

Before You Start...

Allow 24-48 hours for delivery

Confirm wall heights

Provide delivery name & phone #

Arrange for at least 2 people to unload blocks from 5 ton truck

Ensure good access to excavation

Provide 2x4s, electric drill, stakes & #8 wood deck screws

Rebar, 7" zip ties

Any Questions?

Contact

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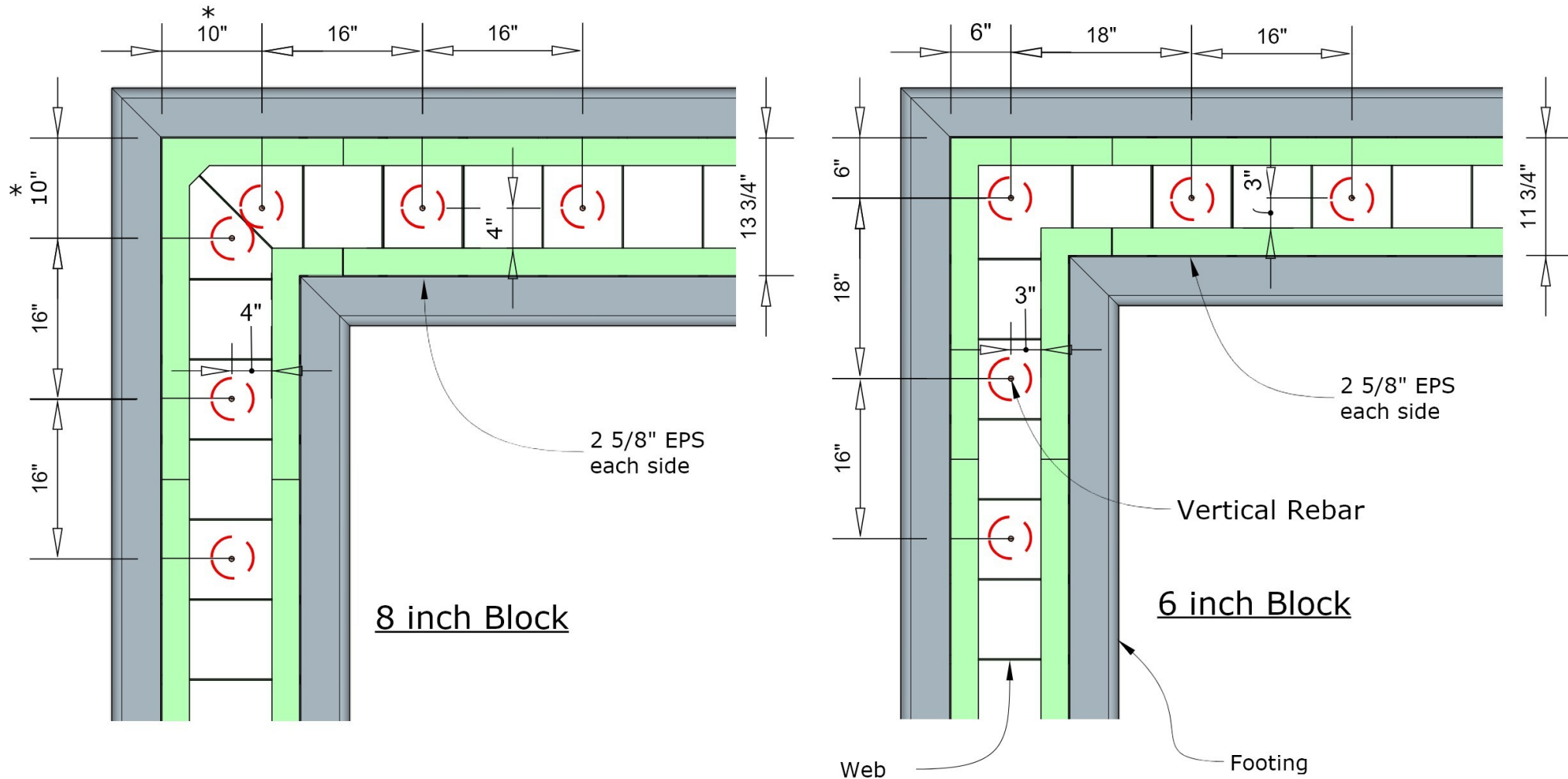


@vancouvericf

Installing Verts in Footing

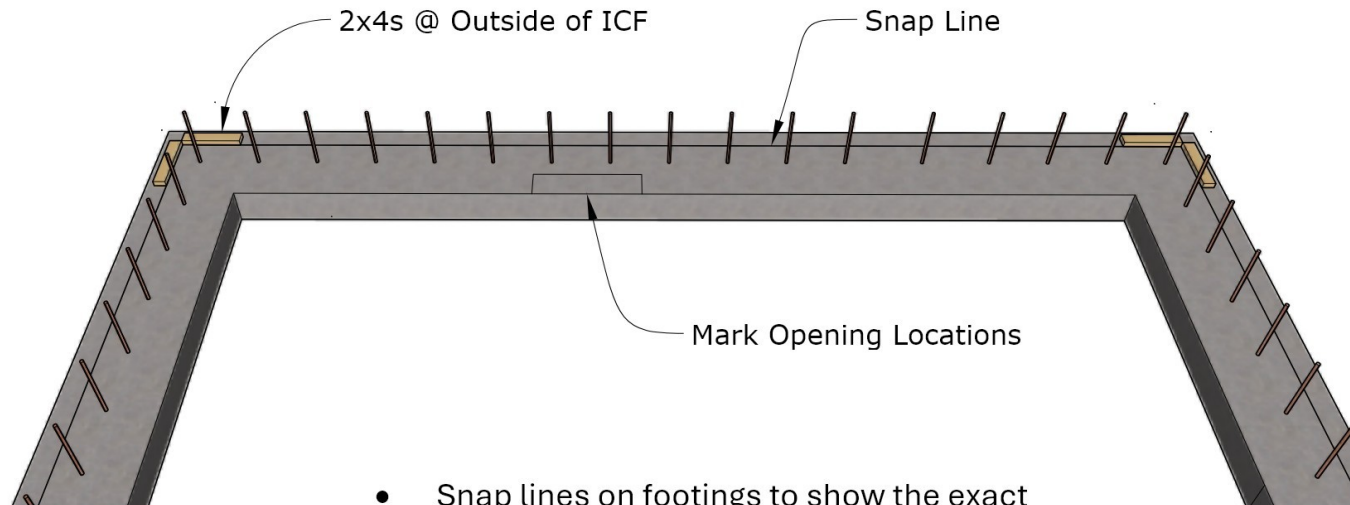
*
12" for
10 inch Block

Advisory Only. Always Consult Your Structural Engineer Regarding Any Rebar Placement



1. Getting Started, The Footings

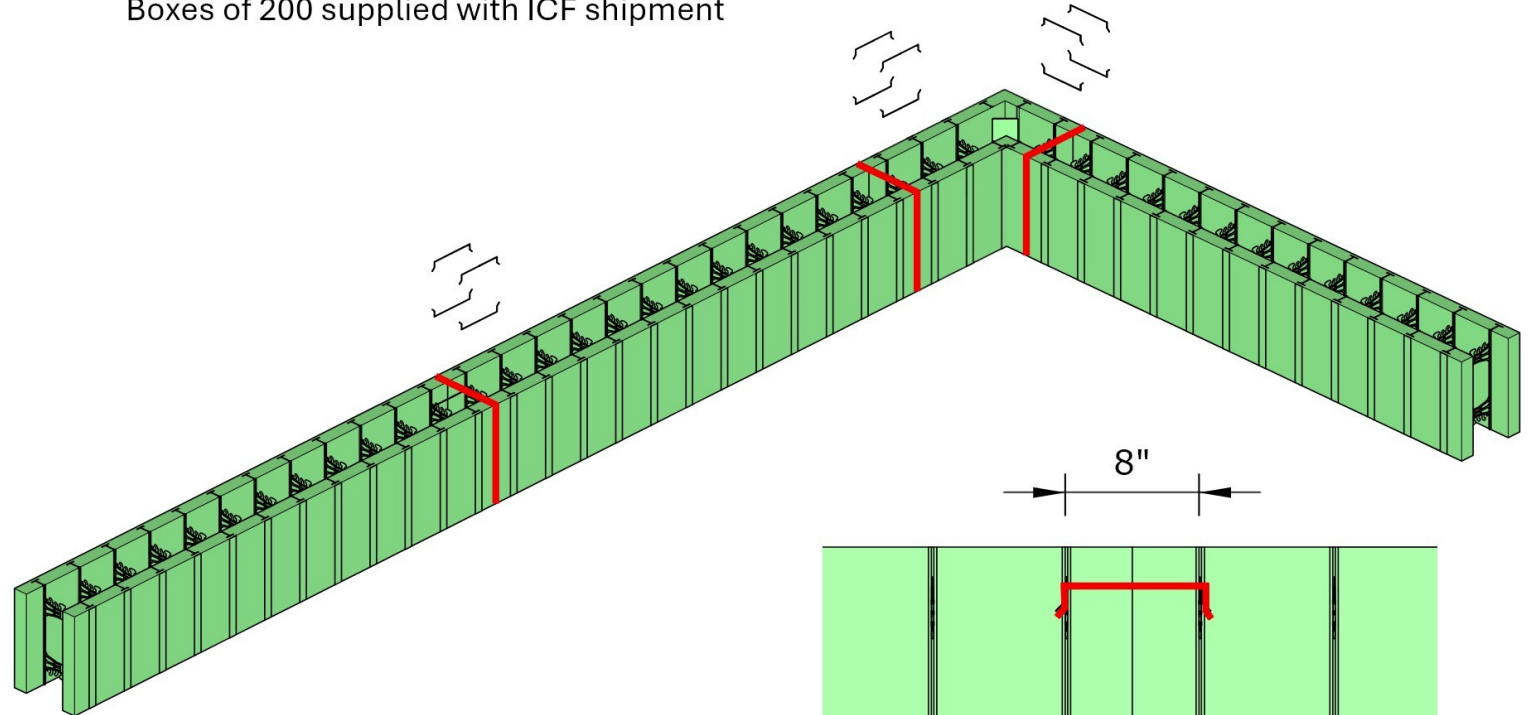
- Footings should be poured to an accuracy of 1/4". Always use a laser when screeding the top of footing to ensure accuracy.
- Footing steps should be a multiple of 18" to match the height of the Nudura block.
- When pouring the footings, install vertical dowels correctly to ensure they are located between the webs.
- When unloading Nudura place 2/3rds in the centre of the excavation so that the wall can be built and the bracing installed without having to move blocks.



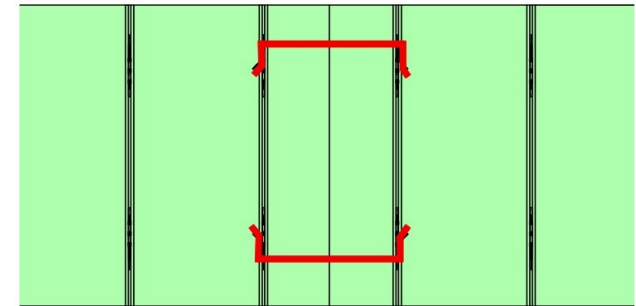
- Snap lines on footings to show the exact location of outside of foam.
- Check the layout for square by checking diagonals.
- Pairs of 16" 2x4s nailed on the outside corners to prevent blocks from shifting during the build.
- Mark out openings for windows & doors on the footing to determine marriage line location.

Vertical Joint Hooks (VJH)

Boxes of 200 supplied with ICF shipment



8"



Section View

Place VJH on 8 inch block connections.

For Straights:

Upper & lower connections on the 1st row, only
upper web on the 2nd row.

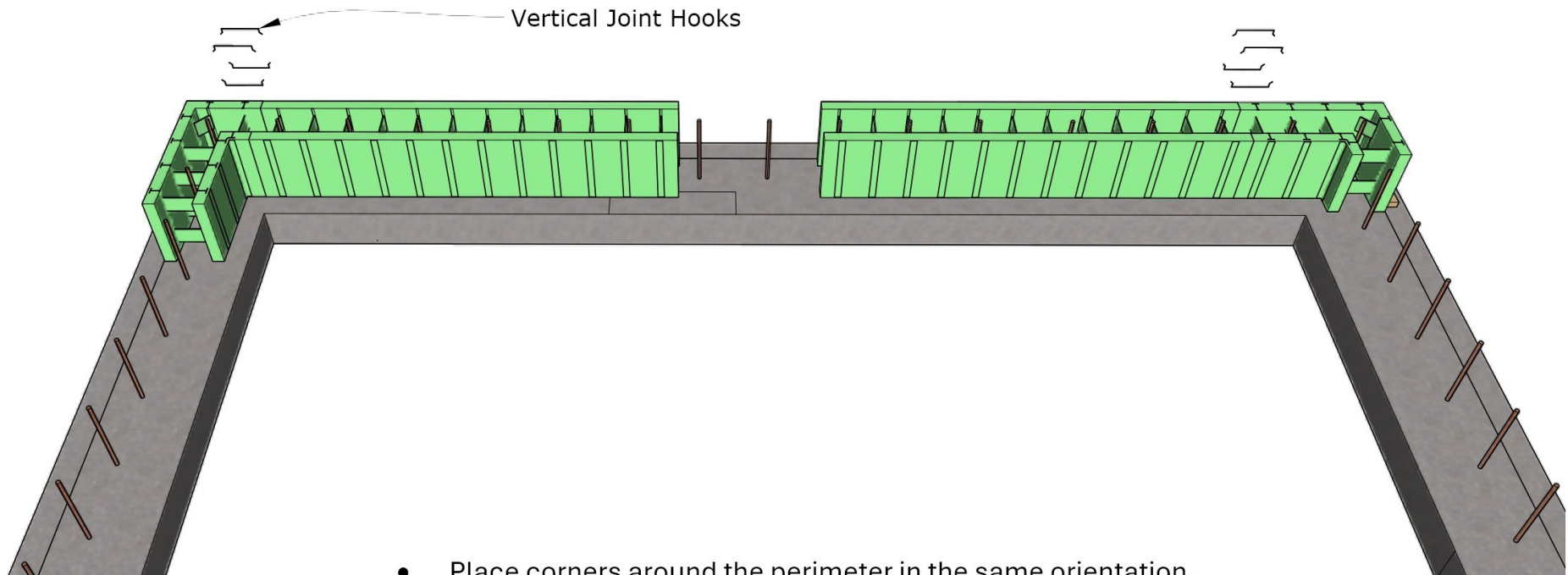
For Corners:

Upper & lower connections on the 1st row.
upper web only of every corner to top of wall.

Claw of hammer will assist
with fitting bottom VJH

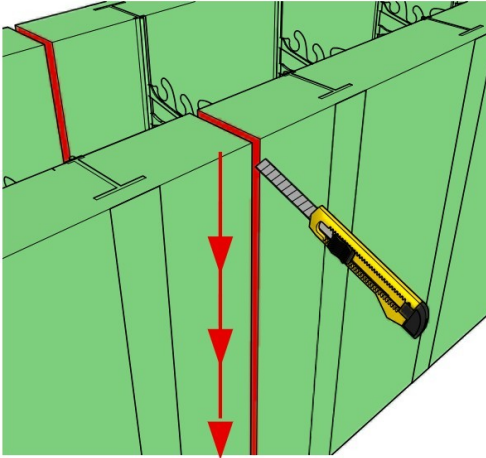


2. Install Corners Around Perimeter



- Place corners around the perimeter in the same orientation.
- Build inwards from each corner using standard blocks.
- Use 4 VJHs (vertical joint hooks) on each joint of the first row, 2 VJHs on the second row, and 2 VJHs on each corner joint for the rest of the wall.

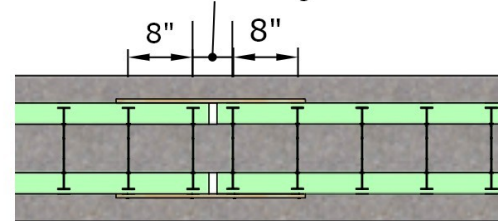
Marriage Lines



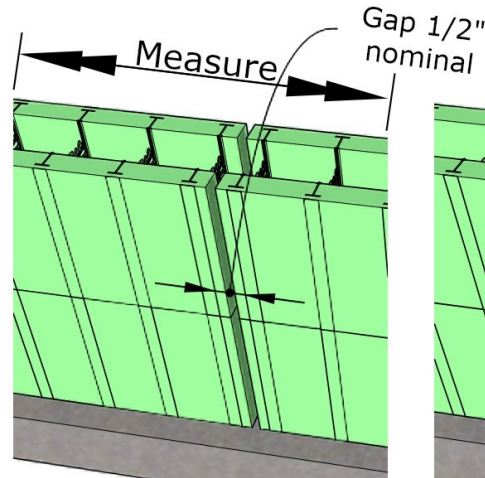
Use retractable blade knife to cut EPS

Note:
Where a 'marriage line' occurs on a web move the cut 2 inches away.
Also:
Where creating a 'marriage line' at a corner, choose the long end of corner with webs for strapping

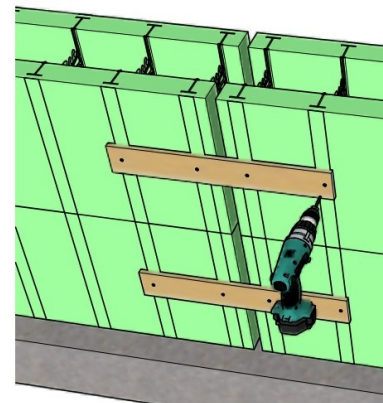
Dimension Adjust



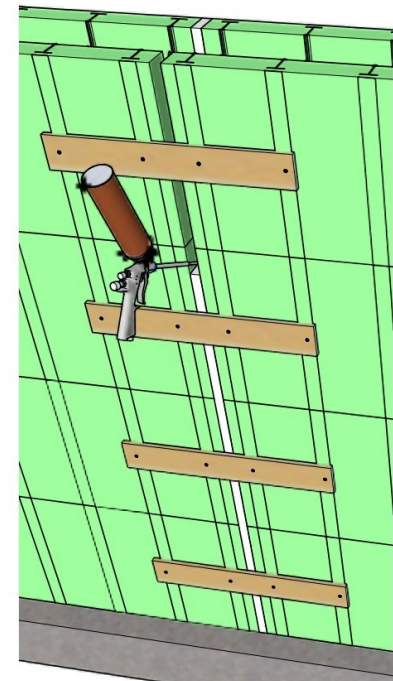
Create a 'Marriage Line' to achieve a set dimension.
Typically one per wall, if possible within an opening area.



Check overall dimensions (allow 2 5/8" each side additional to concrete dimensions)

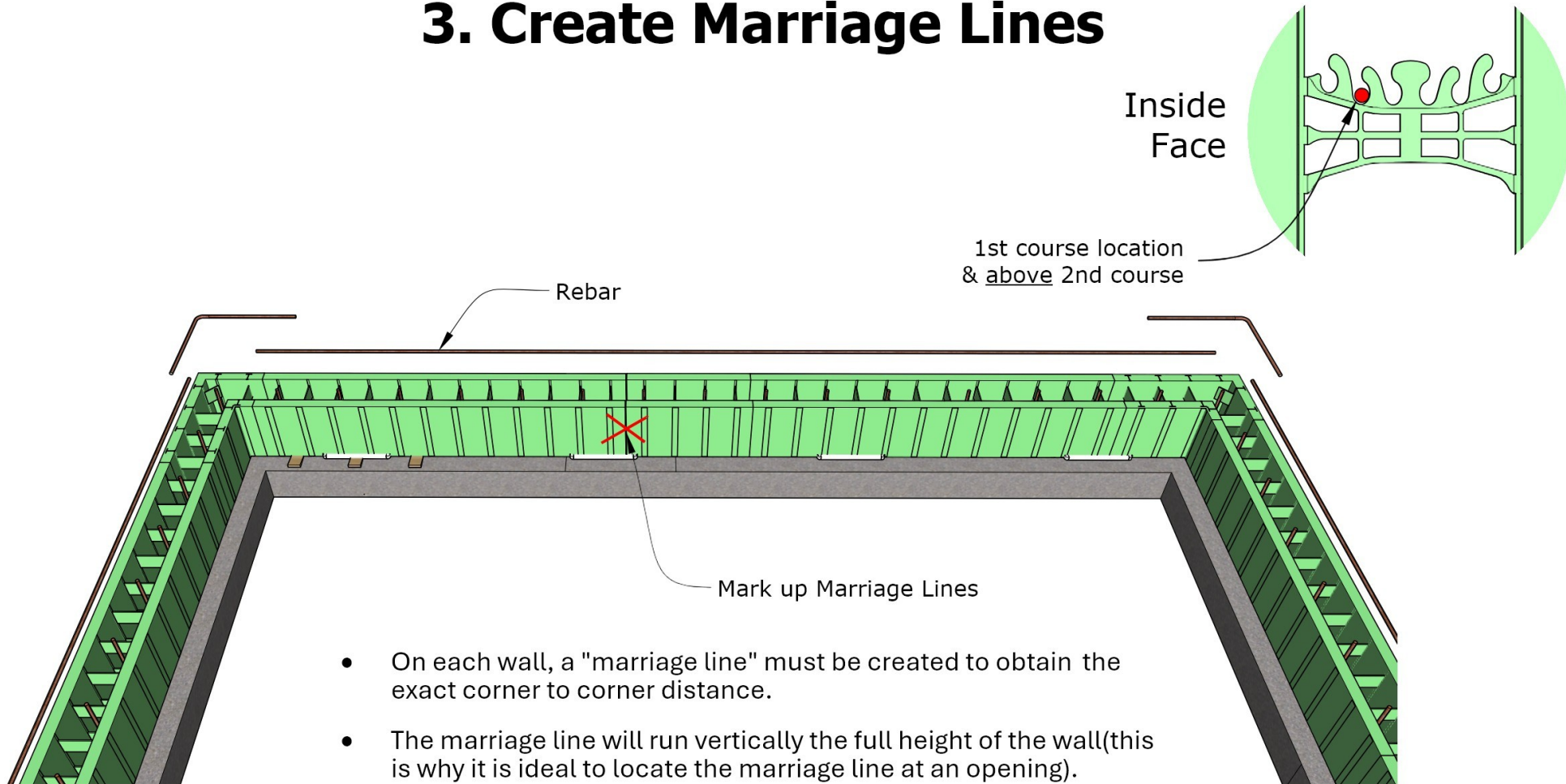


Use 1x4 strapping to fix each side in place



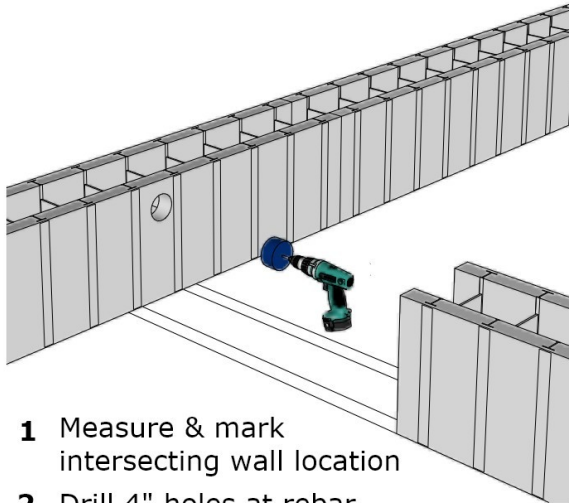
Fill joint completely with foam using Applicator

3. Create Marriage Lines

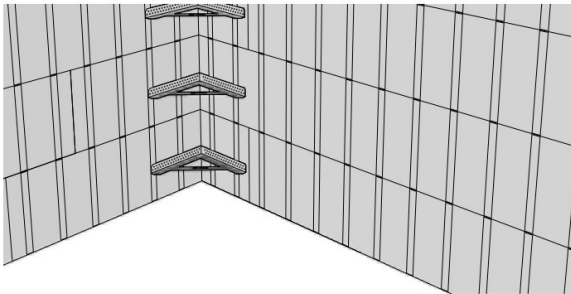


- On each wall, a "marriage line" must be created to obtain the exact corner to corner distance.
- The marriage line will run vertically the full height of the wall (this is why it is ideal to locate the marriage line at an opening).
- If the marriage line falls in the web of one of the blocks, cut the adjacent block two inches.
- Install the horizontal rebar as per engineering drawings. Use zap straps or tie wire to secure rebar overlaps.

