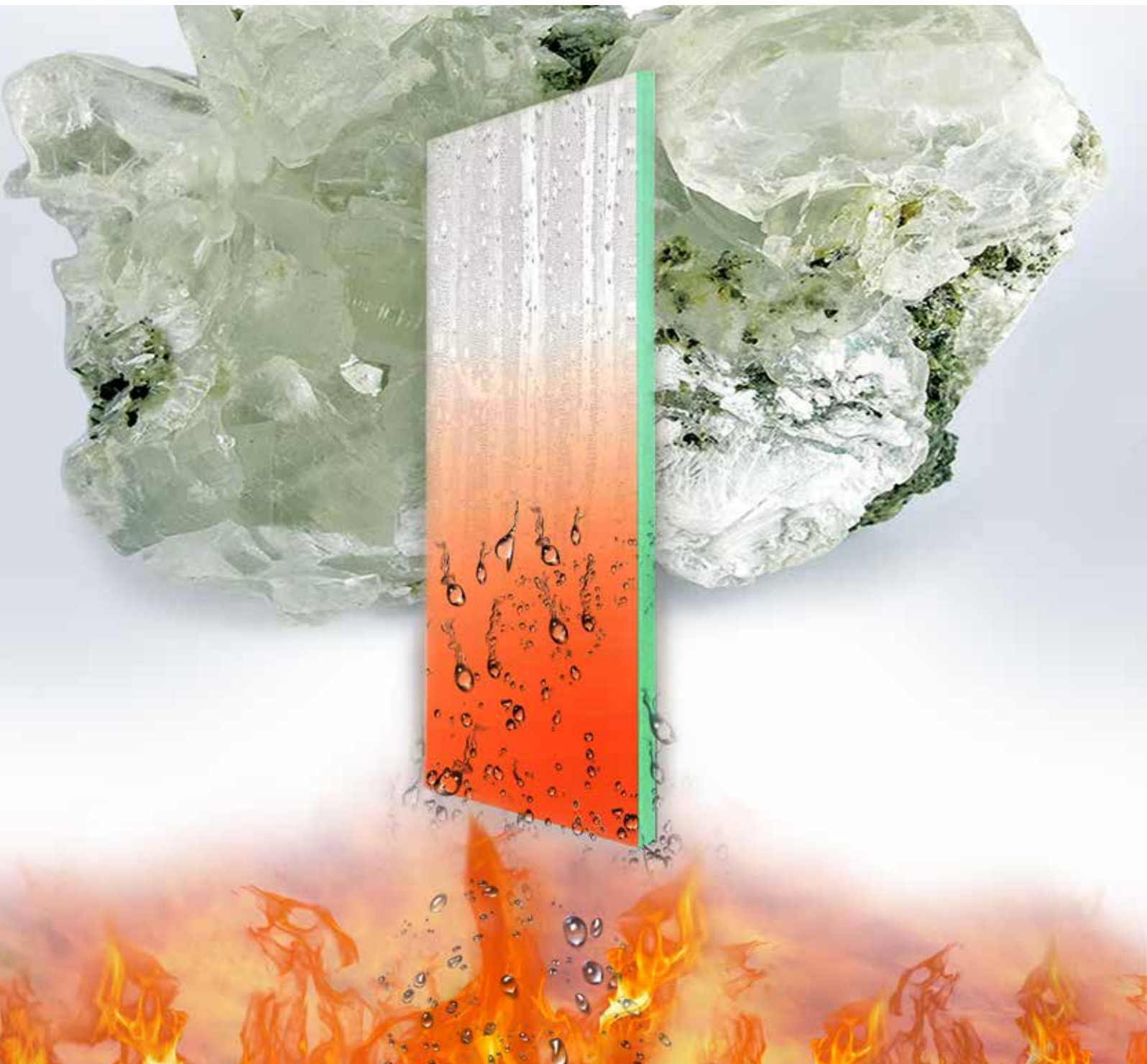
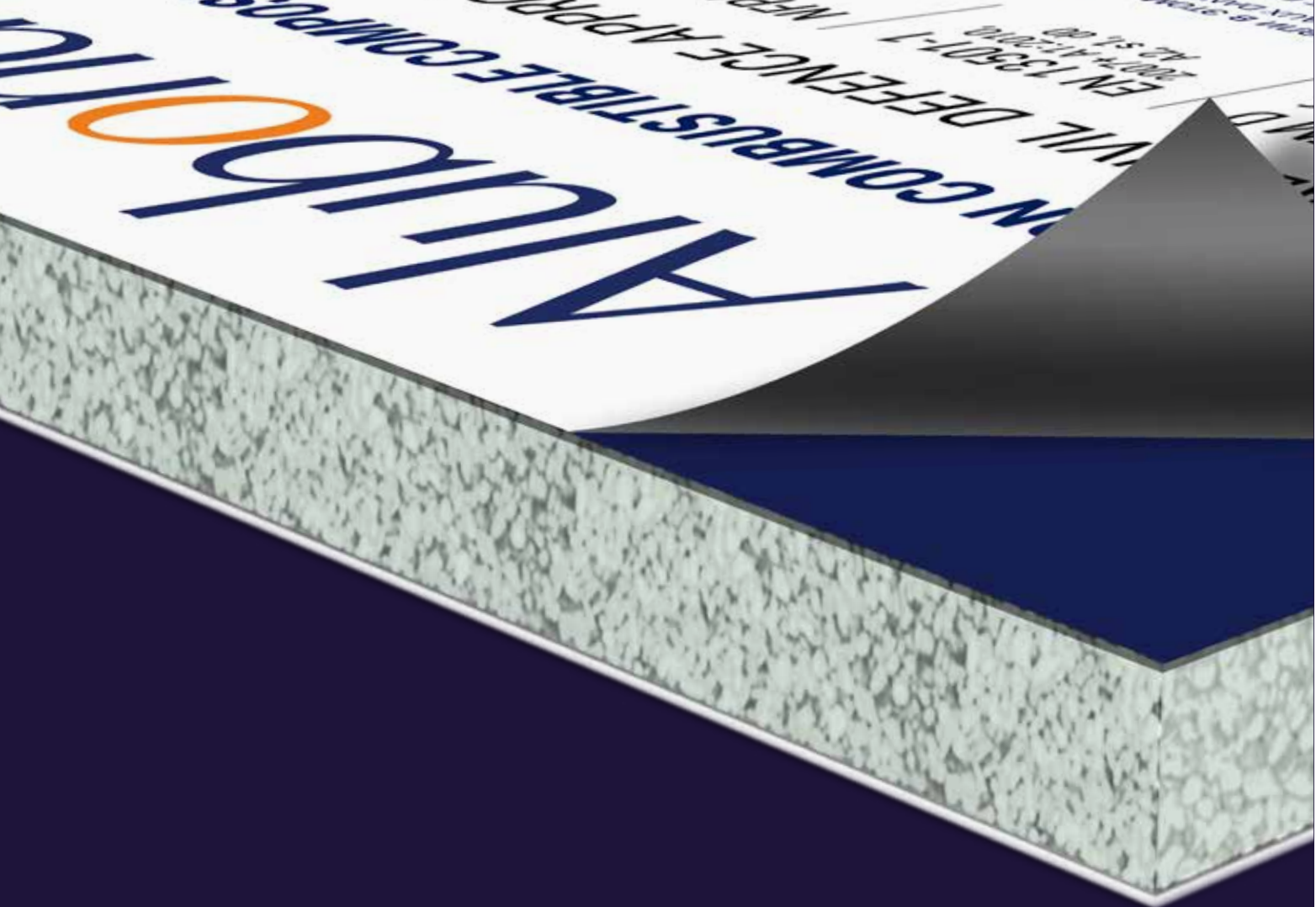


Alubond A2

U.S.A
NON COMBUSTIBLE COMPOSITE PANELS



THE NEW CLADDING WONDER
RELEASES WATER WHEN HEATED



Alubond A2

U.S.A
NON COMBUSTIBLE COMPOSITE PANELS

**ALUBOND U.S.A FR-A2, A QUALITY PRODUCT FROM
ALUBOND U.S.A, THE WORLD'S LARGEST FIRE RETARDANT ACP PANEL.**

Alubond U.S.A FR-A2 is a registered brand name of American Building Technologies located in Rockford Illinois with production bases in Europe, Middle East, Oman and India with an annual production capacity of 25,000,000 M2 (Twenty Five Million square meters) and the brand ownership is now fully transferred and the brand is now owned by Mulk Holdings.



NO MORE FIRE

Alubond U.S.A FR-A2 is the new generation exterior fire retardant Panels with over 90% Stone core sandwiched between two layers of metal skins . Alubond U.S.A FR-A2 patented core formulation with a high percentage of Magnesium Hydroxide provides superior fire retardant capabilities making it an extremely safe cladding solution for buildings worldwide. Alubond U.S.A FR-A2 has passed stringent Fire test certifications all over the world achieving product classifications as per EN 13501 – 1 A2 S1 d0 (Over 90% Stone core content) and EN 13501 – 1 B S1 D0 (Over 70% Stone core content).

Advantages of Magnesium Hydroxide

- ▶ Filler and Flame Retardant/Smoke Suppressant in one product
- ▶ Environmentally Acceptable
- ▶ Halogen Free
- ▶ Non-Corrosive
- ▶ Reduces Smoke Density
- ▶ Non-Volatile
- ▶ Largely Inert
- ▶ Thermally Stable upto 340°C and thereafter undergoes Endothermic Decomposition releasing Water




The solid mineral magnesium hydroxide, with the chemical formula $Mg(OH)_2$ is a common alteration product of periclase in marble; a low-temperature hydrothermal vein mineral in metamorphosed limestones and chlorite schists; and formed during serpentinization of dunites. It is often found in association with serpentine, calcite, aragonite, dolomite, magnesite, hydromagnesite, artinite, talc and chrysotile.

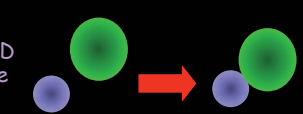
What is Endothermic & Exothermic Reaction ?

Endothermic and exothermic reactions

Step 1: Energy must be **SUPPLIED** to break chemical bonds:




Step 2: Energy is **RELEASED** when new chemical bonds are made:



Endothermic process: a change (e.g. a chemical reaction) that requires (or absorbs) heat.

Photosynthesis is an endothermic reaction (requires energy input from sun)



*A reaction is **EXOTHERMIC** if more energy is **RELEASED** than **SUPPLIED**. If more energy is **SUPPLIED** than is **RELEASED** then the reaction is **ENDOTHERMIC***

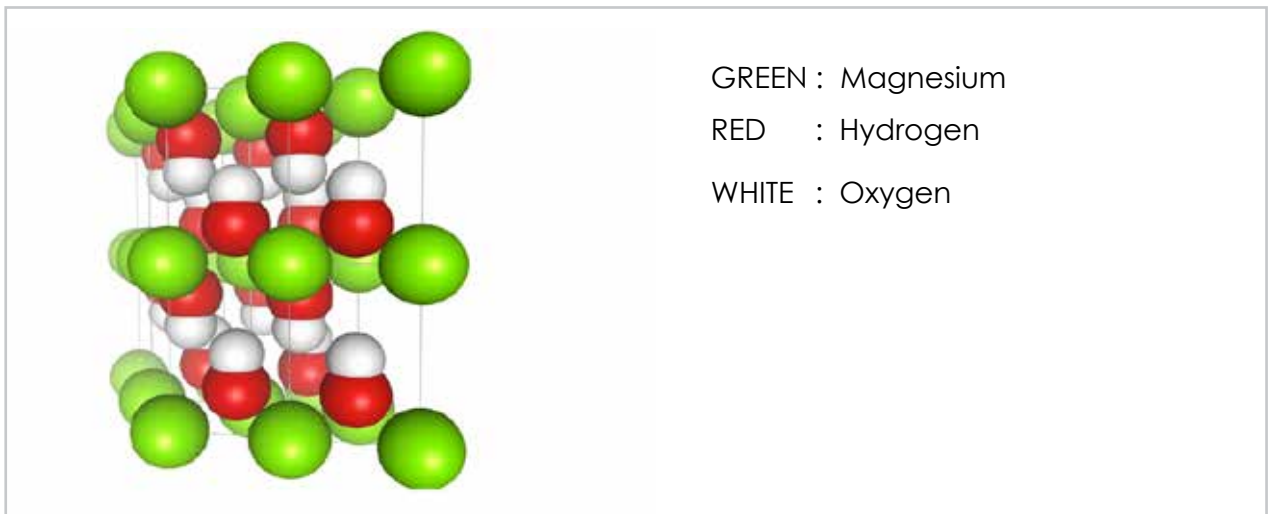
LDPE (Low density Polyethylene) is a hydrocarbon material which exhibits exothermic reaction by releasing energy when exposed to heat.

$Mg(OH)_2$ is a natural mineral which exhibits Endothermic reaction by absorbing heat when exposed to energy/heat.

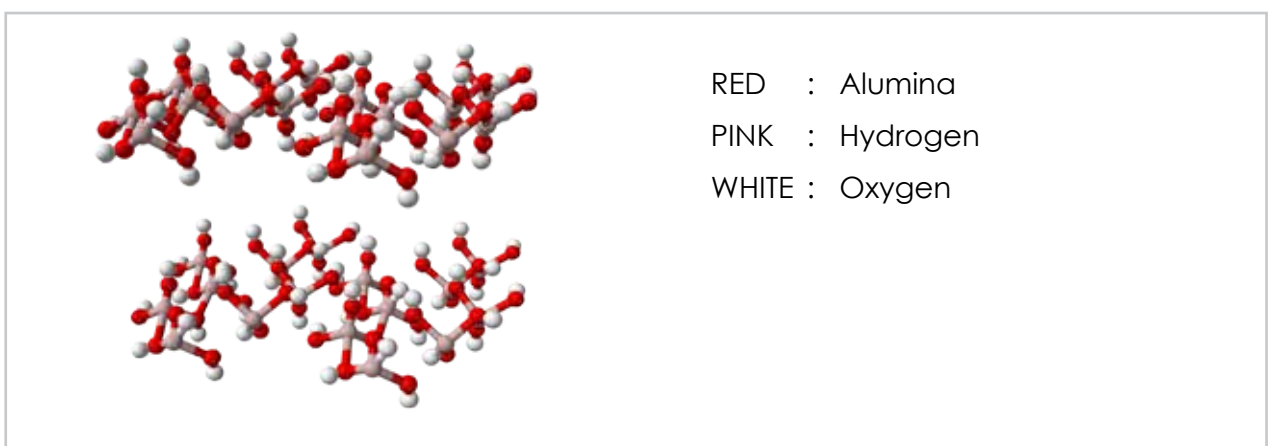
COMPARISON OF MAGNESIUM HYDROXIDE WITH ALUMINIUM TRIHYDRATE

	ATH	Magnesium Hydroxide
Molecular Formula	$Al(OH)_3$	$Mg(OH)_2$
Water Content Loss on Ignition (LOI)	34%	31%
Decomposition Temperature	Greater than 230° C	Greater than 330° C
Mohs hardness	2.5–3.5	2.0-3.0
Specific Gravity	2.42	2.36
pH	10-8	10.5
Electrical Conductivity us/cm	Less than 350DIN	53208
Color	White	White
Physical Properties	Powder	Powder
Refractive Index	1.57	1.58
Particle Morphology	Hexagonal Platelet	Hexagonal Platelet

Magnesium Hydroxide Structure :



Aluminium Trihydrate Structure





Some MCM Manufacturers use Aluminium Hydroxide due to the easy availability of the mineral in proximity to production plants. Alubond U.S.A FR-A2 uses Magnesium Hydroxide as its prime core mineral based on the following data.

Reactivity : Magnesium Hydroxide is much more reactive than Alumina Trihydrate (ATH), whereas ATH releases the available water over a broad range (230° C to 430° C), Magnesium Hydroxide releases the available water over a much narrower range (330° C or 630° F to 430° C). In simple terms this compares to spraying a fine mist of water over a fire (ATH) as opposed to dousing the fire with a full bucket of water (Magnesium Hydroxide). The quick release of water enhances the flame retardant properties of Magnesium Hydroxide.

Water Release : Magnesium Hydroxide releases water at a higher temperature than ATH. The higher temperature release is at a more critical point that reduces the spread of the flame.

Particle Shape : Magnesium Hydroxide particles, if viewed under a microscope, are plate-like versus the spherical particles of ATH. These plate-like particles overlap one another similar to fish scales or roofing shingles. Pound for pound these plate-like particles offer much more exposed surface area than spherical ATH particles. Therefore more particles are directly exposed to the flame. Also, the plate-like particles provide more strength, flexibility and reinforcement in the finished product as opposed to spherical particles.

