

## Clim® Pure Clim®

Well-being through air conditioning



Arch. : MHCS

Invisible and homogeneous air conditioning\*  
with indoor air purification

\* by Barrisol Biosource® ceiling and air handling unit



the Clim® system combines the best of air handling techniques and stretch ceiling techniques

## **BARRISOL®** No. 1 in the world for stretch ceilings

Barrisol Normalu® S.A.S. has been the world leader in the field of stretch ceilings for over 50 years. It has received more than 50 awards for its capacity to innovate and to produce aesthetic and quality products. Its impressive material, adaptive to the most audacious shapes, the quality of its achievements, all make it an ideal and indispensable material for creative people.

“Making tomorrow’s world even more beautiful starts with preserving it today”.

100% recyclable, the Barrisol® stretch ceiling is a durable product (longevity of more than 20 years). It is also safe, guaranteed without phthalates, lead or cadmium, classified B-s1, d0 for its fire resistance and endowed with a class A+ of emission (VOC) in the interior air.

All these qualities explain the worldwide success of the brand and reinforce its exceptional reputation in over 100 countries.

The numerous stretch ceiling systems created by Barrisol® over the last 50 years form what is today a true universe: **the Barrisol® Universe**.

Beyond their aesthetic advantages, the technical products of the Barrisol Advanced Well-being Solutions range allow the diffusion of heating, cooling, ventilation and indoor air purification but also acoustic correction and lighting of your spaces.



*Barrisol - production plant in Kembs*



VIDEO



Arch. : Zamponi architectes

## Clim® technical and practical advantages

Includes all technical features:

- **Cooling and Heating**
- **Ventilation** of premises
- Acoustic and/or illuminated membrane
- Possibility of sound broadcasting
- Possible incorporation of any technical equipment

Combines aesthetics and flexibility:

- No unsightly technical elements visible
- Frees up walls and spaces in living areas
- Optimises plenum heights

Safety and health:

- Optimal air quality due to even distribution of recirculated air and fresh ventilation air
- Avoids dead zones and point source airflow which can favour the transport and proliferation of viruses and bacteria
- Compatible with Pure Clim® UV air sterilisation solution
- The membrane Barrisol Biosourcée® contains up to 30% of a plant-based plasticiser,

is classified A+ (no emission of volatile organic compounds) and B-s1, d0 (fire classification)

Unparalleled comfort for your well-being:

- **Effective noise reduction**
- Sound Absorption
- Very small temperature difference at any point of the room
- Fast and responsive system to achieve the desired temperature
- **No draughts**
- Thermal comfort **Class A cold** and **Class A hot** according to ISO 7730<sup>(1)</sup>

Economic performance:

- Saving of energy consumption thanks to the thermal radiation of the **Biosourced membrane**
- Eco-responsible (less energy, less material)
- Saves on fan consumption due to low air pressure drop

(1) up to 130 W/m<sup>2</sup> according to laboratory tests.

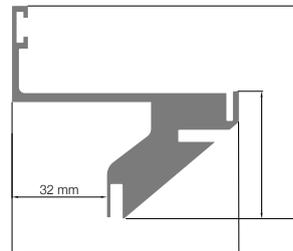
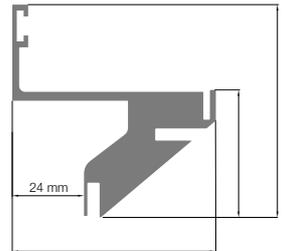
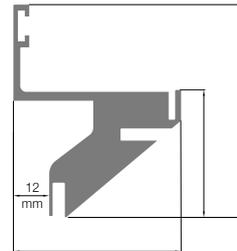
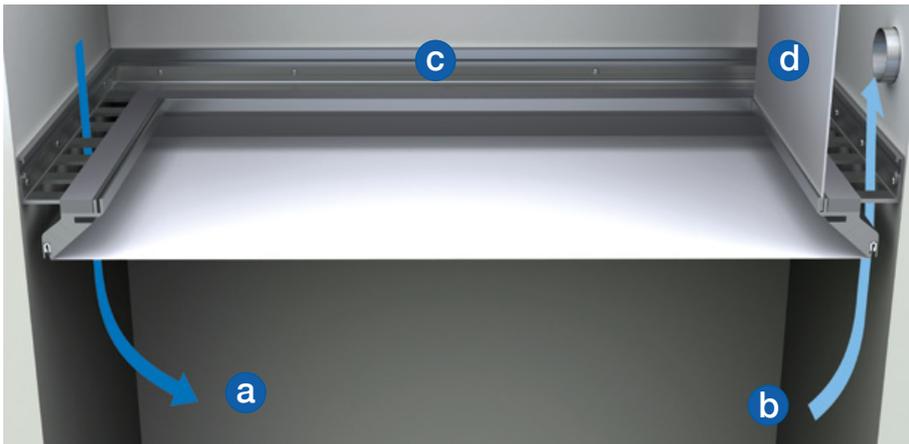


Design: Groupe Accor



Realisation: Barrisol<sup>®</sup> Wiener Raumkonzepte

**Clim**<sup>®</sup>  
an innovative profile



The **Clim**<sup>®</sup> profile can generate 3 different slot widths: 12 mm, 24 mm, 32 mm.

