

An Efficient & Profitable Envelope Isn't Complicated.

[And It's Not A Site Framed Stick Envelope.]

GREG KOEPF

SHELL BUILDING SYSTEMS

**GREEN BUILDER MEDIA:
2023 RESIDENTIAL HOME OF THE YEAR
2019 MULTIFAMILY PROJECT OF THE YEAR**

INTRO: Experience



Solving Today's Building Challenges



Envelope Formula

**Structural Insulated
Panels provide turn-key
foundation for
efficiency and
structural integrity.**

+

**Micro-zone HVAC,
Water Heaters,
and Integrated PV**



2023 Residential Project Of The Year



Berkley, CA

- 35% Reduction in Construction Costs
- Reduced HVAC 65%
- 8kw Solar Installed
- *Denise Hall Montgomery Architecture*



2019 MultiFamily & Overall Project Of The Year



Palo Alto, CA

- 13 Luxury Units
- Leed Platinum
- Passive
- Cal Green Tier 2 (45% greater than Title 24)
- Designed by: David Solnick Architecture



Nor Cal Regional Youth Treatment Center

Davis, CA

- 65,000 sf
- Leed Platinum & HERS -19!!!
- Net-Zero + 4250 HWh surplus (net-positive) power (powers elect car for 10,000 miles)
- Designed by: Johnson Smitthipong & Rosamund



Custom Modern Home



Los Gatos, CA

- 5,111 sf
- Net Zero Energy Ready
- 6" Walls, 10" Floors & 12" Roofs
- Downsized HVAC 65%
- Offsite Magazine 2022 Winner
- Designed by Arcadia Architecture



Manch Elementary



Las Vegas, NV

- 68,000 sf & LEED Platinum
- First SCHOOL built on time and on budget in Clark County!
- Saved \$1M on electrical install
- Designed by SSA Architecture
- “This was the fastest form of construction we have ever used, we have built with CMU, Steel, Wood and these SIPs were the best thing we have ever experienced on a job of this magnitude.” – Martin Harris Construction

San Francisco, CA

- **Four-Story**
- **Infill**
- **Installed in 5 days!**



Hillside House



Portola, CA

- Passive/PHIUS Certified
- Field Architecture



Bravante Winery

Sonoma, CA



Why SIPS Building Envelopes?

*Can train framing crew in 2 hours.
Camp Napa example...*

- **FASTER:**
55% + faster install, dry-in, finish, occupy, sell faster! Don't need a special crew, and trade work is faster!
- **LESS LABOR:**
Factory fabrication benefits mean less skilled site labor - huge for labor challenges!
- **MATERIAL SAVINGS:**
80% less lumber,
Stronger, replaces LVLs
20-30% smaller HVAC,
30-40% less jobsite waste

With pre-cut interior wall studs, dumpster needed at drywall stage only.

ADVANTAGE:

Differentiate Your Projects Beyond Sticks

● **ENERGY SAVINGS:**
NET-ZERO or Positive Energy Buildings

● **HEALTH:**
Indoor Air Quality, Clean Air Gold Certified

● **COMFORT:**
No temperature fluctuation from floor to floor



CERTIFIED
CLEAN AIR GOLD

DESIGNER/BUILDING OWNER

Added Value

STRAIGHTER & SOLID

- Engineered straight and plumb
- Sheathing on two sides
- Solid wall cavities
- Fast turns, repairs for commercial
- Hang things anywhere (no studs)

QUIET & EFFICIENT = VALUE!

- 60%+ lower heating/cooling costs
- Shared party walls much quieter spaces
- Comfortable from room to room
- Certified healthy indoor air

ADVANTAGE:

Versatile - Creative, Design Flexibility

● MULTI-FAM
Current Projects

● COMMERCIAL:
Healthcare
Projects

● EDUCATION:
Community,
education, more!


Offsite Envelopes: Need to Knows

- PERMITTED FOR STICK FRAMING - NO PROBLEM!
Simple process with building department
- CLADDING - NOT LIMITED!
Same substrate as site framed assemblies, just stronger!
- MANUFACTURER DIFFERENCES:
Different code reports, some don't cater well to California - seismic!

GENERAL CONTRACTOR

Need to Knows

Don't let subs charge more because they don't know the difference.



- WILL TRAIN YOUR CREWS

Provided layout drawings instruct on simple site panel assembly.

- PREDICTABLE SCHEDULING, FASTER TRADES

Trades can be scheduled, start & finish faster.

- YOU'RE NOT STUCK:

Site modifications are EASY! Most times without extra engineering.