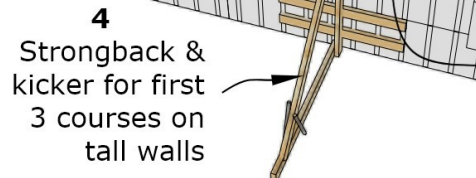
Tee Wall



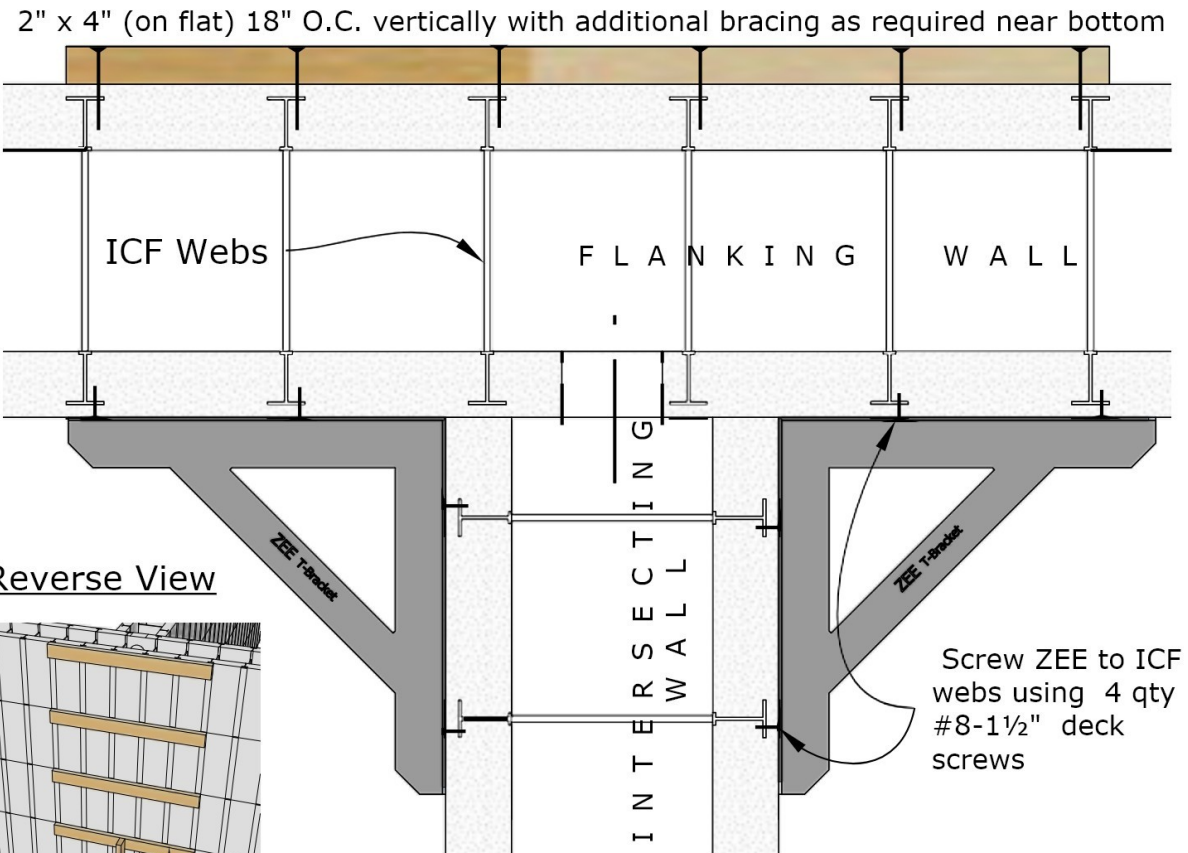
- 1 Measure & mark intersecting wall location
- 2 Drill 4" holes at rebar heights or remove full foam @ cavity (as specified by engineer)



- 3 Attach intersecting wall to flanking wall using ZEE brackets at each block layer
NOTE: Face bracket downwards to avoid catching concrete overspill

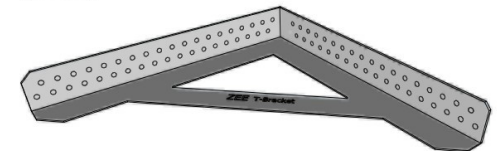


- 4 Strongback & kicker for first 3 courses on tall walls



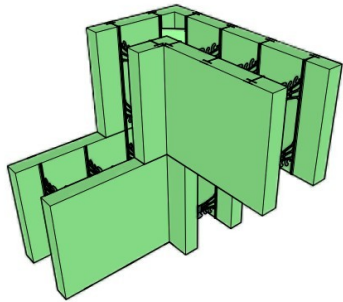
Plan View

2x4 strapping x 42" attached vertically 18" o.c. using #8-2½" deck screws

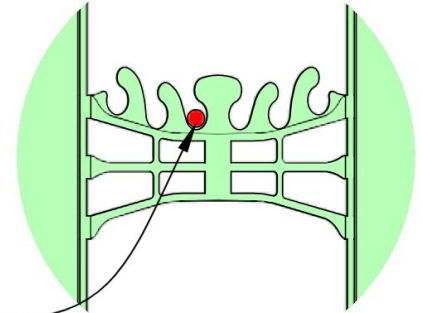


ZEE T-Bracket

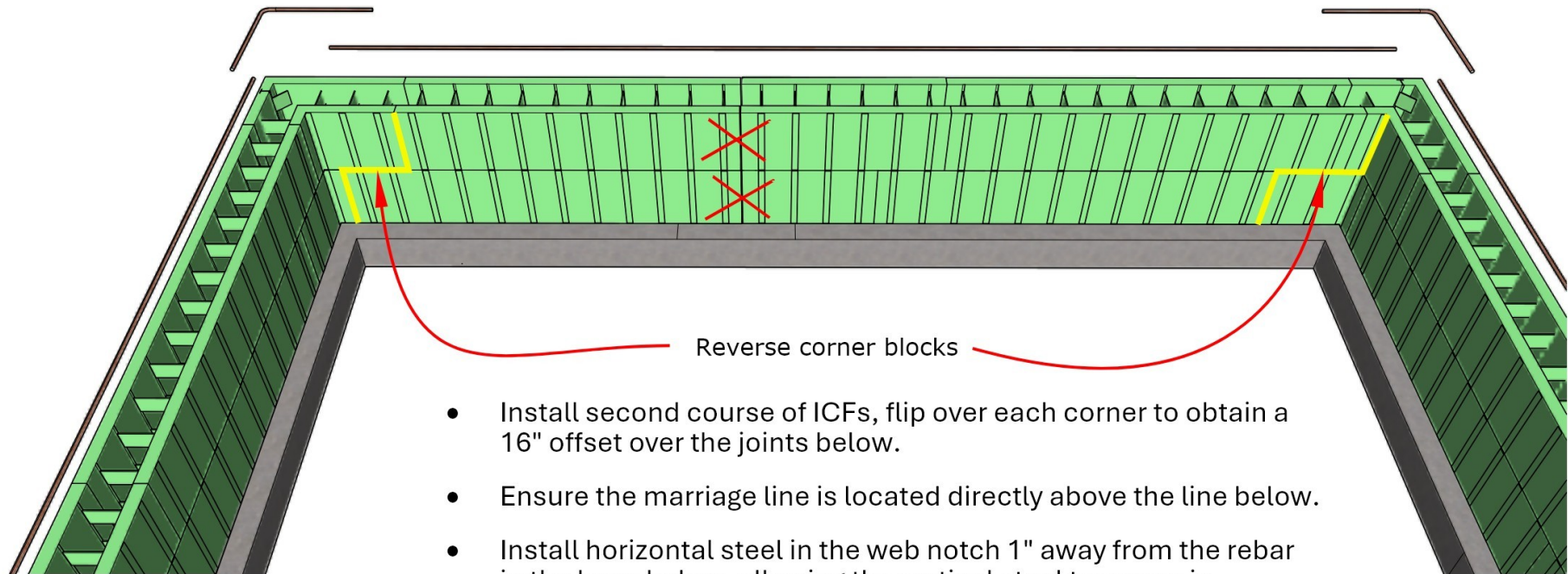
4. Install Second Course



Inside
Face



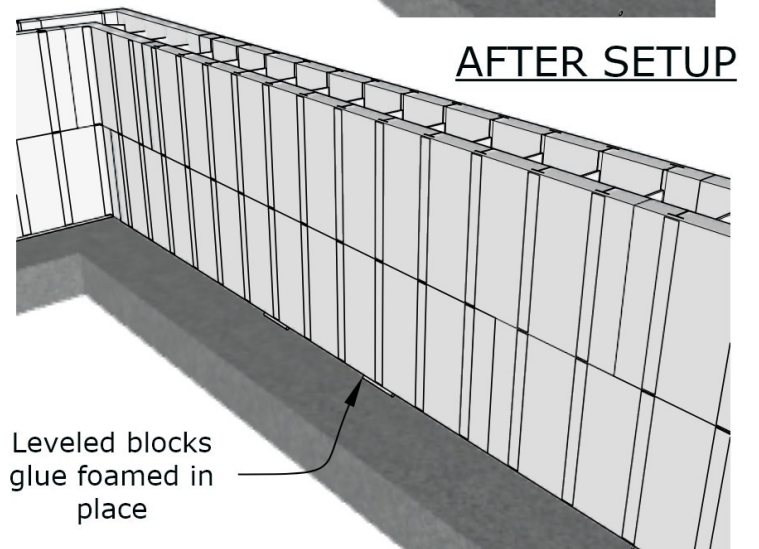
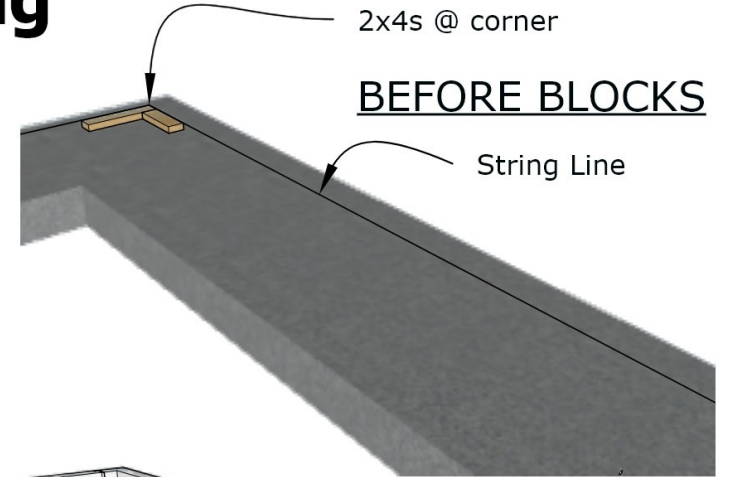
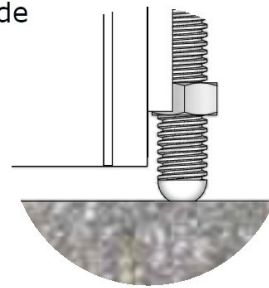
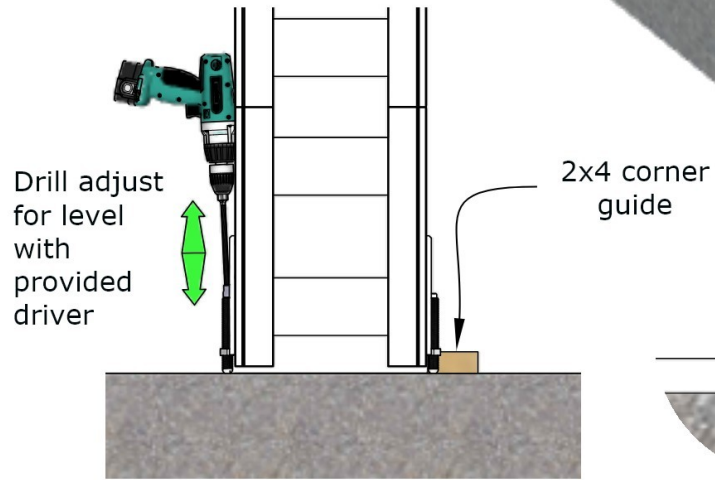
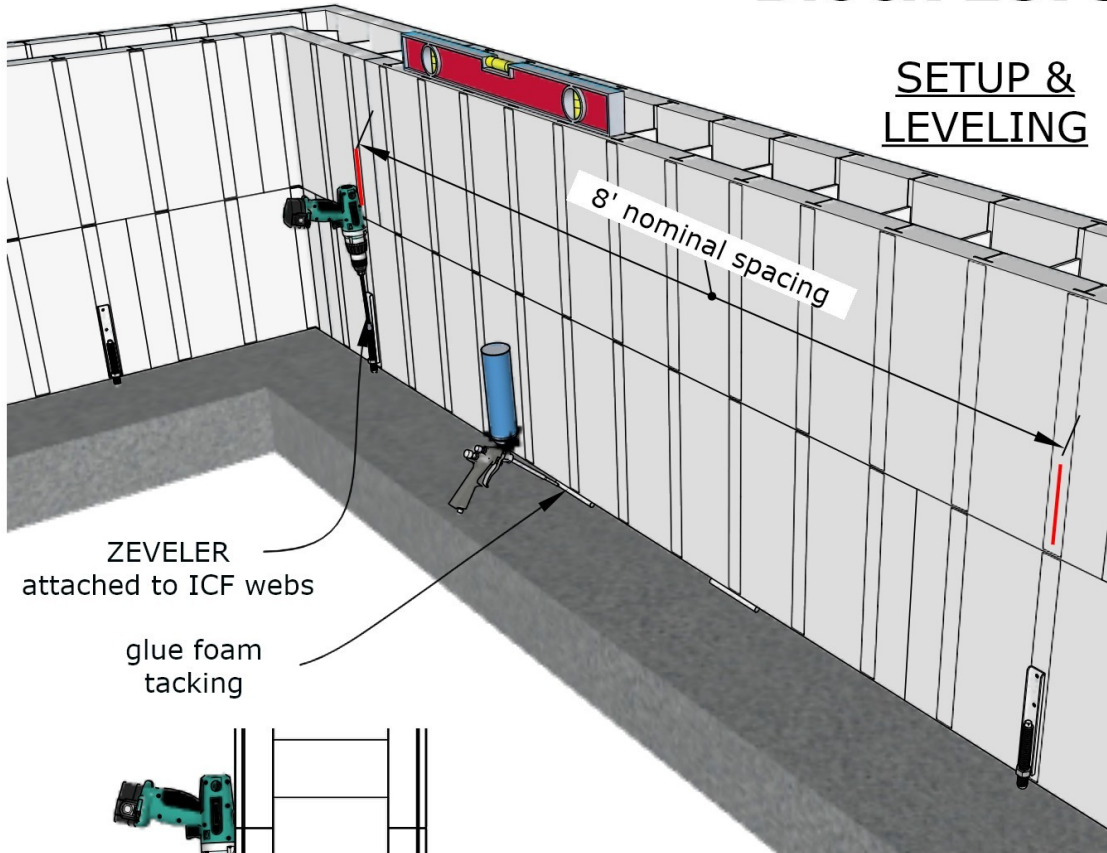
2nd Course Location



Reverse corner blocks

- Install second course of ICFs, flip over each corner to obtain a 16" offset over the joints below.
- Ensure the marriage line is located directly above the line below.
- Install horizontal steel in the web notch 1" away from the rebar in the layer below, allowing the vertical steel to weave in between the horizontal rebar.
- Only on 2nd course, afterwards all rebar back to second position.

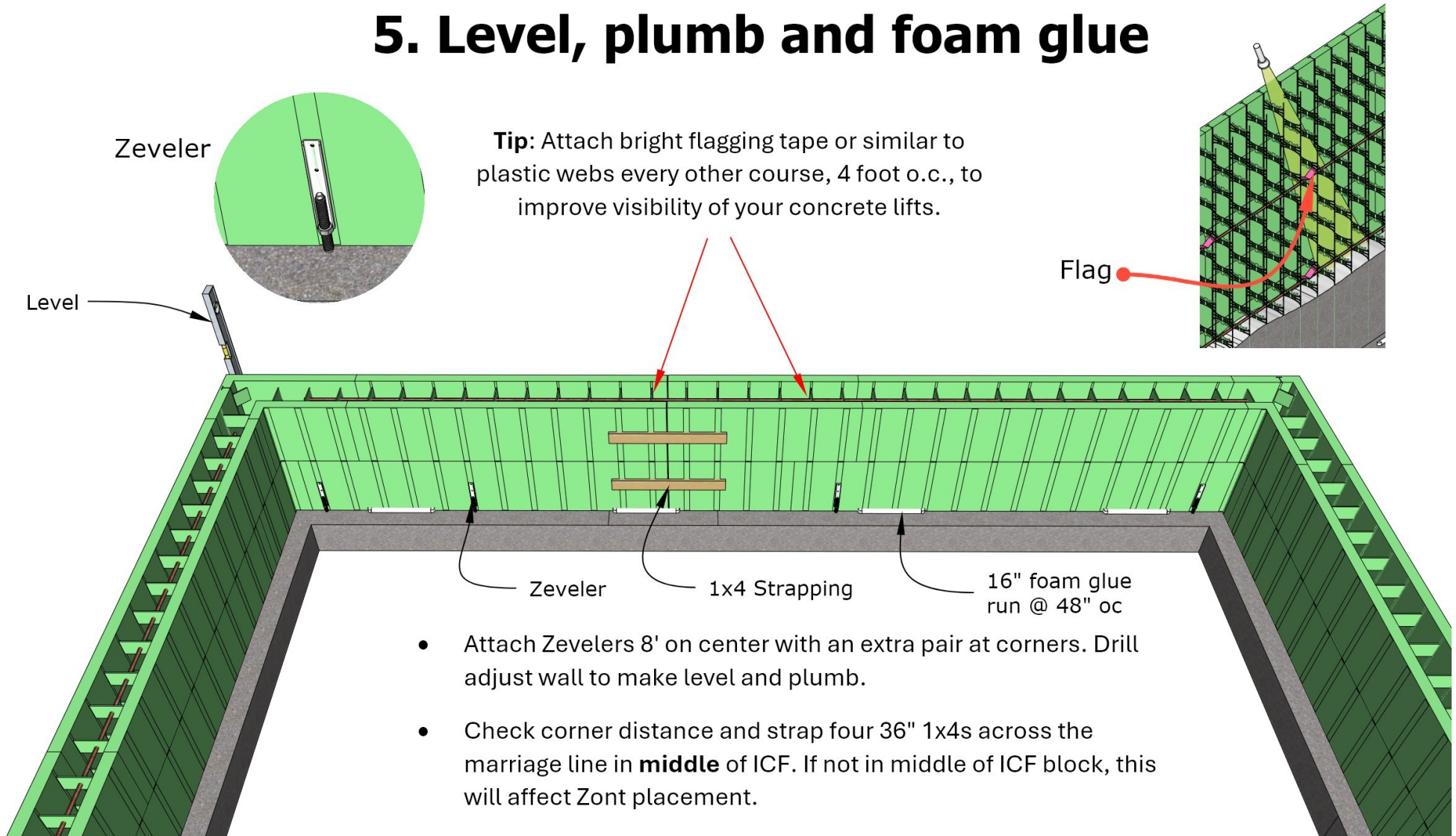
Block Leveling



Levelling first two courses of an ICF wall using Adjustable Side Supports



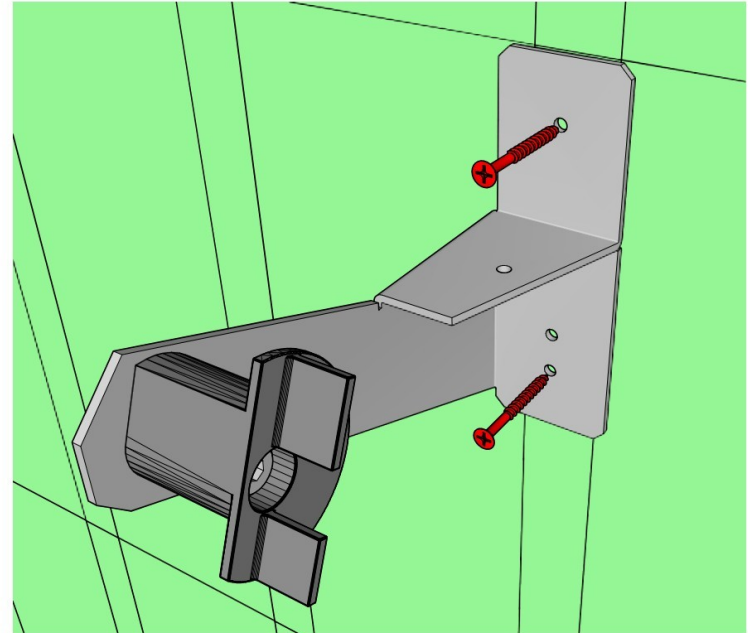
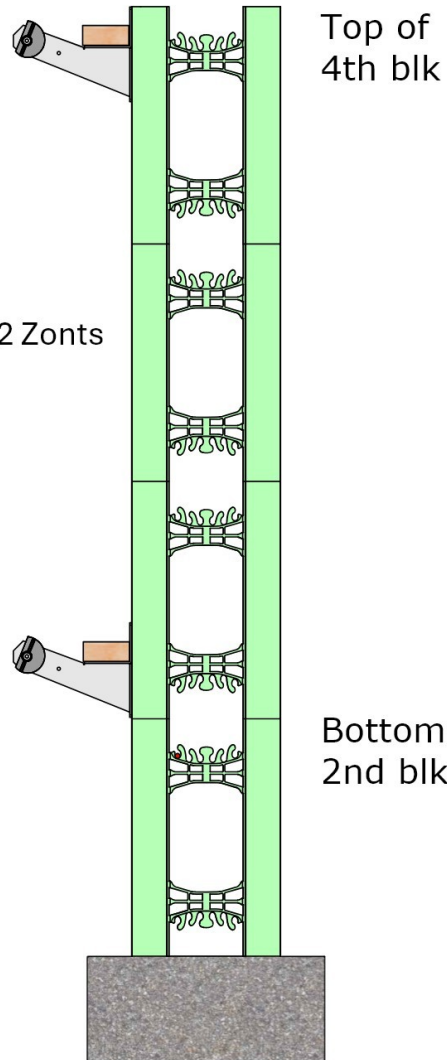
5. Level, plumb and foam glue



- Attach Zevelers 8' on center with an extra pair at corners. Drill adjust wall to make level and plumb.
- Check corner distance and strap four 36" 1x4s across the marriage line in **middle** of ICF. If not in middle of ICF block, this will affect Zont placement.
- Foam ICF to footing, 16" inch length, 48" on centre, both sides, to hold the base in position and prevent uplift. 10 minutes later foam all of the wall to prevent uplift.

