J.L. Filbey & Sons Capital Partners

EFFICIENT & ECONOMIC HOUSING SOLUTIONS

PROJECT SAFE HAVEN

We are a federally approved contractor with DoD clearance and provide disaster relief and sustainable affordable housing. We operate in all 50 States and territories of the US, and we also operate on a global scale working with governments, local entities, and private enterprise. We utilize a unique system that enables the recipients of the house to be a part of the build if they are able. The system has been designed to allow unskilled able-bodied members of the community to acquire new skill sets, that they can then take beyond the project they are a part of, and into the employment sector. The units that we construct are fully self-sustaining not needing to be connected to a sewage system or a power grid, the only thing that we require is a potable water supply. Not only that, a standard 2 bed 1 bath 500sqft duplex unit can be RFO in 6 days.

The units that we build are constructed of a product called structured insulated panels, our units do not require a cement slab and can be constructed upon a Helix piling system, which offers no restriction on topography. We have incorporated new technologies such as above ground self-sustained septic systems, waterless toilet systems, rainwater capture systems, leading edge solar power and battery storage, and composting sinks to name but a few. The units that we construct are what is commonly known as a smart hub,

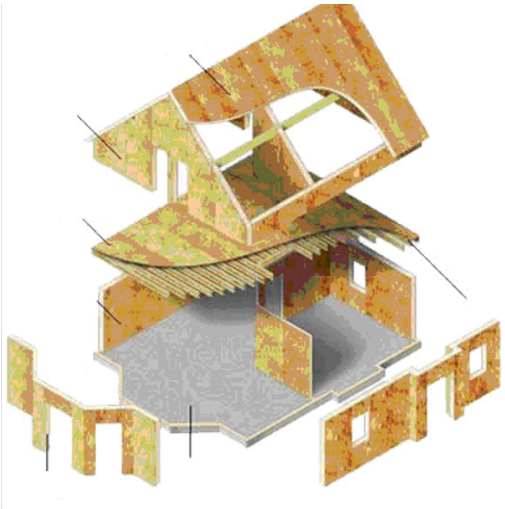
where all new technologies incorporated into the unit record data and send this data to either the occupier, or the entity that commissioned the units to be built. Accounting for all these technologies and efficiencies, we achieve a carbon positive footprint.

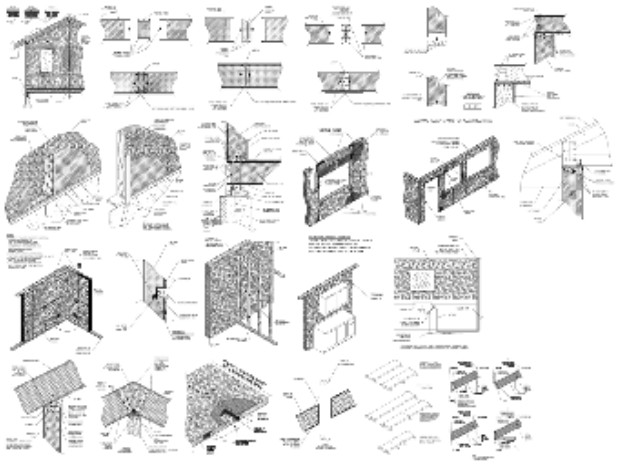
Here at J. L. Filbey & Sons Capital Partners we believe in empowering people through providing them with a safe, environmentally responsible, fully self-sustaining abode. Among many other positive adaptations this system provides, these units are wind rated to over 180 mph, grade 2 seismic resistant, and have R values in the low 50's.

Since 2006 we have concentrated our efforts outside of the United States and on disaster-stricken areas. However, we now find ourselves with the honor of being able to solve the issue and serve citizens of the US

J. L. Filbey & Sons Capital Partners Industrial Consulting Department has devised a highly efficient and economical housing solution for the global marketplace as it stands today with a vision to the future.

Using the most advanced technology and drawing on the strategies from the most experienced and forthright professionals in this field, J. L. Filbey & Sons Capital Partners can provide a turn-key solution to the housing needs of any population, region or country. Using an extensive database of technical data and our global network of suppliers, we can supply this solution meeting all International and Regional Building Codes. Our company will assess your needs and overcome the current problems that you are facing by utilizing the





highly skilled team that has been assembled to complete the Industrial Consulting Department. Attention to detail and a balanced approach to quality, ease of construction and pricing are the key ingredients that

"We deliver the know-how to allow this building system to be used by professional builders and Community Action Teams." J. L. Filbey - Founder/CEO

"Our Do-It-Yourself approach is simple and eliminates unnecessary costs while giving the recipients of the house, almost total autonomy to get their houses constructed and finished in as little as 6 days."
Terry D. Clarke - Director of Engineering

make our developments the housing of choice of Governments entities and Private Developers alike.

