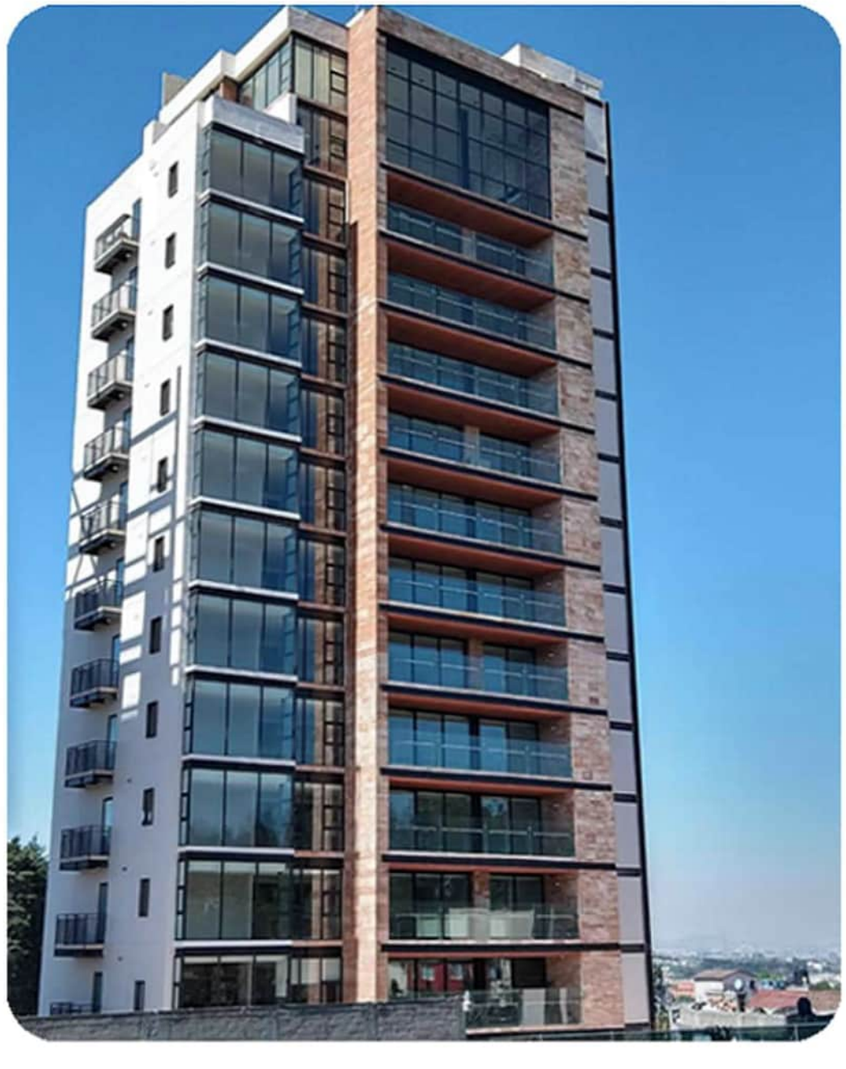
AAC/ALC CONCRETE PANEL

STEEL STRUCTURE WITH LIGHT WEIGHT CONCRETE PANEL BUILDING

PERFECT CONSTRUCTION SYSTEM



ZIP DEVELOPMENT GROUP.

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PRODUCT

DISPLAY

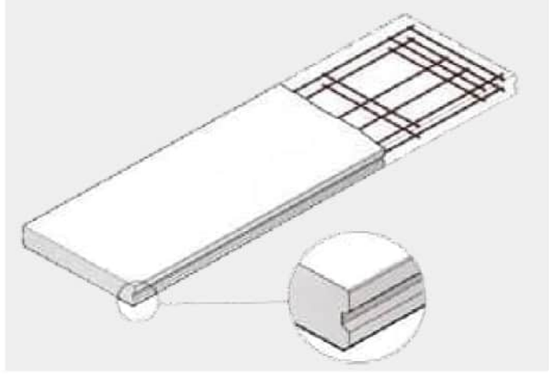
AUTOCLAVED LIGHTWEIGHT AERATED CONCRETE PANEL

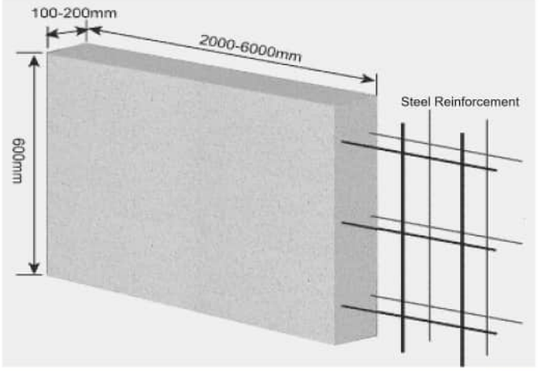
ZIP DEVELOPMENT GROUP

OUR INDUSTRIAL PANELES HAS A STEEL MESH INSIDE, A SUPER SMOOTH EXTERIOR FINISH AND A TONGUE AND GROOVE PROFILING FOR ASSEMBLY.
The panels are designed in accordance with the recommendations of the American Concrete Institute (ACI) Guide for Design and Construction with Autoclaved Aerated Concrete Panels.
They can be placed on any structure be it masonry, wood, reinforced concrete, or metal.

- **Raw Material:** Silica Sand, Cement, and Lime.
  Structure: Two Way and Welded Steel Reinforcement Mesh.
  Process: Mix raw material, Modular Panel, Cutting and Steam curing.
  Production Circumsatance: In high pressure, in high temperature.
  Advantage: Light Weight, Fire resistance, Sound Insulation, Thermal Insulation.

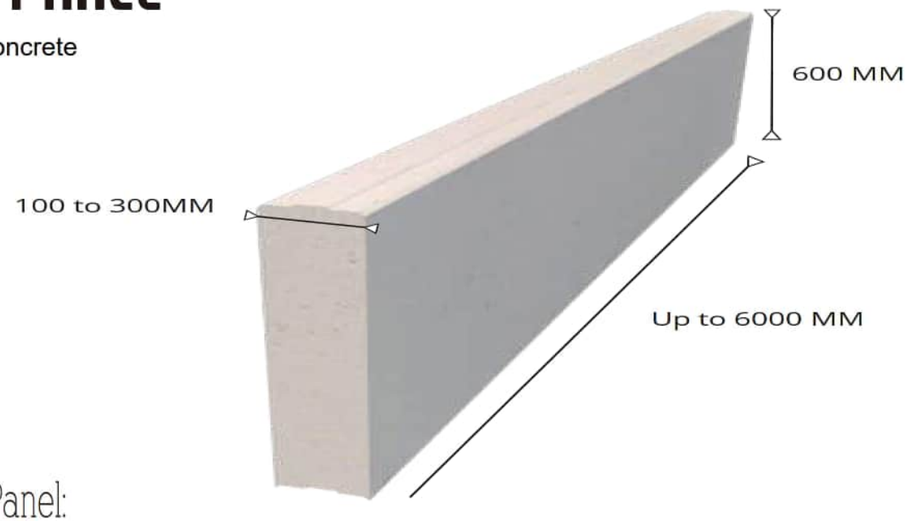
- **Specifications**
  Width: 600mm
  Length: 600-6000mm
  Thickness: 50-300mm





ALC WALL PANEL

Autoclaved Aerated Concrete



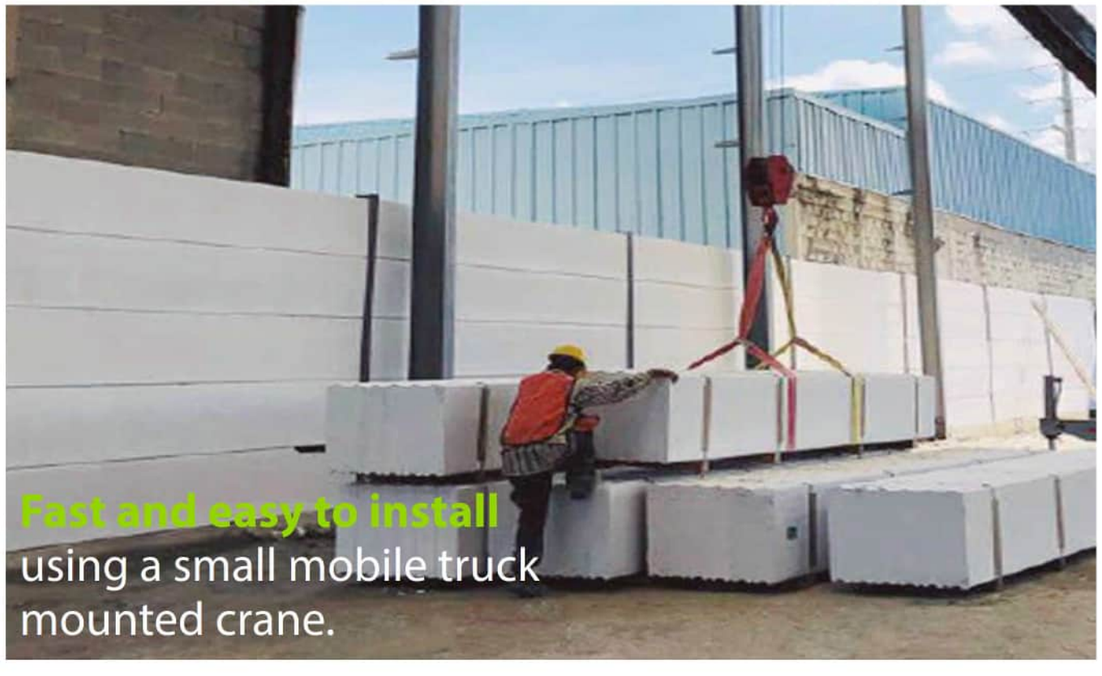
Sizes of AAC Wall Panel:

Thickness (mm)	50	75	100	120	150	175	200
Maximal Length (mm)	2400	3000	4000	4500	6000	6000	6000

Specification of AAC Wall Panel:

Item		Model	
		B05	B06
Anti-pressure Strength		A3.5	A5.0
Dry Density Grade(kg/m3)		<=525	<=625
Thermal conductivity[W/(m².k)]		<=0.14	<=0.16
Anti-freeze 15 times Freeze &Melt	Quality loss(%)	<=5	
	Strength after freezing(Mpa)	>=3.2	
Dry Shrink Coefficient		<=0.5	

ALC EXTERNAL WALL PANEL

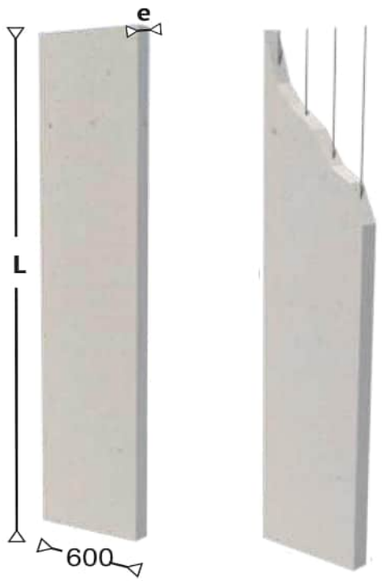


INTERNAL/PARTITION WALL PANEL & SPECIAL USE ANTI-CRACK PANEL

We successfully developed anti-crack panel aimed at the problem of cracking at the panels' seam. The application at many important projects in Frequent Earthquake Area.

1.To form a groove structure by setting concave face at the joint of panels. The width of groove is 50mm and depth is 5mm.

2.In the concave face, we use special functional mortar to seal the alkali-resisting fiberglass gridding cloth to avoid partial crack of the panels shrink due to dry environment. Therefore, it enhanced the anti-cracking feature of panels.



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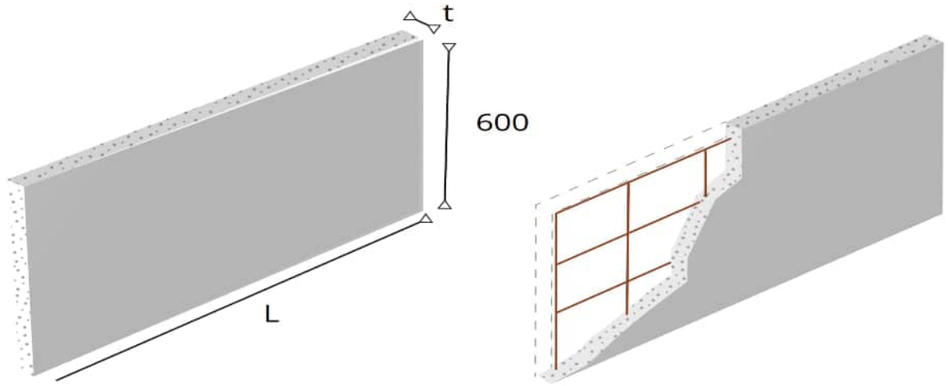
Thermal conductivity[W/(m².k)]		<=0.14	<=0.16
Anti-freeze 15 times Freeze &Melt	Quality loss(%)	<=5	
	Strength after freezing(Mpa)	>=3.2	
Dry Shrink Coefficient		<=0.5	

ALC ROOF PANEL

Specifications of AAC panels for roofing:

Thickness/mm	75	100	125	150	175	200
Intensity of Pressure(N/m^2)	Maximal Length (mm)					
800	2000	3000	3500	4200	4800	5200
1000	2000	3000	3500	4200	4800	5200
1200	1960	2920	3400	4080	4640	5200
1400	1920	2840	3300	3960	4480	5200
1600	1880	2760	3200	3840	4320	4950
1800	1840	2680	3100	3720	4160	4900
2000	1800	2600	3000	3600	4000	4800
2200	------	2500	2850	3350	3750	4700

ALC POWER FLOOR PANEL

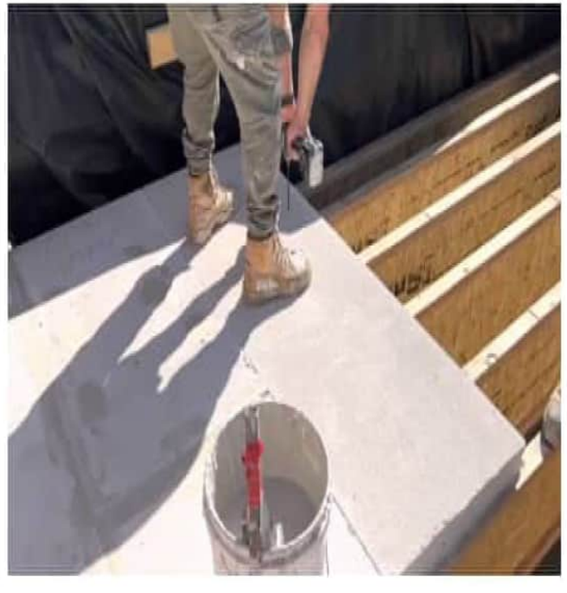


Specifications of AAC panels for floors:

Characteristic	Unit	AAC-4 Class
Minimum Compressive Strength (f´aac)	Mpa	3
Design Weight [1]	kg/m^3	580
Nominal Destiny	kg/m^3	500
Module of Elasticity	Mpa	1750
Drying Shrinkage	%	0.02
Thermal Conductivity	1/°F	4.4×10^{-6}

Design Weight

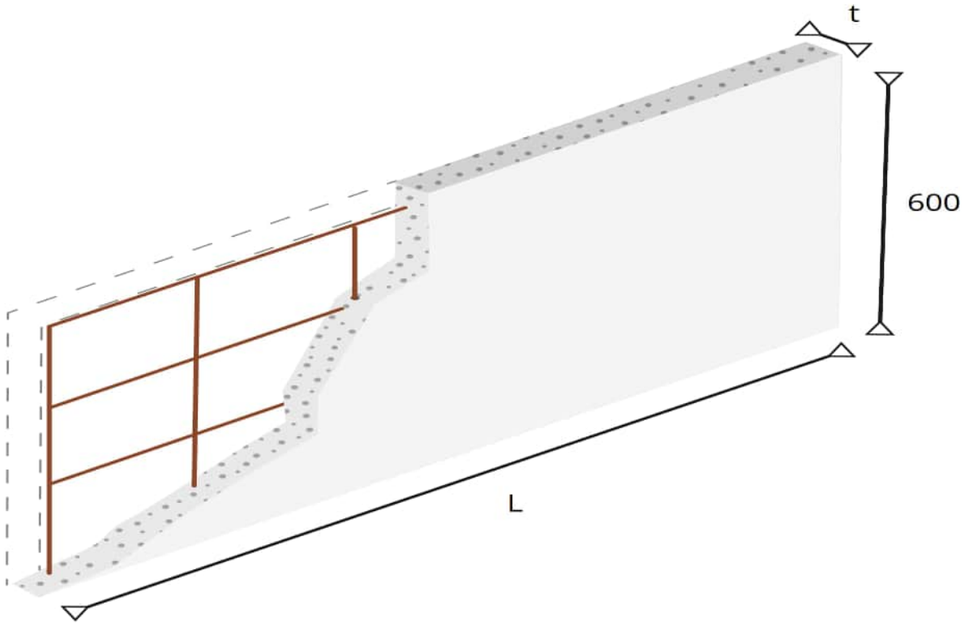
Thickness	Length	Design Weight		Area per Piece
mm	mm	kg/m^2	kg/piece	m^2
75	1800	45	50	1.08
75	2000	45	55	1.20
75	2400	45	67	1.44