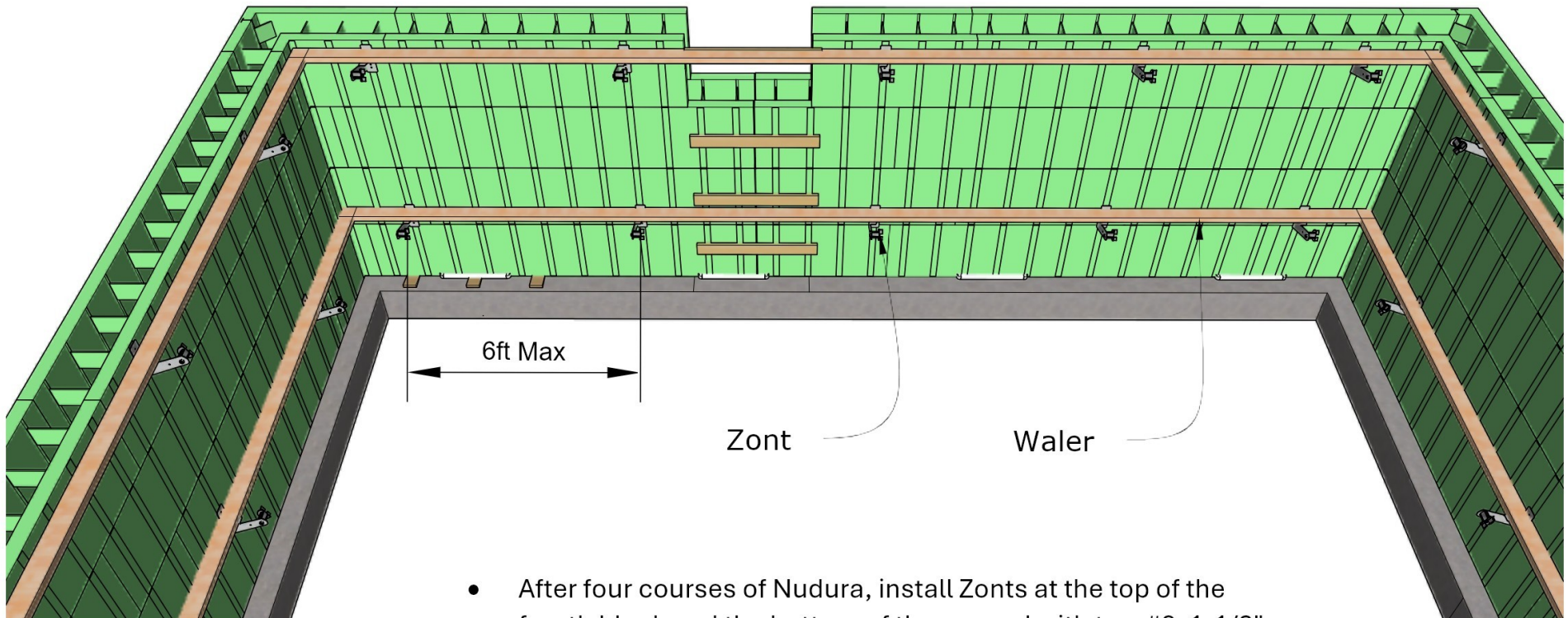
Zont Bracket Placement

- Attach a minimum of 2 Zonts for walls up to 8' tall.



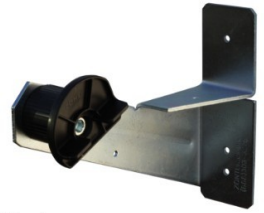
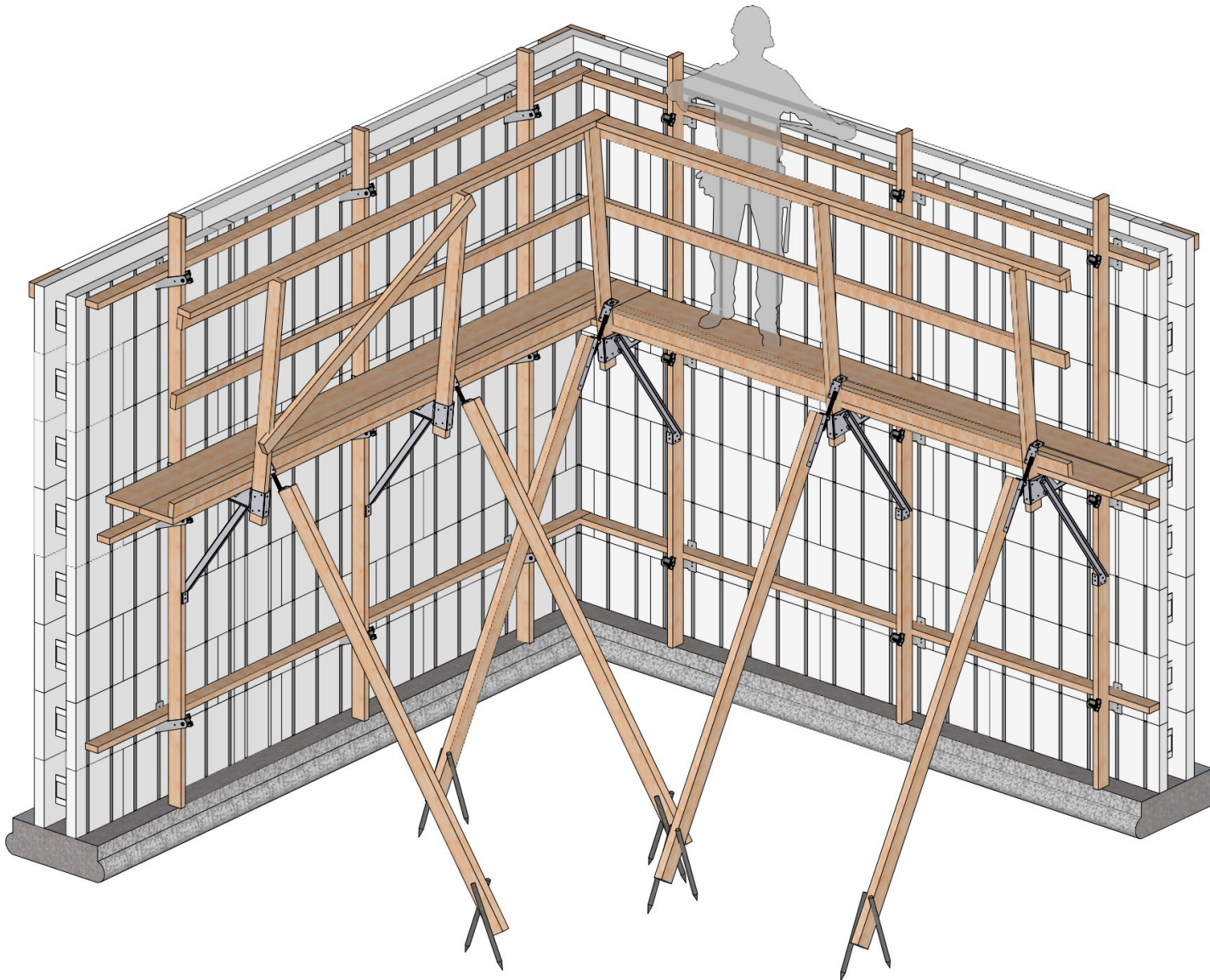
- Attach Zont to web with qty 2 x #8-1.5" wood deck screws. (Third hole is if one screw strips).

6. Install Zont Bracing



- After four courses of Nudura, install Zonts at the top of the fourth block and the bottom of the second with two #8x1-1/2" deck screws. Place Zonts two webs from corners and on 5' on centre.
- Place straight 2x4 walers in Zont saddles, scab 4' 2x4 over joints.

Zont Bracing System



ZONT
Waler Bracket



ZAT
Walkway Bracket

ZUCKLE Wall Aligner



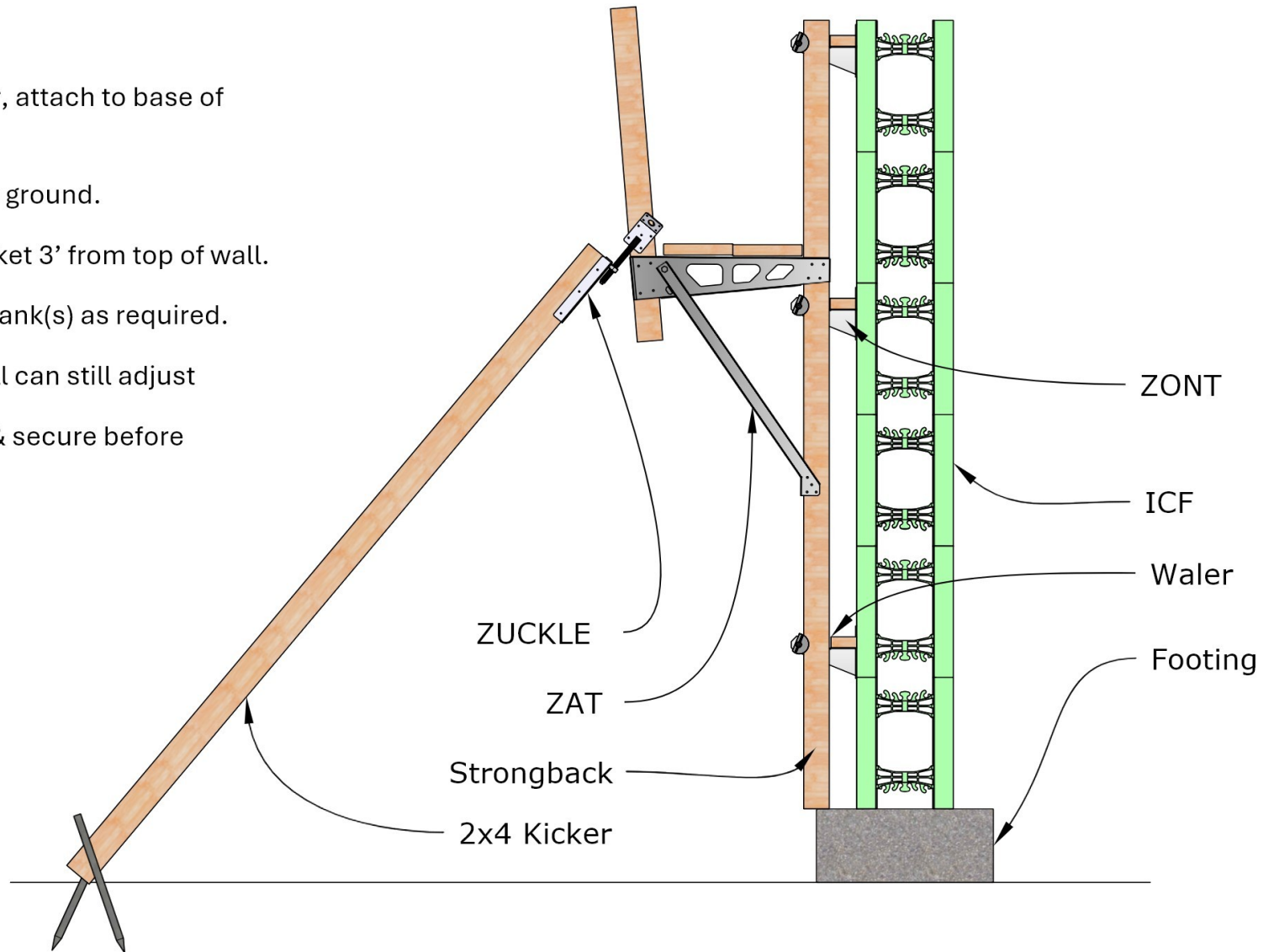
Drill Adapter

7. Install Kickers & Zat brackets

- Screw Zuckle to kicker, attach to base of handrail upright.
- Double stake kicker to ground.
- Screw attach Zat bracket 3' from top of wall.
- Install 2x10 catwalk plank(s) as required.

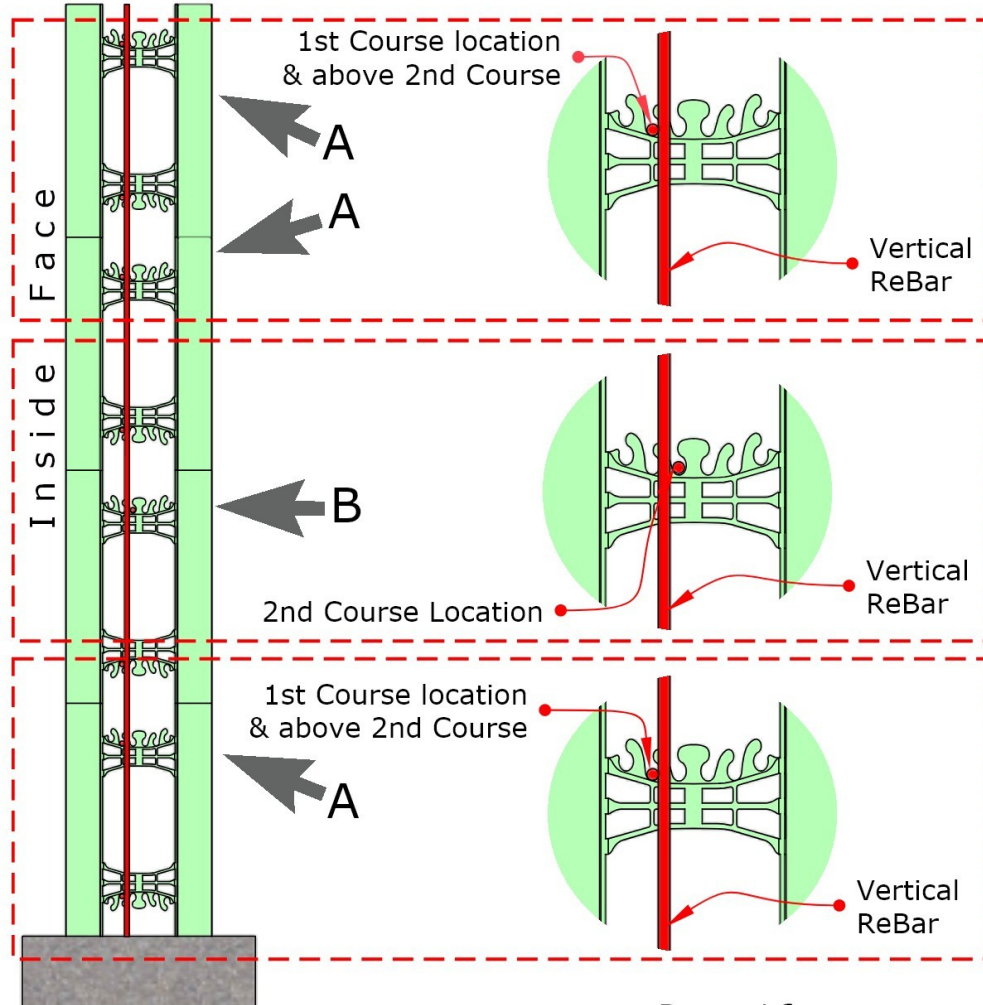
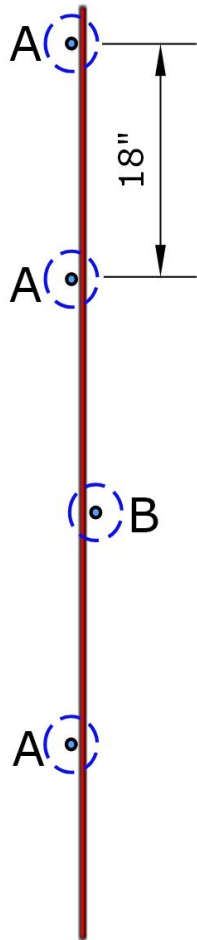
Loosely attach so wall can still adjust

- Double check plumb & secure before tightening up bracing.

