



Swisspearl® Ventilated façade

System and technology

Competence, Excellence and Innovation

Long term experience

For almost 40 years, Swisspearl®'s Research & Development teams have continuously expanded their unique expertise regarding cement composite material technology, coloration and application of whole systems. These significant technological advances are the backbone of the Swiss quality. Swisspearl® is the only manufacturer which masters the highly demanding production processes for integrally colored cement composite panels offered in such a wide color variety.

Unique with long time proven quality

Swisspearl® cement composite panels are manufactured with low energy and high environment consciousness. Thus the products are 100% environmentally friendly. Additionally, they are mainly made of local mineral raw materials. The proprietary processes pioneered by Swisspearl® with special surface finish, sealed edges and back coating ensure optimal behaviour and durability of the panels. Furthermore, Swiss construction authorities testify to over forty years as standard life expectancy. Millions of panels installed throughout the world prove the outstanding, reliable long term quality of the cement composite panels and coating.

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LITHUANIA Balsai School, Vilnius

ARCH S. Kuncevicus, L. Kunceviute, M. Dagys, Z. Gudelis, A. Kunceviute, Vilnius

PHOTO Raimondas Urbakavicius, Vilnius

The rear ventilation system

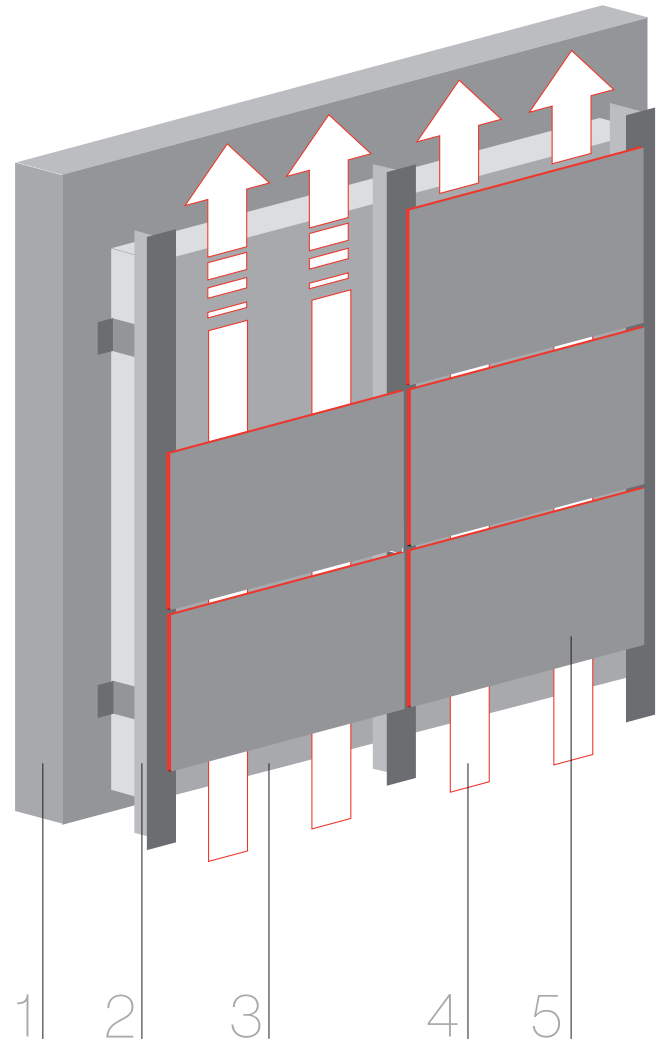
Environmentally friendly sustainability

Providing considerable energy savings for any building, the environmentally friendly ventilated façade system and Swisspearl® cement composite panels are not only a good contribution to climate protection, they also offer a great opportunity to enhance the durability, appearance and value of a building.

All Swisspearl® panels are specially designed for rain-screen cladding applications with rear ventilation. Combined with each other, they become the most reliable system from the technical construction viewpoint. This cladding system effectively protects the building and its structure from the elements for a long time. Furthermore, it reduces humidity and the air circulation optimizes the efficiency of insulation. Therefore there will be no problems like mold, fungi, etc. The rot-resistant and non-combustible panels are extremely durable and virtually maintenance free – an attractive solution with lots of advantages.

The Swisspearl® cladding system is based on natural rear ventilation. It is most reliable, sustainable and provides maximum longevity to exterior cladding. Ventilated façade systems consist of five main components:

- 1 Support structure
- 2 Sub frame
- 3 Thermal insulation layer
- 4 Ventilated cavity
- 5 Cladding



1 Support structure

The exterior wall of a building is mainly made of concrete, CMU blocks, brickwork, steel or timber frame with studs and planked by gypsum boards.