ALC SLAB PANEL

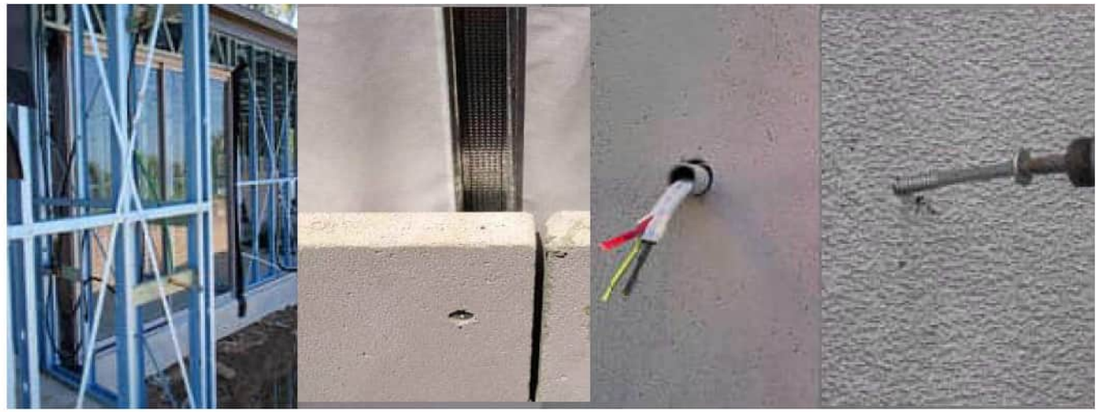
Allowable Load Table for ALC Panel													
Thickness	Superimposed uniform Load (kg/m^2)											Design Weight	Design Weight
	100	200	300	400	200	300	400	100	200	300	400		
	AAC-6							AAC-4					
mm	Roof				Floor			Roof				kg/m^2	kg/m^2
	Maximum Permissible Span (mm)											AAC-6	AAC-4
100	3600	3300	2700	2400	2700	2400	2100	3300	2700	2400	2100	75	65
150	5400	4500	3900	3600	4200	3900	3600	4800	3900	3300	3000	110	95
200	6000	5700	5100	4800	5400	5100	4800	5700	5100	4500	4200	150	125
250	6000	6000	6000	5700	6000	5700	5700	6000	6000	5400	5100	185	155

ALC POWER PANEL



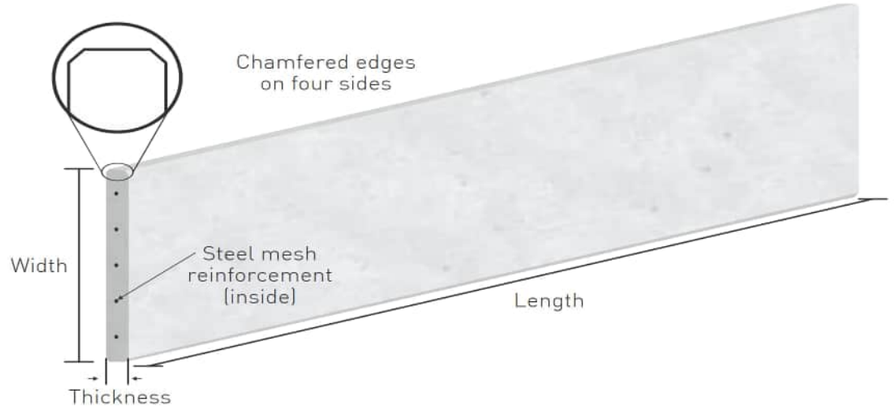
Thickness (mm)	Length	Design Weight [1]	Weight per Piece	Area per Piece
	mm	kg/m^2	kg/piece	m^2
50	2400	35	50.40	1.44
75	2400	52.5	75.60	1.44
	3000	52.5	90.72	1.8

[1] Values consider material´s moisture content



ALC FENCE PANEL

Autoclaved Aerated Concrete



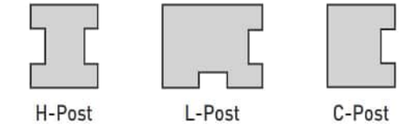
Uses and applications

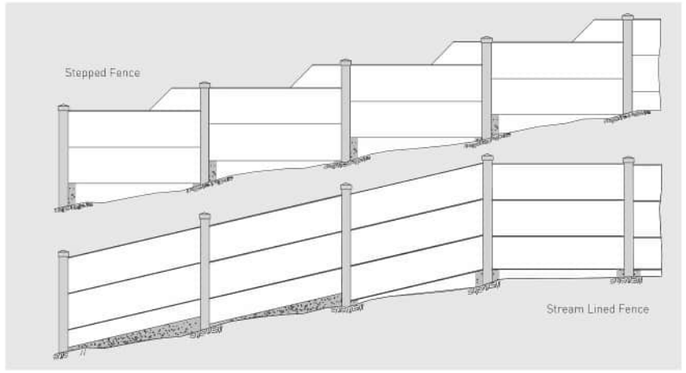
ZIP fence can be used for fence construction on landscaping, providing privacy, protection and style. Decorative and creative ideas can be adapted to Hebel Fence such as ornamental moldings, openings, posts, etc.

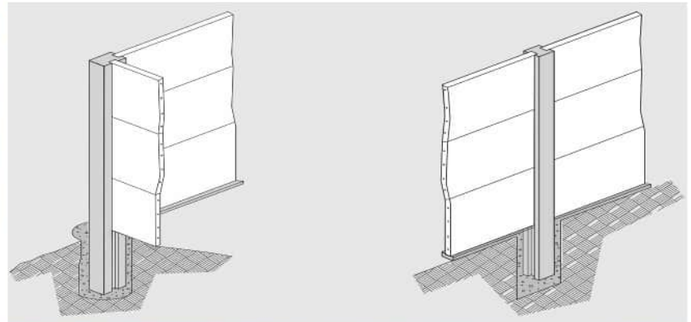
Construction Advantages

- Fast and easy to install.
- Lightweight.
- Fire Resistant.
- Strength and security.
- Versatile and affordable.
- Acoustic barrier.
- Low maintenance (Durability).

Thickness	Length	Design Weight AAC-4		Area per Piece
mm	mm	kg/m^2	kg/piece	m^2
50	2400	30	43.20	1.44
75	2400	45	64.80	1.44
75	3000	45	81.00	1.80







ALC AAC BLOCKS

Specification of AAC blocks:

Dimensions(mm)								without handgrip, tongue & groove	
375	300	250	200	175	150	125	100	Thickness	
200-250-500-1000								Height	
600								Length	
AAC - 2 & AAC - 4								Class	

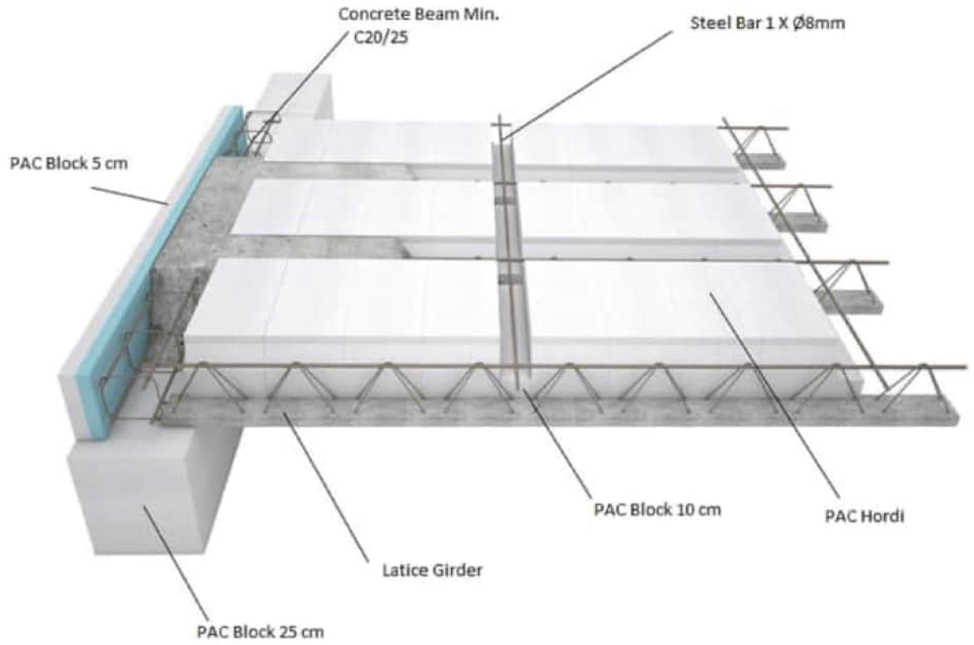
Dimensions(mm)					without handgrip, tongue & groove	
375	300	250	200	150	Thickness	
200-250-500-1000					Height	
600					Length	
AAC - 2 & AAC - 4					Class	

