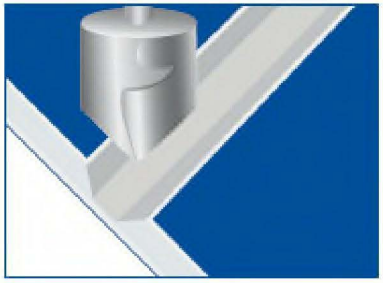
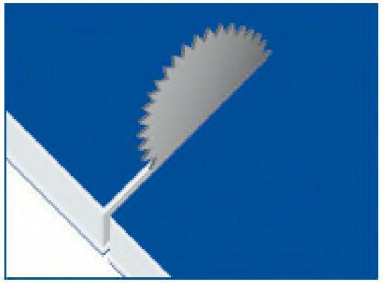
TRANSFORMATION POSSIBILITIES

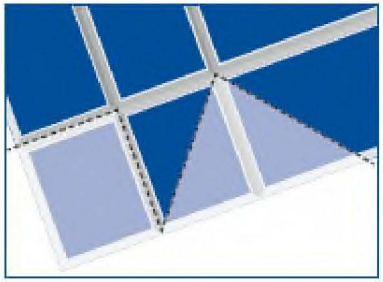
MILLING
GROOVING



DRILLING

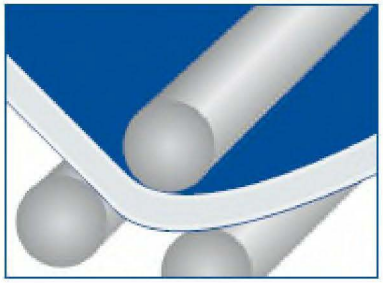
SAWING





CUTTING
PUNCHING

SHEARING

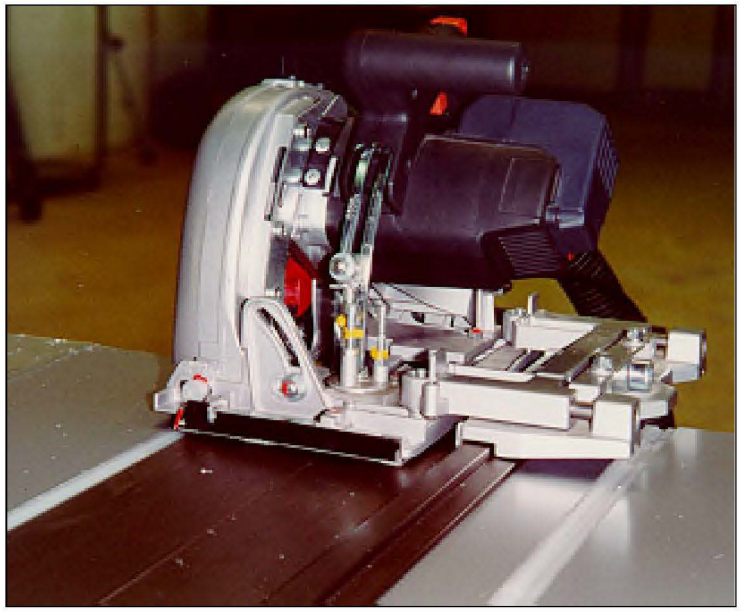


ROLL BENDING

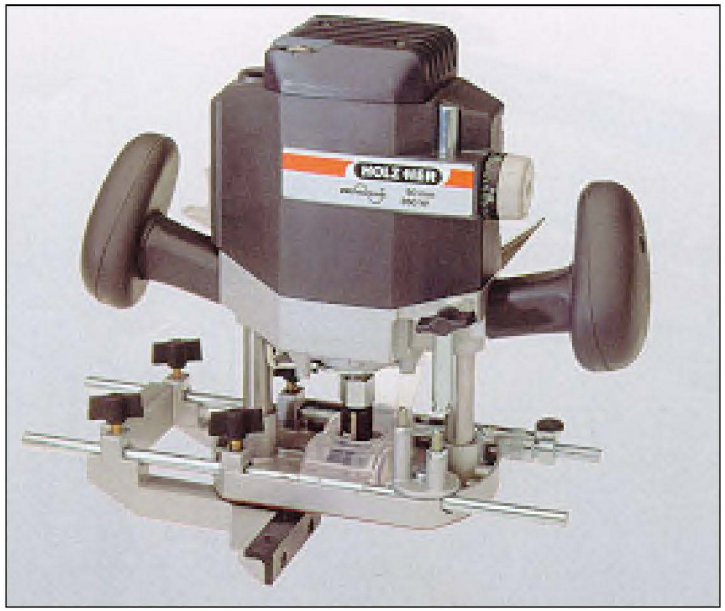
MILLING - GROOVING

- **TECHNOLOGIES OF GROOVING :**

GROOVING CIRCULAR SAW



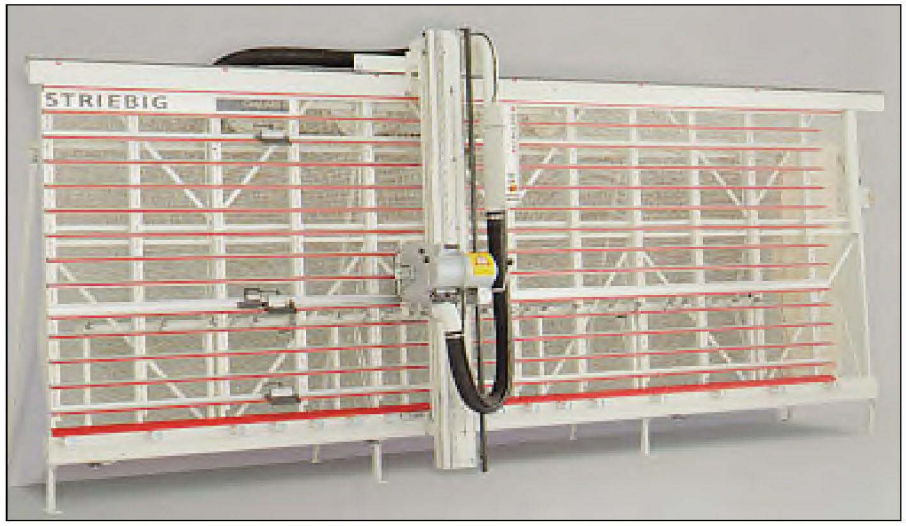
ROUTER



➢ MILLING - GROOVING

- **TECHNOLOGIES OF GROOVING :**

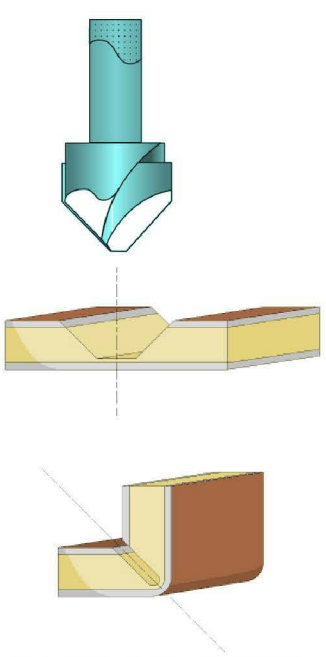
VERTICAL PANEL SAW



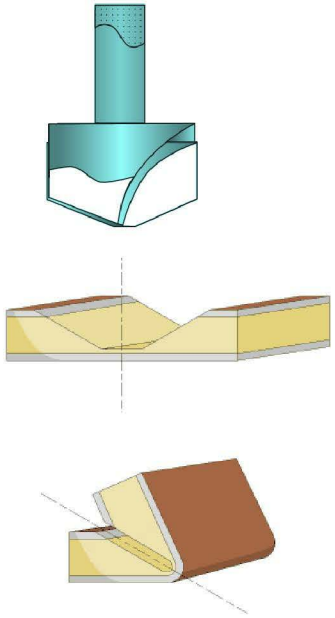
CNC MACHINE

GROOVING AND FOLDING POSSIBILITIES

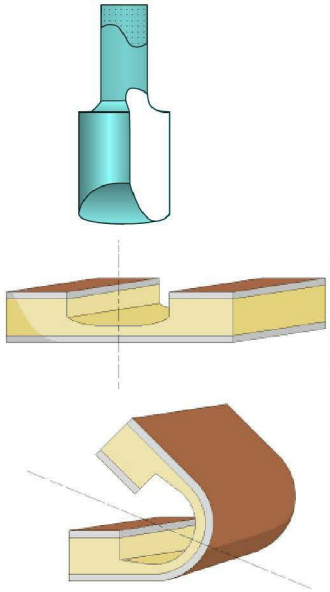
90° BENDING

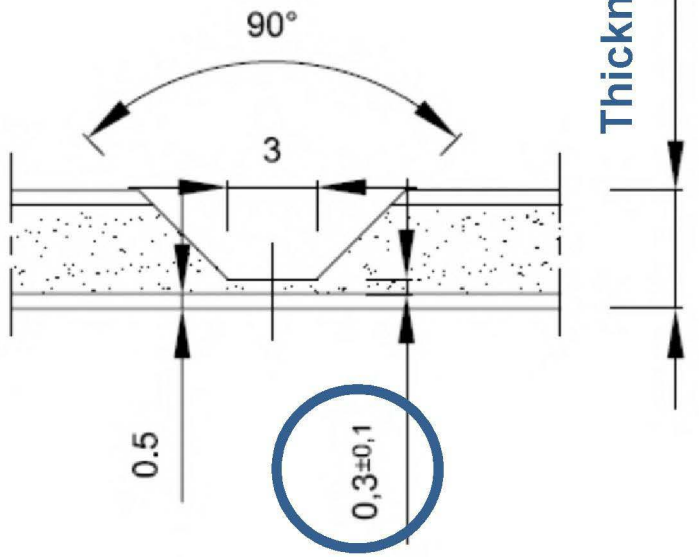


135° BENDING



LARGER RADIUS CORNER BENDING

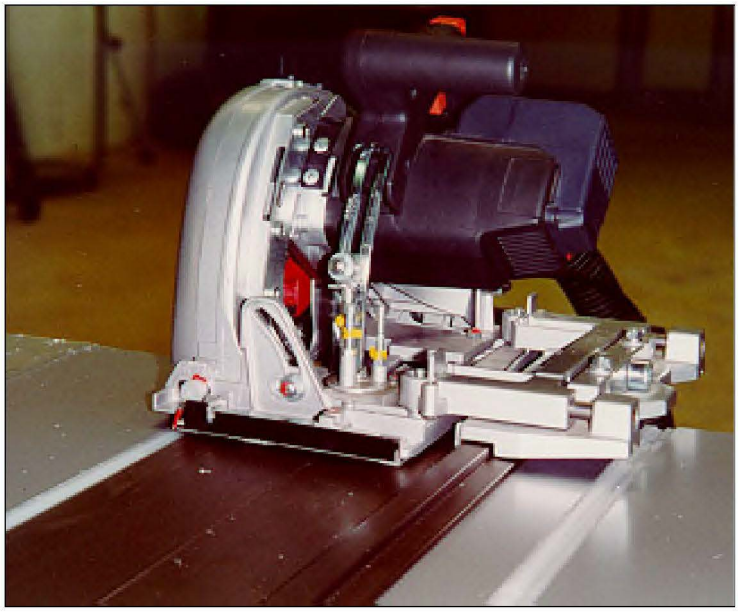




➢ CUTTING - SAWING

- **ALL TECHNOLOGIES FOR ALUMINIUM MATERIAL ARE CONVENIENT:**

CIRCULAR SAW

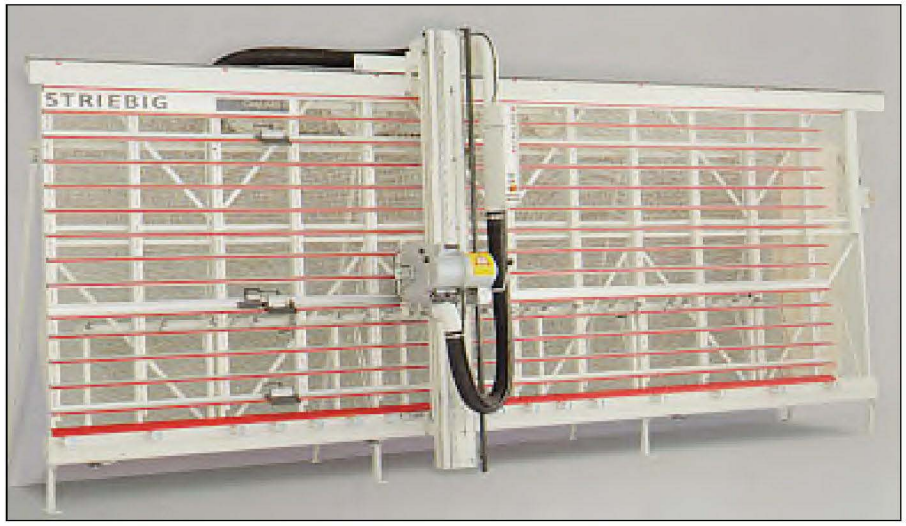


JIG SAW

➢ CUTTING - SAWING

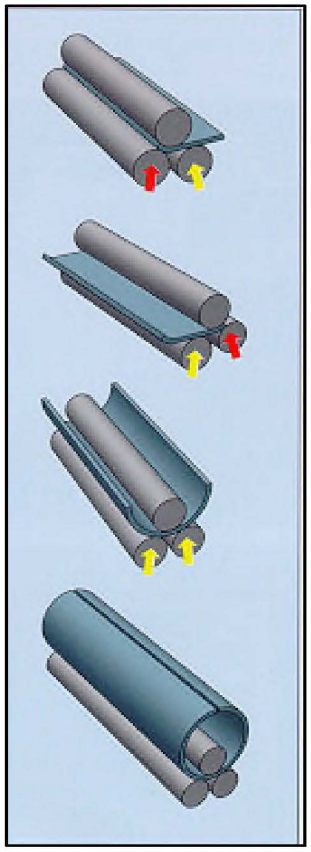
- **ALL TECHNOLOGIES FOR ALUMINIUM MATERIAL ARE CONVENIENT:**

VERTICAL PANEL SAW



CNC MACHINE

BENDING POSSIBILITIES



- MINIMAL INTERNAL RADIUS :

R (FOR FR)= 15 X THICKNESS (R=60MM FOR 4 MM THICK MATERIAL)

- AN ELASTICITY EFFECT HAS TO BE TAKEN INTO CONSIDERATION

THANK YOU FOR YOUR ATTENTION

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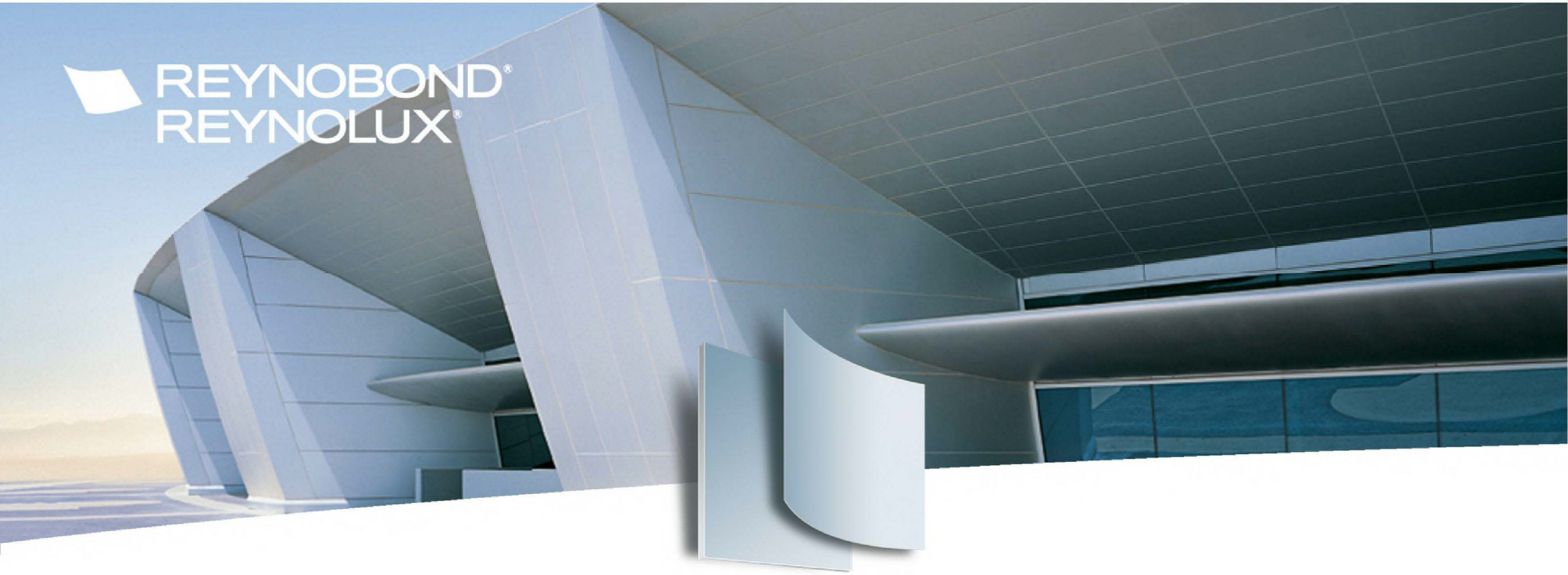
ARCONIC



TECHNICAL SALES SUPPORT

SPE GROUP – 06-26-2018

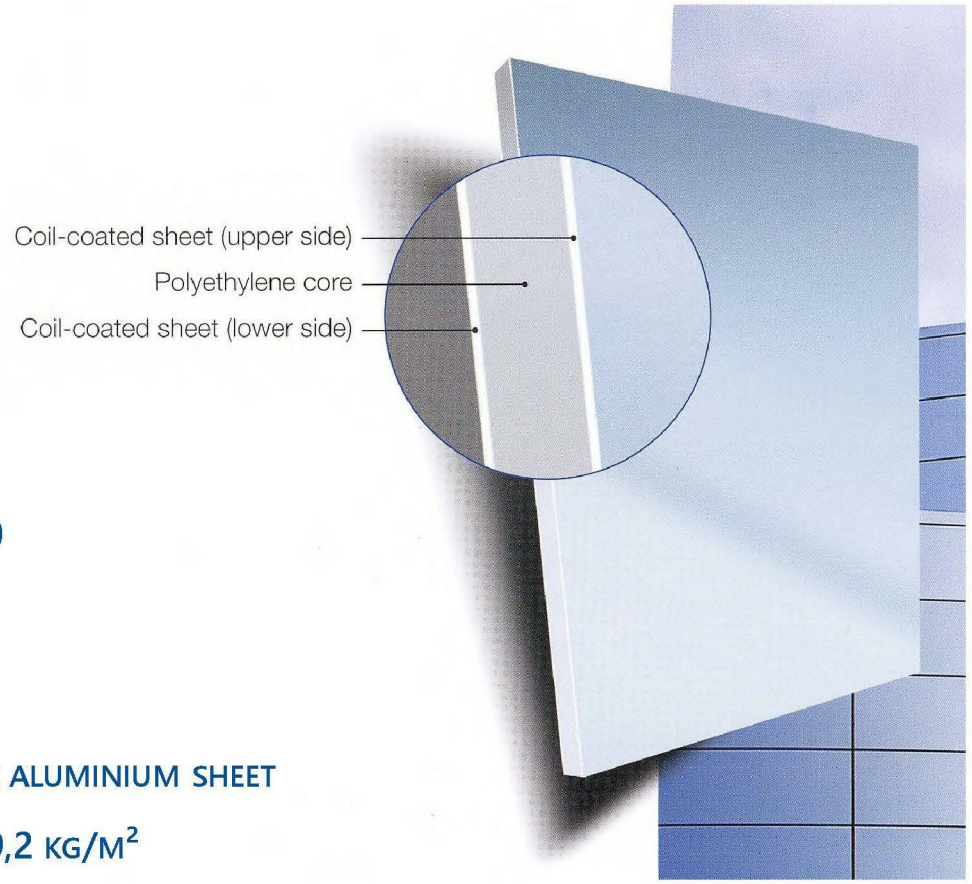
MISSIONS OF THE TEAM

- ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS
- CALCULATION FOR ELEMENT DIMENSIONING
- OPTIMIZATIONS
- CERTIFICATION AND PRODUCT QUALIFICATION
- PRODUCT TRANSFORMATION POSSIBILITIES

REYNOBOND® ADVANTAGES

ELASTIC BEHAVIOR VERSUS DIMENSIONING

WEIGHT VERSUS RIGIDITY



EXAMPLES

MAXIMAL DEFLECTION FOR REYNOBOND PANELS: L/30

MAXIMAL DEFLECTION FOR REYNOLUX SHEETS: L/50

MAXIMAL DEFLECTION FOR REYNODUAL SHEETS: L/80

REYNOBOND 554 RIGIDITY ⇔ RIGIDITY OF 3,33 THICK ALUMINIUM SHEET

RB554 FR CORE : 7,6 KG/M^2 - RLUX 3,3 MM THICK: 9,2 KG/M^2

RDUAL 3 MM: 8,2 KG/M^2

REYNOBOND®
REYNOLUX®

TECHNICAL SUPPORT

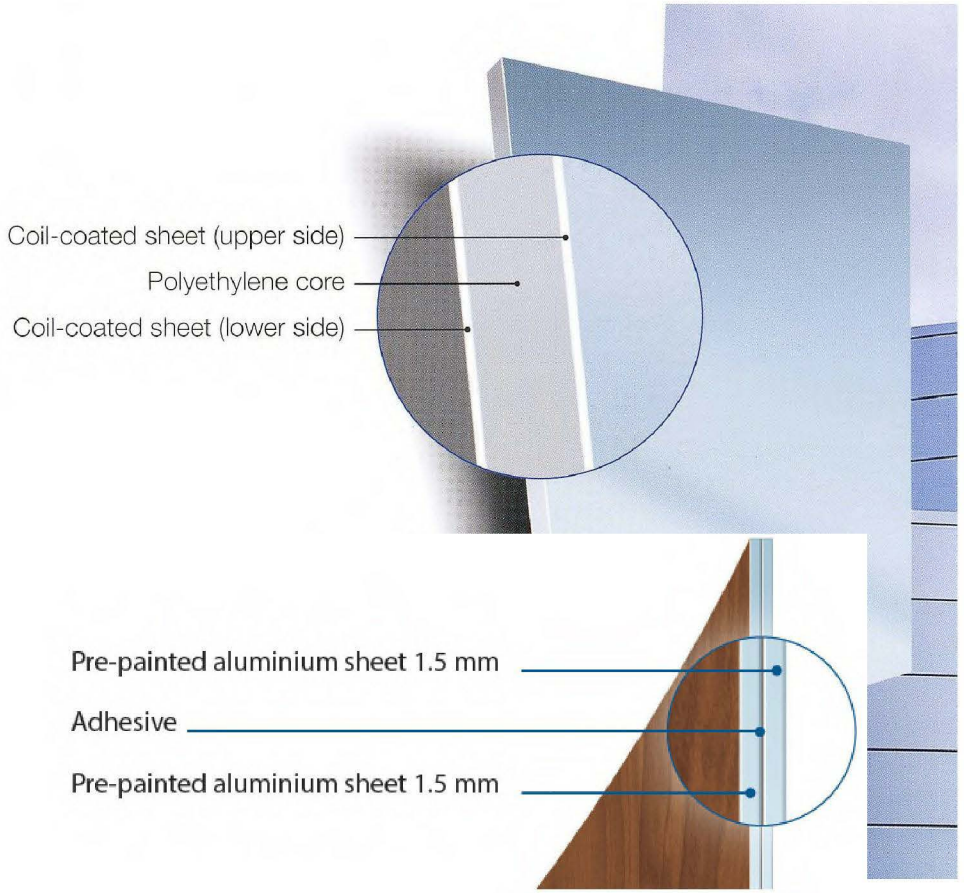
PHYSICAL PROPERTIES

REYNOBOND®

Composition Reynobond® aluminium composite panel		FR core - Fire-retardant	A2 core
Thickness		4 mm	4 mm
Coated aluminium sheet thickness		0.5 mm	0.5 mm
Core		FR – fire-retardant	A2
Front side finish*		DURAGLOSS® 5000 (35 µm) or PVDF 70 / 30 (25 µm) and anti-corrosion treatment. Other on request	DURAGLOSS® 5000 (35 µm) or PVDF 70 / 30 (25 µm) and anti-corrosion treatment. Other on request
Reverse side finish		Washcoat - Other on request	Washcoat - Other on request
Characteristics Reynobond® aluminium composite panel			
Width		1,000 mm / 1,250 mm / 1,500 mm / 1,550 mm / 2,000 mm (–0 / +3 mm)	1,000 mm / 1,250 mm / 1,500 mm / 1,575 mm (–0 / +3 mm)
Length		2,000 mm up to 6,050 mm	2,000 mm up to 6,050 mm
Weight in core		7.6 kg / m²	8.2 kg / m²
Tolerance in squareness		≤ 3 mm	≤ 3 mm
Tolerance in bow		≤ 2 mm / 500 mm on the width and the length	≤ 2 mm / 500 mm on the width and the length
Performance Reynobond® aluminium composite panel			
Bond integrity	ASTM D903	6.99 N / mm (mini) or 40 pli (mini)	3.24 N / mm (mini) or 20 pli (mini)
Stiffness (EI)		0.243 kN.m² / m	0.242 kN.m² / m
Thermal expansion		2.4 mm / m for a temperature variation of 100 °C	2.4 mm / m for a temperature variation of 100 °C
Temperature resistance		–40 °C / +80 °C	–40 °C / +80 °C
Maximum allowable deflection		L / 30 (allows higher wind pressure or bigger sized elements)	L / 30 (allows higher wind pressure or bigger sized elements)
Performance and durability Reynolux® pre-painted aluminium sheet			
Specular gloss*	EN 13523 – 2 ASTM D 523	DURAGLOSS® 5000: from Matt 0 mm to high gloss PVDF 70/30: satin	DURAGLOSS® 5000: from Matt 0 mm to satin PVDF 70/30: satin
Durability class	NF EN 1396	Class 4: severe industrial – extreme conditions / very severe coastal marine (less than 3,000 m from the seal / high UV plus severe conditions	
Pencil hardness	EN 13523 – 4	HB – F	
Resistance to cracking on rapid deformation	EN 13523 – 5	No cracking, no loss of adhesion	
Adhesion after indentation	EN 13523 – 6	100 % of adhesion	
Resistance to cracking on bending	EN 13523 – 7	Very good flexibility: 0.5 T	
Acetic salt spray fog resistance	EN 13523 – 8	1,000 h	
Water immersion resistance	EN 13523 – 9, AAMA 620	3,000 h	
Humidity resistance	ASTM D 224, AAMA 620	3,000 h	
Mortar test	AAMA 620	No effect	
Acid resistance	AAMA 620 ASTM D 1308	Nitric acid, ΔE < 5 units except some blue and metallic colours; hydrochloric acid: no effect	
Detergent resistance	AAMA 620	No effect	
Colour fastness on natural weathering	5 years 45° South Florida	Colour variation: 5 to 10 units (ΔE) depending on colour	
Resistance to chalking on natural weathering	5 years 45° South Florida	Rating ≥ 8	
Fire certificates for Reynobond® aluminium composite panel			
Europe	EN 13501	B-s1 , d0	A2-s1 , d0
Performance Reynolux® aluminium sheet			
Tensile strength R_m		165 - 240 MPa according to alloy, temper and width	
Yield strength $R_{p0.2}$		140 - 160 MPa according to alloy, temper and width	
Elongation A_{50mm}		2% (mini)	

REYNODUAL®

Composition pre-painted double sheet aluminium panel Reynodual®		
Thickness		3 mm (–0.8 / +0.3 mm)
Thickness pre-painted aluminium sheet		1.5 mm
Alloy & temper		Series 3000
Front side finish		Anti-corrosion treatment and DURAGLOSS® 5000 (35 µm), PVDF 70/30* (25 µm)** or polyester* (26 µm)
Reverse side finish		Anti-corrosion treatment and a varnish protection
Characteristics pre-painted double sheet aluminium panel Reynodual®		
Width		1,000 mm / 1,250 mm / 1,500 mm / 1,575 mm (–0 / +3 mm) If 2,000 mm requested, contact us. If others requested, contact us.
Length		2,000 mm up to 6,050 mm (< 4 m: –0 / +3 mm; > 4 m: –0 / +6 mm)
Weight		8.2 kg / m²
Tolerance in squareness		< 3 mm
Tolerance in bow		< 2 mm / 500 mm over lengths and widths
Performance pre-painted double sheet aluminium panel Reynodual®		
Bond integrity	ASTM D1870	4.37 N / mm (mini) or 25 lbf / inch
Tensile strength R_m	NF EN 1396	140 - 185 MPa in 3003 H44
Yield strength $R_{p0.2}$	NF EN 1396	≥ 110 MPa in 3003 H44
Modulus of elasticity E		70,000 N / mm²
Stiffness (EI)		0.168 kN.m² / m
Thermal expansion		2.4 mm / m for a temperature variation of 100 °C
Temperature resistance		–40 °C / +80 °C
Maximum allowable deflection		L / 90
Performance and durability pre-painted aluminium sheet		
Specular gloss	EN 13523 – 2 ASTM D 523	DURAGLOSS® 5000: from 3 % to 80 % PVDF 70/30**: from 25 % to 30 %
Durability class	NF EN 1396	Class 4: severe industrial – extreme conditions / very severe coastal marine (less than 3,000 m from the seal / high UV plus severe conditions
Pencil hardness	EN 13523 – 4	HB – F
Resistance to cracking on rapid deformation	EN 13523 – 5	No cracking, no loss of adhesion
Adhesion after indentation	EN 13523 – 6	100 % of adhesion
Resistance to cracking on bending	EN 13523 – 7	(On process)
Acetic salt spray fog resistance	EN 13523 – 8	1,000 h
Water immersion resistance	EN 13523 – 9, AAMA 620	3,000 h
Humidity resistance	ASTM D 224, AAMA 620	3,000 h
Mortar test	AAMA 620	No effect
Acid resistance	AAMA 620 ASTM D 1308	Nitric acid: ΔE < 5 units except some blue and metallic colours Hydrochloric acid: no effect
Detergent resistance	AAMA 620	No effect
Colour fastness on natural weathering	5 years 45° South Florida	Colour variation: 5 to 10 units (ΔE) depending on colour
Resistance to chalking on natural weathering	5 years 45° South Florida	Rating ≥ 8
Fire certificates for Reynodual®		
Europe	EN 13501 – 1	A2-s1, d0

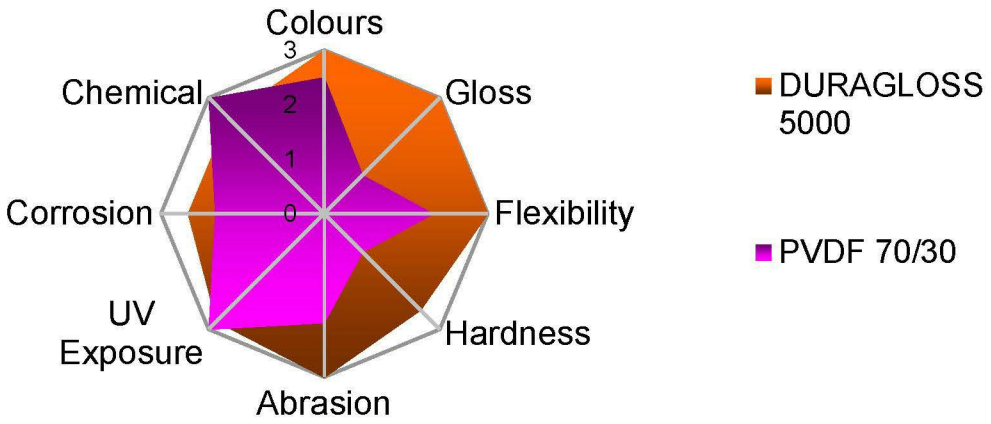


TECHNICAL SUPPORT

PAINT CHARACTERISTICS

Performance and durability Reynolux® pre-painted aluminium sheet		2-coats	3-coats
Coating thickness depending on colour	EN 13523 – 1 ASTM D 7091	35 µm to 40 µm STANDARD: Plain colours, Metallic NATURAL Design: Terracotta, Minerals EFFECTS: Anodized Look	50 µm to 55 µm NATURAL Design: Granite, Patina, Corten, Stone WOOD Design EFFECTS: Sparkling and Chameleon BRUSHED Look
Specular gloss	EN 13523 – 2 ASTM D 523	High gloss, Satin, Matt and MattXtrem	
Durability class	NF EN 1396	Class 4: severe industrial – extreme conditions, very severe costal marine (less than 3,000 m from the sea), high UV, plus severe conditions	
Pencil hardness	EN 13523 – 4 ASTM D 3363	> HB	
Resistance to cracking on rapid deformation	EN 13523 – 5 ASTM D 2794	No cracking, no loss of adhesion	
Adhesion after indentation	EN 13523 – 6 ASTM D 3359	100 % of adhesion	
Resistance to cracking on bending	EN 13523 – 7 ASTM D 4145	Very good flexibility (0.5T), depending on alloy and temper	
Acetic salt spray fog resistance	EN 13523 – 8 ASTM G 85	1,000 h	
Water immersion resistance	EN 13523 – 9 ASTM D 870	3,000 h	
Humidity resistance	EN 13523 - 25 ASTM D 2247	3,000 h	
Mortar test	AAMA 2605	No effect	
Acid resistance 10 % HCl solution (15 min/23 °C) 20 % H2SO4 solution (18 h/23 °C) Nitric Acid	AAMA 2605 ASTM D 1308	Hydrochloric acid: no effect Sulphuric acid: no effect Nitric acid: ΔE < 5 units except some blue and metallic colours	
Detergent resistance: 3 % VIGOR solution (72 h/30 °C)	AAMA 2605	No effect	
Colour fastness on natural weathering	Florida Exposure 45° South EN 13523 - 3 ASTM D 2244	After 5 years exposure: Colour variation: 5 to 10 units (ΔE) depending on colour	
Resistance to chalking on natural weathering	Florida Exposure 45° South ASTM D 4214	Rating ≥ 8	
Fire certificates France	NF P 92 – 501	M0 incombustible	
Fire certificates Europe	EN 13501	A1	

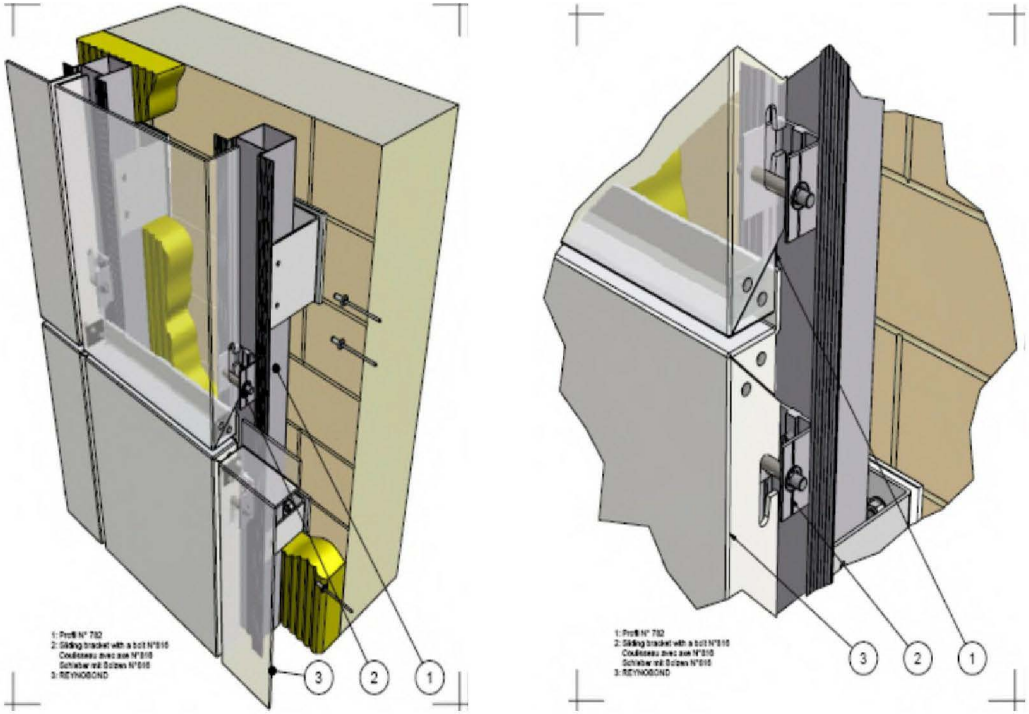
- MODERN HIGH TECH POLYMER TECHNOLOGY
- EXCELLENT UV RESISTANCE
- NO LIMITATION OF COLORS AND GLOSS
- HIGH VARIETY OF EFFECTS, TEXTURES AND DESIGN PATTERN



ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

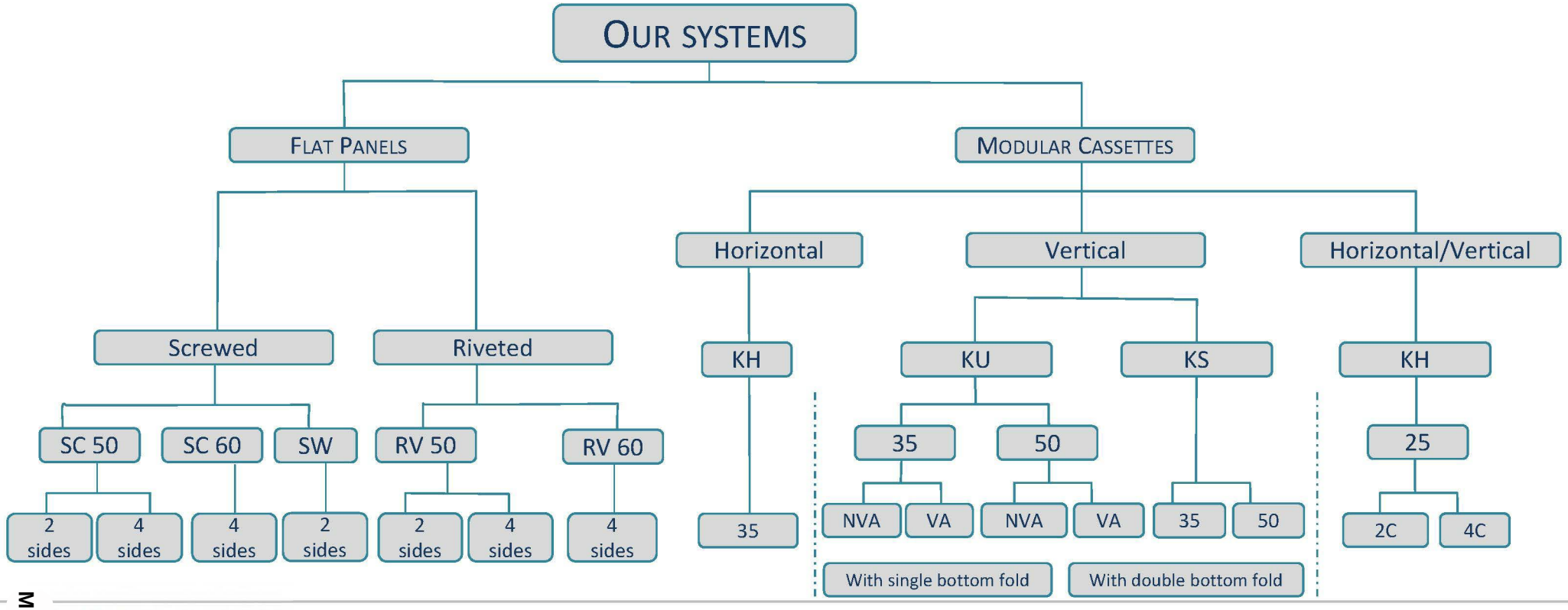
CASSETTE SYSTEM FOR INVISIBLE FIXATIONS

KU 35 VA – KU 35 NVA – KU 50 VA – KU 50 NVA – KH 35



ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

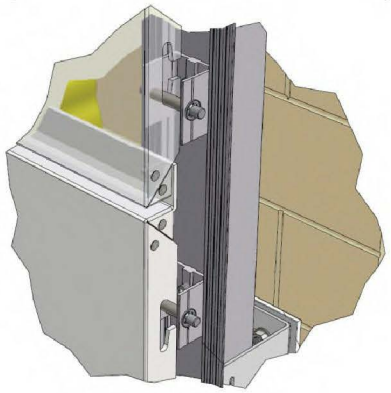
ARCONIC ARCHITECTURAL PRODUCTS – STANDARD SYSTEMS

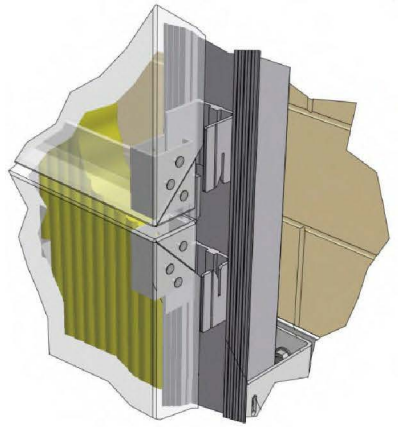


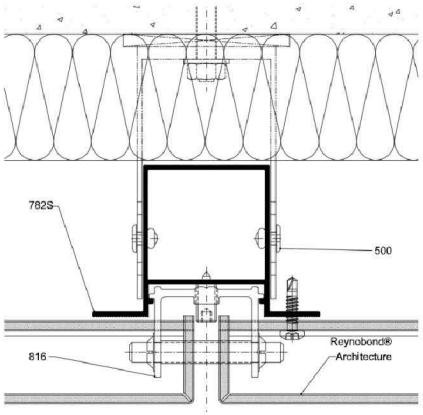
ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

CASSETTE SYSTEM FOR VERTICAL LAYOUTS

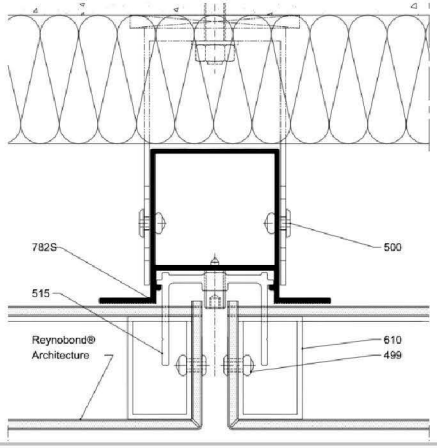
KU 35 VA – KU 35 NVA – KU 50 VA – KU 50 NVA







Suited for vertical formats (Small width)

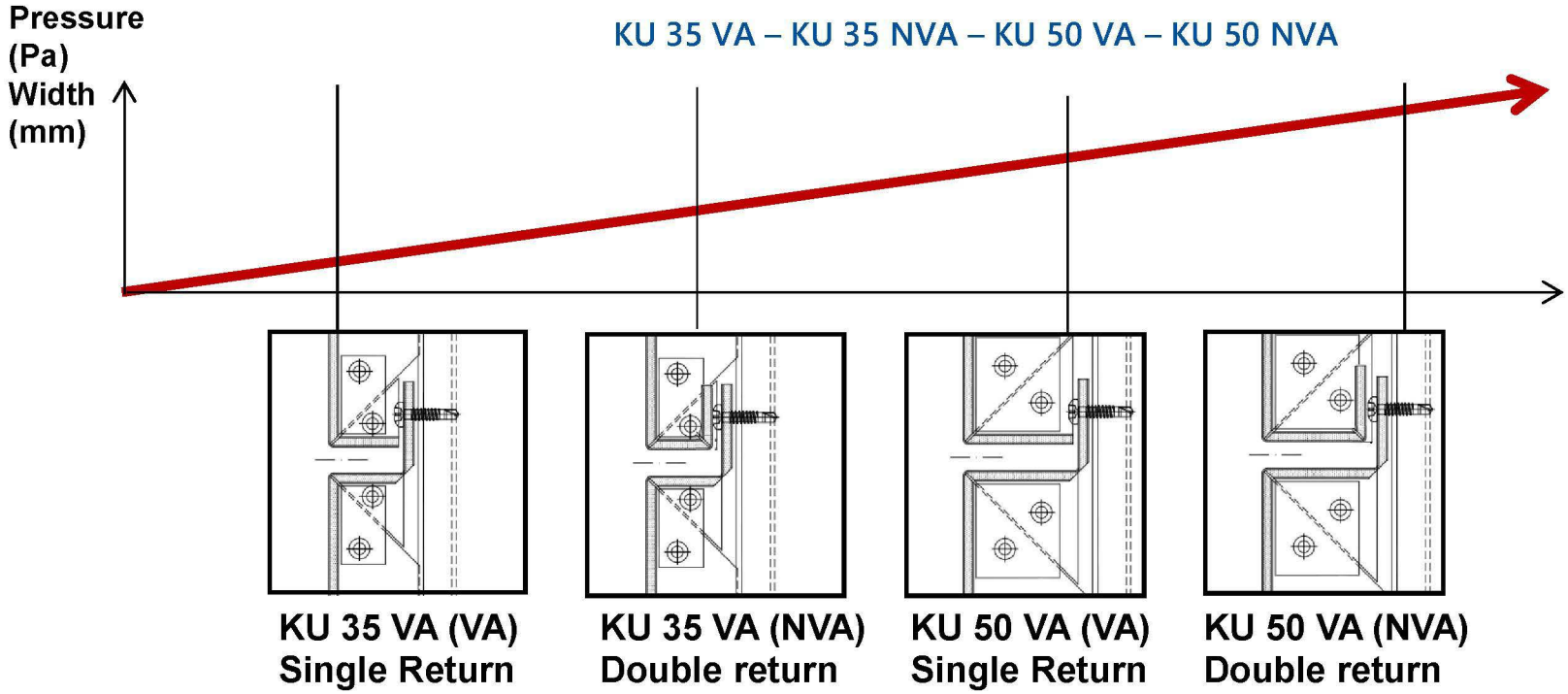


ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

CASSETTE SYSTEM FOR VERTICAL LAYOUTS

Suited for vertical formats (Small width)

