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Note to the Reader: Due to differing conditions, tools, and individual skills, the authors of this manual and Charlotte Region Habitat For Humanity assume no responsibility for any damages, losses incurred, deaths, or injuries suffered as a result of following the information published in this manual. Although this manual was created with safety as the foremost concern, every construction site and construction project is different.

Accordingly, not all risks and hazards associated with homebuilding could be anticipated by the authors of this manual and Charlotte Region Habitat for Humanity. Always read and observe all safety precautions provided by any tool or equipment manufacturer, and always follow all accepted safety procedures. Because codes and regulations are subject to change, you should always check with authorities to ensure that your project complies with all local codes and regulations.
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Introduction To The Exterior Trim Section

This Section Includes
- Work Schedule and Crew assignment
- Safety Guidelines
- Task List
- Tool and Equipment List
- Material List

Schedule: 1-3 Exterior Trim Workdays

On most Habitat projects, Standard Exterior Trim will be completed during one scheduled workday, depending on the crews’ experience. Though the same number of volunteers should be utilized, it will take approximately three days to complete the exterior trim of a house.

Crew Assignments

Exterior Trim is visible to all who view the house and should be led by experienced leaders.

It is suggested that three volunteers, including the Task Leader and one Crew Leader, be recruited for Exterior Trim. An additional volunteer and Crew Leader can be utilized if the leadership is experienced. Divide the crews by distributing the experience level among the crew leaders.
Exterior Trim Safety Guidelines

Review these guidelines with each crew member at the start of the day or as they arrive on site.

“NO JOB IS SO IMPORTANT THAT IT CAN’T BE DONE SAFELY”

Speak up if something looks unsafe. An observer can spot danger quicker than a worker.

Know where water & a first aid kit are located. Tell the site supervisor immediately in the event of an injury.

Habitat requires safety glasses not just when using power saws, but at all times. Habitat requires hardhats if any siding or framing is occurring on the job site.

Utility knives - keep your hand out of the blade’s path. Retract blade when not in immediate use. A sharp blade is safer than a dull one. Safely dispose of used blades.

Power Saws:

- Only crew members with power saw experience can use them. A busy work day is not the time to teach saw skills nor is it the time to learn saw skills.
- Habitat advises that ear & eye protection be used when using power saws. Don’t bind the blade of any saw – listen for it. Back off and resupport lumber. Keep electric cords out of the way of the saw and out from underfoot.
- Don’t cross hands over to stabilize material on the miter saw. Find another way or get help.
- Guards on saws must be in place & operating.

Use a ladder that will reach the work. Move the ladder with your work. Place ladders on solid footing. Scaffold - See the site supervisor for the numerous safety requirements for scaffolding (i.e. using triple widths of walkboards, placing scaffolding on solid footing, and guardrail requirements).

Keep the entire work area, inside and out, free of trip and fall hazards.

Keep tools not in use in your tool belt at all times. Select the correct tool for your work. Don’t leave loose objects on walls, porch beams or ladders.

No loose clothing or hair that could get caught in power tools.

Wear appropriate clothing for the task including work boots that protect from falling objects, have a nonskid sole & resist nail penetrations. No open toed shoes allowed.

Tools must be in a safe condition (meet OSHA standards, i.e. no nicks in cords or missing grounding prongs.)

Remove nails before discarding lumber. Discarded material must be placed in the designated area.

Think & concentrate on your task.

If you are uncertain about how to do a task, or how to operate a power tool, ask your crew leader.
**Task List - Exterior Trim**

**Staffing**
- House Leader
- 1 Exterior Trim Task Leader
- 1-2 Crew Leaders
- 1-2 Additional Volunteers

**Tasks To Be Completed**

- 1 crew _______Install rear porch guardrails/handrails/pickets
- 1 crew _______Install front porch guardrails/handrails/pickets
- 2 people _______Build/Install crawl space Door
- 2 people _______Wrap front porch beams in 1x material
- 2 people _______Build Front Porch Columns

**Quality Checkpoints**

- Porch posts are set securely, nails and screws checked
- Pickets are installed on porch rails and stair rails
- All materials re-stacked, site cleaned, tools accounted for and put away

