

福建铸鼎建材有限公司

FUJIAN ZHUDIN BUILDING MATERIALS CO. LTD.

ZHUDING INTERNATIONAL LIMITED

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About Us

- Fujian Zhuding Building Materials Co., Ltd. (“Company”) was established on 11 December 2012 in Fuzhou, Fujian province.
- Engaged in the main business of R&D, production and sales of new lightweight composite wall materials. Being a revolutionary breakthrough, its products have received a number of national patent protection and the Company’s related projects receive special support at a provincial level.
- Company is equipped with its own mature formula, in-house technical experts as well as a proficient marketing and management team.
- Company’s product technology leads at a national level, with products principally used in guesthouses, hotels, commercial buildings, hospitals and residential buildings etc

Business License

企业法人营业执照

(副 本)

副本编号: 1-1

注册号 350122100033843


名称 福建铸鼎建材有限公司
住所 福州市台江区上海街道工业路红庆里7号3层D21室
法定代表人姓名 项木霖
注册资本 壹仟万圆整
实收资本 壹仟万圆整
公司类型 有限责任公司
经营范围 一般经营项目: 建筑材料批发、代购代销; 轻质建筑材料制造、砼结构构件制造、水泥制品、其他水泥类似制品制造 (制造另设分支机构经营)。

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年度检验情况

			
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成立日期 二〇一二年十二月十一日 至 二〇六二年十二月十日
营业期限 二〇一二年十二月十一日



Main Business

- The Company is principally engaged in the design, manufacturing and sales of lightweight composite wall panel, which has attributes like fire insulation, thermal insulation, light weight, high strength, strong durability, comparable life span with main architecture, suitability for prefabrication construction used in housing industry etc.
- Additionally, ease of use, good weatherability, maintenance free are obvious advantages over other building materials.
- Attained leading product technical performance at national level.
- Product principally used in guesthouses, hotels, commercial buildings, hospitals and residential buildings etc.
- Product is over 70% made up of industrial solid waste, ash and slag.

Certificates and Accreditations



Certificates and Accreditations



Certificates and Accreditations



Development Prospect

- Currently, the concept of green building and sustainable development is growing with good development potential; green building-related products are also increasing and have become the mainstream development of the construction materials industry.
- As attested by many countries, new wall materials is the inevitable trend of economic development. New wall materials in developed countries account for 60% -90% of the total wall materials industry.

The use of new type construction materials and products significantly improve building functionality, increase usable can area facilitate mechanization construction and improve construction efficiency and, at the same time, reduce the cost of construction.

- It can be predicted with high certainty that the Company's core product will be the industry's main product in the future.

2. Market Analysis

- Industry Development
- Industry Breakthrough
- Industry Status

Industry Development

- Development of new type wall materials in China has been rapid, with production of standard brick using new materials increasing 10 fold from 1987's 18.45 billion pieces to 1997's 184.99 billion pieces. The ratio of new wall materials to conventional wall material currently stands at 4.6% to 25.2%.
- China's wall materials industry has evolved to focus on developing its product range, with wall plates forming the main building blocks, such as concrete hollow block, plaster board, fiber cement sandwich board, though products like various types of lightweight panels, composite boards that are representative of modern wall materials standard still represent less than 1% of the total wall materials.
- In view of this situation, the relevant government ministries and bureaus (i.e. Ministry of Construction, Ministry of Agriculture, Ministry of Land and Resources and the National Building Materials Bureau) have intervened to actively promote the development and innovation of wall materials; by combining current industrial trends and passing of a number of innovation inducing policy, the government aims to promote the development of new wall materials.

Industry Development

National Policy

Production and use of solid clay brick is prohibited

- According to national policy, the production of solid clay brick and hollow bricks is banned from 1 January 2009 and from 1 January 2011 respectively in all new construction, renovation and expansion construction related activities.

New wall materials special refund RMB8/m²

- In accordance with national policy, construction projects using new wall materials can apply for special refund of RMB8/m² payable on project completion.

Incentivize architectural, building & construction and supervisory companies

- Upon project completion and passing certain requirements, the relevant companies who have contributed to the use of new building materials will be rewarded.

