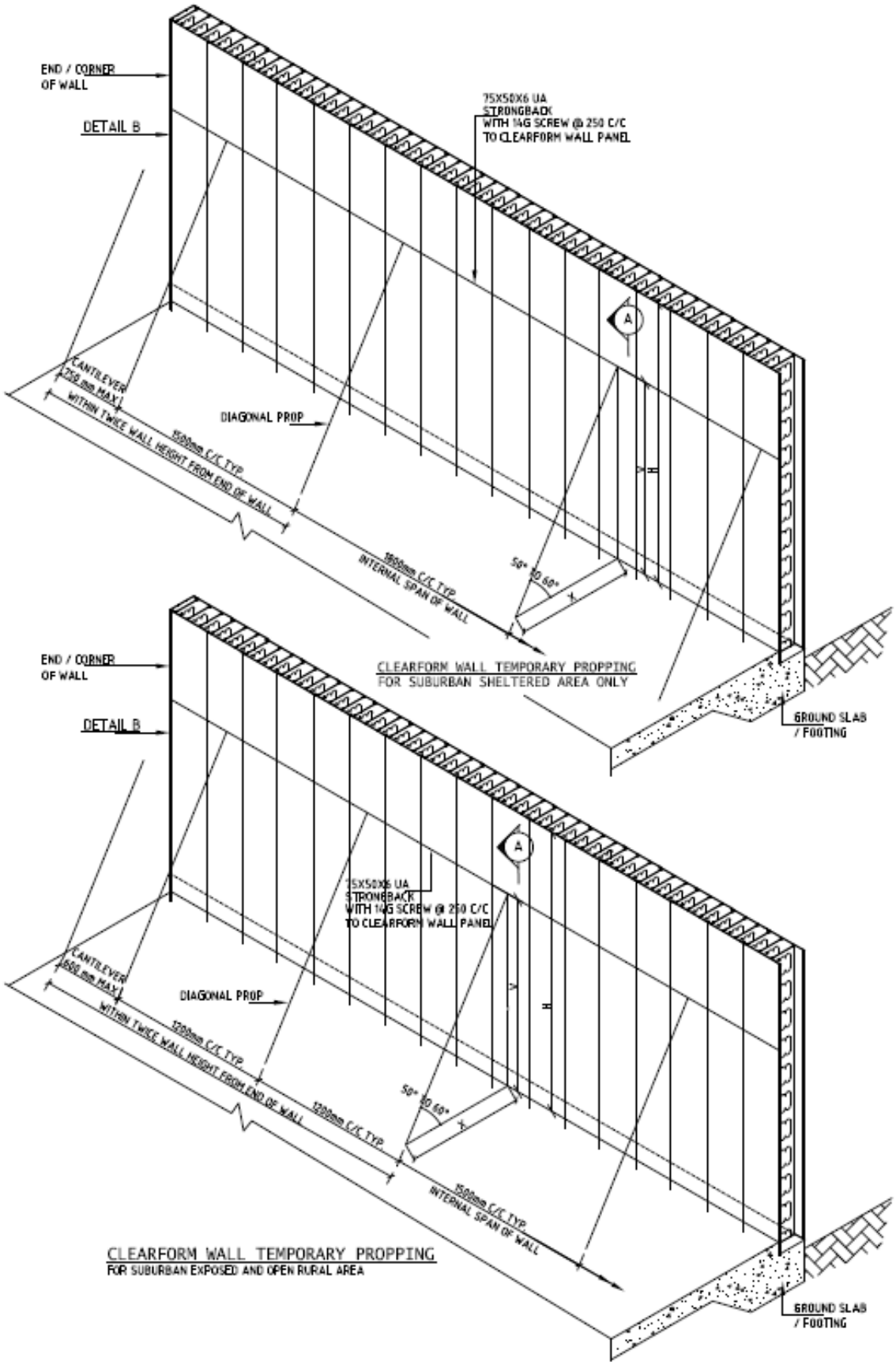
BRACING AND PROPPING

Adjustable braces are recommended to be able to push/pull the top of the wall into alignment.

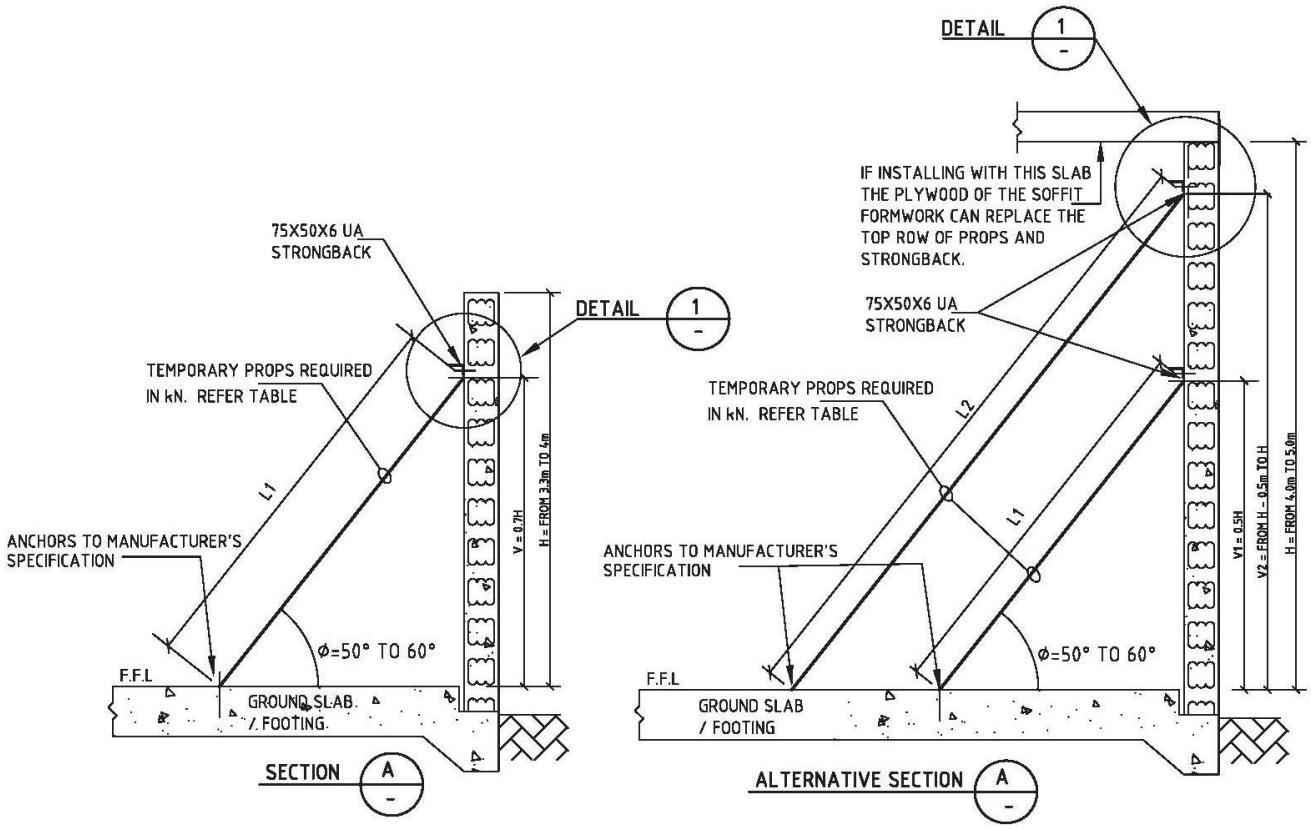
It is the responsibility of the builder and the installer to ensure that the CLEARFORM panels are adequately braced to maintain their integrity until filled with concrete.