**Additional Quality Checkpoints**

- Tapered columns are centered under beam so four sides have consistent angles.
- Nails on wood porch wrap are set $\frac{1}{16}$" to $\frac{1}{8}$" below surface
## Exterior Trim Tool And Equipment List

<table>
<thead>
<tr>
<th>Tools Each Trim Crew Member Will Need</th>
<th>Tools and Equipment Needed at Each Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hammer (16 oz. Minimum)</td>
<td>100' - 12 Gauge Grounded Drop Cord</td>
</tr>
<tr>
<td>Nail Apron</td>
<td>4-Way Electrical Box (Splitter)</td>
</tr>
<tr>
<td>Retractable Utility Knife with Extra Blades</td>
<td>Electric Miter Saw (10&quot;) with Saw Table</td>
</tr>
<tr>
<td>Measuring Tape (16' Minimum,)</td>
<td>½&quot; Electric Drill</td>
</tr>
<tr>
<td>Square (Speed or Combination)</td>
<td>Assortment of Bits (wood &amp; concrete)</td>
</tr>
<tr>
<td>Two Pencils</td>
<td>6' Step Ladder</td>
</tr>
<tr>
<td>Safety Glasses</td>
<td>8' Step Ladder</td>
</tr>
<tr>
<td>Hard Hat</td>
<td>Extension Ladder -if needed</td>
</tr>
<tr>
<td>Work Gloves</td>
<td>Handy Bar or Crow Bar</td>
</tr>
<tr>
<td>Water</td>
<td>Broom</td>
</tr>
<tr>
<td></td>
<td>Four Saw Horses</td>
</tr>
<tr>
<td><strong>Tools Each Trim Crew Will Need</strong></td>
<td><strong>Tools and Equipment Needed at Each Site</strong></td>
</tr>
<tr>
<td>Ear protection</td>
<td>Plumb bob</td>
</tr>
<tr>
<td>Safety Glasses</td>
<td>Shovel</td>
</tr>
<tr>
<td>Circular Saw (7 ¼&quot;)</td>
<td>Post Hole Digger</td>
</tr>
<tr>
<td>¼&quot; Portable Drill</td>
<td>Tub (for Mixing Concrete)</td>
</tr>
<tr>
<td>50' 12- Gauge Grounded Drop Cord</td>
<td>Temporary Posts - screw type</td>
</tr>
<tr>
<td>25' Measuring Tape</td>
<td></td>
</tr>
<tr>
<td>4' Level Framing Square</td>
<td></td>
</tr>
<tr>
<td>Hand Saw</td>
<td></td>
</tr>
<tr>
<td>Chalk Line</td>
<td></td>
</tr>
<tr>
<td>Cats Paw (for Removing Nails)</td>
<td></td>
</tr>
<tr>
<td>Wood Chisel</td>
<td></td>
</tr>
<tr>
<td>Nail Set</td>
<td></td>
</tr>
</tbody>
</table>
### Exterior Trim Material List

