

## **C.22 STEM WALLS FOR CONCRETE SLABS**

PolySteel creates an ideal insulated stem wall for concrete slabs that can make this part of your project easier and faster, in addition to making your finished project more energy-efficient. Figures 3.20 and 3.22 below illustrate the basic designs of a stem wall for a concrete slab for the construction of a framed structure on top of the slab and Figure 3.21 and Figure 3.23 illustrate the basic designs of a stem wall for a concrete slab for the construction of a PolySteel wall up to the roof. We recommend and prefer, of course, that the entire structure be built with PolySteel.

There are two basic methods of integrating a slab with a PolySteel stem wall. The first is to install an independent, or “floating,” slab that is poured directly against the inside of the PolySteel stem wall and uses the foam insulation as an expansion joint. The second is to use the outside panel of the PolySteel Form as the form for the slab, which is integrated with the stem wall. Both methods first require you to address the following:

- ✓ The **minimum** reinforcement for the stem wall is the placement of:
  - a. A #5 rebar dowel in the footing every 4 feet, as outlined in Section C.5, Foundation to Wall Connection.
  - b. A #4 vertical rebar every 4 feet on center, within the vertical core.
  - c. A continuous #4 band of horizontal rebar in the bond beam at the top of the stem wall, with proper overlap.
  - d. For stem walls with PolySteel walls continuing up, match the rebar pattern in the stem wall with the requirements of the upper wall.
- ✓ Set the forms on a wet or dry footing in accordance with the procedures outlined in Section C.7 of the Manual, and make sure the top of the stem wall is level. Trim the bottom of the forms (rather than the top, to maintain the tongue of the form and the concrete bond beam at the top of the wall) as needed, and check the wall for straightness.
- ✓ For stem walls 32 inches high, or less, no bracing is typically required prior to placing concrete. However, you might want to use a top rail to keep the wall straight and prevent floating (see Section 15.2). For stem walls higher than 32 inches, brace the walls in accordance with the procedures outlined in Section C.10 of the Manual.

### **C. 22.1 FLOATING SLAB.**

This method applies to stem walls that have 4 feet, or less, of unbalanced backfill against the wall.