PRODUCTION STORAGE AND LOADING

Pallet weight	Height with Wooden pallet (cm)	Height (cm)	Pallet Length (cm)	Pallet Width (cm)	m^2	m^3	pieces on each pallet	Block Dimensions	
1255	164	150	120	100	18	1.8	120	10	25	60
1255	164	150			14.4	1.8	96	12.5		
1255	164	150			12	1.8	80	15		
1173	154	140			9.6	1.68	64	17.5		
1173	154	140			8.4	1.68	56	20		
1255	164	150			7.2	1.8	48	25		
1255	164	150			6	1.8	40	30		
1255	164	150			4.8	1.8	32	37.5		

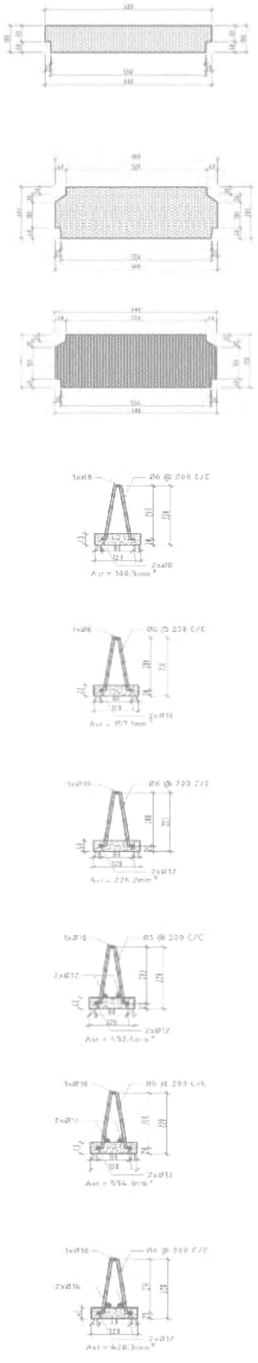
RIB-HORDI ROOF

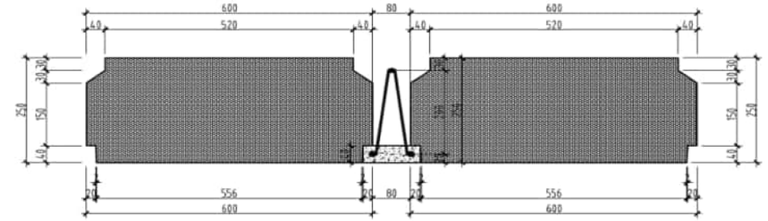
Rib-Hordi system is a pre-fabricated structure for floors and roofs which is made from pre-cast Reinforced concrete ribs, PAC blocks, cross ribs and concrete topping for classic construction. The ESPAC Precast Rib-Hordi roof system is intended primarily for houses, low rise and civil buildings. The static calculation for the Rib-Hordi roof system will determine the size of the ribs, the concrete grade used, the reinforcement requirement and the concrete topping.

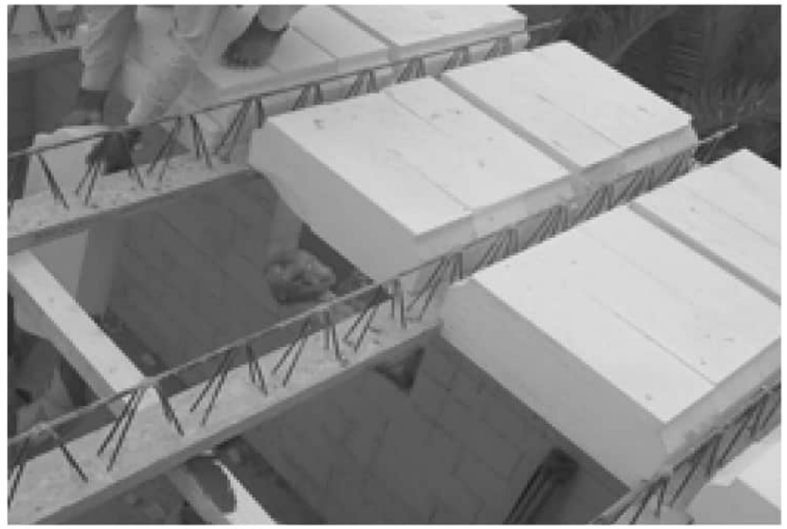


Technical Characteristics	Unit	G4-300
Dry Density (Max)	Kg/m^3	300
Compressive Strength	N/mm^2	3.0
Coefficient of thermal conductivity	W/[m.k]	0.09

Dimensional Data & Delivery Details						
Type	Dimensions HxTxL mm	Pieces/m^2 ceiling	Pieces/ pallet no/pal	Volume/ pallet m^3/pal	Shipping weight/ Piece	Shipping weight/pallets kg/pal
Hordi Block 200	200x250x600	5.6	56	1.68	10	560
Hordi Block 250	250x250x600	5.6	48	1.80	12	576
Hordi Block 100	100x100x600	1.2	300	1.80	2.4	720

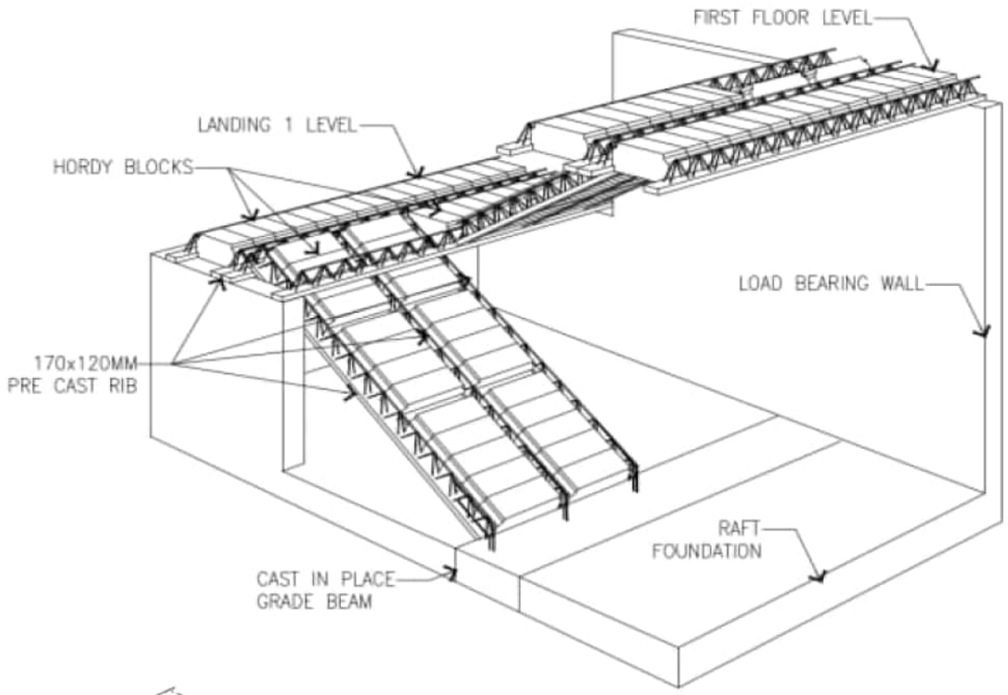


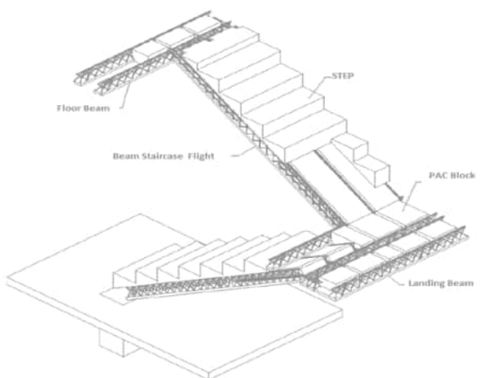


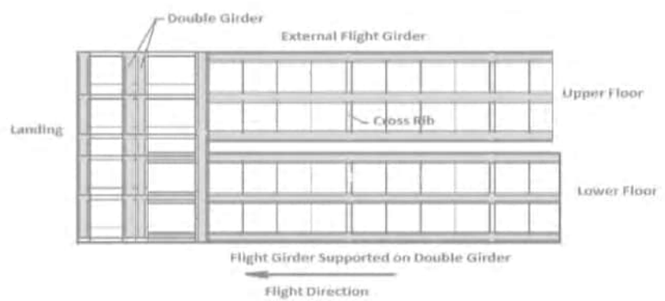


RIB-HORDI STAIRS

The ZIP's staircase system is made of ZIP lattice girder beams, PAC blocks, cross ribs and steps. The steps can be manufactured from PAC blocks with a thickness of 3^0 or 4^0 cm, or constructed with normal concreting of the formwork. With this system, it is necessary to incorporate additional reinforcement joint beams as transverse ribs, in place of appropriate transverse direction main beam girders. Reinforcement of supporting beams is designed solely on the basis of structural analysis.