<table>
<thead>
<tr>
<th>Porch Material List:</th>
<th>Front Porch Posts Material List:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galvanized steel flashing 24” wide; for wood floors</td>
<td>Posts</td>
</tr>
<tr>
<td>Galvanized 16d common nails</td>
<td>Metal post anchors</td>
</tr>
<tr>
<td>Galvanized 10d nails; joist hangers</td>
<td>¼”x2” masonry anchors (if no J-bolt)</td>
</tr>
<tr>
<td>Treated 4x4; Porch Posts</td>
<td>3 ½” Deck Screws</td>
</tr>
<tr>
<td>Treated 6x6; Front Porch posts</td>
<td></td>
</tr>
<tr>
<td>Treated 2x12; wood steps/wood house</td>
<td>primer and brush; post bottoms</td>
</tr>
<tr>
<td>Treated 2x12; band joists</td>
<td></td>
</tr>
<tr>
<td>Treated 2x12; stringers</td>
<td>Additional/Substituted Material List:</td>
</tr>
<tr>
<td>Treated 2x2 or joist hangers</td>
<td></td>
</tr>
<tr>
<td>Treated 2x4; kickers, temporary posts</td>
<td>Treated 2x2 (porch detail)</td>
</tr>
<tr>
<td>Treated 2x8; joists</td>
<td>1x6 beam wrap (clear pine or GP prime trim)</td>
</tr>
<tr>
<td>Treated 2x10; band joists</td>
<td>1x10 beam wrap (clear pine or GP prime trim)</td>
</tr>
<tr>
<td>Treated 5/4x6; deck boards</td>
<td>1x12 clear pine; column wrap</td>
</tr>
<tr>
<td>Treated 2x6; diagonal bracing</td>
<td>Treated 2x4 rail cap</td>
</tr>
<tr>
<td>Treated 2x6; handrails</td>
<td>Tap con screws for guardrail to column</td>
</tr>
<tr>
<td>Precast footings</td>
<td>Tap con screws for pickets if needed</td>
</tr>
<tr>
<td>Concrete</td>
<td>Treated 2x4 lower stair rail</td>
</tr>
<tr>
<td>16d Galvanized Finish Nails</td>
<td>Aluminum column caps</td>
</tr>
<tr>
<td>5/8” Galvanized Hex Bolts/Washers/Nuts (attach deck to band joist)</td>
<td>6d galvanized trim nails; columns</td>
</tr>
<tr>
<td>½” x8” Galvanized Bolts; diagonal bracing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ring Shank galvanized boxing nails;</td>
</tr>
<tr>
<td></td>
<td>Beam wrap builders’ felt (between wood base and</td>
</tr>
<tr>
<td></td>
<td>concrete cap)</td>
</tr>
<tr>
<td>8d Galvanized Ring Shank Nails; deck</td>
<td></td>
</tr>
<tr>
<td>16d Galvanized Ring Shank Nails</td>
<td></td>
</tr>
<tr>
<td>½”x4” Galvanized Hex Bolts/Washers/Nuts (attach steps to deck)</td>
<td></td>
</tr>
<tr>
<td>½”x8” Galvanized Hex Bolts/Washers/Nuts (attach post to stringer)</td>
<td></td>
</tr>
<tr>
<td>5/8”x5” galvanized lag screws (guard post to deck and house)</td>
<td></td>
</tr>
<tr>
<td>3” deck screws (guardrail to front posts)</td>
<td></td>
</tr>
<tr>
<td>2 ½” deck screws; pickets, 5/4 board</td>
<td></td>
</tr>
<tr>
<td>Wedge anchors (expansion bolts); stringer to brick porch</td>
<td></td>
</tr>
<tr>
<td>1” galvanized screws (post anchor to post)</td>
<td></td>
</tr>
</tbody>
</table>

### Items that may come as Components:
- Column Bases
- Columns
- Column Caps
- Pickets
General Instructions For Exterior Trim

All exterior trim joints (mitered or beveled) should be tight, with no spaces between the two pieces of wood. Treated lumber will shrink. Do not try to improve bad joints by puttying or caulking.

Use only double dipped galvanized nails and fasteners in areas exposed to the weather or in contact with pressure treated lumber. On treated lumber, drive the nails or screws flush with the surface of the material being careful not to make hammer marks on the wood. On untreated lumber, use a nail set to set the nails $\frac{1}{16}''$ to $\frac{1}{8}''$ below the surface.

Careful planning, measuring and cutting help reduce the amount of waste on the job.

The exterior trim for typical Charlotte Region Habitat homes include:

- Front porches are poured concrete and may have partial brick columns
- Tapered columns are built on site
- Front porches have brick steps
- All porches have handrails and guardrails, regardless of height
- Porch Beams are wrapped in painted 1x
- Rear porches are poured concrete and steps are brick
- Porch rail posts are 1 ½” taller to accommodate 2x4 cap on rail
- Wider vinyl window and door trim is used
- Additional framing needed to accommodate trim
- Vinyl cedar shakes are on the front gable Fascia width is 5 ½” (vs. 3 ½”)
- Starter strip is used on the gable and around windows and doors

Trim Package

Flash Rear and Front Porches – on wooden flooring builds

Flashing is necessary for houses built on a wood floor system. Prior to attaching the porch or installing exterior doors, it is necessary to flash in order to prevent water from reaching untreated wood.
construction members. Attach the galvanized steel flashing to the band joist with a minimum number of galvanized siding nails. Extend the flashing at least 2” over the foundation blocks and 12” beyond the porch. Cut the flashing so that a flap can be folded into the door rough opening. The flap should extend 3" over the sub-floor in the doorway and up onto the studs to either side of the doorway. Counterflashing (another piece of flashing overlapping the lower piece) will be necessary if a single piece of material is not wide enough.

