

ATBOND™

ALUMINUM HONEYCOMB PANEL

PVDF Aluminum Honeycomb Panel
Painted Steel Honeycomb Panel
Fiberglass/Glass Aluminum Honeycomb Panel
Stainless Steel Honeycomb Panel
Marble Aluminum Honeycomb Panel
Marble-Simulating Aluminum Honeycomb Panel

PRESENTED BY GUANGDI ALUMINUM INDUSTRY CO.,LTD(China)

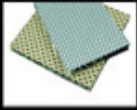
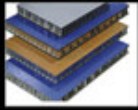


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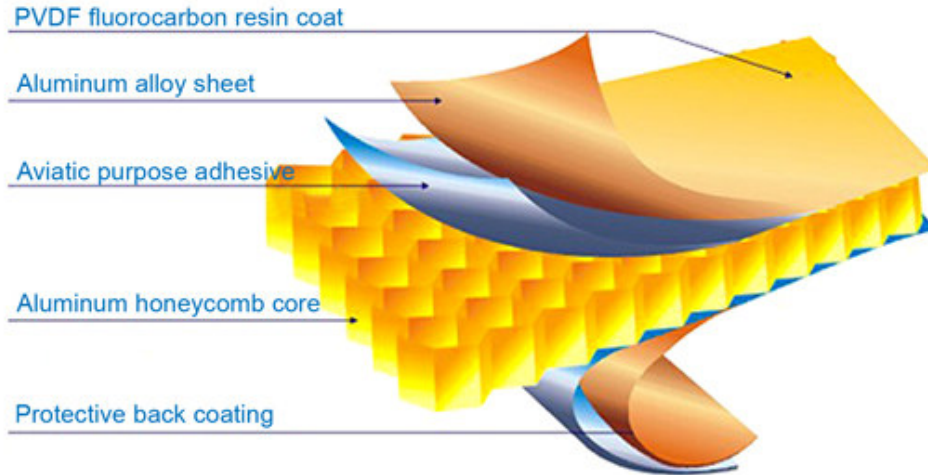


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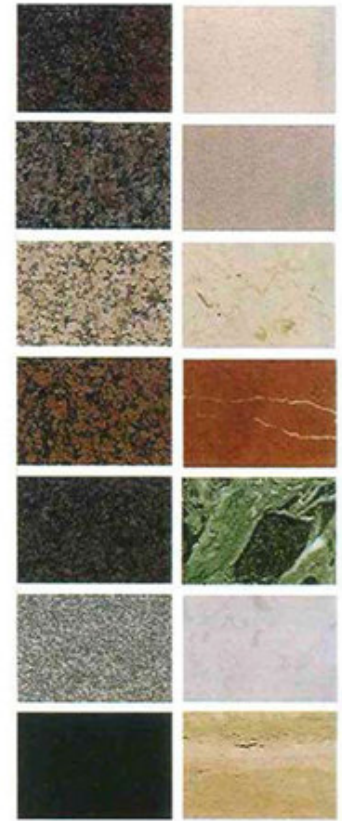
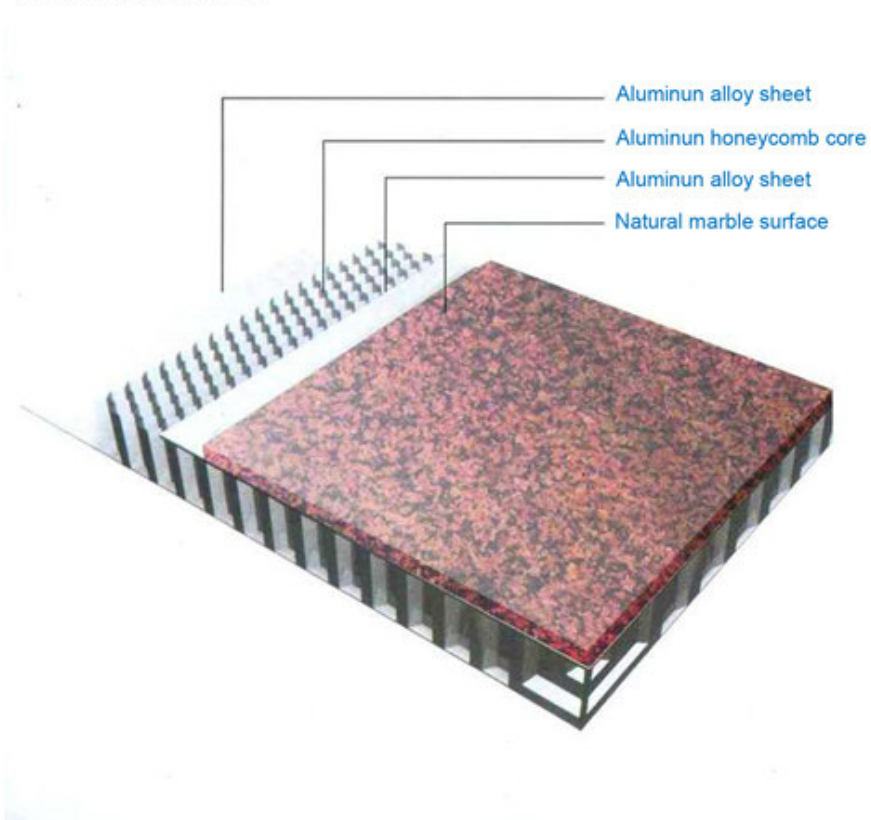
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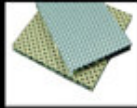
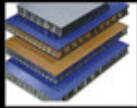
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MARBLE HONEYCOMB PANEL