Our company has put together the methods and practices to enable you to produce vast urbanizations within a time frame never seen before, whilst increasing the standard of living for the occupants ten-fold. We are able to supply you with not only the structure, but the complete contents of the house including the interior specifications that you are in total control of throughout the design phase. We have an extensive portfolio of pre-tested, pre-built plans that are designed specifically to achieve the high production rates promised. Not only will you be able to erect these structures in a nimble fashion, but also with less experienced staffing taking training and experience to lower levels whilst still achieving higher standards than currently produced. Our company will provide you with the basic training tools in order to assemble our structures with easy to understand plans that do not require extensive experience in order to build from. Not only are our structures easy and quick to assemble they also have a value that is much needed in today's economy, and that is they are strong, weather resistant, and not only environmentally responsible but efficient also. To put the previous information into perspective, a team of five workers

with basic construction experience overseen by a foreman, can complete a 62m² house in five days. This is not only the structure but finished to the point that it is possible for the receiving family to occupy by the end of day 6.

We believe that the most valuable part of any residence is the structure itself and at our company we understand the differences in not only topography but also the metrological implications in which these structures will be bound. That is why we have incorporated the latest in structural technology to enable us to provide residencies that are resistant to hurricane force winds and seismic movement. There are differing degrees of protection available within our designs which allow us to keep the costs controlled throughout every aspect of the design and delivery. The technology that we have invested into our designs is that of Structured Insulated panels (SIP's). These panels are constructed of two Oriented Strand Boards (OSB) secured by adhesive under high pressure to a core of Expanded Polyurethane Foam (EPS). The structural integrity of this design is phenomenal and is better explained in the data below.

Before we move forward, we understand that with any new product or technology there are questions that need to be answered. We have compiled the FAQ section to help you better understand the positive impact that adopting this method brings.

FREQUENTLY ASKED QUESTIONS:

WHAT IS OSB?

Oriented strand board (OSB) is a performance-rated structural panel engineered for uniformity, strength, versatility and workability. It is utilized internationally in a wide array of applications including commercial and residential construction and renovation, packaging/crating, furniture and shelving, and do-it-yourself projects.
Because it is engineered, OSB can be custom manufactured to meet specific requirements in thickness, density, panel size, surface texture, strength, and rigidity. This engineering process makes OSB the most widely accepted and preferred structural panel among architects, specifiers and contractors.

HOW IS OSB MADE?

OSB is manufactured from sustainable, fast-growing trees such as aspen poplar, southern yellow pine, mixed hardwoods, and other suitable species.

Logs are cut to length, debarked, and processed into precise strands ranging from 3 1/2" to 6" (90 to 150 mm) long and approximately 1" wide (25 mm).

The strands are dried, sorted, and mixed with wax and a waterproof exterior-type binder and formed into large continuous mats. These mats are oriented in cross directional layers for increased strength and then pressed at a high temperature and pressure to form panels.

Throughout this highly automated and fully engineered process, panels are monitored, tested, and certified to meet stringent quality standards for strength and uniformity.

IS OSB ECONOMICAL TO USE?

OSB's engineered manufacturing process makes it extremely economical for several reasons:

- Only trees from sustainable, fast-growing forests or woodlot thinning are required in the manufacturing process, so there is always an abundant supply of convenient, high-quality raw materials.
- The panel is engineered for uniformity, eliminating costly surprises like core voids and knotholes, so you can use what you buy and get what you pay for.
- OSB is manufactured worldwide, meaning its abundant supply and easy access ensures economical purchasing and shipping methods.
- OSB is a better value than other structural panels.

OSB also offers increased flexibility in selecting panel thicknesses and sizes.

HOW DOES OSB PERFORM COMPARED TO OTHER STRUCTURAL PANELS?

OSB is equivalent to other structural panels in its strength and rigidity, panel size and thickness, fastener performance and paint ability. As a performance-rated structural panel, it meets specific end user requirements in all major building codes.

In addition, span ratings are stamped on each panel. (These ratings denote maximum recommended spacing of supports for load-bearing conditions.)