Industry Breakthrough

As living standards improve, upgrade of living space is a must have, thus outlining consumers' new requirement and demand for new construction wall materials displaying certain attributes (see below). With the introduction of new production technology in the Company's products, it has become a national industry leader, which will contribute to the scientific development of China's building materials industry.

1. Heat insulation & energy saving
2. Sound insulation
3. Fire protection
4. Waterproof
5. Anti-seismic
6. Enhance usable space

Industry Status

At present, domestic lightweight composite wall panel faces certain production & quality issues:-

1. Small production scale and outdated technology and equipment: still dominated by small factories with annual production capability of 50,000 - 100,000 m².
2. Single product offering: limited product offering with simple functionality, inability to deliver product series/sets to attract consumers.
3. Backward production technology: still leverage on preceding century's outdated technology that involves manual production; poor equipment and lack of perfect quality assurance system continues to impede product yield and quality.
4. Low levels of domestic production means wallboard products' standard technical specifications remain low. Actual products often do not meet the standard as prescribed by relevant standard requirements.

Competitive Advantage

- Technical Advantage
- Innovation Model
- Management Team
- Marketing Channel

Technical Advantage

The Company has built a R&D base in Lianjiang, Fujian province while it is situated in Aojiang economic and technological development zone. Existing production plant and office building occupies 8,000m² and 4,500m² respectively. The production facility comprises highly automated assembly lines and the Company strives to be Fujian province, or even the country's most advanced environmental friendly building materials production base. The Company will occasionally bring together a number of domestic famous experts and scholars in the field of building materials and with a number of like-minded enterprises to exchange ideas and pointers.



Technical Advantage

The Company continues to invest optimally in production technology and product R & D to devise proprietary formula and proprietary technology. It is an ongoing process which ensures that there is a continuous stream of patents secured by the Company (i.e. patents are secured while others are in the process of being approved by the relevant governing bodies). This is aimed at ensuring that the Company remains as an industry leader.

Patent Name	Patent No.	Patent Category	Issue date
A production method of composite lightweight fireproof and wet protection wall panel	201310 054866. 6	Invention	21/2/2013
A production method of composite lightweight waterproof wall panel	201310 054983. 2	Invention	21/2/2013
A production method of composite lightweight sound insulation wall panel	201310 054993. 6	Invention	21/2/2013

Technical Advantage

Company's Patents

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福建省厦门市思明区仙岳路 458 号邮政大楼八楼 B1 单元
厦门龙格专利事务所（普通合伙） 姜坤明

发文日：2013 年 02 月 21 日

申请号或专利号：201310054993.2 发文序号：2013022100323090

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申请号：201310054993.2
申请日：2013 年 02 月 21 日
申请人：福建裕昌建材有限公司
发明创造名称：一种复合轻质防水整体组合式墙板的制备方法

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审查员：谢长忠(电子申请)

审查部门：专利审查及复审管理部

2010.1 纸件申请，函件请寄：100088 北京市海淀区中关村科技园西土城路 6 号
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发文日：2013 年 02 月 21 日

申请号或专利号：201310054993.6 发文序号：2013022100326210

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申请号：201310054993.6
申请日：2013 年 02 月 21 日
申请人：福建裕昌建材有限公司
发明创造名称：一种复合轻质隔音整体组合式墙板的制备方法

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审查部门：专利审查及复审管理部

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厦门龙格专利事务所（普通合伙） 姜坤明

发文日：2013 年 02 月 21 日

申请号或专利号：201310054866.6 发文序号：201302210032810

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审查员：陈智坚(电子申请)

审查部门：专利审查及复审管理部

2010.1 纸件申请，函件请寄：100088 北京市海淀区中关村科技园西土城路 6 号
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Innovation Model

- The Company will implement the "mobile factory" marketing model. The specific facilities/equipment will be set up in trucks and shipped to the destination. By leveraging on the Company's advanced technology and equipment and coupled with ease of handling, small space required, streamlined processes and transportation costs savings, the problem of logistical inconvenience and high transport costs are solved at one go to arrive at a more complete logistics system.
- In light of production capacity limits, thus leading to inability to meet growing market demand, the Company has resolved to source for funds to expand its production capacity and also try to attract foreign investments by new modes of strategic cooperation.
- The Company will continue to utilize its product and technical superiority to form its core brand value, while upgrading its product quality and service levels, promoting environmental friendly concept to society, with the aim of creating an influential corporate image and increasing its product market share.

