



CONSTRUCTION MANUAL

About Formcraft

Throughout the world there is a growing emphasis on environmental sustainability and minimizing energy consumption. Building design and construction systems that focus on energy saving factors, assist significantly in achieving there environmental goals.

Formcraft provides a unique fast track; energy efficient construction system that is strong, versatile and cost effective while supporting energy saving and environmental values.

Formcraft was born from a West Australian construction company that specialized mainly in more traditional construction methods like limestone block work and feature masonry. The company focused on residential and commercial projects using the tried and tested construction methods that remains to be very labour intensive. In Australia, as in many other parts of the world there is a growing emphasis on environmental sustainability and minimising energy consumption. These are values that we whole heartedly support, and values that we wanted to incorporate in a new, fast track construction system with broad market appeal.

What is the Formcraft Construction system? Formcrafts' lightweight panels are used to build reinforced concrete walls for residential, commercial and multistory construction. The panels are transported flat and easily assembled on site using Formcraft connection system. Once the panels are erected and braced, concrete is poured in the cavity between them. After the concrete has hardened, the panels stay in place and become the insulating element for the walls. In short, the Formcraft building system combines the insulating effectiveness of the EPS panels with the structural integrity of concrete.

Technical Support

Formcraft can provide experienced instructional Personnel for comprehensive training programs no matter the size or complexity of the project. A Formcraft Design Manual and an Estimation Spreadsheet is available for download from the website.

Formcraft Website

The Formcraft website is updated regularly with additional product documentation, promotional material, design guides and other technical information. This Construction Manual and other Formcraft published documentation is posted on the website.

Formcraft website: www.formcraft.com.au

You can email any enquires to: info@formcraft.com.au

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Product Specifications

	FULL BLOCK	LENGTH	HEIGHT	WALL THICKNESS	CONCRETE THICKNESS	CONCRETE USAGE	SURFACE AREA
	220 model	1200	600	220	100	0.072m³	0.72m²
	270 model	1200	600	270	150	0.108m³	0.72m²
	320 model	1200	600	320	200	0.144m³	0.72m²
	HALF BLOCK	LENGTH	HEIGHT	WALL THICKNESS	CONCRETE THICKNESS	CONCRETE USAGE	SURFACE AREA
	220 model	1200	300	220	100	0.036m³	0.36m²
	270 model	1200	300	270	150	0.054m³	0.36m²
	320 model	1200	300	320	200	0.072m³	0.36m²
	CORNER BLOCK	LENGTH	HEIGHT	WALL THICKNESS	CONCRETE THICKNESS	CONCRETE USAGE	SURFACE AREA
	220 model	1000/400	600	220	100	0.0708m³	0.84m²
	270 model	1000/400	600	270	150	0.1017m³	0.84m²
	320 model	1000/400	600	320	200	0.1296m³	0.84m²
	ACCESSORIES Subframe 220 5.8m length Subframe 270 5.8m length Material - Aluminium						
	ACCESSORIES C Channel 60 x 20mm 3m length Material - 0.55 BMT						
	ACCESSORIES Corner alignment rod 28 x 28mm 3m length Material - PP						
	ACCESSORIES Brace 3m high Corner brace 3m high Material - 3mm Steel						

Full Blocks

Full blocks are used for the construction of straight sections of wall. They are 1200mm long and 600mm high. The standard forms are available in 100mm, 150mm and 200mm concrete cavity widths and are the largest building modules in the Formcraft construction system.

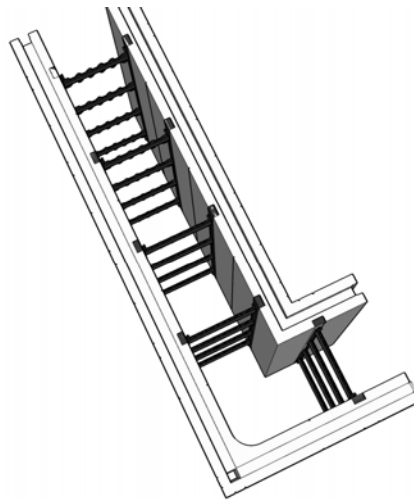
Half Blocks

Half blocks are used for the construction of straight sections of wall. They are 1200mm long and only 300mm high. They are the smallest building module used in the Formcraft

construction system and are often used above doors, above and below windows and also under the wall plate to achieve custom ceiling heights. The half blocks are available in 100mm, 150mm and 200mm concrete cavity widths.

Corner Blocks

The Corner blocks are used to change the direction of a wall by 90°. The 90° corners come in both left and right versions. By alternating the use of a left corner on top of a right corner, this forces an vertical joints offset of 600 mm which facilitates the half bonding of adjacent blocks. The 90° corners are specifically moulded for the 100mm, 150mm and 200mm concrete cavity dimensions and incorporate a 30mm by 30mm alignment tube that can also be used as an external fixing point for cladding.



Tools and Equipment

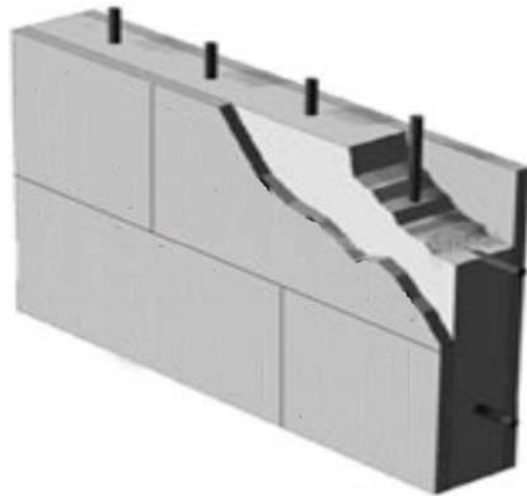
These tools and equipment could be helpful when installing Formcraft products:

- Cordless drill / hammer drill
- Dyna bolts for fixing bracing to slab.
- Foam Gun
- Laser or dumpy level
- String and Chalk Line
- Scaffold Planks
- Rebar Bender/Cutter
- Hot knife for cutting EPS
- Cable Ties 500mm long
- Reciprocating saw
- Hand saw
- Concrete anchors for wall plate
- Course thread plaster board Screws
- Wall Bracing System

The Formcraft Construction System

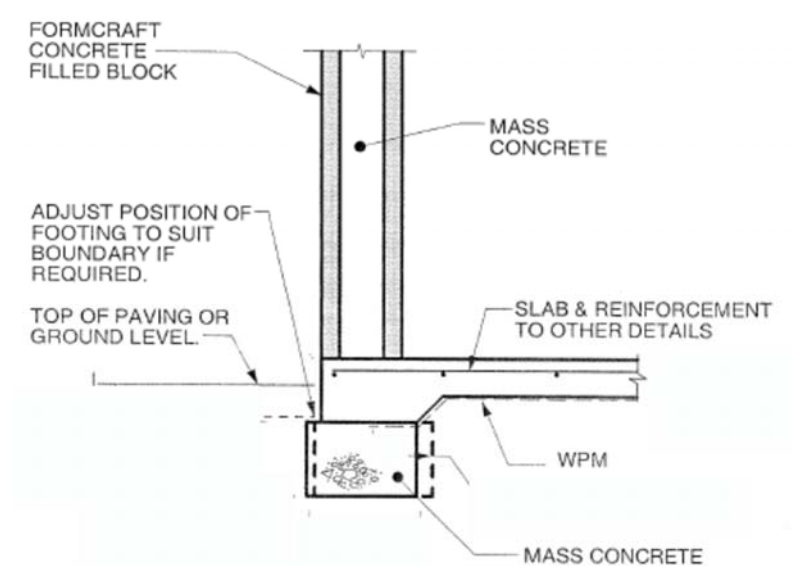
This fast-track wall system provides permanent insulated formwork to constrain the pour a concrete wall of a consistent 100mm, 150mm or 200mm thickness. The only difference between a Formcraft concrete wall and a conventionally formed concrete wall is in the forming technique, the permanent insulation and the fact that they can also provide better quality concrete in warmer climates.

The EPS panels don't play any part in the structural elements of the building, it is only the reinforced concrete walls that are supporting the structure. Therefore the footings to support them should be designed and constructed as normal, and in strict compliance with local building codes and regulations.



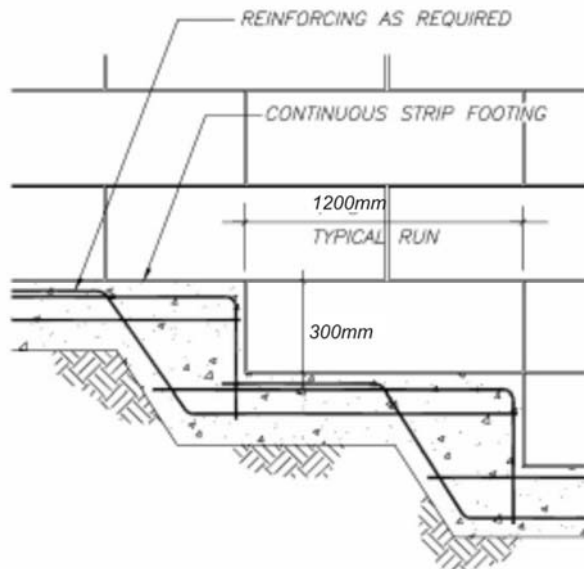
Footings

Footings are intended to transfer and distribute the loads they support so that the safe load-bearing capacity of the soil or rock is not exceeded. Rather than having a rebated edge like the foundations used in double brick or brick veneer construction, the footing is constructed with a square edge. The slab is also usually poured at the same time as the footing to enable the fixing of the bracing system down the track. Vertical starter bars should be placed in footing before the concrete pour. They should be aligned with the middle of the block cavities and spaced at a distance specified in the engineer detail.



When pouring footings, it is good building practice (particularly with insulated concrete formwork construction) to construct them as level as possible (ie. within a tolerance of ± 5 mm). Footings that are out of level will create unnecessary work later in the project.

Due to sloping ground level conditions and building design, it may be required to use a stepped footing. When step footings are required, it is recommended that vertical steps of 300mm be used to correspond with the height of the Formcraft Half blocks. This will eliminate unnecessary on-site cutting of blocks as successive courses can simply carry on past the footing onto the course below.



Damp Proof Course

Formcraft recommends that waterproofing agent like Xypex or Bikcote is painted on the footing in areas where walls come into contact with the foundation to prevent rising damp and to create a water proof seal between the Formcraft wall and the foundation. Any acrylic membrane type sealant can be used and care should be taken to paint the bottom 100mm of the starter bars to assure a good seal.



Wall Layout

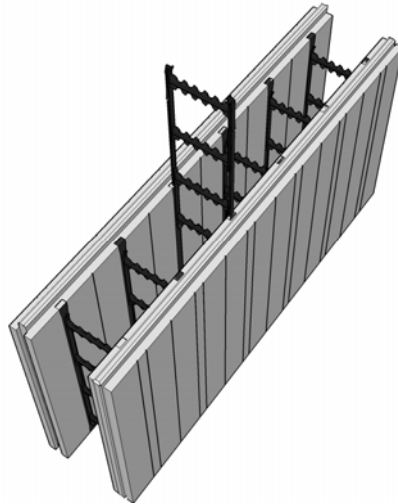
It is necessary to establish exact building dimensions on the footings, making sure that all corners are square. After the corners have been accurately established, the footing can be marked with a chalk line. Once the building has been marked out on the footing, look at the construction drawings to ascertain the locations of door and window openings. All openings should be clearly marked on the slab with permanent markers for future reference.

Channel Placement

It is recommended that a 30mm x 62mm x 30mm C channel be fixed to the footing along the chalk marks that show the interior wall line of the structure. The C channel is usually constructed from light gauge galvanized iron. The channels are usually fixed to the footing with a concrete nail gun every 1200mm and provide a seat to align and fix the interior panel. The channel should not be placed in sections where there are door and window openings that meet the foundation.

