

## DIM Design & Installation Manual

### Swisspearl Windstopper Basic / Extreme / Connect





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# Swisspearl

Swisspearl is one of the leading European manufacturers of multi-capability fibre cement building products. Our products and solutions add exciting new design opportunities for moulding attractive, durable settings for people's lives. But Swisspearl is more than mere products. We also help make all kinds of design and construction projects easier as well as more profitable, inspiring and effective. And for us, all construction also involves building relations with people, making your day better, and helping you make the day better for others.

## Remarks

This DIM (Design + Installation Manual) provides technical information regarding design and installation. Refer to area manager and local distributor for further information such as:

- Terms of delivery
- Pricing
- Products and colors
- Lead time, etc.

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## Product Information

Swisspearl Windstopper products are fibre cement based build boards. Fibre cement is a modern building material made from natural and environmentally friendly raw materials. With more than 90 years of experience within the manufacture of fibre cement, Swisspearl ensures a sustainable product which has accumulated all the advantages of fibre cement.

## Quality

Swisspearl Windstopper products are manufactured in accordance with the quality management system ISO 9001: 2008, environmental management system ISO 14001:2015 and occupational health and ISO 45001:2018 is an international standard for Occupational Health and Safety Management Systems (OHSMS). Swisspearl complies with the provisions set out in the Construction Products Directive 305/2011. Swisspearl Windstopper specifications and classifications comply with EN 12467:2012 + A1 2016 and EN 13501-1:2018.

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## Disclaimer

The information and recommendations contained in this Design & Installation Manual („DIM“) are offered as a service to architects, constructors, installer and other persons involved with our products and are not intended to relieve them from their own responsibility. The information and recommendations provided herein are believed by Swisspearl Group to be accurate at the time of preparation of this DIM, or obtained from sources believed to be generally reliable. Swisspearl Group makes no warranty concerning the accuracy of the content of this DIM and shall not be liable for claims relating to any use regardless of whether it is claimed that the information or recommendations are inaccurate, incomplete, or otherwise misleading. The information and recommendations herein are intended to be used with the judgment and experience of professional personnel competent to evaluate the significance and limitations of the material contained. Swisspearl Group expressly disclaims any guarantees or warranties, expressed or implied, for anything described or illustrated herein and assumes no responsibility or liability for damages of any kind, including – without limitation – bodily harm, injury or damage to property inferred from this DIM or the use of the materials described herein.

## Durable Protection for Exterior Walls

Swisspearl Windstopper boards are high-performance building panels with an integrated wind- and waterproof membrane. Made from grey cement, limestone filler, and special fibres, they absorb and release moisture without compromising strength or durability.

These natural-material boards allow vapour to pass through, enabling insulation to be placed directly against the inner side. They resist rot, fungal growth, and extreme weather. While surface mould may appear, it doesn't damage the board due to its high pH. At 9.0 mm thickness, the boards are non-combustible and provide fire protection (K<sub>1</sub> 10/K<sub>2</sub> 10, EN13501-2).

## Behaviour in wet conditions

Since the boards are made of cement, they may turn darker in colour when exposed to rain. This is a natural behaviour of any cement based product, and it does not affect the integrity or longterm durability of the board. The original colour is restored as soon as the boards dry up. The boards will also slightly expand when getting wet and might therefore show bending between the supports. This does not affect the system performance, and the boards will shrink to their original form when drying up. These reactions will gradually reduce as the cement based matrix reacts with carbon dioxide from the atmosphere. This so-called carbonation thereby reduces water penetration.

## Swisspearl Windstopper colour

No colour pigment is added to a Swisspearl Windstopper Natural Grey board, which can result in colour variations between boards, especially if they do not come from the same batch. These variations do not affect the quality of the panel and are purely cosmetic, therefore not covered by warranty claims. When using a Swisspearl Windstopper Anthracite, this product contains pigment. However, even in this case, some colour variation may occur, as the base panel is dyed, which does not guarantee a completely uniform colour.

## The Swisspearl Windstopper range

- is manufactured in accordance with the quality management system ISO 9001:2015
- complies with the provisions set out in the Construction Products Regulation (EU) No. 305/2011

## Product warranty

Warranty conditions are available on request from your local Swisspearl office or dealer.

# Features and Benefits

## Eliminate moisture problems during building

Swisspearl Windstopper is a fiber cement based building material made of non-toxic, inorganic raw materials. This ensures they remain unaffected by moisture during and after installation.



Swisspearl Windstopper products, including Swisspearl Windstopper Tape, can serve as a temporary facade solution. Depending on the product type, they can remain exposed for up to 12 months (Swisspearl Windstopper Extreme) or 6 months (Swisspearl Windstopper Basic). We recommend closing the facade as soon as it is reasonably possible, using a ventilated facade system to ensure long-term protection and performance.

The performance of the Swisspearl Windstopper boards / Extreme and Basic systems as temporary facades has been tested by Sintef Norway.

The boards can be installed without using Swisspearl Windstopper Tape, and this does not affect the durability of the boards themselves. However, if Swisspearl Windstopper Extreme or Swisspearl Windstopper Basic are installed without the tape on the exterior, it may compromise the overall wall system. Without proper sealing, water may penetrate the inner wall structure during rain and wind by entering through vulnerable areas such as joints or other exposed parts of the facade. Additionally, omitting the tape can reduce the insulation performance of the wall, as the lack of airtightness allows wind to enter and diminish the thermal efficiency of the building envelope.

Water or wind penetration through unprotected joints or exposed nail and screw heads, both during construction and after completion, is not covered by the Swisspearl warranty. The same applies if the tape is not installed correctly in accordance with the instructions provided in this guide.

# Features and Benefits

## The self-ventilating facade

Swisspearl Windstopper boards are normally part of a self-ventilating facade system designed to minimize temperature variations in the wall throughout the year. In summer, sunlight and heat are reflected away, while insulation behind the facade boards reduces heat loss during colder temperatures. Natural ventilation passing through the construction minimizes condensation.

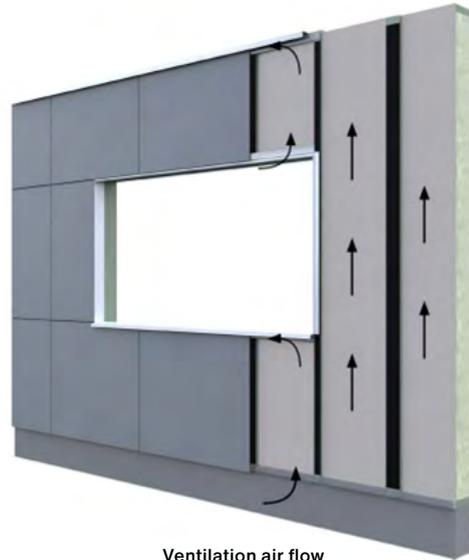
The self-ventilating facade offers additional benefits. The Swisspearl Windstopper board protects the underlying construction against weather, wind, and moisture. Some moisture may pass through the facade, but any water that enters the cavity can be drained away or eliminated through natural ventilation.

The natural ventilation works via a chimney effect. Air enters at the bottom of the structure and, as it rises, carries moisture-laden air through the ventilation openings at the top of the structure or at window or door openings.

Facade solutions outside the Swisspearl Windstopper, can have open joints or closed joints with for example profiles depending on the height of the building. It will not affect the Swisspearl Windstopper board as long as there are free ventilation inlets and outlets.

Swisspearl recommends increasing the ventilation area behind the facade boards when installing on taller buildings.

If horizontal fire barriers are required between the Swisspearl Windstopper and the facade cladding, Swisspearl recommends using solutions with steel profiles that include ventilation openings above and below the barriers. These profiles must be suitable for this type of application. Alternatively, expanding cavity barriers containing fire-resistant material can be used. These solutions ensure that free ventilation between the Swisspearl Windstopper and the facade cladding is maintained. All solutions must always comply with local laws and regulations.



Ventilation air flow



Open joints



Closed joints

### Self-ventilated facade

- 1 Swisspearl Facade boards
- 2 EPDM joint tape
- 3 Wood, steel or aluminum substructure
- 4 Self-ventilated area
- 5 Swisspearl Windstopper
- 6 Substructure /insulation

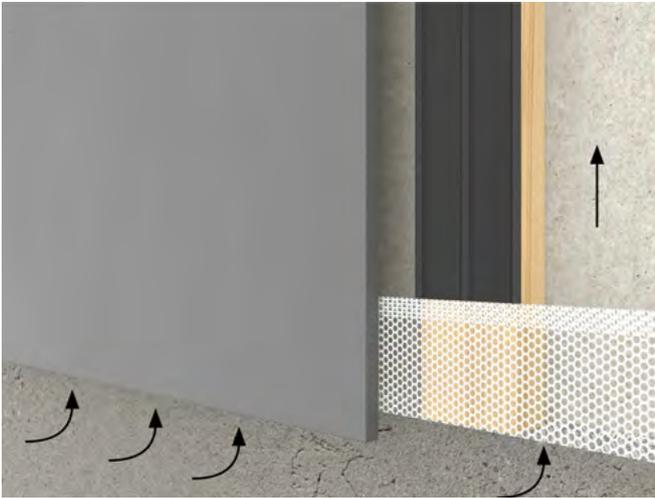
- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 and 4 \_\_\_\_\_
- 5 \_\_\_\_\_
- 6 \_\_\_\_\_



# Features and Benefits

## The self-ventilating facade

### Ventilated Openings



Air is drawn into the construction through an opening at the base of the facade, ensuring unobstructed ventilation throughout the facade's height. If steel, aluminum, or plastic perforated profiles are used, a free opening area must be maintained. The base opening also serves to drain moisture that has entered the facade.



Air passage must be maintained at the top of the facade, whether it abuts a roof or another structure. Ventilation must be ensured even if profiles are used. Always use the facade supplier's guidelines for ventilation openings. If none are provided, Swis-spearl recommends a horizontal opening between 15 to 20 mm, corresponding to 150-200 cm<sup>2</sup> ventilation area per meter.



A horizontal ventilation opening should be maintained beneath windows or other openings with a sill. This gap is usually between the top edge of the facade and the bottom edge of the sill.



A horizontal free ventilation opening must be maintained above windows and doors. Even with perforated profiles, a free opening area must be maintained for unobstructed ventilation. The base opening also drains water running down the Swisspearl Wind-stopper.

# Features and Benefits

## Applications

The primary function of a rainscreen is to protect the internal structure from heat, rain, and wind, ensuring long-term durability. Modern facades, which incorporate a variety of materials, place greater demands on weather barriers.

Swisspearl Windstopper boards are free from salts and moisture-attracting substances, helping to prevent issues such as fungal growth within the board or corrosion of metal fasteners and screws.

