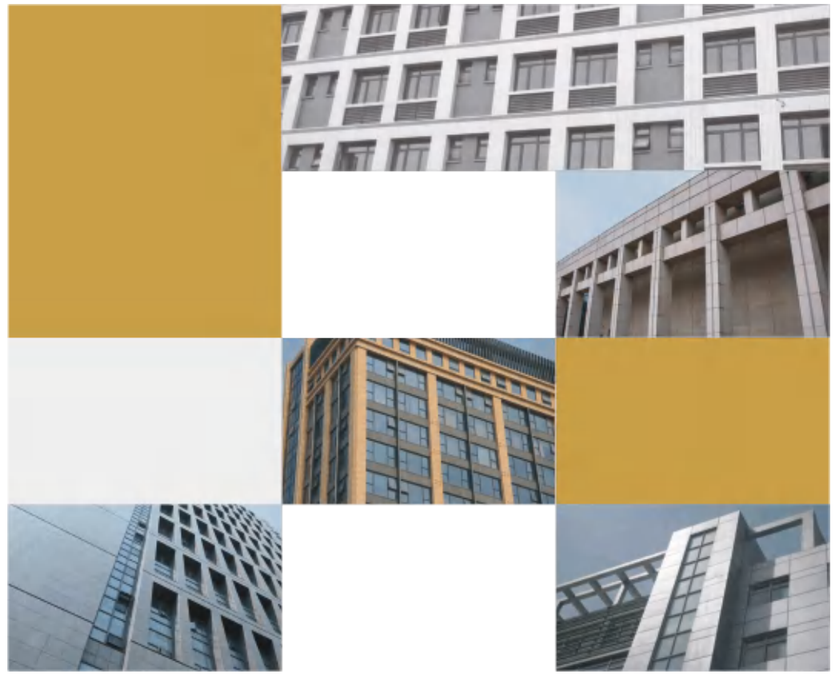
卓宝科技
JOABOA TECH

/ Industry Pioneer World Leading /



JOABOA TECH Decoration & Insulation Integration Product Series

Non-metal Surface Decoration and Insulation Integration System

(SPCM/SRCM)

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SHENZHEN JOABOA TECH GROUP
HUBEI JOABOA CONSTRUCTION ENERGY-SAVING TECHNOLOGY CO., LTD

Great innovation in building waterproofing and insulation industry.

JOABOA TECH, building the splendid home with you together.