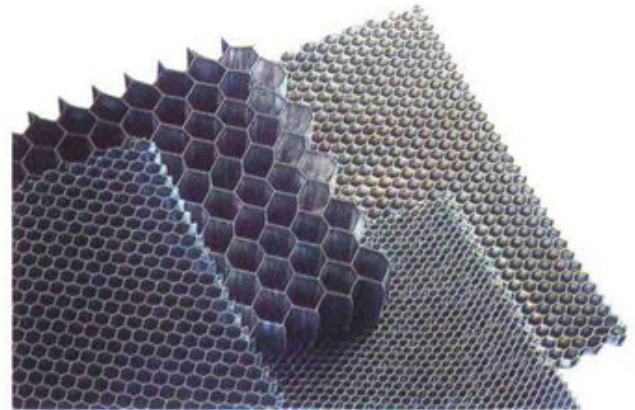
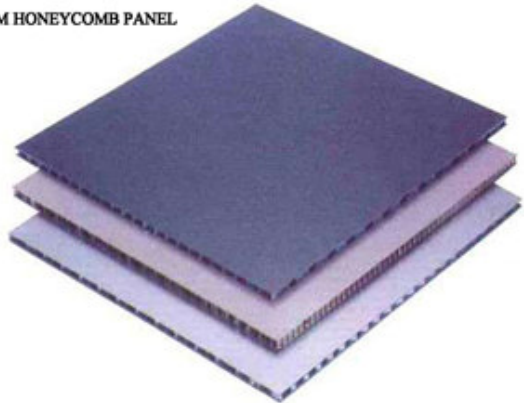


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ATBOND™ Aluminum Honeycomb Panel is consist of 2 aluminum sheets and a aluminum honeycomb core. By applying advanced aviatic producing technology and PVDF resin coating,ATBOND™ Aluminum Honeycomb Panel presents conventional monotonous colours which are weathering-resistant, together with the characteristics of super-light and supe-rigid.

Adopting top quality 3003 aluminum alloy as material, and bring in aircraft industry technology,the aluminum honeycomb core is remarkable low weighted and strong rigid,it is perfect choice for exterior and interior cladding application.