Thanks to its patented open-work shape, **Clim**<sup>®</sup> allows air to flow through it **a** or by suction **b** between the volume of the plenum and that of the room. The non-perforated version **c** of the profile makes it possible to prevent the passage of air on certain walls.

When the profile is used for suction, a partition wall **d** is introduced where the exhausted air is channelled through the air intake, which is supported by the profile.

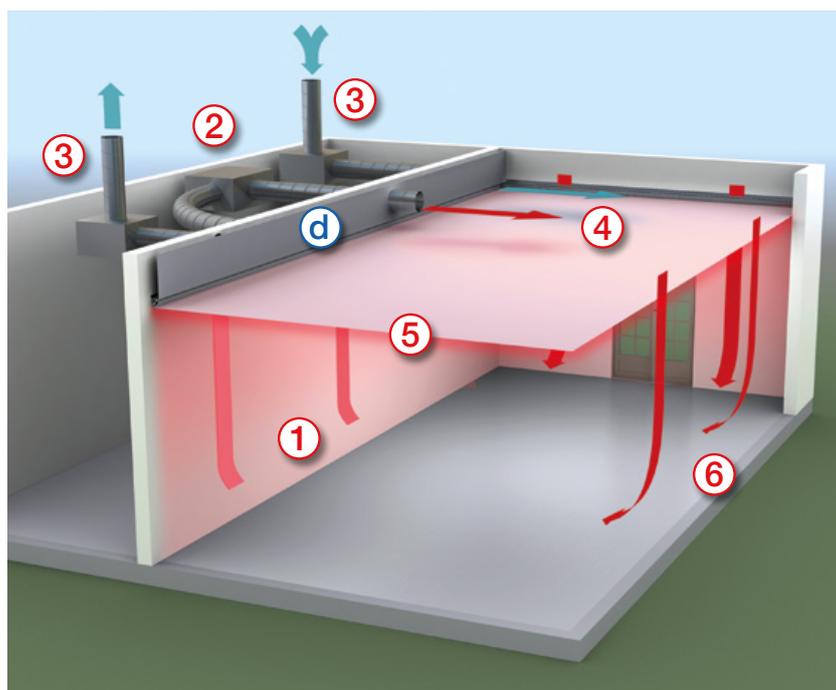


Arch. : Sou Fujimoto,  
Nicolas Laisné et Manal Rachidi

Arch.: Pauline Percheron

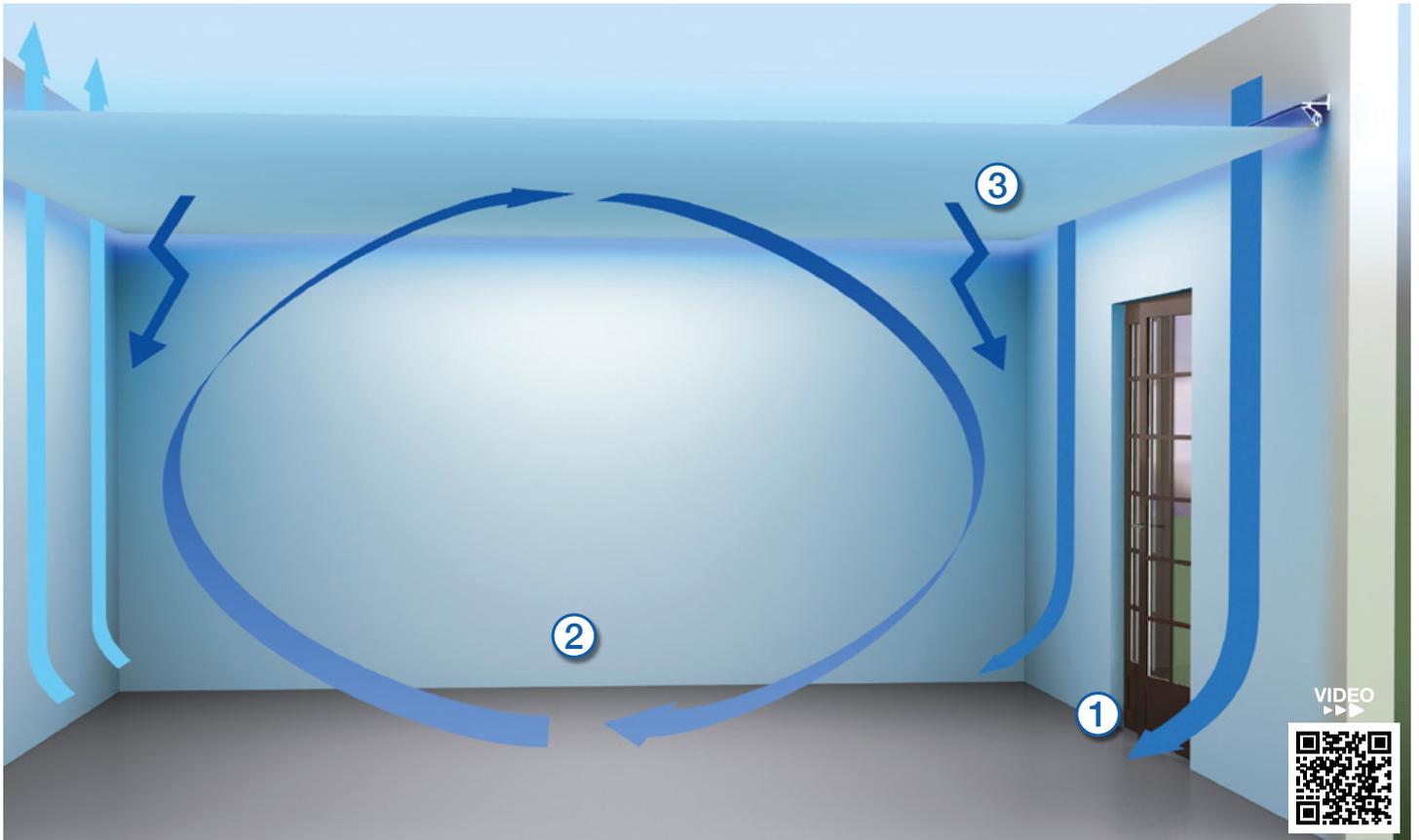
Clim®

for even air distribution and optimum comfort



- ① The room air is drawn in along the inner walls of the room and channelled through a partition wall **d** supported by the special Clim® profile.
- ② The air is drawn into the air conditioning unit\*, filtered, heated or cooled before being distributed to the plenum between the Clim® ceiling membrane and the structural ceiling.
- ③ A ventilation box can be connected to the system to inject hygienic fresh air into the plenum and/or extract room air from the Clim® air intake box **d**.
- ④ The conditioned air and the fresh air form a homogeneous mixture, distributed throughout the volume of the plenum.