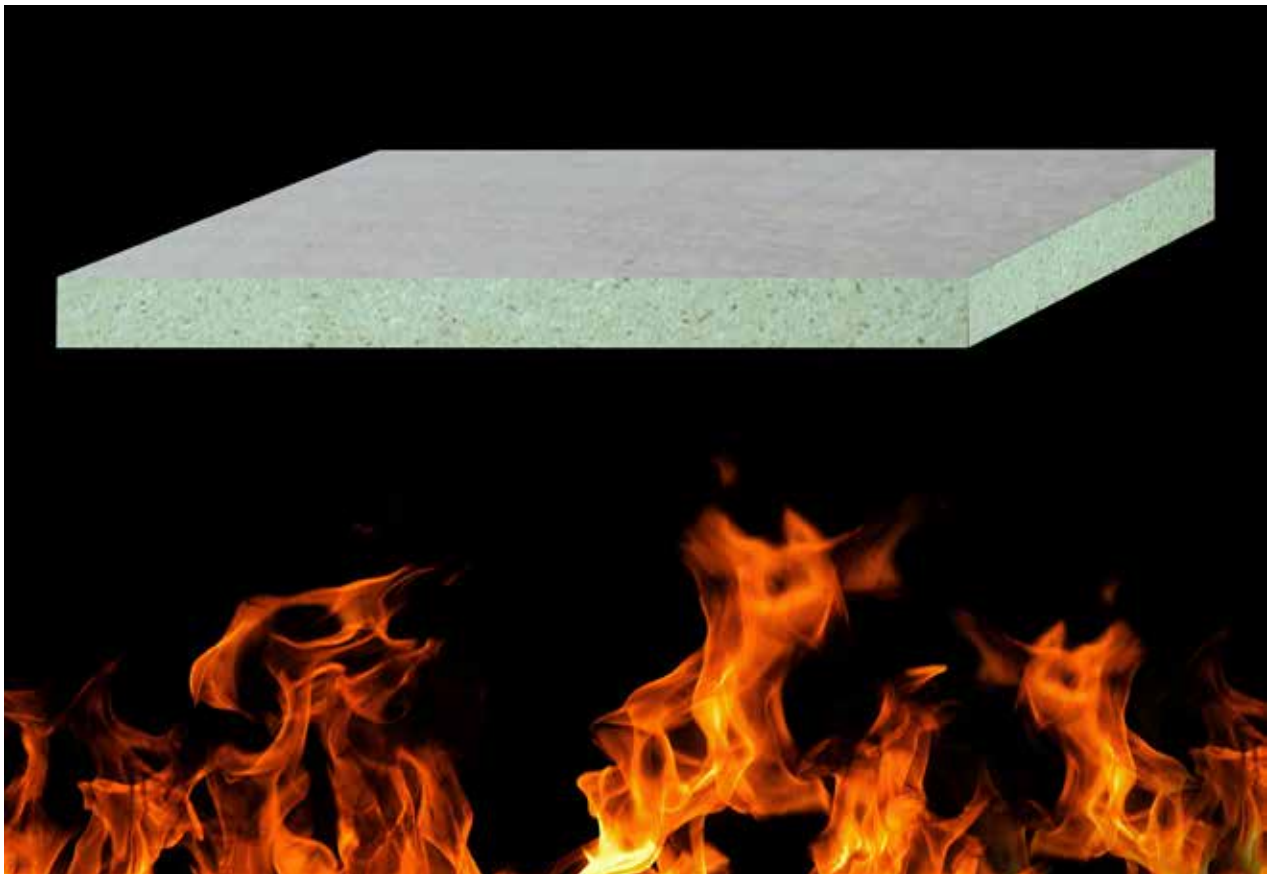
Particle Integration : Magnesium Hydroxide is a natural mix of particles. There is particle penetration and integration within Magnesium Hydroxide rather than having ATH and calcium carbonate particles mixed side by side. This allows a better distribution of the fire retardant and smoke suppressant properties.

Stability: Magnesium Hydroxide has stabilizing characteristics that tend to neutralize acid and toxic smoke. ATH does not provide these benefits.

Char Ash: Magnesium Hydroxide during the burning reaction forms a "Char-Ash" in front of the flame, which suppresses the flame.

Physical Properties

- ▶▶ Physical properties such as viscosity cure rate, stress strain and durometer, suggest that magnesium hydroxide is virtually indistinguishable from ATH from a filler performance standpoint.
- ▶▶ Magnesium Hydroxide, because of its acid scavenging properties, can play a useful role in halogenated compounds by reducing acid gas emissions.
- ▶▶ By absorbing the heat, magnesium hydroxide prevents or delays ignition and retards combustion of polymeric materials.

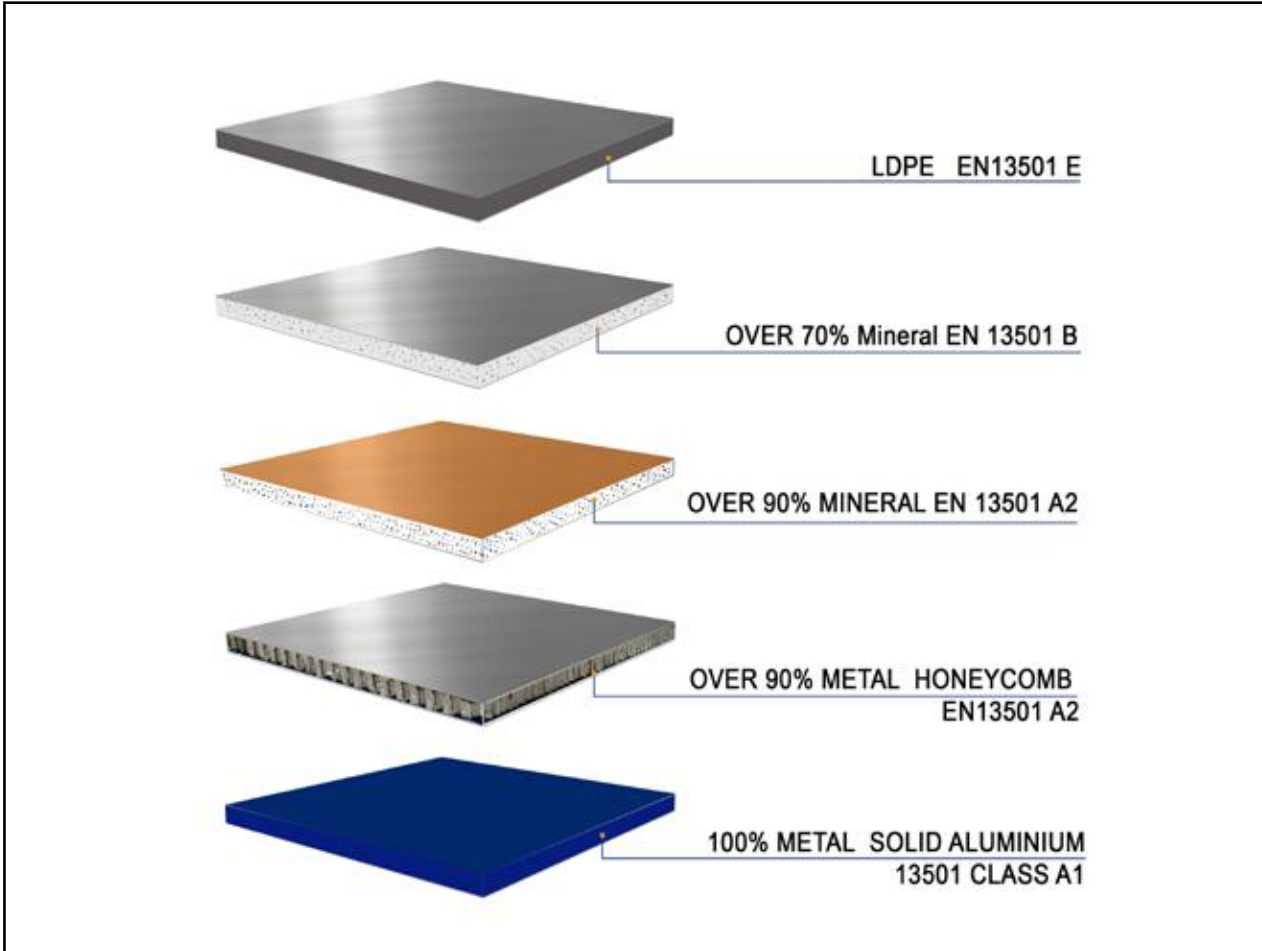


Alubond U.S.A FR-A2's formulated CORE exposed to a temperature over 332°C


Alubond U.S.A FR-A2 - Endothermic Reaction



Different Types of Cores



PERFORMANCE	LDPE EN 13501 E	OVER 70% MINERAL EN 13501 B	OVER 90% MINERAL EN 13501 A2	OVER 90% METAL HONEYCOMB EN13501 A2	100% METAL SOLID ALUMINIUM 13501 CLASS A1
Combustibility Rating	Combustible	Low Combustibility	Non Combustible	Non Combustible	Non Combustible
NFPA 285/ BS 8414 Pass	No	Yes	Yes	Yes	Yes
ASTM E 84 Core Burning Class A Rating	No	Yes	Yes	Yes	Yes
ASTM D 1929 Ignition	No	Yes	Yes	Yes	Yes
EN 13501	E	B	A2	A2	A1
Direct Flame Over 1000°C Fire Penetration	20 Seconds	18 Minutes	30+ Minutes	55 Seconds	30 Seconds

 (A UAE CIVIL DEFENSE APPROVED PRODUCT*)				EBI/TDS/001 Rev 1 date :07.05.2017		
				Alloy Series: 1). 1100 H16 /H18 2) 3105/3003 H16 3) 5005 H16/24		
S.NO	PROPERTIES	STANDARD	UNIT/REF	3mm	4mm *	6mm
PRINCIPAL PROPERTIES						
1	Skin thickness	....	mm	0.5mm		
2	Weight	....	±0.5 Kg/m ²	6.2	8.0	11.6
3	Standard Width	.....	mm	1000, 1250, 1500		
PRODUCT TOLERANCES						
4	Width	.....	mm	±2		
5	Length	....	mm	±3		
6	Thickness	.....	mm	±0.2		± 0.3
7	Squareness	.....	mm	Max 5		
8	Bow	.....	%	±0.5		
MECHANICAL PROPERTIES						
9	Tensile strength	ASTM E8	MPa or N/mm ²	56	43	25
10	0.2% proof stress	ASTM E8	MPa or N/mm ²	47	41	22
11	Elongation	ASTM E8	%.	4.8	3.8	2
12	Flexural elasticity, E	ASTM C 393	GPa or kN/mm ²	45	38.5	26
13	Flexural rigidity, E×I,	ASTM C 393	kNmm ² /mm	110	203	395
ACOUSTICAL PROPERTIES						
14	Sound Transmission Loss	ASTM E413	dB	26	27	
15	Sound absorption factor	ISO 354	..	0.05		
THERMAL PREPORTIES						
16	Deflection Temperature	ASTM D 648	°C	110		
17	Thermal resistance R	ASTM C518	M ² k/W	0.031		
18	Temperature resistance		°C	-50....+80		
19	Linear Thermal Expansion	EN 1999 1-1	mm/m @100°C	2.4		
CORE FIRE PERFORMANCES						
20	Core	.....	.....	Excellent performance Non Combustible Mineral filled core		
21	Reaction to fire	EN 13501-1	TBW 0300154 & TBW 0300126.2	A2, S1, d0		
22	Surface Burning Charecterstics	ASTM E84		Class A/ Class 1		
23	Self Ignition Temp	ASTM D 1929		Not Less than 343t8C		
24	Exterior Non Load Bearing Wall Assembly	NFPA 285	TBW 0300155& TBW 0300156 & TBW 0300137.2	.....	Passed Various Assembly Tests(Listings Reference: MH-ATD-001 & MH-AED 003&MH-AED-004 Rev 0)	
25	Fire Rating	ASTM E119	TBW0200165	....	3 Hrs(Listing Reference :MH -AED-3HR-006 Rev0)	
COATING PERFORMANCES						
26	No. of Coats	AAMA 2605-13	.....	Standard 2 Coat / 3 Coat/ 4 Coat		
27	Type/finish		.....	Standard PVDF / FEVE / HDPE		
28	Gloss @60°C		%	20-40 / 20-80		
29	Adhesion (Dry Condition )		....	No. Adhesion loss		
30	Pencil hardness		.....	min HB		



MEDICLINIC PARKVIEW HOSPITAL, DUBAI, UAE
Architect: **Stantec International**



ELITE-10, DUBAI, UAE
Consultant: **Barjeel Engineering Consultant**



PROJECT REFERENCES
ALUBOND U.S.A FR-A2

Alubond A2
U.S.A
NON COMBUSTIBLE COMPOSITE PANELS



RESIDENTIAL BUILDING, AL BARSHA, DUBAI, UAE
Contractor: **Modern Building Contracting Co. LLC**



WORLD TRADE CENTRE L.L.C., DUBAI, UAE
Consultant: **WSP Middle East Ltd & Hopkins Architects Dubai Ltd.**
Contractor: **Al Futtaim Carillion LLC**

