REDDI-WALL INC.

TRAINING MANUAL

For Building Foam Block Structures

Recommendations to the Code Official

This application for permit shall be accompanied by construction documents and adequate engineering details. Projects must be inspected by a registered P.E. Engineer or by a factory trained authorized person certified by Reddi-Wall Inc. A Reddi-Wall inspection form must be submitted to the local code authority.

Walls that are required to be waterproofed or damp proofed must be sealed with coating compatible with EPS. Petroleum based products are not compatible with EPS.

Adhesives used for interior or exterior finishes are required to be compatible with EPS. Polyurethane glue is recommended.

CODE SECTION 2002.3 Surface burning characteristics. This section requires foam plastics and foam plastic cores of manufactured assembles to have a flame spread rating of not more than 75 and a smoke developed rating of not more than 450 when tested in accordance with ASTM E84 in the maximum thickness intended for use.

CODE SECTION 2002.9 Unverified Tests. This code section states that foam plastics need not comply with thermal barrier and prescriptive installation requirements when specifically approved, based on diversified tests.

- UL Flame Spread test June 6, 1990 ASTM E84 Flame Spread 10, Smoke Development of 200.

For fire protection, a 15-minute thermo barrier is required in living quarters. Drywall or Dura Bond toppings are acceptable coatings.

The R-Value of an empty foam block is R-26. A block filled with concrete can have a R-value up to R-50.

The foundation walls or footings shall extend to, or below, the frost line of the site to meet local code requirements.

Reinforcement dowels or keyways are required interlock all of the reinforced concrete walls to the footings. The size, spacing, and grade of the dowels are the same as required for vertical reinforcing rebar.

First floor framing or bracing must be in place prior to back filling of retaining walls. The basement floor must be poured before the backfill, when it has been set on pea stone footing.

All wood sill plates, door, window and opening frames shall be composed of pressure-treated wood.

On the interior side of crawl spaces, the EPS material does not require a thermal barrier to separate it from the interior when all of the following conditions exist:

1. Entry is made only for service of utilities.
2. There are no interconnected spaces intended for human occupancy.

Yellow and dusty surface oxidation on the EPS (resulting from sun exposure) shall be removed by brushing thoroughly prior to application of adhesives, waterproofing, and damp proofing materials.

REDDI-WALL INC.

Foam Insulated
Concrete
Wall System

INSTALLATION MANUAL
CONSTRUCTION DETAILS

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WARNINGS

There are several things that could cause serious problems with the wall system. Listed below are the problems to avoid.

1. Make sure the wall is properly braced. When filled with concrete the wall weighs several tons. If tilted 3" over center it would fall and possibly injure someone very seriously.
2. The wall is designed with a series of round posts and beams. The design is critical to its strength. A.C.I.† requires a 6" minimum thickness for this type of wall. Do not insert anything that would distort this shape and cause stress concentration. This is critical in the basement portion. Wood strips may not be added to the basement walls. It is permissible to add wood mounting strips above grade for mounting items. The wood must be wolmanized.
3. Make sure the wall is clear of all trash, snow, or ice. If there is any snow or ice it will cause hollow spots in the wall. This would cause the wall to be structurally unsound.
4. Make sure that the concrete slump is correct. Concrete that is too little slump will bridge off and concrete that is too wet will be too weak. Also wet concrete causes excess stress and causes blowouts.
5. Before pouring, check for proper dimensions at the top of the wall. Also check the wall for level and plumb.
6. Make sure all off bond cuts are secured. This is especially necessary around openings.
7. In cold weather be sure to use a strip of foam and tack it to the top of the wall and also to the top of the brick ledge. If the concrete freezes it will have almost no strength.
8. The steel in the wall must not be placed in such a way as to cause a bridge. The bridge would prevent the concrete from flowing and cause a hollow spot.
9. Make sure all cells are full. It is easy to tell if the cells are full by tapping on them with your hand. A hollow cell is soft and sounds like a drum where a filled wall is very solid and produces a solid sound. To experience this go ahead of the pour and tap the wall then go where the concrete is poured and repeat the procedure. The difference in sound will be very pronounced.

† American Concrete Institute

Building Steps

I. PREPARATION AND BUILDING OF WALLS.

A. Preliminary Instructions: Check paperwork.

1. *1.* Proper plans.
2. *2.* Proper permits.
3. *3.* Plot survey by professional.
4. *4.* Grade elevations.
5. *5.* Basement depth.
6. *6.* Locations of easements or restrictions.
7. *7.* Building envelope.
8. *8.* Utilities: Overhead and Underground.
9. *9.* Possible location of old buildings on site.
10. *10.* A signed contract with the owner.
11. *11.* Proper insurance documents in place for job.
12. *12.* Proper site accessibility.
13. *13.* Driver or entrance permit
14. *14.* Location of possible hazards to equipment or property:
    - *a)* Septic system.
    - *b)* Well.
    - *c)* Gas lines.
    - *d)* Sewer lines.
    - *e)* Tanks or other possible hazards.
15. *15.* Check site conditions before moving in equipment.
16. *16.* Have Miss-Dig stake property.
17. *17.* Check for evidence of soil contamination or pollution.
18. *18.* Have pre-construction meeting with all parties involved.

B. Excavation.

1. *1.* Locate surveyor's offset stakes.
2. *2.* Paint out area of excavation on soil.
3. *3.* Check that excavation area is large enough to accommodate building.
4. *4.* Locate hub-mark (benchmark) and determine depth of excavation.
5. *5.* Determine types of soil and plan for proper slope from bottom of excavation to top as per OSHA recommendations.
6. *6.* Excavate hole to proper depth and slope.
7. *7.* Check to see if the water level is below the basement floor grade. If not, the basement floor level elevation may have to be changed. Consult a professional.
8. *8.* Pile excavation dirt in areas away from the corners, to allow concrete truck accessibility.
9. *9.* Be careful not to bury offset stakes.

C. **Staking of Basement.**

1. **Stretch a string from opposite offset stakes over the top of the hole, from corner to corner.**

2. **From the string intersections, drop a plumb bob to determine the corners of the house.**

3. **Stake the corners with steel pins and mark with ribbons.**

4. **Place a safety cap over the pins.**

5. **Measure between all the pins to check for the proper wall length.**

6. **Measure diagonally across the corners. Use the Pythagorean theorem ($A^2 + B^2 = C^2$) to determine if the building is square.**

D. **Form Footings.** ***(Figures 1, 2)***

1. **Attach a string to a corner pin, and then stretch that string from that corner to each corner pin along the outside perimeter of the building.**

2. **Check for brick ledge. If a brick ledge is used, it may be necessary to pull the wall in 5".** ***(See Section G)***

3. **Check the blueprint and determine the width and height of the footing.**

4. **Subtract 10" from the width of the footing, and divide the remainder by 2. For example, for a 20" footing, minus a 10" wall: 10 ÷ 2 = 5. This is the distance from the string outward to the face of the footing. The wall is now centered on the footing.**

5. **Measure from the string to the face of the footing and set the rails. This will establish the outside form. The rails may be either Form-A-Drain® (recommended), wood forms, or other forms such as footing forms.**

6. **Drive stakes outside of form and set the proper footing depth.**

7. **From inside of form, measure inward the footing width.**

8. **Set inside form the width of the footing from outside form.**

9. **Using a laser or transit, determine from the hub mark if the top of the footing is at the proper elevation. Also, level all outside rails to the proper elevation.**

10. **Using a laser or level off the outside rails, set the inside rails to the proper elevation.**

11. **For Form-A-Drain®, see the attached manufacturer's instructions.**

12. **Install bleeders in each wall. 2" bleeders are recommended and result in a stronger footing.**

13. **Secure the forms against movement caused by concrete pressure by using <u>one</u> of the following methods:**

a) **Add stakes to the side of the forms every 2-½ ft.**

b) **Using tie wire, go around the forms in a Figure-8. Then using a nail where the wires cross, twist to tighten the wire. This will secure the wire.** ***(Figure 8)***

c) **Back the forms with pea stone or with Enkadrain® and soil.**

d) **Dig in skid pads with flat skid toward the center if required.**

E. **Installing Post Pads.**

1. **From the strings set earlier, measure distances to center pads.** ***(See Section D)***

2. **Check the depth and thickness of the center pads and dig in.**

3. **Frame the pads or stack stiff concrete.**

4. **Add rebar as required on print. This is the most important place for rebar because it has the highest load.**

F. **Placement of Concrete in Footings.**

1. **Install rebar between rails, as required by the print, and secure against movement with wire. In most cases, rebar is not needed in the footings because it is placed in the Reddi-Wall walls.**

2. **A slump of 4 inches is recommended for the concrete.**

3. **Start at the corner and fill the footings first. Pads can be filled later.**

4. **Level to the top of the footing rails as you go. Check the finished level of the concrete with a laser or transit.**

5. **Add a 3" wide by 2" deep key way. This must be under the center of the wall. It can be dug in with a small shovel.** ***(Figures 1, 2)***

6. **An alternate method involves the use of #4 rebar inserted in footings every 10" in the center of the wall under 6" round cores of Reddi-Wall. The rebar should be inserted 4" into the footing and 3" above the footing. However, the key way method is preferred.**

7. **Another method is a #3 rebar bent 180° into a "u" shape every 20" apart with "u" extending up 3".** ***(Figure 1)***

G. **Installation of Brick Ledge.**

1. **In case of a brick ledge a different procedure is used because the roof trusses are designed to set over the brick.**

2. **The brick ledge extends 5" from the normal wall.**

3. **All walls must be built to outside of the brick ledge measurements, in order to compensate for the protrusion of the brick ledge 5" out from the regular wall.**

4. **The brick ledge's outer edge will be 5" larger than the wall itself. Therefore, the wall must be pulled in 5" toward the center.**

5. **Only measure to the concrete area of the brick ledge, as brick is not stacked over the foam part of the block. For example, suppose a regular basement had an outside dimension of 30' 10". If the same basement had a brick ledge, the distance from the edge of the brick ledge to the edge of the brick ledge would be 30'10", but at the bottom of the wall the distance from corner to corner would be 30' even.**

H. **Installation of the Wall – Stacking Method.**

1. **Concrete in footing does not need to be set before starting the wall, just firm enough to stand on.**

2. **Walls are started from the corners.**

3. **Snap a line on the footing from the outside corner to corner. Install C-track along the chalk line with the outside of the C-track on the chalk line. This will hold the wall in place while pouring concrete and is necessary for bracing. If the C-track is not available, 2 x 4's may be nailed to the footing on each side of the wall. Leave the tabs on the bottom of the block. This makes it easy to cut, in case of a footing high spot.** ***(Figures 2, 3)***

4. **Start at each corner and work towards the center. This is necessary if the wall is off-bond. The bond cut must be toward the center of the wall and straight up. The length of the bond cut is measured from the long mark on the block and must be the same every time so that the wall dimension does not change.** ***(Figures 3, 9)***

a) **The bond is a multiple of 10" increments.**

b) **An easy way to determine if a wall is on-bond is to use the following formula: convert the length of the wall to inches and divide the figure by 10. If there is no remainder the wall is on-bond. If there is a remainder, the wall is off-bond by the amount of the remainder. In that case, you must cut the wall to fit. This cut should be near the center of the wall.** ***(Figure 5)***

c) **If the block is cut off-bond over 5", it will cause a weakness. In this case, place a 30" horizontal track in the slot provided on each side of the cut and nail a 2 x 4 to the footing. Or, use a C-track under the block on both sides of the cut.** ***(Figure 3)***

d) **After the wall is built, insert a foam gun in the cut and glue the vertical seam shut.**

5. **After the first row is installed, install the rebar holding the chair in each block and next to each corner. Repeat for every row.**

6. **Install #3 horizontal rebar in the groove provided in the holding chair. Overlap the rebar at the ends a minimum of 16 diameters or 6".** ***(Figure 6)*** **At the corners, place (butt ends) rebar tight against the block. Rebar must have a bend at the ends and overlap, or bend the rebar 90° around the corner. The bends at the corner must have a tight radius to make sure rerod is in the center of the concrete core at all times. Too large of a radius on the rerod will reduced the compression area of the concrete around the rerod, which could cause the rerod to tear from the concrete when severe forces are applied.** ***(Figure 6)*** **The recommended tensile strength of rebar is 60,000 PSI.**

7. **Second row: Starting at the corner, overlap the existing corner so as to form a corner lock. It is recommended that this block be cut to 40". Stack toward the center using the procedure described above.**

8. **Check the wall measurements again.**

9. **Continue stacking the wall to a convenient height, usually 6' unless scaffolding is used. Stack the wall to full height. The vertical reinforcement track can be installed after the wall is fully stacked or when the wall is at a convenient height. If the vertical reinforcement track is installed before the wall is completely stacked then the block must be slipped over the vertical reinforcement track.** ***(Figure 7)***

II. METHODS FOR STACKING WALLS.

A. Method 1: Wall is stacked to 6'. Repeat steps 4 to 9 of section I.H.

1. **Vertical reinforcement tracks are slid into the wall at intervals starting 30" from the outside corner and there after every 60" along the outside. On the inside, the vertical reinforcement tracks are placed in the corner, then at 20" in, and every 20" thereafter. If there is an off-bond splice, place a vertical reinforcement track as close as possible to the cut on each side, inside and outside. Nail a 2 x 4 block on the inside and outside next to the bond cut to prevent blow out. Or, install C-track under cuts. Vertical reinforcement track may be placed closer for drywall or siding.** ***(Figures 3, 7)***

2. **Use a plastic washer and 2-½" drywall screw, fasten vertical reinforcement track 6" up from the bottom of the block.** ***(Figure 7)***

3. **Place another screw and washer in the middle of the top block stacked.**

4. **Attach either a scaffold or adjustable brace system to the wall with 6" drywall screws attached to vertical reinforcement brace.** ***(Figure 9)***

5. **Then install walk planks and safety handrail and anchor to the ground.** ***(Figure 9)***

6. **Continue to stack the wall to the top. Using a foam washer and screw, anchor the top block by placing the screw and washer into the vertical reinforcement track. The screw should be in the middle of the block.**

7. **Where there is an off-bond cut or splice, anchor across the splice by either screwing a drywall strip in the middle of the splice, or a piece of plywood over the off-bond cut.** ***(Figure 3)***

8. **Measure along top of wall and make sure the dimensions are correct and that the walls are square by measuring across the corners. Also, use a leveling device to check that the top of the wall is level.**

9. **Install C-track over joints inside and out. C-track may be shimmed to make the wall level if needed.** ***(Figure 3)***

B. Method 2: **Wall is stacked to full height.**

1. **The stacker stands on a ladder or scaffold to finish stacking the wall to full height.**

2. **Vertical reinforcement track are installed after the wall is stacked.**

3. **Vertical reinforcement track are screwed with 2 ½" drywall screws and special foam anchor washers at the top and bottom of the wall.**

4. **An angle 2 x 4 cleat is then screwed to the wall at 10' intervals, inside and out. Use this to butt a 2 x 4 against it for bracing. This cleat is used to nail to a 2 x 4 where it meets a joist.** ***(Figure 9)***

5. **From the cleat, a 2 x 4 brace is installed. At the base of the 2 x 4 a pin is driven into the ground. The 2 x 4 bracing is placed inside and outside the wall, across from each other. This holds the wall from tipping when concrete is installed.**

6. **When the wall is fully stacked, foam the seams of the top two (2) rows of the block, to prevent it from lifting when pumping in the concrete.** ***(Figure 3)***

7. **Break off the tabs from the top of the wall. In every ¾" square support hole insert a broken off tab. This will keep the brace supports from getting full of cement. This is necessary especially for use with drywall. The screws would be stopped by concrete and more strips could not be added if needed. Electrical wires can be run in these tracks.** ***(Figure 10)***

8. **In high walls, 10' or more, bend a #4 rebar 90° and install in each top corner to insure better corner support. The rebar should be 10' long.** ***(Figure 6)***

C. Method 3: **Panel Wall Assembly. Panels are pre-built in sections, complete with rebar, if requested.**

1. **Dowel or key ways must be installed in the footing under the center of the wall.** ***(Figure 1)***

2. **The outside of the wall must be chalk lined on the footing.** ***(Figure 2)***

3. **Install corner panel first.**

4. **Install horizontal track 30" long in the corner section. Install the horizontal track in every row.** ***(Figure 8)***

5. **Slide the wall 6" from the corner, leaving room to put your hand between the**

corner and the wall section.

6. **Insert #3 rebar by reaching between the wall and the corner. Place the rebar on the chair with at least 3" overlapping over the corner rebar. The rebar may be installed in the panels while they are lying flat, or inserted from the open end of the panel.** ***(Figure 6)***

7. **Place a horizontal track 30" long in the corner block from the outside. Insert the horizontal track so that it goes into the next perpendicular panel if needed for siding.**

8. **Slide the wall tight to the corner and screw the horizontal track to the vertical reinforcement track. This will make the 2 walls become 1.**

9. **Using 1-½" sharp sheet metal screws and washers, attach the horizontal track to the vertical reinforcement track on the corner block assembly. Repeat this operation for all 8 horizontal tracks.**

10. **Using some driver method, attach the bottom C-track to the concrete. A nail or special screw must be used to keep the wall from moving. If there is a gap at the top or bottom of the wall, attach the closest point where the wall contacts each of them first.**

11. **If there is still some gap, foam it up, especially if the wall is off-bond**

12. **To join an off-bond cut wall to an on-bond wall, place a 30" horizontal track across every cut block in the track provided. This is important, because if you do not reinforce these blocks, the wall will blow out. Screw the vertical reinforcement track to the horizontal track on one side. Install the rebar in position. Then slide the walls together and screw to the vertical reinforcement track on the next wall section. Fill any seam with foam glue.** ***(Figure 3)***

13. **Slide in the corner and repeat the process. The rebar may have to be pulled forward to overlap. Sometimes a separate rebar is installed as a splice joint.**

14. **On the top row break off the tabs that are above the wall. Notice the ¾" square holes where the vertical reinforcement track go. Take the broken off tabs and use them to plug these holes. This prevents concrete from filling the strips. The holes may later be used for wires, or Greenfield.** ***(Figure 10)***

15. **Place a C-track over the top of the wall, both inside and outside of the wall. This provides a good place to smooth the concrete against. It also keeps the wall straight, reinforces the panels against movement, and provides for drywall and siding attachment.** ***(Figure 3)***

III. **PANEL INSTALLATION: Many users prefer to buy pre-assembled wall panels.**

A. **Procedure For Installing Panels.**

1. **The footing must be installed.**

a) **Use key way or "u" shaped stirrups in it under the center of the wall, or**

b) **A wall with a footing included.**

2. **The corners must be located and marked on the footing or pinned in the soil.**

3. **The corner section of the wall is installed first.**

4. **Then the connecting corner wall section is installed to complete the 90° corner.**

5. **The horizontal track is installed every 12".** ***(Figure 3)***

6. **The walls are pressed tightly together.**

7. **A screw is then installed into the vertical reinforcement track 10" from the**

corner.

8. **Then screws and plastic washers are installed into the horizontal and vertical track.**

B. **Installation of Rebar in the Wall.**

1. **In corners a 90° + hook must be installed.**

2. **The rebar are slid in from each direction and overlap each other to form an "x", which rests into the chairs provided in the block. The rebar should stick out from the end of the panel 6", providing the overlap required for the rebar for the next panel. *(Figure 6)***

3. **Slide a 4' piece of C-track under the last 2' of the wall section. (*Figure 3)***

4. **Set the wall in proper position and nail to footing using concrete nails.**

5. **Install the next wall section into the groove of the track. Install wall so that there is a 6" gap between walls. A 2 x 4 prop may be needed to hold the wall.**

6. **Install rebars and make sure they will overlap 6" for #3 rebar, or 16-x diameter.**

7. **Install a piece of horizontal track into the slots in the block. This will hold the two panels in place and slide together. The panels can then be screwed together through the horizontal track into the vertical track.**

8. Setting wall with built-in footings.

a) Reddi-Wall walls with footing block may be set directly on either a 6" pea stone base or soil.