KU 35 VA – KU 35 NVA – KU 50 VA – KU 50 NVA

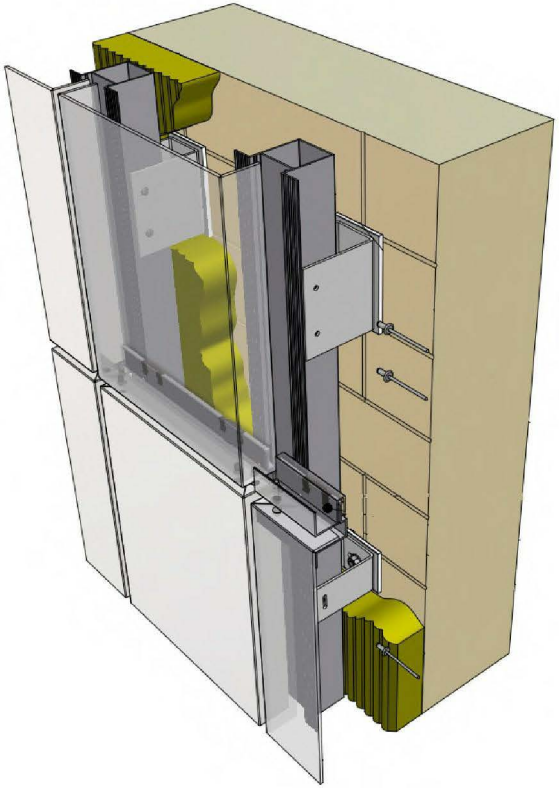


► Greater allowable wind load pressure **AND/OR** bigger allowable width

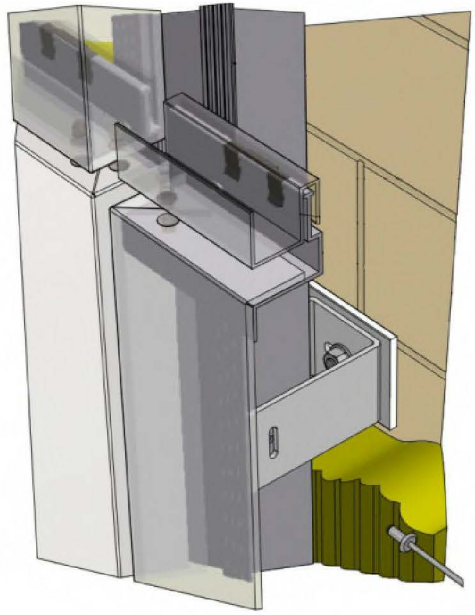
ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

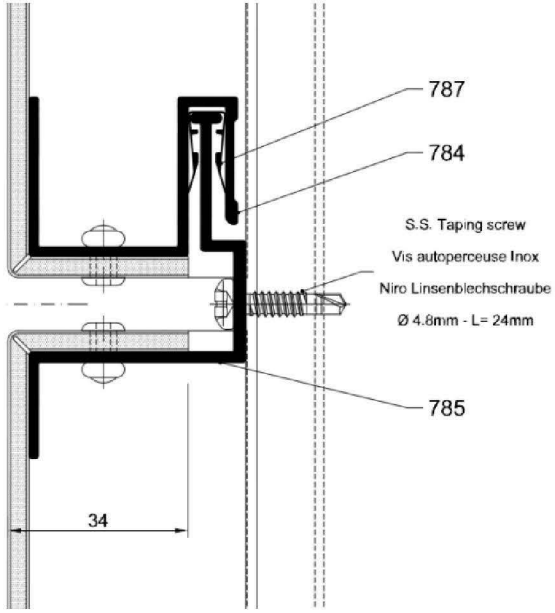
CASSETTE SYSTEM FOR HORIZONTAL LAYOUTS

KH 35



Suited for horizontal formats (Small heights)

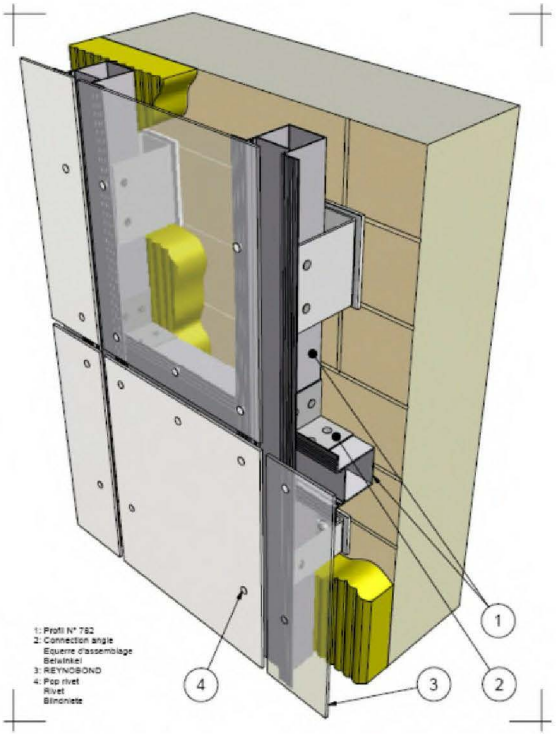


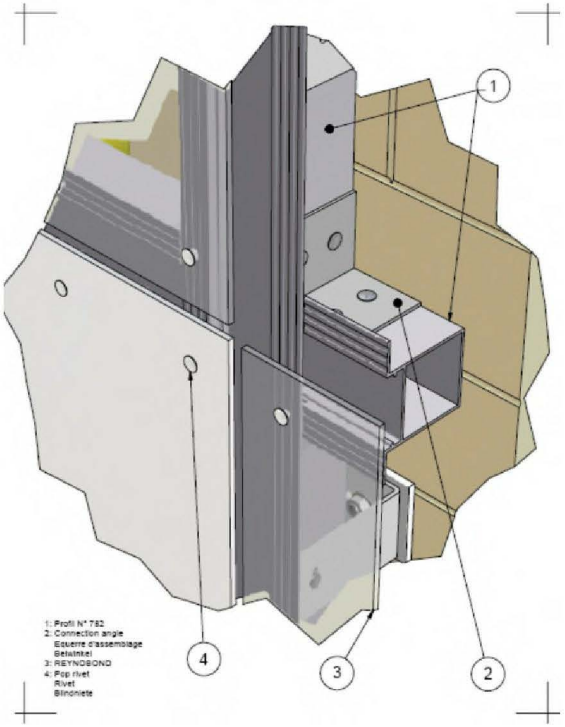


ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

RIVETED AND SCREWED SYSTEMS - FLAT PANELS - VISIBLE FIXATIONS

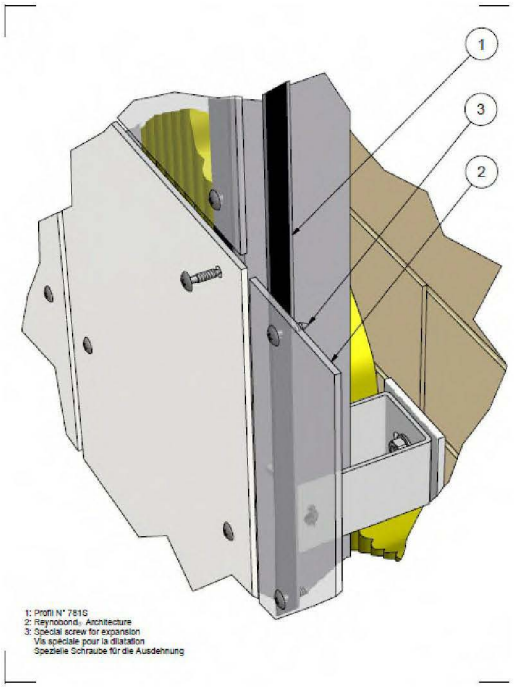
RV 50 2C – SC 50 2C – RT 50 2C – SW 2C – RV 50 4C – SC 50 4C - RV 60 4C – SC 60 4C





ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS
SCREWED SYSTEMS ON 2 EDGES

ON ALUMINIUM SUBSTRUCTURE

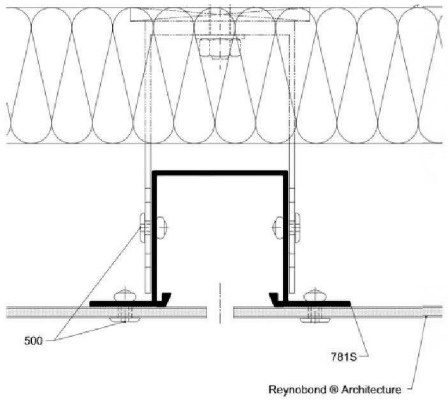


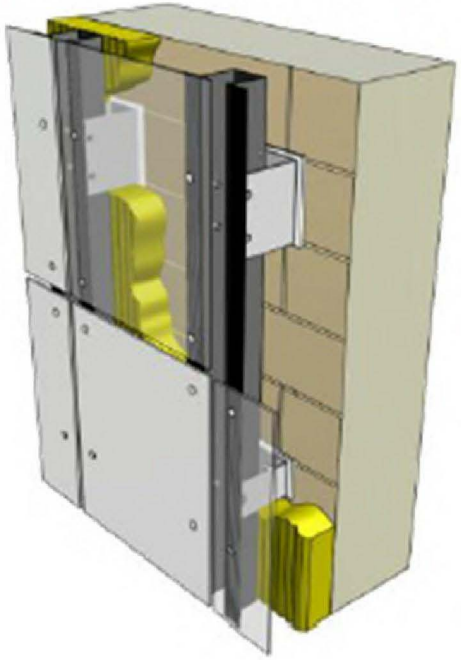
ON WOOD SUBSTRUCTURE – SW 2C

ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

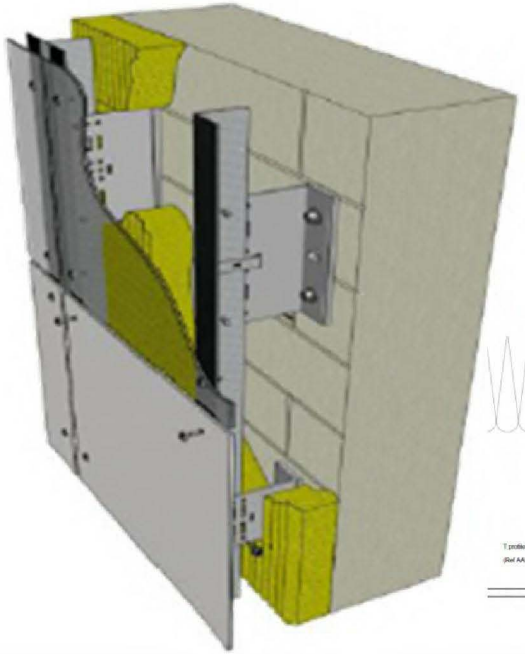
ON ALUMINIUM: RIVETED/SCREWED ON 2 EDGES

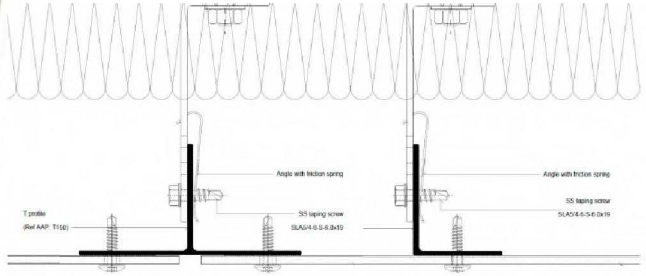
RV/SC 50 2C – OMEGAS PROFILES





RV/SC 50 2C – T AND L PROFILES

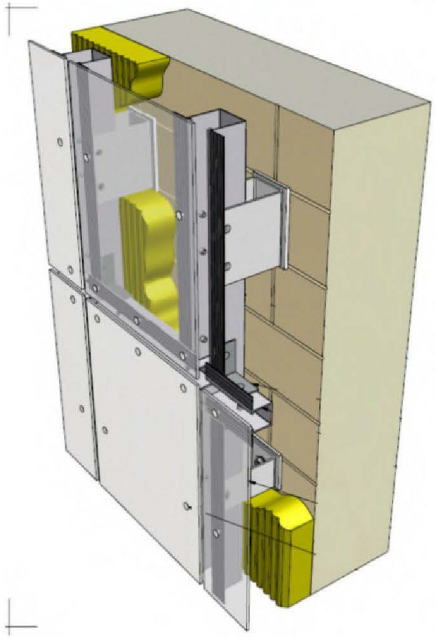


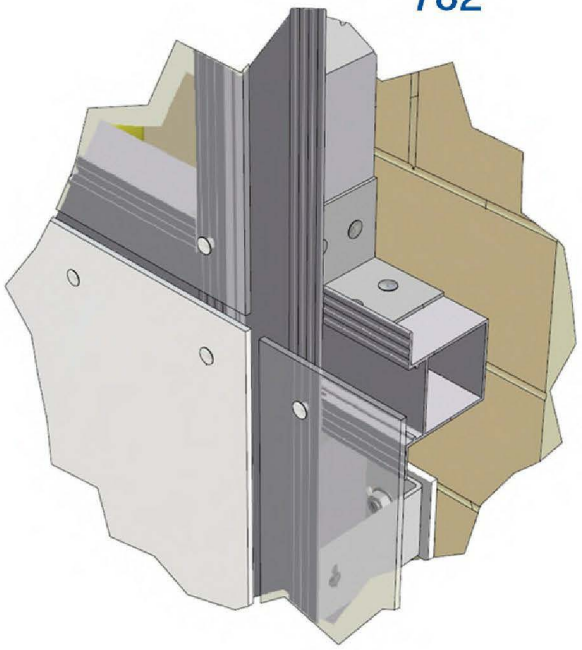


ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

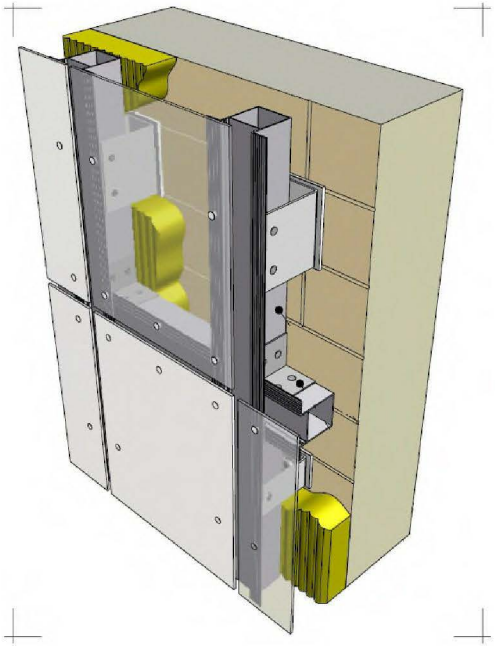
ON ALUMINIUM: RIVETED/SCREWED ON 4 EDGES

RV/SC 50 4C – OMEGAS PROFILES
781 - 1136





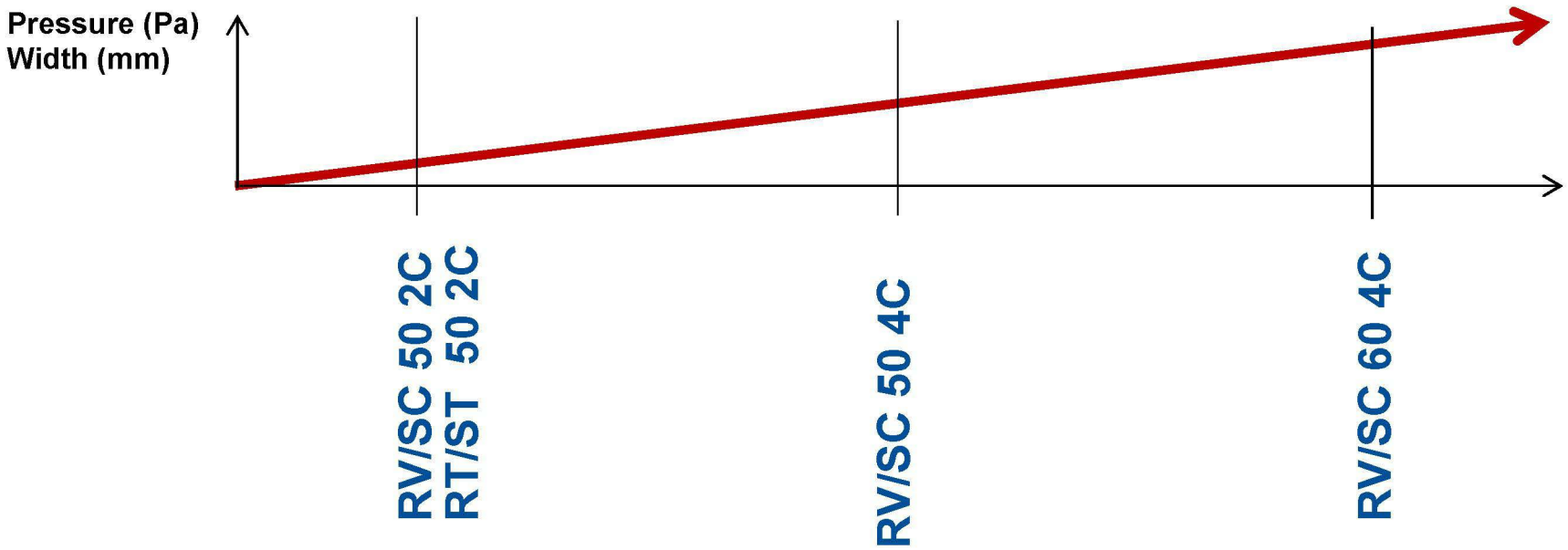
RV/SC 60 4C – OMEGAS PROFILES
782



ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

RIVETED AND SCREWED SYSTEMS - FLAT PANELS - VISIBLE FIXATIONS

RV 50 2C – SC 50 2C – RT 50 2C – SW 2C – RV 50 4C – SC 50 4C - RV 60 4C – SC 60 4C

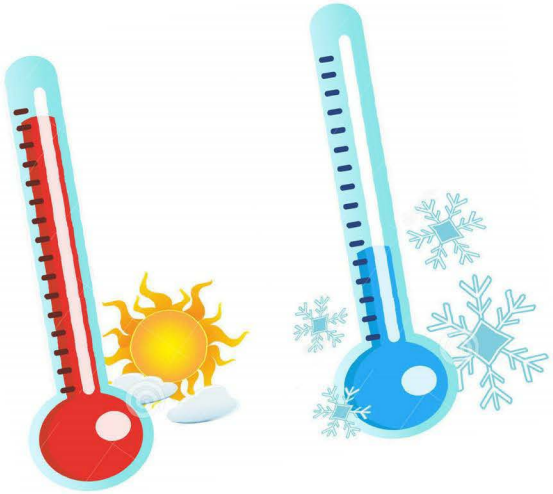


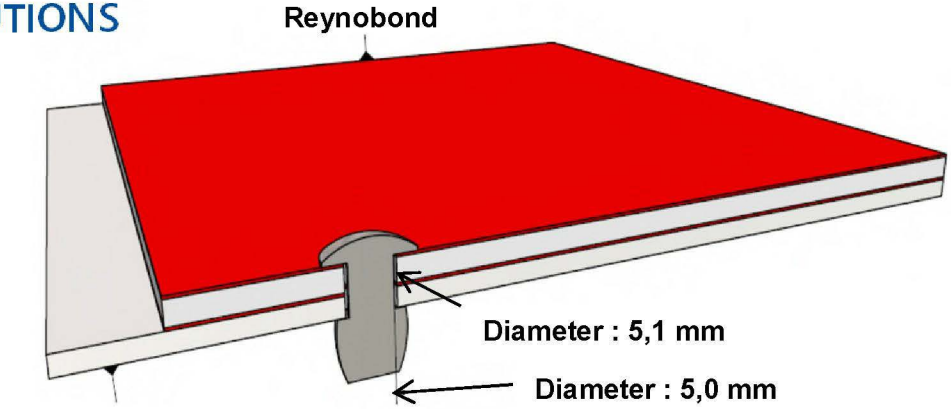
► Greater allowable wind load pressure **AND/OR** bigger allowable width

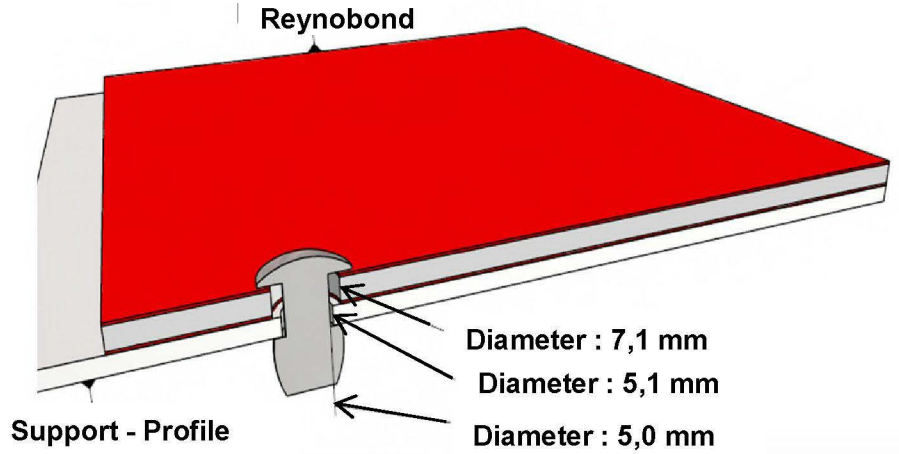
ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

THERMAL EXPANSION

- FIXING POINT
- EXPANSION POINT



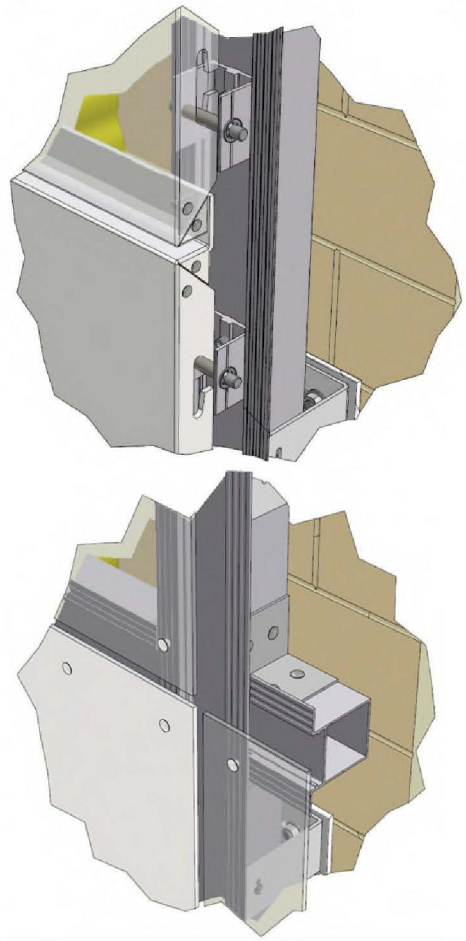




TECHNICAL SUPPORT

➢ ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

➢ GENERAL RECOMMENDATIONS



▸CASSETTE SYSTEMS

- SPAN BETWEEN EACH NOTCHES MUST BE AT LEAST INFERIOR OR EQUAL TO 500 MM
- FOR REINFORCEMENT SOLUTIONS, GLUED STIFFENERS HAVE TO BE MECHANICALLY GLUED ON THE CASSETTE'S RETURNS
- FOR KH 35, SPAN BETWEEN EACH RIVET MUST BE AT LEAST INFERIOR OR EQUAL TO 500 MM

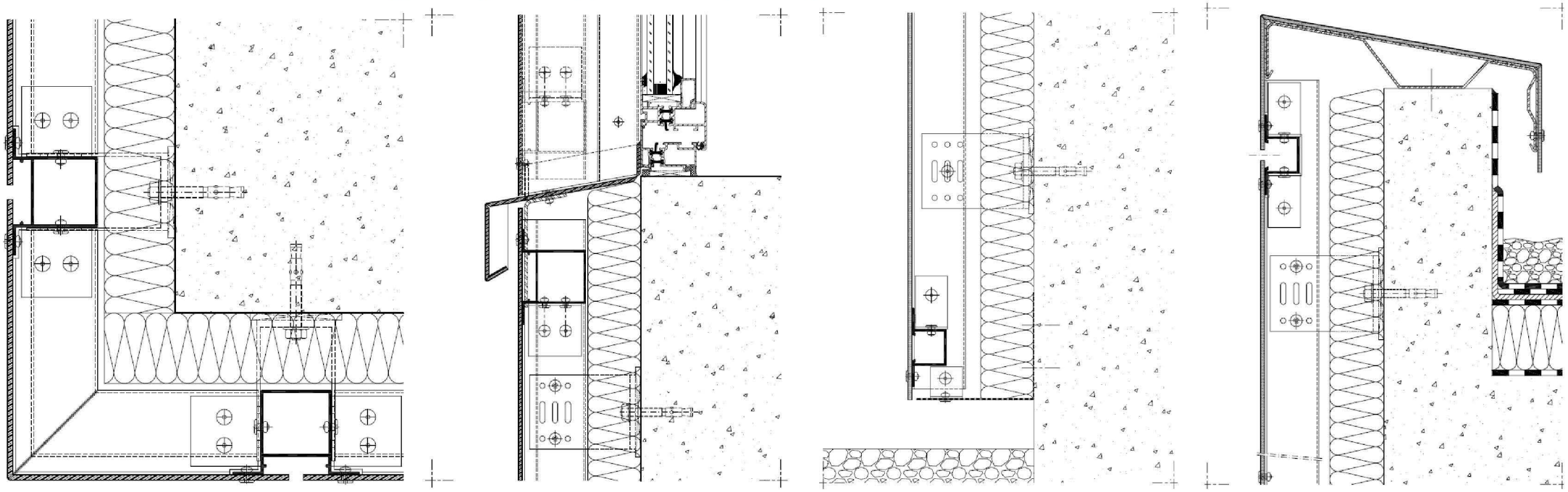
▸ RIVETED AND SCREWED SYSTEMS

- SPAN BETWEEN EACH RIVET/SCREW MUST BE INFERIOR OR EQUAL TO 500 MM
- THERMAL DILATATION MUST BE TAKEN INTO ACCOUNT
- FOR FIXATION ON WOOD, THE MAXIMAL SPAN BETWEEN EACH CARRYING PROFILE IS 600 MM

ADVISES FOR PRODUCT AND SYSTEM SOLUTIONS

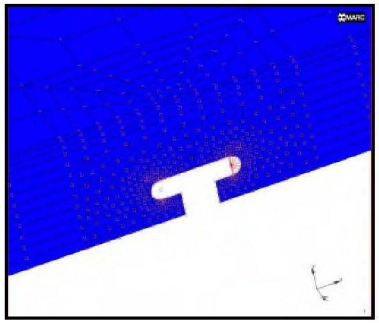
SPECIFIC DRAWINGS AND SOLUTIONS

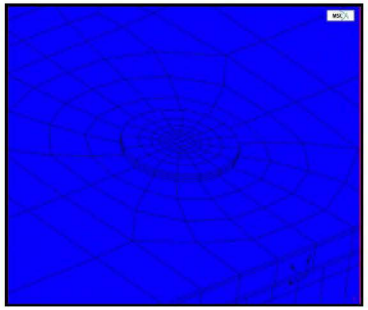
Drawings for special applications upon request

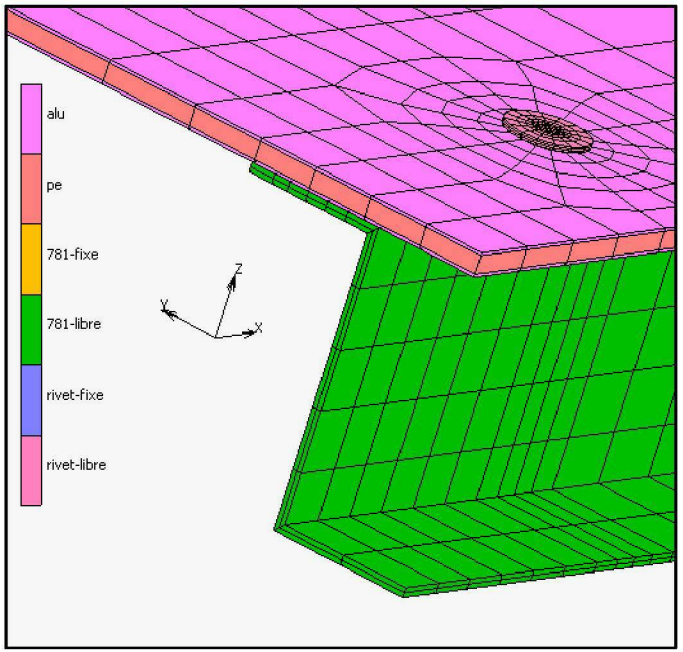


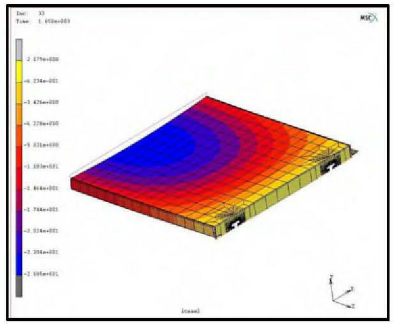
CALCULATION FOR ELEMENT DIMENSIONING

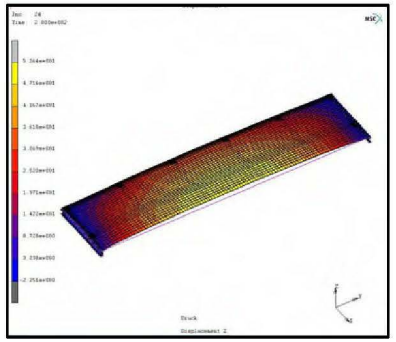
- FINITE ELEMENT ANALYSES (For Arconic Standard fixing systems and products)
- Official Arconic Calculation Notes upon request











TECHNICAL SUPPORT

CALCULATION FOR A KU CASSETTE ELEMENT DIMENSIONING - 3 MECHANICAL LIMITATIONS :

- MAXIMUM DEFLECTION OF THE PANEL IS:
  - FOR REYNOBOND: THE 1/30TH OF THE WIDTH (MAX. 50 MM)
  - FOR REYNODUAL: THE 1/80TH OF THE WIDTH (MAX. 50 MM)
- MAXIMUM STRESS METAL SKINS IS
  - FOR REYNOBOND : 91.4 MPA (APART FROM SOME SPECIFIC FINISHES)
  - FOR REYNODUAL : 80.0 MPA
- ALLOWABLE REACTION FORCE ON A NOTCH IS:
  - 392 N FOR REYNOBOND WITH ALUMINIUM SHEETS
  - 410 N FOR REYNOBOND WITH ZINC SHEETS
  - 571 N FOR REYNODUAL

DEFLECTION
STRESS
REACTION

TECHNICAL SUPPORT

CALCULATION FOR A RIVETED/SCREWED FLAT REYNOBOND PANEL - 4 MECHANICAL LIMITATIONS

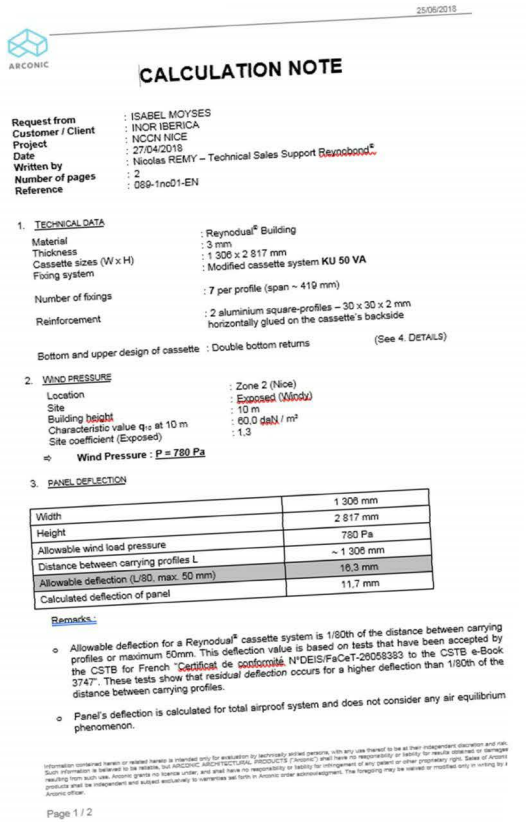
- MAXIMUM DEFLECTION OF THE PANEL IS:
  - FOR REYNOBOND: THE 1/30TH OF THE WIDTH (MAX. 50 MM)
  - FOR REYNODUAL: THE 1/80TH OF THE WIDTH (MAX. 50 MM)
- MAXIMUM STRESS METAL SKINS IS
  - FOR REYNOBOND : 91.4 MPA (APART FROM SOME SPECIFIC FINISHES)
  - FOR REYNODUAL : 80.0 MPA
- ALLOWABLE REACTION FORCE ON A FIXING IS:
  - 692 N FOR SCREWED SYSTEMS (REYNOBOND)
  - 892 N FOR RIVETED PANELS (REYNOBOND)
  - 907 N FOR RIVETED PANELS (REYNODUAL)
- ALLOWABLE DEFLECTION FOR HORIZONTAL PROFILES: 1/100TH OF THE SPAN BETWEEN FIXINGS

REYNOBOND®
REYNOLUX®

TECHNICAL SUPPORT

YOU CAN GET A CALCULATION NOTE THAT DEFINES:

- THE FIXING SYSTEM
- THE PRODUCT
- TYPE AND NUMBER OF FIXINGS
- REINFORCEMENT SOLUTION IF NEEDED
- DRAWING OF THE SYSTEM + STIFFENERS



25/06/2018

ARCONIC

CALCULATION NOTE

Request from	: ISABEL MOYSES
Customer / Client	: INOR IBERICA
Project	: NCCN NICE
Date	: 27/04/2018
Written by	: Nicolas REMY – Technical Sales Support Reynobond®
Number of pages	: 2
Reference	: 089-1nc01-EN

1. TECHNICAL DATA

Material	: Reynodual® Building
Thickness	: 3 mm
Cassette sizes (W x H)	: 1 306 x 2 817 mm
Fixing system	: Modified cassette system **KU 50 VA**
Number of fixings	: 7 per profile (span ~ 419 mm)
Reinforcement	: 2 aluminium square-profiles – 30 x 30 x 2 mm horizontally glued on the cassette's backside
Bottom and upper design of cassette	: Double bottom returns (See 4. DETAILS)

2. WIND PRESSURE

Location	: Zone 2 (Nice)
Site	: Exposed (Windy)
Building height	: 10 m
Characteristic value $q_{r,0}$ at 10 m	: 60,0 daN / m²
Site coefficient (Exposed)	: 1,3

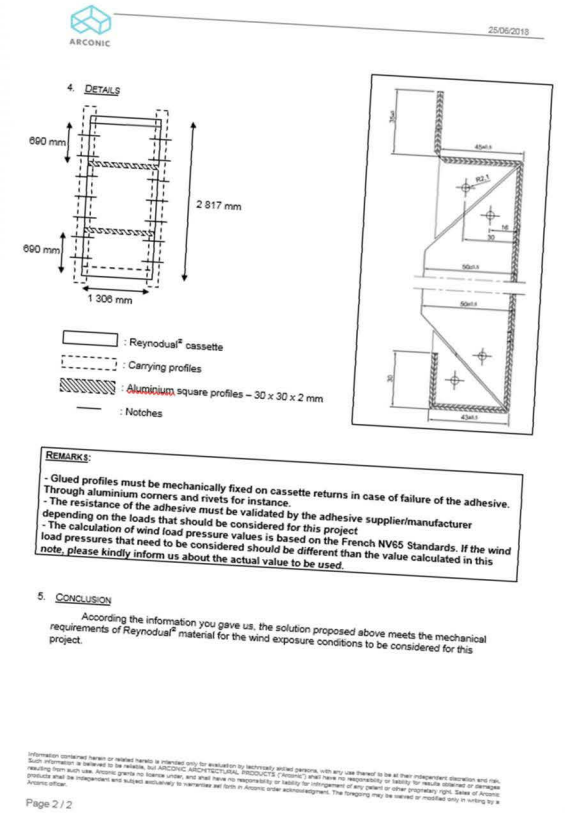
⇨ **Wind Pressure : P = 780 Pa**

3. PANEL DEFLECTION

Width	1 306 mm
Height	2 817 mm
Allowable wind load pressure	780 Pa
Distance between carrying profiles L	~ 1 306 mm
Allowable deflection (L/80, max. 50 mm)	16,3 mm
Calculated deflection of panel	11,7 mm

Remarks :

- Allowable deflection for a Reynodual® cassette system is 1/80th of the distance between carrying profiles or maximum 50mm. This deflection value is based on tests that have been accepted by the CSTB for French "Certificat de conformité N°DEIS/FaCeT-26058333 to the CSTB e-Book 3747". These tests show that residual deflection occurs for a higher deflection than 1/80th of the distance between carrying profiles.
- Panel's deflection is calculated for total airproof system and does not consider any air equilibrium phenomenon.



ARCONIC

25/06/2018

4. DETAILS

: Reynodual® cassette
: Carrying profiles
: Aluminium square profiles – 30 x 30 x 2 mm
: Notches

REMARKS:

- Glued profiles must be mechanically fixed on cassette returns in case of failure of the adhesive. Through aluminium corners and rivets for instance.
- The resistance of the adhesive must be validated by the adhesive supplier/manufacturer depending on the loads that should be considered for this project
- The calculation of wind load pressure values is based on the French NV65 Standards. If the wind load pressures that need to be considered should be different than the value calculated in this note, please kindly inform us about the actual value to be used.

5. CONCLUSION

According the information you gave us, the solution proposed above meets the mechanical requirements of Reynodual® material for the wind exposure conditions to be considered for this project.