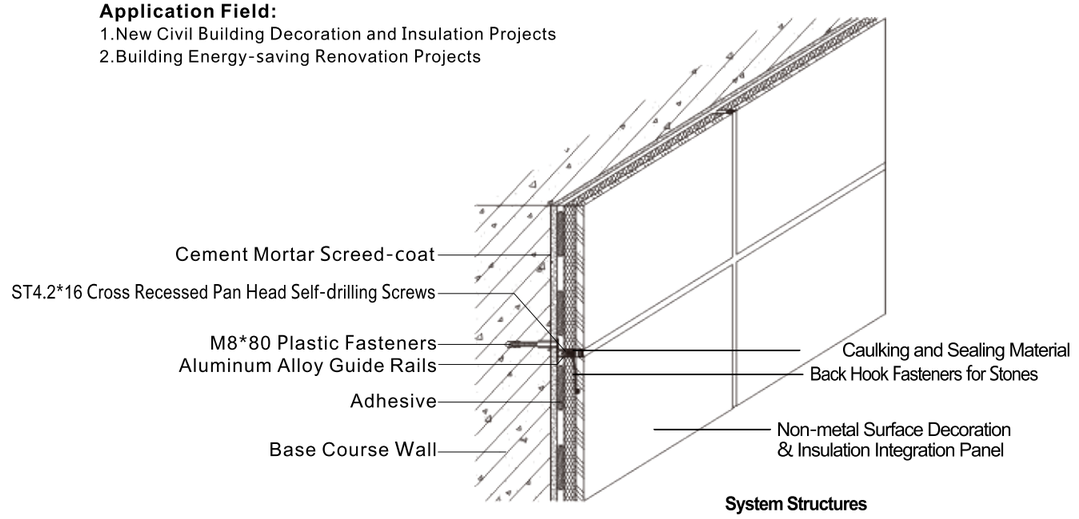
SYSTEM OVERVIEW

Non-metal Surface Decoration and Insulation Integration System consists of non-metal decorative surface combined with rigid PU insulation board or rock wool insulation board, adhesive, caulking, sealing material, metal rail and auxiliary fastener. It's a new decorative and insulated system specialized for external wall, unlike traditional curtain wall system, with multiple functions of thermal insulation, waterproofing and decoration. By using the bonding mortar, back hook connectors and metal supporting guide rails, it can form a advanced sticking, anchoring and supporting fixing method, which is safer, more stable and reliable. when compared with traditional one.

Application Field:

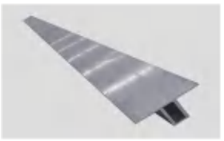
1.New Civil Building Decoration and Insulation Projects

2.Building Energy-saving Renovation Projects



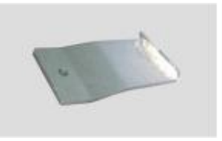
System Structures

Main Accessories



Aluminum Alloy Guide Rail

Metal and Plastic Anchor Bolts



Stainless Steel Fasteners

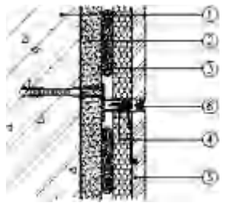
Aluminum Alloy Corner Connectors

Self-drilling Screws

SYSTEM STRUCTURE

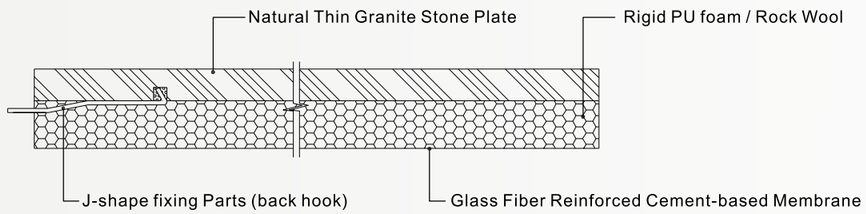
◆**Base Course Wall**
An external wall that acts as a load bearing and protective function in the building.
◆**Screed coat**
A structural layer is set to decrease the unevenness or slope existed on the base surface of the original structure.
◆**Keels**
A T-rail that is fixed on the surface of the base course wall and made of aluminum alloy material.
◆**Mechanical Fasteners**
It is composed of special anchor bolts and fixing parts, placed between the seams of decoration & insulation integration panels and used for the fixing of the integration panels and base course wall.
◆**Adhesives**
Bonding materials used for the bonding of thin stone surface integration panels on the base course wall.
◆**Anchor Bolts**
A plastic expansion anchor that fixes the aluminum alloy guide rails, connector parts, and decoration & insulation integration panels on the base course wall.
◆**Caulking and Sealing Materials**
Materials used to fill in the joint seams between integration panels, act as a seal and insulation, also with good waterproofing performance.

• Basic Structure of Non-metal Surface Decoration and Insulation Integration System

Structure Schematic Diagram	System Structures		
	①Base Course Wall	②Waterproofing Screed-coat	③ Bonding and Fixing Layer
	Reinforced concrete wall, various masonry wall systems	1:3 Cement Mortar	Adhesives
	④ Mechanical Fixing	⑤ Decorative and Insulation Integration Panel	⑥ Installation Methods
	Aluminum Alloy Rail and Metal Fixing Parts	Surface Layer (Thin stone plate)+Insulation Layer(Rigid PU foam/ Rock wool)+Backing layer (Glass fiber reinforced cement-based membrane)	Foam Rod and Neutral Weatherproofing Sealant

Non-metal Surface Decoration & Insulation Integration Panel :

It is a type of decoration and insulation integration panel specialized for facade system, with non-metal plate as top surface which has different choices for ornamental purpose, inorganic or organic thermal insulation material as the core material and glass fiber reinforced cement-based coil as the lower surface, produced by hot-pressing foaming heat compound technology. Inorganic materials such as natural granite plates, fiber cement pressure plates and calcium silicate boards are usually used as decorative and protective surface layer, and rock wool or rigid PU foam as the insulation core layer, to meet the different decoration & insulation and fireproof design requirements in single project.