Wood Rear Porches and Stairs

Assemble the Deck

Assemble the framing for the deck prior to attaching it to the house. The band joist is made of 2x10 and 2x12 treated material, which is doubled on the sides of the porch perpendicular to the joists (opposite the house). 2x10 band joists are used on all sides of the porch except the step side. A 2x12 is used on the step side so that the porch stringers have a place for the header to rest. A single 2x12 is used to connect the deck to the house. (It is not part of the preassembly but is scabbed onto the band joist.) Framing is
nailed together with 16d galvanized ring shank nails. Use 4 nails in the end of each board. Predrill to prevent splitting. Metal joist hangers or ledger strips are used to support the 2x8 joists, which are spaced at maximum 16" o.c.. Use 10d galvanized nails for joist hangers and 16d galvanized ring shank nails for ledger strips. Hint: End nail joists into first 2x10 before setting outside 2x10.

**House**

![Diagram of a house with dimensions and notes]

**Deck Assembly**
“NO JOB IS SO IMPORTANT THAT IT CAN’T BE DONE SAFELY”

Power Saws:

- Only crew members with power saw experience can use them. A busy work day is not the time to teach saw skills nor is it the time to learn saw skills.

- Habitat advises that ear and eye protection be used when using power saws.

- Don’t bind the blade of any saw – listen for it. Back off and resupport lumber.

- Keep electric cords out of the way of the saw and not underfoot.

- Don’t cross hands over to stabilize material on the miter saw. Find another way or get help.

- Guards on saws must be in place & operating.
Install 2x12 Against House

Cut a 2x12 the width of the door, measured outside to outside of the brick mold. Push the top of the 2x12 tight against the threshold and nail through to the band joist. (Mark nail and house joist locations because later you will be drilling for bolts.) This will place the 2x12 almost flush with the finished floor level of the house and will give support to the threshold. There will be a 2” rise between the deck and house floor once the deck structure is installed and the decking is in place.

Attach Deck to House

The porch deck is now ready to attach to the house. Mark a line 3” down from the top of the 2x12. Set the deck structure to this line. Once the deck boards are in place, the rise will be 2” into the house.

Building code requires porches to be fastened to the house by drilling through the porch and house band joists and using 5/8” galvanized carriage or hex head bolts every 20 inches (one between each joist.) Remember to consider the 2x12’s nails and the house’s joist locations before drilling.

Temporary posts will be needed until the permanent posts are installed. Temporary posts are made of two 2x4s nailed together with the upper end staggered about 4”. The shorter of the 2x4s is placed under the deck while the longer runs up alongside the band joist where it is temporarily nailed. Set the deck level for now. Check for square and brace if necessary.
(3) 5/8" GALVANIZED BOLTS
(CAREFUL OF HOUSE JOISTS
WHEN DRILLING).

TEMPORARY POST

PERMANENT POST
SUPPORTING DECK

POST CAN SIT ON CORNER
(NOTCH 2X12)
OR CAN SET BEHIND 2X12
(AS SHOWN IN ALTERNATE
CORNER VIEW).

Deck in Place Against House

ALT. CORNER
Set Deck Support Posts

Check deck for square prior to installing permanent posts. Dig a minimum 12” hole for each post. Either an 8”x16”x4” thick precast footings or a poured 8”x16”x6” thick concrete footings is needed. Cut posts so that the deck has a 1/16” per foot slope away from the house. After cutting a 4x4 post to length, set the post on the footing and attach it to the underside of the deck with four 16d galvanized finish nails or 3.5” deck screws toe nailed from the band joist into the support posts. Pour mixed concrete around the post and footing up to grade.

Install Diagonal Bracing

Diagonal bracing (X-Bracing) is required if the height from the top of the deck to finish grade is over four feet. Diagonal bracing consists of two 2x6s set on face of posts that run parallel with the house. Attach each end of bracing with two 5/8” galvanized bolts. At the intersection install a scrap piece of 4x4. Bolt through the intersection with a single ½” x8” bolt.