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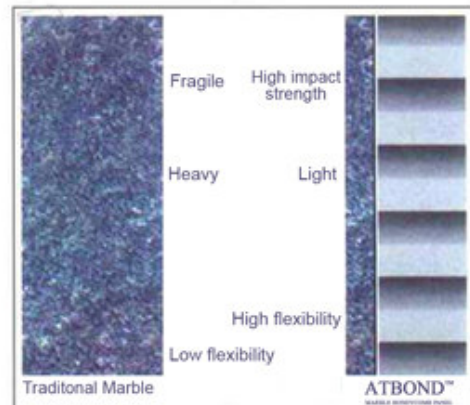
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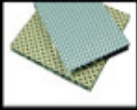
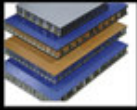
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MARBLE HONEYCOMB PANEL

The major characteristics of ATBOND™ Marble Honeycomb Panel:

1. Light weight.It weights only 16 Kg/m2,about the same weight as 6 mm glass.and only 1/5 that of marble or granite in the same thickness.
2. Impact resistance: 10 times more than 30 mm marble or granite.
3. 1200×2400 mm large size panels and other dimensions are available.
4. The marble surface is according to customer's choice.
5. In Acid Freeze-Thaw test, no change on bonding and surface after 45 circles in acid (-25℃~50℃)
6. Easy installation with low cost.
7. Sound and thermal insulation.
8. Reasonable price,only 1/3 of imported similar products.
9. Bending Strength: 8.5 Mpa.
10. Compression Strength: 0.76 Mpa.
11. Shearing Strength: 0.48 Mpa.
12. Thickness Deviation: ±0.5 mm
13. Flatness Daviation: ±1 mm
14. Wind Load: >10 KN/m²
15. Airtight and watertight test results meet the standrad of ASTM and AAMA.
16. Marble Honeycomb Panel can be easily fabricated into various requested shapes.



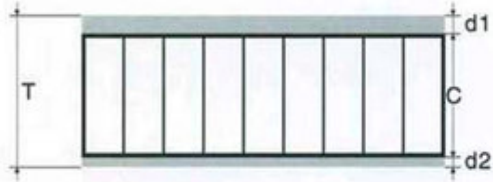


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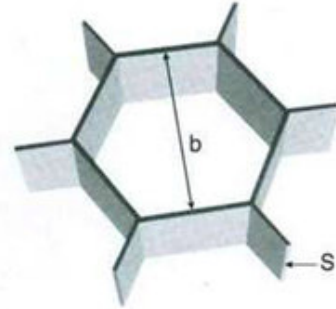
ALUMINUM HONEYCOMB PANEL

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T: total thickness (6~25 mm)
 d1: thickness of front AL sheet (0.5~1.5 mm)
 d2: thickness of bottom AL sheet (0.3~1.0 mm)
 c: AL honeycomb core



b: cell size (approx. 5~6 mm)
 s: foil thickness (approx. 40~60 μm)



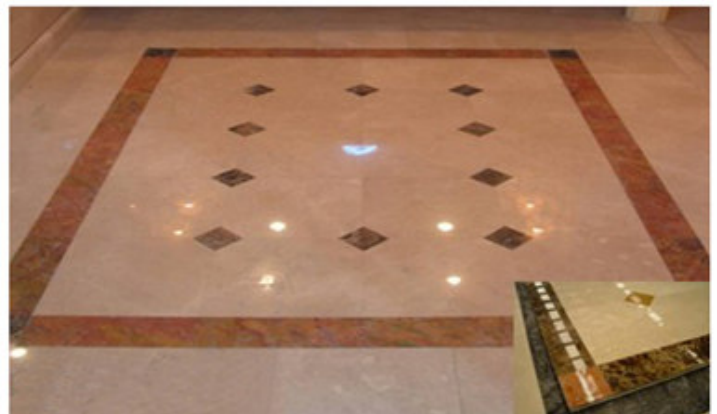
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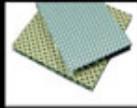
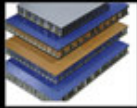
MARBLE HONEYCOMB PANEL



Security is one of the most important points for building decoration material. Marble Honeycomb Panel has this key property. This characteristic has been widely proven by the similar products from Germany, France, Italy, USA, Netherland. After years' test and application experience, Marble Honeycomb Panel has shown that it can be widely used for building interior and exterior decoration under different environment conditions.

Assuming a project covers 20000 m² natural stones curtain wall, if change to ATBOND™ Marble Honeycomb Panel, the weight can reduce at least 1300 metric tons, and the strength can be greatly enhanced to resist the conditions as earthquake, hurricane and thermal expansion, ect.



