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Our Mission

Superform strives to provide superior products to ensure the longevity of building construction. We believe in effective communication and the importance of understanding builders and property owners. We encourage new ideas in developing new innovations and growth and promote energy efficiency. We value the importance of honest and ethical relationships and are committed to remain fair and true in our dealings with employees, clients and vendors.



Information in this Manual

This information is provided as a service to the builders, dealers and other representatives of Superform Products Ltd., and is in no way a complete or final analysis of the Superform System. CCMC (Canadian Construction Materials Council) and ICC-ES (International Code Council – Evaluation Service, LLC.) evaluations of this product have been completed and are available online. Superform makes no claims or promises, statements or other inferences as to the performance or actual quality of any structure built with the Superform system other than the obvious proven benefits of the combination of Expanded Polystyrene (EPS) foam insulation and reinforced concrete in a properly designed wall. As a result of the unfamiliarity, many building inspection branches face regarding the relatively “new” ICF (Insulated Concrete Form) method of building, some localities may require the stamp of a certified professional engineer on the structural drawings before approval will be given. Although this is unusual for residential construction, users of the forms are encouraged to accurately determine what steps are necessary for a permit to be issued before forms are purchased. Comply with local building codes and site-specific engineering requirements.

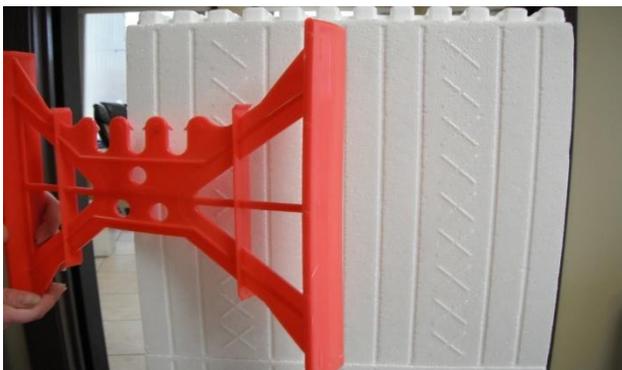
Disclaimer

The information contained in this manual is for information purposes only, and may not apply to every situation. The Manufacturer shall not be liable for any personal injury, loss of profit or other commercial damage resulting from use of this guide. Please keep this in mind when reviewing this guide.

Introduction

The Superform System is intended to replace conventionally poured concrete foundation walls in residential and light commercial construction. The rigid EPS provides both the form for the retention of wet concrete and thermal insulation for the exterior & interior walls. The EPS also provides superior sound barrier insulation for interior party walls. The plastic ties in the blocks (which are slightly recessed to prevent thermal bridging) are a threefold unit. First, they provide the “tie” member of the forms that holds

the two panels of EPS the correct distance apart while the concrete is being poured. Secondly, they allow for proper placement of reinforcing bar by way of 3 or 4 slotted pockets into which rebar is snapped. Thirdly, the ‘T’ shaped portion at each end of the tie is the member to which inside and outside finishes are attached. Thus, the Superform wall system accomplishes forming, framing and insulating in one step, providing a finished wall far superior to any other building method.



Materials

All materials used in the manufacturing process of Superform Blocks comply with all applicable American and Canadian building codes, which govern the use of building materials, intended for use in occupied dwellings. The two basic components are a flame retardant modified expanded polystyrene and raw bead polypropylene, both of which carry current validation and certification. Finished blocks are free of CFC's, HFC's, HCFC's and formaldehyde and develop fewer toxins when burned than most household materials. According to all applicable building requirements, Superform Blocks are completely acceptable for the construction industry. The National Research Council of Canada indicates that Expanded Polystyrene has a flash ignition temperature of 340 degrees Celsius (655 degrees F) while pine lumber has a flash ignition temperature of 224 degrees Celsius (400 degrees F). The National Research Council of Canada in Ottawa conducted a flammability test and the results indicated that Expanded Polystyrene was of the same order as that from wood. The potential hazard due to toxic combustion is also the same as that from wood.

Design

The blocks are poured in such a way as to allow for a staggered, interlocking, stack pattern that is strong enough to withstand the hydrostatic forces of wet



concrete to be poured into the void between the panels of EPS. This produces a monolithic concrete wall that is 4", 6.5" or 8" wide throughout its height. The EPS is treated with a flame resistant additive (which makes it a type 2 EPS) and complies with CAN/CGSB-51.2-M87. The 2 ¾" of rigid EPS on each side of the wall provides a thermal insulating value of R-23, in

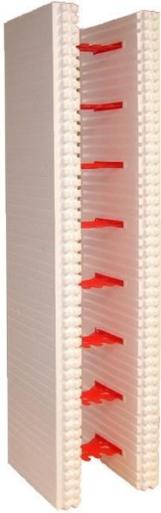
accordance with ASTM C-236-89. A major advantage of the Superform wall is the fire resistance rating of a minimum 3 hours and a sound rating of 55 (STC).

Engineering

- Reinforcing steel is required as per ACI 318 Building Code Requirements
- Wind speed rating and seismic rating by professional engineer, to comply with ACI 318-R-89
- Recommended concrete design - 25 mpa or 3626 psi 6" slump minimum aggregate size – ½"
- Engineers may take into account Portland Cement Association reports showing that concrete cured in forms such as Superform may develop up to a 30% increased compressive strength at 28 days when compared to conventionally poured and stripped walls
- Please refer to our Manufacturers Wall Engineer Charts for additional information

Description

The Superform Insulated Concrete Form consists of two basic components. First, the rigid EPS panel that is shape-molded to specific dimensions and configurations. Second, the injected polystyrene ties or webs that are molded into rigid EPS panels. The Superform block resembles a Lego® block with the center removed.

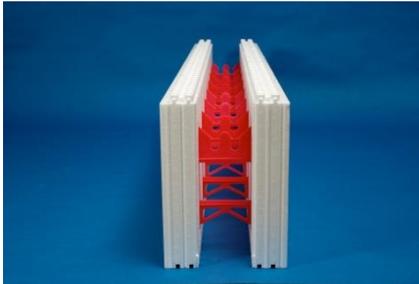


Superform has a wide variety of block configurations to meet any building requirements; residential, commercial, industrial. Standard 12" x 48" blocks create an easy way for you to calculate your form requirements and the 6" tie spacing and thick corner ties make you interior and exterior coverings a cinch to apply.

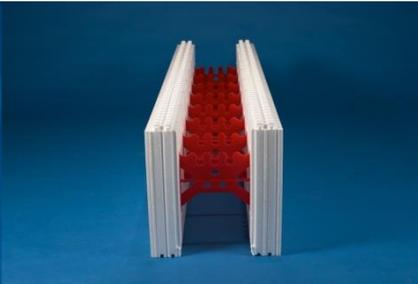
Block Sizes

Superform Blocks are available in 4", 6.5" and 8" Core Widths.

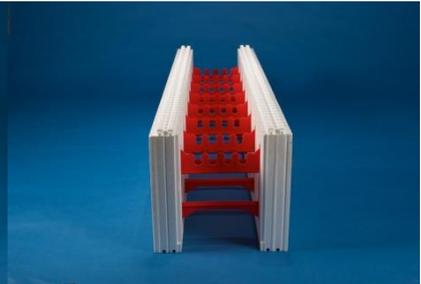
4 Inch Block



6.5 Inch Block



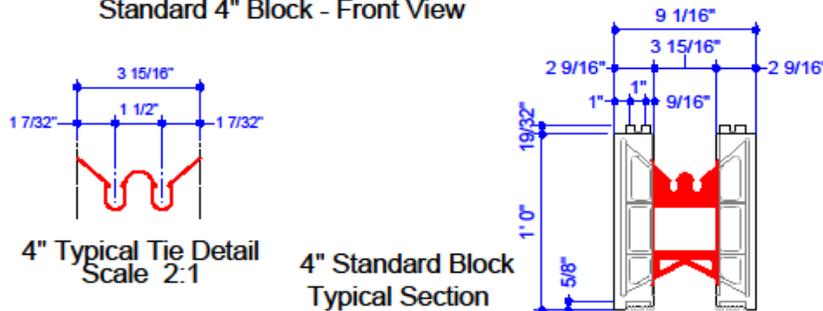
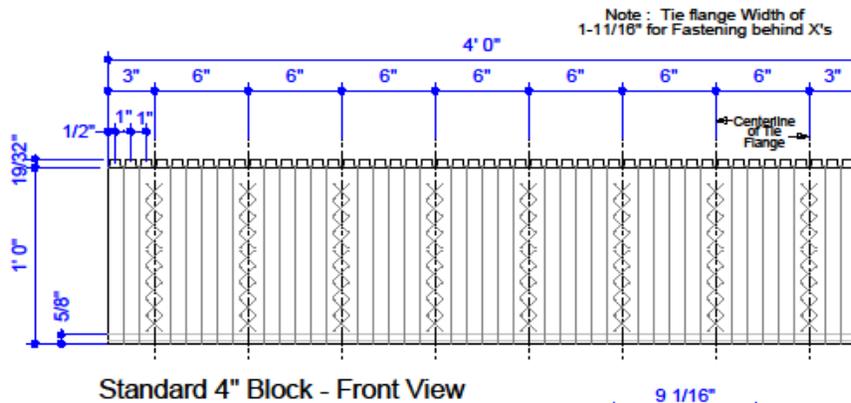
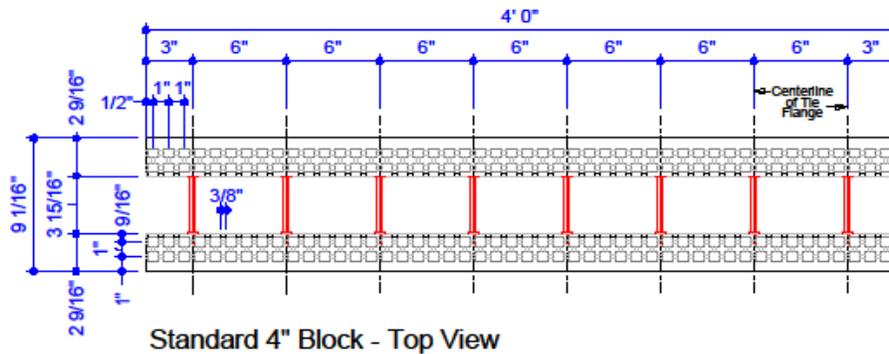
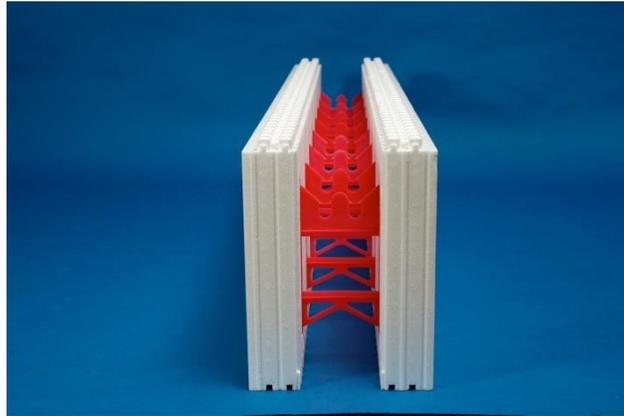
8 Inch Block



