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## SAVE ENERGY SERVICES

GreenHouseAustralia is an international leader in providing energy efficient, green and sustainable products & services for building, companies and community.

Our clients include many of the world's largest companies in the industrial, retail, real estate, and service sectors, as well as numerous independent private developers.

Projects include commercial office buildings, shopping malls, hotels, factories, hotels, cafeterias, restaurants, multi-family residential properties and education facilities

## GREEN HOUSE CONSULTING

GreenhouseAustralia works collaboratively with owners, architects, and engineers to help create high performance green buildings. Using our unique patented design approach, our goal is to assist in developing design solutions that result in:

- 65-100% SAVE ENERGY Self sufficiency results
- Sustainable and restorative sites
- Energy and water use reduction
- Material and resource conservation
- Healthy, comfortable, and productive indoor environments

By balancing functionality, formality, SAVE ENERGY economy, and environmental stewardship, we seek to optimize building performance while promoting environmental responsibility.

Our projects include virtually all types of buildings: commercial, retail, institutional, industrial, company headquarters, hospital, school, and government project.



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## BUILDING PERFORMANCE OPTIMIZATION & CONSTRUCTION

GreenhouseAustralia's products are now widely applied to wall materials of various high and low buildings such as hotel, office building, school, workshop, residence and so on. Our SAVE ENERGY products have the most reasonable performance-price ratio as a result they attract lots of customers all over the world.

Our architects and engineers use a variety of advanced analysis tools to help identify opportunities to reduce energy demand, improve efficiency, and explore renewable energy strategies for new building constructions or existing ones by applying our unique SAVE ENERGY products..

Our advanced building performance services include:

- Energy audits
- Energy analysis
- Energy Star certification
- Daylight analysis
- Sun control and shading analysis
- Building commissioning
- Energy measurement and verification (M&V)
- CFD simulation
- CHP rationalization
- Renewable energy analysis
- Other physical analysis customized for client

## FREE SAVE ENERGY AUDIT

Thousands of companies and building owners, are seeking for energy saving opportunities every day.

By implementing energy audit, GrennhouseAustralia's engineers help our clients to evaluate saving opportunities, prioritize different solutions, and deliver customized proposal to maximize the Return on Investment.

More specifically our engineers by using our worldwide patented products can achieve:

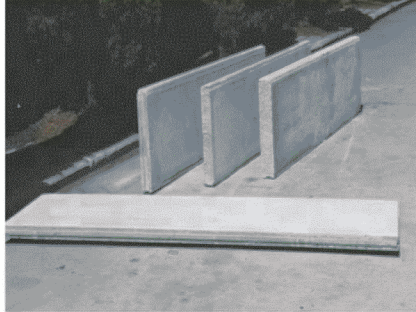
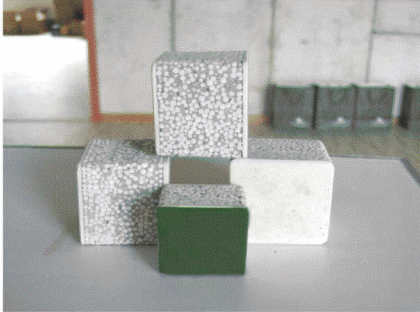
1. Class A -Thermoinsulation of the externall walls of the building
2. Sufficient reduction of heating / cooling loads of the building.
4. Sufficient reduction of lighting loads? of the building

GrennhouseAustralia's engineers can guarantee up to 100% energy self sufficiency of yr company or building.



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## PRODUCT INTRODUCTION



## THE COMPOSITION AND APPLICATION

The light weight compound sandwich board is a kind of light weight energy saving compound board taking fibre reinforced calcium silicon board or cement calcium silicon board as panel, with cement, EPS, fly ash as fillers and forming by one time compound. The product can replace construction materials as red brick, clay solid brick, air brick, color-coated steel sandwich board, gypsum block, wire spatial grid structure perlite board, perlite porous board etc. It can widely be applied to wall materials of various high and low buildings such as: bank, office building, hospital, school, hotel, mall, amusement hall, active barrack, old house reconstruction, residence and workshop.