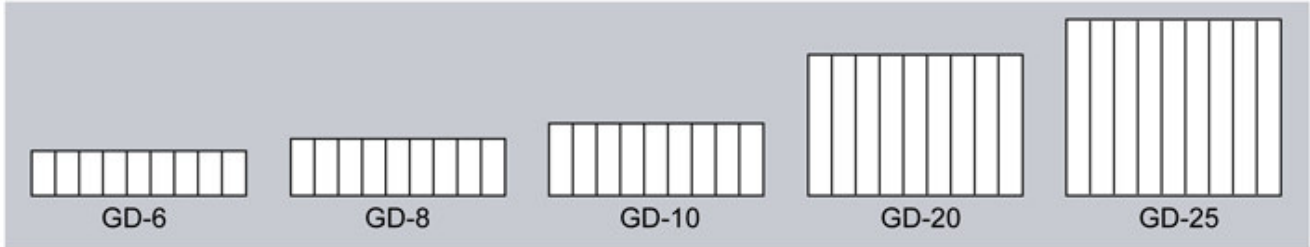


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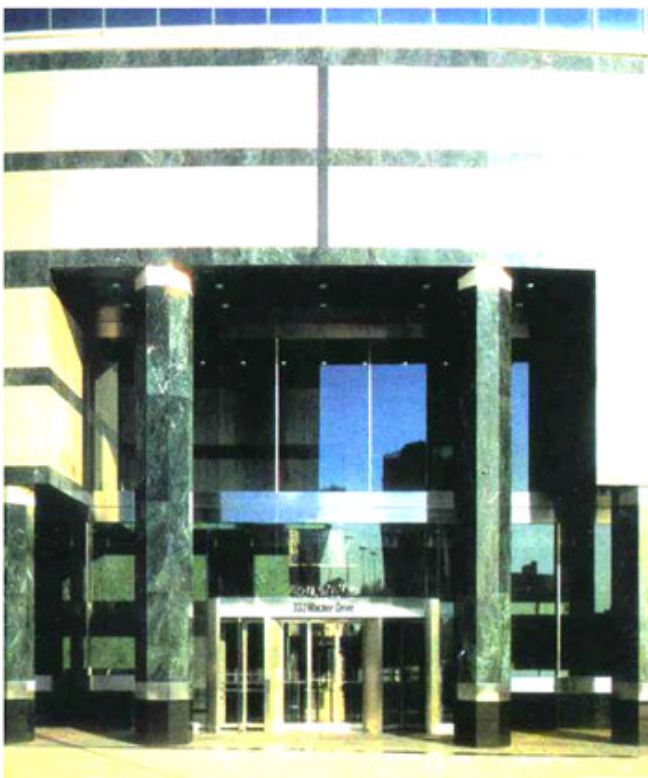


Type	Total Thickness	Front Al skin	Reverse Al skin	Weight	Rigidity	Section modulus
GD-06	6.0mm	1.0mm	0.5mm	4.9kg/m ²	0.71kNm ² /m	2.5cm ³ /m
GD-08	8.0mm	1.0mm	0.5mm	5.1kg/m ²	1.20kNm ² /m	3.5cm ³ /m
GD-10	10.0mm	1.0mm	1.0mm	5.3kg/m ²	2.90kNm ² /m	4.5cm ³ /m
GD-20	20.0mm	1.0mm	1.0mm	7.4kg/m ²	13.90kNm ² /m	19.0cm ³ /m
GD-25	25.0mm	1.0mm	1.0mm	7.8kg/m ²	22.17kNm ² /m	24.0cm ³ /m



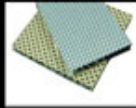
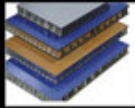
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MARBLE HONEYCOMB PANEL



ATBOND™ Marble Honeycomb Panel is an economic choice for exterior wall decoration, which can be easily installed without any need to reinforce the building structure. Installation methods are applicable for every project. According to customer's request, we can also pre-fabricate some exterior units in our factory to available the ATBOND™ Marble Honeycomb Panel to be directly bonded to the wall as soon as it arrives the installing site. It can efficiently save the cost and the time during installation.

