# ExPanels

**Ex**citing Innovation

Designers and Architects have the opportunity to shape their projects with the latest in exterior surfacing by PoliLam. With endless design possibilities we have curated the ultimate collection to allow architects to create without limits with our new exterior line.

Providing the tools for extraordinary projects. Our ExPanels combine high-quality and design to handle extreme weather and allow for creativity to flourish.

Experience more exterior solutions, with PoliLam **Ex**Panels.

# ExPanels®

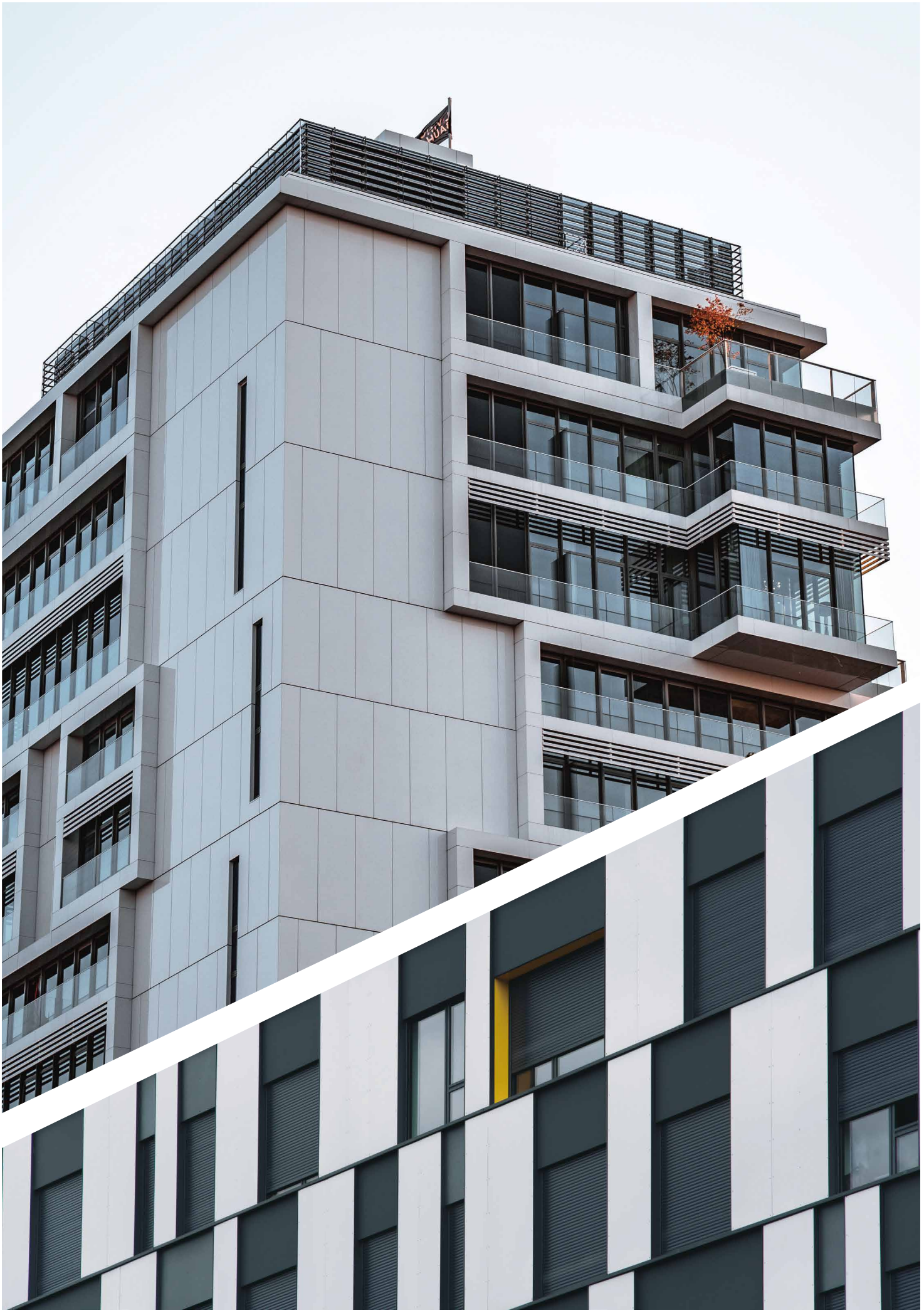
## Experience Development

Our HPL exterior compact facade panels are made with renewable raw materials.An environmental solution, a modern way to create and build.

Compact laminate, also known as phenolic panels, are extremely durable, made with multiple layers of compressed impregnated thermosetting resins of kraft paper compressed by high pressure and heat.

- Commercial Buildings
- Offices Buildings
- Hospitals
- Schools
- Child Care
- Airports
- Train Stations
- Football Stadiums
- Hotels
- Residential

**C0396**
Frost



## PoliLam ExPanels Key Features

Our technology allows us to create panels with characteristics of colorfastness, UV resistance, fire retardant, and weather exposure. Apart from advanced characteristic, ExPanels are simple to install and are low maintenance with easy clean features.

· UV and weather resistant tested EN 438-6&7
· Resistant to impact and abrasion
· Simple Panel Installation
· Low Maintenance: Refer to our PoliLam Use & Care Guide
· Unlimited Design Choices: Including Digital Print Customizable Options

C0076
Onyx

C0060
Candy Apple

## Expect Ecofriendly

The world—including the world of laminates is changing. At PoliLam, we strive to be innovators in our industry. We create a quality and design-driven product, with as little environmental impact as possible. PoliLam is certified Greenguard and we take pride that our HPL is a product with low penetrability, thus providing a barrier against emissions of volatile organic compounds (VOCs) and formaldehyde.

**W0031C**
**Robin**
**Burlington Elm**

## Woods

Our woods collection is inspired by this incredible source of life. We honor them by replicating their brilliance and elegance. No two wood grains are ever the same—they are uniquely different and beautiful in every grain.

## Patterns

Our stunning patterns collection includes marble, concrete, and fabric, tempered steel, metallic industrial looks, weaves, grids, waves, paisley, abstract, and more. We combine visual as well as textured patterns.

## Solids

Color has a powerful effect on our brains.It appeals to our senses and most important aspect of our engagement with our surroundings. Color has the power to set the mood, to attract  attention,to influence, and to persuade. We can transform and perfect our environment using color—stronger shades can stimulate us, and softer ones help us unwind.

## Digital Printing

By undergoing a completely digital process we are able to erase the issues normally experienced with natural materials and digitalize them to perfection.

Our digital print technology allows us to work with excellent print quality, achieving much more range and vivid colors, compared to conventional printing.
Our design options are unlimited, customization is available and welcomed to create the perfect design for your project.

**C0061**
**Glass**

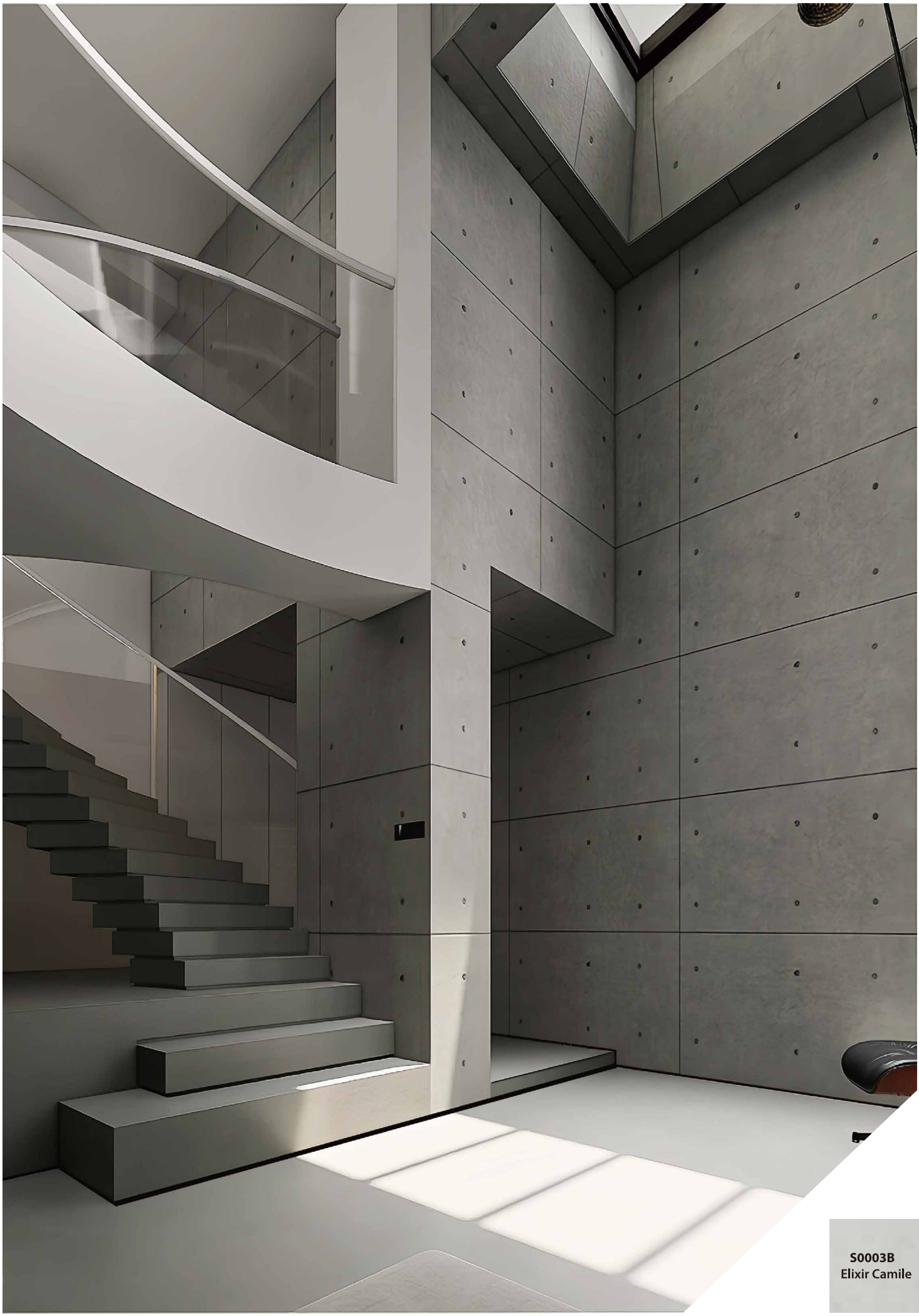
W0053B
Saffron Apple

## Experience Design

Design directly impacts our well-being. As we adapt to our changing world, we demand more from design. Not only practicality, but sustainability, not only functionality, but aesthetic pleasing.