PANEL STYLE

Other colors can be customized according to the design requirements.

Tan Brown

Karamorl Gold

Indian Red

Sesame White

Cherry Flower Red

Golden Grain

Black Galaxy

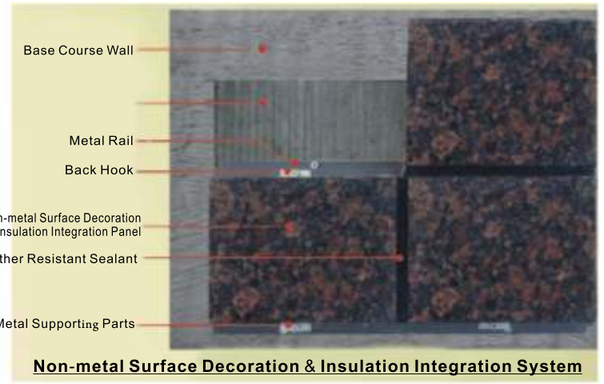
Blue Pearl

Purple Gold Brown

PERFORMANCE CHARACTERISTICS

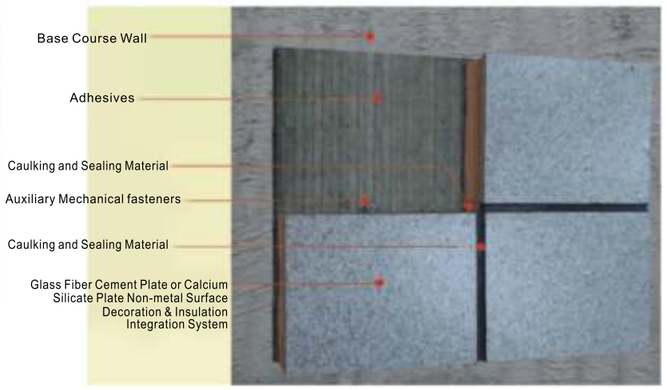
JOABOA TECH non-metal surface decoration & insulation integration system is divided into non-metal surface rock wool sandwich integration panel and non-metal surface rigid foam PU integration panel according to different insulation core materials. It can meet different decoration & insulation and fireproof design requirements in single project. According to different decorative materials such as thin stone, fiber cement board and calcium silicate board, it provides two kinds of installation methods like mechanical fixing inserted with auxiliaries and mechanical fixing with metal supporting rails, which can greatly enhance the safety and reliability of the whole system.

System Example 1: Thin Stone Surface Decoration & Insulation Integration System



Non-metal Surface Decoration & Insulation Integration System

System Example 2: Glass Fiber Cement Surface Decoration & Insulation Integration System



1. The outer surface is the granite plate or glass fiber reinforced cement plate, with various colors and textures, to reveal good decorative effect.
2. Insulation core material is divided into inorganic (Rock wool) and organic (rigid PU foam) types, thus to meet different design requirements of building fire protection.
3. Non-metal Surface Decoration & Insulation Integration panel weighs less than 30kg/m2, which greatly reduces the linear load of the building.
4.With online continuous high-pressing foaming and one time hot press composite forming production process, it eliminate the hidden risk of hollowing and falling off between the decorative layer and the insulation layer that caused by traditional cold sticking production process.
5. The system is highly integrated in the factory and supplemented by professional and fast logistics and distribution. It only needs to simple assembly on the construction site, which greatly reduces the construction period and construction cost.