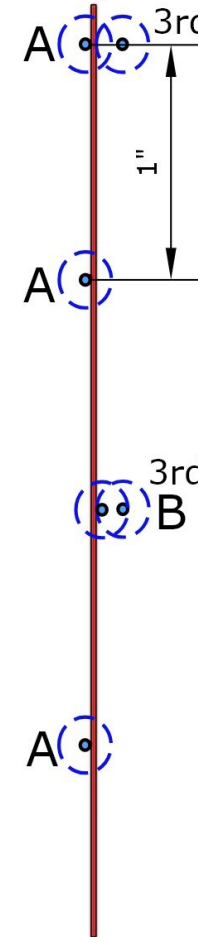


ICF Wall Preparation for Peel & Stick

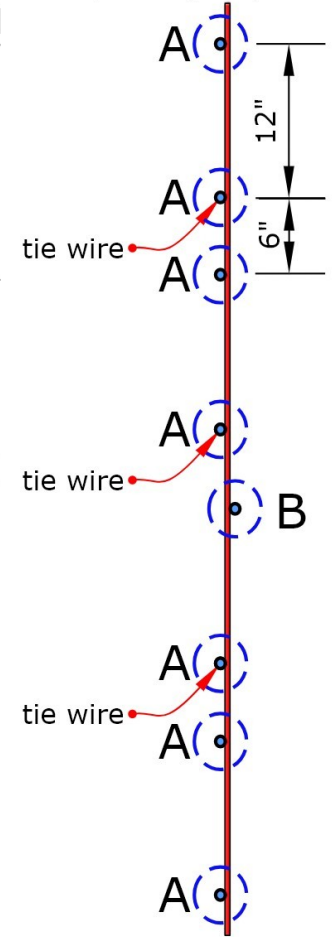
18" O.C.
Spacing



12" O.C.
ICFMA Equivalent



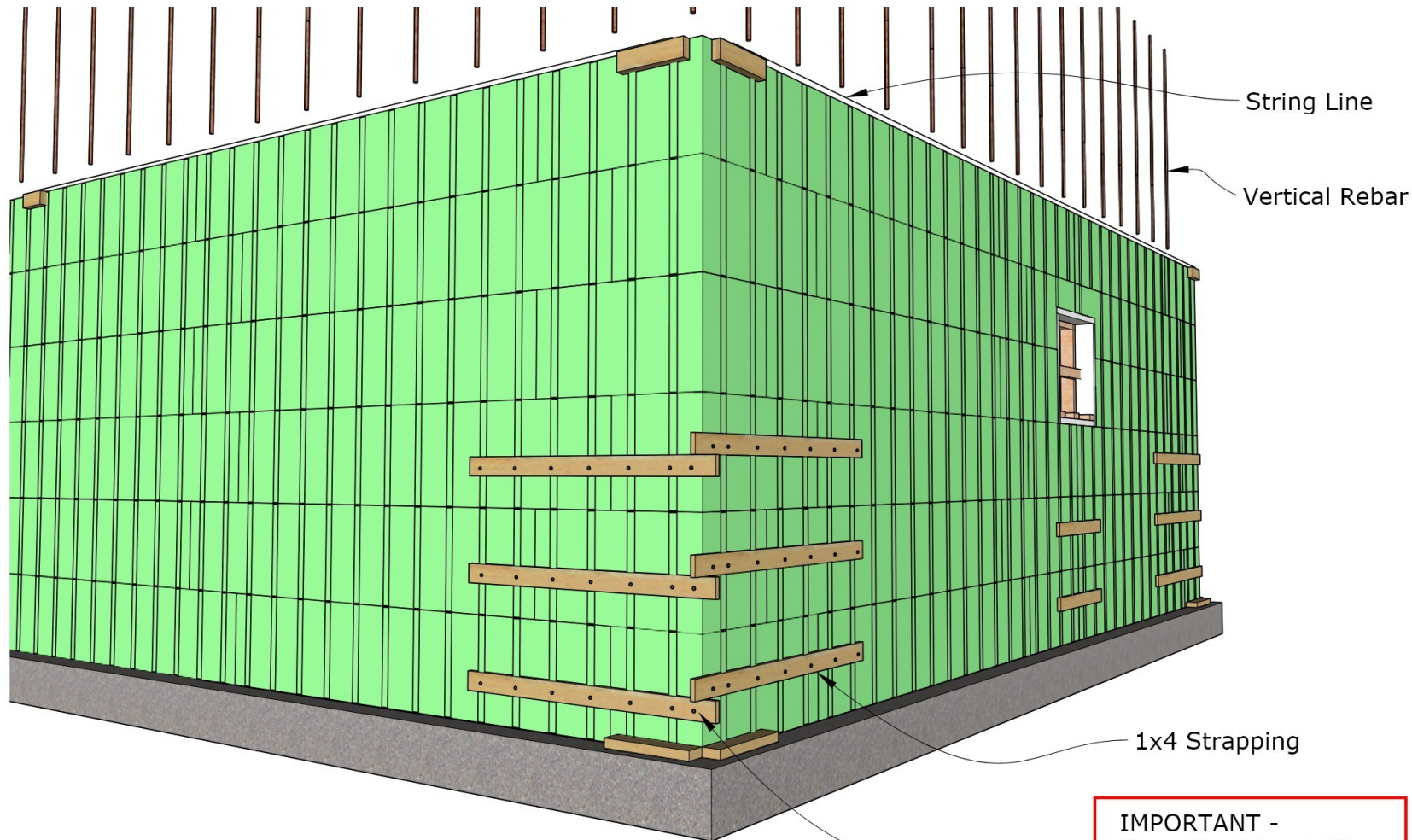
12" O.C.
Spacing Equivalent



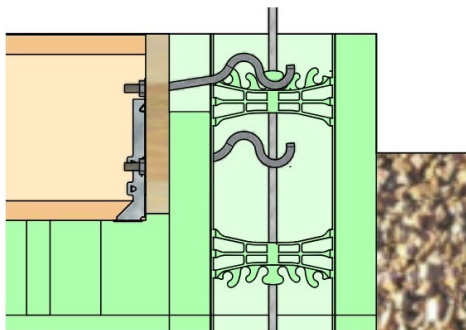
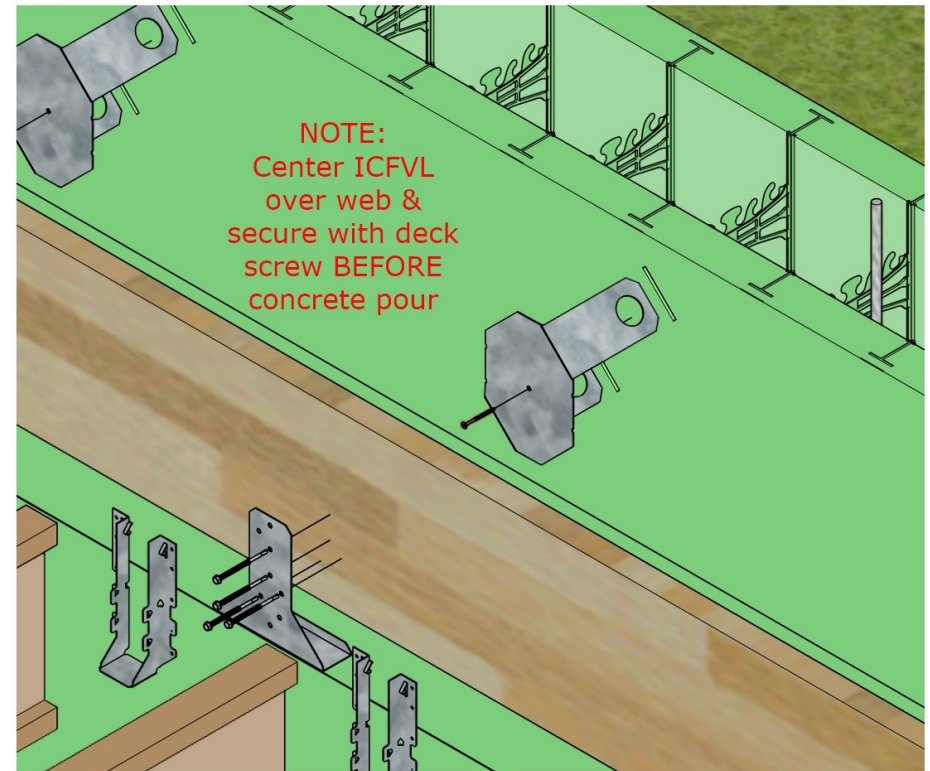
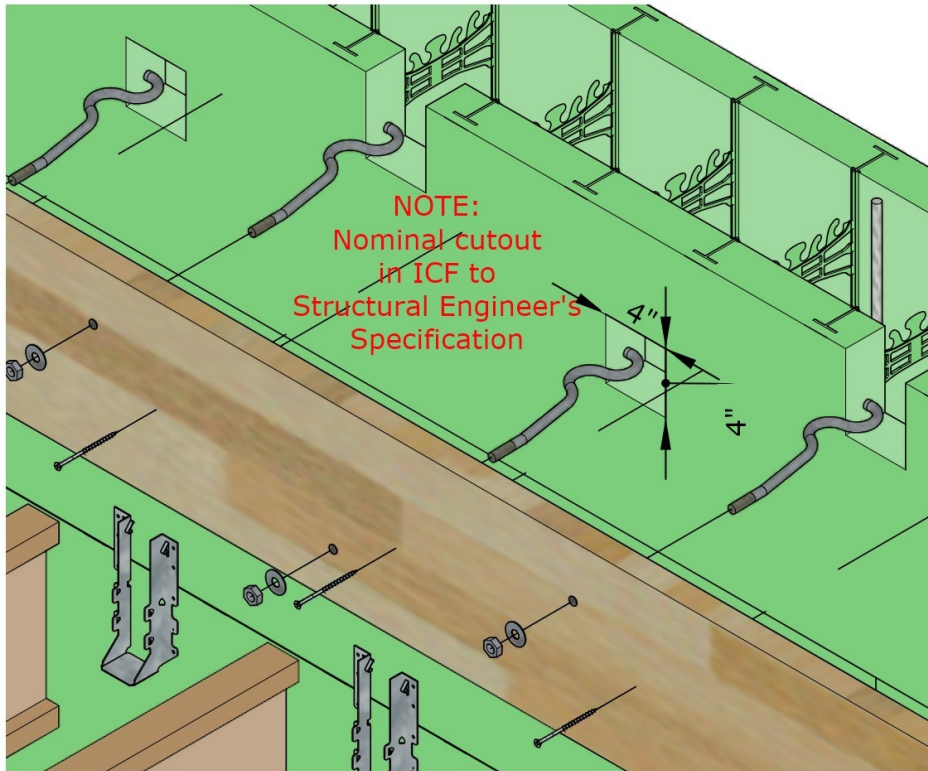
8. Build Top of Wall, Verts

- Using the catwalk, build the balance of the wall.
- Thread the vertical steel between the 1st & 2nd course as per the engineering details.
- Screw 1x4 (or 2x4) blocks on each corner, run a string line between, then adjust each Zuckle to align the wall to each stringline.

- **Strap first three courses of wall with a 4' 1x4 on outside corners to protect against blowout**

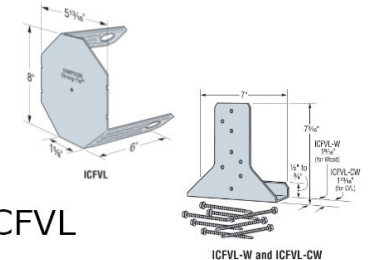
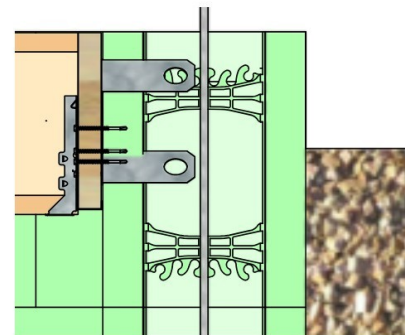


Floor Ledger Support



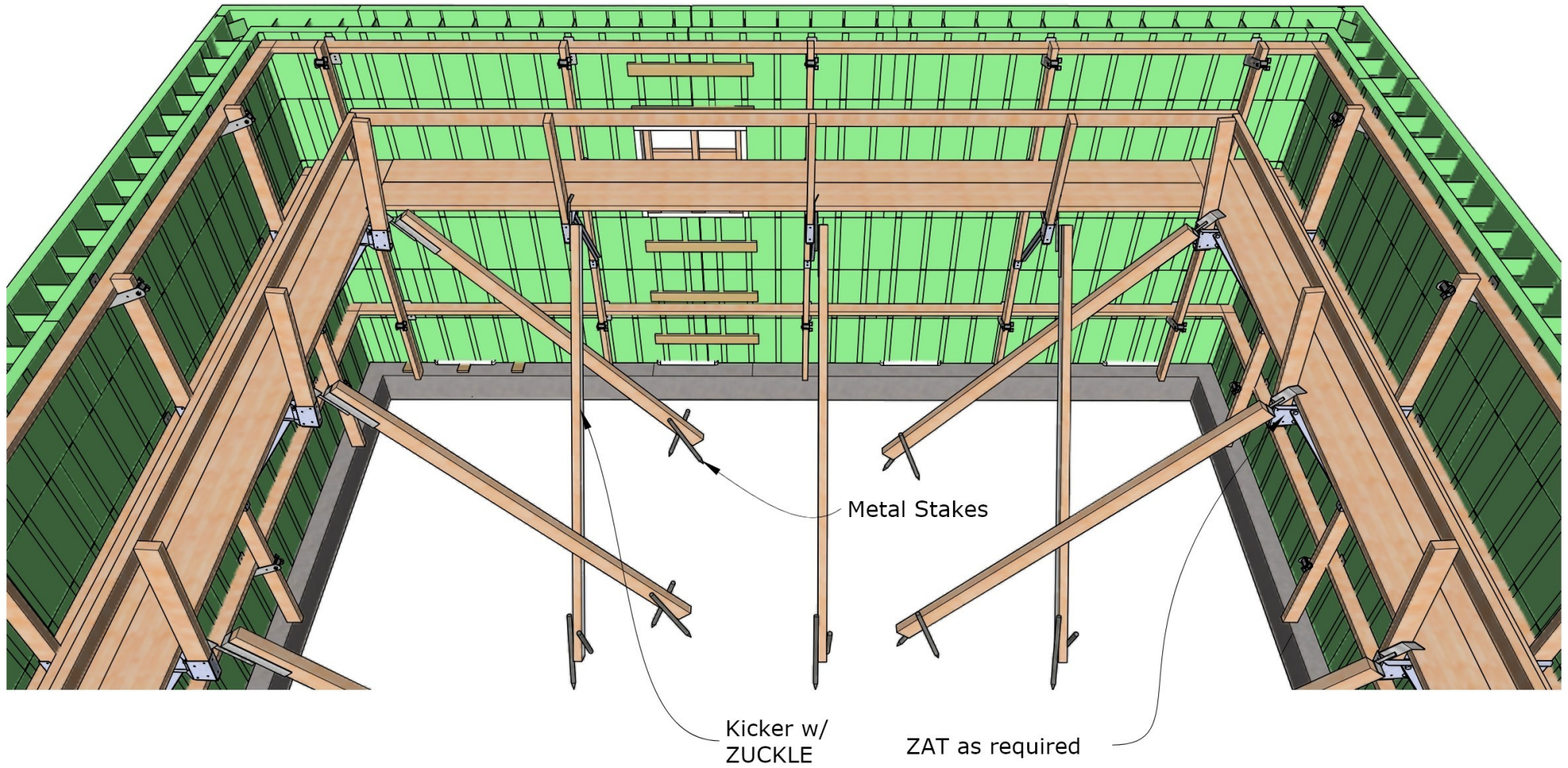
ANCHOR BOLT

Type & Spacing to Structural
Engineer's Specification



ICFVL
Spacing to Structural
Engineer's Specification

9. Completed Foundation Wall



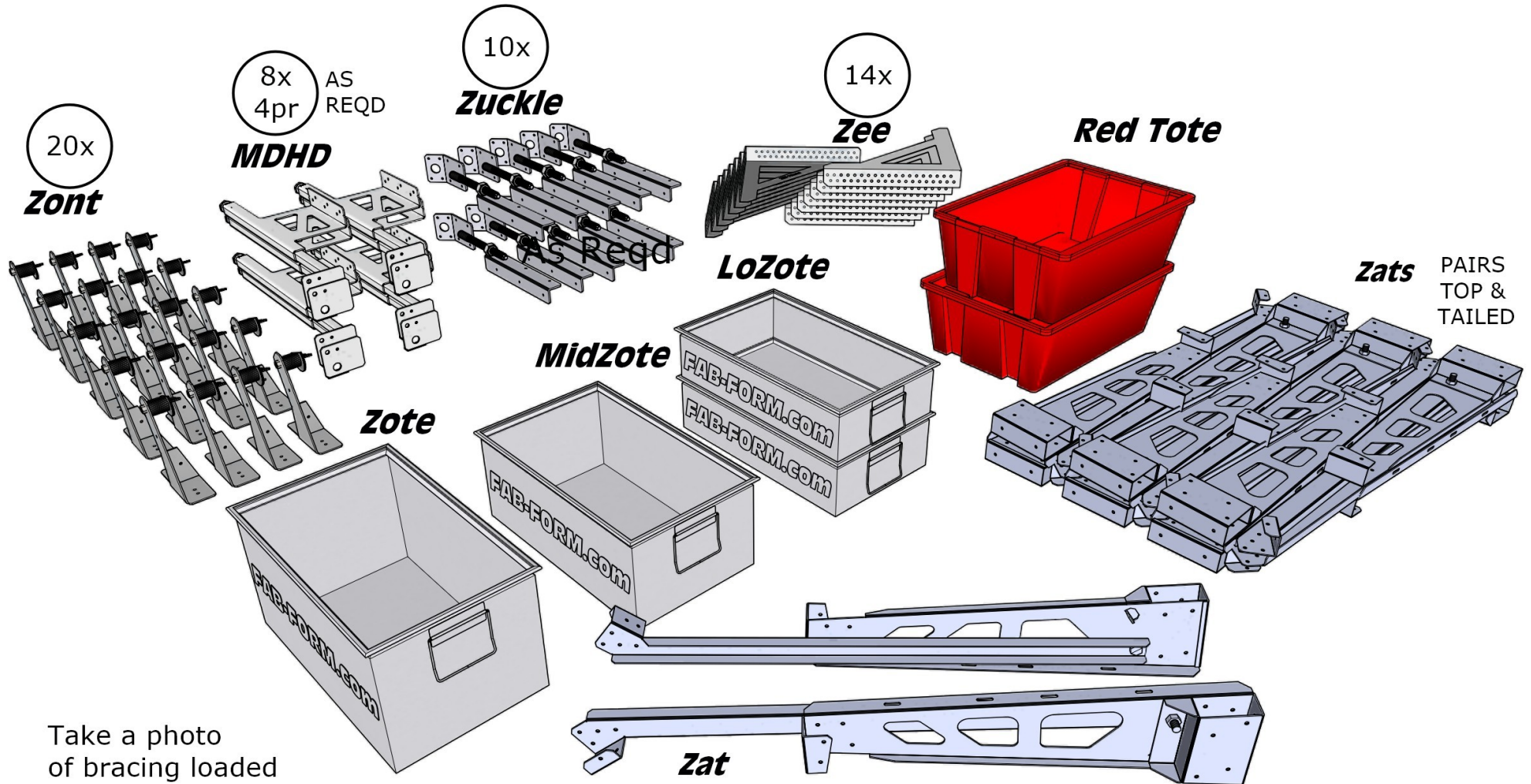
10. Concrete Pour

- Order ICF-mix with a 5-1/2" to 6" slump, maximum aggregate size 1/2" and compressive strength required by structural engineer.
- Order pump with a 3" reducer to minimize flow into the forms.
- Place concrete in 3 foot lifts.
- Vibrate with a 1" or 1-1/4" head, do not over vibrate in one location, slow in, fast out.
- ICF corners are vulnerable, pour into each corner and don't vibrate the corner itself.
- After pour, re-check wall with string line for final alignment.

11. Finish

- Dismantle bracing and put in appropriate totes ready for pickup
- Return unused and undamaged ICFs to VancouverICF

Rental Bracing

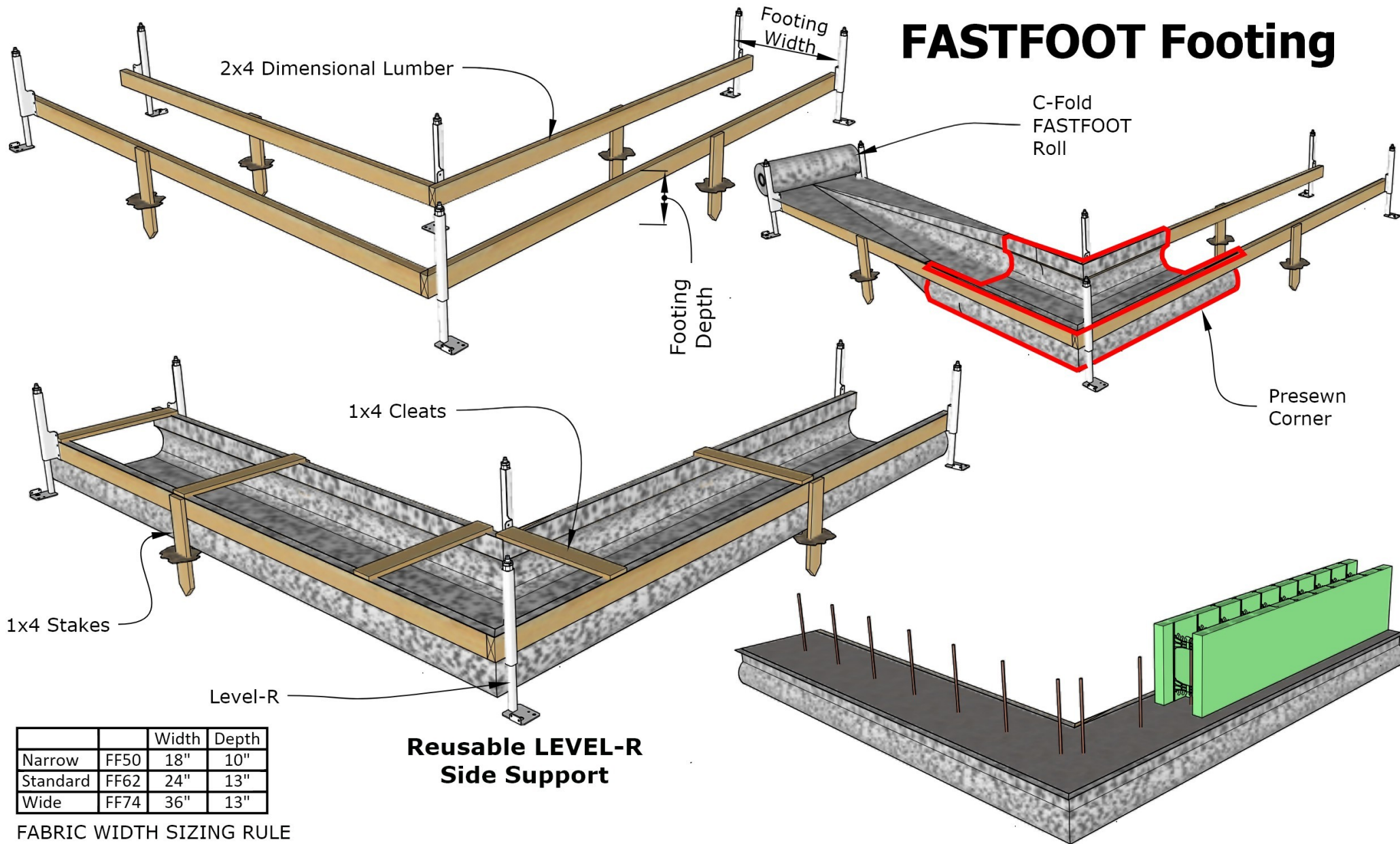


Take a photo
of bracing loaded
in truck to ensure
correct count!