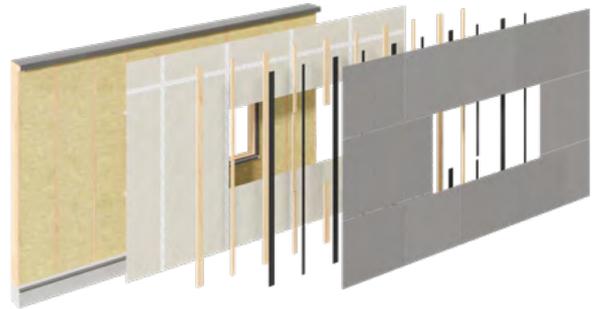
Swisspearl Windstopper is available in four variants, each with unique properties and applications. All Swisspearl Windstopper boards are raintight yet breathable, allowing insulation to be placed directly against the inner side of the board.

### Typical build-up for a structure with Swisspearl Windstopper:

1. Light wall structure with insulation: This part can be made with wood battens or steel profiles
2. Swisspearl Windstopper layer
3. Wood battens or steel profiles
4. EPDM (Ethylene Propylene Diene Monomer)
5. Facade panels

### Swisspearl Windstopper can also be used in other building solutions

- A: Use the Swisspearl Windstopper on the exterior of the supporting structure to provide structural bracing and ensure resistance to water and wind ingress. Insulation can then be installed over this substrate, potentially allowing for the attachment of brick veneers.
- B: Swisspearl Windstopper Extreme can be installed behind partially open rain screens. A Anthracite variant is also available, offering reduced visibility in such applications. Refer to the section on open facade solutions for more information.
- C: Swisspearl Windstopper can also be used in crawl spaces or as a bottom layer in modular houses elements, serving as a protective board against small animals and as fire protection.
- D: Contact your local Swisspearl for further information and if you are in doubt as to whether Swisspearl can be used in your construction.



Typical build-up for a structure with Swisspearl Windstopper



Solution A.



Solution B.



Solution C.

# Product range

## Product specifications Swisspearl Windstopper



Extreme 9.0 mm



Extreme 4.5 mm



Basic 9.0 mm



Connect 9.0 mm

Swisspearl Windstopper	Extreme 9.0 mm	Extreme 4.5 mm	Basic 9.0 mm	Connect 9.0 mm
Colours	Natural Grey Anthracite*	Natural Grey	Natural Grey	Natural Grey Anthracite*
Standard sizes Other sizes made to order (Max. 1250x3100 mm)	2700x900 mm 2700x1200 mm 3000x1200 mm	2700x900 mm 2700x1200 mm 3000x1200 mm	2700x900 mm 2700x1200 mm 3000x1200 mm	600x1500 mm
Approximate weight**	13.6 kg/m <sup>2</sup>	7.7 kg/m <sup>2</sup>	13.7 kg/m <sup>2</sup>	13.6 kg/m <sup>2</sup> 12.24 kg/board
Reaction to fire	A1	A1	A2-s1,d0	A1
Covering class	K <sub>1</sub> 10 B-s1,d0 K <sub>2</sub> 30 B-s1,d0***		K <sub>1</sub> 10 B-s1,d0	K <sub>1</sub> 10 B-s1,d0
Water vapour resistance Z-value/sD	2.70/0.50	2.12/0.41	1.70/0.33	2.70/0.50
Approved exposure time****	12	12	6	12
Can be used in Racking strength	■	■		
Can be used for Pre-fabrication elements	■	■		■
Closed facade solution	■	■	■	■
Partially open facade*****	■			■

\* Swisspearl Windstopper Anthracite.

\*\* The weight is an average Incl. 10% moisture, however, nominal value may vary depending on the conditions.

\*\*\* Possible when adding a layer of Multi Force 12 mm, see more information on page 27.

\*\*\*\* Swisspearl Windstopper boards must be covered with final cladding or a temporary facade within the specified maximum exposure time. Local weather conditions or regulations may require earlier coverage, so this should be checked in advance. If possible, installing the facade sooner is recommended. See the section on Windstopper Tape Application for details on sealing joints.

\*\*\*\*\* See section on open facades to see in which constructions it is possible on page 29.

# Accessories

## Screws

Swisspearl Windstopper boards can be installed using screws on wood and steel substrates. Swisspearl offers various types of screws designed specifically for use with Swisspearl Windstopper boards. The first table details which screws are appropriate for each type of board, along with other technical specifications.

Choosing the correct screws is crucial not only for the boards but also for meeting fire safety requirements and environmental considerations. Proper installation is essential; screws should be inserted correctly and not over-tightened. For more info go to page 16 for detailed assembly instructions. For information regarding racking strength go to page 21.

	Screw [mm]	Screw drives	Substructure		Covering class K <sub>1</sub> 10	Surfacetreat- ment/ Corrosion class	Swisspearl Windstopper			
			Wood	Steel [mm]			Extreme 9.0 mm	Extreme 4.5 mm	Basic 9.0 mm	Connect 9.0 mm
	SCR-W 3.9x38 Universal	Torx 15	■		■	Zyntex GX C3	■	■	■	
	3.9x38 Universal collated Screws	PH2	■		■	Zyntex GX C3	■	■	■	
	SCR-W 4.2x45 CSH	Torx 20	■		■	Stainless A2 or A4	■	■	■	
	SCR-W 3.9x26 Universal	PHD2	■	■ 0.5 - 1.25		Zyntex 114 C4		■		
	SCR-W 4.2x30 Universal	Torx 20		■ 0.56 - 3.00	■	Zyntex GX C3	■	■	■	
	SCR-W 4.2x30 Universal Collated Screws	Torx 20		■ 0.56 - 3.00	■	Zyntex GX C3	■	■	■	

# Accessories

## Nails/Staples

Swisspearl Windstopper boards can be installed using nails/staples, as described in the table below detailing the types of nails/staples tested with Swisspearl Windstopper boards. Similar to screws, selecting the appropriate type of nails/staples is crucial for both the board and the specific construction requirements.

Correct installation of the nails is equally important, for more detailed assembly instructions go to page 16.

For information regarding racking strength go to page 21.

Wood Nails/Staples [mm]	Covering class K <sub>1</sub> 10	Other fire* approvals	Head diameter width [mm]	Surfacetreatment	Swisspearl Windstopper			
					Extreme 9.0 mm	Extreme 4.5 mm	Basic 9.0 mm	Connect 9.0 mm
Roof nails 3.0x25-38			9.3	Hot-dipped galvanized	■			
Roof nails 3.1x38	■		9.0	Hot-dipped galvanized	■		■	■
Roof nails 2.5x32-38			9.3	Hot-dipped galvanized	■	■	■	
HDG/FVC ZE 2.1x50 Ring nails		■	5.8	Hot-dipped galvanized		■	■	■
HDG/FVC ZE 2.5x50 Ring nails	■	■	5.8	Hot-dipped galvanized		■	■	■
HDG/FVC ZE 2.5x55 Ring nails	■	■		Hot-dipped galvanized	■		■	
PQ-15 staples* 38-50, with glue Thickness 1.9x1.7			11.3	Hot-dipped galvanized 12μ+				■
PZ-16 staples* 38-50, with glue Thickness 1.6x1.4			10.8	Hot-dipped galvanized 12μ+	■	■		

\* Staples must be placed parallel to the board edge and angled at a minimum of 30 degrees

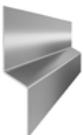
# Accessories

## Profiles

The galvanized steel profiles are necessary if fire protection K<sub>1</sub> 10 B-s1,d0 requires here all edges has to be supported. Swisspearl always recommends using either Swisspearl H or h profiles, other profiles or wood behind the joints to provide fire protection if needed and to ensure tight joints in connection with fire. Unsupported edge joints may result in inadequate sealing.

Swisspearl recommends H and h profiles because they do not occupy space behind the Swisspearl Windstopper board and simplify installation.

Joints between profiles should always be made over the substructure, not between supports. To ensure a waterproof solution, tape should also be applied over the profiles. Z-profile, horizontal Alu can serve as an alternative to Profile Horizontal H Galvanized Steel if there are no K<sub>1</sub> 10 requirements or if used with another type of support behind the Swisspearl Windstopper board.

	Profiles	Material	Covering class K <sub>1</sub> 10	Swisspearl Windstopper			
				Extreme 9.0 mm	Extreme 4.5 mm	Basic 9.0 mm	Connect 9.0 mm
	h9 profile, horizontal	PVC		■			
	h10 profile, vertical	PVC		■			
	Z-profile, horizontal	Alu		■	■	■	
	h12 profile, horizontal	Galvanised Steel	■	■	■	■	
	H13 profile, vertical	Galvanised Steel	■	■	■	■	

# Accessories

## Tape / Others

For a comprehensive and reliable Swisspearl Windstopper system, it is highly recommended to use the following accessories, which have been tested in combination with Swisspearl Windstopper boards. These components help ensure proper sealing and protection against water ingress. Swisspearl tape has been tested by SINTEF together with Swisspearl Windstopper boards and is approved for up to 12 months of exposure without cover. Please note that the permitted exposure time may vary depending on the type of board used.

	Tape/Others	Swisspearl Windstopper			
		Extreme 9.0 mm	Extreme 4.5 mm	Basic 9.0 mm	Connect 9.0 mm
	Swisspearl Windstopper tape 50 mm	■	■	■	[■]*
	Swisspearl Windstopper tape 75 mm	■	■	■	[■]*
	Swisspearl Blade ø160 mm	■	■	■	■
	Swisspearl Scratch knife		■	■	

\*When installing Swisspearl Windstopper Connect 9.0 mm, tape is not applied on the main wall, but it is recommended to use it especially at corner solutions and openings so the risk water getting in at joints will be reduced.

# Installation

## Overall installation principles

Swisspearl Windstopper boards can be installed on a facade without immediately installing the facade cladding.

- Swisspearl Windstopper Extreme 9.0 mm and Swisspearl Windstopper Connect 9.0 mm can remain uncovered for up to 12 months\*.
- Swisspearl Windstopper Basic 9.0 mm can remain uncovered for up to 6 months\*.
- Swisspearl Windstopper Extreme 4.5 mm can also remain uncovered for up to 6 months\*.

Depending on wind loads, it might be necessary to install battens on the outside of the Swisspearl Windstopper. If required due to wind exposure, battens should be mounted on the exterior of the Swisspearl Windstopper boards immediately after installation to ensure adequate wind protection. If exterior battens are not part of the immediate construction process, and wind loads make them necessary, temporary battens must be installed on the inside to safeguard the structure until the final facade solution is in place.

### Substructure for Swisspearl Windstopper

Swisspearl Windstopper boards can be installed on both wood and steel substructure.