Using technology, we can replicate the color and design of Earth's most precious trees, stones, and natural marvels. We take pride in carefully researching and selecting each of our exclusive designs as well where the raw materials we select originate from. We marvel at nature's wonders, and we recreate what we see without diminishing it.

Rather than holding a large, often outdated range, we work to select the trendiest designs suitable for our market and filter out those that no longer fit the needs of designers.



**S0003B**
Elixir Camile

## Applications and Projects

Facades
Balconies
Exterior phenolic cladding
Outdoor Furniture
Soffits
Fencing
Shelters
Sunshades

# ExPanels®

## Product Structure

Our exterior compact laminate, also known as phenolic panels, are double sided panels made up of multiple layers of compressed impregnated thermosetting resins of kraft paper compressed by high pressure and heat.

The buildup of our ExPanels include a UV resistant protective layer on both sides of the panel providing enhanced UV protection. Making them the ultimate material for building facades, including rainscreen systems.

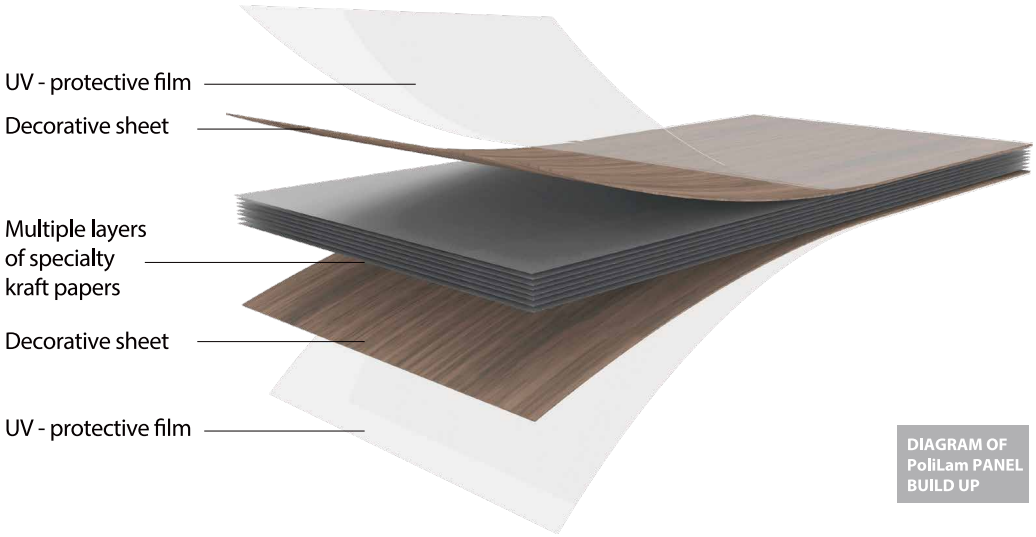



DIAGRAM OF PoliLam PANEL BUILD UP

## PoliLam ExPanels Rainscreen Installation Systems & other Installation options

**Rainscreen Installation :**

A rainscreen is an exterior cladding infrastructure that sits away from a building's exterior wall's water-resistant barrier, creating an air cavity directly behind the cladding which is vented at both the top and bottom of the wall so it may help to protect the buildings important envelope.

**Benefits of Rainscreen Installation :**

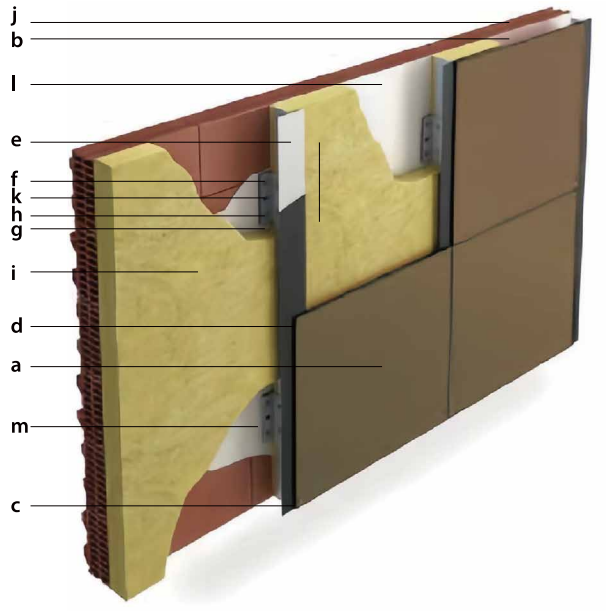
- Weather-resistant
- Evaporation method
- Reduces thermal movement
- Promotes water drainage
- Allows more insulation
- Design flexibility
- Simple installation
- Low maintence

**ExPanels Features :**

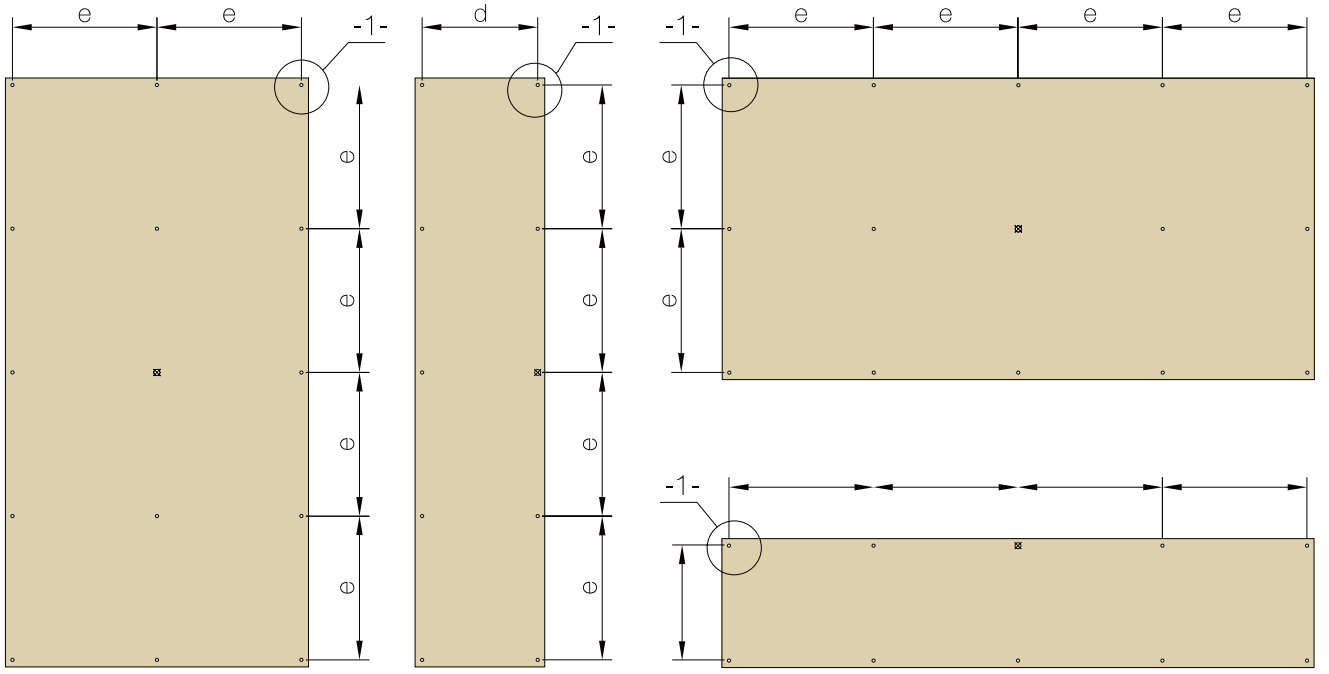
- UV and weather resistant tested EN 438-6&7
- Resistant to impact and abrasion
- Simple Panel Installation
- Low Maintenance: Refer to our PoliLam Use & Care Guide
- Unlimited Design Choices: Including Digital Print Customizable Options

