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Fastfoot Footing Forms – Made of Fabric

Concrete forms made of fabric? Is this for real? Yes, it is. And this innovation provides a great example of a product that not only has environmental advantages but also may perform better and cost less than the conventional product it replaces.

Here's how it works. Fastfoot® is a concrete footing form system in which reinforced polyethylene fabric is secured to 2X4 flanges (or "kickers") supported by special "yokes". For foundation wall footings, the impermeable fabric forms a trough into which the concrete is poured. The concrete slurry fills and "pillows" out the fabric, so the resulting footing has a flat top surface (between the 2X4's), a bottom surface that follows the ground (whether smooth or uneven), and sides that are rounded but wider toward the base.

The key to the Fastfoot system is the Fast-yokes® that hold the 2X4 kickers and provide the precise leveling of the footing foundation. These are made of steel and have individual adjustments for height and lateral spacing of the kickers. The same yokes can be used to produce footings of widely varying width and depth. The yokes are spaced 5 feet to 9 feet (1.5 – 2.7 m) on center, depending on the footing depth; at foundation corners, a single spike into the ground is recommended to hold the yoke in position. After the 2X4 kickers are clamped to the yokes and joined with special steel brackets, precise squaring and leveling is done with string-line, tape measure, and a laser level. Stepped footings are easily achieved with special step-brackets and plywood baffles.

The Fastfabric® is sold in 120' long (37 m) bundles in two different widths: standard 62" (1.6m) and wide 74" (1.9m). Because the fabric is accordion-folded, layout by one worker is easy. It is stapled to the kickers, following color-coded line markings that facilitate quick alignment. Simple overlaps are used at footing intersections and corners, and the fabric is secured into the ground every 8' (2.4m) and at corners along the marked center line to keep the form from slumping out of position when the concrete is poured. Re-bar is positioned by hanging it from the Fast-yokes using pieces of wire.

Concrete is poured in the direction of any overlaps in the fabric, vibrated as needed, and hand-troweled. Vertical re-bar to anchor the wall foundations is installed in normal fashion. After pouring the concrete and allowing it to partially cure, the 2X4 flanges can be toe-nailed into the green concrete so that they stay in place to brace the foundation wall forms after the yokes are unclamped and removed.

In addition to the linear footing system, FASTFOOT INDUSTRIES LTD. also offers the Fastbag® system for pier foundation pads. The bag is positioned and the bottom nailed into the ground to hold it in place. The height of the pour is gauged by driving a piece of re-bar through the bottom of the bag and using it as a screed stake – marking on it the desired height of the pour. Fastbags® are most easily filled using a concrete pump, because the concrete placement can be easily controlled and will be less likely to shift position of the bag.

The Fastfoot® system has a number of significant advantages over conventional footing forms:

Fast Installation: Less ground leveling is required, and stepping the footing is done with simple plywood bulkheads.

The company claims that 100 feet (30.5m) can be installed in an hour.

Highly Adaptable: Because the form molds to the ground, installation on uneven ground or ledge is very easy – no more custom scribing and fitting over an uneven rock base.

Multi-tasking: Foundation drainage can be installed at the same time as the footings are formed because footing forms do not need to be removed. Also, separate kickers do not have to be attached to the top of the footing as blocking for the foundation wall forms because the 2X4 flanges can serve that function.

Resource Savings: Polyethylene fabric replaces most of the wood and plywood typically used for forming footings. (While made from petrochemicals, polyethylene is the "cleanest" of common plastics.) The only lumber used is protected from concrete by the fabric and can be easily reused. Also, less concrete is used while achieving a wider base to the footing.

Easy, Energy-efficient Shipping: Fabric forms are lightweight – just 13 pounds per 100 feet (19 kg. per 100 m), plus steel yokes and 2X4's.

Ecosystem Protection: The impermeable fabric prevents leaching of alkaline chemicals in to the ground. This is very appealing to the environmental officials and was a big factor in use of the system for retaining wall footings for a CA\$1.5 billion extension of the Skytrain Rapid Transit system in Vancouver, British Columbia, where salmon spawning is a concern.

Users of the Fastfoot system seem enthusiastic about it. Chris Erb of SupErb Construction Ltd. in Nanaimo, British Columbia had used the system on three houses and was just about to begin a fourth when reached by EBN. "I quite like it", he said, noting that it's easy to work with and "quite a bit faster" than the way he used to form footings. For

one of his typical houses, Erb estimates a minimum of 30% labor savings and a per-house material savings of CA\$400 (CA\$300 per house with Fastfoot®, vs. CA\$700 per house before). Not included in this comparison is the cost of the reusable yokes, which Erb described as costing about CA\$5,000. (FASTFOOT INDUSTRIES LTD. estimates that the cost of the yokes will be paid back after 8 to 10 jobs and that a rental company can cover the cost after about 15 jobs.) When challenged about difficulties, Erb said "I really don't think there are any drawbacks", though he acknowledged that it will take time for the construction industry to accept such a different approach. "It's sometimes hard to teach an old dog new tricks", he said.

FASTFOOT INDUSTRIES LTD. founder and president Rick Fearn came up with the idea for Fastfoot about eight years ago and after trying out many prototypes, sold his first product in late 1998. Though starting out slowly (his company has only six employees), Fearn says he now has about 60 users in the U.S. and Canada. He estimates that the footing system has been used in the construction of 700 to 1,000 homes. Local building officials may not be familiar with this system, but the company offers documentation and toll-free access to help convince them that the footings it creates are in full compliance with applicable codes. An informative video is also available. AW