(1) Level.

(2) **Check that the corners are square by staking the inside.**

b) **Start at the corner panel.**

c) **Attach the next panel at a 90° angle.**

d) **Attach a 24" C-track under the last 10" of the wall. This will align walls when they are slid together.**

e) **Use a 24" C-track on the top of the wall to hold panels together.**

f) **Next, install H-tracks in the wall and screw them together. *(Figure 3)***

g) **Next, install Enkadrain® over the outside of the wall, letting it drape over the footing block. Let 6" drape over the pea stone.**

IV. **AROUND WINDOWS AND DOORS.**

A. **Lintels**

1. **Special care must be taken over the windows and doors where the top loads are to be carried. *(Figure 16)***

2. **For short lintels, 6' or less, a #5 rebar encased in 1-½ inches of concrete on all sides is recommended. The lintel should be 12" in height. *(Figures 16, 17, 18, 19)***

3. **For longer spans we recommend two (2) #5 rebar up to 10' in length. We also recommend a stirrup connecting the upper rebar to the lower rebar, and that sufficient space is left for 1-½ inches of concrete around the rebar. *(Figures 17, 18, 19)***

B. **Bays**

1. **Cut block to required angle. In this case a 45° corner will be used as an**

example. Cut 4" off the inside of a block. Cut 4" off the outside of another block. Place the cut ends of the blocks together. *(Figure 10)*

2. **Bend a series of 30" horizontal track so as to form a 45° angle in the center of the strips.**

3. **Insert both horizontal tracks into the wall sections. Center the bends in the opening between the wall sections. Slide the walls together.**

4. **After the walls are slid together, screw the horizontal track to the vertical track. This locks the walls together at 45° corners.**

5. **The outside angle of the bay is the area of the greatest force and is the area that must be reinforced the most.**

C. **Drape and Curtain Attachment.**

1. **A wood block is installed in the wall. The surface foam is routered or cut out. A wood block is cut to fit. Foam glue is installed and the wood block is glued in place. *(Figure 10)***

2. **A 2 x 2 is installed into the trapezoid before the wall is filled with concrete. The wood must be wolmanized. No wood is permitted in wall below the first floor because it weakens the structure. *(Figure 10)***

3. **The curtain-mounting block is attached to the vertical track.**

4. **A hole can be drilled through the foam into the concrete. A tapcon can then be installed.**

V. BRACING THE WALL.

A. **The wall core is filled with 6" of concrete weighing several tons. If the wall were to move 3" it would become leveraged over the center, and fall, creating a very dangerous situation. Unexpected events could affect the wall, such as a sudden gust of wind, a bank cave-in, someone falling into it, and many more possibilities. Therefore, it is critical that the wall be braced in such a way that a severe load will not cause the wall to fall. Expect the unexpected, and prepare for it. *(Figure 9)***

1. **We suggest that the wall be braced every 10'.**

2. **The bracing must be adequate to hold the wall in place under any condition.**

3. **The wall is usually braced from both sides with 2 x 4's braced against an angle clip, secured to the wall, and pinned to the ground.**

4. **There are also braces that screw to the vertical reinforcement strips in the wall. They have adjustable turnbuckles and hold the wall in both directions. They are usually placed on the inside of the wall and used to support a raised walkway as well. If several braced walls were to be poured, it would be a good investment to buy such a bracing system. *(Figure 10)***

VI. PREPARATION OF FILLING THE WALL.

A. **The following items must be checked before pouring the wall. Look into each core from the top and determine the following:**

1. **There should be no large holes in the wall. If there are any, foam them shut.**

2. **Off-bond cuts should be secured against blowouts, (areas such as doors and windows, jams, headers, and wall splices). *(Figures 3, 11)***

3. **There should be no snow, ice, or debris in the wall.**

4. **The wall should be free of debris.**

5. **All rebar should be properly placed in the center of the corners and in the center of the chairs. If they are not, take a long rebar from the top and insert it into the cell and move the rebar in place.**

6. **All bracing must be secure.**

- ***a)*** **All pins must be secure in the ground and the wall.**
- ***b)*** **The point of attachment must be secure.**
- ***c)*** **All necessary guardrails must be in place.**

7. **Check that the top of the wall has the correct measurements.**

8. **Make sure the top of the wall is level, trimming off high spots where needed.**

9. **Individual wall sections must be secured at the top of the wall with a C-track over a splice is recommended.** ***(Figure 3)***

10. **The top two (2) rows should be foam glued in place to prevent pressure lifting. Applying more short vertical reinforcement track and securing the top three (3) rows could also do this.** ***(Figure 3)***

11. **Check that all off bond cuts are secure and that rods are in place over doors and windows.** ***(Figures 11, 12)***

12. **Check that all doors, windows, and beam pockets are in place, and in the proper location. Measure one last time. Check for proper size openings.**

13. **If the beam pocket falls over a foam core, cut out the foam core from the block under the beam and insert a #5 rebar 3' long over the area where the beam will rest. It may be necessary to protect against blow out.**

14. **Check for sleeves. See if a well, septic, or electrical sleeve is to be installed. If so, check to see that it is in place.** ***(Figure 11)***

15. **Provide a way in and out during the pour, such as a temporary stair over the walls.**

16. **Check to make sure that the site is safe:**

- ***a)*** **Site should be free of debris that would cause someone to fall.**
- ***b)*** **Safety hazards should be identified by taping and spray-painting.**
- ***c)*** **Vertical rebar should not be stacked in such a way that they would spear someone if a person were to fall.**

17. **Make sure that the bottom of the wall is secured against movement. The wall will shake especially when a large pump truck is used.**

18. **A safety meeting should be held and all hazards identified. All necessary safety precautions should be discussed.**

19. **An emergency plan should be discussed in case of injury. Local emergency numbers should be available at the job site.**

20. **Note the overhead power lines.**

21. **Proper safety equipment should be worn by the workers:**

- ***a)*** **Hard hat**
- ***b)*** **Eye protection**
- ***c)*** **Safety shoes**
- ***d)*** **Gloves**

22. **If necessary, an inspector should be called to the site.**

23. **The concrete yard should be scheduled and informed of proper mix and conditions.**

a) **We recommend to use a 3500 psi mix with ½" or smaller diameter stone and 1-2% fly (if available, aids in the flow and inhibits concrete from capitulating water later). It is important to use a small aggregate to avoid bridging off and/or creating hollow spots. Have concrete delivered at a slump of 4, and add water at the site to make a slump of 5 or 6.**

b) **Make sure the site is accessible for the concrete trucks and pump to be used. Make sure all sides of the walls can be reached.**

B. **NOTE: If any of the safety precautions are not adhered to, it could cause an accident, delay, or greatly add to the cost due to having to make corrections later.**

VII. FILLING THE WALL.

A. Starting At The Corners.

1. **To check the slump in the wall then, for example, if the wall is 8' high, for example, the concrete at the bottom should flow 8-10 cells out when the wall is filled. An observer should be stationed ahead of the concrete placement. He should watch the flow and see that the small cores are being filled. The person on the ground should watch for concrete spills out from the bottom. He should also watch the gaps between the blocks. Before filling, light can be seen through the gaps. After filling, that light gap is filled with concrete. This assures that all 6" cores are full. The strength is obtained from the 6" cores. We do not depend on the 2 ½" trapezoids for strength in our calculations. The trapezoid is used as a visual reference to ensure that the large cores are full.**

2. **After the wall is filled, insert the proper size vertical rebar. The rebar are staggered from the inside to the outside of the wall. *(Figure 6)* The rebar should be 1-2" off the wall. If the rebar stops, do not push because chances are you have hit a core. Therefore, pushing would cause a blow out. Just turn the rod and it will drop past the obstruction. After the rebar is in 95% of the way, lift it up and down 6" three (3) times. This will cause the rebar to be straight up and down.**

3. **A concrete vibrator should be used to insure that voids in the wall are eliminated.**

4. **Finish troweling off the top of the wall and install anchor bolts every five feet, starting and ending one foot from the corner.**

5. **After the wall is filled, check that the wall is straight and level with a string. Adjust braces to straighten the wall. If a high spot exists, cut it off with a keyhole saw and re-trowel.**

6. **Install water protection. *See the* Enkadrain® *Brochure in the rear of the training manual for instructions.***

7. **Leave the wall braced for 24 hours after the pour.**

8. **Clean off any spill from the wall. The next day it will come off easily. After a couple days it will not come off.**

9. **Apply exterior wall coating, if requested.**

VIII. INSTALLATION OF VERTICAL REINFORCEMENT TRACK.

A. **The vertical reinforcement track has three sides that are 7/10" long. The closed end of the C-strip faces the nearest butt joint. It should always be installed so that there are two (2) sides parallel to the wall surface. This is necessary for strength to hold the screw. It**

provides two surfaces for the screw to attach. *(Figure 7)*

1. **The vertical reinforcement track also serves a second function. In locations such as between apartment buildings some codes require that the drywall be attached to concrete. In this case, install vertical reinforcement track every 20" apart. Install a drywall screw 2½" long every 2 feet, starting from the bottom and going to the top. When the concrete is installed, the vertical reinforcement track will be secured to the concrete by the screw that is cast into the concrete. Then screw the drywall to the vertical reinforcement every 2 feet, starting from the bottom to the top of the wall.**

2. **Another function of the vertical reinforcement track is to reinforce the wall and hold it straight and secure. It is recommended that a 1½" plastic washer and a 2½" drywall screw, designed to hold foam, be installed every 3 feet vertically. The vertical reinforcement track should be staggered at a minimum of 30" apart. This will helps to stiffen the wall and allows bracing to be fastened to the wall.**

3. **Another feature of the vertical reinforcement track is securing. It can be used to fasten drywall and other materials to it. For attachment of cabinets, a #10 or #12 sheet metal screw will hold approximately 280 lbs.**

4. **The vertical reinforcement track also makes it possible to panelize walls off-site. This makes erecting the walls on site very fast.**

5. **On the exterior, the vertical reinforcement track can be used to attach furring strips, siding and wood.**

6. **The vertical reinforcement track keeps the wall from stretching and maintains vertical and horizontal alignment.**

IX. **USES OF THE C-TRACK.**

A. **The C-track is a 2-inch wide base and has two, 1 ½" high sides. It snaps snugly over the edges of the block. On the bottom at the base, it is used to hold the wall in place against movement. As the wall is filled from a high velocity pump, the wall shakes a lot, and would move if not secured. *(Figure 7)***

B. **The C-track is usually nailed down to the footing. On walls 10' or higher, C-track can be used to provided added support when concrete is being dropped a great distance.**

C. **Another use of the C-track is for alignment. When used on top of the wall it helps hold the wall straight.**

D. **C-track is also used to cover the tabs from getting concrete on them. This way the tabs are kept clean and the next row can be placed on clean tabs.**

E. **In many parts of the country termite strips are required. The strip is beveled to conform to termite protection requirements. Often another strip of metal is installed under the termite strip to cover the exposed wall.**

F. **The C-track is also left in place to act as a nail strip to secure drywall to. On the outside it can be used to attach items to.**

G. **The C-track is often used to help keep the top of the wall straight. When filled with concrete it provides a smooth surface to screed against.**

X. **HORIZONTAL TRACK.**

A. **The horizontal track has several uses.**

1. **Used to hold wall panel systems together.**

2. **Used to tie corners and hold window or door bucks in place.**

3. **Used to mount drywall to.**

4. Used to reinforce off-bond cuts, by placing across them. *(Figure 3)*

5. Used to band across corners such as bays and splices.

B. **It is inserted in the track provided in the block.**

XI. **EXTERIOR COATINGS.**

A. **Recommendations To The Exterior Surface Of The Foam Block.**

***1. Parge Coat*: Make into a thick mix, and apply with a trowel, or spray on with a hopper gun. If the surface is apt to receive physical abuse or wear, it is recommended that a ¼" x ¼" nylon mesh be put on the wall first, and then the coating applied.**

2. There are several *EIFS (Exterior Insullation and Finish Systems) coatings* on the market.

***3. Brick*: Using a 3" coated spiral nail, insert it through the hole in the brick tab and push through the wall every 2 ft. square before the concrete is installed. The brick tab is then installed between the brick as it is laid up. *Thin-set Face Brick*: The panels that hold the brick are glued to the wall and are also screwed to the vertical reinforcement track that is in the wall. The bricks are then installed according to the manufacturer's instructions.**

***4. Cultured Stone*: The stone can be applied two ways.**

a) **Expanded wire mesh is installed on the wall. It is nailed to the wall using 3" spiral nails, driven through the foam at an angle pointing down. This is done before the concrete is installed. When the concrete is installed, the nails are cast into place. The cultured stone are then mortared into place.**

b) **The wall is sanded clean. Then a foam glue, usually Polyurethane, is used. The glue is smeared on the stone, using a paddle. The idea is to press it into small crevices for the stone. Then another coat is applied. The stone is now pressed to the foam wall, and slid back and forth ½". It is then held in place with nails around the edges until securely set.**

***5. Natural Stone*: The brick ledge is used to set natural stone on. Brick tabs are installed into the wall before the concrete is poured.**

***6. Wood-Vinyl Lap Siding:* The siding is screwed into the vertical reinforcement track in the wall. The vertical reinforcement tracks are place 20" on center starting 10" in from the corner. Since the strips are steel, it is necessary to use coated metal piercing screws. A piece of aluminum trim shaped around the corner is commonly used to screw into. The aluminum trim is normally fastened to the corner with contact glue.**

XII. **INTERIOR COVERINGS.**

A. **The Interior Can Be Done In Several Ways.**

1. Drywall: **The drywall can be screwed or glued to the wall. The screws are inserted into the vertical reinforcement track or the horizontal track. The horizontal tracks are installed, as the wall is stacked.**

***2. Dura Rock Coating*: Dura Rock is a quick-setting plaster product. The number on the bag states the drying time in minutes. The wall is swept clean with a hard broom. The Dura Rock is mixed to a thick consistency and then sprayed on with a hopper gun. Color pigment can be added.**