# ExPanels®

## RAINSCREEN SYSTEM IN DETAIL WITH VISIBLE ATTACHMENTS

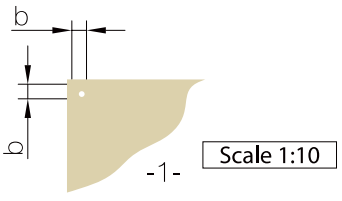



a PoliLam panel thickness: 6, 8, or 10 mm
b Air cavity: 20 mm (min.)
c Hole diameter: 1.5 x screw /rivet diameter
d Rivet
e EPDM rubber strip
f Vertical fixing profile
g Stainless steel screw
h Fixing bracket
i Thermal insulation
j Load bearing wall
k Bridge-bearing rubber pads
l Weather resistive barrier
m Anchor bolt/screw

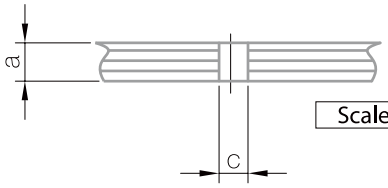



Fixed point: 1 x screw / rivet diameter (typicaly 5 mm)

Scale 1:40




Scale 1:10



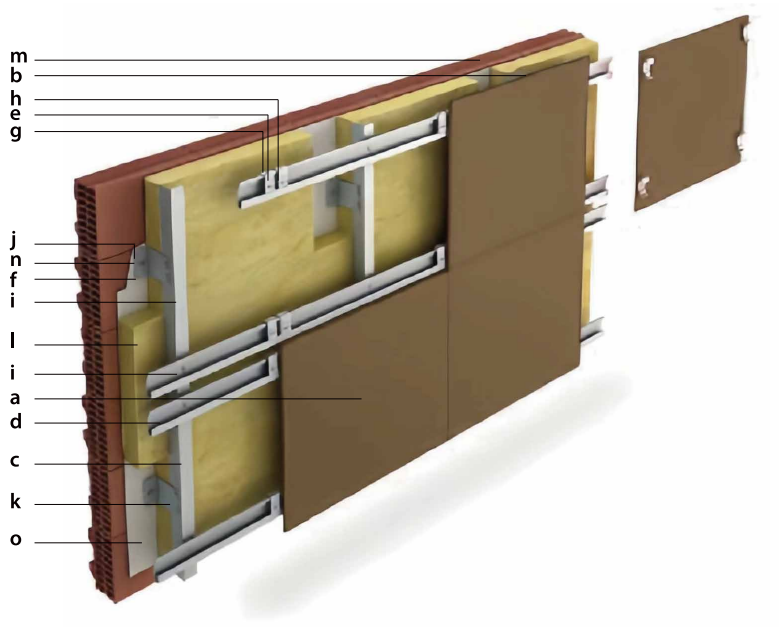

Scale 1:2

a PoliLam panel thickness: 6. 8 or 10 mm
b Typical edge distance: min 20 mm - max see table on the right
c Hole diameter: 1.5 x screw / rivet diameter
d Spacing: 450 mm, 600 mm, 750 mm (2 fixings in one direction)
e Spacing: 600 mm, 750 mm, 900 mm (3 or more fixings in one direction)

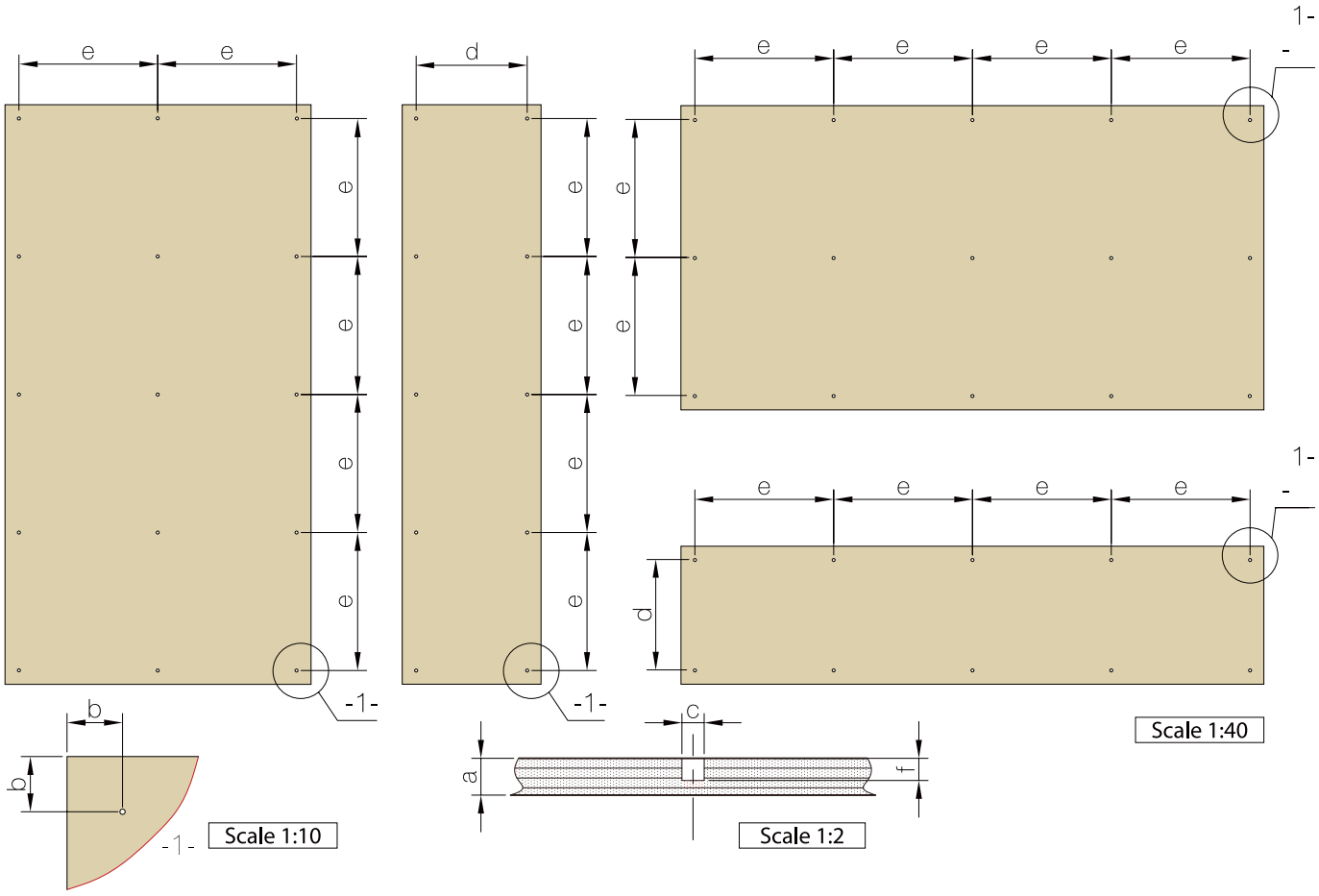
| | b | d | e |
|---|---|---|---|
| PoliLam panel thickness: 6 mm | 60 mm (max) | 450 mm | 600mm |
| PoliLam panel thickness: 8 mm | 80 mm (max) | 600 mm | 750mm |
| PoliLam panel thickness: 10 mm | 100 mm (max) | 750 mm | 900mm |

# ExPanels®

## RAINSCREEN SYSTEM IN DETAIL WITH CONCEALED ATTACHMENTS




a PoliLam panel thickness: 8 or 10 mm
b Air cavity: 20 mm (min.)
c Primary profile
d Secondary profile
e Hook
f Supporting bracket
g Regulation screw
h Fixing screw
i Self-drilling screw
j Anchor bolt
k Fixing rivet
l Thermal insulation
m Load bearing wall
n Bridge-bearing rubber pads
o Weather resistive barrier

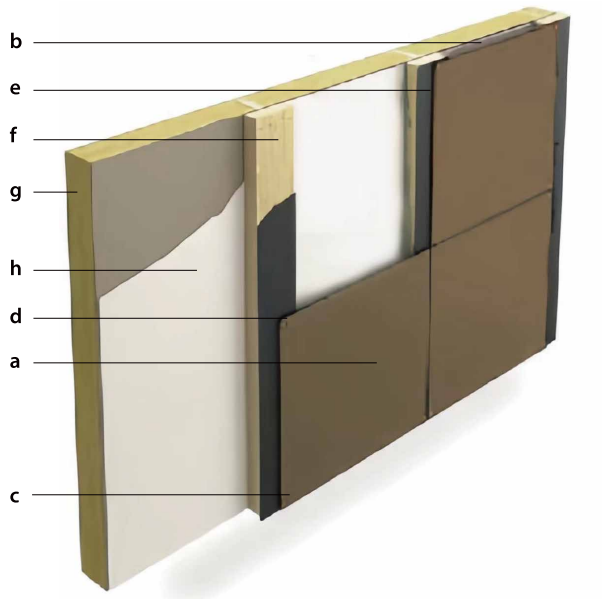



a PoliLam panel thickness: 8 or 10 mm
b Min 75 mm - max see table on the right
c Diameter to suit fixing screw.
d Spacing: 600 mm, 750 mm (2 fixings in one direction)
e Spacing: 750 mm, 900 mm (3 or more fixings in one direction)
f Fixing screw depth: 6 mm