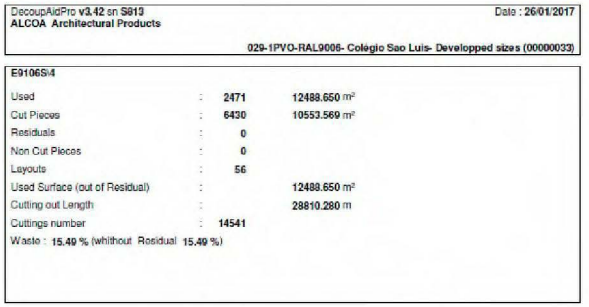
REYNOBOND®
REYNOLUX®

TECHNICAL SUPPORT

- YOU CAN GET A CUTTING OPTIMIZATION WITH:

FOR EACH REQUIRED COLOR:

- BARE PANELS' DIMENSIONS
- CUTTING LAYOUT
- TOTAL SURFACE
- PERCENTAGE OF WASTE



DecoupAidPro v3.42 sn S813 — Date : 26/01/2017
ALCOA Architectural Products
029-1PVO-RAL9006- Colégio Sao Luis- Developped sizes (00000033)

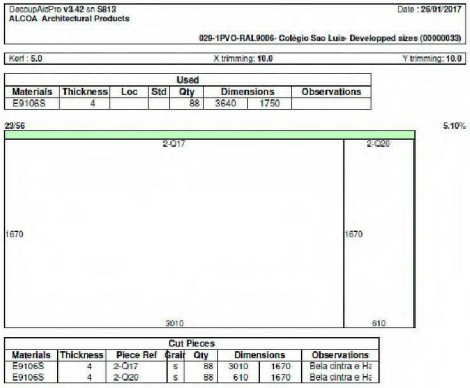
E9106S/4

Used	:	2471	12488.650 m²
Cut Pieces	:	6430	10553.569 m²
Residuals	:	0	
Non Cut Pieces	:	0	
Layouts	:	56	
Used Surface (out of Residual)	:		12488.650 m²
Cutting out Length	:		28810.280 m
Cuttings number	:	14541	

Waste : 15.49 % (whithout Residual 15.49 %)

Used

Materials	Thickness	Loc	Std	Qty	Dimensions		Observations
E9106S	4			99	4100	1500	
E9106S	4			74	4100	1250	
E9106S	4			30	3800	1500	
E9106S	4			302	3700	1500	
E9106S	4			103	3640	1750	
E9106S	4			955	3640	1500	
E9106S	4			44	3640	1250	
E9106S	4			199	3540	1500	
E9106S	4			28	3540	1250	
E9106S	4			103	3440	1250	
E9106S	4			308	3020	1250	
E9106S	4			226	2820	1250	



DecoupAidPro v3.42 sn S813 — Date : 26/01/2017
ALCOA Architectural Products
029-1PVO-RAL9006- Colégio Sao Luis- Developped sizes (00000033)

Kerf : 5.0 — X trimming: 10.0 — Y trimming: 10.0

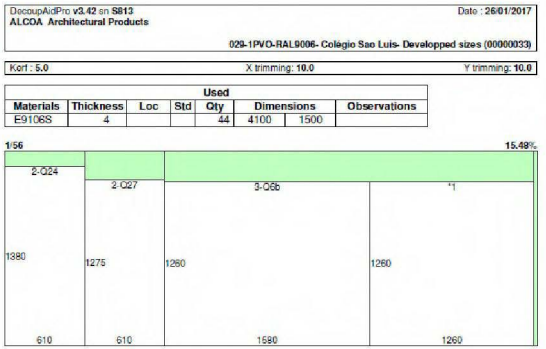
Used

Materials	Thickness	Loc	Std	Qty	Dimensions		Observations
E9106S	4			88	3640	1750	

22/56 — 5.10%

Cut Pieces

Materials	Thickness	Piece Ref	Grain	Qty	Dimensions		Observations
E9106S	4	2-Q17	s	88	3010	1670	Bela cintra e Ha
E9106S	4	2-Q20	s	88	610	1670	Bela cintra e Ha



DecoupAidPro v3.42 sn S813 — Date : 26/01/2017
ALCOA Architectural Products
029-1PVO-RAL9006- Colégio Sao Luis- Developped sizes (00000033)

Kerf : 5.0 — X trimming: 10.0 — Y trimming: 10.0

Used

Materials	Thickness	Loc	Std	Qty	Dimensions		Observations
E9106S	4			44	4100	1500	

1/56 — 15.48%

Cut Pieces

	Materials	Thickness	Piece Ref	Grain	Qty	Dimensions		Observations
*1	E9106S	4	1-Q70	s	36	1260	1260	Av Paulista
	E9106S	4	2-Q24	s	44	610	1380	Bela cintra e Ha
	E9106S	4	2-Q27	s	44	610	1275	Bela cintra e Ha
*1	E9106S	4	2-Q45	s	8	1260	1260	Bela cintra e Ha
	E9106S	4	3-Q6b	s	44	1580	1260	Posterior colegi

DecoupAidPro v3.42 sn S813 — Date : 26/01/2017
ALCOA Architectural Products
029-1PVO-RAL9006- Colégio Sao Luis- Developped sizes (00000033)

Kerf : 5.0 — X trimming: 10.0 — Y trimming: 10.0

Used

Materials	Thickness	Loc	Std	Qty	Dimensions		Observations
E9106S	4			1	3640	1750	

20/56 — 14.56%

Cut Pieces

Materials	Thickness	Piece Ref	Grain	Qty	Dimensions		Observations
E9106S	4	2-Q24	s	1	610	1380	Bela cintra e Ha
E9106S	4	2-Q40	s	1	1710	1670	Bela cintra e Ha
E9106S	4	2-Q79	s	1	1260	1395	Bela cintra e Ha

TECHNICAL SUPPORT

CERTIFICATION AND PRODUCT QUALIFICATION

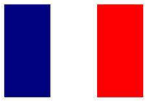
REYNOBOND® IS CERTIFIED IN MANY COUNTRIES:

- PRODUCT CERTIFICATIONS
- SYSTEMS CERTIFICATIONS
- FIRE CERTIFICATIONS
- ENVIRONMENTAL CERTIFICATIONS

TECHNICAL SUPPORT

➢ CERTIFICATION AND PRODUCT QUALIFICATION

FRANCE



FOR REYNOBOND®: CERTIFIÉ CSTB CERTIFIED

FOR SYSTEMS : 2.2/16-1733_V1 FOR RIVETED/SCREWED SYSTEM

2/11-1440 FOR CASSETTE SYSTEM

2.2/16-1734_V1 FOR SCREWED ON WOOD SYSTEM

2/16-1758 FOR REYNOBOND ZINC - SCREWED/RIVETED

GERMANY

FOR REYNOBOND®: Ü ZERT 3/837/04

FOR SYSTEMS : ZULASSUNG Z-10.3-722

TECHNICAL SUPPORT

CERTIFICATION AND PRODUCT QUALIFICATION

CSTB le futur en construction

Warrington FIRE research

Deutsches Institut für Bautechnik DIBt

Добровольная сертификация РСТ

ГОССТРОЙ РОССИИ

Instytut Techniki Budowlanej

AFITI LICOF

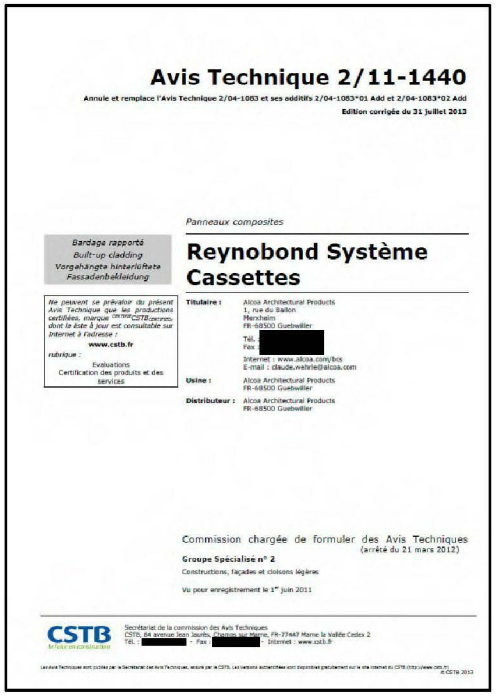
CSI Certificazione e Testing

BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

FIRE REACTION CERTIFICATIONS

- EURO NORMS -EN 13501-1
  - B-S1,D0 FOR REYNOBOND FR WITH ALUMINIUM SHEETS
  - B-S1,D0 FOR REYNOBOND FR WITH ZINC SHEETS
  - BOTH FOR CASSETTE AND RIVETED/SCREWED SYSTEMS
- A2-S1,D0 FOR REYNOBOND A2 WITH ALUMINIUM SHEETS
  - BOTH FOR CASSETTE AND RIVETED/SCREWED SYSTEMS

SYSTEM CERTIFICATIONS



Avis Technique 2/11-1440

Annule et remplace l'Avis Technique 2/04-1083 et ses additifs 2/04-1083*01 Add et 2/04-1083*02 Add
Edition corrigée du 31 juillet 2013

Panneaux composites

Bardage rapporté
Built-up cladding
Vorgehängte hinterlüftete Fassadenbekleidung

Reynobond Système Cassettes

Ne peuvent se prévaloir du présent Avis Technique que les productions certifiées, marque CSTB certifié, dont la liste à jour est consultable sur Internet à l'adresse :
www.cstb.fr
rubrique : Evaluations Certification des produits et des services

Titulaire : Alcoa Architectural Products
1, rue du Ballon
Mersheim
FR-68500 Guebwiller
Tél. : [redacted]
Fax : [redacted]
Internet : www.alcoa.com/bos
E-mail : claude.wehrle@alcoa.com

Usine : Alcoa Architectural Products
FR-68500 Guebwiller

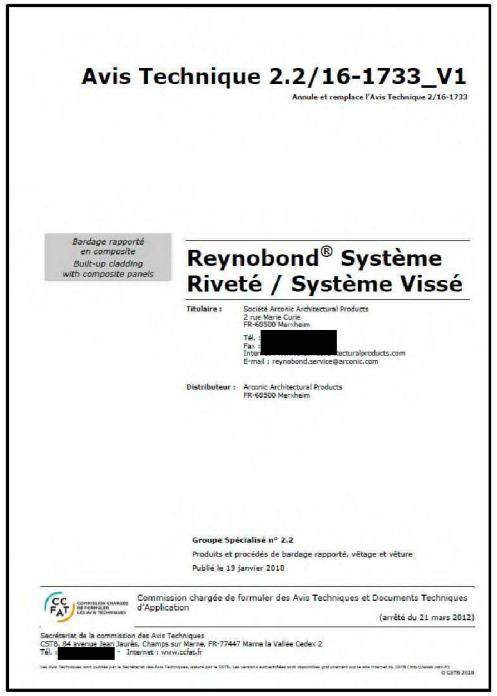
Distributeur : Alcoa Architectural Products
FR-68500 Guebwiller

Commission chargée de formuler des Avis Techniques
(arrêté du 21 mars 2012)

Groupe Spécialisé n° 2
Constructions, façades et cloisons légères

Vu pour enregistrement le 1er juin 2011

CSTB
Secrétariat de la commission des Avis Techniques
CSTB, 84 avenue Jean Jaurès, Champs sur Marne, FR-77447 Marne la Vallée Cedex 2
Tél. : [redacted] - Fax : [redacted] - Internet : www.cstb.fr



Avis Technique 2.2/16-1733_V1

Annule et remplace l'Avis Technique 2/16-1733

Bardage rapporté en composite
Built-up cladding with composite panels

Reynobond® Système Riveté / Système Vissé

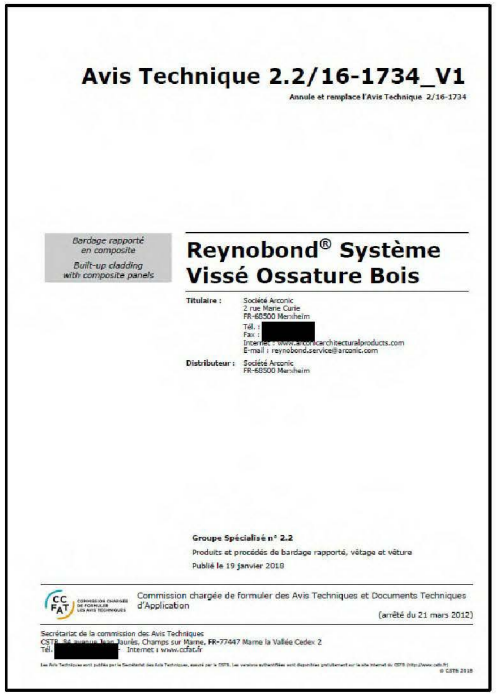
Titulaire : Société Arconic Architectural Products
2 rue Marie Curie
FR-68500 Merxheim
Tél. : [redacted]
Fax : [redacted]
Internet : www.arconic.com/architecturalproducts
E-mail : reynobond.service@arconic.com

Distributeur : Arconic Architectural Products
FR-68500 Merxheim

Groupe Spécialisé n° 2.2
Produits et procédés de bardage rapporté, vêtage et vêture
Publié le 19 janvier 2010

Commission chargée de formuler des Avis Techniques et Documents Techniques d'Application
(arrêté du 21 mars 2012)

Secrétariat de la commission des Avis Techniques
CSTB, 84 avenue Jean Jaurès, Champs sur Marne, FR-77447 Marne la Vallée Cedex 2
Tél. : [redacted] - Internet : www.cstb.fr



Avis Technique 2.2/16-1734_V1

Annule et remplace l'Avis Technique 2/16-1734

Bardage rapporté en composite
Built-up cladding with composite panels

Reynobond® Système Vissé Ossature Bois

Titulaire : Société Arconic
2 rue Marie Curie
FR-68500 Merxheim
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Fax : [redacted]
Internet : www.arconic.com/architecturalproducts
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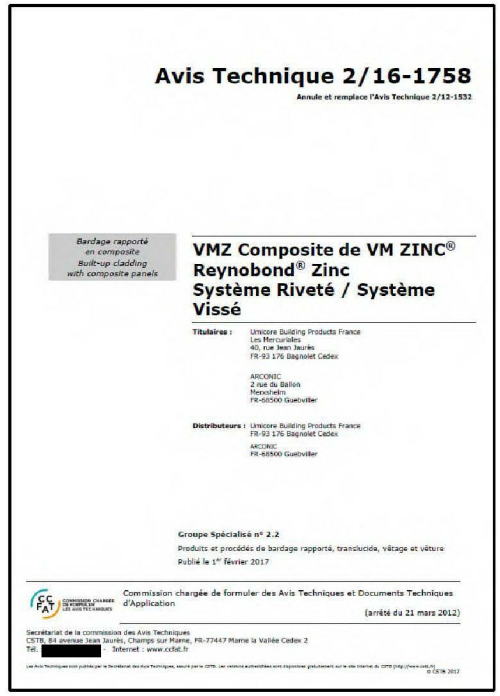
Distributeur : Société Arconic
FR-68500 Merxheim

Groupe Spécialisé n° 2.2
Produits et procédés de bardage rapporté, vêtage et vêture
Publié le 19 janvier 2010

Commission chargée de formuler des Avis Techniques et Documents Techniques d'Application
(arrêté du 21 mars 2012)

Secrétariat de la commission des Avis Techniques
CSTB, 84 avenue Jean Jaurès, Champs sur Marne, FR-77447 Marne la Vallée Cedex 2
Tél. : [redacted] - Internet : www.cstb.fr



Avis Technique 2/16-1758

Annule et remplace l'Avis Technique 2/12-1532

Bardage rapporté en composite
Built-up cladding with composite panels

VMZ Composite de VM ZINC® Reynobond® Zinc Système Riveté / Système Vissé

Titulaires : Umicore Building Products France
Les Mercuriales
40, rue Jean Jaurès
FR-93 176 Bagnolet Cedex

ARCONIC
2 rue du Ballon
Merxheim
FR-68500 Guebwiller

Distributeurs : Umicore Building Products France
FR-93 176 Bagnolet Cedex

ARCONIC
FR-68500 Guebwiller

Groupe Spécialisé n° 2.2
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Publié le 1er février 2017

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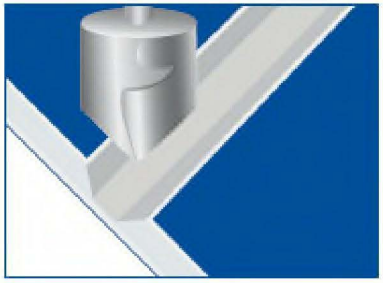
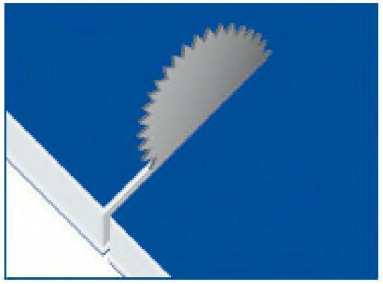
TRANSFORMATION POSSIBILITIES

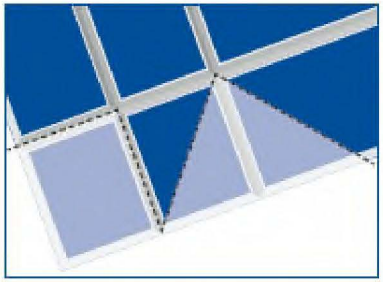
MILLING
GROOVING



DRILLING

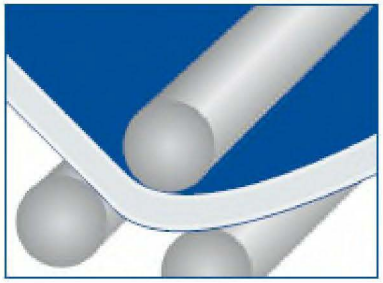
SAWING





CUTTING
PUNCHING

SHEARING

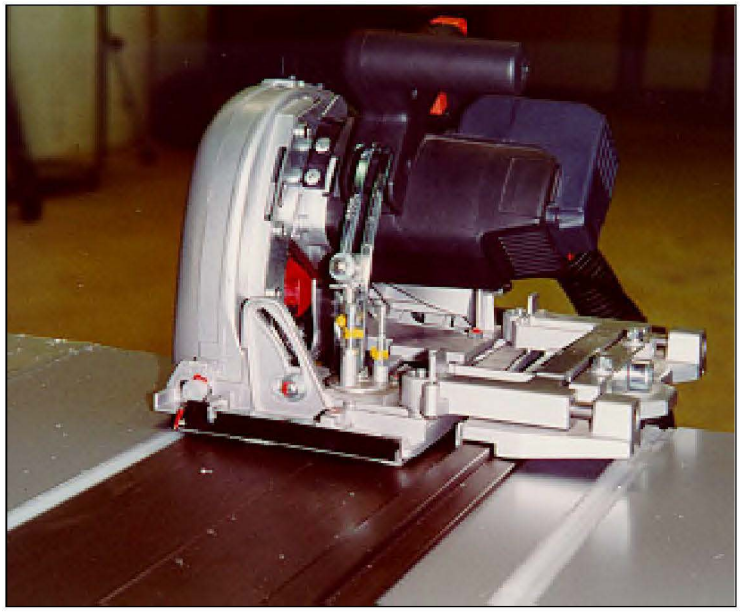


ROLL BENDING

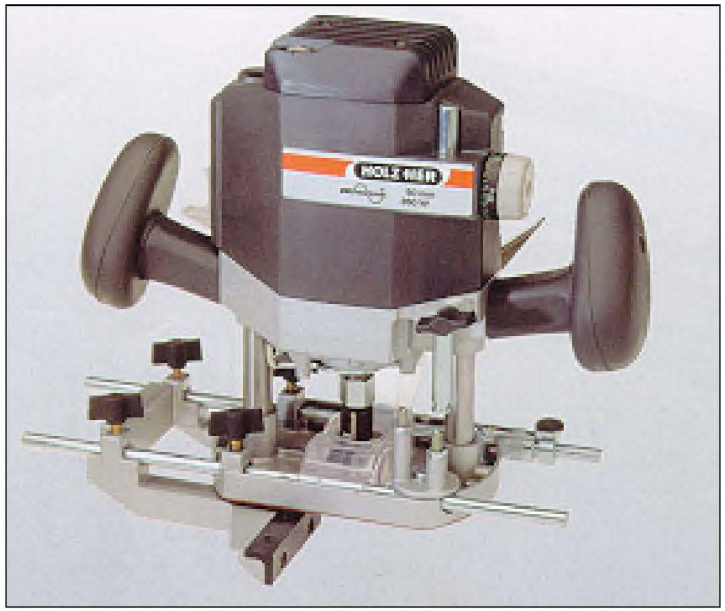
➢ MILLING - GROOVING

- **TECHNOLOGIES OF GROOVING :**

GROOVING CIRCULAR SAW



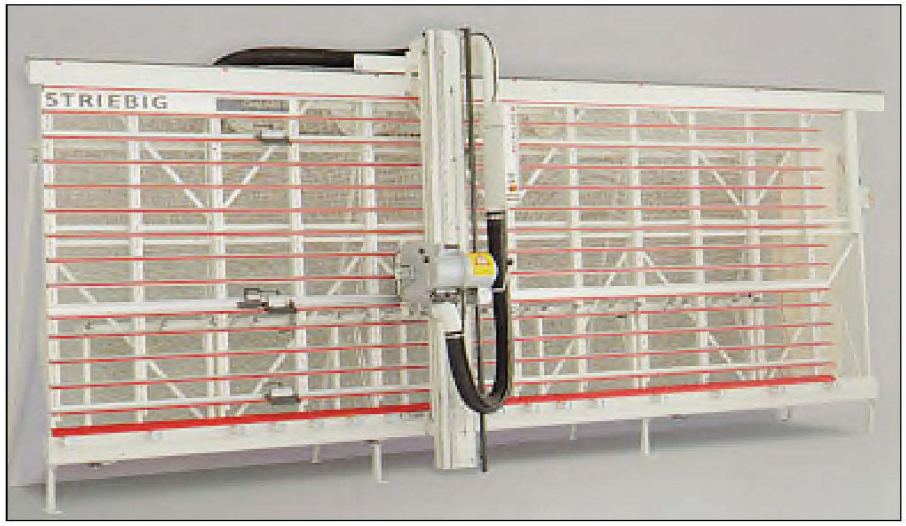
ROUTER



➢ MILLING - GROOVING

- **TECHNOLOGIES OF GROOVING :**

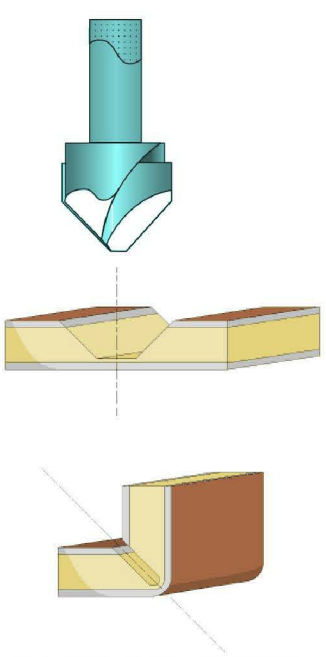
VERTICAL PANEL SAW



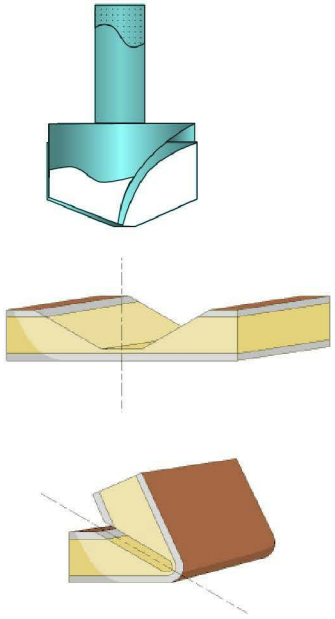
CNC MACHINE

GROOVING AND FOLDING POSSIBILITIES

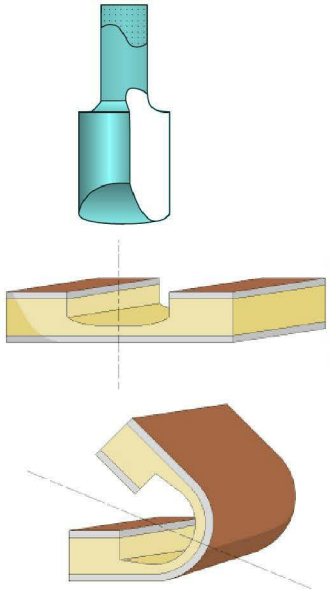
90° BENDING

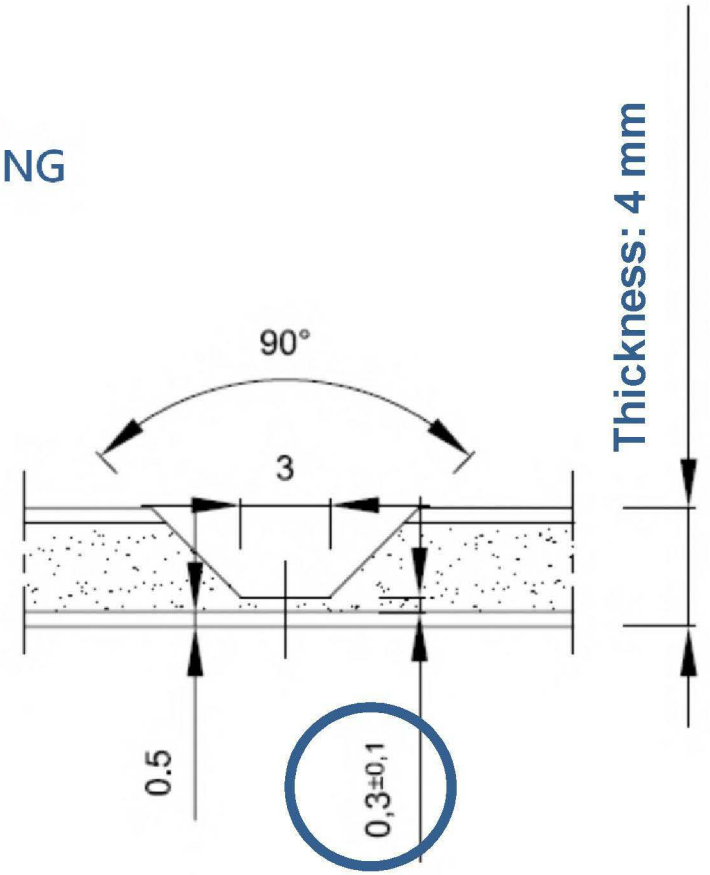


135° BENDING



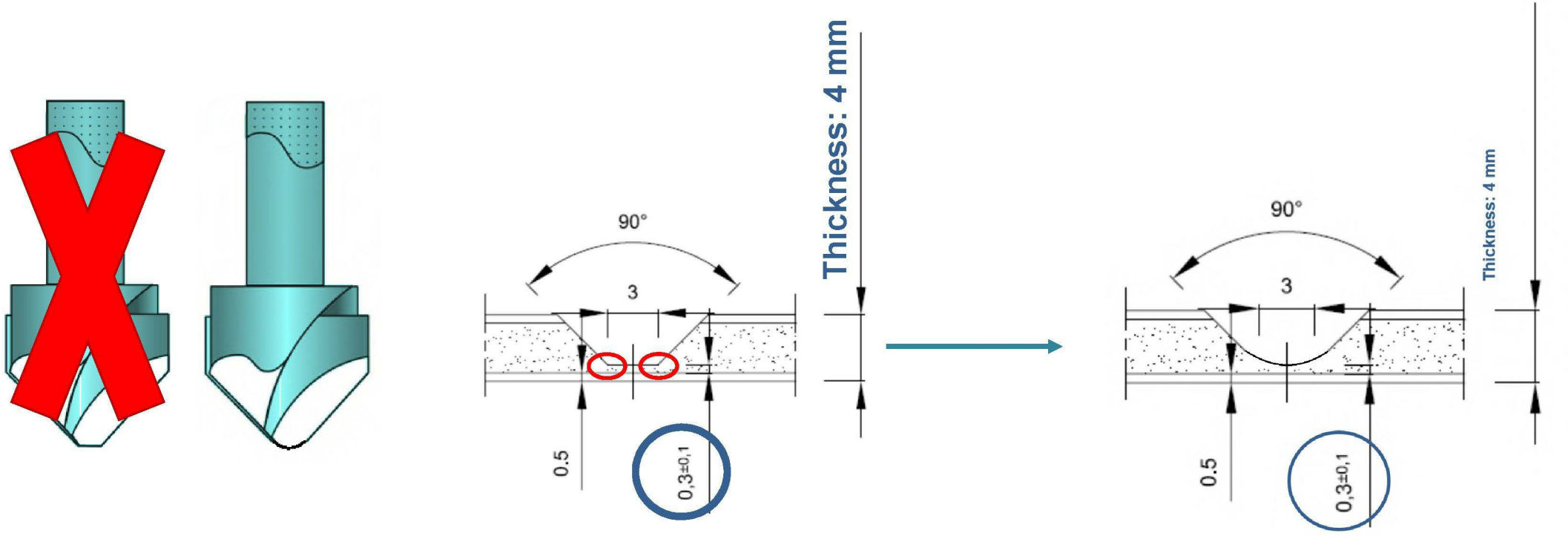
LARGER RADIUS BENDING





GROOVING AND FOLDING POSSIBILITIES

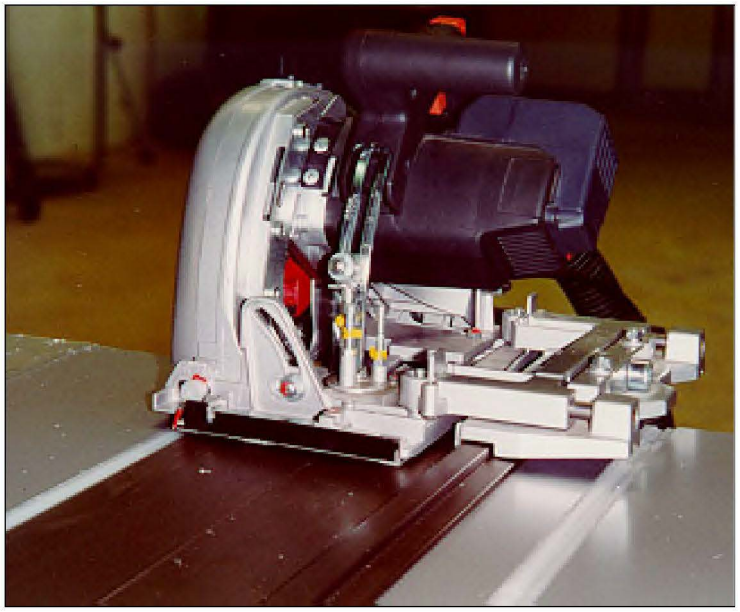
90° BENDING EXCEPTION FOR A2 CORE PRODUCTS



➢ CUTTING - SAWING

- **ALL TECHNOLOGIES FOR ALUMINIUM MATERIAL ARE CONVENIENT:**

CIRCULAR SAW

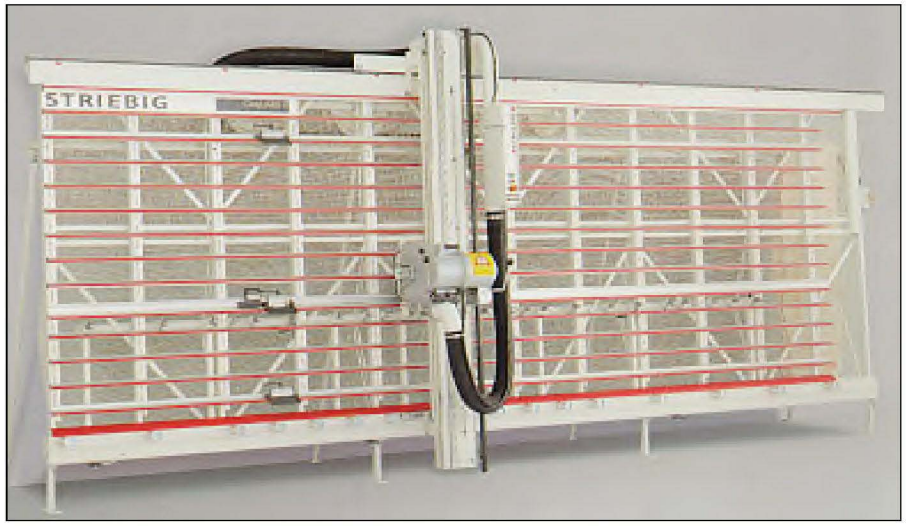


JIG SAW

➢ CUTTING - SAWING

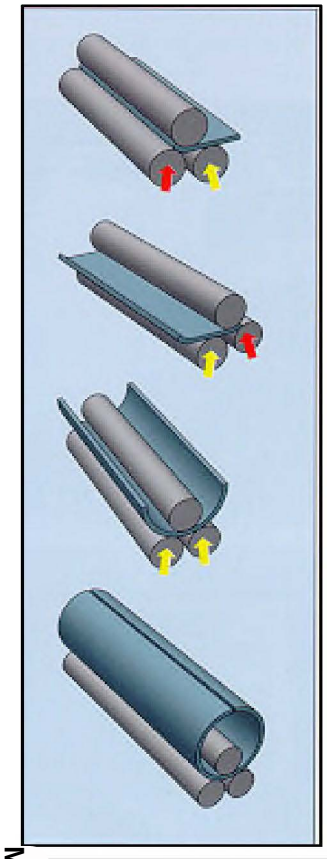
- **ALL TECHNOLOGIES FOR ALUMINIUM MATERIAL ARE CONVENIENT:**

VERTICAL PANEL SAW



CNC MACHINE

BENDING POSSIBILITIES



- MINIMAL INTERNAL RADIUS :

R (FOR FR)= 15 X THICKNESS (R=60MM FOR 4 MM THICK MATERIAL)

- AN ELASTICITY EFFECT HAS TO BE TAKEN INTO CONSIDERATION

THANK YOU FOR YOUR ATTENTION

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ARCONIC

MET00053158_P10_0046

REYNOBOND®
REYNOLUX®

Missions of the Team

- Advises for product and system solutions
- Calculation for element dimensioning
- Cutting optimizations
- Certification and product qualification
- Product transformation possibilities

REYNOBOND®
REYNOLUX®

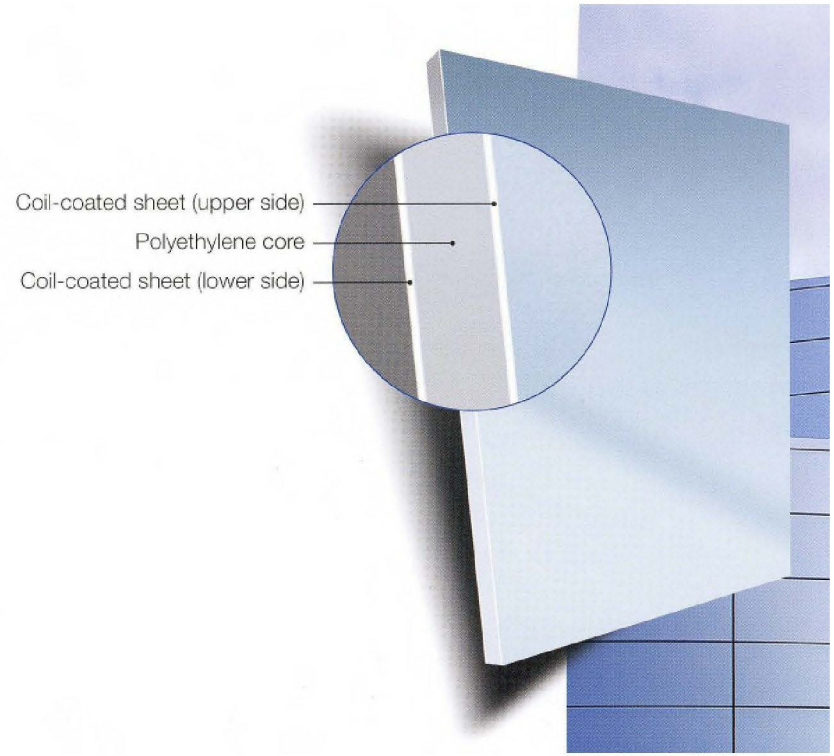
Reynobond® advantages

- ELASTIC BEHAVIOR VERSUS DIMENSIONING
- WEIGHT VERSUS RIGIDITY

EXAMPLES :

MAXIMAL DEFLECTION FOR REYNOBOND PANELS: L/30
MAXIMAL DEFLECTION FOR REYNOLUX SHEETS: L/50
MAXIMAL DEFLECTION FOR REYNODUAL SHEETS: L/80

RB554 RIGIDITY ⇔ RIGIDITY OF 3,33 THICK ALUMINIUM SHEET
RB554 FR CORE : 7,6 KG/M² - RLUX 3,3 MM THICK: 9,2 KG/M²
RDUAL 3 MM: 8,2 KG/M²



1500

REYNOBOND®
REYNOLUX®

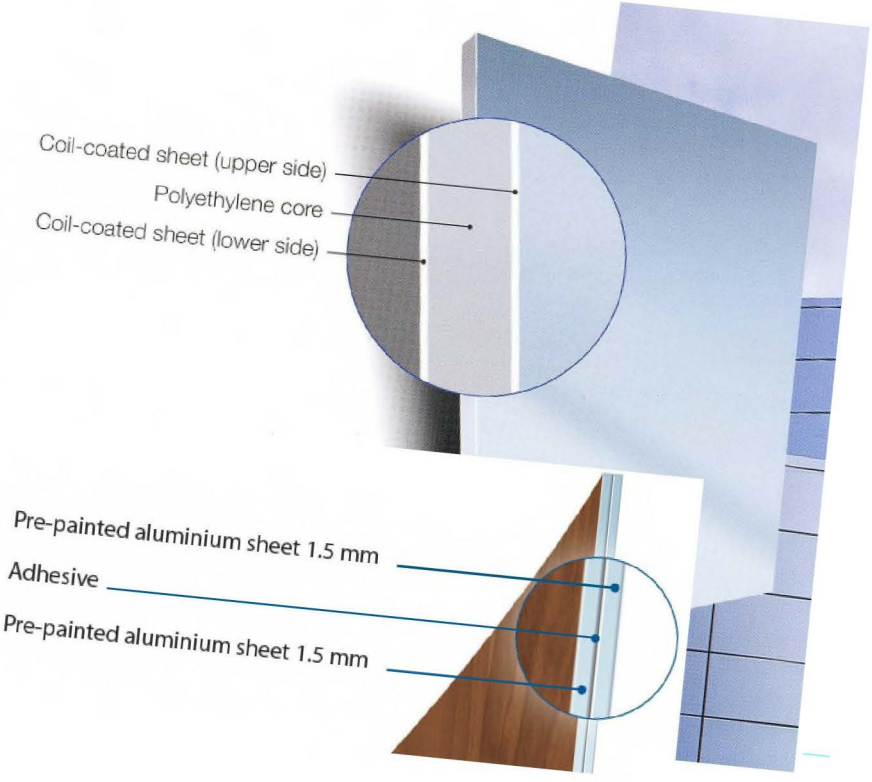
Physical properties

REYNOBOND®

Composition Reynobond® aluminium composite panel		FR core - Fire-retardant	A2 core
Thickness		4 mm	4 mm
Coated aluminium sheet thickness		0.5 mm	0.5 mm
Core		FR - fire-retardant	A2
Front side finish *		DURAGLOSS® 5000 (35 µm) or PVDF 70 / 30 (25 µm) and anti-corrosion treatment Other on request	DURAGLOSS® 5000 (35 µm) or PVDF 70 / 30 (25 µm) and anti-corrosion treatment Other on request
Reverse side finish		Washcoat - Other on request	Washcoat - Other on request
Characteristics Reynobond® aluminium composite panel			
Width		1,000 mm / 1,250 mm / 1,500 mm / 1,750 mm / 2,000 mm (-0/+3 mm)	1,000 mm / 1,250 mm / 1,500 mm / 1,575 mm (-0/+3 mm)
Length		2,000 mm up to 6,050 mm	2,000 mm up to 6,050 mm
Weight in core		7.6 kg / m²	8.2 kg / m²
Tolerance in squareness		≤ 3 mm	≤ 3 mm
Tolerance in bow		≤ 2 mm / 500 mm on the width and the length	≤ 2 mm / 500 mm on the width and the length
Performance Reynobond® aluminium composite panel			
Bond integrity	ASTM D903	6.99 N / mm (min) or 40 pli (min)	5.24 N / mm (min) or 30 pli (min)
Stiffness (EI)		0.242 kN.m² / m	0.242 kN.m² / m
Thermal expansion		2.4 mm / m for a temperature variation of 100 °C	2.4 mm / m for a temperature variation of 100 °C
Temperature resistance		-40 °C / +80 °C	-40 °C / +80 °C
Maximum allowable deflection		L / 30 (allows higher wind pressure or bigger sized elements)	L / 30 (allows higher wind pressure or bigger sized elements)
Performance and durability Reynolux® pre-painted aluminium sheet **			
Specular gloss *	EN 13523 – 2 ASTM D 523	DURAGLOSS® 5000 from Matt/Etreem to high gloss PVDF 70/30 satin	DURAGLOSS® 5000 from Matt/Etreem to satin PVDF 70/30 satin
Durability class	NF EN 1396	Class 4: severe industrial – extreme conditions / very severe costal marine (less than 3,000 m from the sea) / high UV plus severe conditions	
Pencil hardness	EN 13523 – 4	HB – F	
Resistance to cracking on rapid deformation	EN 13523 – 5	No cracking, no loss of adhesion	
Adhesion after indentation	EN 13523 – 6	100 % of adhesion	
Resistance to cracking on bending	EN 13523 – 7	Very good flexibility: 0.5 T	
Acetic salt spray fog resistance	EN 13523 – 8	1,000 h	
Water immersion resistance	EN 13523 – 9, AAMA 620	2,000 h	
Humidity resistance	ASTM D 224, AAMA 620	2,000 h	
Mortar test	AAMA 620	No effect	
Acid resistance	AAMA 620 ASTM D 1308	Nitric acid: ΔE < 5 units except some blue and metallic colours hydrochloric acid: no effect	
Detergent resistance	AAMA 620	No effect	
Colour fastness on natural weathering	5 years 45° South Florida	Colour variation: 5 to 10 units (ΔE) depending on colour	
Resistance to chalking on natural weathering	5 years 45° South Florida	Rating ≥ 8	
Fire certificates for Reynobond® aluminium composite panel			
Europe	EN 13501	B-s1, d0	A2-s1, d0
Performance Reynolux® aluminium sheet			
Tensile strength R_m		165 - 240 MPa according to alloy, temper and width	
Yield strength $R_{p0.2}$		140 - 160 MPa according to alloy, temper and width	
Elongation A_{50mm}		2% (min)	

REYNODUAL®
BUILDING

Composition pre-painted double sheet aluminium panel Reynodual®		
Thickness		3 mm (-0.0 / +0.3 mm)
Thickness pre-painted aluminium sheet		1.5 mm
Alloy & temper		Series 3000
Front side finish		Anti-corrosion treatment and DURAGLOSS® 5000 (35 µm), PVDF 70/30* (25 µm)** or polyester* (28 µm)
Reverse side finish		Anti-corrosion treatment and a varnish protection
Characteristics pre-painted double sheet aluminium panel Reynodual®		
Width		1,000 mm / 1,250 mm / 1,500 mm / 1,575 mm (-0/+3 mm) If 2,000 mm requested, contact us. If others requested, contact us.
Length		2,000 mm up to 6,050 mm (< 4 m: -0/+2 mm; > 4 m: -0/+6 mm)
Weight		8.2 kg / m²
Tolerance in squareness		< 2 mm
Tolerance in bow		< 2 mm / 500 mm over lengths and widths
Performance pre-painted double sheet aluminium panel Reynodual®		
Bond integrity	ASTM D1876	4,376 N / mm (min) or 25 lbf / inch
Yield strength $R_{p0.2}$	NF EN 1396	140 - 185 MPa in 3003 H44
Modulus of elasticity E	NF EN 1396	≥ 110 MPa in 3003 H44
Stiffness (EI)		70,000 N / mm²
Thermal expansion		0,166 kN.m² / m
Temperature resistance		2.4 mm / m for a temperature variation of 100 °C
Room allowable deflection		-40 °C / +80 °C
Performance and durability pre-painted aluminium sheet		L / 90
Specular gloss	EN 13523 – 2 ASTM D 523	DURAGLOSS® 5000 from 3 % to 80 % PVDF 70/30** from 25 % to 30 %
Durability class	NF EN 1396	Class 4: severe industrial – extreme conditions / very severe coastal marine (less than 3,000 m from the sea) / high UV plus severe conditions
Pencil hardness	EN 13523 – 4	HB – F
Resistance to cracking on rapid deformation	EN 13523 – 5	No cracking, no loss of adhesion
Paint indentation	EN 13523 – 6	100 % of adhesion
Cracking on bending	EN 13523 – 7	(On request)
Salt spray fog resistance	EN 13523 – 8	1,000 h
Water resistance	EN 13523 – 9, AAMA 620	2,000 h
Humidity resistance	ASTM D 224, AAMA 620	No effect
Mortar test	AAMA 620	Nitric acid: ΔE < 5 units except some blue and metallic colours Hydrochloric acid: no effect
Acid resistance	AAMA 620 ASTM D 1308	No effect
Resistance to chalking on natural weathering	AAMA 620	Colour variation: 5 to 10 units (ΔE) depending on colour
Colour fastness on natural weathering	5 years 45° South Florida	Rating ≥ 8
Resistance to chalking on natural weathering	5 years 45° South Florida	
Fire certificates for Reynodual®		
Europe	EN 13501 - 1	A2-s1, d0

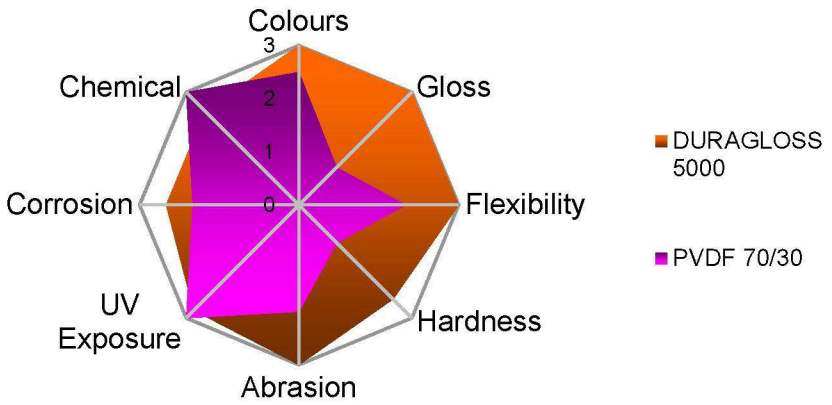


REYNOBOND®
REYNOLUX®

Paint characteristics

Performance and durability Reynolux® pre-painted aluminium sheet		2-coats	3-coats
Coating thickness depending on colour	EN 13523 – 1 ASTM D 7091	35 µm to 40 µm STANDARD: Plain colours, Metallic NATURAL Design: Terracotta, Minerals EFFECTS: Anodized Look	50 µm to 55 µm NATURAL Design: Granite, Patina, Corten, Stone WOOD Design EFFECTS: Sparkling and Chameleon BRUSHED Look
Specular gloss	EN 13523 – 2 ASTM D 523	High gloss, Satin, Matt and MattXtrem	
Durability class	NF EN 1396	Class 4: severe industrial – extreme conditions, very severe costal marine (less than 3,000 m from the seal, high UV, plus severe conditions	
Pencil hardness	EN 13523 – 4 ASTM D 3363	> HB	
Resistance to cracking on rapid deformation	EN 13523 – 5 ASTM D 2794	No cracking, no loss of adhesion	
Adhesion after indentation	EN 13523 – 6 ASTM D 3359	100 % of adhesion	
Resistance to cracking on bending	EN 13523 – 7 ASTM D 4145	Very good flexibility (0,5T), depending on alloy and temper	
Acetic salt spray fog resistance	EN 13523 – 8 ASTM G 85	1,000 h	
Water immersion resistance	EN 13523 – 9 ASTM D 870	3,000 h	
Humidity resistance	EN 13523 - 25 ASTM D 2247	3,000 h	
Mortar test	AAMA 2605	No effect	
Acid resistance 10 % HCl solution (15 min/23 °C) 20 % H2SO4 solution (18 h/23 °C) Nitric Acid	AAMA 2605 ASTM D 1308	Hydrochloric acid: no effect Sulphuric acid: no effect Nitric acid: ΔE < 5 units except some blue and metallic colours	
Detergent resistance: 3 % VIGOR solution (72 h/30 °C)	AAMA 2605	No effect	
Colour fastness on natural weathering	Florida Exposure 45° South EN 13523 - 3 ASTM D 2244	After 5 years exposure: Colour variation: 5 to 10 units (ΔE) depending on colour	
Resistance to chalking on natural weathering	Florida Exposure 45° South ASTM D 4214	Rating ≥ 8	
Fire certificates France	NF P 92 – 501	M0 incombustible	
Fire certificates Europe	EN 13501	A1	

- MODERN HIGH TECH POLYMER TECHNOLOGY
- EXCELLENT UV RESISTANCE
- NO LIMITATION OF COLORS AND GLOSS
- HIGH VARIETY OF EFFECTS, TEXTURES AND DESIGN PATTERN



