

/ Industry Pioneer World Leading /



JOABOA Decoration & Insulation Product Series

Metal Surface Decoration & Insulation Integration System

(ARKM)

(ARCM)

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SYSTEM OVERVIEW



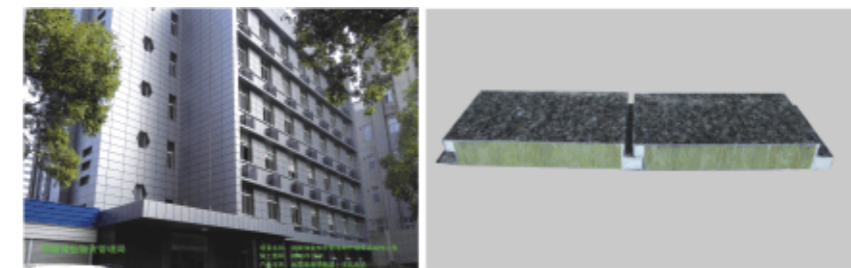
The metal surface decoration & insulation integration system is composed of metal surface with polyurethane (rock wool) decoration and insulation integration board, fixing connection layer, caulking and sealing materials and so on. It's a non-curtain wall building insulated and decorative structural system with functions of thermal insulation, waterproofing and decoration. According to the fixing methods, it can be divided into two kinds of installation type: paste type and hanging plate type. It could be applied in kinds of decoration and insulation projects in public and civil buildings and energy saving renovation for existing buildings.

Product features

- ▶ The outer surface is fluorocarbon roll coated aluminum plate. It has good decoration effect with variety of colors and patterns.
- ▶ The thermal insulation core material includes inorganic material (Rock Wool) and organic material (Rigid Foam Polyurethane) to meet the design requirements of building fireproof.
- ▶ The surface aluminum plate is formed by tongue-and-groove rolling, which ensured the precision and smoothness of the installation.
- ▶ The bilateral fixation ensures the safety of system fixing. And the system weight of 8Kg/m² greatly reduced the linear load of building.
- ▶ In addition to ensure the panel flatness, the on-line one time foaming and hot pressing process also eliminate the hidden risk of hollowing and falling off caused by the traditional cold sticking production process.
- ▶ High integration of system in factory production and supplemented by professional and fast logistics distribution. It only needs simple "three steps" to assemble and install on construction site. The simple process greatly reduces the construction period and cost.

Great innovation in building waterproofing and insulation industry.

Joaboa Tech, building the splendid home with you together !



SYSTEM STRUCTURE

- **Colorful coated aluminum panel**

Refers to the JOABOA TECH fluorocarbon roll coated aluminum plate that takes the function of decoration and protection.

- **Aluminum foil**

Refers to the inside surface layer of the panel, which takes the function of preventing polyurethane diffusion and good anti-heat radiation.

- **Cement based membrane**

Refers to the inside surface layer of the panel, which is a fiber reinforced cement-based composite material (FRC). It is a composite material made of cement paste, mortar or cement concrete as a substrate, with non-continuous short fibers or continuous long fibers as a reinforced material. It is used to prevent polyurethane diffusion and enhance the bonding interface function.

- **Insulation layer**

Refers to rock wool or polyurethane insulation core materials, which are suitable for individual projects with different fire protection design requirements.

- **Panel Specification**

Thickness (mm): 25, 30, 40, 50, 60;
Width (mm): 400, 500, 600, 900;
Length: according to project requirement

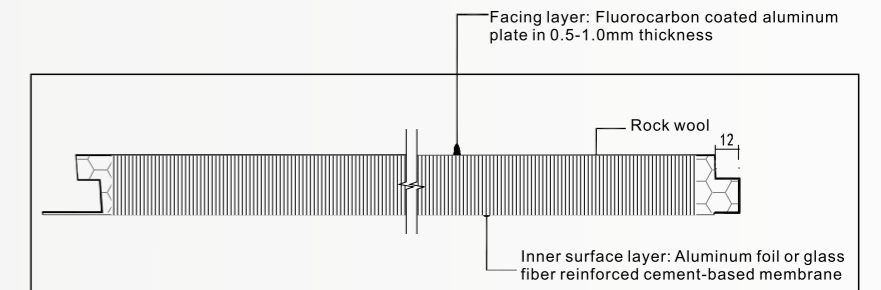
Dimensional deviation requirement

Items	Length		Width	Thickness	Diagonal deviation	
	≤3000	>3000			≤3000	>3000
Tolerances	±3	±4	±1.5	±1.5	±2	±3