Marketing Channel

- Expand domestic and overseas residential market for green energy-saving building materials, become a supplier of GLPC building materials for a wide variety of residential housing like affordable city apartments, commercial housing, resettlement housing, post-natural disaster temporary housing, new countryside housing, small townships, domestic and overseas villas etc.
- Develop domestic and overseas green energy-saving building materials in the public buildings sector, with the Company's products used as interior and exterior wall materials for a variety of public facilities like urban and rural hospitals, schools, commercial/office buildings, theatres, hotels, restaurants etc.
- Venture into domestic and overseas traffic noise insulation market, development of all types of new green energy acoustic sound barrier wall materials, with the aim of becoming a supplier of such products for domestic and overseas highway and railway noise barrier construction.
- Enter domestic and overseas construction markets for outdoor facilities, development and supply of all types of outdoor brick roads, prefabricated highway crossbridge, highway guardrail slope protection etc.

Product Analysis

- Test Base
- Product Diagram
- Product Function
- Product Comparison
- Application

Test Base

The Company has established a test base to conduct research and development of new products in AoJiang economic and technological development zone, Lianjiang, Fujian province.



Test Base

Test Instrument



Cement constant stress bending and compression testing machine



Concrete penetration resistance meter



Digital automatic temperature and humidity control instrument



Cement fineness vacuum sieve analyzer

Test Base

Test Instrument



Automatic specific surface area analyzer



Thermostatic water bath



Digital Cement Concrete Standard Curing Box

Product Diagram

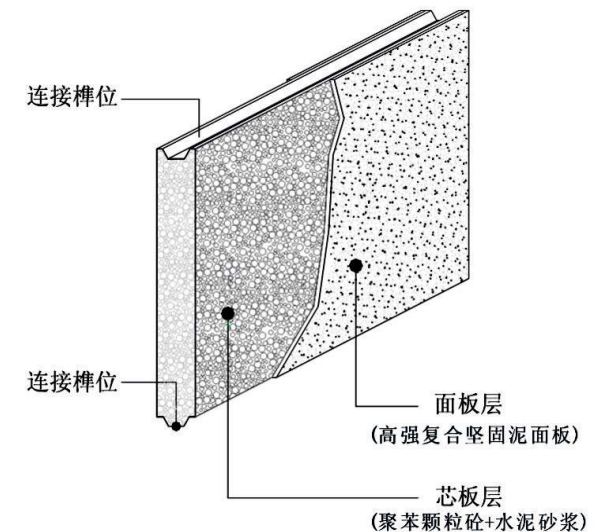
Zhuding composite lightweight wall panel structure

High strength composite solid clay panel

- Replaces masonry wall plaster, improves rigidity of the panel.
- Comes with fireproof and waterproof function.

Core material

- Use of polystyrene particles to greatly reduce weight of the wall.
- Comes with heat and noise insulation functions etc.
- Uniform distribution of polystyrene particles with cement mortar in the core board to form honeycomb structure, which improves its impact resistance and hanging force.



Product Diagram

Wall Siding Panel



House Panel



Product Diagram

Zhuding wall panel assembly



1. Alignment



2. Sizing



3. Installation



4. Positioning



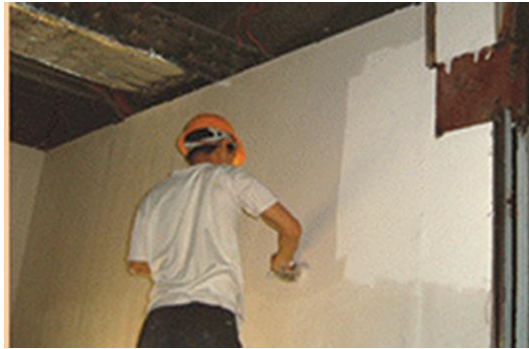
5. Adjustment

Product Diagram

Zhuding wall panel assembly



6. Filling joints



7. Plastering and painting

Product Function

Environmental protection

Wall materials do not contain any harmful substances, nor Class A radioactive products, thus meeting the national GB6566-2001 standards. In addition, their use is not restricted.