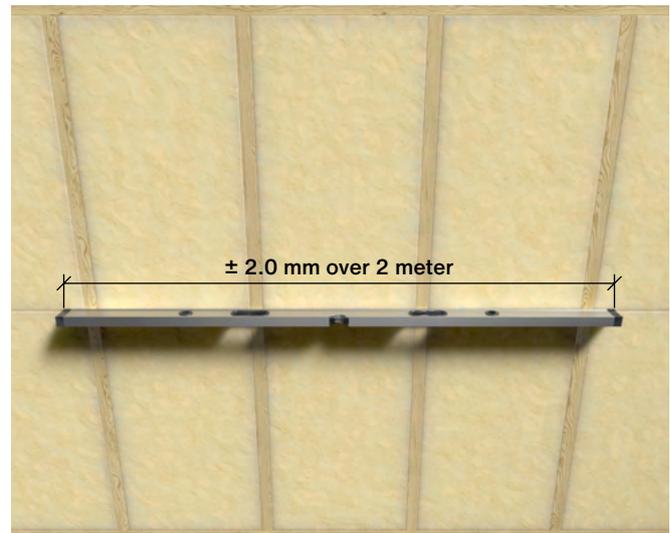
**It is not possible to install Swisspearl Windstopper on a substructure of aluminum!**

### Straightness of the Substructure

To ensure the optimum long-term performance of the Swisspearl Windstopper and the aesthetics of the facade, it is important that the substructure is straight.

The horizontal tolerance is  $\pm 2.0$  mm, measured over a distance of 2 meters.

The vertical tolerance is  $\pm 1.0$  mm over 600 mm, measured over a distance of 2 meters.



\* When installed in accordance with Swisspearl guidelines and using Swisspearl tape as described in this manual, the system offers a well-tested and effective solution designed to withstand varying weather conditions.

# Installation

## Installation on Steel

At joints between different steel profiles, avoid having too many layers of profiles. The difference in thickness should not exceed 3.5 mm, including the head of the nail or screw.

### Fasteners

It is recommended to use nails intended for steel or rivets for fixing the steel profiles, as they have small head thicknesses. Screws may be used if the steel profiles have pre-drilled holes and are countersunk to ensure that the screw heads do not protrude significantly.

### Movements in the Steel Structure

When installing Swisspearl Windstopper on steel support systems over a large area, the movement of the support system must be taken into account. Movement joints should be included every 12 meters maximum, with a gap of at least 8 mm. Due to movement in the steel when exposed to heat and cold, it is not recommended to use profiles longer than 3000 mm. Never install Swisspearl Windstopper boards spanning over two or more steel profiles lengthwise, as movement of the steel and the Swisspearl Windstopper boards caused by moisture and temperature changes could potentially damage the boards. Overall, it must be considered how the steel construction behaves and avoid installing Swisspearl Windstopper boards over areas where the construction may move differently to avoid the boards to crack.

### Swisspearl Windstopper boards cannot be installed on a sub-structure made of aluminium!

Steel quality and thickness steel must meet local construction standards. Thickness depends on design and load, to be calculated by the supplier or designer. Always follow local regulations regarding steel strength and quality.

Swisspearl screws are suitable for steel from 0.56 mm to 3.0 mm. Ensure correct screw type before construction.

Swisspearl does not have any approvals including nails on steel or provide guidelines for nailing into steel.



It is beneficial to create countersinks in the steel profiles for screws so that the screw heads do not stick out.



The use of screws with excessively large heads must be avoided.

# Installation

## Screw, nail and staple installation

When installing Swisspearl Windstopper boards, it is crucial that the fixing with screws, nails and staples is done correctly. The Swisspearl Windstopper board is secured by screwing, nailing and stapling directly through the board without pre-drilling.

Correct edge distances are important according to the guidelines, as the board can be damaged if screws or nails are placed too close to the edge. When installing on wood, a 45 mm\* wide batten must be used, or for steel, a 40 mm wide profile.

The edge distances for installation on wood or steel are:

- From the side edge in the direction of the substructure: 15 mm -1/+2 mm\*
- From the end of the board: 70 mm ± 5 mm

Boards with widths less than 100 mm should be avoided but can still be used if pre-drilled with a hole size corresponding to the screw or nail diameter.

### Screw Installation on Wood and Steel

Ensure that the screws are placed correctly on the board with the proper distances. The screw must be angled 90 degrees to the board. When inserting the screw, be careful not to overtighten, especially near the edges and corners of the boards. The top of the screw head should be flush with or just above the surface of the Swisspearl Windstopper board.

### Nail Installation on Wood

Ensure that the nail gun is correctly set regarding pressure and depth. It is advantageous to test the gun before use and make adjustments during assembly to ensure proper nailing of the Swisspearl Windstopper board.

The nails should be shot at an angle of 90 degrees. Avoid driving the nail further than the head being level with the front of the Swisspearl Windstopper board, especially near the edges and corners of the boards.

The top of the nail head should be flush with or just above the surface of the Swisspearl Windstopper board.

Swisspearl does not have any approvals including nails on steel or provide guidelines for nailing into steel.

### Staple installation on Wood

Swisspearl Windstopper boards can be fastened to wooden substrates using a staple gun and staples. Before use, ensure the tool is properly adjusted and perform a test to confirm the correct settings. The staple should sit flush with the surface of the Swisspearl Windstopper board and must not penetrate into it. Make sure to use the correct staples for the different Swisspearl Windstopper boards.

Staples should be driven at an angle of approximately 30° in relation to the wood grain.

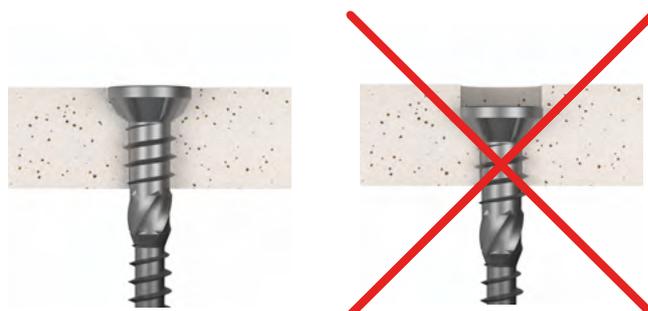
The edge distance should be 15 mm from the panel edge to the center of the staple.

In areas close to the sea or used behind «open facade solutions», it is recommended to use staples made of A2 or A4 stainless steel.

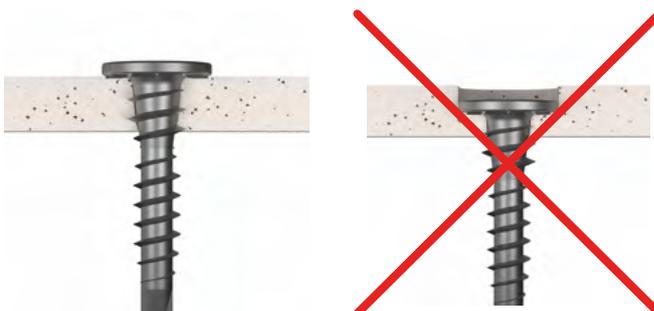
### Racking Strength

Swisspearl Windstopper Extreme can contribute to the static construction when installed with screws and nails according to Swisspearl Windstopper installation principles. To obtain technical data regarding racking strength, it is crucial to use the appropriate screws or nails. Refer to the section on racking strength for details on which types of screws and nails can be used.

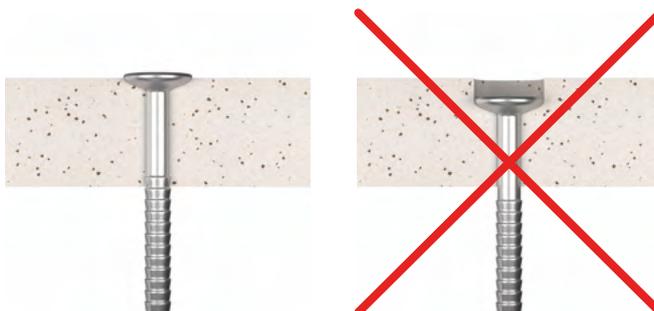
\*If the panels are installed under controlled conditions such as in an element production setting, wood supports with a width down to 38 mm can be used. The edge distance should be 12 mm (-1/+3 mm). Swisspearl does not guarantee the strength of the wood or whether adequate space from the wood edges to the nails are maintained with tolerances. This cannot be used with the racking strength table.



screw installation:  
Swisspearl Windstopper 9.0 mm



screw installation:  
Swisspearl Windstopper 4.5 mm



nail installation:  
Swisspearl Windstopper  
4.5 mm and 9.0 mm

# Installation

## Distances for Swisspearl Windstopper Basic 9.0 mm and Extreme 9.0 mm

Swisspearl Windstopper boards can meet fire safety and structural strength requirements. Adhere to the assembly principles shown.

### Pre-assembly Checks

Ensure the board faces the correct direction. All Swisspearl Windstopper boards (Natural Grey) have product data printed on the back and usually Swisspearl logo is on the front. The Anthracite versions have product data on the back only and no logo on the front.

If the facade is not installed immediately, Swisspearl Windstopper can stand for up to 6 months for Swisspearl Windstopper Basic and up to 12 months for Swisspearl Windstopper Extreme 9.0 mm, provided the boards are correctly installed.

### Installation Methods

Boards can be installed vertically or horizontally with butt joints. Ensure correct spacing between fixings.

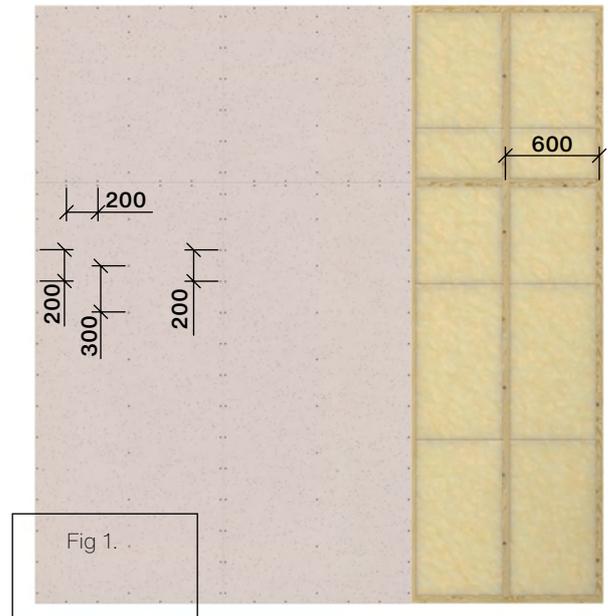
- Maximum distances between battens/profiles: 600 mm
- Distances between fixings at edges: 200 mm
- Distances between fixings at the center: 300 mm
- Edge distances (in direction of substructure): 15 mm\*
- Distances from ends at sides and center: 70 mm

### Fastening Distance

The fastening distances are maximum values that must be followed regarding the fire requirements. Shorter distances may be used, but it is not recommended to deviate more than 50 mm from the standard spacing.