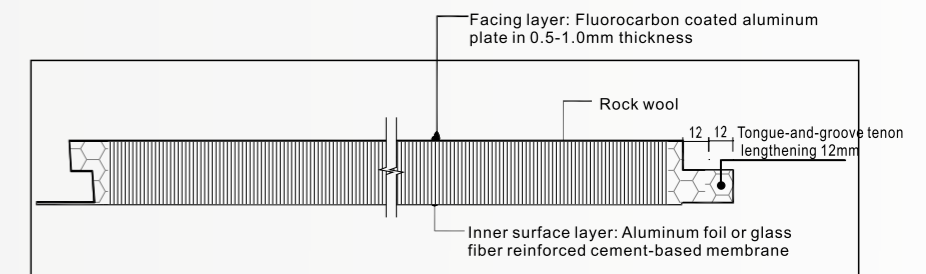


PERFORMANCE

The short name of JOABOA aluminum plate with rock wool decoration & insulation integration panel is JOABOA decoration & insulation panel or JOABOA panel. It's formed by three parts. The outer surface protection layer is a fluorocarbon roll coated aluminum panel (The thickness of enhanced panel is 0.8~1.0mm and the common type is 0.5mm) with decoration effect of variety colors and textures. The intermediate insulation layer is rock wool and the inner liner is a layer of aluminum foil with anti-heat radiation (hanging panel installed) or glass fiber reinforced cement-based membrane (pasting installed). According to the individual project design requirement, the products' structure are divided into two kinds, with decorative craft glue seam (Tongue-and-groove tenon lengthening) and without decorative craft glue seam (close splice).



Aluminum plate surface with rock wool decoration and insulation integration panel structure (without craft seam)



Aluminum plate surface with rock wool decoration and insulation integration panel structure (with craft seam)



Metal Surface Decoration & Insulation Integration System Performance Requirement

Project		Index
Weather resistance	Appearance	No powdering, drumming, blistering, shedding, no cracks with width greater than 0.10mm
	Tensile bond strength between surface plate and insulation material/ MPa	≥0.10
Tensile bond strength/ MPa		≥0.10, Damages occur inside of the insulation core material
Single point anchoring force/ kN		≥0.30
Thermal resistance(m ² ·k/ w)		Meet the design value of single project

Metal Surface Decoration & Insulation Integration Panel Performance Requirement

Item	Index		
Mass per unit area / (kg / m ²)	<20		
Tensile bond strength/ (MPa)	≥0.10, Damages occur inside of the insulation core material		
Impact resistance/ J	The impact in Grade 10J is qualified when used in the first floor and other floors in Grade 3J is qualified.		
Bending load/ N	Not less than the panel weight		
Water absorption/ (g/ m ²)	≤ 500		
Impermeability	The inside part of the system is not permeable		
Insulation layer	Combustion performance class	Rock wool	Grade A
		Rigid foam polyurethane	Grade B1
	Heat conductivity coefficient	Rock wool	≤ 0.048
		Rigid foam polyurethane	≤ 0.024

Mechanical fastener

Item	Performance Index	Experiment Methods
Diameter of anchor bolt (mm)	6-8	JGJ144
Anchorage depth (C25 concrete base) (mm)	≥50	JG/ T 350
Standard value of single anchor bolt tensile capacity (kN)	≥30	JG/ T 350
Increased heat transfer value by a single anchor to the system (W/ (m ² · K))	≤0.004	JGJ 144
Fixed unit bearing capacity (kN)	≥0.15	JG/ T350

Fiber reinforced cement-based membrane

Item	Performance Index
Breaking strength(N/ 50mm)	≥300
Breathable resistance (S)	Conform to the design requirement
Water content (%)	≤10
Combustion performance class	Grade A