Install decking

Check the porch for square prior to installing the decking. The 5/4x6 decking material is attached using pairs deck screws driven flush. Do not leave space between boards. Install each board with the grain convex side up. Determine this by looking at the end of the board for curvature of the grain. (It should look like a frown.) Cut the decking flush with the band joist for smooth rail post installation. Extend the decking over the steps enough to cover the top riser and to provide a nosing, which is completed after the deck is in place.
**Build Rear Porch Steps**

Steps are constructed using 2x12 pressure treated lumber and galvanized nails, screws, and bolts. Exterior steps must be at least 36" wide (preferably 48" at the front porch), finishing out with 11" treads and 6 ½" risers.
Build Rear Porch Steps - con’t

1. Measure from the top of the porch to the expected finish grade (or concrete pad if in place) to determine the number of risers. Divide this number by 6½". Discuss with the site supervisor which way to round off the number though rounding down typically works best. Finish grade will take into account the site’s drainage issues. (Example; 43” total rise divided by 6.5 equals 6.61. Round to 6.). The top of the stringers is attached to the band joist by a 2x6 stringer tie. The bottom of the stringers is attached to a concrete pad.

2. On all porches, the top step is one step below the porch level. Take into account that the top riser is the step up onto the porch, which will not be cut out of the stringer.

3. Lay out the stair using a framing square to mark the rise and run for each step based upon 11” and 6 ½” treads and risers. The stringer cuts will be 10 ½” and 6 ½”. The treads will finish out at 11”.

4. Cut out the center stringer using a circular saw and a handsaw. The handsaw must be used at the intersection of the two cuts so that you do not over cut and weaken the stringers. Use this first stringer as a pattern for the two outside stringers. This is very important and ensures that the stringers match. After preparing all three stringers, notch the back side of the center stringer 1½” shorter where it rests against the deck so that it will butt into the 2x6 stringer tie. The side stringers will overlap the header and get end nailed.

5. A 2x6 stringer tie is attached with 16d ring shank galvanized nails or screws in-between the top ends of the outside stringers. This tie is later bolted to the concrete block or band joist.

6. A 2x4 kicker is attached between the stringers at ground level. Notch the center stringer for the kicker. The concrete pad will be poured after finish grading is completed. Stairs can be temporarily supported with the concrete form or blocks.

7. Treads: Attach two 5/4x6 deck boards to each tread using 2 ½” galvanized deck screws or galvanized ring shank nails. Drill pilot holes, the same size as the screw shaft, for the deck screws. Treads are cut flush with the outside stringers to allow for picket installation. Install two 5/4 x 6 boards for each tread. There will be a small gap at the back of the tread when viewed from the side. The gap won’t be visible from the front because it will be hidden by the riser. When installing the riser, push it tight to the bottom of the tread to support the nosing. Hold off on installing tread/riser adjacent to posts so you can have room to install posts. (A ¾” nosing is required by code if the tread depth is less than 11”).

8. Risers: Cover the step risers out of the same 5/4 x 6 decking boards. (The top riser is optional because the band joist covers the opening. It will be necessary to adjust stringers if the top board is left off. Treads must all be of equal depth.)

9. To attach the steps to the wood porch, use one 1/2” x 4” galvanized carriage bolt through the header between each stringer
Rear Porch Posts, Rails & Pickets

NOTE: Porch railings are required by code only if a portion of the porch is greater than 30" from finish grade. Handrails are required on steps if there are four or more risers.

Set Handrail

Dig a minimum 12" hole for the handrail posts. Stringers longer than 8’ will need a post set at the midpoint. Either an 8”x16”x4” thick precast footings or a poured 8”x16”x6” thick concrete footings is needed. After cutting a 4x4 post to length (38” above step tread), and beveling its top, set the post on the footing and attach it to the stringer with two ½” galvanized carriage bolts. Pour mixed concrete around the post and footing up to grade. The above photo shows this.
Rails and Pickets on Wood Steps
Install Guardrail Posts

Outside rail posts are notched 1 ½" around the decking and band joist. Post tops and bottoms are mitered 1" from the ends with 45 degree bevel cut. ¾"x5" lag screws are installed 4" apart to secure the post to the band joist.