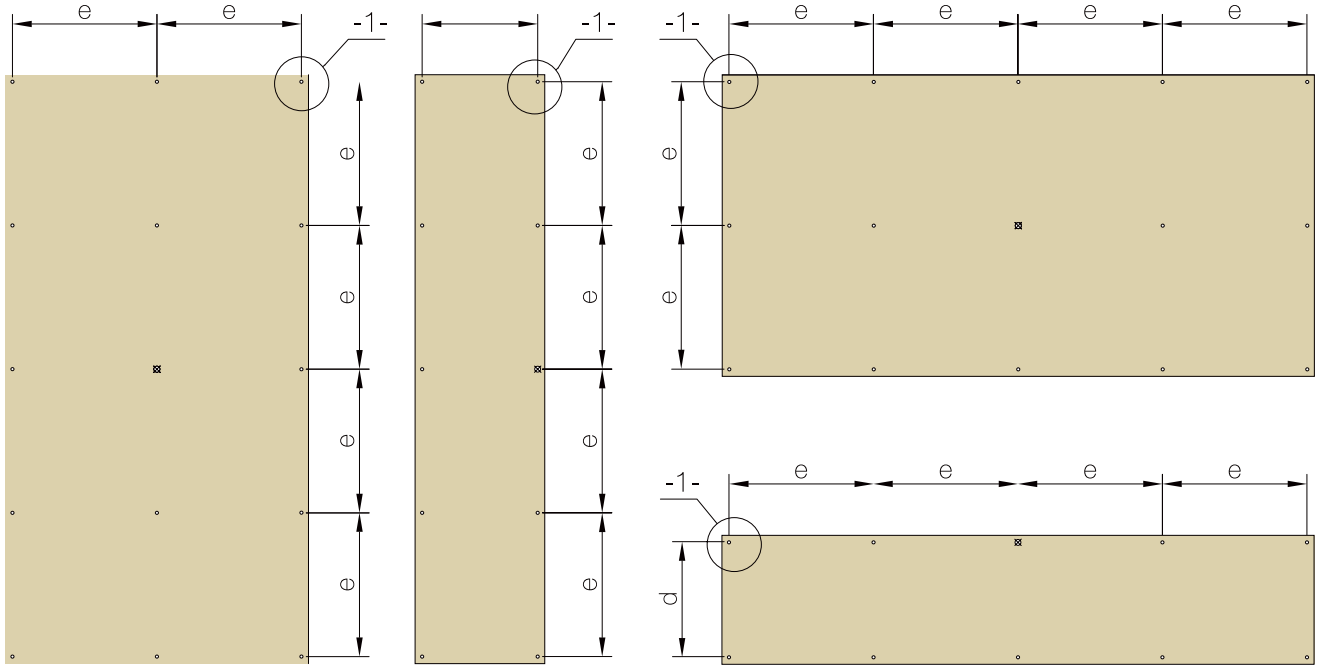
| | b | d | e |
|---|---|---|---|
| PoliLam panel thickness: 8 mm | 80 mm (max) | 600 mm | 750mm |
| PoliLam panel thickness: 10 mm | 100 mm (max) | 750 mm | 900mm |

# ExPanels®

## RAINSCREEN SYSTEM IN DETAIL WITH VISIBLE ATTACHMENTS ON WOODEN SUBSTRUCTURE

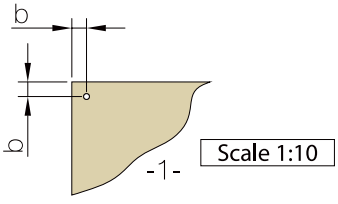



a PoliLam panel thickness: 6, 8 or 10 mm
b Air cavity: 20 mm (min.)
c Hole diameter: 1.5 x screw / rivet di ameter
d Stainless screw
e EPDM rubber strip
f Vertical timber batten
g Load bearing wall
h Weather resistive barrier

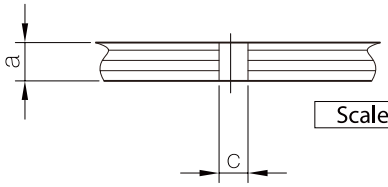



Fixed point: 1 x screw / rivet diameter (typicaly 5 mm)

Scale 1:40




Scale 1:10




Scale 1:5

a PoliLam panel thickness: 6, 8 or 10 mm
b Typical edge distance: min 20 mm - max see the table on the right
c Hole diameter: 1.5 x screw / rivet diameter
d Spacing: 450 mm, 600 mm, 750 mm (2 fixings in one direction)
e Spacing: 600 mm,750 mm, 900 mm (3 or more fixings in one direction)

| | b | d | e |
|---|---|---|---|
| PoliLam panel thickness: 6 mm | 60 mm (max) | 450 mm | 600mm |
| PoliLam panel thickness: 8 mm | 80 mm (max) | 600 mm | 750mm |
| PoliLam panel thickness: 10 mm | 100 mm (max) | 750 mm | 900mm |

# ExPanels®

## Installation Method

### Metal Substructure with Visible Attachment
### Horizontal Cross-Section

The drawing indicates a standard installation procedure on a metal support structure. This information is provided solely for your convenient reference without any representation as to accuracy or suitability. The user is required to test the suitability for her particular purpose or specific application.

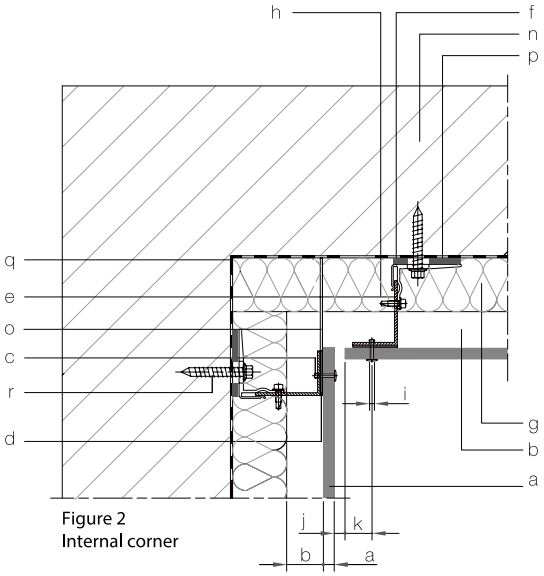



Figure 2
Internal corner

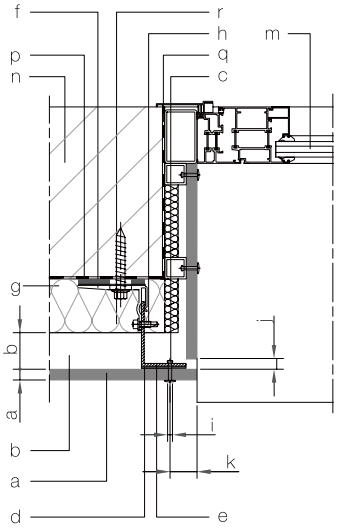



Figure 1
Window detail

| | |
|---|---|
| a | PoliLam panel thickness: 6, 8, or 10 mm |
| b | Air cavity: 20 mm (min.) |
| c | Fixing rivet |
| d | EPDM rubber strip |
| e | Vertical fixing profile (L or T) |
| f | Fixing bracket |
| g | Thermal insulation |
| h | Stainless steel screw |
| i | Hole diameter: 1.5x fixing rivet diameter |
| j | Min. joint dimension: 10 mm |
| k | Edge distance: min. 20 mm -max.10x panel thickness |
| l | Vertical profile "L" |
| m | Window |
| n | Load bearing wall |
| o | Aluminium plate (air cavity interruption) |
| p | Bridge-bearing rubber pads |
| q | Weather resistive barrier |
| r | Anchor bolt/screw |

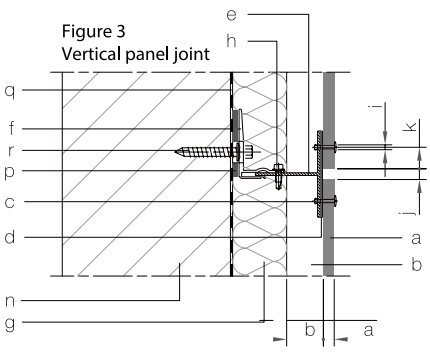



Figure 3
Vertical panel joint

Figure 2

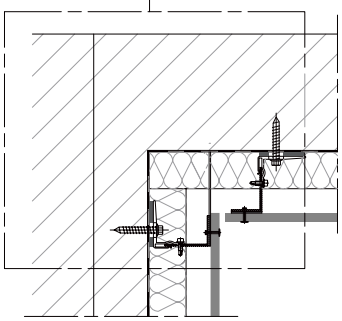
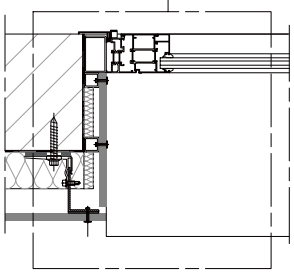