ATBOND™ Marble Honeycomb Panel retains all the advantages of natural marbles when it overcomes most of its weakness. That is why ATBOND™ Marble Honeycomb Panel can be absolutely applied in the fields as hotel and mall lobbys decoration, ceiling, floor, elevator cladding, ect.



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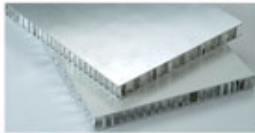
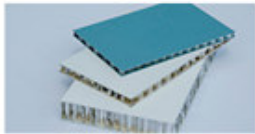
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PROPERTIES OF FACING MATERIALS

Facing Materials	Yield Strength (kg/m ²)	Modules of Elasticity (kg/m ²)	$\lambda(1-\mu^2)$
AA3003-H16	1266	7.08×10^5	0.89
A5052-H34	1687	7.10×10^5	0.89



MECHANICAL PROPERTIES

Cell Size	Normal Density (Pcf)	Compressive			Crush Strength (Psi)	Plate Shear			
		Bare Strength (Psi)	Stabilized			L Direction		W Direction	
			Strength (Psi)	Modules (Ksi)		Strength (Psi)	Modules (Ksi)	Strength (Psi)	Modules (Ksi)
3003 1/4"	4.8	630	660	148	245	365	70	215	38
3003 3/8"	3.3	340	370	92	120	230	45	130	22
3003 1/2"	2.3	190	205	40	60	140	28	80	14
3003 3/4"	1.8	120	130	24	45	100	20	65	11

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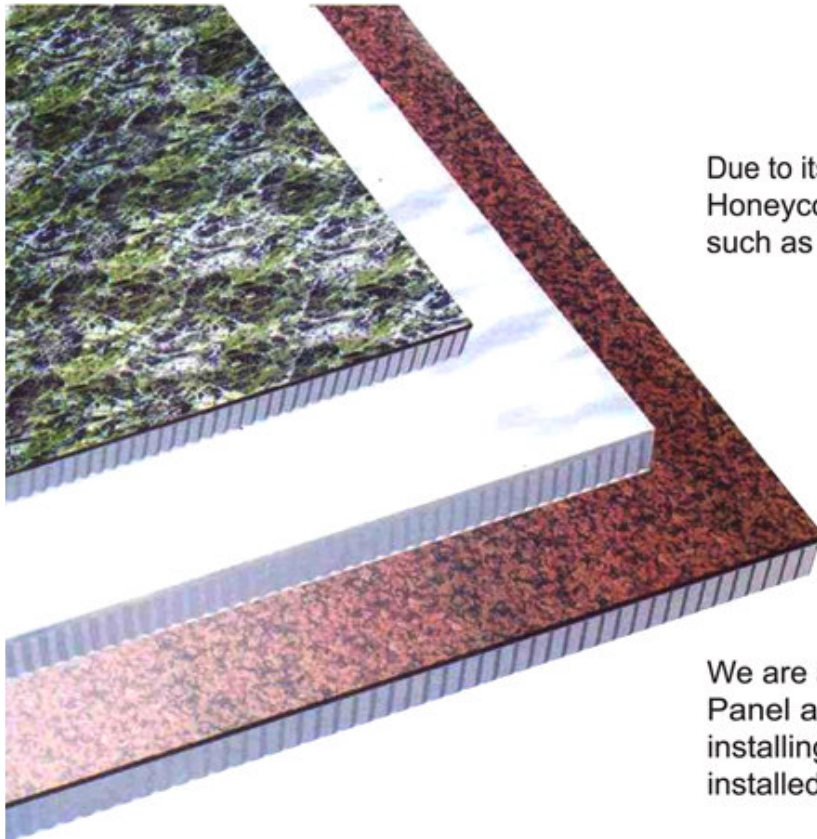
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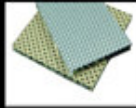
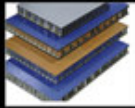
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MARBLE HONEYCOMB PANEL



Due to its light weighted characteristic, ATBOND™ Marble Honeycomb Panel can save tremendous installing cost such as reinforced structure.