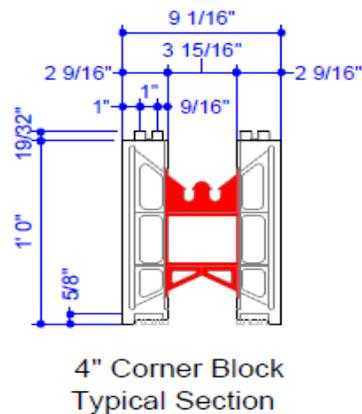
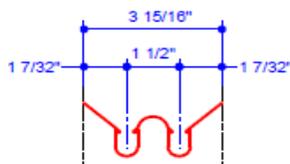
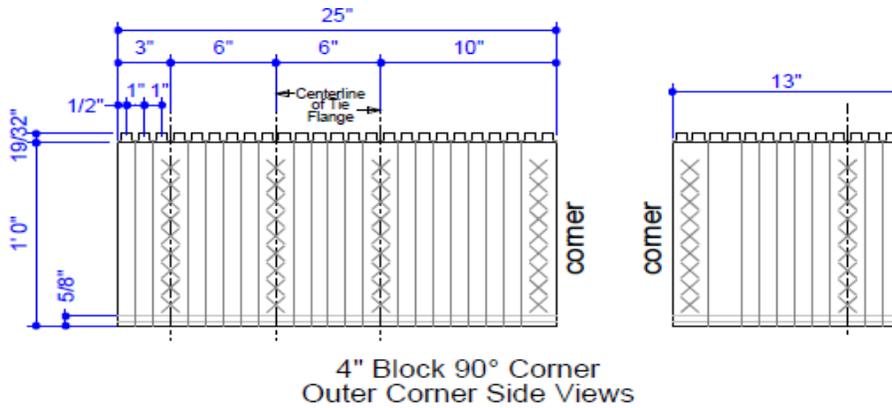
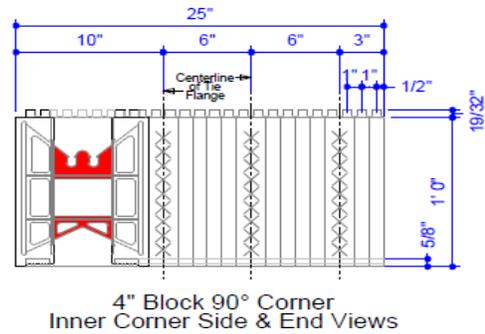
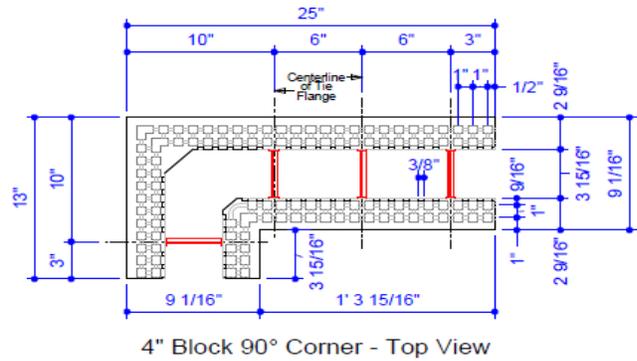
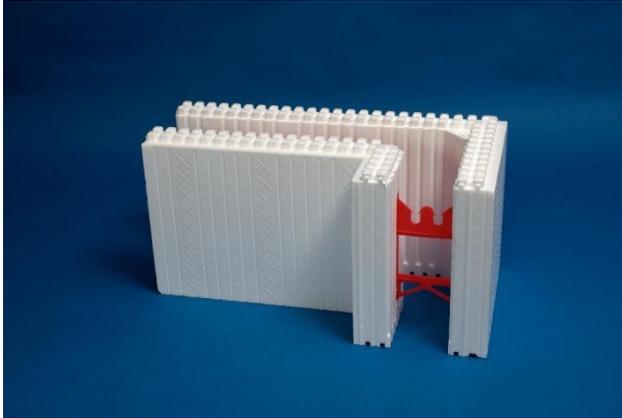
Block Specifications

The following pages illustrate the various specifications of Superform Blocks.

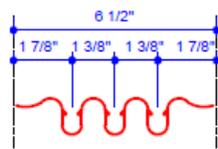
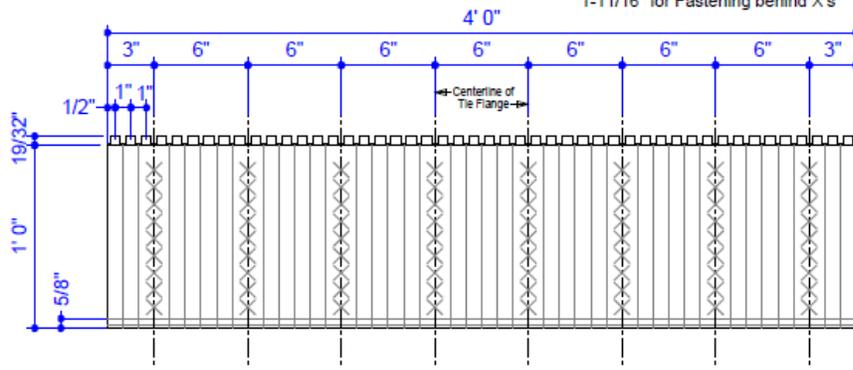
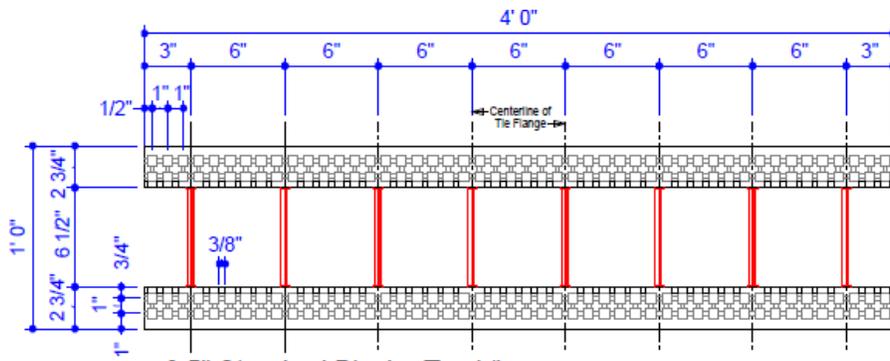
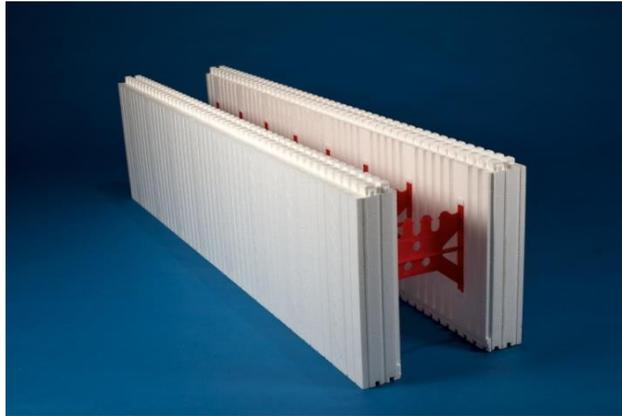
4 INCH STANDARD BLOCK



4 INCH 90 DEGREE BLOCK

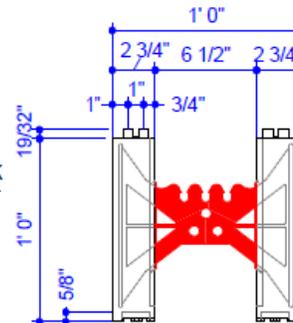


6.5 INCH STANDARD BLOCK

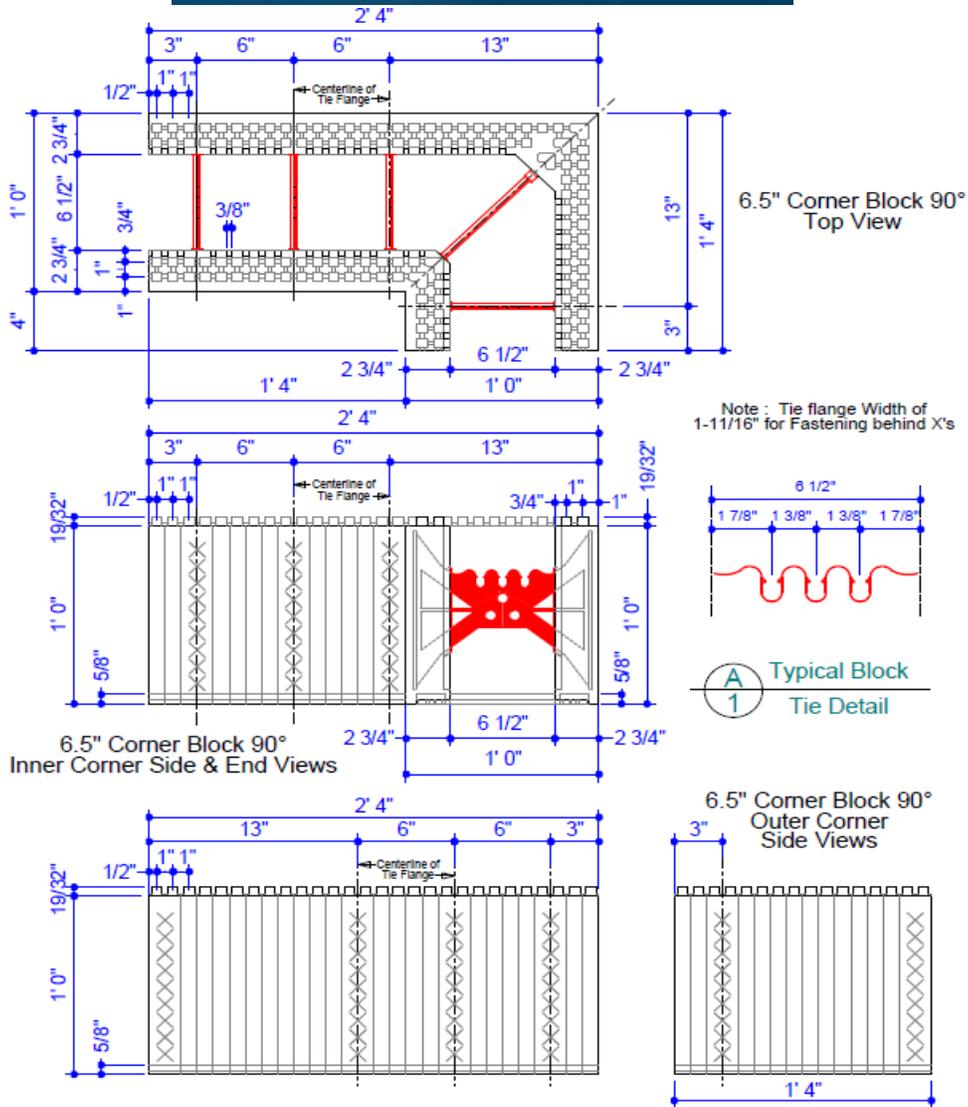
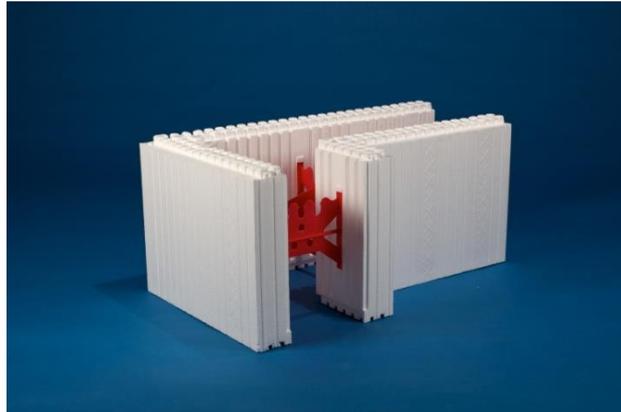