XIII. **TOOLS RECOMMENDED.**

A. **Long handsaw: double cut coarse tooth.**

B. **Drywall keyhole saw.**

C. **Long level.**

D. **String.**

E. **Hammer.**

F. **Laser level or transit.**

G. **Rod cutter and bender.**

H. **Square.**

I. **Electrical drill and screw bits. (*We recommend a cordless drill)***

J. **25-foot tape measure.**

K. **100-foot tape measure.**

L. **Chalk line.**

M. **First aid kit.**

XIV. **ACCESSORY ITEMS.**

A. **1" concrete nails.**

B. **Bracing.**

C. **Blow out kit.**

D. **4 bags of concrete.**

E. **Scaffolding planks.**

F. **Safety ribbon.**

G. **Stake caps.**

H. **Anchor pins.**

I. **Vertical brace rods.**

J. **C-track.**

K. **Vertical reinforcement track.**

L. **Horizontal track.**

Figures

Figure 1: Typical standard footings

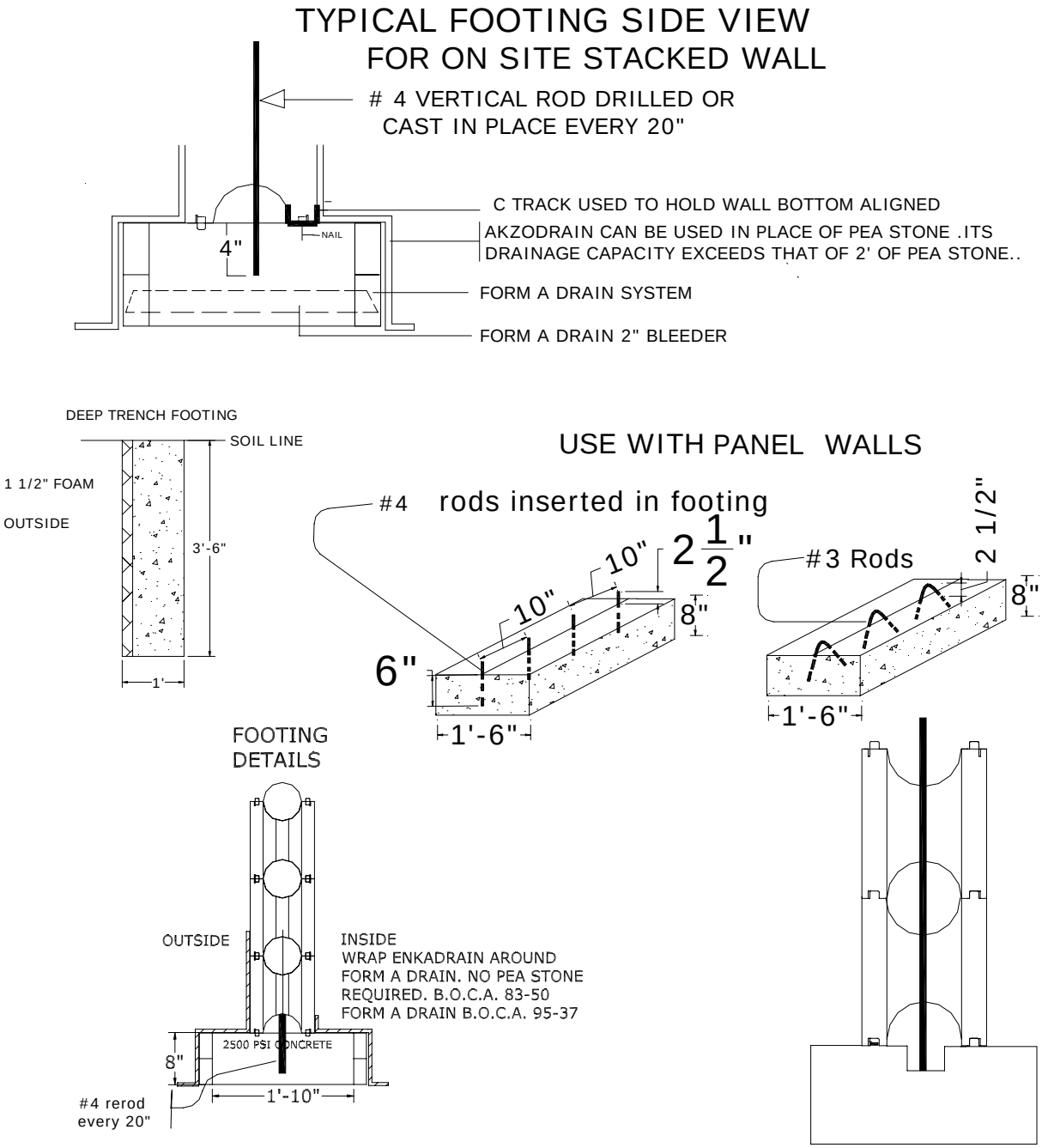


Figure 2: Anchoring wall over standard footing

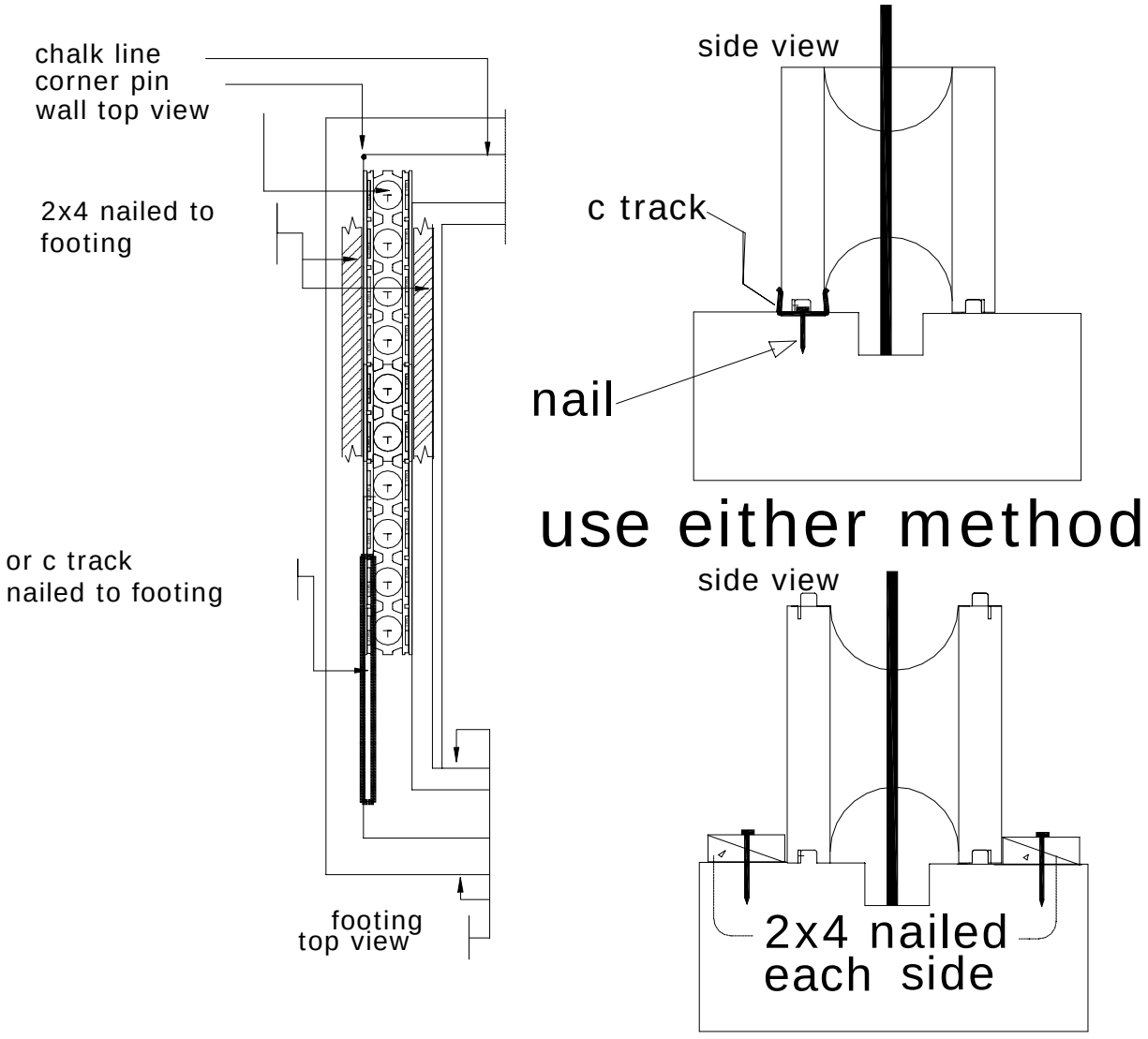


Figure 3: Off bond cut

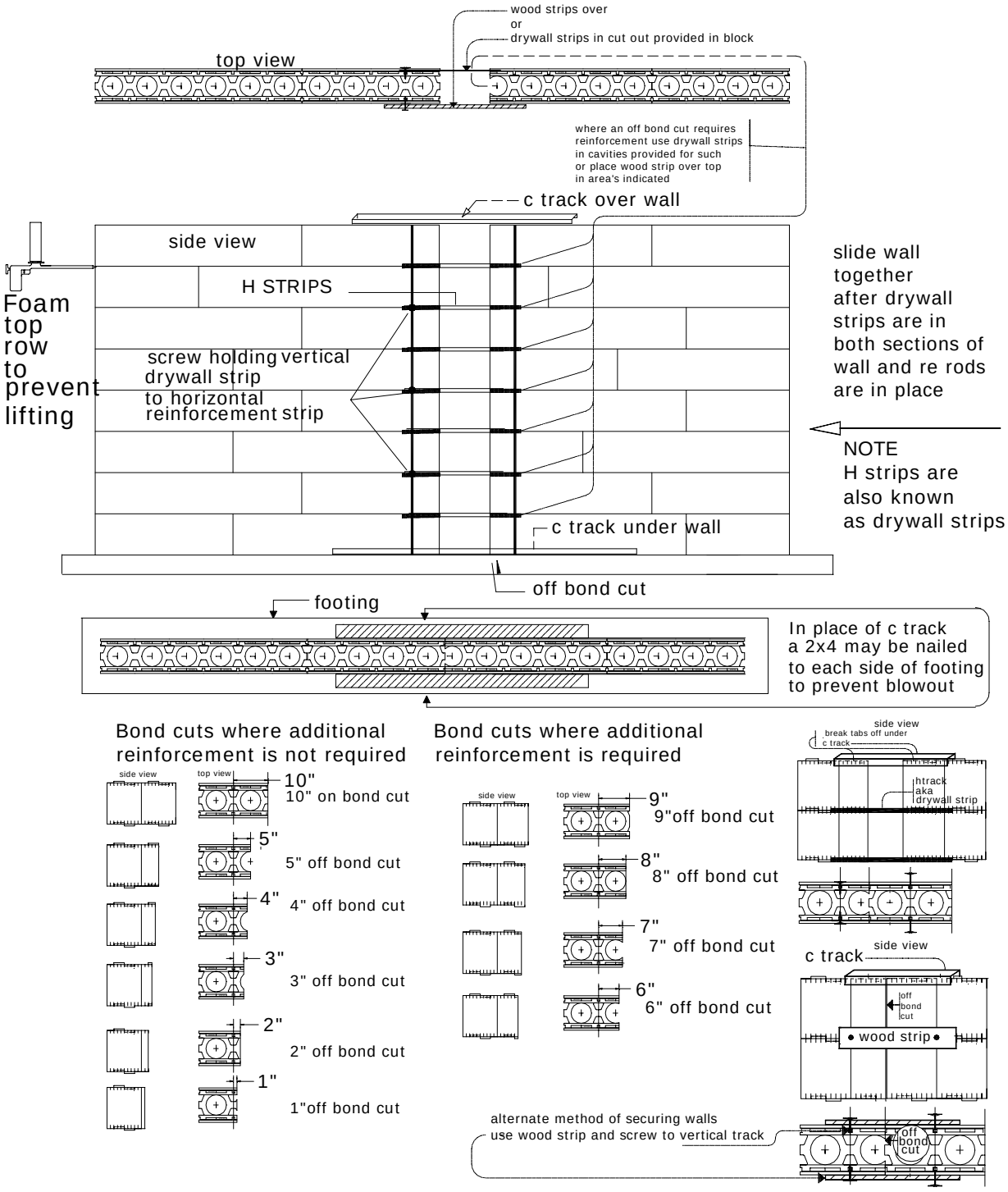
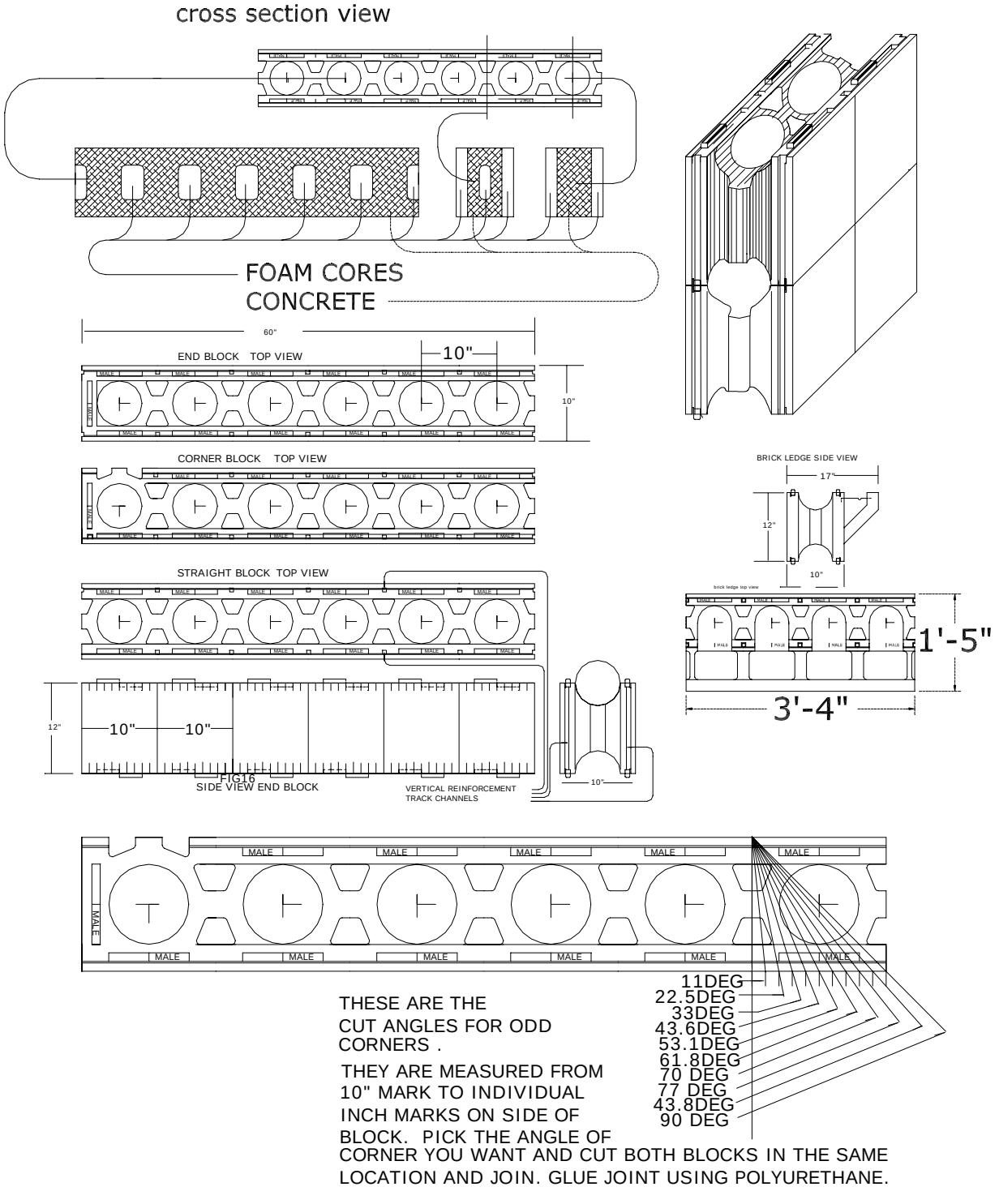


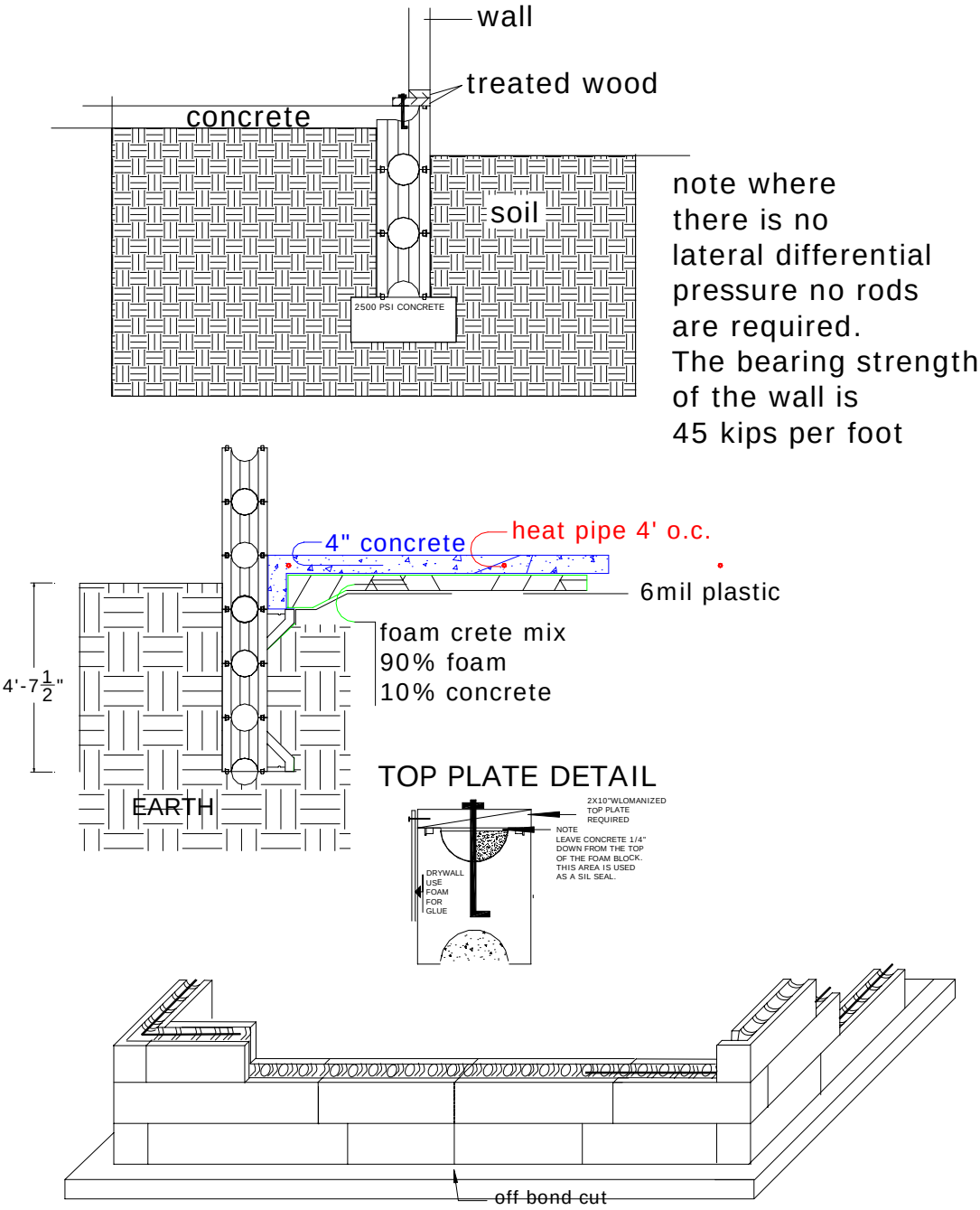
Figure 4: Standard block details



THESE ARE THE CUT ANGLES FOR ODD CORNERS .

THEY ARE MEASURED FROM 10" MARK TO INDIVIDUAL INCH MARKS ON SIDE OF BLOCK. PICK THE ANGLE OF CORNER YOU WANT AND CUT BOTH BLOCKS IN THE SAME LOCATION AND JOIN. GLUE JOINT USING POLYURETHANE.

Figure 5: Typical garage footing detail



When hand stacking place off bond cut toward the center of the wall. All off bond cuts should be straight up and down. All off bond cuts should be the same size so that the wall dimension remains constant.