2 Sub frame

Swisspearl® façade panels are installed on timber or metal supports (please see page no. 12 & 13 for more details).

3 Thermal insulation layer

The advantage of an exterior thermal insulation is to keep the entire building structure at a constant temperature and to minimize thermal bridges and thus reduce the loss of energy to a minimum. Economic as well as ecological advantages result.

4 Ventilated cavity

The main task of the air cavity is the evacuation of moisture and excess heat. The air circulation occurs naturally thanks to the pressure difference between bottom and top.

5 Cladding

The outer skin of the building envelope has two main functions; to be aesthetically pleasing as well as protecting against influences from climate and environment.



USA Gilmarin Elementary School, Waterbury

ARCH The S /L/A/M Collaborative, Glastonbury

PHOTO Warren Jagger, Providence



„We first thought of using timber because a natural material fits in well with the surroundings, but the investor didn't like the idea because timber tends to change its appearance over the years. Metal seemed too glossy and too thin for our purpose; we wanted something thicker. Swisspearl® is astonishing in that it resembles metal, and isn't metal, but something in between. A rather modest material – it is just cement after all – but it offers a variety of different effects depending on whether you use REFLEX or CARAT panels. It is high quality and has technical advantages as well, one being its fire resistance. Considering the additional costs involved in using other materials, Swisspearl® turned out to be the best solution – even from an economic viewpoint.“

Vedran Pedišić, Sangrad d.o.o, Zagreb; Croatia





SOUTH KOREA Doosan Future Trees Nursery, Changwon

ARCH Junglim Architecture, Seoul

PHOTO Lee Ki-Hwan, Ansan-city, Kyunggi-do

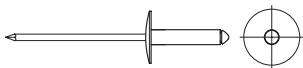
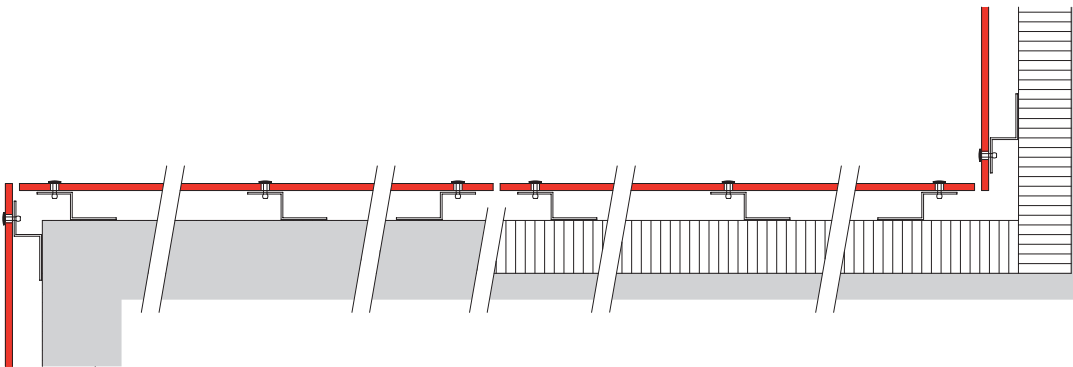
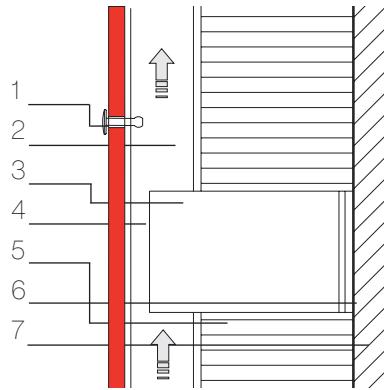
Appearance of the cladding

Face fastened

Swisspearl® façade panels are installed on timber or metal substructures. The fastening method using "visible" screws or rivets allows an efficient attachment to the supporting structures. In fact the fastener heads are available in the same shades of color as the panels, and are hardly visible even a slight distance away as they blend with the overall surface.