“NO JOB IS SO IMPORTANT THAT IT CAN’T BE DONE SAFELY”

Think & concentrate on your task.
Speak up if something looks unsafe.
An observer can spot danger quicker than a worker.
**Determine Post and Rail Heights**

The porch rail height should be 37” from the floor. (By code the minimum is 3’). Because porches slope, it will be necessary to take this measurement against the house and transfer this mark to all corner posts using a 2x4 and a level. This will be the top of the 2x6 guardrail. Confirm that the height is 3’ or greater in several locations prior to continuing.

Ideally the guardrails are centered on the posts. Install guardrails with four 3½” deck screws on each end.

All porches require a lower rail. The distance between the concrete/deck and the bottom of the 2x4 should be 2”. (Whereas by code it can be no greater than 3½”). From the top of the top rail to the bottom of the lower rail will be 35”. Attach the upper and lower rails using countersunk galvanized screws. Predrill for screws. There is no need to predrill for countersinking the screw heads.
If the post is set behind the 2x12, notching is not necessary. Either method is acceptable. Drawings are based on setting the post directly under the porch corner.
Porch Pickets

Pickets are 32 ½” and mitered at a 45° angle at the tops and bottoms. (Miters are necessary in order to get three pickets out of an 8’ piece.) Install pickets 2” below the top of the upper rail on the outside of the porch. Chalk a 2” line for a reference point. (Pickets on the handrail at the steps by code must be at least 2” below the top of the rail.

Use a 2x4 to space the pickets evenly at 3½” apart (code requires that the space between pickets must be no greater than 4”). Drill pilot holes and attach each picket with 2 ½” deck screws, one at the top and one at the bottom. Leaving the pickets ½” above the bottom of the lower rail leaves room for slight differences in picket lengths. For a nicer layout, center the first picket and adjust the spacing so that the layout is aesthetically pleasing.
Step Handrails and Pickets

Step rails are required only if there are four or more risers. NOTE: The rise from ground to the first step and the last step onto the porch are counted as risers. (Each time you step up, it counts as a riser.)

The top of the handrail should be 34”, measured vertically at the front of the step’s nosing. (By code it must be between 30” and 38”). The handrail is set inside the posts and screwed with three 3” deck screws.

Pickets are placed on the outside of the handrails and will have to be measured on site for accuracy. Pickets on the handrail must be 2” below the top of the rail. No bottom rail is needed as the pickets attach directly to the side of the stringer.

“NO JOB IS SO IMPORTANT THAT IT CAN’T BE DONE SAFELY”

Keep the entire work area free of trip and fall hazards.

Keep scrap away from saw table, walkboards, and pathways. Discard in designated areas.

Front Porch Handrail
Set Permanent Porch Posts

Permanent porch posts are installed after the beams have been wrapped. Be particularly careful not to dent the aluminum.

Porch posts are installed at the outside corner of the porch and under each joint in the beam. Plumb down from the center of the outside corner of the porch beam and mark a point on the porch floor. (Use a plumb-bob or a 4’ level and a straight 2x4 to find this point.) Install a metal post anchor to the porch floor using ¼”x 2½” masonry anchors or use the pre-installed J-bolt if provided by the masons.

Once the porch beam is level, measure the distance between the top of the bracket and the porch beam and cut a 4x4 post to that length. If the post is not pressure treated, prime both ends prior to installation. Note: It is easy to cut the wrong end of a decorative post! Cut extra length off the bottom.

If the post is pressure treated, flash the top of the post with a piece of galvanized flashing to prevent corrosion. Fit the flashing to the top of the post, leaving it ⅛” shy of the edges, which will allow room for a bead of caulk and no chance of exposing the flashing. Nail the flashing into place. Sink the nails so they will not scratch the aluminum beam wrap.

Use screw-type temporary posts if they are available. Place them next to the permanent post location and slightly lift the beam. If using a 2x4 temporary post, tapping at the bottom will raise the beam. When finessing the permanent post, tap (protecting it with a piece of scrap) it in place and check for plumb. Do not dent the aluminum! Once plumb, slowly release the temporary posts. Lightly mark a corner of the permanent post for reference on top and bottom because each screw that goes into it is likely to move it out of plumb. Screw the bottom of the post to the bracket with 1” galvanized screws and to the porch beam with countersunk galvanized screws. Predrill for screws. Countersink top screws by using a drill bit the size of the screw head for the first ⅛th inch.
Front Porch Handrails, Posts and Pickets

Front porch trim is the same as rear porch trim with some exceptions. Choices are listed in order of quality and preference.