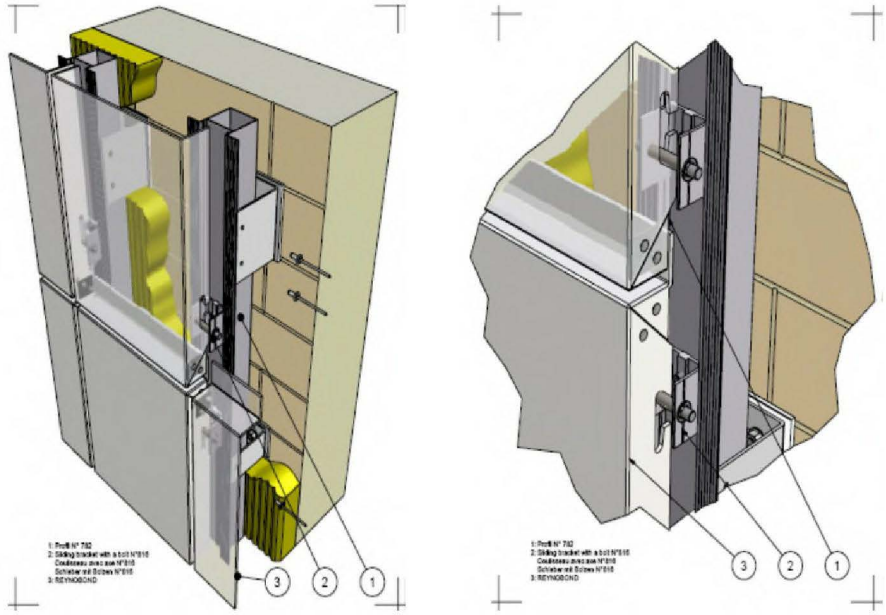
1502

REYNOBOND®
REYNOLUX®

Advises for product and system solutions

CASSETTE SYSTEM FOR INVISIBLE FIXATIONS

KU 35 VA – KU 35 NVA – KU 50 VA – KU 50 NVA – KH 35

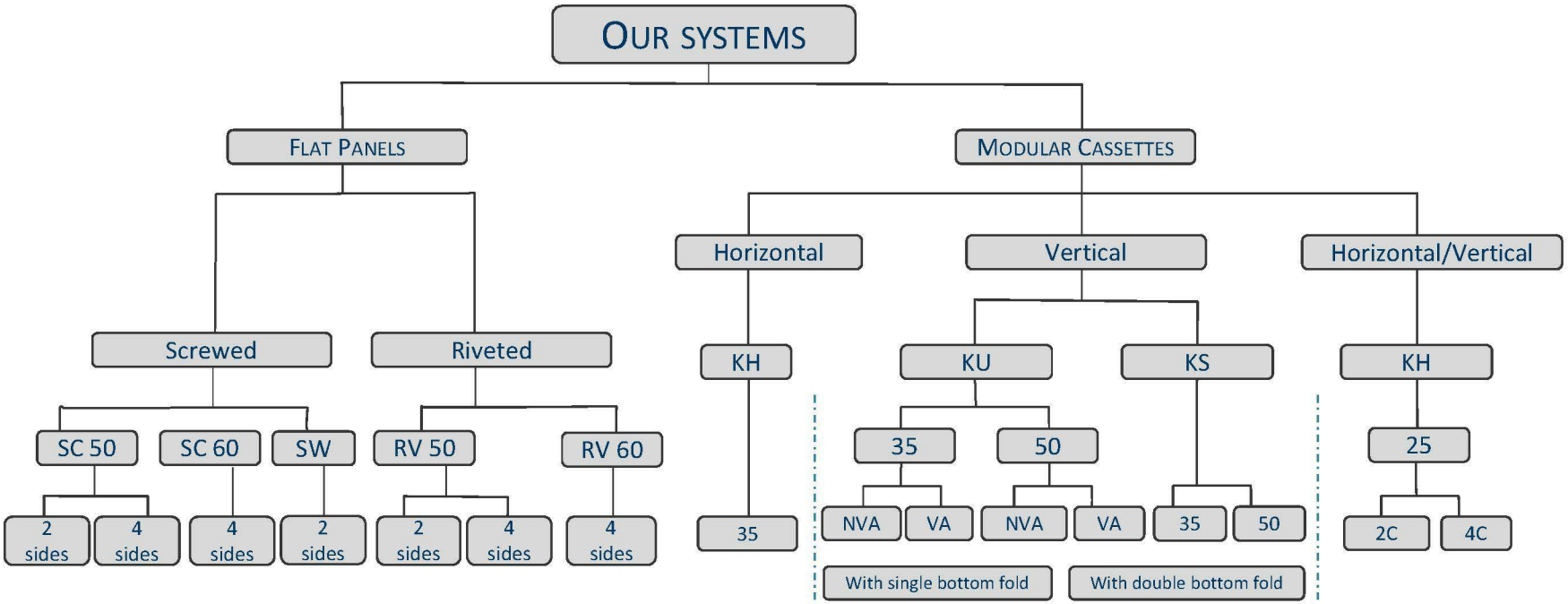


1503

REYNOBOND®
REYNOLUX®

Advises for product and system solutions

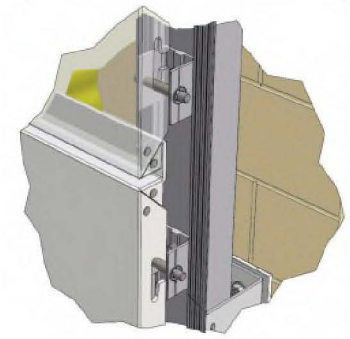
ARCONIC ARCHITECTURAL PRODUCTS – STANDARD SYSTEMS



1504

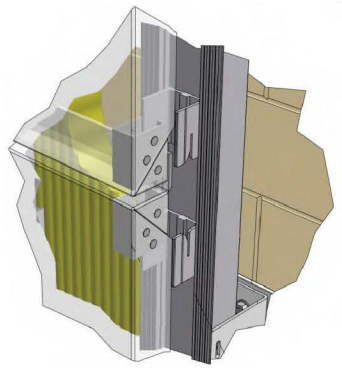
REYNOBOND®
REYNOLUX®

Advises for product and system solutions



CASSETTE SYSTEM FOR VERTICAL LAYOUTS

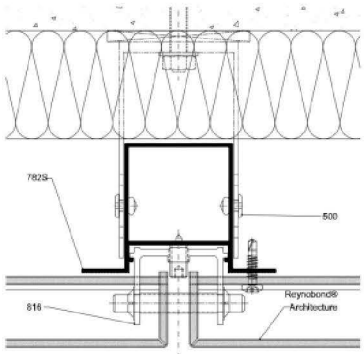
KU 35 VA – KU 35 NVA – KU 50 VA – KU 50 NVA

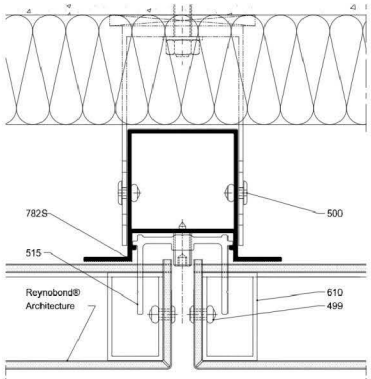


Suited for

vertical formats

(small width)





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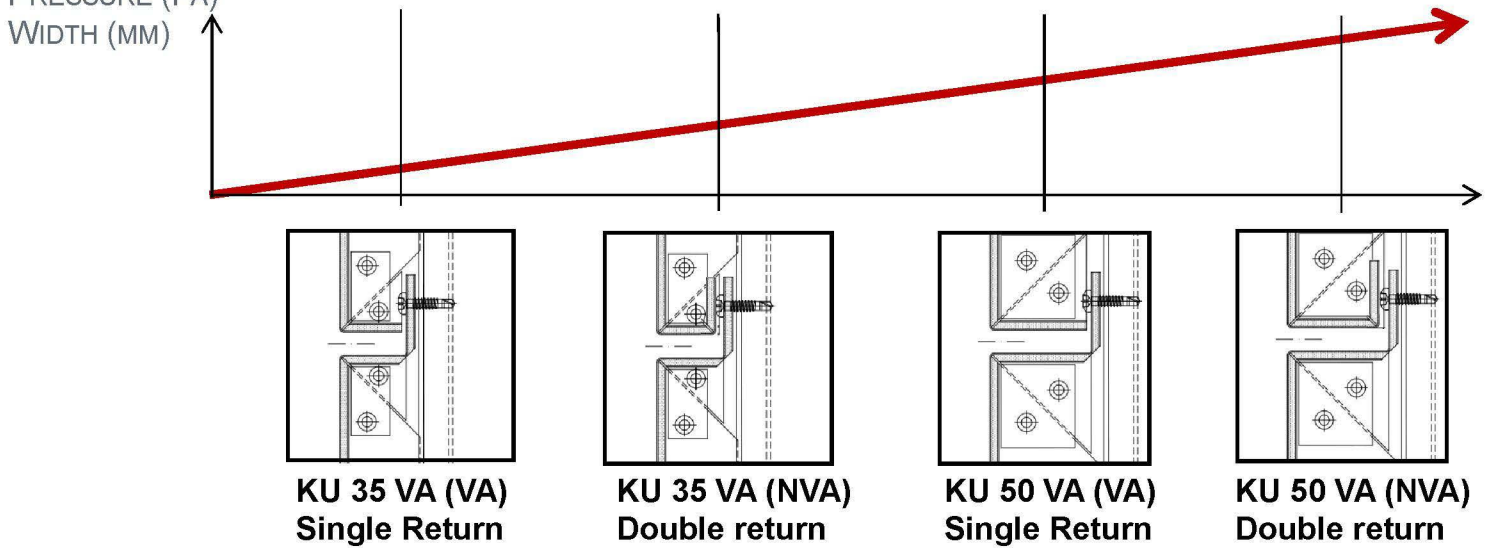
Advises for product and system solutions

CASSETTE SYSTEM FOR VERTICAL LAYOUTS

KU 35 VA – KU 35 NVA – KU 50 VA – KU 50 NVA



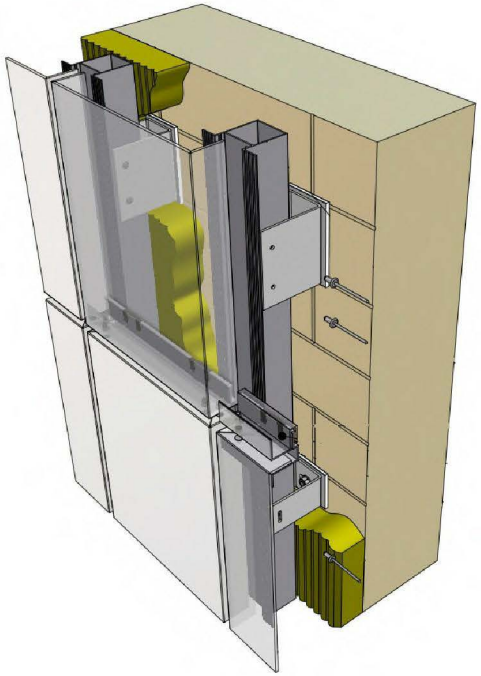
► Greater allowable wind load pressure **AND/OR** bigger allowable width

REYNOBOND®
REYNOLUX®

Advises for product and system solutions

CASSETTE SYSTEM FOR HORIZONTAL LAYOUTS

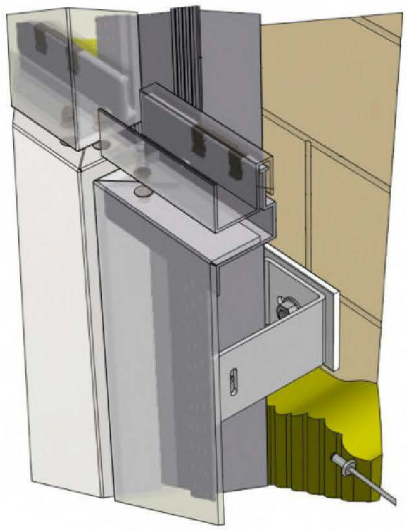
KH 35

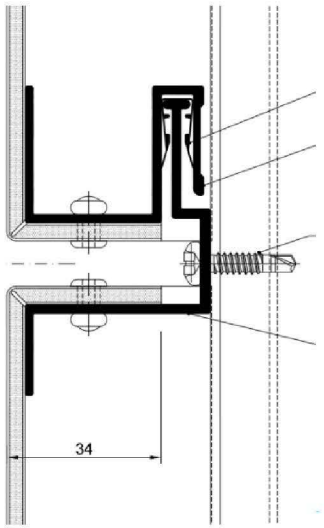


Suited for

horinzontal formats

(small height)





1507

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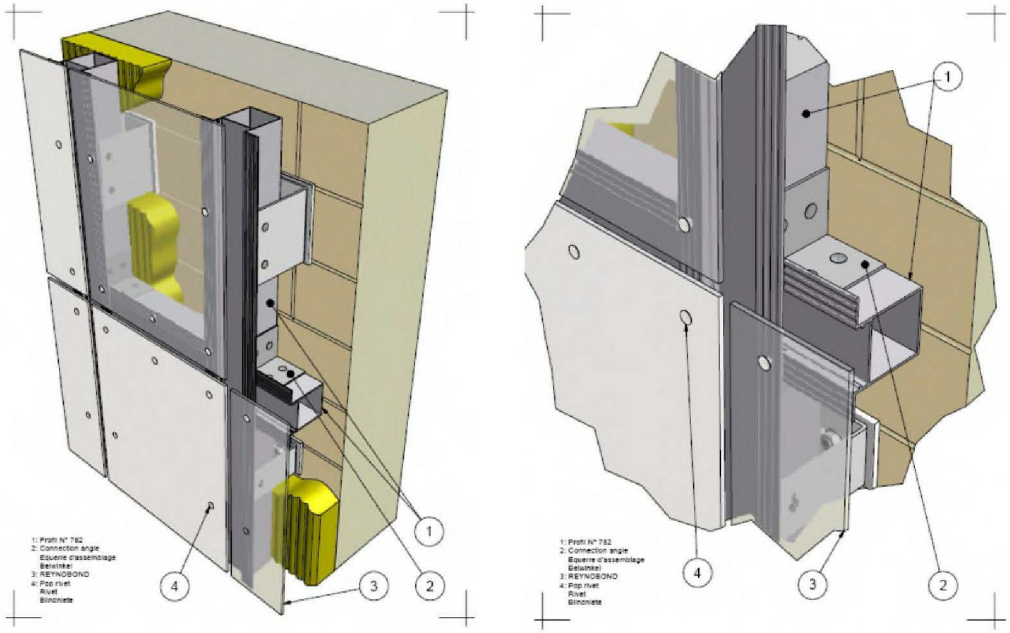
REYNOLUX®

Advises for product and system solutions

RIVETED AND SCREWED SYSTEMS - FLAT PANELS - VISIBLE FIXATIONS

RV 50 2C – SC 50 2C – RT 50 2C – SW 2C – RV 50 4C – SC 50 4C - RV 60 4C – SC 60 4C



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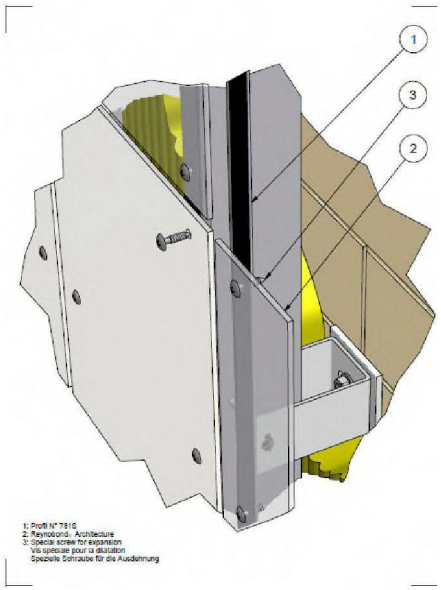
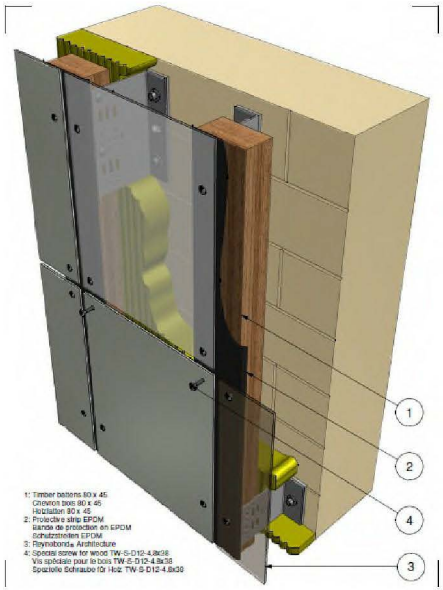
SCREWED SYSTEMS ON 2 EDGES

ON ALUMINIUM SUBSTRUCTURE



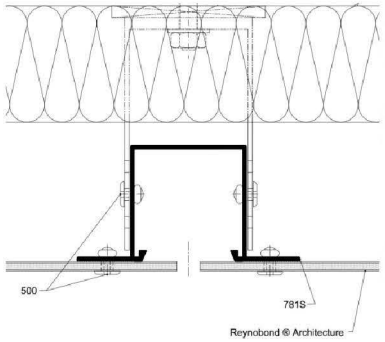
ON WOOD SUBSTRUCTURE – SW 2C

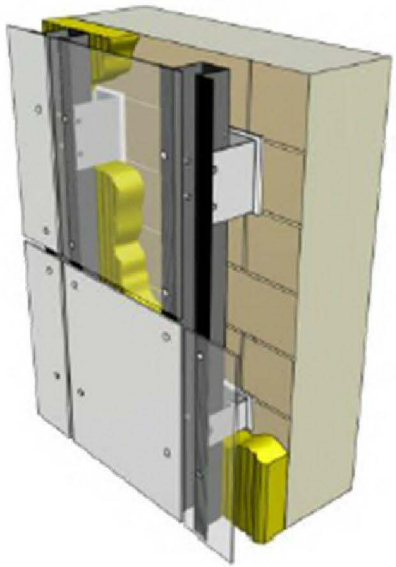


Advises for product and system solutions

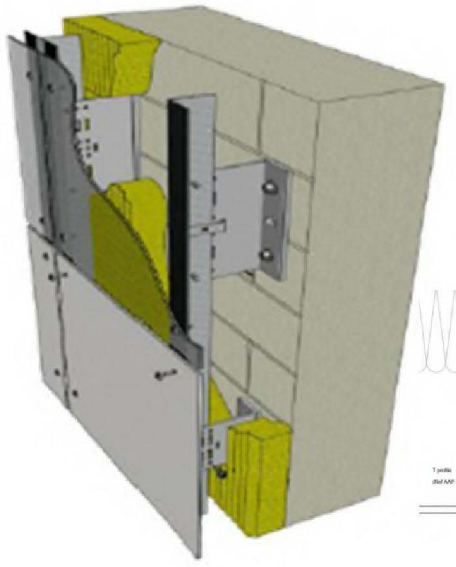
ON ALUMINIUM: RIVETED / SCREWED ON 2 EDGES

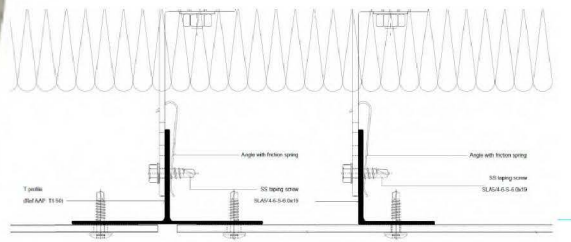
RV/SC 50 2C – OMEGAS PROFILES





RV/SC 50 2C – T AND L PROFILES





1510

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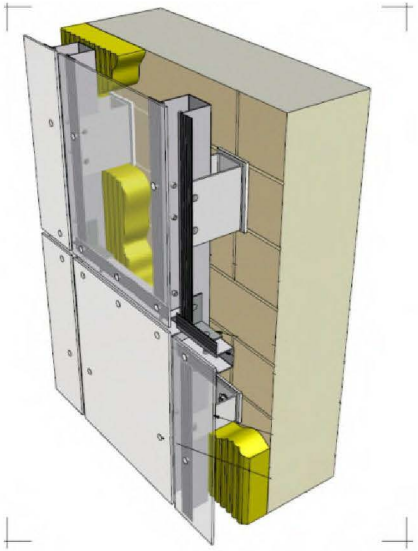
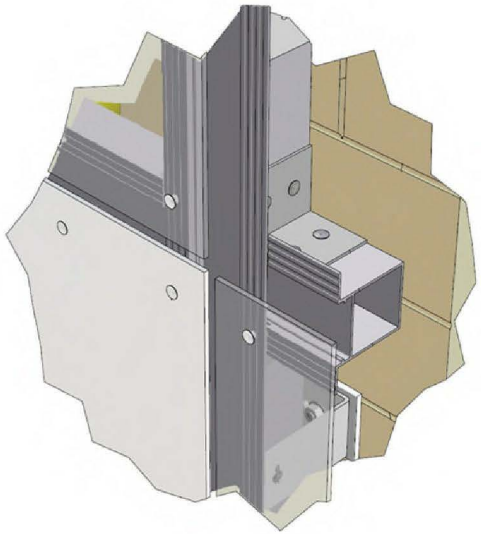
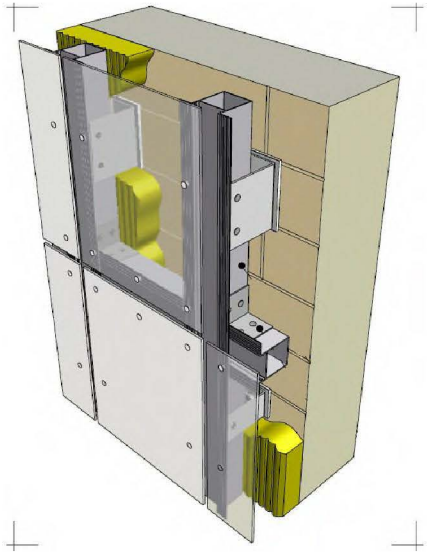
ON ALUMINIUM: RIVETED/SCREWED ON 4 EDGES

RV/SC 50 4C – OMEGAS PROFILES 781 – 1136





RV/SC 60 4C – OMEGAS PROFILES 782



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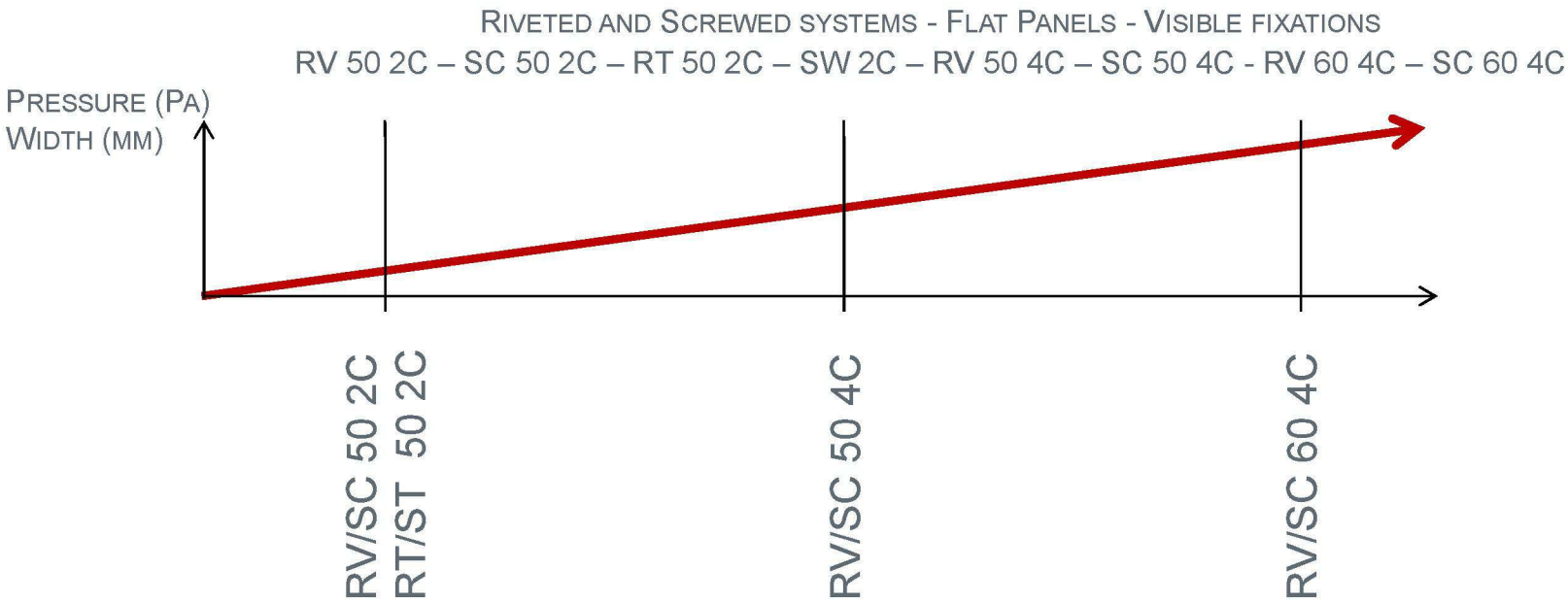
Advises for product and system solutions



► Greater allowable wind load pressure **AND/OR** bigger allowable width

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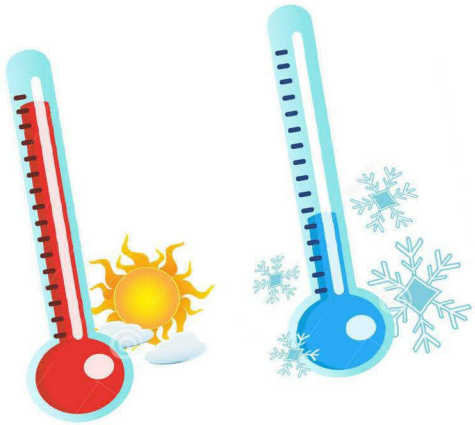
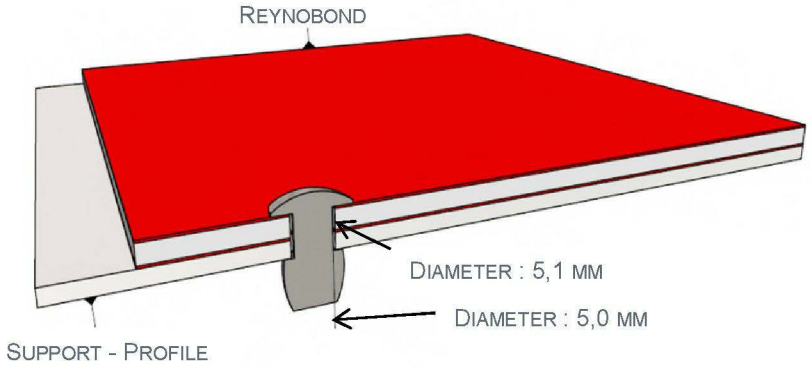
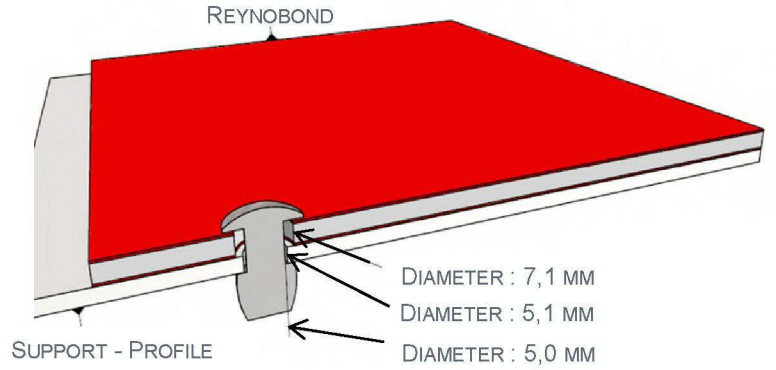
THERMAL EXPANSION

- ► FIXING POINT
- ► EXPANSION POINT







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Advises for product and system solutions

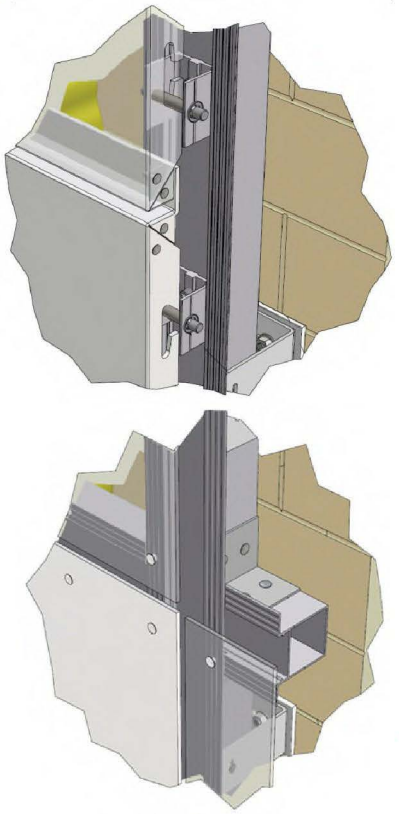
General recommendations

► Cassette systems

- Span between each notches must be at least inferior or equal to 500 mm
- For reinforcement solutions, glued stiffeners have to be mechanically glued on the cassette's returns
- For KH 35, span between each rivet must be at least inferior or equal to 500 mm

► Riveted and Screwed systems

- Span between each rivet/screw must be inferior or equal to 500 mm
- Thermal dilatation must be taken into account
- For fixation on wood, the maximal span between each carrying profile is 600 mm



1514

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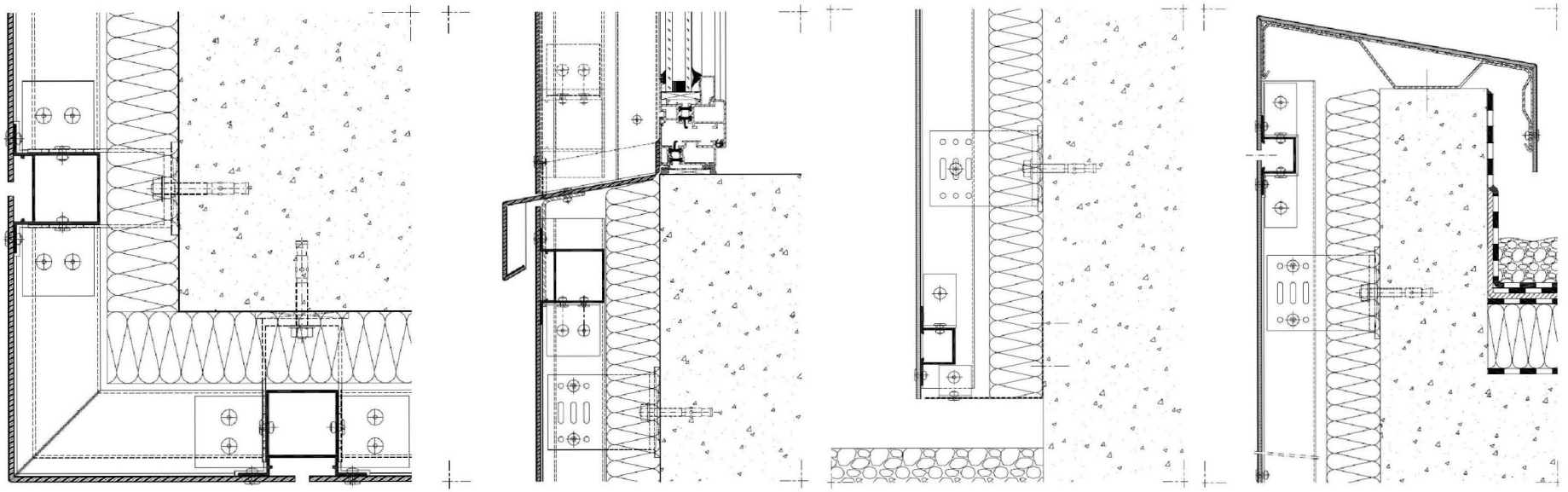
Advises for product and system solutions

SPECIFIC DRAWINGS AND SOLUTIONS

DRAWINGS FOR SPECIAL APPLICATIONS UPON REQUEST



1515

REYNOBOND®
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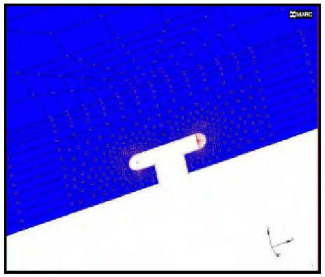
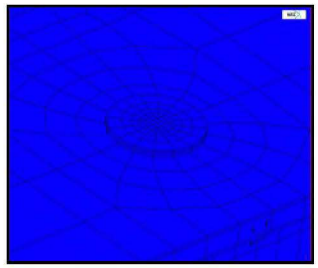
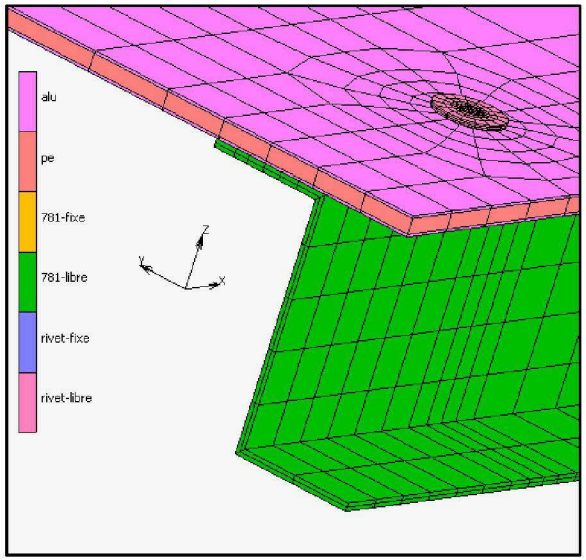
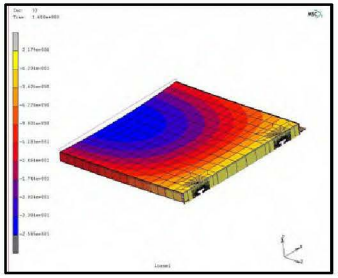
Calculation for element dimensioning

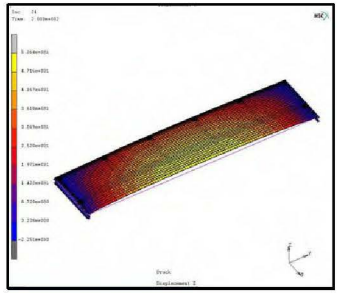
- FINITE ELEMENT ANALYSES (FOR ARCONIC STANDARD FIXING SYSTEMS AND PRODUCTS)
- OFFICIAL ARCONIC CALCULATION NOTES UPON REQUEST











1516

REYNOBOND®
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Calculation for element dimensioning

Calculation for a KU cassette element dimensioning - 3 mechanical limitations :

- Maximum deflection of the panel is:
  - For REYNOBOND: the 1/30th of the width (max. 50 mm)
  - For REYNODUAL: the 1/80th of the width (max. 50 mm)
- Maximum stress metal skins is:
  - For REYNOBOND : 91.4 MPa (Apart from some specific finishes)
  - For REYNODUAL : 80.0 MPa
- Allowable reaction force on a notch is:
  - 392 N For REYNOBOND with Aluminium sheets
  - 410 N For REYNOBOND with Zinc sheets
  - 571 N For REYNODUAL

Deflection
Stress
Reaction

REYNOBOND®
REYNOLUX®

Calculation for element dimensioning

Calculation for a riveted/screwed flat Reynobond panel - 4 mechanical limitations :

- maximum deflection of the panel is:
  - For REYNOBOND: the 1/30th of the width (max. 50 mm)
  - For REYNODUAL: the 1/80th of the width (max. 50 mm)
- maximum stress metal skins is:
  - For REYNOBOND : 91.4 MPa (Apart from some specific finishes)
  - For REYNODUAL : 80.0 MPa
- allowable reaction force on a notch is:
  - 692 N For screwed systems (REYNOBOND)
  - 892 N For riveted panels (REYNOBOND)
  - 907 N For riveted panels (REYNODUAL)
- allowable deflection for horizontal profiles: 1/100th of the span between fixings

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REYNOBOND®
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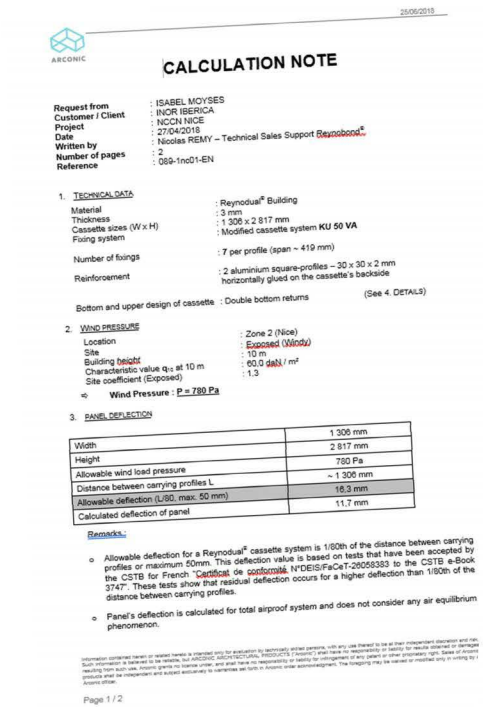
Calculation for element dimensioning

YOU CAN GET A…

… CALCULATION NOTE THAT DEFINES:

- ▶ THE FIXING SYSTEM
- ▶ THE PRODUCT
- ▶ TYPE AND NUMBER OF FIXINGS
- ▶ REINFORCEMENT SOLUTION IF NEEDED
- ▶ DRAWING OF THE SYSTEM + STIFFENERS



25/06/2018

ARCONIC

CALCULATION NOTE

Request from	: ISABEL MOYSES
Customer / Client	: INOR IBERICA
Project	: NCCN NICE
Date	: 27/04/2018
Written by	: Nicolas REMY – Technical Sales Support Reynobond®
Number of pages	: 2
Reference	: 089-1nc01-EN

1. TECHNICAL DATA

Material	: Reynodual® Building
Thickness	: 3 mm
Cassette sizes (W x H)	: 1 306 x 2 817 mm
Fixing system	: Modified cassette system **KU 50 VA**
Number of fixings	: 7 per profile (span ~ 419 mm)
Reinforcement	: 2 aluminium square-profiles – 30 x 30 x 2 mm horizontally glued on the cassette's backside
Bottom and upper design of cassette	: Double bottom returns (See 4. DETAILS)

2. WIND PRESSURE

Location	: Zone 2 (Nice)
Site	: Exposed (Windy)
Building height	: 10 m
Characteristic value q_{10} at 10 m	: 60,9 daN / m²
Site coefficient (Exposed)	: 1.3

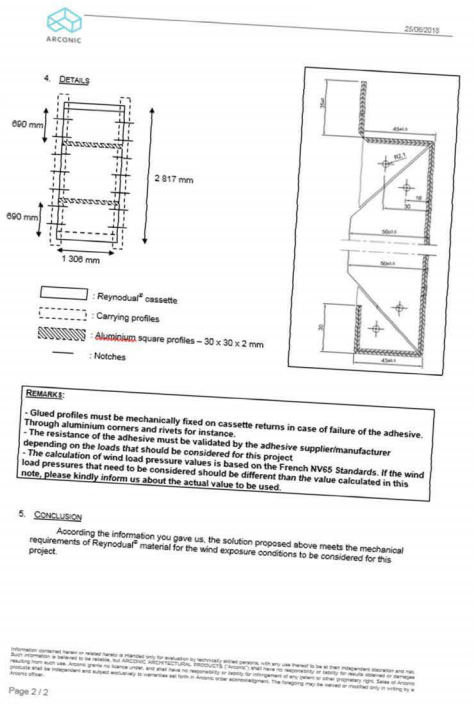
⇨ **Wind Pressure : P = 780 Pa**

3. PANEL DEFLECTION

Width	1 306 mm
Height	2 817 mm
Allowable wind load pressure	780 Pa
Distance between carrying profiles L	~ 1 306 mm
Allowable deflection (L/80, max. 50 mm)	16,3 mm
Calculated deflection of panel	11,7 mm

Remarks:

- Allowable deflection for a Reynodual® cassette system is 1/80th of the distance between carrying profiles or maximum 50mm. This deflection value is based on tests that have been accepted by the CSTB for French "Certificat de conformité N°DEIS/FaCeT-26058383 to the CSTB e-Book 3747". These tests show that residual deflection occurs for a higher deflection than 1/80th of the distance between carrying profiles.
- Panel's deflection is calculated for total airproof system and does not consider any air equilibrium phenomenon.



25/06/2018

ARCONIC

4. DETAILS

690 mm
690 mm
2 817 mm
1 306 mm

: Reynodual® cassette
: Carrying profiles
: Aluminium square profiles – 30 x 30 x 2 mm
: Notches

REMARKS:

- Glued profiles must be mechanically fixed on cassette returns in case of failure of the adhesive. Through aluminium corners and rivets for instance.
- The resistance of the adhesive must be validated by the adhesive supplier/manufacturer depending on the loads that should be considered for this project
- The calculation of wind load pressure values is based on the French NV65 Standards. If the wind load pressures that need to be considered should be different than the value calculated in this note, please kindly inform us about the actual value to be used.

5. CONCLUSION

According the information you gave us, the solution proposed above meets the mechanical requirements of Reynodual® material for the wind exposure conditions to be considered for this project.