● Color Coated Aluminum Plate

Color Coated Aluminum Plate Mechanical Properties Requirements

Item	Technology Requirement	
Coating thickness(um)	≥25	
Gloss deviation	Glossiness≥70, limit value deviation≤5	
	Glossiness<70, limit value deviation≤3	
Pencil hardness (Scratch / Peel off)	H/3H	
Coating flexibility	≤2T	
Adhesive force	Not less class 1	
Impact resistance	50kg·cm no paint falling off	
Attrition resistance (L/μm)	≥5	
Chemical resistance stability	Stain resistance	≤15%
	Acid resistance	No change
	Alkali resistance	No change
	Oil resistance	No change
	Solvent resistance	No change
	Scrub resistance	≥10000 times, no change
Artificial aging	Chromatic aberration	≤3.0
	Class of gloss loss	Not less class 2
	Class of chalking resistance	Class 0

Color Coated Aluminum Plate Mechanical Properties Requirements

Trade Mark	Hardness	Tensile Strength (Mpa)	Specify Non-proportional Elongation Stresses $\sigma_{p0.2}$ (Mpa)	Elongation (50mm fixed scale distance δ , %)	Tube inner Diameter(mm)
1100	H18	≥155	≥120	≥2	500-510
3003	H24	140-180	≥120	≥2	500-510

● Aluminum foil

Aluminum Foil Performance Requirements

Trade Mark	Hardness	Thickness (mm)	Width (mm)	Tensile Strength (Mpa)	Elongation (A/ %)	Number of Pinholes (Piece/ m2)	Number of Connectors (Piece/Coil)	Roll Core Diameter (mm)
1100, 1200	H26	0.06	Should conform to the design requirement	125-180	≥1	0	0	70
3003	H14, H24	0.06		140-170	≥1	0	0	70

● Adhesives

Adhesives Performance Requirement

Item	Performance	
Tensile bond strength/ (Mpa), (With cement mortar)	Original strength	≥0.60
	Water resistance	≥0.40
Tensile bond strength/ (Mpa), (with composite panel)	Original strength	≥0.10 The damaged interface is in the composite plate
	Water resistance	≥ 0.10 The damaged interface is in the composite plate
Operable time / h		1.5-4.0

● Panel Quality

Appearance Quality Requirement

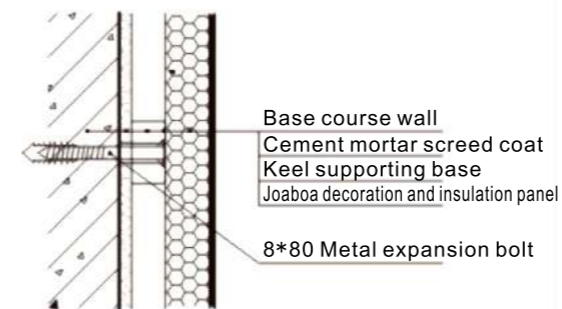
Item	Defects Regulation	Allowance Range
Scratch	Total length	≤ 100mm/ m2
Bruise	Total area	≤ 300mm/ m2
Total number of scratches and bruise	----	≤ 4 points/ m2
Bubble	≤10mm	Not more than 1 point/ m2
Defect	≤3mm	Not more than 10 points/ m2
Chromatic aberration	No obvious chromatic aberration, test by chromatic meter $\Delta E \leq 3$	
Incision	The incision is straight and the cutting surface is neat without any burr. The surface material and the core material are firmly bonded, and the core material is compacted.	