OFFSITE ENVELOPES: Construction Process



PRE-PLANNING

Upfront planning for offsite factory production work eliminates site changes, set backs, costs, and delays.

DETERMINE FACTORY COMPONENTS

Decide if want to install lumber and spline connections in factory or on site? In factory can be an advantage to help eliminate prevailing wage costs (like with NCRYTC)

OFFSITE ENVELOPES: Construction Process

WORK WITH ENGINEER EARLY IF POSSIBLE

SIPS are STRONG and have impressive load and span capacities.

Having a structural engineer who is proficient at not over-engineering your project is key to saving money and optimizing architectural designs for SIPS.

PREPLAN JOBSITE ACCESS

Ensure driveway and road is built and ready for truck delivery close to home site to unload fabricated SIPs package.



SIPS Arrive With...

STANDARD

- Spline Connections
- Sealant & Tape for panel joints
- Right sized SIP screws

BY REQUEST

- Air Sealant Gun
- Lifting Plates
- Lumber Pre-Cut for Sills & Plates

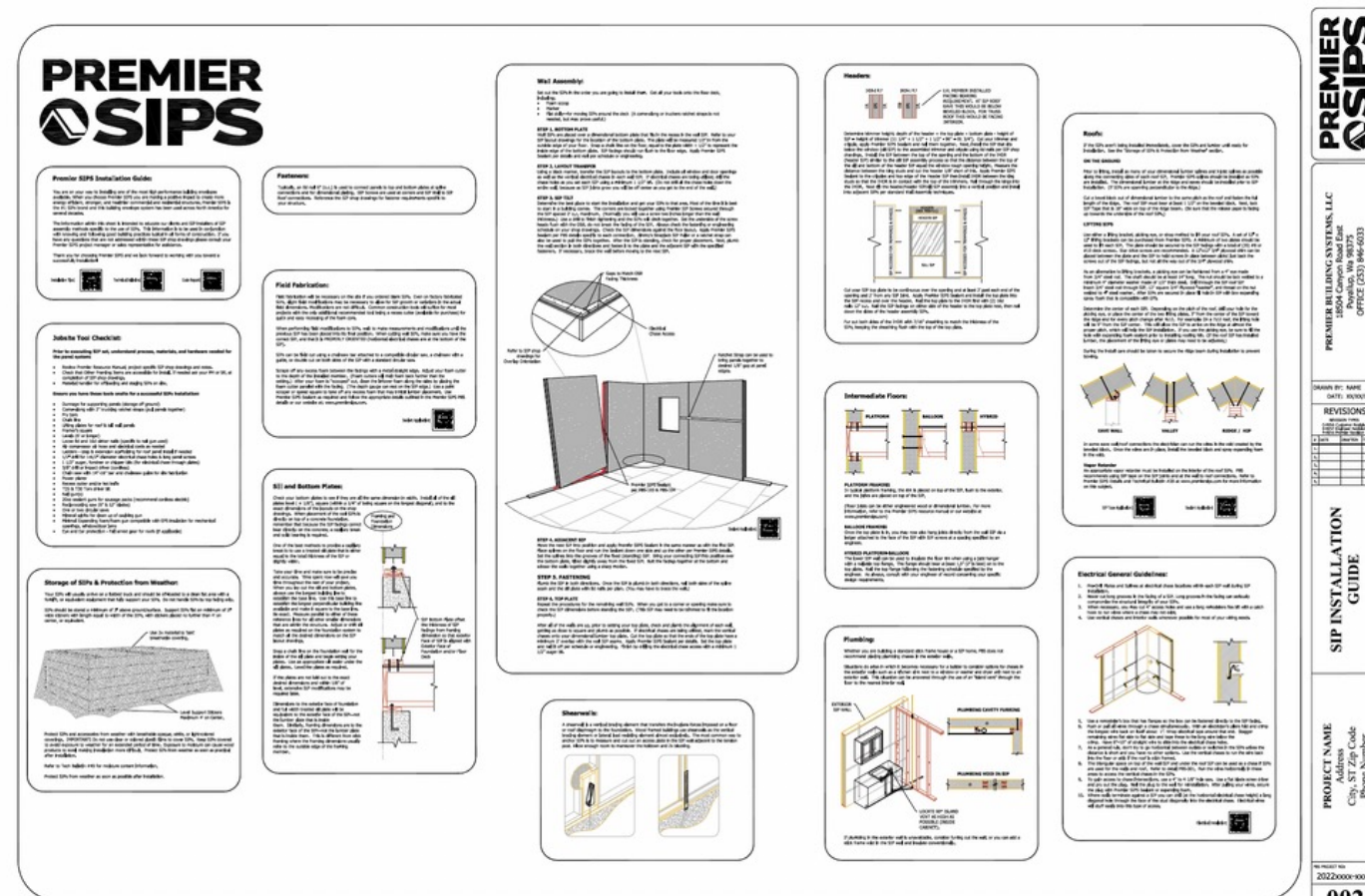
Req'd Installation Tools

- Come Along
- Level
- Sledge Hammer (these are tight!)
- Nail Gun
- *Based on project size/site:*
 - Crane, Scaffolding, lifting straps & mounting plates

LAYOUT DRAWINGS JUST LIKE A PUZZLE

EVERYTHING POINTED OUT - LIKE A MAP

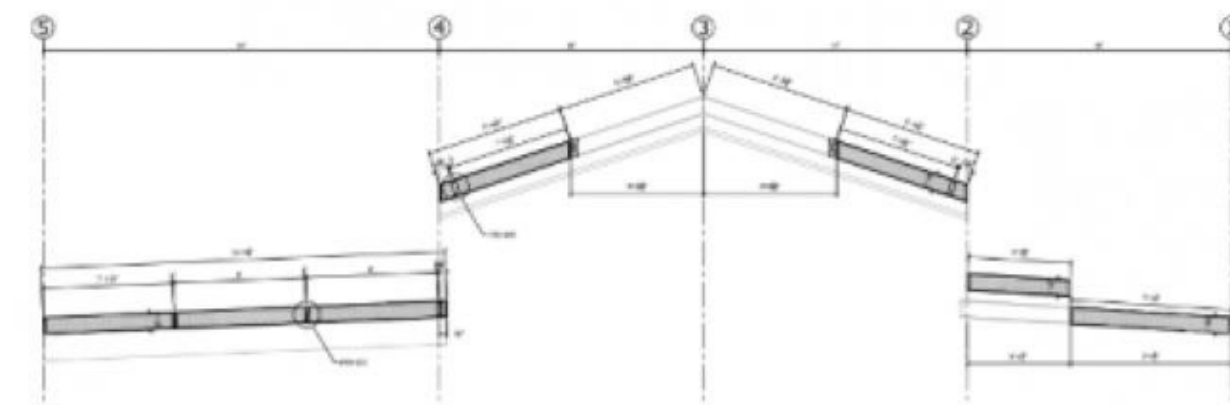
Note what is included, and what isn't. Be sure to prepare and know what is included and what isn't. Beams/lumber etc. Particularly without lumber installation. Pre-purchase!



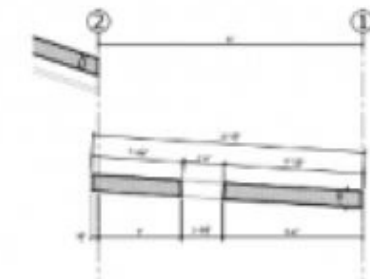
LAYOUT DIRECTIONS ARE SIMPLE WITH EVERYTHING PREASSEMBLED

Typical multifamily is 17+ pages of assembly details, same project is 2-3 pages of SIP assembly details.

LAYOUT DRAWINGS

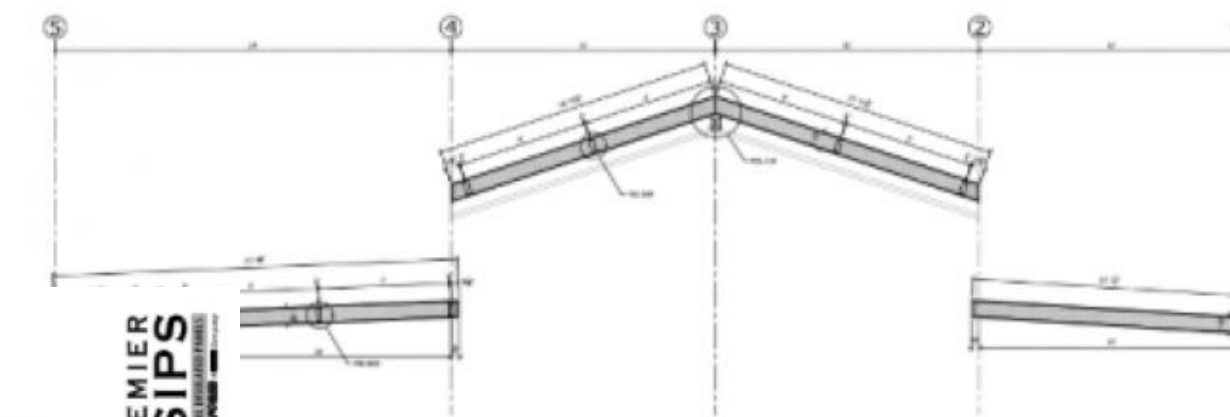


Section A
1/2" = 1'-0"