OSB also is Exposure 1 rated for durability, which means that it is designed to perform in applications where construction delays may occur. It requires no special treatment, only the same degree-of-care as other wood products. As with other structural wood panels, prolonged direct contact with rain or standing water should be avoided.

IS OSB ENVIRONMENTALLY SAFE?

Millions of dollars have been invested to ensure that OSB is one of the safest and most environmentally friendly structural panels available. Consider some the facts:

- As the only truly renewable building material, wood is increasing its reserves every year.
- OSB uses selectively prepared new wood strands during its manufacturing process and is recyclable into other products.
- The fiber for OSB is grown in sustainable forests and tree farms.
- OSB is safe to use.
- Resin binders and waxes are completely cured and stabilized, so there is no measurable off-gassing from panels.
- The manufacturing process uses nearly 90% of the log, with the balance used to supply energy.
- It takes far more energy and resources to produce steel, concrete or other building materials than to manufacture a structural wood panel.

Modern mills -- costing more than US$ 100 million -- are scientifically designed to meet or exceed strict standards for environmental compliance, set by regulatory authorities.

DOES DISPOSING OF OSB IN LANDFILLS POSE A PROBLEM?

Land filling of typical OSB is a safe practice which consumers and contractors should engage in freely if no other alternatives for disposal or recycling are available, based on present information and manufacturing technology.

Typically, OSB is 95 to 97 percent wood, and 3 to 5 percent additives like wax and resin. The characteristics of a well-managed landfill will mitigate any adverse effects to health or the environment.

ARE THERE ANY GASEOUS EMISSIONS FROM OSB?

A two-phase study demonstrated that formaldehyde emissions from OSB were, at or below, the lower limit of sensitivity of test methods meaning formaldehyde emissions from OSB are negligible or nonexistent. These results were found in OSB manufactured by all SBA-member mills.

The test was co-commissioned by the SBA, along with the Composite Panel Association in the United States, and Forintek Canada Corporation.

These findings support the blanket exemption given by HUD to manufacturers of phenol formaldehyde-bonded wood panel boards from the need to either test for formaldehyde emission or to attach consumer warning labels to the panels.

Tests on OSB panels have also been proven to meet the requirements of the European and Japanese emission criteria.

WHAT IS OSB'S FIRE PERFORMANCE?

Independent studies conducted to obtain flame-spread ratings in OSB found that uncoated panels made by SBA member mills meet or exceed the minimum flame-spread requirements of The National Building Code of Canada.

Other tests were conducted by Forintek Canada Corporation, a major independent Canadian research firm. The tests used OSB panels coated with latex interior paint and two fire-retardant paints, which improved their flame spread ratings.

The model building codes also recognize the equivalent performance of OSB and plywood panels in many wall or floor assemblies requiring a minimum fire rating.

IS OSB ROOF SHEATHING SLIPPERY TO WALK DURING INSTALLATION?

OSB structural panels - with a textured surface - provide a safe, secure, nonslip surface for roofing installers wearing rubber-soled boots, according to comprehensive testing conducted by Forintek Canada Corp., a major Canadian independent research firm.

Tests were conducted under both wet and dry climatic conditions using OSB panels from a variety of SBA-member mills.

HOW PERMEABLE IS OSB AND SHOULD IT BE USED WITH A VAPOR BARRIER?

The permeability of a wood panel is the rate that moisture passes through the panel under stated conditions of moisture vapor pressure. It is influenced by the density, degree of orientation, and thickness of the panel.

OSB compares favorably with other structural panels. Panels with a permeability of 1.0 perm (60 ng/Pa.s.m2) or less are considered to act as vapor barriers and panels with a permeability of 2.0 perms (120 ng/Pa.s.m2) or more are considered to pass sufficient water vapor that a wall cavity will dry out when constructed with green lumber.

For example, 5/8" (15.5mm) panels can be installed as a floor over unheated well ventilated spaces without the need of a vapor barrier, while 7/16" (11 mm), when installed as wall sheathing, will allow a wall cavity containing saturated stud lumber and glass fiber insulation to reach an equilibrium moisture content below 19 percent in approximately 60 days.

Sheathing membranes, although not always specifically mandated in some building codes under some types of claddings are recommended over OSB wall sheathing.

WHAT ARE OSB'S PERFORMANCE STANDARDS?