Install Swisspearl H profiles over unsupported ends or place wood/steel profiles behind joints for tight solutions. For specific fire requirements, ensure tight and supported joints. Fix boards with two fixings between supports, 200 mm apart, with a 15 mm\* edge distance. For more info regarding fire go to page 27.

\* This can be 12 mm; see prefabrication section



Vertically installed Swisspearl Windstopper boards

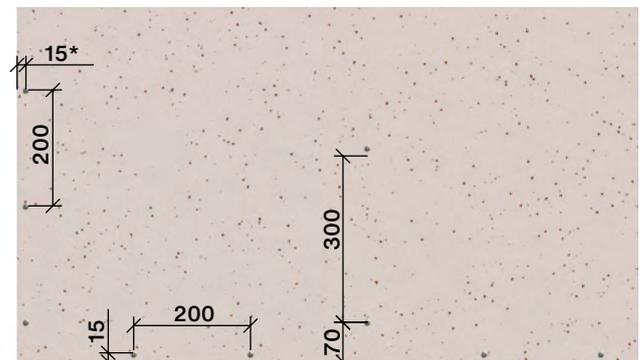
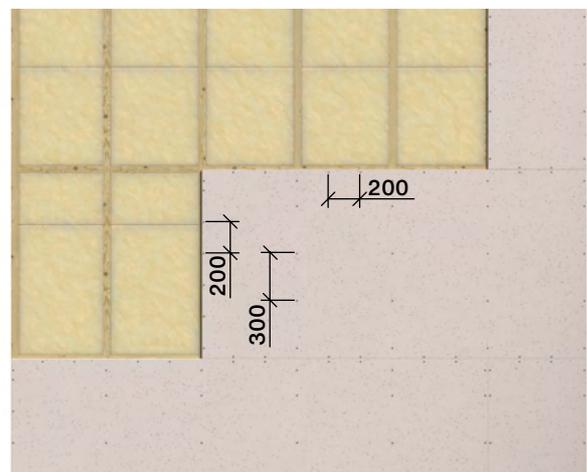


Fig.1  
Edge distances



Horizontal installed Swisspearl Windstopper boards

# Installation

## Distances for Swisspearl Windstopper Extreme 4.5 mm

Swisspearl Windstopper Extreme 4.5 mm boards meet both fire safety and structural strength requirements when properly installed. Follow these assembly principles for correct installation.

### Pre-assembly Checks

Ensure the board faces the correct direction. All Swisspearl Windstopper Extreme 4.5 mm boards have data printed on the back and the Swisspearl logo on the front.

### Temporary Facade Use

Swisspearl Windstopper Extreme 4.5 mm boards can serve as a temporary facade for up to 6 months. It is highly recommended to install battens or another type of substructure, or a temporary batten outside, to ensure adequate wall strength in high winds. Without battens installed, in areas without high winds, use roof nails with a head size of at least 9.0 mm.

### Installation Methods

Boards can be installed vertically or horizontally with butt joints. Ensure correct spacing between fixings as follows:

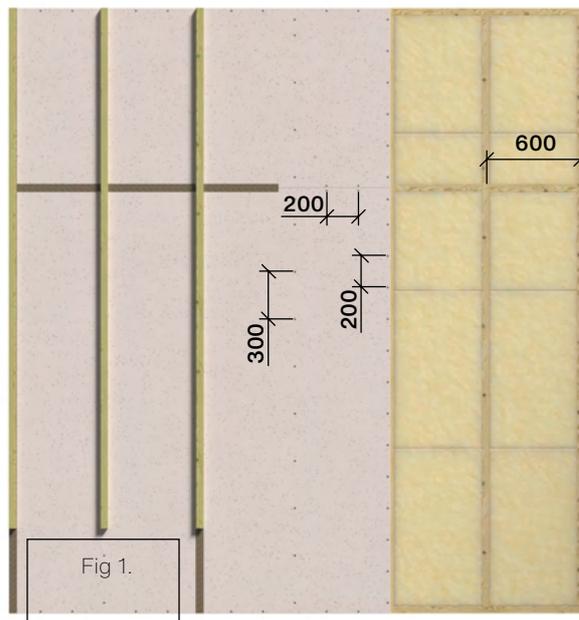
- Maximum distances between battens/profiles: 600 mm
- Distances between fixings at edges: 200 mm
- Distances between fixings at the center: 300 mm
- Edge distances (in the direction of substructure): 15 mm
- Distances from ends at sides and center: 70 mm

### Fastening Distance

The fastening distances are maximum values that must be followed regarding the fire requirements. Shorter distances may be used, but it is not recommended to deviate more than 50 mm from the standard spacing.

Swisspearl h9 and h10 PVC profiles can be used in the joints for a tighter solution. If the boards need to be part of the static solution or for enhanced fire protection, install wood behind unsupported joints. Secure the boards with two fixings between supports, spaced 200 mm apart, and with a 15 mm\* edge distance as shown in the drawings.

\* This can be 12 mm; see prefabrication section



Vertically installed Swisspearl Windstopper boards

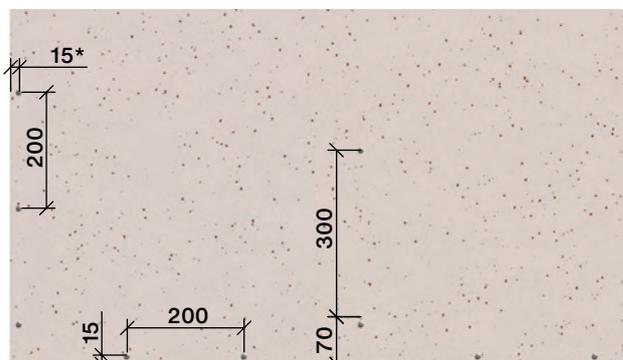


Fig.1  
Edge distances



Horizontal installed Swisspearl Windstopper boards

# Installation

## Swisspearl Windstopper Connect 9.0 mm

### Swisspearl Windstopper Connect 9.0 mm Installation Instructions

Swisspearl Windstopper Connect 9.0 mm boards are intended for installation on wood or steel\* substructures and are not compatible with aluminum.

The 600 x 1500 mm board size allows for easy, one-person installation. Boards must be installed horizontally in a staggered pattern on a substructure with a maximum on-center spacing of 600 mm.

The Windstopper Connect has a Backside marking to ensure the correct side faces the front. The boards should be oriented with the tongue facing up and to the right. Always begin installation in the bottom left corner and work to the right. Ensure the first row is level, as errors here will cause problems in later rows. The first and last boards in each row must be at least 200 mm wide.

Offcuts can be reused in the next row if there is a minimum 200 mm offset between vertical joints. Avoid aligning vertical joints above one another in the same section – use a repeating pattern for proper layout.

If joints are tight, no tape is required, as the tongue-and-groove system combined with the joint sealant in the vertical groove provides a weather-resistant barrier for up to 12 months. If joints between two boards are wider than 2 mm, then it is recommended to apply tape to prevent water ingress.

At corners and around windows or doors, tape should be used to ensure a weather-tight seal, allowing for up to 12 months of exposure without cladding. In high-wind areas, if screw or nail heads are smaller than 8 mm and cladding is not installed immediately, it may be beneficial to cover them with tape.

Make sure to take care and to protect tongue-and-groove edges during handling. Do not rest boards on these edges, and keep them clean to preserve the sealant.

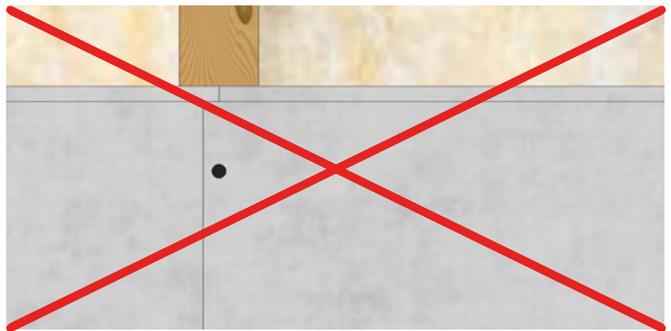
For the Natural Grey version of Swisspearl Windstopper Connect 9.0 mm, the Swisspearl logo must face outward. The Anthracite version is marked with a stamp on the backside to indicate correct orientation.

If there happens to be a joint over a vertical support, it is necessary to remove the tongue and groove to create a standard butt joint between the two boards. Then fix it with a 15 mm\*\* edge distance and seal it with tape.