Reddi-Wall inc.
Engineers of ICF systems

Figure 6: Re-rod placement

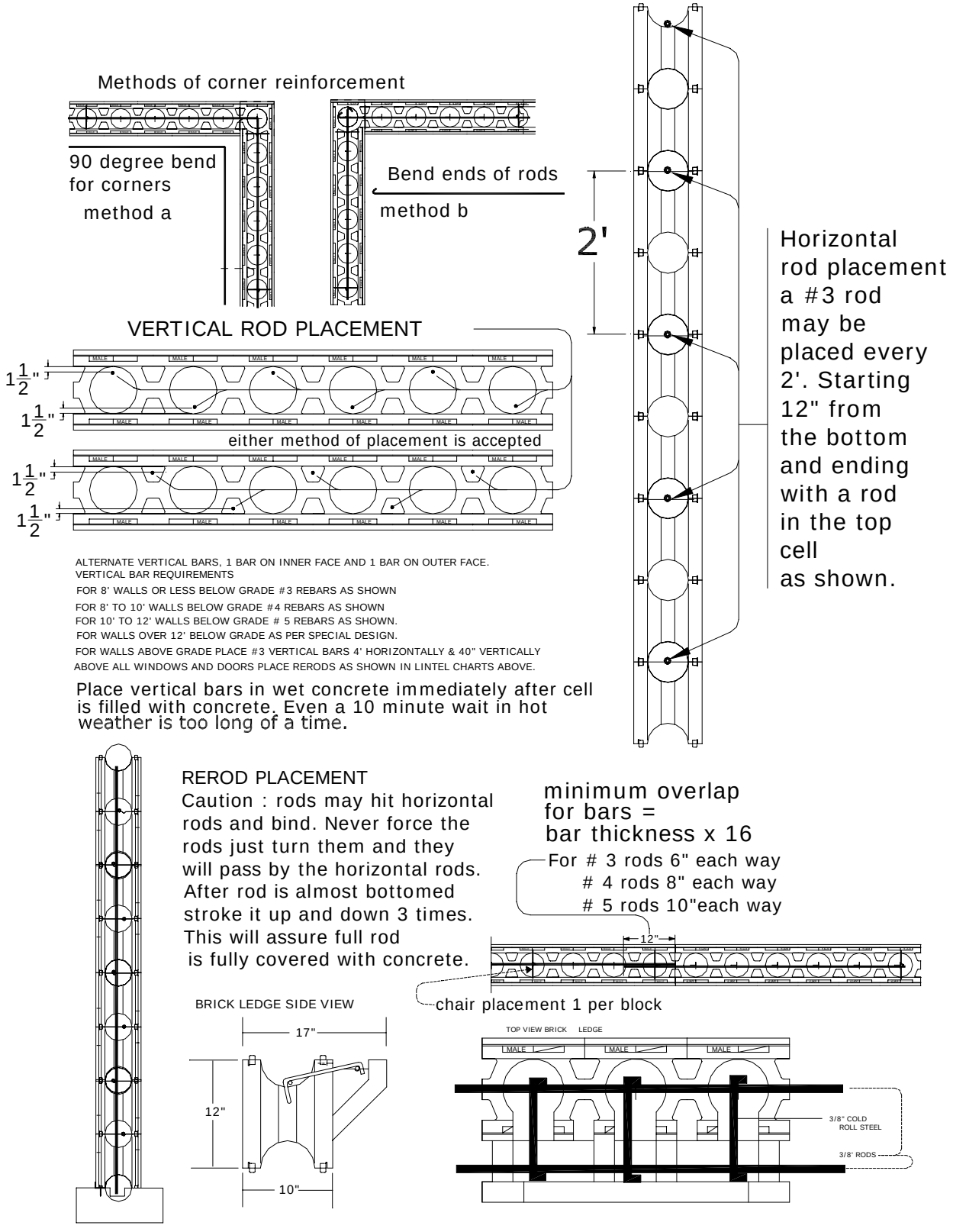


Figure 7: Accessory Parts

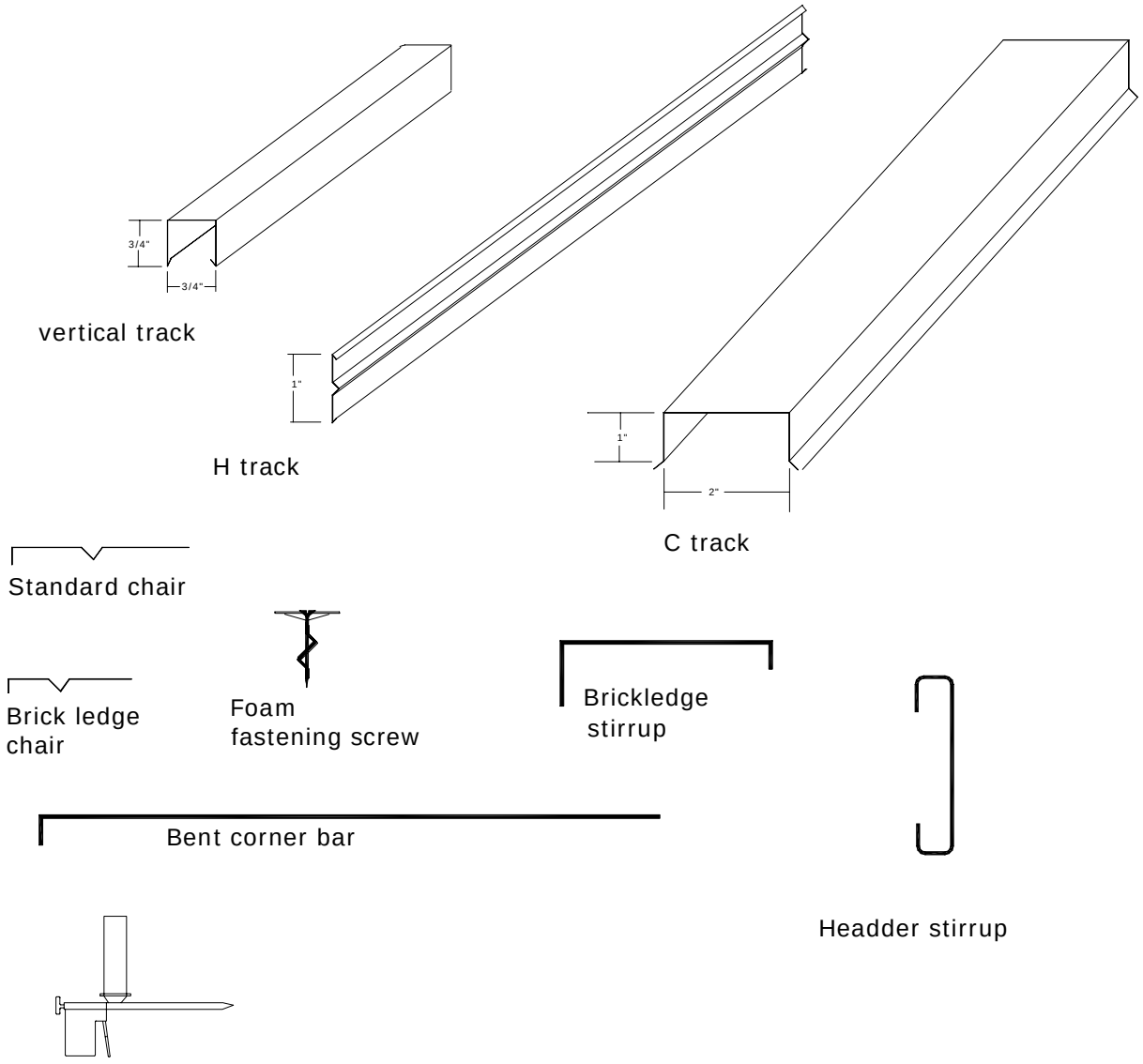
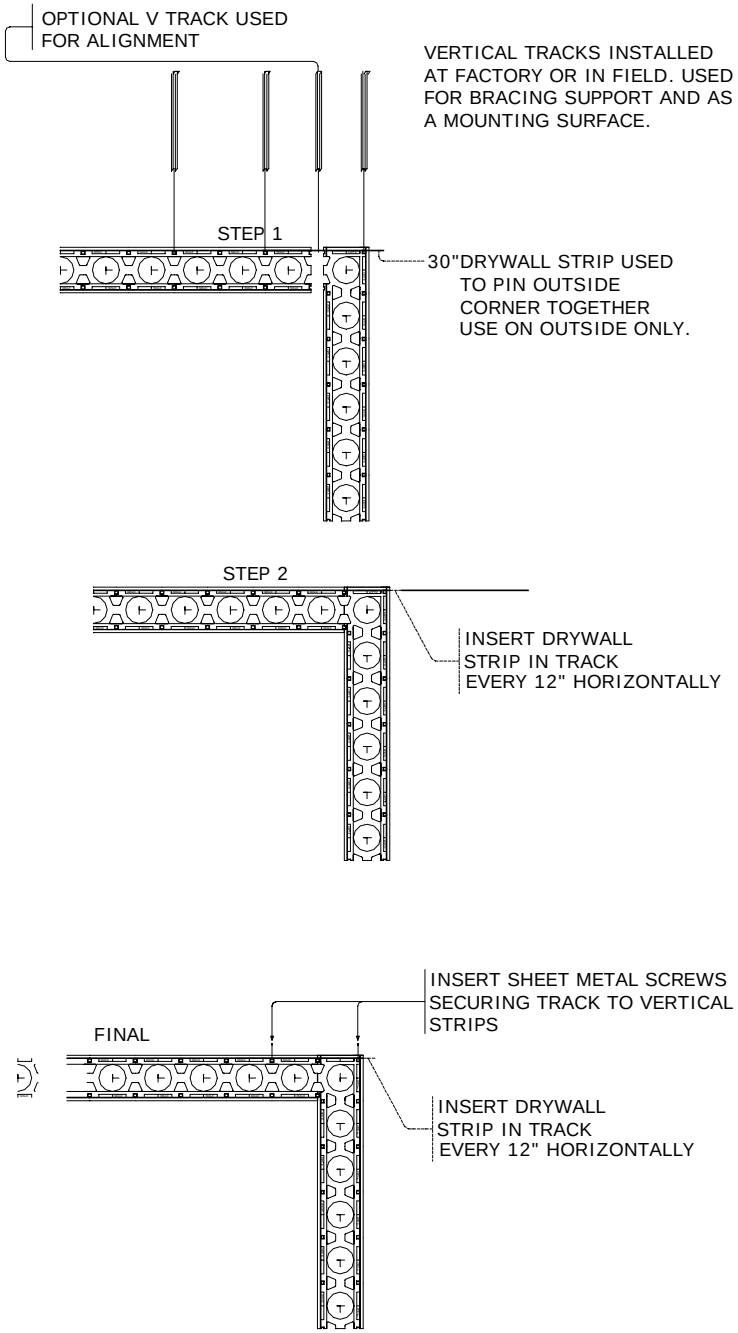
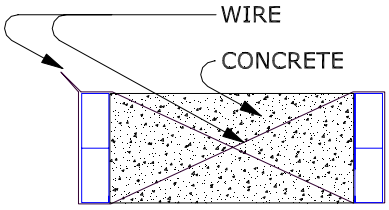


Figure 8: Corner wall panel attachment



Securing Form A Drain between stakes to prevent distortion



TIE WIRE EVERY 3' BETWEEN STAKES TO PREVENT THE FORMS FROM BOWING OUTWARD FROM CONCRETE PRESSURE.

Figure 9: Wall bracing and scaffolding

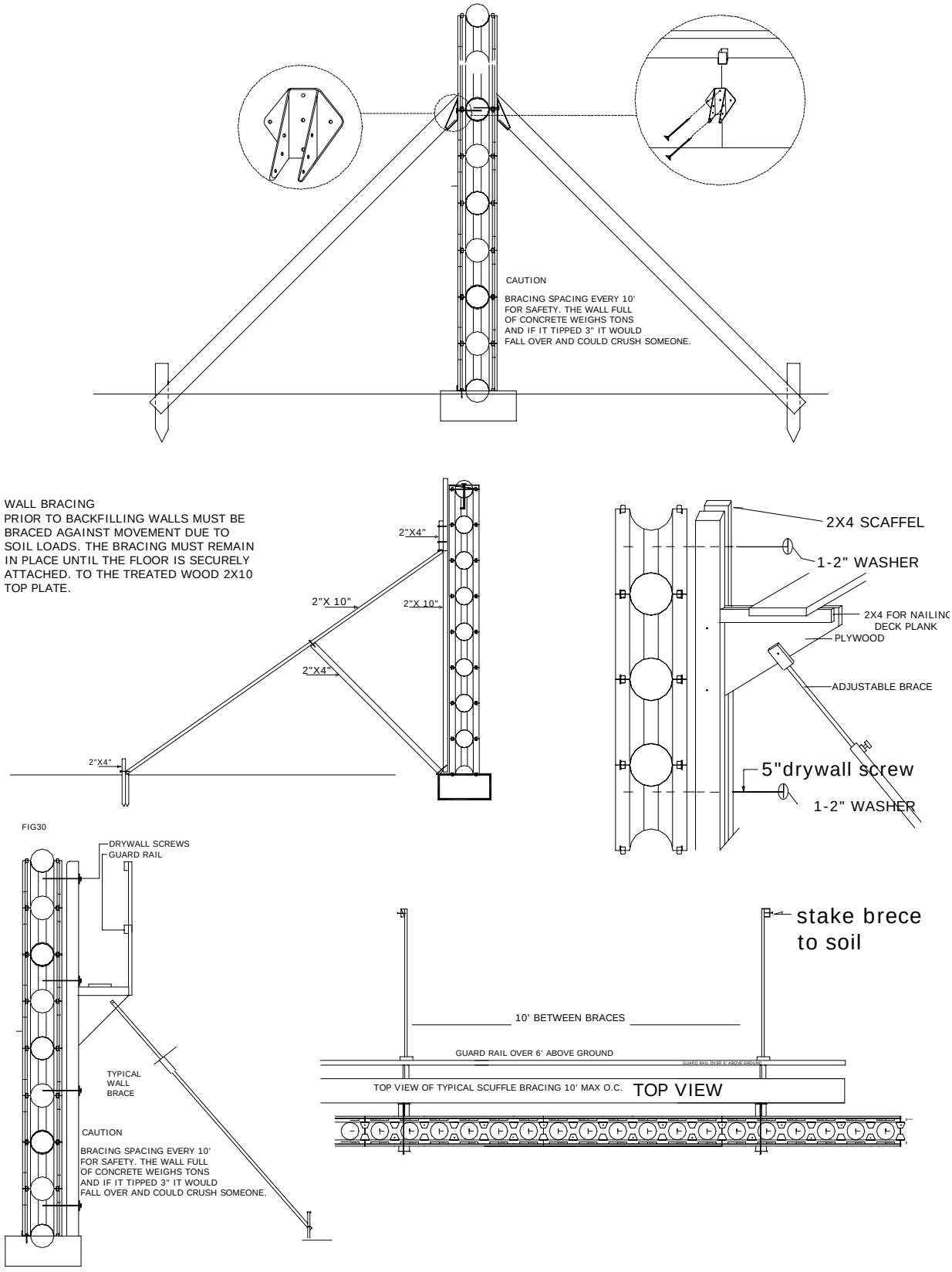
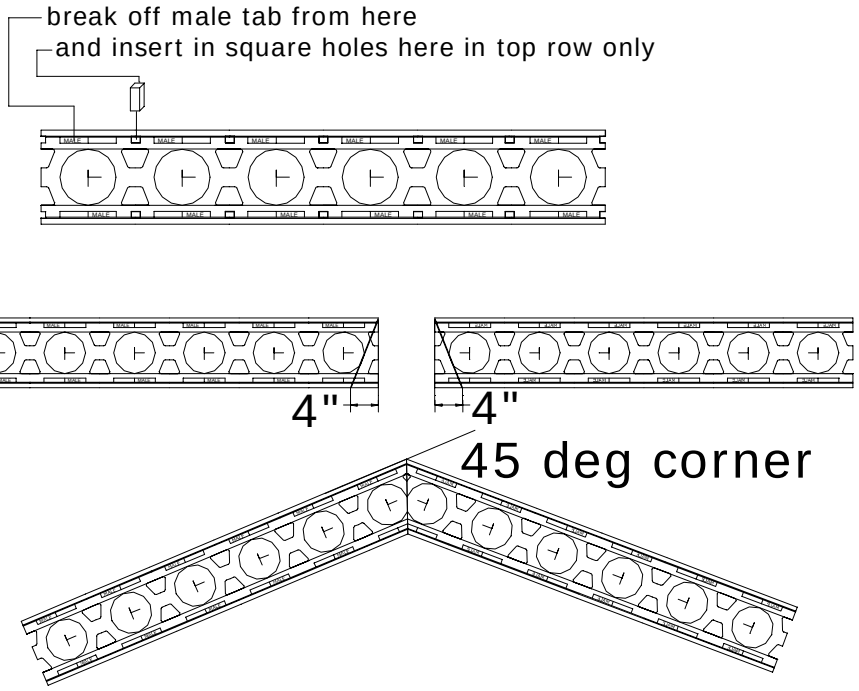