OSB panels are manufactured to meet U. S. Department of Commerce Voluntary Performance Standard PS 2-92 "Performance Standard for Wood Based Structural Panels" and/or Canadian performance standard CSA 0325 "Construction Sheathing" (and/or CSA Standard 0437.0 "OSB & Waferboard").

OSB is certified to meet these standards by APA - the Engineered Wood Association, TECO (or PFS), PSI, or other major wood certification organizations. In addition, OSB is regulated in all model building code organizations - ICC, BOCA, ICBO, NBCC, CABO, and SBCCI. OSB is manufactured to meet the Exposure 1 durability classification, meaning panels are appropriate for use where construction delays may occur.

In Europe, OSB panels are manufactured to meet EN-300, Oriented Strand Boards and are certified by national certification agencies.

For Japan, OSB panels must meet JAS requirements and can be certified by recognized North American certification agencies.

WHAT ARE THE COMMON THICKNESSES OF OSB?

Common thicknesses are:

- 1/4" (6 mm)
- 3/8" (9.5 mm)
- 7/16" (11 mm)
- 15/32" (12 mm)
- 1/2" (12.5 mm)
- 19/32" (15 mm)
- 5/8" (15.5 mm)
- 23/32" 18 mm)
- 3/4" (18.5 mm)

Other thicknesses are available on special order. Panels 19/32" (15mm) and thicker are manufactured either square-edged or tongue and groove on the long edge.

HOW DO I INSTALL OSB AS ROOF SHEATHING?

Select the correct thickness or span rating for the application as per local building code requirements. Make sure the rafters or upper truss chords are in alignment, even and straight. (Curved or uneven rafters and upper chords affect the finished roof appearance.)

Panels should be installed textured side up with their long direction across the rafters or truss chords. Long panel edges should be supported or joined with edge clips where specified by the drawings or installation instructions. Leave a 1/8" (3 mm) gap at panel edges or ends to allow for movement due to changes in humidity.

Panels should be staggered at least two supports, and end joints must lie over supports. Use 2 1/2" (63 mm) common (8d) or 2" (50 mm) deformed shank or ring thread nails at 6" (150 mm) o.c. on panel edges, at 12" (300 mm) o.c. along intermediate supports and 3/8" (10 mm) minimum from panel edge. Staples may be used instead of nails - please consult your local building code for size and spacing. Stand over the trusses or rafters when nailing.

The roof should be dry prior to shingling and should be shingled as soon as possible after installation of sheathing. It is essential that the area under a roof system is adequately vented with 50 percent of the venting at the ridge and 50 percent around the eaves.

HOW DO I INSTALL OSB AS WALL SHEATHING?

Vent roof as specified in the appropriate building code or as shown on the approved drawings.

Select the correct thickness or span rating for the wall application as per the local building code requirements.

Ensure that wall framing is complete and ready to accept the sheathing. OSB wall sheathing panels may be installed either horizontally (across the supports) or vertically (parallel to the supports).

Leave 1/8" (3 mm) gaps between panels, and 1/8" (3 mm) gaps around openings for windows and doors. Fasten panels with 2" (50 mm) common (6d) or 1 3/4" (45 mm) deformed shank nails at 6" (150 mm) o.c along the panel edges, and at 12" (300 mm) o.c along the intermediate supports. Keep nails 3/8" (10 mm) away from panel edges.

Blocking or diagonal bracing is not required unless specified. (Special provisions apply for OSB sheathing used in shear walls. Please consult the manufacturer or the Structural Board Association).

HOW DO I INSTALL OSB AS FLOOR SHEATHING?

Select the correct thickness or span rating for the application as per local building code requirements, either a single layer combination subfloor/underlayment or a subfloor to be covered with underlayment, hardwood flooring, or light weight concrete.

Lay panels across three or more supports, keeping the side marked "This Side Down" on the supports when using T&G panels. End joints must be made over the supports and should be staggered at least two supports.

Lightly butt tongue and groove panel sides together and leave 1/8" (3 mm) gap at panel ends. Panel ends of single layer combination subfloor/underlayment should be lightly butted.