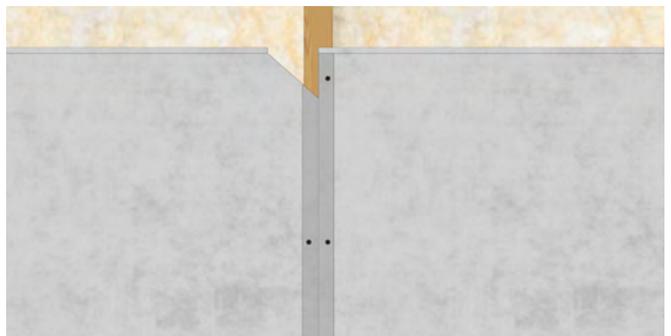
### Standard installation direction



Example of Swisspearl Windstopper Connect with staggered joints



Avoid placing joints directly over vertical supports



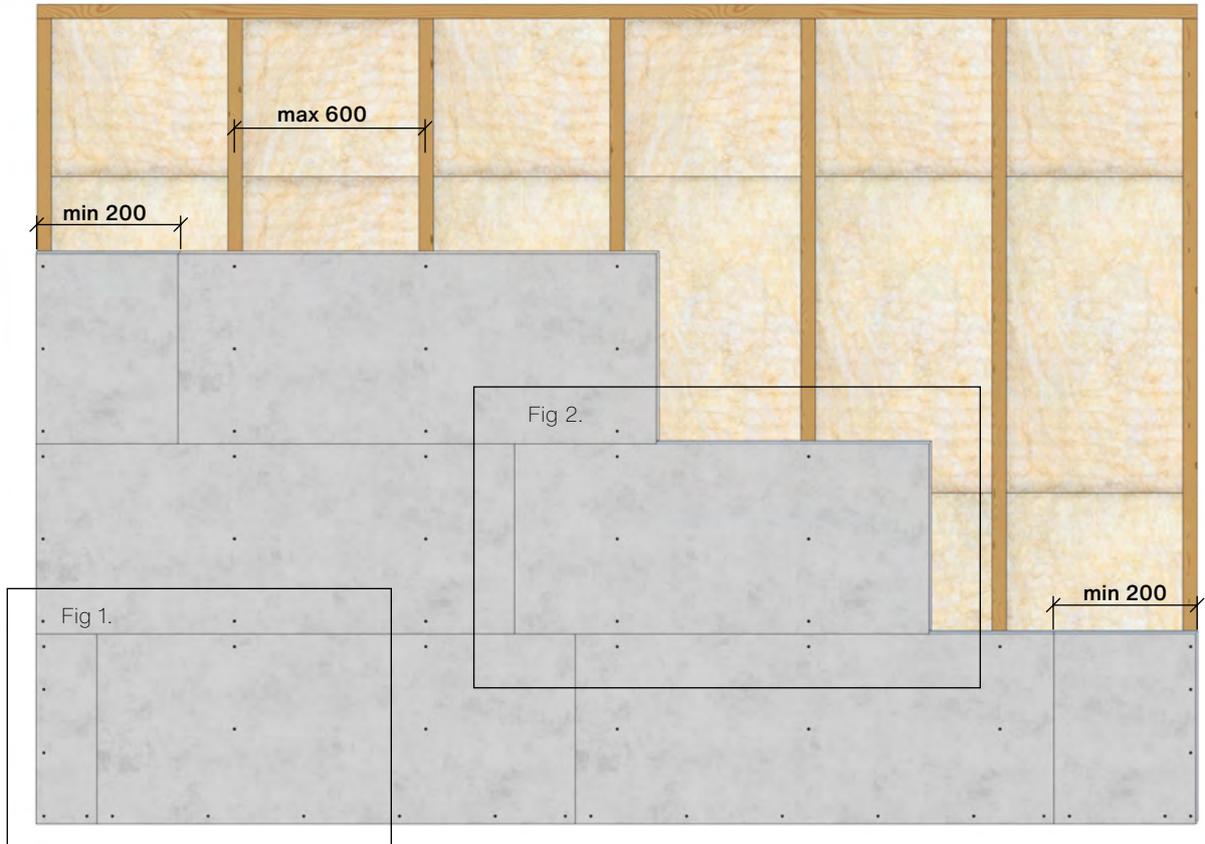
Example of cut panels where the vertical joints are taped

\*The maximum length and thickness of steel, as well as other specifications, should follow standard Swisspearl Windstopper installation principles. For more information contact your Swisspearl Technical services.

\*\* This can be 12 mm; see prefabrication section.

# Installation

## Distances for Swisspearl Windstopper Connect 9.0 mm



Example of Swisspearl Windstopper Connect with staggered joints

The boards should be mounted horizontally, with staggered joints, on a substructure with max 600 mm spacing on center (oc).

Starting and ending boards must be at least 200 mm wide. Ensure the first row is level.

### Fixation distances

Each full-sized boards typically needs 6 to 9 pcs. fasteners.

#### Fig 1. Boards at the edge or openings:

- A: Side edge distance: 15 mm
- B: End edge distance: 40 mm
- C: Max distances between fixations along edges : Max 200 mm
- D: Distance between center fixations: 300 mm

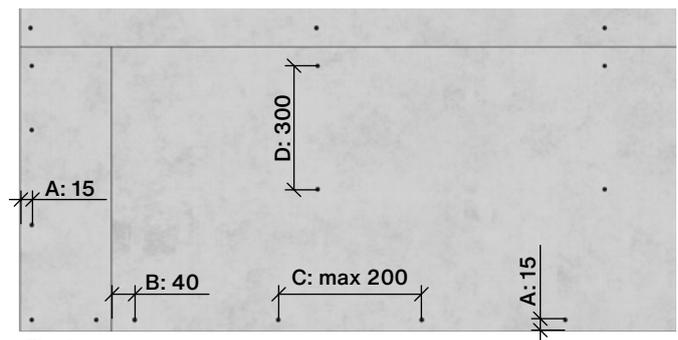


Fig. 1

#### Fig 2. For fully surrounded boards:

- E: Max distance from top/bottom edges: 40 mm
- F: Distance between center fixations: 300 mm
- G: Min side edge distance: 40 mm



Fig. 2

\* This does not apply to boards in the edge zone.

# Racking strength

## Swisspearl Windstopper Extreme 4.5 mm and 9.0 mm

Swisspearl Windstopper Extreme boards can be used in structures where racking strength is needed.

If the board is to be used in a construction where it contributes to the structural strength of the element, it is recommended to consult a local structural engineer to verify whether the board can meet the requirements based on the values provided below. All local codes and regulations must be followed.

If nails or screws other than those specified in the table are used, Swisspearl cannot guarantee the stated values. In such cases, the local structural engineer or the supplier of the nails and screws must take responsibility for verifying the values.

Product		Swisspearl Windstopper	Extreme 4.5 mm	Extreme 9.0 mm			
<b>Fastener</b>			Verpa Senco B.V. HJ17ASAVR	Kyocera Unimerco Fastening TJEP ZE25/50 No. 835450	Verpa Senco B.V. HJ17ASAVR	Kyocera Unimerco Fastening TJEP ZE25/50 No. 835450	Verpa Senco B.V. HJ17ASAVR
<b>Fixing distances At edges/center [mm]</b>			200/300	100/150	100/150	200/300	200/300
<b>Not fixed from short edges</b>			■	■	■	■	■
<b>Tested values (EN 594) Racking Strength per 1200x2400 mm board</b>	Average [kN]		3.32	6.33			
	Lowest observed [kN]		3.18	6.11			
	Std. dev.		0.18	0.26			
<b>Calculated values with safety margins based on EN 1995-1-1 and RIL 205-1-2017</b>	Racking st kN/board		2.02	5.26	5.07	2.86	2.76
	Coefficient of rigidity [N/mm]		299	238	238	127	127

Racking strength was tested with board size 1200x2400 mm. For other sizes, the below table can be used to calculate the racking strength.

Height of wall panel [mm]	2400	2500	2600	2700	2800	2900	3000	3100
Factor $c_i = 2b/h$	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77

# Windstopper Tape Application

## Swisspearl Windstopper Tape

All joints between boards should be sealed, for Connect only corners, window holes and if gaps bigger than 2 mm with Swisspearl Windstopper tape to provide effective protection against rain and moisture, helping to safeguard the underlying structure. If the boards remain uncovered, Swisspearl cannot ensure joint tightness. Therefore, to maintain a weather resistant construction during the construction period, it is strongly advised to apply tape over all joints, the tape will also continue to protect the structure after the cladding has been installed.

Tape should be applied over all joints both horizontal and vertical and also at edges of the elements. If h12 and H13 profiles are used then these should also be taped. For installations on tall buildings exposed to strong winds, or in areas with high wind and rain exposure, it is recommended to apply tape over all nails and screws. Additionally, in such conditions, a 75 mm wide tape should be used over the joints to provide extra safety and enhanced protection against the elements.

After the final facade is installed, the tape will continue to provide long-term protection against both wind and water, especially if moisture penetrates and runs down the Swisspearl Windstopper boards.

### Tape Specifications

- Width: 50 mm or 75 mm
- Roll length: 30 meters
- Joint overlap: Minimum 25 mm

### Application Conditions

- Temperature Range: -30 to +100 degrees Celsius
- Avoid direct sunlight exposure during installation

### UV

- UV stable - Central European climate: 2 years

## Correct installation

### Surface Preparation

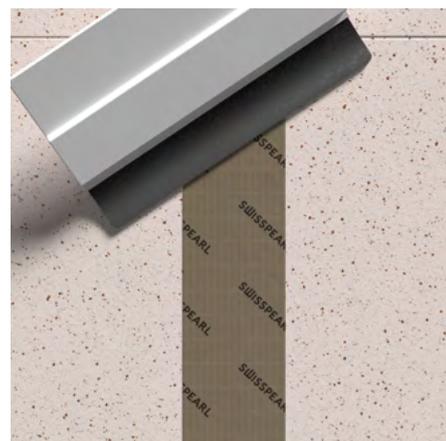
Before applying the Swisspearl Windstopper tape to the Swisspearl Windstopper board, it is important to ensure that the surface is dry and free of dust. If necessary, clean the board thoroughly. Any unevenness caused by screws or nails should be removed; use a putty knife if needed.

To achieve the best results when applying the tape, avoid any bumps or dents between the tape and the Swisspearl Windstopper board, as these can allow water to penetrate.

Use a putty specifically designed for smoothing tape or use a hard roller (used for PVC roof covering), to ensure optimal adhesion to the Swisspearl Windstopper board.



Width: 75 mm and 50 mm Swisspearl Windstopper tape



Use the putty to even out the tape and get the best adhesion

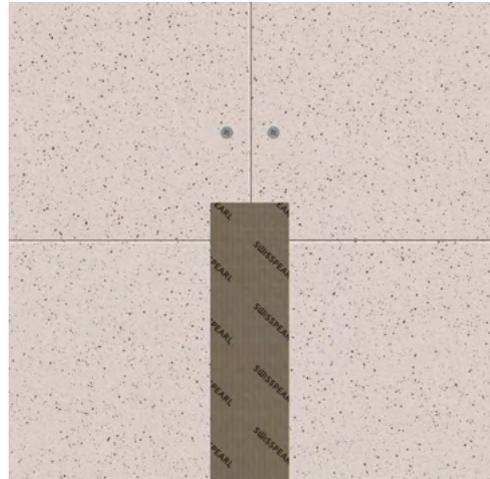
# Windstopper Tape Application

## Sequence of the Swisspearl Windstopper Tape

### Step 1. Vertical Tape Installation

Install vertical strips of tape over the joint in the length of the board, starting from either the top or the bottom.

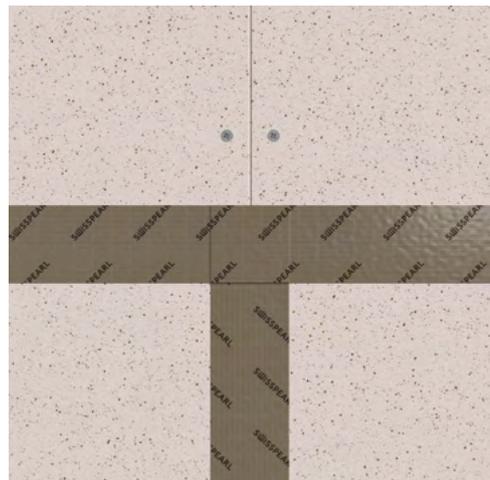
If there are horizontal joints between two Swisspearl Windstopper boards, the tape should begin 25 mm above the joint and be applied downward to the bottom or to the next joint. If there are multiple horizontal joints, begin at the bottom joint and repeat steps 1, 2 and 3 for each section.



Step 1.