12 Metal sub frame (aluminum or galvanized steel)

- Rivet 1
- Sub-framing 2
- Bracket 3
- Air cavity 4
- Thermal insulation 5
- Vapour barrier 6
- Supporting wall 7

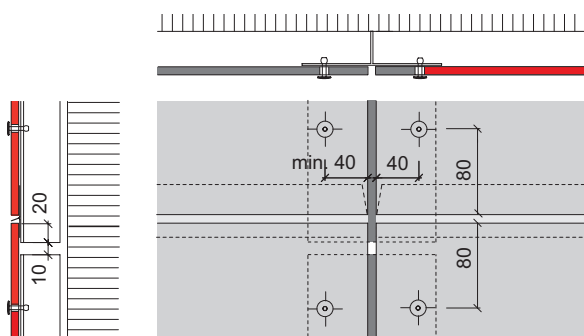


Rivets

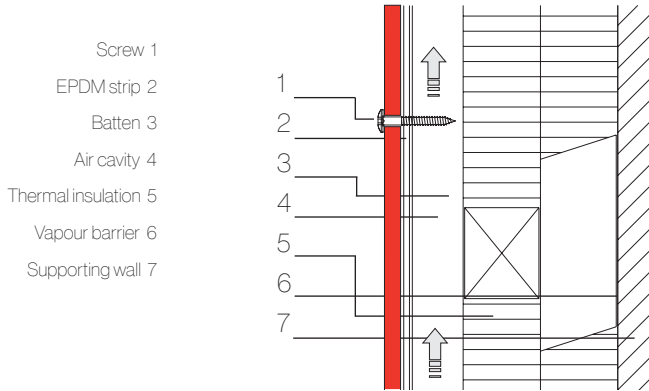
Stainless steel or aluminum.
 Heads powder coated or blank.
 Standard type 18 mm.
 longer rivets for lapped cladding panels.

Hole diameters

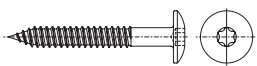
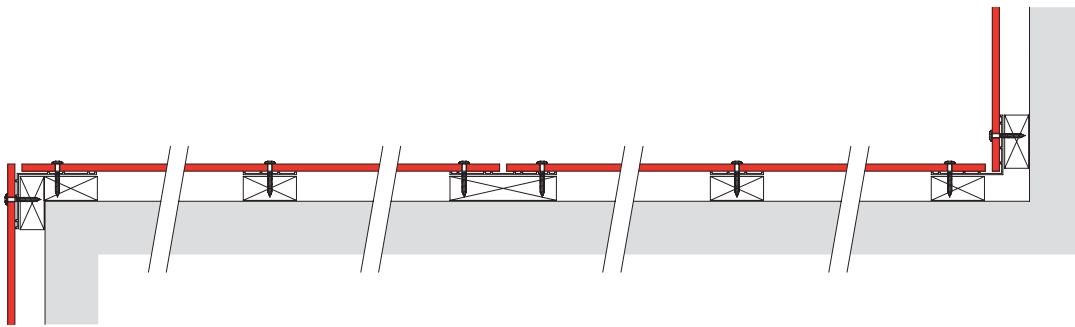
All holes to panels for both fixed and slipping points to be of diameter 9.5 mm
 All holes to sub frame for fastening the panels to be of diameter 4.1 mm



Timber battens



- Screw 1
- EPDM strip 2
- Batten 3
- Air cavity 4
- Thermal insulation 5
- Vapour barrier 6
- Supporting wall 7



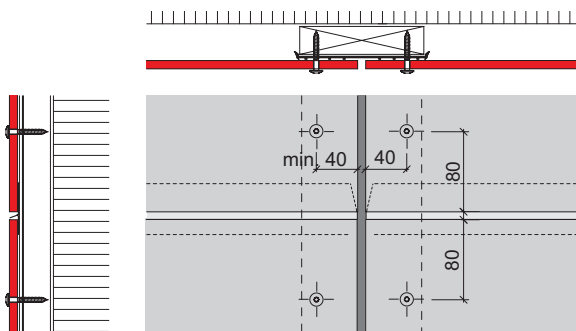
Screws / bit

Stainless steel screw, with powder coated or blank head.

Standard type 4.8×38 mm, head Ø 12 mm, drive T20W.