- ⑤ The Clim® ceiling becomes a huge diffuser, radiating over its entire surface.
- ⑥ The conditioned air flows slowly down the outside walls.

\* The Clim® system is compatible with all technologies of production of heat and cold by blown air. Contact your authorized Barrisol® installer for more information.



## Clim<sup>®</sup> ceiling air conditioning system

- ① In both summer and winter, the air-conditioning flow touches the outside walls. The unpleasant phenomenon of hot or cold walls disappears.
- ② A natural air movement is created in the volume of the room at very slow, almost imperceptible speeds.
- ③ The entire surface of the ceiling radiates a pleasant, gentle feeling of warmth or coolness.

## Clim<sup>®</sup> uses radiation and convection



Arch.: Bertine Creemers - PUUR Binnenhuisarchitectuur

Homogeneous wall temperatures, the combination of natural air movement and the large radiation surface of the ceiling, all contribute to Clim<sup>®</sup> providing unparalleled comfort in heating and cooling.

The occupants are enveloped by a gentle feeling of coolness or warmth, in complete silence and without draughts.

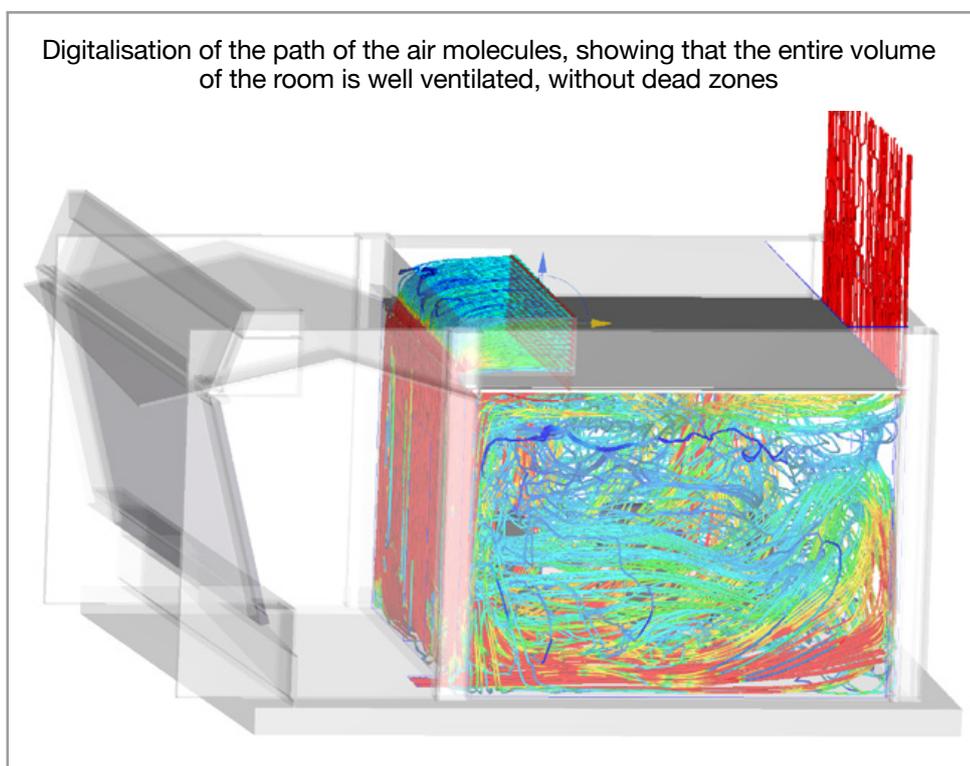
The radiation from the ceiling gives the system incredible responsiveness, in only a few minutes the sensation of heat or cold is perceptible.