Block Assembly

Formcraft panels are transported flat to add efficiencies to transportation and packaging, these panels are easily assembled onsite. Usually a bench is used to enable more comfortable and efficient assembly. Make certain that the male tongues of all panels are facing upwards before sliding the bank of connectors into the receiving lugs on the interior of a panel. Once the forms are assembled the blocks can be stacked within the building envelope ready for placement.



Stacking 1st Course

Formcraft walls are easier to build from the inside rather than the outside and for this reason, it is recommended that all materials and tools to be used during construction should be placed within the building envelope. All blocks, braces, tools, reinforcing bars, ladders, and scaffold planks should be placed at least 2m inside the perimeter to allow easy placement of first course and bracing systems.

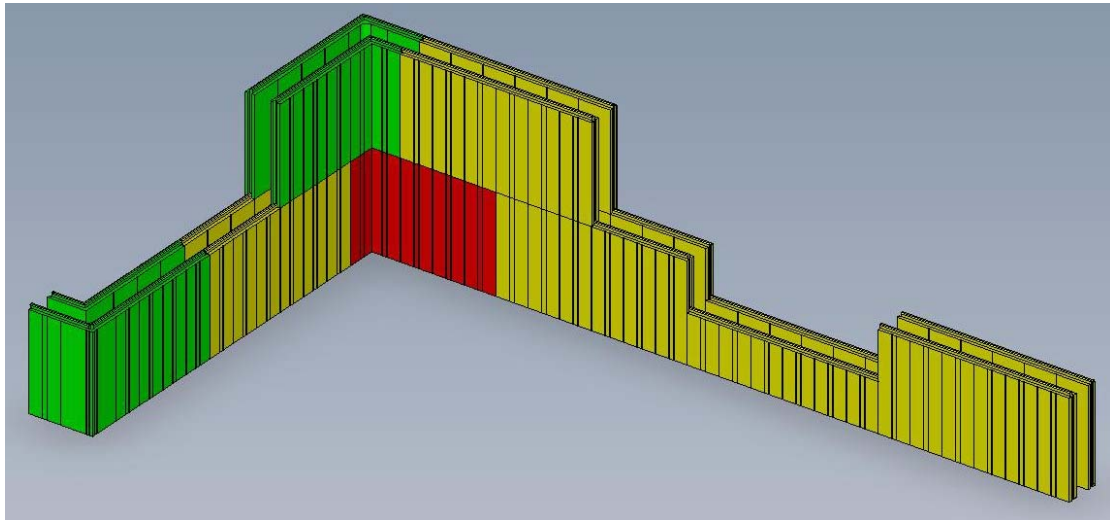
Beginning at a corner, place a left or right hand corner block so that it slips into the channel established earlier. When approaching corners or window and door openings, it will probably be necessary to cut a block to length. When cutting a Formcraft block, following the center of pre-formed 2mm indents on the inside of the panels will produce a vertical cut at 200mm increments.

If horizontal reinforcing is required at the top of the first course, it must be placed according to the design drawings prior to the second course of blocks being stacked. The reinforcement bars are to rest securely in the seats of the connectors and should the continuous runs should be used where possible. When lap splices of the reinforcement bars are required make sure there is a minimum overlap between the bars specified in the diagram showing lap splice lengths.

Corner braces should be installed once the first course is completed.

Stacking 2nd Course

Start at the same corner that was used in the installation of the first course by placing the opposite corner block on top of the initial corner block. Make sure that the interior grooves on the inside of the block aligned with those in the course below. When placing successive courses of blocks, it is sometimes necessary to hit the top of the block with the palm of the hand in order to have the tong and groove mechanism seat properly onto the course below. By proceeding around the wall in the same direction as was previously used for the first course, you will develop a cutting pattern which can be followed throughout the wall. When placing any Formcraft blocks, try to maintain a minimum 400 mm horizontal offset between vertical joints. By design, the alternating left and right corner forms will force a half bond or an initial 600mm offset.



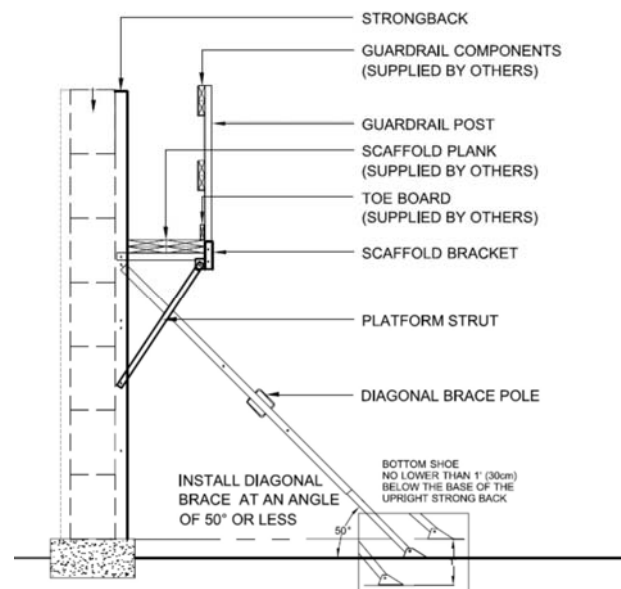
Once the second course is stacked the horizontal reinforcing (if required) should be placed into the top of the second course so that it rests securely in the seats of the connectors. The reinforcement bars should be placed in the opposite seat to the bar below or staggered so that you can easily slide the vertical reinforcing down from the top of the wall once the blocks are stacked to plate height.

Once the first two courses are stacked and squared, the bracing system can be installed.



