THERMASTEEL™

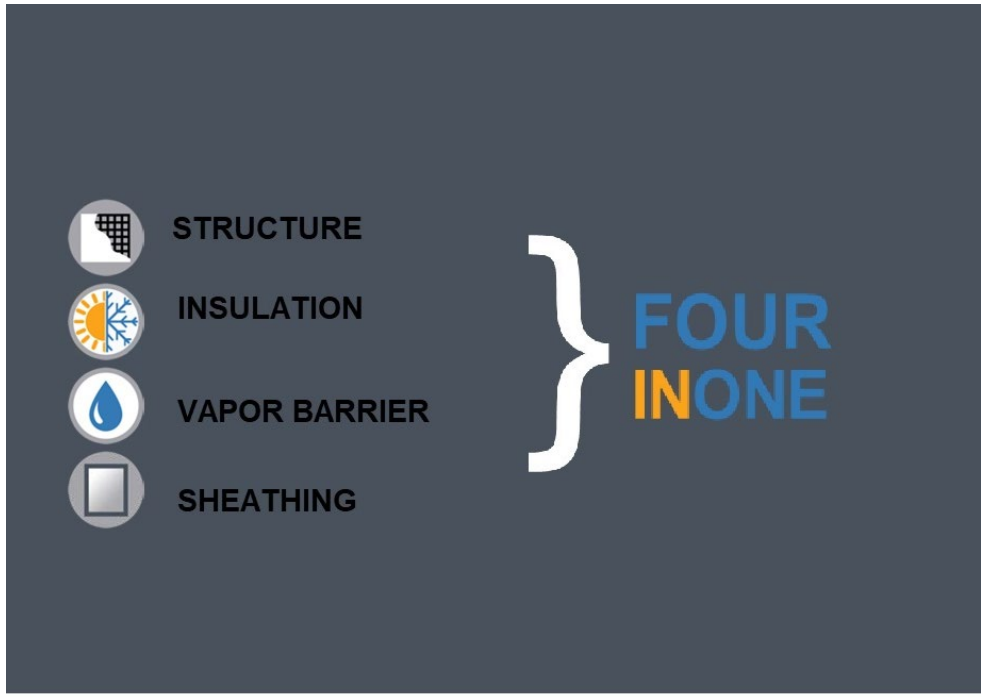
ADVANCED PANEL SYSTEM

Assembly Manual

THERMASTEEL GENERIC ASSEMBLY MANUAL

- The following information contains some of the many possible suggestions for methods of attachments, modifications, and designing assemblies.
- These suggestions are not to be considered necessarily the best possible solutions for your needs, but it will serve as one of many possible solutions.
- All attachment of connections must be reviewed by a certified architect or engineer for your applications to confirm that it meets with your individual requirement and/or structural application.

- Please feel free to contact ThermaSteel, Inc., at 540-633-5000 with any technical assistance you may need.



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HELPFUL LINKS

About Thermasteel Panels
https://thermasteelinc.com/about/panels/

IAMPO Evaluation Report # ER-128
https://thermasteelinc.com/wp-content/uploads/evaluation-report-for-iapmo.pdf

Builders Guide
https://thermasteelinc.com/builders/

YouTube Tutorials
https://www.youtube.com/@thermasteelinc/featured

Connection Details
https://thermasteelinc.com/wp-content/uploads/thermasteel-connection-details.pdf

THERMASTEEL TERMINOLOGY

Attachment Plate - A 3” x 5” 20GA metal plate used for various methods of joining two panels. See Panel Technology-Attachments.

Beam pocket - A rectangular slot in a panel to allow for a beam.

Beveled Edge - Top of panel is beveled to the slope of the roof. Also, side of panel is beveled to angle of wall.

Bracing -Diagonal bracing for racking resistance. Also, temporary bracing used for walls and floors.

Chase, Horizontal - 2” x 3” rectangular slot 11” from the bottom of the panel running horizontally through the panel which allows for wiring.

Corner Metal - A 24GA metal piece bent to the angle of the corner running the height of the wall at the corner used to fasten the panels at the corner on the outside.