Figure 1



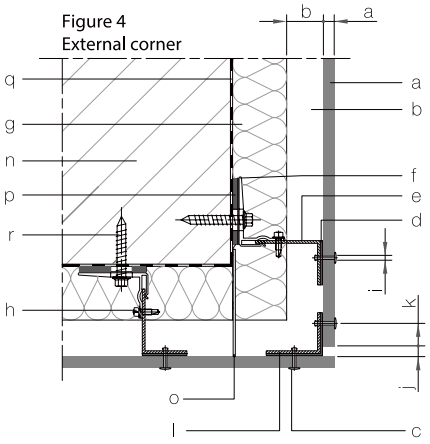



Figure 4
External corner

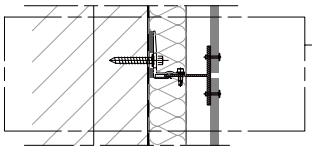


Figure 3

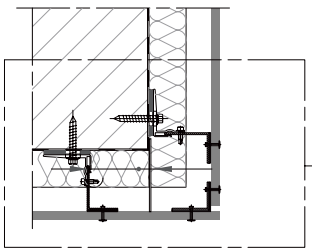


Figure 4

Scale 1:5

Scale 1:10

# ExPanels®

## Installation Method

### Metal Substructure with Visible Attachment
### Vertical Cross-Section

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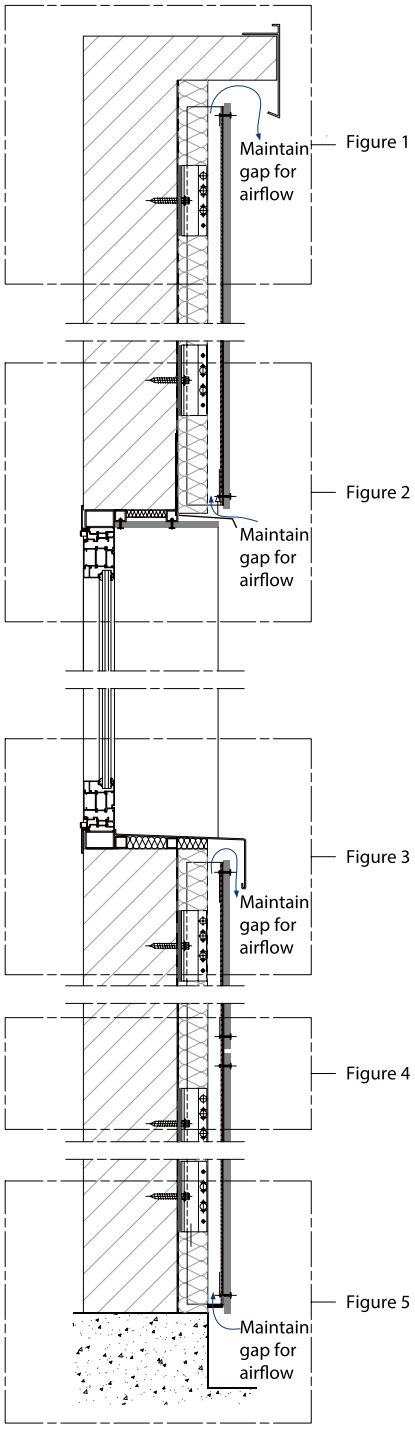
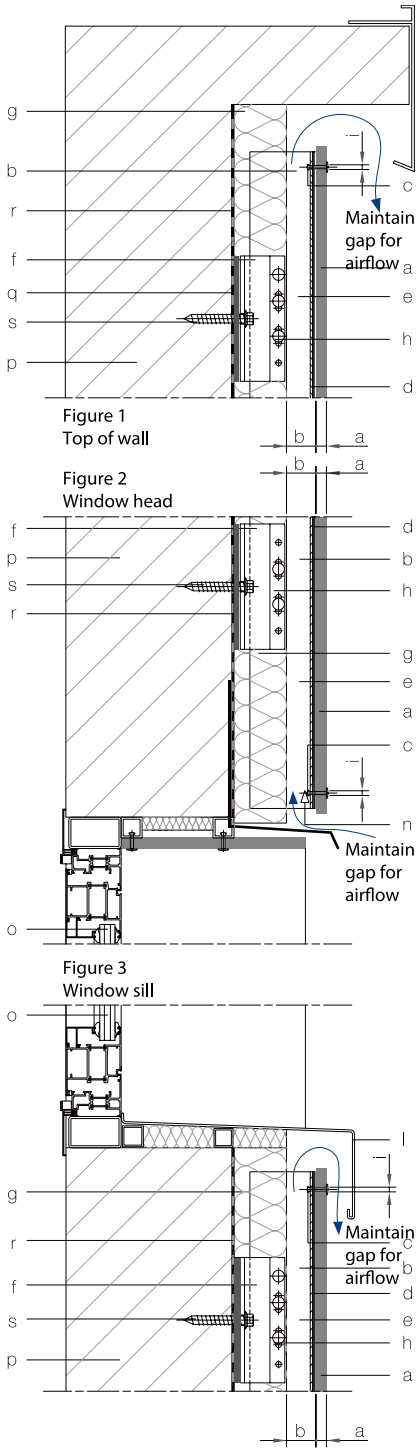
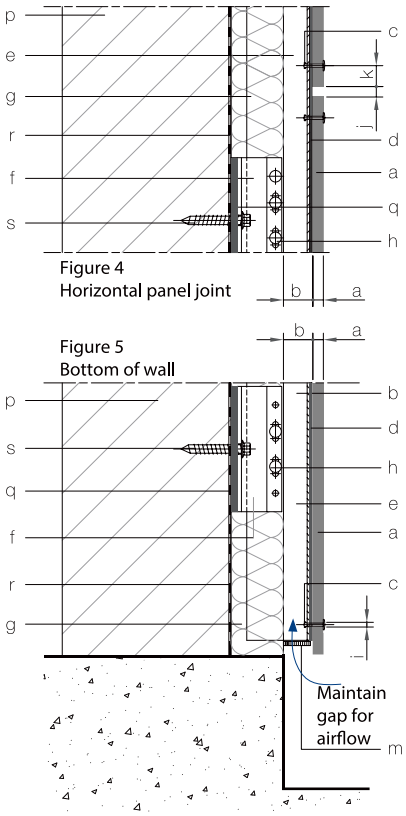



Scale 1:10




Scale 1:5




a PoliLam panel thickness: 6, 8, or 10 mm
b Air cavity: 20 mm (min.)
c Fixing rivet
d EPDM rubber strip
e Vertical fixing profile (L or T)
f Fixing bracket
g Thermal insulation
h Stainless steel screw
i Hole diameter: 1.5x fixing rivet diameter
j Min. joint dimension: 10 mm
k Edge distance: min. 20 mm -max.10x panel thickness
l Formed metal sheet
m Ventilation grille
n Ventilation area: 50 cm $^2$/m(min.)
o Window
p Load bearing wall
q Bridge-bearing rubber pads
r Weather resistive barrier
s Anchor bolt/screw

# ExPanels®

## Installation Method

### Metal Substructure with Consealed Attachment
### Horizontal Cross-Section

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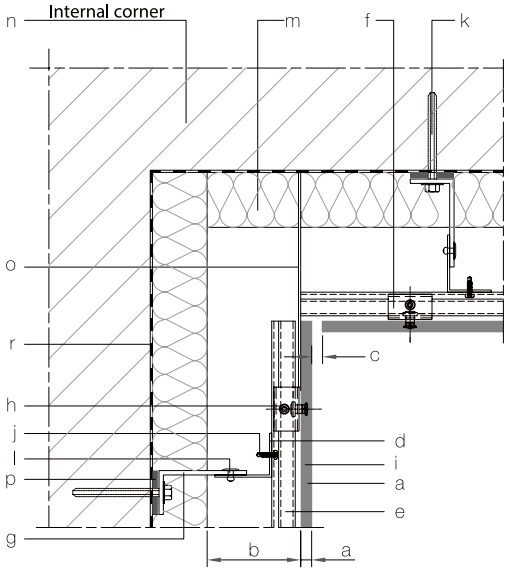
Figure 2
Internal corner



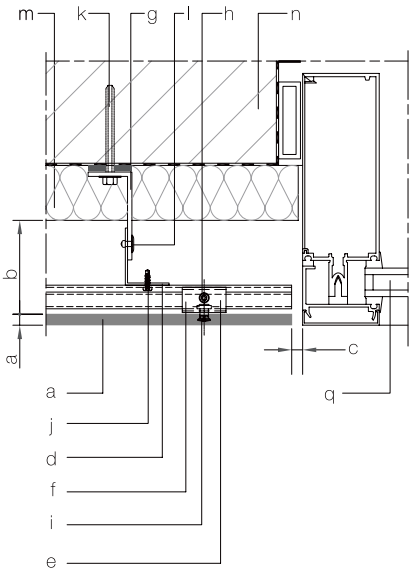
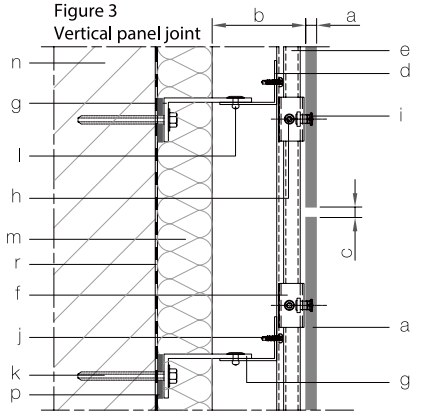




Figure 1
Window detail

- a PoliLam panel thickness: 8 or 10 mm
- b Air cavity: 20 mm (min.)
- c Min. joint dimension: 10 mm
- d Primary profile
- e Secondary profile
- f Hook
- g Supporting bracket
- h Regulation screw
- i Fixing screw
- j Self-drilling screw
- k Anchor bolt
- l Fixing bracket
- m Thermal insulation
- n Load bearing wall
- o Aluminium plate (air cavity interruption)
- p Bridge-bearing rubber pads
- q Window
- r Weather resistive barrier