Typical Tie Detail

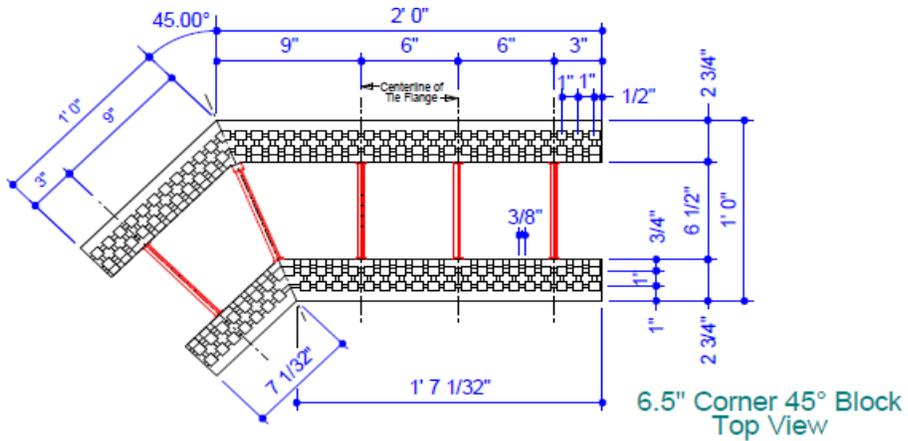
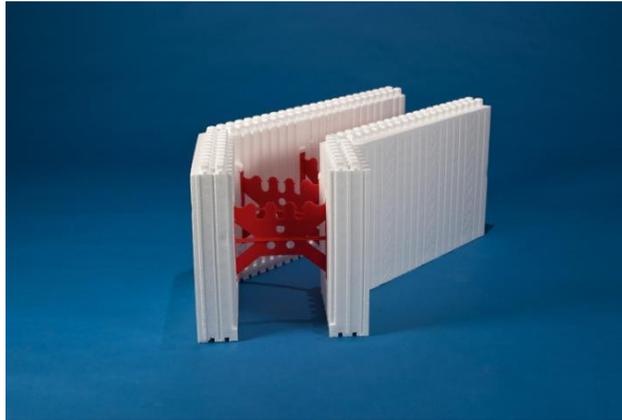
6.5" Standard Block
Typical Section



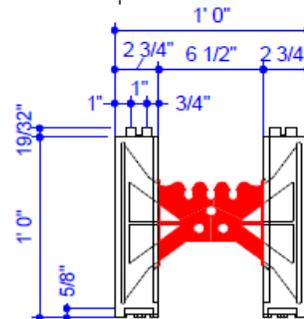
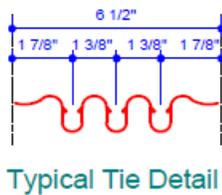
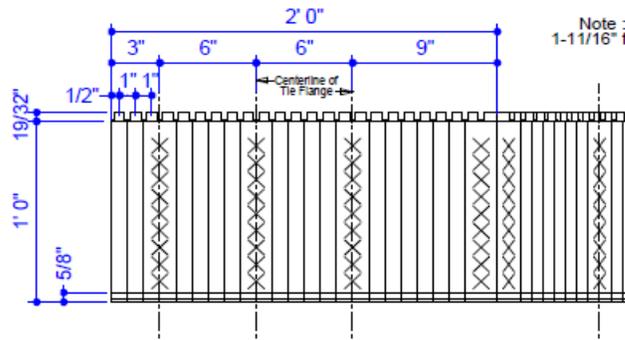
6.5 INCH 90 DEGREE BLOCK



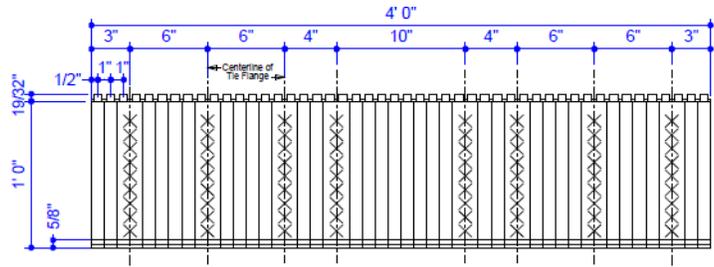
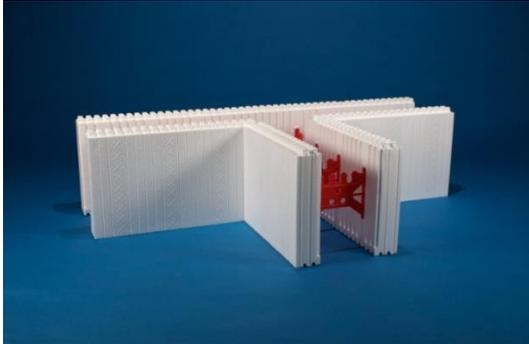
6.5 INCH 45 DEGREE BLOCK



Note : Tie flange Width of 1-11/16" for Fastening behind X's

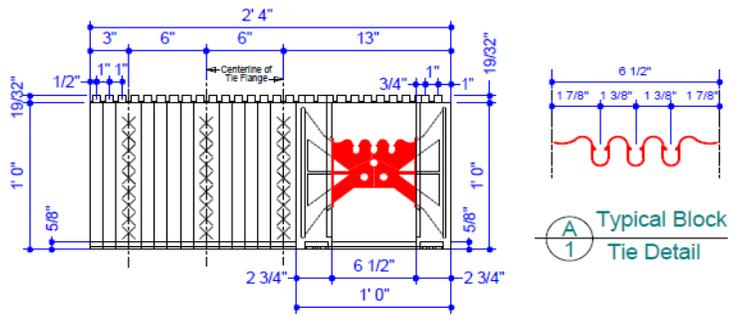


6.5 INCH T-BLOCK



6.5" T - Block
Straight Side Elevation

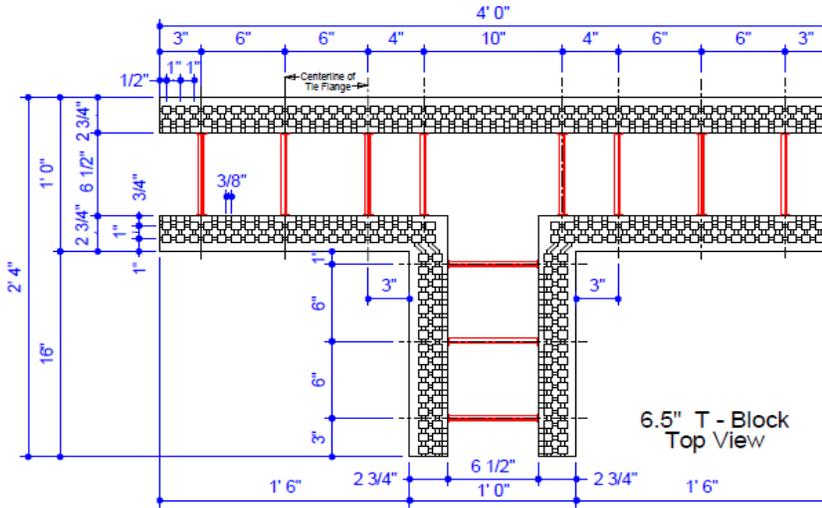
Note : Tie flange Width of 1-11/16" for Fastening behind X's