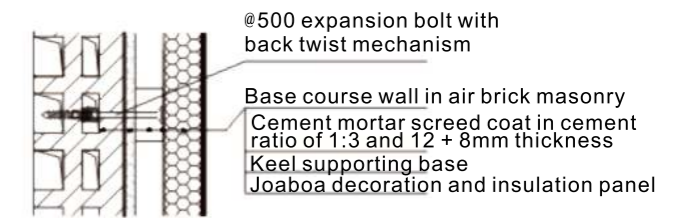
PRODUCT ADVANTAGES

- (1) Integrating the insulation and decoration functions into one system. The construction technology is easy, which could effectively accelerate the construction process and shorten the construction period. The aluminum plate with fluorocarbon coated surface layer has good decorative performance.
- (2) JOABOA Panel has excellent thermal insulation and fireproof performance. The rock wool is the best fireproof material, which has a fireproof performance of Class A.
- (3) The plate and accessories are produced by advanced equipment from abroad at an automatic and mechanization scale. The production efficiency is high and the product quality could be guaranteed.
- (4) JOABOA Panel is a kind of real energy saving and environment friendly green construction material. All the residual materials resulted by production and construction could be recycled, which make it truly green and pollution free.
- (5) JOABOA Panel has a complete range of specifications, which greatly enriches the designer's choice of design for different buildings. The system is light-weight, which greatly reduces the load of the main structure of the building.
- (6) The installation is easy and convenient, which greatly shortens the construction period.
- (7) According to the application practice and relevant test results of similar system in Germany in recent 40 years, its service life has exceeded the regulation requirements of not less than 25 years for external insulation system.
- (8) The safety of the system fixing is high and the repair and replace resulted by accidental damage is easy. The unique keel compartment sealing, groove and tongue splicing and double side mechanical fixing from Joaboa Tech make the system have high fixing safety and wind load resistant ability.
- (9) The unique sealing and tenon structure create two waterproof barriers for the system.
- (10) The system has fewer types of components, which saves materials, reduces installation costs, saves construction costs, and performs a cost-effective design. It successfully upgrades and replaces the current non-transparent building curtain walls.

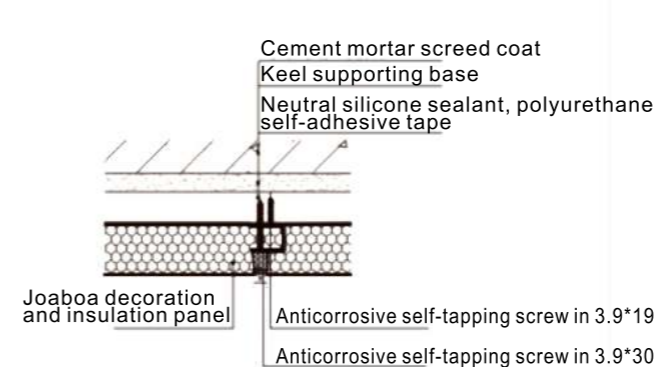
SYSTEM STRUCTURES



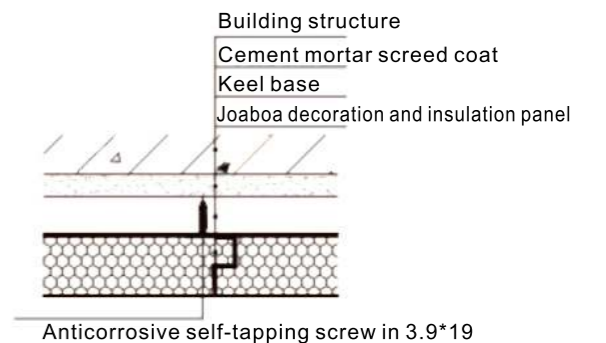
(1) Exterior wall thermal insulation structure (concrete and reinforced concrete structure)



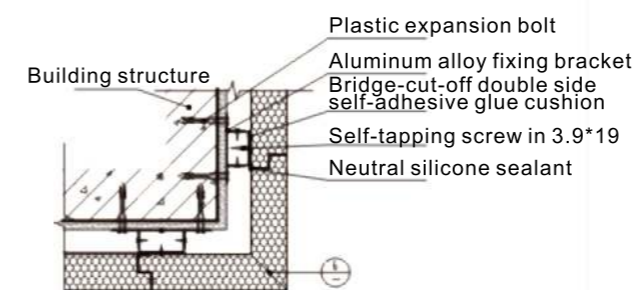
(2) Exterior wall thermal insulation structure (Aerated concrete and Air brick masonry)



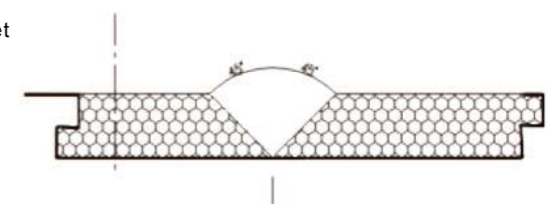
(3) Plate edge joint structure (with craft seam)



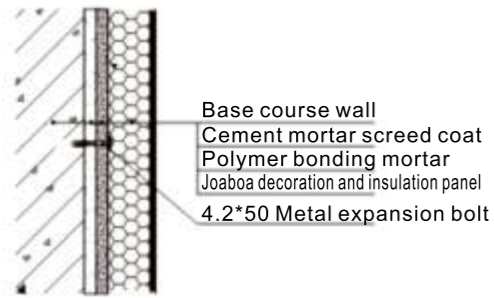
(4) Plate edge joint structure (without craft seam)



