

C.20 INSTALLATION OF UTILITIES

The relatively few utilities that need to be placed in the PolySteel walls of your project are easy and, some might even say, fun to install. This is where you get to use the hot knife to cut channels in the foam and secure the plumbing, electrical, and other utility lines required. Be sure that all plumbing, electrical, and other utility installations are installed in compliance with applicable codes.

C.20.1 ELECTRICAL.

Electrical conduit or Romex-type wiring can be easily placed directly into the foam insulation provided by the PolySteel Forms. The illustration below will help you visualize the following steps to a successful installation.

1. Mark the layout of the wiring, boxes, outlets, etc., directly onto the forms with a marker or chalk line, including any lines that need to extend to the exterior walls for lights and outlets. The foam depth in the PolySteel Form is 2-1/2". Try to locate your boxes next to the attachment studs whenever possible to provide for additional attachment options and maximum flexibility. The attachment studs in each form terminate 1-1/2" from the top and bottom of each form, providing you with a full 3" of clearance between forms. Accordingly, you should place your horizontal runs along the seams in between two forms to eliminate the need to cut any steel studs.
2. Use a hot knife, router, or other channeling device, to cut a channel into the foam at least 1-1/2" deep that is wide enough to accommodate the line to be installed.
 - ✓ You can cut periodic "jogs" in the channel to help secure the wiring in place without additional adhesive (see [Figure 3.18](#)).
3. Place the conduit or wiring in the channel, and secure it to the foam every 12" to 18" with a dab of foam adhesive. Do not cover the entire wire or conduit with foam. This is not required and may generate unnecessary heat within the wall from the wiring itself.
4. It is recommended, whenever possible, to locate and install a standard electrical box, with an offset flange, directly next to a PolySteel attachment stud, where the flange can be screwed directly to the wall. Remove the foam for the box with a hot knife, and secure it as described, or by attaching it to the foam or exposed concrete with a foam adhesive. You may also attach an electrical box directly to the concrete, if necessary, with a concrete screw.
5. If a horizontal run does intersect a steel tie, you may be able to cut away the foam behind the attachment stud and thread the wire through the welded-wire grid to avoid cutting the stud itself.

C.20 INSTALLATION OF UTILITIES

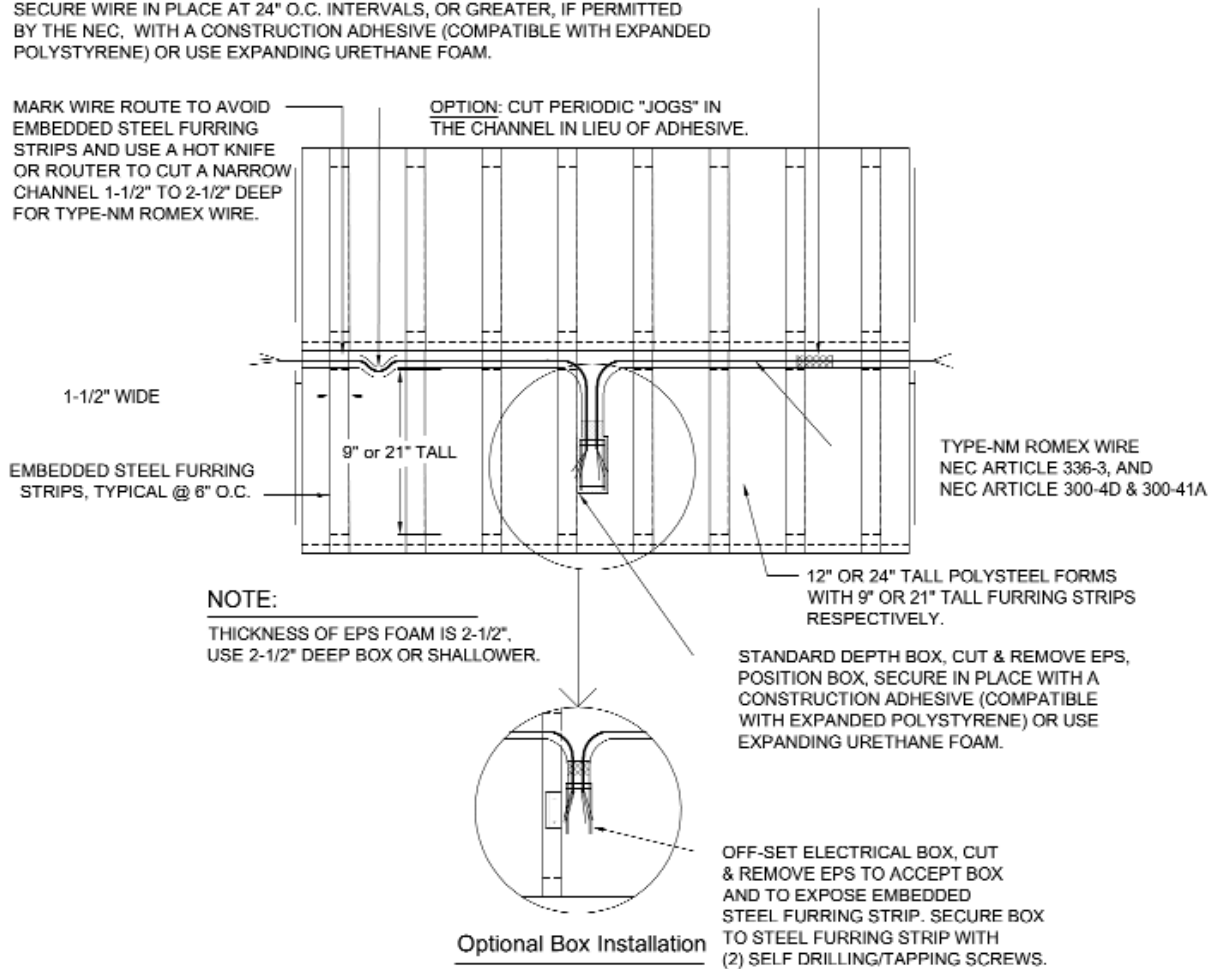
C.20.1 ELECTRICAL (continued)