EPS (Modified) -Expanded PolyStyrene, modified with additives which inhibit flame spread.

End Metal - 4 pieces of 2 ¼ x ¾” x 47” 24GA steel per panel bent at right angles and adhered perpendicular to the top and bottom of the studs on the exterior and interior of the panel. See Panel Technology-Standard Terms

Exterior Side of Panel -The side of a wall or roof panel that would face the weather.

Foam Gun - A trigger actuated device used to apply expanding urethane foam.

Gable End - The wall that forms the Gable end of the roof.

Hot Knife - An electrical device using various configurations of a ni-chrome wire that is heated to a temp. that easily melts the EPS. Used to form chases and altering panels.

Hurricane panel - A special panel developed by ThermaSteel. Used in high wind situations and designed to withstand the penetration of projectiles.

THERMASTEEL TERMINOLOGY

Infill Panel - Standard panels used to fill in between steel and concrete structural elements.

Insul Header - A steel header that maintains the thermal break between the exterior and interior steel of the header.

Interior Side of Panel - The side of the panel usually exposed to controlled atmospheric conditions such as HVAC.

Leading Edge - The edge of the panel that is used to attach to the adjacent panel and is usually on the right hand of the panel when viewed toward the exterior side of the into the wall.

Point Load - Usually a heavy load in a location caused by a concentration of forces in a small area.

Ridge Cap - 24GA galvanized Steel bent to the slope of the roof and forming a ridge over the panels joined at the ridge.

Rough Opening - The size of the opening called out for window and doors. Tolerance on all sides is usually 1/8”-1/4”.

Tongue and Groove - The joint formed in the molding process that limits air infiltration at the joint and allows for variations in the wall's length.

Sill - A panel or part of a panel that forms the bottom of a window.

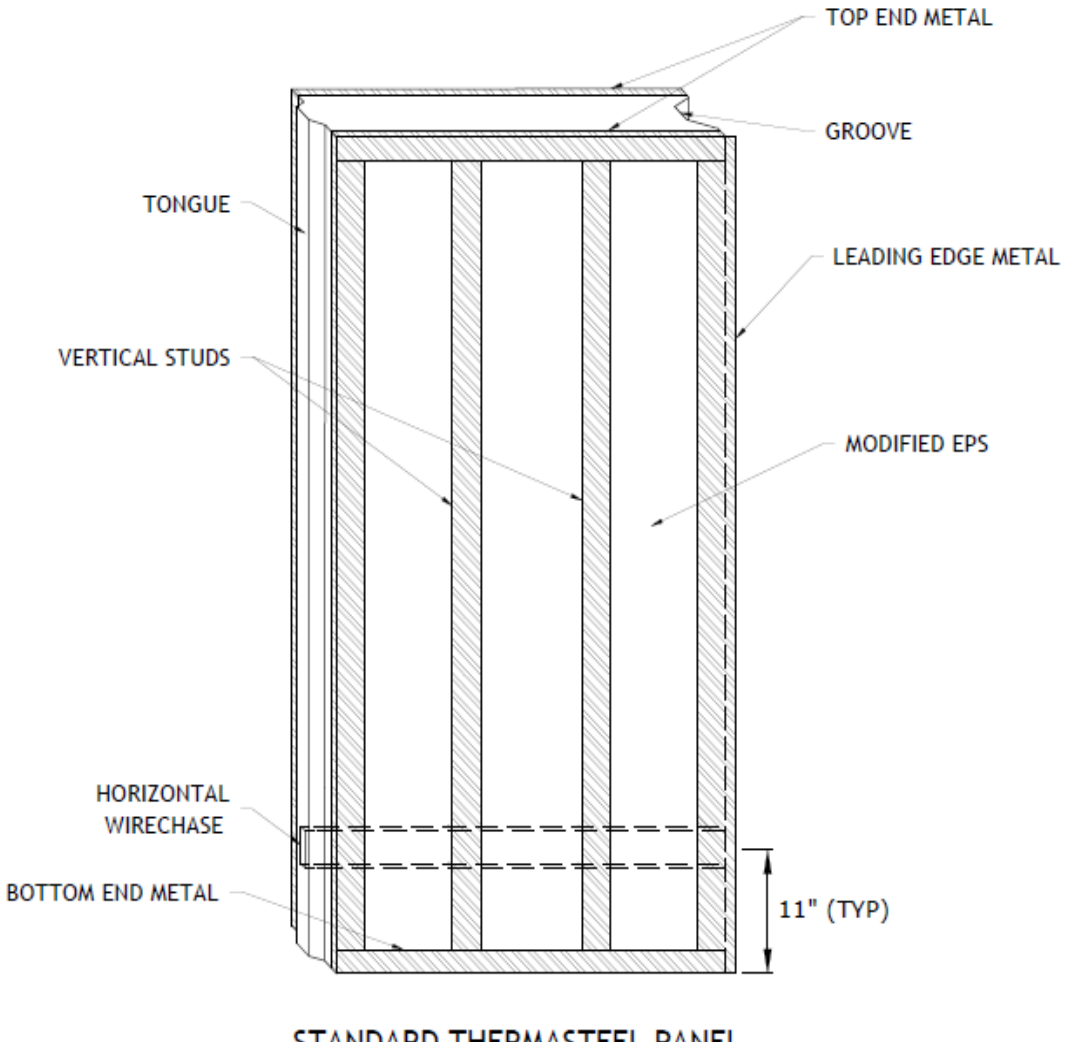
Stacked Panels - Panels joined end to end to form walls floors and roofs more that 12’ in length.