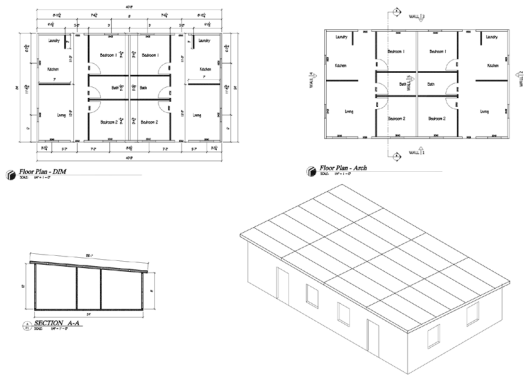
Use 2" (50 mm) or 6d deformed shank nails, 1-3/4" (45 mm) No. 10 screws or 2-1/2" (63 mm) or 8d common nails at 6" (150 mm) o.c along panel edges keeping fasteners 3/8" (10 mm) away from panel edges. (Drywall screws are not recommended.) Space fasteners at 10" (250 mm) o.c on intermediate supports for single layer floors and 12" (300 mm) o.c for subfloors. (Special instructions for fastening glued and nailed subfloors are available from manufacturers or the Structural Board Association.)

HOW DOES OSB PERFORM UNDER HIGH HUMIDITY CONDITIONS?

OSB like all wood products reacts to changes in moisture and humidity conditions. OSB is required by North American Standards to maintain its strength and stiffness performance under normal humidity conditions, also referred to as "standard conditions," which are represented by a temperature of 68 degrees Fahrenheit and 65 percent relative humidity. This condition is typical of protected construction.

In addition, OSB is required to maintain its strength and stiffness performance when exposed to weather during long construction delays. OSB panels intended for construction are marked Exposure 1 for durability in accordance with voluntary product standard PS 2-92 (or Exterior Bond if stamped to meet CSA 0325).

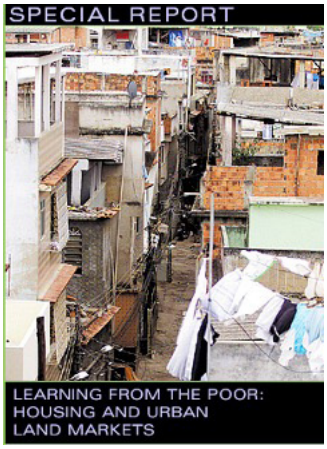
Remember to gap OSB panels to allow for possible expansion.



We build projects for today's economy. We realize that Governments seek to enhance the quality of life of as many people as possible with a limited pool of resources.

We provide a long-term solution in the conversion of "irregular housing communities" at a combination of price, time of delivery and a construction timeline that no other method can deliver. J. L. Filbey & Sons Capital Partners understands that sometimes a "temporary" solution becomes permanent, so we build to last. Our system withstands the elements and has a very high insulation value, making our houses ideal for extreme temperatures and tropical environments. Therefore, adding to the quality of life of the recipients of these houses (these houses are designed and built to last 25 years or more).

THE HOUSING OF THE POOR



Self-help and informality. It is common knowledge that the vast majority of the urban poor, and indeed the very poor, live in dire physical conditions, of which vulnerable and crowded dwellings and a deficiency, or absolute lack of urban services are the most apparent features. Indeed, the living conditions of the poor are tough and varied. They may simply live in the streets, sometimes in such large numbers that communities are formed such as in central Bombay; they may squat on public land, commons, or land with undefined or disputed property rights, frequently as permanent solutions, as in the rapidly expanding cities of most of the developing world; they may settle in legal or illegal land subdivisions on the peripheries of cities where they gradually build their houses and may eventually obtain provision of urban services; they may rent rooms in subdivided formal housing which were previously inhabited by higher income groups, in the center of large cities; or they may occupy precariously functioning and large high-rise housing complexes, conceived and implemented through governmental programs more common in but not unique to non-market economies, as can be observed in many large cities of Asia and Latin America. Of the above types, squatters and peripheral subdivisions constitute the vast majority of housing for the poor and are frequently termed informal settlements due to their lack of property titles and their non-conformity to municipal urban plans, norms, and regulations.

A solution, not a problem. Despite its physical conditions, the housing of the poor may be seen as an important expression of human ingenuity and effort, reflecting important strategies to cope with an environment that is negligent, if not hostile, to the needs of the poor. These strategies, pursued individually or in groups, are the means through which the poor, rationally, strive to fulfill their housing preferences in a least-cost manner, within the limitations of their budget. Given the prevailing levels of income and other constraints, informal settlements can therefore be said to be solutions, not problems (in the classic expression of John Turner).