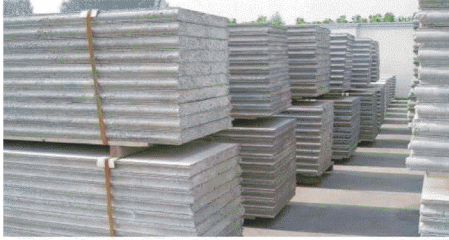
## PRODUCT SPECIFICATIONS

Name	Specification	Weight (kg)	Allowed tolerance
VJ Light Weight Energy-saving board	2270 × 610 × 60	40 ~ 50	Width ± 2
	2270 × 610 × 75	50 ~ 60	Width ± 2
	2270 × 610 × 90	60 ~ 70	Width ± 2
	2270 × 610 × 100	65 ~ 80	Width ± 2
	2270 × 610 × 120	75 ~ 100	Thickness ± 1
	2270 × 610 × 150	85 ~ 120	smoothness ± 2
	2270 × 610 × 180	95 ~ 140	/



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## PRODUCT PACKING



## CONTAINER LOADING



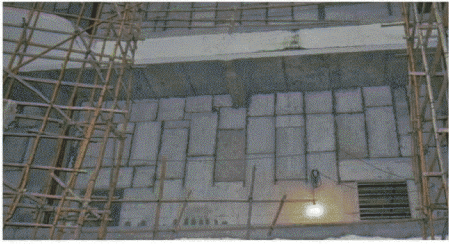
## PROJECT CASE





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## PROJECT CASE

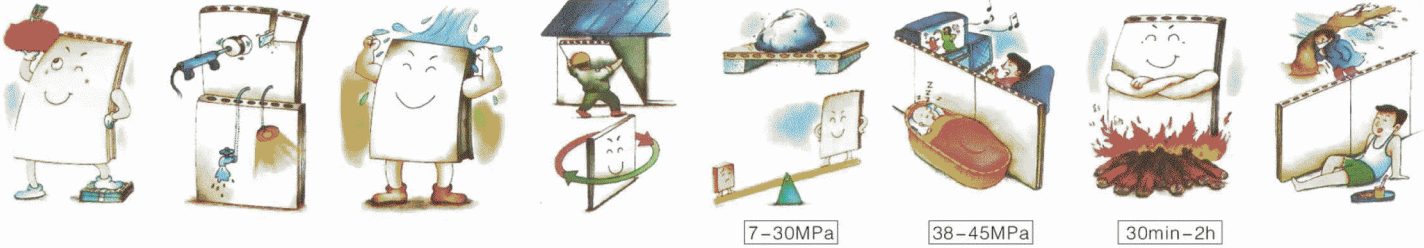




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## FEATURES

### Board Properties



### Most Energy-saving, Light Weight, Environmental Protection

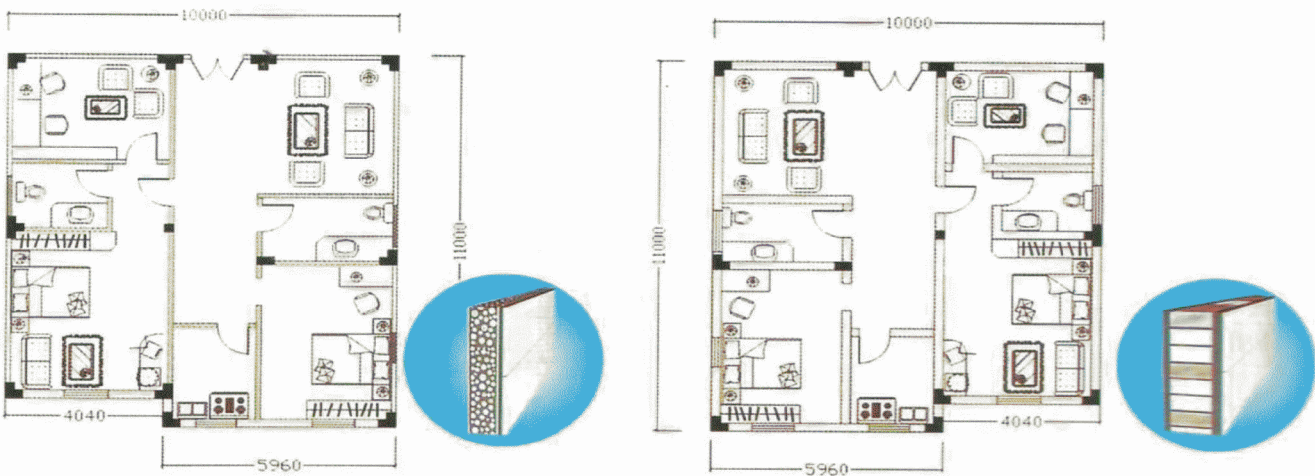
The polyphony granule in board has good heat-insulation effect and the heat lost ratio is far below the other brick wall building. The energy-saving effects of the building is greatly improved.