- The top of the panels must also be secured with a timber or steel angle strongback in conjunction with the braces.
- These are to be screwed to the panel. Minimum of one screw every second panel is recommended when securing the strongback.

PROPPING DETAIL

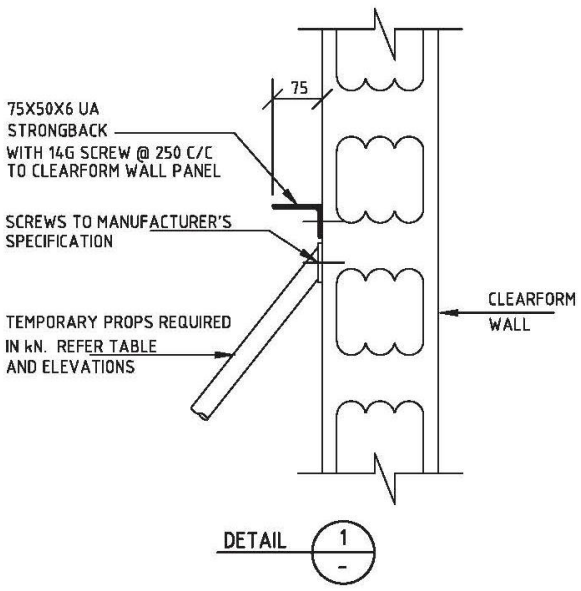


PROPPING SECTIONS



BRACE TYPE	L1/L2 (m)	DESIGN CAPACITY (WORKING LOAD)
MINI	4.4m MAX	30 kN
STANDARD	6.8m MAX	14 kN

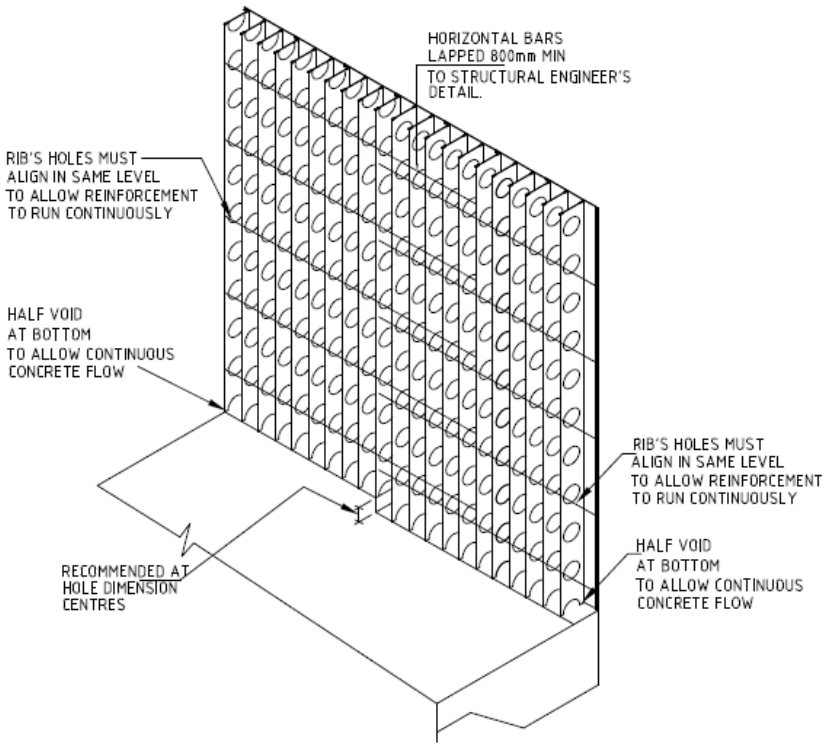
- THE PROPS WITH DESIGN CAPACITY NOTED ARE TO COMPLY WITH THE AUSTRALIAN STANDARDS
- DIMENSIONS QUOTED ARE BASED ON FULL EXTENSION OF BRACES
- LONG BRACES MAY REQUIRE KNEE BRACING, REFER TO SUPPLIER



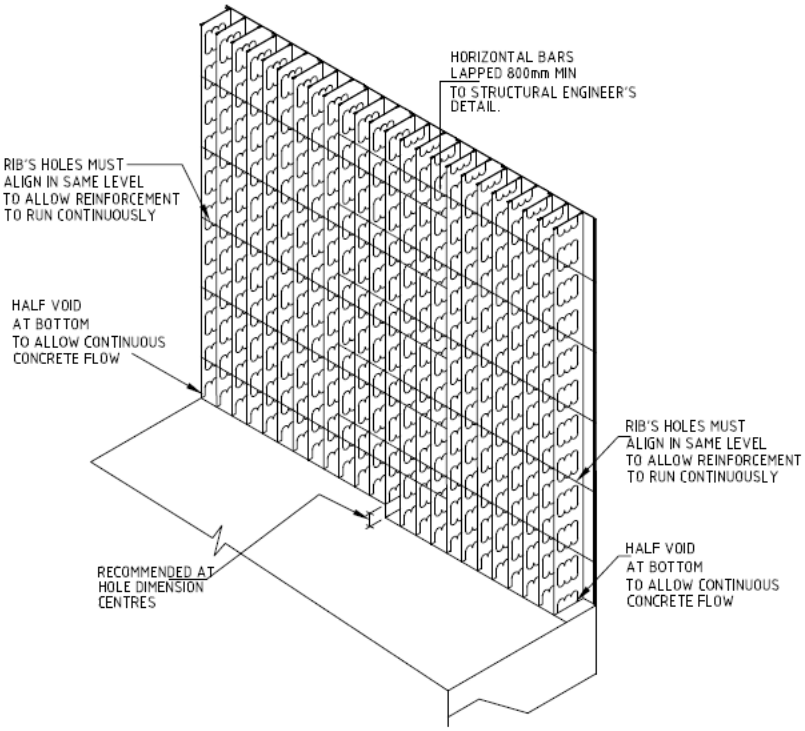
SETDOWNS

All steps in footings and walls must be designed in suitable increments to align with the rib holes of adjacent panels to ensure correct lapping of reinforcing and free flow of concrete.

Horizontal reinforcing is installed as the panels are erected and in strict accordance with the structural engineers' design.



SECTION THROUGH 155mm CLEARFORM WALL
NEAR FACE PANEL NOT SHOW FOR CLARITY



SECTION THROUGH 110mm, 200mm AND 250mm CLEARFORM WALL
NEAR FACE PANEL NOT SHOW FOR CLARITY

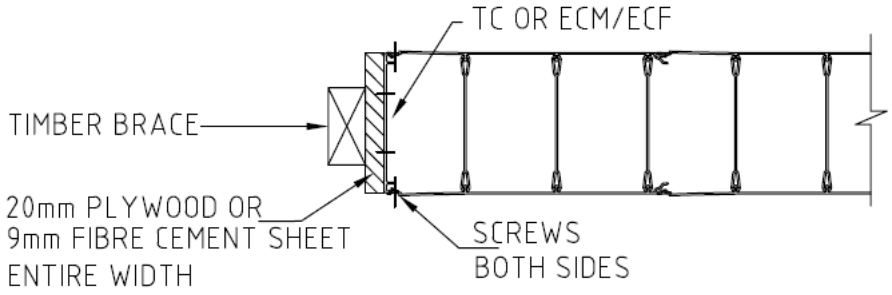
In long run lengths of wall, panels are typically erected and braced in increments of the standard stock lengths of reinforcing.