TYPICAL DETAILS

- These details are advisory only

FASTFOOT Footing



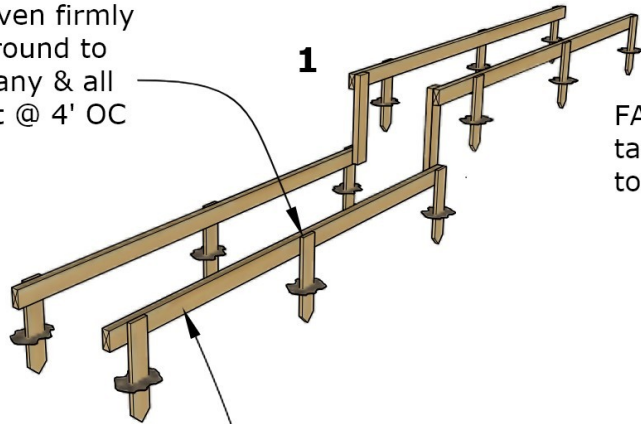
FABRIC WIDTH SIZING RULE

Width required = footing width + 2 x footing height = 10"

Steps & Point load FASTFOOT

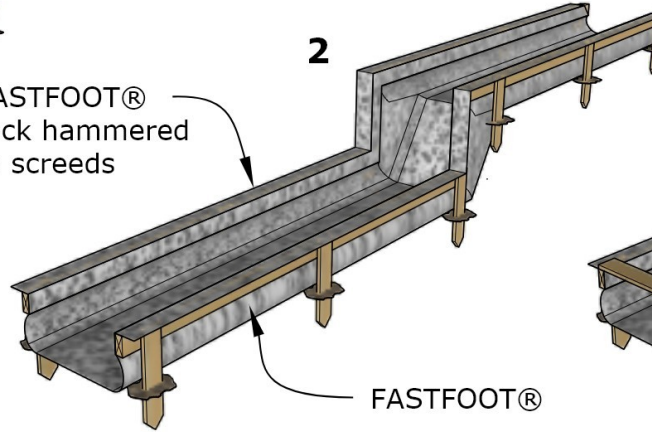
Stakes driven firmly into the ground to eliminate any & all settlement @ 4' OC minimum

1



FASTFOOT® tack hammered to screeds

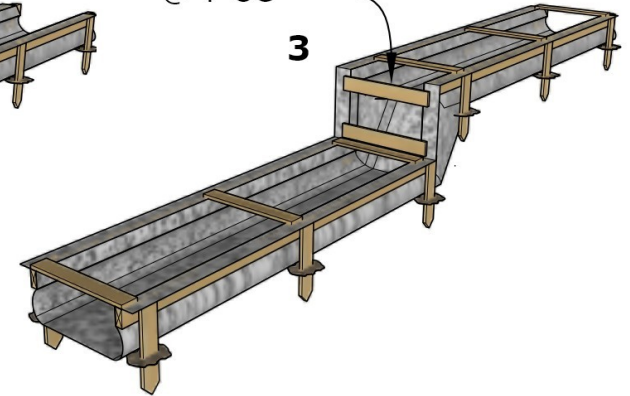
2



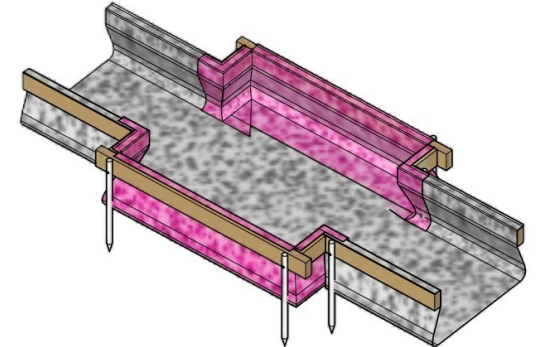
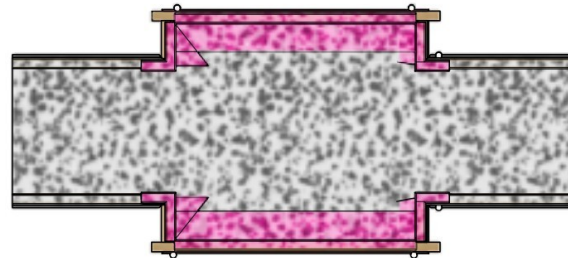
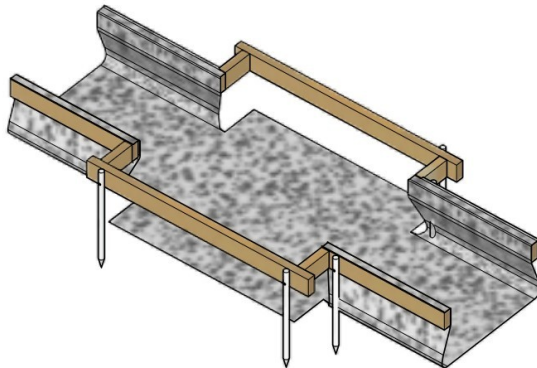
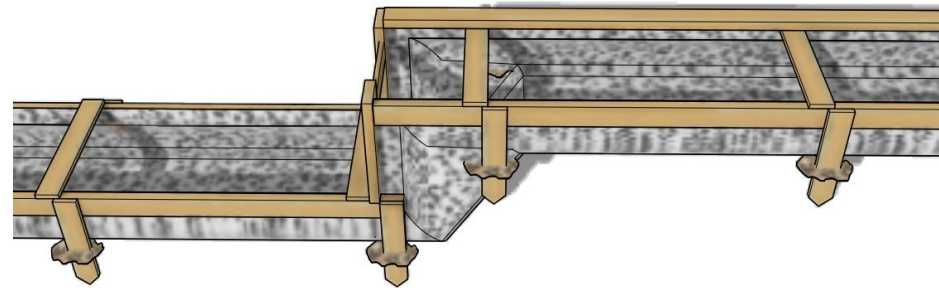
FASTFOOT®

1x4 cleats @ 4' OC

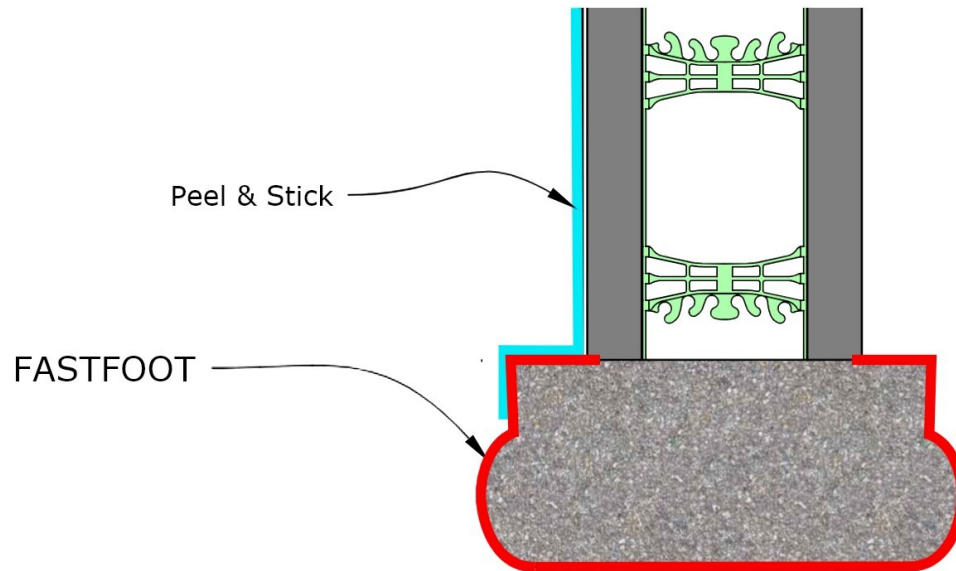
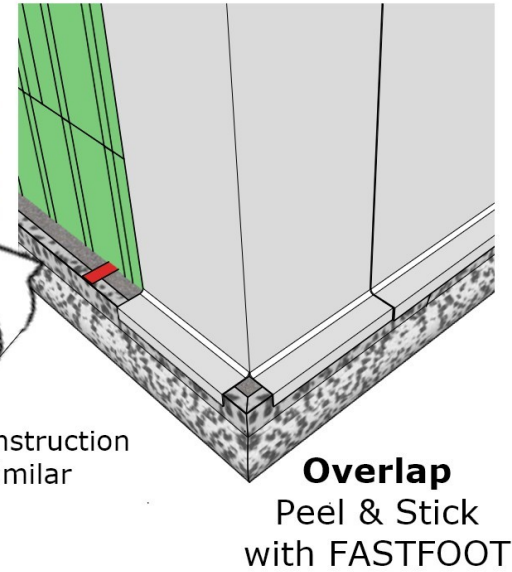
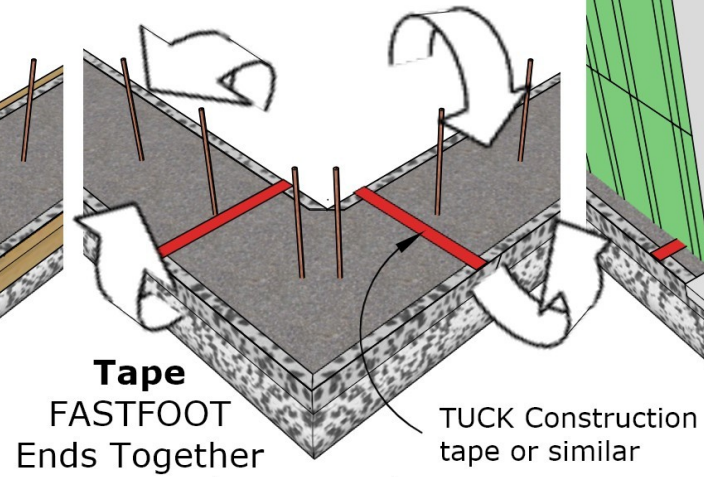
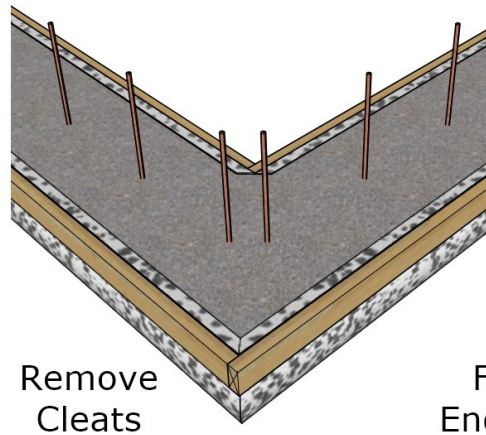
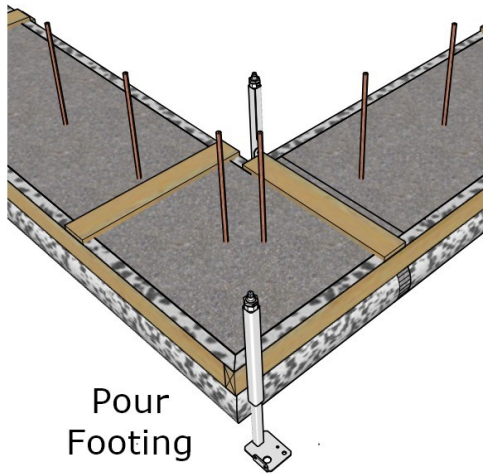
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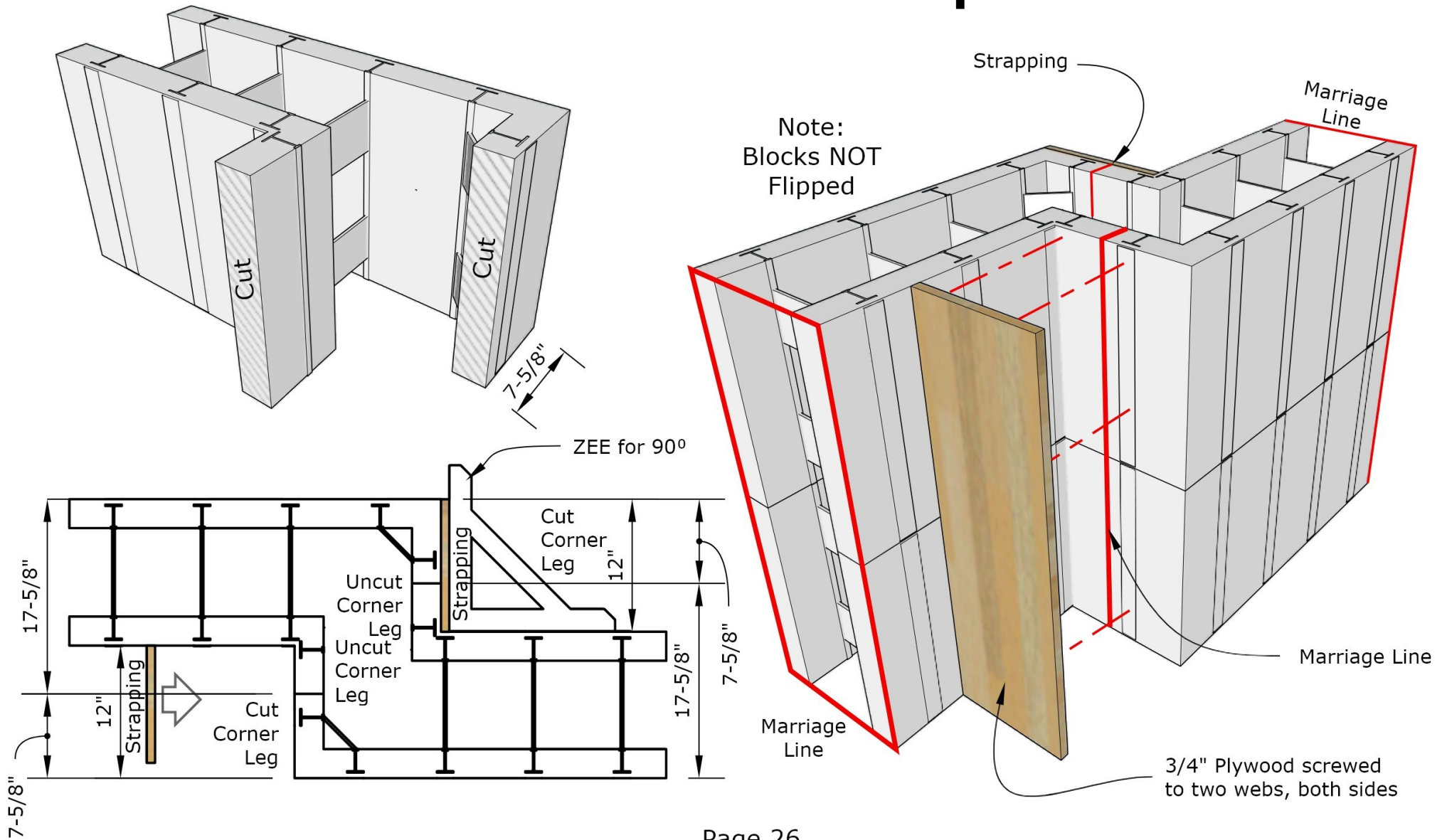
2x4 screed boards leveled to 1/4" accuracy. Attach firmly with 2½-3" screws or duplex nails



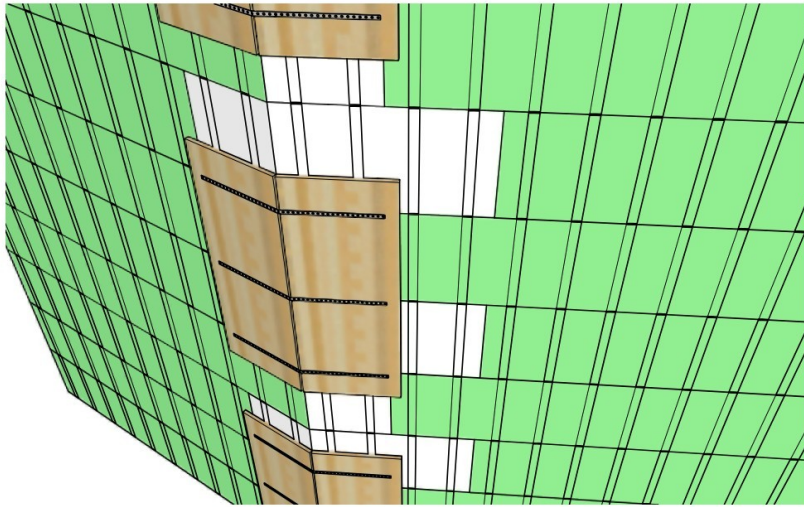
FASTFOOT Waterproofing



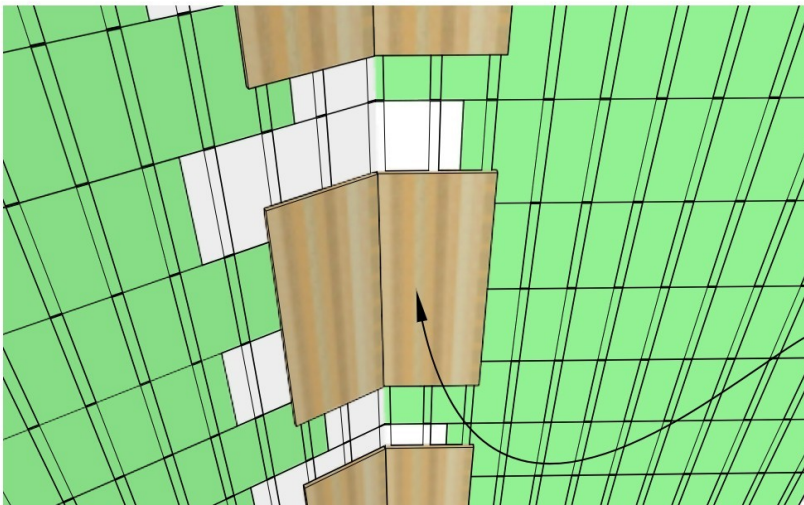
Short Corner returns up to 9"