Hole diametres

Holes to panels to be Ø 5.5 mm



Swisspearl® SIGMA

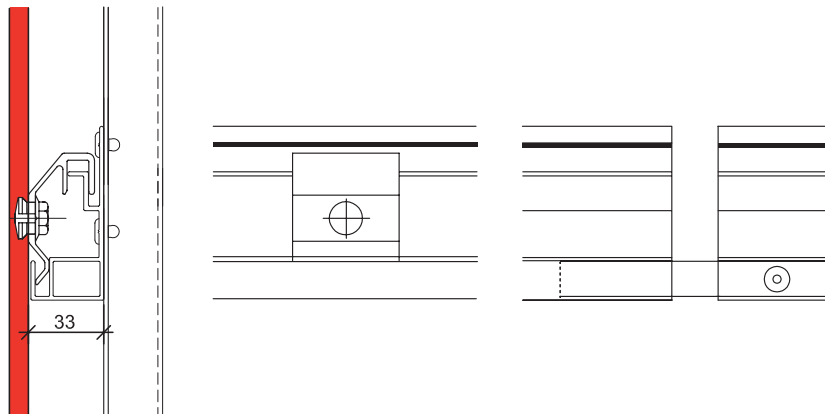
Concealed panel attachment

The concealed attachment has been designed for applications with the highest aesthetic standards. This high-end method of use brings out the full attractiveness of the surface finish of the Swisspearl® panels.

SIGMA concealed panel attachment is available for 8 and 12 mm panel thickness.

The panels are supplied from the factory accurately cut to size, including anchoring points to the panel rear face. Aluminum parts are fitted to the panels on site and the panels hung into the appropriate supports on the sub-framing.

The sub-framing is made either out of timber battens covered by a layer of EPDM for moisture protection; or by metal, i.e. aluminum or galvanized steel.





SWITZERLAND Office Building, Niederurnen

ARCH Cadosch & Zimmermann, Zürich

PHOTO Jürg Zimmermann, Zürich

Irregular joint widths have purposely been used as an important design element.





Cost efficiency

Savings

A Swisspearl® façade is a cost-efficient and extremely economical building envelope which retains its value very well, thanks to its excellent characteristics such as easy assembly at all weather conditions, long life, functional reliability and being almost maintenance-free.

Swisspearl® ventilated façades have proved in severe climates to be very energy efficient and cost effective over the long term. They also ensure a longer life expectancy for the building structure and the building envelope with low-cost maintenance.



Energy

The combination of rear ventilated cladding and outer thermal insulation layer will result in considerable savings primarily for cooling but also for heating energy.



Construction and installation

Rear ventilated systems can be installed to a great extent regardless of weather and temperature. The installation is rapid and thus contributes to an economic process within a favorable construction schedule.



Durability and maintenance

Rear ventilated claddings are virtually maintenance-free. Costs for repainting, recaulking and repairing at regular intervals are thus eliminated. The longevity of Swisspearl® cladding panels makes the economic advantage of the product obvious.



SLOVENIA Social housing, Ljubljana

ARCH Bevk & Perovic, Ljubljana

PHOTO Matevz Paternoster, Smartno pri Litiji



GREENLAND Jagtvej Housing Development, Nuuk

ARCH Schmidt Hammer Lassen, Copenhagen [Denmark]

PHOTO Adam Mork, Copenhagen [Denmark]

One system

Many advantages

Rear ventilated cladding, often referred to as rain screen cladding, in combination with the use of a thermal insulation on the outside of the exterior wall, generate numerous advantages as follows:



Thermal movement of cladding

If installed correctly, the expansion and contraction of the cladding panels can take place unobstructed; thus excluding the formation of fissures or cracks to the building envelope.



Dry thermal insulation layer

Residual moisture from the construction phase and any minor moisture infiltrations can evaporate through the vented cavity and will allow a maximum performance of the thermal insulation.



Protection of thermal insulation layer

The cladding protects the outer insulation layer not only against the weather but also against mechanical impact and influences such as nesting birds, etc.



Protection of building structure

The exterior thermal insulation located on the outside reduces greatly the thermal movement of the building structure, thus increasing its life span.



Vapor transmission

Rain screen system allows the use of breathable building materials without the use of vapor barriers thus reducing the risk of condensation.



Behavior in cold climate

The cladding shields off the wind and thus eliminates the chilling effect prevailing in some countries.



Fire protection

The use of non-combustible panels, sub-frame and thermal insulation material provides fire-proofing in accordance with the standards and regulations in most countries.



