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INTRO. TO SIPS

1. What are SIP's
2. SIP Advantages
3. SIP Applications
4. 2012 Energy Code
5. Why? And Why Not

What are SIPs?

SIP anatomy
- Insulating foam core
- Structural facings
- Structural adhesive

Compatibility with Other Systems

- Prefabricated building system
- Walls, roofs and floors
- Code-compliant anywhere in U.S.
- Residential and light commercial
- Thicknesses correspond with dimensional lumber
- Structurally self-sufficient or curtain wall applications
- Seamless with wood-frame construction
- Steel, ICFs, logs, Timber frame, panelized—anything!
Code Compliance

- If you can build it with stick, you can build it with SIP
- May require approval of licensed engineer in some jurisdictions
- SIP manufacturers and distributors often assist in engineering approval
- Code compliant
- Other standards currently in development

PANEL OPTIONS

- EXPANDED POLYSTYRENE (1#)
  - CLOSED CELL
  - NO INTERIOR VAPOR BARRIER
  - BORATE TREATED
- EXTRUDED (blue, yellow, 2#)
- OSB SKINS
- PLYWOOD SKINS
- VARIOUS SKIN THICKNESS
- APPLIED COVERINGS (frp, aluminum)

SIP Construction

- 7/16 th OSB skins
- Double Top Plate
- Single Bottom Plate
- R-18 (4 ½”) with 3-5/8” EPS Foam Core
- R-26 (6 ½”) with 5-5/8” EPS Foam Core
- R-33 (8 ¼”) with 7-3/8” EPS Foam Core
- CNC Tooling
- Materials Optimized

HEALTHY SIDE

- NO OFF-GASSING
- FORMALDEHYDE FREE
- LOWER CARBON FOOTPRINT
- HEALTHIER CONTROLLED ENVIRONMENT
PANEL DETAILS AND CONNECTIONS

SPLINES

WALL-TO-WALL VERTICAL PANEL CONNECTIONS
- BLOCK SPLINE
- DIMENSIONAL LUMBER SPLINE
• Openings can be cut within panels, at panel edges, etc.
• The foam core is recessed 1 ½” at the edges of openings to accept 2x framing
• SIP can serve as the header in many cases. Structural headers can also be added, when necessary

STANDARD

Panels past on ICF

STANDARD

PANELS PAST

2 STORY APPLICATION
- SIP Screws go through the panels, into structure
- Thread Point for Wood
- Light Drill Point for Metal/Light Gauge
- Heavy Drill Point for Steel/Iron

Sheer Brackets TDX

Foam Everything
- Panel Joints
- Windows/Doors
- Plumbing Stacks
- Chimneys
Cost Savings

- Labor
- Waste disposal
- Smaller HVAC
- Less skilled labor needed
- Trim installation
- Drywall installation

Speed of Construction

Labor savings – dormers and preassembly

Speed of Construction

Labor savings – 8’ x 24’ panels
**COST**

- Panels in most cases will cost more
- More complex – more competitive
- 2%-10% more vs. lumber package
- Savings in efficiency may offset
- Upsell
- Upgrade on tops, flooring etc.
  (Changeable items, forget about core)

**Economics of SIPS**

**What are you comparing it to?**

- What will be required to reach low level of air infiltration?
- Eliminating thermal bridging?
- Complexity of project
- Timeframe

**Material Efficiency**

- OSB=efficient use of raw materials
- Factory production yields higher material efficiency
- Scrap recycled
- Foam insulation efficient use of materials/energy
PLANS TO PRODUCTION

• No need to change plans
• Quote from sketches
• Shop drawings from architectural
• We do not do structural, we make panels to accommodate loads etc.
• Stamped engineered plans
• Lead time 4 weeks + (includes shop drawings)

PLANS

Shop Drawings

Order Process

Shop drawings reviewed by:
– Architect
– Builder
– Homeowner
– Code official
**Order Process**

**Fabrication:**
- CAD converts directly to CNC fabrication
- Ready-to-assemble packages with lumber, headers, accessories

**Order Process**

SIPs arrive at jobsite

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**PLANNING HELPS EVERYBODY**

- Door buck left out for electrical access
- Route foam behind buck for wire raceway

**ELECTRICAL BASICS**
ELECTRICAL BASICS

Green Building Program Applications

SIPs can help you achieve the highest levels in all green building programs such as LEED, LEED for Homes, NAHB Green Building Program, Earth Craft and other state green building programs

- SIPs cut down on job site waste
- Very low HERS index which helps you achieve more points in most green building programs

2012 BUILDING CODE

CODE
- R-21 SIDEWALL INSULATION
- CONTINUOUS INSULATION
- MANDATORY BLOWER DOOR TESTING
- 3 ACH OR LESS

SIP CONSTRUCTION
- R-26 6" PANEL
- SIP’S GIVE THAT STANDARD
- EASILY ACHIEVED WITH CURRENT BUILDINGS
- STANDARD SIPS CONST. 2 OR LESS
SIP Benefits: Green

Resource efficiency
• OSB
  • From renewable, sustainable resource
• Foam cores
  • Little petroleum used to produce
  • Non-CFC blowing agent used
• Waste minimization
  • Job site
  • Recycling
• Energy efficiency – 50% less energy

SIP Benefits: Save Time and Labor

• Field labor reduced
• Minimal framing needed
• Precut window openings
• Always straight and true walls
• Subs’ work finished faster
• Uniform nailing surface
• Electrical chases provided

APPLICATIONS

RESIDENTIAL
RECAP

- EFFICIENT
- PRE-ENGINEERED
- HEALTHIER
- BETTER THAN CODE
- IT’S WHAT’S ON THE INSIDE THAT COUNTS
- BETTER RETURN ON INVESTMENT

SIP Construction Animation
This concludes The American Institute of Architects Continuing Education Systems Course.

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