System Performance Index

Items		Index		Experiment Methods
		I type plate	II type plate	
Weather Resistance	Appearance	No powdering, drumming, blistering, shedding, no cracks with width greater than 0.10mm		It shall be inspected according to the test method specified in the current industry standard JC/T287 The Materials Of External Thermal Insulation Systems Based On Insulated Decorative Panel
	Tensile bond strength between decorative surface layer and thermal insulation material(MPa)	≥0.10	≥0.15	
Tensile bond strength (MPa)		≥0.10 Damages occur inside of the insulation core material	≥0.15 Damages occur inside of the insulation core material	
Single point anchoring force (KN)		≥0.30	≥0.60	
Impact Resistance (0)		Walls of the first floor and areas around the doors and windows on building that are easy to be impact: Grade 10J		It shall be inspected according to the test method specified in the current industry standard JGJ144 Technical Regulations for External Thermal Insulation Engineering. For the impact test result of sintered glazed foamed ceramic insulation panel, there shall be no divergent cracks.
		Walls of the second floor and above on building that are not easy to be impact：Grade 3J		
Single point anchoring force (KN)		≥0.15		
Water absorption (g/m')		≤500		
Impermeability		The inside part of the system is not permeable		
Thermal Resistance / (m*k / W)		Meet the design value of single project		
Water vapor transmission capacity / [g / (m3.h)]		The water vapor permeance in the protective layer is greater than in the insulation layer.		

Non-metal Surface Decoration & Insulation Integration Panel Performance Requirement

Item		Index		Experiment Methods	Remarks
Mass per unit area / (kg / m')		I type plate ≤20	II type plate 20~30	It shall be inspected according to the test method specified in the current industry standard JC/T287 The Materials Of External Thermal Insulation Systems Based On Insulated Decorative Panel	
Tensile bond strength/(MPa)	Original strength	≥0.10 Damages occur inside of the insulation core material	≥0.15 Damages occur inside of the insulation core material		
	Water resistance, / (N)	≥0.10	≥0.15		
	Freeze-thaw resistance, / (N)				
Bending resistance load / (N)		Not less than the panel weight			Suitable for load-bearing construction
Water absorption / (g / m²)				It shall be inspected according to the test method specified in the current industry standard JGJ144 Technical Regulations for External Thermal Insulation Engineering. For the impact test result of sintered glazed foamed ceramic insulation panel, there shall be no divergent cracks.	Non-retest test item
Impact resistance / J		Walls of the first floor and areas around the doors and windows on building that are easy to be impact: Grade 10J			
		Walls of the second floor and above on building that are not easy to be impact：Grade 3J			
Thermal conductivity of core insulation material W / (mk)	Rock wool	≤0.048			
	Rigid Foam PU	≤0.024			
Heat storage coefficient of core insulation material [W/(m*.K)]	Rock wool	0.75		Refer to the current standard GB50176 Standard for Design of Thermal in Civil Buildings Appendix IV.	Non-retest test item
	Rigid Foam PU	0.36			
Combustion performance	Rock wool	A J		It shall be inspected according to the test method specified in the current standard GB8624 Classification of Combustion Performance of Building Materials and Products GB8624.	
	Rigid Foam PU	B1 J			

Performance Index of Rigid Foam PU

No.	Items	Performance Requirements	Experiment Methods
1	Apparent density (kg/m')	≥40	Test according to the standard of GB/T 6343-2009
2	Thermal conductivity (W/m-K)	≤0.024	Test according to the standard of GB/T 6343-2009
3	Compressive properties (deformation 10%, KPa)	≥150	Test according to the standard of GB/T 6343-2009
4	Water absorption (VN, %)	≤3.0	Test according to the standard of GB/T 6343-2009
5	Dimensional stability (48h, %)	≤1.0	Test according to the standard of GB/T 6343-2009
6	Combustion performance	Core insulation material is not lower than B1 Grade	Test according to the standard of GB 8624

Performance index of rock wool

Items	Index	Items	Index
Density (kg/m³)	≥100	Compressive strength, kPa	≥40
Thermal conductivity (W/m-K)	≤0.048	Mass moisture absorption rate , %	≤1.0
Acidity coefficient, %	≥1.6	Hydrophobic rate, %	≥98.0
Tensile strength perpendicular to the surface, kPa	≥80	Grade of combustion performance	A J
Dimensional stability , %	Height, Width and Thickness≤1.0		

Performance index of adhesives

No.	Items		Performance Requirements	Experimental methods
1	Tensile bond strength,mPa (with cement mortar)	Original strength	≥0.60	Test according to JG 149-2003
		water resistance	≥0.40	
2	Tensile bond strength,mPa (with thin stone decoration & insulation integration panel)	Original strength	≥0.10 The damaged parts shall not be located around the bonding interface.	Test according to JG /T287-2013
		water resistance		
3	Operable time , h		1.5~4.0	Test according to JG 149-2003