Guardrail posts are attached with two 3/8"x5" lag screws (with washers) into the house and 3" galvanized screws into the front porch posts. Do not locate the lag screws in conflict with rails. The guardrail post is set in from the edge of the masonry porch the same distance as the corner post. If the corner post is set in 1/2", then the guardrail post is set in 1/2".

The stringer tie is attached to the brick porch with two through-bolts that the masons installed. It is best to use through-bolts. The alternative is to use two wedge anchors (expansion bolts). Tap-cons are not acceptable.
Masonry floor trim
Rear Porches and Stairs

Rear porches and stairs are brick and are completed by the mason.

It will be useful to refer to drawings and photographs in the previous section. The photographs and drawings in this section are used to supplement and to note differences in trim packages.

Set Handrail Posts

Dig minimum 12" holes for handrail posts. Either an 8"x16"x4" thick precast footings or a poured 8"x16"x6" thick concrete footings is needed. After cutting a 4x4 post to length (39 ½" above step tread), and beveling its top with a 45 degree angle bevel, 1” from the top, set the post on the footing and pour mixed concrete around the post and footing up to grade.

Handrail Post(s) can be through bolted at the front of the lowest brick step with two bolts if they were pre-installed by the masons. This method provides more strength than wedge anchors, but not as much as setting the post in concrete. If the bolts were not pre-installed, the second choice is to use two wedge anchors, also called expansion bolts. Do not overtighten expansion bolts. (Tap-con screws are not acceptable on a handrail because with time they will work loose.)
Guardrail Posts

Use a 2x4 cap on the guardrail. For this reason the post height will be 39 ½" from porch floor to top of post. (To keep picket production simple at the warehouse.)

Guardrail posts are notched 1 ½" around the brick porch. Post tops and bottoms are mitered 1" using a 45 degree bevel cut. Guardrail posts are attached to the house with two J-bolts, pre-installed by the mason, or with two ½" expansion bolts. Do not locate the bolts in conflict with rails.

Guardrails

Set the top of the 2x6 top rail at 37" above the porch floor. Because porches slope, it will be necessary to take this measurement against the house and transfer this mark to all corner posts using a 2x4 and a level. Confirm that the height is 37" or greater in several locations prior to continuing.

After the 2x6 top rail is installed, center on top of it a horizontal 2x4 cap rail. This cap rail will bring the overall height of the guardrail to 38½".

All porches require a lower rail. Set the bottom of the 2x4 bottom rail two inches up from the porch floor. (By code it can be no greater than 3 ½".) From the top of the top rail, just under the cap, to the bottom of the lower rail will be 35". Attach the upper and lower rails using countersunk deck screws.
Guardrail Stiffener

Stiffen an 8’ or greater guardrail by installing a 4x4 post at its center. Use a post anchor and 1” galvanized screws at the bottom. The top is secured with 3” deck screws driven in from the outside of the top rail. The center picket should be centered on the post.

Guardrail Pickets

Pickets are to be 32 ½” and mitered at a 45° angle just at the top or at the top and bottom. Install pickets 2” below the cap rail on the outside of the porch. Chalk the 2” line for a reference point. (Pickets on the handrail at the steps by code must be 2” below the top of the rail.) Use a 2x4 to space the pickets evenly at 3½” apart (code requires that the space between pickets must be no greater than 4”). Predrill for each picket and attach each with 2 ½” deck screws, one at the top and one at the bottom.

Leaving the pickets ½” shy of the bottom of the lower rail leaves room for slight differences in picket lengths. For a nicer layout, center the first picket and adjust the spacing so that the layout is aesthetically pleasing.

Handrails and Pickets

Step rails are built, regardless of the number of risers.

The top of the handrail should be 34”, measured vertically at the front of the step’s nosing. (By code it must be between 30” and 38”). The handrail is set inside the posts and screwed with three 3” deck screws. A 2x6 vertical handrail is preferred, even with a trim package that includes a cap on the guardrail.
Because of the brick steps it is necessary to install a 2x4 lower rail. Ideally this rail will line up at the top of the steps with the lower rail on the porch. If this method brings the rail into contact with the steps, place it as close to the nosing as possible (without touching) and most importantly, parallel with the handrail.