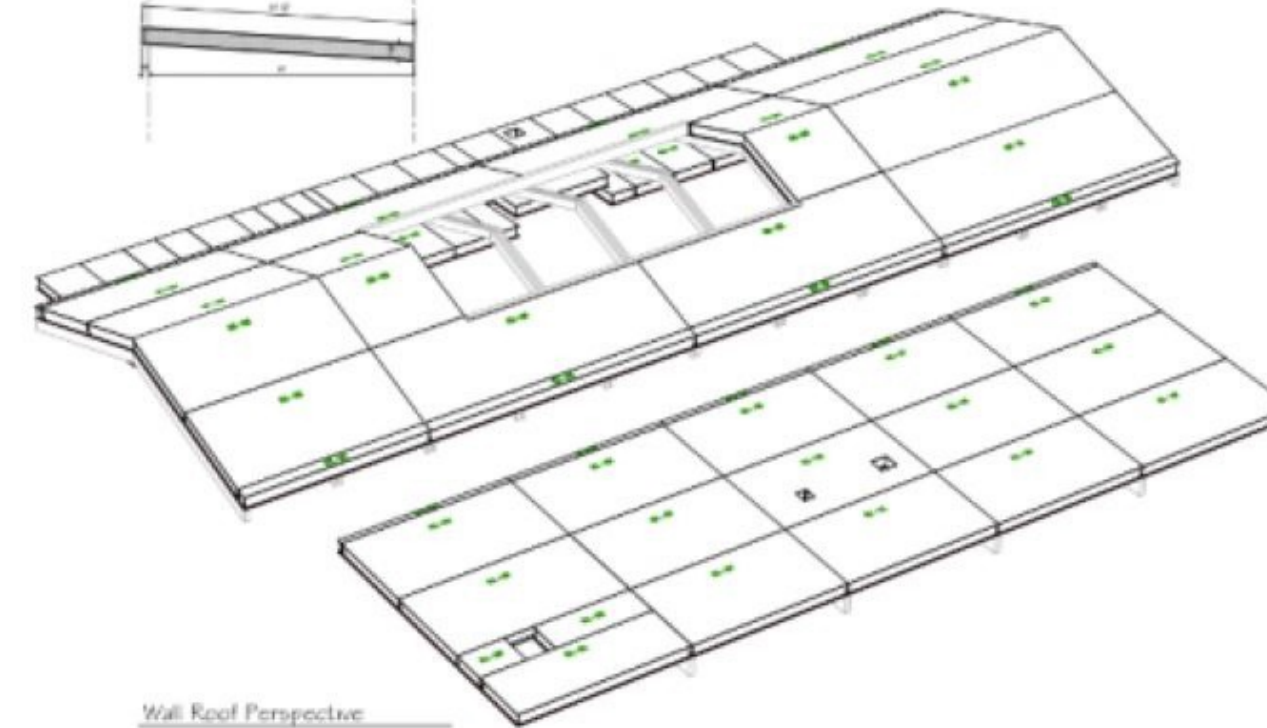
Section B
1/2" = 1'-0"