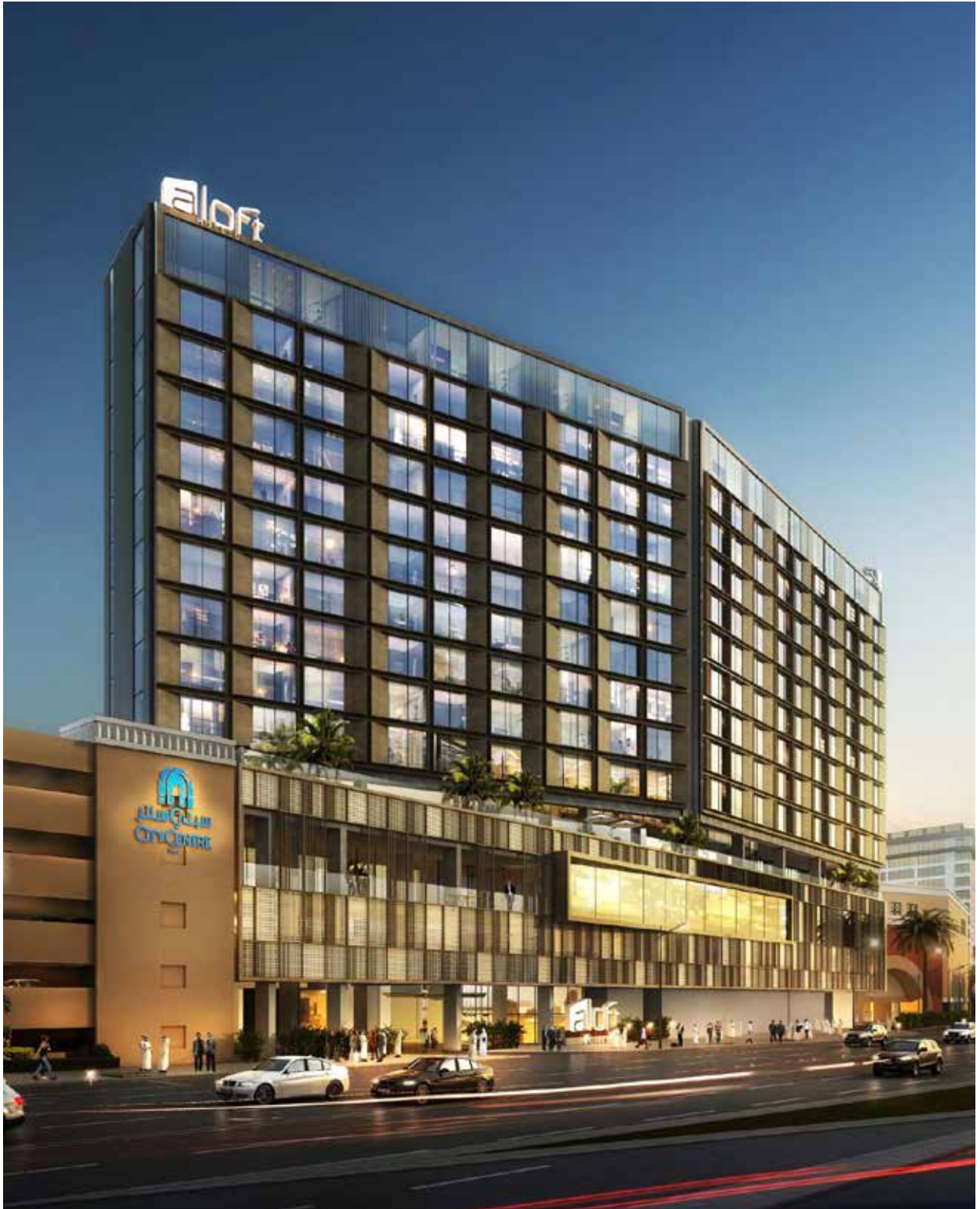


PROJECT REFERENCES
ALUBOND U.S.A FR-A2

Alubond A2
U.S.A
NON COMBUSTIBLE COMPOSITE PANELS



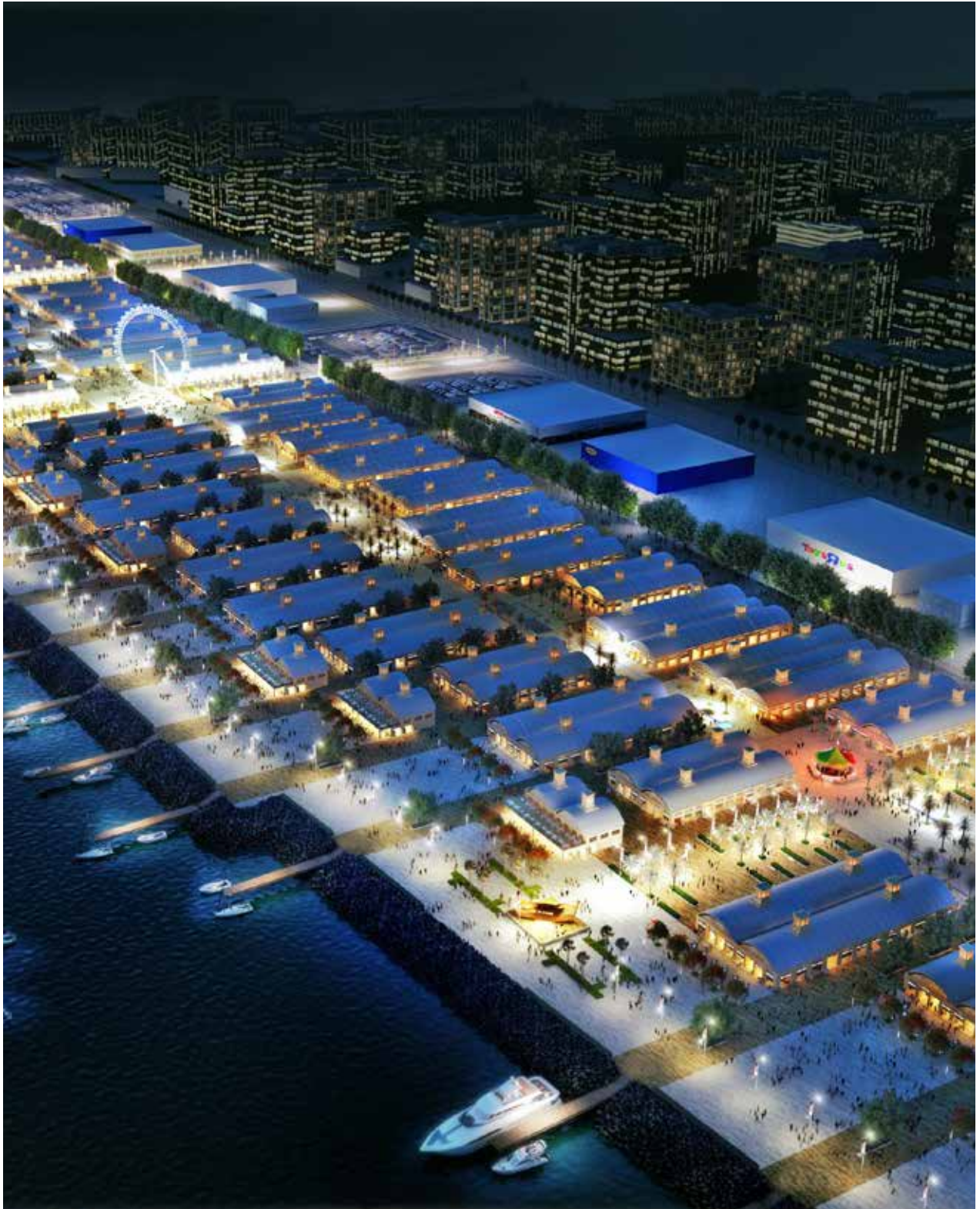
MANARA TOWER, DUBAI, UAE



ALOFT CITY CENTRE, DEIRA, DUBAI, UAE
Client: **Majid Al Futtaim**



TIARA UNITED TOWERS, BUSINESS BAY, DUBAI, UAE
Client: **Zabeel Investments**



NIGHT MARKET & BOARDWALK, DEIRA, DUBAI, UAE

Client : **Nakheel PJSC**

Consultant: **AE7**



RESIDENTIAL BUILDING, NAD AL HAMAR, DUBAI, UAE
Contractor: **Naresco Contracting LLC**



BAHWAN TOWER DOWNTOWN, DUBAI, UAE
Consultant: **Arif & Bintok Engineering Consultants**



PROJECT REFERENCES
ALUBOND U.S.A FR-A2

Alubond A2
U.S.A
NON COMBUSTIBLE COMPOSITE PANELS



ISUZU TRAINING CENTER FACILITY JAFZA, DUBAI, UAE
Consultant: **AWAJ Engineering Consultants**

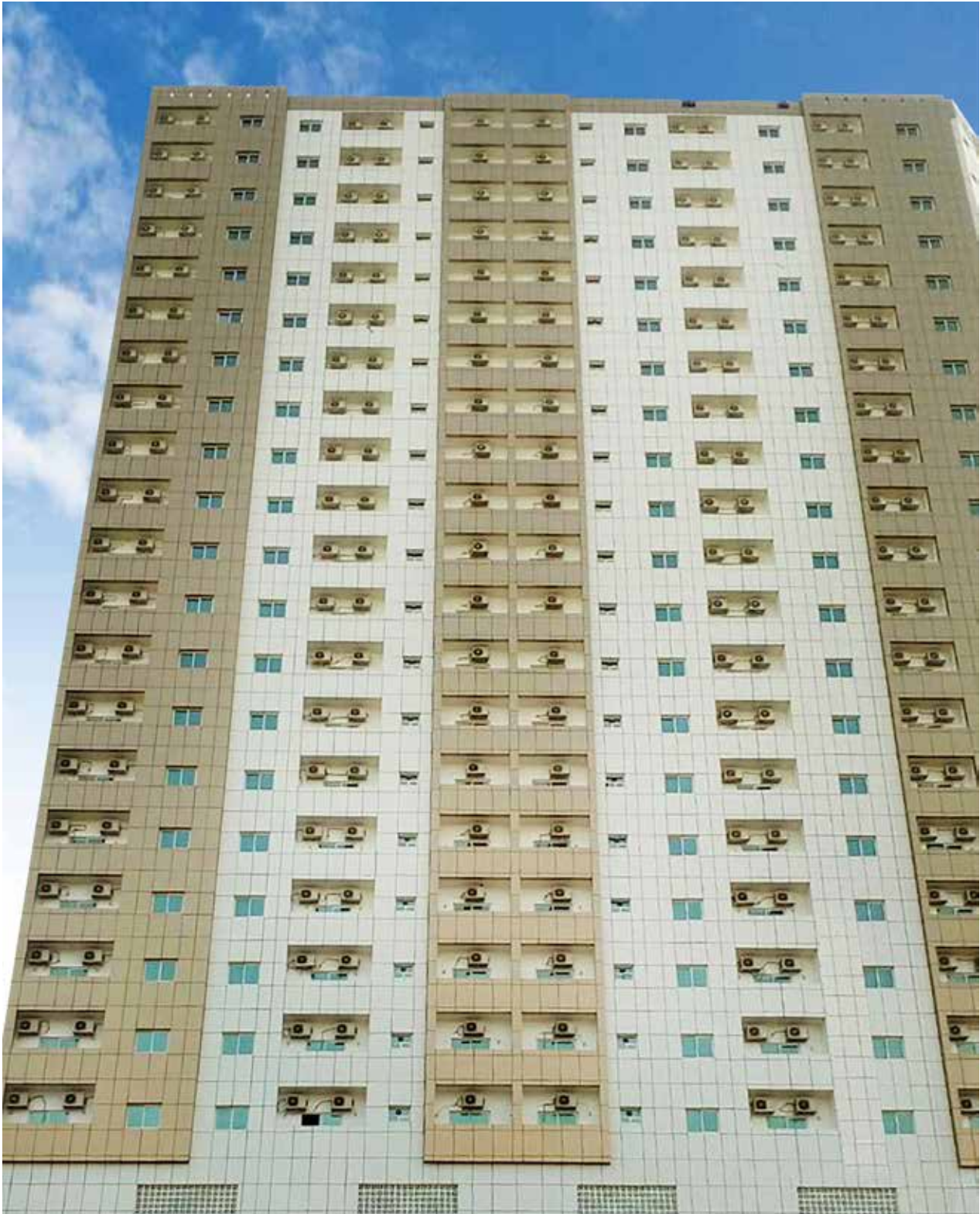


RESIDENTIAL BUILDING, AL RAWADA, AJMAN, UAE
Consultant: **Nakheel Engineering Consultant**
Contractor: **INT. Contracting**



PROJECT REFERENCES
ALUBOND U.S.A FR-A2

Alubond A2
U.S.A
NON COMBUSTIBLE COMPOSITE PANELS



AJMAN HADEEF TOWER, AJMAN, UAE



RAWDHAT RESIDENTIAL BUILDING, ABU DHABI, UAE

Client : **Emirates Land Group**

Engineering : **Sinergo**

Consultant : **JLA International**



AL WAFRA, AL REEM ISLAND, ABU DHABI, UAE

Consultant: **KEO International**

Contractor: **SEIDCO General Contracting**



FOLKART TOWERS, IZMIR
Architect: **Ahmet Yağcıođlu**



ARISTA LIFE, ISTANBUL
Architect: **Murat Kader**



GOZTEPE HILTON HOTEL, ISTANBUL
Architect: **Gökhan Tunç**



PROJECT REFERENCES
ALUBOND U.S.A FR-A2

Alubond A2
U.S.A
NON COMBUSTIBLE COMPOSITE PANELS



BUSINESS EDUCATION ACCELERATION CENTER
EDUCATIONAL BUILDING, OLOMOUC, CZECH REPUBLIC
Architect: **Ing. Arch. Ladislav Opletal**



CONTINENTAL AUTOMOTIVE, ROMANIA
Architect: **Adrian Corduneanu**



DUMANKAYA MİKS, ISTANBUL
Architect: **Tago Architects**

РОССИЙСКАЯ ФЕДЕРАЦИЯ
СЕРТИФИКАТ СООТВЕТСТВИЯ
(обязательная сертификация)

№ C-RS.ПБ58.В.00550 ТР 1372258
(номер сертификата соответствия) (учетный номер бланка)

ЗАЯВИТЕЛЬ Alubond Europe d.o.o. Адрес: Nemanjina No. 130, 26320 Banatski Karlovac, Serbia,
(наименование и место нахождения заявителя) Сербия. Телефон ++ 381 13 651 041 (42, 43), факс ++ 381 13 652 852.

ИЗГОТОВИТЕЛЬ Alubond Europe d.o.o. Адрес: Nemanjina No. 130, 26320 Banatski Karlovac, Serbia,
(наименование и место нахождения изготовителя продукции) Сербия. Телефон ++ 381 13 651 041 (42, 43), факс ++ 381 13 652 852.

ОРГАН ПО СЕРТИФИКАЦИИ ОС "Альфа "Пожарная Безопасность" ООО "Альфа "Пожарная
(наименование и местонахождение органа по сертификации. Безопасность". Россия, 301760 Тульская область, г. Донской, ул. Горноспасательная, д. 1А, тел./факс: +7 (495)648-78-98. ОГРН: 1107154016166. Аттестат рег. № ТРПБ.RU.ПБ58 выдан 28.12.2010г. МЧС России.

ПОДТВЕРЖДАЕТ, ЧТО ПРОДУКЦИЯ Огнестойкие алюминиевые композитные панели типа ALUBOND U.S.A FR A2, торговой марки ALUBOND
(информация об объекте сертификации, U.S.A (толщиной от 3 мм до 6 мм), с толщиной позволяющая идентифицировать объект алюминиевых покрывающих слоев от 0,3 мм до 0,5 мм, с огнестойким минеральным наполнителем, выпускаемые по GBT 17748-2008 и EN 13501-1. Серийный выпуск.

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ ТЕХНИЧЕСКОГО РЕГЛАМЕНТА (ТЕХНИЧЕСКИХ РЕГЛАМЕНТОВ) Технический регламент о требованиях пожарной безопасности (Федеральный закон от 22.07.2008 N 123-ФЗ)
(наименование технического регламента (технических регламентов), на соответствие требованиям которого (которых) проводилась сертификация) Группа горючести – Г1 (слабо горючие) по ГОСТ 30244-94; группа воспламеняемости – В1 (трудновоспламеняемые) по ГОСТ 30402-96; группа дымообразующей способности – Д1 (с малой дымообразующей способностью) по ГОСТ 12.1.044-89, п. 4.18; группа по токсичности продуктов горения – Т1 (малоопасные) по ГОСТ 12.1.044-89, п. 4.20
Класс пожарной опасности строительных материалов – КМ1

ПРОВЕДЕННЫЕ ИССЛЕДОВАНИЯ (ИСПЫТАНИЯ) И ИЗМЕРЕНИЯ Протокол сертификационных испытаний № 953-С/ТР от 26.12.2012 г. ИЛ "Альфа "Пожарная Безопасность" ООО "Альфа "Пожарная Безопасность" № ТРПБ.RU.ИН41 от 28.12.2010 г.

ПРЕДСТАВЛЕННЫЕ ДОКУМЕНТЫ Сертификат Системы Менеджмента Качества ГОСТ Р ИСО 9001-2008 № СДСГК RU.OC05.K01473 от 22.11.2012 г.
(документы, представленные заявителем в орган по сертификации в качестве доказательства соответствия продукции требованиям технического регламента (технических регламентов))

СРОК ДЕЙСТВИЯ СЕРТИФИКАТА СООТВЕТСТВИЯ с 26.12.2012 по 25.12.2015

Руководитель (заместитель руководителя) органа по сертификации А.А.Гомзов
подпись, инициалы, фамилия

Эксперт (эксперты) А.П.Губенко
подпись, инициалы, фамилия





**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**



In accordance with UKAS accreditation to ISO 17065
Certification is Hereby Granted

to

Eurocon Building Industries FZE

(a subsidiary of Mulk Holdings F.Z.C Group, Sharjah UAE)

P.O Box 42642, Hamriyah Free Zone, Sharjah, United Arab Emirates

for

“Alubond® U.S.A. FR-A2”

4.0 mm thick Aluminium Composite Material

(ASTM E84-16, ASTM D1929-16 and EN 13501-1:2007+A1:2010)

which, subject to limitations described on the following pages and continued listing on www.tbwcert.com, complies with Product Certification Scheme *SD03 Exterior Wall Assemblies, Cladding, Curtain Walls, Building Materials, Products and Assemblies*

In witness whereof, this Certificate is issued this 16th day of October 2017



Thomas F. Bell-Wright
Certification Director

Nick Purcell
Certification Manager

Certificate Number: TBW0300154.1

Initial registration: March 15, 2017

Issued: October 16, 2017

Expiration: March 14, 2020

File Name: RA011 Eurocon FR-A2 (UAE)_R1_final

Save Date: 10/15/17 8:06 AM

This certificate and schedules are held in force by regular Factory Inspections by Thomas Bell-Wright International Consultants (TBWIC). Refer to www.tbwcert.com or contact TBWIC Fire Compliance Division to validate the current status of Certification. This certificate remains the property of THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS, PO BOX 26385, DUBAI, UAE.

Tel: +971 4 333 2692, Email: certification@bell-wright.com, Web: www.bell-wright.com F 19 Scheme Certificate Issue 5, Dec 2016

This document must not be reproduced, except in its entirety and with the express permission of Thomas Bell-Wright International Consultants



**THOMAS BELL-WRIGHT LISTINGS: ASTM E84 - Class A,
ASTM D1929 - Self ignition more than 450°C,
EN 13501-1 : 2007-A2,S1,d0**



**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**



In accordance with UKAS accreditation to ISO 17065
Certification is Hereby Granted

to

Eurocon Building Industries FZE

(a subsidiary of Mulk Holdings F.Z.C Group, Sharjah UAE)

PO Box, 42642, Hamriya Freezone, Sharjah UAE

for

"Alubond U.S.A. FR-A2"

Aluminium Composite Material

Non-Load-Bearing Exterior Wall Cladding System

Test Method: NFPA 285-2012 Edition

which, subject to limitations described on the following pages and
continued listing on www.tbwcert.com, complies with Product Certification
*Scheme SD03 Exterior Wall Assemblies, Cladding, Curtain Walls, Building
Materials, Products, and Assemblies*

In witness whereof this Certificate is issued this 15th day of March 2017



Thomas F. Bell-Wright
Certification Director

Nick Purcell
Certification Manager

Certificate Number: TBW0300155

Initial registration: March 15, 2017

Issued: March 15, 2017

Expiration: March 14, 2020

File Name: RA011 Eurocon FR-A2 (UAE) NFPA 285-MechSys

Save Date: 3/15/17 2:27 PM

This certificate and schedules are held in force by regular Factory Inspections by Thomas Bell-Wright International Consultants (TBWIC). Refer to www.tbwcert.com or contact TBWIC Fire Compliance Division to validate the current status of Certification. This certificate remains the property of THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS, PO BOX 26385, DUBAI, UAE.