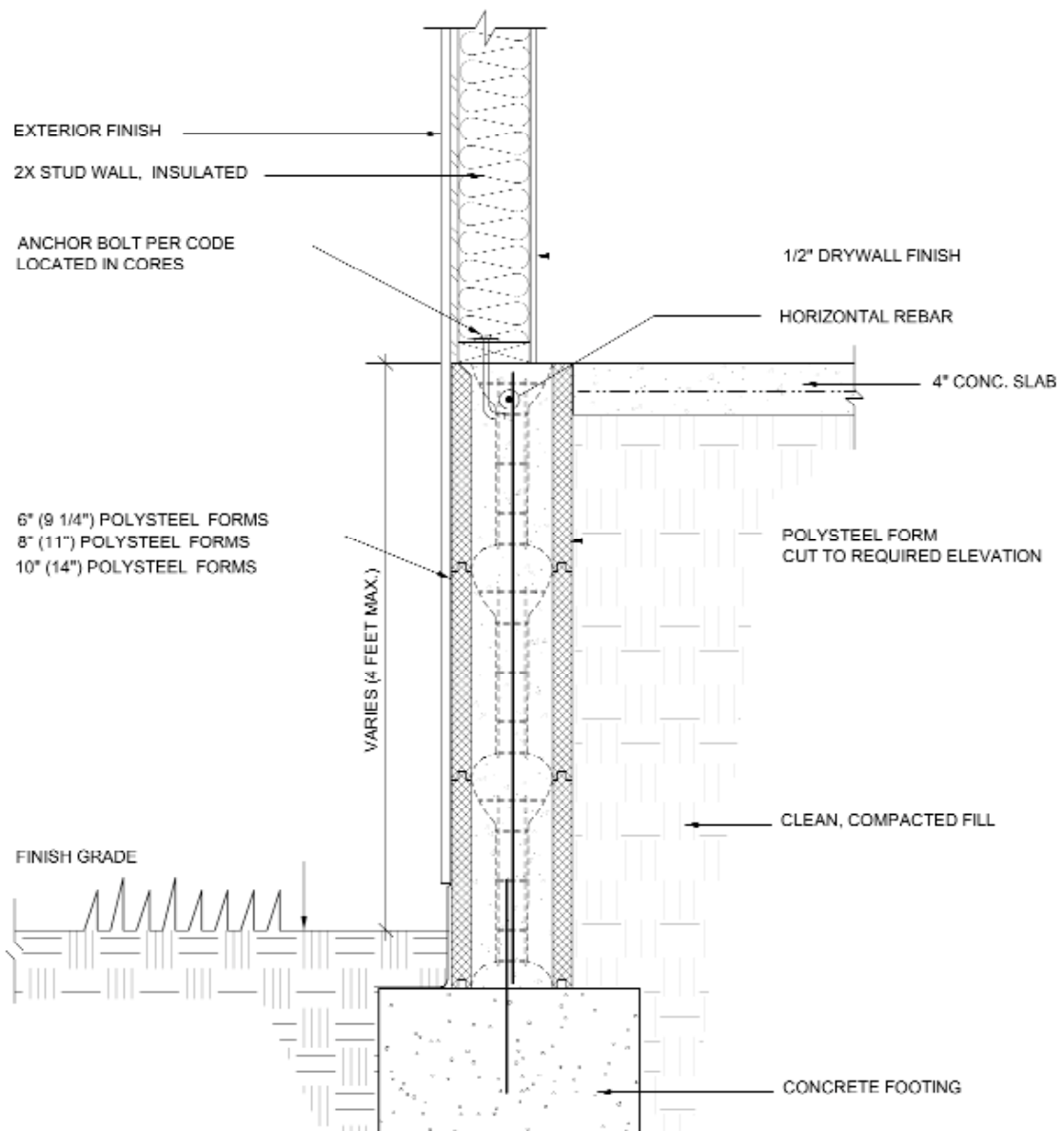
- a. Fill the stem wall with concrete as you would for any PolySteel wall, and finish the top of the wall with a trowel and install anchor bolts in the vertical posts of concrete at the spacing required.
- b. After proper preparations have been completed (including compaction of the soil or gravel under the slab, and the installation of plumbing and other utilities), pour the slab to the top of the PolySteel stem wall and finish as required.

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### C. 22.1 FLOATING SLAB (continued).

*TIP - "Modified" Floating Slab: If you are installing a floating slab, as illustrated below, you can pull away the soil or gravel from the stem wall and expose the footing every 5 to 6 feet before you pour your slab, which will create small piers to help support the slab and keep it from moving separately from the footing.*