# Clim®: homogeneous ventilation and no point source airflow for healthy air

Clim® provides perfectly homogeneous air mixing and distribution, without dead zones or inconsistent air flows, thus ensuring optimal indoor air quality.

Thanks to the supply and exhaust slots covering the entire length of the walls on opposite sides of the room, the entire interior volume is perfectly brushed with a slow and uniform air speed.

An essential factor in indoor air quality is the rate of hygienic fresh air is homogenised at all points of the occupied space. This makes it possible to dilute the rate of CO2 in a particularly effective way, as well as all the potential sources of released air of pollutants (such as VOCs) or pathogenic agents (such as viruses and bacteria).



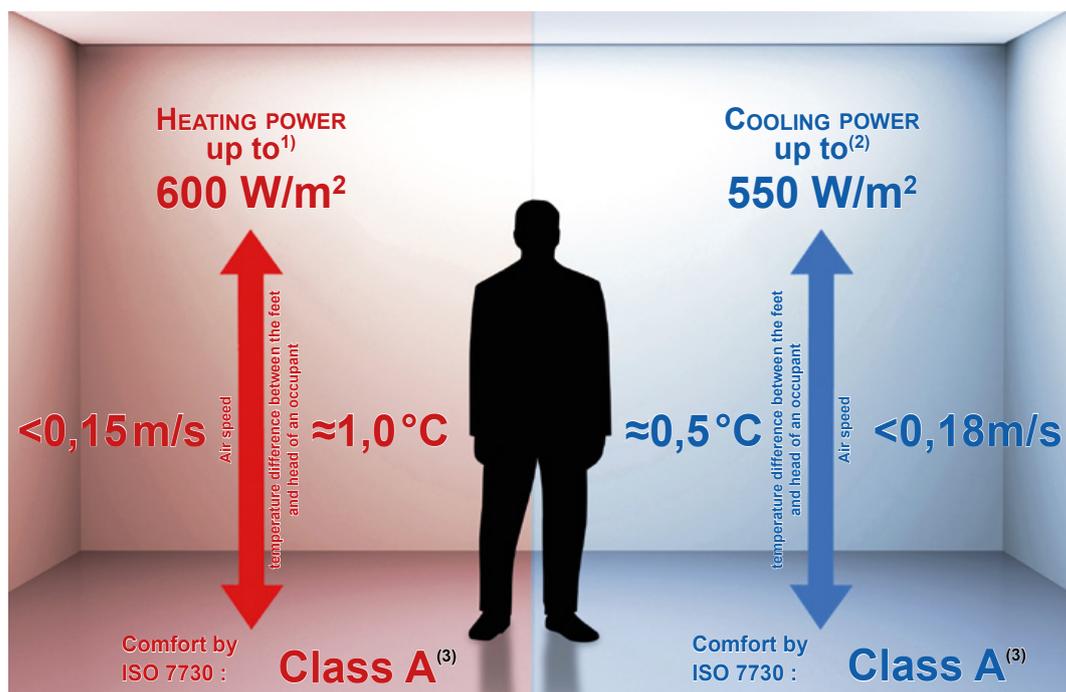
Digitalisation of the path of the air molecules, showing that the entire volume of the room is well ventilated, without dead zones

C.F.D. (Computational Fluid Dynamics) - Project "Oslo-Plads", Copenhagen - Denmark

# Clim®: very high power capacity and unequalled thermal comfort

Thanks to the almost imperceptible air speed and the very small temperature difference between the feet and the head of an occupant (1.0 °C in heating mode and 0.5 °C in cooling mode), Clim® generates an unequalled thermal comfort with a homogeneity of the wall temperatures and of the air temperature in any point of the room.