Tel: +971 4 333 2692, Email: fire@bell-wright.com, Web: www.bell-wright.com **F 19 Scheme Certificate Issue 5, Dec 2016**

This document must not be reproduced, except in its entirety and with the express permission of Thomas Bell-Wright International Consultants



THOMAS BELL-WRIGHT LISTINGS: NFPA 285 Passed

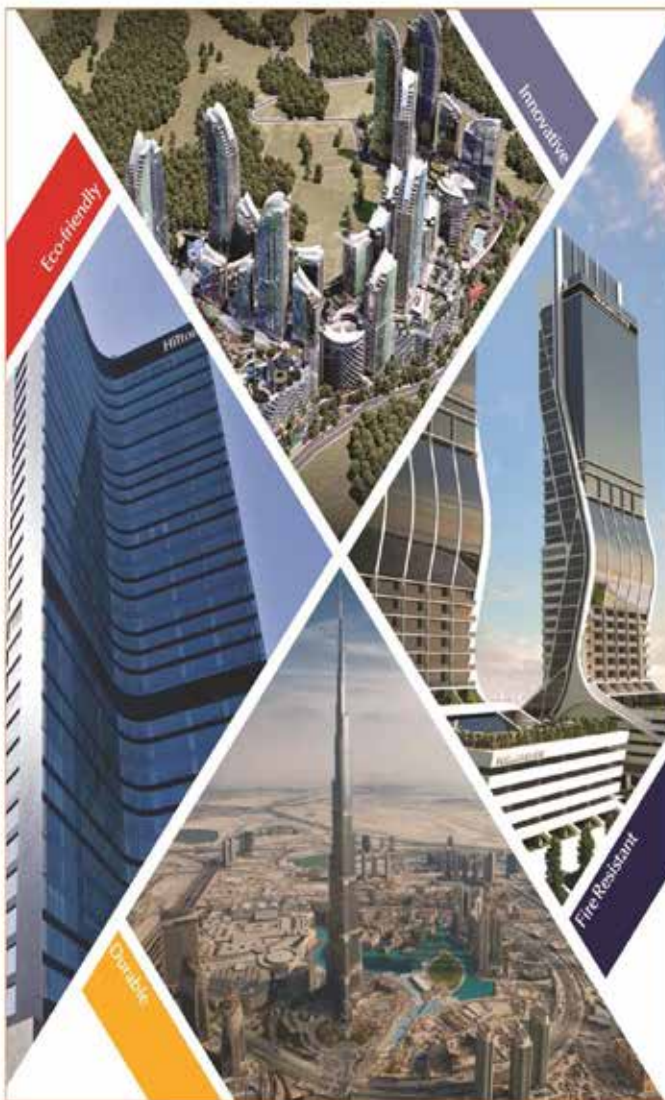
**ENVIRONMENTAL
PRODUCT DECLARATION
ALUBOND U.S.A FR-A2**

Alubond A2
U.S.A
NON COMBUSTIBLE COMPOSITE PANELS

ENVIRONMENTAL PRODUCT DECLARATION

ALUBOND U.S.A.® FIRE RATED A2

FIRE RATED ALUMINUM COMPOSITE PANELS
ALUBOND TURKEY



World's Largest Aluminum Composite Panel brand



Worldwide presence of more than 20 years, cooperation on numerous projects all over the globe, with an annual production capacity of more than 25 million m² located in 8 countries makes Alubond U.S.A.® the World's Largest Metal Composite Brand.

Great potential of shaping, variety of finishes and highest fire resistant products, wide range of colors and possibilities of individualization makes Alubond U.S.A.® an architect's dream material. The willingness to support sustainability and create eco-friendly products leads us toward constant improvements and innovations. Our 100% recyclable panels meet LEED certification requirements. With special Alubond Green Series® and our environment-conscious production at all units, we are committed to keep on contributing to efforts to make the World more beautiful place.





EPD Transparency Summary

COMPANY NAME: Alubond U.S.A.®

PRODUCT TYPE: Cladding System

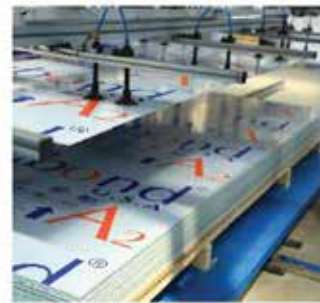
PRODUCT NAME: Fire Rated A2

PRODUCT DEFINITION: Fire Resistant Aluminum Composite Panel

PRODUCT CATEGORY RULE (PCR): UL Product Category Rule (PCR) for preparing an Environmental Product Declaration (EPD) for Product Group/Cladding System Products, 2015

CERTIFICATION PERIOD: January 12, 2016 - January 12, 2021

DECLARATION NUMBER: 4786995827.101.1



LIFECYCLE IMPACT CATEGORIES

The environmental impacts listed below were assessed throughout the product's lifecycle – including raw material extraction, transportation, manufacturing, packaging, use, and disposal at end of life.

	ATMOSPHERE			WATER		EARTH	
	Global Warming Potential refers to long-term changes in global weather patterns – including temperature and precipitation – that are caused by increased concentrations of greenhouse gases in the atmosphere.	Ozone Depletion Potential is the destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation that's harmful to life, caused by human-made air pollution.	Photochemical Ozone Creation Potential happens when sunlight reacts with hydrocarbons, nitrogen oxides, and volatile organic compounds to produce a type of air pollution known as smog.	Acidification Potential is the result of human-made emissions and refers to the decrease in pH and increase in acidity of oceans, lakes, rivers, and streams – a phenomenon that pollutes groundwater and harms aquatic life.	Eutrophication Potential occurs when excessive nutrients, such as increased algae growth in lakes, blocking the underwater penetration of sunlight needed to produce oxygen and resulting in the loss of aquatic life.	Depletion of Abiotic Resources (Elements) refers to the reduction of available non-renewable resources, such as metals and gases, that are found on the periodic table of elements, due to human activity.	Depletion of Abiotic Resources (Fossil Fuels) refers to the decreasing availability of non-renewable carbon-based compounds, such as oil and coal, due to human activity.
GWL TRACI	639.91 kg CO2 eq.	8.66E-08 kg CFC-11 eq.	53.47 kg O3 eq.	3.58 kg SO2 eq.	0.13 kg N eq.		
CML	640 kg CO2 eq.	8.04E-8 kg R11 eq.	0.25 kg Ethene eq.	3.5 kg SO2 eq.	0.3 kg Phosphate eq.	5.55E-4 kg Sb eq.	6320 MJ

FUNCTIONAL UNIT: The Functional Unit is 100 sq ft of fire-rated aluminum composite panel produced in ALUBOND U.S.A. manufacturing plant located in Turkey



Environment

ENVIRONMENTAL PRODUCT DECLARATION ALUBOND U.S.A FR-A2



Environment

MATERIAL CONTENT

Material content measured to 1%

COMPONENT	MATERIAL	AVAILABILITY	MASS%	ORIGIN
Top Sheet & Bottom Sheet	Aluminum	Metal Production	30	Turkey
Core Material	Fire Rated Mineral Core	Mineral	68	Dubai
Top Sheet Coating	PVDF	Polyester Resins	1	Turkey
Bottom Sheet Coating	PE	Polyester Resins	1	Turkey

ADDITIONAL ENVIRONMENTAL INFORMATION

PRE-CONSUMER RECYCLED CONTENT	%
POST-CONSUMER RECYCLED CONTENT	%
VOC EMISSIONS	
WATER CONSUMPTION	2.30E+03 m3

RECYCLING OR REUSE

All Alubond U.S.A.® FR-A2 composite panel waste generated during manufacturing and at the end-of-life are resulting as recyclable or reusable materials. The aluminum scrap occurs during sizing activities are collected and directed to regional recycling services. The fire-rated core leaving the manufacturing system as rate of waste can be taken into the manufacturing system to reuse for the same product productions.

ENERGY

RENEWABLE ENERGY	16.41 %	1.44E+03 MJ
NON-RENEWABLE ENERGY	83.59 %	7.34E+03 MJ

STANDARDS

-TS/EN ISO 9001:2008
-ME 5063
-ASTM E119
-TSEK 300

CERTIFICATIONS



MANUFACTURER CONTACT INFO

NAME	Alubond TURKEY | Aluminum Composite Panel
PHONE	+90 262 748 1420
EMAIL	info@alubond.com.tr
WEBSITE	www.alubond.com.tr

www.ul.com/environment | environment@ul.com

The information presented herein is a summary of content contained in the manufacturer's ISO 14025-compliant EPD certified by UL. Please visit www.ul.com/en/environment to download the full EPD. UL, the UL logo, and UL certification marks are trademarks of UL LLC. All other marks are the property of their respective owners.




FR Euroclass B

FIRE RETARDANT PANELS

TECHNICAL DATA SHEET

ALUBOND U.S.A FR EUROCLASS B



 (A UAE CIVIL DEFENSE APPROVED PRODUCT*)				EBI/TDS/002 Rev 0 date :07.05.2017		
				Alloy Series: 1). 1100 H16 /H18 2) 3105/3003 H16 3) 5005 H16/24		
S.NO	PROPERTIES	STANDARD	UNIT/REF	3mm	4mm*	6mm*
PRINCIPAL PROPERTIES						
1	Skin thickness	....	mm	0.5mm		
2	Weight	....	±0.5 Kg/m ²	6	7.5	10.5
3	Standard Width	....	mm	1000, 1250, 1500		
PRODUCT TOLERANCES						
4	Width	....	mm	±2		
5	Length	....	mm	±3		
6	Thickness	....	mm	±0.2		± 0.3
7	Squareness	....	mm	Max 5		
8	Bow	....	%	±0.5		
MECHANICAL PROPERTIES						
9	Tensile strength	ASTM E8	MPa or N/mm ²	60	45	28
10	0.2% proof stress	ASTM E8	MPa or N/mm ²	50	44	25
11	Elongation	ASTM E8	%.	6	5	2
12	Flexural elasticity, E	ASTM C 393	GPa or kN/mm ²	48	38	28
13	Flexural rigidity, E_xI_x	ASTM C 393	kNm ² /mm	70	135	345
ACOUSTICAL PROPERTIES						
14	Sound Transmission Loss	ASTM E413	dB	25	26	
15	Sound absorption factor	ISO 354	..	0.05		
THERMAL PREPORTIES						
16	Deflection Temprature	ASTM D 648	°C	115	116	108
17	Thermal resistance R	ASTM C518	M ² K/W	0.03		0.035
18	Temperature resistance		°C	-50....+80		
19	Linear Thermal Expansion	EN 1999 1-1	mm/m @100°C	2.4		
CORE FIRE PERFORMANCES						
20	Core	....	.....	Excellent performance fire Retardant Mineral filled core		
21	Reaction to fire	EN 13501-1	TBW 0300153 &TBW 0300116.2	B, S1, d0		
22	Surface Burning Charecterstics	ASTM E84		Class A/ Class 1		
23	Self Ignition Temp	ASTM D 1929		Not Less than 343 C		
24	Exterior Non Load Bearing Wall Assembly	NFPA 285	TBW 0300129.2 &TBW 0300138	Passed Various Assembly Tests (Listings : MH-AED-002 &MH-AED 005 Rev 0)		
25	Fire Rating	ASTM E119	01.12694.01.307	1 Hrs 42 Mins		
COATING PERFORMANCES						
26	No. of Coats	AAMA 2605-13	.....	Standard 2 Coat / 3 Coat/ 4 Coat		
27	Type/finish		.....	Standard PVDF / FEVE / HDPE		
28	Gloss @60°c		%	20-40 / 20-80		
29	Adhesion (Dry Condition)		....	No. Adhesion loss		
30	Pencil hardness		.....	min HB		

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



RIBBON, MOTOR CITY, DUBAI, UAE
Consultant: **Engineering Consulting Group**



GREEN PLANET, DUBAI, UAE
Consultant: **Rambool Middle East**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



ROVE HOTEL, DUBAI, UAE
Consultant: **Arch Group**



THE ATRIA TOWER BUSINESS BAY, DUBAI, UAE

Client : **Deyaar Development PJSC**, Consultant: **AK Design**
Contractor: **Al Rostamani Pegel**



MARSA ALSEEF (PHASE 4), DUBAI, UAE

Client : **Meraas Development**, Consultant: **WS Atkins & Partners Overseas**
Contractor: **Dutco Balfour Beatty**, Architect: **ATK Engineering Consultants**



AL JALILA CHILDREN'S SPECIALTY HOSPITAL, DUBAI, UAE

Client : **Dubai Health Authority (DHA)**

Consultant: **Studio Altieri Int'l. Consultant/Eng'r. Adnan Saffarini**

Contractor: **Al Futtaim Carillion**



W HOTEL, PALM JUMEIRAH, DUBAI, UAE

Client: **Nakheel**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



CITYWALK RESIDENTIAL BUILDINGS - PHASE 2, DUBAI, UAE

Client : **Meraas Development LLC**, Consultant: **Hyder Consulting (ME) Ltd.**
Contractor: **Al Shafar General Contracting**



PROPOSED COMMERCIAL & RESIDENTIAL BUILDING, AL BARSHA FIRST, DUBAI, UAE

Client : **Abdul Wahid Hassan Al Rostamani (AW Rostamani)**
Consultant: **Eng. Adnan Saffarini**, Contractor: **Al Arif Contracting**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



SIT TOWER, DUBAI SILICON OASIS, DUBAI, UAE
Contractor: **Beijing Emirates Intl. Construction Company.**
Consultant: **Eng. Adnan Saffarini**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



DOME TOWER-JUMEIRAH LAKES TOWERS JLT, DUBAI, UAE

Contractor: **Construction and Re-Construction Engineering Company.**

Consultant: **Qhc Architects & Engineers**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



NEW DEIRA FISH MARKET-MIXED USE, DUBAI, UAE
Contractor: **Bhatia General Contracting Company LLC**
Consultant: **Hyder Consulting Middle East Limited.**



BLUE WATERS, DUBAI, UAE
Client: **MEERAS**, Contractor: **AFC/HLG**,

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



TAMWEEL TOWER, DUBAI, UAE
Consultant: **ALEC**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



GERMAN SPORTS TOWER 1, DUBAI, UAE
Consultant: **Barajeel Engineering Consultants**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



RAYAN COMPLEX, AL ABBAR, AFTER SAHARA CENTER, SHARJAH, UAE

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



POST OFFICE TOWERS, ABU DHABI, UAE
Consultant: **Arch Group Engineers**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



AL SARAYA RESIDENTIAL TOWER, ABU DHABI, UAE

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



AL MAFRAQ HOSPITAL, ABU DHABI, UAE
Contractor: **Al Habtoor Leightoor Leighton Group**



PREMIER INN HOTEL, ABU DHABI AIRPORT, UAE
Consultant: **Dewan Architects & Engineers**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



ALOFT HOTEL, ABU DHABI, UAE
Consultant: **ARUP**

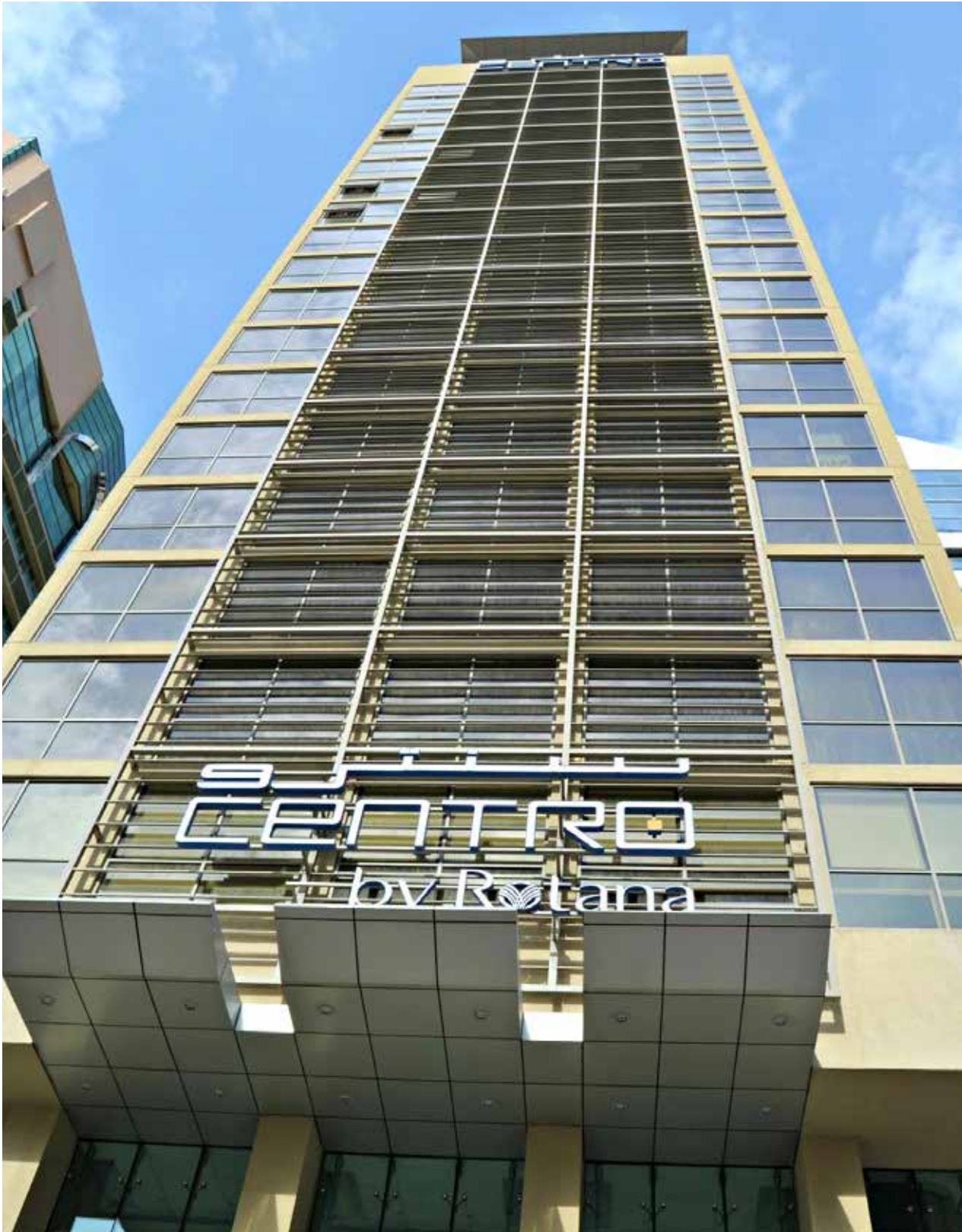


BAYNUNAH TOWER, ABU DHABI, UAE

Contractor: **Pivot Ben Cont W.I.I**

Consultant: **Arkan**, Subcontractor: **Arabian Ind Co**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