Strap metal - Metal used to join headers and sills to panels

Studs – 3 5/8” metal profiles that form part of the framework for the panel.

ThermaSteel Panel - A standard panel with 12 pieces of steel bonded to the EPS insulation configured to form a composite building material.

Track - 24 to 14 gauge “C” shaped galvanized steel used for Top and Bottom plates that studs or panels are attached to.

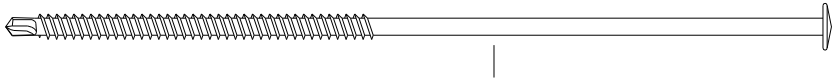


STANDARD THERMASTEEL PANEL

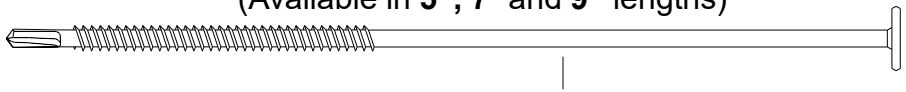
PANEL TECHOLOGY- STANDARD TERMS

- Panel numbers located on bottom of Panel
- This will reflect the shop drawings.

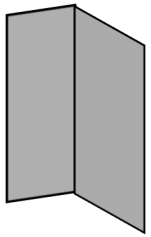
FASTENERS & ATTACHMENT PLATES



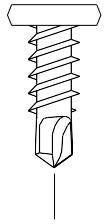
(Light Gauge Self Drilling Screw)
(This screw is used for panel to steel attachment)
(used for penetrating steel not greater than **18** Gauge)
(Available in **5”, 7**” and **9”** lengths)



(Heavy Gauge Self Drilling Screw)
(This screw is used for panel to steel attachment)
(Used for penetrating steel from **16** gauge to ¼” thickness)
(Available in **6”, 8”** and **9-3/4**” lengths)



Standard **24**-Gauge Corner metal
1”x7” or 1”x 9”



(Heavy Gauge Self Drilling Assembly Screw)
(This screw is used for panel assembly and standard attachment)
(Heavy Gauge Screw is #**10-3/4”**)
(Used for penetrating steel greater than **18** gauge)

(3” x 5” – **20**-gauge attachment Plate)

(3” – **24**-gauge Attachment Strap)

TOOL LIST

Basic list of tools to be found and used on the construction site.