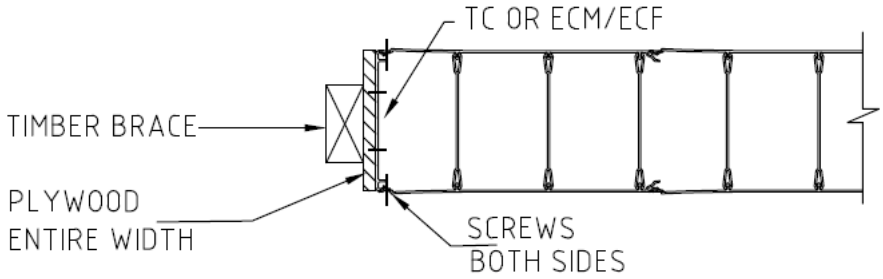
In short run lengths of wall, the reinforcement needs to be scheduled or cut to the appropriate length and placed prior to the end of the wall being capped off.

ENDING A WALL

As CLEARFORM panels come in 300mm wide sections, you may need to cut down a section in order to finish within the desired wall dimension. The CLEARFORM panel design offers the installer two option of ending a wall – either using an End Cap (male or female) or a Top Cap installed vertically at the end of the wall with screws to its adjoining wall.

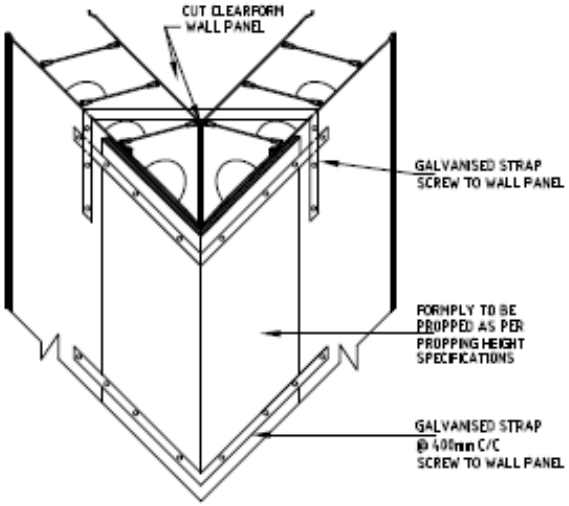
All stop ends and corners must be braced. Not doing so can result in bulging or blow-outs of end caps or unbraced corners.



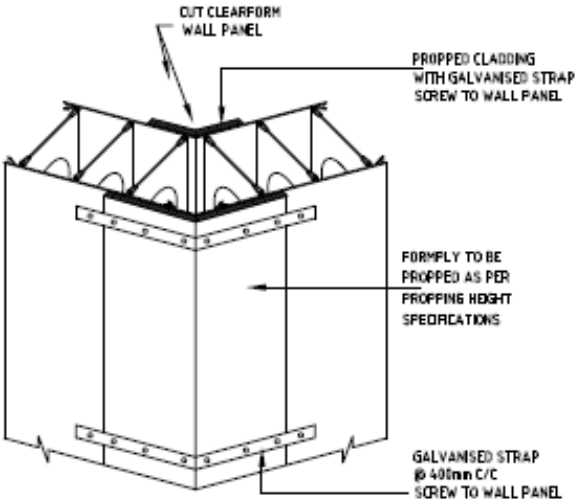


IRREGULAR CORNERS

When building corners at irregular angles the installer is required to adopt conventional formwork practices.

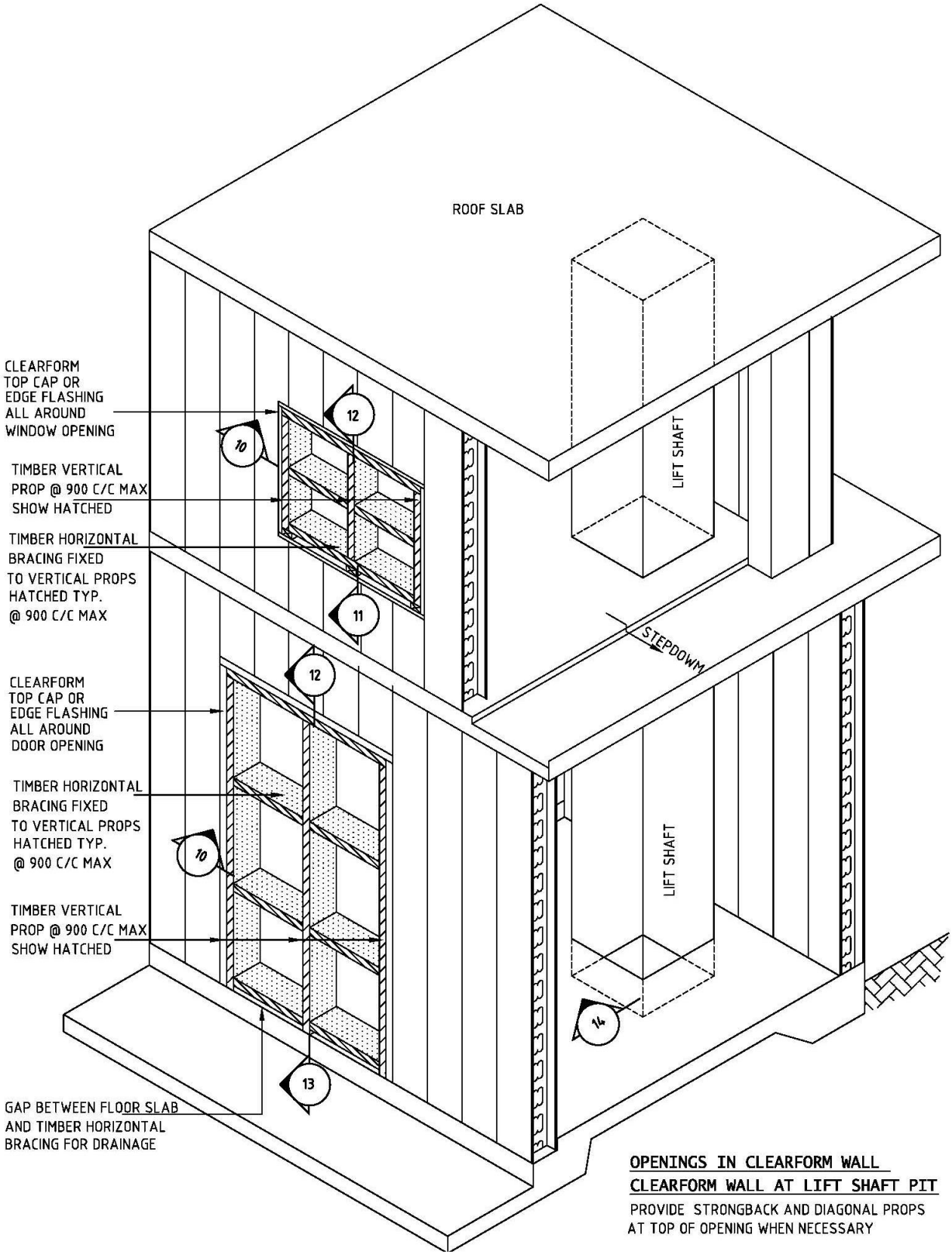


CLEARFORM WALL ACUTE ANGLE CORNER



CLEARFORM WALL OBTUSE ANGLE CORNER

- Panels need to be cut to the required angle and mitered into place.
- Use plywood on the outer sides and secure together by using galvanised strapping.
- Prop and brace adequately enough to ensure the mitered section remains in position throughout the concrete pour.