ALC SHAFT WALL

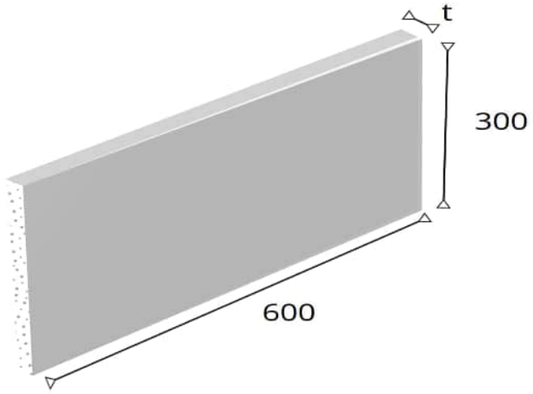
shaft wall systems are available for service shaft and secure plant rooms which provide acoustic suppression and excellent fire resistance. Shaft walls can be applied in both dry and wet areas. It provides a solid, secure wall with a narrow width around service shafts to dry habitable areas and between scissor stairs. PAC shaft walls are used to maximize space utilization and minimize risks and costs in high rise and multi-residential construction.

Products Applied:

PAC Panels (reinforced)

PAC Mini Panels (none reinforced)

ALC WALL THERMAL INSULATION BOARD



The use of materials with high thermal conductivity along with high thickness of mortar is the most important place for energy wastage in the building. Perrin thermal insulation board provides the possibility to insulate the walls without destroying the building. Perrin wall thermal insulation board is easily connected to the wall with type 2 or 5 Perrin tile adhesive. Although it reduces a little of the interior space, it causes a drastic reduction in energy consumption. It can even be used only for the walls on the facade side of the building.

Note that the insulation of the internal and side walls with the thermal insulation board of the ALC wall, in addition to preventing the transmission of energy, prevents the transmission of noise and also solves one of the major problems of apartment dwellers.

Dimensional Data & Delivery Details

Type	Dimensions HxTxL mm	Pieces/m^2 ceiling	Pieces/ pallet no/pal	Volume/ pallet m^3/pal	Shipping weight/ Piece	Shipping weight/pallets kg/pal
insulation board	300x50x600	5.6	240	2.16	4.6	1104
insulation board	300x75x600	5.6	160	2.16	6.9	1104

FLOOR AND CEILING THERMAL INSULATION BOARD

With these boards, you create an integrated insulation and you can apply the final layers on it with glue. Preventing the transfer of heat and sound is one of the main features of this board.

The first floors of apartments usually complain of cold air in winters. Perrin roof thermal insulation board solves this problem for you without causing pollution. By attaching this board to the roof of the parking lot, the floor of the house will stay warm forever.

ADVANTAGES OF AAC PANELS

Lightweight

Autoclaved Aerated Concrete panels/blocks are one–fifth of the weight of concrete and are produced in easily handled sizes. (Dry density grade is 525KG/m3)

Economy

Using AAC panels can shorten the construction period in half because of its lightweight and easy workability. In most cases the need for supplementary insulation can be avoided.

Energy–saving(Thermal conductivity is 0.11)

Thermal conductivity of Autoclaved Aerated Concrete panels is one–tenth of that of concrete, that means insulated features are 10 times than concrete. Thermal insulation for AAC panels of thickness 100mm is equal to clay tile wall of 300mm. Therefore, AAC panels are building materials with excellent features of thermal insulation.

Sound insulation

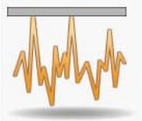
Sound insulation for Autoclaved Aerated Concrete panels of 100mm is 40.8db, while 150mm is 45.6db. There are a lot of separate crystal–shaped blowholes in the panel, so the panel has the features of sound insulation and acoustic absorption.

Fireproofing (4 hours)

The fire–resistant time for AAC panels of 100mm is 3.42hours while 120mm is 4 hours. The original materials of AAC panels is totally inorganic and is incombustible, and will not volatilize noxious gas even under the high temperature. The product is especially suited for fire–rated applications.

Load bearing

The intensity of pressure for cube is more than 4mpa. The load bearing capacity for one point is more than 1200N. The rebars within AAC panels are made according to computer calculating force. As a non–loading bearing cladding, AAC panels can be used under circumstances of pressure.



Anti–vibration

As a building envelope, AAC panels are known for their excellent anti–vi–bration by architects. In a simulated earthquake experiment (seismic intensity 10.5), none of the panels fracture, and joints of test construction are undamaged.

Environmental protection

The Autoclaved Aerated Concrete is designed for consumers who are environmentally conscious. It helps reduce at least 30% of environmental waste, decrease over 50% of green–house radiation and over 60% integrated energy on the surface of brick.

Durability

AAC panels are Duribiity Building materials of inorganic silicate and not affected by harsh climatic conditions and will not degrade under normal atmospheric conditions. The service life matches with all kinds of construction.

Efficiency

The Autoclaved Aerated Concrete product' s lightweight and easy workability means it is very quick to install on site, and the construction period will be shortened in half.

SOUND INSULATION TEST FOR AAC PANEL

Item	Model	Test result (db)	Standard of test	Application
1	100mm AAC panel	36.7	GBJ75–84 GBJ121–88	interior walls of housing units/general division walls of schools/hotels/ office buildings
	100mm AAC panel+2 sides of putty (3mm)	40.8		
2	120mm AAC panel	41.7		interior walls of housing units/general division walls of schools/hotels/ office buildings(5A Grade)
	120mm AAC panel+2 sides of putty (3mm)	45.1		
3	150mm AAC panel	43.8		interior walls of housing units/schools/hotels/ office buildings
	150mm AAC panel+2 sides of putty (3mm)	45.6		
4	180mm AAC panel	46.7		division walls of rooms that require silence
	180mm AAC panel+2 sides of putty (3mm)	48.1		
5	200mm AAC panel	49.8		division walls of rooms that require silence, eg., a cinema, a 5–star hotel
	200mm AAC panel+2 sides of putty (3mm)	51.3		
6	(75+5space+75)mm AAC panels	48.6		division walls of rooms that require silence in some industry, eg., division walls of a high–standard Hotel
	(75+5mineral wool+ 75)mm AAC panels	54.8		
	(75+5mineral wool+ 75)mm AAC panels+2 sides of putty (3mm)	57.6		

FIREPROOFING TEST FOR AAC PANELS

Item	Thickness of AAC panels(mm)	Time	National standard of test
1	50mm panel only	1.57	GB/T9978–1998
2	75mm panel only	>2	
3	100mm panel only	3.42	
4	120mm panel only	>4	
5	150mm panel only	>4	