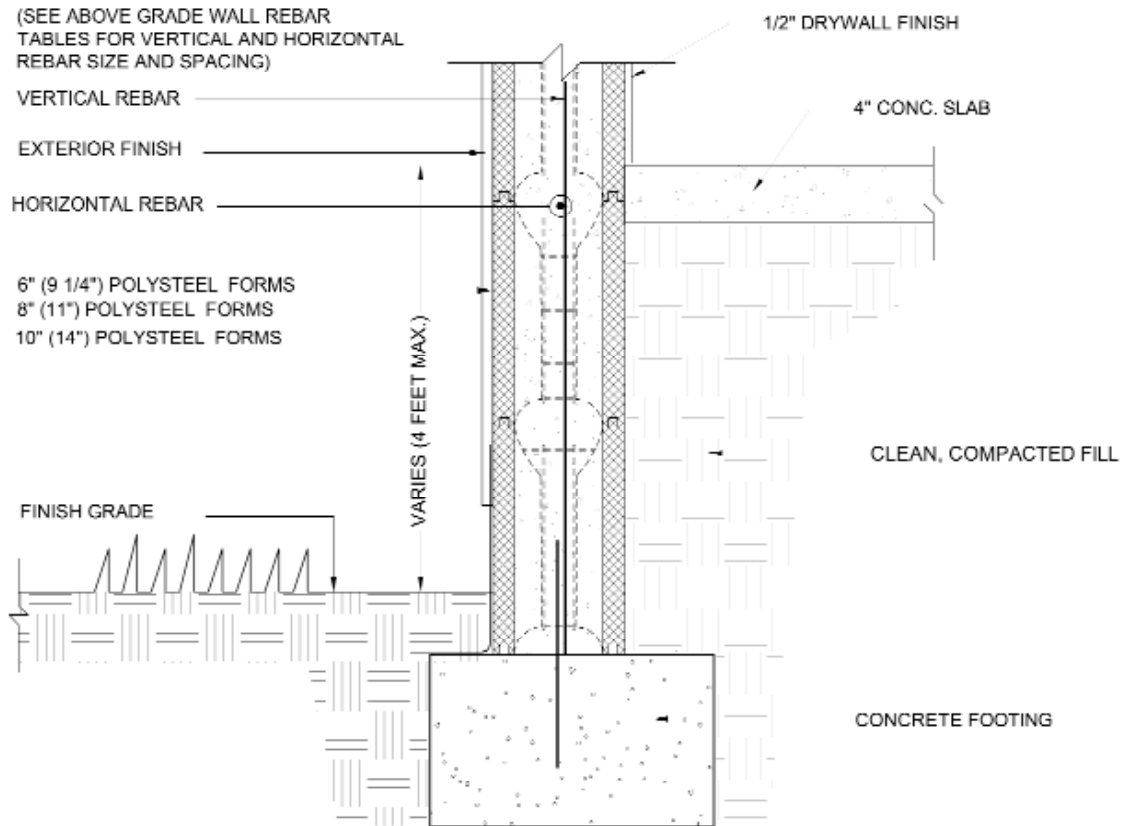
**FIGURE 3.20** STEM WALL AND FLOATING SLAB FOR FRAME CONSTRUCTION



**C.22 STEM WALLS FOR CONCRETE SLABS**

**C. 22.1 FLOATING SLAB (continued).**

**FIGURE 3.21 STEM WALL AND FLOATING SLAB FOR POLYSTEEL WALL CONSTRUCTION**



## C.22 STEM WALLS FOR CONCRETE SLABS (continued)

### C. 22.2 INTEGRATED SLAB.

This method applies to all stem walls, and allows you to support the slab directly on the stem wall, and use the PolySteel Form as the form and insulation for the exterior of your slab.

- a. Cut the top 4 inches (or whatever thickness the slab is designed to be) off of the inside of each form (or the top form for stem walls higher than 16 inches) before setting it in place at the top of the stem wall. This will allow the slab concrete to flow into the top portion of the PolySteel Forms and let the outside of the top forms to serve as the exterior form and insulation for the slab.
- b. Place concrete in the stem wall around the entire perimeter of the building to a level just below (e.g., 2 inches) the cutout indicated above.
- c. After proper preparations have been completed (including compaction of the soil or gravel under the slab, and the installation of plumbing and other utilities) pour the slab to the top of the stem wall, filling the upper portion of the top form at the same time.
- d. Finish the slab as required and install anchor bolts in the vertical posts of concrete at the spacing required.