The housing of the poor is not static. There is plenty of evidence that gradualism and sweat equity—the use of their own labor in constructing their houses and settlements—given time, transform the housing of the poor into acceptable housing solutions. Markets are quite active in informal settlements; realtors are not uncommon; renting of smaller spaces or of full houses, is normal practice. Housing units are frequently bought and sold, though these carry a discount due to the lack of property titles and the presence of negative externalities. In fact, there is also evidence that processes such as gentrification and filtering—the movement of the housing stock across income groups—which are part of the development of cities everywhere, are also common to informal settlements. In this sense, informal settlements tend to emulate the formal city of which they are part not only physically but also in its social transformations.

Negative externalities. However, as a number of analysts have pointed out, many informal settlements carry a number of problems related to the way they were originated and developed. Squatters chose locations which are environmentally sensitive, such as the shores of bodies of waters, or risky, such as hilly slopes and rights-of-way for public services (transmission lines, gas pipelines, or transport corridors). Also, informal settlements develop in a haphazard way, without definition of proper rights-of-way for vehicular circulation and infrastructure. These ubiquitous negative externalities indicate, on the one hand, the lack of will or power of governments to enforce environmental legislation and, on the other, the lack of mechanisms of collectivaction or the presence of some level of regulation to guide the development of informal settlements.

OUR 40M² SOLUTION

Whether acquired for conversion of existing housing developments that have been condemned or to build new communities that will fit to specific urban development designs, our 40m² solution is a popular choice due to the ease of erection, and not to mention the high political impact that a Housing Ministry can achieve by delivering houses to Neighborhood Action Committees that will build our famous House in a Box.

Two Bedrooms, one bathroom, Kitchen, Dining and Living Rooms presented as an elegant solution that will solve the problems generated by settlements. Urbanizations are usually perceived as the "quick" part of an urban development. Just provide a Floating Cement Slab with the service connectors and we will be able to deliver entire housing projects that can be erected in one fourth of the normal construction time of current building methods.

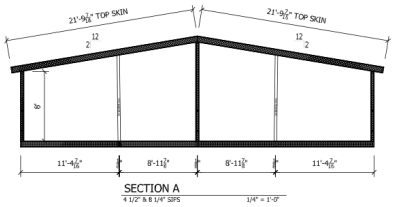
ESTIMATED LABOR REQUIREMENTS

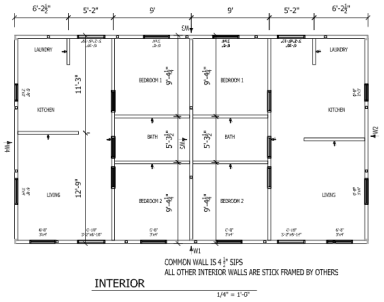
5-man crew, 4 days to install the complete SIP building kit on a concrete slab

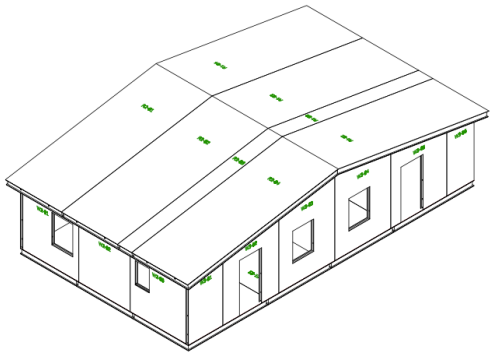
Add 180 MPH Wind Rating – add 2 crew days

Add seismic rating – add 1 crew day

First time SIP install – add 30% to crew time estimate







A crew of 5 will erect this 40m² house and leave it ready to occupy within 6 days.

OUR CONCISE AND EFFICIENT, 40M² COMPLETE HOUSE IN A BOX

Contact us for a quote.

For other projects fit for professionals in our standard sizes of 62m², 75m² and 106m², please refer to one of our authorized representatives for pricing, plans and details.