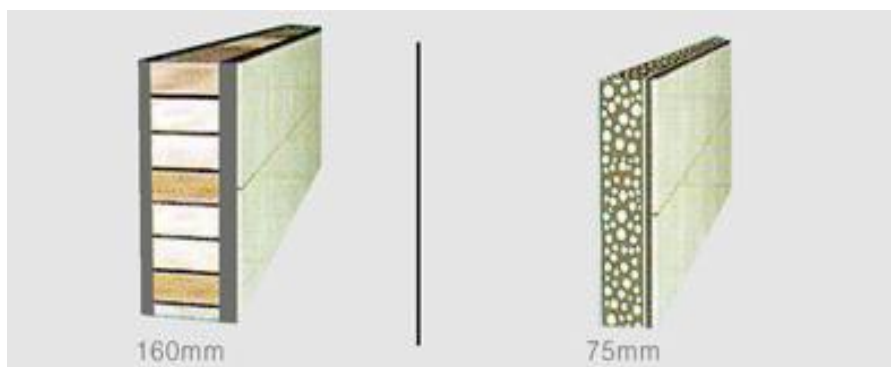
Ease of construction

Company's materials are easy and quick to use. They can be easily cut to customize its size, thus easing prefabrication under dry works environment. Construction process is speeded up as it does not involve plastering. In addition, material loss rate is low and construction waste is reduced accordingly.

Product Function

Increase usable area

Generally, Company's wall panel is 75 mm, which is 85mm thinner than that of traditional bricks. Accordingly, every 11.8m in length of the Company's wall panel used will translate to an increase of 1m² of usable space. With an increase in utilization rate of 5%, such wall panels are widely used in shops.



Light weight

Company's wall materials are light, at only 60kg/m², which is 1/6 the weight of brick masonry and 1/2 the weight of aerated concrete. As such, 2 people can easily carry a 1.83m² wall panel.

Product Function

Resistance to compression

Wall panel is prefabricated with panels bind together to form the complete structure. Its impact resistance and flexural properties are far stronger compared to masonry walls. On examination, compressive strength is $\geq 3.5\text{Mpa}$ while impact resistance is 7 times higher than the national standard of 5 (test value: 35)

Large span and height

Due to its high strength and good overall performance, it can be used for wall interval of large span and height, simply by using steel anchors embedded in the wall, which also eliminates the need for wall columns. Siding bending failure load ≥ 4.44 , which exceeds national standard value of 3. Height-wise, wall interval can go as high as 16.8m.

Product Function

Sound insulation

Wall panel has good sound insulation and sound absorption function, reason being the presence of concave/convex mortises and sound absorbing polystyrene particles. The sound insulation of 75mm wall panel is 42db while ordinary masonry wall is 28dB as compared to international standard of 35 dB.

Fire proofing

Combustion test under temperatures from 900 – 1,400 degrees revealed that 50mm, 75mm and 100mm wall panels can last 92 minutes, 188 minutes and 240 minutes respectively. With fire proofing capability capable exceeding 4 hours, flame retardant performance meets the national grade A standard and additionally, the wall panels also do not diffuse toxic or harmful gases.

Product Function

Waterproof

As a result of the special characteristics of the Company's wall panel, they can be lined up into a pool structure using cement and filled up with water without displaying any leaks nor any water marks on the exterior surface of the panel. And in humid conditions, there will not be any condensed water beads. Panel softening coefficient is ≥ 0.9 , and its good waterproofing and damp-proof properties make it ideal for use in kitchens and bathrooms.