Figure 3
Vertical panel joint



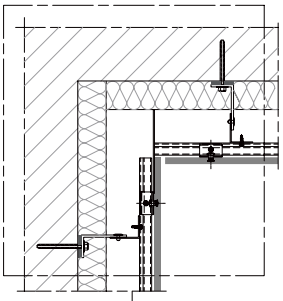



Figure 2

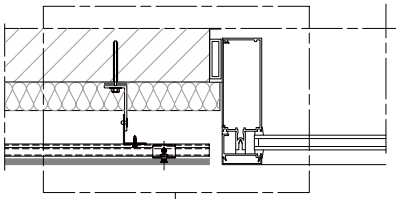


Figure 1

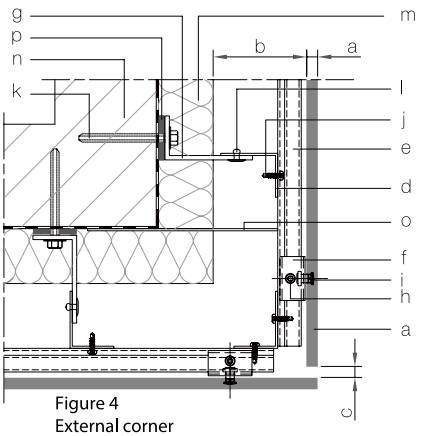



Figure 4
External corner

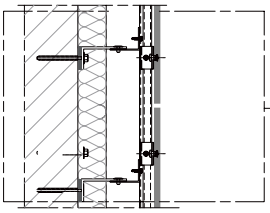


Figure 3

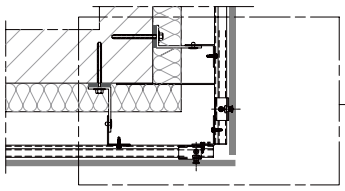


Figure 4

Scale 1:5

Scale 1:10

# ExPanels®

## Installation Method

### Metal Substructure with Consealed Attachment
### Vertical Cross-Section

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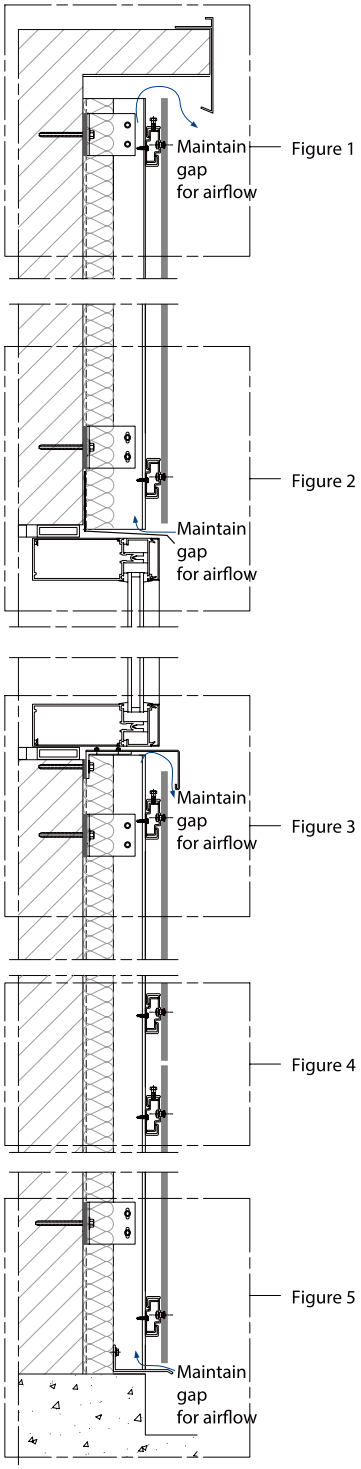
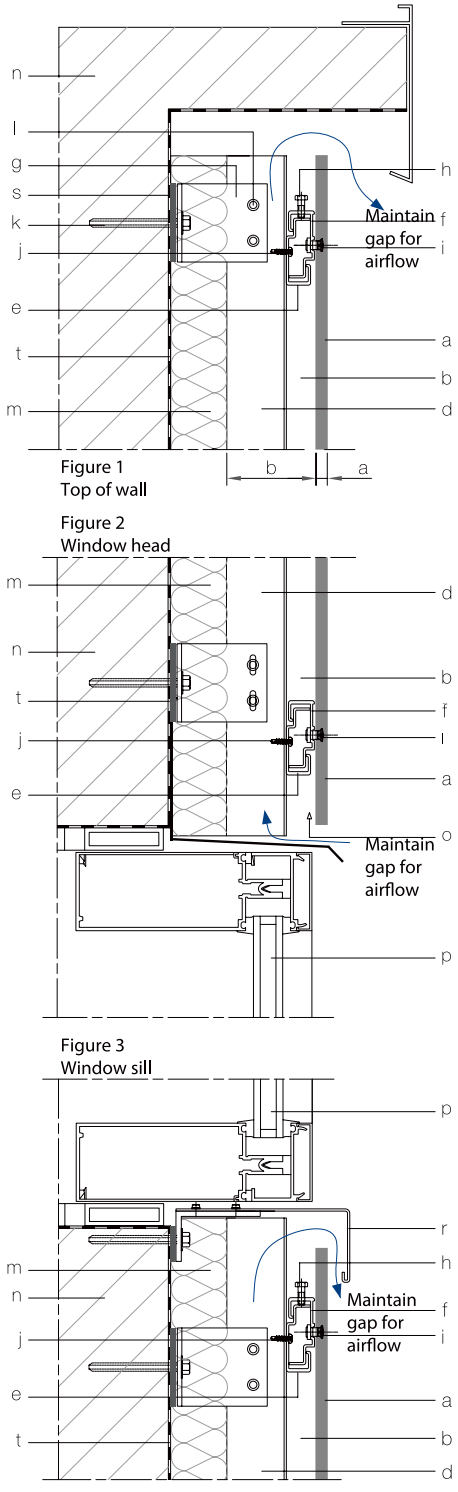
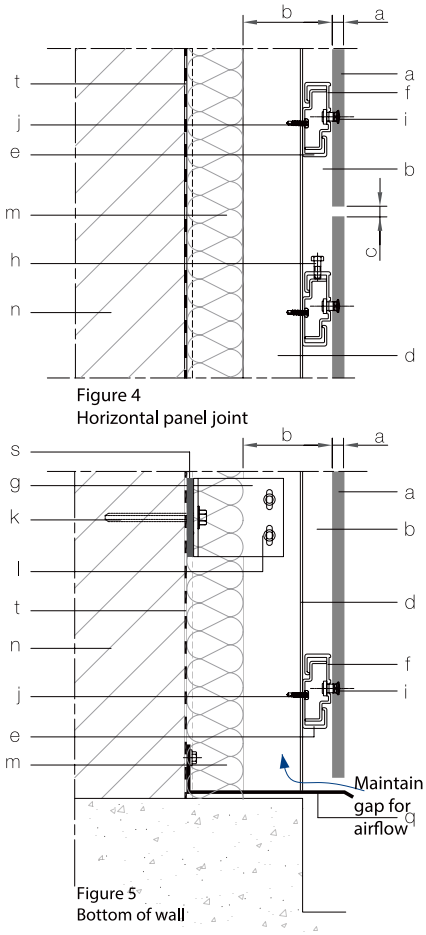



Scale 1:10




Scale 1:5




a PoliLam panel thickness: 8 or 10 mm
b Air cavity: 20 mm (min.)
c Min. joint dimension: 10 mm
d Primary profile
e Secondary profile
f Hook
g Supporting bracket
h Regulation screw
i Fixing screw
j Self-drilling screw
k Anchor bolt
l Fixing bracket
m Thermal insulation
n Load bearing wall
o Ventilation area: 50 $cm^2$/m (min)
p Window
q Formed metal sheet
r Formed metal sill flashing
s Bridge-bearing rubber pads
t Weather resistive barrier

# ExPanels®

## Installation Method

### Wooden Substructure with Visible Attachment
### Horizontal Cross-Section

The drawing indicates a standard installation procedure on a wood support structure. This information is provided solely for your convenient reference without any representation as to accuracy or suitability. The user is required to test the suitability for her particular purpose or specific application.