ESTIMATING BY PANEL COUNT

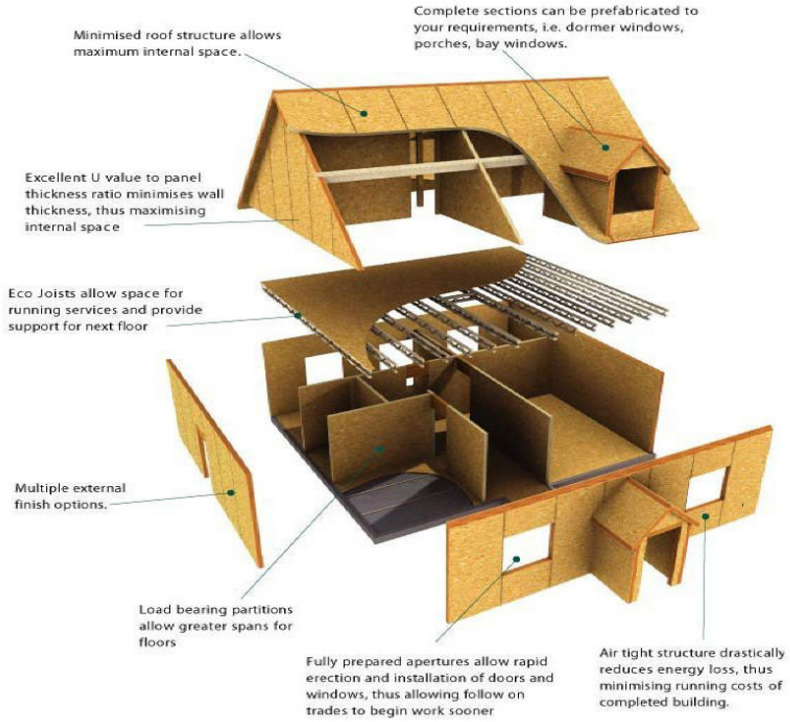
Another method for calculating the cost of SIP panel installation is by panel count. When using the panel count method, it is important to understand the efficiency of a typical days work. Considering crew setup time, morning and afternoon breaks, lunch, pickup at the end of the day and other non-productive daily task, actual labor efficiency is about 6 hours per 8 hour shift. For this reason, many SIP installers work 10 hour shifts in order to increase productivity. Once the crew is going, better to keep them setting panels than to stop the momentum, pickup tools and cleanup, then setup again the next morning before you can start setting panels again. Those extra two hours a day setting panels can be some of the most productive hours, as the crew usually develops a rhythm with the setting of the panels. In might take an hour to set the first panel, then you set 7 panels the second hour.

When calculating installation cost by the panel count method, it is important to count each and every panel, regardless of size. Let's assume that we have a 1200 square foot home with a total of 195 individual wall and roof panels (interior and exterior panels) with a 150 mph wind rated building kit with no seismic considerations. We allow 20 minutes average crew time to set a SIP panel so 195 panels x 20 minutes = 4039 minutes, 4039 / 60 minutes = 67.3 crew hours approximately 8.5 crew days for this install. If your average man hour cost were $35 per hour, $175 per crew hour (5 man crew), the labor cost of this install would be $11,725 (67 hours x $175 crew hour) plus the rental of the tele-handler forklift, scaffolding, tools and equipment plus applicable Contractor insurance, overhead and profit. For this size project, you would add one crew day for seismic design and 1 additional day for a 180 mph wind rating kit design. For the 120 mph wind rating kit design, you would deduct 2 crew days installation time from the above.

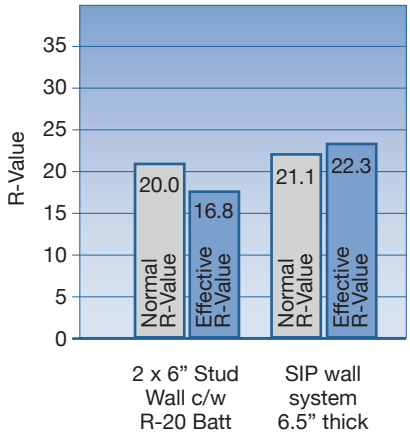
The panel count method of estimating assumes ground level installations with good access around the building pad and adequate material staging area. Restricted site access and limited staging area must be considered when pricing the difficulty of the project. In addition, designs with large or multiple window and door openings will require more crew hours as impact openings require more post, straps, anchors and connections at the top and bottom plates for each opening. The above assumes an average skilled crew of one lead carpenter, one carpenter and 3 helpers. Crews with a higher skill level will be more efficient and complete the installations in shorter durations. On large projects of 20 or more common homes, installers can setup production installation crews with specific task of installing floor plates, installing walls, setting roof panels, installing window and doors. Production crews can develop a very efficient field assembly line of SIP home installation that can reduce installation times as shown in the case studies by as much as 35% when compared to the duration (cost) of a single home installation as depicted in the case studies presented above.