General Construction Equipment

- Sharpies/Magic Markers
- Carpenter's Pencils
- Tape Measure
- 100' Long Tape
- Hammer
- Rubber Mallet
- Generator or power source
- Extension cords
- Sawhorses
- Screw Gun
- Philips bits
- Ladders, tall enough for project
- Bracing, for incomplete walls
- Scissors or knife
- Chalk line
- Level
- Framing Square
- Drills w/ bits
- Toolbelts
- Knee Pads

Personal Protective Equipment (PPE)

- Goggles/Safety Glasses
- Work gloves
- Steel Toe shoes/boots
- Ear Protection
- First Aid Kit

No 1 injury? Cuts! Wear Gloves!

THERMASTEEL PANEL SPECIFIC TOOLS AND EQUIPMENT

- DeWalt anchoring gun, wood to concrete https://anchors.dewalt.com/anchors/products/direct-fastening/powder-actuated-direct-fastening/powder-actuated-tools/p2201_tool.php
- Steel track to concrete https://anchors.dewalt.com/anchors/products/direct-fastening/powder-actuated-direct-fastening/powder-actuated-tools/dfd270_tool_single_shot_deluxe_kit.php
- Metal angle grinder https://www.homedepot.com/b/Tools-Power-Tools-Grinders-Angle-Grinders/N-5yc1vZc2fw https://www.harborfreight.com/power-tools/grinders/angle-grinders.html
- Seal foam, width of track if possible https://www.homedepot.com/p/Nashua-Tape-6-in-x-50-ft-Window-and-Door-Flashing-Tape-1542734/206495170
- Foam Insulation Saw https://www.wind-lock.com/tools-accessories/eifs-stucco-ci-icf-sip/foam-saws/
- Grabber Lox Drive Bits https://www.homedepot.com/p/Grabber-2-x-2-in-LOX-Drive-Insert-Bit-23845/203812797

- Metal drill bits, size of j-bolts or larger
- Grinder wheels
- Caulk/Sealer
- Saws-all w/ metal blades
- Tin snips
- Rachet & Socket Set
- Pliers
- Washers and nuts to fit j-bolts
- Electric Hot Knife
https://www.amazon.com/Hercules-Handheld-Electric-Styrofoam-Accessories/dp/B01NBDZFK9

- Driver Bits
- Cordless Hammer Drill
- Cordless ½” Drill Driver
- Cordless ¼” Impact Driver
- Extra Batteries for Cordless Units
- Center Punch
- Small Sledgehammer
- Large Sledgehammer