6.5" T - Block
Inner Corner Side Elevation
& End View

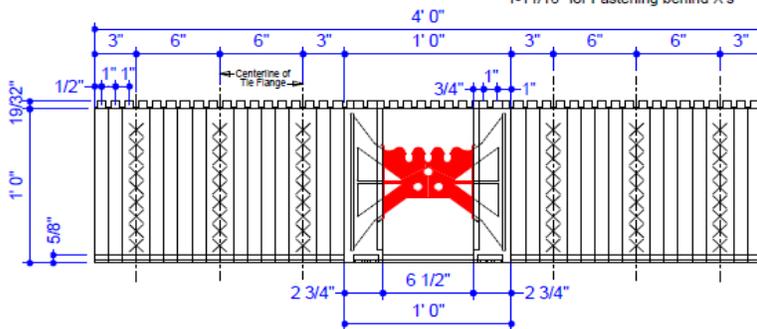


Ⓐ Typical Block
Tie Detail



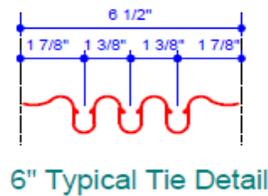
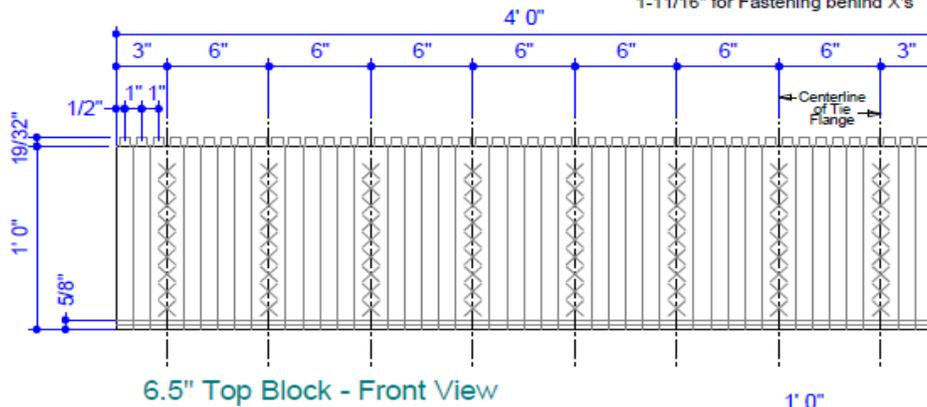
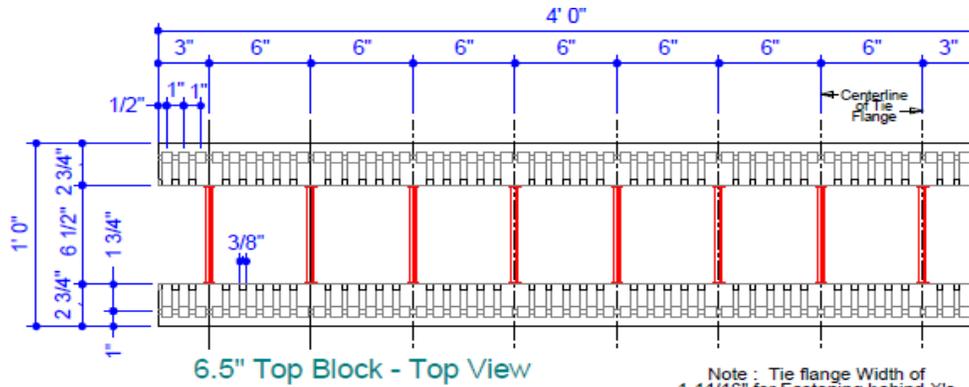
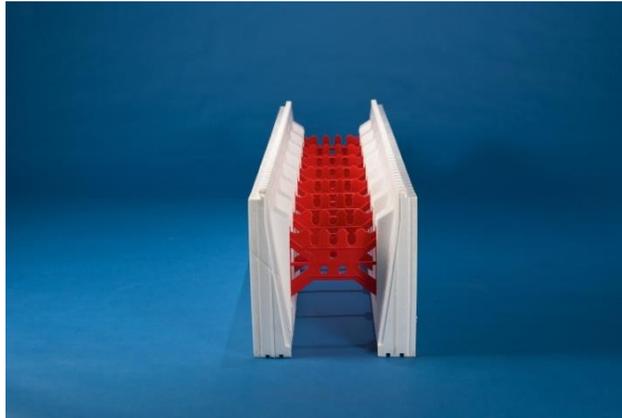
6.5" T - Block
Top View

Note : Tie flange Width of 1-11/16" for Fastening behind X's

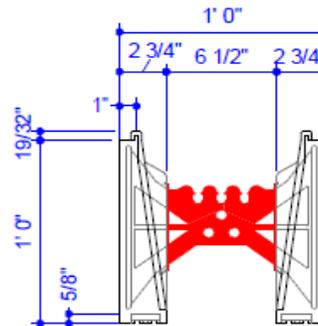


6.5" T - Block
Inner Corner Elevation & End View

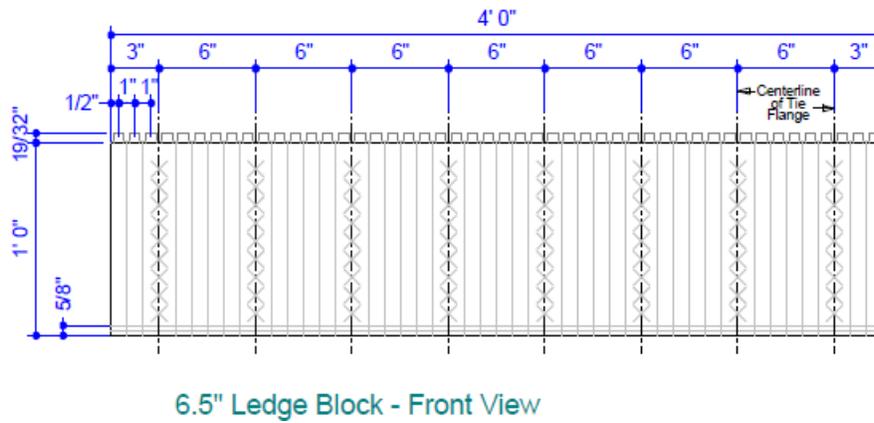
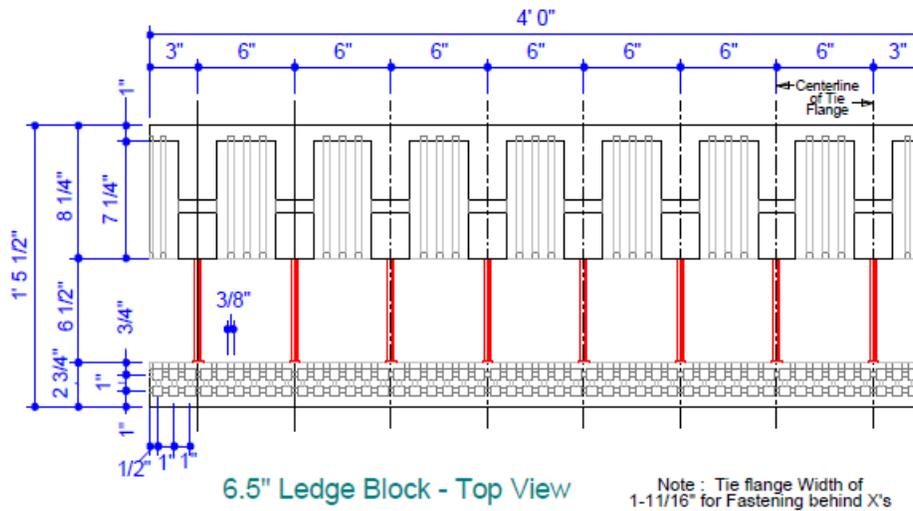
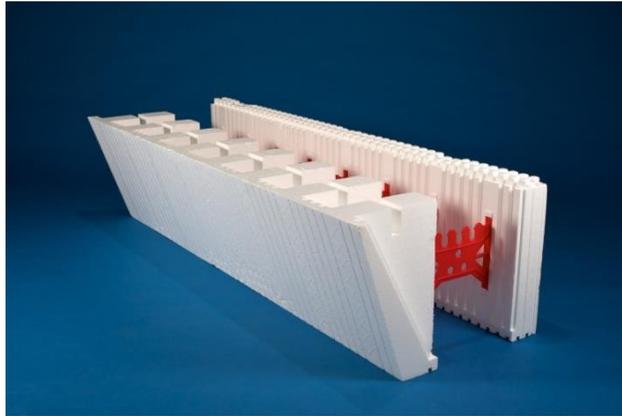
6.5 INCH TOP-BLOCK



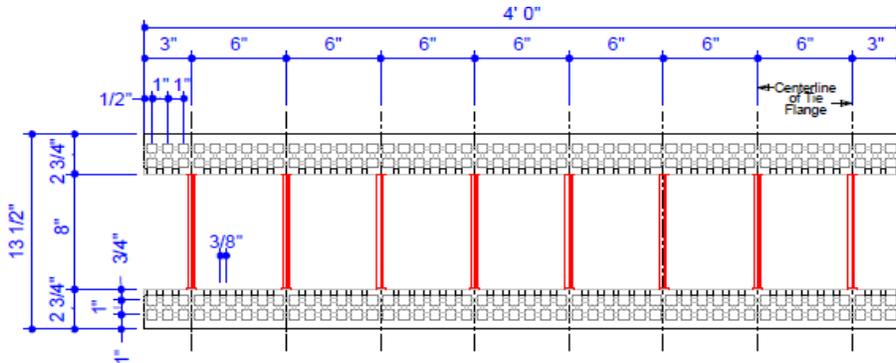
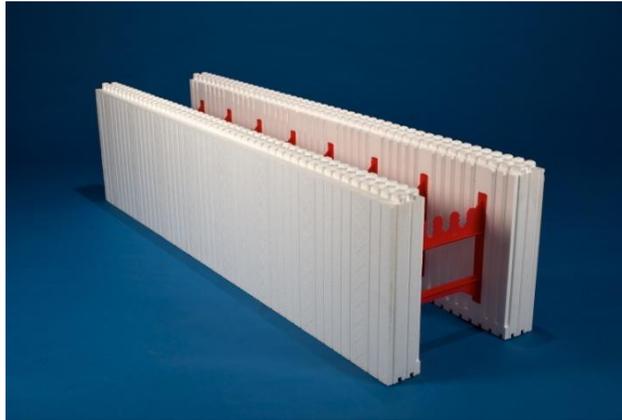
6.5" Top Block
1 Typical Section