### Step 2. Horizontal Tape Installation

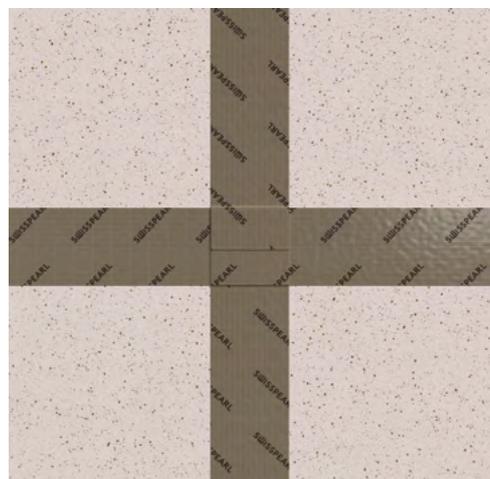
After the vertical line of the tape are installed, apply the first horizontal tape line, overlapping vertical lines by min. 25 mm.



Step 2.

### Step 3. Subsequent Vertical Tape Installation

Install next vertical tape lines from the bottom to the top edge or to the next joint, overlapping the horizontal line by at least 25 mm.



Step 3.

# Windstopper Tape Application

## Swisspearl Windstopper Tape

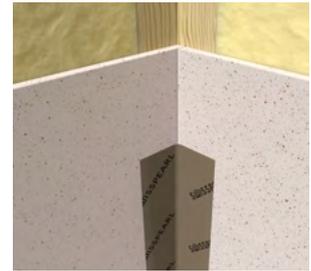
### Taping Corner Solutions

When applying Swisspearl Windstopper tape on outside and inside corners, then ensure the area is properly sealed. Use 75 mm wide Swisspearl Windstopper Tape to achieve optimal coverage and airtightness. The tape's split-back liner allows for easy handling.

To install, remove one side of the backing and press the tape onto one side of the corner. After positioning, remove the remaining backing and use putty to securely fasten the tape to the Swisspearl Windstopper surface.



Outside corner with Swisspearl Windstopper tape



Inside corner with Swisspearl Windstopper tape

### Around Window and Openings

Use Swisspearl Windstopper Tape around windows and other openings to prevent water penetration at the joints.

1. Start with the bottom strip, covering half the Swisspearl Windstopper board and half the sill or base plate.
2. Apply the side strips, overlapping the bottom tape. Let the top ends of the vertical tapes extend about 30 mm upward.
3. Finish with the top strip, extending beyond the opening to cover the vertical tape ends.

Seal thoroughly with putty on both the outer surface and inner edge of the opening.

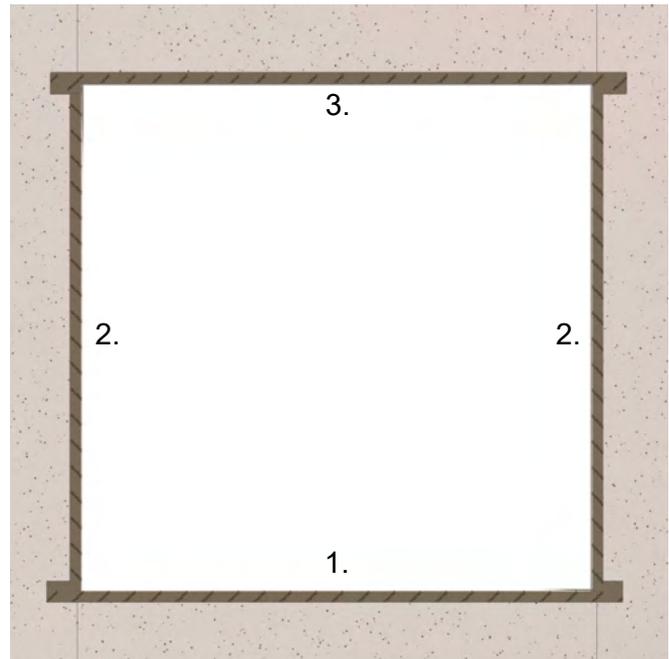
### Pipes and Cables

It is important to also seal any penetrations in the Swisspearl Windstopper where cables, ventilation pipes, or similar elements pass through. These areas must be sealed to prevent water ingress but also wind as it can reduce the insulation performance of the construction.

These penetrations can be sealed using Swisspearl Windstopper Tape or sealant.

Ensure the board surface is dry and free of dust before applying the collar. The collar includes ring sizes suitable for various pipe and cable diameters.

Small cracks or holes can be sealed using Swisspearl Windstopper tape. However, certain considerations must be taken into account. If larger cracks are present and not located over a support, it is still possible to seal the board using tape, but this may present challenges if the wall is required to meet specific fire safety standards. In such cases, it is important to consult with a local fire expert to determine whether this solution is acceptable. If the cracks are located above a support, they can be treated as standard joints and may be taped after the boards have been re-nailed or re-screwed.



Step by step Swisspearl Windstopper Tape around windows and openings

# Exterior Substructure Planning

## Battens and profiles outside Swisspearl Windstopper boards

The substructure for facade systems installed outside Swisspearl Windstopper boards can be made of aluminum, steel, or wood, each requiring specific installation guidelines.

When attaching these systems, it is important to anchor them to the underlying main structure and not just to the Swisspearl Windstopper board. The systems should be fastened to the main structure behind the Swisspearl Windstopper using screws, nails, or bolts, while maintaining the correct edge distances.

Pre-drilling may be necessary to prevent damage, using drill bits that match the minimum diameter of the screws or bolts. Avoid over-tightening the fasteners.

### Installation of Horizontally Mounted Substructure

When using horizontally mounted profiles on top of Swisspearl Windstopper boards, it may be necessary to install a spacer block (8-10 mm) between the Swisspearl Windstopper board and the horizontal profile or batten.

This spacer must be thick enough to ensure that any water running down the Swisspearl Windstopper board can freely drain through an opening further down.

If this is not ensured, there is a risk that water may damage the timber battens. In the case of steel profiles, water may run along the profile and enter the structure through small cracks or openings.

### Fixing the substructure

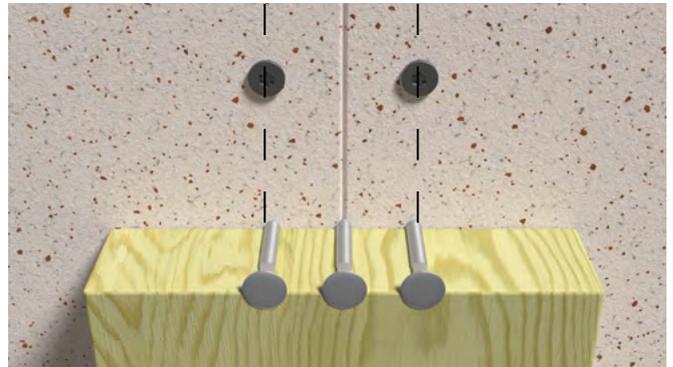
It is up to the contractor to choose the correct fastening solution for the substructure and ensure that it complies with local requirements and regulations.

### Wood

When the substructure is made of wood, wooden battens can be installed on the outside of the Swisspearl Windstopper boards using nails or screws. In most cases, it is possible to nail or screw directly through the battens and the Swisspearl Windstopper boards without pre-drilling, provided that the correct edge distances are maintained and that screws with a diameter no greater than 5.0 mm are used. If a screw greater than 5 mm is used, then predrilling of the Windstopper board with the minimum same size of the screw is needed.

### Steel and Aluminum

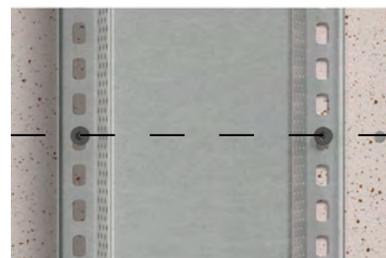
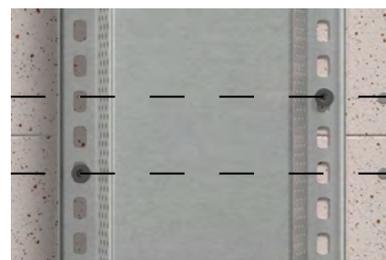
The same edge distance requirements apply when installing steel or aluminum systems on the outside of the Swisspearl Windstopper boards as with wood. When using metal substructures, it is important to account for thermal expansion and contraction. Aluminum systems, in particular, must be installed to allow free movement, preventing stress from being transferred to the Swisspearl Windstopper boards, which could lead to cracking. This is best achieved by using a combination of fixed and sliding points and by avoiding excessively long profiles. If larger bolts or similar fasteners are used to attach brackets, the Swisspearl Windstopper boards must be pre-drilled to prevent damage.



Example of nail placement in a batten beneath joints. The nail should either be positioned in the center where the panels meet or at the same spacing as the panels fixation distance



For center battens, ensure that you do not place nails too close to the edge of the underlying structure



The same rules also apply to the placement of screws or bolts for securing steel profiles. Picture shows vertical installed hatprofil that are fixed into horizontally substructure behind the Swisspearl Windstopper

# Fire

## Requirements Swisspearl Windstopper

Swisspearl Windstopper boards have excellent fire resistant properties, making them suitable for construction projects where fire protection is required, whether it is for the product itself or for entire structures. Swisspearl Windstopper boards offer excellent fire protection, with a fire reaction classification according to EN standard 13501-1. Specifically, Swisspearl Windstopper Extreme 4.5 mm, 9.0 mm, and Connect have the highest fire rating of A1, while Swisspearl Windstopper Basic has a rating of A2-s1,d0.

This certification applies whether the Swisspearl Windstopper board is installed on a wooden substructure or a steel construction.

According to tests, Swisspearl Windstopper can be installed using both nails and screws. For details on the types of screws and nails that can be used, and the specific applications they are suitable for, then go to page 10 and 11 regarding fixing solutions. Please note that installation with staples is not covered by any of Swisspearl's fire approvals.



Example of a light wall structure with a A1 classified Swisspearl Windstopper Extreme 9.0 mm that also has a covering class of K<sub>1</sub> 10 B-s1,d0

Overview over Swisspearl Windstopper fire properties	Reaction to fire EN 13501-1	Fire protection classification EN 13501-2
Swisspearl Windstopper Extreme 9.0mm	A1	K <sub>1</sub> 10 B-s1,d0 K <sub>2</sub> 30 B-s1,d0*
Swisspearl Windstopper Extreme 4.5mm	A1	
Swisspearl Windstopper Connect 9.0mm	A1	K <sub>1</sub> 10 B-s1,d0
Swisspearl Windstopper Basic 9.0 mm	A2-s1, d0	K <sub>1</sub> 10 B-s1,d0

\* See more information on next regarding the K<sub>1</sub> 10 B-s1,d0 and K<sub>2</sub> 30 B-s1,d0.