We are able to supply ATBOND™ Marble Honeycomb Panel as large as 1.2m×2.4m ,when fabricating and installing,it can be easily cutted with ordinary saw and installed by simple tools.



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PHYSICAL DATA

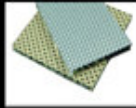
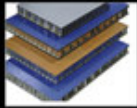
Material	aluminum
Surface Finish	PVDF KYNAR 500 Resin
Core	Thin AL in hexagon type of honeycomb
Front skin	1.0mm,1.5mm,2.0mm,3.0mm
Back skin	0.5mm,1mm
Panel thickness	6mm,8mm,10mm,20mm,25mm
Panel size	1250×4000mm(Max.1500×4000)or 1220×4000mm
Dimension tolerance	thickness ±0.2mm
	Length 0-4mm
	Width 0-2mm
Fireproof grade	(GB) BS476 part7 class=1
	BS476 part6 class=0
	BS476 part4 non-combustible
Thermal conductivity (Panel thickness direction)	1.7W/M°C
Thermal expansion coefficient (panel area direction)	23×10 ⁻⁶ /°C
Core shearing strength	2.2MN/m ² (Ribbon Direction)
	1.5MN/M ² (Transverse)
Core Shearing Elastic Modulus	440N/m ² (Ribbon Direction)
	295 N/m ² (Transverse)
Core Compressive Strength	4.0 MN/m ²
Surface Tensile Elastic Modulus	50-20GN/m ² G=10 ⁹
	Slant Direction Tensile
	Strength:300-350 MN/m ² (Width Direction)
	69GN/m ²
	Tensile Strength:200MN/m ²
	Yield Elongation:5%
Climbing Drum Peel Test for Adhesives	Over 100 N/mm(ASTM 1781-98)

ADVANTAGES OF ATBOND™ ALUMINUM HONEYCOMB PANEL:

1. Perfect flatness
2. Gorgeous appearance
3. Light weight
4. Excellent fireproof behavior
5. Good thermal and sound insulation
6. Excellent adhesivion
7. Wide application scope

APPLICATIONS FOR ATBOND™ ALUMINUM HONEYCOMB PANEL:

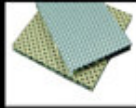
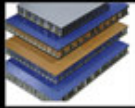
1. Wall cladding, exterior and curtain wall application.
2. Interior decoration
3. Ceiling, roofing, flooring, bathroom, kitchen, ect.
4. Column covering decoration
5. Offshore project and street public facility
6. Aircraft and vehicle industry



National Construction Institution Test Report

Item	Technology demand	
	Outside wallboard	Indoor wallboard
Thickness of coating	≥25μm	≥16μm
Gloss deviation	1.) Gloss ≥70, Ultimate value <5 2.) Gloss <70, Ultimate value ≤10	
Hardness of pencil	≥HB	
Flexibility of coating	≤2	≤3
Adhesion of coating	Grade 1, Lattice-Ripping or Circle-Ripping test	
Impact strength	50kg.cm Without paint off and crack	
Wear resistance (L/μm)	≥5	---
Boiling water resistance	No change	
Salt-fog resistance(3000h)	Grade 1	---
Acid resistance	Unchanged	
Alkali resistance	Unchanged	
Oil resistance	Unchanged	
Solvent resistance	Bottom unrevealed	
Scrubbing resistance	Unchanged	
Color difference	≤3.0	---
Degradation grade	0	---
Gloss reduction	Grade 1	
Fireproof Character	China	B1 Grade, GB8624-1997
	Germany	B1 Grade, FMPA-BW (Din4102/81)
	U.K.	Grade 1 (BS 476 Part 7 Class 1) (BA 476 Part 6 Class 0)
	France	Noncombustible (CSTB), Class M.1





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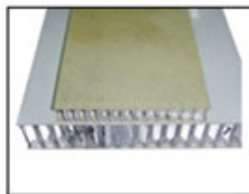
ALUMINUM HONEYCOMB PANEL