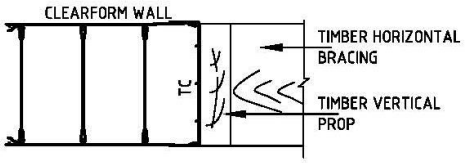


OPENINGS IN CLEARFORM WALL

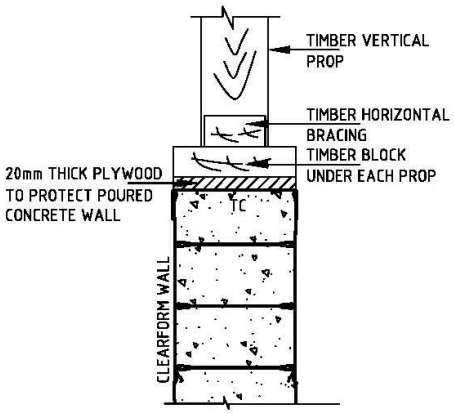
CLEARFORM WALL AT LIFT SHAFT PIT

PROVIDE STRONGBACK AND DIAGONAL PROPS AT TOP OF OPENING WHEN NECESSARY

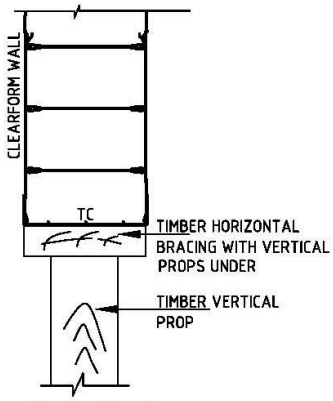
OPENINGS FOR WINDOWS, DOORS AND PENETRATIONS CONT.



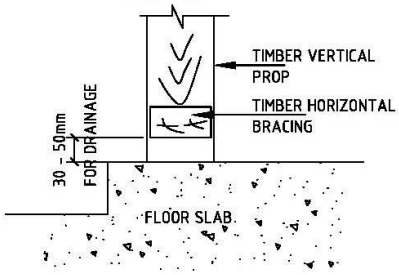
SECTION 10
PLAN



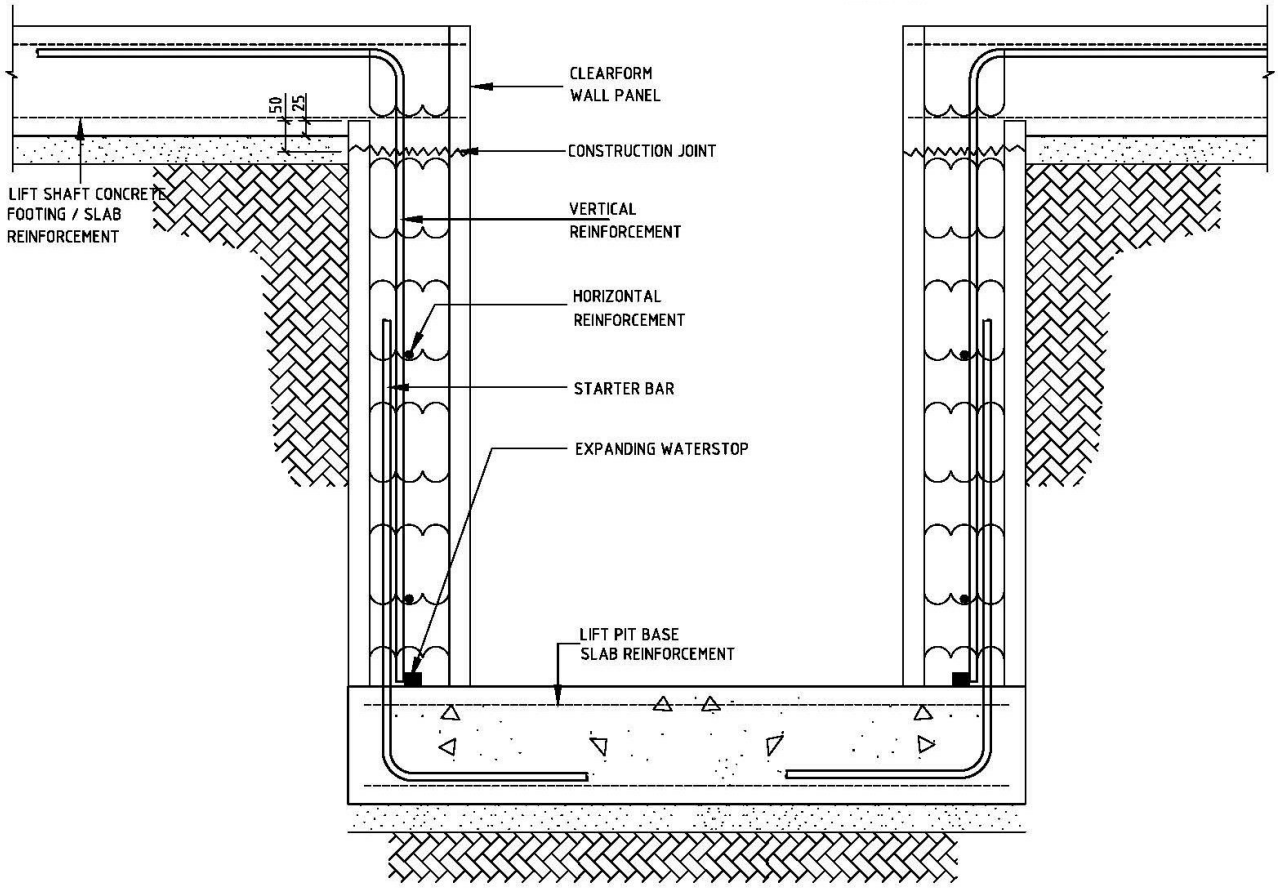
SECTION 11
ELEVATION



SECTION 12
ELEVATION



SECTION 13
ELEVATION



SECTION 14
SECTION THROUGH LIFT PIT
ELEVATION

VERTICAL REINFORCING INSTALLATION

Insert the vertical bars into the top of the CLEARFORM panels at centers prescribed by the structural engineer.

- Where the walls continue through to the next floor, the vertical bars are left protruding and act as the starter bar for the next floor.
- When vertical bars are in place, tie the top of each vertical bar to a horizontal length of reinforcement (lacer bar) using normal reinforcement tie wire as specified. This holds the bar in the correct position during the concrete pour.
- On projects where it is necessary to pour the walls before the deck, install vertical reinforcement from either a suitable scaffold, scissor lift, or cherry picker.