Performance index of anchor bolt

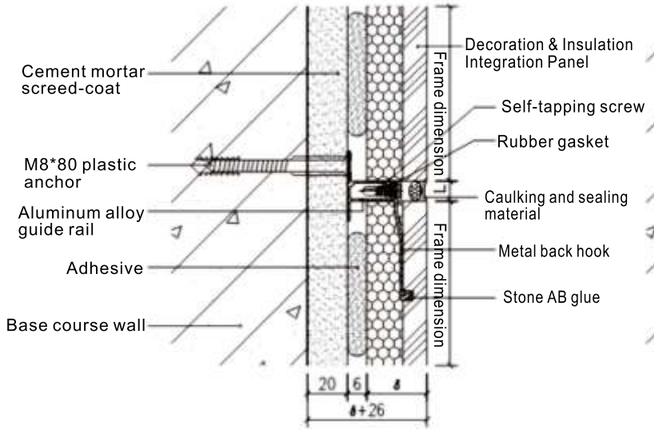
No.	Items	Performance Requirements	Experimental methods
1	Standard value of single anchor bolt tensile capacity (KN)	≥0.6	Test according to JG 149-2003
2	Increased heat transfer value by a single anchor to the system (W/m: K)	≤0.004	
3	Effective anchoring depth of the anchor (mm)	≥25	Test according to JG /T287-2013

Dimensional deviation requirement of Decoration & Insulation Integration Panel

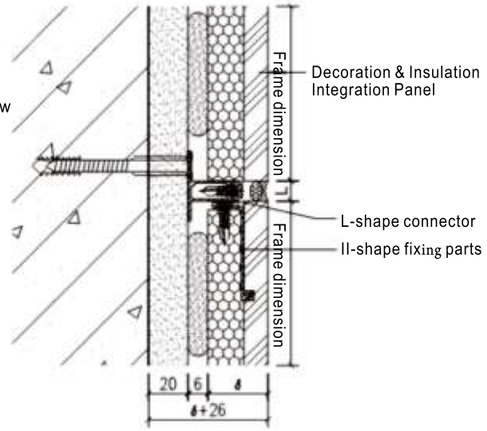
Items	Length (mm)	Width (mm)	Thickness (mm)	Diagonal difference (mm)	Opposite side length difference (mm)	Surface flatness (%)
Allowable deviation value	0 -1.5	0 -1.5	+1.0 -1.5	≤1.5	≤1.0	±0.2

BUILDING
CONSTRUCTION

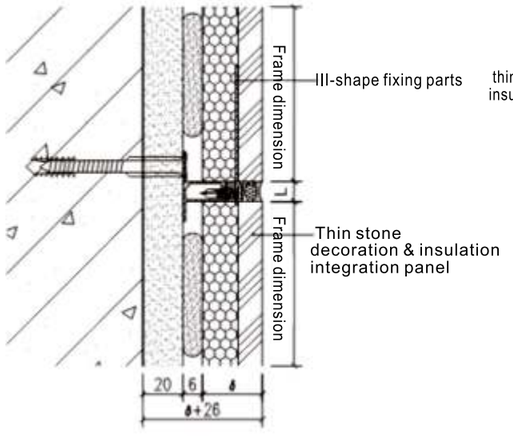
Take the thin stone decoration & insulation integration panel as an example to explain the design of system construction nodes.