Install pickets so that the shortest overhang onto the brick steps is 4". Tap-con screws are placed through the pickets into the brick to provide additional strength to the lower rail. An overhang greater than 4" onto the brick can lead to twisted pickets.

For gripping purposes, pickets on the handrail must be placed 2" below the top of the 2x6 handrail.

*Side Porch Handrail*

An alternative to the vertical 2x6 handrail is to place 2x4 flat on top of the handrail. A 3 ½" handrail on exterior trim is acceptable by code and coordinates well with the porch rail. However, Habitat prefers the vertical 2x6 method for several reasons. The flat cap rail mitered into the rail post often twists with time. In addition, a wider handrail is harder to grip for those that may depend on it.
Front Porch Guardrail, Posts and Pickets

Except for the brick columns, front porch handrails and guardrails are the same as for rear porches.

Front porch handrail posts are set back approximately 3” from the edge of the brick on the sides of the porch (tight against the corner post) and 1 1/2” on the front of the porch.

Tap-cons are acceptable here because guardrails are less prone to movement and the porch rail is wedged in between posts, which provides additional strength. Tap cons are not acceptable on handrail posts.
Center Trim on Double Windows

Install a 1x6, primed on all sides, between each pair of windows. Install with galvanized finish nails. Set nails.
**Front Porch Beam Wrap**

Front porch beams are wrapped in 1x untreated pine, primed on all sides prior to installation. The front and back sides of the beams are wrapped in 1x10 and the undersides in 1x6. The beams are installed prior to setting the permanent posts. Move temporary adjustable posts as needed. The 1x6 is not centered, but is installed flush to the outside wrap and lips past the inside wrap. Use ring shank galvanized boxing nails and set flush.

![Porch Beam Wrap](image)

**Beam wrap notched for J-Channel**

**Plan view of short porch beam/box beam intersection**

![Plan view](image)
Column base and wrap detail

Column bases have 2x2s attached at the warehouse. If attached on site, use 2 ½" galvanized screws.

Make sure 2x2s for columns are centered and square. They may need adjusting on site. This is a critical item and necessary in order for 1x12s to come together flush. If 1x12s are not flush, please see site supervisor.

Tapered columns must be centered under beam so all four sides will have consistent tapers (angles).

Only load bearing columns require a column base support (metal post anchor) and interior post. The site supervisor will advise you as to which columns are load bearing. For non-load bearing columns, install the 1x12 wrap against a 6x6 block, centered at the top of the column, and the 2x2s centered at the bottom of the column on the wood base.
Only load bearing columns require a column base support (metal post anchor) and interior post. The site supervisor will advise you as to which columns are load bearing. For non-load bearing columns, install the 1x12 wrap against a 6x6 block, centered at the top of the column, and the 2x2s centered at the bottom of the column on the wood base.
Tapered Column Details

- **GP Prime Trim (5/8")**
- **6X6 Column Inside (If Load Bearing)**

Columns and Components:
- 6X6 Column Inside for Load Bearing Columns
- 6X6 Block
- 1X12
- No Post Inside if Non-Load Bearing

**Column Wrap Patterns**:
- GP Prime Trim (Upper Detail)
- 1x12 (Lower Detail)
- Load Bearing (Upper Detail)
- Non-Load Bearing Columns (Lower Detail)
Use a screw type temporary post for support. Use a scrap piece of wood between the temporary post and the beam so it will not dent the 1x12 wrap.

Tapered columns wrap the 6x6 support posts. Use 6d galvanized countersunk trim nails for 1x12s.

1x12 tapered sides, caps and base components may be pre-built in the warehouse. Minor adjustments for height can be made in the field. If moderate changes are needed, see site supervisor. No additional trim is necessary if tapered column cuts are accurate and smooth.
- Predrill for screws and trim nails.
- Hold tapered side assembly in place when fitting fourth side. Scribe to show where the assembly comes together neatly then shim as needed to give solid support.
- Practice caulking on scrap material. Smooth caulking, with no smudges, is important to the final painted product.