Connection Part

Item	A	B	C
Connection Section			



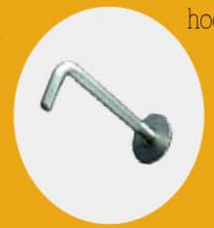




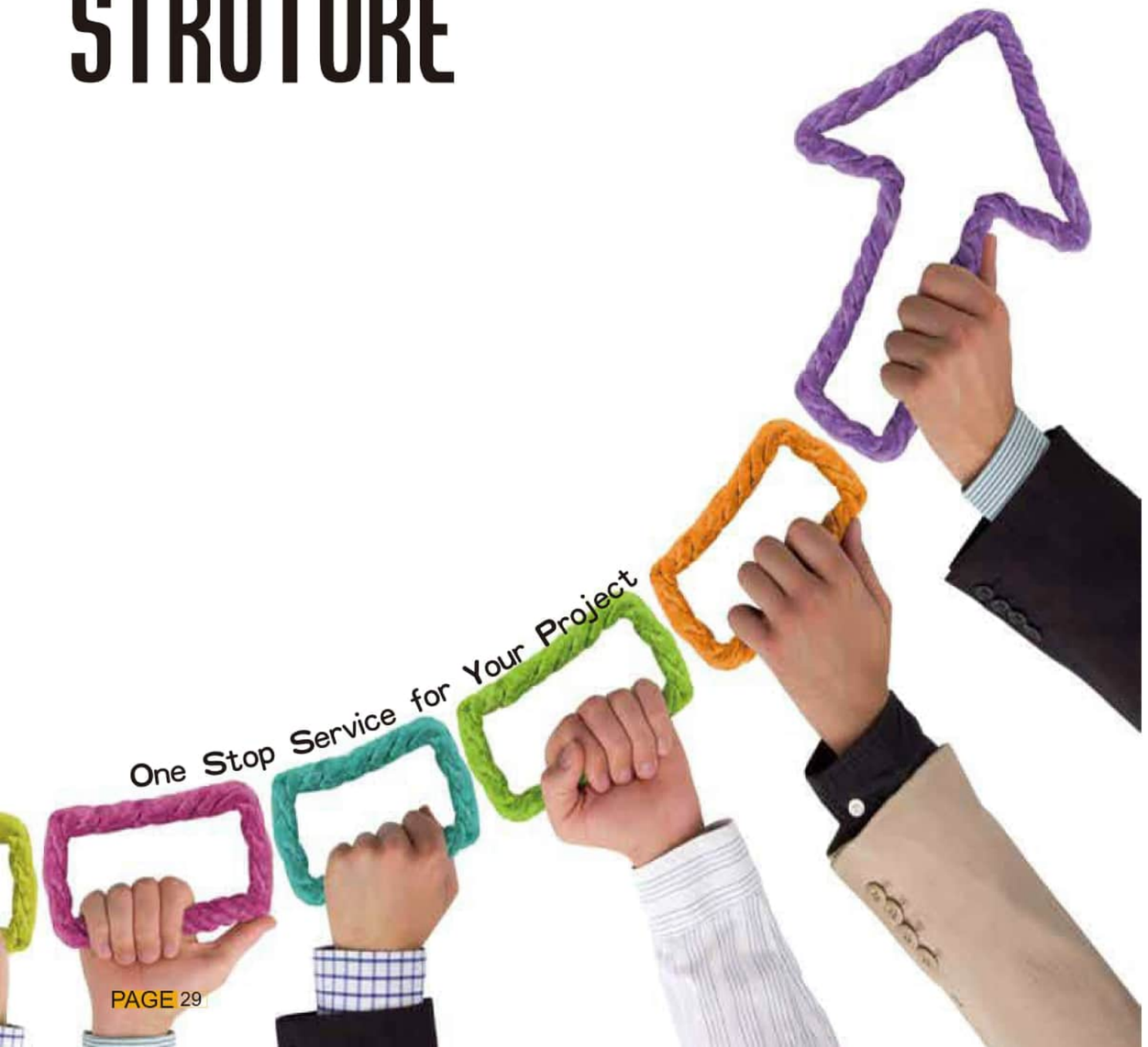

DEVELOPMENT GROUP

MORTAR &SPECIAL ACCESSORIES

With cement, gypsum, sand, flying powder, glazed hollow bead , polypropylene fibers, cellulose fibers, crumb aquasorb, thickener, water reducer, retarder, and water repellent as the raw materials.
Advantages: Water resistance, adhesion, durability, and frost resistance.



NOT ONLY PANELS BUT ALSO STEEL STRUTURE

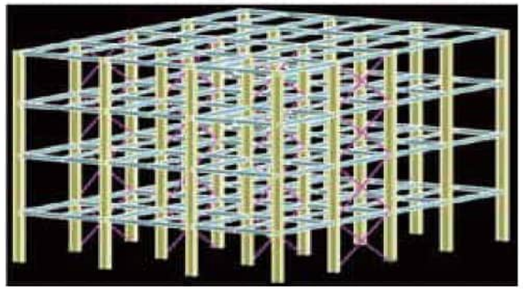


WHOLE BUILDING STEEL STRUCTURE AND AAC PANEL WALL

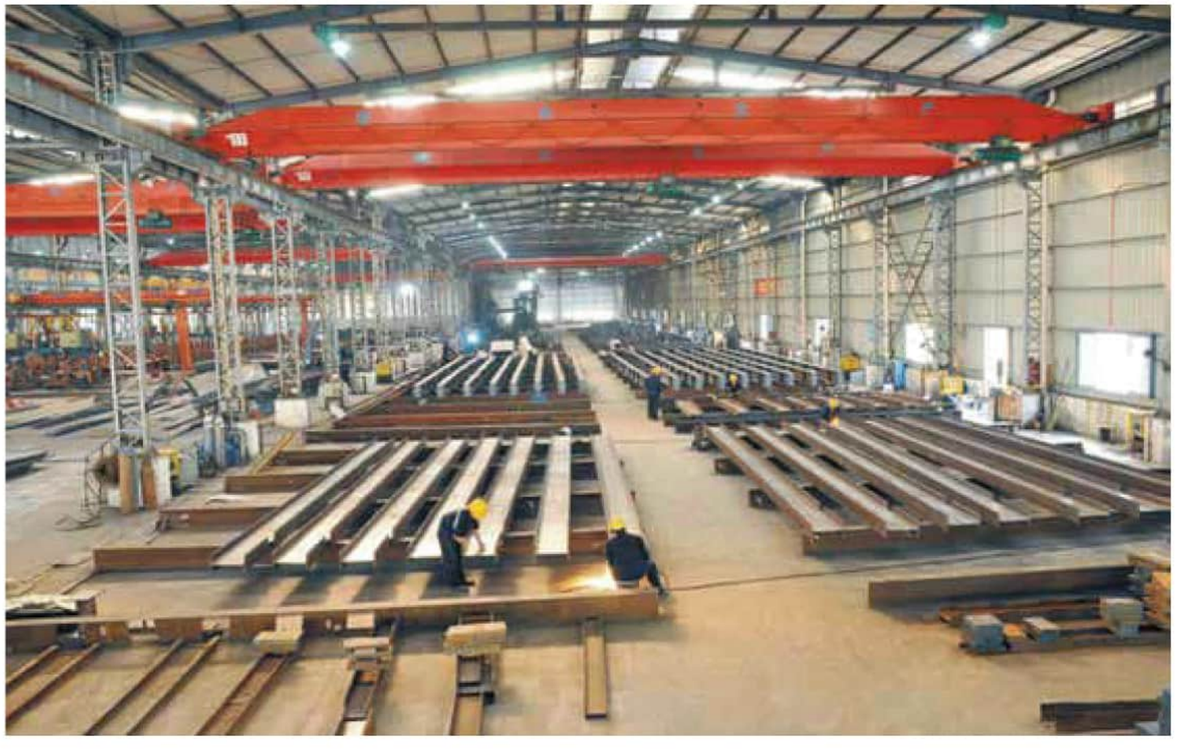
Steel Structure is formed by the main steel framework linking HHS,up H section, Z section and U section steel components, roof and walls using ALC and AAC panels, Sandwich Panels and other components such as windows, doors, cranes, etc.








STEEL STRUCTURE FRAME FACTORY



Steel structure building is a new type of building structure system, which is formed by the main steel framework linking HHS, up H section, Z section and U section steel components, roof an walls using a variety of panels and other components such as windows, doors, cranes, etc.
Light steel structure building is widely used in warehouses, workshops, office building and dormitory, etc.