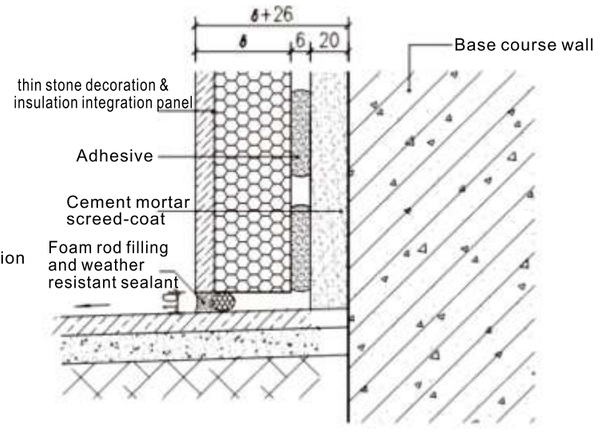
Standard Node 1



Standard Node 2

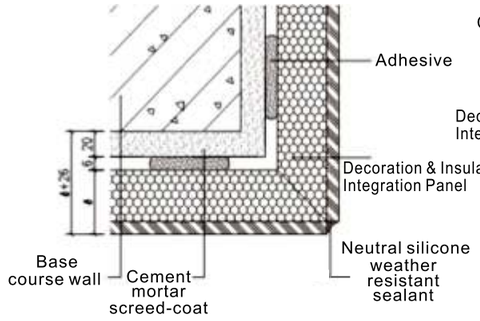


Standard Node 3

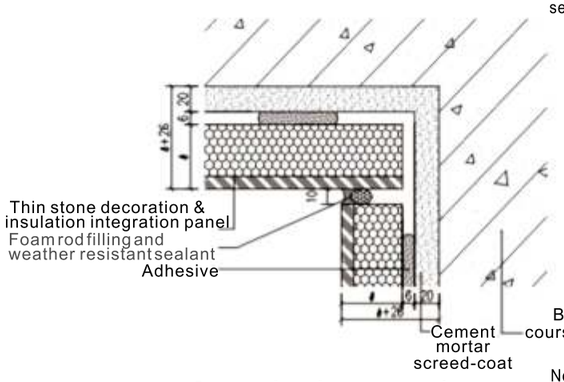


System Drainage and Ventilation Structure

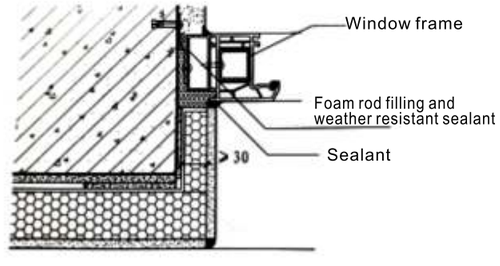
Description: Except the thin stone surface decorative insulation panel, the construction of other non-metal surface decoration & insulation integration system should refer to 101121 External Insulation Building Construction of Exterior Wall G type.



