



# General Do's and Don'ts for Handling and Installing SIPs

SIPs are simple to use. You can order pre-cut structural insulated panels that arrive onsite ready to set in place. Stand them up, fasten them properly, seal all joints, and in a few days your new house is ready for finish work.

To help you get the most satisfaction from your SIP experience, the Structural Insulated Panel Association (SIPA) has put together this list of tips and suggestions so you'll get the best performance from your SIPs.

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## GENERAL PRINCIPLES

**Air Movement:** All joints must be sealed in such a way to ensure no air infiltration or exfiltration.

**Voids:** All voids must be filled with appropriate sealants/panel adhesives manufactured to ensure against air movement and moisture intrusion into the building envelope.

**Vapor Transmission:** Vapor permeability for all SIP panel joints must meet local building codes and/or environmental requirements.

**HVAC Design:** A HVAC system must be designed to (1) Provide proper ventilation due to the inherent airtightness of the structure; and (2) Be properly sized to

account for the inherent energy efficiency of the structure.

**Exterior Cladding and Underlayment:** Exterior cladding shall include a primary and secondary weather-resistant system, e.g., drainage plane. Underlayment is required, e.g., common building paper or housewrap.

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## HANDLING AND STORAGE

SIPs must be protected from exposure to the elements and must not be stored in direct contact with the ground. SIPs are bulky and heavy. Manpower is enough to move small panels, but larger panels often require a crane or forklift.

**DO:** Set aside a level spot to store panels. Try to organize your panel delivery for efficiency—store panels from the first floor separate from panels for the second floor, and so on. Stack panels so that you can read the identifying marks or labels and find each piece when you need it.

### STACKING

**DO:** Lay panels flat on stickers, no closer than three inches to the ground. Give the panels plenty of support, and don't let them sag—for 8-foot panels, two stickers are enough, but for 12- to 16-foot panels, use three stickers. For longer panels, don't go more than 6 or 8 feet between stickers.

### WEATHER PROTECTION

Panels are rated for exterior exposure during construction, but keep them dry when stored onsite. Cover them with a loose tarp or sheet of poly.

**DON'T:** Leave panels exposed to the elements for extended period of time.



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## ASSEMBLY

For maximum efficiency, it's best to follow an orderly system. Here are a few tips to keep in mind as you start to work:

**DO:** Study the installation drawings before setting panels.

**DO:** Set wall plates carefully. Panel skins provide the strength for walls so panel skins must be fully supported. The panel slips over the wall plate, so remember to set your plates a half inch in from the building edge, and leave room where plates meet for the skin to slide by.

**DO:** Set panels in order. Mark out your wall plates to show where panel edges fall. When setting walls and roofs, it's a good idea to start in corners or valleys and work out—that way, you won't "box

yourself into a corner." At wall corners, one panel "stops short" and the other "flies by"—be sure you know which is which, or one wall will be too long and the other too short.

**DON'T:** Cut wall panel skins horizontally for installation of electrical wiring.

**DON'T:** Cut roof or floor panel skins without contacting your supplier.

**DO:** Always follow the manufacturer's recommended joint sealing techniques. Seal joints as you work. Panel joints must be thoroughly sealed to ensure there is no air infiltration from the outside or exfiltration from the inside. Be sure to follow the manufacturer's recommendations for sealing joints properly.

**DON'T:** Be afraid to field-trim panels for an exact fit. Contact your supplier when in doubt.

**DON'T:** Install panel skins in direct contact with concrete. Provide a capillary break between panel skins and concrete.

**DON'T:** Install recessed lights inside the panels.

**DO:** Install plumbing in interior walls. Furr out interior sections for pipes if necessary.

**DO:** Install standard deterrents to resist termites and carpenter ants such as insect clips and flashing.

**DO:** Install proper flashing and sealants around all rough openings and penetrations as required.

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## WEATHER DETAILS

Structural insulated panels are durable, but they aren't designed to get wet. Your house needs exterior finishes that protect the structure from water.

**DO:** Use high-quality roofing and siding. High performance asphalt shingles are suitable for use on a SIP roof. Popular siding materials such as steel or tile, vinyl, wood, brick, or fiber-cement are also fine for SIP houses.

**DO:** Use proper underlayments for roofing and siding. SIP walls are airtight without housewrap, but they do need a drainage plane material (either housewrap or asphalt paper works well).

**DO:** Flash all penetrations. Most windows will eventually leak some water at the window sill; install flashing under and around windows and doors to direct water away from the wall structure. Hose

bibs, dryer vents, exterior lights, and the like must also be flashed, as should roof penetrations such as plumbing stacks, chimneys, and skylights.

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## INTERIOR COMFORT

SIP houses are airtight, so they let you control the indoor environment. A modern ventilation system will let you have fresh air when, how, and where you need it.

**DO:** Provide adequate ventilation to maintain indoor air quality.

**DO:** Provide a mechanical ventilation system. Passive air infiltration will not be enough to provide indoor air quality. In cold climates, use a heat recovery ventilator; you'll save energy, and the

incoming air will be tempered for comfort. In hot, humid climates, an energy recovery ventilator is best: these systems take humidity out of the incoming air and transfer it to the exhaust stream, reducing the load on your air conditioner and improving your comfort.

**DO:** Control indoor humidity. High humidity levels can be unhealthy and can damage your building. Set your ventilation system to keep indoor humidity around 40 percent. Install

exhaust fans in kitchens, bathrooms, and laundry rooms to expel moist air as needed. Moisture intrusion through slabs, crawlspaces, and basements can be significant, so make sure your foundation has good drainage and provides for control of moisture vapor.

**DON'T:** Install or use unvented combustion equipment. "Vent-free" gas logs, fireplaces, or heaters are not appropriate for an airtight SIP house.