

## Chapter 3: The SIP Order Process

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- Overview of the SIP order process

### Introduction

For many builders making the switch to SIP construction, the design and estimating process can be daunting. Building with SIPs or any other prefabricated component requires more attention to detail during the design phase, and accurately estimating the project can affect the builder's bottom line. This chapter gives an overview of how a SIP project progresses from an architectural drawing to a truckload of prefabricated panels arriving at the jobsite.

#### Definitions

<b>Area take off:</b>	The quantity of SIPs (measured in square feet) required to complete a SIP project
<b>Blank panels:</b>	Rectangular, non-fabricated SIPs that are cut to fit on the jobsite by the builder
<b>Precut panels:</b>	SIPs that are fabricated to a specific building design by the panel provider
<b>Ready-to-assemble:</b>	Type of SIP package, offered by some SIP providers, that includes preinstalled lumber and splines, headers, sealants, and accessories
<b>Edge treatment:</b>	Process of removing the foam core along the edge of a SIP to accept dimensional lumber blocking, plates, or splines
<b>SIP layout drawings:</b>	Construction document that illustrates the size and location of each SIP along with the necessary construction details

## Estimating

Although most panel providers offer estimating services, some experienced SIP builders prefer to conduct estimating in-house. In either case, estimating is typically done by area take off, or the square feet of SIPs required to complete the project. Once the area take off has been calculated, the panel provider can estimate based on cost per square foot.

Quoting a SIP project can be difficult because builders are often asked to provide a quote before the design is 100 percent complete. This is very risky because the final engineering details may require thicker SIPs or additional structural elements that drive the price of a SIP package well beyond what was originally anticipated.

For this reason, many SIP builders prefer to establish a preliminary design contract. In a preliminary design contract, the builder or panel provider will examine the building design and conduct the necessary engineering to produce an accurate estimate for the SIP package.

### **Finding a Panel Provider**

Selecting a panel provider is a key step in building any SIP project. There are a number of SIP manufacturers and dealer/distributors offering a wide range of products and services. When choosing a panel provider, the builder needs to look at the quality of the product, the level of service, and the price.

All SIPA member manufacturers are required to have their products tested by an accredited third party agency and have an ongoing contract with a third party quality control agency. Quality control agencies regularly audit manufacturing facilities and test the SIPs coming off the assembly line to make sure they meet the structural performance metrics published in the company's load design charts. A complete listing of SIPA manufacturers and dealer/distributors is available at [www.sips.org](http://www.sips.org).

Another key difference between SIP providers is the level of additional services offered to their customers. These can include SIP design, onsite training, lumber installation, edge preparation, and supplying panel accessories. When evaluating an estimate from a SIP provider, it is important to look at which services are included in the estimate and which will need to be performed onsite.

### **SIP Design**

SIP design is a critical part of estimating and building a SIP project. Design services are offered by many SIP manufacturers and dealers, as well as by independent design professionals.

The SIP layout drawings generated by the SIP designer will be used to estimate the project, gain code approval, fabricate the SIP package, and serve as an installation guide onsite. Overdesigning or excessively conservative engineering can drive the price up and slow down SIP installation.

## **Engineering**

Some jurisdictions require SIP projects to be approved by a licensed engineer. Like design, engineering can have a significant impact on the overall cost of a SIP package. An engineer that is familiar with SIPs is likely to help the builder keep construction costs down by designing to the strengths of a SIP system. Check with your SIP manufacturer or dealer to see if they work with any licensed engineers, or search for one in your area at [www.sips.org](http://www.sips.org).

## **HVAC Analysis**

Heating ventilation and air condition (HVAC) is discussed in detail in Chapter 8, but it is an important part of the estimating process because it affects the overall construction budget. SIP buildings are much more airtight and typically require smaller HVAC units. The savings on HVAC equipment partially offset the higher material costs of SIPs when compared to conventional wood frame construction. More importantly, a properly sized HVAC unit reduces the builder's liability by effectively dehumidifying the conditioned space and greatly reducing the risk of mold and mildew.

## **SIP Fabrication**

The level of fabrication offered by the SIP provider affects both the material cost and the labor cost incurred by builders when it comes time to install the SIP package.

### **Blank Panels**

Blank panels cost the least upfront but rarely save builders any money because of the additional labor involved in fabricating panels onsite. Cutting SIPs onsite is a very time consuming process that generates a lot of jobsite waste. Crews cutting panels onsite rarely achieve the same yield as factory fabricators using optimization software that minimizes panel waste.

### **Precut Panels**

Precut panel packages are cut by the panel provider to the specifications outlined in the panel layout drawings. Some providers use automated CNC fabrication machines capable of achieving tolerances unimaginable in field fabrication. This service typically includes edge treatment, where the foam core has been recessed to accept splines or dimensional lumber, but that may not always be the case. It is up to the builder to ascertain exactly what level of fabrication they are receiving to avoid incurring additional onsite labor that was not anticipated when they bid the project.

### **Ready-to-Assemble**

Many manufacturers offer precut SIP packages with lumber preinstalled, known as a ready-to-assemble or ready-to-install package. These packages have splines and dimensional lumber cut to length with installed foam recesses wherever possible prior to erecting the SIPs. Precut headers and accessories are also included.

### **Accessories**

In addition to the level of fabrication, builders also need to look what accessories are included in the estimate. Accessories may include fasteners, SIP screws, mastic sealant, splines, expanding

foam sealant, and SIP tape. It is recommended that builders make sure the amount of sealant provided is enough to adequately seal the SIP package as it is assembled.

## Order Process

After quoting a SIP project, the builder is often responsible for guiding the project through the final design tasks and initiating the SIP order. Here is a step-by-step example of the SIP ordering process:

- 1) The SIP provider's quote leads to a contract between the builder and SIP provider
- 2) The builder receives a finalized set of architectural drawings that need to be converted to SIP layout drawings
- 3) The completed SIP layout drawings will undergo engineering review
- 4) The SIP layout drawings will then be reviewed by the customer and/or the project architect
- 5) Once the drawings are finalized the order is submitted to the SIP provider
- 6) The SIP provider fabricates the panels and ships them to the jobsite

## Summary

Accurate estimating requires establishing a relationship with a reputable SIP provider and determining the exact level of fabrication and additional services included in their estimate for the SIP package. The builder may also be required to coordinate with the SIP designer, engineer, customer, and SIP provider as the project advances. Builders need to be aware of the factors affecting the cost of a SIP project, such as the design, engineering, and HVAC analysis, in order to create an accurate estimate and complete the project under budget.