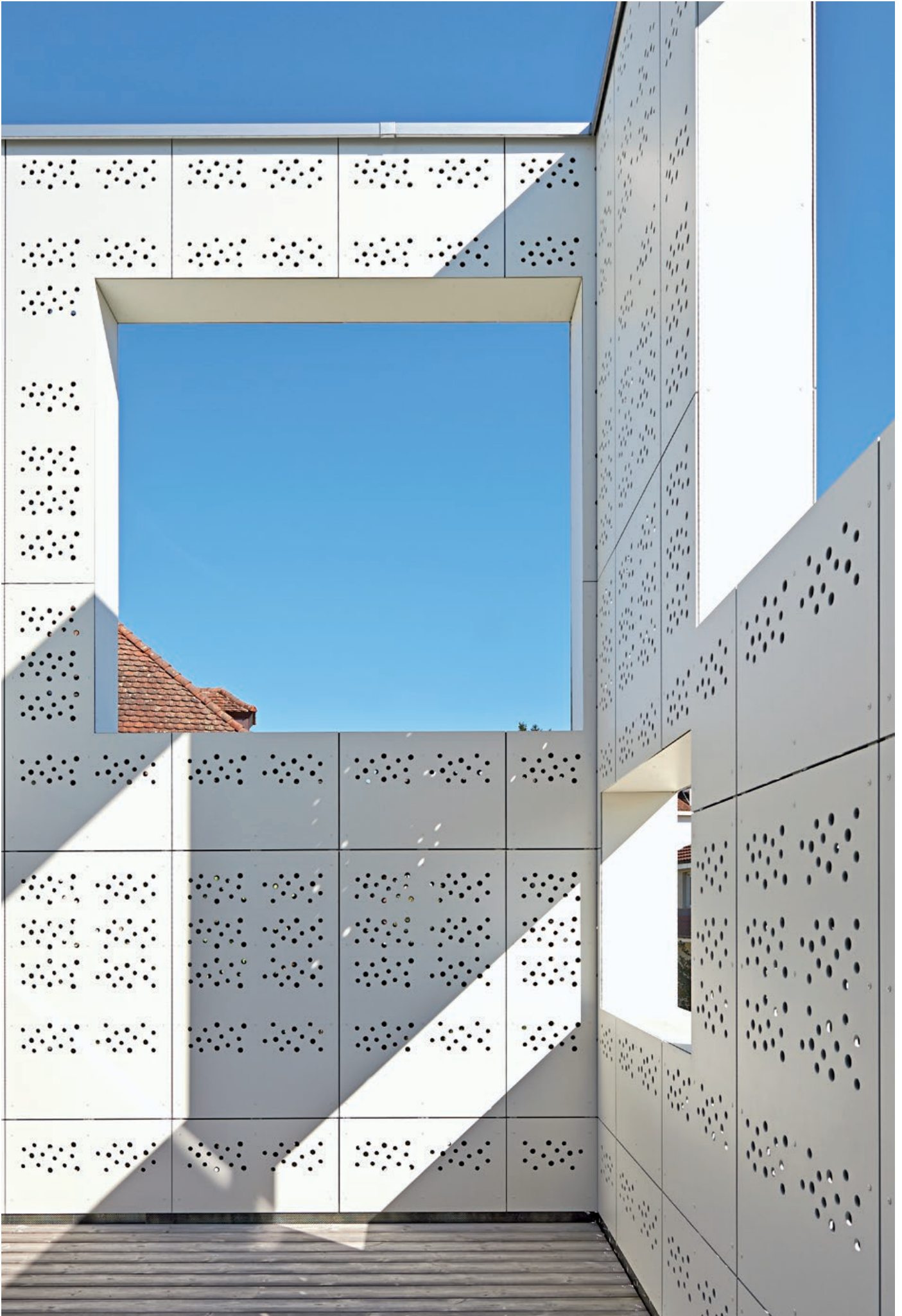
Behavior in warm climate

The shading effect from the panel reduces the temperature within the cavity by more than 10° Celsius. Furthermore excess heat rises by thermal action and is evacuated at the vent gap on top of the cladding. This results in energy savings for cooling.



Acoustic insulation

Generally the additional layer of cladding provides an improved acoustic insulation, especially when using mineral wool or similar.



General information

Façade engineering

Façade engineering is to be carried out by a locally licensed engineer based on the data supplied by Swisspearl® (panel and fastening data, wind load tables) and based on the applicable local standards and regulations.

Sub frame / panel supports

The panels are supplied including the fasteners but without the support profiles. This leaves the great advantage of flexibility for architect or customer with 2 options:

- Sub frame made out of standard hat and Z profiles (cost efficient)
- Sub frame system (there are many products available)

Product warranty

The products are manufactured to highest standards and under permanent quality control programs by third party testing facilities as well as by the factory's own laboratories.

In case that any delivered product should not reach its specified performance there will be a 10 year warranty covering the functional quality of panels and accessories. The warranty is granted on condition that the Design and Installation Manual has been fully complied with.



DENMARK Sports Hall Kibaek Krydsfelt, Kibaek

ARCH Pro Arkitekter, Højbjerg

PHOTO Helene Hoyer Mikkelsen, Aarhus

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