PREPARE SITE BEFORE ARRIVAL OF PANELS

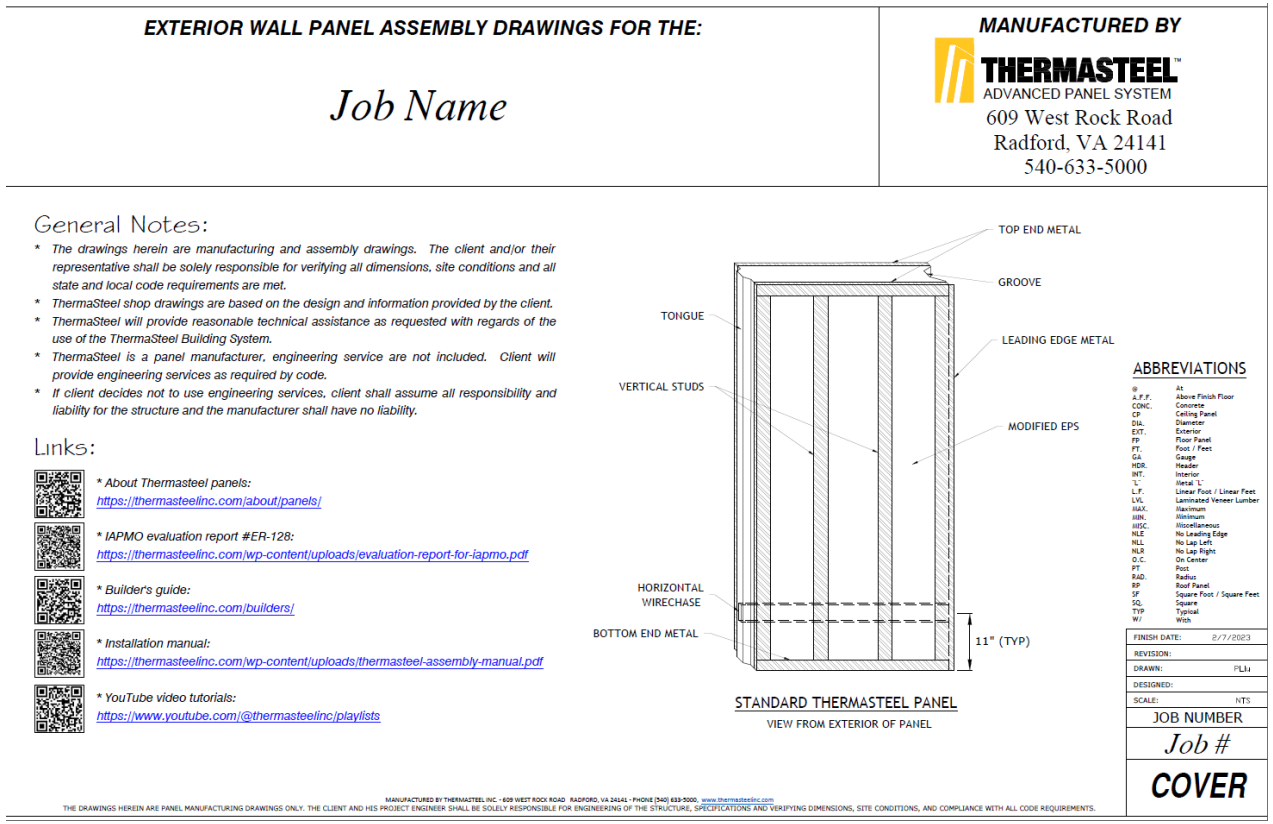
1. Check Foundation Carefully:
Confirm its level and square

2. Fix any holes, valleys or lumps:
This will ensure for a snug fit track to floor.

3. Establish Walls Lengths:
Premeasure and mark foundation or slab to ensure measurements match the shop drawings.

4. Set chalk lines:
This will ensure track is placed straight and in the correct spot.

5. Set your centerlines for door openings:
This will show you where track is not needed.



EXTERIOR WALL PANEL ASSEMBLY DRAWINGS FOR THE:

Job Name

MANUFACTURED BY

THERMASTEEL
ADVANCED PANEL SYSTEM
609 West Rock Road
Radford, VA 24141
540-633-5000

General Notes:

* The drawings herein are manufacturing and assembly drawings. The client and/or their representative shall be solely responsible for verifying all dimensions, site conditions and all state and local code requirements are met.
* ThermaSteel shop drawings are based on the design and information provided by the client.
* ThermaSteel will provide reasonable technical assistance as requested with regards of the use of the ThermaSteel Building System.
* ThermaSteel is a panel manufacturer, engineering service are not included. Client will provide engineering services as required by code.
* If client decides not to use engineering services, client shall assume all responsibility and liability for the structure and the manufacturer shall have no liability.

Links:

* About Thermasteel panels:
https://thermasteelinc.com/about/panels/
* IAPMO evaluation report #ER-128:
https://thermasteelinc.com/wp-content/uploads/evaluation-report-for-iapmo.pdf
* Builder's guide:
https://thermasteelinc.com/builders/
* Installation manual:
https://thermasteelinc.com/wp-content/uploads/thermasteel-assembly-manual.pdf
* YouTube video tutorials:
https://www.youtube.com/@thermasteelinc/playlists

TOP END METAL
GROOVE
TONGUE
LEADING EDGE METAL
VERTICAL STUDS
MODIFIED EPS
HORIZONTAL WIRECHASE
BOTTOM END METAL
11" (TYP)