Figure 10: Curtain and trim attachment



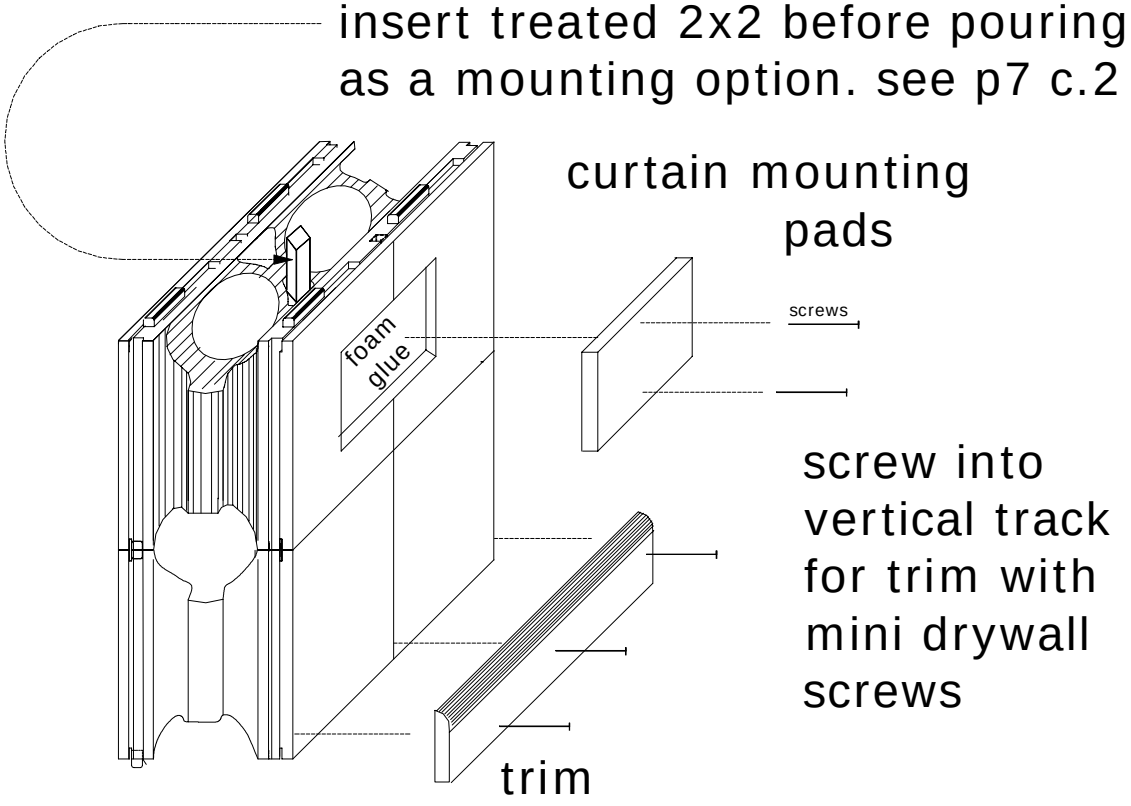


Figure 11: Cross section for typical wall

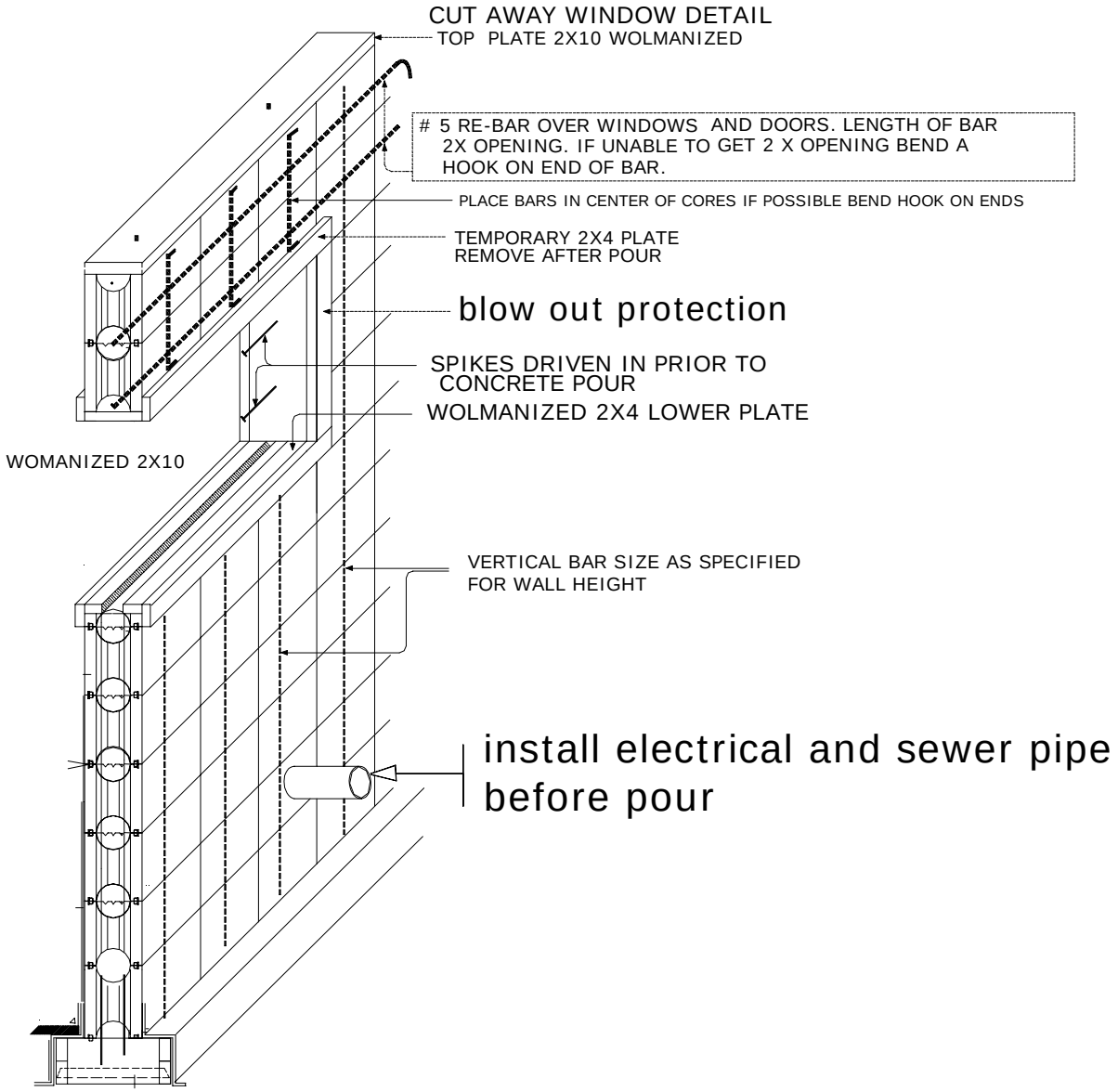


Figure 12: Details

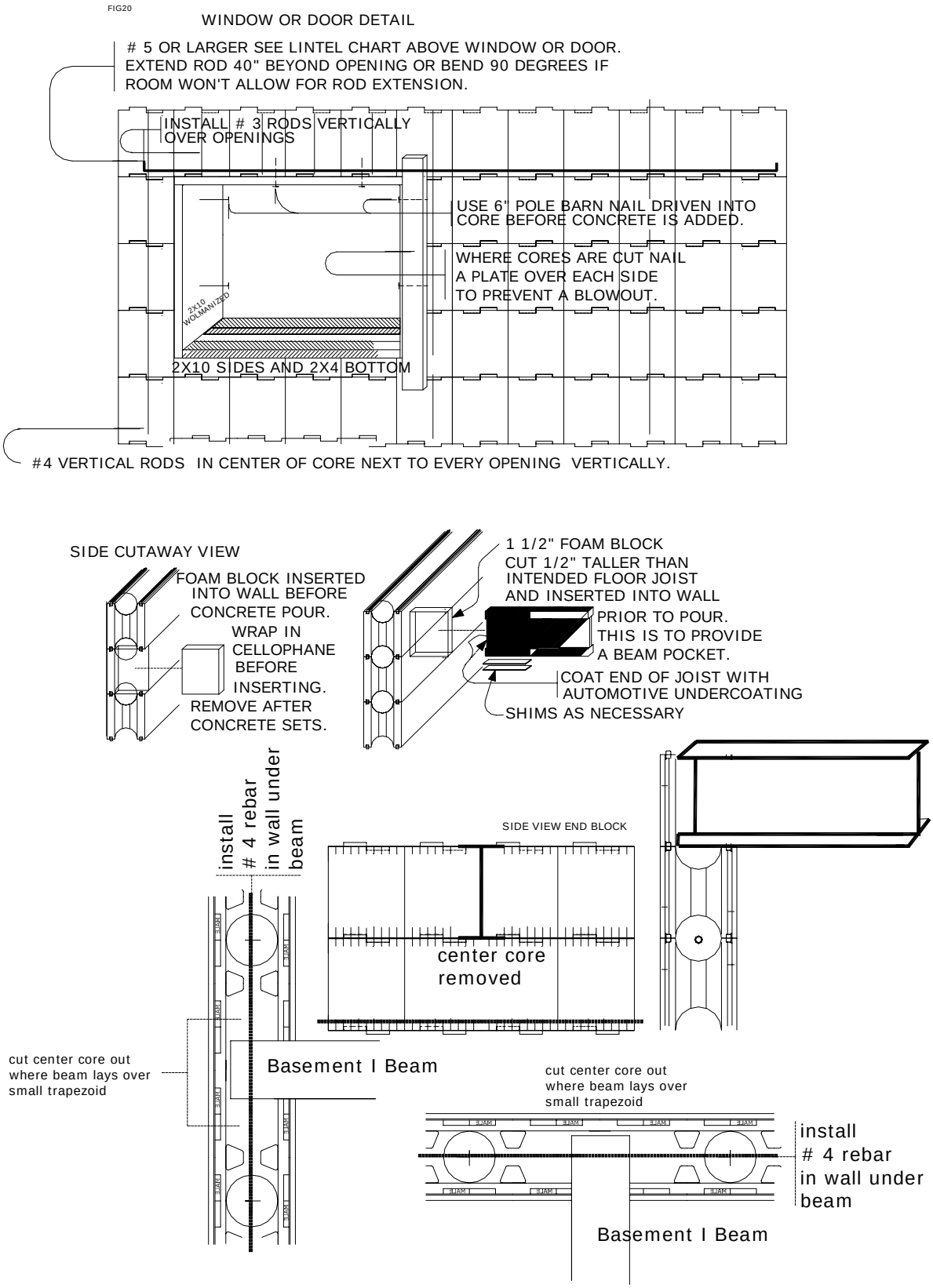


Figure 13: Reddi-Wall length conversion chart

Cells	Length	Cells	Length	Cells	Length	Cells	Length
1	10"	26	21’ 8"	51	42’ 6"	76	63’ 4"
2	1’ 8"	27	22’ 6"	52	43’ 4"	77	64’ 2"
3	2’ 6"	28	23’ 4"	53	44’ 2"	78	65’ 0"
4	3’ 4"	29	24’ 2"	54	45’ 0"	79	65’10"
5	4’ 2"	30	25’ 0"	55	45’10"	80	66’ 8"
6	5’ 0"	31	25’10"	56	46’ 8"	81	67’ 6"
7	5’10"	32	26’ 8"	57	47’ 6"	82	68’ 4"
8	6’ 8"	33	27’ 6"	58	48’ 4"	83	69’ 2"
9	7’ 6"	34	28’ 4"	59	49’ 2"	84	70’ 0"
10	8’ 4"	35	29’ 2"	60	50’ 0"	85	70’10"
11	9’ 2"	36	30’ 0"	61	50’10"	86	71’ 8"
12	10’ 0"	37	30’10"	62	51’ 8"	87	72’ 6"
13	10’10"	38	31’ 8"	63	52’ 6"	88	73’ 4"
14	11’ 8"	39	32’ 6"	64	53’ 4"	89	74’ 2"
15	12’ 6"	40	33’ 4"	65	54’ 2"	90	75’ 0"
16	13’ 4"	41	34’ 2"	66	55’ 0"	91	75’10"
17	14’ 2"	42	35’ 0"	67	55’10"	92	76’ 8"
18	15’ 0"	43	35’10"	68	56’ 8"	93	77’ 6"
19	15’10"	44	36’ 8"	69	57’ 6"	94	78’ 4"
20	16’ 8"	45	37’ 6"	70	58’ 4"	95	79’ 2"
21	17’ 6"	46	38’ 4"	71	59’ 2"	96	80’ 0"
22	18’ 4"	47	39’ 2"	72	60’ 0"	97	80’10"
23	19’ 2"	48	40’ 0"	73	60’10"	98	81’ 8"
24	20’ 0"	49	40’10"	74	61’ 8"	99	82’ 6"
25	20’10"	50	41’ 8"	75	62’ 6"	100	83’ 4"

Figure 14: Footing or wall on soil

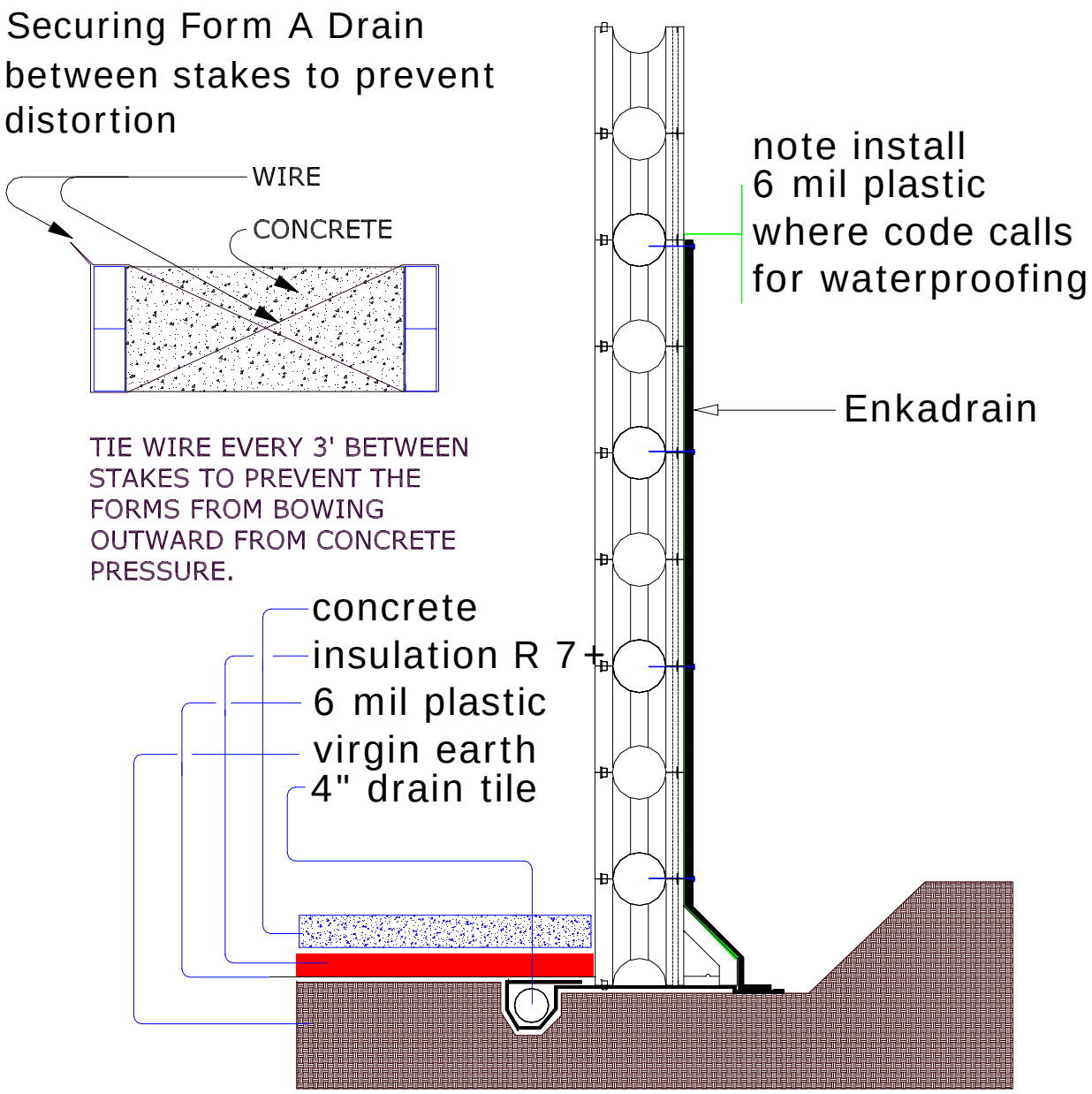


Figure 15: Footing wall on pea stone

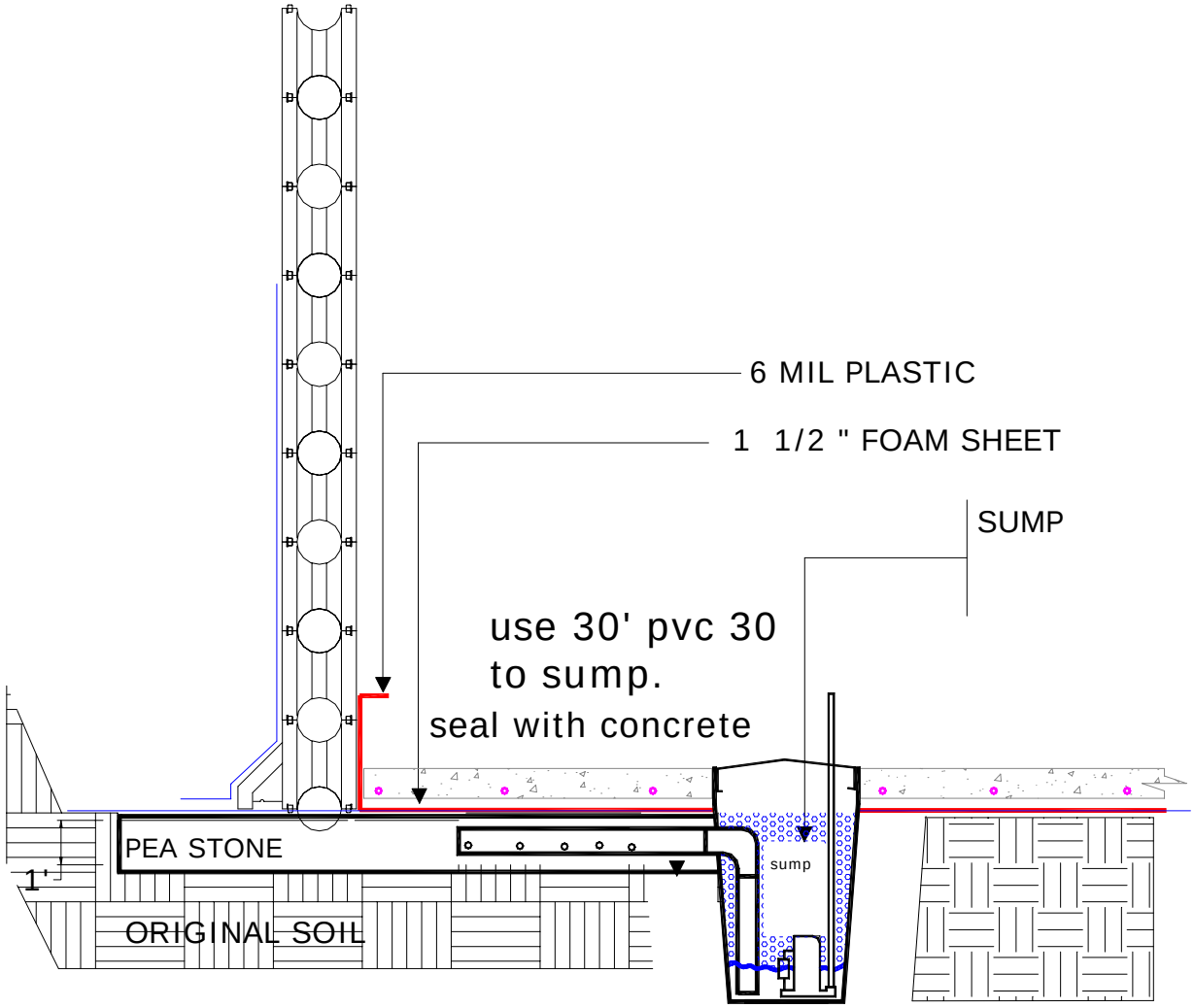
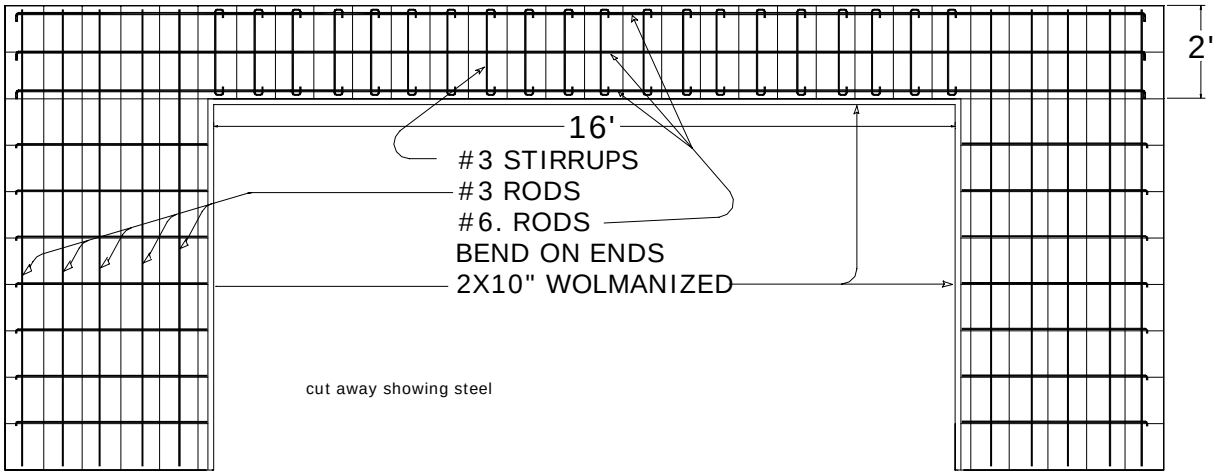


Figure 16: Lintel notes

USE # 5 REBAR FOR SPANS UP TO 12' FOR ANY LENGTH OVER 12' USE A # 6 REBAR
SPACE BAR 1 1/2" UP FROM BOTTOM AS SHOWN. HOLD SECURELY IN PLACE BY HANGING ON WIRE.
VIBRATE CONCRETE IN THIS AREA TO ENSURE COMPLETE ENCASEMENT OF CONCRETE AROUND
RE RODS . AFTER CONCRETE IS IN PLACE INSTALL VERTICAL RODS INTO THE CENTER OF EACH CORE.

16 FOOT LINTEL SPAN
TOTAL LOAD CAPACITY 10200 OR 637LBS/LF



16 FOOT LINTEL SPAN
TOTAL LOAD CAPACITY 12" LINTEL 4,450 LB.. OR 278 LB. PER LINEAL FOOT

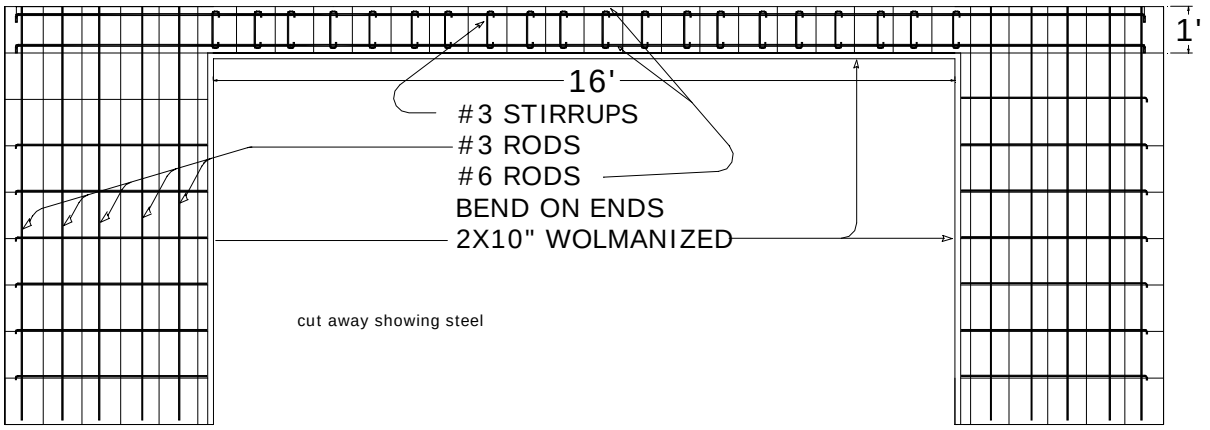
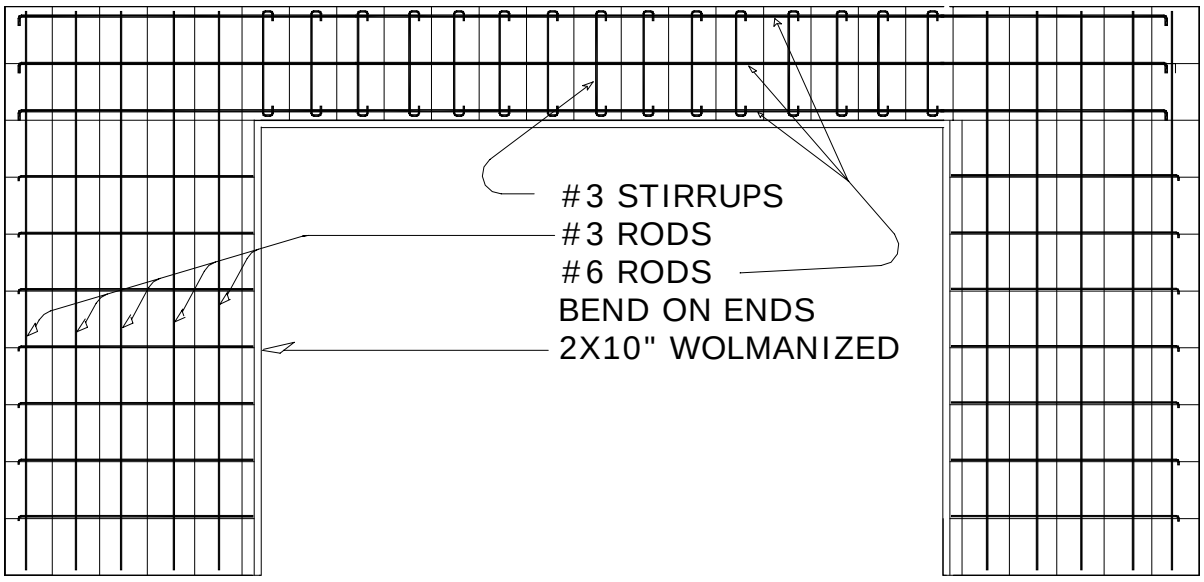