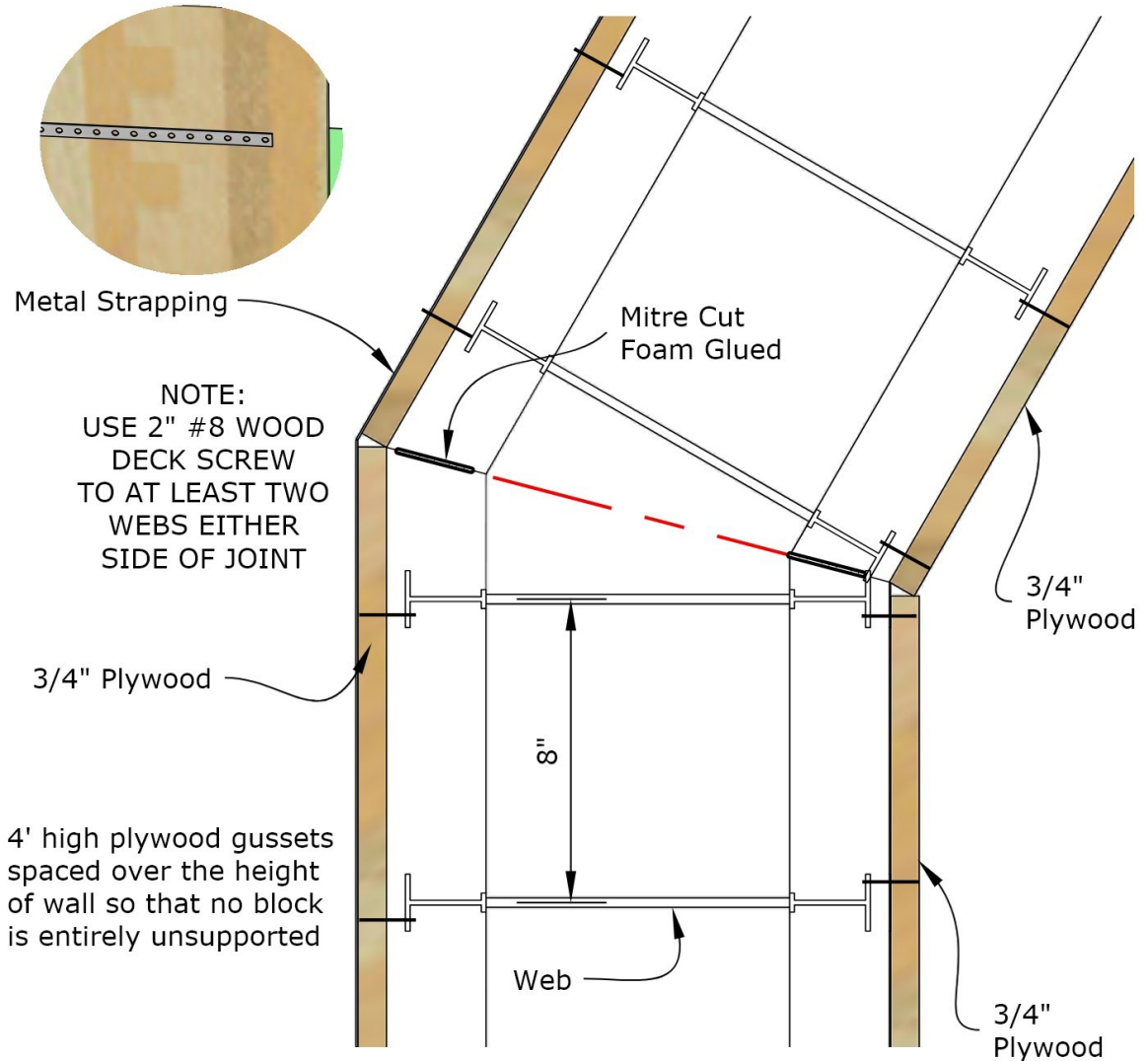
Angled Wall Bracing



Outside View

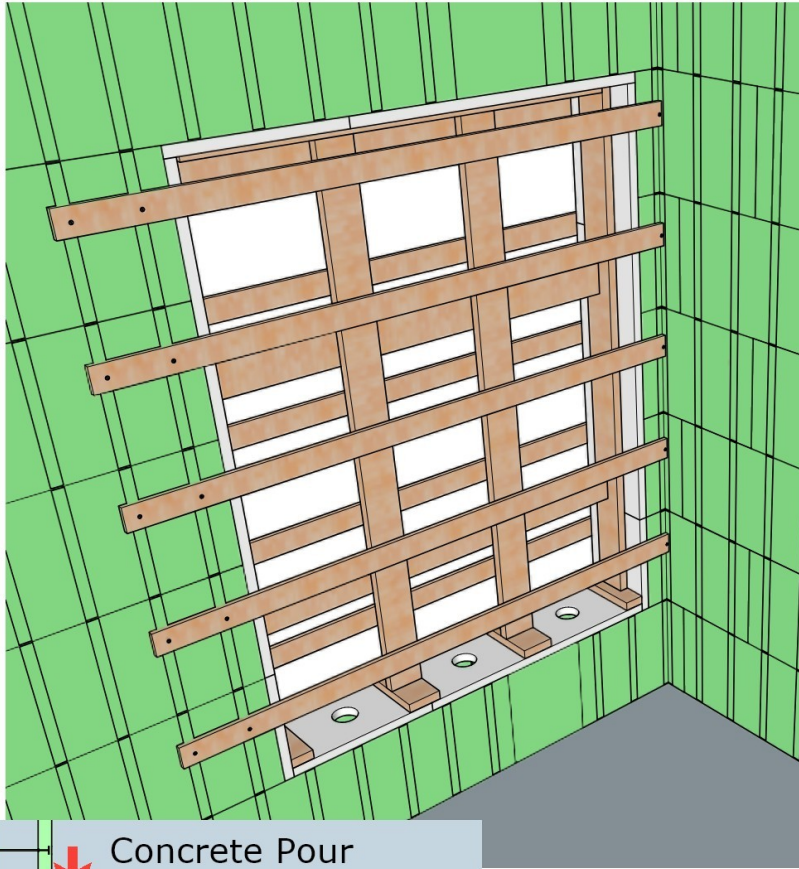


Inside View

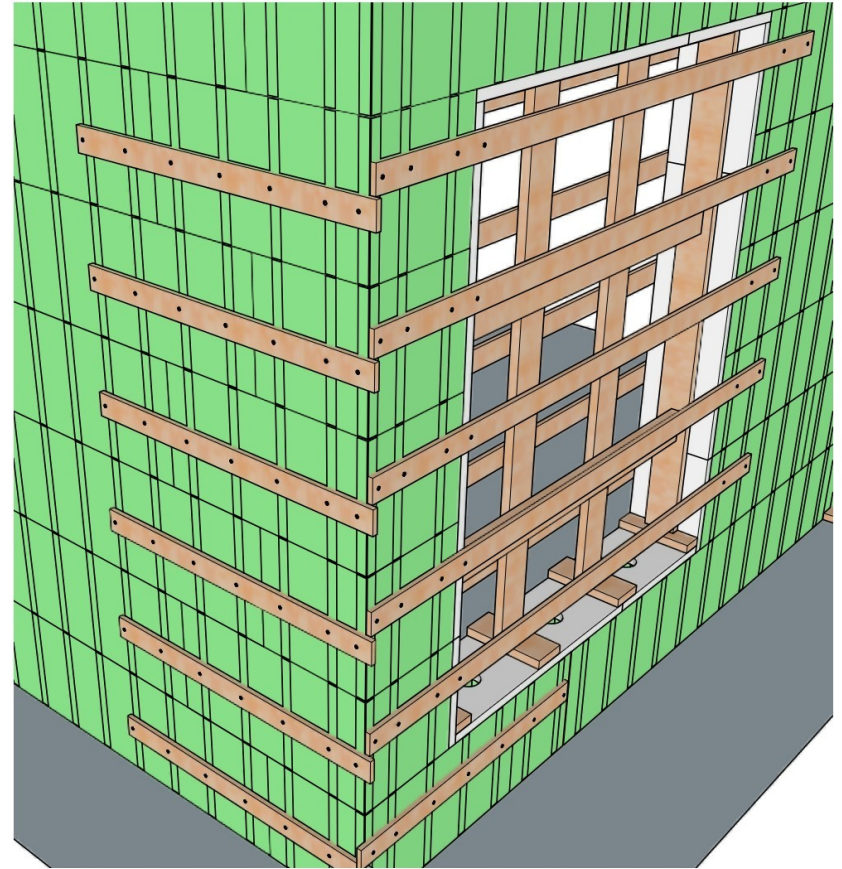


Plan View

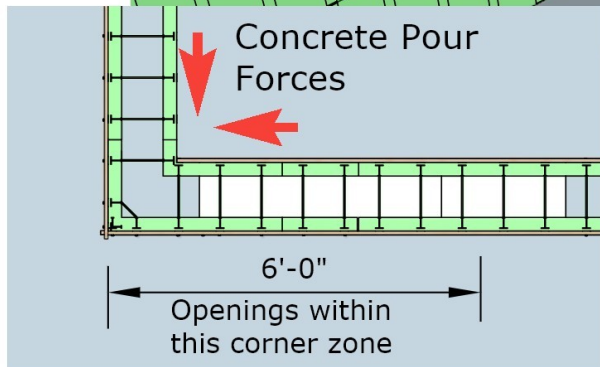
Large Openings Close to Corner



INSIDE VIEW

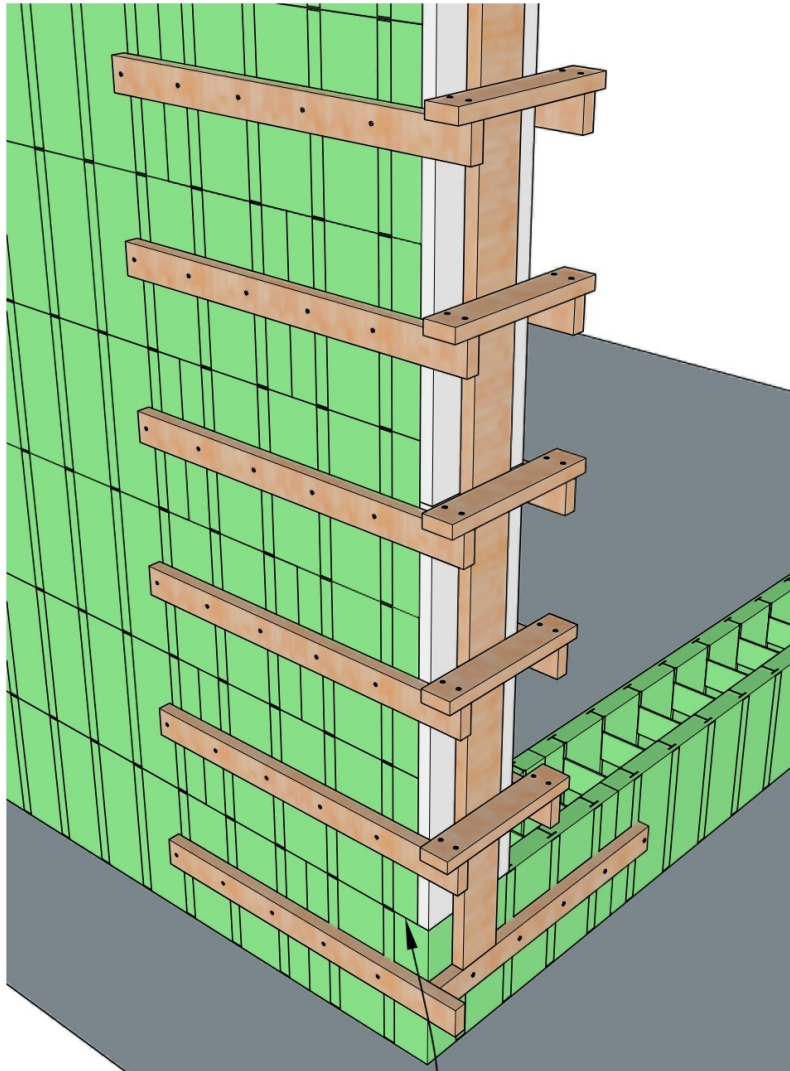


OUTSIDE VIEW



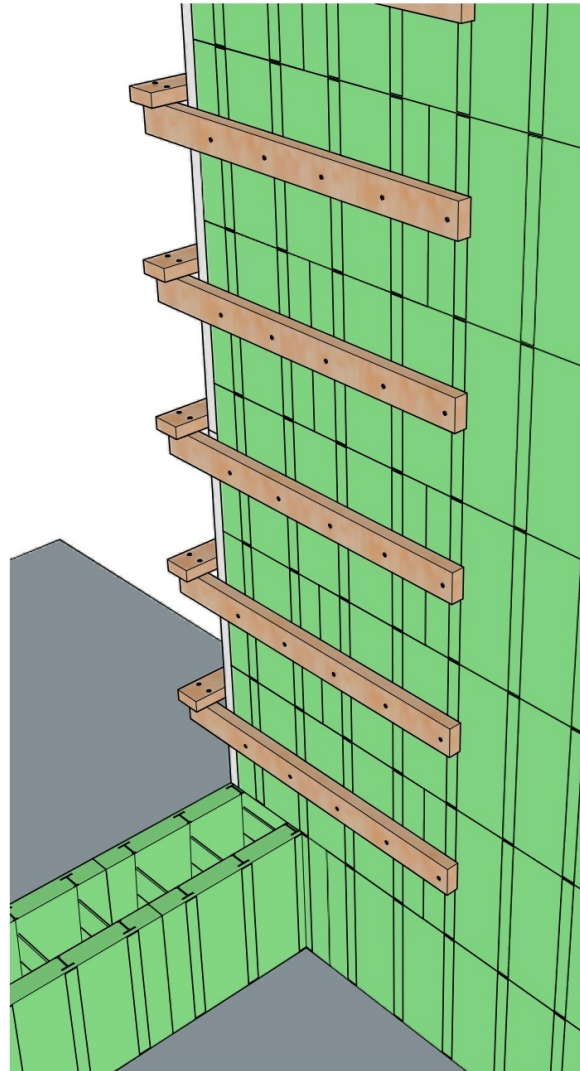
PLAN

End Wall Detail

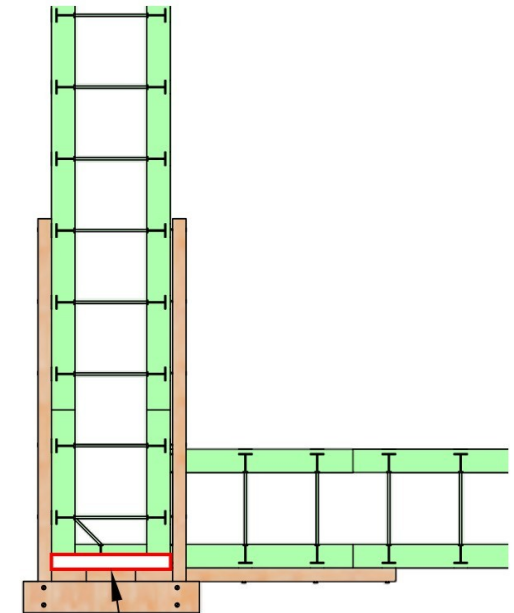


Trim off foam interlocks on corner block as required

OUTSIDE VIEW



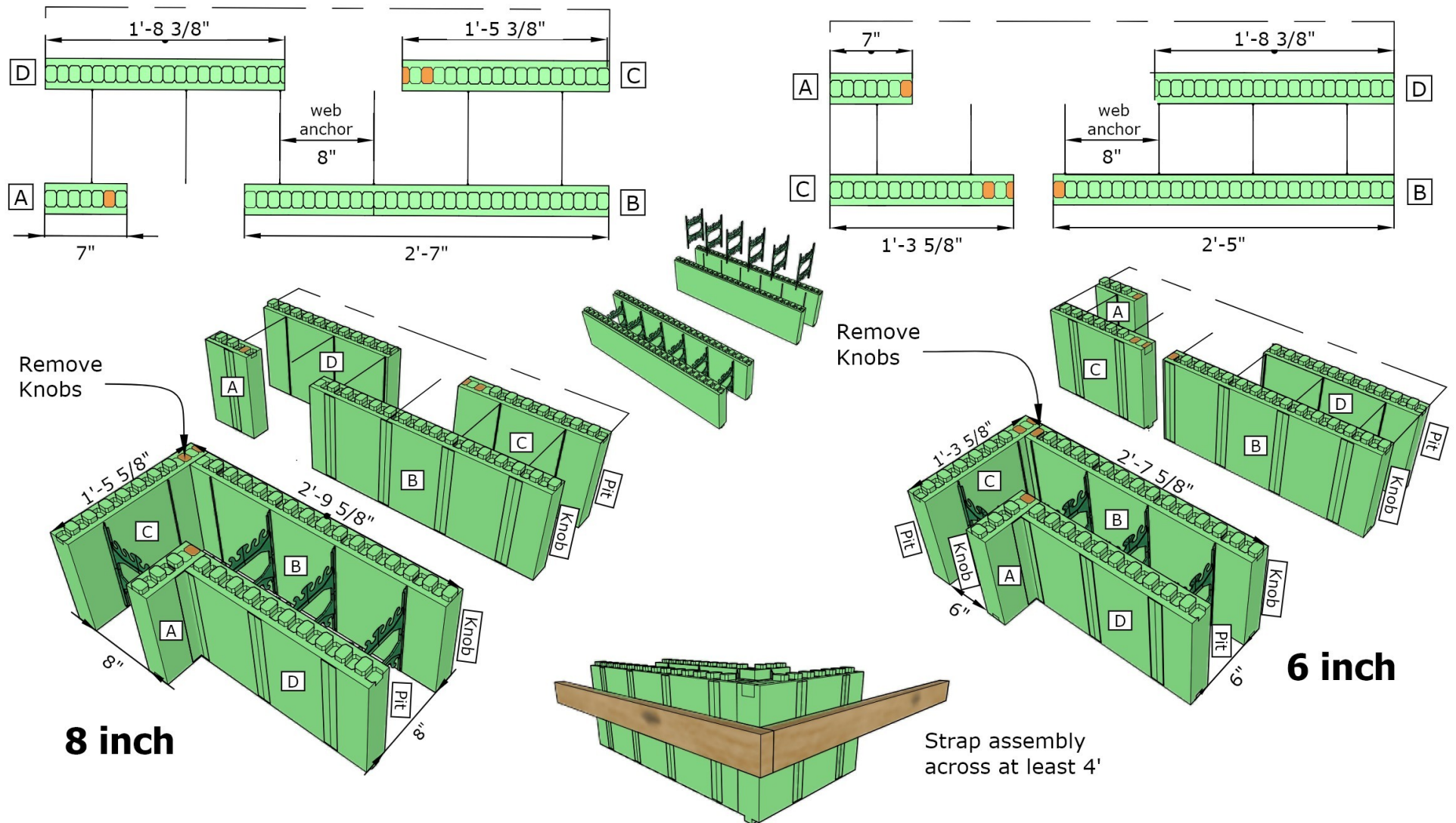
INSIDE VIEW



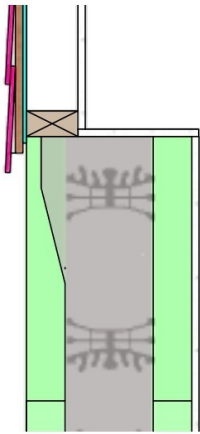
Insulated Buck

PLAN

Making an Optimizer Corner

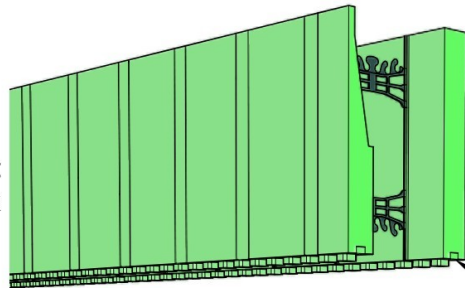


Taper Top Blocks



Typical Detail

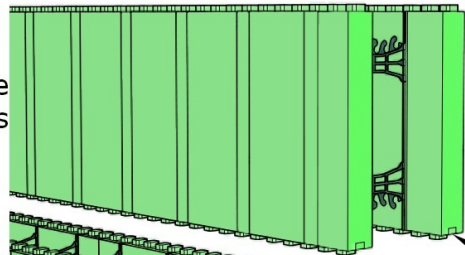
Highest Block



Taper Top

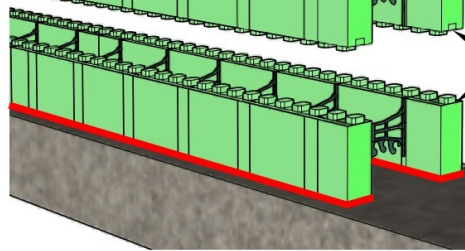
Toothed Interlock

Intermediate Block/Blocks



Standard Block

Lowest Block

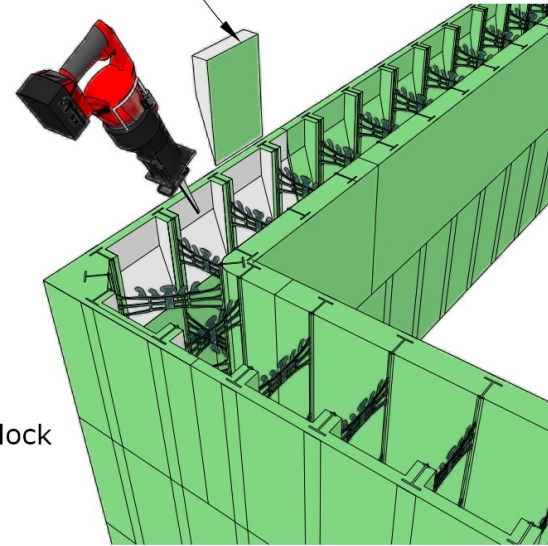


Toothed Interlock

Cut Block on Footing

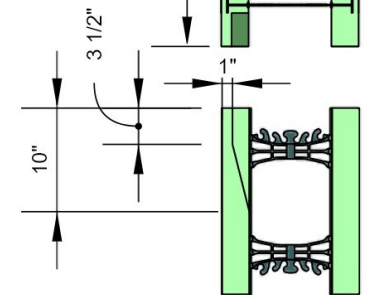
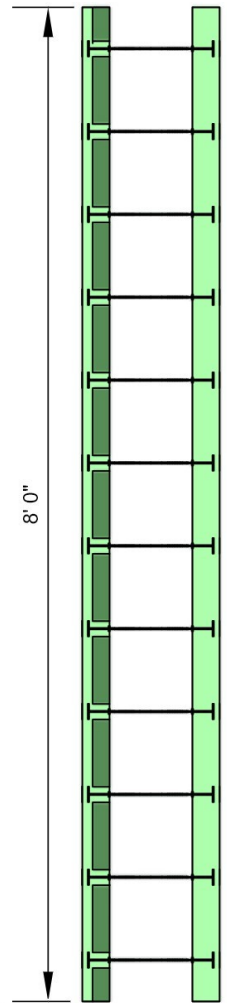
Custom wall heights with taper top blocks
Start with cut block

Remove

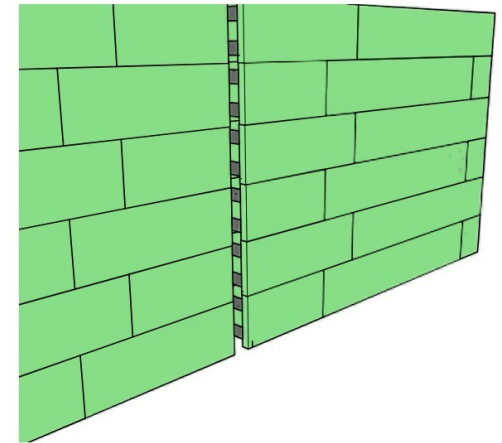
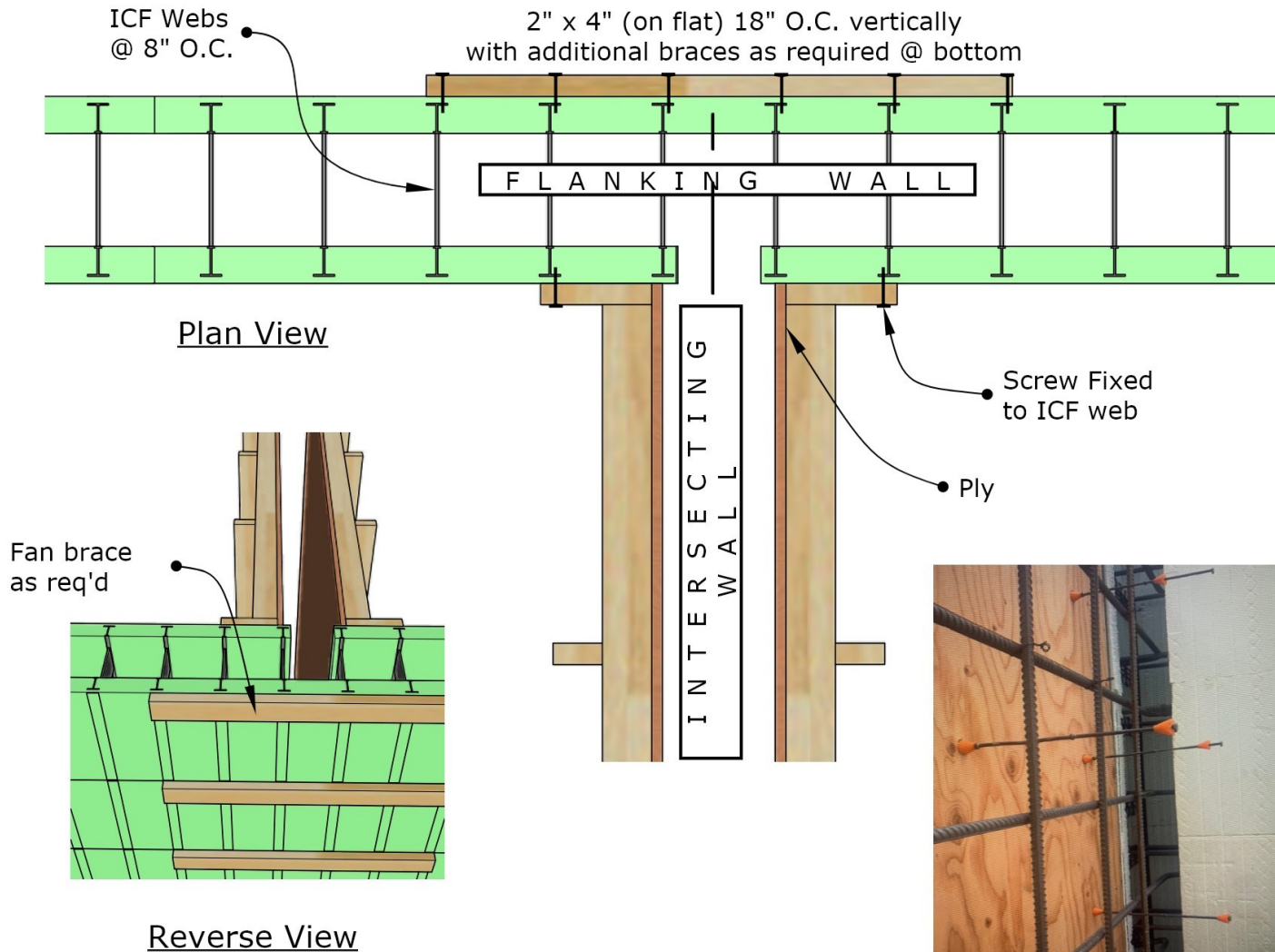


Customizing Standard Corner Block

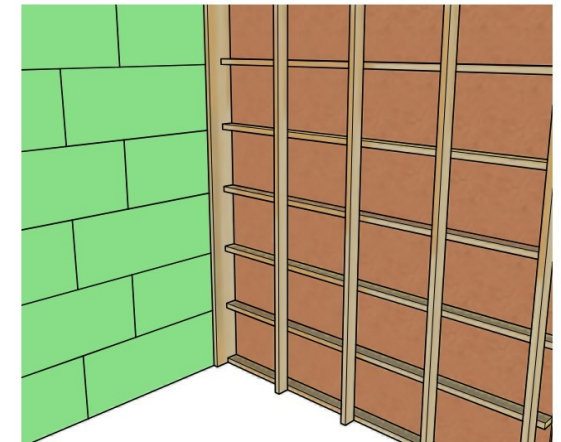
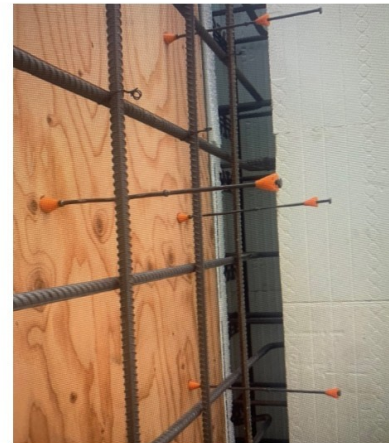
No Taper Corners Are Manufactured