PANEL COMBINED WITH STEEL STRUCTURE PRODUCTS

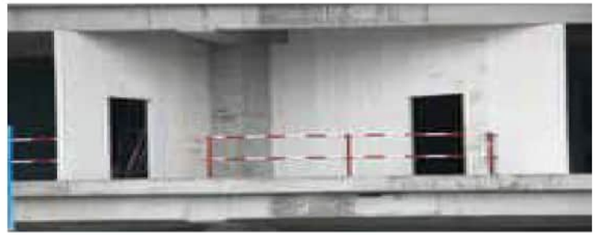
OFFICE BUILDING

HOTEL BUILDING

HOSPITAL BUILDING

APARTMENT BUILDING

SHOPPING MALL



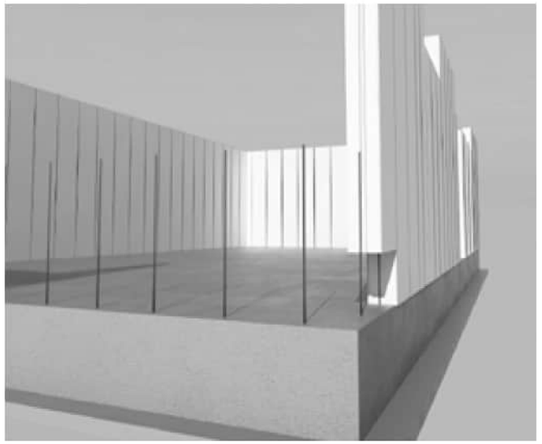
SCHOOL BUILDING

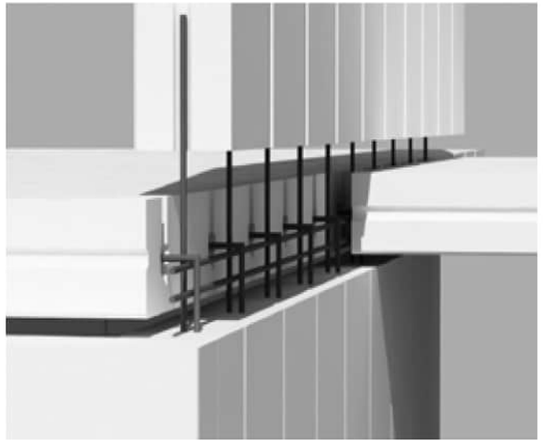
COMMERCIAL BUILDING

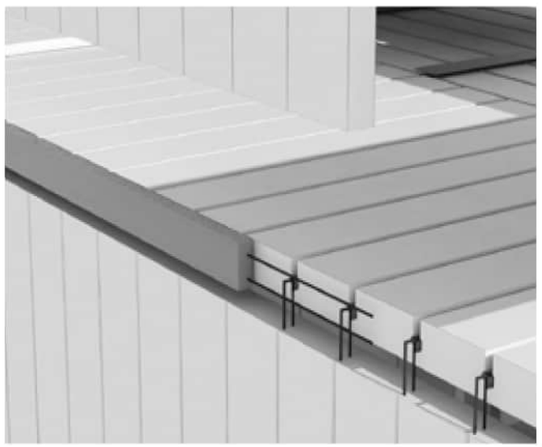
WORKSHOP AND WAREHOUSE

UILLA HOUSE AND LUXURY HOUSE

FULL PANEL SYSTEM





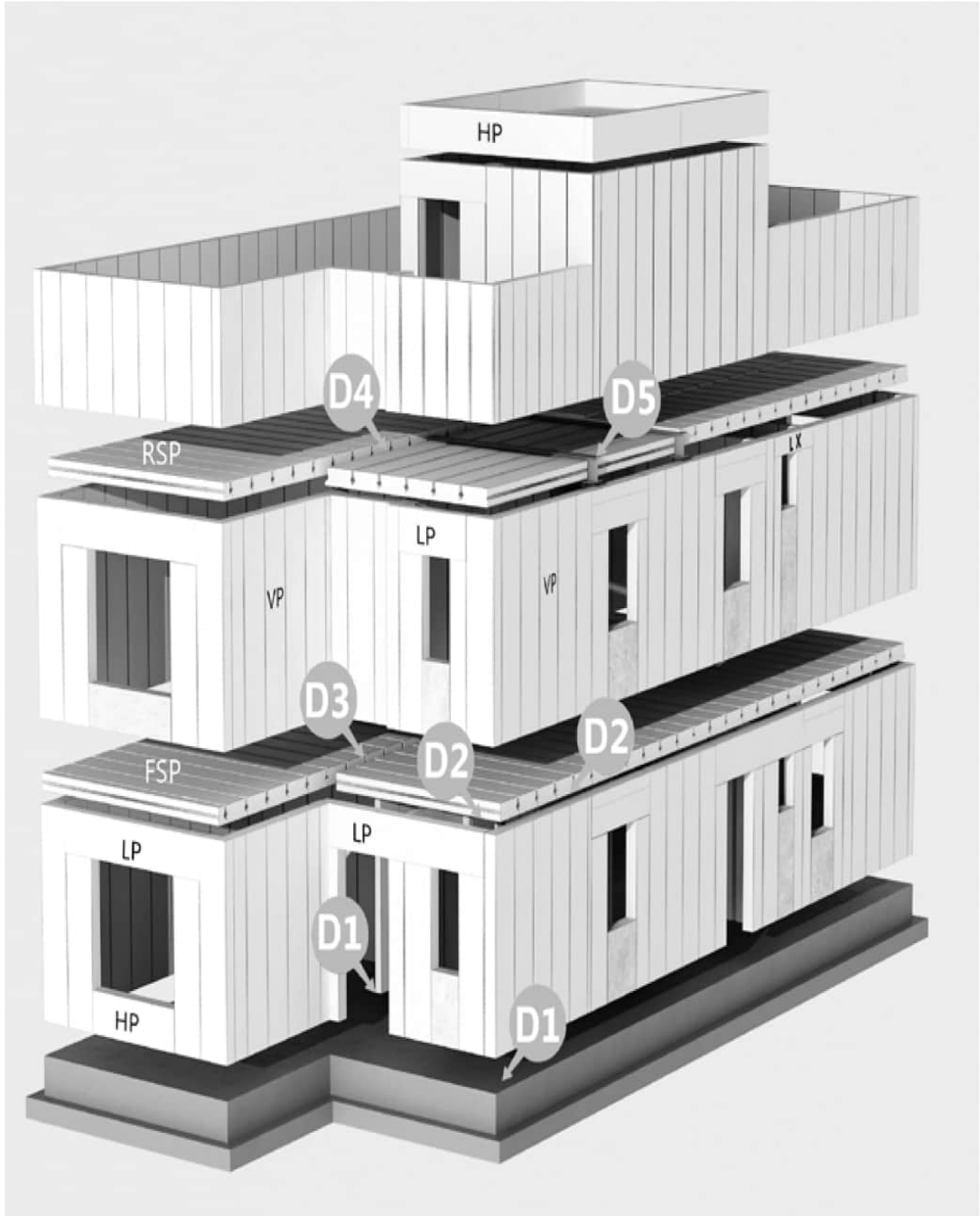


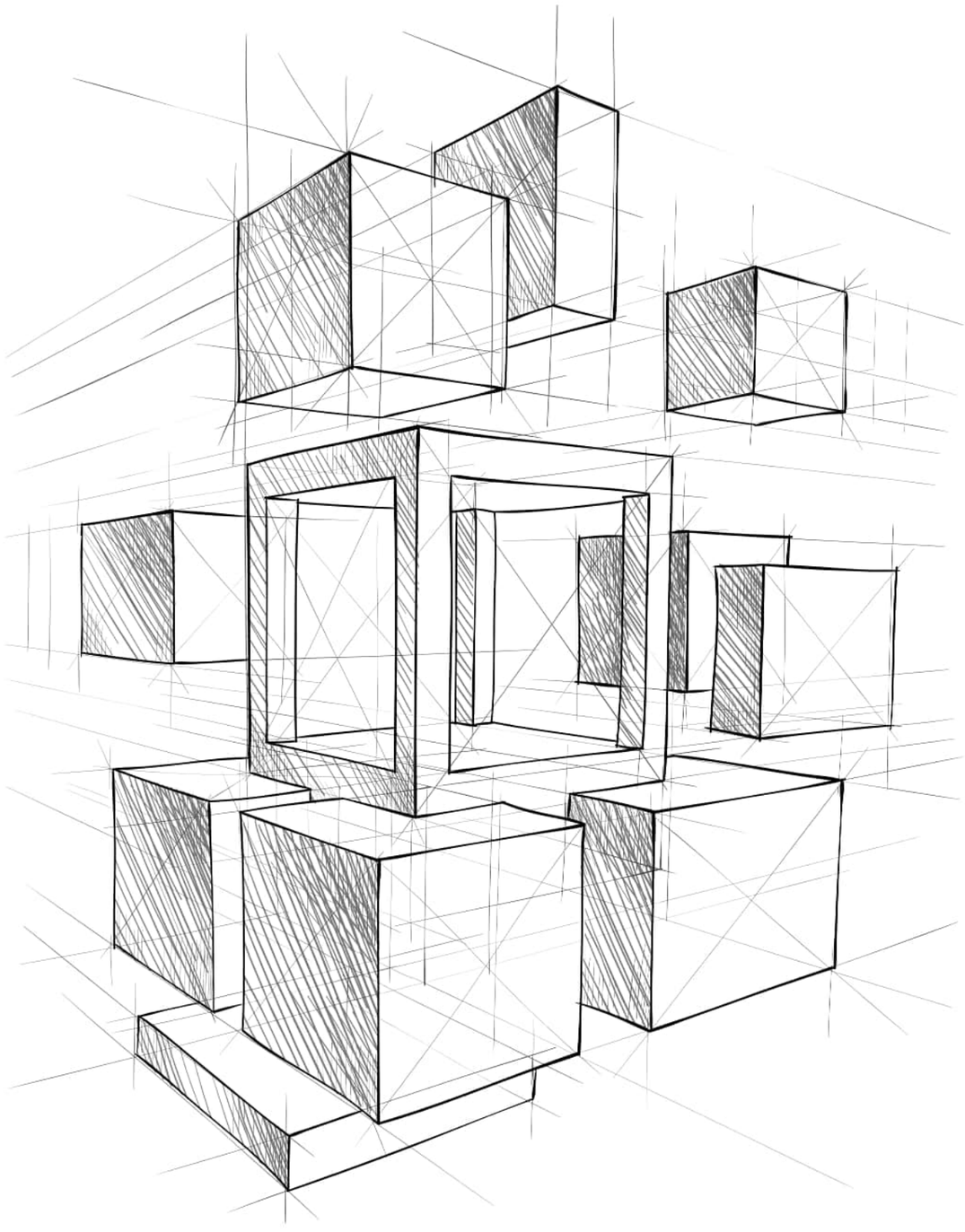
we are a provider of engineering solutions, offering a wide range of building systems and applications. If you are an individual building your family home or a developer lanning a new residential compound or a consultant looking for innovative solutions or a contractor planning to deliver your project on time with the least resources possible, ZIP GROUP has the ability to provide you with the effective, efficient, economical and nvironmentally sound solutions you seek.