Figure 17: Lintel notes

12' LINTEL SPAN
TOTAL LOAD CAPASITY 15,300 LB. OR 1275 PER FOOT



12' LINTEL SPAN
TOTAL LOAD CAPACITY 5,400 LB.. OR 450 LB. PER FOOT

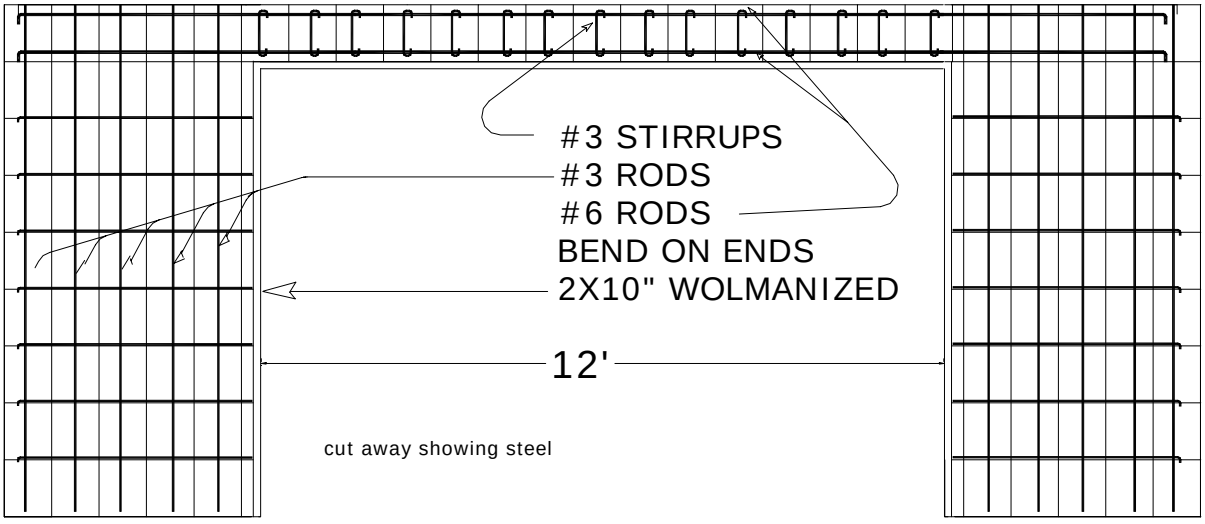
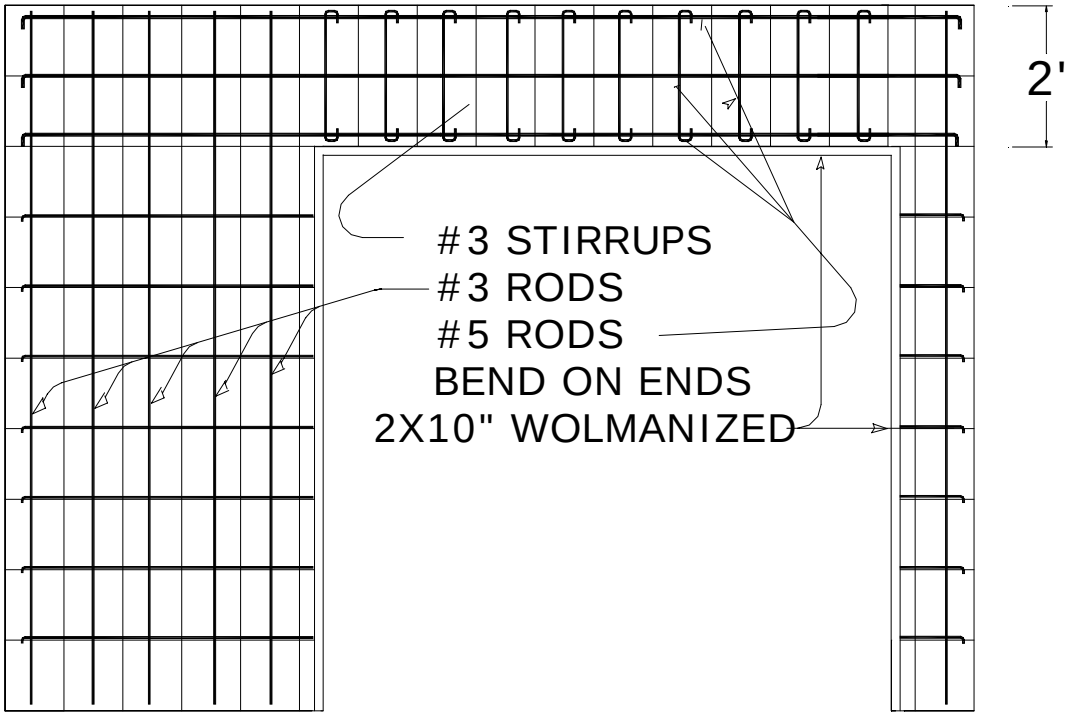


Figure 18: Lintel notes

8' LINTEL SPAN
TOTAL CAPACITY 17,000 OR 2125 LB. PER FOOT



8' LINTEL SPAN
TOTAL LOAD CAPACITY 6,000 LB. OR 750 LB. PER FOOT

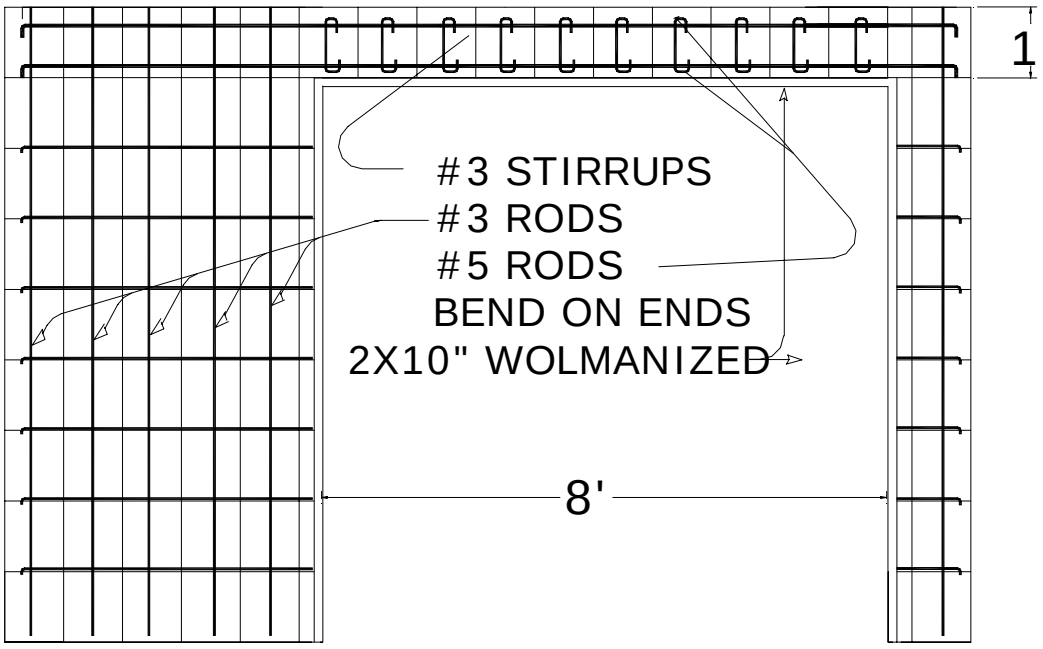
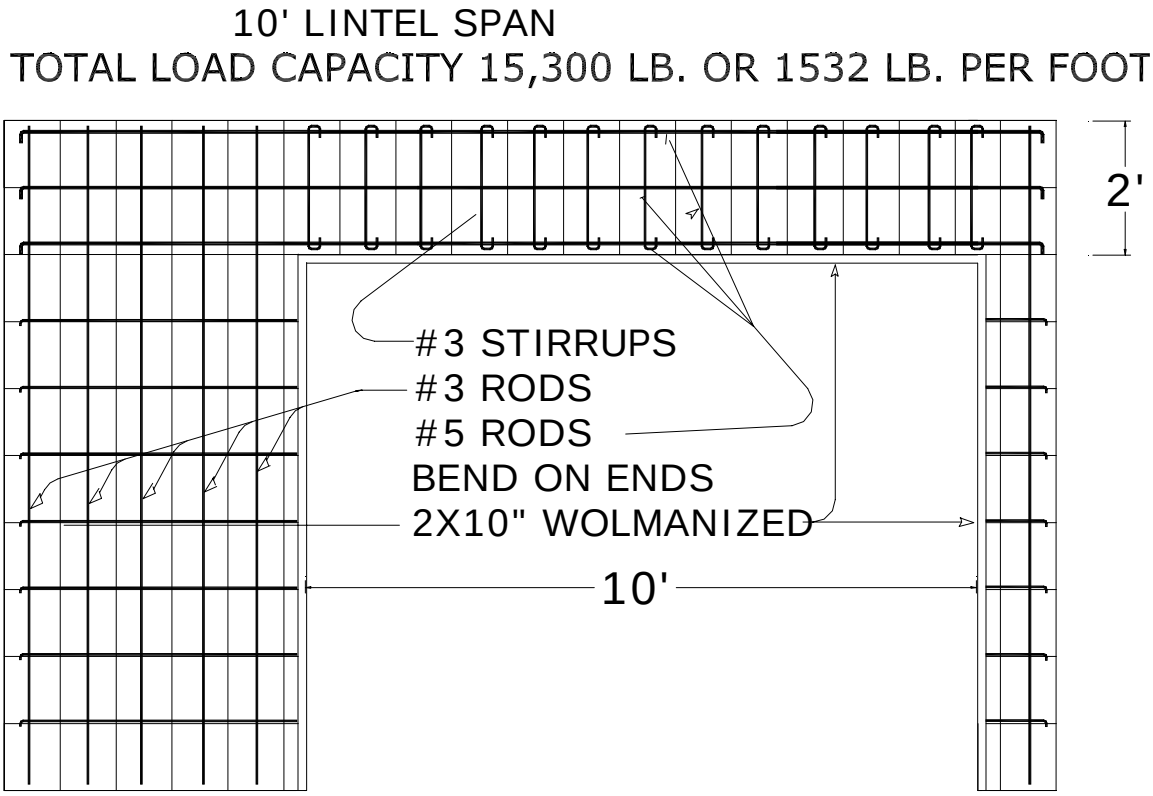


Figure 19: Lintel notes



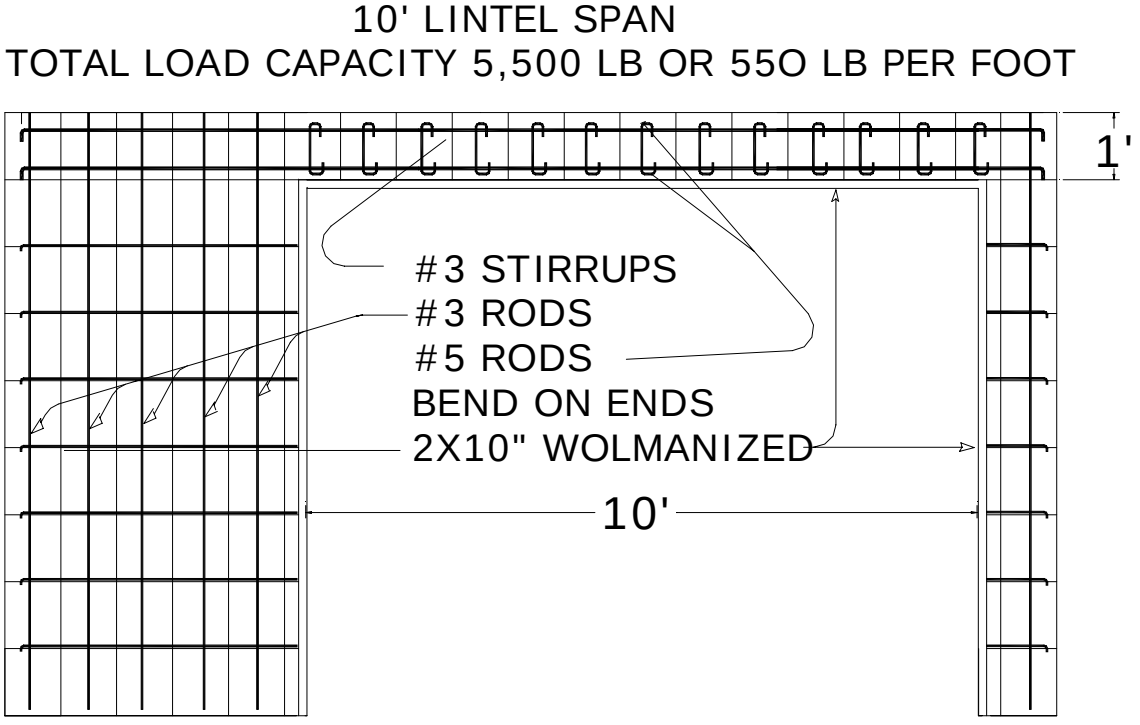
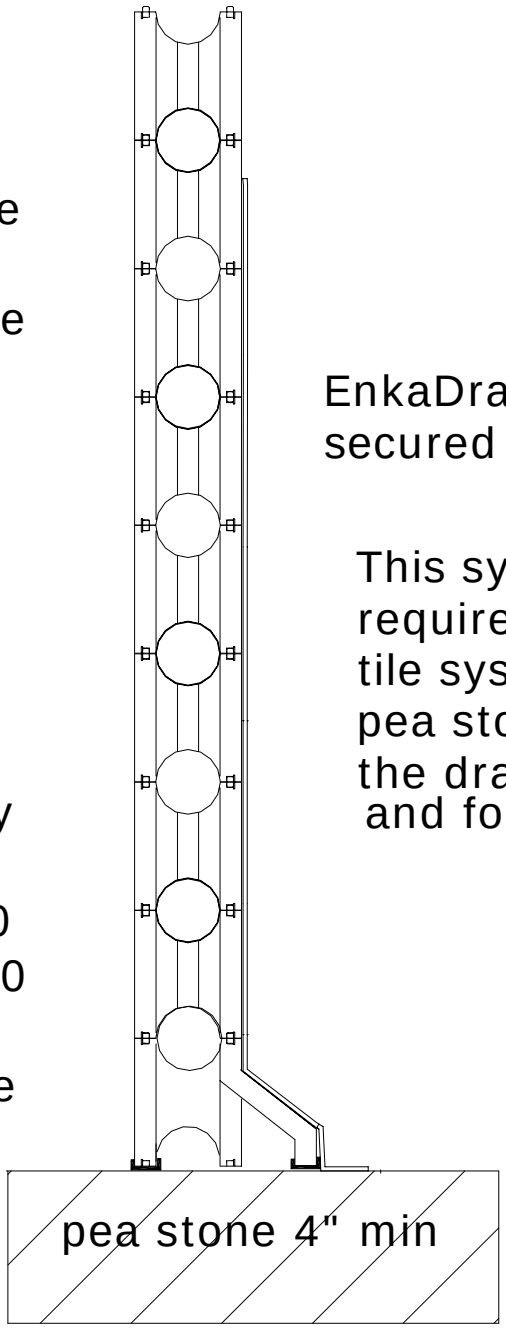


Figure 20: Wall load capacity

NOTE:
This system is designed to be used as a wall and foundation at the same time. The base of the wall has 144 sq. inches of concrete per lineal foot. It also has 56 sq. inches of foam that has a compressive strength of 20 psi or a total bearing capacity of 1120 lb. per foot. The total compressive capacity of the wall at the base is over 400,000 lb. per foot with 3000 psi concrete. The limiting factor for the wall is the bearing capacity of the soil.

Typical wall
& footing combination



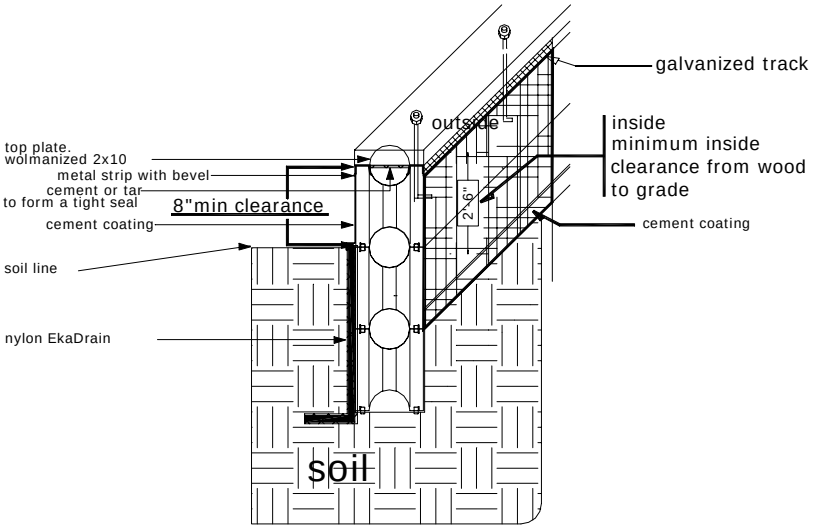
EnkaDrain
secured to wall

This system requires no drain tile system. The pea stone acts as the drain tile and footing.

Figure 21: Drywall attachment and termite protection

Termite and insect protection

Termite Protection
Required minimum clearance between the ground and any untreated wood in the building are listed below 18" of the floor. Any wood that is at or below the sheeting must be pressure preservative treated wood.
Minimum clearance above grade to untreated wood.
outside grade
to framing 8 inches min.
to wood siding 6 inches min.
Inside grade (crawl space)
to floor joist 18" inches min.
to floor Girder 12" inches min.