6.5 INCH LEDGE-BLOCK

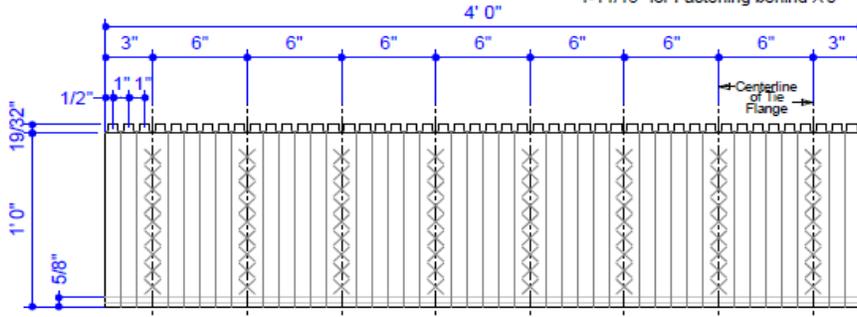


8 INCH STANDARD

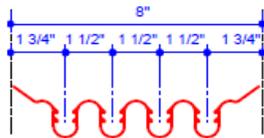


Standard 8" Block - Top View

Note : Tie flange Width of 1-11/16" for Fastening behind X's

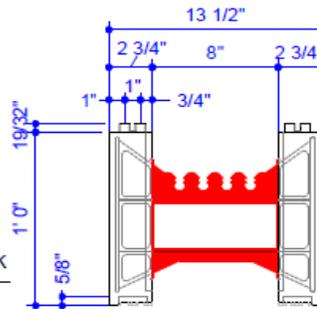


Standard 8" Block - Front View

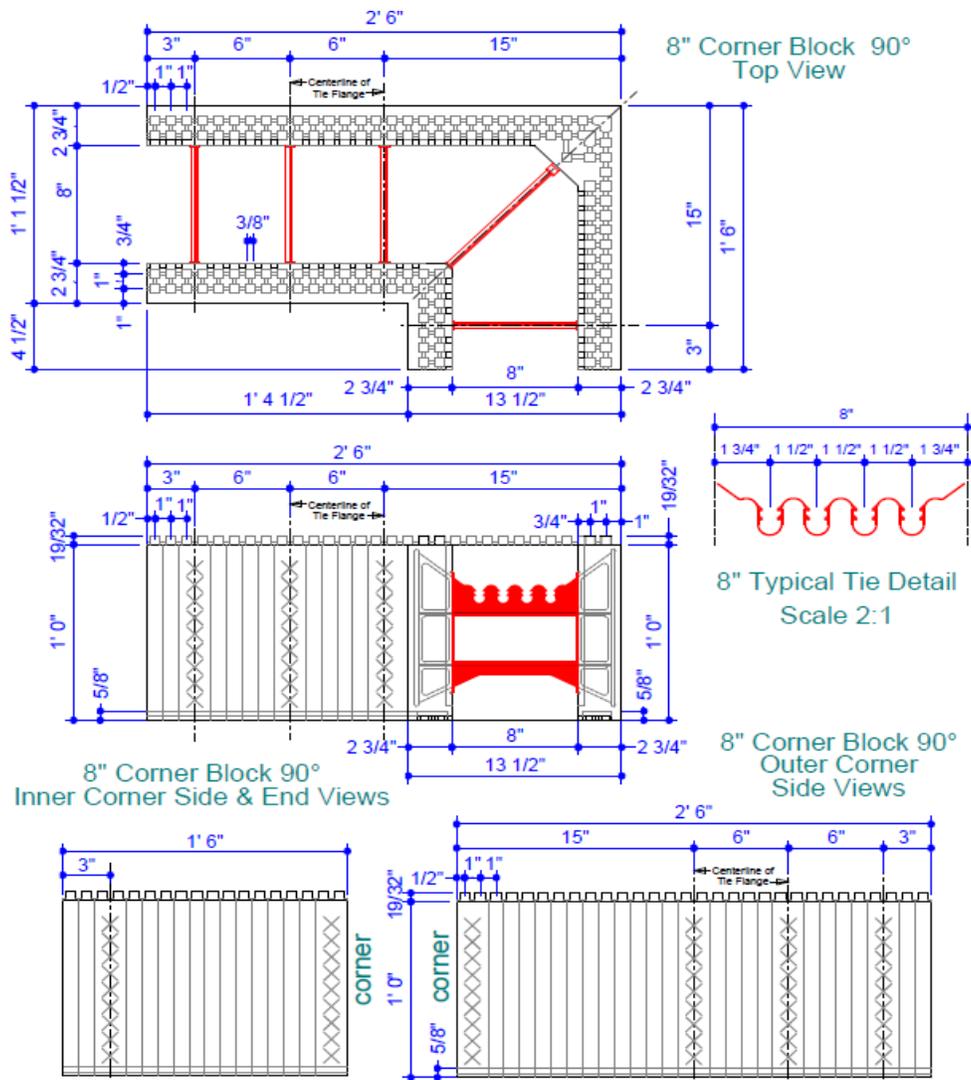
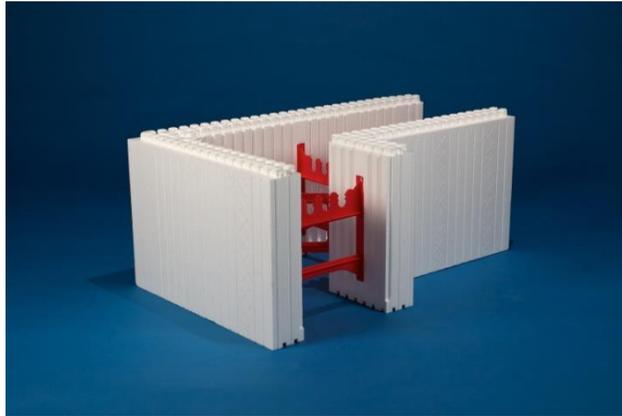


8" Typical Tie Detail

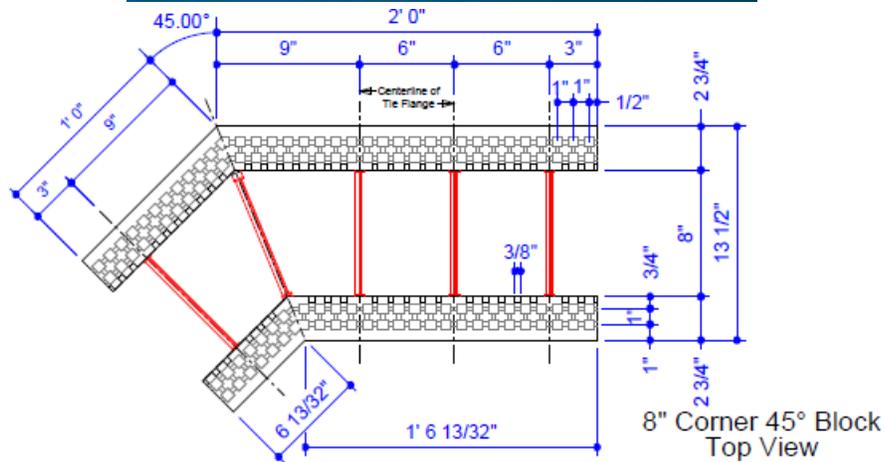
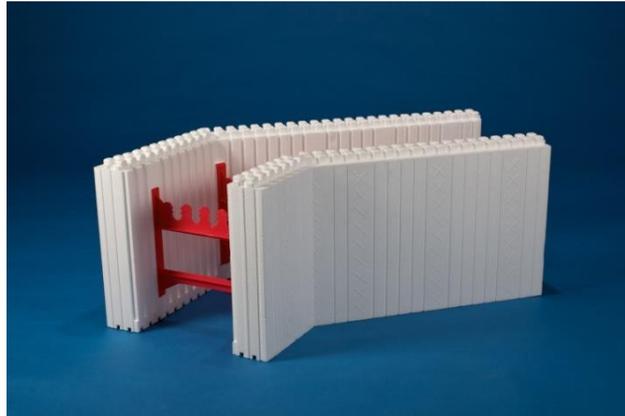
A 8" Standard Block
1 Typical Section



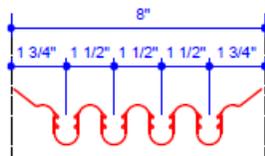
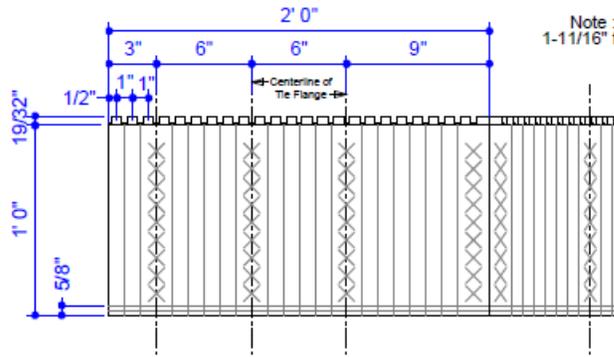
8 INCH 90 DEGREE BLOCK



8 INCH 45 DEGREE BLOCK

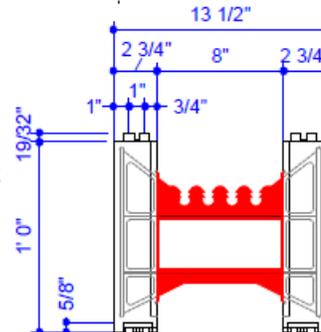


Note : Tie flange Width of 1-11/16" for Fastening behind X's

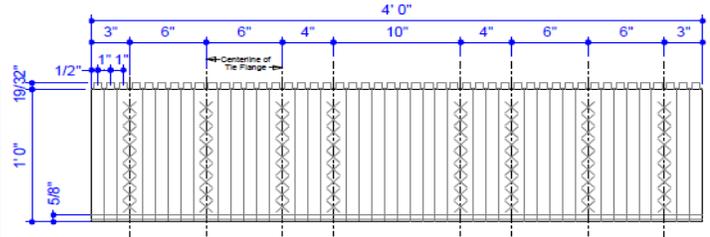
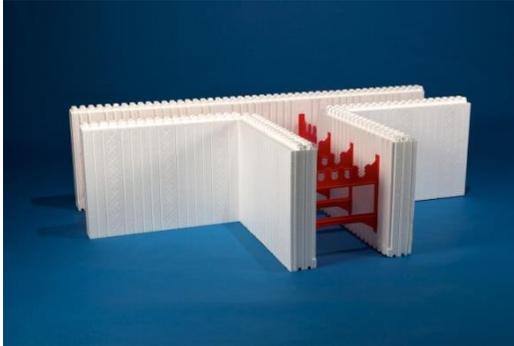


8" Typical Tie Detail
Scale 2:1

8" Corner 45° Block
Typical Section

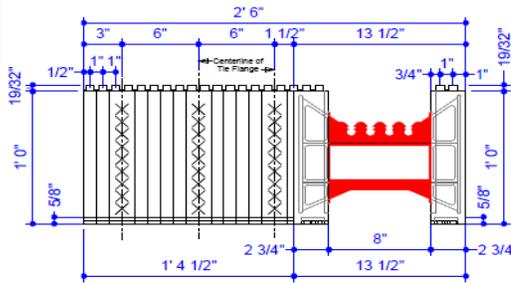


8 INCH T-BLOCK

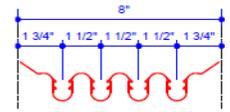


8" T-Block 90°
Straight Side Elevation

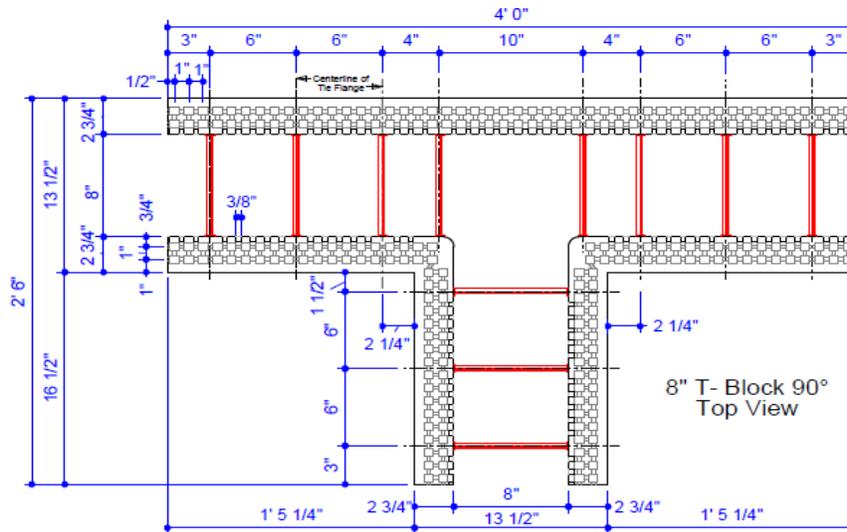
Note : Tie flange Width of 1-11/16" for Fastening behind X's