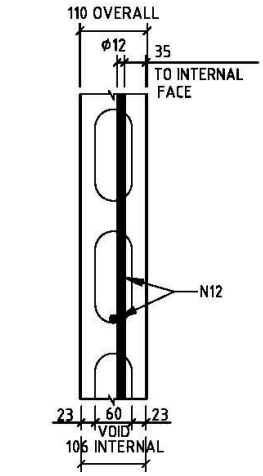
HORIZONTAL REINFORCING INSTALLATION

Horizontal reinforcement bars should be installed once the walls reach a length slightly longer than the bar itself.

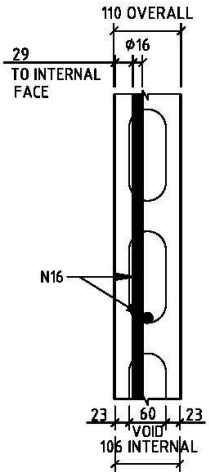
- Ensure all the holes are aligned to allow smooth installation of the reinforcing bar.
- Place reinforcing bars in locators as per the engineers' specifications.
- Insert the reinforcement bar through the CLEARFORM profile ensuring the correct overlap with the previous bars is achieved.
- Refer to the Project Engineer's specifications for correct overlap and spacing of reinforcing bars.

The use of the CLEARFORM translucent panels ensures easier installation of the reinforcing bars accelerating the speed of construction.

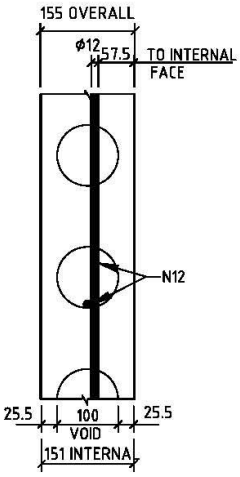
REINFORCING BAR CONFIGURATION



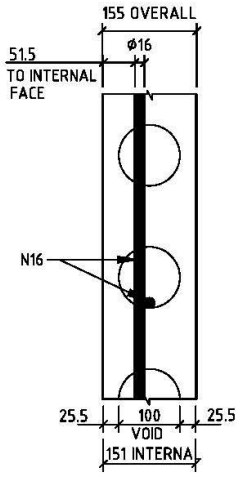
N12 REINFORCEMENT CONFIGURATION



N16 REINFORCEMENT CONFIGURATION



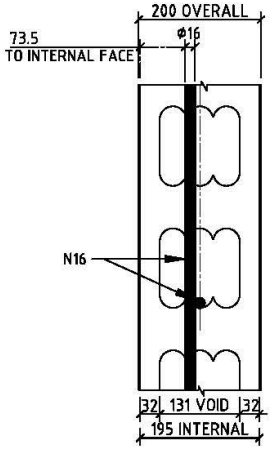
N12 REINFORCEMENT CONFIGURATION



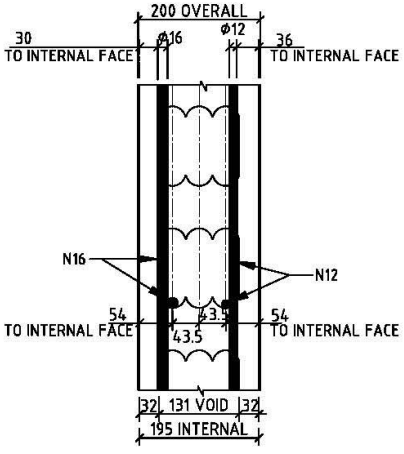
N16 REINFORCEMENT CONFIGURATION

110mm WALL

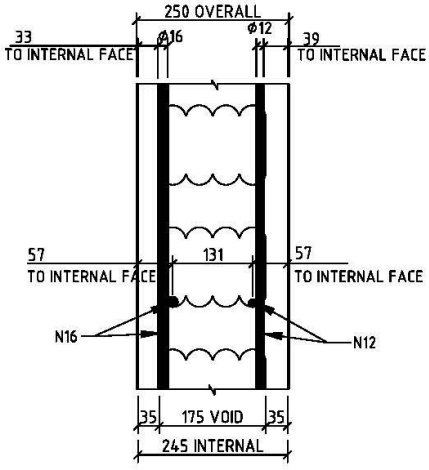
155mm WALL



N16 REINFORCEMENT CENTRE CONFIGURATION



N12/N16 REINFORCEMENT BOTH FACE CONFIGURATION

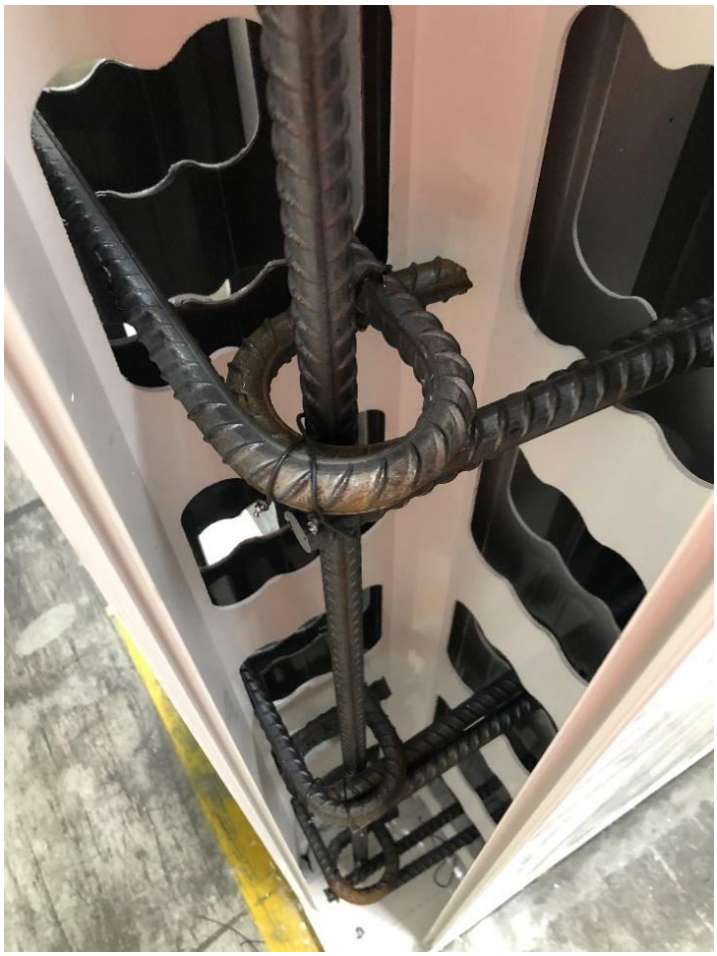


N12/N16 REINFORCEMENT BOTH FACE CONFIGURATION

200mm WALL

250mm WALL

INSTALLING CORNER BARS



- Before inserting the horizontal corner bars ensure that a minimum of 2 panels are connected on each side of the corner piece.
- Lift the outside face of the corner piece allowing access to insert the reinforcing.
- Place the hook bars as per the engineer's specifications.
- Place the vertical dropper bar and tie it off to the hook bars.
- Close the corner piece by sliding the outside face down, brace and prop as per CLEARFORM recommendations.

PRE-POUR CHECKS

Before pouring the CLEARFORM wall, the installer, engineer, and builder should perform a check of all walls ensuring they are straight, plumb square, and true, and that reinforcing (both horizontal and vertical) has been placed as per the structural drawings and specifications.