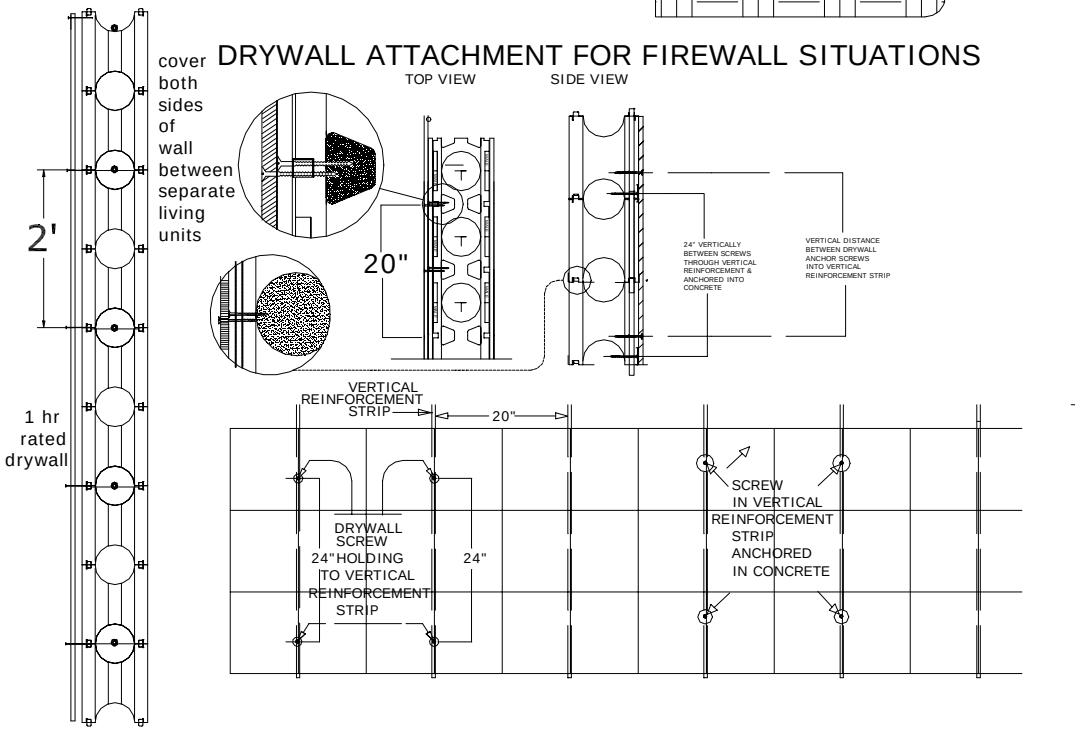


Figure 22: Concrete Filling and Repair

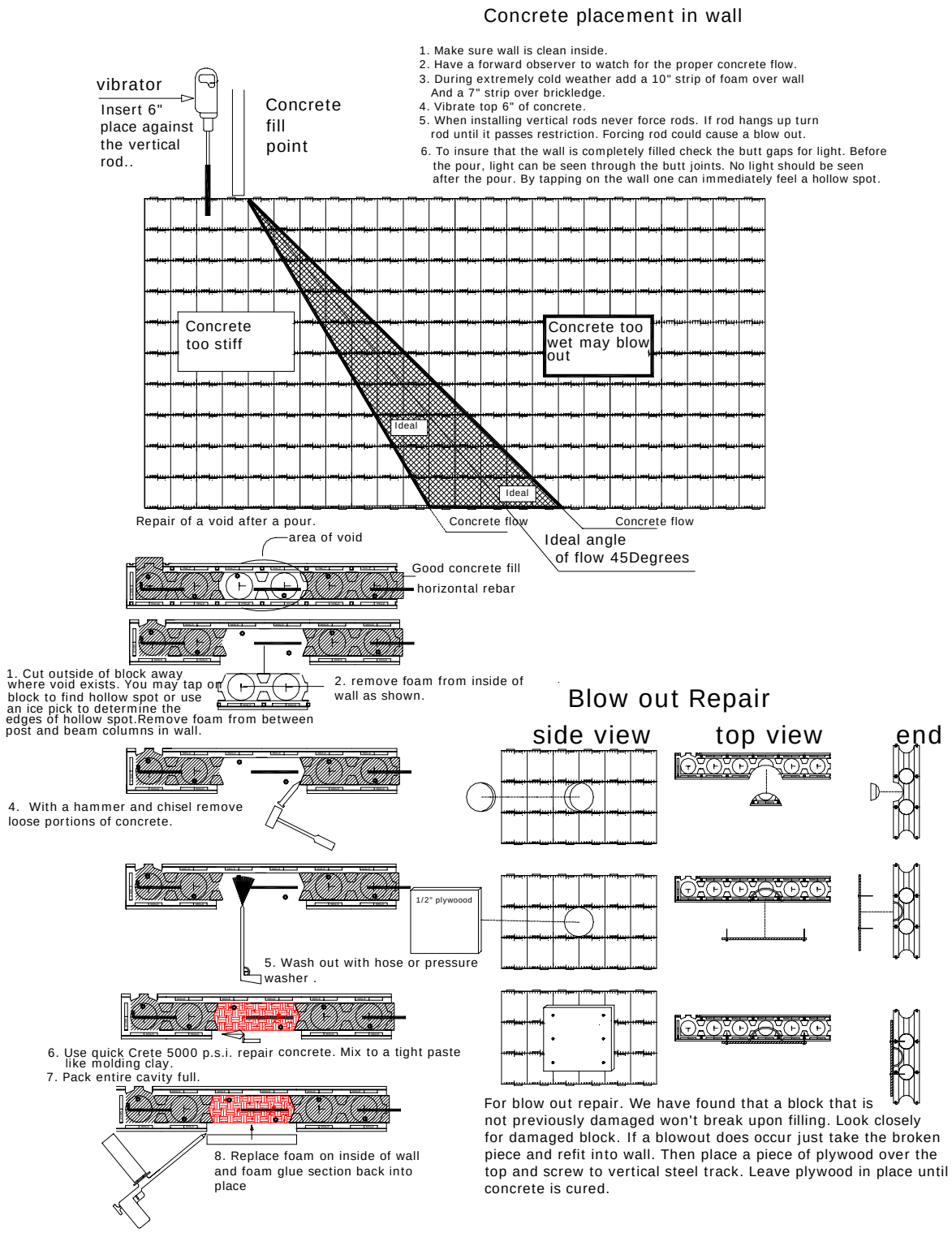


Figure 23: Typical Cross Section

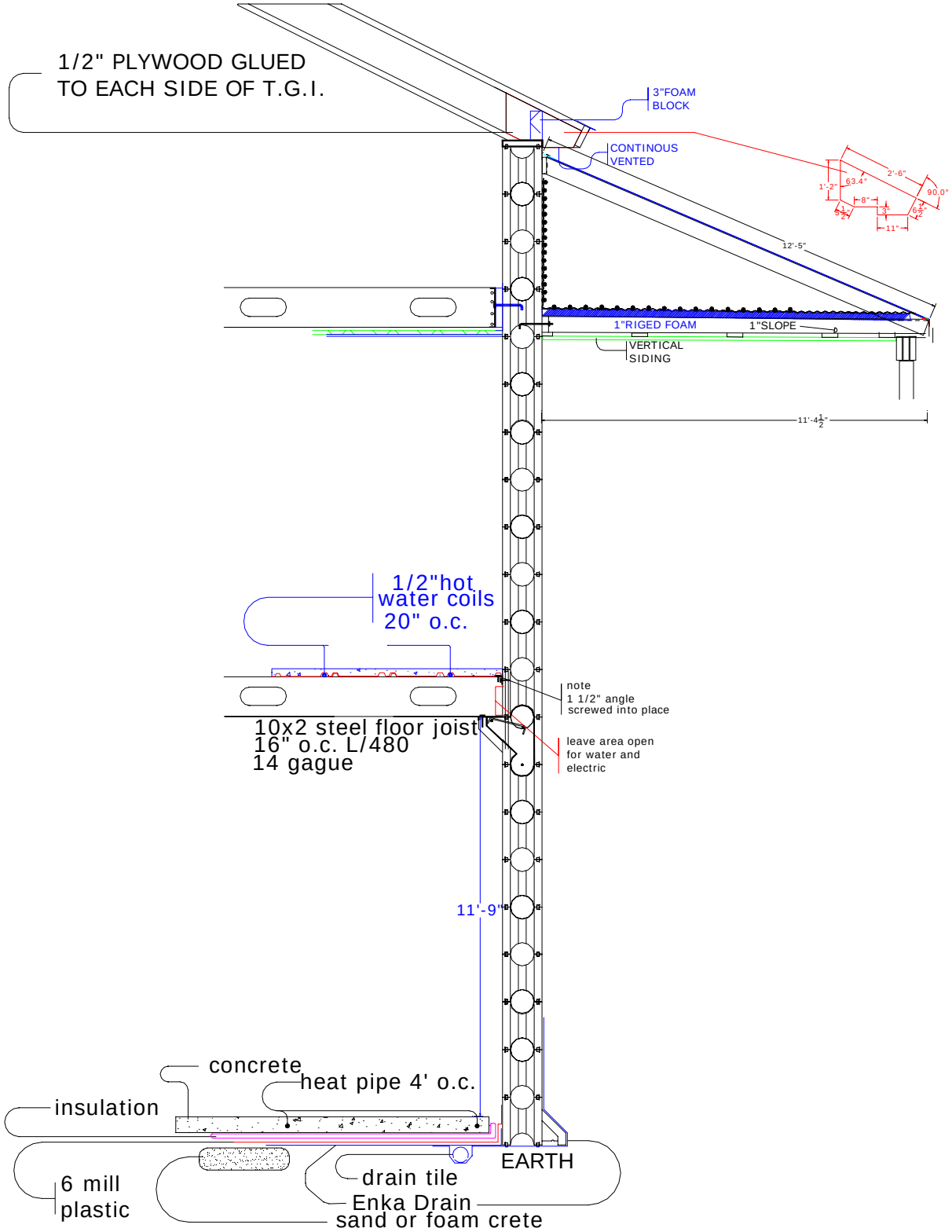


Figure 24: Hot water floor heating system

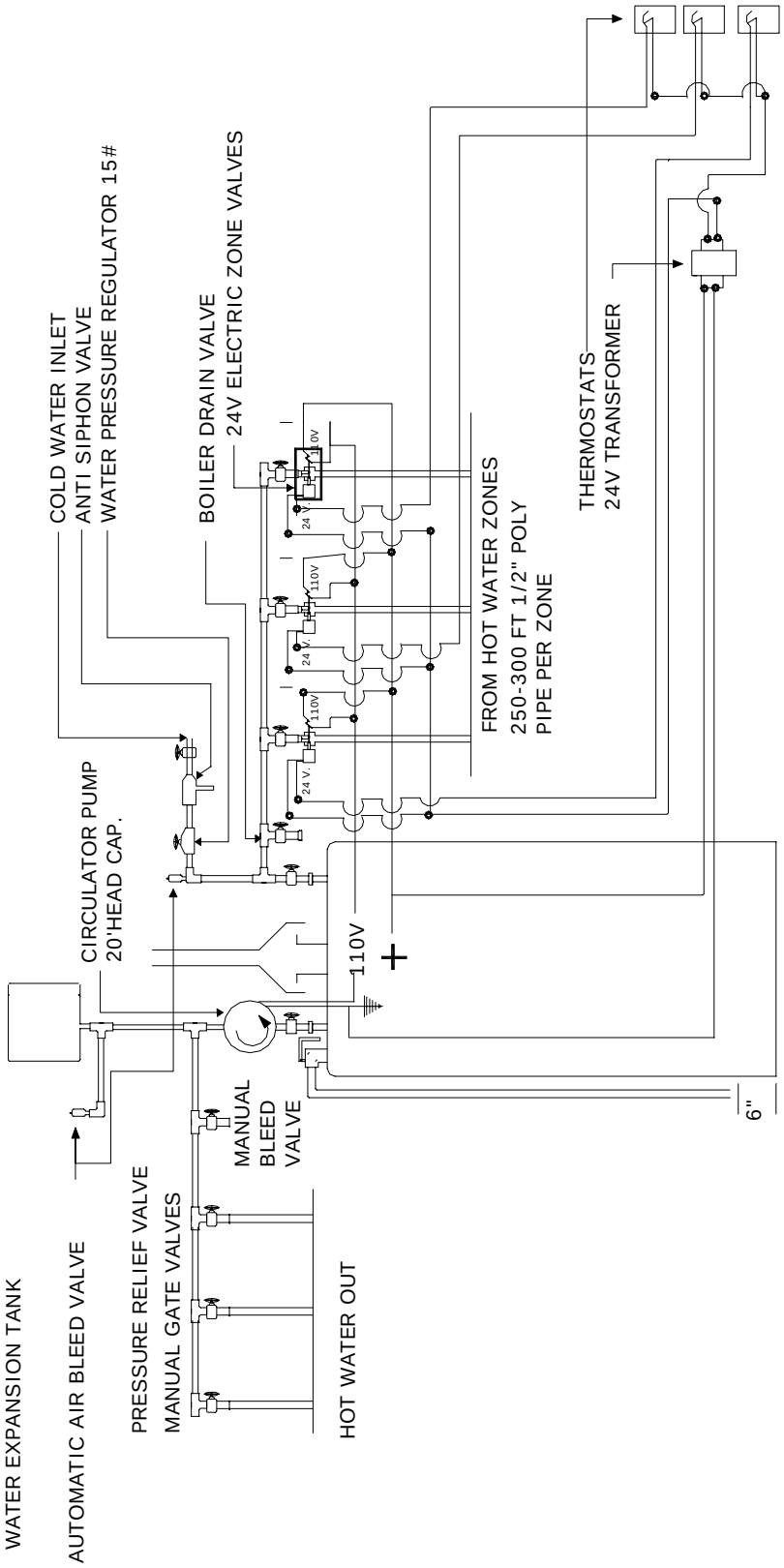
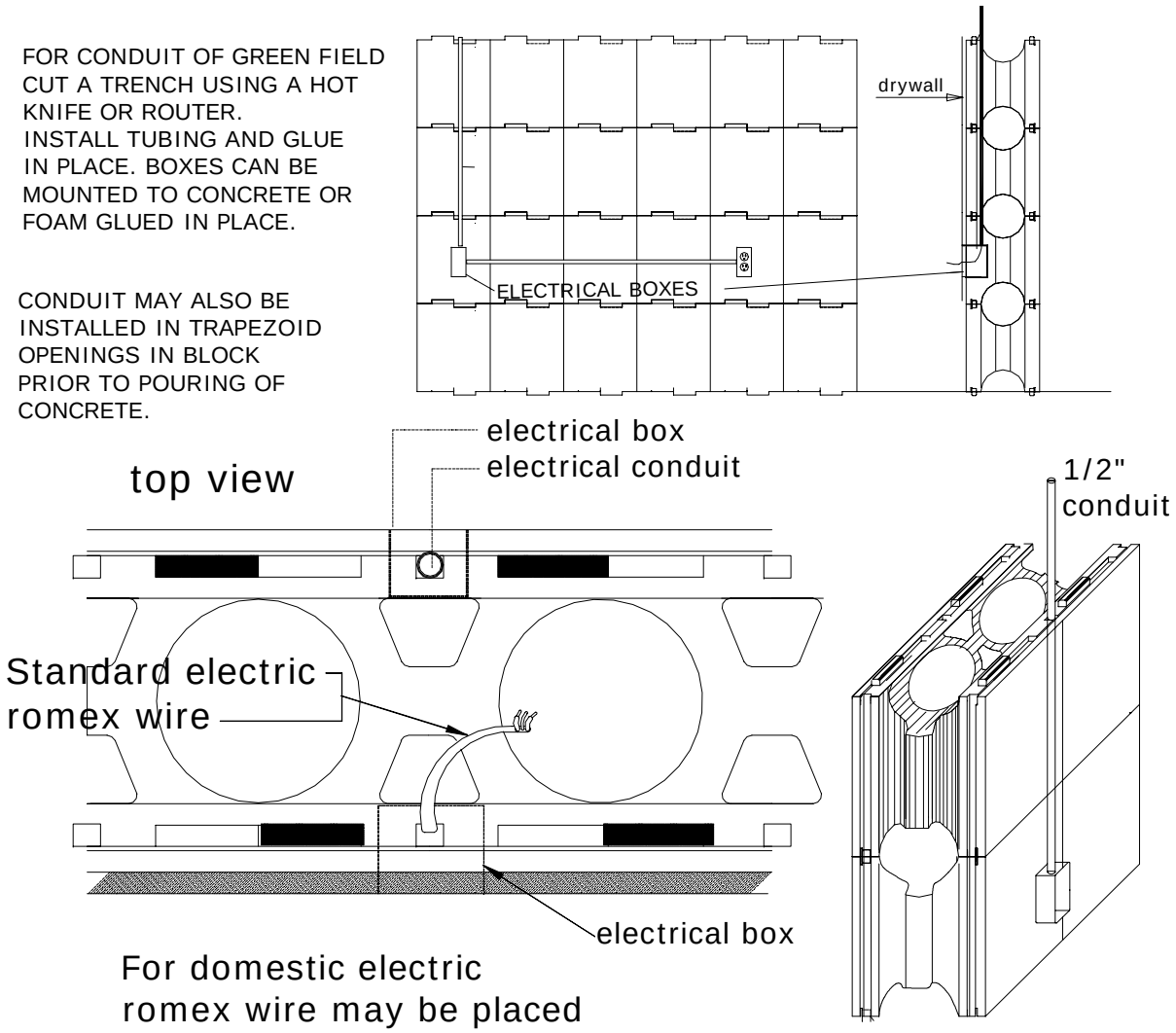