STANDARD THERMASTEEL PANEL
VIEW FROM EXTERIOR OF PANEL

ABBREVIATIONS

@	At
A.F.F.	Above Finish Floor
CONC.	Concrete
CP	Ceiling Panel
DIA.	Diameter
EXT.	Exterior
FP	Floor Panel
FT.	Foot / Feet
GA	Gauge
HDR.	Header
INT.	Interior
L	Metal 'L'
L.F.	Linear Foot / Linear Feet
LVL	Laminated Veneer Lumber
MAX.	Maximum
MIN.	Minimum
MISC.	Miscellaneous
NLE	No Leading Edge
NLL	No Lap Left
NLR	No Lap Right
O.C.	On Center
PT	Post
RAD.	Radius
RP	Roof Panel
SF	Square Foot / Square Feet
SQ.	Square
TYP	Typical
W/	With

FINISH DATE:	2/7/2023
REVISION:	
DRAWN:	PLH
DESIGNED:	
SCALE:	NTS

JOB NUMBER
Job #

COVER

MANUFACTURED BY THERMASTEEL INC. - 609 WEST ROCK ROAD RADFORD, VA 24141 - PHONE (540) 633-5000, www.thermasteelinc.com
THE DRAWINGS HEREIN ARE PANEL MANUFACTURING DRAWINGS ONLY. THE CLIENT AND HIS PROJECT ENGINEER SHALL BE SOLELY RESPONSIBLE FOR ENGINEERING OF THE STRUCTURE, SPECIFICATIONS AND VERIFYING DIMENSIONS, SITE CONDITIONS, AND COMPLIANCE WITH ALL CODE REQUIREMENTS.

Check Shop Drawings Carefully: For Accuracy

- Overall dimensions: wall heights and lengths.
- Placement of the openings: windows and doors.
- The openings (door and windows) actual dimensions

DELIVERY OF THERMASTEEL PANELS

- Every load is carefully checked before departing our facility
- Take a physical inventory and pictures while unloading to Ensure all panels are in good condition on the delivery truck.
- Check all track and screws arrived in the correct quantity and in good condition
- Check for any damage. If you see damaged product, take pictures before unloading.
- You have 6 days to report of damaged product

PAINLESS MATERIAL HANDLING

Proper method to handle panels

Don't Lift up on the leading edge

PRE-ASSEMBLY STAGING

How to simplify the process and save time:

- Find the shop drawings to get yourself comfortable with the layout and numbers
- Find panels labeled wall A (for example) the starting wall in bundles you will receive.
- Place wall A panels to the designated spot where they will be installed.
- Start installing A-1 then A-2 continuing in numerical value.
- Continue doing this until panels are in the correct spots according to the shop drawings.

TRACK LAY-OUT

Mark your Door Openings

Set chalk lines

Lay out where track will be put down

Install sill foam 30ibs felt paper or seam filler to isolate track

Begin by installing track at a corner

Track may be cut with Circular saw, Chop Saw or even grinder, these tools MUST be equipped with metal blades.

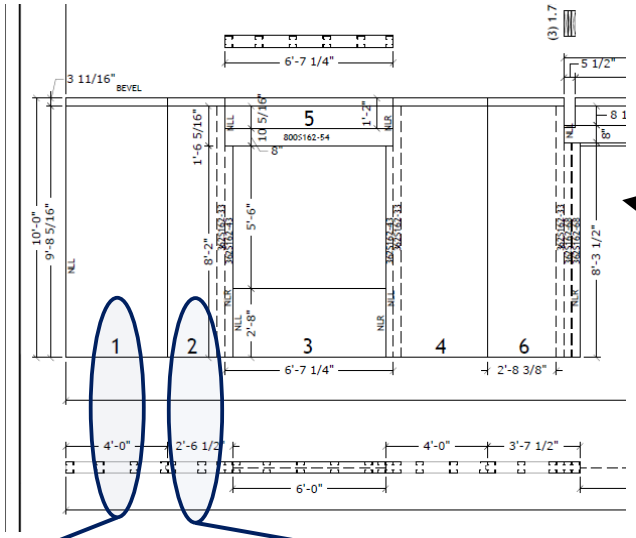
CONNECTING THE TRACK TO THE FOUNDATION

- Tapcon with 1” Flat washer Hilti pins
- Expansion Bolts
- J-Bolts
- Self drilling screws (for wood applications)