ICF & Formwork Concrete T-Junction



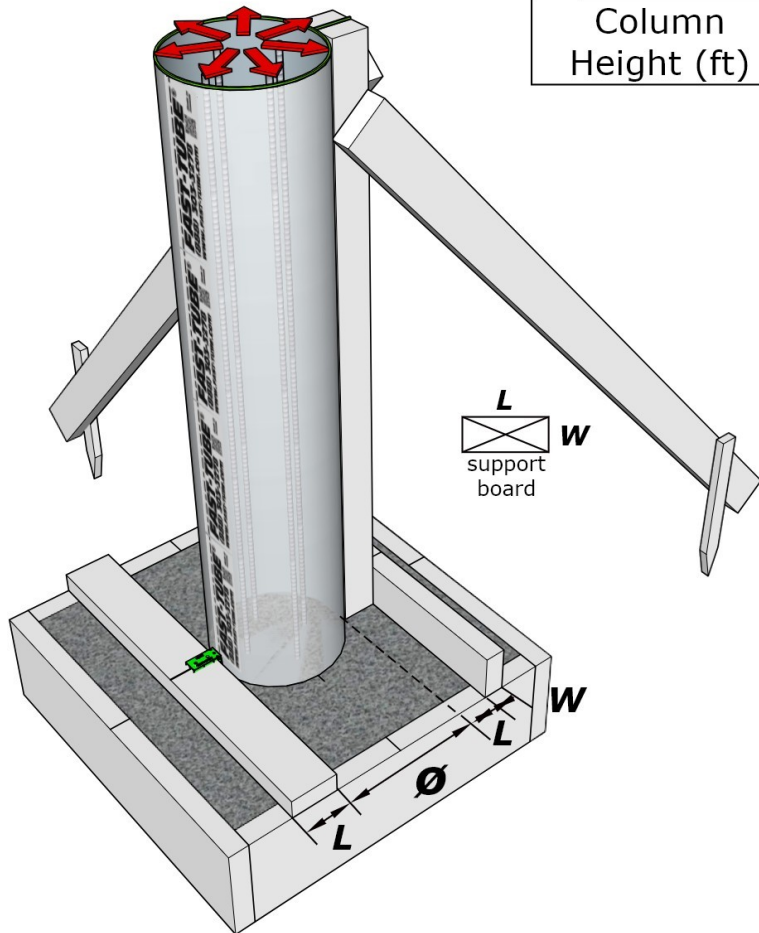
1 Measure & Mark Out Wall Attachment Location



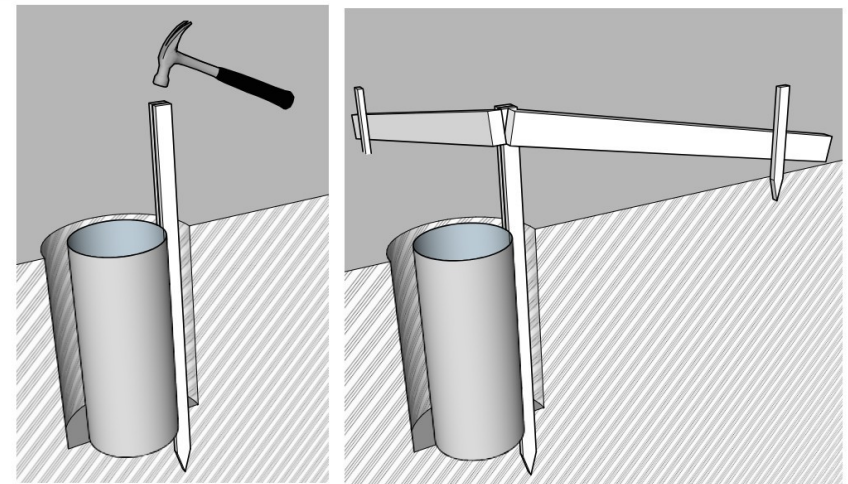
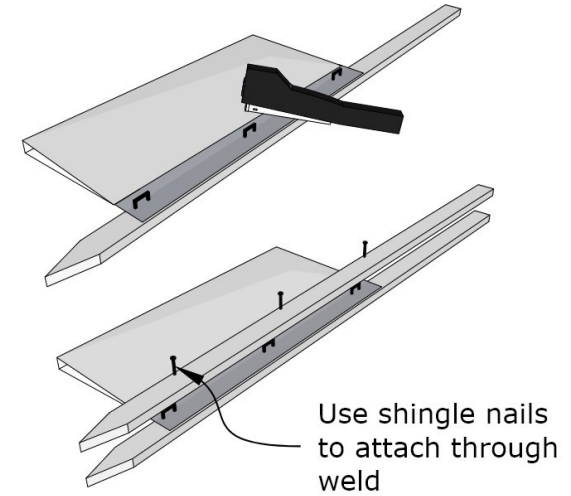
2 Install Forms In Place

ICF & Formwork Concrete T-Junction

Diameter(in)	8	10	12	14	16	18
Column Height (ft)	28	22	18	16	14	12

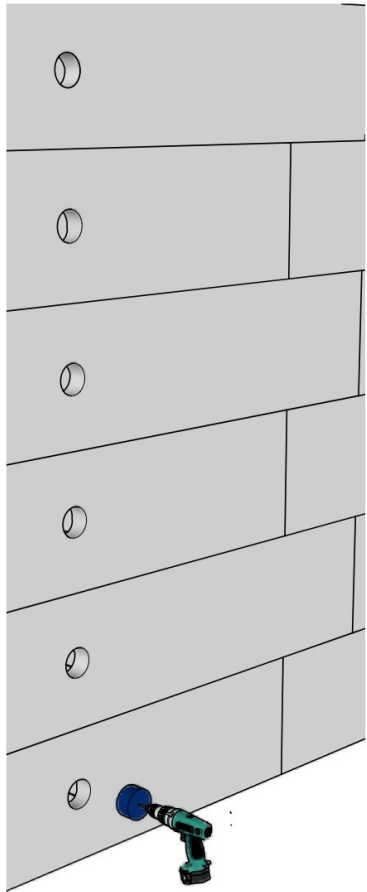


Below Grade



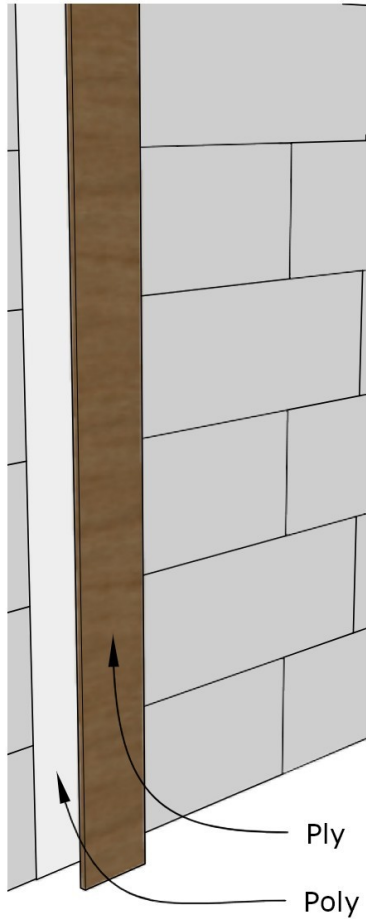
Ensure excavation wide enough not to fall onto tube.

Wall Partition Anchoring



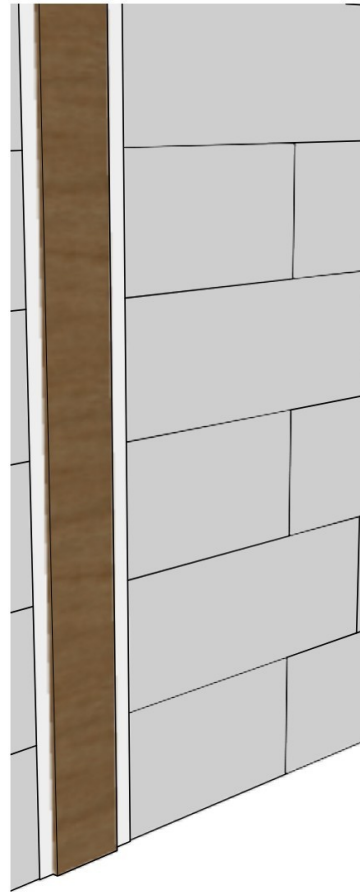
1

Use hole cutter
to cut through
to cavity



2

Fix to
built-in
webs



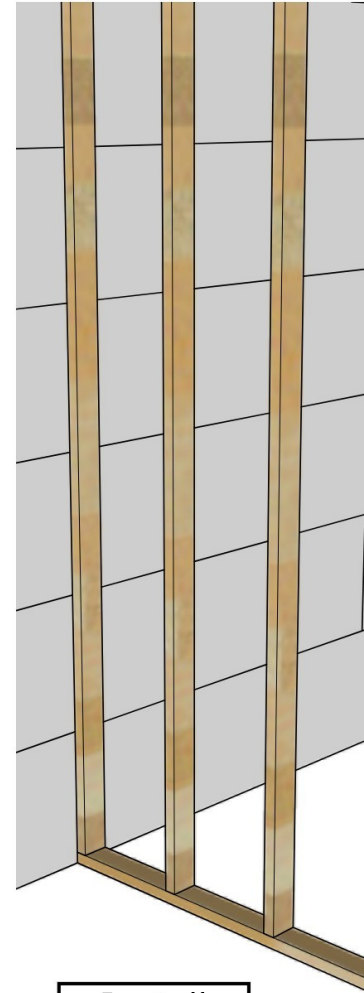
3

Pour wall



4

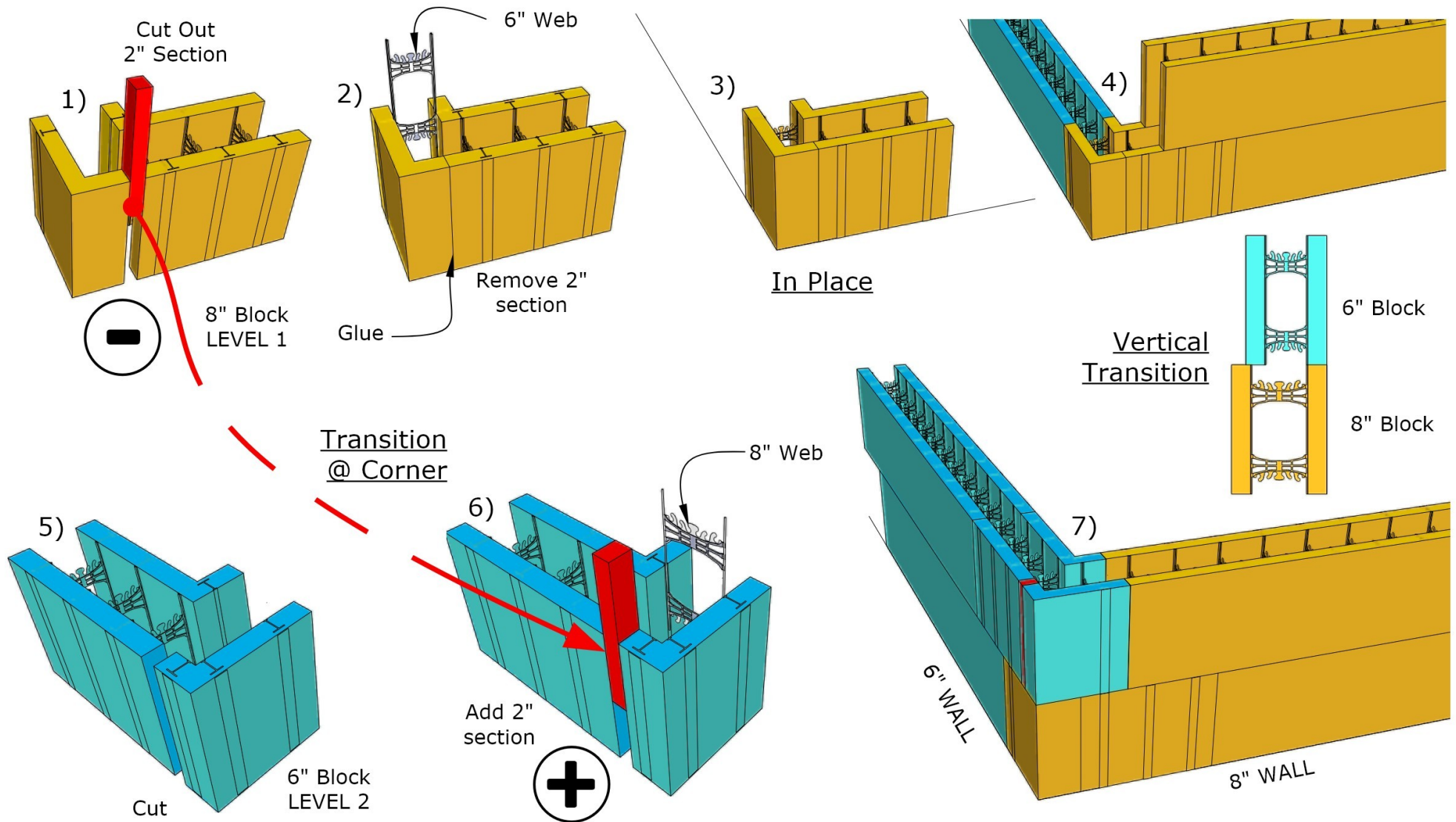
Strip form
to reveal
anchor pads



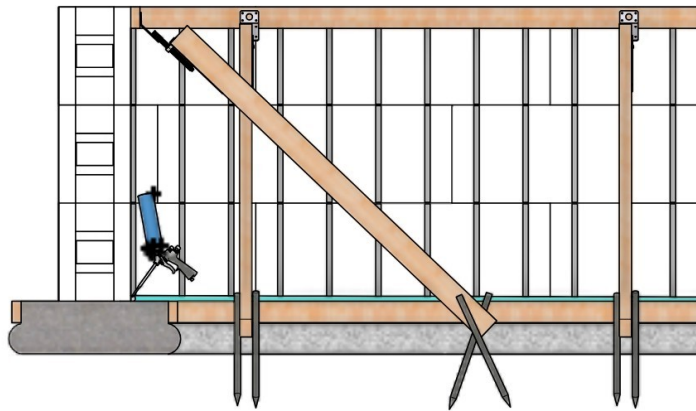
5

Install
partition

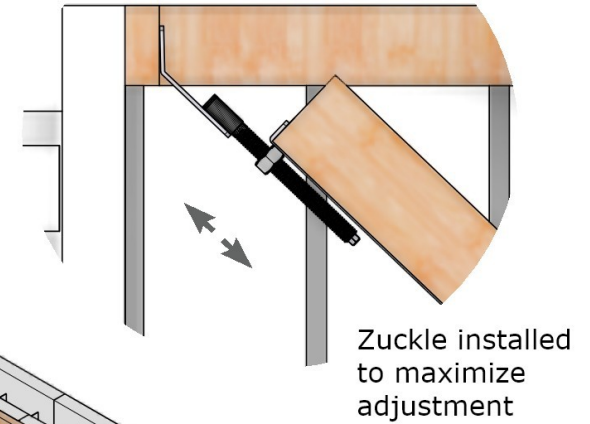
Transitions Between 6" & 8" Blocks



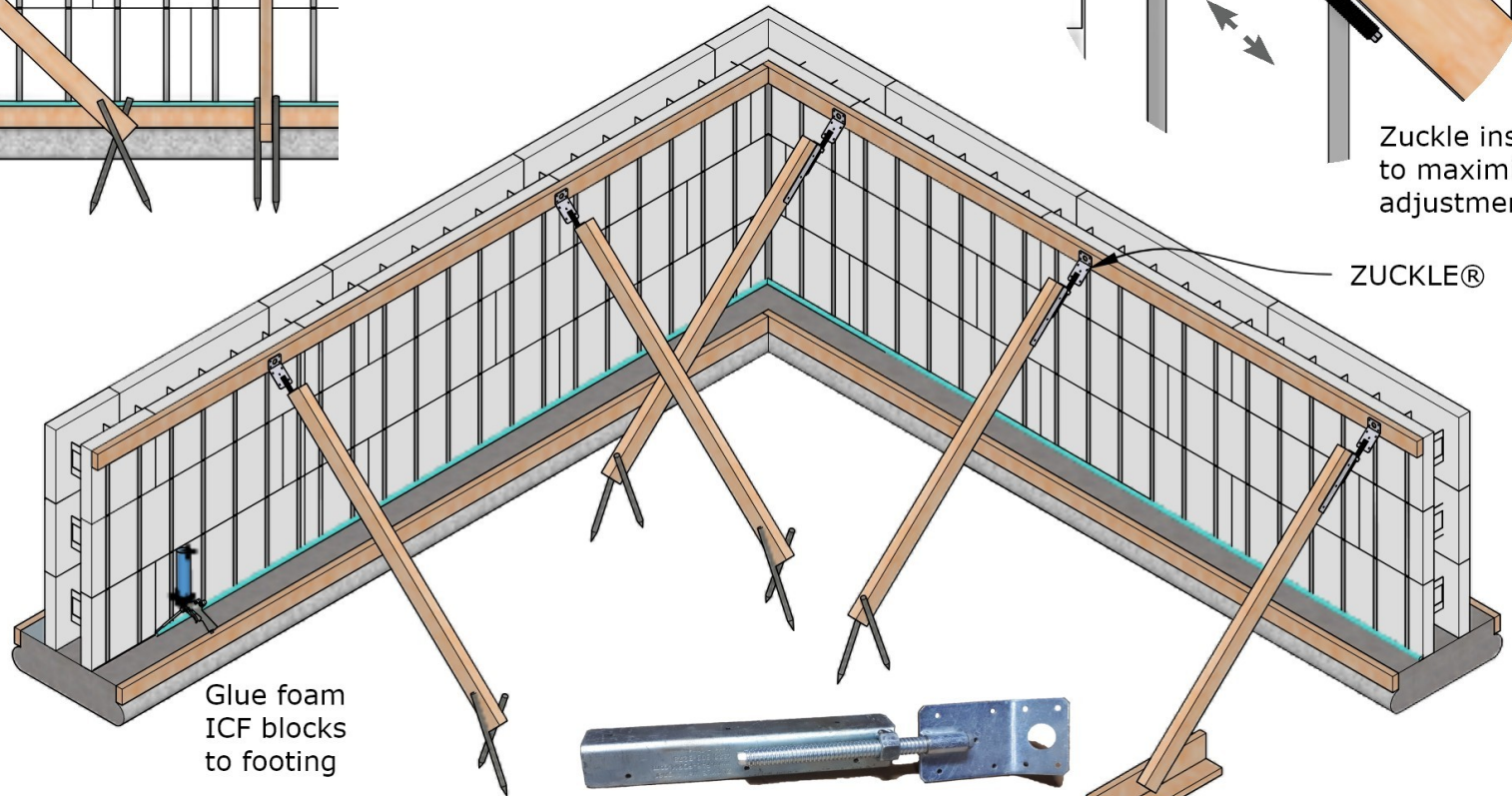
Bracing Walls Under 4'6"



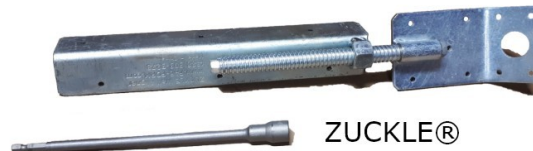
Note: Secure top TWO courses with foam or clips



Zuckle installed to maximize adjustment



Glue foam ICF blocks to footing



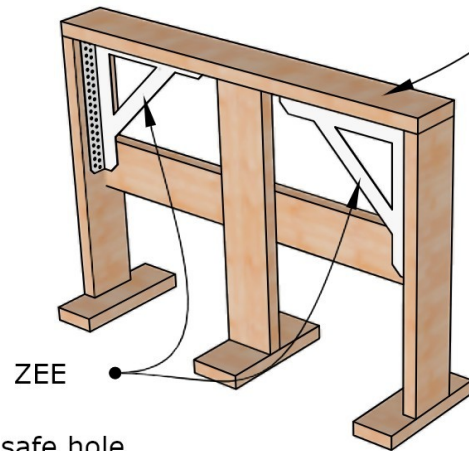
Drill Adapter

ZUCKLE® Wall Aligner

Fox Insulated Bucks

Foam glue bucks to wall.
Use tape to hold in place 12" OC

Use dimensional lumber to support hydraulic loads
6" wall - 2x4
8" wall - 2x6

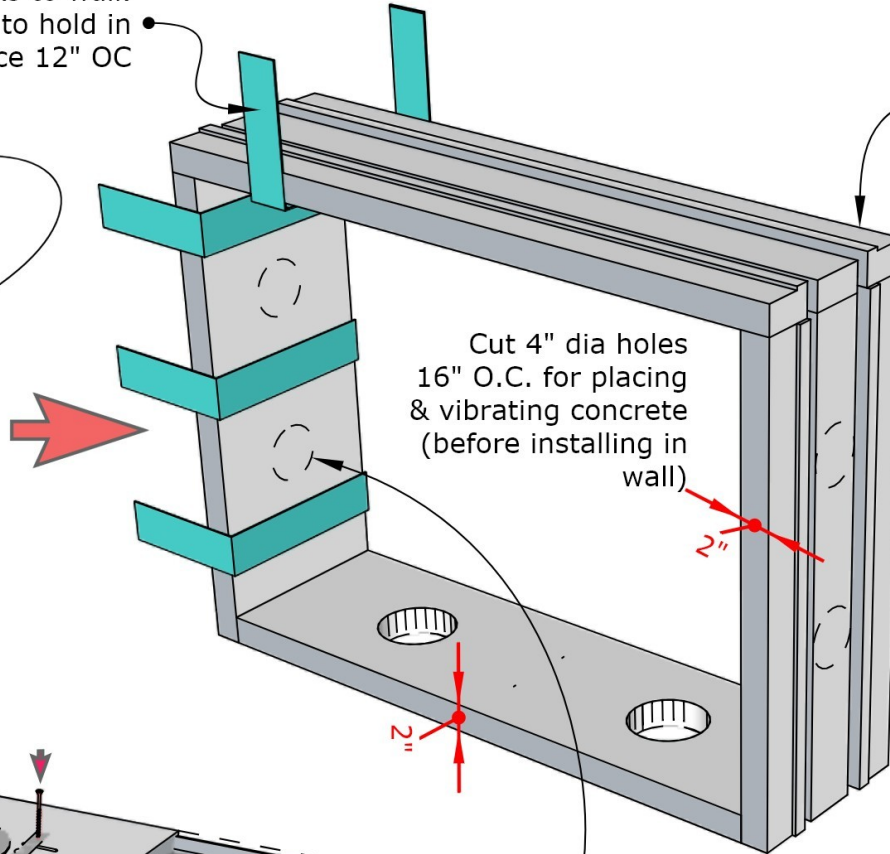


safe hole cut area

Cutaway View

Note:
Penetrate all slots with a nail or screw to ensure entrapped air can escape during concrete placement

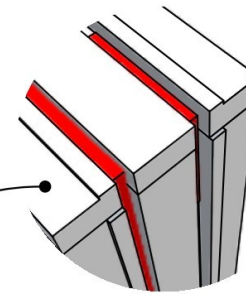
Embedded web



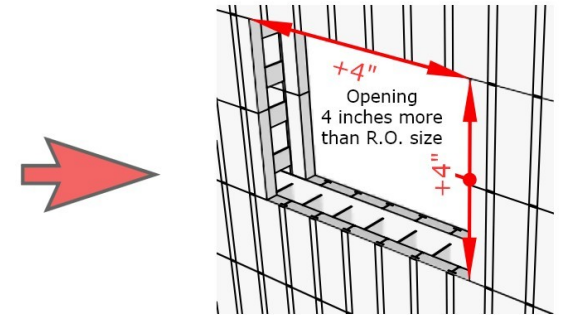
Cut 4" dia holes
16" O.C. for placing
& vibrating concrete
(before installing in wall)

2"

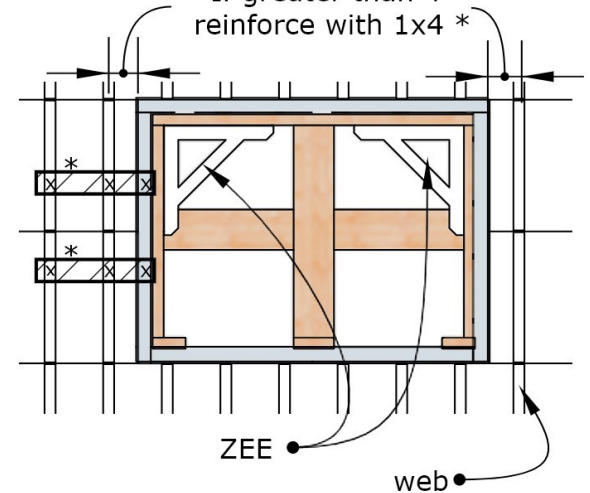
High Side Loading:
Cut out 4" dia holes in
vertical bucks to
ensure secure concrete
bearing is provided.