Exterior Curtain Wall Material Compare

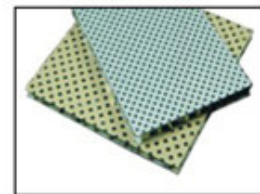
Difference \ Item	Aluminum Honeycomb Panel	Aluminum Solid Panel	Aluminum Composite Panel
Material	1.0mm+honeycomb core +0.5mm	2.5 or 3.0 mm	0.5mm+Polyethylene core+0.5mm
Thickness	6 / 8 /10 mm or as request	2.5 or 3.0 mm	4 mm
Weight / m2	5.0 Kg/m2	5.64 Kg/m2	5.49 Kg/m2
Flatness Deviation	<1.5 mm (±0.5 mm)	<3 mm	<3 mm
Impact resistance	Extremely good	Good	Normal
Corner and edge treatment	Folding without break	Folding without break, but with large R	Folding without break
Stiffening rib fixing	No	Welding or bonding	Bonding
Core composite	Bonding	No	Bonding
Internal stress	Small and equal	Large and unequal	Small and unequal
Coefficient of expansion	Very small and equal	Large and equal	Large and unequal
Sympathetic vibration	No	Evident	No
Electromagnetic shield	Good	Good	Poor
PVDF painting	Roll painting or spray painting	Spray painting	Roll painting
Installation Structure	Only needs aluminum profile structure when installing,nothing else	1.Needs stiffening rib when panel size is big or when applied for high biuldings. 2.Needs install Thermal insulation layer.	1.Needs stiffening rib when panel size is big or when applied for high biuldings. 2.Needs to install Thermal insulation layer.



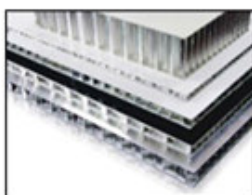
Marble Honeycomb Panel



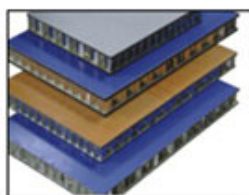
Fiber Glass Honeycomb Panel



Glass Honeycomb Panel



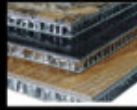
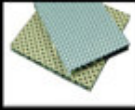
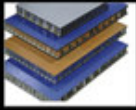
Aluminum Honeycomb Panel



Color Steel Honeycomb Panel



Marble SimuHoneycomb Panel



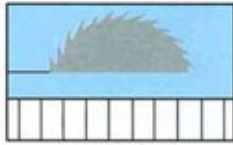
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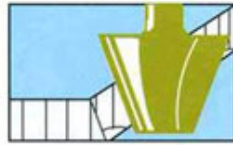
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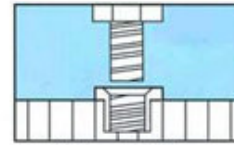
1. Processing method



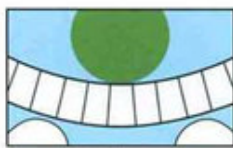
Cutting



Notching



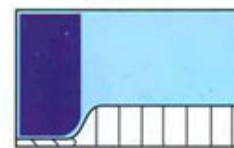
Joining and fixing



Rolling

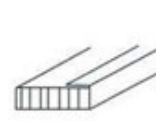
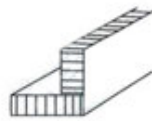