CENTRO HOTEL, ABU DHABI, UAE

Contractor : **Polensky & Zoellner**

Consultant : **Ga - Architects & Engineering**

Subcontractor: **Arabian Ind Co**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



SHEIKHA FATIMA COMMERCIAL BUILDING, ABU DHABI, UAE

Contractor : **Cgc**, Consultant: **Heberger**

Subcontractor: **Arabian Ind Co**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



SHOPPING MALL AT WORKERS VILLAGE, MUSSAFAH M24, ABUDHABI, UAE
Consultant : **Acg-Architectural Consulting Group**
Contractor : **International Construction Contracting Co. LLC**
Subcontractor: **Arabian Ind Co**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



AL SARAYA RESIDENTIAL TOWER, ABU DHABI, UAE

Contractor : **Arabian Construction Company**

Consultant : **Architect & Planning Group**

Subcontractor: **Arabian Ind Co./Reem Emirates**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



ARZANAH HOSPITAL, ABUDHABI, UAE

Client : **Mubadala**, Contractor: **Habtoor Leighton**
Subcontractor: **Folcra Beach**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



CITY OF LIGHTS, REEM ISLAND, ABU DHABI, UAE
Client: **Shaikh Tahnoun, Royal Group**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



FERRARI WORLD YAS MARINA, ABU DHABI, UAE
Contractor: **SIXCO**



MEENA TOWER, ABU DHABI, UAE
Consultant: **Dewan Architects & Engineers**

PROJECT REFERENCES
ALUBOND U.S.A FR EUROCLASS B



AMITY SCHOOL, ABU DHABI, UAE
Consultant: **Dewan Architects & Engineers**



LUSAIL SPORTS CLUB, QATAR
Consultant: **KEO International Consultant**



Certificate of Compliance



You have been awarded:

Intertek Warnock Hersey Mark for Building Panels

ASTM E84 (2014): NFPA 285 (2012): ASTM D1929 (2014)

Certificate number: WHI16 – 26553701

This is a certificate of conformity to certify that the bearer has successfully completed the requirements of the above scheme which include the testing of products, the initial assessment of their Factory Production Control and are subject to continuing annual assessments of their continued Factory Production Control compliance and testing of samples of products taken from production (as applicable to the scheme) and has been registered within the scheme for the products detailed in the accompanying schedule.

Organization:
Eurocon Building Industries FZE (Group of Mulk Holdings International)

P.O. Box 42642
 Hamriya Free zone - Sharjah, United Arab Emirates

Product: Eurocon - Alubond USA - FR Euroclass B Aluminium Composite Panel

SPEC ID 35247

For details related to results and allowable configurations, see Appendix A (page 2 of 2 of this certificate)

Certification body: Intertek Testing Services NA, Inc.
Initial registration: December 04, 2016
Date of expiry: December 03, 2021
Issue status: 3

Dustin Behling		12/04/2016
Certification Coordination Manager	Signature	Date
Name	Signature	Date

www.intertek.com

Registered address:
 Intertek Testing Services NA, Inc. 545 E. Algonquin Rd., Arlington Heights, IL 60005 USA

The certificate and schedule are held in force by regular annual surveillance visits by Intertek Testing & Certification Ltd and the reader or user should contact Intertek to validate its status. This certificate remains the property of Intertek Testing & Certification Ltd and must be returned to them on demand. This Certificate is for the exclusive use of Intertek's Client and is provided pursuant to the Certification agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this certificate. Only the Client is authorized to permit copying or distribution of this certificate and then only in its entirety. Use of Intertek's Certification mark is restricted to the conditions laid out in the agreement. Any further use of the Intertek name for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. Initial Factory Assessments and Follow up Services are for the purpose of assuring appropriate usage of the Certification mark in accordance with the agreement, they are not for the purposes of production quality control and do not relieve the Client of their obligations in this respect.

Intertek LISTINGS: NFPA 285 - Passed, ASTM E84 - Class A, ASTM D1929 - Self ignition more than 450°C

Alubond Europe d.o.o.

Nemanjina 130
26320 Banatski Karlovac
Serbia
Tel: +381 13 652 852 Fax: +381 13 652 852
e-mail: info@alubondeurope.com
website: www.alubond.com



Agreement Certificate
13/5004
Product Sheet 2

ALUBOND CLADDING

ALUBOND U.S.A FR-B PVDF COATED COMPOSITE ALUMINIUM CLADDING SHEET

This Agreement Certificate Product Sheet⁽¹⁾ relates to Alubond U.S.A FR-B PVDF Coated Composite Aluminium Cladding Sheet, for use as external cladding or internal lining.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Strength and stability — the product can resist the surface loadings normally encountered by claddings or linings in the UK (see section 6).

Resistance to mechanical damage — the product has satisfactory resistance to mechanical damage (see section 8).

Properties in relation to fire — the product is not classified as 'non-combustible', but can achieve a B-s1, d0 classification to BS EN 13501-1 : 2007 (see section 10).

Weatherightness — the product has adequate resistance to the passage of moisture (see section 12).

Durability — under normal conditions the product will perform effectively as an external cladding with an ultimate life of at least 30 years. The coating will retain a good appearance for at least 20 years in non-corrosive environments and at least 15 years in severe industrial environments (see section 14).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue:	Simon Wroe	Claire Curtis-Thomas
Originally certificated on	Head of Approvals — Materials	Chief Executive

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

THIS IS NOT A VALID AGRÉMENT CERTIFICATE. THE BBA ACCEPTS NO RESPONSIBILITY NOR LIABILITY FOR ANY CONCLUSIONS DRAWN FROM, NOR ANY DECISIONS BASED ON, THIS DOCUMENT.




CERTIFICATE OF APPROVAL
No CF 5061

This is to certify that, in accordance with
 TS00 General Requirements for Certification of Fire Protection Products
 The undermentioned products of

EUROCON BUILDING INDUSTRIES (MULK HOLDINGS FZC)

P.B. 42642 Hamriyah Free Zone Sharjah UAE
 Tel: +97165262202 Fax: +97165262203

Have been assessed against the requirements of the Technical Schedule(s)
 denoted below and are approved for use subject to the conditions
 appended hereto:

CERTIFIED PRODUCT	TECHNICAL SCHEDULE
Alubond usa FR Euroclass B (4mm and 6mm products)	TS19 Class 0 / Class 1 (BS)
See annex 1 for further product information	

Signed and sealed for and on behalf of Exova (UK) Limited trading as Warrington Certification



Paul Duggan
 Certification Manager

Issued: 1st March 2012
 Reissued: 26th September 2017
 Valid to: 25th September 2022

Page 1 of 6





This certificate is the property of Exova (UK) Limited trading as Warrington Certification
 Reg. Office: Exova (UK) Limited, Lochend Industrial Estate, Newbridge, Midlothian EH28 8PL United Kingdom. Co. Reg. No. SC070429

EXOVA LISTING: BS 476 Part 6-class 0, Part 7 - Class 1

CERTIFICATION ALUBOND U.S.A FR EUROCLASS B



إدارة السلامة الوقائية - قسم إمتحان الشركات

ترخيص وكيل - بإمارة دبي

رقم الترخيص: K25
سنة الترخيص: 2018
عدد التراخيص: (4 - 1)

تم اصدار الترخيص استناداً إلى القرار الوزاري رقم (24) لسنة 2012 ، في شأن تنظيم خدمات الدفاع المدني

1084359	رقم السجل	660724	رقم الرخصة	يوروكون للتجارة	اسم الشركة
	الإمارات		الجنسية	فاطمة اسماعيل احمد الحاج علي الفارمزي	اسم صاحب الترخيص
	***		الجنسية	***	أطراف الرخصة
49990	ص.ب:	06-5262203	رقم الفاكس	06-5262202	رقم الهاتف
مكتب رقم 706 احمد محمد الكاظم - بر دبي - منقول رقم القطعة 127-975					عنوان الشركة
ismail@mulkholdings.com					الموقع / البريد الالكتروني
2019/02/14	تاريخ الانتهاء	2018/02/11	تاريخ الإصدار	2014/04/03	تأسست بتاريخ
8					عدد المعدات والأجهزة المعتمدة
عدد المهندسين المعتمدين					0

يعتمد/عن مدير الإدارة العامة للدفاع المدني/دبي

www.dcd.gov.ae

للمطوارئ
Emergency
997

أن تكون دولة الإمارات العربية المتحدة من أفضل دول العالم في تحقيق الأمان والسلامة

Dubai Civil Defense Approval

حكومة دبي
GOVERNMENT OF DUBAI

CERTIFICATE OF PRODUCT CONFORMITY

Dubai Central Laboratory Department (DCLD) of Dubai Municipality,
hereby attests that the product(s)

Alubond USA – FR Euroclass B ALUMINIUM COMPOSITE PANEL 4 mm
Alubond USA – FR Euroclass B ALUMINIUM COMPOSITE PANEL 6 mm

(Details as per the attached Scope of Certification)
manufactured by:
EUROCON BUILDING INDUSTRIES-FZE
HAMRIYA FREE ZONE – SHARJAH – UAE

have been assessed in accordance with DCLD Document Ref. No. RD-DP21-2001 (IC) "General Rules for DM third party product certification system through factory assessment" and TAR 122, and were found in conformity with the specification:

Accordingly, DCLD hereby authorizes the above manufacturer
to affix the DCL Product Conformity Mark to the above-mentioned product(s).

for / ENGR. AMIN AHMED AMIN
Director, Dubai Central Laboratory Department
Dubai Municipality

Verify:

Certificate No: TAC-122
Valid Until: 07 July 2018

Current Issue Date: 08 July 2017
Original Issue Date: 08 July 2012

The attached Scope of Certification bearing the same Certificate No. forms an integral part of this Certificate.
This Certificate is an electronic document, subject to the Terms and Conditions of the Product Certification System and shall not be reproduced except in full.

F-IC-2031 REV 11

Dubai Central Laboratory Certification of Approval

CERTIFICATION
ALUBOND U.S.A FR EUROCLASS B



**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**



In accordance with UKAS accreditation to ISO 17065
Certification is Hereby Granted

to

Eurocon Building Industries FZE
(a subsidiary of Mulk Holdings F.Z.C Group, Sharjah UAE)
P.O Box 42642
Hamriyah Free Zone, Sharjah, U.A.E (United Arab Emirates)

for

"Alubond® USA FR-Euro Class B"
4-mm thick Aluminum Composite Material

which, subject to limitations described on the following pages and
continued listing on www.tbwcert.com, complies with Product Certification
Scheme SD03 Exterior Wall Assemblies, Cladding, Curtain Walls, Building
Materials, Products and Assemblies

In witness whereof this Certificate is issued this 27th day of February 2017



Thomas F. Bell-Wright
Certification Director

Nick J. Purcell
Certification Manager

Certificate Number: TBW0300153

Initial registration: February 27, 2017
File Name: QL115 Eurocon Building Industries FR Euroclass B

Issued: February 27, 2017

Expiration: February 26, 2020
Save Date: 27/02/17 8:54 AM

This certificate and schedules are held in force by regular Factory Inspections by Thomas Bell-Wright International Consultants (TBWIC). Refer to www.tbwcert.com or contact TBWIC Fire Compliance Division to validate the current status of Certification. This certificate remains the property of THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS, PO BOX 26385, DUBAI, UAE.

Tel: +971 4 821 5777, Email: certification@bell-wright.com, Web: www.bell-wright.com F 19 Scheme Certificate Issue 5, Dec 2016

This document must not be reproduced, except in its entirety and with the express permission of Thomas Bell-Wright International Consultants.



**THOMAS BELL WRIGHT LISTINGS: ASTM E 84(CLASS A),
ASTM D 1929(Self Ignition More than 450°C),
EN 13501-1:2007(Class B, S1,d0)**



**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**
In accordance with UKAS accreditation to ISO 17065
Certification is Hereby Granted

to

Eurocon Building Industries FZÆ
(a subsidiary of Mulk Holdings Group, Sharjah UAE)
PO Box 42642, Hamriyah Free Zone, Sharjah UAE

for

"Alubond® U.S.A. FR-Euroclass B"
4mm thick Aluminium Composite Material
Non-Load-Bearing Exterior Wall Cladding System
Test Method: NFPA 285-2012 Edition
(System Designation: A221H61-4)

which, subject to limitations described on the following pages and continued listing on www.tbwcert.com, complies with Product Certification Scheme *SD03 Exterior Wall Assemblies, Cladding, Curtain Walls, Building Materials, Products, and Assemblies*

In witness whereof this Certificate is issued this 31st day of October 2017




Thomas F. Bell-Wright
Certification Director


Nick Purcell
Certification Manager

Certificate number: TBW0300245

Initial registration: October 31, 2017
File Name: RD109 Eurocon Building Industries NFPA 285 4mm

Issued: October 31, 2017

Expiration: October 30, 2020
Save Date: 31/10/17 8:09 AM

This certificate and schedules are held in force by regular Factory inspections by Thomas Bell-Wright International Consultants (TBWIC). Refer to www.tbwcert.com or contact TBWIC Fire Compliance Division to validate the current status of Certification. This certificate remains the property of THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS, PO BOX 26385, DUBAI, UAE.

Tel: +971 4 821 5777, Email: certification@bell-wright.com, Web: www.bell-wright.com F 19 Scheme Certificate Issue 5, Dec 2016

This document must not be reproduced, except in its entirety and with the express permission of Thomas Bell-Wright International Consultants



THOMAS BELL WRIGHT LISTINGS: NFPA 285-Passed



FIRE PERFORMANCES

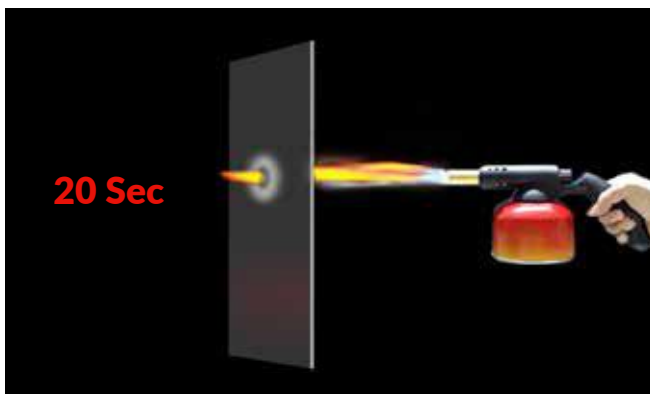


NON COMBUSTIBLE COMPOSITE PANELS

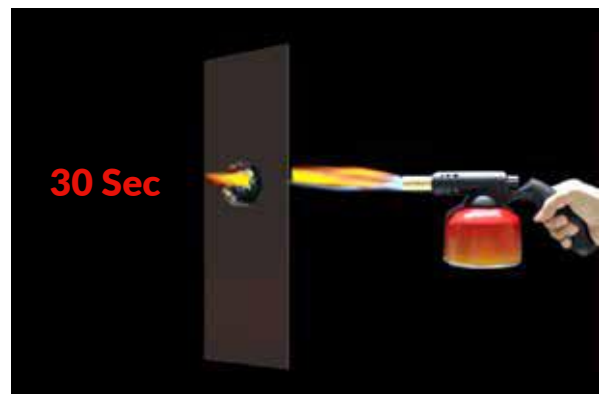
ALUMINIUM PANEL FIRE TEST

A panel burning test was conducted with direct flame at a temperature of 1500 °C on five different panels. The time the panels withstood fire was recorded as follows.

