

Chapter 6: SIP Site Planning and Coordination

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Introduction

For the SIP installer, the layout of the jobsite can greatly affect the speed of installation, the type of material handling equipment required, and overall labor costs.

Never bid a SIP installation without first examining the jobsite for any obstacles that could result in added time and labor. Steep hills, dense urban areas, overhead obstructions, or lack of adequate staging space can all affect the efficiency of SIP installation. Also, make sure the jobsite is accessible by large trucks that will deliver SIPs and material handling equipment such as an all terrain forklift or crane.

Definitions

Dunnage:	Dimensional lumber used to keep SIPs off the ground when stored. Also referred to as stickers.
Fork extensions:	Forklift accessory that lengthens forks to support 8-foot-wide SIPs
Spreader bar:	Crane hoisting accessory that distributes load across a SIP or bundle of SIPs to prevent damage when hoisting. Also referred to as a pick bar.
Rough terrain forklift:	Class VII forklift designed for off-road use with a telescoping boom

Delivery, Unloading and Staging

Staging Area

SIP installers are able to achieve remarkable time savings over site-built construction by ordering large-format, prefabricated panels. These large panels take up a lot of space on the jobsite. Installers need to

survey the jobsite and identify a staging area where the panels can be unloaded, sorted, and prepared for installation.

SIPs are typically transported on a flatbed semi-truck. When identifying the staging area, installers must consider how close the truck can get to the staging area, and how easily SIPs can be installed from the staging area. This is critical when the installation requires the use of a crane.

Overhead obstructions like tree limbs or power lines can interfere with crane operations. If you are using a crane or other heavy equipment to set panels, make sure the equipment operators are aware of any obstructions ahead of time and plan your jobsite accordingly. Addressing these issues in advance of the SIP delivery will make the installation more efficient.



Figure 1: Staging area for panel sorting and prep

Delivery

The majority of SIP providers deliver SIPs using a common carrier. Working with a common carrier creates plenty of opportunities for a breakdown in communication between the SIP installer, the carrier, and the SIP provider. It is a good idea to obtain a cell phone number for the driver and check that they have good directions to the jobsite. Downtime while waiting for SIPs adds to construction costs, especially when equipment rental is involved.

Most common carriers allow two hours to unload the SIPs once the truck has arrived, or additional charges may be incurred. The SIP installer should have a forklift or other equipment to unload the truck at the jobsite before the truck arrives.

Unloading

Forklifts are the preferred method of unloading SIPs. For 8-foot-wide panels, fork extensions are required.

It is possible to unload panels with a crane, although it is typically less efficient than using a forklift. Crane straps can easily damage panel facings when hoisting bundles of SIPs off the truck. Place dimensional lumber blocking on each corner where the strap comes in contact with the panel skin to protect against damage.

Another option is to use a spreader bar, also called a pick bar, to distribute the load across the stack of SIPs so that panel skins are not damaged by hoisting.

Unloading panels by hand is not recommended and should only be done when jobsite conditions prevent the use of heavy equipment.

SIPs can also be damaged during their loading and transport. This is often caused by overtightening the ratchet straps securing the load to the trailer or inadequate blocking underneath ratchet straps. Take pictures of any damage that occurred during shipping and contact the SIP provider.

SIP Storage

Once they arrive on the jobsite, SIPs need to be protected from the elements. SIPs should be stacked on a level surface and elevated off the ground on dunnage or stickers made of dimensional lumber. When stacking panels, the bottom panel needs to have good firm contact on all pieces of dunnage and the dunnage needs to be wide enough that it will not deform the bottom panel. SIPs longer than 12 feet require at least three pieces of dunnage to keep the panel from bowing.

SIPs also need to be protected from moisture with plastic tarps. Extended exposure to ultraviolet (UV) light will cause the expanded polystyrene foam core of SIPs to discolor, so clear plastic is not recommended during extremely sunny conditions.