8" T-Block 90°
Inner Corner Side Elevation
& End View

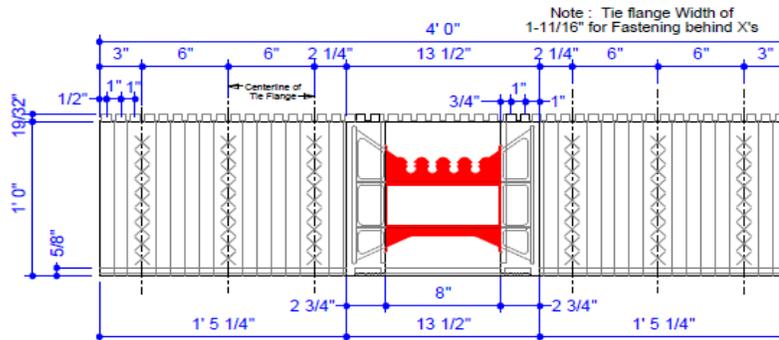


8" Typical Tie Detail
Scale 2:1



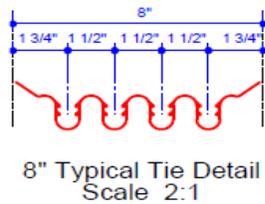
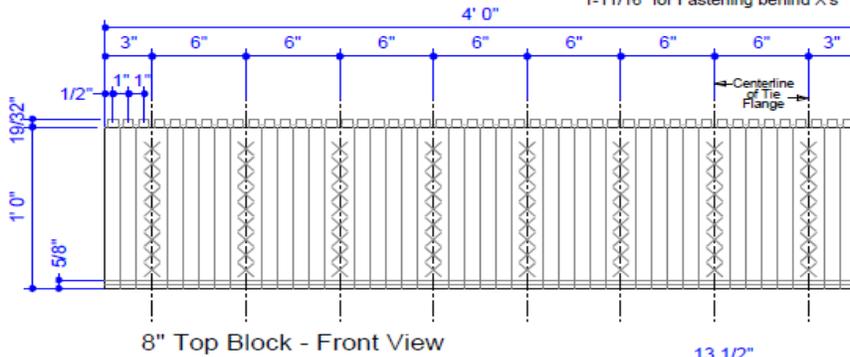
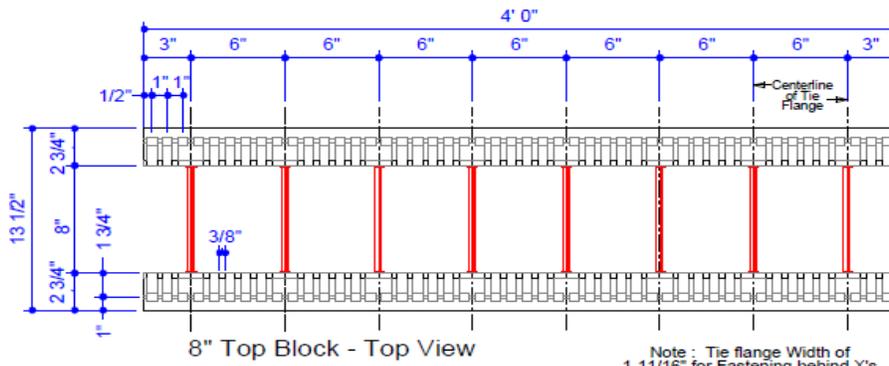
8" T-Block 90°
Top View

Note : Tie flange Width of 1-11/16" for Fastening behind X's

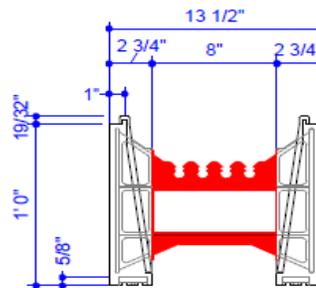


8" T-Block 90°
Inner Corner Elevation & End View

8 INCH TOP BLOCK



8" Top Block Typical Section



Tools and Materials

1. Scaffolding and Braces
2. Planks, Lumber, Wire and Screws to secure scaffold planks and guard rails
3. Window and Door Buck Material (2"x12"; PVC or manufactured wood composite)
4. Rebar Cutter and Bender
5. Spray Foam and Gun
6. Damp-proofing
7. Handsaw
8. Reciprocating Saw
9. Level (Transit/Laser)
10. Tape Measure
11. Hammers
12. String/Chalk Line
13. Waterproof Makers
14. Cordless Drill
15. Ladders
16. Pencil Vibrator with a 1" diameter head
17. Extension Cord(s)



Layout and Excavation

1. Design site in accordance with construction drawings and specifications
2. Comply with local building codes and site-specific engineering requirements
3. Prepare and excavate site
4. Take into account soil conditions, seismic area, number of stories, building loads, and water tables



Footings

1. Take the time to ensure your footings are level
2. Use a laser level for a near perfect elevation
3. Install footing forms and rebar as required by the plans
4. Dowel placement and spacing according to code. Start 10" from the corner.
5. Place concrete into the formwork as per specification and building code
6. Building on a slope may require step footings (Superform Block height is 12 inches)

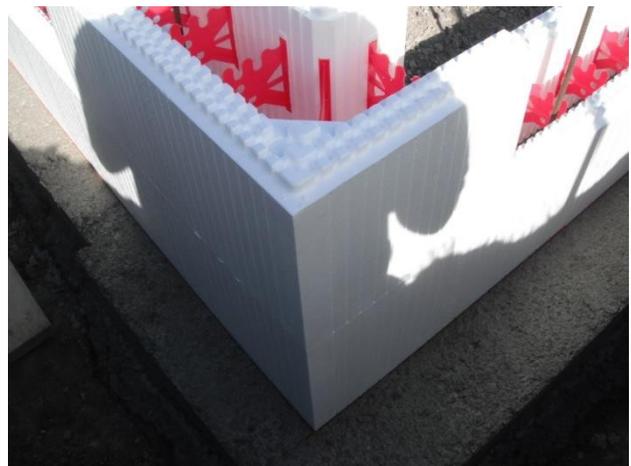


Wall Layout

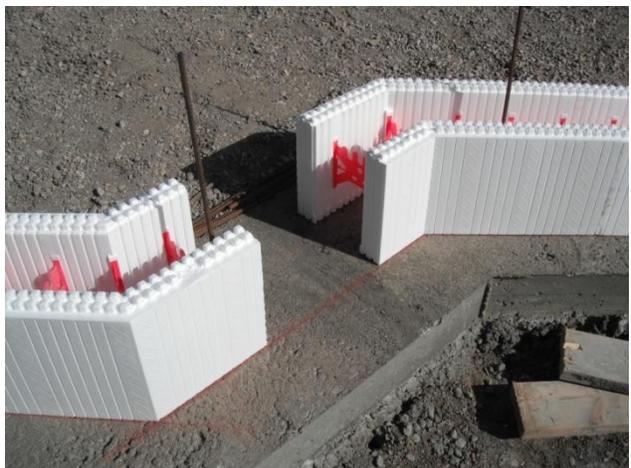
1. Measure, square and apply the dimensions of the building onto the footings using a waterproof marker



2. Ensure accurate 45 and 90 degree corners



3. Chalk lines accordingly



Block Layout and Assembly

1. Review Safety Policies and Procedures with work crew
2. Gather tools and materials needed on site
3. Designate an area for the storage of the Blocks (near the center of the project allows easy access during construction)
4. Use a waterproof marker to draw layout (doors, windows, plumbing, wiring, etc.)
5. Square and apply the dimensions of the building onto the footings – chalk lines accordingly
6. Visualize the layout and identify any potential difficulties



1st Layer

7. Starting at one of the corners place the first Superform Corner Block on the line you chalked and continue working around the wall until the first layer is complete



2nd Layer

8. Starting in the same corner, place the Superform Corner Block in the opposite direction

9. Continue on with the second layer, working in the same direction as the first, cutting the 'odd size' block to fit in between your second row of blocks (this will offset the layers of blocks)



10. Firmly lock each block to the bottom block
11. Ensure the bottom of the wall is level

12. Place horizontal rebar into the red Polypropylene Ties as required
13. Lay out door bucks and window openings
14. Continue alternating corners for each layer



5th Layer

15. Install scaffold support system – start 2' to 3' from each corner – install braces 5' to 7' apart



Wall Alignment

16. Ensure the wall is straight and that it will remain straight
17. Screw vertical braces to the ties in the block – these vertical supports will act as a fastener for the diagonal brace and support for the scaffold plank as well as a stiffener for the un-poured wall

Gable Walls

18. Snap a chalk line at the desired elevation

19. Screw a 2" x 4" to this line – this will act as a runner with which to cut along with a reciprocating saw

20. Use appropriate scaffold system for your gable wall bracing

21. Leave scaffold in place for roof framing attachment

NOTE: Tying, wiring, taping, adhesive or sealing is not required on each layer

Vertical Bracing System

The slots in the back of the Vertical Bracing System are elongated to allow the screws and the blocks to slide downward. The screws must be placed in the top of the slot and screwed loosely to allow for movement.



Window and Door Bucks

Window and door bucks provide the means in which to create an opening where a door or window may be installed. It is important to place proper rebar reinforcing around these openings. Window and door bucks may be constructed of different materials. The most common is dimensional lumber and another is PVC. PVC comes in 12'x16" lengths and is 1 ½" thick. PVC connectors are available to make your window and door buck installation as easy as possible. Use the full window buck material all around the window, even on the bottom, then cut 3 - 4" holes in the bottom member. This will allow for insertion of a vibrator or other consolidation tool and yet allow for easy capping of the holes with scrap material if the concrete flows through too easily.



The window buck will be held in place by plywood or lumber cleats around the perimeter, both inside and outside the walls; these being the cleats screwed to the buck itself and to the ties in the blocks. The nails or screws will be driven through the sides of the buck into the cavity prior to pouring the concrete. This will hold the unit firmly in place after the concrete has set.

Every window or door buck needs to have internal bracing to prevent the hydrostatic pressure of the wet concrete from bowing or curving the opening. The simplest and most effective means of accomplishing this is to use 2"x4" or 2"x6" materials as vertical and horizontal bracing inside each buck – One brace for every 2' inside the opening. These temporary braces can be removed as soon as the concrete has set.

Door Bucks

If a door buck is to be installed in the wall it must be kept in mind that, while the blocks may settle beside, and to a lesser degree, over the door, the wood buck itself will not settle. This causes a problem which would be visible hump above the door. If the door buck is set on top of a ½" piece of EPS, or if there is a ½" space left between the top of the buck and the Superform block above it, this uneven settling can be



avoided. This space would allow all the blocks to settle without being stopped by a doorframe. The EPS spacers below the door would also compress creating a smooth settling from the weight above.

Cleats and Scabs

It is recommended that all openings have a series of cleats or scabs installed for additional stabilizing. This is important along the tops of the openings as the weight of the lintel concrete tends to push and spread more at the top than at the sides or bottom. Strips of plywood, 6" wide should be screwed with 1 ¼" screws on each end to only one block to allow for movement. This will keep the cleats



and bucks flush with the blocks and helps to prevent spreading and subsequent gaps between the wood and EPS.

On outside corners, especially where there is an opening less than 6' from the corner, screw 3' or 4' long strips of plywood to the corner tie and subsequent ties along the wall. This process will ensure that the corners do not push away and is particularly important along the top course of the wall.