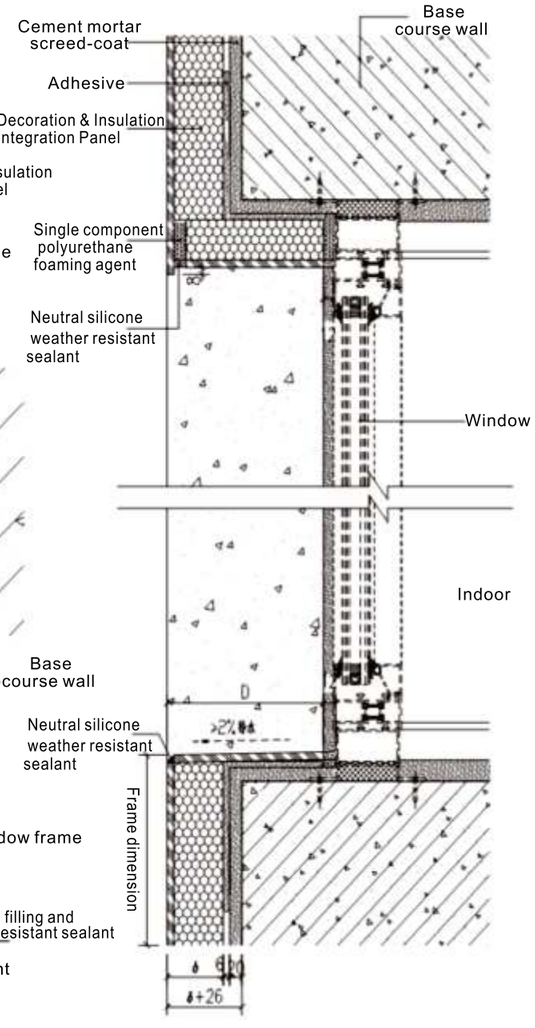
External node construction



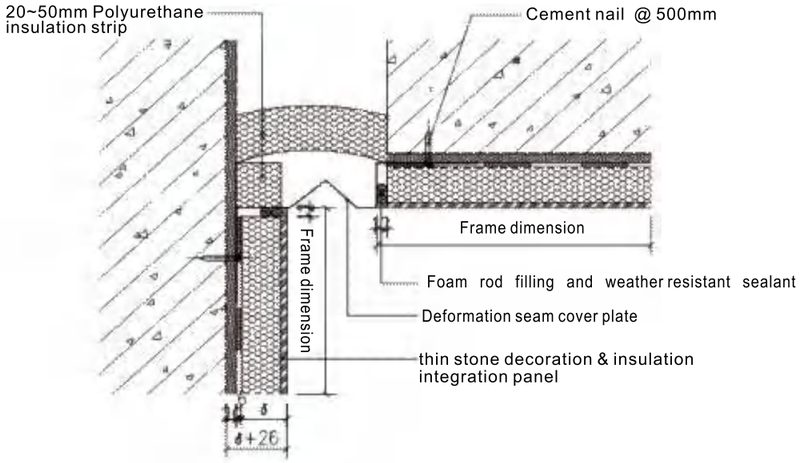
Internal node construction

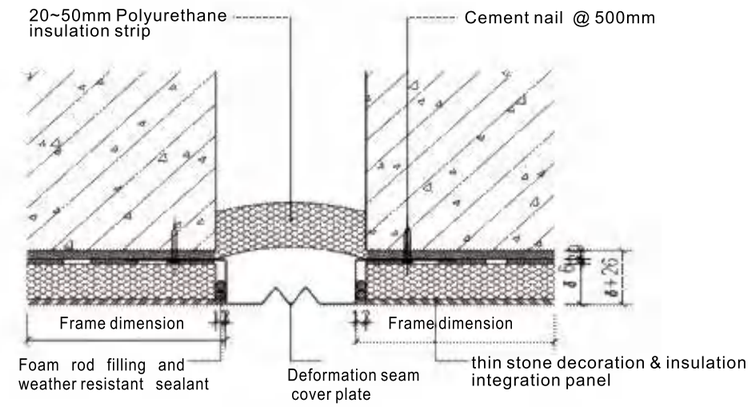


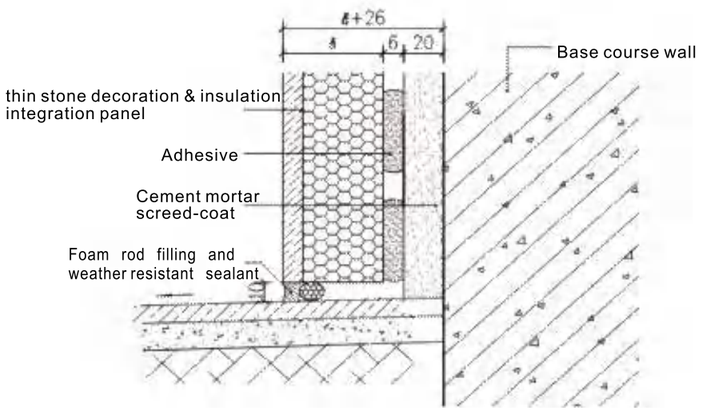
Window side part node construction



Window up and down side node construction







CONSTRUCTION

PROCEDURE

Measuring and Setting-out

Installation of Rails

Spot Adhesion of Bonding Mortar

Installation of Panels

Mechanical Fixing

Stickup of Textured Paper

Filling of Foam Rod

Sealing with Weather-resistant Sealant

Construction Finished

PRODUCTION
ADVANTAGES

Non-metal Surface Decoration and Insulation Integration System

VS

Traditional Stone Curtain Wall System

The advantages compared with traditional stone curtain wall system

Structure Comparison

No.	Items	Stone Curtain Wall + External Insulation	JOABOA TECH Thin Stone Surface Decoration and Insulation Integration System
1	Decorative Veneer	Natural stone (Thickness not less 25mm)	Surface stone plate 10-12mm, Rigid Foam PU / Rock wool used as core insulation material
2	Keel	Groove steel, angel steel etc.	Aluminum alloy rail
3	Fixing System	Various of stainless steel or aluminum alloy/stone pendants	Bonding mortar, metal fixing parts
4	Insulation System	According to the project design	Decoration surface layer composite with insulation layer already
5	Other Accessories	Embedded parts or rear parts, channel steel adapter, M12 stainless steel bolt set, M10 stainless steel bolt set, dry hanging stone AB glue, 1mm thick galvanized steel plate, rock wool strips, shoot nails, double-sided tape, fireproof seal glue, foam rod, textured paper, weather resistant sealant.	Plastic expansion bolts, self-tapping screws, foam rod, textured paper, weather resistant sealant.

Comprehensive Comparison

No.	Items	Stone Curtain Wall + External Insulation	JOABOA TECH Thin Stone Surface Decoration and Insulation Integration System
1	Decoration Effect	Stable, noble and elegant	Same as stone certain wall
2	Insulation Performance	According to the insulation material	The thermal conductivity of rigid foam PU is λ≤ 0.024W/ (m-K), which is the best thermal insulation material.And thethermal conductivity of rock wool is 0.040W/ (m.k), whose grade of combustion property is Grade A.
3	System Weight	80-90kg/ m²	35-40kg/ m², complied with the requirement of light construction materials promoted by the government
4	Project Period	The construction of curtain wall and insulation are separated and sub contracted, long construction period is needed.	The traditional facade decoration and thermal insulation system are operated and accomplished in the factory, which reduce the construction link. It's convenient to assemble on the construction site and save the construction period effectively.