Figure 2
Internal corner

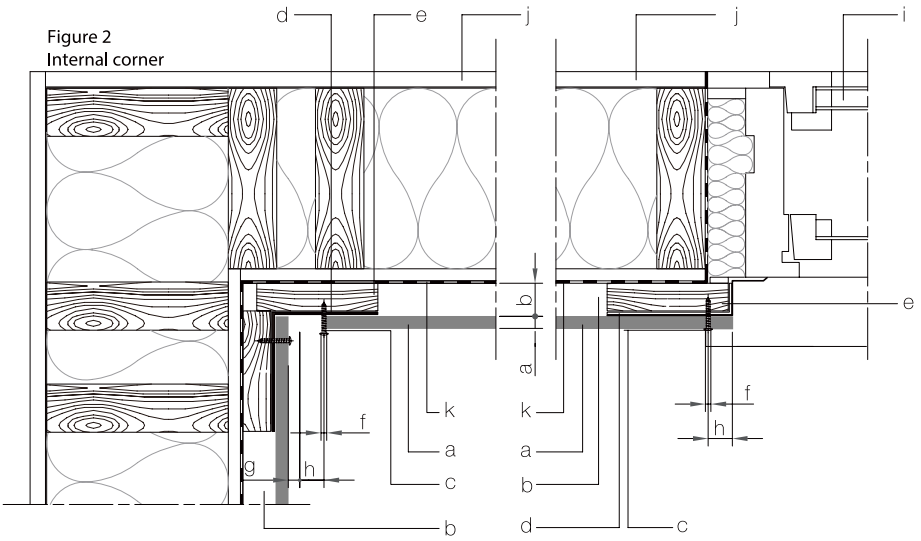



Figure 1
Window detail

- a PoliLam panel thickness: 6, 8, or 10 mm
- b Air cavity: 20 mm (min.)
- c Stainless steel screw
- d EPDM rubber strip
- e Vertical timber batten
- f Hole diameter: 1.5 x stainless screw diameter
- g Min. joint dimension: 10 mm
- h Edge distance: min. 20 mm - max. 10mm panel thickness
- i Window
- j Load bearing wall
- k Weather resistive barrier

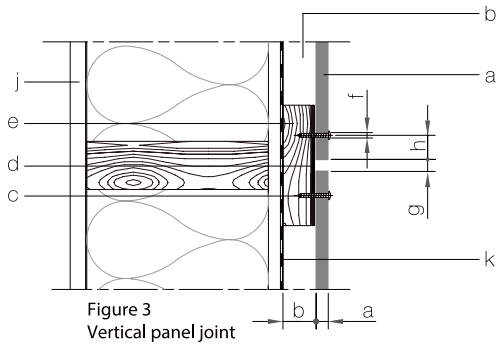



Figure 3
Vertical panel joint

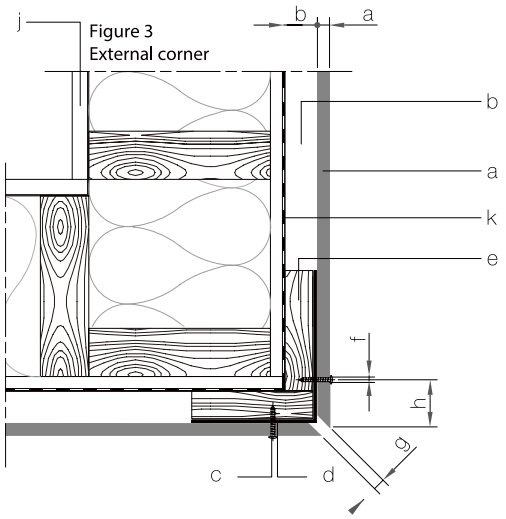
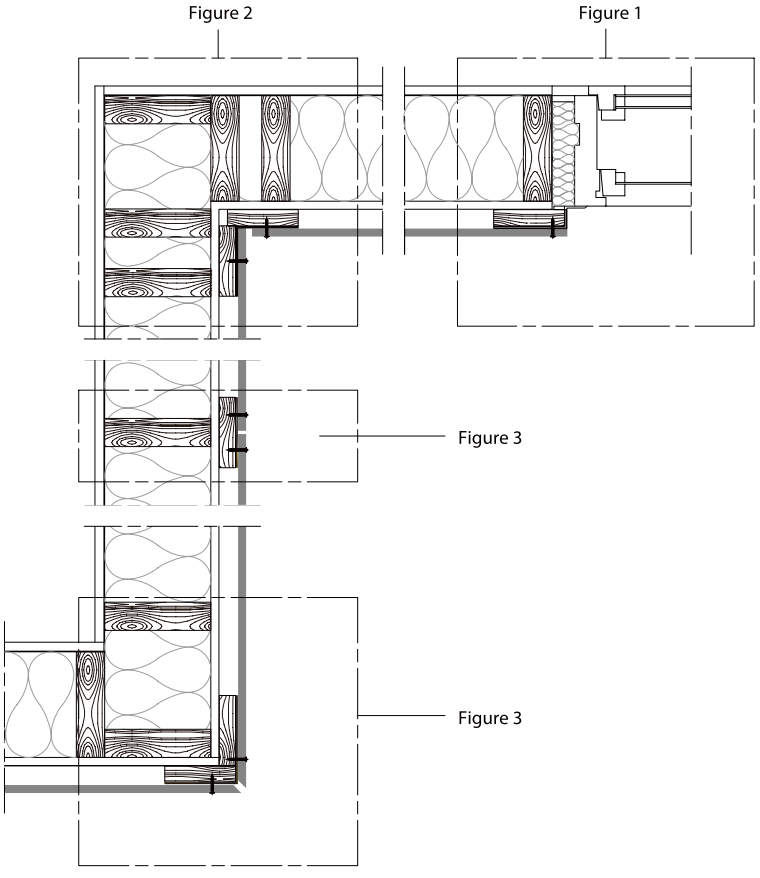



Figure 3
External corner

Scale 1:10



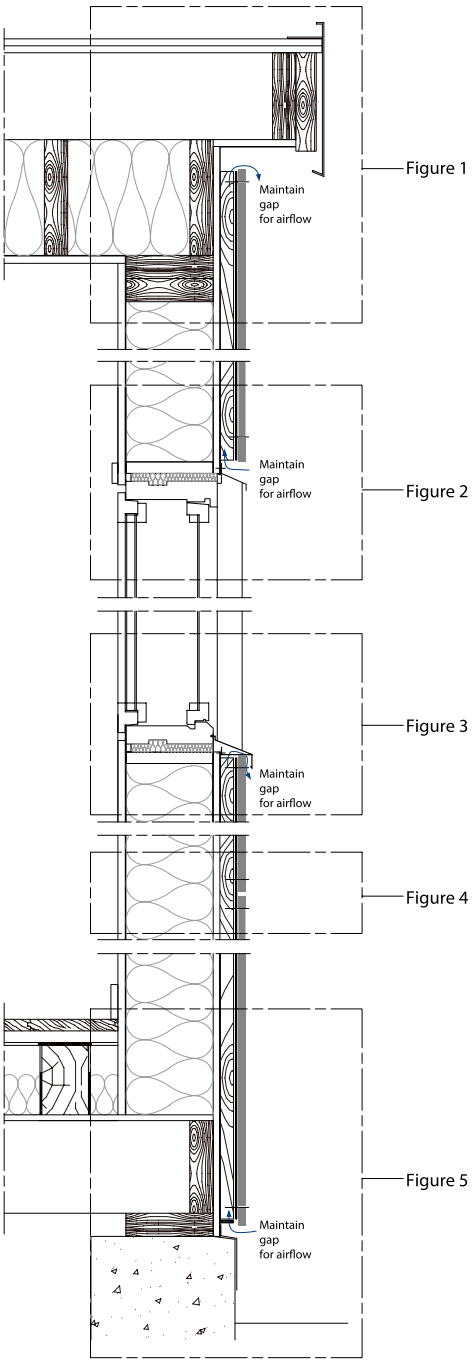

Scale 1:5

# ExPanels®

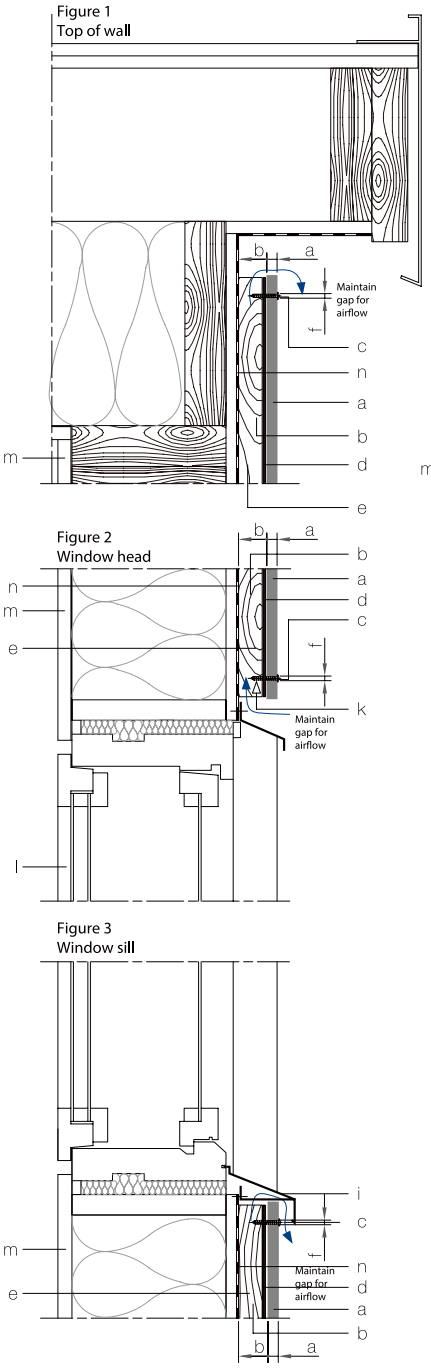
## Installation Method

### Wooden Substructure with Visible Attachment
### Vertical Cross-Section

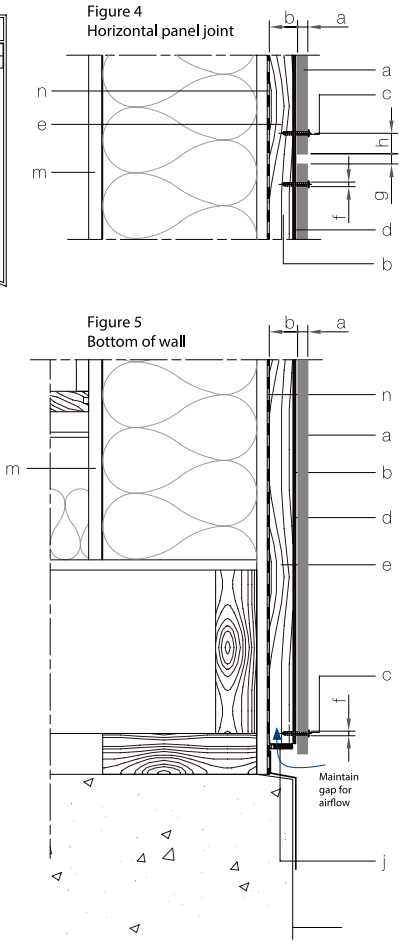
The drawing indicates a standard installation procedure on a wood support structure. This information is provided solely for your convenient reference without any representation as to accuracy or suitability. The user is required to test the suitability for her particular purpose or specific application.