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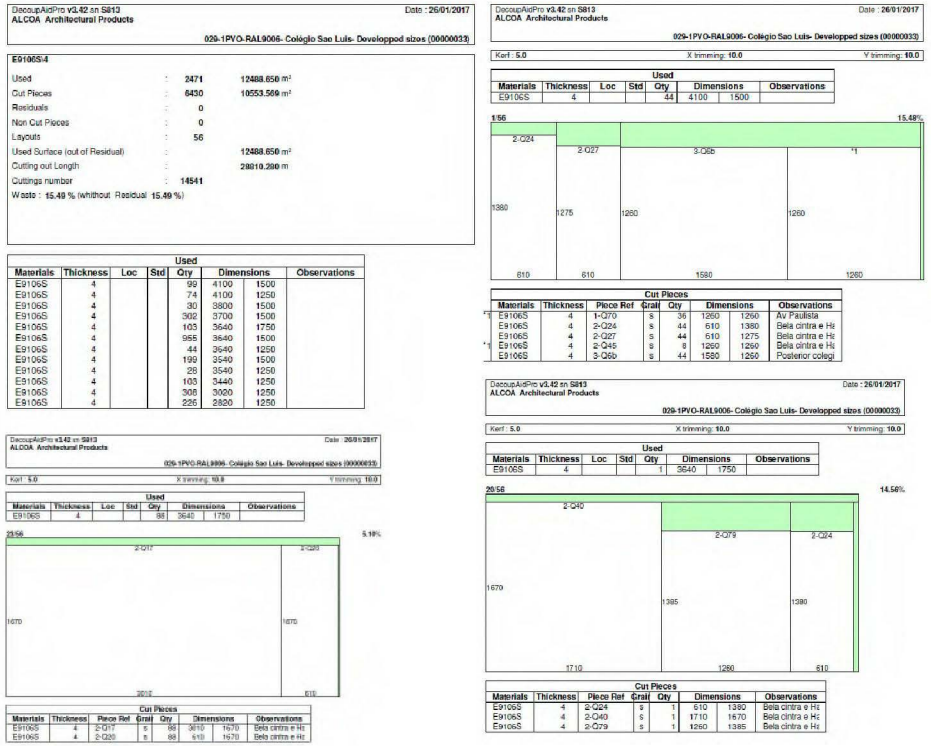
Calculation for element dimensioning

YOU CAN GET A…

… CUTTING OPTIMIZATION WITH:

FOR EACH REQUIRED COLOR:

- ▶ BARE PANELS' DIMENSIONS
- ▶ CUTTING LAYOUT
- ▶ TOTAL SURFACE
- ▶ PERCENTAGE OF WASTE


DecoupAidPro v3.42 sn 5813 — Date : 26/01/2017
ALCOA Architectural Products
029-1PVO-RAL9006- Colégio Sao Luis- Developped sizes (00000033)

E9106S/4

Used	:	2471	12488.650 m²
Cut Pieces	:	6430	10553.569 m²
Residuals	:	0	
Non Cut Pieces	:	0	
Layouts	:	56	
Used Surface (out of Residual)	:		12488.650 m²
Cutting out Length	:		28010.200 m
Cuttings number	:	14541	

Waste : 15.49 % (whithout Residual 15.49 %)

Used

Materials	Thickness	Loc	Std	Qty	Dimensions		Observations
E9106S	4			99	4100	1500	
E9106S	4			74	4100	1250	
E9106S	4			30	3800	1500	
E9106S	4			302	3700	1500	
E9106S	4			103	3640	1750	
E9106S	4			955	3640	1500	
E9106S	4			44	3640	1250	
E9106S	4			199	3540	1500	
E9106S	4			28	3540	1250	
E9106S	4			103	3440	1250	
E9106S	4			308	3020	1250	
E9106S	4			226	2820	1250	

DecoupAidPro v3.42 sn 5813 — Date : 26/01/2017
ALCOA Architectural Products
029-1PVO-RAL9006- Colégio Sao Luis- Developped sizes (00000033)
Kerf : 5.0 — X trimming: 10.0 — Y trimming: 10.0

Used

Materials	Thickness	Loc	Std	Qty	Dimensions		Observations
E9106S	4			44	4100	1500	

1/56 — 15.48%

Cut Pieces

	Materials	Thickness	Piece Ref	Grain	Qty	Dimensions		Observations
*1	E9106S	4	1-Q70	s	36	1260	1260	Av Paulista
	E9106S	4	2-Q24	s	44	610	1380	Bela cintra e Hz
	E9106S	4	2-Q27	s	44	610	1275	Bela cintra e Hz
*1	E9106S	4	2-Q45	s	8	1260	1260	Bela cintra e Hz
	E9106S	4	3-Q6b	s	44	1580	1260	Posterior colegi

DecoupAidPro v3.42 sn 5813 — Date : 26/01/2017
ALCOA Architectural Products
029-1PVO-RAL9006- Colégio Sao Luis- Developped sizes (00000033)
Kerf : 5.0 — X trimming: 10.0 — Y trimming: 10.0

Used

Materials	Thickness	Loc	Std	Qty	Dimensions		Observations
E9106S	4			1	3640	1750	

20/56 — 14.56%

Cut Pieces

Materials	Thickness	Piece Ref	Grain	Qty	Dimensions		Observations
E9106S	4	2-Q24	s	1	610	1380	Bela cintra e Hz
E9106S	4	2-Q40	s	1	1710	1670	Bela cintra e Hz
E9106S	4	2-Q79	s	1	1260	1385	Bela cintra e Hz

DecoupAidPro v3.42 sn 5813 — Date : 26/01/2017
ALCOA Architectural Products
029-1PVO-RAL9006- Colégio Sao Luis- Developped sizes (00000033)
Kerf : 5.0 — X trimming: 10.0 — Y trimming: 10.0

Used

Materials	Thickness	Loc	Std	Qty	Dimensions		Observations
E9106S	4			98	3640	1750	

23/56 — 5.19%

Cut Pieces

Materials	Thickness	Piece Ref	Grain	Qty	Dimensions		Observations
E9106S	4	2-Q17	s	68	3610	1670	Bela cintra e Hz
E9106S	4	2-Q20	s	68	610	1670	Bela cintra e Hz

1520

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REYNOBOND®
REYNOLUX®

Certification and product qualification

REYNOBOND® IS CERTIFIED IN MANY COUNTRIES:

- PRODUCT CERTIFICATIONS
- SYSTEMS CERTIFICATIONS
- FIRE CERTIFICATIONS
- ENVIRONMENTAL CERTIFICATIONS

Certification and product qualification

FRANCE

FOR REYNOBOND®: CERTIFIÉ CSTB CERTIFIED

FOR SYSTEMS: 2.2/16-1733_V1 FOR RIVETED/SCREWED SYSTEM

2.2/11-1440_V1 FOR CASSETTE SYSTEM

2.2/16-1734_V1 FOR SCREWED ON WOOD SYSTEM

2/16-1758 FOR REYNOBOND ZINC - SCREWED/RIVETED

GERMANY

FOR REYNOBOND®: Ü ZERT 3/837/04

FOR SYSTEMS: ZULASSUNG Z-10.3-722

MET00053158_P10_0070

REYNOBOND®
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Certification and product qualification

CSTB
le futur en construction

Warrington FIRE research

Deutsches Institut für Bautechnik DIBt

Добровольная сертификация

AFITI LICOF

Instytut Techniki Budowlanej

BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

CSI
Certificazione e Testing

ГОССТРОЙ РОССИИ

REYNOBOND®
REYNOLUX®

Fire reaction certifications

EURO NORMS -EN 13501-1

FOR BOTH CASSETTE AND RIVETED/SCREWED SYSTEMS:

- B-S1,D0 FOR REYNOBOND FR WITH ALUMINIUM SHEETS
- B-S1,D0 FOR REYNOBOND FR WITH ZINC SHEETS
- A2-S1,D0 FOR REYNOBOND A2 WITH ALUMINIUM SHEETS

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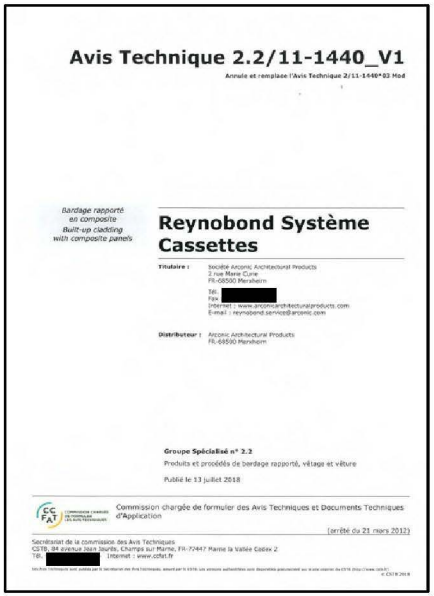
REYNOBOND®
REYNOLUX®

System certifications



Avis Technique 2.2/11-1440_V1

Annule et remplace l'Avis Technique 2/11-1440*03 Mod

Bardage rapporté en composite
Built-up cladding with composite panels

Reynobond Système Cassettes

Titulaire : Société Arconic Architectural Products
2 rue Marie Curie
FR-68500 Merxheim
Tél. [redacted]
Fax
Internet : www.arconicarchitecturalproducts.com
E-mail : reynobond.service@arconic.com

Distributeur : Arconic Architectural Products
FR-68500 Merxheim

Groupe Spécialisé n° 2.2
Produits et procédés de bardage rapporté, vêtage et vêture

Publié le 13 juillet 2018

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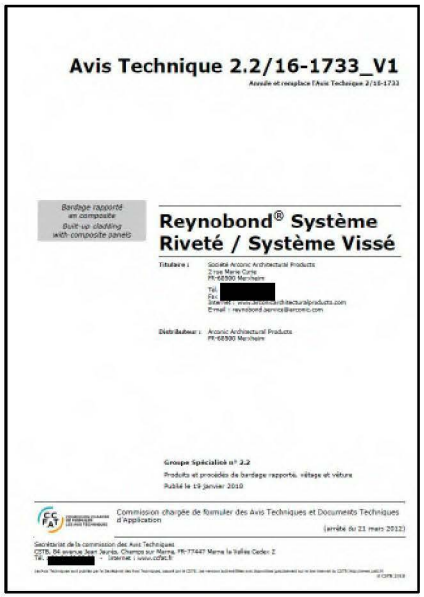
(arrêté du 21 mars 2012)

Secrétariat de la commission des Avis Techniques
CSTB, 84 avenue Jean Jaurès, Champs sur Marne, FR-77447 Marne la Vallée Cedex 2
Tél. [redacted] Internet : www.cstb.fr



Avis Technique 2.2/16-1733_V1

Annule et remplace l'Avis Technique 2/16-1733

Bardage rapporté en composite
Built-up cladding with composite panels

Reynobond® Système Riveté / Système Vissé

Titulaire : Société Arconic Architectural Products
2 rue Marie Curie
FR-68500 Merxheim
Tél. [redacted]
Fax
Internet : www.arconicarchitecturalproducts.com
E-mail : reynobond.service@arconic.com

Distributeur : Arconic Architectural Products
FR-68500 Merxheim

Groupe Spécialisé n° 2.2
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Publié le 19 janvier 2010

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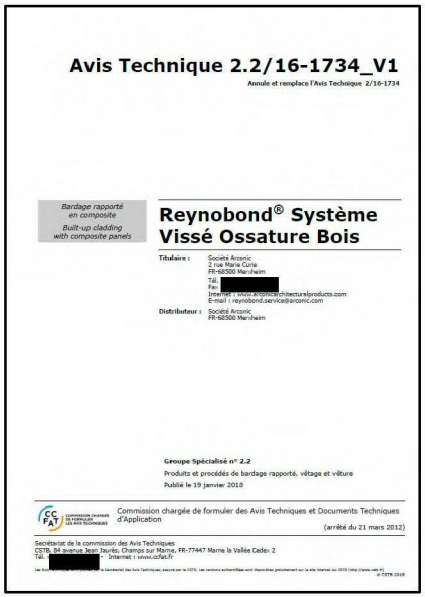
CSTB, 84 avenue Jean Jaurès, Champs sur Marne, FR-77447 Marne la Vallée Cedex 2
Tél. [redacted] Internet : www.cstb.fr



Avis Technique 2.2/16-1734_V1

Annule et remplace l'Avis Technique 2/16-1734

Bardage rapporté en composite
Built-up cladding with composite panels

Reynobond® Système Vissé Ossature Bois

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FR-68500 Merxheim
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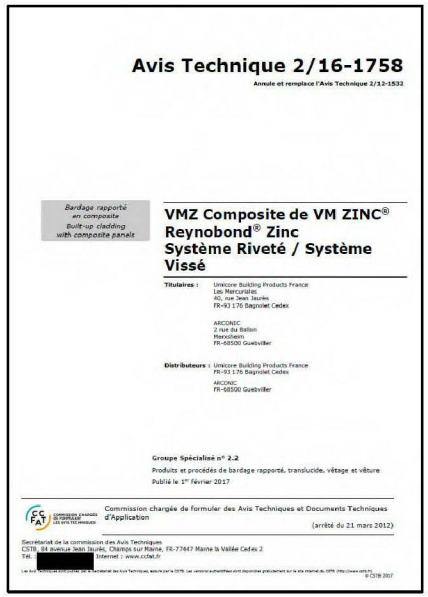
Internet : www.arconicarchitecturalproducts.com
E-mail : reynobond.service@arconic.com

Distributeur : Société Arconic
FR-68500 Merxheim

Groupe Spécialisé n° 2.2
Produits et procédés de bardage rapporté, vêtage et vêture
Publié le 19 janvier 2010

Commission chargée de formuler des Avis Techniques et Documents Techniques d'Application
(arrêté du 21 mars 2012)

Secrétariat de la commission des Avis Techniques
CSTB, 84 avenue Jean Jaurès, Champs sur Marne, FR-77447 Marne la Vallée Cedex 2
Tél. [redacted] Internet : www.cstb.fr



Avis Technique 2/16-1758

Annule et remplace l'Avis Technique 2/12-1532

Bardage rapporté en composite
Built-up cladding with composite panels

VMZ Composite de VM ZINC® Reynobond® Zinc Système Riveté / Système Vissé

Titulaires : Umicore Building Products France
Les Mercuriales
40, rue Jean Jaurès
FR-93 176 Bagnolet Cedex

ARCONIC
2 rue du Ballon
Merxheim
FR-68500 Guebwiller

Distributeurs : Umicore Building Products France
FR-93 176 Bagnolet Cedex

ARCONIC
FR-68500 Guebwiller

Groupe Spécialisé n° 2.2
Produits et procédés de bardage rapporté, translucide, vêtage et vêture
Publié le 1er février 2017

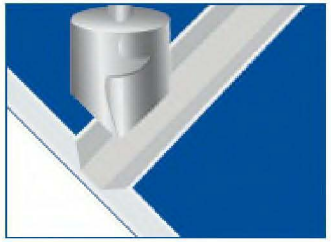
Commission chargée de formuler des Avis Techniques et Documents Techniques d'Application
(arrêté du 21 mars 2012)

Secrétariat de la commission des Avis Techniques
CSTB, 84 avenue Jean Jaurès, Champs sur Marne, FR-77447 Marne la Vallée Cedex 2
Tél. [redacted] Internet : www.cstb.fr

REYNOBOND®
REYNOLUX®

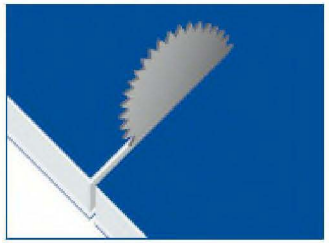
Transformation possibilities

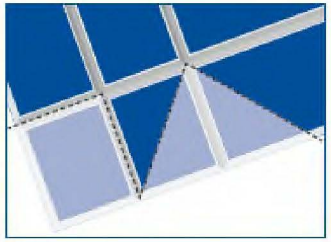
MILLING
GROOVING



DRILLING

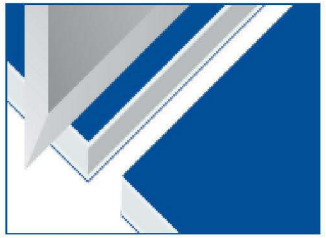
SAWING

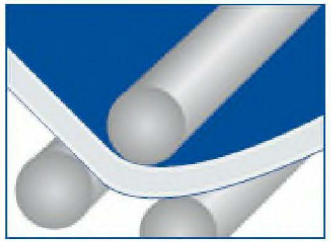




CUTTING
PUNCHING

SHEARING





ROLL BENDING

MET00053158_P10_0074

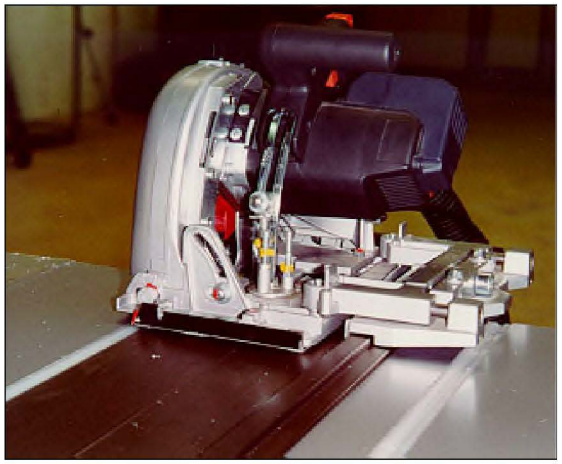
REYNOBOND®
REYNOLUX®

Transformation possibilities

MILLING / GROOVING

TECHNOLOGIES OF GROOVING :

GROOVING CIRCULAR SAW



ROUTER

1527

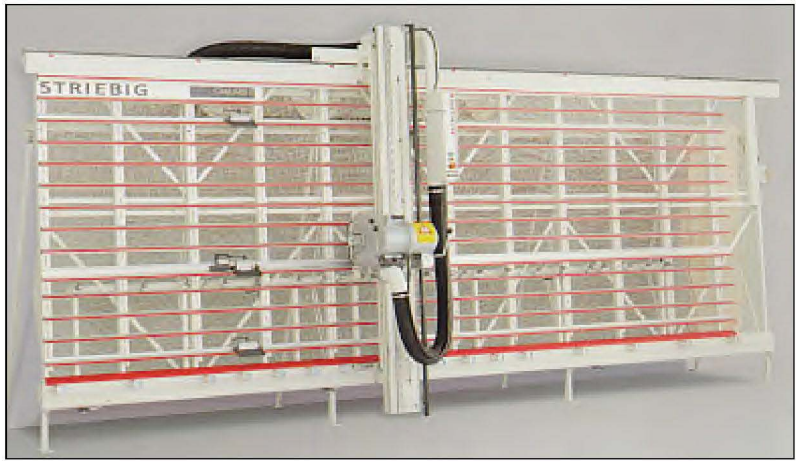
REYNOBOND®
REYNOLUX®

Transformation possibilities

MILLING / GROOVING

TECHNOLOGIES OF GROOVING :

VERTICAL PANEL SAW



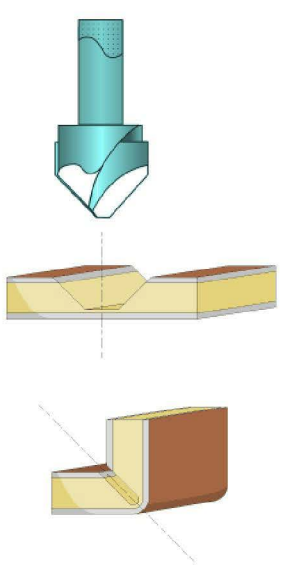
CNC MACHINE

1528

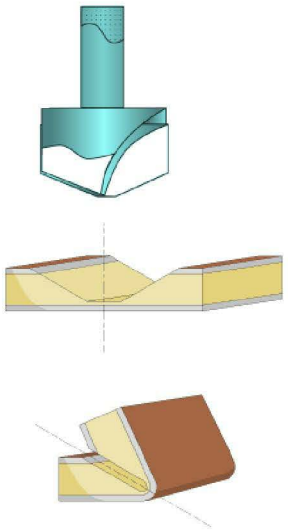
REYNOBOND®
REYNOLUX®

Grooving and folding possibilities

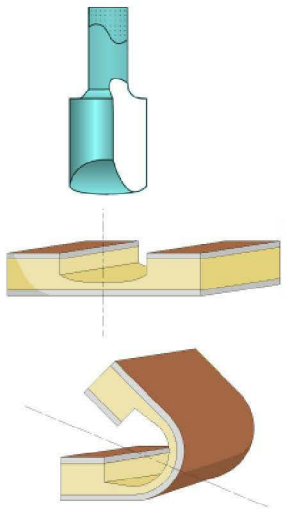
90° BENDING

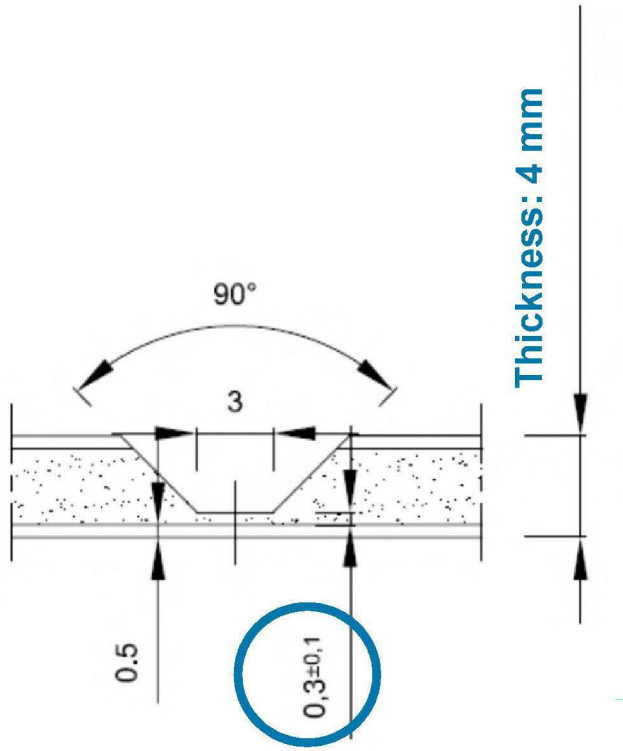


135° BENDING



LARGER RADIUS BENDING





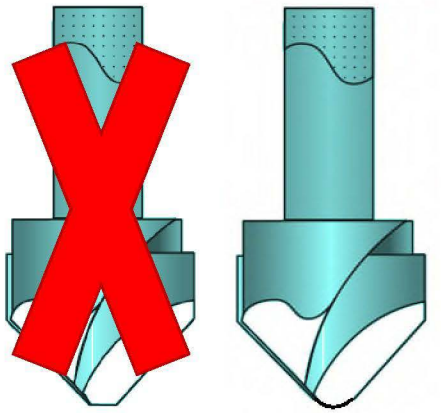
1529

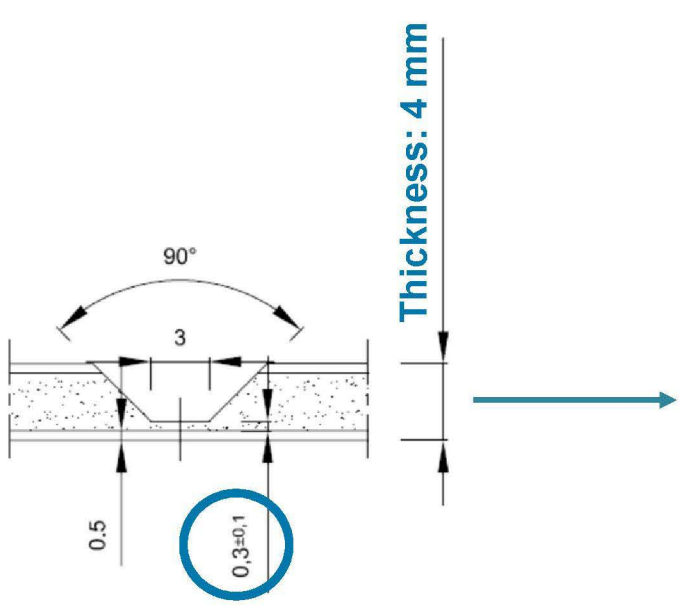
REYNOBOND®
REYNOLUX®

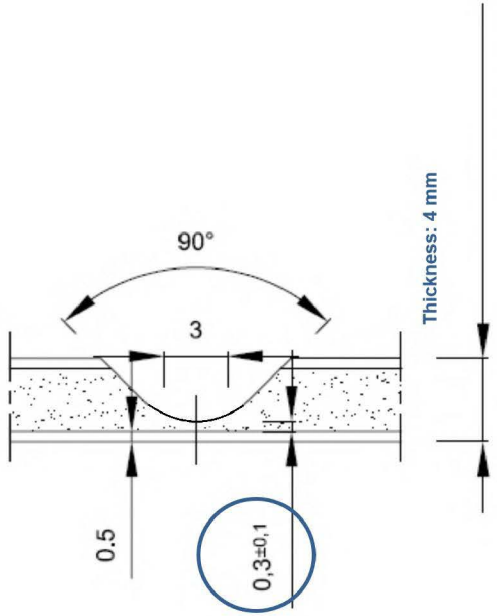
Grooving and folding possibilities

EXCEPTION FOR A2 CORE PRODUCTS

90° BENDING







1530

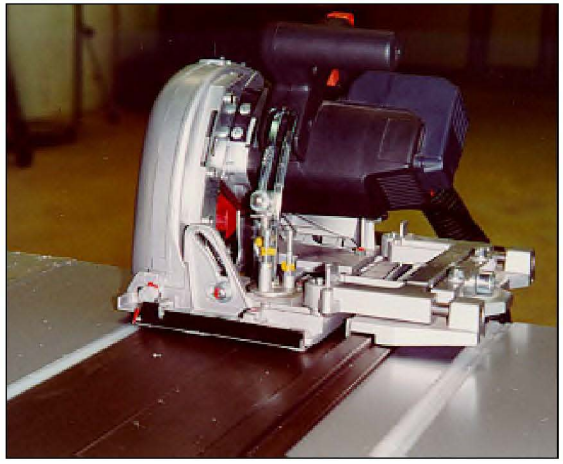
REYNOBOND®
REYNOLUX®

Transformation possibilities

CUTTING / SAWING

ALL TECHNOLOGIES FOR ALUMINIUM MATERIAL ARE CONVENIENT:

CIRCULAR SAW



JIG SAW

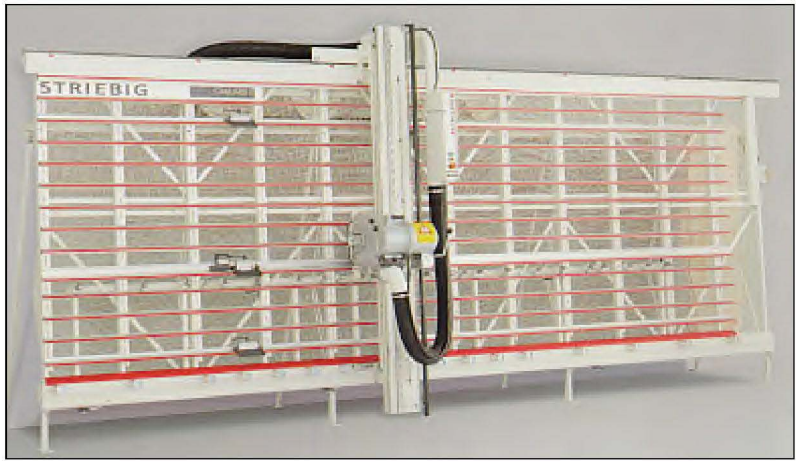
REYNOBOND®
REYNOLUX®

Transformation possibilities

CUTTING / SAWING

ALL TECHNOLOGIES FOR ALUMINIUM MATERIAL ARE CONVENIENT:

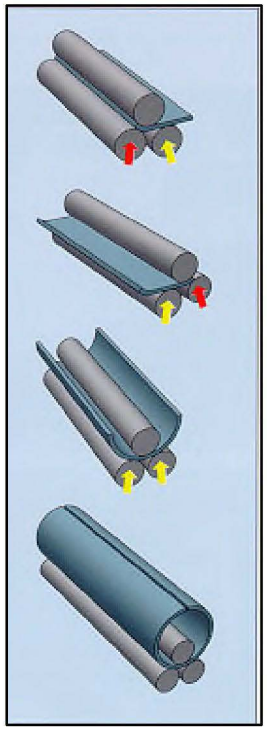
VERTICAL PANEL SAW



CNC MACHINE

1532

Transformation possibilities



Bending Possibilities

- Minimal internal radius
  - for FR: R= 15 x thickness (R=60mm for 4 mm thick material)
  - For A2: R= 33 x thickness (R=132mm for 4 mm thick material)

- An elasticity effect has to be taken into consideration

REYNOBOND®
REYNOLUX®

THANK YOU FOR YOUR ATTENTION

Claude Wehrle
Responsable Technique
Technical Manager

claude.wehrle@arconic.com
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Project Technician

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68500 Merxheim, France
www.arconicarchitecturalproducts.com

ARCONIC

To: Schmidt, Claude A.[Claude.Schmidt@arconic.com]
From: Wehrle, Claude
Sent: Wed 6/14/2017 9:11:32 AM (UTC)
Subject: Fwd: TR: Préconisations FR en France pour Reynobond Architecture

Envoyé de mon iPhone

Début du message transféré :

Messieurs,

Pour information et prise en compte si vous avez des clients en ligne sur le sujet

Claude

De : Flacon, Alain
Envoyé : mardi 3 mai 2016 14:57
À : Audureau, Patrice <Patrice.Audureau@alcoa.com>; Marichez, Herve <Herve.Marichez@alcoa.com>; Lelu, Kevin <Kevin.Lelu@alcoa.com>; Leopold, Jérôme <Jerome.Leopold@alcoa.com>
Cc : Marconnet, Lionel <Lionel.Marconnet@alcoa.com>; Wehrle, Claude <Claude.Wehrle@alcoa.com>; Brunet, Mareva <Mareva.Brunet@alcoa.com>; Gugumus, Valérie <Valerie.Gugumus@alcoa.com>; Leicht, Virginie <Virginie.Leicht@alcoa.com>
Objet : Préconisations FR en France pour Reynobond Architecture

Bonjour à tous,

Comme vous le savez, les classements feu des produits Reynobond pour l'Architecture en France présentent une distorsion entre le classement NF P92-501 et son équivalent selon l'EN 13501 :

- ***Reynobond PE***
  - Système riveté/vissé (plaques)

  NF P92-501 Classement M1
  EN13501 Classement C-s2,d0 (M2 par équivalence)
  - Système cassette

  NF P92-501 Classement M1
  EN 13501 Classement E (M4 par équivalence)
- ***Reynobond FR***
  - Tous les systèmes

  NF P92-501 Classement M1
  EN 13501 Classement B-s1,d0 (M1 par équivalence)

Cette situation ambiguë est la porte ouverte aux interprétations et donne notamment la possibilité aux bureaux de contrôle de vérifier en priorité le classement M, le classement Européen étant plus complexe à comprendre et donc à utiliser.

Dans vos missions, vous ou vos clients spécifiez régulièrement nos produits Reynobond sur des projets architecturaux d'envergure. A ce titre, Alcoa Architectural Products se positionne clairement dans un rôle de « sachant » et engage donc sa responsabilité et son image de spécialiste.

Par conséquent, conscient de la différence plus que notable des potentiels calorifiques du Reynobond FR vs. Reynobond PE et des conséquences associées, nous avons pris l'habitude volontariste de privilégier le FR comme solution unique dans nos prescriptions. **Je vous demande à partir d'aujourd'hui d'aller encore plus loin dans la démarche et de systématiquement confirmer par écrit cette prescription en FR sur tous les projets sur lesquels une prescription Reynobond est engagée, quelles que soient la nature et la taille du projet pour l'Architecture.**

Si vous avez la moindre question sur les modalités d'application de ces instructions, je vous laisse prendre contact avec Claude qui se chargera de vous donner toute l'argumentation nécessaire vous permettant de motiver ce choix et

de conseiller au mieux les prescripteurs vers cette solution de loin la plus sécure.

Comptant sur votre participation active sur ce dossier.

Bien à vous

Alain FLACON
Directeur Commercial & Marketing / Sales & Marketing Director
Reynobond - Reynolux

ALCOA ARCHITECTURAL PRODUCTS SAS
1 rue du Ballon, 68500 Merxheim, France
T [redacted]
F
M
E-mail : alain.flacon@alcoa.com
Web site : www.reynobond.eu
Web site : www.alcoa.com

From: "Wehrle, Claude" <Claude.Wehrle@arconic.com>
To: "Schmidt, Claude A." <Claude.Schmidt@arconic.com>
Date: 14/06/2017 11:11:32
Subject: Fwd: FW: FR specifications for Reynobond product for Architecture in France

---

Sent from my iPhone

Begin forwarded message:

Gentlemen,

For your information and consideration if you have customers asking about this subject

Claude

From: Flacon, Alain
Sent: Tuesday, 3 May 2016 14:57
To: Audureau, Patrice <Patrice.Audureau@alcoa.com>; Marichez, Herve <Herve.Marichez@alcoa.com>; Lelu, Kevin <Kevin.Lelu@alcoa.com>; Leopold, Jérôme <Jerome.Leopold@alcoa.com>
Cc: Marconnet, Lionel <Lionel.Marconnet@alcoa.com>; Wehrle, Claude <Claude.Wehrle@alcoa.com>; Brunet, Mareva <Mareva.Brunet@alcoa.com>; Gugumus, Valérie <Valerie.Gugumus@alcoa.com>; Leicht, Virginie <Virginie.Leicht@alcoa.com>
Subject: Préconisations FR en France pour Reynobond Architecture

Good morning all,

As you know, the fire safety classifications for Reynobond building products in France show a discrepancy between NF P92-501 and its equivalent under EN 13501:

- ***Reynobond PE***
  - Riveted/screwed system (panels)

NF P92-501 M1 classification
EN13501 C-s2,d0 classification (M2 equivalent)

  - Cassette system

NF P92-501 M1 classification
EN 13501 E classification (M4 equivalent)

- ***Reynobond FR***
  - All systems

NF P92-501 M1 classification
EN 13501 B-s1,d0 classification (M1 equivalent)

This ambiguous situation is open to interpretation and, in particular, gives control offices the option to check the M classification as a priority, as the European classification is more complex to understand and to use.

You or your customers regularly specify our Reynobond products on large-scale architectural projects. As such, Alcoa Architectural Products finds itself as a knowledgeable entity, and therefore accepts its responsibility and image as a specialist in this field.

In view of the potential calorific benefits of Reynobond FR (vs. Reynobond PE), and consequently its superior performances, we have taken the proactive habit of favouring FR as the only solution in our specifications. **As from today, I ask you to go even further and to systematically confirm in writing the requirement for FR for all projects on which a Reynobond specification is involved, regardless of the nature and size of the building project.**

If you have any questions about the application of these instructions, please contact Claude, who will give you all the necessary information to justify this choice and advise the specifiers as best as possible regarding this solution, which is by far the safest.

I am counting on your active cooperation on this matter.

Yours sincerely,

Alain FLACON
Directeur Commercial & Marketing / Sales & Marketing Director
Reynobond - Reynolux

ALCOA ARCHITECTURAL PRODUCTS SAS
1 rue du Ballon, 68500 Merxheim, France
T : [redacted]
F :
M :
E-mail : alain.flacon@alcoa.com
Web site : www.reynobond.eu
Web site : www.alcoa.com

MET00053158_P10/86

To: Schmidt, Claude A.[Claude.Schmidt@arconic.com]
Cc: Wehrle, Claude[/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5a32321cda5241528e07bef8dae7c467-Wehrle, Cla]; Marconnet, Lionel[/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=672ae0cc42ae4e34a84e0a899798e354-Marconnet,]; Deffontaine, Veronika[/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0229b8ec81c84b3d8a8dbc3683d4db85-Deffontaine]
From: Meakins, Vince
Sent: Wed 6/14/2017 6:45:21 PM (UTC)
Subject: Grenfell Tower update.
Grenfell Video.MOV
EXT:

Good evening,

As you can appreciate, the news here in the UK is continually focused around the fire disaster at Grenfell Tower, London.

The news coverage has been very interesting and has shown up some more details that I was unaware of.
Attached is a video from the news coverage to give you more of an insight as to what is being said on the matter.

I did screen shot some of the TV footage, which shows a CAD drawing (also attached).
It highlights what areas are cladded in ACM, but more interestingly it shows that PPC Aluminium RAL 7012 'Balsalt Grey' Matt, PPC Aluminium RAL 7705 'Mouse Grey', RAL 9010 'Pure White' Matt, RAL 6018 'Mary Green' Matt and most importantly BCM GRC Cladding was also used.

I have looked into the company BCM GRC Limited who are a Shropshire, UK based company that supply 'Glassfibre Reinforced Concrete' – GRC.
Their website is www.bcmgrc.co.uk
Looking at the CAD details that were on the TV, their materials were at all four corners of the building.

Where they are reporting issues with the cladding, I think we all 'assumed' that it was focused at the ACM element, however, looking into more detail, there was other 'cladding' materials on the building.

Reports say that both the grey and white cladding 'lit up like a match', but now we are aware that the 'white cladding' is PPC aluminium and the 'grey cladding' could be either PPC Aluminium, BCM GRC or ACM.

After speaking with both the office and CEP, it is my understanding that all we supplied was the Smoke Silver Metallic Duragloss 5000.

All in all, it might not be as bad as we initially thought, but I will keep you updated.

Kind regards

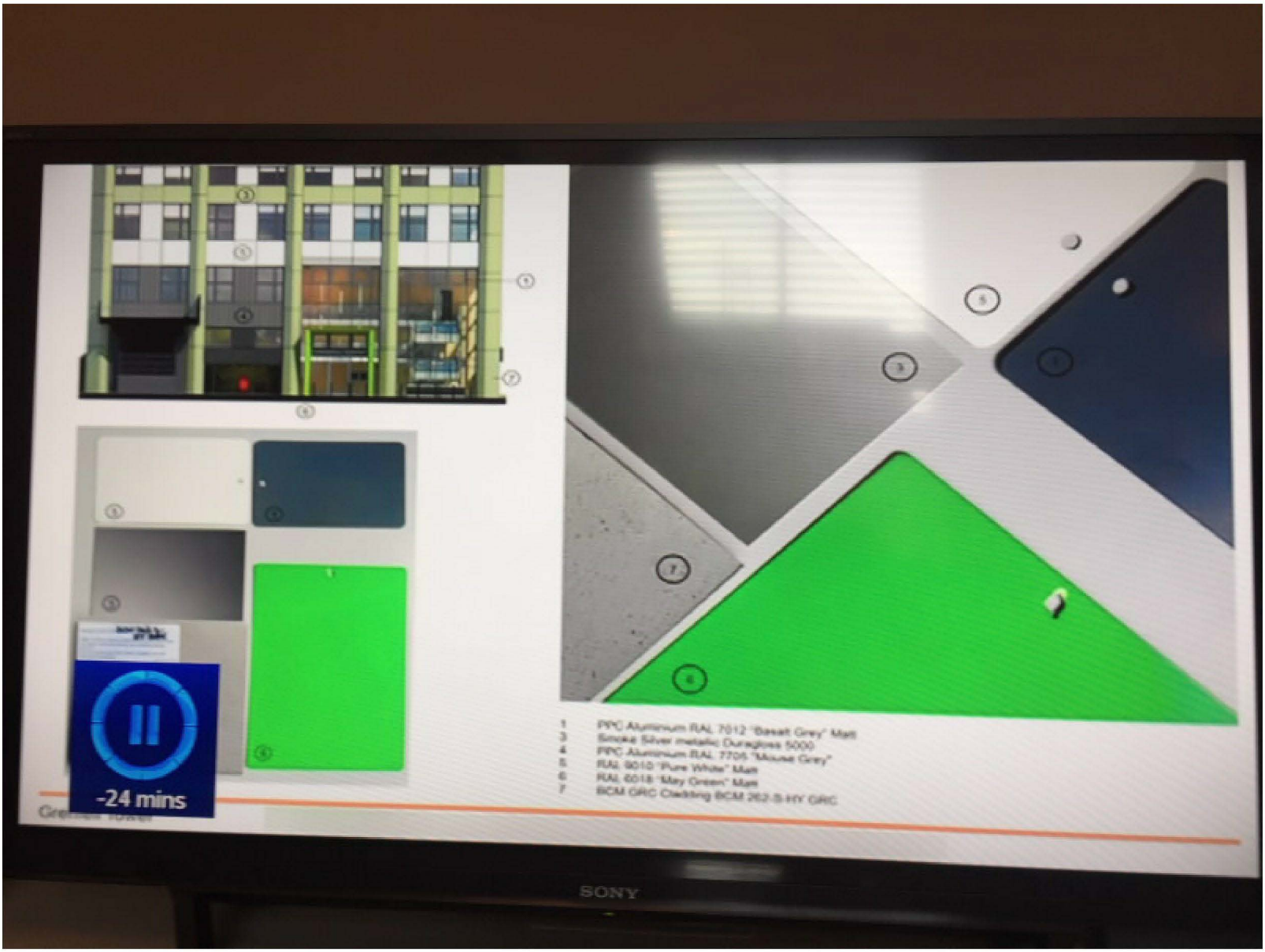
Vince Meakins
UK & Ireland Sales Manager

Mobile: [redacted]
E-mail: vince.meakins@arconic.com
www.arconic.com/aap

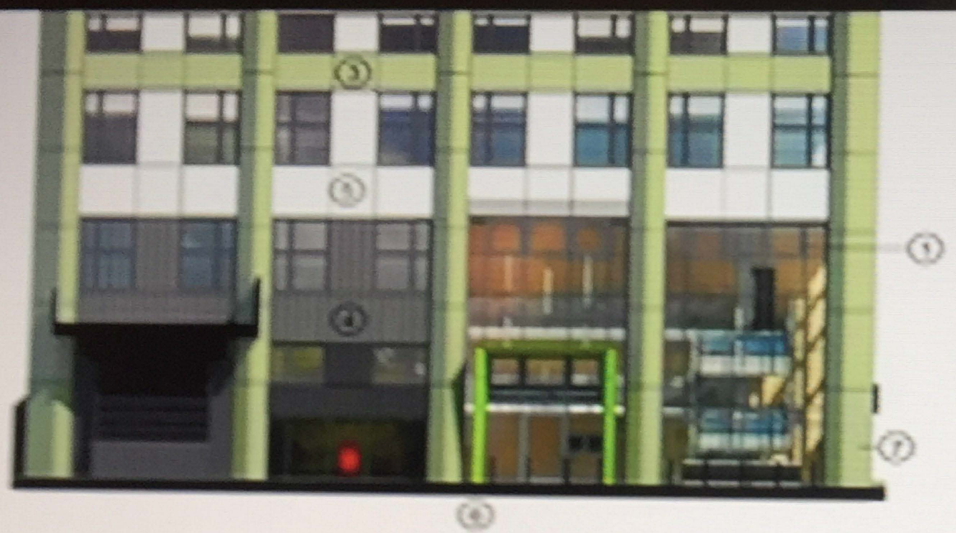
ARCONIC
Innovation, engineered.
www.arconic.com

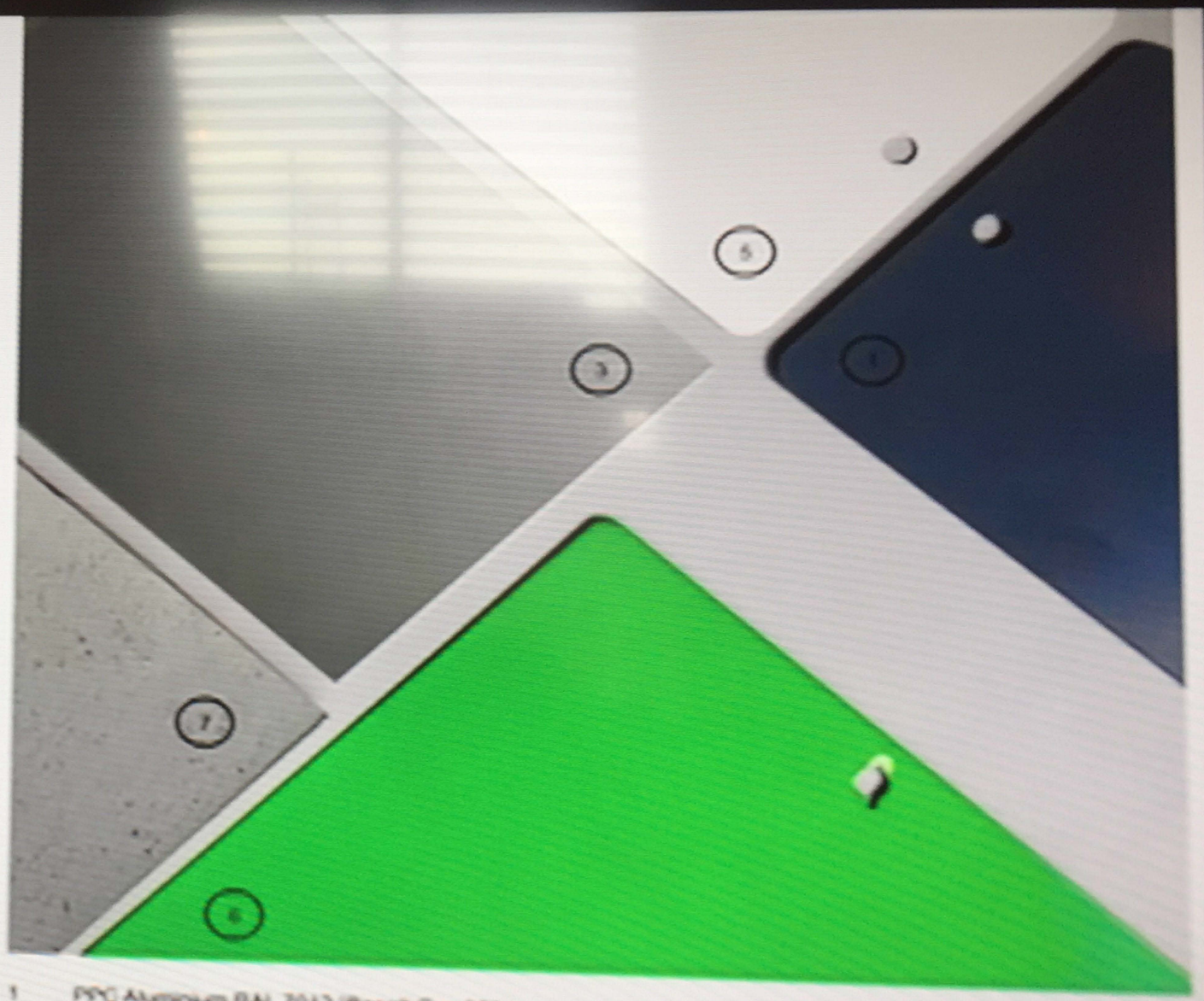
MET00053158_P10_0088

To: Meakins, Vince[Vince.Meakins@arconic.com]
From: Natalie mealies
Sent: Wed 6/14/2017 6:12:24 PM (UTC)
Subject: EXT:



Sent from my iPhone





1 PPG Aluminium RAL 7012 "Basalt Grey" Matt
3 Smoke Silver metallic Duraglass 5000
4 PPG Aluminium RAL 7706 "Mouse Grey"
5 RAL 9010 "Pure White" Matt
6 RAL 6018 "May Green" Matt
7 BCM GRC Cladding BCM 262-S-HY GRC

To: Wehrle, Claude[Claude.Wehrle@arconic.com]
Cc: Deffontaine, Veronika[Veronika.Deffontaine@arconic.com]; Schmidt, Claude A.[Claude.Schmidt@arconic.com]
From: Meakins, Vince
Sent: Thur 6/15/2017 2:23:38 PM (UTC)
Subject: Fwd: EXT: BBA certification
ATT00001.htm
ATT00002.htm
Certifications page_042014.pdf
ATT00003.htm
Reynobond BBA Certificate.pdf
ATT00004.htm

Hi Claude

Please see email below from Simco.

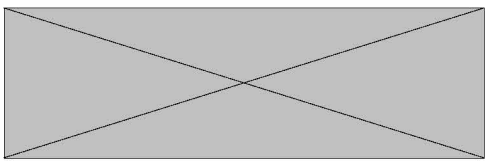
I'm sorry to keep forwarding emails from customers before answering but I feel it's better to be safe than sorry.