Brace

The Formcraft construction system is designed to resist the lateral pressure of concrete poured into the cavity, but on its own it has little control over the alignment of the blocks during the concrete pour. The braces provide an adjustable device for ensuring the alignment of the walls. The bracing system also acts as a scaffold to enable the further stacking of the upper courses and also provides a platform for the concrete pour. The Bracing System is designed to allow for the alignment of the wall, prior to and directly after pouring concrete. Normally, the Bracing System will be erected after the blocks are stacked to 1.2m (2 course) and is usually installed on the inside face of the wall. The braces are usually placed a maximum of 1.4m apart with special attention given to those areas adjacent wall openings. Formcraft has also manufactured specific corner braces that can easily be attached to the external face of the slab. 8mm concrete screws are used to fix the base of the profile and the foot plate at the end of the diagonal strut, to the slab. Care must be taken to make sure that the turnbuckle is in the middle of its track, that the center of the profile lines up with the vertical face plates and that the base of the profile lines up with the chalk line on the footing before it is fixed.

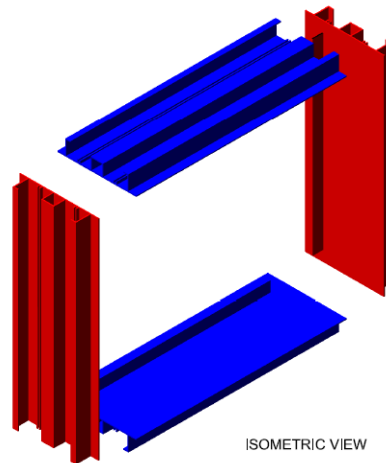


The best time to correct footings that are out of level is just after the braces have been fixed. This requires shooting a horizontal level on the bracing profiles and cutting the bottom of the blocks so that the top of the 1st course is level with the top of the lowest block.

It is then a matter of fixing the profile of the bracing system to the vertical face plates with tek screws. Two screws are usually inserted each course, with the fixing points being as close to the connector ties as possible. After the 3rd course is stacked scaffold planks are usually placed between the braces.

Door and Window Openings

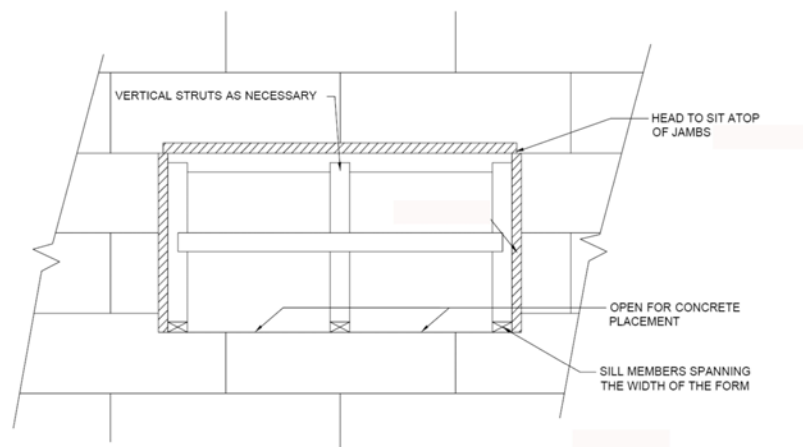
Formcraft manufactures an aluminum sub frame solution that provides for an easy means of fixing doors and windows and also provides a mechanical waterproofing flange around the perimeter of the opening.



Almost any aluminum window or sliding door frame can be inserted into the opening and riveted to the flange from the inside. On the interior, drywall is typically wrapped onto the sill, jambs and head.

With hinged doors, the hinge side of the door must be considered due to the thicker wall. Exterior hinged doors that are hung to the Formcraft wall should be installed so that the hinge is flush with the inside wall. This allows the door to open fully without hitting the doorjamb. Doors should be specified with jamb extensions to reflect the thicker wall plus the exterior and interior cladding.

The openings will require temporary support to carry both the horizontal and vertical loads. This is usually achieved through the use of wooden supports to square and brace the openings before concrete is poured. Support is particularly important under the subframe head to support the vertical load from the opening.



Window and door installations can be completed by implementing the window/door manufacturer's installation procedures. Commercial and semi-commercial frames are usually recommended. Frame mounted windows are usually measured up after the walls have been built and are generally riveted to the flange on the sub frame to ensure adequate fixing and waterproofing. Inward opening doors are most common for exterior walls so it is important to mount doors to the inside face of the wall to provide maximum swing from the hinge set. Exterior finishes can then be returned into the door or window framing.

Arches and Curved Openings

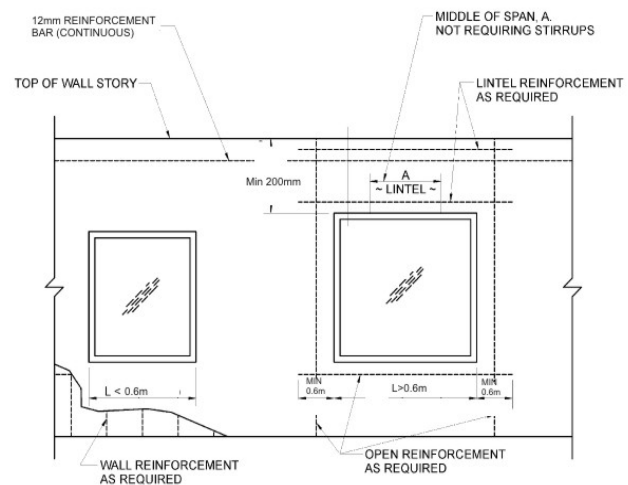
The Formcraft construction system offers high degrees of design flexibility. Arches and other curved openings can be easily achieved by cutting the feature into the EPS with a hand saw or hot knife. A thin strip of tin is then placed along the sawn section of wall to help form the concrete before the off cut is replaced and propped.

Stack 3rd and 4th Course

Successive courses of blocks can be installed by following the patterns established in the first two courses. Once the walls have been built to full height, the profile of the bracing system should be attached to the face plates of upper courses. C channel should also be placed along the top of the wall to align the modules as shown in the photo.