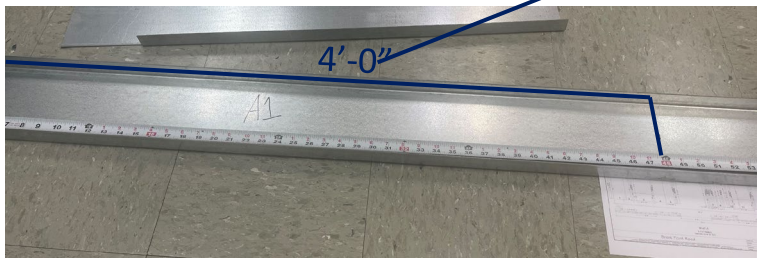
CRUCIAL STEPS WITH TRACK

★ Mark the location of every panel on the track.

Do not include leading edge into the measurements.

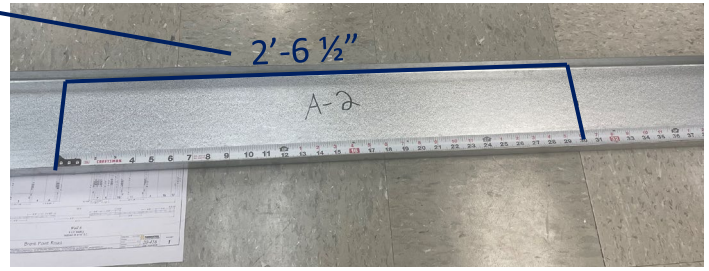


This configurations shows wall A (Final Shop Drawings)



Track portion for panel A-1

Marked at 4' as shown on shop drawings



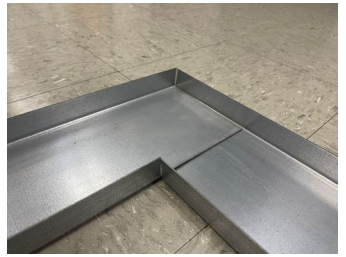
Track portion for panel A-2

Marked at 2'-6 ½ ' as shown on shop Drawings

RECOMENDED METAL TRACK CONNECTIONS

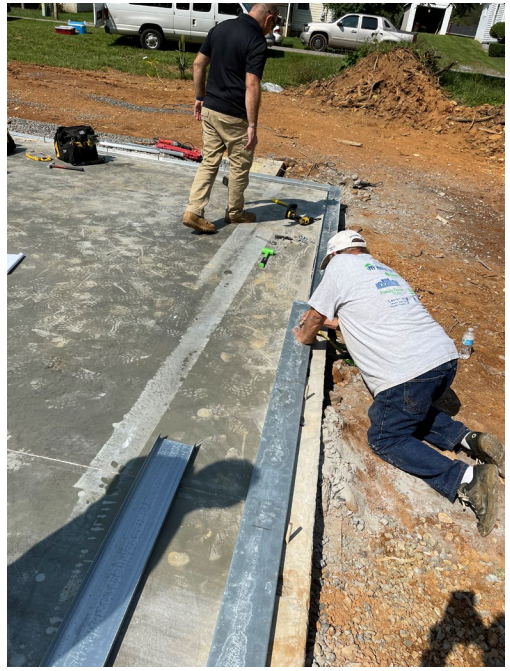
Middle Connection

Corner Connection



J-BOLT CONNECTION

1. Layout track to bolts
2. Measure out bolt placement
3. Transfer measurements to track
4. Cutouts for plumbing and electric if needed is also done in this step
5. Mark for bolt holes.
6. Install Track



Possible Tools

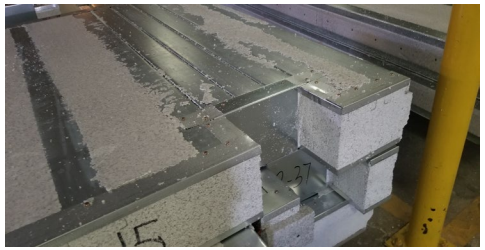
- Hole Saw
- Hole Punch
- Unibit
- Drill with Metal Bit
- Hammer Drill