Bending

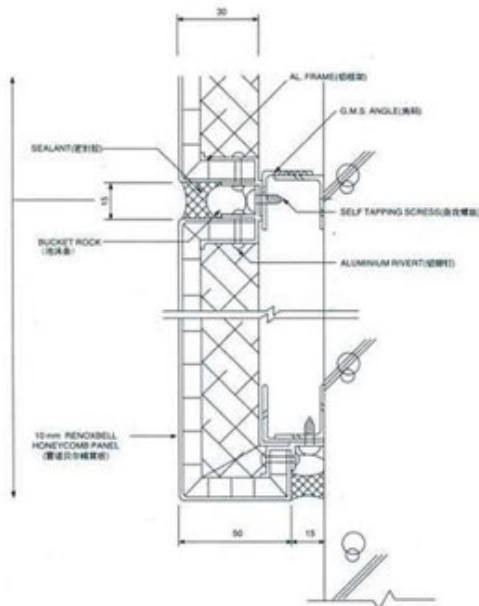


Edge compress forming

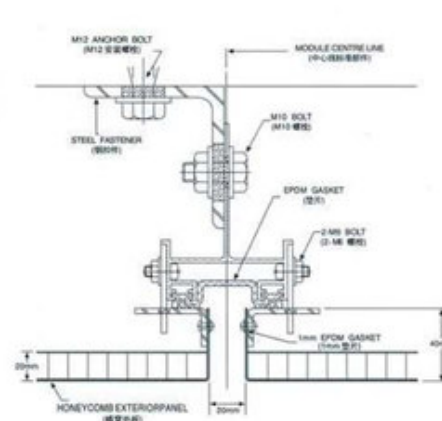
2. Edge folding type



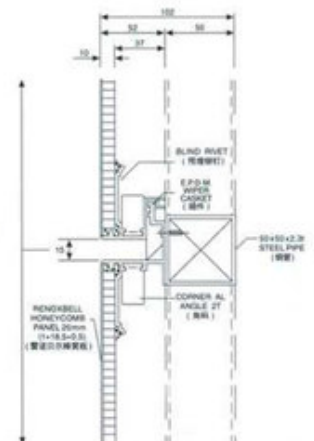
3. Installation method

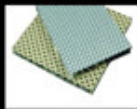
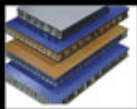


TYPICAL SEALANT JOINT DETAIL FOR ATBOND™ HONEYCOMB PANEL



TYPICAL OPEN JOINT DETAIL FOR ATBOND™ HONEYCOMB PANEL

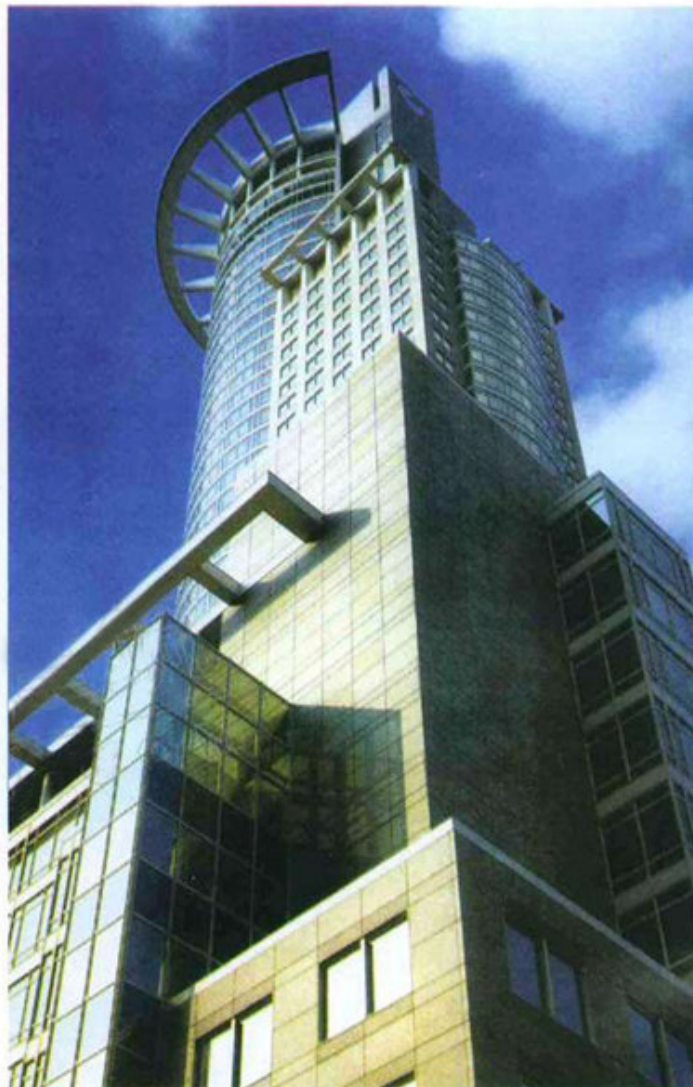


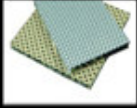
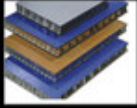


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