

125 - Foundation Footer Set

Material and Tools Needed:

1. 4x8 $\frac{3}{4}$ " plywood to rip into footer sides
2. Foundation stakes
3. 20 ft rebar sticks
4. Rebar supports – plastic pieces that elevate the bar above the dirt by 2 inches
5. Rebar ties, bender/cutter and spin tools
6. 6D nails, 16D duplex nails.
7. Laser level

Most Common Mistakes:

1. Foundation dimensions do not match plan, not square or not level
2. Foundation is not where specified by surveyors.
3. Rebar is not evenly spaced between forms (too close to one side of forms) – especially at corner or doesn't have sufficient space in between.
4. UFER (ground rod) is forgotten

Roles

1. Corner set team (2 staff)
2. Form setting teams (6-10 staff)
3. Concrete pump hose handler (1)
4. Rough level team (2-3)
5. Finish level team (2-3)

Construction:

The following describes a simple rectangular foundation. If you have a foundation that has bump-outs and other more complex ins and outs, try to follow the process below for the largest rectangle in the foundation. After you have it properly located and square, measure offsets from that rectangle to create the other intersections and ins and outs.

A foundation can be done 2 ways, depending on the bearing capacity of the soil, as determined by the soils engineer. If the bearing capacity is good, a somewhat wider foundation can be poured in one step. If the bearing capacity is poor, a wide spread footer needs to be poured, followed by a more narrow foundation being set on top of the spread footer. This guide describes setting of a spread footer.

1. While one team works on locating the foundation from survey stakes and setting the corners, another team can be ripping the 4x8 plywood sheets to strips of the proper width for the footer. Consult the site supervisor for this width. They can also oil the forms. Use a rag and a small bucket for form release oil. Set each form up on a pair of saw horses and give each form a light coating of oil.
2. Using the laser, verify the bottom of the excavation is flat. If there is a general tilt you will have to somehow shim the bottom of the forms at the low end. If there are some high points, you will have to dig them out to make the bottom acceptably level.
3. Before foundation form work begins, the surveyors will have set their stakes. Consult with site supervisor to understand what stakes specify what points on the finished foundation. Typically, a pair of stakes will specify the outside of foundation for a given wall. Another pair of stakes will specify outside of wall for a perpendicular wall. From that, you can measure to find the

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other walls. So that the excavator can do his digging without tearing up the survey stakes, there may be an offset of several feet from the stakes to outside of wall.

4. Using the surveyor stakes, set string lines to the outside of foundation dimension.
5. Use a plumb bob to copy the corner intersections of your string lines to the bottom of the excavation. Mark with a nail. Do for all corners.
6. Using the heavy landscape chalk line, snap a line from each corner to each corner.
7. Consult with the site supervisor as to the width of the footer and the width of the foundation. Calculate how far beyond the foundation the footer extends on both sides. Use that offset plus 3/4" (thickness of the form plywood) to locate the outside of both sides of the footer form. Using the thick landscape chalk line, snap lines.
8. Fill in forms on these chalk lines. Use scrap to join each 8 ft length of forms together. Stake about every 3 ft, taking care that the forms are vertical.
9. Consult with the site supervisor as to the rebar requirement. Bend and cut rebar as required and set on the rebar supports. Tie all sections of rebar together using tie wire. Overlap sections of rebar by 2 ft minimum.
10. Add side to side braces about every 3 ft to keep the forms from spread or falling over under the weight of the wet concrete. The taller the footer, the more you need a larger number of braces and stakes.
11. If there are dips in the excavation, leaving gaps larger than 1/2 inch under the forms, fill these gaps with scrap. Stake these scraps in place so they will not "give" under the weight of wet concrete.
12. Pour concrete. Typically, this is done with a concrete pump to evenly distribute the concrete from the truck to all areas of the forms. Pour to top of form and screed level.
13. After concrete is cured, remove all forms and bracing.

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Safety

46	Struck By Power tools	sawdust or other objects shot toward eyes	Safety Glasses required with any power tools
47	Tools - Hand and Power	Circular Saw - wood propped between 2 supports, cut in the middle, blade is pinched, kickback causes injury	When using a circular saw, short end of the cut is left to fall away. Do not make a cut in-between 2 supported ends. If someone is holding the drop-away end, he/she must lightly support it, letting it sag as the cut is made
			No cutting with wood propped over a worker's foot or supported by hand.
48	Tools - Hand and Power	Circular Saw - arms, legs etc too close to cut	Common practice among carpenters is to support the cut with their foot. This is not accepted practice at Habitat. Cut to be done on saw horses or otherwise supported away from body
57	Lifting	lift too much, lift with back instead of knees, cause back strain	Site supervisor brief team to be cautious

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60 Hazardous Material	Foundation forms are coated with form release oil. This makes it easier to remove the forms after the concrete has set. Foundation form oil can be irritating to skin, dangerous if spashed/sprayed in eyes and should not be inhaled.	Wear gloves when handling forms. The person spraying form oil should be careful to not spray on self or other workers. Wash with soap and water if it gets on your skin.
61 Hazardous Material	Concrete is semi caustic. It can cause substantial drying & cracking of skin.	Wear gloves when working with concrete. Wash your hands promptly if you get concrete on them.

I have heard and understood the briefings on how to use the tools required for this activity. I have heard and understood the methods we use to do this activity

Date _____

Instructor Name _____ Signature _____

Name _____ Signature _____