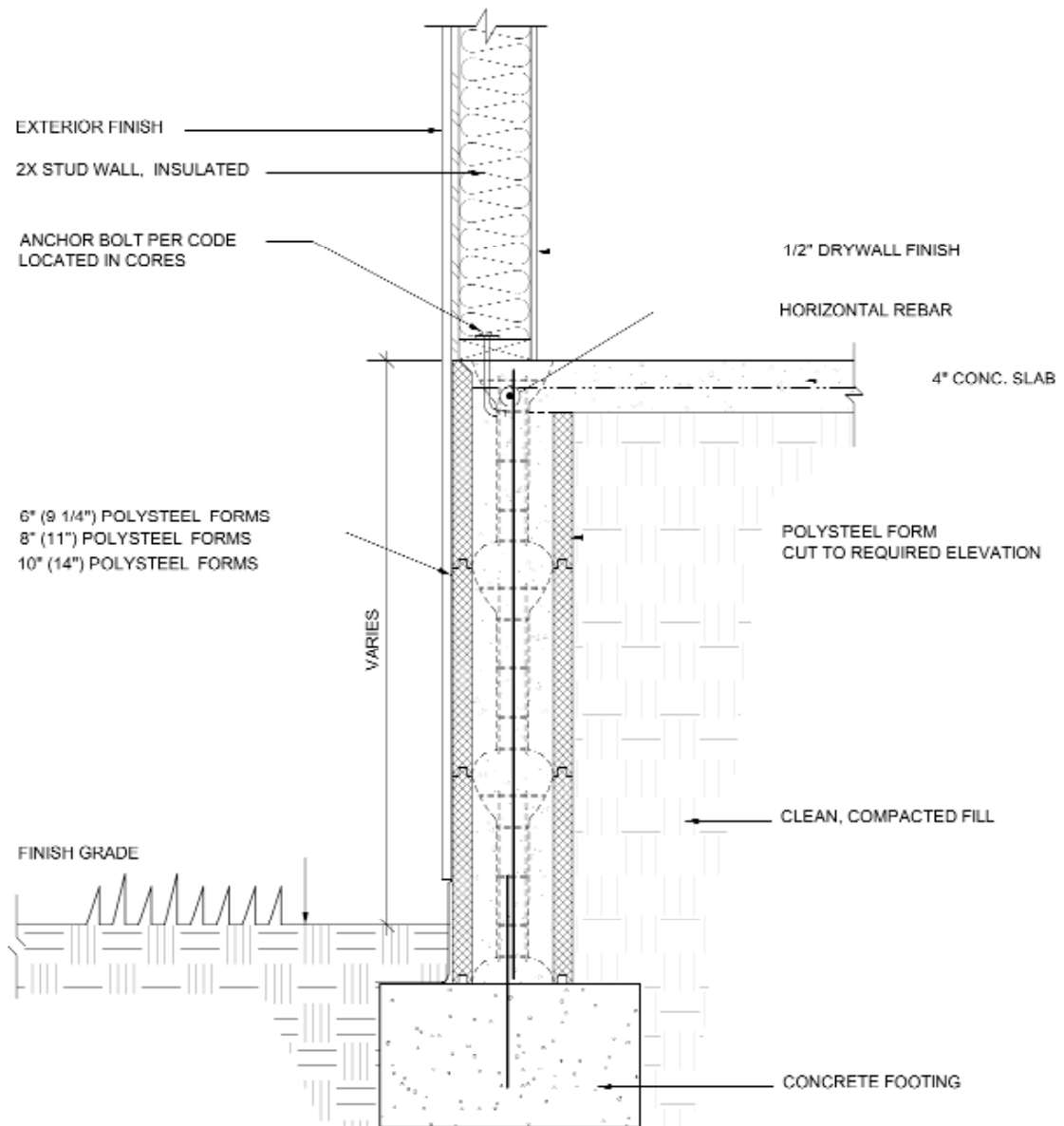
***Tip:*** “Modified” Integrated Slab: You may also connect the slab to the stem wall by cutting small windows in the PolySteel stem wall, at the proper height, every 24” and placing a #4 rebar dowel in place to connect the wall to the slab.

***Note:*** With proper care and planning, stem walls can be completed the same day that footings are poured. The forms can be set in wet footings, backfilled, and poured. See setting Forms in Wet Concrete in the Tips and techniques Section of the Manual.