Heat insulation

Polystyrene particles mixed with cement mortar form the honeycomb structure in the composite wall panel, thus improving its heat insulation performance, with heat conduction coefficient of less than 0.7. Experiments show that when one side of the wall panel is exposed to temperatures as high as 1,000 degrees Celsius, the temperature of the other side will only reach between 38 - 42 degrees Celsius.

Product Function

Crack free, mold free, insect free

Wall panel's dry shrinkage value ≤ 0.23 . By administering standard construction process and special materials formula, properly installed wall panels will be free of cracks, mold and insects.

Strong hanging force

Wall panels can be directly nailed or expansion bolts can be affixed for the purpose of hanging heavy objects. Every single point can support hanging force of more than 100 kg. The wall panel is smooth, dust free and decoration materials like tiles and wallpaper can be pasted directly.

Product Comparison

Item description	Zhuding lightweight composite wall panel	Conventional red brick	Aerated brick
Thickness	75mm	180mm	200mm
Weight	50 - 60kg/m ²	324kg/m ²	144kg/m ²
Price/m ²	~RMB90 (includes main material, installation materials, wages)	~RMB80 (includes main material, interface agent, double-sided plaster)	~RMB90 (main material costs around RMB60, interface agent, double-sided plaster)
Cost Benefit Analysis	<ol style="list-style-type: none"> 1. Every 100m of construction area requires 110m² of wall panel. Accordingly, use of Zhuding wall panel as compared to conventional red brick will lead to weight savings of circa 30 tons, substantially reducing the use of steel building foundation, beams, columns, cement etc. 2. If 1m² space costs RMB4,000, approximately 4.5% increase in floor space will lead to an increase in value of circa RMB20,000 3. Notwithstanding that Zhuding wall panels will not lead to substantial costs savings in terms of its pricing as compared to traditional wall materials, the use of Zhuding wall panels will lead to savings in terms of increase in floor space, lower transportation & manpower costs, simplification of building structure and other considerations etc, thus giving rise to considerable value add. 		

Product Comparison

Item description	Zhuding wall panel	Common brick	Aerated brick
Shock Resistance	≥ 30	≥ 20	5
Noise	42dB	20dB	20dB
Hanging force	$\geq 50\text{kg}$	-	$\geq 50\text{kg}$
Heat Insulation	coefficient of heat conduction ≤ 0.4	Normal	Normal
Anti-seismic	Good	Weak	Weak
Water proof	Good	Weak	Weak
Wall smoothness	Good	Weak	Good
Fire proof	≥ 4 hours	≥ 1 hour	≥ 1 hour

Product Comparison

Item description	Zhuding wall panel	Common brick	Aerated brick
Working method	Dry works	Wet works	Wet works
Working period	Fast (one time)	Slow (drywall and plaster dry process)	Slow (drywall and plaster dry process)
Pollution	No	Yes (Waste soil and broken bricks)	Yes (Broken bricks)
Energy saving	Yes (recyclable)	No	No

Future Development Direction

- Housing Industrialization
- Estate Planning
- Business Goal

Housing Industrialization

- ◆ According to the general office of the state council's "Green Building Action Programme" (SCS [2013] article 1), the provincial government's "Notice on 10 measures to further support the development and growth of the construction industry" etc., to expedite the implementation of the industrialization process of modern construction methodology and promote the transformation and upgrading of composite lightweight building materials, companies will develop in the direction of environmentally friendly building and construction.
- New industrialization construction's core objective encompasses "Improvement of construction efficiency as well as quality of engineering, reduction of labor, creation of livable environment". The trend towards environmentally friendly building will involve prefabrication of building components in factory and assembly on actual site.

Estate Planning

- ◆ To comply with the spirit of green development, the Company will partner with Building Research Institute of Fuzhou University to strive to grasp the essence of green building design, with the aim to swiftly build permanent residential structures by employing assembly technology, which will technically prepare the Company to enter the public facilities and prefabricated residential building materials sector in the near future.
- ◆ The Company's future business development plan is the extension and upgrading of existing technology and business as well as consolidation of its products' leading market position and market share. Concurrently, the Company will introduce light steel scaffolding system products to public facilities and residential areas with environmental protection, energy conservation and green building concept in mind in a bid to do its part for society.