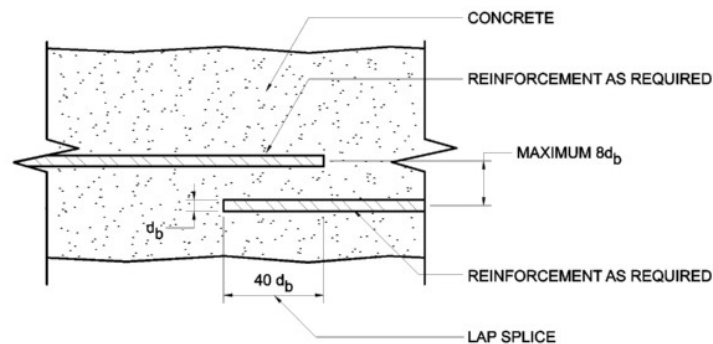
Reinforcement Around Openings

The introduction of steel reinforcing bars into a concrete wall bring tensile strength to the Formcraft building system. To account for the increased stresses in the wall around openings for doors and windows, additional reinforcing is required both vertically and horizontally. The location of the openings has a direct impact on the reinforcing design and lintels over doors and windows over 600mm wide need special design consideration. It is recommended that a local design professional is used to prepare the design in accordance with recognized standards. The diagram adjacent shows typical reinforcement around openings. Please see engineering details for more information.



Vertical Reinforcement

Vertical reinforcing is most easily placed after the wall is erected. Vertical reinforcing should be cut to length and threaded into the block cavity so that it weaves through the horizontal rebar courses which should have been staggered between the two opposing seats in the connectors. In this manner, the vertical reinforcing is held away from the face of the panels during the pour. Remember to add the additional reinforcement bars around window and door openings as described in the previous section. It is preferable to use continuous reinforcement bars for both horizontal and vertical reinforcement of the concrete. If bars must be joined then the lap splices referred to in the diagram below must be adhered to. For a standard 12mm reinforcement bar the bars must be less than 92mm apart and they must overlap by more than 480mm.

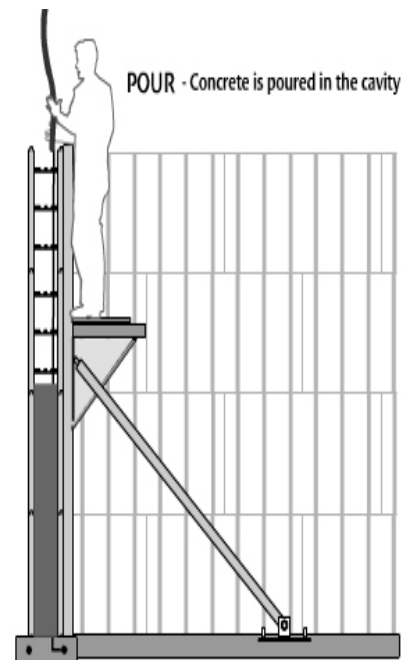


Pour

A string line should be fastened at the top of the wall brace to aid in the alignment of the wall levels. Changes to the alignment can be made using the turnbuckle on the bracing system. If additional courses are to be added for another stage of construction, it is recommended that the top of the forms be protected from by putting a length of C channel over the tongues during the pour.

The following pre-pour checklist should be thoroughly inspected prior to pouring the concrete.

1. Have the connectors in the top course of blocks been cable tied to adjacent blocks?
2. Have beam pockets been installed?
3. Has floor system ledger plate been installed?
4. Is reinforcing in place as specified?
5. If there are more courses to be laid, have tongues on the top course been protected from the concrete?
6. Is the internal vibrator ready to go?
7. Are there any pieces of plywood and a screw gun available in case of a blowout?
8. Has concrete with the right quantity and specifications been ordered?
9. Is there room for pump truck or trailer and concrete truck to maneuver?
10. Are walls in keeping with the plan?
11. Is alignment/scaffold system installed properly?
12. Have all the corner alignment rods been placed in the corners?
13. Are scaffold planks secured?
14. Are all openings installed and propped?
15. Has reinforcing been placed around all



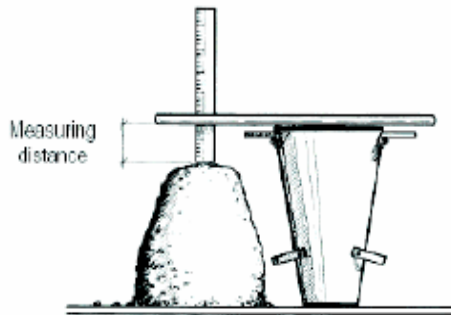
openings?

16. Have anchor bolts been installed in the wet concrete for the wall plate?

17. Are all service penetrations installed?

Concrete which is to be placed in Formcraft walls should incorporate the following specifications:

1. Maximum aggregate size is for the 220 model is 10mm and for the 300 model is 16mm.
2. A slump of about 120mm is desirable. The method for measuring the slump of concrete mix is shown in the diagram below:



3. The water/cement ratio must be less than 0.60.
4. Self consolidating additives can also be added to reduce the amount of manual consolidation required.

Experience in the field has shown that often the easiest method for pouring concrete is with a line or boom pump. When using a concrete boom pump, it is recommended to introduce a reducer into the hose, and also to attach 90° elbows to slow the pump speed. A flexible pipe attached at the end of the hose is also useful. The hose should be limited to a maximum diameter of 100mm and the speed of concrete placement should be less than 10 cubic meters/ hour when pouring a Formcraft wall. A goose neck fitting on the end of a trailer mounted, 50mm line pump has proved a very successful method of pumping the concrete.

The concrete pour should begin by the placement of concrete below all the window openings up to sill level if possible. Following placement below these openings, the installer should move to the top of the wall and begin pouring concrete into the remainder of the walls starting beside a window and not exceeding 1200mm (or 2 courses) in height for any one lift. Rather than firing the concrete down a 2.4m lift to the base of the cavity, an attempt should be made to position the flow of concrete towards the higher concrete levels and then just letting the concrete flow (or slump) down the natural diagonal flow towards the lower cavity levels. This method substantially reduces concrete pressures and provides good concrete penetration throughout the cavity.