# Fire

## Covering Class

All 9.0 mm Swisspearl Windstopper boards are approved as a covering solution in class K<sub>1</sub> 10 B-s1,d0. When used as K<sub>1</sub> 10 boards, a minimum of 45 mm mineral wool (density 16 kg/m<sup>3</sup>) must be installed behind the boards, and the substructure wood should be of class C18. Additionally, all edges of Swisspearl Windstopper Extreme or Basic boards must be supported. This means that joints in the structure behind the Swisspearl Windstopper boards must be backed by either wooden supports, steel supports, or Swisspearl steel profiles h12 (1) or H13 (2). The h12 profile is used for vertical support, while the H13 profile is specifically for vertical support at joints.

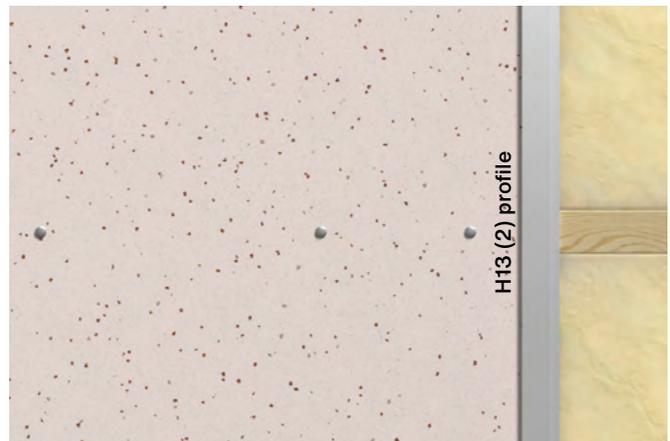
In joints where any type of support is used, Swisspearl Windstopper boards must be fastened with nails or screws as shown in the drawing. When using the h12 profile (1), fastening is only required in the board above. For vertically mounted H13 profiles (2), no fastening is needed in the area between the substructure.

Joints between two h12 or H13 profiles must always be placed over a support and never in the middle of a board between supports, as this can lead to water ingress. To ensure proper protection against water penetration, it is recommended to cover all joints with tape after installation, including those involving profiles.

To achieve a K<sub>2</sub> 30 covering class, a solution can be implemented using two layers of boards. The first layer consists of a 12 mm Multi Force board fixed directly to the substrate, and the second layer is a 9.0 mm Swisspearl Windstopper Extreme board facing the fire-exposed side. The Swisspearl Windstopper Extreme 9.0 mm board must be fastened using stainless steel A2 nails. For more information, please contact your local Swisspearl technical support.



Vertical substructure



Horizontal substructure



h12 profile with only Fixings through Swisspearl Windstopper above the joint



H13 profile for vertical joints, no fixings between main support are needed

# Fire

## Fire approvals wall structure

Due to the excellent fire properties of Swisspearl Windstopper, it can be incorporated into various wall systems with different fire protection requirements and classifications. This page presents a selection of wall constructions that have been tested and approved in accordance with the fire resistance tests EN 1364-1 and EN 1364-2 by accredited testing institutes. Wider constructions than those listed are usually covered by the same approvals, but check with a local fire advisor to confirm. For other approvals, contact your local Swisspearl Technical Support.

Wall structure	Fire rating	Picture
Swisspearl Windstopper Extreme 4.5 mm Wood structure C18 min. dimension 38x184 mm Mineral wool, min. density 16 kg/m <sup>3</sup> 180 mm Fibre gypsum 12.5 mm	Non-loadbearing wall Max Hight 3000 mm* Outside-in <b>EI45 / EW 60</b>	Outside  
Swisspearl Windstopper Extreme 4.5 mm Wood structure C18 min. dimension 38x184 mm Cellulose insulation, density 36-39 kg/m <sup>3</sup> 190 mm Fibre gypsum 12.5 mm	Non-loadbearing wall Max Hight 3000 mm* Outside-in <b>EI 60</b>	Outside  
Swisspearl Windstopper Extreme 9.0 mm Wood structure C24 min. dimension 45x145 mm Stone wool, density 32 kg/m <sup>3</sup> 130 mm Multi Forces 12 mm	Non-loadbearing wall Max Hight 5500 mm Inside-out <b>EI 60</b>	Outside  
Swisspearl Windstopper Extreme 9.0 mm - (Basic 9.0 mm) Steelframe 1.2 mm, C-profiles 15/50/100/50/15 mm Stone wool, density 38 kg/m <sup>3</sup> - (45 kg/m <sup>3</sup> ) 100 mm 2 layer plasterboard 12.5 mm thickness	Non-Loadbearing wall Max Hight 3000mm Outside-in <b>EI 60</b>	Outside  
Swisspearl Windstopper Extreme 9.0 mm Steelframe 1.2 mm, C-profiles 15/50/100/50/15 mm Stone wool, density 60 kg/m <sup>3</sup> , 100 mm 2 layer plasterboard 12.5 mm thickness	Non-loadbearing wall Max Hight 3000 mm Outside-in <b>EI 120</b>	Outside  
Swisspearl Windstopper Extreme 9.0 mm Wood structure loadbearing C24 min. dimension 45x245 mm oc. 600 mm Stonewool insulation KI 37, density 30 kg/m <sup>3</sup> , 250 mm Vapor barrier Wood horizontal, dimension 45x45 mm oc. 600 mm Stonewool insulation KI 37, density 30 kg/m <sup>3</sup> , 45 mm Fiber gypsum 12.5 mm, density 1150 kg/m <sup>3</sup> ± 50 kg	Load bearing wall Max Hight 3000 mm inside- out <b>REI 90</b>	Outside  

\* If increased height of wall is needed, contact local Swisspearl offices

# Partially open facade

## Permissible openness

Swisspearl Windstopper can be used behind most types of facade systems, including those on high-rise buildings. However, the permissible openness of the facade installed in front of the Swisspearl Windstopper depends on the building's height and the expected wind load. This is to ensure that wind-driven rain or water does not penetrate the structure behind the Swisspearl Windstopper, even under high wind pressure.

### Buildings Over 27 Meters

For facades over 27 meters, a closed facade must be installed outside the Swisspearl Windstopper. If there are joints, profiles should be added. For tall facades, regular measures to direct water away from the Swisspearl Windstopper are also recommended.

### Buildings Up to 27 Meters

For facades up to 27 meters, a 5% opening degree and joints with a max opening of 10 mm are allowed. For buildings in exposed locations, here it is recommended that the joints is sealed as for buildings over 27 meters.

### Partially Open Facades >6 Meters

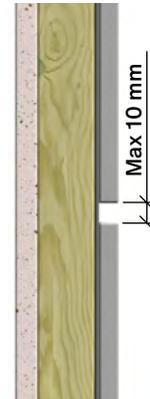
Swisspearl Windstopper Extreme 9.0 mm can be used in partially open facades with a max 20% open area, evenly distributed. Joint widths and gaps to adjacent elements must not exceed 12 mm. Maintain at least 22 mm clearance behind the rainscreen. More space helps reduce water ingress on the Windstopper surface. All joints between the Swisspearl Windstopper boards must be sealed with Swisspearl Windstopper tape.

The maximum height for buildings using the Swisspearl Windstopper behind an open facade is 6 meters (two stories). This solution is not recommended in areas exposed to severe weather or high winds.

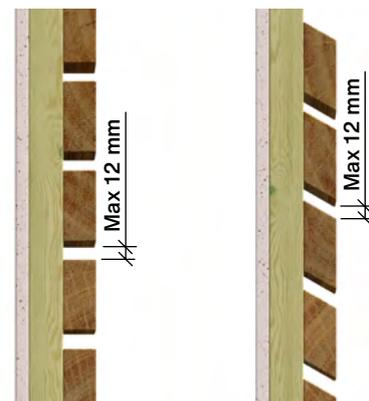
If an open facade is required on a taller building or if the site conditions are not suitable, a double facade system is recommended. In this setup, the Swisspearl Windstopper board is placed behind a dark facade board, with the open rainscreen installed on the exterior.

Swisspearl offers a Anthracite version of the Swisspearl Windstopper Extreme without visible front text. It performs identically to the Natural Grey version and serves only aesthetic preferences.

For all solutions, there must be a minimum ventilation gap of at least 22 mm between the back of the facade cladding and the front of the Swisspearl Windstopper. The required ventilation may vary depending on the facade material and building height.



Example of a closed facade with a maximum 5% open area



Seen from the side



Seen from top down

Examples of partially open facade solutions with a maximum 20% open area, featuring horizontal and vertical wood cladding.



Swisspearl Windstopper in colour Anthracite installed behind a partially open facade with wood slats

# Prefabrication

## Prefabrication elements

Swisspearl Windstopper Extreme 4.5 mm and 9.0 mm, as well as Swisspearl Windstopper Connect, can be used in prefabricated elements, with some restrictions depending on the specific board type. During pre-assembly (element construction), it must be ensured that the Swisspearl Windstopper boards are not subjected to bending or twisting during the manufacturing process. The same precautions apply during transport to the construction site and during the final assembly of the elements.

Swisspearl Windstopper Basic is generally not recommended for use in prefabricated elements, as the movement and handling involved—such as lifting, turning, or transporting can place stress on the board and increase the risk of cracking. It should not be used if there is any risk that these forces will be transferred to the board, or if the board is intended to function as part of the wall element's stabilizing structure during or after construction. However, if Swisspearl Windstopper Basic is used in prefabrication, the element must be adequately braced during assembly and remain braced until it is fully installed.

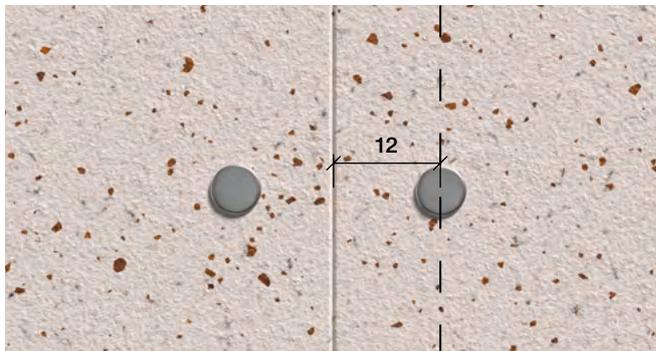
When Swisspearl Windstopper Extreme 9.0 mm is used in prefabrication, the boards can be installed with reduced edge distances compared to standard installations. Swisspearl recommends that this reduced edge distance installation be carried out only using machines or robots for nailing. The edge distance should be 12 mm, with a tolerance of  $-1 \text{ mm} / +3 \text{ mm}$ .

The Swisspearl Windstopper board must be positioned so that its edge aligns with the center of the wooden batten, with a tolerance of  $\pm 1 \text{ mm}$ .