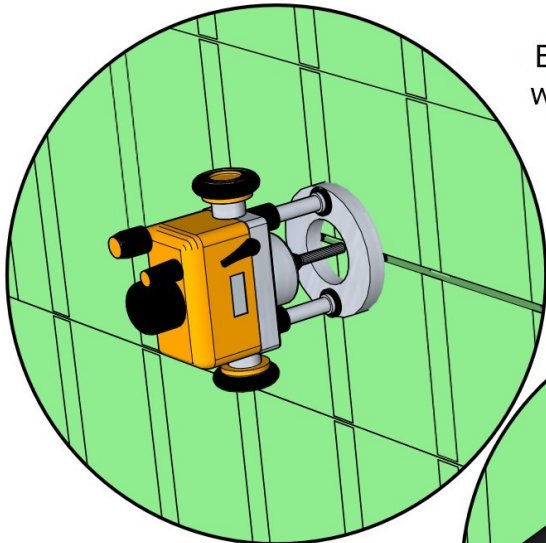
Notch ends of
bucks to obtain a
continuous groove



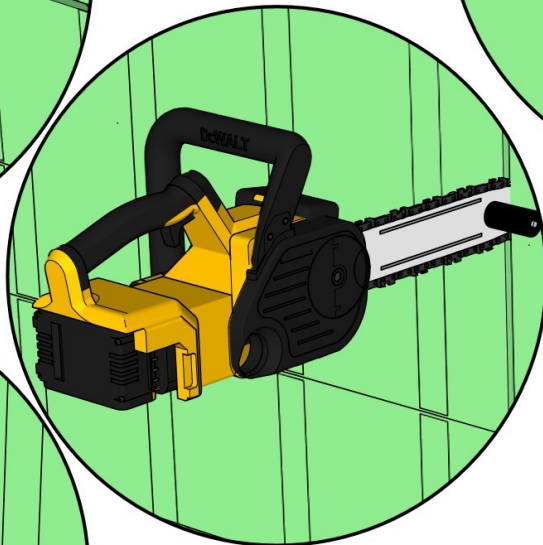
If greater than 4"
reinforce with 1x4 *



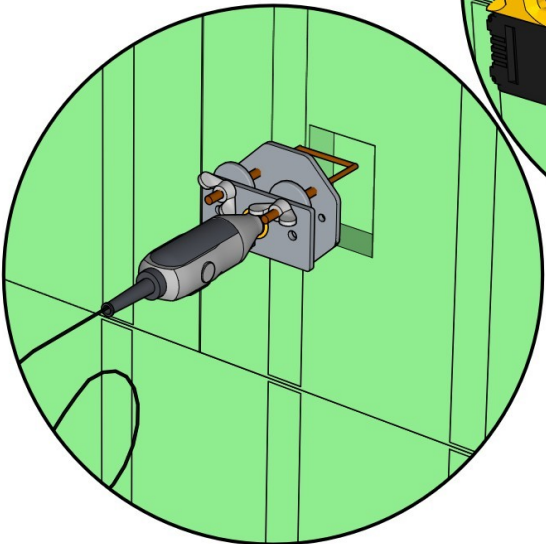
Note:
USE ZEES TO GUARANTEE
90° CORNERS



Router with 2½" Bit



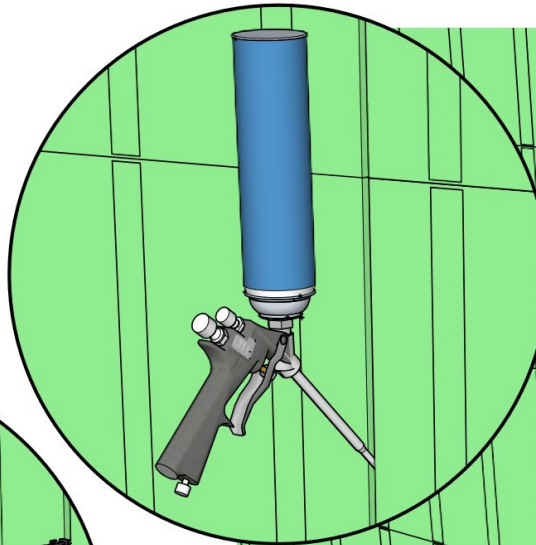
Electric Chainsaw



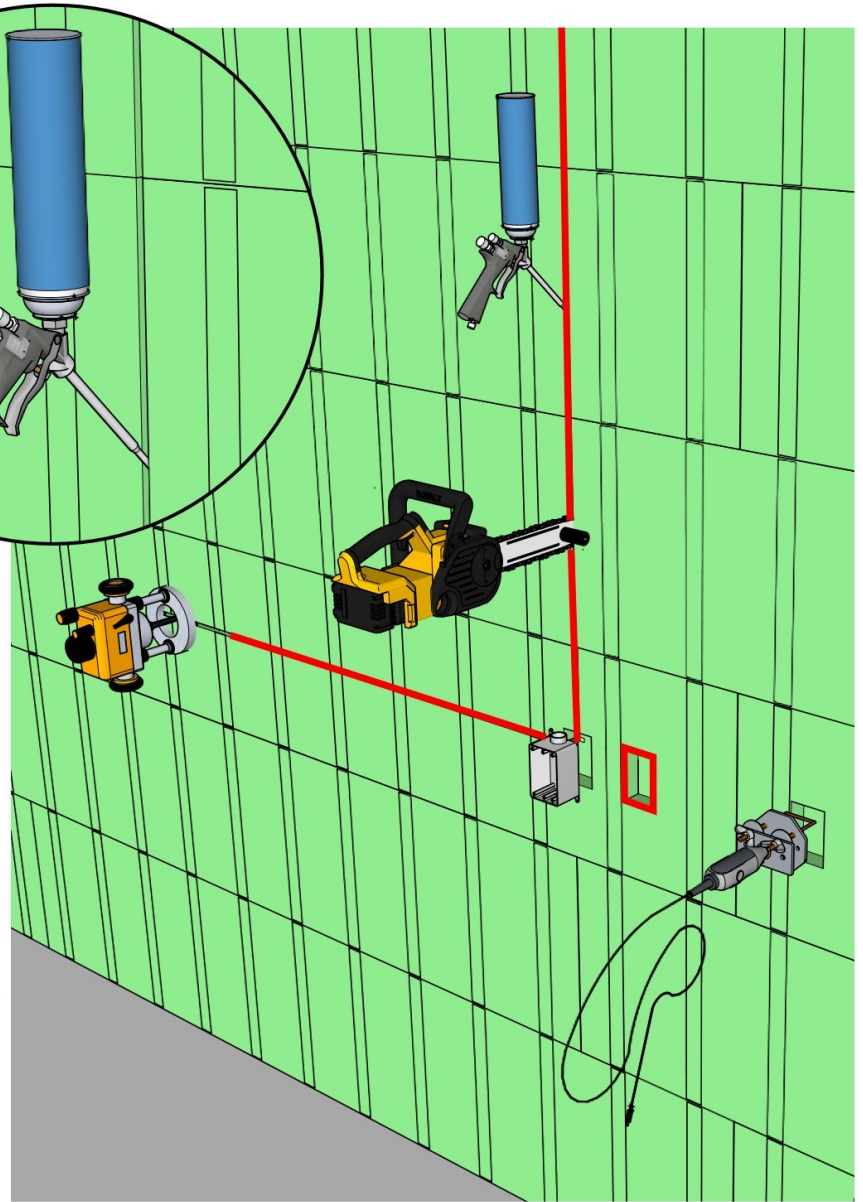
Hot Wire Cutter

Foam Applicator

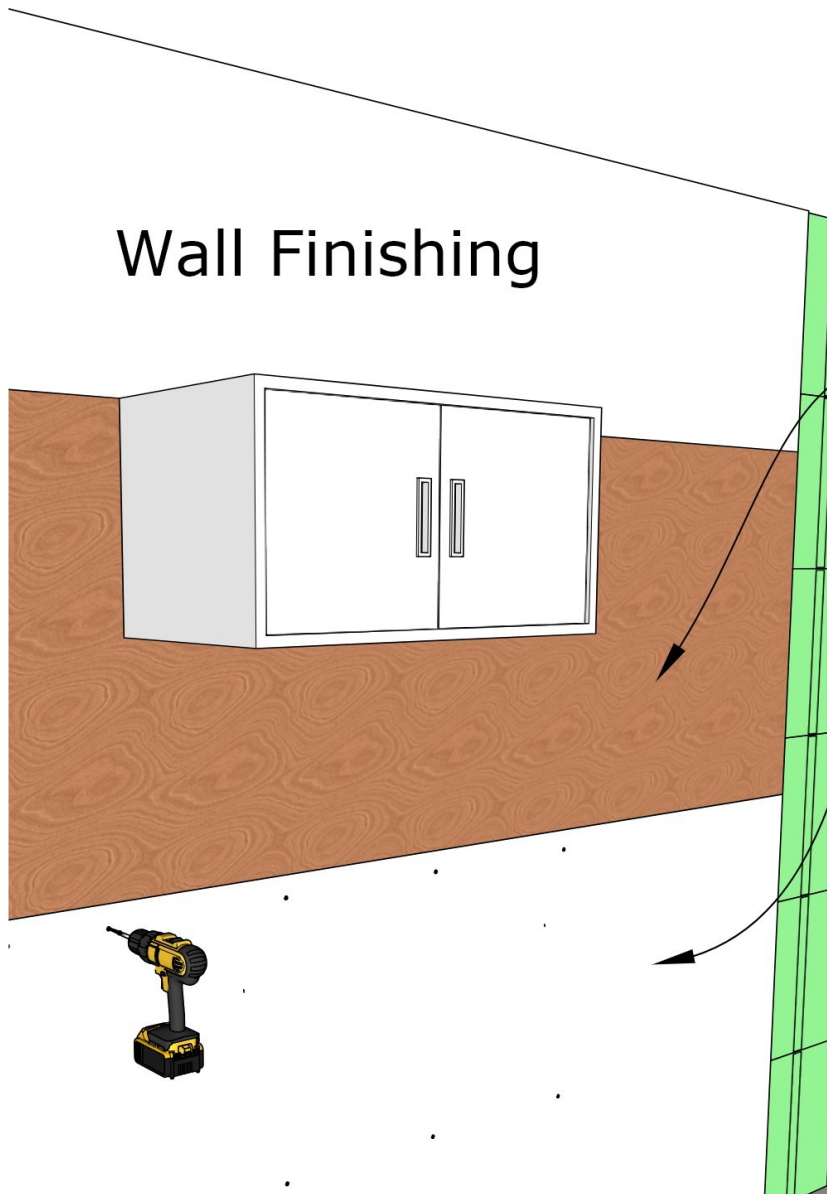
Backfill cut ICF chases with insulating foam to restore r-values



Side mount electrical box



Wall Finishing



Framed Wall

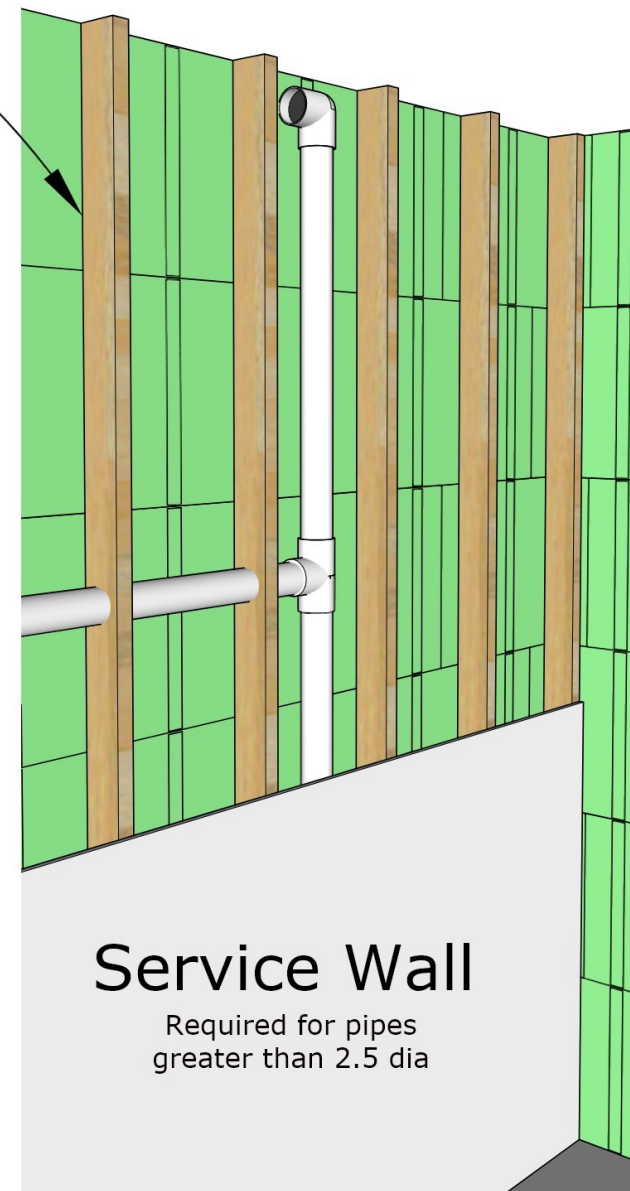
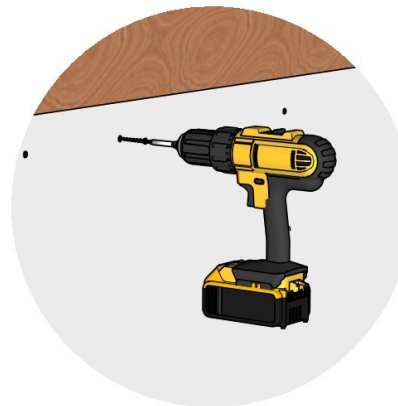
Lumber framed wall
to accommodate
thicker services

Plywood Panel

Allows for universal
attachment area
independent of hidden
web locations 8" O.C.

Drywall

Attached with
standard drywall
screws to imbedded
plastic 8" O.C.webs



ICF Wall Preparation for Peel & Stick

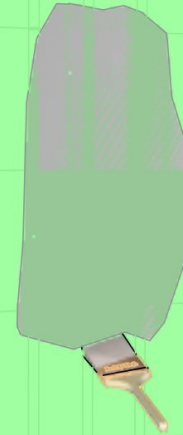
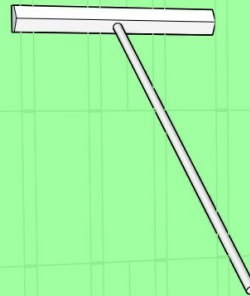
After pouring concrete, use a garden hose to wash down ICF walls.

ALLOW TO DRY BEFORE INSTALLING!

ALTERNATIVELY

Brush down ICF walls to remove dust & dirt

IF the ICF has been exposed to sunlight for long periods, has discoloured & become powdery on the surface, **PRIMER** should be used.
[Apply with relative humidity BELOW 75%]



Use Primer if waterproofing is required.

Peel & Stick Installation

INTERNAL CORNERS

Cut 16" to 24" by full width strips. Fold in half. Start at the bottom & after removing the paper backing, install, in shingle fashion up the wall. Apply equally & evenly to both sides. Make sure to apply into the corners to no air pockets are left behind.

USE 2 PEOPLE.
INSTALL ONLY ON DRY SURFACES.
ENSURE FULL CONTACT WITH WALL SURFACE BEHIND USING HAND OR PLASTIC ROLLER

The top edge of the membrane and where the membrane meets with the concrete footing must be sealed with a mastic/sealant which is compatible with polystyrene.

Use siding batten to top edge to prevent peeling away

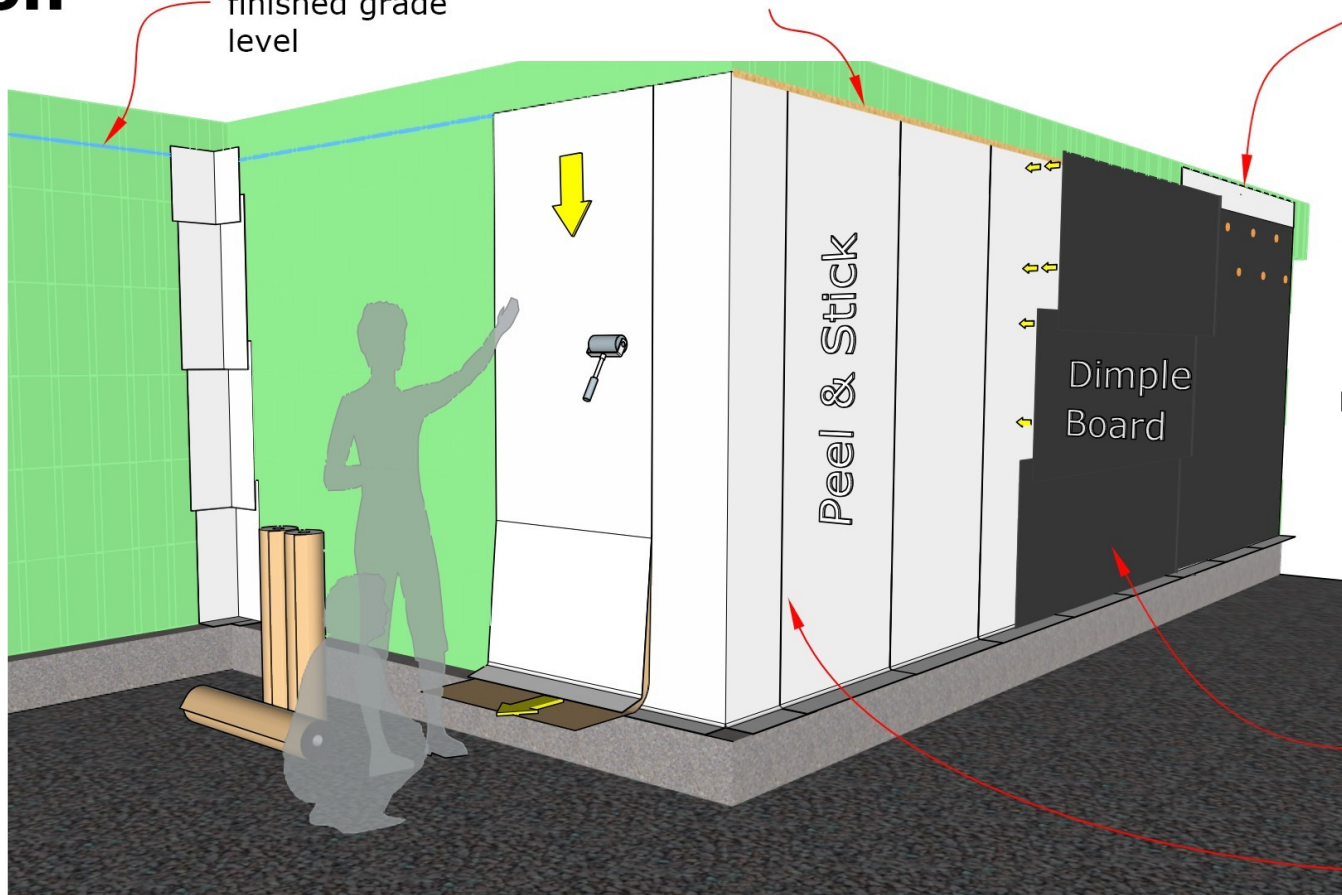
Hardieplank or similar material to protect exposed above grade ICF

EXTERNAL CORNERS

Cut full width to height required. Fold in half. Start at the top & after removing the paper backing, install, downwards. Apply equally & evenly to both sides. Make sure to apply into the corners to no air pockets are left behind.

Intall dimple board per manufacturer's instructions

Overlap 3 inches



WORKING TEMPERATURE 2°-38° C (35°-100° F)

PEEL & STICK: Self-adhesive waterproofing membrane specifically for application to ICF. It is designed for below grade use only.
Supplied in rolls, 36" wide. Coverage 225 sq ft, 210 sq ft net.

Nudura Block Types & Dimensions

90 Degree
Form Unit
Assembled
"Corner"

Optimizer Form Unit
Unassembled
"Optimizer"

XR35
Straight & 90°
R Value R-35

Regular
R Value R-24

Height
Adjuster

Height
Adjuster Web

Optimizer
Web

Standard
Web

Optimizer

Standard Panel

Standard

Standard Form Unit
Assembled
"Straight"

1/2" foam
interlock

NUDURA ICF BLOCK SPECIFICATIONS

Regular Block EPS (expanded polystyrene) thickness - 2 5/8"
Overall block dimension - 8 inch concrete wall - 13 1/4"
- 6 inch concrete wall - 11 1/4"
XR35 Block EPS (expanded polystyrene) thickness - 4"
Overall block dimension - 8 inch concrete wall - 16"

Standard Form Unit
Unassembled
"Panel or Build-a-Block"

45 Degree
Form Unit
Assembled
"45"