Once the walls and scaffolding have been erected, and prior to pouring concrete, install a 2' x 6' around the outside perimeter and flush with the top of the blocks (ensure that it is placed at least ½" above the braces or more if the wall is higher than 8'). This board will assist in keeping the walls straight during and after the pour.



The issue of settling needs to be taken into account wherever there is a connection between Superform (which will settle) and a member that is bearing on the footing (which will not settle). An example would be garage door bucks and walk in doors. Where there is a door buck and allowances have been made for settling, any scabs attached to the sides should not span more than 3 blocks in height. It is advisable to use a series of shorter cleats or scabs instead of 1 long one. This again will allow the blocks to settle evenly.

Note: Not all builders will install a wall straightening board. If a board is not being used, braces should be placed 4' to 5' apart.

Rebar Placement

One distinct advantage of the Superform Building System is the incredible ease with which reinforcing bars are put into and *held* in place. The design of the ties provides slots or pockets for rebar to be installed at three different places in the width of the concrete wall. The rebar slots are spaced to allow proper concrete coverage between the EPS and the rebar. They are also deep enough to allow two pieces of ½" bar to stack or overlap on top of each other. This is very important. While there are 3 or 4 slots it would appear logical to lay the rebar 'beside' each other. This can create a situation where the aggregate can bridge the gap left between the rebar, preventing proper flow. This results in voids in the concrete wall. So, when placing rebar it is important to overlap on top wherever possible.

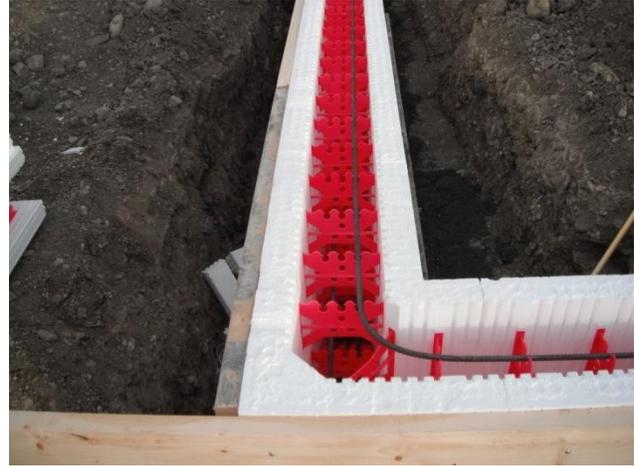


In applications where it is necessary to have 2 rows of reinforcing bar per course of Superform, the 2 slots used would always have 1 or 2 empty slots between them. This will ensure that enough space is allowed around each bar for the unobstructed flow of concrete with aggregates up to 1" in width. The rebar slots will accept up to 5/8" bar, and ¾" in the 8" forms. Care should be taken to ensure that the reinforcing bars are reasonably straight. Bars that are bent or deformed can prove to be troublesome in that they cause the wall to assume irregularity. Also, when bending rebar for corners or other angles, a rebar bender/shear is preferred. This tool will help in maintaining true, square corners and angles.

The slots in the ties are very useful in keeping the bars where they are intended to be without the use of tie wire (tie wire is seldom used in a Superform wall). The bars are laid above the intended slots and are then driven downward by hand or with the handle of a hammer until they snap securely into place.

Rebar Placement continued...

In special circumstances like wide lintels or headers, engineering may require more rows of reinforcing than what the ties are designed to accept. In this case, tie wire may be used to hang additional rebar below the ones being carried in the rebar slots. These additional bars would need to be laid in place previously, then lifted up and tied with the wire after the next row of blocks and rebar are in place.



Under normal circumstances where one side of the Superform wall is to be backfilled, horizontal reinforcing will be placed in the slot or pocket that is on the inside or tension side of the wall. This is standard, basic engineering. There are more reasons to consider which slot to place horizontal reinforcing bars into, especially when vertical reinforcing is to be installed. However, even if no



vertical bar is to be placed, good practice is to ensure that all courses of horizontal bar are in the same slot all the way around the foundation. This will help avoid a situation where overlapping will be difficult because the bars are not in the same course.

Vertical Reinforcing

Where vertical reinforcing is required and/or specified, care in placing the horizontal bars will create a situation where in installation of the vertical reinforcing bars is fast, easy and effective.

A typical scenario would be: The average 8' high wall with back fill on the outside to a height of about 6 ½' high would require 1 horizontal bar every other course or 5 rows in total. If the first course has rebar it would be placed in the center slot. The second course of Superform would have rebar in the inside slot. The third course of Superform has no rebar, the fourth course has rebar in the inside slot. Each horizontal row of reinforcing from there on up goes in the inside slot until the second from the top course of blocks. Here the rebar is again placed in the center slot. The top course of Superform has reinforcing in the same slot as most of the wall; the inside slot.

This method of installing the horizontal reinforcement allows the vertical rebar to be dropped into a prepared opening, where they cannot fall against the inside or outside EPS. This is because of the two horizontal bars in the Superform. They can stand vertically on their own, between the two ties and between the alternating rows of horizontal bars. In this manner no tie wire is needed. The



vertical bars can be dropped into place after the Superform wall is completely assembled without having to worry that the bars will be touching the EPS and therefore be ineffective. Care should be taken that the vertical bars are cut to a length that will allow them to stand about 2" above the top-most horizontal bar but not as high so as to interfere with finishing the top of the poured concrete.

Vertical reinforcing is always required next to every opening, preferably within 6" of the buck. Narrow vertical columns of concrete between windows and doors may require specific engineering regarding reinforcing.

Reinforcing Guidelines

For 6.5" Walls - Seismic Zones 0, 1, 2, 3, 4

Wall Height	Backfill Height	Reinforcing – Horizontal	Reinforcing – Vertical	
4'	3'6"	½" @ 24"	None required	
	4'		½" @ 36"	
6'	5'		½" @ 12"	½" @ 24"
	5'6"			
	5'			
8'	6'			½" @ 12"
	7'6"			
	6'			
9'	7'	5/8" @ 12"	½" @ 12"	
	8'6"			
	8'			
10'	9'		5/8" @ 12"	5/8" @ 12"
	9'6"			
	8'			
12'	10'	5/8" @ 12"		5/8" @ 12"
	11'			
	11'			

For 8" Walls - Seismic Zones 0, 1, 2, 3, 4

Wall Height	Backfill Height	Reinforcing - Horizontal	Reinforcing – Vertical	
4'	3'6"	½" @ 24"	None required	
	4'			
	4'			
6'	5'		½" @ 12"	½" @ 36"
	5'6"			
	5'			
8'	6'	½" @ 12"		½" @ 24"
	7'6"			
	6'			
9'	7'		5/8" @ 12"	½" @ 12"
	8'6"			
	8'			
10'	9'	5/8" @ 12"		5/8" @ 24"
	9'6"			
	8'			
12'	10'		5/8" @ 12"	5/8" @ 18"
	11'			
	11'			

Conditions:

- The above calculations assume that the backfill material is non-fluid, non-expanding soil, well drained by weeping tile or similar methods
- Concrete is consolidated by experienced placers
- Minimum concrete strength is 2500 psi
- Reinforcing is placed on the tension side of the wall, minimum concrete cover is 1 ½"
- On walls higher than 4' dowels should extend from footing minimum 12" into wall

Concrete Placement

1. If pouring with a pump, ensure that the end of the hose is tapered, fit with an 'S' or double 90 degree corner (builder/pump preference). When pouring with a pump, chute or bucket, start at a corner and fill at a moderate speed to the top of the wall (up to 9' high).
2. Start at the corners allowing the concrete to flow down and out towards the middle of the wall.



When completely finished pouring straighten your walls with a string line and blocks. The Superform scaffold system can pull the wall in or push it out with the turnbuckle brace.

Concrete Consolidation

One of the Superform defining characteristics is the ability to accept and withstand the hydrostatic forces exerted by internal vibration. It is still recommended that several things be considered:

- Experience in the placing of concrete has no substitute
- Concrete must be treated with respect - it is very unforgiving and any mistakes or overlooked bracing points can and will give in to the pressures exerted by it
- NO forming system is foolproof



- Order the proper slump strength concrete with minimum $\frac{1}{2}$ " and maximum $\frac{3}{4}$ " aggregate size and use an internal vibrator with a 1" shaft or head thickness.
- Pour corners 6' up first and then the sections in between.
- The builder may choose to go around the wall in one or more lifts. Superform blocks have been proven over and over again to easily take this strain. If more than 1 lift is used the joints must be thoroughly vibrated.

Consolidation Continued...

Other ways of consolidation also work well, such as “rodding” from the top and tapping with a hammer and block on the outside of the wall. The builder will have one or more men start at the bottom course and work their way up, using fairly hard hammer blows to vibrate the forms and promote settling and consolidation.



Having a proper concrete mixture will aid in having the concrete flow in the way it is supposed to. Concrete that is too dry is almost impossible to consolidate, no matter which method that is used. Generally, when “BLEED” water is seen to be flowing from the seams in the Superform wall the concrete is sufficiently consolidated.



Settling of Forms

Many people are unaware of the fact that ICF forms compress or settle during the pouring of concrete. The sheer weight of the concrete and the friction created as it slides down the inside of the forms causes the EPS to compress in a vertical direction. A Superform wall that is 8' high may compress approximately 3/8" during the pour. This affects several things:

- How the door bucks are installed
- How the vertical brace is fastened
- How the ledger board is fastened around the perimeter inside a wall
- How any other wood brace or stiffener are attached

Wall Protection

Protection of the damp-proofing material is another consideration. Where the backfill material is a fine, sand-like and free of sharp objects, perhaps no wall protection is needed. Where this is not the case, some sort of barrier needs to be applied between the earth and the damp-proofing membrane to guard against puncturing. This does not need to be an expensive or specialized material. Many building supply centers carry inexpensive fiberboard or 1/8" panels of some sort. These can be stood against the wall prior to backfilling. If it is possible to fill with a sandy or loam material (instead of the coarse material from the jobsite) then it is recommended to do so. If the soil is reasonably free of sharp or pointed items and backfilling is done carefully, the need for a wall protection layer is greatly reduced, especially in areas where ground water problems do not occur.

Vapour Barrier

The EPS Foam that Superform block is manufactured with is a type 2 EPS that has been recognized as needing no additional vapour barrier. Similarly, the solid mass of concrete, together with the EPS will not allow air filtration or air exfiltration. This acts as an air barrier in itself and requires no additional air or moisture barrier.

Damp-Proofing

The issue of protecting a foundation from surrounding ground water or from an accumulation of runoff water cannot be over emphasized, even in a Superform wall. While it is true that many other consumer products are made of EPS and are specifically designed for moisture or water contact (coolers, surfboards, food containers, beverage holders) a house foundation or any other wall constructed of ICF needs to be treated as any other foundation, in accordance with local building codes. Additionally, the joints and seams between them should be considered a breach in the continuity of the EPS.