All the raw material does not include harmful substance. As environmental products, it is highly recommended by the government

The capacity is  $650 \text{ kg/m}^3$ , just one sixth of the brick building.

### Most Area-saving

In comparison of the inner wall panel 75mm and 120mm, every 12m will increase practical area, for the  $100\text{m}^2$  house, it will increase  $4.26\text{m}^2$ .





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## FEATURES

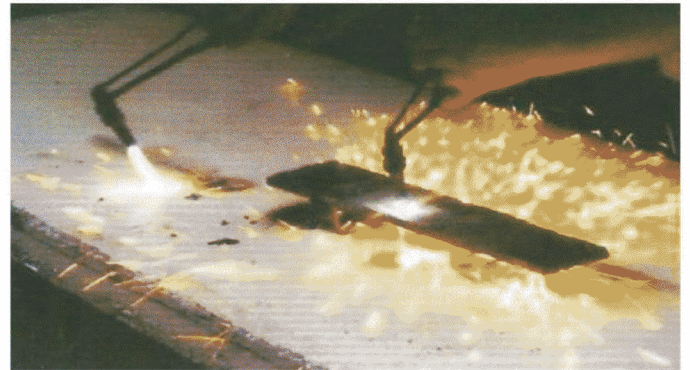
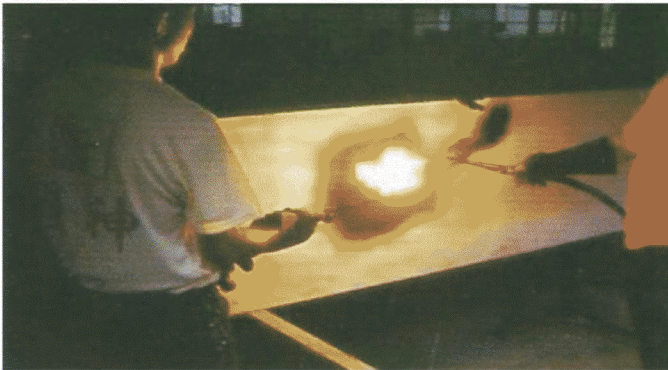
### Most Waterproof and Dampproof

Because of the special features of the solid panel, the feature of Waterproof and Dampproof is very obvious. The experiment shows that without any waterproof facing, build one pool with our products, and fill it with water, the back of the wall can keep dry without any blot. When in damp weather, there isn't any condensation water.



### Most Fire-proof

Under 1000 degree centigrade for 240 minutes, there isn't damage to the wall. It is tested by National Fire-proof Building Material Quality Supervision Testing center. Vanjoin products have reached National A grade standard.



### Most Sound-insulation

42dB sound-insulation effect, accord with the national standard GBJ121-88. Because of the special feature of Vanjoin products, like high density, the sound-insulation effect is better than common material, as the general brick material can only reach 35dB.







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## Best Hanging Force



Expansion bolt can be installed in random part of the wall, The point hanging force can reach more than 50kg, it will bring more convenience to the deuteric decoration.