Make sure all openings are the correct size. Ensure that all electrical and data conduits are in and according to the plan. Ensure all end caps and corners are correctly braced to prevent any bulging or blow-outs.

Perform the following checks:

- Bottom track installed correctly.
- Waterproofing/hydrophilic sealant installed correctly as per manufacturer recommendations.
- All walls installed in the correct locations as per drawings and survey.
- All penetration locations are provided and installed per site mark-out.
- All walls have been installed straight and plumb.
- No ribs/diaphragms are damaged, split, or cracked.
- All wall panels have been clipped in correctly with no visible gaps.
- All finish wall heights have been installed as per drawings and specifications.
- All corners and stop ends are adequately braced.
- All window/door openings have been formed and braced correctly.
- All walls were checked for areas of minor damage and patched appropriately.
- For walls above 4m: midway horizontal strongback to be screwed to panels and propped.
- Props installed at a maximum spacing of 1.8m

CONCRETE QUANTITY CALCULATIONS

Net concrete quantity excluding wastage for pump/hose hopper.

Profile	110mm	155mm	200mm	250mm
Per cbm of concrete	9.5 sqm	6.6 sqm	5.5sqm	4.2 sqm
Per sqm of wall area	0.101 m3	0.146 m3	0.188 m3	0.240 m3

CONCRETE MIX DESIGNS

	Standard Mix Designs				High flow Mix Designs		
	Refer to Structural Engineer for Mix design						
Strength (mpa)	S25	S32	S40	S50	S40	S50	S65
Installation Slump	180+/-10	180+/-10	180+/-10	180+/-10	190+/-20	190+/-20	190+/-20
Design slump (mm)	180	180	180	180	190	190	190
Aggregate Size (mm)	10	10	10	10	10	10	10
Maximum Shrinkage	1000	1000	1000	1000	1000	1000	1000

.

POUR SEQUENCE

Below sets out the recommended number of concrete passes required. Higher MPa mixes will harden faster than low strength mix designs. These guidelines will vary according to site conditions, extra passes and extra hardening time may be required in wet or cold weather. In cases of extreme weather, the concrete pour should be postponed.

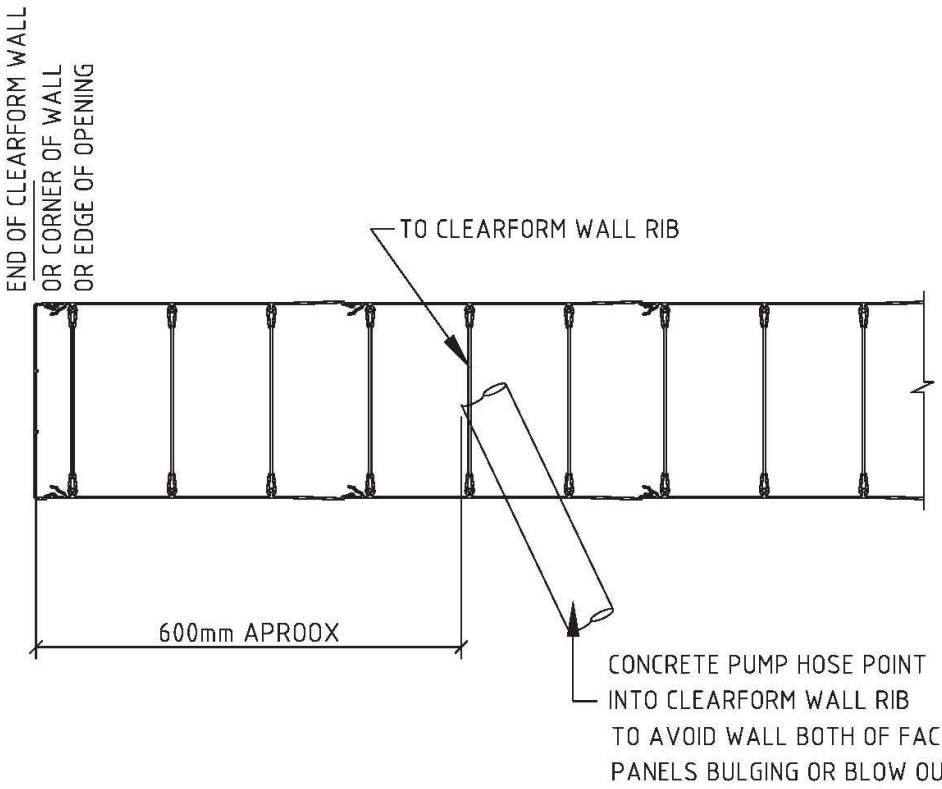
Flowing slump concrete: 180mm to 190mm slump and can be mechanically vibrated during placing by using a 25mm diameter concrete vibrator to the depth of 500mm within the final layer to assist flow under low pressure.

Wall Height (m)	110MM WALL				155MM WALL			
	1st Layer	2nd Layer	3rd Layer	4th Layer	1st Layer	2nd Layer	3rd Layer	4th Layer
2.8	1.2	1.6			1.2	1.6		
3.0	1.2	1.8			1.2	1.8		
3.3	1.2	2.1			1.2	2.1		
3.6	1.2	1.2	1.2		1.2	1.2	1.2	
4.0	1.2	1.2	1.6		1.2	1.2	1.6	
5.0	1.2	1.2	1.3	1.3	1.2	1.2	1.2	1.4
5.6					1.2	1.2	1.4	1.8
6.0					1.2	1.2	1.6	2.0
6.6					1.2	1.4	1.8	2.2
Wall Height (m)	200MM WALL				250MM WALL			
	1st Layer	2nd Layer	3rd Layer	4th Layer	1st Layer	2nd Layer	3rd Layer	4th Layer
2.8	1.2	1.6			1.2	1.6		
3.0	1.2	1.8			1.2	1.8		
3.3	1.2	2.1			1.2	2.1		
3.6	1.2	1.2	1.2		1.2	1.2	1.2	
4.0	1.2	1.2	1.6		1.2	1.2	1.6	
5.0	1.2	1.8	2.0		1.2	1.8	2.0	
5.6	1.2	1.2	1.4	1.8	1.2	1.2	1.4	1.8
6.0	1.2	1.2	1.6	2.0	1.2	1.2	1.6	2.0
6.6	1.2	1.4	1.8	2.2	1.2	1.4	1.8	2.2

ALLOW A MINIMUM OF 45 MINUTES BETWEEN LAYERS. FOR WALLS GREATER THAN 6.6M AND UP TO 8.0M THE FIRST 4 LAYERS FROM THE 6.6M SCHEDULE TO BE ADOPTED AND CONTINUED AT MAXIMUM 4TH LAYER INCREMENTS

POUR PROCEDURE

When pouring, do not aim the pump directly at corners or wall ends. Always point the pump nozzle towards a rib/diaphragm. The pump nozzle should remain at least 600mm away from wall/column ends.



CONCRETE PUMP HOSE LOCATION PLAN
AT END OF WALL / CORNER OF WALL / EDGE OPENING

Do not leave the finished concrete surface uneven at the top of the forms. Following the final pour layer at the top of the walls, trowel off the concrete to achieve a smooth and even surface.

While pouring, be sure to monitor the walls regularly to ensure the vertical alignment and plumb of the panels are maintained. Stop the pour if any areas start to move. Keep props, timbers, or plywood readily available to provide temporary bracing if required.