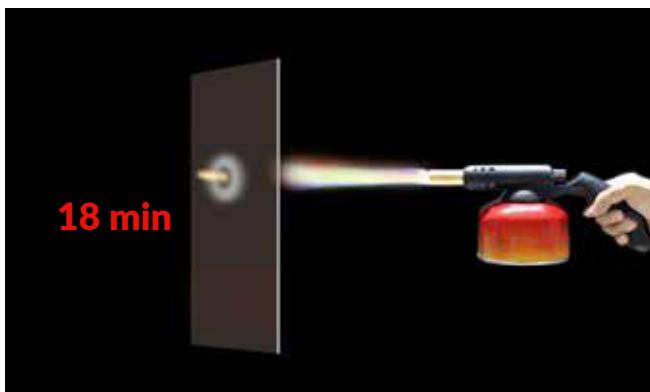
Panels	Time withstood by Panel
LDPE Core - ACP	20 Seconds
Solid Aluminium	30 Seconds
B Core -ACP	18 Minutes
A2 Core -ACP	30 Minutes
Honeycomb Core A2 -ACP	55 Seconds



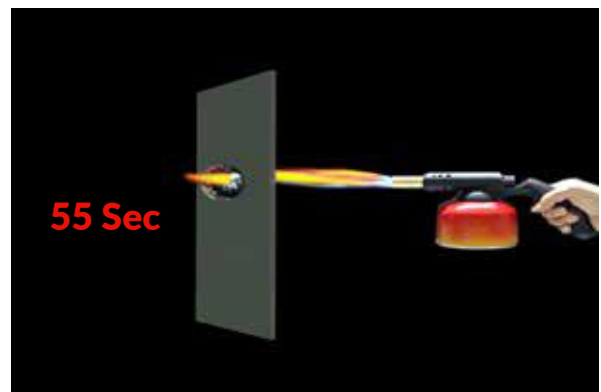
LDPE CORE - ALUMINIUM COMPOSITE PANEL FIRE PENETRATED IN 20 SECONDS



SOLID ALUMINIUM PANEL FIRE PENETRATED IN 30 SECONDS



B CORE - ACP PANEL - FIRE PENETRATED IN 18 MINUTES



HONEYCOMB PANEL - A2 - FIRE PENETRATED IN 2 MINUTES



A2 MINERAL CORE - ACP PANEL - FIRE PENETRATED IN 30 MINUTES

EN 13501 - PART 1 (NON COMBUSTIBILITY TEST)



A full classification serves as the standard of evaluation for the reaction to fire of construction and building materials.

EN13501- Part 1 test consists of EN 13823 and BS EN ISO 1716 tests.



EN 13501 - PART ONE : EN ISO 1182
(NON COMBUSTIBILITY TEST)



EN 13501 PART TWO : EN 13823 - SINGLE
BURNING ITEM IN A ROOM



EN 13501 PART THREE : SMALL
FLAME ATTACK



EN 13501 PART FOUR : EN ISO 9239-1 WIND
OPPOSED HORIZONTAL SPREAD OF FLAME



NFPA 285: 2012 STANDARD TEST ALUBOND U.S.A (FR-A2, FR-B) WITH ABTI SUBSTRUCTURE SYSTEM



Alubond (Alubond U.S.A A2 & Alubond U.S.A FR Euroclass B) undergoing the NFPA 285 Test in two International Third Party Laboratories Intek USA and Thomas Bell-Wright International Consultants, U.A.E



**NFPA 285 PANEL FACES
PRIOR TO FIRE TEST.**



**EXTERIOR FACE AT 25
MINUTES OF THE TEST.**



END OF THE TEST



**WALL CAVITY IN WALL ASSEMBLY
AFTER FIRE TEST**

**FIRE TEST FOR
RUSSIAN GOST R CERTIFICATE**



Alubond (Alubond U.S.A FR-A2 & Alubond U.S.A FR Euroclass B) has undergone the GOST R Certification in Russia



**FULL FIRE IN BOTH FLOORS -
TEMPERATURE 850 °C**



**FIRE STOPPED AFTER 60 MINUTES ALL
PANELS WITHOUT DAMAGE**



**ALUBOND PANELS – REMOVED
FROM WALL ASSEMBLY**



**PANELS AFTER TEST ON THE GROUND
TO CHECK CONDITION**

**ASTM E84-15B: STANDARD TEST METHOD
FOR SURFACE BURNING CHARACTERISTICS
OF ALUBOND U.S.A (FR-A2, FR-B)**



STEINER TUNNEL FIRE MACHINE



FIRE EXPOSED INSIDE TUNNEL



CORE BEFORE THE TEST FIRE SIDE



**CORE AFTER THE TEST
(LOCATED NEAR THE FIRE END)**



**CORE AFTER THE TEST
(LOCATED NEAR THE EXHAUST END)**



OUR APPROVED SUBSTRUCTURE SYSTEMS

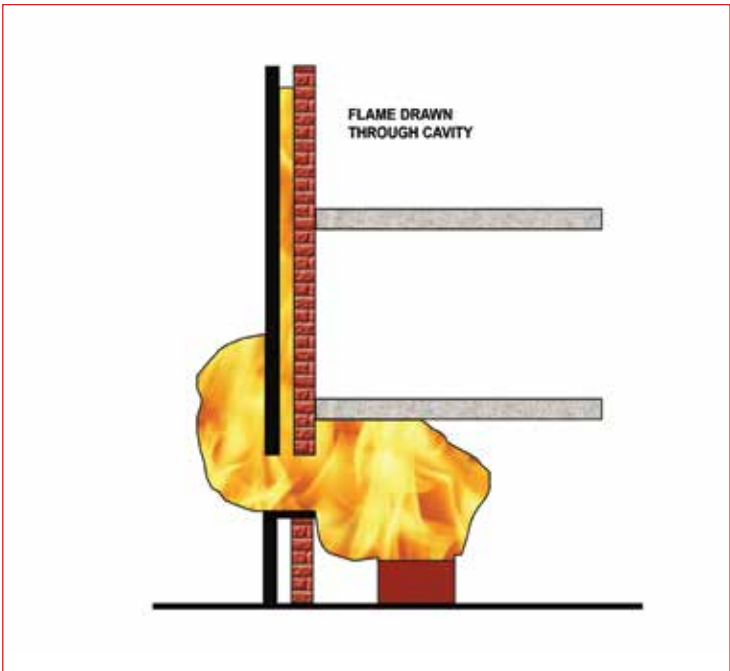


NON COMBUSTIBLE COMPOSITE PANELS

Information: For more Alubond USA approved systems, check the link:
www.tbwcert.com (Company Name: Eurocon building industries FZE)

S.NO	ALUBOND USA PRODUCTS REF	CERTIFIED SYSTEM REF .DETAILS	CHANGES OF ACCESSERIES INVOLVED IN SYSTEMS
1	4mm Thick Alubond USA FR-A2 (Mechanical closed Joint)-TK	TBW0300137.2	Sealant-Dowcorning 700, GI "U" Channel, insulation 50mm thick and 75 kg/m ³ Density Fujarah Rock wool
2	4mm Thick Alubond USA FR-A2(Mechanical closed Joint)	TBW0300155	Sealant-INCA2460, mineral wool filler, Insulation 50mm thick and 50 kg/m ³ Density Fujarah Rock wool
3	4mm Thick Alubond USA FR-A2 (Open Joint)	TBW0300156	Special Aluminium Profiles with Insulation 50mm thick and 50 kg/m ³ Density Fujairah Rock wool
4	4mm Thick Alubond USA FR-A2 (Mechanical closed Joint)	TBW0300165 (3hRS Fire rated Assembly)	Sealant-INCA2460, mineral wool filler, Insulation 50mm thick and 50 kg/m ³ Density Fujairah Rock wool
5	4mm Thick Alubond USA FR-A2 (Mechanical closed Joint)	TBW0300232	Sealant-Tremco, Al "U" Channel, Insulation 50mm thick and 24 kg/m ³ Density Knauf glass wool with Tube shape Runner
6	6mm Thick Alubond USA FR-A2 (Mechanical closed Joint)	TBW0300212	Sealant-Ever build 825 weather, Al "U" Channel, Insulation 50mm thick and 36 kg/m ³ Density Knauf glass wool
7	4mm Thick Alubond USA FR-Euroclass B (Mechanical closed Joint)	TBW0300245	Sealant-ever build 825 weather, Al "U" Channel, Insulation 50mm thick and 36 kg/m ³ Density Knauf glass wool
8	4mm Thick Alubond USA FR-Euroclass B (Open Joint)	TBW0300129.2	Special Aluminum Profiles with Insulation 50mm thick and 50 kg/m ³ Density Fujairah Rock wool
9	6mm Thick Alubond USA FR-Euroclass B (Mechanical closed Joint)	TBW0300138	Sealant-Dow corning 700, GI "Channel, insulation 50mm thick and 75 kg/m ³ Density Fujairah Rock wool

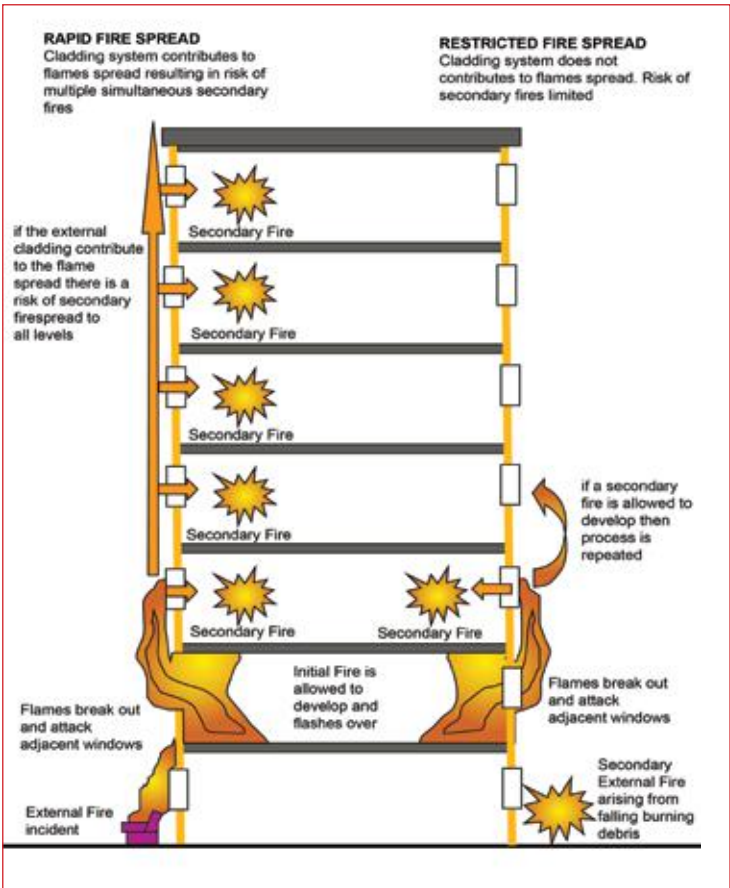
TUNNEL EFFECT DUE TO CAVITY CREATED BY SEALED SILICONE JOINTS



Cavities

- Either Part of Silicone Joints System or Created by de lamination when fire burns the skin and core of ACP.
- Flames in cavities can extend 5 to 10 times original length regardless of materials present.

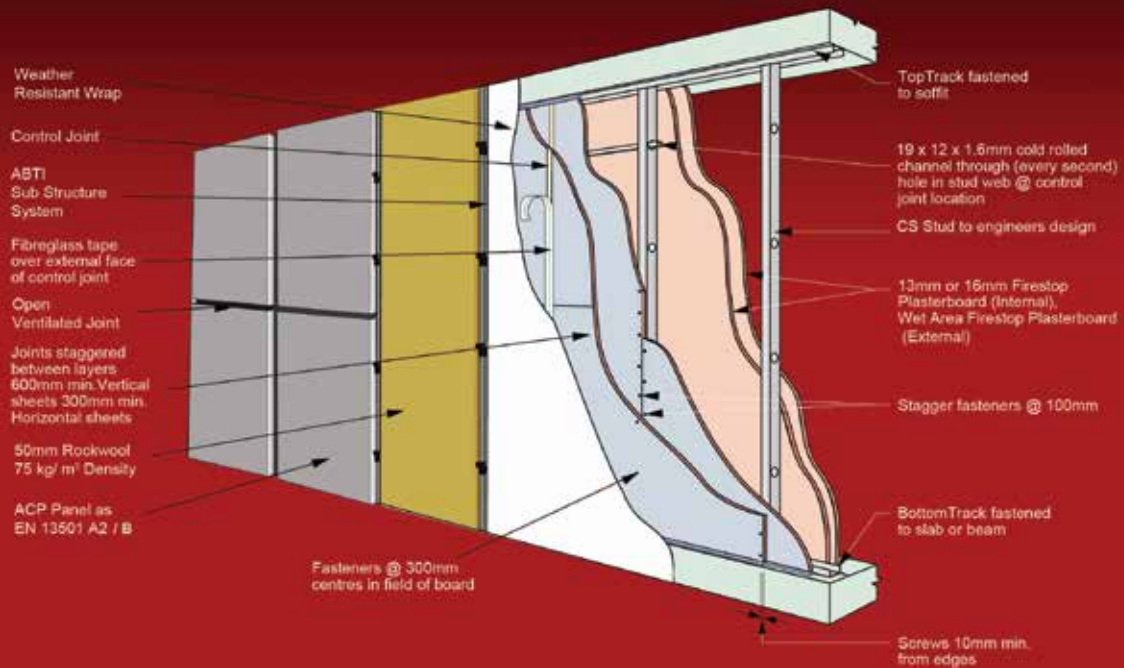
EXTERNAL FIRE SPREAD



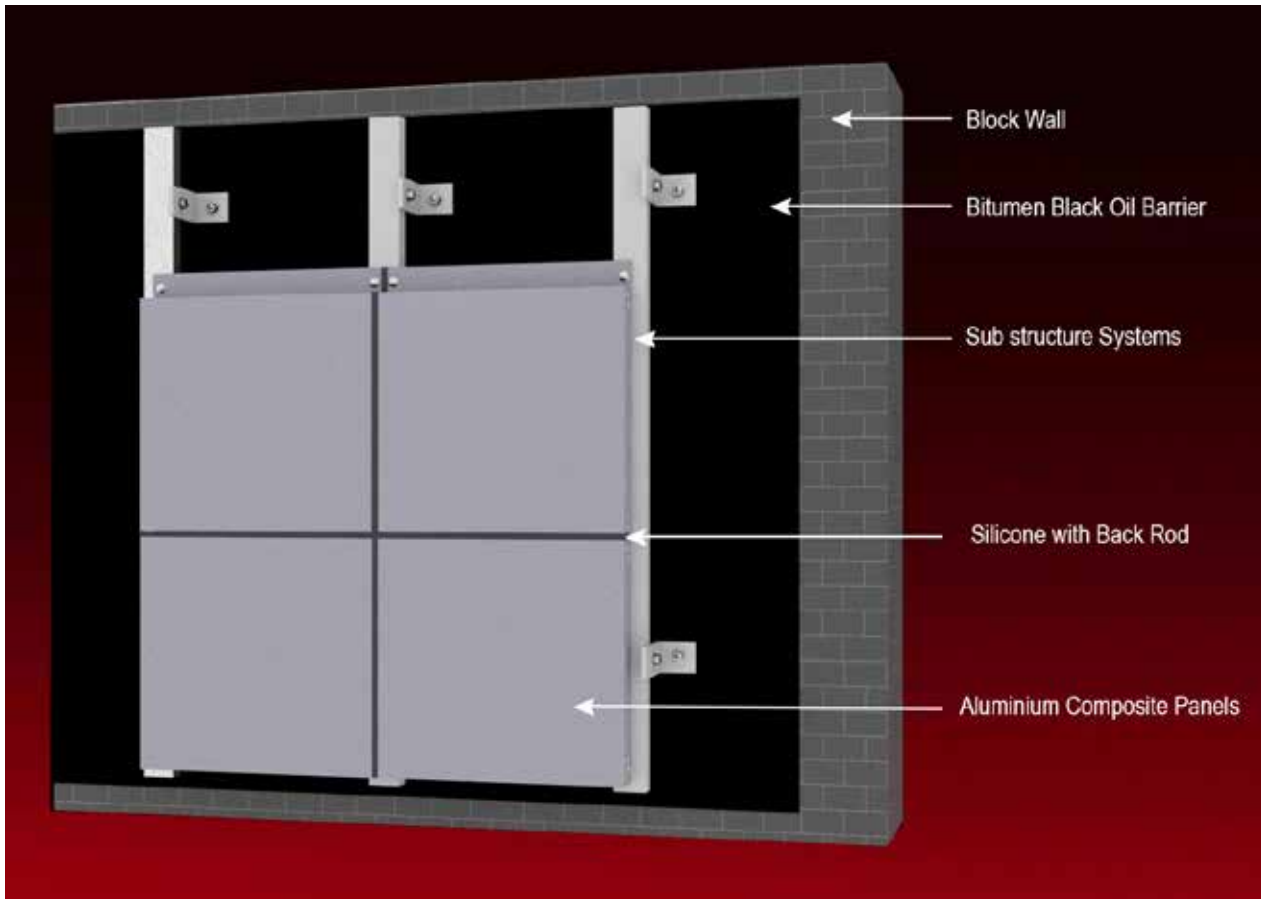
- Fires allowed to develop may flash over and break out through windows.
- Flames spread up over or through the cladding.
- Flames can extend over 2m above window opening. Regardless of cladding materials.
- If fire re-enters building secondary fires may then develop.