Note: All Dimensions are to Top Skin of SIP



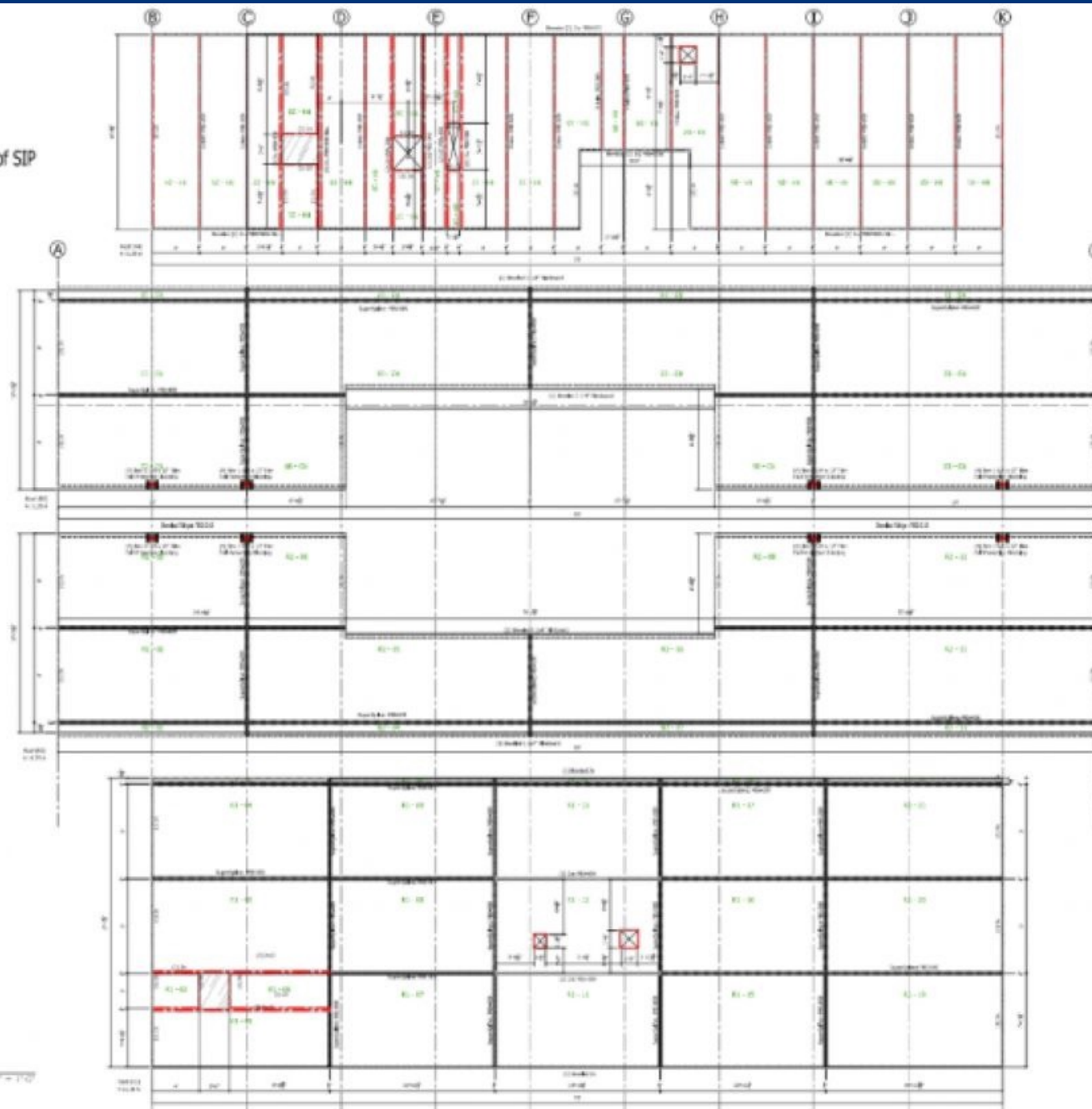
Section A
1/2" = 1'-0"

Section B
1/2" = 1'-0"



Wall Roof Perspective

Note: All Dimensions are to Top Skin of SIP



Panel Roof Layouts
1/2" = 1'-0"

PREMIER SIPS
Structural Insulated Panels
Manufactured by
DOW CORNING CORPORATION
11111 W. 15th Ave., Suite 100
Boulder, CO 80504
(303) 440-1111

Panel No.	Panel Size	Panel Area	Panel Weight	Panel Volume
1	12' x 12'	144 sq ft	1,200 lbs	144 cu ft
2	12' x 12'	144 sq ft	1,200 lbs	144 cu ft
3	12' x 12'	144 sq ft	1,200 lbs	144 cu ft
4	12' x 12'	144 sq ft	1,200 lbs	144 cu ft
5	12' x 12'	144 sq ft	1,200 lbs	144 cu ft

Algebra Community Center
City Hall
Algebra, Washington

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JOBSITE ASSEMBLY BIG PIECES

HAVE AREA DESIGNATED TO
ASSEMBLE PANEL SECTIONS PRIOR
TO DELIVERY

UNLOAD PANELS BY HAND/FORK IN
15-45 MIN

Depending on job size (this is avg. home)

RESIDENTIAL CREW OF 5

2-3 Assembling & staging

2 Tilting, leveling & securing in place





BUILDING ENVELOPE SUMMIT

Cheers To Creating More Efficient, Impactful & Sustainable Structures!