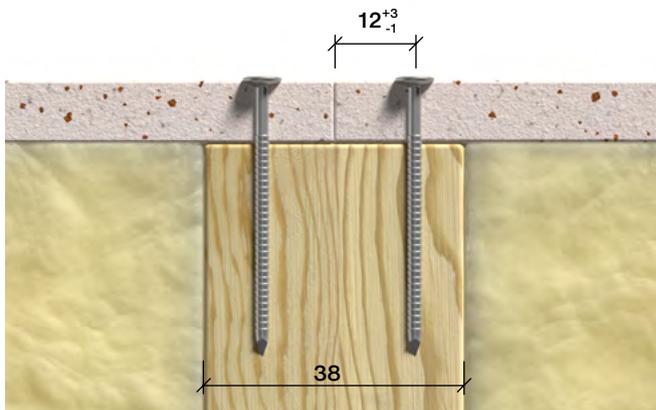
Swisspearl Windstopper Extreme can be installed on 38 mm wood battens for elements used in non-load bearing constructions. If these boards are to be used as load bearing elements, local calculations must be performed. When the elements or boards are installed on-site, the battens or profiles for the facade should be installed immediately afterward to ensure the Swisspearl Windstopper Extreme 4.5 mm boards remain secure against wind load.

Swisspearl Windstopper installed on 38 mm battens cannot be included because it has only been tested on 45 mm battens in the racking strength test. The element must be capable of absorbing forces without relying on the Swisspearl Windstopper Extreme board.

If other types of Swisspearl Windstopper boards are used for prefabricated elements, standard installation principles must be followed.



Minimum edge distances



If the nails come too close to the edge then there will be a risk that the edges will crack

# Special solution

## Swisspearl Windstopper Extreme 4.5 mm and 9.0 mm

### Swisspearl Windstopper as Substructure in crawl spaces

If a Swisspearl Windstopper board is required as a substructure for example, in a crawl space then only Swisspearl Windstopper Extreme in either 4.5 mm or 9.0 mm thickness may be used. Fastening distances must follow the same guidelines as for facade installation. However, nails with a larger head diameter are recommended to ensure better holding capacity. Although the board is not directly exposed to weather conditions as in facade applications, it is still recommended to tape all joints. This prevents air from being drawn into the insulation layer through the joints, which could otherwise reduce the overall thermal performance.

### Swisspearl Windstopper Extreme at roof-to-facade transitions

At the transition between roof and facade, where a waterproof connection is needed and roofing felt must be torch-applied partially up the facade, Swisspearl Windstopper Extreme 9.0 mm can be used as a backing board. This solution allows for the roofing membrane to be applied up to 600 mm vertically on the facade surface. The underlying structure must be suitable for this application, and it is essential to ensure that no combustible materials are present nearby. Swisspearl Windstopper Extreme 9.0 mm is designed to withstand the short-term heat exposure associated with the torching of roofing membranes, making it a reliable option for this type of detail.

### Swisspearl Windstopper Extreme on curved facades

Only Swisspearl Windstopper Extreme may be used on inward or outward curved facades. The minimum bending diameter depends on panel thickness and installation direction. Swisspearl Windstopper Extreme 4.5 mm boards can be used down to a radius of 3 meter when installed horizontally, and 6 meters when installed vertically. Swisspearl Windstopper Extreme 9.0 mm boards are suitable down to a radius of 10 meters horizontally installed and 15 meters vertically installed. Installation must begin at one side, securing the full edge first, then the center, and finally the opposite side. This method applies to both vertical and horizontal installations. Due to the increased stress in curved applications, proper fixing is essential. For project-specific advice, contact your local Swisspearl representative.

### Installation behind glass facades

Installing Swisspearl Windstopper behind glass facades presents specific challenges due to the extreme temperatures and rapid temperature fluctuations that can occur in such enclosed spaces. These conditions may cause significant expansion and contraction in both the Swisspearl Windstopper panel and the underlying structure, depending on the materials used. As a result, this is a highly demanding application and not one where Swisspearl Windstopper can automatically be used. If feasible, the solution may vary from project to project. In such cases, only Swisspearl Windstopper Extreme is permitted. Since this constitutes a special application, it may fall outside the scope of standard approvals. Therefore, any proposed solution may require review and approval by the local authority before it can be implemented. Please consult Swisspearl for project-specific guidance.

### Sloped facades with Swisspearl Windstopper Extreme

Swisspearl Windstopper Extreme 9.0 mm can be installed on facades with a slope. The minimum allowed slope angle is 60°. The Swisspearl Windstopper board must not be exposed for more than 3 months before the final facade cladding is installed or another form of protective covering is applied. For sloped rainscreen applications, the maximum open area allowed is 10%, and individual openings must not exceed 10 mm in width. The Swisspearl Windstopper should be installed in accordance with the standard installation guidelines. Tape must be applied over all panel joints, and it is also highly recommended to use tape over all screw or nail heads where joints are not present. It is recommended to use fixings with a minimum head diameter of 8 mm.

# Cutting Methods and Tools

## Cutting

Cutting Swisspearl Windstopper to size can be done using standard hand tools or stationary equipment, whether operating at slow or fast speeds. When using fast-running tools, dust extraction must be employed to ensure safety. All Swisspearl Windstopper boards can be cut with a circular saw or jigsaw fitted with a diamond-tipped blade. Sharp edges are best achieved using fast-running diamond-tipped blades, such as the Swisspearl Blade.

When cutting the Swisspearl Windstopper boards, do not force the sawblade through the board. If you force the saw, the blade might overheat causing small vibrations -affecting the straightness of the cut or causing the board to flake if near the edges. The blade depth must be adjusted so that the blade goes max 10 mm through the board

Swisspearl Windstopper Extreme (4.5 mm) and Swisspearl Windstopper Basic (9.0 mm) can also be cut using a Swisspearl scratch knife and the score-and-snap method. Scoring the board on one side is sufficient for a clean snap.

Be aware that this method does not produce a completely sharp edge. However, if a sharp edge is not required, this method is effective when forming plates in areas with limited ventilation, as it does not generate dust like circular saws or similar tools.

### Cleaning of Adjacent Areas

Alkaline leaching from cement-bonded materials (e.g. dust from cutting or drilling holes in a concrete wall) can cause damage, especially to windows and glass. Protect these surfaces as needed, using plastic film or similar coverings.

Before installing Swisspearl Windstopper boards, it is recommended to ensure that all dust is removed from the boards. This prevents the dust from causing damage to adjacent surfaces when exposed to rain or similar conditions.

Frequent cleaning during and after the construction process is necessary to maintain the integrity of surrounding areas.

### Swisspearl Blades

For cutting Swisspearl Windstopper boards, the following blades can be used.

Diameter [mm]	Thickness [mm]	Centerhole [mm]	RPM	Number of Teeth	Picture = Blade ø160 mm
ø160	2.2/1.6	20	4800	10	
ø190	2.2/1.6	30	4800	4	
ø216	2.2/1.6	30	3500	6	
ø250	2.2/1.8	30	3000	14	



Use tool with correct blades when cutting in Swisspearl Windstopper boards



Swisspearl scratch knife with with hardened steel tip can be used score-and-snap method

# Health and safety

## Safety Precautions

As with all building materials, safety precautions must be taken into account, and local laws and regulations must be observed.

### Cutting and Drilling

When cutting, grinding, or drilling, dust from the Swisspearl Windstopper boards is released. This dust is classified as mineral dust. Inhaling large amounts of this dust may cause irritation to the respiratory system, eyes, or skin. Therefore, Swisspearl always recommends wearing personal protective equipment (PPE) as required by local law (e.g. safety goggles, safety suits, and a P2-rated respirator mask). Ensure adequate ventilation when cutting Swisspearl Windstopper boards.

If cutting indoors, it may be necessary to use an extractor system or a vacuum attachment with a HEPA filter connected to the power saw. When cutting outdoors, you should also use a HEPA filter vacuum attachment on the power saw. If ventilation is insufficient to limit exposure, wear a disposable respirator or an air-purifying respirator equipped with a Class P2 filter (European EN 143 standard). To reduce dust exposure, Swisspearl recommends using the Swisspearl Circular Blade.

### Lifting Swisspearl Windstopper Boards

When lifting Swisspearl Windstopper boards, consider your lifting methods not only for safety but also to avoid damaging the boards. When lifting or moving a Swisspearl Windstopper board, always lift it by its narrow edge to prevent breakage from improper handling.

If lifting a Swisspearl Windstopper board manually, ensure compliance with any local regulations. For large boards, use mechanical lifting equipment when possible. If the lifting equipment uses suction/vacuum, be careful not to apply excessive suction, as this may damage the surface or leave permanent marks.

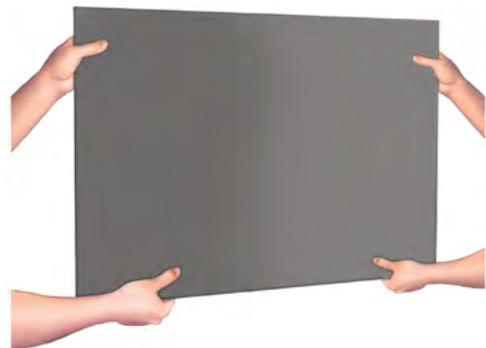
If large format Swisspearl Windstopper boards are unsuitable due to limited space around the building, weight, or other reasons, Swisspearl recommends using Swisspearl Windstopper Connect. Its size and weight make it easier to handle and install the Swisspearl Windstopper without excessive strain.



**Always use the correct safety equipment when cutting and working with Swisspearl Windstopper boards**



**Use the correct suction and filter according to regulations when using cutting tools**



**Lift the boards correctly, not only for your own safety but also to ensure that the boards are not damaged during transport. If possible use lifting equipment to minimize lifting**

# Requirements

## Storing and Handling



Swisspearl products are delivered with plastic protection cover. If undamaged, the plastic cover provides good protection against dust and weather conditions during transportation. Always store Swisspearl products on a flat dry level surface.



If the pallets are stored outside when they arrive at the building site, the plastic cover should be removed. The Swisspearl Windstopper boards should be stored on the pallet or sleepers with max 500 mm distances.



If Swisspearl Windstopper boards are stored more than 2-3 weeks on site, the pallets should be kept under a roof to ensure dry and ventilated conditions.



At the building site it is recommended to only stack two pallets on top of each other. Make sure they are positioned so they stand securely and stable.



Replace the plastic with a tarpaulin. It is very important that there is ventilation all around the tarpaulin and also on top of the pallet under the tarpaulin. This is done to make sure that condensation is reduced as much as possible.



Do not drag products from the pallet, as it may leave permanent scratch marks. Lift the product by its narrow edge as it may break if handled incorrectly.





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