120 MINUTES RATED FIRE WALL WITH ALUBOND U.S.A FR-A2 ACP CLADDING

120 MINUTES RATED FIRE WALL WITH A2/B ALUBOND STONE PANEL CLADDING



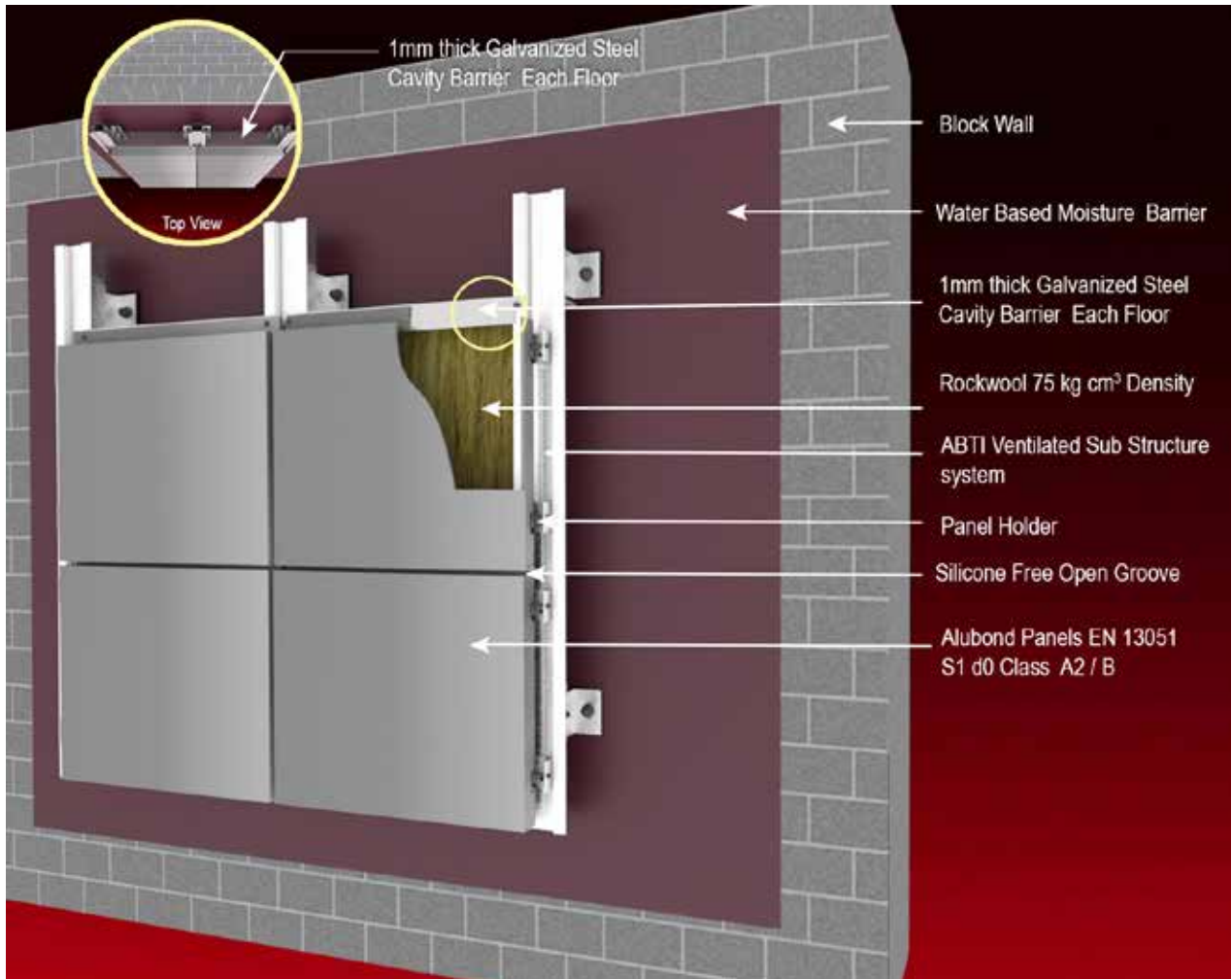
High LDPE Core Panels with Insulation & Sealed Silicone System With ASTM E119 Fire Wall



Four primary reasons for spread of fire in a typical LDPE core ACP Cladded Buildings in UAE & Worldwide

- The foam backer rod is one of the first to ignite and burns the polyethylene sealant. Fire moves swiftly through the continuous sealant and backer rod aided by bitumen paint.
- The cavity caused due to sealed façade and lack of cavity barrier, creates a tunnel effect for fire to spread up the floors very quickly.
- The LDPE core of the aluminium composite panel and aluminium skin both melt and droplets contribute to further spread of fire
- The fire spreads both from the back of the facade and front of the façade aided by winds and cavities and further fuelled by droplets of LDPE and falling debris of burning panels .
- No wonder we see buildings engulfed in fire within minutes !

Silicone Free Open Groove NFPA 285 Compliant Ventilated Substructure System Certified By Third Party



Usage of super fire retardant Alubond - Stone Panels instead of highly flammable LDPE core panels.

- Instead of Bitumen the wall is coated with fire rated moisture free paint
- ABTI system is silicon free open groove system thereby not using backer rods and sealants which aid propagation of fire.
- Cavity barrier is installed at regular intervals depending on the size of the building.

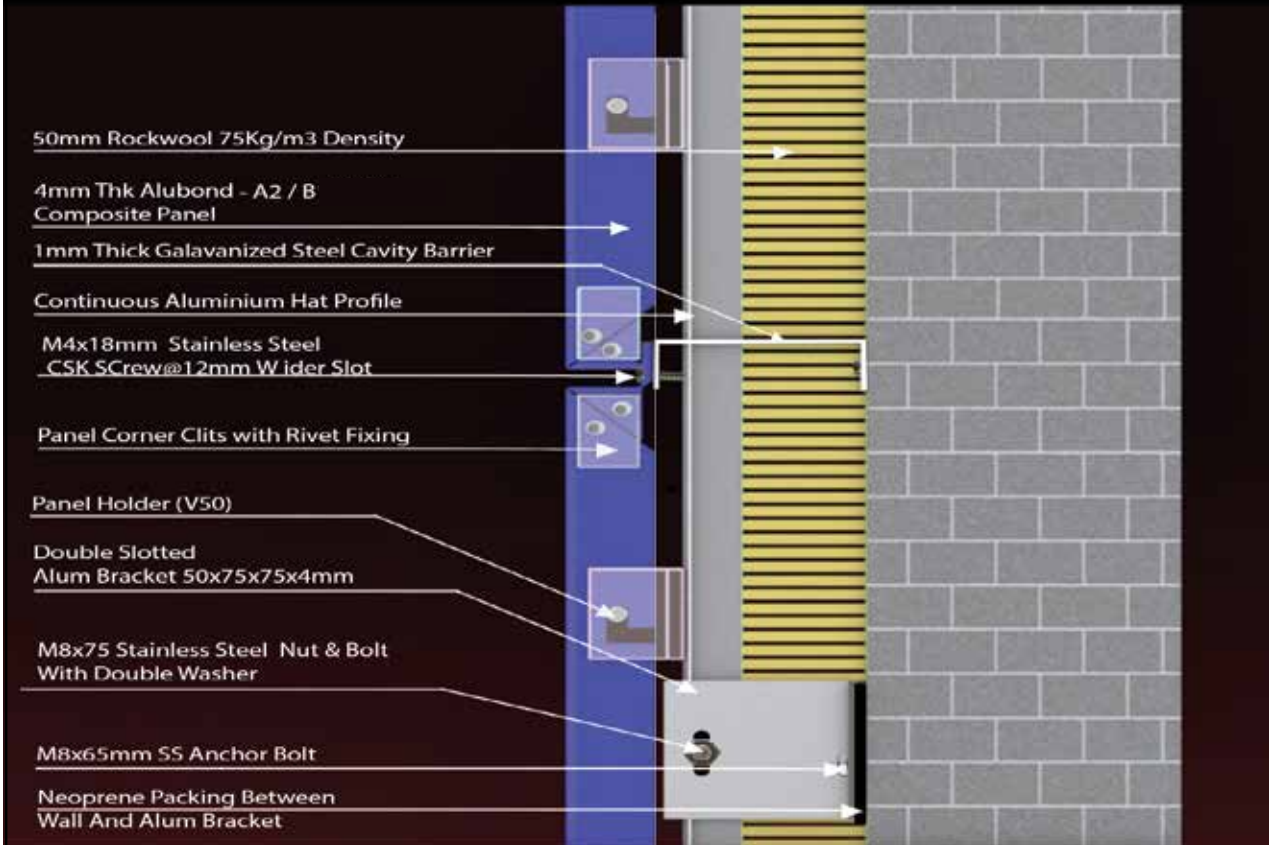
Use of Alubond U.S.A FR-A2 combined with ABTI Open Groove Ventilated substructure system provides the solution for a fire safe cladding.



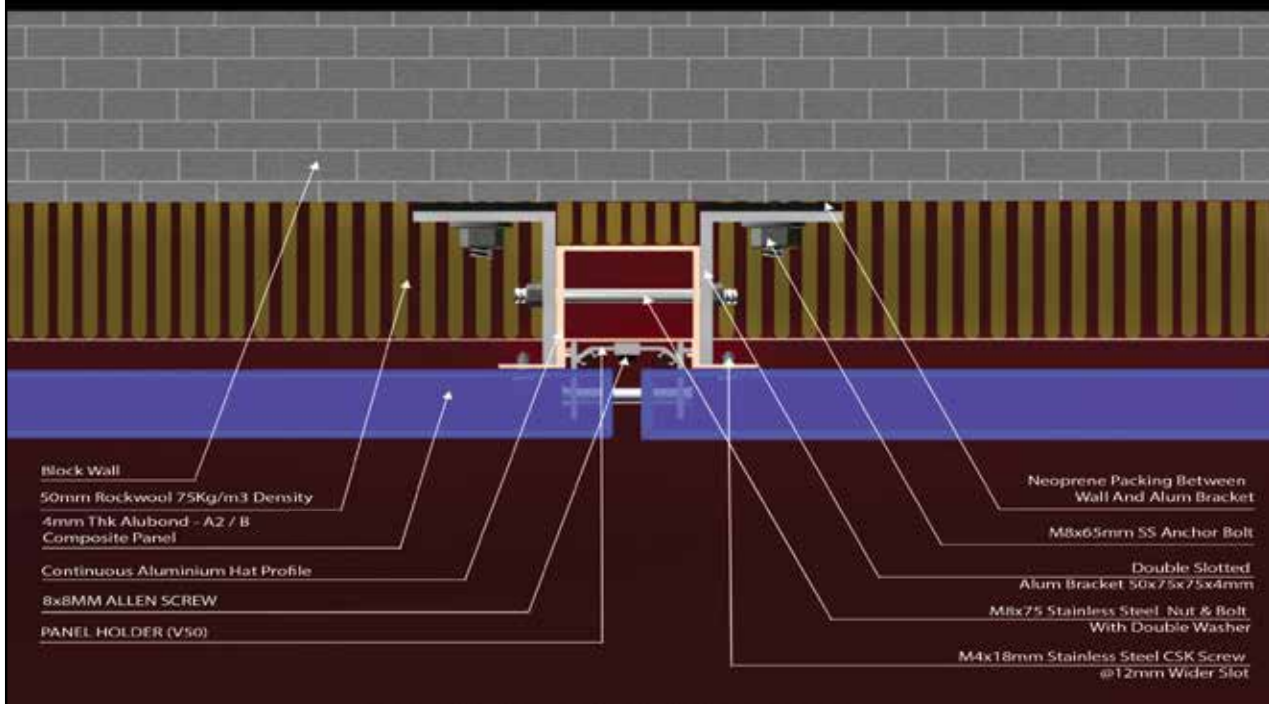
SILICONE FREE VENTILATED OPEN GROOVE SUBSTRUCTURE



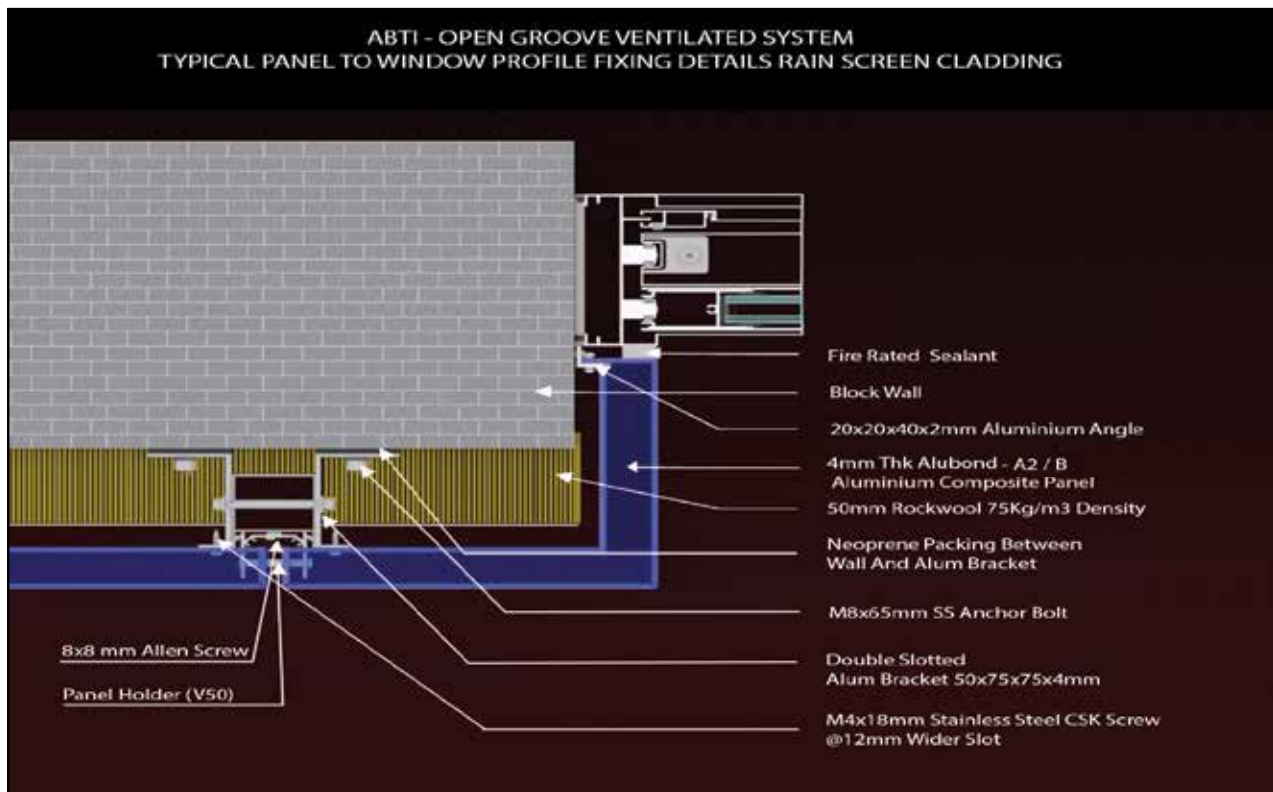
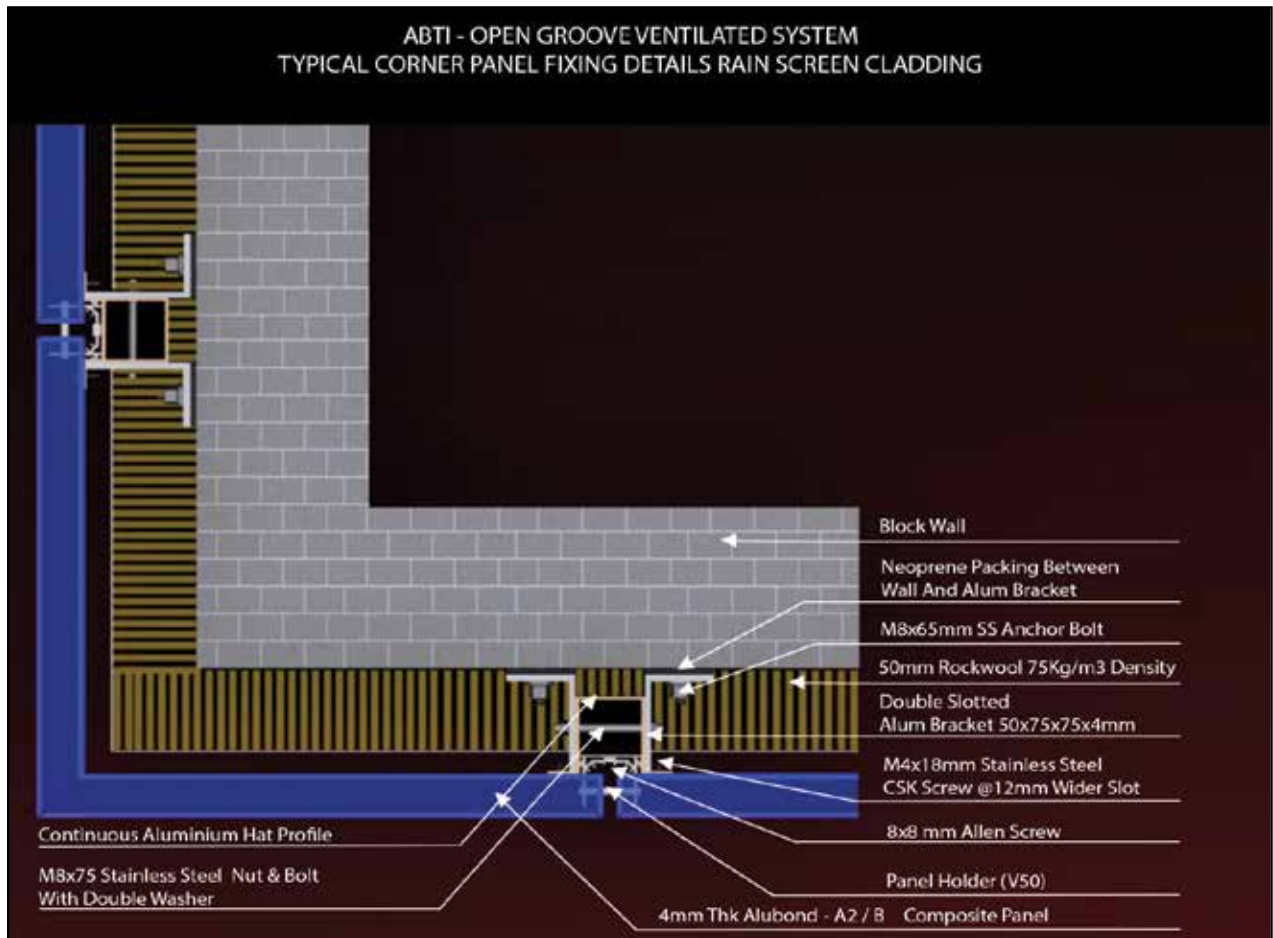
**ABTI - OPEN GROOVE VENTILATED SYSTEM WITH CAVITY BARRIER EACH FLOOR
TYPICAL PANEL VERTICAL FIXING DETAILS RAIN SCREEN CLADDING**