Figure 2: SIPs stored off the ground, level, and protected from the elements

Installation Crew

SIP installation crews range from three to five workers for a typical residential project. Each crew should have a crew leader that has completed SIP installation training or is knowledgeable about SIP construction techniques. Despite some claims that SIPs are easy to install or require less skilled labor, all crew members should have basic construction knowledge if they are going to be working on a SIP jobsite.

It may be useful to increase the size of the crew on days when a crane is required in order to maximize efficiency and keep crane rental days to a minimum. When working with a crane, it is fastest to have part of the crew preparing panels on the ground and another part of the crew setting panels on the roof to eliminate downtime.

Safety

Jobsite safety is crucial in all construction work. Workers need to be trained in basic construction safety before working with SIPs. Installing SIPs often involves working on elevated surfaces and it is recommended that all crew members undergo OSHA Fall Arrest Systems training. Since forklifts are a common tool for SIP installers, it is also recommended that SIP installation crews receive their OSHA Powered Industrial Truck Safety Training certification. An untrained forklift operator moving large SIPs can endanger themselves and other crew members.

Many SIP installers have found that the OSHA 10-hour Training for Construction course is a good investment in preventing jobsite accidents. This course is available online and many workers compensation insurers offer it free of charge to their customers.

High winds pose a safety risk when setting large panels by crane. In high wind areas, installers often opt for smaller format SIPs in place of jumbo 8-foot x 24-foot SIPs for ease of installation and better jobsite safety.

Subcontractor Coordination

The SIP builder should discuss several special requirements with subcontractors that will be working on the project. It is advantageous to evaluate the electrical and plumbing plan with the respective subcontractors during the design phase of the project. Any potential issues can be identified and dealt with before the SIP package is ordered.

SIP walls can sit on almost any type of foundation, including block foundations, insulated concrete forms (ICFs), slab on grade, or poured concrete. What is most important is the foundation tolerance. It is more difficult to modify a SIP package to fit a foundation that is out-of-square or out-of-level than with conventional wood frame construction. The general contractor or the SIP installer needs to communicate the level of accuracy needed to the foundation contractor. When onsite modifications are required, it is easier to make a SIP package fit a slightly larger foundation or floor deck than to cut panels to fit a smaller foundation or floor deck.

Material Handling Equipment

SIP installers have three options for handling and placing SIPs on the jobsite: SIPs can be set by hand, with a forklift, or with a crane.

Setting SIPs by Hand

Handling and setting SIPs with manpower alone is difficult, laborious and inefficient. This is typically only done when jobsite conditions prohibit the use of equipment. In this situation, the general contractor or SIP installer hopefully inspected the jobsite while the project was still in the design phase and ordered smaller-format SIPs for easy handling.

Forklifts

The rough terrain forklift, also referred to as an extending boom forklift or Class VII forklift, is the preferred piece of equipment for many SIP installers because of its versatility and relatively low cost. Rough terrain forklifts can be used to unload panels, move panels and other materials around the jobsite, and set panels. Roof panels can also be set with extending boom forklift, depending on the height and amount of reach required.

Forklifts are rated on the length of the extending boom and their weight carrying capacity. The SIP installer should look at both the SIP design and the jobsite layout to determine the appropriate piece of equipment. As with any type of machinery, a trained and certified operator is required.

Cranes

When the height, reach, or weight of panels exceeds the capabilities of a rough terrain forklift, a crane is the best option to place SIPs. There are a wide variety of cranes that can be used on a SIP jobsite. Like forklifts, cranes are typically rated by their reach and load carrying capacity. Most crane rental companies can help installers specify the best type of crane for the job. For the safety of everyone on the jobsite, a trained and certified crane operator is required.

Summary

Like other aspects of SIP construction, a safe and well-organized jobsite depends on planning during the preconstruction phase. It is recommended that SIP builders inspect a jobsite before ordering a SIP package and identify the best panel format and material handling equipment for the conditions. Achieving the speed of construction capable with SIPs is dependent on rigorous planning, careful design, and communication with subcontractors. Ignoring any of these creates the potential for delays and added labor costs.