Its almost unlimited power capacity of 600W/m<sup>2</sup> for heating and 550W/m<sup>2</sup> for cooling enables it to cover heating and cooling needs at all latitudes of the globe.



(1) without any risk of deformation of the stretched ceiling

(2) without any risk of condensation of the stretch ceiling

(3) up to 130 W/m2 according to laboratory tests

## Pure Clim®, disinfection of your indoor air

UVC sterilisation is a particularly effective way of sterilising the air in a room. Used for many years, particularly in hospital operating theatres, this process removes viruses and bacteria from the air by destroying their DNA structure.

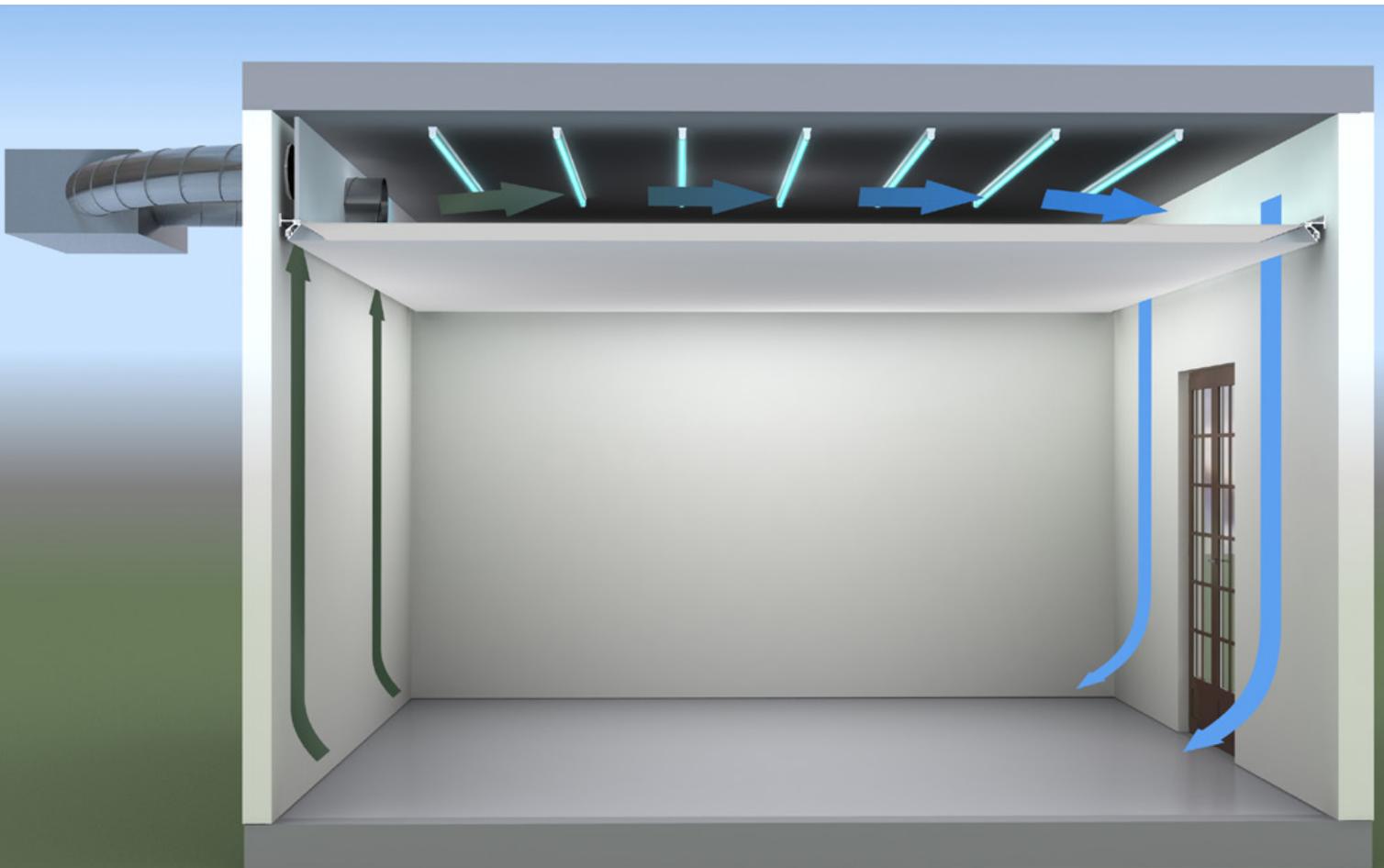
The longer the air is exposed to UVC radiation, the more effective the disinfection. Thanks to the installation of UVC light sources directly in the plenum between the structural slab of the room and the Barrisol Biosource® sheet, the Barrisol® Pure Clim® system allows an unequalled air purification.

With this configuration, the treated air injected into the plenum is exposed to UVC radiation throughout its journey inside the plenum. Due to its large volume, the exposure time is particularly long and therefore the disinfection is very effective.