TECHNICAL SPECIFICATIONS:

Typical House Construction



WALL COMPARISON



ROOF COMPARISON

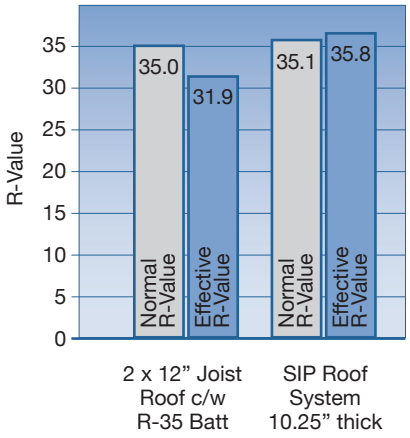


Fig 1.1

WALL COMPARISON

Wall Type	R-Value	Temperature	
		Inside	Outside
2 x 6" Stud Wall c/w R-20 Batt	16.8	21° C (70° F)	21° C (70° F)
Insulspan SIP System (6.5" thick)	22.3	21° C (70° F)	21° C (70° F)

Effective Thermal Resistance of SIP System: 33% Greater

ROOF COMPARISON

Roof Type	R-Value	Temperature	
		Inside	Outside
2 x 12" Joist Roof c/w R-35 Batt	31.9	21° C (70° F)	21° C (70° F)
Insulspan SIP System (6.5" thick)	35.8	21° C (70° F)	21° C (70° F)

Effective Thermal Resistance of SIP System: 12% Greater

Fig 1.2

EFFECTIVE THERMAL RESISTANCE

The Structured Insulated Panel system provides wall and roof assemblies with higher effective thermal resistance (R-Value) than other construction methods. The R-Value of an assembly is a measure of its ability to resist heat flow through it. The higher the R-Value of your wall assembly, the lower your energy costs for heating and cooling your home.

Wall and roof assemblies built with a SIP's system results in a 40-60% reduction in heat loss. The graph (Fig 1.1) compares effective R-Values for wall and roof assemblies constructed with the SIP's system versus stick-frame and steel stud constructions methods.

Higher effective R-Values translate to a considerable reduction in heat loss and long-term energy costs.

Notes:

The effective thermal resistance values below are calculated based upon:

1. Wall or roof assemblies include gypsum board applied to the interior surface.
2. Wall assemblies include vinyl siding on the exterior face.
3. Roof assemblies include sheathing paper with asphalt shingles on the exterior face.

Sip specifications:
Core material: Expanded Polyurethane Foam (EPS)
Skins: 7/16" thick Oriented Strand Board (OSB)
Joint assembly: See Fig 2.2

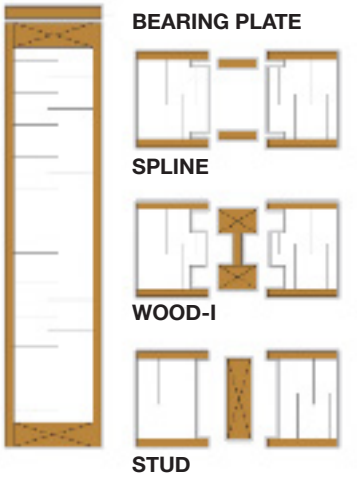


Fig 2.2

TYPICAL MNECH R-VALUE CALCULATIONS

Panel Application	Panel Thickness	Insulation Thick-ness	Joint Type	Total Effective Thermal Resistance	
				R 51-Value	R-Value
Walls	4-½”	3-⅝”	Spline	2.91	16.5
			Lumber	2.73	15.5
	6-½”	5-⅝”	Spline	4.10	23.3
			Lumber	3.93	22.3
	8-¼”	7-⅜”	Spline	5.35	30.4
			Lumber	4.92	28.0
Roofs	4-½”	3-⅝”	Spline	2.87	16.3
			Lumber	2.76	15.7
	6-½”	5-⅝”	Spline	4.19	23.8
			Lumber	4.11	23.4
	8-¼”	7-⅜”	Spline	5.34	30.3
			Lumber	5.14	29.2
	10-¼”	9-⅜”	Spline	6.66	37.9
			Lumber	6.30	35.8
	10-½”	9-⅝”	Wood I-Joist	6.37	36.2
	12-¼”	11-⅝”	Spline	7.99	45.4
			Lumber	7.19	40.8

Fig 2.1

FOR MORE INFORMATION AND TO TALK IN MORE DETAIL PLEASE CONTACT:

James L. Filbey

E: j.filbey@jlfilbey.com

C: +1 954 889 4782