Scale 1:10




Scale 1:5




a PoliLam panel thickness: 6, 8, or 10 mm
b Air cavity: 20 mm (min.)
c Stainless screw
d EPDM rubber strip
e Vertical fixing batten
f Hole diameter: 1.5 x stainless screw diameter
g Min. joint dimension: 10 mm
h Edge distance: min. 20 mm - max.10 x panel thickness
i Formed metal sheet
j Ventilation grille
k Ventilation area: 50 cm $^2$/m(min.)
l Window
m Load bearing wall
n Weather resistive barrier

# Table of contents for Installation systems for ExPanels



## Installation Process

The system should be installed by a crew of skilled members who are familiar in using the proper techniques and appropriate tools and equipment.

Storage and handling until the time of installation is vital. The system profile should be as perfectly level and flat as possible. They should be stacked horizontally on flat, stable supports, with supporting panels and covers. Incorrect storage can lead to deformation or damaged boards.

The protective film should be left on until right before installation and removed evenly on both sides.

## Rainscreen Installation

The PoliLam architectural panels act as a rain screen and keep the structural wall dry. This is because the air space that connects to the outside air evacuates both water and humidity that may have penetrated behind the panels through the joints. This water will in fact never reach the load-bearing walls or any of the thermal insulation.

The building envelope using rainscreen installation system in combination with our compact façade paneling, ExPanels create a durable exterior solution that limits the amount of water and moisture by creating an air cavity between the building's wall and the panel.

Apart from water resistance and water drainage, the rainscreen wall system also helps reduce energy costs by reducing the hot and cold air and thermal movement through the wall.

In combination with ExPanels, creates amazing design flexibility with our large range of color options and designs, including customizable digital print options.

## Panel Weights and Size

| | | | |
|---|---|---|---|
| Thickness : | 6 mm | 8 mm | 10 mm |
| Weight per $m^2$ : | 8.5 kg | 11.3kg | 14kg |

Note : EN438 minimum density is 1.4 $gr/cm^3$.

## Airflow

Proper vertical airflow is important for the function, make sure that during installation there is no obstructions.

## Scheme

The minimum distance between a drilled hole and the edge of the PoliLam panel should be 20 mm (or 75 mm concealed) and the maximum distance should be the panel thickness x 10.

The minimum space between PoliLam panels should be no less than 10 mm.

The maximum distance between screws/rivets depends on the thickness of the panel:

PoliLam panels in 4.5 mm thickness can for example be used in balcony panel applications.

The maximum distance between screws/rivets for 4.5 mm thick panels is 300 mm.

A minimum of 6 mm thickness is recommended for facade cladding.

# ExPanels®

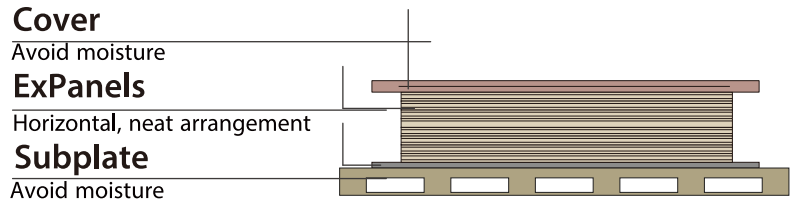
## CARE GUIDE RECOMMENDATIONS

### 1. Transport

Safety first! Handling of ExPanels should be done with care to avoid any damage. When loading and unloading our exterior compact boards, they should be lifted carefully and not slid on each other. As a rule, all persons transporting and handling compact laminates should wear personal safety equipment such as gloves, safety footwear, and suitable workwear. The boards must be lifted. The decor sides should never be pushed against one another or dragged over one another.

Transport


Handling




Storage

### 2. Handling

ExPanels should be handled with care to not damage the edges during transport for storage and during installation. The surface itself is a very durable material, however, because of its own weight damage can occur.
After removing the packaging and prior to processing compact laminates should be inspected for visible damage. Place padding(slip-sheet or protective cardboard strips) between panels when stacking.

### 3. Storage & Conditioning

Prior to installation, compact laminate elements should be conditioned for anadequate period of time at the installation location under the conditions of subsequent use.

During storage, ExPanels should be stacked horizontally on flat, stable supports and supporting panels. ExPanels must be stored in an enclosed and dry room at approximately 18 °C to 25°C and relative humidity of approximately 50% to 65%. Once the original packaging is removed,the compact laminate must be stored on full-surface, horizontal, straight, stable protective boards. Direct floor contact and/or exposure to sunlight must be avoided at all times. A laminated protective board (not raw board) of at least the same format must be used to cover the top and bottom board
When panels are removed from the stack, they must be recovered to avoid dust and dirt from entering the stacks.
The material should not be stored near exterior doors that may result in exposure to rain or temperature/humidity variations.

# Physical Properties

| Property | Standard & Clause | Standard Value |
|---|---|---|
| | | **EDF**<br>Exterior grade, severe use, Fire-retardant grade |
| Thickness Tolerance | EN 438-2-5 | 6 mm +/-0.4 mm<br>8 mm +/-0.5 mm<br>10 mm +/-0.5 mm |
| Flatness Tolerance | EN 438-2-9 | 6 mm 5 mm/m<br>8 mm 5 mm/m<br>10 mm 3 mm/m |
| Length Width Tolerance | EN 438-2-6 | +10 mm/-0 |
| Straightness of Edge Tolerance | EN 438-2-7 | 1.5 mm/m max deviation |
| Flexural Modulus | EN ISO 178 | 9000 MPa(min) |
| Flexural Strength | EN ISO 178 | 100 MPa(min) |
| Tensile Standard | EN ISO 572-2 | 92.7 MPa(min) |
| Density | EN ISO 1183 | 1.4 g/cm$^3$(min) |
| Impact Resistance | GB/T 7911-2013 | Height 1000mm, Weight 0.324kg, D=6.4mm |
| Boiling water resistance (2h) | GB/T 7911-2013 | Mass increase,% (Max.10%) 7.8%<br>Thickness increase,% (Max.12%) 8.4%<br>Appearance,grade (Not below4) 5 No visible change |
| Dimensional Stability at Elevated Temperature | EN 438-2-17 | L 0.25% (max)<br>L 0.35% (max) |
| Resistance to UV Light | EN 438-2-28 | contrast min 3 after 1500 hrs<br>appearance min 4 after 1500 hrs |
| Resistance to Artificial Weathering | EN 438-2-29 | contrast min 3 after 650 MJ/m$^2$<br>appearance min 4 after 650 MJ/m$^2$ |
| Resistance to Climatic Shock | EN 438-2-19 | flexural strength index (Ds) 0.95 (min)<br>flexural modulus index (Dm) 0.95 (min)<br>appearance grade 4 (min) |
| Fire Test (SBI) | EN 13501-1 | B-s1,d0(≥6mm) |
| Thermal Conducivity | EN 12524 | 0.3 w/mk |

PoliLam Group is committed to making sustainable principles and practices a part of everyting we do. We strive to adhere to the highest ethical standards as we advance in our efforts to protect vital resources for future needs.

# Certifications

## CERTIFICATES

- GB8624-2012 "Classification of Combustion Performance of Building Materials and Products" B1 level.
- GREENGUARD & GREENGUARD GOLD . UL 2818 - 2013 Standard for Chemical Emissions for Building Materials, Finishes and Furnishings.
- PoliLam Group is FSC® certified and complies with the requirements of FSC. NEMA LD 3-2004 Characteristics Anti-Bacterial Test Report.
- PoliLam panels are certified by the CE Mark to meet or exceed conformity with European consumer safety, health, and environmental requirements.
- National Testing Center for Chemical building Materials. Physical and chemical properties and formaldehyde emission report.
- ( ISO 22196 ), Anti -Bacterial Test Report.
- Singapore Green Label.

GREENGUARD & GREENGUARD GOLD

EN 45545 2:2013 + A1 Fire Protection on Railway Vehicles
EN 438-2:2016 + A1 2018

180002240585

TESTING
CNAS L1049

Please note, not all sizes of panels are available with all certifications.

Designs given in this publication have been matched as closely as printing conditions allow. We do recommend, however, that you order samples before final specification, fabrication, or installation, as the color samples in the brochure may differ in shade, hue, tone, or brightness to the products purchased.

# PoliLam

## ExPanels®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