



## Dalian Quacent Prefab Building System



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### Profile

Dalian Quacent is a Canadian invested plant in China & specialized in prefab house for residential and commercial construction.

We adapt the latest technology such as Structural Insulated Panels (SIPs), Light Gauge Steel (LGS), Timber Frame (2x4) etc., to make durable, energy efficient, upgradable, and cost effective prefab houses.

SIPs, the latest approach in the housing industry & our main building system, can provide a strong, durable and energy efficient building envelop in a short time. We have set up the first manufacturing line for SIPs in China & lead the SIPs industry. Our full automatic Light Gauge Steel equipment also enables us to provide LGS house as an alternative.

Based on our strong supply chain in China, we are able to provide the full accessories for houses to save the purchasing effort and cost for our clients.

By our strong R&D, strict QC and full technical support, we have set up our houses in many countries such as Canada, Germany, The UK, Holland, Denmark, Norway, Japan, Russia, Africa, etc. Quacent prefab houses have gained reputation world-widely.

#### Quacent Prefab Houses

- Faster
- Stronger
- Greener
- More energy saving
- More comfortable
- More affordable



#### Certification



ISO9001:2008



SIPs Insulation Value Test Report



Formaldehyde Content Test Report



### Structural Insulated Panels (SIPs)

SIPs are high-performance building materials used in walls, roofs and floors for residential and light commercial construction. The panels are made by sandwiching a core of rigid foam insulation (EPS, PU, XPS) between two skins of structural/engineered boards such as OSB, plywood, cement board, Magnesium board etc.

Quacent SIPs panels are all manufactured under strict ISO9001 quality control environment. All the lumber, OSB, and adhesive etc., come from Canada or USA with strict QC & certificate.

#### Structural Insulated Panels (SIPs)



Dimensions of Quacent SIPs:

- Thickness: 4.5"(114mm), 6.5"(165mm), 8.25"(210mm), 10.25"(260mm), 12.25"(311mm)
- Size: 4'x8'(1.22x2.44m) / 4'x9'(1.22x2.74m) / 4'x10'(1.22x3.05m) / 4'x20'(1.22x6.10m)



• All OSB from Canada



• All lumber from Canada



• Double lumber connection



• Steel connection



• Different thickness



OSB Skin SIPs



Fiber Cement Skin SIPs



MgO Skin SIPs



## Quacent SIPs Panelized Prefab House Kit

Our SIPs prefabricated house kit is a ready-to-assemble home package. All the SIPs panels have been fully fabricated by precutting, lumber-inserting & numbering for easy erection. All the wall panels, roof panels, subfloors, stairs, beams, fasteners & basic tools are included. Other decoration materials such as siding, roofing, windows, doors, plaster board, flooring, etc., can be provided upon request based on our strong supply chains. The format of our prefab houses can be panelized or modularized depending on the shipping method. We also provide Fiber Cement/Mgo facing SIPs, Light Gauge Steel Truss, 2x4 houses as alternatives to fulfill different demands of our customers.

### Insulation Value of Quacent SIP Panels

Panel Thickness	R-Value (North America) R <sup>2</sup> : F <sup>2</sup> (BYU/h)	U-Value (Europe) Wk.m <sup>2</sup>
4 1/2" (114mm)	16	0.36
6 1/2" (165mm)	22	0.26
8 1/4" (210mm)	29	0.20
10 1/4" (260mm)	38	0.15
12 1/4" (311mm)	47	0.12



### Case study

U.S. Antarctic Program South Pole Station built with SIPs. Outside temperature is -77°F/-60°C.



### SIPs is very Strong

The structural integrity of a SIPs building is significantly superior to a conventionally framed building in terms of shear resistance, flexural strength and compressive resistance. Evidence can be found in the real world. 1993 earthquake in Kobe, Japan, devastated a large section of that city, but SIPs houses (see Photo 1) stood still. In another example, a SIPs house was in the path of a tornado that struck Clermont, Georgia, in March 1998. The tornado destroyed 27 houses, including 7 homes near the SIPs house. The SIPs house suffered no structural damage (see Photo 2).



Incredible structural performance of SIPs



Photo 1



Photo 2

## Our Projects



Kaliningrad, Russia 2008



Bar, Montenegro 2007



Quebec, Canada 2009

## Our Projects



Trencin, Slovakia 2008



Coswig, Germany 2007



Blue City, Holland 2009



## FAQ

### I. Is SIPs prefab house strong enough?

The structural characteristics of SIPs panels are similar to steel I-Beam. The OSB skins act as the flange of the I-beam, while the rigid foam core provides the web. This composite assembly yields stiffness, strength, and predictable performance. SIPs prefab houses are structurally superior to many conventional building systems. SIPs have been accepted by the USA IRC in 2007. Quacent SIPs house are manufactured under ISO9001-2008 system & always over engineered.

### II. Is SIPs house earth quake resistant?

SIPs panels themselves have good ability to bear axial, shear and transverse load. SIPs prefab houses are of light weight & connected by thousands of nails, screws and connectors which result in a flexible system with superior performance against earthquake. In the Great Hanshin earthquake in Japan, SIPs house withstood the disaster much better than other building systems.

### III. How is the performance of SIPs house toward fire?

SIPs prefab house adopt the same fire resistant method as other timber wood structure. By the installation of the fire resistant board with different fire rating such as gypsum board, SIPs house can realize the fire rated assembly time of 0.25-2 hours, which can fulfill the requirement of different building code. As SIPs wall panels are solid inside and the fire is hard to spread because of the starving of oxygen. Fire retardant agents are also added in our foam core to stop the fire exposure rate.

### IV. Do Quacent SIPs panels contain harmful chemical?

All the materials used in Quacent SIPs panels are environment friendly and will not produce off gas with harmful chemicals. The formaldehyde released from the SIPs panels is less than 0.1ppm, far less than the standard. Quacent SIPs panels are technically inert and pose no danger to people and the atmosphere.

### V. How about the insulation of Quacent SIPs house?

SIPs prefab houses provide high levels of insulation & are extremely airtight. Test shows that a thinner 4.5" SIPs wall panel has higher R value than the 6" fiber glass stud wall. With the same thickness, the energy cost of a SIPs prefab house is only 30% to a concrete wall and 70% of a conventional timber stud wall.

### VI. Are Quacent prefab houses easy to be built? How fast?

Quacent SIPs prefab house bear the highest possible prefabrication rate and abundant accessories. For the SIPs prefab house package, all the SIPs panels are pre-cut, assembled and numbered in our plants. In the jobsite, builders just need to erect them according to the shop drawings easily, which greatly shorten the construction time. Less labor and skills are required and almost no waste in the jobsite.

### VII. How about the cost of Quacent SIPs Prefab house?

Through our mass production and cost-saving strategy, we have made Quacent SIPs prefab house very affordable. Customers are also paid back from the short construction time and lowered energy bills.