Figure 3.18 ELECTRICAL INSTALLATION

SECURE WIRE IN PLACE AT 24" O.C. INTERVALS, OR GREATER, IF PERMITTED BY THE NEC, WITH A CONSTRUCTION ADHESIVE (COMPATIBLE WITH EXPANDED POLYSTYRENE) OR USE EXPANDING URETHANE FOAM.

MARK WIRE ROUTE TO AVOID EMBEDDED STEEL FURRING STRIPS AND USE A HOT KNIFE OR ROUTER TO CUT A NARROW CHANNEL 1-1/2" TO 2-1/2" DEEP FOR TYPE-NM ROMEX WIRE.

OPTION: CUT PERIODIC "JOGS" IN THE CHANNEL IN LIEU OF ADHESIVE.



ELECTRICAL BOX & WIRE
INSTALLATION



ELECTRICAL CONDUIT
INSTALLATION

C.20 INSTALLATION OF UTILITIES (continued)

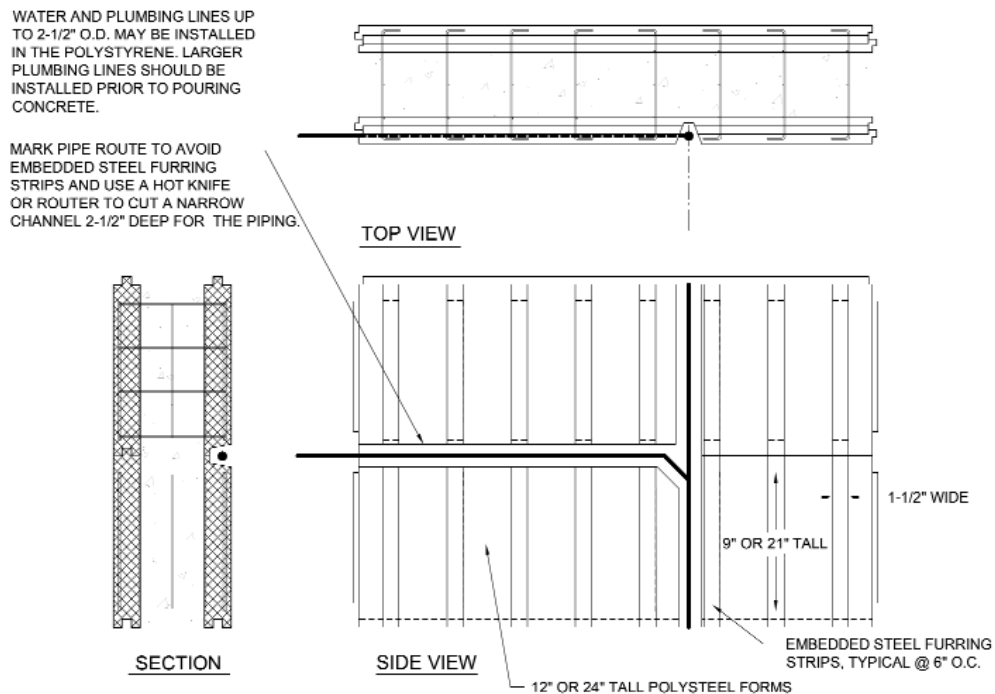
C.20.2 PLUMBING.

Most plumbing lines are generally designed to be located in the interior walls of a building to keep them from freezing (which is very likely to happen in a conventionally framed wall). While this is not such a concern in a PolySteel wall, it is still advisable to plan your plumbing system in this way. You will, however, have supply lines, drain lines, and/or vent lines that need to go in your PolySteel walls. Lines up to 2-1/2" (O.D.) can be easily installed in the wall in the same way as the electrical system.

- ✓ Comply with all codes applicable to the plumbing installation.
- ✓ If plumbing larger than 2-1/2" O.D. is required to be placed in the wall, follow the steps in Section C.14 of this Manual.

See the illustrations below for a visual example of a plumbing installation.

Figure 3.19 PLUMBING INSTALLATION



C.20.3 ADDITIONAL UTILITIES.

With the growth of advanced technologies being included in building designs, it is important to consider the need for access to other utilities now, or in the future. Be sure not to overlook, for example, drier vents, telephone, coaxial cable, fiber optics, satellite cable access, and any other lines or wiring that may be needed or desired. The method of installation is the same as with electrical lines and this is the best opportunity remaining to consider the installation of all you feel you may need to install.