Please advise and let me know if you would like me to answer this request.

Kind regards

Vince Meakins
UK & Ireland Sales Manager

Arconic Architectural Products
Mobile: [redacted]
E-mail: Vince.meakins@arconic.com



Begin forwarded message:

> **From:** "Graham Smith - Simco EFS" <graham@simcoefs.com>
> **To:** "Meakins, Vince" <Vince.Meakins@arconic.com>
> **Cc:** "John Simmons" <john@geniusfacades.com>
> **Subject: EXT: BBA certification**
>
> Vince,
> We have Clients requesting that we provide urgent copies of your BBA certification.
>
> Please find attached what we have downloaded off your web site, can you confirm these are current?
> Regards,
>
> Graham Smith
> [redacted]

Simco External Framing Solutions Limited - Leamore Lane - Bloxwich - Walsall - WS2 7DQ. - United Kingdom
Tel: [redacted] - Fax: [redacted]

MET00053158_P10_0093

REYNOBOND®
REYNOLUX®

Reynobond® Architecture and Reynolux® Building certifications.

Reynobond® Architecture certifications in Europe

France	QB 534-47-37
Germany	ÜZ-3 /837 /06
Poland	ITB – 1592 /W Atest Higieniczny HK /B /0665 /01 /2007

Fire certificates for Reynobond® Architecture

Europe	EN 13501-1	FR: B-s1, d0 A2: A2-s1, d0
France	NF P 92-501	PE & FR: M1 Combustible non-inflammable
Germany	DIN 4102	PE: B2 – FR: B1
Switzerland	Directive VKF	PE: 4.2 – FR 5.3
Great Britain	BS476 part 6 & 7	PE & FR: Class 0
Poland	PN-90 /B-02867	FR: NRO
USA	ASTM E 84	Meets requirements
Austria	ÖNORM 3800	FR: PASS
Russia	TR	FR: G1

Fire certificates for Reynolux® Building

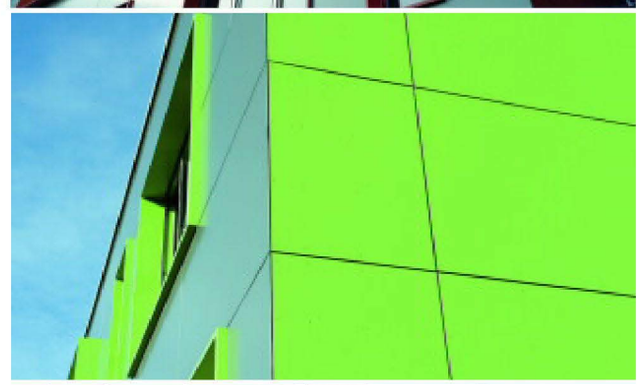
Europe	EN 13501-1	A1
France	NF P 92-501	M0 incombustible

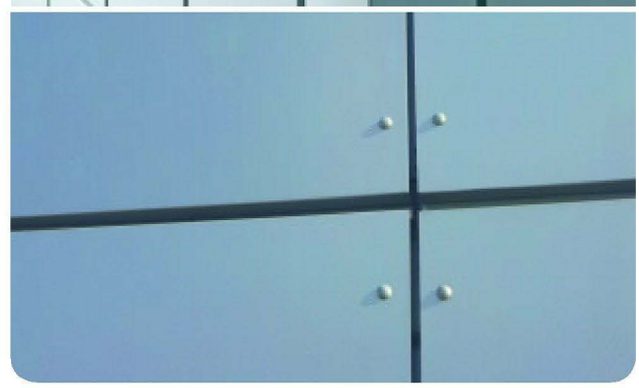
Fire certificates for Reynodual® Building

Europe	EN 13501-1	A2-s1,d0
France	NF P 92-501	M1

Mechanical certifications for Reynobond® Architecture systems in Europe

France	Avis technique système cassette	2 /11-1440
France	Avis technique système riveté et vissé	2 /16-1733
France	Avis technique système vissé ossature bois	2 /16-1734
Germany	Allgemeine bauaufsichtliche Zulassung	Z-10.3-722
Poland	Aprobata Techniczna	AT-15-3524 /2012
Spain	Sistema de revestimiento de fachadas	DIT 485
Russia		TC /TO-3739-12
Great Britain	BBA agreement	BBA 08 /4510
Czech Republic	Certificaci	Č. 216 / C5a /2012 /0093





ARCONIC
Innovation, engineered

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CI/SfB

(21.9) Ry

Alcoa Architectural Products
1 rue du Ballon
68500 Merxheim
France
Tel: [redacted] Fax: [redacted]
e-mail: aapmerxheim@alcoa.com
website: www.alcoa.com/bcs/

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
No 08/4510

PRODUCT SHEET 1 — REYNOBOND ARCHITECTURE WALL CLADDING PANELS

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate of Confirmation relates to Reynobond Architecture Wall Cladding Panels, aluminium/ polyethylene composite panels used to provide a decorative/protective façade over the external walls of buildings.

AGRÉMENT 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

Practicability of installation — the panels are suitable for installation by cladding contractors providing they have undergone suitable training (see section 4).

Strength and stability — the panels can be incorporated in a cladding system designed to resist the wind loads normally encountered in the UK (see section 5).

Behaviour in relation to fire — in relation to the Building Regulations for reaction to fire, the panels may be regarded as having a Class 0 surface in England and Wales, and a 'low risk' material in Scotland (see section 6).

Air and water penetration — provided all joints between panels are adequately baffled, the cladding will minimise water entering the cavity. Any water collecting in the cavity will be removed by drainage and ventilation (see section 7).

Maintenance — damaged panels may be replaced individually without disturbing adjacent ones (see section 8).

Durability — in normal UK conditions, the panels should have a service life in excess of 30 years (see section 9).

The BBA has awarded this Agrément Certificate for Reynobond Architecture Wall Cladding Panels to Alcoa Architectural Products as fit for their intended use provided they are installed, used and maintained as set out in this Agrément Certificate.

On behalf of the British Board of Agrément

Date of First issue: 14 January 2008

Greg Cooper: Chief Executive

British Board of Agrément
Bucknalls Lane
Garston, Watford
Herts WD25 9BA
tel: [redacted]
fax:
e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk

Regulations

In the opinion of the BBA, Reynobond Architecture Wall Cladding Panels, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:

The Building Regulations 2000 (as amended) (England and Wales)

Requirement:	A1	Loading
Comment:		The panels are acceptable for use as set out in sections 3.2 and 5.1 to 5.9 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The panels are judged to meet the Class 0 requirements. See sections 6.1 to 6.6 of this Certificate.
Requirement:	C2(b)(c)	Resistance to moisture
Comment:		The panels will meet the stated requirements. See sections 7.1 to 7.4 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The panels are acceptable. See sections 9.1 and 9.2 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8	Fitness and durability of materials and workmanship
Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The panels can contribute to a construction satisfying this Regulation. See sections 9.1 and 9.2, and the Installation part of this Certificate.
Regulation:	9	Building standards— construction
Standard:	1.1(a)(b)	Structure
Comment:		The panels are acceptable, with reference to clauses 1.1.1 (1)(2), 1.1.2 (1)(2) and 1.1.3 (1)(2). See sections 3.2 and 5.1 to 5.9 of this Certificate.
Standard:	2.4	Cavities
Comment:		The panels, when used in conjunction with fire-resistant materials, can meet this Standard, with reference to clauses 2.4.1 (1)(2), 2.4.2 (1)(2), 2.4.5 (1)(2) and 2.4.9 (1)(2). See section 6.6 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The panels can contribute to satisfying this Standard, with reference to clauses 2.6.2 (1)(2), 2.6.5 (1) and 2.6.6 (2). See sections 6.1 to 6.6 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The panels can contribute to satisfying this Standard, with reference to clause 2.7.1 (1)(2). See sections 6.1 to 6.5 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The panels will contribute to meeting this Standard, with reference to clauses 3.10.1 (1)(2) to 3.10.3 (1)(2), 3.10.5 (1)(2) and 3.10.6 (1)(2). See sections 7.1 to 7.4 of this Certificate.
		(1) Technical Handbook (Domestic).
		(2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The panels are acceptable. See sections 9.1 and 9.2 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The panels will contribute to a roof satisfying this Regulation. See sections 7.1 to 7.4 of this Certificate.
Regulation:	D1	Stability
Comment:		The panels are acceptable as set out in sections 3.2 and 5.1 to 5.9 of this Certificate.
Regulation:	E5	External fire spread
Comment:		The panels are judged to meet the Class 0 requirements. See sections 6.1 to 6.6 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 1 Description (1.5) and 2 Delivery, storage and handling (2.4).

Non-regulatory information

NHBC Standards 2007

NHBC accepts the use of Reynobond Architecture Wall Cladding Panels, when installed and used in accordance with this Certificate, in relation to NHBC Standards, Chapter 6.9 Curtain walling and cladding.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, the use of Reynobond Architecture Wall Cladding Panels in relation to this Certificate, is not subject to the requirements of this Technical Manual.

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General

This Certificate relates to Reynobond Architecture Wall Cladding Panels comprising an aluminium/polyethylene composite material, fixed to an aluminium sub-frame, to provide a decorative/protective rainscreen façade over the external walls of buildings.

The sub-frame and its attachment to the substrate wall are outside the scope of this Certificate as are other miscellaneous construction details.

It is important for designers, planners, contractors and/or installers to ensure that the installation of the cladding is in accordance with the Certificate holder's instructions and the information given in this Certificate.

This Certificate is a Confirmation of French Agréments 2/04-1081 and 2/01-845 issued by Centre Scientifique et Technique du Bâtiment (CSTB), to Alcoa Architectural Products and Reynolds Aluminium France SA respectively.

Technical Specification

1 Description

1.1 The Reynobond Architecture Wall Cladding Panels comprise two 0.5 mm thick aluminium alloy sheets (EN AW-3005, H46) bonded to either side of a core of low-density polyethylene (LDPE). The panels are available either plain edged (riveted system) or flanged (cassette system) to suit architectural requirements (see Fiqure 1). A Duragloss or PVDF coating available in various colours protects the exposed face. A polyester primer protects the unexposed face. The products are also available in a fire-retardant grade (FR).

1.2 The panels are manufactured in thicknesses of 3 mm, 4 mm and 6 mm and are available in 15 standard finishes. Non-standard panel sizes and finishes are available to order.

1.3 The standard 4 mm thick panel is available in nominal widths and lengths (mm) of:

- 1000 x 4000
- 1250 x 2500
- 1250 x 3200
- 1250 x 4000
- 1500 x 3000
- 1500 x 4000
- 2000 x 3000
- 2000 x 4000.

1.4 Plain edged panels are riveted directly to the aluminium sub-frame. Flanged panels are hung from the sub-frame using T-slots fitting onto pintle on the sub-frame(1). Flange widths can vary to suit the design requirements (see Figure 1).

(1) Not covered by this Certificate.

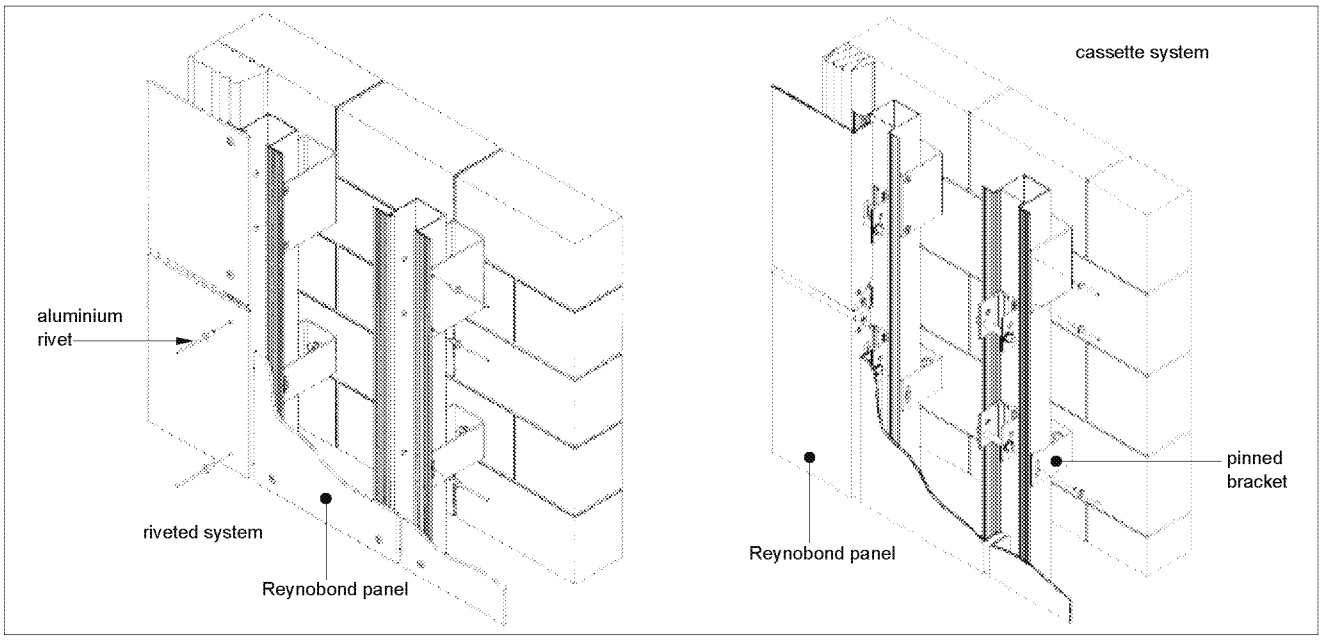
1.5 The panels have area weights as shown in Table 1.

Table 1 Panel weights

Thickness (mm)	Weight (Nm^{-2})
3	45.9
4	55.1
6	73.6

1.6 Production control is by self inspections and verification testing by CSTB, who are ultimately responsible for ensuring that product quality is maintained.

Figure 1 Reynobond Architecture panels and typical fixing systems



2 Delivery, storage and handling

2.1 The panels, separated by blocks, are delivered to site in closed crates. The crates bear product details such as type, size, quantity, identification code, manufacturing references and colour.

2.2 To allow the panels to acclimatise, the crates should be stored on a dry, flat and level surface, suitably protected from the weather, for at least 24 hours before installation. The protective film on the panels should be removed as soon after installation as possible.

2.3 The panels should be handled with care to avoid damage. They should be lifted off, rather than slid across, each other. For temporary support during installation, polystyrene or foam wedges may be used.

2.4 Care should be exercised when handling the panels to avoid injury from sharp edges. Protective clothing should be worn and all Health and Safety rules observed.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Reynobond Architecture Wall Cladding Panels.

Design Considerations

3 General

3.1 Reynobond Architecture Wall Cladding Panels can be incorporated in back-ventilated and drained cladding systems. The cavity behind the cladding should be as wide as possible, with a minimum ventilation area of 10000 mm^2 per metre run of cladding (see section 7). The ventilation openings should be suitably protected, or baffled, to prevent the ingress of birds, vermin and rain.

3.2 The wall and the sub-frame to which the cladding is fixed should be structurally sound and constructed in accordance with the requirements of the relevant Building Regulations and Standards.

3.3 The wall to which the cladding is fixed should be watertight and have adequate resistance to the transmission of heat and sound.

3.4 The insulation behind the cladding should be suitably fixed to the supporting wall, and protected, to resist the forces of wind suction. Insulation should be of a rigid type (egg boards or batty). The ventilation pathway behind the cladding must not be allowed to become blocked nor the insulation dislodged where it may be vulnerable to wetting.

3.5 To allow for thermal expansion, a minimum gap of 2 mm per metre length between adjacent support rails should be provided. The cladding panels must not straddle this gap.

3.6 All design aspects of the installation should be checked by a suitably qualified chartered engineer or other appropriately qualified person. For advice on specific construction details, eg flue pipe penetrations, the Certificate holder should be consulted.

4 Practicability of installation

The products are suitable for installation by cladding contractors provided they have undergone suitable training. The Certificate holder can provide advice on installation if required.

5 Strength and stability

Wind loading

5.1 For design purposes, the panel properties given in Table 2 may be adopted.

Table 2 Panel properties(1)

Panel thickness (mm)	Permissible stress (Nmm^{-2})	Section modulus Z (cm^3m^{-1})	Flexural rigidity EI (Nm^2m^{-1})
3	92	1.25	125
4	92	1.75	240
6	92	2.75	590

(1) The maximum panel centre deflection will be governed by specific project requirements but should not exceed 1/30 of the diagonal formed by four adjacent fixings or 50 mm, whichever is the lesser.

5.2 Aluminium rivets or pinned brackets should be used to attach the panels to the support frame (see Figure 1). The design should ensure adequate capacity against wind pressure/suction. To allow for panel expansion, fixings in clearanceholesshouldbe provided as required.

5.3 The maximum allowable wind pressure/suction will be the lesser value obtained by considering the panels and fixings separately.

5.4 When calculating wind loads, higher pressure coefficients applicable to corners of the building should be used.

5.5 Design of the sub-frame should be such as to limit mid-span deflections to L/200 and cantilever deflections to L/150.

5.6 Design of the sub-frame attachment to the substrate wall should be such as to ensure adequate pull-out capacity due to wind suction.

5.7 A suitably qualified engineer must check the design and installation of the cladding system.

5.8 The supporting wall must be able to take the full wind, as well as any racking, loads on its own – any contribution from the cladding should be ignored.

5.9 Wind loads should be calculated in accordance with BS EN 1991-1-4 : 2005 and BS 6399-2 : 1997.

Impact

5.10 As the products are susceptible to damage from hard body impacts, it is recommended that use is limited to locations where there is little possibility of such impacts, ie at ground level in private areas where there is some incentive to exercise care, and at higher levels in public areas, as described in categories C to F of BS 8200 :1985.

6 Behaviour in relation to fire

6.1 A standard sample of the product, with a grey/green Duragloss 5000 coating, when tested for reaction to fire, achieved a classification of B-s2,d0 in accordance with EN 13501-1 : 2002. A fire retardant sample of the product, with a gold-coloured Duragloss finish, when tested for reaction to fire, achieved a classification B-s1, d0 in accordance with EN 13501 : 2002.

6.2 A fire retardant sample of the product, with a metallic grey PVDF finish, when tested in accordance with BS476-6 : 1989, achieved a fire propagation index (I) of 0 and, when tested in accordance with BS 476-7 : 1997, achieved a Class 1 surface spread of flame.

6.3 As a consequence of sections 6.1 and 6.2, the products may be regarded as having a Class 0 surface in relation to the Approved Document B of The Building Regulations 2000 (as amended) (England and Wales) and Technical Booklet E of The Building Regulations (Northern Ireland) 2000 (as amended) and a 'low risk' material as defined in Annex 2C[1] and Annex 2E[2] of The Building (Scotland) Regulations 2004 (as amended). The unexposed side of the products may also be regarded as having a class 0 surface.

6.4 These performances may not be achieved by other colours of the product and the designations of a particular colour should be confirmed by:

England and Wales— Test or assessment in accordance with Approved Document B, Appendix A, Clause 1

Scotland— Test to conform with the Table to Annex 2C or Annex 2E[2] of Regulation 9

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland— Test or assessment by a UKAS accredited laboratory or an independent consultant with appropriate experience.

6.5 For resistance to fire, the performance of a wall incorporating the product, can only be determined by tests from a suitably accredited laboratory, and is not covered by this Certificate.

6.6 Cavity barriers should be incorporated behind the cladding, as required by the national Building Regulations, but should not block essential ventilation pathways. Particular attention should be paid to preventing the spread of fire from within a building breaching the cladding system through window and door openings.

7 Air and water penetration

7.1 The products are suitable for use in back-ventilated and drained cladding systems.

7.2 The supporting wall must be watertight and reasonably airtight.

7.3 Providing all joints are adequately baffled, the amount of water entering the cavity by wind-driven rain will be minimal. Water collecting in the cavity due to rain or condensation will be removed by drainage and ventilation.

7.4 The air space between the back of the panels and the supporting wall or insulation should be as wide as possible and allow for conventional building tolerances. Guidance on recommended cavity widths is given in NHBC Standards 2007, Chapter6.9.

8 Maintenance

8.1 The painted surface may be cleaned using hot and cold water with a mild cleaning agent using a non-abrasive pad or sponge. General household cleaners should not be used. After cleaning, the surface should be rinsed with clean water. For more difficult chemical soiling, the manufacturer's specialist advice must be sought.

8.2 Annual maintenance inspections should be carried out to ensure that rain-ware is complete and in good order and that such features as tiles, flashings and seals are in place and secure.

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8.3 Damaged panels should be replaced as soon as practicable; work carried out should follow the manufacturer's instructions and all necessary health and safety regulations should be observed.

9 Durability

9.1 Based on historical evidence and testing, the products, when incorporated in a wall cladding system, can be expected to have an ultimate service life in excess of 30 years.

9.2 The performance of the coating will depend upon the colour chosen, building location, façade aspect and the immediate environment.

9.3 In a non-corrosive atmosphere, the products can be expected to retain a good appearance for up to 20 years. In coastal or severe industrial regions, this is reduced to 15 years. Colour change will be generally small and uniform on any one elevation.

Installation

10 General

10.1 Reynobond Architecture Wall Cladding Panels must be installed in accordance with the manufacturer's recommendations, the requirements of this Certificate and specifications laid down by the consulting engineer.

10.2 Installers must be trained and approved by the Certificate holder who can provide technical assistance at the design stage and at the start of the installation.

10.3 If significant colour variations between batches is likely, it may be necessary to mix the panels from different pallets so as to obtain a uniform shade over the façade.

11 Procedure

11.1 Based on a preliminary survey of the wall, and the architectural/structural design, a grid layout for the sub-frame is prepared.

11.2 The aluminium sub-frame is attached to the substrate wall via cleats.

11.3 For a riveted system, the panels are fixed directly to the sub-frame with aluminium rivets (see Figure 1).

11.4 For a cassette system (see Figure 1):

- the sliding pinned brackets are screwed to the vertical support rails at predetermined positions coinciding with the centre lines of the panel T-slots. To reduce installation time, this operation is normally performed in the shop rather than on site
- the panel is hung from the top pinned brackets. After minor adjustments, the pinned brackets are tightened against the vertical support rail using socket screws
- to lock the panel in position, the bottom pinned brackets are similarly adjusted and screwed tight against the vertical support rail when at the bottom end of the panel T-slot
- to achieve the required clearances, intermediate pinned brackets (if used) may need to be repositioned.

Technical Investigations

12 Investigations

12.1 Based on the CSTB Technical Approval, an assessment was made of the panels' resistance to wind and impact loading, durability, the production method and associated quality control procedures.

12.2 From test data, an assessment was made of the panels' behaviour in relation to fire.

12.3 Based on a user survey, an assessment was made of the panels' practicability of installation and the performance in use.

12.4 The Certificate holder's technical literature was examined for inconsistencies and general content.

Bibliography

BS 476-6 : 1989 Fire tests on building materials and structures – Method of test for fire propagation for products
BS 476-7 : 1997 Fire tests on building materials and structures – Method of test to determine the classification of the surface spread of flame of products

BS 6399-2 : 1997 Loading for buildings — Code of practice for wind loads

BS 8200 : 1985 Code of practice for design of non-loadbearing external vertical enclosures of buildings

BS EN 1991-1-4 : 2005 Eurocode 1 : Actions on structures – General actions — Wind actions

EN 13501-1 : 2002 Fire classification of construction products and building elements — Classification using test data from reaction to fire tests

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13 Conditions

13.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

13.2 References in this Certificate to any Act of Parliament, Statutory Instrument, Directive or Regulation of the European Union, British, European or International Standard, Code of Practice, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

13.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- remain covered by a valid French Agrément; and
- are reviewed by the BBA as and when it considers appropriate.

13.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

13.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.

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MET00053158_P10_0103

MET00053158_P10_0104

To: Wehrle, Claude[Claude.Wehrle@arconic.com]
From: Wahler, Serge
Sent: Fri 6/16/2017 7:05:01 AM (UTC)
Subject: RE: PE oder FR in England

Sache que cela fait des mois que je ne réponds plus à aucune question sur le RB partant du principe que je ne sais plus rien du produit

Dans ce cas là je suppose que j'ai estimé que Debbie était logiquement la mieux informée ! et j'ai répété bêtement (je fais ça très bien !!!) ce qu'elle m'a dit !

Serge

De : Wehrle, Claude
Envoyé : vendredi 16 juin 2017 09:02
À : Wahler, Serge <Serge.Wahler@arconic.com>
Objet : TR: PE oder FR in England

Sarge,

Pour rappel … attention à ce genre de communication vers PREFA

Claude

De : Wahler, Serge
Envoyé : vendredi 17 octobre 2014 13:29
À : Wehrle, Claude <Claude.Wehrle@alcoa.com>
Objet : RE: PE oder FR in England

Claude,

Je l'ai appelé et elle m'a confirmé qu'à ce jour que du PE quel que soit le projet, pas de législation spécifique.

Un client à Prefa livre un chantier à Londres et voulait savoir.

Serge

De : Wehrle, Claude
Envoyé : vendredi 17 octobre 2014 13:16
À : Wahler, Serge
Objet : RE: PE oder FR in England

Attention, ce n'est pas le cas
Debby « force » les prescription en PE, mais tout est entrain de passer en FR (passage des British Standard vers les Euronormes)
L'as-tu appelé ?

Les analyses des chiffres du passé ne sont pas forcément OK

De : Wahler, Serge
Envoyé : vendredi 17 octobre 2014 12:23
À : Denk Guenther; Wehrle, Claude
Cc : Vonthron, Philippe; Bucher Mike
Objet : RE: PE oder FR in England

Hallo,

In UK kann man alles in PE machen. Als wir da Kunden haben, können sie mir sagen was sie in UK machen

möchten ??

Danke im voraus !

Serge Wahler
Sales Manager Contracts & Export

Alcoa Architectural Products SAS
1 rue du Ballon, 68500 Merxheim, France
Tel: [redacted]
Mobile : [redacted]
Fax. [redacted]
E-mail: Serge.Wahler@alcoa.com

De : Denk Guenther [mailto:Guenther.Denk@prefa.com]
Envoyé : vendredi 17 octobre 2014 08:56
À : Wehrle, Claude
Cc : Vonthron, Philippe; Wahler, Serge; Bucher Mike
Objet : EXT: PE oder FR in England

Hallo Herr Wehrle,

aus gegebenen Anlass benötigen wir Ihre Hilfe mit Reynobond in England.
Die Frage lautet:
Ab wann bzw. bei welchen Gebäudeklassen ist in England der PE- bzw. FR-Kern zu verwenden?

Wir sollen dem Kunden noch heute bis spätestens 12:00 Uhr eine Antwort geben!

Danke im voraus.

Mit freundlichen Grüßen

Ing. Günther Denk
Anwendungstechnik - Fassade

PREFA Aluminiumprodukte GmbH
Werkstrasse 1
A - 3182 Marktl / Lilienfeld
T: [redacted]
M:
F:
E: guenther.denk@prefa.com
www.prefa.com

From: "Wahler, Serge"
To: "Wehrle, Claude" <Claude.Wehrle@arconic.com>
Date: 16/06/2017 09:05:01
Subject: RE: PE oder FR in England

Please note, I have not answered any more questions about RB for months now, assuming that I no longer know anything about the product

That being the case, I thought Debbie was logically the person who was best informed, and I stupidly repeated what she told me (I am very good at doing that!!!!).

Serge

From: Wehrle, Claude
Sent : Friday, 16 June 2017 09:02
To: Wahler, Serge <Serge.Wahler@arconic.com>
Subject: TR: PE oder FR in England

Serge,

Remember.... be careful with this kind of communication to PREFA

Claude

From: Wahler, Serge
Sent : Friday, 17 October 2014 13:29
To: Wehrle, Claude <Claude.Wehrle@alcoa.com>
Subject: RE: PE oder FR in England

Claude,

I called her, and she confirmed that so far, only PE is used regardless of the project, no specific legislation.

A customer at Prefa is delivering a construction project in London and wanted to know.

Serge

From: Wehrle, Claude
Sent: Friday, 17 October 2014 13:16
To: Wahler, Serge
Subject: RE: PE oder FR in England

Be careful, this is not the case
Debby pushes hard for the PE prescriptions, but everything is moving to FR (from the British Standard to the European Norms)
Did you call him?

Analyses of past figures are not necessarily correct.

MET00053158_P10/107

From: Wahler, Serge
Sent: Friday, 17 October 2014 12:23
To: Denk Guenther; Wehrle, Claude
Cc : Vonthron, Philippe; Bucher Mike
Subject: RE: PE oder FR in England

Hi,

You can do everything with PE in England. As we have customers there, can you tell me what you want to do in England?

Thanks in advance!

Serge Wahler
Sales Manager Contracts & Export

Alcoa Architectural Products SAS
1 rue du Ballon, 68500 Merxheim, France
Tel: +[redacted]
Mobile[redacted]
Fax. +[redacted]
E-mail: Serge.Wahler@alcoa.com

From: Denk Guenther [mailto:Guenther.Denk@prefa.com]
Sent: Friday, 17 October 2014 08:56
To: Wehrle, Claude
Cc : Vonthron, Philippe; Wahler, Serge; Bucher Mike
Subject: EXT: PE oder FR in England

Hi, Mr Wehrle,

Due to the circumstances, we need your help with Reynobond in England.
The question is:
When and for which building classes should the PE or FR core be used in England?

We are supposed to give the customer an answer by 12:00 noon today at the latest!

Thanks in advance.

Best,

Ing. Günther Denk
Anwendungstechnik - Fassade

PREFA Aluminiumprodukte GmbH
Werkstrasse 1
A - 3182 Marktl / Lilienfeld
T: +[redacted]
M: +[redacted]
F: +[redacted]
E: guenther.denk@prefa.com
www.prefa.com

MET00053158_P10_0108

To: Schmidt, Claude A.[Claude.Schmidt@arconic.com]; Scheidecker, Guy[Guy.Scheidecker@arconic.com]; Marconnet, Lionel[Lionel.Marconnet@arconic.com]
From: Wehrle, Claude
Sent: Mon 6/19/2017 9:13:42 AM (UTC)
Subject: Fire France 26_04_16 .pptx
Fire France 26_04_16 .pptx

Requirements for reaction to fire products in FRANCE

26.04.2016
C Wehrle

Exigences règlementaires (French and legal version):

Arrêté du 21 novembre 2002 relatif à la réaction au feu des produits de construction et d'aménagement

Le présent arrêté fixe les méthodes d'essais et les catégories de classification en ce qui concerne la réaction au feu :
-des produits visés à l'article 1er du décret du 8 juillet 1992 susvisé désignés par la suite « **produits de construction** » ;
-des produits non visés à l'article 1er du décret du 8 juillet 1992 susvisé mais dont les conditions d'emploi sont prescrites par les règlements de sécurité contre l'incendie, désignés par la suite « **matériaux d'aménagement** ».

Article 1er du décret du 8 juillet 1992: Aux fins du présent décret, constitue un produit de construction tout produit fabriqué en vue d'être incorporé, assemblé, utilisé ou installé de façon durable dans des ouvrages tant de bâtiment que de génie civil.

Les documents relatifs à la classification ne peuvent être délivrés que pour des produits et matériaux précisément définis et désignés par une (ou des) référence(s) commerciale(s) engageant la responsabilité du demandeur.
Ces documents sont conformes aux modèles figurant :
- dans la norme NF EN 13 501-1 pour les produits de construction ;
u paragraphe 6.1 de l'annexe 2 du présent arrêté pour les matériaux d'aménagement.

nexe 2 : CLASSIFICATION DES MATÉRIAUX D'AMÉNAGEMENT :Les matériaux sont répartis dans les catégories suivantes
l1, M2, M3, M4 et, le cas échéant, M0. (Selon norme NFP92-501)

Mandatory requirements (translation):

Order of 21 November 2002 regarding the reaction to fire of design and construction products:

The present decree sets out the testing methods and the classification categories as regards the reaction of fire :
- the products subject to the 1st article of the decree of 8 July 1992 **controlled,** from now on referred to as « **construction products** » ;
- the products non subject to the 1st article of the decree 8 July 1992 **controled** but from which the conditions of use are specified by fire protection safety regulations, from now on referred to as " **Purely decorative role" materials** ».

Article 1st of decree of 8 July 1992: For the purposes of this Decree, what is considered a construction product, all products produced which is to be incorporated, assembled, applied or installed in a permanent manner in construction works.

The documents relating to the fire classification can only be delivered for materials and products identified and designated by one (or more) commercial reference(s) that engage the liability of the requestor.

These documents are in compliance with the models that are defined in:
ıe NF EN 13 501-1 standard for all Construction/Building products;
ıe paragraph 4 of this decree's annex for "Purely decorative role" materials.

nnex 2 : "Purely decorative role" materials Classification: The materials are assigned to the following classes : M1, M2, M3, M4, . (According to NFP92-501)

Mandatory requirements:

Chart below, shows fire classes, when tested in accordance with EN 13 501-1 standard, and equivalence with M class for fire security to fire in buildings.

Classes selon NF EN 13 501-1			Exigence
A1	--	--	Incombustible
A2	s1	d0	M0
A2	s1	d1 [1]	M1
A2	s2 s3	d0 d1 [1]	
B	s1 s2 s3	d0 d1 [1]	
C [3]	s1 [2] [3] s2 [3] s3 [3]	d0 d1 [1]	M2
D	s1 [2] s2 s3	d0 d1 [1]	M3
			M4 (non gouttant)
Toutes classes [2] autres que E-d2 et F			M4

Exigences règlementaires:

- Technical instructions for installation are based on:
  - IT 249 and C+D – Only « Euroclass » are mentioned (no more French « M » class) and the calorific value is key, (height rise buildings etc. …)

    For information:

RB55 PE	123 MJ/m²
RB55 FR	76 MJ/m²
RB55 A2	21 MJ/m²
RDual	5 MJ/m²

  - Technical approval based on French or Euroclass, chosen by the industrials. It's a voluntary procedure
  - European Technical Approval – CE marking only base on EN 13501

The Fire class for Reynobond:

- ***Reynobond PE***
  - Installed flat in plates riveted or screwed:

NF P92-501	M1 class
EN13501	C-s2,d0 class (M2 per equivalence)

  - Cassette system

NF P92-501	M1 Class
EN 13501	E class (M4 per equivalence)

- ***Reynobond FR***
  - All Systems

NF P92-501	M1 class
EN 13501	B-s1,d0 class (M1 per equivalence)

To: Boyelle, Justine[Justine.Boyelle@arconic.com]; Burger, Steeve[Steeve.Burger@arconic.com]; Deffontaine, Veronika[Veronika.Deffontaine@arconic.com]; Froehlich, Peter[Peter.Froehlich@arconic.com]; Kahn, Jay A.[Jay.Kahn@arconic.com]; Leopold, Jérôme[Jerome.Leopold@arconic.com]; Leopoldes, Christine[Christine.Leopoldes@arconic.com]; Marconnet, Lionel[Lionel.Marconnet@arconic.com]; Scheidecker, Guy[Guy.Scheidecker@arconic.com]; Schmidt, Claude A.[Claude.Schmidt@arconic.com]; Wahler, Serge[Serge.Wahler@arconic.com]; Wehrle, Claude[Claude.Wehrle@arconic.com]
From: Leicht, Virginie
Sent: Fri 6/23/2017 2:24:27 PM (UTC)
Subject: weekly meeting- 23/06/17

Hello

Pls find below minutes of our meeting. Pls feel free to add any comment to the report:

Attendees: LMA -GSC- SWA- VDE- PFR- JLE- VLE- JBO- CWE

LMA :

- **London Tower :** Order for Architecture RB55 planned for in the 2 coming weeks will in FR. We will try ti get the upcharge from our customers. No copy, no print, no written info of any documents on this subject
  Quotations RB55 will minimum be FR
  A new process for the quotations will be reviewed.
- **Hild meeting** on Wednesday:
- Monday: Monthly meeting sales plan and process for samples

Next week: Tuesday morning ISO Audit, Wednesday and Thursday sales meeting

GSC:

Prefa: is putting pressure on A2, they want to place their short terms orders by Alpolic
Singapor: they accept the cleaning
Marketing Toto: how they can help to promote ecoclean
Hong kong meeting planned in July

Huddle discussion

Booking are updated under T:\S_Commercial\04. FONCTIONNEMENT INTERNE\Statistiques\Courbes d'enregistrements\2017\Order in pipeline June 2017.xlsm

SWA:

- Pllana : first contact with this ex-member of the Haeuselmann team. He should not be in competition with them but we must be careful!
- Bemo Uk : Nigel managed to get paid the 235 £ unearned discount back end of June. Well done !
- Hild : discussion due to Prefa wanting us not to supply 2 colors about which we had agreements of exclusivity with them. Very interesting meeting with a lot of market information. The next step is to discuss with Prefa.
- Prefa : we work on the consignment stock, they have placed 800 T in one go, upto week 34, it is not all the orders but a good base load !
- Gutterfrance : another 50 t order for August / September
- Warema : they continue to send orders between 60 and 7à T per month ! otif is now absolutely key !!
- Fabricauto : he will place more orders stating september with us.
- Asat audit : we will have to work on the consignment stock by finding a standard way of doing and formalizing it. By tolerie service, we not under control… (no written agreement etc…)
- Velux : no real wrk done on their side on the tests done to get more volume, we have to push them to challenge certain results. Also the last specifications received look different from our specs, which we have to check !
- Prefa : first conf call, ras in Reynolux.
- Poland : return from Izabela about the 3 offers we made further to the business trip. All 3 offers are rejected for price reasons, KBH, Investa and Blachdom. The conversion prices are not achievable (around 1250 €/T).

VDE:

Highligts W25/2017:

CID

1564

Oil Lybia – following the meeting with David Davis, 3ds, the specification for Suprall for Oil Lybia is agreed. ?

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refurbish within 3 years, roll out strating end of 2017

Land Rover – Alfaneon order from 25th of April – delayed from W24 to W28; risk of penalties as the showroom opening is planned on W27 with the presence of JLR on site.

Renault – mock up shipped out. Follow up and orders intake.

Prolicht – rdv le 4/07/2017 – Renault, Nissan and global cooperation.

ARC

France – meeting with Laude; global volume 70 000 sqm per year, 30 000 with Larson, 15 000 with AB and 15 000 with RB. RB sales 2016. RB forecast 2017 – 20 000m².

UK - Situation remains complicated.

1700 sqm current orders switched from PE to FR.
1500 sqm new order from Booth Muirie placed for the same project RB PE was delivered on W23/2017.

Lost projects:

		June	July	August	October
Digital Campus Sheffield	Sotech			3 200	
Baggott Street Birmingham	Omnis	4 400		2 200	
Strawberry Fields	Sotech	2 000			
Ary Academy/3 Glass Walf	Sotech				4 000
Elthorne Park High School	Genius		2 800		
Cornwall Street	Genius	1 200			
Oxford Towers	Booth	3 000			
Total per month		**10 600**	**2 800**	**5 400**	**4 000**
Total global	**22 800**				

Despite complications, Eltheringthon is looking to continue our cooperation and RB promotion.

SBU:

PREFA Group

PREFA AT :

- Stock order for 3000m² to be produced in July (week 27)
- Inquiry for 4000m² FR for project TGW (screwed): statical calculation will help to determine the amount of fixation before to get the order from their customer.
- Pipeline June = 20.000m² / July = 4200m²
- 1st bi-monthly Conference call with Serge Wahler (RLX) and Prefa held on 23.06.
- Claims :
  - KRIMMLER Wasserfälle (900m² delamination on RB PE from 2013) => visit to be organized on site 1565
  - ORF : 2000mm FR : cos breakdown received and submitted to Lionel, we have to confirm our

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PREFA CH :

- Additional order of 500m² in 6mm FR for Blindmodules: in total, in july, we will produce & deliver 1500m² in this spec.
- New inquiry for 500m² in real Anodzed in RB FR.
- Customer Survey : they rated us as severe detractor.

PREFA DE :

- Pipeline June = 1300 m² / July = 1385 m²
- Extension of the order for

∀ S/C :

- Next meeting with management on 26.07 in Lille

∀ VM Zinc :

- Next meeting for South Europe (Spain +Portugal + Italy) will be held in Merxheim in one Session (instead 2).
- Meeting with their DE team (Thorsten) and Eastern EU (with Wieslaw) took already place.

∀ Transformer Composites :

- Further to my meeting with Miss Dupond, we have to evaluate their request to participate to their new system certification (including also Alucobond and Larson products). Meeting with CW et LMA to be organized week 26.

∀ WITTENAUER (DE) :

- 800 samples in A4 groevd for Sunclean : finished
- Inquiry for fabrication of the booth batimat 2017 : under process
- Meissenheim: new order in RB FR H9103S for the extension of this project that was done first in AB

∀ SCHNEIDER Fassaden (DE) :

- They are still fighting for the project KBII (~1000m² in RB FR) in Luxbrg: decision to come soon.

∀ ITS GmbH (DE) :

- We have quoted for a 6500m² project in RB A2 (2 std colors, std width) in Dubai for their partners Inventure. Awaiting their feedback.

∀ EITLE GmbH (DE) :

- We have optimized and quoted for a 500m² project in RB FR where they have the contract. We shall get soon the order..

PFR:

Export:

> Asia/Pacific:

- New Zealand/ Interior Grandezza: Our partner Symonite (Heco Group) informed us that they recently acquired KBL Serene, a joinery business manufacturer of all types of cabinets for residential projects, including kitchen cabinets. Before Symonite required KBL serene they have already ordered 800 sqm in 6 different colours, therefore we can expect a significant increase of sales in the Interior Grandezza segment within the upcoming months.

> Middle East:

- Saudi Arabia: Nafco placed a new stock order in Reynobond RB 55 4mm FR / colours Anodic Silver E9106 – approx. 7.000 sqm.
- Saudi Arabia: ABV Rock project – today we will receive 2 new colour matches to send out for approval.

> Others:

Meeting with GIP, provider of Ventilated Curtain wall Systems who provides full technical support (sub-construction, engineering, technical drawings, fabrication and installation support at sight, etc...) at their facility. The meeting was to get a better understanding the approach of GIP developing new customers. We also discussed precise projects in Africa and Vietnam and agreed for the next time to visit these customers together.

JLE:

Additional volume registered compared to the last week:

- Additional volume in Sign:
  - RB33 : + 3528 sqm
  - RL22 : + 504 sqm

- Additional volume in Interior + Industry:
  - RB : /

France:

- Pixpano (Industry): issues regarding the production of the Grandezza – problems of "black points" – represents about 1500 sqm registered in the system since april. A new claim opened concerning about 125 sqm (also black points).
- Thyssenkrupp (Sign): project of 10 000 sqm in Reynobond 33 won against Dibond (Finagaz Project)
- Sunclear (Sign):
  - ∀ Sublimation: we worked in common with Sunclear in order to get a new potential which is Uhlman – Uhlman wants now work directly with us – this is a uncomfortable situation…
  - ∀ New order of 1000 sqm in Pale Oak in Reynobond 33.

Australia:

- Laminex (Industry): same issues as Pixpao – about 3500 sqm – a part of the volume is registered since January.

Belgium:

- Vink (Sign): we unblocked the Reynolite orders for production / about 1000 sqm. It is a new launch and corresponds to approx. 20 000 sqm per year.

Germany:

- Jorg Kueper (Sign): we are working on a new project of 7500 sqm in Reynobond 33.
- Igepa Hansa (Sign): good advancement regarding sublimation. Tests are OK, we will get the first order soon.

Spain:

- Cimpress (Sign): new prospect in several countries in Europe (Spain managed this) – repartition of the volume:
  - ∀ Italy: Current usage: 72k m2
  - ∀ The Netherlands (2 factories): Current usage: 60k m2
  - ∀ Austria: Current usage: 7k m2
  - ∀ Canada: Forecast 10 k m2

  TOTAL: 149 k m2

UK:

- Service Metals (Industry): new trial regarding the Bus Panels with a new offer done. Info: against Etalbond.
- First Fix Plastic (Sign): first RFQ about 500 sqm.

Other:

- Meeting with LMA & CWE regarding two candidates about the BDM position. One wasn't selected and the other one didn't want to advance with us;
- PDConnections updated in the system.
- In progress regarding the preparation of the Sales Meeting next week.

VLE:

Daily:

Otif: 89%

TTC discussion to put in place a control on the order validation as this is key to get the order confirmation sent to the customer.

Booking: good activity this week

Team:

RB stock: 73 000 m² actions to be done on the 35 000 m² available: 20 000 m² RL (13 000 m² less than 1 month), 9900 m² MDO, 2300 m² A2

London tower : documents gathered by Gwen, new analyze developed by VLE

Actions

Eastman order for zinc Patina

Presentation sales meeting

Interview inside sales for middle east

Delay follow up : high increase;: RIx slitting line overloading, RB protective film delay

Renault delivery follow up very good job done by Aurélie from the shipment department.