5	Project Quality	The cross construction of insulation project and the stone material installation on the construction site will easily result in quality issues.	Factory pre-fabricationensures theconsistency of product quality and avoids the quality issues caused bynon-standard artificial operation on the construction site.
6	Environment Protection Performance	The thickness of stone used in the stone curtain is 25-30mm. It's a large waste on per unit area.	The thickness of thin stone used on the integration panel is just 10-12mm, thus effectively save the non-renewable stone resource.

APPLICATION

SCOPE

JOABOA TECH Thin stone surface decoration & insulation integration system is Widely used in high-end decoration and insulation projects of new buildings, renovation projects depend on its rich decorative performance. Such as:

- Transportation Hub, like airport, urban rail traffic, highway and railway stations and so on.
- Public buildings, like large cultural centre, exhibition centre, sports complex, education centre, medical centre and so on.
- Office buildings, like comprehensive offices buildings of government, finance, telecommunication and commercial organizations or companies.
- Industrial complex, like tobacco, automobile, energy and other industrial buildings.
- Residential and commercial podiums.

LANDMARK

PROJECTS

The Number One Condominium

Jomtien Pattaya Phase 1

Morgan Tower

La Vista One

Lingnan Garden

Pattaya Palm Spring Villas Phase 1

Pattaya Plam Lakeside Phase 1

Tanzania National Stadium

—China's Key Foreign Aid Project

The Winter Olympics in Beijing Zhangjiakou

—The First Winter Olympics in China

Shenzhen Bao'an International Airport

—The Largest Single Building in Shenzhen.

Ministry of Public Security Office Building

—Another Landmark in Tian'anmen Area

Tianjin Binhai International Airport

National Museum of China

Binhai Building of TECENT

—TECENT Global Headquarter Base

The First Affiliated Hospital of Zhengzhou University

—The Largest Hospital in the World

Manufacturing BASES

Wuhan Joaboa Technology Co.,Ltd

Suzhou Joaboa Technology Co.,Ltd

Tianjin Joaboa Technology Co.,Ltd

Chengdu Joaboa New Style Building Materials Co.,Ltd

Foshan Toyu Building Materials Co.,Ltd

Hubei Joaboa Building Energy Saving Technology Co.,Ltd

Huizhou Joaboa Technology Co.,Ltd

Joaboa Tech has invested USD 8,333,334 to set up an excellent self-adhesive membrane product line by introducing advanced facilities from American A&D company.

Joaboa Tech has formed industrial layout network the whole China first. With advanced facilities, strict QMS and excellent environmental facilities, Joaboa make sure good quality for it's products.

JOABOA TECH
Building a splendid home with you together!