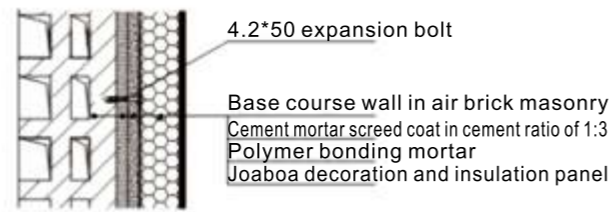
(5) External corner of Joaboa Panel bending structure (Chamfering)



(6) External corner of Joaboa Panel bending structure (Chamfering)

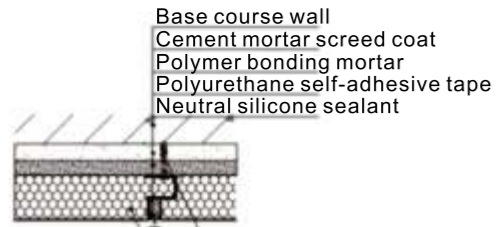


(1)Exterior wall thermal insulation structure (concrete and reinforced concrete structure)



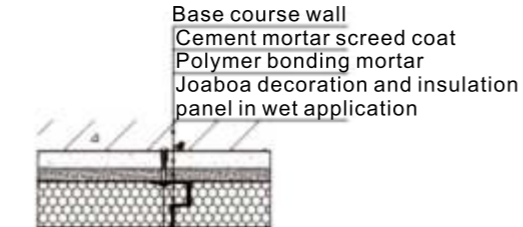
Note: 1. When the flatness of the reinforced concrete wall meets the requirements, we do not need to construct the screed coat. And the flatness of the completed decorative surface is adjusted by the polymer bonding layer.
 2. The material of the back of the Joaboa decoration and insulation panel in wet applied method is cement based reinforced fiber membrane. (The dry hanging type is aluminum foil in 0.06mm.)
 3. Other building structure nodes procedures of Joaboa decoration and insulation integration system wet application technology can be found in the dry hanging installation in this Atlas.

(2)Exterior wall thermal insulation structure (Aerated concrete and Air brick masonry)



Joaboa decoration and insulation panel in wet application

(3)Plate edge joint structure (with craft seam)



4.2*50 Plastic expansion bolt

(4)Plate edge joint structure (without craft seam)