## C.22 STEM WALLS FOR CONCRETE SLABS

### C. 22.2 INTEGRATED SLAB (continued).

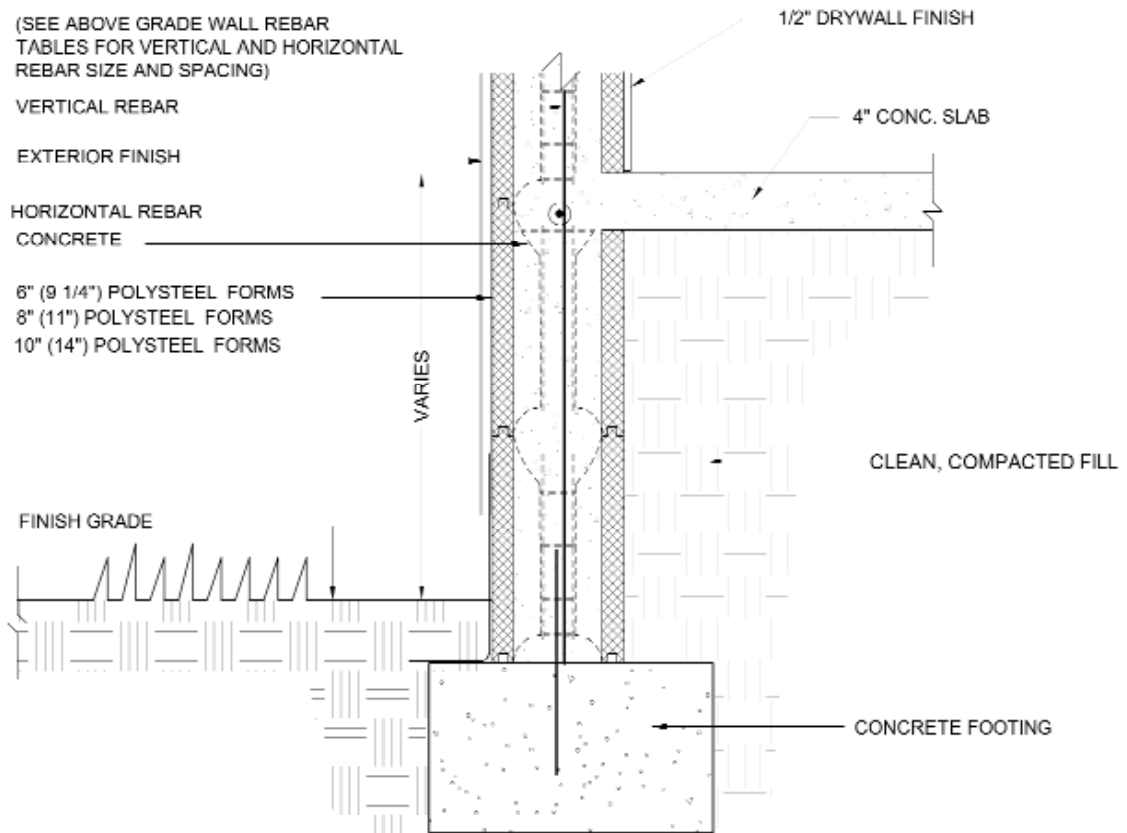
**FIGURE 3.22** STEM WALL AND INTEGRATED SLAB  
FOR FRAME CONSTRUCTION



## C.22 STEM WALLS FOR CONCRETE SLABS

### C. 22.2 INTEGRATED SLAB (continued).

**FIGURE 3.23** STEM WALL AND INTEGRATED SLAB  
FOR POLYSTEEL WALL CONSTRUCTION



**Note:** In most stem wall applications, the exterior surface of the stem wall does not require sealing, damp proofing, or waterproofing. However, should your specific application or circumstance make it necessary to coat or seal the exterior of a stem wall, the methods for sealing, or waterproofing, a basement wall should be followed, as outlined in section C.24 of this Manual.