As an example: for a 20m<sup>2</sup> room (5 x 4 m) served by 800 m<sup>3</sup>/hour of treated air, the exposure time to UVC radiation of an air molecule before it exits through the air slot will be more than 20 seconds. This is almost 50 times longer than the exposure time in an air handling unit. This means that the air is exposed to the

germicidal radiation for a sufficiently long period of time to remove all viral and bacteriological loads from the air.

Thanks to the use of 2 Barrisol sheets especially conceived to be perfectly tight to the UVC, the UVC radiation cannot escape from the plenum to reach the volume of the served room.



## Clim® : light and durable materials

Our Clim® products are composed of a profile structure made of more than 80% post-recycled aluminium and 100% recyclable, making the raw material reuse circuit even more environmentally friendly.

They integrate the latest generation of Barrisol Biosourcée® sheet, which is also 100% recyclable and whose plasticizer is of vegetable

origin making up to 30% of the total composition.

Made of light materials, some of which are 100% recyclable and recycled, Clim® solutions minimise the carbon impact of your buildings, they have a B-s1, d0 fire rating and an A+ air emission rating



## Clim® and Biosourced® membrane

The fabrics in the Biosourced® range contain a plasticizer made from plants. Our eco-citizen approach, for more than 50 years, has consisted in using only 100% recyclable materials.

The plant-based plasticizer is used in the composition of the Biosourcée® satin fabric up to 30% and up to 10% for the translucent version.

The tests guaranteeing air-conditioning were carried out with Biosourced® membrane, a product that is ideal for thermal diffusion due to its composition. In addition, Biosourced® membranes comply with with the ODDY test.



Arch.: Agence A+ Architecture

### Plain membranes



BOS 01  
Artic blanc satiné



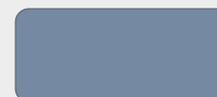
BOT 05  
Atlas translucide



BOL 01  
Blanc laqué



BOSN 01  
Noir satiné



Autre couleurs  
sur demande

### Effets Matière® membranes, some examples



Réf. : BEB 01  
Concrete Effects



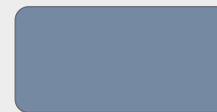
Réf. : BEW 09  
Wood effects



Réf. : BEK 01  
Brick effects



Réf. : BER 02  
Marble effects



Other printed matter  
on request

## Intelligent lighting integration

Fully backlit, equipped with Barrisol Light Lines<sup>®</sup> or incorporating the luminaires of your choice, Clim<sup>®</sup> ensures the lighting of your premises.

Clim<sup>®</sup> with luminaire integration



Clim<sup>®</sup> light



Clim<sup>®</sup> with integrated suspensions



Clim<sup>®</sup> with Light Lines<sup>®</sup> integration



## Easy access to technical equipment

When the technical equipment cannot be moved outside the volume served, a Barrisol access hatch can be discreetly integrated into the ceiling.

# Optimal acoustic correction

Thanks to the Barrisol® micro-perforated sheets, your Clim® ceiling allows you to benefit from optimal acoustics in your interior space

## Clim® Acoustics

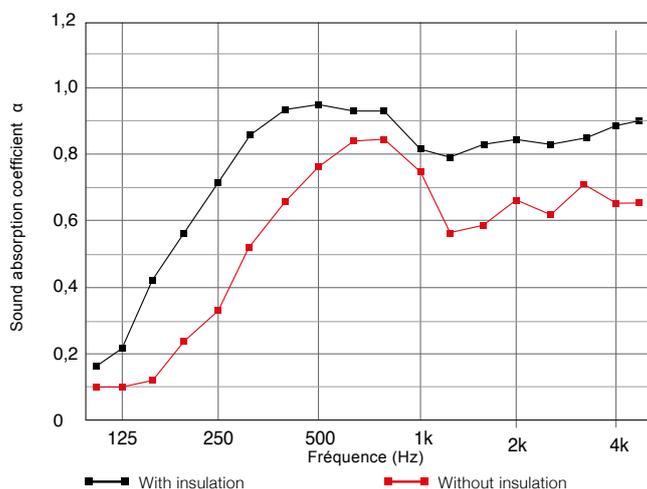
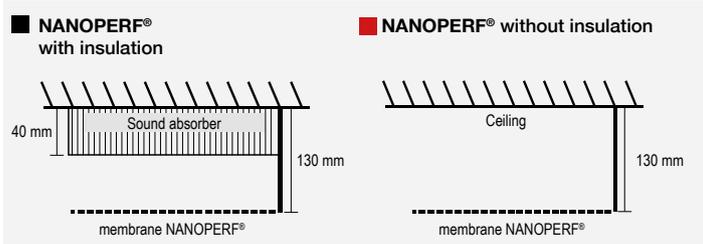