CONSTRUCTION PROCEDURE



Surveying and Setting Out



Keel Installation



Panel Processing



Panel Installation

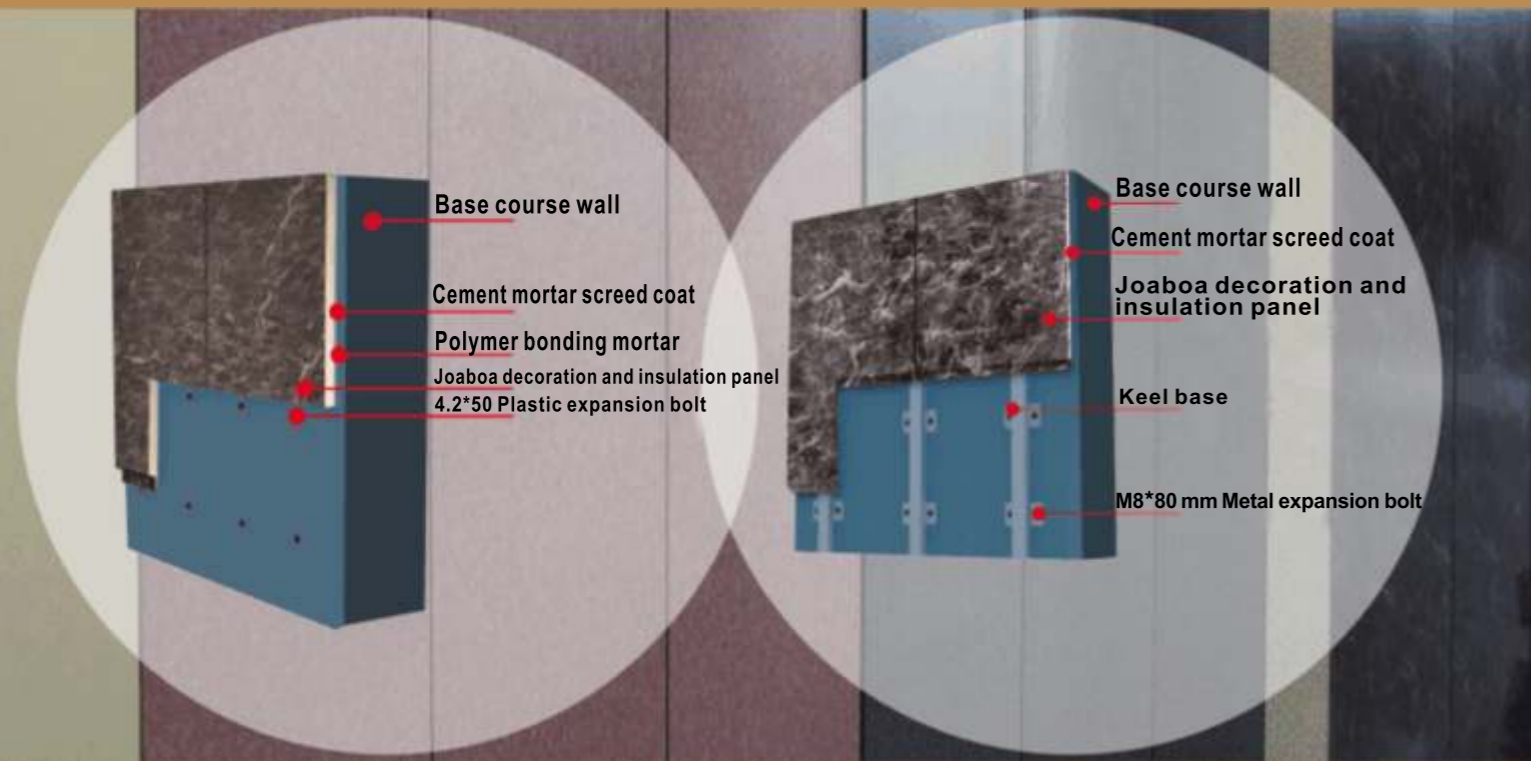


Sealant Sealing



Installation Completed

SYSTEM COMPARISON



Advantages compared to the aluminum panel curtain wall

Comparison of system structures

	Items	Aluminium Panel Wall and External Thermal Insulation	Joaboa Metal Surface Decoration and Thermal Insulation Integration System
1	Veneer	Pure aluminum plate in 2.5mm thickness and above	Metal surface decoration and insulation composite panel
2	Keel	Both main and secondary keel are square steel pipes in larger specifications	Metal square pipe (ARKM) in 25*38mm or 25*50mm. None (ARCM)
3	Thermal insulation system	Design according to the project	The insulation layer has been compounded with the veneer
4	Other accessories	Embedded parts or rear parts, large bracket adaptor, M12 stainless steel bolt sets, countersunk head self-drilling and self-tapping screws, angle aluminum in L25*20*3mm, φ4 self-plugging Rivet, galvanized Steel Sheet in 1mm, rock wool tape, shoot nail, double side adhesive tape, fireproof sealant, foam rod, textured paper and weather resistant sealant.	Self-tapping screw, bonding mortar, plastic expansion bolt, foam rod, textured paper and weather resistant sealant.

Comprehensive comparison

	Items	Aluminium Panel Wall and External Thermal Insulation	Joaboa Metal Surface Decoration and Thermal Insulation Integration System
1	Decorative effect	Metal texture, high gloss, commercial flavor, rich decorative effect	Same as aluminum panel curtain wall, and with good self-cleaning and good durability
2	Function	Building decoration function	Dual functions of building decoration and building energy saving
3	Thermal insulation property	No insulation layer, and many thermal bridges	The insulation material has been compounded with the veneer
4	Construction period	The construction of curtain wall and insulation are separated and sub contracted, long construction period is needed.	Assembly line production, process is greatly simplified and process fixed time is reduced. The combination of these three advantages greatly shorten the construction period.
5	Quality	It is necessary to carry out the plate processing in the factory according to the building division. The operation volume is large and the potential quality hazard is easy to occur.	Prefabrication in factory and simple operation on site. It's good for quality control.
6	Waterproof treatment	It's a must to do waterproof sealing.	The splicing method of the panel makes the system itself excellent in water tightness and airtightness, and can be processed without craft seams.
7	Comprehensive service life	Not less than 25 years	Not less than 25 years

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

Manufacturing BASES



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



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.