THERMASTEEL ASSEMBLY

- Make sure track is straight
- Start at a corner by placing the panels into the track
- From the outside work from left to right following the leading edge
- Don’t forget to brace 8’ OC

★ Use minimum screws until walls are fully installed – after fully installed use 2 screws per stud inside and out, top and bottom

ROOF SUPPORT – CONNECTION TO PANELS



Beam Pockets

Traditional (same as stick Framed)

Click Me to See Roof Connection Details Page 88-107

https://thermasteelinc.com/wp-content/uploads/thermasteel-connection-details.pdf

THERMASEEL ROOF PANEL APPLICATION

Can be supported in multiple ways

- Trusses
- Joist
- Beams
- Rafters

THERMASTEEL ELECTRICAL

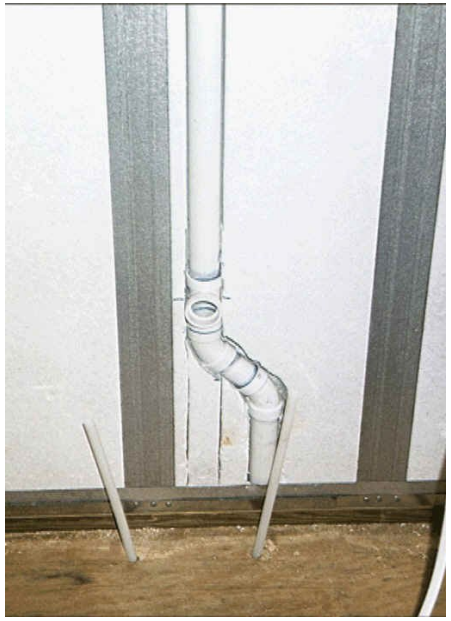
★ Panels come pre-chased for wire 11” From the ground up

Unless otherwise specified.

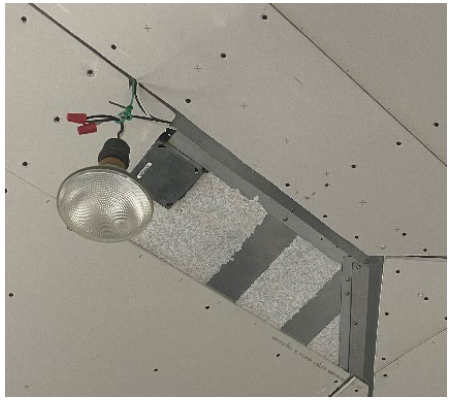
Hot knife is used to make custom routes for wiring and plumbing.

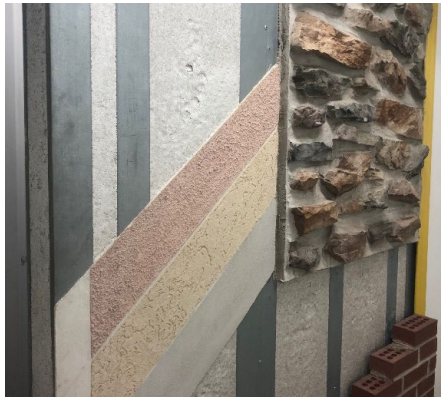
THERMASTEEL PLUMBING

- Hot Knife used to remove eps from the panel to the exact dimensions necessary for your plumbing.
- After inserting plumbing and after inspection we recommend to fill gaps back in with eps or spray foam where necessary.



Watch Me https://www.youtube.com/watch?v=0j2j0KTQ2-E





THERMASTEEL-CLADDING

The panels allow you to use any cladding to best fit your project.

- Siding
- Stucco
- Rock
- Metal
- Hardy Board
- Brick & many more

Field Adjustments

To Wide

To Tall

1. Pry off end metal on both sides (save to re-attach)
2. Clean excess foam from the end metal
3. Mark and cut with Reciprocating saw (careful blade doesn't wander)
4. Re-attach end metal with two metal screws per stud each side

★ Make sure if the panel is too wide and the field adjustment is to shorten - fill in any gaps with spray foam for maximum thermal efficiency