

Chapter 10: Common Objections for SIP Designs

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- How to sell SIPs to potential homebuyers
- Most common objections to SIP construction

Introduction

Interacting with potential customers and closing sales are unavoidable parts of the homebuilding business. SIPs are a relatively new building system that many homebuyers, architects and general contractors are unfamiliar with. Builders are likely to hear a number of common objections to building with SIPs. This chapter aims to help SIP builders and installers address these objections.

Definitions

Sound Transmission Class (STC):	Measurement of how well a building assembly attenuates airborne sound
Borate-treated foam:	Rigid insulating foam mixed with borates that act as a mechanical irritant to termites and carpenter ants
SIPA Registered Master Builder Program:	Training program for SIP installers administered by the Structural Insulated Panel Association (SIPA)

Common Objections

Price

The most common objection to building with SIPs is that SIPs are too expensive. Determining the relative cost of building with SIPs depends on what building system it is being compared to. In jurisdictions with less strict energy codes, SIPs are often more expensive than code-minimum wood frame construction, but the energy efficiency of a SIP home will save the homeowners money and likely offset the incremental cost.

If the performance standard is raised to ENERGY STAR or a higher level of energy efficiency, SIPs become more cost competitive because wood frame construction often requires additional insulation and air sealing to reach these performance metrics.

Pricing will depend a lot on geography and the supplier, but generally speaking, in an apples-to-apples comparison, SIPs will cost less than building a wood frame house that meets the same energy performance achieved with SIP construction. At higher levels of energy efficiency, such as LEED Platinum, Passive House, or even striving for net-zero energy use, SIPs are often cheaper.

One method of explaining the performance advantages of SIPs to potential customers is to compare the home to an automobile. Very few people drive economy cars. Ask the customer why they purchased a more expensive automobile and they will likely list several performance or comfort advantages of owning a more expensive car. Like their car, the SIP home offers greater efficiency, better performance, and greater comfort than the cheapest building system available.

Another thing to consider when discussing price is labor cost. Labor costs vary greatly by geography, but in some locations high labor costs make building with SIPs much more economical relative to wood framing because they can cut days or weeks off the construction schedule.

Electrical

Many electricians and general contractors imagine that installing electrical wiring in a SIP home will be extremely difficult. If the SIP installer has done their job correctly, the electrical rough-in will go smoothly and take less time than wiring a wood frame house. An independent third party study conducted by R.S. Means found that electricians were actually able to wire a SIP house 11 percent faster.

If the SIP installer examines the electrical plan during the design phase, ensures that the necessary electrical chases are specified in the SIP layout drawings, and labels the chases onsite, there should be no increased fees from the electrical subcontractor. As discussed in Chapter 8, it is recommended that builders schedule a preconstruction meeting with the electrical subcontractor to go over the electrical plan and discuss any potential issues before the SIPs are installed.

Durability

The majority of building failures are the result of moisture. It is a misconception that because SIP homes are energy-efficient, they are less resistant to moisture. Increased energy efficiency standards have pushed all types of home construction towards more airtight building enclosures. Because there is less airflow through wall or roof systems in airtight homes, they need to be detailed to promote drying (see Chapters 4 and 9). A SIP home that is properly detailed is unlikely to experience any long-term durability issues.

Fire

SIP builders often encounter concerns that the foam core will melt or burn in the event of a fire, making the home less fire resistant. As discussed in Chapter 1, building assemblies are tested for fire resistance using standard testing criteria published by the ASTM International. These tests measure the fire

resistance of the entire wall or roof assembly, including gypsum wall board (drywall). With gypsum wall board attached to the interior facing, SIPs pass the necessary fire tests for most residential construction. SIP assemblies can also be designed to meet one-hour and even two-hour fire resistance requirements in multifamily or commercial construction.

Strength

The SIP marketplace has been flooded with claims that SIPs are twice as strong, five times as strong, or even ten times as strong as conventional wood framing. These types of comparisons are vague and often erroneous. The strength of SIPs relative to conventional wood framing depends on what type of loading is being compared, the connection details used, the fastening schedule, and a number of other factors.

A good way to respond to this question is simply to state that SIP homes can be engineered to meet the highest wind speeds and seismic conditions in U.S. building codes.

Termites and Carpenter Ants

Termites and carpenter ants are attracted to wood and other cellulosic materials. However, they may burrow through the foam core of SIP wall systems to access food or water. SIP manufacturers prevent this by using borate-treated foam. Borate is not a pesticide, but it acts as a mechanical irritant that deters termites and carpenter ants from tunneling through the foam.

SIP homes are subject to the same risk from termites or carpenter ants as any wood structure. Common termite prevention strategies such as treating the soil around the home and removing brush near the home should be followed in termite-prone areas.

Noise

In the U.S., sound transfer through a wall assembly or building partition is measured by its Sound Transmission Class (STC). This number is derived using standardized tests that measure an assembly's sound resistance at a variety of frequencies. Similar to fire testing, the test is done on the entire wall assembly, and the application of interior or exterior finishes can greatly affect the overall sound resistance.

Individual SIP manufacturers can provide STC data for their products. Generally speaking, SIPs with gypsum wall board attached to the interior perform similar to wood frame wall assemblies.

Many homeowners report that SIP homes are extremely quiet. SIPs tend to excel at blocking high frequency sounds, but do not perform as well with contact sounds (such as rain) or low frequency sounds.

Hard to Modify

Some customers may believe that because SIPs are a prefabricated building system, they will be difficult to modify after the home has been constructed. This is not the case. The inherent structural strength of SIPs allows windows and doors to be added much more easily than with conventional wood framing. With a trained installer, additions and modifications are not a problem in SIP homes.

Limited Design Capabilities

Although some people claim that building with SIPs limits design flexibility, the exact opposite is true. Computer-aided manufacturing allows complex designs to be fabricated with remarkable tolerances that could never be achieved in the field. The more complex the design, the more labor and materials savings are possible with SIPs.

Untrained Workforce

There are a number of training programs available for SIP installers, including the SIPA Registered Master Builder Program, the SIPschool, the United Brotherhood of Carpenters SIP training curriculum, and this SIPA Builder Education with SIPs Training (BEST) program. Many SIP manufacturers offer their own in-house training for builders. Crews unfamiliar with SIP installation can also request onsite assistance from their SIP manufacturer.

Code Approval

All SIPA member manufacturers have conducted third party testing and published the evaluation reports necessary for building code approval.

Mold and Moisture

Another common misconception is that houses can be built “too tight,” resulting in mold growth, poor indoor air quality, or other moisture-related issues. Through stricter energy codes and growing interest in energy efficiency, the building industry is moving towards more airtight construction. Airtight construction actually provides a better opportunity to control mold, moisture, and indoor air quality through mechanical ventilation.

Mold and moisture issues that occur in SIP homes are the result of improperly sealed joints, improper detailing, or poorly specified HVAC systems. Working with a trained installer and a qualified HVAC contractor will prevent any moisture-related issues.

Summary

A home built with SIPs will save homeowners thousands of dollars in energy costs over its lifetime, while also delivering a more comfortable living environment, healthy indoor air quality, and long-term durability. SIPs are a relatively new method of construction, and consequently many homeowners, general contractors, and architects are unfamiliar with it. This unfamiliarity can lead to a number of objections, including price, durability, fire resistance, and others. By becoming aware of these common objections and preparing responses, SIP builders can close sales and provide their customers with durable, energy-efficient SIP homes.