Each layer of concrete must be properly consolidated to ensure that the reinforcing bars and the connectors are thoroughly embedded, and also that all air pockets are eliminated. A second person should be following the concrete installer around the perimeter of the wall, consolidating the



concrete and adjusting the alignment of the wall relative to the string line.

Consolidation of the concrete is an important step in ensuring that there are no voids in the concrete. Particular attention should be given to the jams of windows and concrete beams where additional reinforcement has been placed. The maximum recommended diameter for an internal vibrator is 25mm and a low power rechargeable unit should be used. Care should be taken when using concrete vibrators to use proper consolidation techniques that will consolidate from the bottom of the block towards the top. The objective of consolidation is to remove entrapped air inside the wall, in the freshly poured concrete. The technique to do this is to insert the head of the vibrator “fast-in” to the bottom of the wall and remove it “slow-out”.

Finishing The Concrete Pour

If additional courses are to be added to the wall it is recommended that the concrete should be left rough and unfinished to provide a better bond between successive lifts and the C Channel that is used at the base of the wall can be inserted vertically into the wet concrete of the first pour. The studs should be spaced at 400mm on centre along the wall at the elevations of the suspended floor system. Two screws can be placed through the plastic furring strips in the Formcraft panel and into the studs to help form the concrete when the slab is poured.



When the wall will not be continued for further stages of construction, the concrete will need to be finished at the top of the wall to provide a relatively smooth surface. Before the top of the wall is finished anchor bolts should be placed according to local building code requirements for attachment of the wall plate. A hand made trowel can work well to finish the concrete level about 50mm down from the top of the blocks. Typically, the wall will have a wooden or steel wall plate installed to provide attachment for either floor joists, or roof trusses/rafters.

The string line that was erected prior to concrete placement will be used to ensure that the wall is straight and true by again allowing a visual reference at the top of the wall. By using the turnbuckles in the Bracing System, the walls can be easily brought into plumb, resulting in a final product that is straight along the footing and plumb.

Checklist After Concrete Placement

1. Be sure walls are straight, plumb, level and square
2. Concrete consolidation
3. Anchor bolts, embedments, beam pockets are installed
5. Spilled concrete is cleaned up
6. Site is cleaned up

Beam Pockets & Service Penetrations

Beam pockets may be required for the installation of the floor beams. A void form must be created, usually from an end block or a piece of timber, that will be inserted into the wall forms by cutting out the foam at the exact height and location required for the beam placement. Service penetrations such as electrical service conduits, water service pipes, or air conditioner can be easily cut using a hole saw to cut the Formcraft panel at the desired location and inserting the appropriate service pipe through the forms before concrete placement.



Plumbing and Electrical Runs

Plumbing and electrical cables are easily chased into the polystyrene face of the Formcraft panels prior to the fixing of plaster board or wall coating. This can be done with a router, Stanley knife or electric hot knife in readiness for the cables.



Below Grade Waterproofing

There are many waterproofing products available on the market today. Formcraft panels can accommodate almost any moisture protection option to protect the walls in below grade environments. Some membranes even provide termite protection as well as moisture protection for those areas where it might be required

Interior Finishes

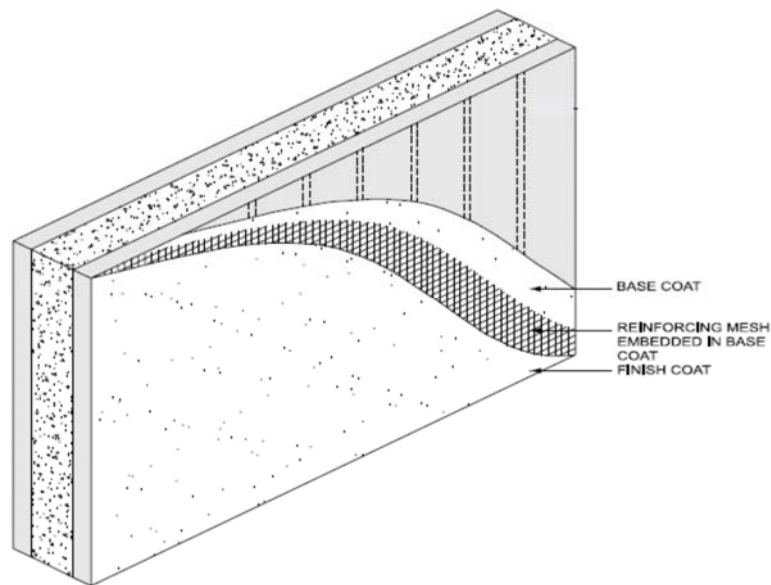
The most common and cost effective interior finishing material used in construction today is gypsum board, also known as Gyprok. Gyprok board can be applied directly to the Formcraft Construction System using conventional drywall screws, or with drywall screws and EPS compatible adhesives.

Exterior Finishes

Due to potential degradation to the EPS, it is imperative that the Formcraft forms be protected from U/V rays shortly after installation.

Exterior Insulation Finish Systems (EIFS)

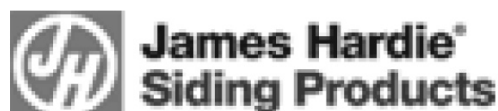
Rockcote Reinforced Render system has more than 20 years of experience behind it. This system is designed specifically for coating EPS walls. These new products have come to be known as EIFS (Exterior Insulation Finish Systems). EPS is well regarded for its dimensional stability and this superior finishing system utilizes fiberglass mesh for reinforcement. The result is a much more flexible material that is also extremely impact resistant, low maintenance and cost effective. There are a variety of stylish textured finishing options that are available with the RockCote reinforced render system. In all such conditions the RRR system delivers a superb coloured render finish, indistinguishable from masonry. Please see website for more details. www.rockcote.com.au



ROCKCOTE
render • texture • paint

Cladding

Villa board, Weather Board and Color Bond are common exterior finishes due to their relatively low cost and ease installation. Horizontal sheets or planks can be fastened easily to the Formcraft wall using screws fastened directly into the face plates located at 200mm centers. Fiber cement sheeting like Villa board can be fixed with drywall screws and EPS compatible adhesives. Fiberglass mesh is installed over the joints in the villa board before they are flushed and an a system of primers and acrylic render is rolled over the exterior surface.