**ABTI - OPEN GROOVE VENTILATED SYSTEM
TYPICAL HORIZONTAL FIXING DETAILS RAIN SCREEN CLADDING**

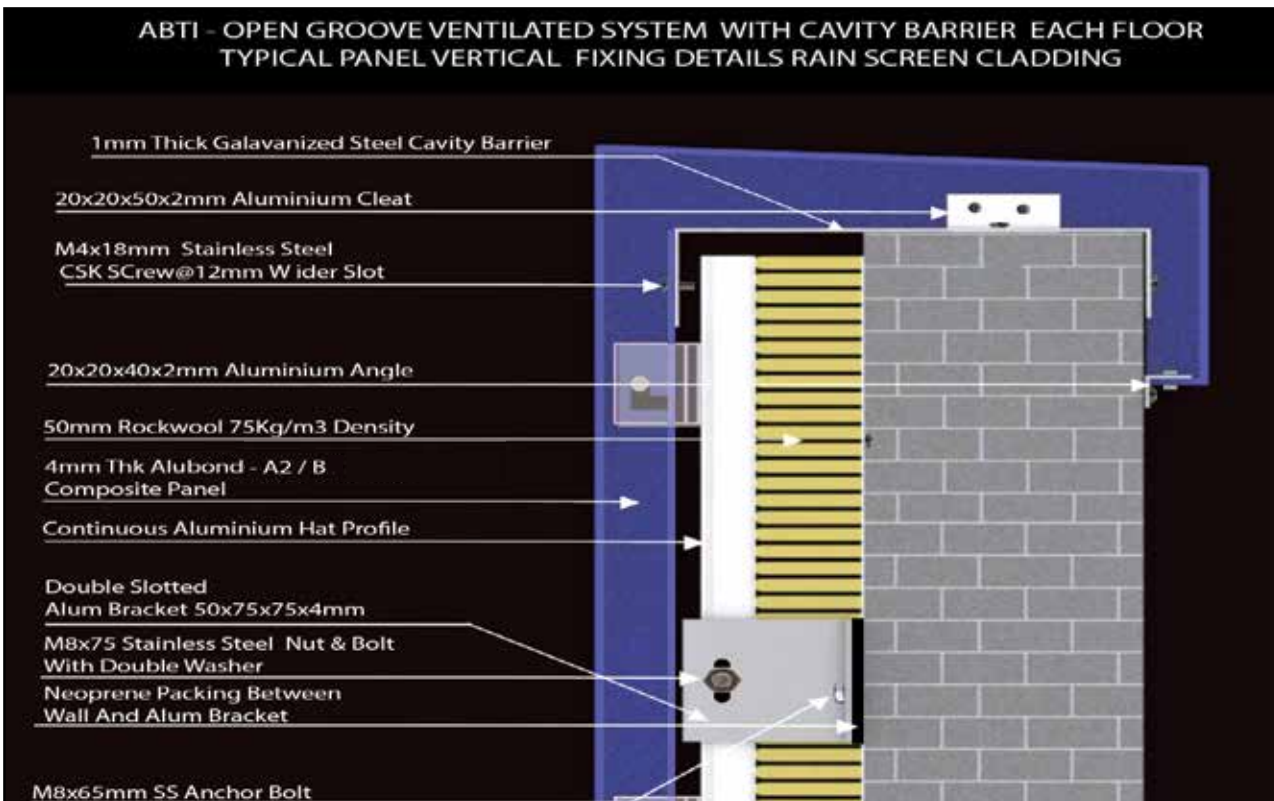
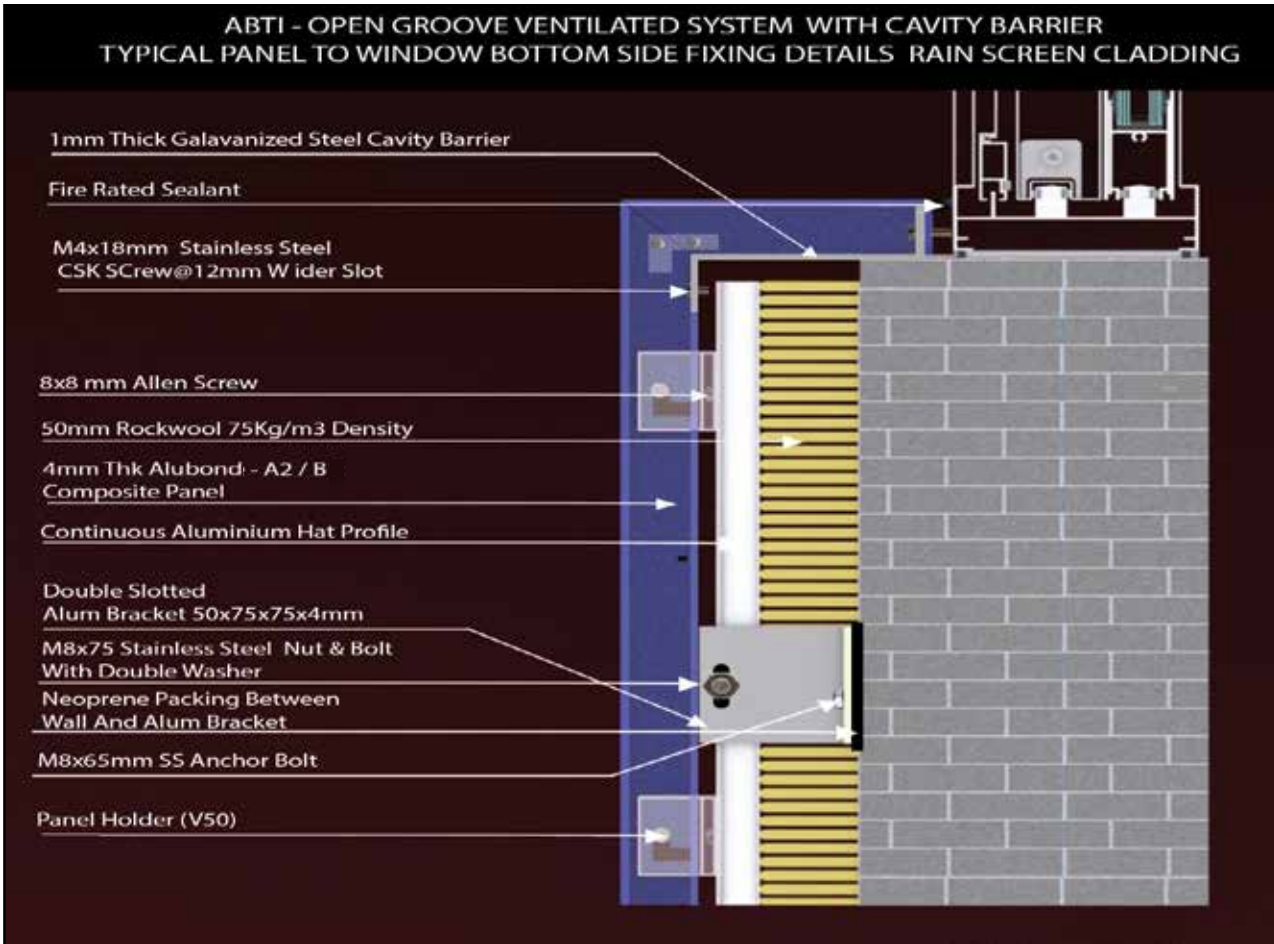


SILICONE FREE VENTILATED OPEN GROOVE SUBSTRUCTURE

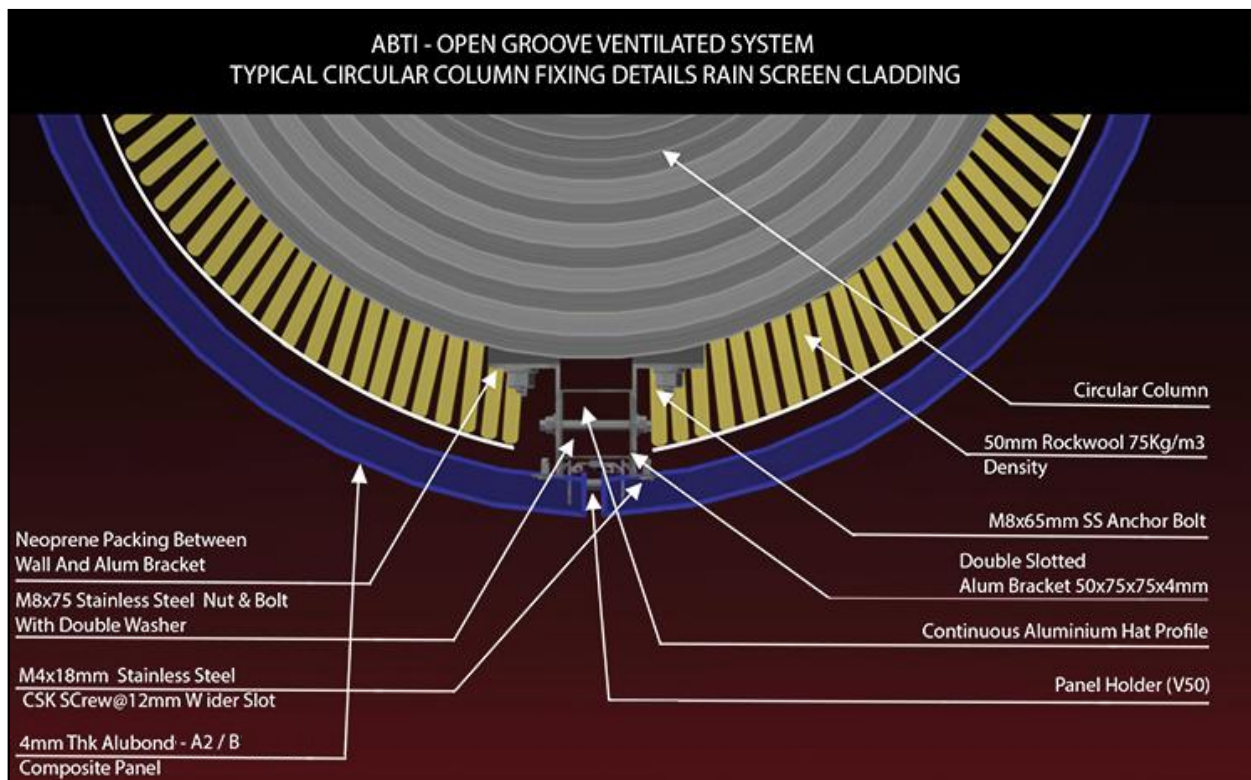
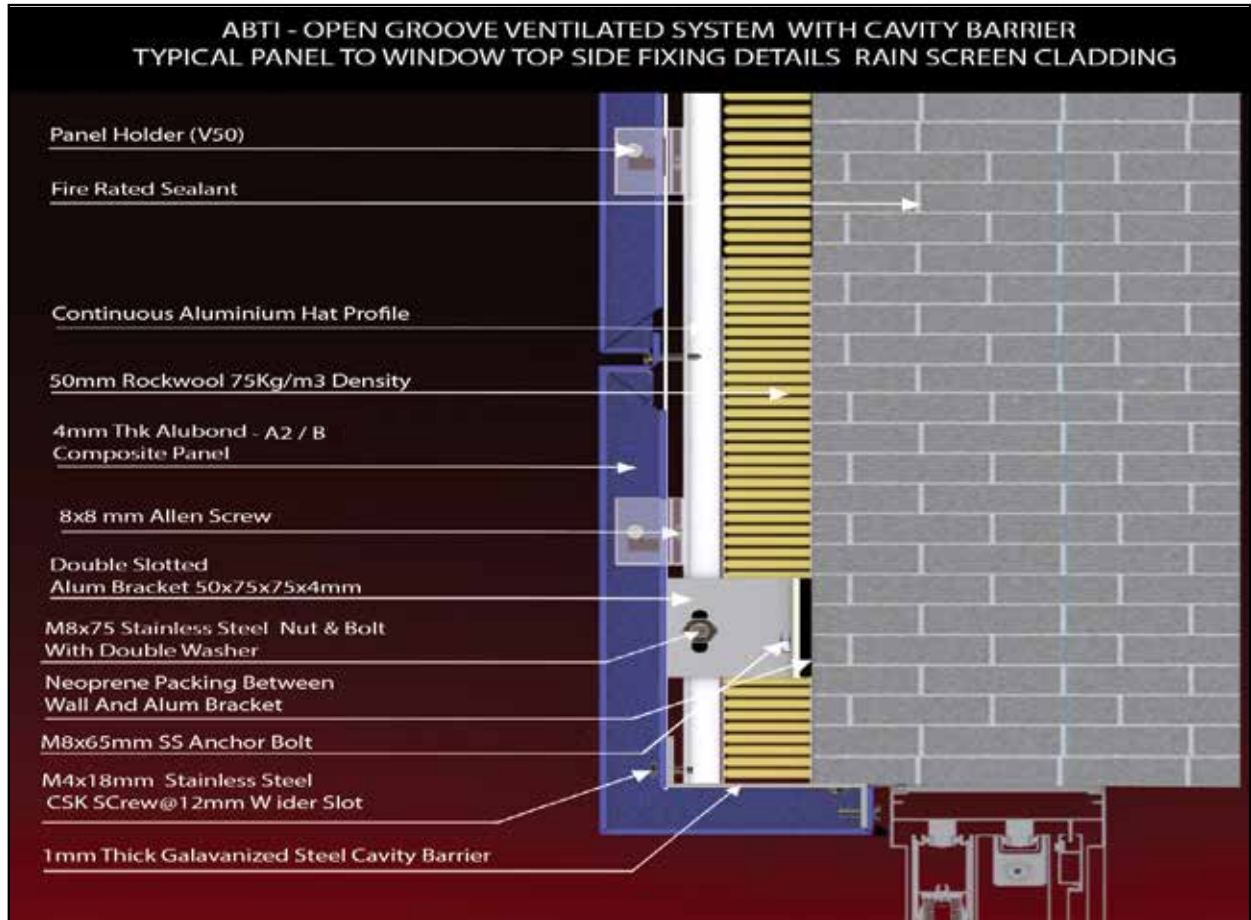




SILICONE FREE VENTILATED OPEN GROOVE SUBSTRUCTURE



SILICONE FREE VENTILATED OPEN GROOVE SUBSTRUCTURE





NO
MORE
FIRE



CONTACT US

Alubond Europe DOO

Nemanjina 130
26320 Banatski Karlovac, Serbia
Tel & Fax: +381 13 652 852
E-mail : info@alubondeurope.com
Web : www.alubondeurope.com

American Building Technologies Inc

5411 E State Street
Rockford, IL 61108
Tel : 815 977 9671
Fax : 815 977 9672
E-mail: sales@alubond.com

Alubond West Africa

26 Tema Motorway, Spintex Road,
Accra, GHANA
Tel : +233 24 1114222
Email: sales@alubond.com

Alubond DACS India (P) Ltd

Enpar House, Ambika Mills
Compound, Senpati Bapat Marg,
Lower Parel,
Mumbai 400013, India
Tel : +91 22 4321 1400
Fax : +91 22 4321 14444
E-mail: sales@alubond.com

Eurocon Building Industries F.Z.C Mulk Holdings F.Z.C

P.O. Box 42642, Hamriyah Free Zone, Sharjah, U.A.E
Tel: + 971-6-5262202 | Fax: + 971-6-5262203

www.alubond.com
www.mulkhholdings.com