## Most Anti-seismic and Impact Resistance

As the wall is prefabricated ,and the board is triad structure, there is no building material can stand comparison with Vanjoin products in the aspect of anti-seismic and impact resistance features .



## Largest Span and Height Thin Webbed Wall

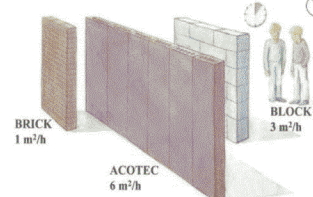
As the High Strength and good integrity, Vanjoin products can be used in the large span and height wall building. It just need simple steel structure anchorage, and section steel buried in the wall. The large span wall's impact resistance ability will be 1.5 times more than common material. The simple construction height is 16.8m



## Most Civilized ,Environmental, High Efficiency Construction.

Simple construction and transportation, stacking health, dry operation, no sludge, low loss, less waste, construction convenient, no bricklaying plastering, shorten the construction period,, slotted fast, easy to install water and electricity pipeline, construction efficiency is 8-10 times of the normal masonry, it's a kind of high-quality reusable wall.

### PRODUCTIVITY





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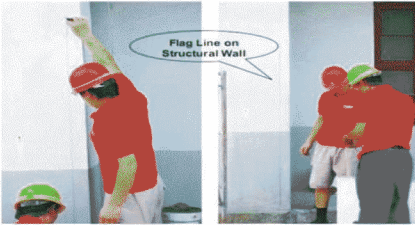
## PRODUCT PERFORMANCE INDEX

NO	Item	National Standards			Testing Indexes		
		60mm	90mm	120mm	60mm	90mm	120mm
1	Anti-impact Capacity/times	≥5	≥5	≥5	≥8	≥10	≥15
2	Anti-bending damageload/times over deadweight	≥1.5	≥1.5	≥1.5	≥3	≥4	≥5
3	Compressive strength /Mpa	≥3.5	≥3.5	≥3.5	≥5	≥5	≥5
4	Softening coefficient	≥0.80	≥0.80	≥0.80	≥1	≥1	≥1
5	Surface density g/m <sup>2</sup>	≤70	≤90	≤110	≤55	≤70	≤85
6	Moisture rate a/%	≤12/10/8			≤10/9/7		
7	Drying shrinkage value /mm/m	≤0.6	≤0.6	≤0.6	≤0.45	≤0.5	≤0.5
8	Hanging Force /N	≥1000	≥1000	≥1000	≥1200	≥1300	≥1500
9	Sound insulation capacity in the air /Db	≥30	≥35	≥40	≥35	≥40	≥45
10	Fire proof limit /h	≥1	≥1	≥1	≥2.5	≥3	≥4
11	Heat transfer coefficient w/m2.k			≤1.0			≤1.0
12	Radioactivity Limit	≤1	≤1	≤1	≤1	≤1	≤1
13	IRa Inner radiation indexes	≤1	≤1	≤1	≤1	≤1	≤1
14	Ir Outer radiation indexes )	≤1	≤1	≤1	≤1	≤1	≤1



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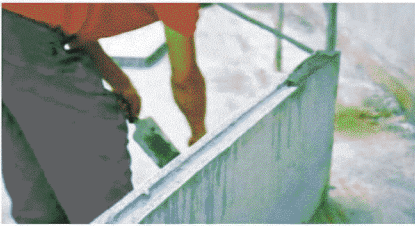
## INSTALLATION FLOW OF LIGHT WEIGHT COMPOUND SANDWICH BOARD



1. Setting the line and carrying the board are in position: Eject double lines of board thickness up and down the axes of installed wall board, easily carry to the side of wall according to the specification needed.



2. Sawing board: Using hand-held electric saw to saw freely according to the specification of the wall.



3. Sizing: Sizing cement on tenon side of two boards, then spread polymer mortar on one tenon side casually.



4. Installation: Carrying the board prepared to be installed to the installation place, correcting the wall board by gavelock and making it close tightly, and let the polymer mortar squeeze out into full and fixing it with a chock temporarily.