Umicore; new order for 500 sqm received.

Order planned this week under non conformity – samples to Umicore and possible reproduction in week 27/17

PPR :

Strategy

1. Reynobond® market share with Euroconstruct updated data including JBO training (+ training on CX Survey + CRM)
2. Figures for Diana and sales meeting (segmentation CCL…)
3. Sales meeting preparation : CX, BDD Photo, Project reports, PR, NPD, 4 Launches… 1h, it's short.
4. RM: outsourcing storage solutions. CS request one supplier from DER.
5. Outsourcing solutions: RDV David + Marielle exchanges for requisitions + 3MA to negociate development costs to integrate our CRM email into the plateform. Study on our DHL pricing to decide which account is the best.
6. NPD presentation prepared by JBO. OK.
7. 2 processus related to Cathy's departure: storage and parceling is finalised and under K-document.
8. CX running: Good starts. Should keep pushin to get more feedbacks. Results are lower up to now.

Operationnel

1. Newsletter JUNE: Translation validated. Release W.25 > STANDY BY.
2. Samples: Milled A4 samples : Wittenauer send them to SUNCLEAR (trsport costs?)
3. ANODISED: COIL: JVA made the PO – NPE wants the order to be in stand-by because of the color variation between samples before and after being in the oven **MKT need all 9 references to be bonded and sent in W.36** - Meeting 21/06: cf. NPE's mail
4. **A2 panels for customers trials** : Waiting for LH confirmation if the panels are conform and can be sent
5. BATIMAT: STAND 2B is working on the plans > Reception beginning of July - Transformation: price offers requested to: Alliage Paillé, Wittenauer and Acodi
6. BAU contacts follow up:
   - ∀ STEP 1 Jan - deadline 30/03: 99% completed - 1 Not started
   - ∀ STEP 2 - avril deadline 30/06: 94% completed - Not started: SBU: 28 - PAU:1
   - ∀ STEP 3 - deadline Mid-July : 50% completed - 116 Not started.
   - ∀ 2017 LAUNCHES - INFO TO CUSTOMERS - deadline 30/04: 88% completed - Not started: BUL:21 - DFE:16 - PAU:7 - RCA:15 > taken by Nigel
7. Project Report by sales manager: Deadline September will be communicated at sales meeting.
8. Launches EcoClean: communication plan under validation by GS:
9. BDD: All projects are fully imported. Anne-Line worked on keywords - 60 projects fully registered. About 10 projects a day. So in 50 days it should be over.

CWE:

- ∀ ITB Audit (Poland) : Scale is still not bought due to "QQCOQP" not done. This stopped the Reynobond A2 certification in Poland.
- ∀ Crinkel colar by SFS: Samples are not looking good. We'll organize a meeting with JBO for approval.
- ∀ PVO: Will be in Leipzig 3 days next week for the EN 13501 A2-s1,d0 . This will be the first test report we can diffuse to the market. Report available mid of July
- ∀ Camille is at INSA today to sustains her final engineer trainee. Had been shown to CODIR in RM last Monday and will again be next week at sales meeting.

Have a nice week

Virginie

To: Schmidt, Claude A.[Claude.Schmidt@alcoa.com]; Scheidecker, Guy[Guy.Scheidecker@alcoa.com]; Quattrocchi, Robert[Robert.Quattrocchi@alcoa.com]
From: Wehrle, Claude
Sent: Fri 7/17/2009 8:31:54 AM (UTC)
Subject: PE en architecture .....
fire 1.jpg
fire 2.jpg
fire 3.jpg

Bonjour,

Quelques images pour vous montrer à quel point le “PE” peut être dangereux en architecture ...

Il s’agit d’un sinistre à Bucarest (Roumanie)

La figure 1 montre le point de départ (court-circuit à cause des câbles électriques aériens)
Les autres la propagation le long de la façade en panneaux composite PE

Bonne journée,

Claude

Claude Wehrle
Technical Manager

Alcoa Architectural Products
1 rue du Ballon, 68500 Merxheim, France
Tel: [redacted]
Fax.
E-mail: Claude.Wehrle@alcoa.com

From: "Wehrle, Claude"

To: "Schmidt, Claude A." <Claude.Schmidt@alcoa.com>

"Scheidecker, Guy" <Guy.Scheidecker@alcoa.com>

"Quattrocchi, Robert" <Robert.Quattrocchi@alcoa.com>

Date: 17/07/2009 10:31:53

Subject: PE in architecture .....

Hello,

Here are some pictures to show you how dangerous "PE" can be when it comes to architecture...

This is an incident that took place in Bucharest (Romania).

Figure 1 shows the starting point (short circuit due to overhead power lines)
The others show the spread of the fire along the façade made up of PE composite panels.

Have a good day,

Claude

Claude Wehrle
Technical Manager

Alcoa Architectural Products
1 rue du Ballon, 68500 Merxheim, France
Phone: +3[redacted]
Fax. [redacted]
E-mail: Claude.Wehrle@alcoa.com

MET00053158_P10/122

MET00053158_P10_0126

To: Wehrle, Claude[Claude.Wehrle@alcoa.com]
From: Scheidecker, Guy
Sent: Sun 7/26/2009 11:36:30 PM (UTC)
Subject: RE: PE en architecture .....

Claude
Merci pour l'info
C'était clair que c'était de l'ACM en PE
Mais je voulais savoir si il s'agit de RB, … ou autre

Guy

De : Wehrle, Claude
Envoyé : vendredi 24 juillet 2009 09:18
À : Scheidecker, Guy
Objet : RE: PE en architecture .....

Guy,

Il s'agit de photos prises pas Razwan
C'est un immeuble de Bucarest avec un produit dont je ne connais pas le nom
Il s'agit de panneaux composite PE

Claude

De : Scheidecker, Guy
Envoyé : vendredi 17 juillet 2009 13:38
À : Wehrle, Claude
Objet : RE: PE en architecture .....

Claude
D'ou viennent les photos ?
Matériel de qui ?

Guy Scheidecker
Marketing & sales director

Reynobond / Reynolux

1,Rue du Ballon
68500 Merxheim
Tel +[redacted]
Mobile +[redacted]
Mail : guy.scheidecker@alcoa.com

De : Wehrle, Claude
Envoyé : vendredi 17 juillet 2009 10:32
À : Schmidt, Claude A.; Scheidecker, Guy; Quattrocchi, Robert
Objet : PE en architecture .....

Bonjour,

Quelques images pour vous montrer à quel point le "PE" peut être dangereux en architecture ...

Il s'agit d'un sinistre à Bucarest (Roumanie)

MET00053158_P10/127

La figure 1 montre le point de départ (court-circuit à cause des câbles électriques aériens)
Les autres la propagation le long de la façade en panneaux composite PE

Bonne journée,

Claude

Claude Wehrle
Technical Manager

Alcoa Architectural Products
1 rue du Ballon, 68500 Merxheim, France
Tel: [redacted]
Fax
E-mail: Claude.Wehrle@alcoa.com

From: "Scheidecker, Guy"
To: "Wehrle, Claude" <Claude.Wehrle@alcoa.com>
Date: 27/07/2009 01:36:30
Subject: RE: PE en architecture .....

Claude
Thank you for the information.
It was clear it was ACM in PE
But I wanted to know if it was about RB,... or something else

Guy

From: Wehrle, Claude
Sent: Friday, 24 July 2009 09:18
To: Scheidecker, Guy
Subject: RE: PE en architecture .....

Guy,

These are photos taken by Razwan
It's a building in Bucharest with a product whose name I don't know.
These are PE composite panels

Claude

De : Scheidecker, Guy
Envoyé : vendredi 17 juillet 2009 13:38
À : Wehrle, Claude
Objet : RE: PE en architecture .....

Claude
These pictures are from whom?
Whose material?

Guy Scheidecker
Marketing & sales director

Reynobond / Reynolux

1,Rue du Ballon
68500 Merxheim
Tel +
Mobil [redacted]
Mail : guy.scheidecker@alcoa.com

From: Wehrle, Claude
Sent: Friday, 17 July 2009 10:32

To: Schmidt, Claude A.; Scheidecker, Guy; Quattrocchi, Robert
Subject : PE en architecture .....

Hello,

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The other ones show the spread of the fire along the façade made up of PE composite panels.

Have a good day,

Claude

Claude Wehrle
Technical Manager

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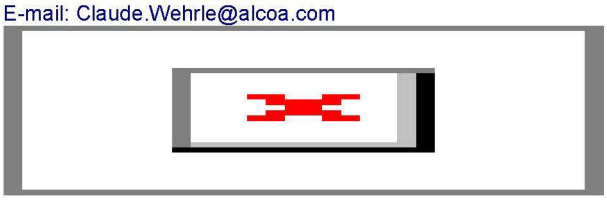
E-mail: Claude.Wehrle@alcoa.com



MET00053158_P10_0130

MET00053158_P10_0131

To: Quattrocchi, Robert[Robert.Quattrocchi@alcoa.com]; Flacon, Alain[Alain.Flacon@alcoa.com]; Asserrar , Hafid[Hafid.Asserrar@alcoa.com]; Koenig, Bertrand[Bertrand.Koenig@alcoa.com]
Cc: Schmidt, Claude A.[Claude.Schmidt@alcoa.com]
From: Wehrle, Claude
Sent: Wed 11/28/2012 10:33:48 AM (UTC)
Subject: RE: Cladding Blamed in Skyscraper Fire - Sounds like something our customers make. FYI

Bonjour,

Il s'agit de Gutbond PE – Sachant que tous les composites PE réagissent de la même façon….

Le site ci dessous est très suivie par les préventionnistes et les labos d'essais en Europe.
Il permet de montrer les incidents liés au dans les bâtiment et de mettre en place les actions de prévention.

www.firesafeeurope.eu

Le CSTB me faisait remarqué hier que les ACM y avait mauvaise cote en ce moment.

Claude

De : Quattrocchi, Robert
Envoyé : mardi 27 novembre 2012 15:52
À : Flacon, Alain; Wehrle, Claude; Asserrar , Hafid
Cc : Schmidt, Claude A.
Objet : TR: Cladding Blamed in Skyscraper Fire - Sounds like something our customers make. FYI

Pour votre information. Façade ACM a pris feu en UAE. Lire l'article. Il y'a un lien vers des photos de la BBC. Il y'a un film de protection mais pas moyen de voir qu'elle marque.

Je pense que cela vaut la peine de fouiller.

Robert
robert.quattrocchi@alcoa.com
[redacted]

Paint and Coatings Industry News

Cladding Blamed in Skyscraper Fire

Monday, November 26, 2012

More items for **Building Envelope**

Exterior cladding may be responsible for accelerating a fire that ravaged portions of a 34-story residential building in Dubai, according to reports.

As of Tuesday (Nov. 20) afternoon, Dubai Civil Defense Officials had not determined the initial cause of the Tamweel Tower fire that started about 1 a.m. Sunday (Nov. 18). Tamweel Tower is one of 80 towers that make up the Jumeirah Lake Tower development in the city.

Monstilus / YouTube.com

The fire at Tamweel Tower started near the top of the building and moved down, raining down flaming pieces of the building onto the ground.

Fireballs Fall to Ground

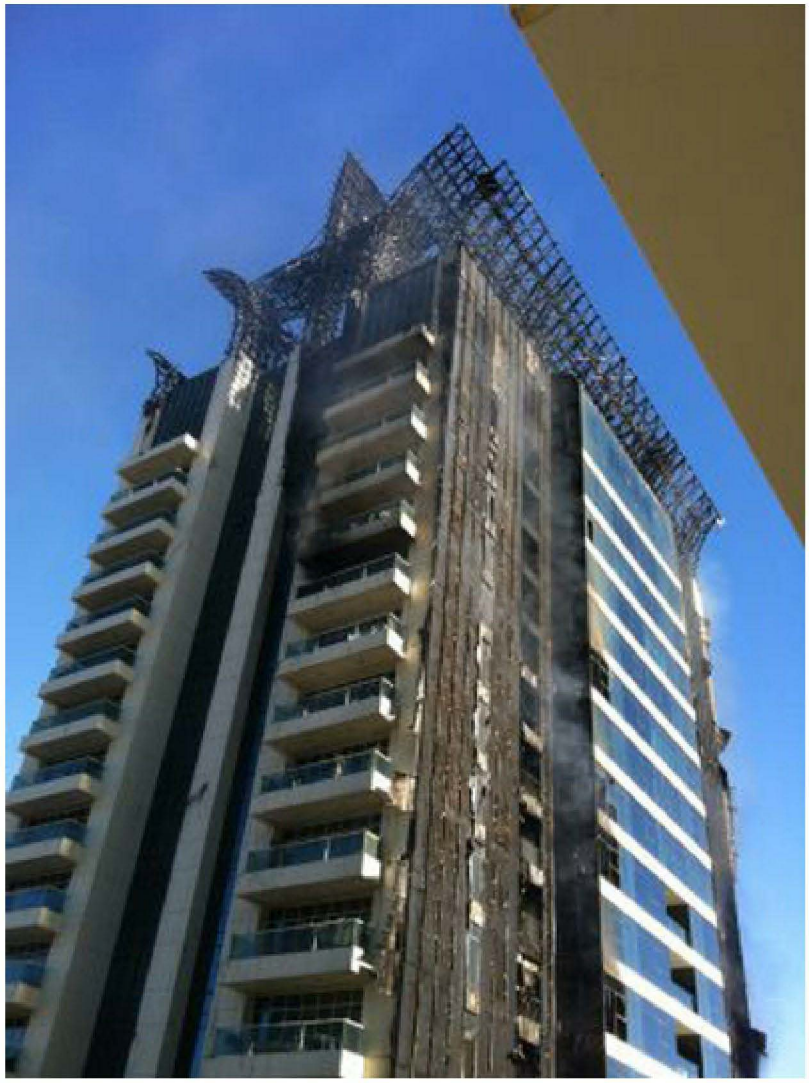
There were no reports of injuries. However, as the flames—which started near the top of the building—scaled down the structure, they sent huge chunks of the building and debris to the ground.

Numerous videos of the flaming tower are on YouTube.

Hundreds of residents were evacuated and watched from a distance as the apartment building sizzled, according to reports. The fire was not extinguished until 6 a.m., local news reports noted.

Building Cladding as Fuel

While the cause of the blaze was under investigation, initial reports indicated the building's exterior cladding may have been the culprit behind the blaze's fierce spread.



emirates24/7.com

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DMCCJLT / Wikimedia Commons

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Other reports say the Tamweel fire may prompt officials to institute greater fire-safety and evacuation planning in the UAE, where hundreds of thousands of people live in high-rise structures.

The Jumeirah Lake Tower development houses about 60,000 residents.

Owner Statements, Past Fire

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This is not the only fire that has occured at the Jumeirah Lake Towers development. In 2007, two construction workers died and 40 others were injured when a fire broke out in the upper floors of a 35-story tower that was under construction, according to reports. *BBC News* images posted here show the fire engulfing the building.

From:	"Wehrle, Claude"
To:	"Quattrocchi, Robert" <Robert.Quattrocchi@alcoa.com> "Flacon, Alain" <Alain.Flacon@alcoa.com> "Asserrar , Hafid" <Hafid.Asserrar@alcoa.com> "Koenig, Bertrand" <Bertrand.Koenig@alcoa.com>
Date:	28/11/2012 11:33:47
Subject:	RE: Cladding Blamed in Skyscraper Fire - Sounds like something our customers make. FYI

Hello,

This message is with regard to Gutbond PE - Knowing that all PE composites react in the same way...

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It makes it possible to show incidents related to/in buildings and to set up preventive actions.

www.firesafeeurope.eu

The CSTB pointed out to me yesterday that the ACMs have a bad rating at the moment.

Claude

From: Quattrocchi, Robert
Sent: Tuesday, 27 November 2012 15:52
To: Flacon, Alain; Wehrle, Claude; Asserrar , Hafid
Cc : Schmidt, Claude A.
Subject: TR: Cladding Blamed in Skyscraper Fire - Sounds like something our customers make. FYI

For your information. ACM façade caught fire in UAE. Read the article. There is a link to BBC photos. There is a protective film, but there is no way to see the brand.

I think it is worth digging into.

Robert
robert.quattrocchi@alcoa.com
[redacted]

Paint and Coatings Industry News

Cladding Blamed in Skyscraper Fire

Monday, November 26, 2012

More items for **Building Envelope**

MET00053158_P10_0136

Exterior cladding may be responsible for accelerating a fire that ravaged portions of a 34-story residential building in Dubai, according to reports.

As of Tuesday (Nov. 20) afternoon, Dubai Civil Defense Officials had not determined the initial cause of the Tamweel Tower fire that started about 1 a.m. Sunday (Nov. 18). Tamweel Tower is one of 80 towers that make up the Jumeirah Lake Tower development in the city.

Monstilus / YouTube.com

The fire at Tamweel Tower started near the top of the building and moved down, raining down flaming pieces of the building onto the ground.

Fireballs Fall to Ground

There were no reports of injuries. However, as the flames—which started near the top of the building—scaled down the structure, they sent huge chunks of the building and debris to the ground.

Numerous videos of the flaming tower are on YouTube.

Hundreds of residents were evacuated and watched from a distance as the apartment building sizzled, according to reports. The fire was not extinguished until 6 a.m., local news reports noted.

Building Cladding as Fuel

While the cause of the blaze was under investigation, initial reports indicated the building's exterior cladding may have been the culprit behind the blaze's fierce spread.

emirates24/7.com

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DMCCJLT / Wikimedia Commons

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MET00053158_P10_0139

MET00053158_P10/140

MET00053158_P10_0141

To: Wehrle, Claude[Claude.Wehrle@alcoa.com]; Quattrocchi, Robert[Robert.Quattrocchi@alcoa.com]; Flacon, Alain[Alain.Flacon@alcoa.com]; Koenig, Bertrand[Bertrand.Koenig@alcoa.com]
Cc: Schmidt, Claude A.[Claude.Schmidt@alcoa.com]
From: Asserrar , Hafid
Sent: Thur 11/29/2012 6:45:54 AM (UTC)
Subject: RE: Cladding Blamed in Skyscraper Fire - Sounds like something our customers make. FYI

Claude,

Comment sais-tu que c'est GUTBOND ?

A+

Hafid ASSERRAR
Export Manager MIDDLE EAST & AFRICA
Reynobond - Reynolux

ALCOA ARCHITECTURAL PRODUCTS SAS
1 rue du Ballon, 68500 Merxheim, France
T : [redacted]
F :
M :
E-mail : hafid.asserrar@alcoa.com
Web site : www.reynobond.eu

De : Wehrle, Claude
Envoyé : mercredi 28 novembre 2012 11:34
À : Quattrocchi, Robert; Flacon, Alain; Asserrar , Hafid; Koenig, Bertrand
Cc : Schmidt, Claude A.
Objet : RE: Cladding Blamed in Skyscraper Fire - Sounds like something our customers make. FYI

Bonjour,

Il s'agit de Gutbond PE – Sachant que tous les composites PE réagissent de la même façon….

Le site ci dessous est très suivie par les préventionnistes et les labos d'essais en Europe.
Il permet de montrer les incidents liés au dans les bâtiment et de mettre en place les actions de prévention.

www.firesafeeurope.eu

Le CSTB me faisait remarqué hier que les ACM y avait mauvaise cote en ce moment.

Claude

De : Quattrocchi, Robert
Envoyé : mardi 27 novembre 2012 15:52
À : Flacon, Alain; Wehrle, Claude; Asserrar , Hafid
Cc : Schmidt, Claude A.
Objet : TR: Cladding Blamed in Skyscraper Fire - Sounds like something our customers make. FYI

Pour votre information. Façade ACM a pris feu en UAE. Lire l'article. Il y'a un lien vers des photos de la BBC. Il y'a un

film de protection mais pas moyen de voir qu'elle marque.

Je pense que cela vaut la peine de fouiller.

Robert
robert.quattrocchi@alcoa.com
[redacted]

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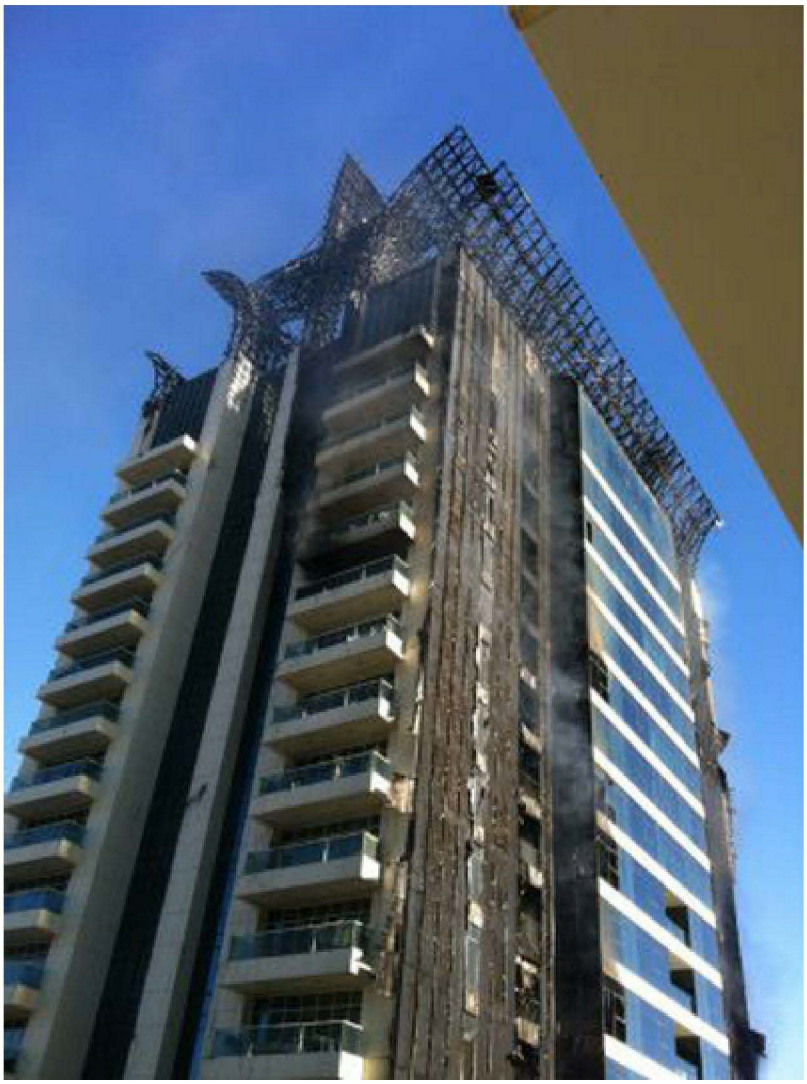

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MET00053158_P10/144

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DMCCJLT / Wikimedia Commons

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From:	"Asserrar , Hafid"
To:	"Wehrle, Claude" <Claude.Wehrle@alcoa.com> "Quattrocchi, Robert" <Robert.Quattrocchi@alcoa.com> "Flacon, Alain" <Alain.Flacon@alcoa.com> "Koenig, Bertrand" <Bertrand.Koenig@alcoa.com>
Date:	29/11/2012 07:45:54
Subject:	RE: Cladding Blamed in Skyscraper Fire - Sounds like something our customers make. FYI

Claude,

How do you know it is GUTBOND?

Talk soon

Hafid ASSERRAR
Export Manager MIDDLE EAST & AFRICA
Reynobond - Reynolux

ALCOA ARCHITECTURAL PRODUCTS SAS
1 rue du Ballon, 68500 Merxheim, France
T :
F :
M [redacted]
E-mail : hafid.asserrar@alcoa.com
Web site : www.reynobond.eu

From: Wehrle, Claude
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Sent: Tuesday, 27 November 2012 15:52
To: Flacon, Alain; Wehrle, Claude; Asserrar , Hafid
Cc: Schmidt, Claude A.

MET00053158_P10_0146

Subject: TR: Cladding Blamed in Skyscraper Fire - Sounds like something our customers make. FYI

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DMCCJLT / Wikimedia Commons

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MET00053158_P10_0149

MET00053158_P10/151

MET00053158_P10_0152

To: Flacon, Alain[Alain.Flacon@alcoa.com]
From: Wehrle, Claude
Sent: Fri 5/10/2013 2:45:52 PM (UTC)
Subject: RE: FW: FW: BBC Coverage

Oui, ils sont B-s1,d0 comme notre Reynobond FR

De : Flacon, Alain
Envoyé : vendredi 10 mai 2013 09:24
À : Wehrle, Claude
Objet : Tr: FW: FW: BBC Coverage

Claude

Tu confirmes ce que dit 3A sur la resistance au feu du FR d'Alubond?

Bat

Alain

De : French, Deborah
Envoyé : Friday, May 10, 2013 03:05 AM
À : Froehlich, Peter; Wehrle, Claude; Flacon, Alain; Schmidt, Claude A.
Objet : FW: FW: BBC Coverage

Morning All

Just to make you aware I sent this link over to Claude W last week concerning a BBC report covering a fire in UAE using ACM
Richard Geater - Alucobond Rep in the UK is emailing all fabricators explaining that Alucobond is now using a fire core only as std.

http://www.bbc.co.uk/news/world-middle-east-22346184

Would welcome any comments / statement we have ref the fire and our std's so I can communicate this to our relevant customers.

Many thanks
Debbie

Deborah French
UK Sales Manager : Reynobond Architecture & Corporate ID - Alcoa Architectural Products SAS
Mobile: +[redacted] -E-mail: deborah.french@alcoa.com **Address:**[redacted]
website: www.reynobond-design-collection.eu **Reynobond innovations** - http://excellence-in-innovation.eu/aluminium-facades-bau-2013/

From: Barrie Wingrove [mailto:Barrie.Wingrove@argonaut-uk.com]
Sent: Thursday, May 09, 2013 4:37 PM
To: Adrian Williams; Gary Wallace; Daniel Kiff; Paul Farrell; Paul Booth; Chris Osmond; John Hogan; Stuart Dunkinson
Cc: French, Deborah
Subject: EXT: FW: BBC Coverage

From: Richard Geater [mailto:Richard.Geater@3acomposites.com]
Sent: 09 May 2013 16:26
To: Barrie Wingrove
Subject: BBC Coverage

Hi Barrie,

You may or may not have seen the recent press coverage of a building fire in Dubai clad in ACM? If not I have attached the link to the BBC website below: -

http://www.bbc.co.uk/news/world-middle-east-22346184

Having taken the time to investigate with my colleague responsible for this market he has responded as follows: -

You cannot imagine how much I am aware of this. First of all, Tamweel Tower is only 3 towers away from where I live. Secondly, I am still disappointed that this tower at the time became Gutbond and not ALUCOBOND. Also, I am heavily involved in the fire issue in the UAE and Qatar.

The trouble is that the government / administration here in the UAE were for years only focused on one thing: growth and tourism. Any complicated regulation was regarded as an obstacle to their goal of becoming a tourist hub etc…. Due to this, the country has grown steadily and is meantime pretty full of towers. However, unfortunately made of cheapest materials and not at all complying with any fire codes at all. How many time have I been rejected with ALUCOBOND PLUS for cost reasons. How many times did they finally opt for cheap Chinese or even the local make of ALUBOND.

The trouble is that the cladding system here in particular but all over in general, using PE, is like a chimney which transports the fire from bottom to top or vice versa within shortest time. However, since most sprinkling units are never being tested, they for sure do not work when they are needed. If you buy a new car and only turn the key after 5 years, you will be surprised how little your vehicle will move. Here the same.

The worst of all: in our field of composite panels: YOU DO NOT GET WHAT YOU SEE!! The Mulk Holding ALUBOND people are responsible for the huge damage in this part of the world. They, since a very long time promote fire "rated" composite panels with a white core which…….when being tested……turns out to be a recycled PE core burning like paper. Half of the country is full of this rubbish due to price. We have taken random samples and done a live test in Bangkok in front of architects, they almost fainted. Indeed, this panel is a whole cheat and burns fiercely.

Anyway, I could write a book about this but……people would only read it, if it is cheap!

Again the perils of using cheap ACM alternatives have been exposed. As you are aware our standard core is the PLUS FR mineral core achieving Class B, s1, d0, according to EN 13501-1, unlike other ACM producers.

Please feel free to circulate this email to the relevant members of your team.

If I can be of any further assistance regarding the properties of Alucobond then please do not hesitate to call.

Besten Dank und Gruß / Best regards

Richard Geater
Sales Manager UK & Ireland

3A Composites GmbH
Architecture & Display Europe
Alusingenplatz 1

78224 Singen / Germany

Mobile - [redacted]
www.3AComposites.com

ALUCOBOND® ALUCORE®

MET00053158_P10_0155

From: "Wehrle, Claude"
To: "Flacon, Alain" <Alain.Flacon@alcoa.com>
Date: 10/05/2013 16:45:51
Subject: RE: FW: FW: BBC Coverage

Yes, they are B-s1,d0 just like our Reynobond FR

From: Flacon, Alain
Sent: Friday, 10 May 2013 09:24
To: Wehrle, Claude
Subject: Tr: FW: FW: BBC Coverage

Claude

Do you confirm what 3A says about the fire resistance of Alubond's FR?

Bat

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Anyway, I could write a book about this but.....people would only read it, if it is cheap!

Again the perils of using cheap ACM alternatives have been exposed. As you are aware our standard core is the PLUS FR mineral core achieving Class B, s1, d0, according to EN 13501-1, unlike other ACM producers.

Please feel free to circulate this email to the relevant members of your team.

If I can be of any further assistance regarding the properties of Alucobond then please do not hesitate to call.

Besten Dank und Gruß / Best regards

Richard Geater
Sales Manager UK & Ireland

3A Composites GmbH
Architecture & Display Europe
Alusingenplatz 1
78224 Singen / Germany

MET00053158_P10_0157

Mobile [redacted]
www.3AComposites.com

MET00053158_P10_0158

MET00053158_P10_0159

To: Audureau, Patrice[Patrice.Audureau@alcoa.com]; Flacon, Alain[Alain.Flacon@alcoa.com]; Marichez, Herve[Herve.Marichez@alcoa.com]; Remy, Nicolas[Nicolas.Remy@alcoa.com]; Wehrle, Claude[Claude.Wehrle@alcoa.com]
From: Baillon, Jean-Philippe
Sent: Fri 9/19/2014 4:24:57 PM (UTC)
Subject: Article Nord Eclair sur le composite aluminium qui a pris feu / Tour Mermoz /

Le bailleur social LMH a décidé de lancer des travaux dès octobre sur les tours Blériot et Guynemer pour retirer le bardage en Alucobond des façades. Le très probable propagateur des flammes qui ont dévoré la tour Mermoz en mai 2012 :

http://www.nordeclair.fr/info-locale/roubaix-lmh-veut-eviter-un-nouvel-incendie-sur-ses-tours-ia50b12891n474964

From: "Baillon, Jean-Philippe"

To: "Audureau, Patrice" <Patrice.Audureau@alcoa.com>
"Flacon, Alain" <Alain.Flacon@alcoa.com>
"Marichez, Herve" <Herve.Marichez@alcoa.com>
"Remy, Nicolas" <Nicolas.Remy@alcoa.com>
"Wehrle, Claude" <Claude.Wehrle@alcoa.com>

Date: 19/09/2014 18:24:57

Subject: Article Nord Eclair sur le composite aluminium qui a pris feu / Tour Mermoz /

The social landlord LMH has decided to start work on the Blériot and Guynemer towers in order to remove the Alucobond cladding from the façades in October. It is very likely that it caused the flames that devoured the Mermoz tower in May 2012 to spread:

http://www.nordeclair.fr/info-locale/roubaix-lmh-veut-eviter-un-nouvel-incendie-sur-ses-tours-ia50b12891n474964
http://www.nordeclair.fr/info-locale/roubaix-lmh-veut-eviter-un-nouvel-incendie-sur-ses-tours-ia50b12891n474964http://www.nordeclair.fr/info-locale/roubaix-lmh-veut-eviter-un-nouvel-incendie-sur-ses-tours-ia50b12891n474964http://www.nordeclair.fr/info-locale/roubaix-lmh-veut-eviter-un-nouvel-incendie-sur-ses-tours-ia50b12891n474964http://www.nordeclair.fr/info-locale/roubaix-lmh-veut-eviter-un-nouvel-incendie-sur-ses-tours-ia50b12891n474964

MET00053158_P10/162

To: Flacon, Alain[Alain.Flacon@alcoa.com]; Wahler, Serge[Serge.Wahler@alcoa.com]; Wehrle, Claude[Claude.Wehrle@alcoa.com]
Cc: Nanih[redacted]
From: Asserrar , Hafid
Sent: Fri 10/16/2015 7:50:29 AM (UTC)
Subject: FW: Fire in king fahed medical center riyadh ALUCOBOND FR
IMG-20151014-WA0008.jpg
IMG-20151014-WA0007.jpg
IMG-20151014-WA0009.jpg

Pour info

Hafid ASSERRAR
Export Manager MIDDLE EAST
Reynobond - Reynolux
ALCOA ARCHITECTURAL PRODUCTS SAS
1 rue du Ballon, 68500 Merxheim, France
T : [redacted]
F :
M :
E-mail : hafid.asserrar@alcoa.com
Web site : www.reynobond.eu

-----Original Message-----
From: Nazih Chaoul [mailto:[redacted]
Sent: mercredi 14 octobre 2015 16:18
To: Asserrar , Hafid
Subject: EXT: Fire in king fahed medical center riyadh ALUCOBOND FR

Find the attached pictures

Àlucobond FR from china in KSA riyadh King fahed medical center

Thank You
Best Rgds

Eng : Nazih Chaoul

Technical & Sales Manager
Kingdom of Saudi Arabia

1599

MET00053158_P10/164

MET00053158_P10_0164

To: Asserrar , Hafid[Hafid.Asserrar@alcoa.com]; Flacon, Alain[Alain.Flacon@alcoa.com]; Wahler, Serge[Serge.Wahler@alcoa.com]
From: Wehrle, Claude
Sent: Fri 10/16/2015 7:57:16 AM (UTC)
Subject: RE: Fire in king fahed medical center riyadh ALUCOBOND FR

Il y a eu un très bon comportement du FR
En PE le feu se serait propagé sur toute la hauteur de la tour, alors que là seul la zone proche du feu est touchée

Vive le FR :-)

-----Message d'origine-----
De : Asserrar , Hafid
Envoyé : vendredi 16 octobre 2015 09:50
À : Flacon, Alain; Wahler, Serge; Wehrle, Claude
Cc : Nanih
Objet : FW: Fire in king fahed medical center riyadh ALUCOBOND FR

Pour info

Hafid ASSERRAR
Export Manager MIDDLE EAST
Reynobond - Reynolux
ALCOA ARCHITECTURAL PRODUCTS SAS
1 rue du Ballon, 68500 Merxheim, France
T : [redacted]
F :
M :
E-mail : hafid.asserrar@alcoa.com
Web site : www.reynobond.eu

-----Original Message-----
From: Nazih Chaoul [mailto[redacted]
Sent: mercredi 14 octobre 2015 16:18
To: Asserrar , Hafid
Subject: EXT: Fire in king fahed medical center riyadh ALUCOBOND FR

Find the attached pictures

Àlucobond FR from china in KSA riyadh King fahed medical center

Thank You
Best Rgds

Eng : Nazih Chaoul

Technical & Sales Manager
Kingdom of Saudi Arabia

From: "Wehrle, Claude"

To: "Asserrar , Hafid" <Hafid.Asserrar@alcoa.com>
"Flacon, Alain" <Alain.Flacon@alcoa.com>
"Wahler, Serge" <Serge.Wahler@alcoa.com>

Date: 16/10/2015 09:57:16

Subject: RE: Fire in king fahed medical center riyadh ALUCOBOND FR

FR showed a very good behaviour

In PE, the fire would have spread over the entire height of the tower, while in this case only the area near the fire is affected.

Long Live FR :-)

-----Message d'origine-----
From: Asserrar , Hafid
Sent: Friday, 16 October 2015 09:50
To: Flacon, Alain; Wahler, Serge; Wehrle, Claude
Cc: Nanih
Subject: FW: Fire in king fahed medical center riyadh ALUCOBOND FR

For your information

Hafid ASSERRAR
Export Manager MIDDLE EAST
Reynobond - Reynolux
ALCOA ARCHITECTURAL PRODUCTS SAS
1 rue du Ballon, 68500 Merxheim, France
T : [redacted]
F :
M :
E-mail : hafid.asserrar@alcoa.com
Web site : www.reynobond.eu

-----Original Message-----
From: Nazih Chaoul [mailto:[redacted]
Sent: Wednesday, 14 October 2015 16:18

MET00053158_P10/168

To: Asserrar , Hafid

Subject: EXT: Fire in king fahed medical center riyadh ALUCOBOND FR

Find the attached pictures

Àlucobond FR from china in KSA riyadh King fahed medical center

Thank You

Best Rgds

Eng : Nazih Chaoul

Technical & Sales Manager

Kingdom of Saudi Arabia

To: Wahler, Serge[Serge.Wahler@alcoa.com]
Cc: Froehlich, Peter[Peter.Froehlich@alcoa.com]; Marconnet, Lionel[Lionel.Marconnet@alcoa.com]; Wehrle, Claude[Claude.Wehrle@alcoa.com]; Schmidt, Claude A.[Claude.Schmidt@alcoa.com]
From: Flacon, Alain
Sent: Mon 1/4/2016 12:14:00 PM (UTC)
Subject: Re: TR: Reynodual.

No surprise. The only good news is that it seems to be AB products

Envoyé de mon iPhone

Le 4 janv. 2016 à 13:10, Wahler, Serge <Serge.Wahler@alcoa.com> a écrit :

> fyi
>
> Serge
>
> ---
>
> **De :** Campbell, Robert
> **Envoyé :** lundi 4 janvier 2016 12:24
> **À :** Petit, Katri
> **Cc :** Wahler, Serge
> **Objet :** Reynodual.
>
> Hello Katri
>
> Happy New Year to you.
>
> I had Paul Burnett on from BTS who was asking for samples of our Reynodual to perform some tests as he wants to price it up against a composite panel mainly due to the fire tests. It seems that Architects are once again sitting up and pondering about how safe is a composite with a PE core. The hotel in Dubai allegedly had Alucobond PE on it when it went quickly up in flames on New Year's Eve.
> He would require a decent size panel as he would want to put it on his router.
>
> Thanks
>
> Rob Campbell
> Area Sales Manager UK Reynolux
> Mobile : [redacted]
> Office :
> E-Mail : robert.campbell@alcoa.com
>
> <image001.png>

To: Flacon, Alain[Alain.Flacon@alcoa.com]; Wahler, Serge[Serge.Wahler@alcoa.com]
Cc: Froehlich, Peter[Peter.Froehlich@alcoa.com]; Marconnet, Lionel[Lionel.Marconnet@alcoa.com]; Schmidt, Claude A.[Claude.Schmidt@alcoa.com]
From: Wehrle, Claude
Sent: Mon 1/4/2016 12:28:11 PM (UTC)
Subject: RE: TR: Reynodual.
XVMa22a5782-b067-11e5-9204-6def1e43e08b-805x453.jpg

En espérant que le PE soit peu à peu exclus de l'habillage de façades car à chaque fois c'est l'image de tous les ACM qui en prend un coup !

De : Flacon, Alain
Envoyé : lundi 4 janvier 2016 13:14
À : Wahler, Serge
Cc : Froehlich, Peter; Marconnet, Lionel; Wehrle, Claude; Schmidt, Claude A.
Objet : Re: TR: Reynodual.

No surprise. The only good news is that it seems to be AB products

Envoyé de mon iPhone
Le 4 janv. 2016 à 13:10, Wahler, Serge <Serge.Wahler@alcoa.com> a écrit :

> fyi
>
> Serge
>
> ---
>
> **De :** Campbell, Robert
> **Envoyé :** lundi 4 janvier 2016 12:24
> **À :** Petit, Katri
> **Cc :** Wahler, Serge
> **Objet :** Reynodual.
>
> Hello Katri
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> I had Paul Burnett on from BTS who was asking for samples of our Reynodual to perform some tests as he wants to price it up against a composite panel mainly due to the fire tests. It seems that Architects are once again sitting up and pondering about how safe is a composite with a PE core. The hotel in Dubai allegedly had Alucobond PE on it when it went quickly up in flames on New Year's Eve.
> He would require a decent size panel as he would want to put it on his router.
>
> Thanks
>
> Rob Campbell
> Area Sales Manager UK Reynolux
> Mobile [redacted]
> Office
> E-Mail : robert.campbell@alcoa.com
>
> <image001.png>

From: "Wehrle, Claude"
To: "Flacon, Alain" <Alain.Flacon@alcoa.com>
"Wahler, Serge" <Serge.Wahler@alcoa.com>
Date: 04/01/2016 13:28:10
Subject: RE: TR: Reynodual.

I hope that PE will gradually be excluded from façade cladding because each time it is the image of all the ACMs that takes a hit!

From: Flacon, Alain
Sent: Monday, 4 January 2016 13:14
To: Wahler, Serge
Cc: Froehlich, Peter; Marconnet, Lionel; Wehrle, Claude; Schmidt, Claude A.
Subject: Re: TR: Reynodual.

No surprise. The only good news is that it seems to be AB products

Envoyé de mon iPhone

Le 4 janv. 2016 à 13:10, Wahler, Serge <Serge.Wahler@alcoa.com> a écrit :

fyi

Serge

From: Campbell, Robert
Sent: Monday, 4 January 2016 12:24
To: Petit, Katri
Cc: Wahler, Serge
Subject: Reynodual.

Hello Katri

Happy New Year to you.

I had Paul Burnett on from BTS who was asking for samples of our Reynodual to perform some tests as he wants to price it up against a composite panel mainly due to the fire tests. It seems that Architects are once again sitting up and pondering about how safe is a composite with a PE core. The hotel in Dubai allegedly had Alucobond PE on it when it went quickly up in flames on New Year's Eve.
He would require a decent size panel as he would want to put it on his router.

Thanks

Rob Campbell
Area Sales Manager UK Reynolux
Mobile : [redacted]
Office
E-Mail : robert.campbell□ alcoa.com

<image001.png>

MET00053158_P10_0173

MET00053158_P10/174

MET00053158_P10_0174

To: Wehrle, Claude[Claude.Wehrle@alcoa.com]
Cc: Flacon, Alain[Alain.Flacon@alcoa.com]
From: Scheidecker, Guy
Sent: Wed 1/6/2016 2:40:03 PM (UTC)
Subject: TR: The Address
FW: The Address

Claude

Peux-tu lire cet article svp
J'aimerais savoir ce que t'en pense. Ils détruisent l'ACM en PE et je ne pense pas que c'est le seul élément responsable d'un tel feu

Merci pour ton feed back

Guy

Best regards

Guy Scheidecker
Business Development Manager
Reynobond - Reynolux

Mobile : [redacted]
E mail : guy.scheidecker@alcoa.com
Alcoa Architectural Products S.A.S.

From:	"Scheidecker, Guy"
To:	"Wehrle, Claude" <Claude.Wehrle@alcoa.com>
Date:	06/01/2016 15:40:03
Subject:	TR: The Address
Attachments:	FW_ The Address.msg

Claude

Can you read this article please

I'd like to know what you think about it. They are destroying the ACM in PE and I don't think it's the only component responsible for such a fire.

I look forward to hearing your feedback

Guy

Best regards

Guy Scheidecker
Business Development Manager
Reynobond - Reynolux

Mobile : [redacted]
E mail : guy.scheidecker@alcoa.com
Alcoa Architectural Products S.A.S.

From:	"Cookson, John"
To:	"Asserrar , Hafid" <Hafid.Asserrar@alcoa.com>
	"Scheidecker, Guy" <Guy.Scheidecker@alcoa.com>
Date:	05/01/2016 09:16:48
Subject:	FW: The Address

MET00053158_P10_0176

Hi Guy, Hafid,

I came across the article below, thought you might find interesting as potential UAE market opportunity especially if Reynobond has been tested and certified as Class O.

http://www.telegraph.co.uk/news/worldnews/middleeast/dubai/12076792/Dubai-skyscraper-fire-new-years-eve-2015-live.html#update-20160101-1310

Thanks,

John Cookson
Commercial Product Manager
BCS New Markets
[redacted]

MET00053158_P10/177

To: Flacon, Alain[Alain.Flacon@alcoa.com]; Marconnet, Lionel[Lionel.Marconnet@alcoa.com]; Marichez, Herve[Herve.Marichez@alcoa.com]; Audureau, Patrice[Patrice.Audureau@alcoa.com]; Lelu, Kevin[Kevin.Lelu@alcoa.com]
From: Wehrle, Claude
Sent: Tue 1/19/2016 7:54:33 AM (UTC)
Subject: Feu place de Hageneau - Strasbourg

Bonjour,

Nous avons eu beaucoup de chance … La tour Wolleck est en Reynobond PE à 10 mètres du feu !
http://www.lalsace.fr/actualite/2015/10/12/feu-de-toiture-rue-de-haguenau

Heureusement que le vent n'a pas tourné mais .. il faudrait vraiment que nous arrêtions de proposer du PE en architecture !
Nous sommes les « sachant » et je pense que c'est à nous d'être force de proposition …. ENFIN.