### A15 NANOPERF® SIMPLE MEMBRANE

#### Specifications

##### NANOPERF® A15

Holes: 500 000/m<sup>2</sup>  
 Diameter of a hole: ≈ 0,1 mm  
 Perforation rate: ≈ 1 %  
 Thickness: ≈ 0,18 mm  
 Reference: A15 + réf. coloris



## Clim® Acoustic Light®

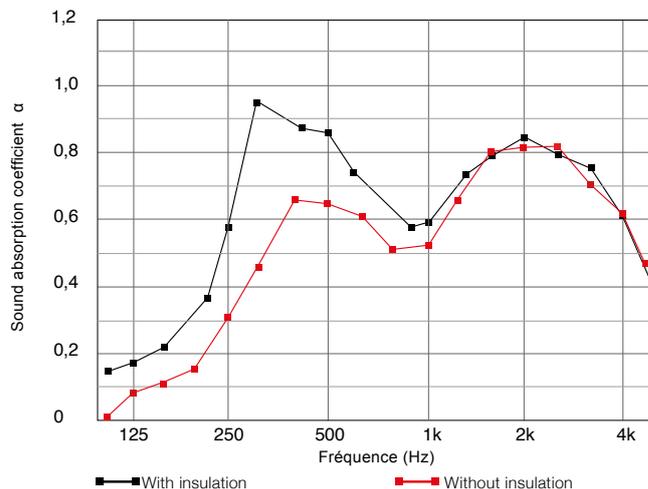
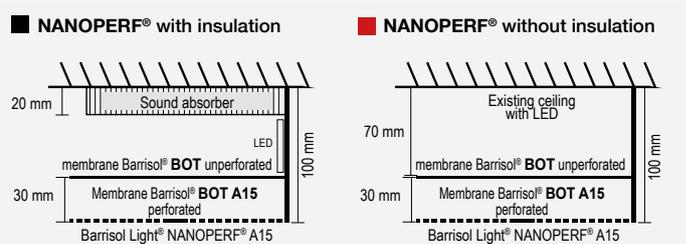


### A15 NANOPERF® DOUBLE MEMBRANE LIGHT

#### Specifications

##### NANOPERF® A15

Holes: 500 000/m<sup>2</sup>  
 Diameter of a hole: ≈ 0,1 mm  
 Perforation rate: ≈ 1 %  
 Thickness: ≈ 0,18 mm  
 Reference: A15 + réf. coloris



## Terminal units for more performance and guarantees

By choosing our Clim® system you benefit from:  
a guarantee of thermal comfort performance according to the ISO 7730 standard, an additional year of warranty on the terminal units and on your Barrisol ceiling.

### Examples of terminals suitable for the Clim® system



**42-EP**  
The thinnest terminal unit on the market (150mm),  
Static pressure up to 100 Pa  
Low energy consumption  
Power from 0.5 kW to 5 kW



**42-NL & 42-NH**  
Very low noise level  
Modular horizontal mounting  
Static pressure up to 100 Pa  
Low energy consumption  
Power range from 1.0 kW to 17.0 kW



**42-BJ**  
Low energy consumption  
Static pressure up to 250 Pa  
Power range from 3.6 kW to 6.8 kW



**42-GR**  
Installation in cupboard or technical room  
Low energy consumption  
Static pressure up to 400Pa  
Power range from 2.8 kW to 4.1 kW



Arch. : Jean-François Brodbeck - AMRS Architectes

## Project example: OSLO PLADS - Denmark Copenhagen



**Nature of the project**  
New office and retail building

**Total surface area of the project**  
13.000 m<sup>2</sup>

**Surface Barrisol Clim**  
6.338 m<sup>2</sup>

### Project teams:

#### Architect

KHR Arkitekter A/S is a Danish architectural firm founded by G. Krohn and E. Hartvig Rasmussen in 1946. During the 1960s, the company focused on European styles applied to public buildings in Denmark. The company has 44 architects and 5 partners: Anja Rolvung, Jakob Brøndsted, Jan Søndergaard, Henrik Richter Danielsen and Mikkel Beedholm. Several of their projects have been nominated for the European Union Prize for Contemporary Architecture. In 1992, the company received the NYCredit Architectur award.



*Holy Cross Church - Denmark, by KHR*

#### Technical consultancy

NIRAS Gruppen A/S is an international multidisciplinary technical consultancy with headquarters in Blovstrød, North Zealand, and is the third largest technical consultancy in Denmark. Founded in 1956 by civil engineers Jørgen Kristian Nielsen and Konrad von Rauschenberger, the company employs approximately 2,200 people and carries out projects in most parts of the world from offices in Europe, Africa and Asia. NIRAS' areas of activity are construction and infrastructure, procurement, environment and nature, climate and energy, and planning and development support.



*Siège de NIRAS - Danemark*

#### Barrisol distributor

Lumière Stretch Ceiling Denmark A/S has been a distributor of the BARRISOL brand for over 20 years. It is specialized in the most technical solutions of the range such as air conditioning (Barrisol Clim), lighting (Barrisol Light), acoustics (Barrisol Acoustic), 3D ceilings (Barrisol 3D Forms).