5. Correcting, fixing: Using a guiding rule of two meters or longer to check verticality and leveling correction, then using  $\Phi 6\text{mm}$  or  $\Phi 8\text{mm}$  reinforcing steel bar with ribs adding with construction sealant to fix.



6. Grouting and filling starch: Filling and strickling the corrected wall board with polymer mortar, filling the big gap with pea gravel concrete.



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## INSTALLATION FLOW OF LIGHT WEIGHT COMPOUND SANDWICH BOARD



7. Sticking anti-cracking cloth: After polymer using for filling the gaps and wall are all shaped, sticking glass-cloth with emulsoid on all seamings.



8. Installing electrical wires and switches: Setting lines on the places needing to be set with concealed wire and switch box, then cut a groove by hand-held electric saw, filling with polymer mortar after installation.



9. Installing doorcase: Preparing a door and window hole on the installed wall, anchoring by splint or lines.



10. Facing coating and wall papers: Scraping putty directly without plastering on the installed wall, then brushing coating and sticking wall paper.



11. Facing ceramic tile, decorative sheet: Sticking ceramic tiles or other wood facing panels casually without plastering on installed wall.

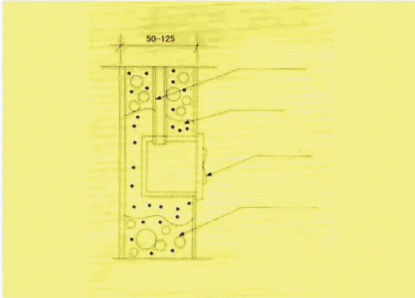


12. Electric apparatus installation: Install lights, furniture, air-conditioners casually on installed room, nailed or hanged.

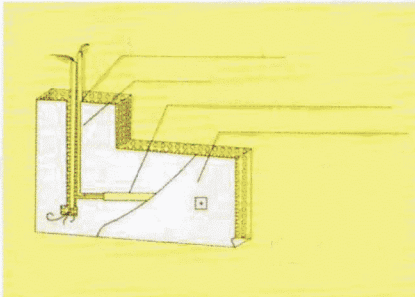


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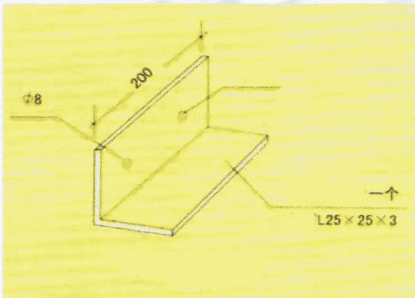
## INSTALLATION NODE DIAGRAM



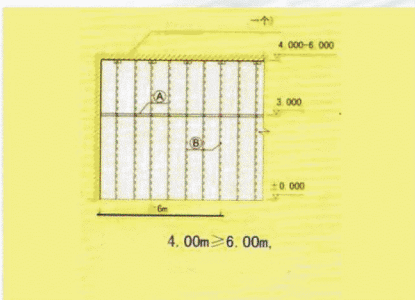
Pipeline  
Cement  
Switch box  
Compound panel  
Electric switch box's installation



The fluted tube embedded in the recesses  
Be fixed with a small nail  
Determine the pipeline place  
ment, use 1:25 cement to erase  
To be stabilized slurry, plaster for facing  
treatment



Open-hole  
L25x25x3 : Each of two plates use one node angle  
Wall fixture



Node angle (Each of two plates of with one piece)  
Wall height exceeds 4.00m,  $\geq 6.00m$ , with additional steel beams, columns  
method to install



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## Green House Australia 's mission

is to constantly provide innovative save energy systems with competitive pricing for the benefit of our children, our planet & the enterprises that drive our economy.

We are committed to continuously improve the save energy performance of our products, services, operations and culture to help achieve a save energy society and protect the natural environment for our children.

We are committed to constantly re invest in our company's r&d research for developing new and more efficient save energy systems.



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