Claude

***Claude WEHRLE | Responsable Technique**- Technical Manager | P:* [redacted] *- M: +*[redacted] *ax:* [redacted]
***Alcoa Architectural Products**, 2 rue Marie Curie, 68500 Merxheim, France |* **http://www.reynobond.eu/**

From: "Wehrle, Claude"

To: "Flacon, Alain" <Alain.Flacon@alcoa.com>
"Marconnet, Lionel" <Lionel.Marconnet@alcoa.com>
"Marichez, Herve" <Herve.Marichez@alcoa.com>
"Audureau, Patrice" <Patrice.Audureau@alcoa.com>
"Lelu, Kevin" <Kevin.Lelu@alcoa.com>

Date: 19/01/2016 08:54:33

Subject: Feu place de Hageneau - Strasbourg

Hello,

We were very lucky... The Wolleck tower is in Reynobond PE 10 metres from the fire!
http://www.lalsace.fr/actualite/2015/10/12/feu-de-toiture-rue-de-haguenau

Fortunately, the wind didn't change direction, but... we really need to stop proposing PE in architecture!
We are in the "know", and I think it is up to us to be proactive... AT LAST.

Claude

Claude WEHRLE | Responsable Technique- Technical Manager | P: [redacted] - M: [redacted] – Fax: [redacted]
Alcoa Architectural Products, 2 rue Marie Curie, 68500 Merxheim, France | http://www.reynobond.eu/

MET00053158_P10/179

MET00053158_P10/180

MET00053158_P10/181

MET00053158_P10/181

MET00053158_P10_0182

To: Wehrle, Claude[Claude.Wehrle@alcoa.com]; Flacon, Alain[Alain.Flacon@alcoa.com]; Derrendinger, Gwenaelle[Gwenaelle.Derrendinger@alcoa.com]; Kasyanik, Julie[Julie.Kasyanik@alcoa.com]
From: Brad Woods
Sent: Tue 5/5/2015 7:40:13 AM (UTC)
Subject: RE: EXT: RE: Alucobond Australia fire testing certificates
Post_Incident_Analysis_Lacrosse_Docklands-f699bfbc-344a-4168-bdd8-ef8aa5....pdf

Hi Claude,

This is the fire report incident from Melbourne that I have been talking about..

Brad Woods
Architectural Glass & Cladding Pty Ltd
Suppliers of innovative facade finishes...
Like us on Facebook
a: Level 1 'Wharf Central' 75 Wharf St Tweed Heads NSW 2485
p: [redacted] f: [redacted] m: [redacted]
e: brad@agcproducts.com.au w: www.agcproducts.com.au

From: Wehrle, Claude [mailto:Claude.Wehrle@alcoa.com]
Sent: Tuesday, 5 May 2015 4:58 PM
To: Flacon, Alain; Brad Woods; Derrendinger, Gwenaelle; Kasyanik, Julie
Subject: RE: EXT: RE: Alucobond Australia fire testing certificates

Hi Brad,

Can we try to use the attached "CodeMark" from New Zealand ?

Claude

De : Flacon, Alain
Envoyé : mardi 5 mai 2015 08:53
À : 'brad@agcproducts.com.au'; Wehrle, Claude; Derrendinger, Gwenaelle; Kasyanik, Julie
Objet : Re: EXT: RE: Alucobond Australia fire testing certificates

Hi Brad

Before to decide, we also need :
- the cost of one certification,
- whether you need to pay one certification per product tested;
- what they precisely test based on the fire certification we already have.

Based on this information, I will judge if upon other priorities and available means, we can still do it in 2015 or whether we wait until next year.

Regards

Alain

De : Brad Woods [mailto:brad@agcproducts.com.au]
Envoyé : Tuesday, May 05, 2015 02:23 AM Eastern Standard Time
À : Wehrle, Claude; Derrendinger, Gwenaelle; Kasyanik, Julie
Cc : Flacon, Alain
Objet : EXT: RE: Alucobond Australia fire testing certificates

Hi Gwen,

I have made further investigations into this certification and gathered the following information:

This certification is owned by the Australia government so once you have the certification your product must be accepted as a conforming product within the BCA by the head contractors.

There is a local organisation called Certmark in Brisbane that carries out the relevant testing and data collection etc. The time to gain certification is usually between 1 month to 6 months but with the information that Reynobond already has I believe we could procure this within 4 – 6 weeks.

Firstly you would need to submit all relevant EN, BS & ASTM certification and test reports relating to fire as the certifying body relates these to local standards. There is a factory audit required unless you can issue ISO 9001 certification and latest audit report and as long as the latest ISO audit report has no non conforming points.

I believe we would need to get Reynobond PE, Reynobond FR and Reynodual all certified as have our competitors.

when you visit www.certmark.com.au you will see that Alpolic, Alucobond, Ultrabond, Vitrabond and other composite panel suppliers all have certification.

Please advise if you wish to apply for this certification and will cover the costs associated?

Cheers

Brad Woods
Architectural Glass & Cladding Pty Ltd
Suppliers of innovative facade finishes...
Like us on Facebook
a: Level 1 'Wharf Central' 75 Wharf St Tweed Heads NSW 2485
p: [redacted] f: [redacted] m: [redacted]
e: brad@agcproducts.com.au w: www.agcproducts.com.au
OKALUX Reynobond Reynolux CRICURSA SEFAR Profilit™

From: Brad Woods
Sent: Monday, 4 May 2015 4:03 PM
To: 'Wehrle, Claude'; Derrendinger, Gwenaelle (Gwenaelle.Derrendinger@alcoa.com); Kasyanik, Julie
Cc: Flacon, Alain (Alain.Flacon@alcoa.com)
Subject: Alucobond Australia fire testing certificates

Hi All,

I have managed to acquire some testing data for Alucobond in Australia.

The "Codemark" Certificate Of Conformity is a new certification that is now becoming highly requested by The Building Code of Australia (BCA) and many head contractors. I believe it is something that should be considered by Alcoa to pursue and gain certification.

Having this Codemark certification gives a distinct advantage against panels that are not certified on high profile projects.

Also you will see the fire testing for the Alucobond carried out at AWTA (same location as we had Reynobond tested).

MET00053158_P10_0184

I look forward to your comments and questions on this matter. As I mentioned I believe we should look at acquiring the codemark certification for Reynobond PE, FR and Reynodual.

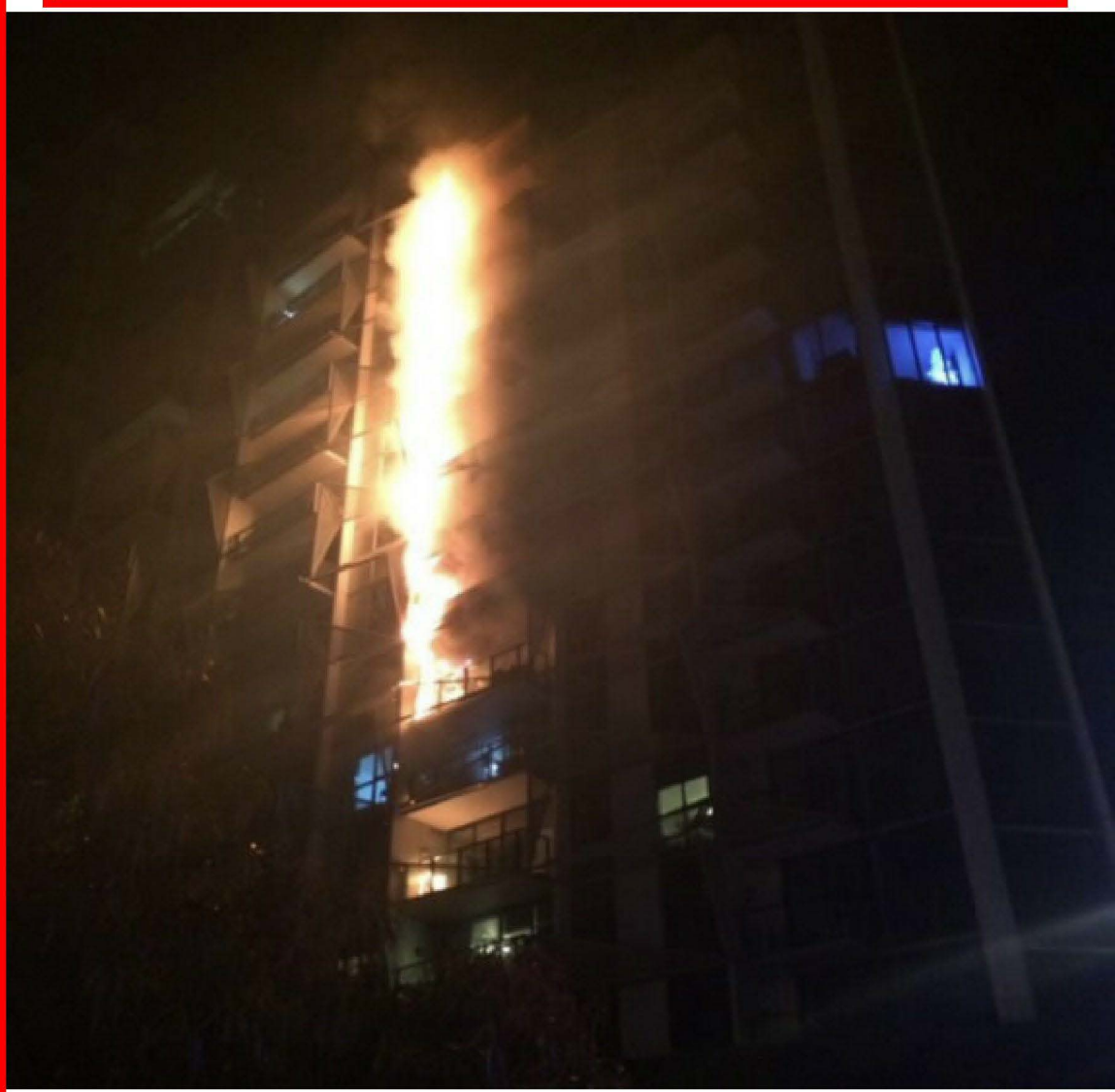
Cheers

Brad Woods
Architectural Glass & Cladding Pty Ltd
Suppliers of innovative facade finishes...

a: Level 1 'Wharf Central' 75 Wharf St Tweed Heads NSW 2485
p: [redacted] f: [redacted] m: [redacted]
e: brad@agcproducts.com.au w: www.agcproducts.com.au

Fire Safety

Post Incident Analysis Report



"Reducing the incidence and impact of fire in the community"

MFB Burnley Complex
450 Burnley Street
Richmond VIC 3121

Lacrosse Docklands
673-675 La Trobe Street, Docklands

1614

MET00053158_P10_0186

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Furthermore, it is not the intention of this report to pass judgement on, or fix liability for, the loss of property or the effects upon the occupants, following the fire.

COPYRIGHT

TABLE OF CONTENTS

MET00053158_P10_0188

Post Incident Analysis Details

Point of Interest:	Rapid external fire spread in a high-rise apartment building resulting in a mass evacuation
Report No:	**1403134A**
Incident No:	**FC 141115657**
Date of Incident:	**25 November 2014**
Time:	**02:24**
Site/Building Name:	**Lacrosse Docklands**
Address:	**673-675 La Trobe Street**
Suburb:	**Docklands**
Municipality:	**Melbourne**
Building Use:	**Residential, Retail and Car Park**
BCA Classification:	**2, 6 7a**
Type of Construction:	Walls: **Masonry, concrete & Dry Wall** Floor: **Concrete** Roof: **Concrete and metal**
Storeys Contained:	**23**
Net Floor Area:	**21,600m^2**
Fire Sprinklers:	**Yes**
Alarm System:	**Hard wired smoke alarms** Mandatory: **Yes**
Smoke Detection:	**AS1670.1 (Addressable) and AS 3786 smoke alarms**
Fatalities:	**Nil**
Injuries:	**Nil**
Estimated Loss:	**$5,000,000.00 (estimate only)**
Number of Occupants:	**Approximately 400**
Supposed Cause:	**Discarded cigarette**
Area of Origin:	**Apartment 805 balcony, Level 8**

No. of Fire-fighters involved: **122**

MET00053158_P10_0189

EXECUTIVE SUMMARY

This Post Incident Analysis (PIA) provides a detailed account of the fire incident that occurred at the Lacrosse building on 25 November 2014.

It includes information compiled by MFB Fire Safety Officers investigating the sequence of fire events, the suitability of building materials used in construction, performance of installed fire safety equipment, evacuation of the building and fire causation.

The main observations are:

* External wall cladding (Alucobest) rapid fire spread.
* Use of combustible external wall cladding on Type A construction.
* Building material design, selection and installation.
* High occupancy rate.
* Mass evacuation necessary due to fire development and spread.
* Emergency Warning and Intercommunication System (EWIS) was compromised.
* Sprinkler system operated well beyond its designed capability.
* Sprinklers were not required on the balconies under the Building Codes of Australia (BCA).
* Maintenance Issues:
    - Fire extinguishers not accessible.
    - Apartment smoke alarms tampered with.

The PIA also includes a report from the Municipal Building Surveyor (MBS) addressing occupancy rates in Class 2 buildings and the product accreditation process. For the full MBS report see Appendix 1.

Fire Call 15657

At 02:24 hours on Tuesday morning 25 November 2014, MFB fire crews responded to an exchange call for a reported apartment fire at 673 - 675 La Trobe Street, Docklands.

When the first fire crews arrived on scene at 02:29 hours, they observed that the fire had already extended up the external walls and balconies over approximately 6 levels. At 02.35 hours, only 6 minutes later, crews reported back that fire had reached the roof of the building above the 21st floor.

The fire scenario and fire behaviour encountered by the attending MFB fire-fighters on that morning is not a scenario commonly encountered by MFB crew attending high-rise buildings. Rapid vertical fire spread up the building appeared to be directly associated with the external façade of the building, rather than associated with the internal parts or extensive fuel loads stored on many of the balconies.

Due to rapid fire spread and penetration into internal parts of the building over many levels, the entire building was evacuated resulting in more than four hundred evacuees assembling in La Trobe Street. It appears the rapid fire spread caused the EWIS to be compromised on most fire affected levels, preventing it from operating as designed on those levels. Fire crews were therefore forced to enter every level and alert occupants of each apartment to ensure total evacuation.

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After the fire, it was observed that many apartments contained bedding arrangements indicating a higher occupancy level than what would normally be expected. This resulted in increased combustible fuel loads due to the greater amount of personal belongings. It was fortunate that the installed fire sprinkler system operated well above its designed capability preventing further internal spread.

The care and management of the displaced occupants also presented a challenge for the MFB due to the sheer number of people which needed to be sheltered and the time of the incident. Initially the evacuees were escorted from La Trobe Street to the Southern Cross Station bus centre. The MFB Incident Management Team (IMT) called for the response of the Municipal Emergency Response Officer (MERO) and the establishment of an Emergency Relief Centre (ERC). During the morning the ERC was set up at the Etihad Stadium and all evacuees were transferred to this location, as they would not be returning to their apartment for some time.

This was a multi-agency event involving, in addition to MFB, Victoria Police, Ambulance Victoria, State Emergency Service, Melbourne City Council, Department of Human Services, Red Cross, and Salvation Army. Our thanks to Etihad Stadium Management and Platinum Strata Complex Management for their assistance and support.

This was a rare and challenging fire incident for the MFB and one worthy of further investigation and enquiry into the contributory factors for the rapid fire spread. In the process of the investigation, the MFB gained valuable insight into the complexities associated with the adopted cladding material along with the performance of several fire safety measures. We anticipate that learning's gained through this process will provide improved insight and understanding to designers, engineers and certifiers, for greater fire safety in future developments.

1. BUILDING USE AND DESCRIPTION

The existing building consists of a single residential tower (Eastern Tower) which was completed with an occupancy permit issued in June 2012. The premise is located adjacent to Wurundjeri Way to the east and La Trobe Street to the north.

The functional use of the existing building includes: Class 2 Residential Apartments; Class 6 Restaurants/Retail and Class 7a Ancillary Car-parking.

The building has a rise in storeys of 21 and contains 23 storeys total, with an effective building height of 58.7 metres.

The general structure of the building comprises suspended reinforced concrete floor slabs and reinforced concrete loadbearing walls. Panel wall systems have been used for external cladding and also include lightweight internal wall systems.

The overall site currently has the Eastern Tower completed under Stage One of the development. The Western Tower (Stage Two) is currently under construction. Both towers will have common interface arrangements at the lower podium commercial and car-park levels.

Floor function and use:

* Basement Level L00 – Plant, loading, ancillary services
* Level L01 – Entry, car parking, retail
* Level L02 – Entry, offices, retail
* Level L03 – Entry, retail, offices, fitness centre and swimming pool, residential apartments
* Levels L04 to L22 – Eastern Tower residential apartments
* Proposed West Tower levels L04 to L18 - hotel guest rooms.

The Egress Layout:

* Level L00 – direct to road and also via car-park entry/exit ramp
* Level L05 – via vehicular ramp and stairway leading to L00
* Level L01 – via path leading to stadium concourse and also stairway
* Level L02 – main entry level circulation path connecting road and stadium concourse
* Level L03 to L21 – minimum two stairwells.

Approximate Floor Area:

* Level L00 – 3600m2
* Level L05 – 3200m2
* Level L01 – 3600m2
* Level L02 – 1800m2
* Level L03 – 2500m2
* Level L04 to L21 – 1200m2.

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2. INSTALLED FIRE SAFETY EQUIPMENT

The installed fire safety systems within the building as listed below are typical of those found in other Melbourne buildings of similar size, age and occupancy type:

* Fire sprinkler system
* Internal fire hydrant system
* Fire hydrant/sprinkler pumps
* Fire hydrant/sprinkler boosters
* Emergency lighting
* Emergency exit signage
* Fire isolated exit stairs
* Fire hose reels (omitted on residential levels)
* Fire extinguishers
* Stair pressurisation system
* EWIS (with floor by floor PA facility)
* Fire-fighter jacking points
* Fire/smoke detection, Australian Standard (AS) AS1670.1
* AS3786 smoke alarms
* Fire hydrant and sprinkler system.

This building has two separate types of fire sprinkler systems installed. Further detail is provided in Appendix 8.

The combined hydrant/sprinkler system that runs throughout the fire affected floors is designed for four sprinkler heads and two fire hydrants to operate simultaneously. Two onsite fire pumps provide pressure and flow to the system and water is pumped directly off the town's mains in a Grade two configuration. There was evidence that both pumps had been running during the fire.

The fire caused 26 sprinkler heads to activate. Two fire hydrants were also used; however, it was undetermined whether both fire hydrants were used simultaneously.

Despite the demand on the system running well over its designed capabilities, all witness reports and subsequent investigations, suggest the sprinkler system performed exceptionally well. Of the sixteen levels that were affected by the fire, there were only two instances where fire-fighters had to use hose lines from the internal fire hydrants. This was to combat a larger fire inside Apartments 1005 and 1905. Fire-fighters identified that in these two instances the sprinklers were containing the fire from spreading deeper into the apartment.

The first sprinkler flow switch that activated was Level 8; this was 94 seconds after the first smoke detector activated. It was identified that in many instances both the sprinkler head inside the apartment's kitchen/meals area, and the sprinkler head inside bedroom 2 of the same apartment, activated. This is identified in a floor plan provided in Figure 1. Additionally, Appendix 9 identifies the sequence of sprinkler activation over a floor by floor basis.

Emergency Lighting, Emergency Exit Signage and Emergency Exits

This building is provided with emergency lighting, emergency exit signage and emergency exits as required by the Building Code of Australia (BCA). Each apartment level is served by two fire isolated stairs that discharge into the main lobby at Level 2. The fire isolated stairs on the apartment levels are accessible from within the apartment corridor. Break glass re-entry is available every fourth level from within the fire isolated stair. Upon activation of the general fire alarm, electronic locks disengage and allow access out of the fire isolated stair at all levels. It appears that the electronic lock on Level 9 failed to disengage. This resulted in fire-fighters having to make forcible entry into the corridor.

From all other witness accounts it appears that the exits were easy to locate, lighting was adequate and descending the stairs was relatively easy and uncongested. Between three and six occupants presented themselves to Ambulance Victoria Officers for treatment for minor injuries, caused by slips and trips within the stair. This figure is very minor, considering that in excess of 400 occupants safely exited the building.

Fire Extinguishers and Fire Hose Reels

This building is not provided with fire hose reels on residential levels. The deletion of fire hose reels had been previously addressed under a Report and Consent of the Chief Officer pursuant to Regulation 309 of the Victorian Building Regulations 2006.

In lieu of fire hose reels each apartment level has 2 x 9 litre water type extinguishers installed and a 2.1 kilogram dry chemical powder extinguisher. One water extinguisher is located down the northern corridor in a purpose built cupboard outside Apartment 601. The second water extinguisher is located down the southern corridor in a purpose built cupboard outside Apartment 613. The dry chemical powder extinguisher is located in the service/electrical riser room in the lift lobby area.

There is no record of any occupant using an extinguisher, however numerous on-site extinguishers were used by fire-fighters to extinguish some of the smaller balcony fires. Investigations identified a number of building maintenance issues relating to the installed fire extinguishers. This issue is discussed in Section 6.9.1 of this report.

Stair Pressurisation System

Both fire isolated stairs in this building are served by required stair pressurisation systems. The fire indicator panel (FIP) log identifies that a fan start up signal was sent to the fans in both stairs immediately after the first smoke detector activated. The log then identifies that both systems sent a running confirmation signal back to the FIP. There were no reports of smoke within either stairwell.

Fire Detection System/Fire Indicator Panel

This building incorporates a smoke detection system throughout the common areas as required by the BCA. During investigations, it was observed that a typical apartment level consisted of eight photo-optical smoke detectors, installed throughout the corridor and an additional smoke detector located in the electrical riser cupboards at every level.

According to the printout from the FIP, the first detector to activate was outside Apartment 805 (apartment of fire origin). It is likely this detector activated when smoke entered the corridor as the occupants evacuated their apartment.

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In total, 13 smoke detectors activated throughout levels 3, 6, 8, 9, 12 and 18. The FIP printout indicated that 25 minutes after the initial detector activated, the system started to log detector faults. Over 55 faults were logged, all of which are likely to be attributed to water damage from the operating sprinkler system.

From all the evidence the detection system operated as designed.

Smoke Alarms AS3786

Each apartment is fitted with a 240 volt hard wired ionisation smoke alarm, with a 9 volt backup battery. These smoke alarms are not linked to the FIP and are not required to be.

The occupants of Apartment 805 reported that they opened the door to the balcony to attempt to extinguish the fire. As a result, smoke entered the internal space of the apartment and activated their alarm.

Emergency Warning and Intercommunication System

This building is fitted with an Emergency Warning and Intercommunication System (EWIS), as required by the BCA. The EWIS in this building incorporates the following design features.

A EWIS operations panel is installed adjacent to the FIP in the Fire Control Room. This panel incorporates a public address facility, which enables the panel operator to choose which levels receive an audible announcement. The system is separated into 21 evacuation zones; each level is a single zone.

Speakers (incorporating sounders/audio alert signals) are installed in all common areas throughout the building, with additional speakers installed in every apartment bedroom as per requirements of the approved Fire Engineering Report.

Operation

The fire alarm tones in the building were configured in a cascading sequence. Initial evacuation tones sound on the fire floor in addition to one level above and one level below the fire floor (these three levels are referred to as Segment 1 of the cascading sequence).

After a 60 second delay the system initiates evacuation on the next level above Segment 1. This upward cascading sequence continues with a 60 second delay on each level until the uppermost level is reached (those levels above Segment 1 are referred to as Segment 2).

Sixty seconds after the system initiates evacuation on the uppermost level of the building, the system then initiates evacuation on the first level below Segment 1. The system then continues to cascade down to the lowest level in the building with a 60 second delay occurring at each level.

Each level is served by a single speaker wiring loop wired in series. This means that a single wire runs from the amplifier which serves each level, to the first speaker. A wire then runs to the second speaker and so on. At the final speaker the wire returns to the amplifier to complete the circuit. Appendix 5 and Appendix 6 provides an illustration to further explain the above.

3. FIRE INCIDENT EVENTS

The following information was compiled after MFB fire safety officers interviewed a number of fire-fighters and occupants who were present during the incident. It includes reference to the MFB fire call log and the fire indicated panel (FIP) events log which can be viewed in Appendix 2 of this report.

The Bureau of Meteorology (BoM) records indicate that the temperature during the night was around 12 degrees, with a westerly wind of 20 to 30 kilometres per hour.

At approximately 01:30 hours on the morning of Tuesday 25 November 2014, an occupant from Apartment 805 of the building, claims he investigated the smell of smoke. After checking the kitchen and making sure the gas stove was turned off, he returned to bed. Sometime later, the same occupant was woken by two other house mates who had discovered the fire burning on the balcony.

From inside the apartment, he could see a fire on the right hand side (south) of the balcony. The occupants of the apartment unsuccessfully attempted to extinguish the fire using a container of water.

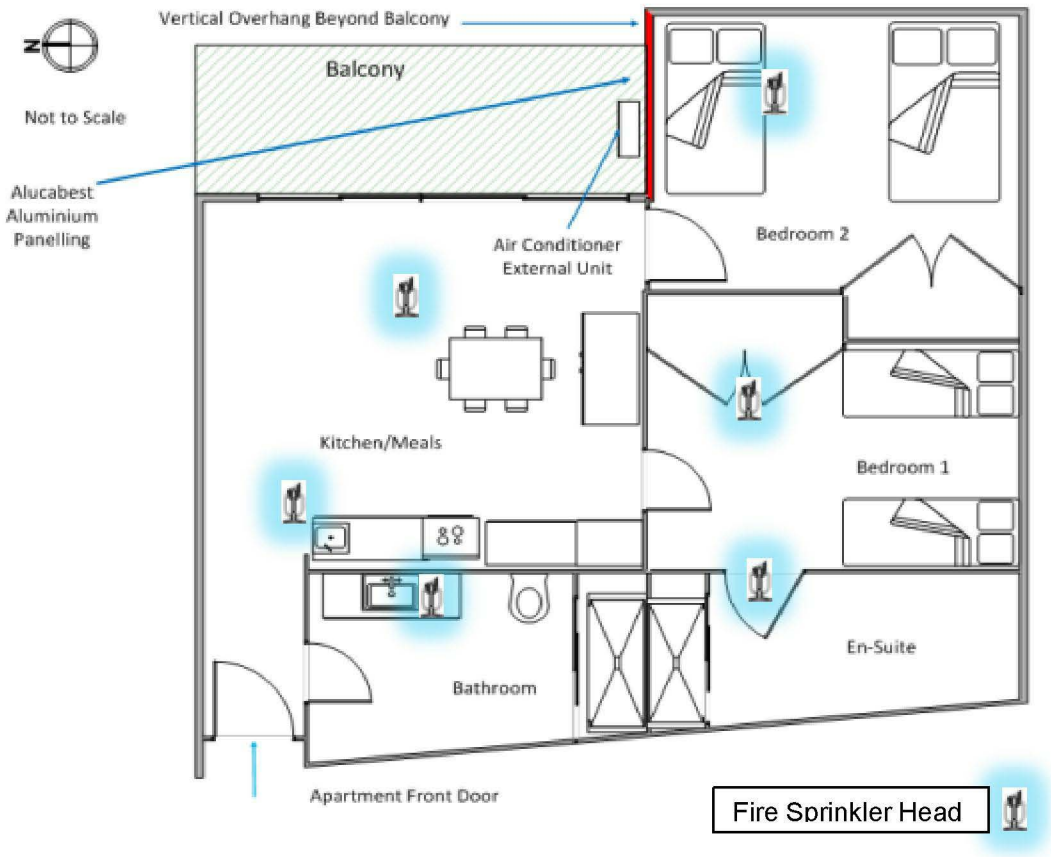

Figure 1 – General floor layout of apartment 805

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All of the occupants from Apartment 805 then evacuated the apartment via the buildings northern end isolated fire stairs.

At 02:24 hours, MFB fire crew responded to an exchange call for a reported apartment fire at 673 La Trobe Street, Docklands.

The fire indicator panel history log shows activation of the Level 8 fire sprinkler flow switch at 02:25 hours, which also generated an alarm to the MFB. Several exchange calls followed confirming that the building was well alight and the fire was spreading rapidly up the building. Refer to call history Appendix 2.

When the first fire crew arrived on scene at 02:29 hours, they observed fire travelling upwards rapidly and involving about six floors. They also observed that the fire was burning up the external wall cladding and spreading onto the balcony on each level. By this time a number of people had already evacuated and had congregated outside the building entry in La Trobe Street.

The occupants from Level 6, Apartment 605 reported later to fire-fighters, seeing fire embers and flaming debris falling from levels above their apartment and igniting materials on their balcony. They then evacuated the building. See photograph below.

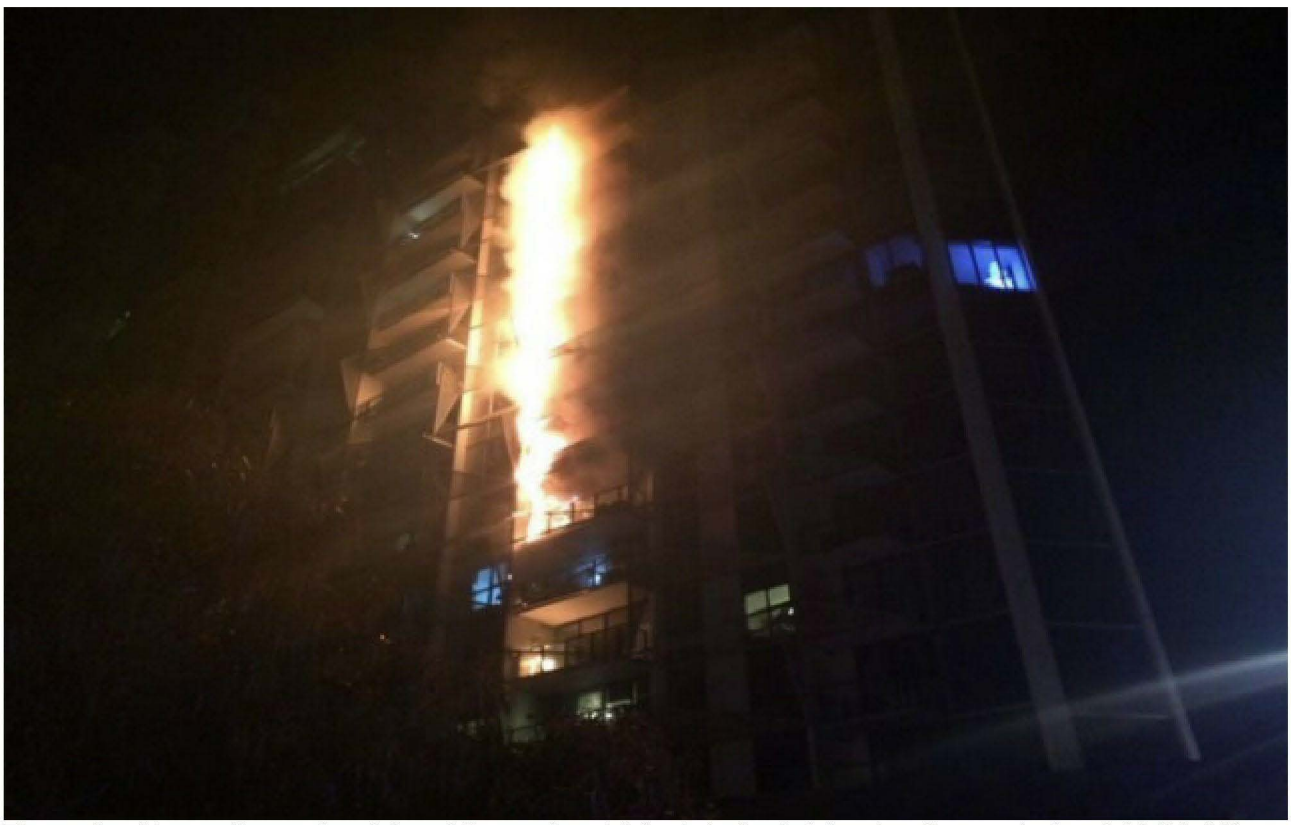

Figure 2 – Shows fire on level 6 and fire on level 8 (point of origin) extending up to level 14 (02:29)

At 02:30 hours, the Senior MFB Officer in attendance provided the following word back; "Structure Fire, Respond 3rd Alarm". This was followed by a message that crew wearing breathing apparatus and equipped with hose lines were entering the building to evacuate all occupants and investigate the extent of fire spread. By 02:35 hours, it was reported that the fire had spread to Level 21 via the external face of the building. At 02:38 hours, the status of the alarm was upgraded to a 4th alarm.

Fire-fighters confirmed that the sprinkler system operating within the apartments had held the fire in check, and was preventing further internal spread and fire development. Fire-crew used hose lines connected to internal hydrants and portable fire extinguishers to totally extinguish fires on Levels 10 and 19.

An MFB aerial appliance referred to as a “Ladder Platform” was set up on the La Trobe Street overpass and at approximately 02:46 hours, was operational and had water onto the fire. The water stream from the water monitor on this appliance was able to reach all levels on the building, making extinguishment of the burning façade more efficient.

With several hundred civilians from the building assembling on the north side of La Trobe Street, MFB Officers arranged their evacuation to a sheltered area at Southern Cross Station. At approximately 03:45 hours, MFB fire-fighters assisted by Victoria Police and the SES, escorted the evacuees to the Vic-Rail Bus Centre, Spencer Street where they were monitored by Ambulance Victoria and provided with water and blankets. Registration of evacuees was undertaken with the assistance of the Red Cross. Later that morning Victoria Police and Melbourne City Council established a Relief Centre at Etihad Stadium where the Salvation Army was set up to assist.

At the height of the fire, MFB committed 122 personnel, 22 appliances, 3 aerial appliances and 4 specialist vehicles.

Fire damage was essentially restricted to the façade and external balcony area adjacent to Apartment 605 and Apartments 805 to 2105. Please refer to the Fire Cause and Origin section of this report for further information on fire damage.

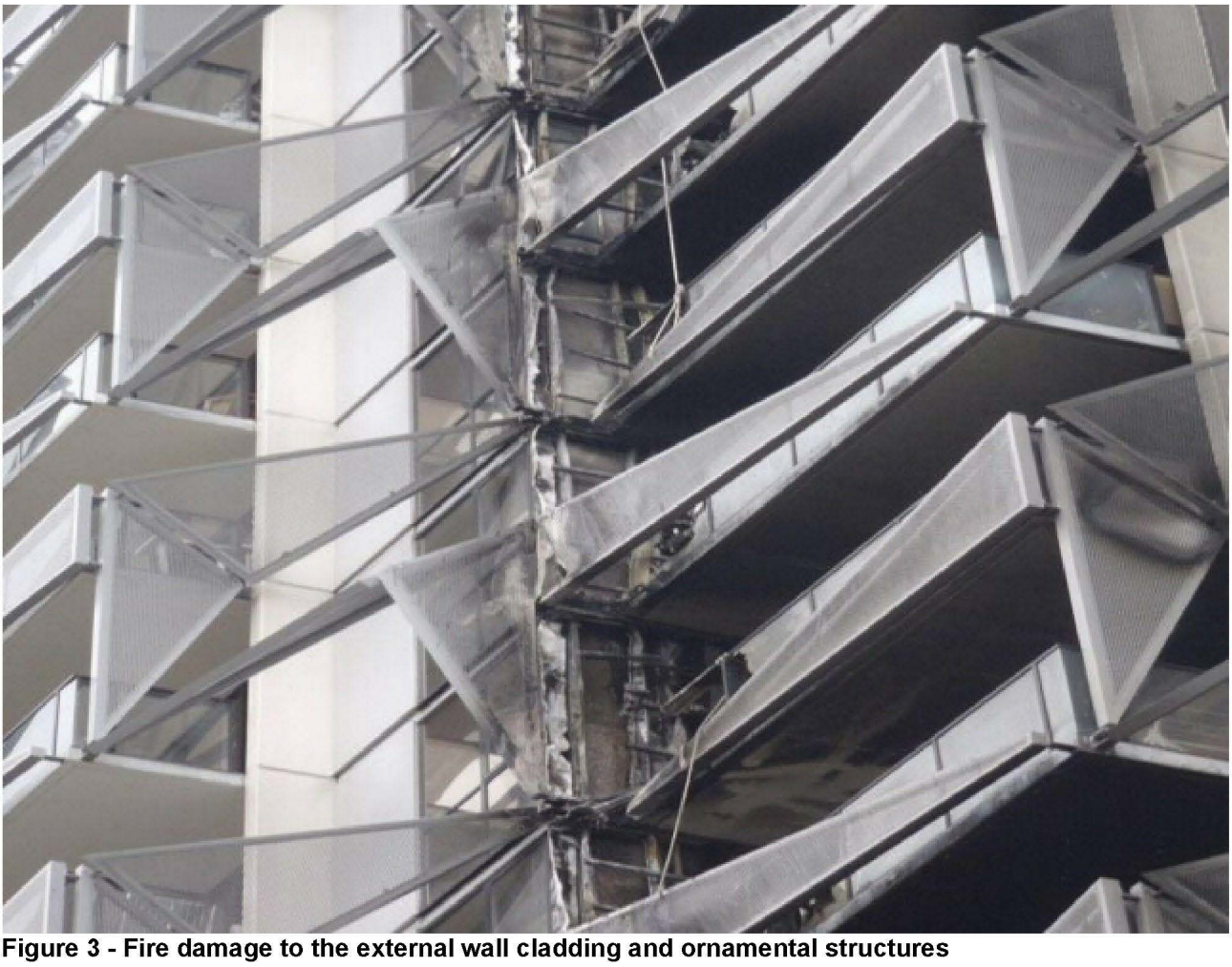

Figure 3 - Fire damage to the external wall cladding and ornamental structures

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4. FIRE CAUSE AND ORIGIN

The following information is a direct reference from the Fire Investigation and Analysis report (FIA). Where this report refers to an Appendix, see full FIA report.

AREA OF ORIGIN:

Apartment 805 Layout

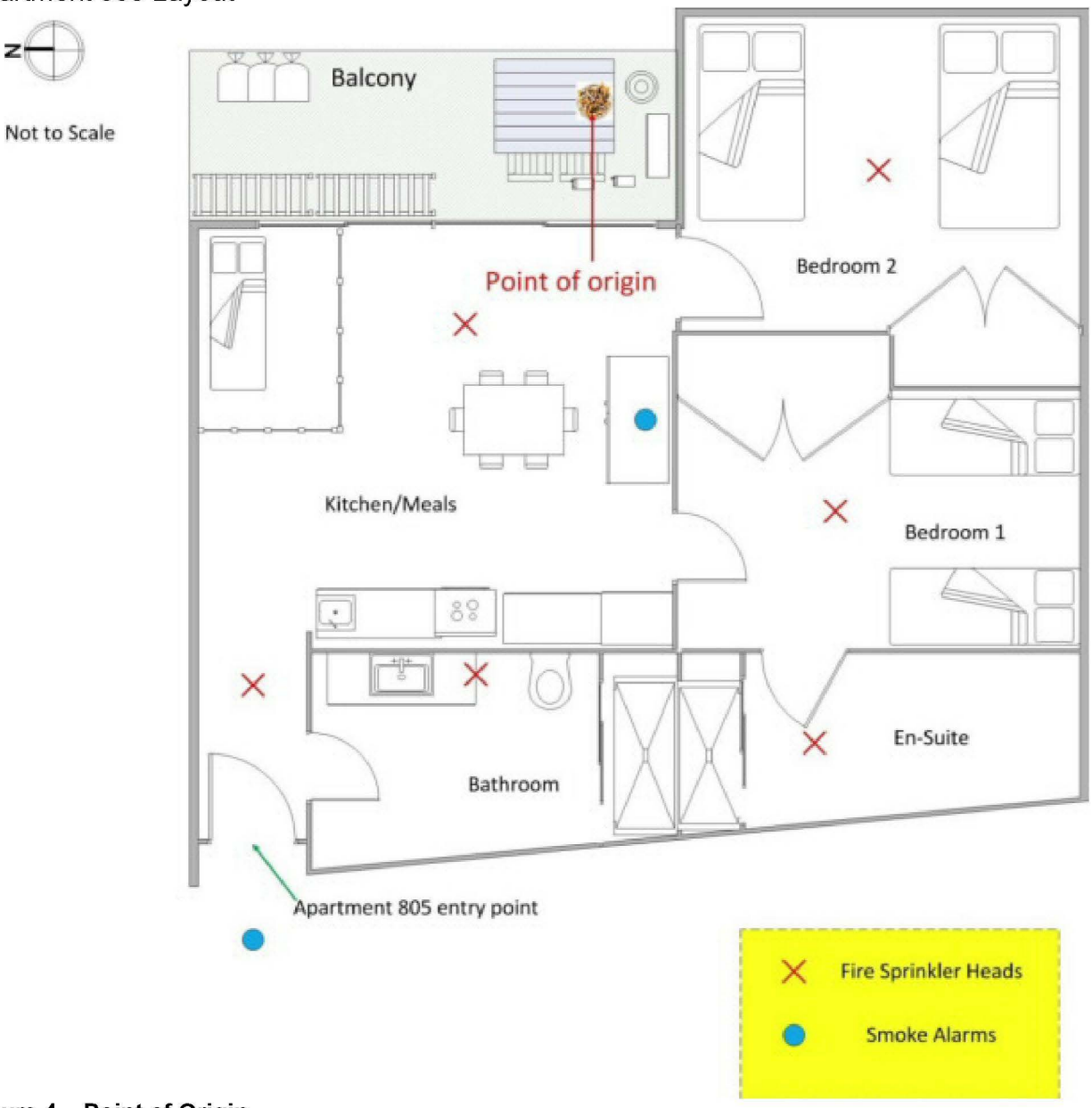

Figure 4 – Point of Origin

Appliances in the area of origin:

* Compressor unit for split system air conditioner
* 2 x vacuum cleaners
* External wall mounted light located centrally above air conditioning (A/C) split system compressor unit.

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Other contents in the area of origin:

* Timber and metal outdoor table
* Plastic and metal outdoor chairs
* Steel bed frame parts, Bedding (pillows and doonas)
* Clothes
* Brooms
* Clothes drying racks
* Timber door and other miscellaneous stored items.

Description of area of origin and details of burn patterns and charring:

Fire damage to the balcony area of this floor was more severe and a greater degree of destruction had occurred on this level than the balcony area of Apartment 605.

Fire damage to this apartment occurred to the balcony area with severe water damage, due to the activation of the fire service sprinkler system to the remainder of the apartment. Moderate sooting from the fire had occurred to the ceiling of the kitchen/meals area within the apartment near the glass doors to the balcony area.

Bedroom 2 of the apartment had sustained water damage to the entire room area; the northern wall of this room backed onto the southern wall of the balcony area. Minor sooting to the room and contents was evident throughout this room. Electrical outlets mounted to this wall had sustained heat damage to the back of them. The wall mounted electrical power outlet and the television aerial connection had fallen from where they had been mounted on the plaster wall.

The construction of this wall from the inside to outside was two layers of plaster, steel studs with fibre glass insulation between, sisalation, steel battens and an exterior aluminium cladding (Alucobest). This wall also contained a sealed vertical join between two Alucobest panels of the wall, near the eastern end of the A/C unit. Located within the wall cavity were a number of services for the building; they included a PVC down pipe allowing water drainage from the balcony area, wrapped in what appeared to be a rubber backed green egg carton type foam, electrical wiring, copper pipes and grey foam lagging for the A/C and electrical wiring for exterior light on the balcony wall.

Full height glass double glazed sliding doors gave access to the balcony area from the kitchen. These had sustained heat and fire damage with the glass from the fixed panel located at the southern end of the balcony, breaking and collapsing to the floor areas of the kitchen and balcony. At the time of the investigation the double sliding doors were in the open position, with a visible gap of approximately 50mm between the two sliding doors. Access for investigation purposes was gained through the broken fixed panel at the southern end of the balcony area.