Thanks to its double competence in stretch ceilings and lighting, the company designs, supplies and installs unique ambient solutions throughout Denmark and on prestigious projects such as Nordea Bank (7500m<sup>2</sup> - Barrisol Acoustic) or Novo Nordisk (3500m<sup>2</sup> - Barrisol Extramat).



*United Cycling Lab Store  
Danemark, by LUMIERE*

## Flexibility of the Barrisol Clim® solution

Implementation of a modular and flexible solution allowing the addition or removal of partitions according to the defined grid. Thanks to the use of the special Barrisol partition profile, the spaces can be converted at will. Terminal units with very low noise level, installed in the false ceiling of technical spaces.



Barrisol Biourcée A15 microperforated ceilings for acoustic treatment.



**A15 NANOPERF®**

**Features**

- Holes: 500 000/m<sup>2</sup>
- Holes diameters: ≈ 0.1 mm
- Perforation rate: ≈ 1 %
- Thickness: ≈ 0.18 mm
- Reference: A15 + ref. colour

ÉMISSIONS DANS L'AIR INTÉRIEUR

**A+**

CE

CERTIFIÉ PAR UN LABORATOIRE INDÉPENDANT (LNE) / CERTIFIED BY AN INDEPENDENT LABORATORY

BOS 01  
Artic white satin

Clim® 3D ceilings in corridors



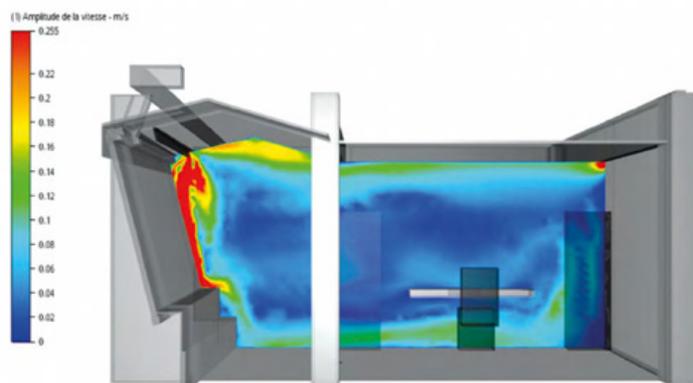
KHR Arkitekter A/S

## Performance of the Barrisol Clim® solution

The realization of a 3D BIM model of the installations, numerical simulations CFD (Computational Fluids Dynamics) as well as acoustic studies allowed us to calibrate the Barrisol Clim® solution according to the requirements of the owner and to simulate the forecast performances.



3D BIM model



Numerical simulation of air speeds



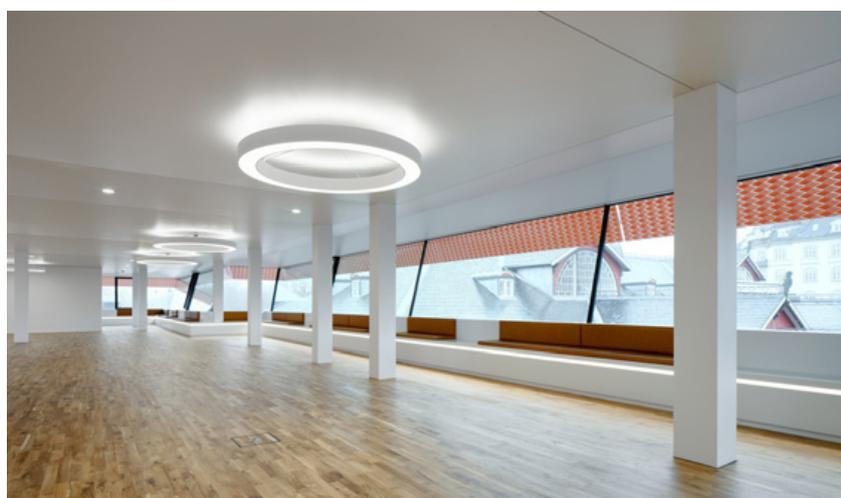
The actual performance was tested in situ by the Danish Institute of Technology. These tests validated the theoretical results and confirmed the achievement of the most restrictive thermal comfort level of the Danish Indoor Climate Label, i.e. Class A, with notably imperceptible residual air velocities (less than 0.18m/s) but also a sound emission of less than 35dBA in open spaces and 30dBA in individual offices.



Danish Class A

**ISO 7730**

Class A



KHR Arkitekter A/S



Clim®  
Pure Clim®



Arch. : Jean-François Brodbeck - AMRS Architectes

## Acoustic & light air conditioning with air purification

**BARRISOL® NORMALU® S.A.S.**

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Our design office is at your disposal to study and implement your project

Barrisol®, at the heart of innovation since 1967