VIBRATING

CLEARFORM is made from PVC is non-porous and does not absorb water like masonry, fiber-cement, or plywood. This increases the flowability of concrete and reduces honeycombing.

Proper compacting of concrete is essential to prevent voids in the finished walls. Vibrating helps ensure the concrete mix fills all voids, particularly at joints. When vibrating, take care not to damage the ribs or the external face of the panels.

Pay particular attention to the sides of all openings, bulkheads and any areas that have a high concentration of steel.

ELIMINATE VOIDS

CLEARFORM's translucent panels allow the installer to visually inspect the concrete guaranteeing the concrete compactness within the walls throughout the pouring process eliminating any risk of concrete voids in the wall.

This also makes any costly post-pour X-ray imaging redundant.

BULGING

During the process of pouring concrete, bulging or 'blow-outs' can occur at panel joints if the ribs within the panels have been damaged.

It is the responsibility of the installer to ensure no CLEARFORM ribs or panels are damaged before pouring.

As the manufacturer, Clear Form Wall Systems P/L T/A CLEARFORM accepts no responsibility for installation issues that may occur on the construction site after acceptance of the product. (Refer Terms and Conditions of Sale – in the appendices.)

POST POUR CLEAN UP

Apply high water pressure to remove the solution and slurry within 30 minutes of the concrete pour.

Any concrete slurry that has spilled onto the CLEARFORM panels can be easily removed if it is washed with high-pressure water within 30 minutes before the slurry hardens.

If concrete slurry has hardened, removing it may damage the walls' surface. Apply hydrochloric acid diluted 1/10 onto the slurry with a brush and clean with a soft brush.

CLEARFORM

TECH SPECS
DATASHEET

Product Specifications

Profiles (mm)	110, 155, 200 and 250
Panel Width	300mm
Double White Face Panel	
Profile Sizes (mm)	110, 155, 200 and 250
Stock (m)	2.8, 3.0, 3.3, 3.6, 4.0
Custom (m)	From 1.0 up to 8.0
Single Clear Face Panel	
Profile Sizes (mm)	110
Stock (m)	3.0 and 3.3
Custom (m)	From 1.2 up to 7.95
Profile Sizes (mm)	155, 200 and 250
Stock (m)	2.8, 3.0, 3.6, 4.0
Custom (m)	From 1.0 up to 8.0
Double Clear Face Panel	
Profile Sizes (mm)	110, 155, 200 and 250
Stock (m)	2.8, 3.0, 3.3, 3.6, 4.0
Custom (m)	From 1.0 up to 8.0
Payment Terms	COD or 30-Day EOM subject to approval.

Finishes	White Gloss and Clear faces
Ordering lead times	Double White face panel stock lengths delivered to capital cities within 5 working days from order. Double White face custom panels on application. Clear face panels both stock and custom on application.

	Concrete Volume (m3/m2)	Product Weight (kg/m2)	Fire Rating (Minutes Minimum)
110mm Profile	0.101	13.6	90
155mm Profile	0.146	15.0	180
200mm Profile	0.188	15.7	240
250mm Profile	0.2404	16.6	240

Reinforcing Centre Increments	Vertical	Horizontal
110mm Profile	100mm	150mm
155mm Profile	100mm	200mm
200mm Profile	100mm	200mm
250mm Profile	100mm	200mm

Certifications and Compliance

Code, Specification or Standard	Certified By
AS1530.3 - Ignitability, Flame Propagation, Heat and Smoke Release	CSIRO
AS/NZ3837 - Heat and Smoke Release Rates	CSIRO
AS/NZ3837 - Heat and Smoke Release Rates	SGS-CSTC
AS5113 - Full Scale Façade Fire Test	CSIRO
AS1530.4 - Fire Resistance Test to Building Material	SGS-CSTC
AS ISO 9705 2003 (2016) - Full Scale Room Burn Test	Warrington Fire
BCA Parts A2 & C1 - Heat and Smoke Requirements	CSIRO, Warrington Fire, SGS-CSTC
BCA Part F5 - Acoustic Performance, Sound Transmission and Insulation	DUX Engineering, SLR Acoustic Engineers
Green Building Council of Australia - Volatile Organic Compound Test	Cetec

Abbreviations and Acronyms

BCA - Building Code of Australia

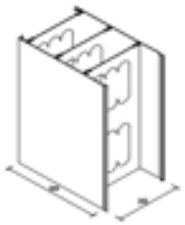
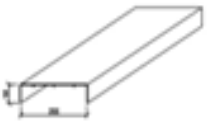
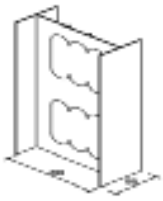
CSIRO - Commonwealth Scientific and Industrial Research Organisation

SGS-CSTC - The Worlds Leading Inspection, Verification, Testing and Certification Company

CETEC - Independant Consultancy Delivering Scientific and Technical Based Solutions

CLEARFORM

PRODUCT CATALOGUE AND ORDER CODES

Panels		Female End Cap	
	Primary panel used for the construction of the wall. Available in a range of options WW - 2 x White Faces CW - 1 x Clear Face CC - 2 x Clear Faces Available in 110, 155,		Applied when capping off a panel on the male end. Clip to fasten and brace. Available in 110, 155,
Code: WW, CW, CC	200 and 250mm profiles	Code: ECF	200 and 250mm profiles
Bottom Track		**Male End Cap**	
	Placed on the footing or slab. Panels are inserted into the upturned flanges keeping the panels into position. Available in 110, 155,		Applied when capping off a panel on the female end. Clip to fasten and brace. Available in 110, 155,
Code: BT	200 and 250mm profiles	Code: ECM	200 and 250mm profiles
Top Cap		**Corner Piece**	
	Applied to penetrations, Capping off a wall or as an alternative solution to an End Cap. Screw to fasten and brace. Available in 110, 155,		Applied to 90 degree corner applications. Clip to fasten and brace. Available in 110, 155,
Code: TC	200 and 250mm profiles	Code: CP	200 and 250mm profiles
Panel Connector		**Edge Flashing**	
	Applied when joining panels both vertically and horizontally. Also used between Corner Pieces or when building curved walls. Screw to fasten. Available in 110, 155,		Applied as an optional Bottom Track around the perimeter of a lift shaft or stair well concealing the cold joint. Screw to fasten. Available in 110, 155,
Code: PC	200 and 250mm profiles	Code: EF	200 and 250mm profiles
Junction Track		**Panel Spacer**	
	Applied to panel face when creating a T-junction or building corners if Corner Piece is unavailable. Screw to fasten. Available in 110, 155,		Applied as a 150mm panel spacer between main profile panels. Clip to fasten. Available in 110, 155,
Code: JT	200 and 250mm profiles	Code: PS	200 and 250mm profiles

Note: All Accessories are 3300mm long. Panels are 300mm wide

Standard Panel lengths: 2800mm, 3000mm, 3300mm, 3600mm and 4000mm

CLEARFORM MATERIAL SAFETY DATA SHEET

CLEARFORM IS A PERMANENT PVC CONCRETE WALL FORMWORK SYSTEM DESIGNED AND PRODUCED FOR AUSTRALIAN CONDITIONS

CLEARFORM is a permanent PVC wall formwork system for concrete retention which remains in place for the life of the structure, designed and produced for Australian conditions. As such it does not affect the structural integrity of the concrete element.

1- PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

PRODUCT NAME: CLEARFORM

Recommended Use of the Chemical and Restriction on Use: Formwork system - extruded rigid polymer material used for permanent formwork for retaining concrete when pouring and subsequently as permanent wall cladding.

DETAILS OF MANUFACTURER

Clear Form Wall Systems
Pty Ltd T/A CLEARFORM

26a Harp St
Campsie NSW 2194

PH: 1800 319 724

2- HAZARDS IDENTIFICATION

PRECAUTIONARY STATEMENTS

- P272 Contaminated work clothing should not be allowed out of the workplace.
- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P321 Specific treatment (see on this label).
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P302+P352 If on skin Wash with plenty of soap and water.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national regulations.

3- COMPOSITION AND INFORMATION ON INGREDIENTS

CHEMICAL CHARACTERIZATION: MIXTURES

Description: Mixture of substances listed below with nonhazardous additions.

ACCORDING TO SAFE WORK AUSTRALIA

Printing date 16.03.2023;

Product Name: CLEARFORM

HAZARDOUS COMPONENTS:

471-34-1 calcium carbonate 4%; 12202-17-4 H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302; Acute Tox. 4, H332
1% 8013-07-8 Soybean oil, epoxidized Skin Sens. 1, H317 1%

4- FIRST AID MEASURES

INHALATION: If inhaled, remove to fresh air. Seek medical attention if breathing problems develop.

SKIN CONTACT: In case of skin contact, immediately remove contaminated clothing and wash affected areas with water and soap. Seek medical attention if symptoms occur.

EYE CONTACT: In case of eye contact, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.

INGESTION: If swallowed, do not induce vomiting. Do not give anything by mouth to an unconscious person. Seek immediate medical attention.

5- FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA

Use fire-extinguishing methods suitable to surrounding conditions.

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL

No further relevant information is available.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS

Wear Safe Work Australia approved self-contained breathing apparatus and full protective clothing.

6- ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: Wear Safe Work Australia full protective clothing. Evacuate all non-essential personnel from affected area. Do not breathe vapours/dusts. Ensure adequate ventilation.

ENVIRONMENTAL PRECAUTIONS: In the event of a major spill, prevent spillage from entering drains or watercourses.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP:

Collect the pieces and place into a suitable container for disposal. Avoid generating dusts. Provide adequate ventilation.

7- HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: Use of safe work practices are recommended to avoid eye or skin contact and inhalation of dusts. Use only outdoors or in a well-ventilated area.

Food, beverages and tobacco products should not be stored or consumed where this material is in use. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

Provide eyewash fountains and safety showers in close proximity to points of potential exposure.

CONDITIONS FOR SAFE STORAGE: Store in a cool, dry and well-ventilated area. Avoid accumulation of dust.

8- EXPOSURE CONTROLS AND PERSONAL PROTECTION

EXPOSURE STANDARDS (SAFE WORK AUSTRALIA): 471-34-1 calcium carbonate NES 10 mg/m³

ENGINEERING CONTROLS: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapour below occupational exposure standards.

PERSONAL PROTECTIVE EQUIPMENT (PPE): Wear Safe Work Australia full protective clothing.

RESPIRATORY PROTECTION: Use dust mask when cutting product. See Australian Standards AS/NZS 1715 and 1716 for more information.

SKIN PROTECTION: Impermeable gloves and protective clothing. See Australian Standards AS/NZS 2161, 2210.1 and 2210.2 for more information.

EYE AND FACE PROTECTION: Safety glasses with top and side shields or goggles. See Australian Standards AS/NZS 1336 and 1337 for more information.

9- PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Form: Rigid PVC material comprising of two PVC panel faces with three internal reinforcing PVC ribs.

Colour: White and Clear

Odour: None

MELTING POINT/MELTING RANGE: No information available

FLAMMABILITY: Non-flammable

RELATIVE DENSITY AT 20 °C: 1300 kg/m³

10- STABILITY AND REACTIVITY

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerisation will not occur.

CHEMICAL STABILITY: Stable at ambient temperature and under normal conditions of use.

CONDITIONS TO AVOID: No further relevant information available.

INCOMPATIBLE MATERIALS: No further relevant information available.

HAZARDOUS DECOMPOSITION PRODUCTS: No dangerous decomposition products known.

11- TOXICOLOGICAL INFORMATION

TOXICITY: LD5 0/LC5 0 VALUES RELEVANT FOR CLASSIFICATION

471-34-1 calcium carbonate
Oral LD5 0 6450 mg/kg (rat)

8013-07-8 Soybean oil, epoxidized Oral LD5 0 21000-40000 mg/kg (rat)

Dermal LD5 0 >2000 mg/kg (rabbit)

ACCORDING TO SAFE WORK AUSTRALIA

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ACUTE HEALTH EFFECTS: Skin Corrosion / Irritation: No information available

SERIOUS EYE DAMAGE / IRRITATION: No information available

RESPIRATORY OR SKIN SENSITISATION: Sensitisation possible through skin contact.

GERM CELL MUTAGENICITY: No information available

CARCINOGENICITY: Polyvinyl chloride is classified by IARC as a Group 3 - Not classifiable as to its carcinogenicity to humans.

SPECIFIC TARGET ORGAN TOXICITY (STOT) - SINGLE EXPOSURE: No information available

SPECIFIC TARGET ORGAN TOXICITY (STOT) - REPEATED EXPOSURE: No information available

CHRONIC HEALTH EFFECTS: No information available

EXISTING CONDITIONS AGGRAVATED BY EXPOSURE: No information available

12- ECOLOGICAL INFORMATION

ECOTOXICITY AQUATIC TOXICITY

8013-07-8 Soybean oil, epoxidized EC5 0 / 24 hours > 100 mg/l (daphnia)

Inhalation LC5 0 900 mg/m³ (flathead minnows)

PERSISTENCE AND DEGRADABILITY

No further relevant information is available.

BIOACCUMULATIVE: Potential: No further relevant information available.

MOBILITY IN SOIL: No further relevant information available.

CLEARFORM MATERIAL SAFETY DATA SHEET

13- DISPOSAL CONSIDERATIONS

DISPOSAL METHODS AND CONTAINERS: Dispose according to applicable local and state government regulations.

SPECIAL PRECAUTIONS FOR LANDFILL OR INCINERATION: Please consult your state Land Waste Management Authority for more information.

UN NUMBER: ADG, IMDG, IATA: Not applicable

PROPER SHIPPING NAME: ADG, IMDG, IATA: Not applicable

DANGEROUS GOODS CLASS: ADG CLASS: Not applicable

PACKING GROUP: ADG, IMDG, IATA Not applicable

14- TRANSPORT INFORMATION

UN NUMBER: ADG, IMDG, IATA Not applicable

PROPER SHIPPING NAME: ADG, IMDG, IATA Not applicable

DANGEROUS GOODS CLASS: ADG Class: Not applicable

PACKING GROUP: ADG, IMDG, IATA Not applicable

15- REGULATORY INFORMATION

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES: All ingredients are listed.

16- OTHER INFORMATION

CREATION DATE: 16 March 2023

PREPARED BY: Clear Form Wall Systems Pty Ltd

www.clearform.au

DISCLAIMER: This MSDS is prepared in accord with the Safe Work Australia document “Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals - December 2011”

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