

Electrical Wiring

Overview

In general, SIP construction is easier when things are planned ahead of time. Wiring in SIPs is no different. When electrical installation in SIPs is a forethought, not an afterthought, it will be much faster and easier. Start out by understanding where the 1" diameter factory installed wire chases are, where to field drill for chases and when to do the drilling. When this drilling is done properly, the electrician should be able to wire a SIP building in about the same time as a stick-built building, or even faster.

Factory installed wire chases

In the wall panels, horizontal chases are included at the 16" level (for outlets) and at the 44" level (for switches and counter height outlets). Vertical chases, which are typically located 4' O.C., allow wire to run vertically through the wall panels to access switch locations and at other locations as needed to provide vertical wiring options for the electrician. (All wire chases are marked on the OSB surface with a 1" wide black ink mark.) PorterCorp typically installs wire chases according to this standard, but for an additional charge wire chases can be installed to exactly match an electrical plan. Custom wire chase placement per an electrical plan is done while the panel layout drawings are made. A detailed electrical plan would be required at that time for this to be feasible.

In roof panels, wire chases are NOT installed as a standard but can be installed upon request. (Adding wire chases to roof panels will be done at a small additional charge.) When a building has a cathedral ceiling with a SIP roof, having wire chases installed in the panels will make wiring for lighting, fans, smoke detectors, etc. easier. Wiring can be run from an interior wall or can be run in conduit along an exposed overhead beam.

Field installed chases and holes

As structural panels are installed, the SIP installer will need to provide open chase ways for the electrician by drilling the sill and top plates, and any lumber connecting splines. If this step is skipped during panel installation, it is possible to cut and drill for access to the chases afterward, but it is much easier and faster to do this drilling during installation.

When the electrician comes to the building site, they will review the electrical plan and wire run options to determine which chases to use. Most SIP buildings will still have stick-framed interior walls and conventional floor systems, which give additional flexibility in wiring. Wiring is simplified if major horizontal wire runs take place in the floor systems, using horizontal panel chases for local runs only.

When the horizontal wire circuits must continue from one wall to another intersecting wall, the electrician can use a vertical chase to go up and over, then back down into the intersecting wall, or the electrician could cut a notch in the inside corner at the height of the wire chase then use this notch to pull the wire around the corner and into the intersecting wall. See detail G-7.

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Wire installation

The recommended sequence for wiring is to first locate outlet, switch, and other box locations and mark them on the interior OSB. (Boxes should be offset from the wire chase location so the box will not block the chase following installation.) Typically the electrician will use a tool like a RotoZIP and a template to cut the OSB for the electrical boxes. After the openings are cut, the electrician will use a putty knife to pry out the OSB and the EPS necessary to accommodate the box. Care should be taken in not removing too much of the EPS insulation. The electrician will then fold over the end of the wire and push or pull the wire through the chases as required for the circuits. If needed, wires can be pulled using a fish tape or by using a vacuum and string. Finally, the ends of the pulled wire will be inserted into the boxes and the boxes will be mounted using surface type fasteners. See detail G-4.

After rough wiring is complete and the electrical boxes are mounted to the OSB, carefully seal around the box using expanding foam sealant. Also, use expanding foam sealant to seal both used and unused chases at the top and bottom of the panels and wherever chase openings are accessible.



Electrical
Outlet
Box



Roto
Tool

Other options for wire access

When no pre-cut panel chase is available, there are various other options. A 1"-wide slot may be cut in the interior OSB skin into which wire can be placed. Because the OSB is structural, there are limits to the slot length and location. A slot should not extend all the way to the edge of the panel, but should stop 6" short of the panel edge. A vertical slot should be not longer than 48" and a horizontal slot should be not longer than 12" in each panel. Wire should be placed deep enough (see your local electrical code) into the EPS to be out of reach of any drywall screws. Once wire has been placed in the slot, expanding foam sealant should be applied to fill the opening. If there is any question about reducing the structural integrity of the panel, please consult a structural engineer or PorterCorp.

Commercial flush mounted chases such as WireMold can be used. Conduit which conforms to local code requirements can also be used.

Important notes

Standard "Romex" type wire, labeled as NM-B, of sufficient wire gauge size as required for the anticipated maximum amperage loading, is recommended for use in SIPs. Installing recessed lighting or "can" lights in a SIP roof is NOT recommended. Contact PorterCorp for more details and options. For ceiling fan mounting option see detail G-5. Consult with local codes to see if any additional restrictions apply.

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