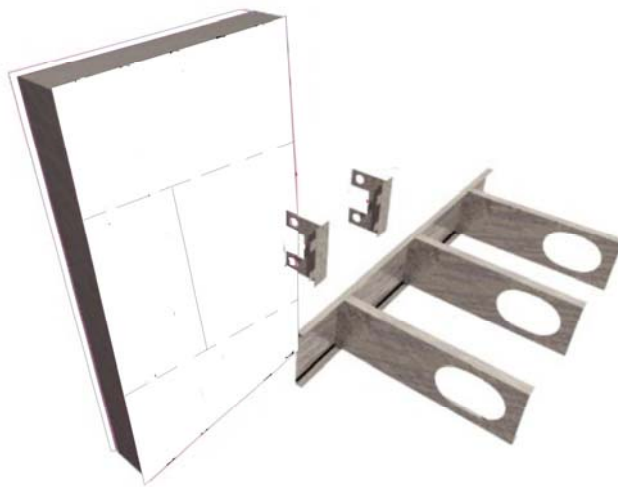


Connection Systems

A common ledger connection system for fixing floor joists or heavy cabinetry uses offset anchor bolts as described in the diagram.

Formcraft Fixing Plate

A customised fixing plate has been developed by Formcraft as an engineered solution to resolve the challenges of mounting steel or wood floor joists or heavy cabinetry on ICF walls. A chalk line can be snapped along the line of the fixing to align slot positions. Prior to placing concrete, glue the exposed flange to the face of the panel. The embedded fin of the Fixing bracket permits the concrete to flow around it, anchoring it securely within the concrete wall.



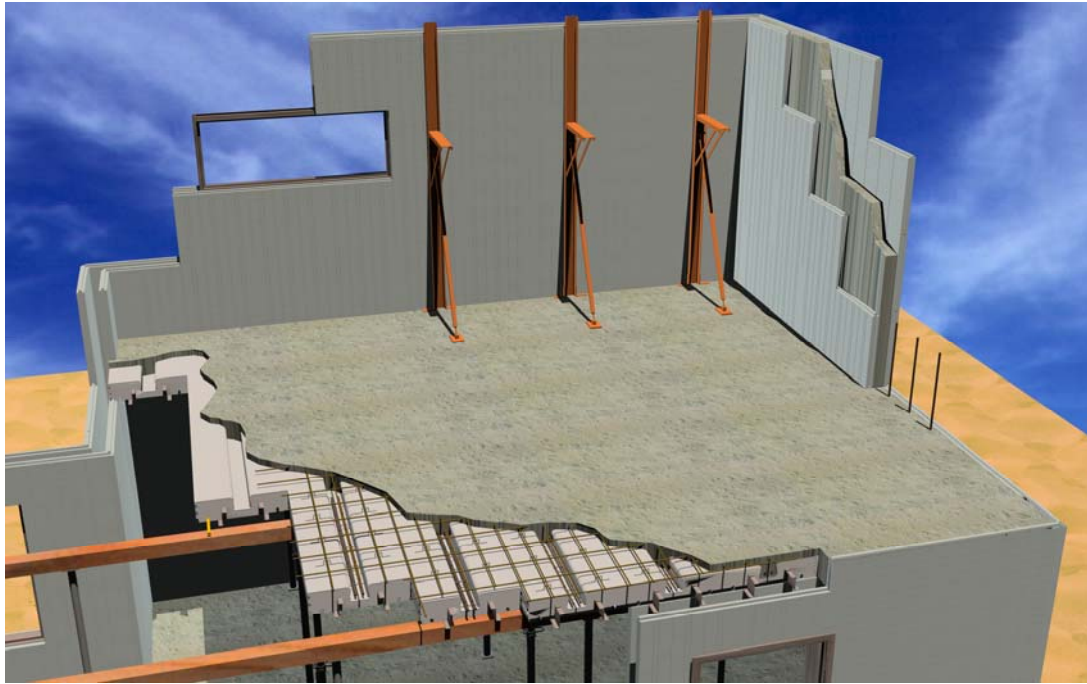
Suspended Slab Systems

Formcraft is moving to offer a more total building solution by offering its own fast track suspended slab solution. Often Formcraft will build the entire super structure of a building before the Project Manager completes the structure with the use of finishing trades.

FORMDECK

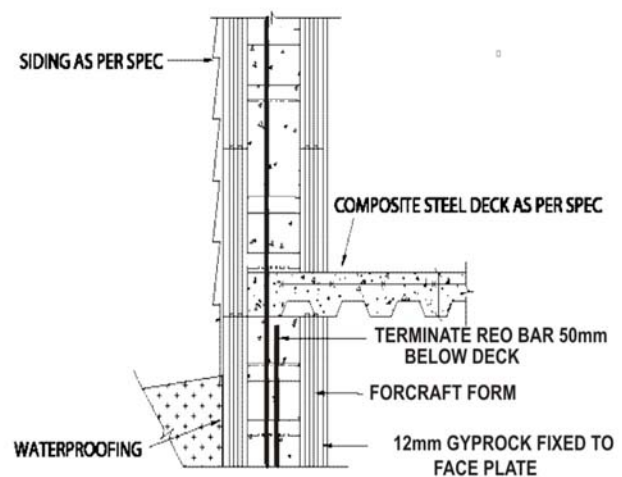
Formcraft manufactures the FormDeck® and insulated suspended slab system to integrate with the ICF wall system. FormDeck® is a lightweight form used to create insulated suspended slab construction. The EPS profile forms structural concrete T beams integrated with a thinner flat concrete slab. This reduces concrete usage and weight significantly while maintaining strength.

The polystyrene remains mechanically locked to the underside of the concrete slab when erected. FormDeck® is capable of providing forms with continuous metal furring strips and plaster board can be attached directly to the Z channels. The FormDeck® forms also contain two service chases to place utilities such as electrical conduit. The FormDeck® system is cut to custom made lengths for each order.