There are Several Methods for Damp-Proofing a Superform Wall. With any of these methods it should be remembered that no matter how well you apply your damp-proofing material, it is equally as important to have your weeping tile and drainage rock installed. After this, careful backfilling and grading of the backfill material for positive drainage is required.

Peel and Stick

Self-adhesive rubberized peel and stick sheet. Soprema damp-proofing is the most commonly used with Superform ICF construction.



Plastic Tarp

The plastic tarp is available in a U.V. protected material for blocks that will be exposed to sunlight for extended periods of time. This material is draped around the entire perimeter of the wall in one piece and nailed to the ties along the top. This product does not contain an adhesive and is not resistant to punctures but is widely used to damp-proof foundations.

Dimple Wrap

Dimple Wrap is a permanent moisture barrier that prevents the exterior backfill from touching the foundation wall. Dimple wrap also provides an air gap allowing the foundation to breathe and transmit moisture to the footing drain. Fastened with special fasteners through the raised dimples, any movement by the wall does not affect performance.

Tar

Water based tar is available at most building supply centers but is more time consuming to apply. It is very important to make sure that proper coverage is achieved and this usually means two solid coats. Some builders coat all seams with tar directly out of the pail, dilute the remainder with water and then roll on two coats.

Interior Walls

Another strong characteristic of the Superform system is the amount, width and thickness of the recessed flange of the ties. They are centered every 6" and are 5/16" thick for superior fastener retention. They also have only 3/4" space between the top row of one row and the bottom of the next. This creates a nearly unbroken vertical stud every 6'. The ties are clearly marked on the outside and inside faces of the EPS. It is to these ties that the interior and exterior finishes are attached.

In general, any traditional wall finishing material can be used with Superform. There may be some minor adjustments in fastener selection. The thick, wide corner tie allows for quick and easy fastening at outside corners.

Drywall

Drywall is the most common of the interior finishing materials. It is screwed to the wall (ties) in the same way as is normally done, using screw guns and normal drywall screws. Some installers prefer to use fewer screws and substitute adhesive instead. With a Superform Wall there is no lumber shrinkage causing nail pops. The wall is also solid due to the ties being so close together and there is no need to cut sheets on a stud, eliminating waste.

Exterior Walls

Siding

Siding is fastened to the ties the same as to wood studs in any other wall. Ring nails, screws or ½" crown staples provide additional resistance to pull-out.

Stucco

Acrylic stucco systems work fine on Superform and there is no need for additional foam.

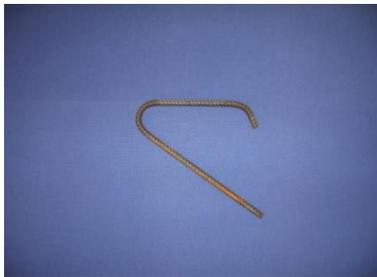
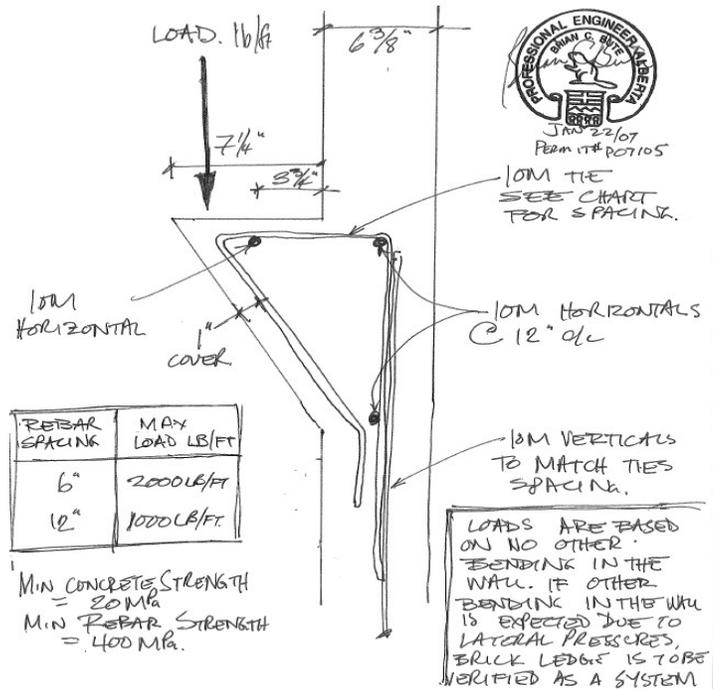


Brick or Stone

The Ledge Block is designed to provide a ledge base to stack brick or stone. The ledge portion of this block is intended to be tied back into the main wall by means of a minimum of ¼" reinforced steel stirrup that is bent to hook over the horizontal rebar in the wall and the rebar in the front portion of the ledge. The horizontal rebar in the wall must be placed in the rear-most slot, opposite the ledge, and both this steel and the horizontal steel in the front of the ledge must be a minimum of ½" (10mm).



PROJ #: 103	PROJECT: SUPERFORM BRICK LEDGE
TITLE: REINFORCING DETAIL + LOAD TABLE.	
DATE: JAN 22/07	CALC BY: XPM
CHK BY:	PAGE 1 OF 1



When stirrups are placed in every other space in the ledge block (12" on center) and a minimum of 2500 psi strength concrete is poured and allowed to cure sufficiently, this ledge has been designed to carry 1,000 pounds per lineal foot.

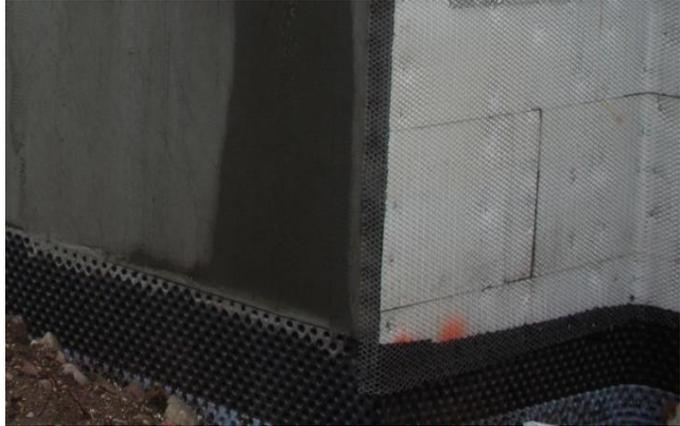
Stirrups placed in every spaced in the ledge block (6" on center) and a minimum of 2500 psi strength concrete is poured and allowed to cure sufficiently, this ledge can carry 2,000 pounds per lineal foot.

All calculations assume that brick or stone is tied back to the wall with metal ties as per local codes, and does not protrude past the outer edge of the concrete ledge by more than one inch, or ¼" of the bricks depth, whichever is less.

Higher weight calculations may be arrived at by increasing diameter of the stirrups and by local engineering design of heavier wall reinforcing and stronger concrete.

Parging

Generally, parging consists of a cement based grout that is troweled over a type of wire mesh or metal lath, much like stucco. This “mesh” extends from the underside of a metal flashing at the bottom of the wall’s exterior finish. It is applied over the damp-proofing layer and below the exterior grade approximately 12". Conventional concrete type parging and acrylic type cement parging work equally well. As in damp-proofing there are several ways to finish the exposed portion of a Superform wall, (the portion that is above the finished ground elevation but below the exterior wall finish). This buffer accomplishes more than one task at the same time.



The parging provides a separation between grass, gravel and other ground level materials. Parging protects from moisture, insects and other undesirable elements that may be present. It also provides the start to the walls exterior finish. Parging provides a means of covering the exposed EPS, protecting it from sunlight, impacts and scuffs from lawn mowers, weed trimmers, etc. It also acts as a protector for the damp-proofing material; protecting it from the same hazards previously mentioned.

Helpful Hints

The experiences of other people are invaluable in regards to the erecting and pouring a Superform wall and doing so successfully. The following is a list of items that have been learned and noted by experienced Superform installers. These will be of help to anyone new to the system. Hopefully these will enable you to confidently complete your project with minimal complications.

***“Take the time to make your footing level.** A lot of builders today hurry through this step not realizing that the extra 30-60 minutes spent to make your footing level will save you hours in the erecting of your Superform wall. When troweling your footing use a standard builders’ level for a near perfect elevation.”*

***“When building window bucks,** check with your window manufacturer to see if you have the flexibility to adjust your window sizes slightly. If you can use measurements that are in 12” increments on the vertical instead of an odd number, you will eliminate a lot of cutting above and below the window bucks. An ideal situation is where the window bucks are built to have an outside vertical dimension that will fit the blocks. For example, they will be built 1', 2' or 3' in overall height and will sit directly on top of a full block so when the blocks are built up against the bucks they will fit perfectly flush at the top. The top course will go right over with no cutting necessary. This will make the job go twice as fast. It may not always be possible to do this, but if it is take advantage of it.”*

***“When installing window and door bucks,** if possible, make the bucks fit evenly between the ties. If the buck fits tight to a tie on one side there is a 4” space on the other. The 4” space will want to bulge out under the pressure of the concrete. To avoid this, scab the buck to the block with strips of plywood.”*

***“If a wall has an opening closer than 6’ to a corner,** use some long pieces of plywood or lumber and tie the bucks to the blocks all the way to the corner ties.”*

***“Use scabs or cleats.** Secure your scabs or cleats to the window or door buck and to the block with one screw as you will need to allow for movement.”*

“In regards to lifting; if there is one area to watch it is probably the lifting or separating of blocks, particularly the top course. It is strongly recommended to apply a foam spray and attach a 2’x6’ firmly attach all along the top of the wall prior to pouring. This helps greatly in reducing the top block’s tendency to float, as the wet concrete flows underneath. The wide 8” or more plywood piece tying the top course to the window bucks is a great help. The most useful location for adding cleats is at the corners. Many installers use 4” or 6” wide strips of plywood 3-4’ long, screwing them to the corner ties in the top course corner blocks, then attaching them to the next 2 or 3 courses of Superform in a diagonal pattern. This holds the top corner block in and down. Superform will not blow out as is common with other ICF systems, but steps may need to be taken to prevent uplift if the wet concrete is poured too fast.”

“Remove the interlocking knobs at the top of the block before you pour, even if you are going up a 2nd level Superform wall. Cleaning is difficult and finishing the top of the wall after the pour is more difficult. The 2nd level of blocks (if there is to be one) can sit directly on top of the previously poured ones. Keeping them in place can be accomplished with either adhesive foam or with cleats.”

“Walk around and examine your wall. Have any damaged or broken forms been used? Have you cleated all the weak points – including places in the wall where blocks join and have been cut in such a way that there is more than 3” of EPS with no tie? Have you put in all sleeves and required pockets? Do your door bucks allow for basement floor thickness? Have you driven nails through the bucks into the concrete cavity?”

“Straighten your walls AFTER your pour. Allow your walls to lean inward slightly. The braces will push out easier than in.”

APPENDICES

Technical Drawings

Wall Engineering Charts