Figure 25: Electrical details



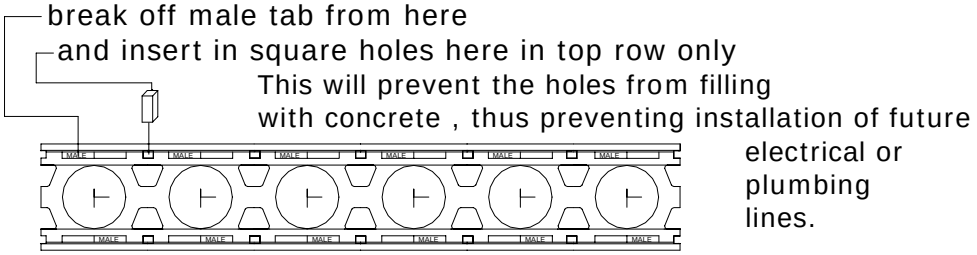


Figure 26: Pilaster details

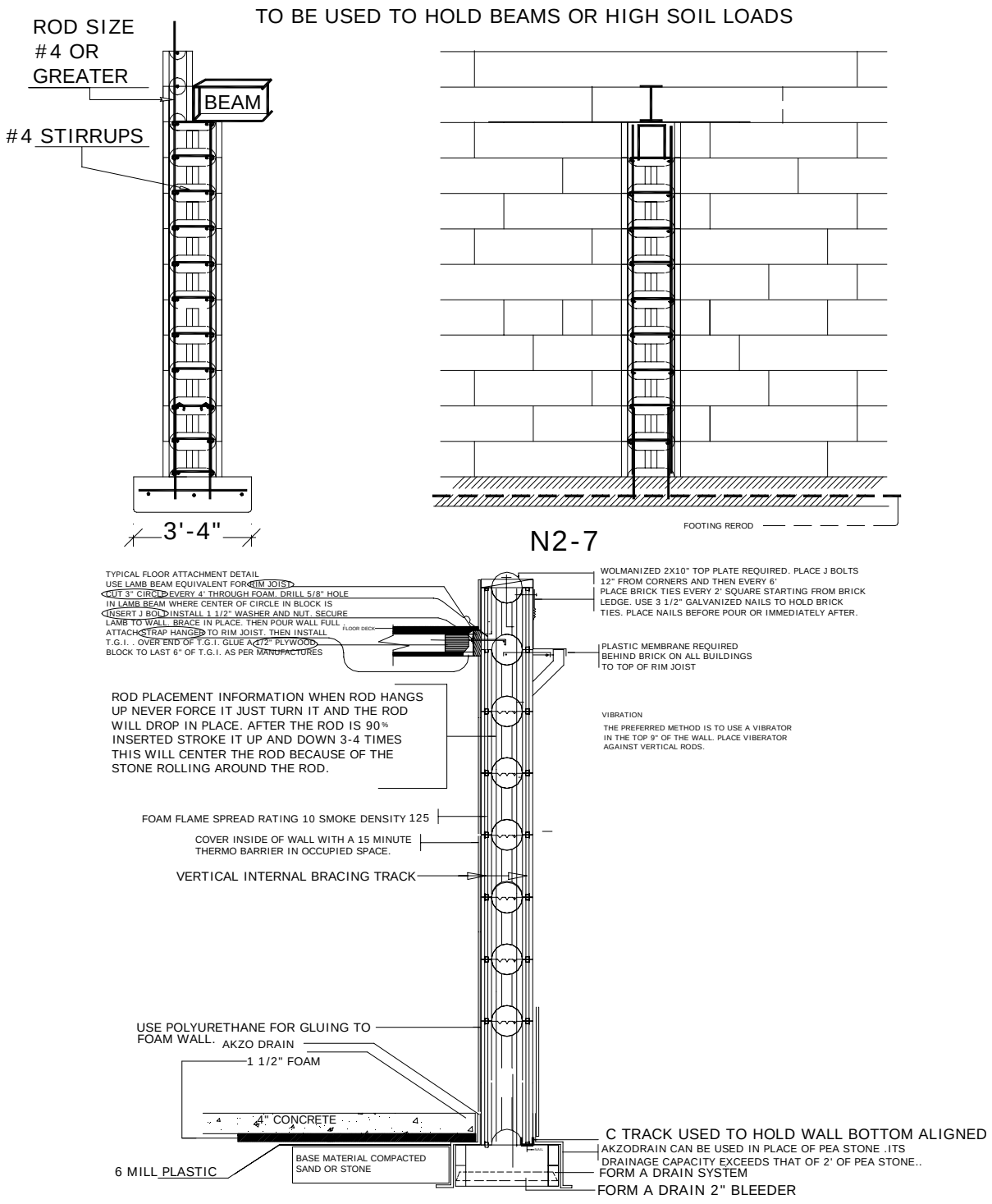
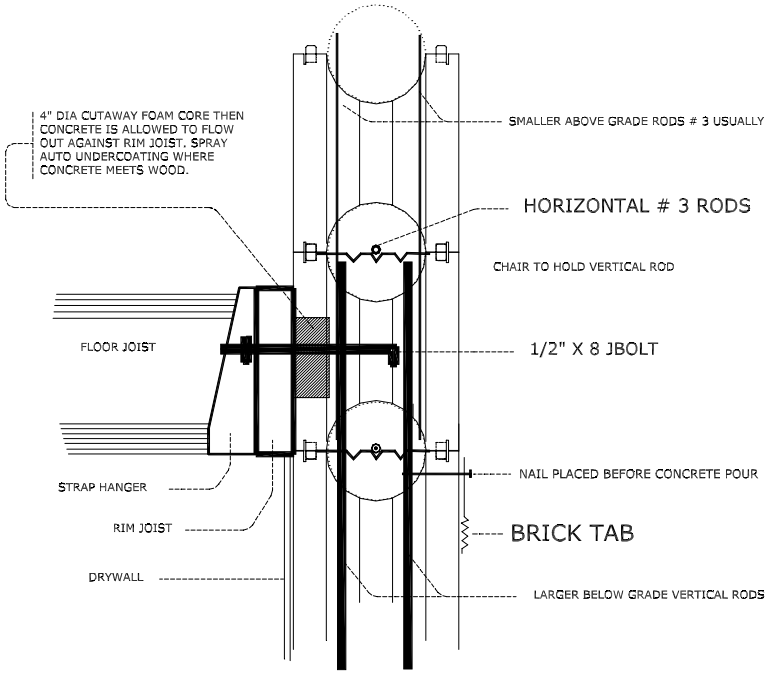


Figure 27: Floor joist details



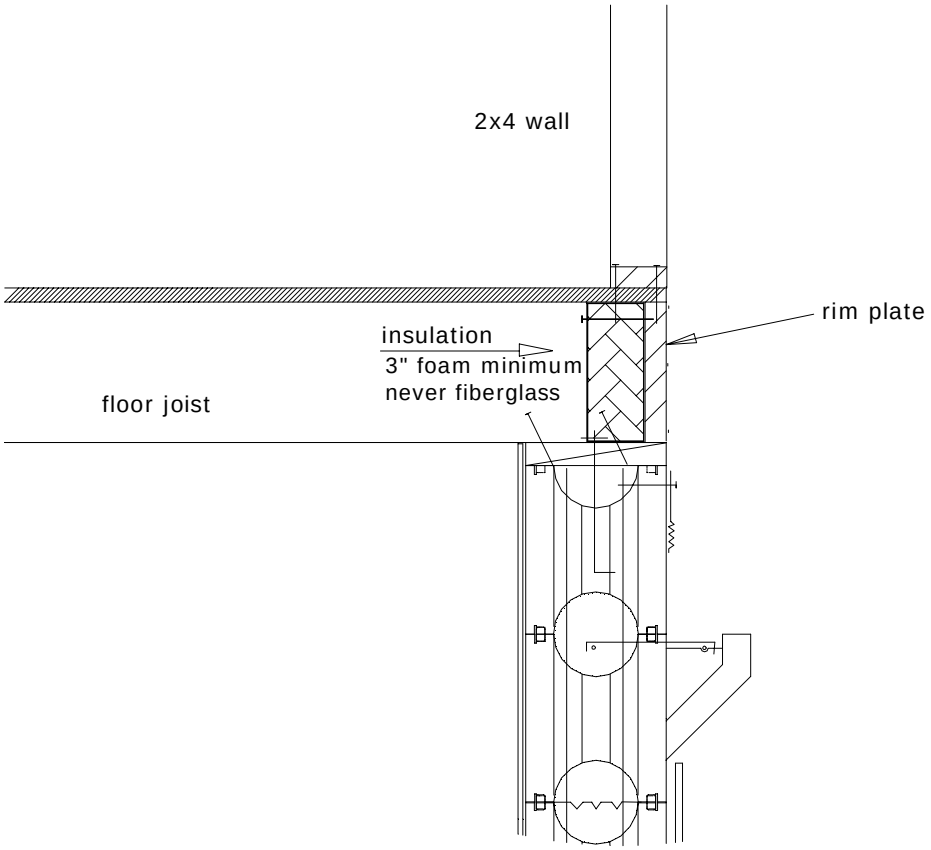
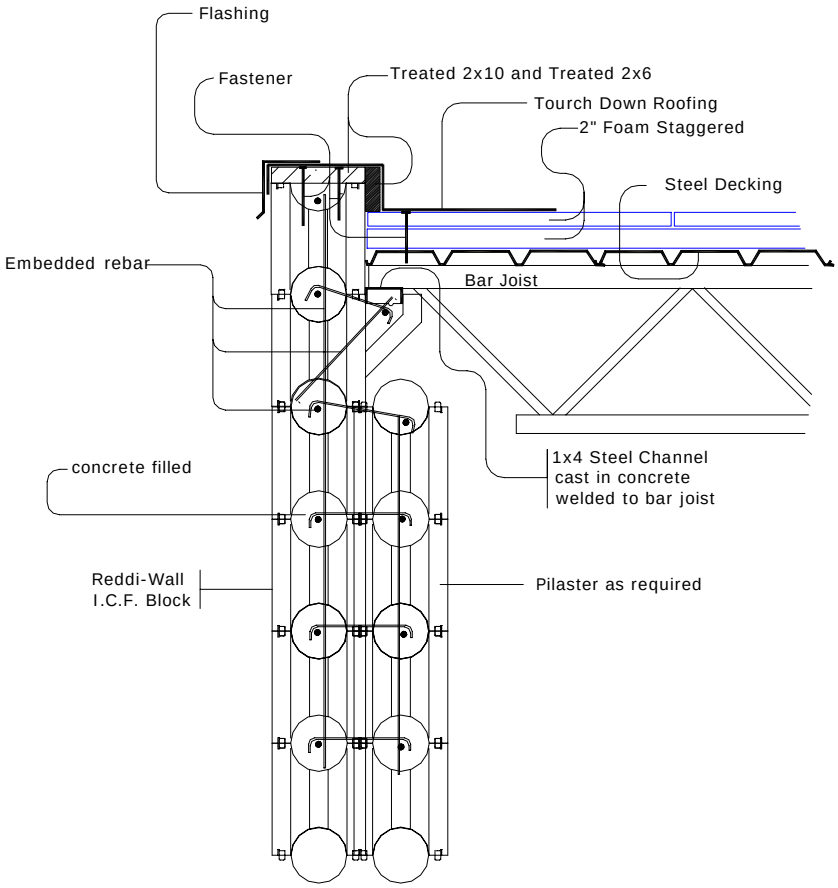


Figure 28: Typical flat roof detail



overhang details mounted to wall

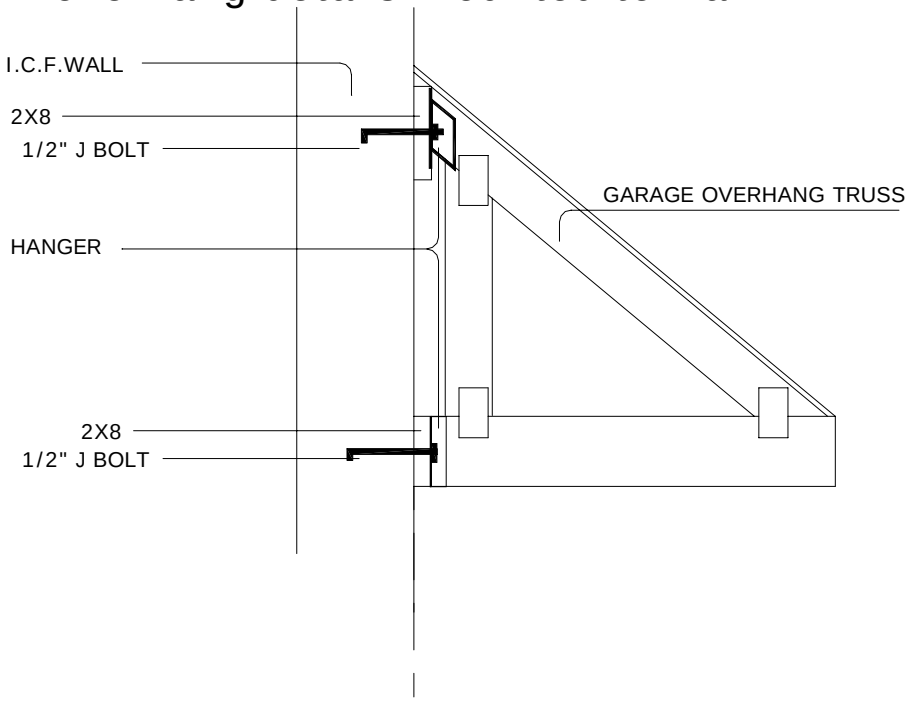


Figure 29 : Reinforcement requirements for Reddi-Wall Grid Wall

Total Factored Vertical Wall Load (p/f)	Required Reinforcement, (sq. in./ft.)	Total Factored Lateral Wind Load or Seismic Force (psf)						
		10 psf	20 psf	30 psf	40 psf	50 psf	60 psf	70 psf
0	A_{sy}	0.0042	0.0127	0.0211	0.0316	0.0401	0.0506	0.0612
	A_{sx}	0.0035	0.0050	0.0064	0.0065	0.0086	0.0106	0.0127
200	A_{sy}	0.0042	0.0106	0.0190	0.0295	0.0401	0.0485	0.0591
	A_{sx}	0.0042	0.0059	0.0063	0.0084	0.0106	0.0106	0.0127
400	A_{sy}	0.0042	0.0106	0.0190	0.0274	0.0380	0.0485	0.0570
	A_{sx}	0.0051	0.0069	0.0072	0.0084	0.0106	0.0106	0.0127
600	A_{sy}	0.0047	0.0106	0.0169	0.0274	0.0359	0.0464	0.0570
	A_{sx}	0.0063	0.0078	0.0080	0.0084	0.0106	0.0106	0.0127
800	A_{sy}	0.0047	0.0106	0.0169	0.0253	0.0359	0.0464	0.0549
	A_{sx}	0.0074	0.0088	0.0091	0.0095	0.0106	0.0127	0.0127
1000	A_{sy}	0.0047	0.0099	0.0169	0.0253	0.0338	0.0443	0.0549
	A_{sx}	0.0085	0.0094	0.0102	0.0106	0.0106	0.0127	0.0148
1200	A_{sy}	0.0042	0.0099	0.0169	0.0253	0.0338	0.0443	0.0527
	A_{sx}	0.0097	0.0105	0.0114	0.0116	0.0118	0.0128	0.0148
1400	A_{sy}	0.0066	0.0113	0.0169	0.0253	0.0338	0.0422	0.0527
	A_{sx}	0.0109	0.0117	0.0126	0.0127	0.0129	0.0130	0.0148
1600	A_{sy}	0.0056	0.0106	0.0164	0.0253	0.0316	0.0422	0.0506
	A_{sx}	0.0121	0.0128	0.0128	0.0139	0.0139	0.0140	0.0148
1800	A_{sy}	0.0063	0.0177	0.0181	0.0225	0.0316	0.0401	0.0506
	A_{sx}	0.0133	0.0135	0.0140	0.0150	0.0151	0.0151	0.0169
2000	A_{sy}	0.0070	0.0129	0.0181	0.0244	0.0316	0.0401	0.0485
	A_{sx}	0.0145	0.0146	0.0151	0.0162	0.0164	0.0164	0.0169
2200	A_{sy}	0.0077	0.0129	0.0197	0.0244	0.0316	0.0401	0.0506
	A_{sx}	0.0157	0.0157	0.0162	0.0174	0.0174	0.0176	0.0178
2400	A_{sy}	0.0077	0.0141	0.0183	0.0263	0.0316	0.0401	0.0506
	A_{sx}	0.0168	0.0168	0.0174	0.0175	0.0188	0.0188	0.0189
2600	A_{sy}	0.0084	0.0152	0.0197	0.0246	0.0225	0.0401	0.0506
	A_{sx}	0.0180	0.0180	0.0186	0.0186	0.0198	0.0200	0.0200
2800	A_{sy}	0.0091	0.0131	0.0211	0.0263	0.0319	0.0401	0.0506
	A_{sx}	0.0192	0.0192	0.0196	0.0197	0.0210	0.0212	0.0212
3000	A_{sy}	0.0099	0.0141	0.0225	0.0279	0.0338	0.0401	0.0506
	A_{sx}	0.0204	0.0204	0.0208	0.0208	0.0222	0.0224	0.0224
3200	A_{sy}	0.0106	0.0188	0.0239	0.0295	0.0356	0.0442	0.0506
	A_{sx}	0.0216	0.0216	0.0217	0.0220	0.0234	0.0234	0.0238
3400	A_{sy}	0.0113	0.0159	0.0253	0.0312	0.0375	0.0443	0.0506
	A_{sx}	0.0229	0.0229	0.0231	0.0231	0.0231	0.0246	0.0249
3600	A_{sy}	0.0120	0.0211	0.0267	0.0281	0.0345	0.0413	0.0506
	A_{sx}	0.0241	0.0241	0.0241	0.0243	0.0243	0.0258	0.0261
3800	A_{sy}	0.0169	0.0178	0.0234	0.0295	0.0361	0.0431	0.0506
	A_{sx}	0.0253	0.0253	0.0254	0.0254	0.0254	0.0271	0.0271
4000	A_{sy}	0.0134	0.0234	0.0295	0.0309	0.0377	0.0450	0.0527
	A_{sx}	0.0265	0.0265	0.0265	0.0266	0.0266	0.0283	0.0283

Figure 30 : Types of soils and their design properties

Soil Group	Unified Soil Classification Symbol	Soil Description	Allowable bearing in pounds per square foot with medium compaction of stiffness
Group I Excellent	GS	Well-graded gravels, gravel-sand mixtures, little or no fines.	8000
	GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.	8000
	SW	Well-graded sands or gravelly sands, little or no fines.	6000
	SP	Poorly graded sands or gravelly sands, little or no fines.	5000
	GM	Silty gravels, gravel-sand-silt mixtures.	4000
	SM	Silty sand, sand-clay mixtures.	4000
Group II Fair to Good	GC	Clayey gravels, gravel-sand-mixtures.	4000
	SC	Clayey sands, sand-clay mixture	4000
	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	2000
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	2000
Group III Poor	CH	Inorganic silts and organic silty clays of low plasticity.	2000
	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	2000
Group IV Unsatisfactory	OL	Organic silts and organic silty clays of low plasticity.	400
	OH	Organic clays of medium to high plasticity, organic silts.	- 0 -
	Pt	Peat and other highly organic soils	- 0 -

QUALITY CONTROL STATEMENT

Copy To Be Forwarded To Building Department As Per Q-2000

The following items must be verified before placement of concrete:

- ❑ Building is properly located as per survey and plot plans.
- ❑ Banks of hole are safe and of proper slope.
- ❑ Depth of basement footing is as per approved plan.
- ❑ Footings are proper size per plat.
- ❑ Footings are level and square.
- ❑ Footing has keyway or dowels in place.
- ❑ Bleeders are in place.
- ❑ Footings are properly braced.
- ❑ Concrete is ordered at proper strength.
- ❑ Pads are in proper location and size
- ❑ Rerod is located as per print.
- ❑ A safe location to deliver concrete has been determined. One that will not cave in or cause someone to be in danger.
- ❑ Protect from frost if it is below freezing temperature.

Starting Walls:

- ❑ Installed a pin in each outside corner location.
- ❑ Proposed walls are chalk lined along outside of walls.
- ❑ Installed C-track or 2x4 lengths each side of wall to prevent movement.
- ❑ Started wall from corner first.
- ❑ Installed chairs, one chair per block as wall is assembled.
- ❑ Installed drywall strips as required.
- ❑ Installed horizontal rerod in center of chair on each row of block.
- ❑ Ends of rerod are overlapped at least 16 x diameter.
- ❑ Rerod is bent around corners or installed a hook on ends of rods and overlap, see manual.
- ❑ Stacked wall to top or installed panels and braced.
- ❑ Bracing is safe and secure.
- ❑ Wall is clean inside and the wall is not standing in water.
- ❑ Horizontal rerod is set in center of chairs.
- ❑ No snow, ice, or debris is in wall.
- ❑ Nothing reduces the diameter of concrete in vertical or horizontal 6” cores. *** CRITICAL ***
- ❑ Inspected wall for damaged blocks or holes in wall.
- ❑ Checked windows, doors and beam pockets are in place.
- ❑ Ordered concrete with a slump of 5” of mix as per manual.

- ❑ Filled corners of wall first.
- ❑ Made sure concrete is flowing out from bottom one cell for each foot in height.
- ❑ Checked top of wall for correct measurements and level.
- ❑ Installed vertical rods, check for size and placement as per print.
- ❑ Vibrated from the top of the wall and touch vertical rods with vibrator.
- ❑ Troweled top of wall.
- ❑ Installed anchor bolts 12” from the corner and every 5’
- ❑ After wall is filled, rechecked top of wall and level with laser level.
- ❑ Aligned wall for straight using strings from corners.
- ❑ As soon as concrete is stiff, nailed EnkaDrain® as per manual.
- ❑ Protected top of wall and brick ledge if below freezing temperatures.

I certify that I have inspected or performed the above items as per the manual.

Name: _____

Address: _____

_____

City: _____

State: _____ Zip: _____

Phone: (_____) _____ - _____

(_____) _____ - _____