1. Full Panel System
2. Full Block System
3. Partition Panels
4. Panels on Steel Structures
5. Post Tension Slabs
6. Boundary Walls
7. Shaft Walls
8. Rib-Hordi Roof
9. Rib-Hordi Stairs
10. Masonry Blocks

Full Panel System

Aerated concrete full panel systems can be used in a variety of structures as shown.



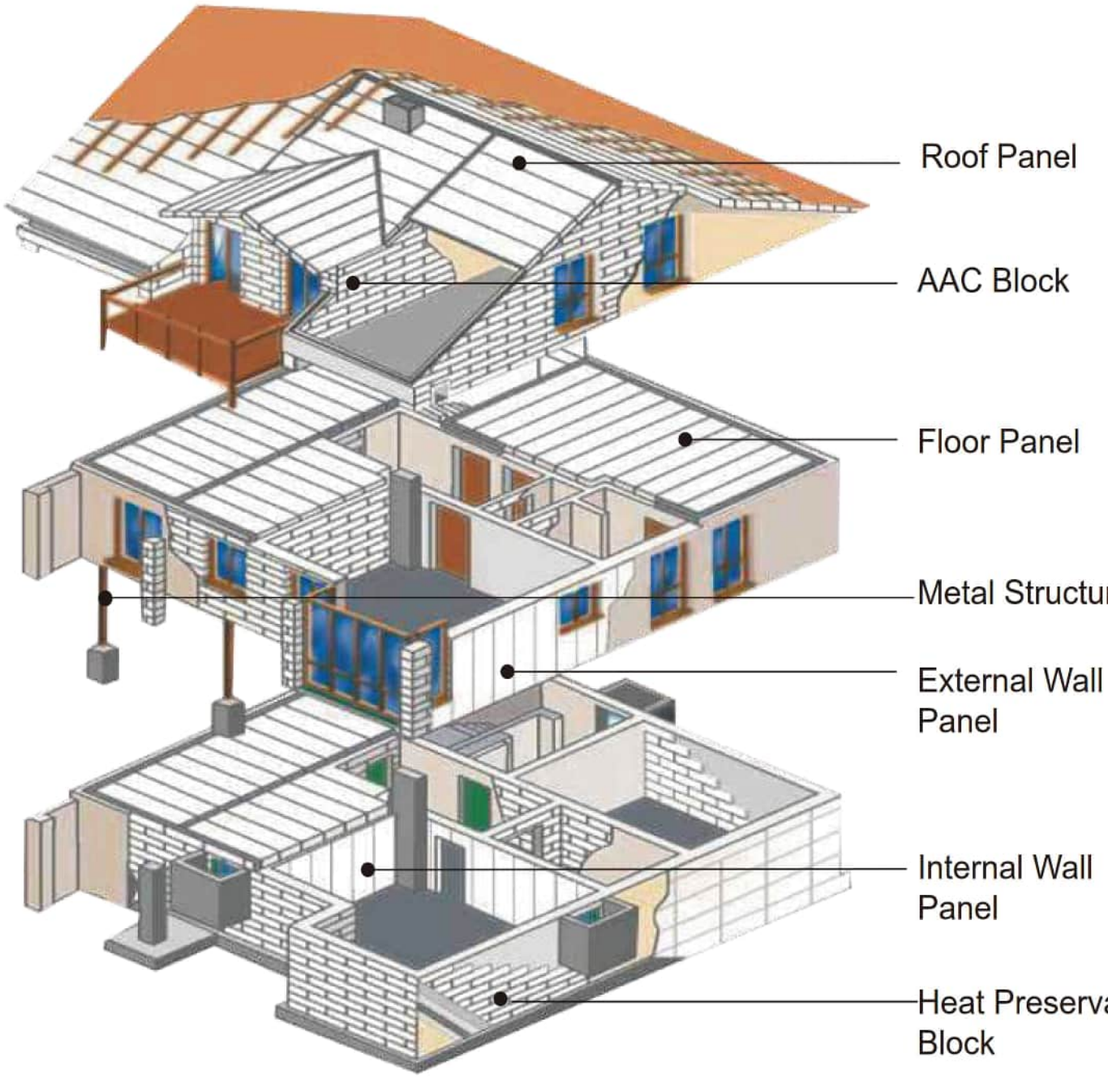


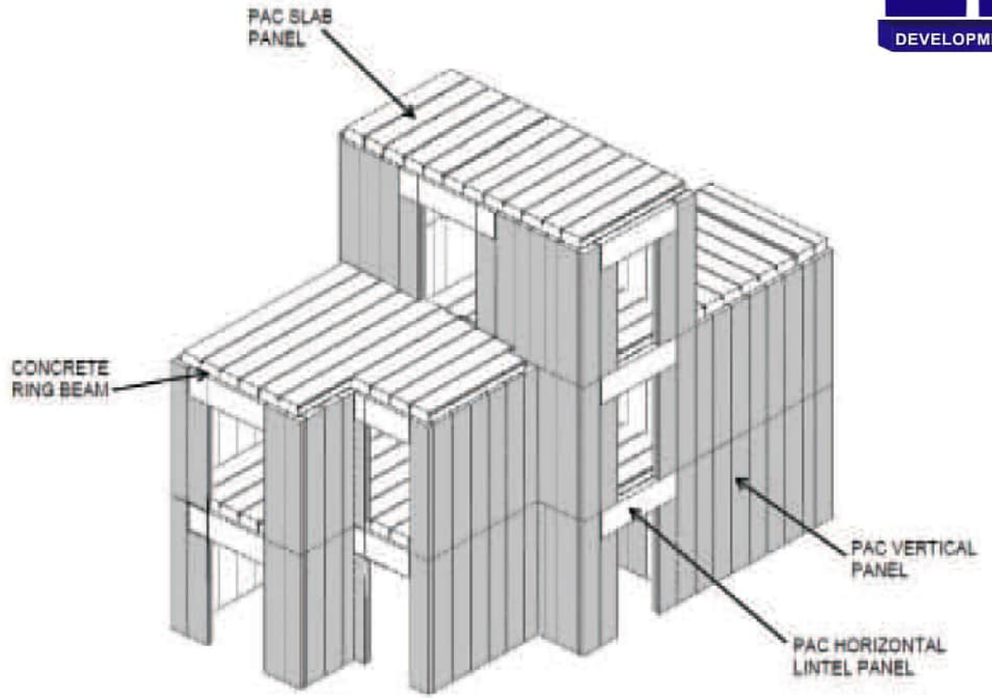
ONE-STOP SERVICE

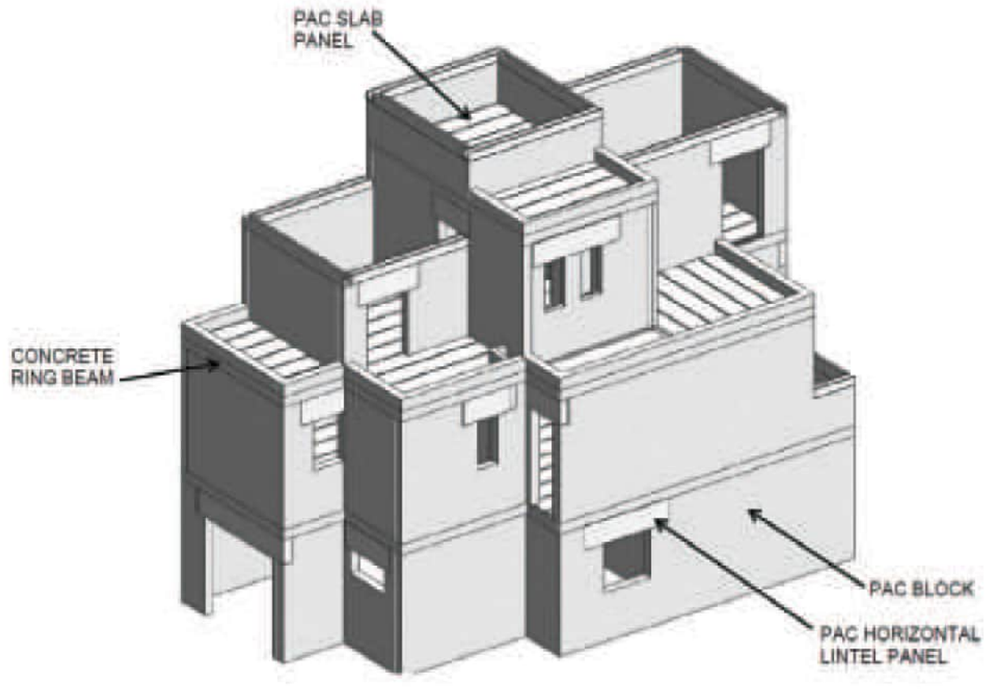
- Design and Calculation
- Budget and Manufacture
- Sales (Steel Structure + Panel)
- Exportation and Installation

ZIP GROUP

ASSEMBLY BUILDING SYSTEM SCHEMATIC DIAGRAM







STORAGE/PACKAGING/ TRANSPORT