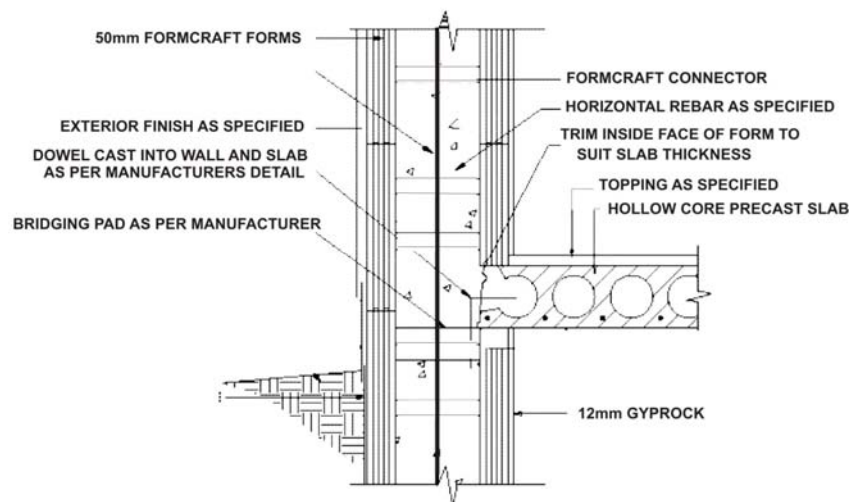
Composite Steel Deck (King Floor)

Another method of constructing a poured in place concrete floor or roof is to use a composite steel deck. The deck spans from wall to wall and, depending on loading conditions, may have intermediate supports under the deck spans. The steel deck is corrugated, which allows less concrete to be used in the floor system, yet it is stronger than a floor made of flat stock steel. The channels created beneath the corrugated floor are another advantage because they allow the routing of electrical wiring, plumbing, etc. The steel deck is set in place after the concrete walls have cured to adequate strength. Use of this detail will almost always require the review of a structural engineer.



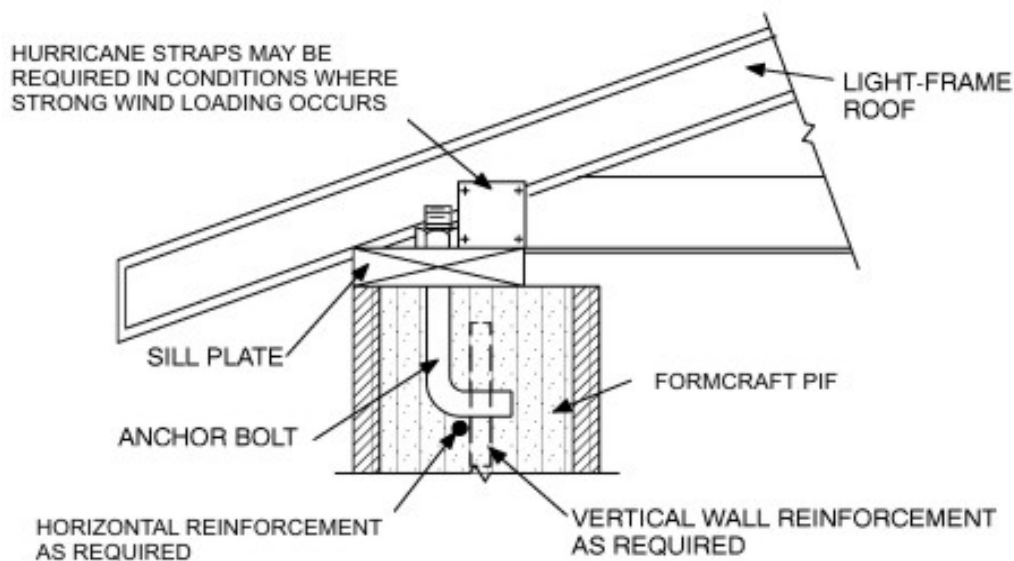
Pre-Cast Concrete Slab (Hollow Core)

Concrete floors can be pre-cast in a factory and set in place with a crane. The panels are self-supporting and span from wall to wall without the need for intermediate support from joists, or other means. After concrete in the Formcraft walls has reached adequate strength, the pre-cast slabs can be set in place on the wall. Following setting of slabs, a thin layer of grout is laid over the slabs to create an even floor surface. Use of this detail will require the review of a structural engineer. This engineering service is frequently available directly from the manufacturer of the slab panels.



Rafter or Truss Roof Connection

Check with local building code authorities for anchorage or design requirements which may vary due to wind uplift conditions, etc. See the diagram below for a description of standard roof connection.



Cabinetry and Other Heavy Items

Although the plastic webs in the Formcraft blocks can support most finish materials easily, heavier items must be supported by other means. For example, kitchen cabinets may require supplementary fastening supplied to support the increased loading of the cabinets. To support the heavier loads, it is necessary to provide a method of fastening directly to the concrete. For example, to provide a stronger connection for the upper cabinets in a kitchen, a circular saw can be used to create a channel of the same dimension as a 50x90 piece of wood horizontally into the EPS forms between the face plates. The use of expanding concrete anchor bolts to fasten the 50x90 wood to the wall will provide sufficient holding power to enable the cabinets to be fastened to the wood plate as per normal fastening methods. Formcraft fixing plates can also be used as an alternate method.

Termite Treatment and Protection

Termites and other insects are not attracted to the Formcraft walls, however, if they are present on the building site, they may sometimes tunnel in the EPS insulation to get to wood structures in other parts of the building. Traditionally, the solution has been to treat the soil before a house is constructed and then at regular intervals thereafter. Formcraft recommends the use of under slab termite irrigation systems which have the advantage of providing a recharge system if additional applications are required. The treatment agent is usually a water soluble insecticide. An alternative is a Perform Guard additive that can be added to the polystyrene in the manufacturing process for high infestation areas.