

## TRADITIONAL ROOF PROFILES

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# CONDENSATION CONTROL SOLUTIONS







## PRINCIPLE

### What is condensation?

The air that we breathe contains a greater or lesser quantity of water in gaseous form. This quantity is the **"water vapour concentration"** expressed in  $\text{g/m}^3$ . It varies according to several parameters, including temperature.

This air has a certain capacity to contain vapour. When this capacity is exceeded, the air is said to be saturated. The relative humidity is therefore 100%. The temperature at which the air reaches this value is called the **"dew point"**.

The water vapour concentration can increase due to:

- > an increase in humidity;
- > a drop in temperature (hot air can contain more water vapour than cold air)

When the dew point is exceeded, the excess water vapour

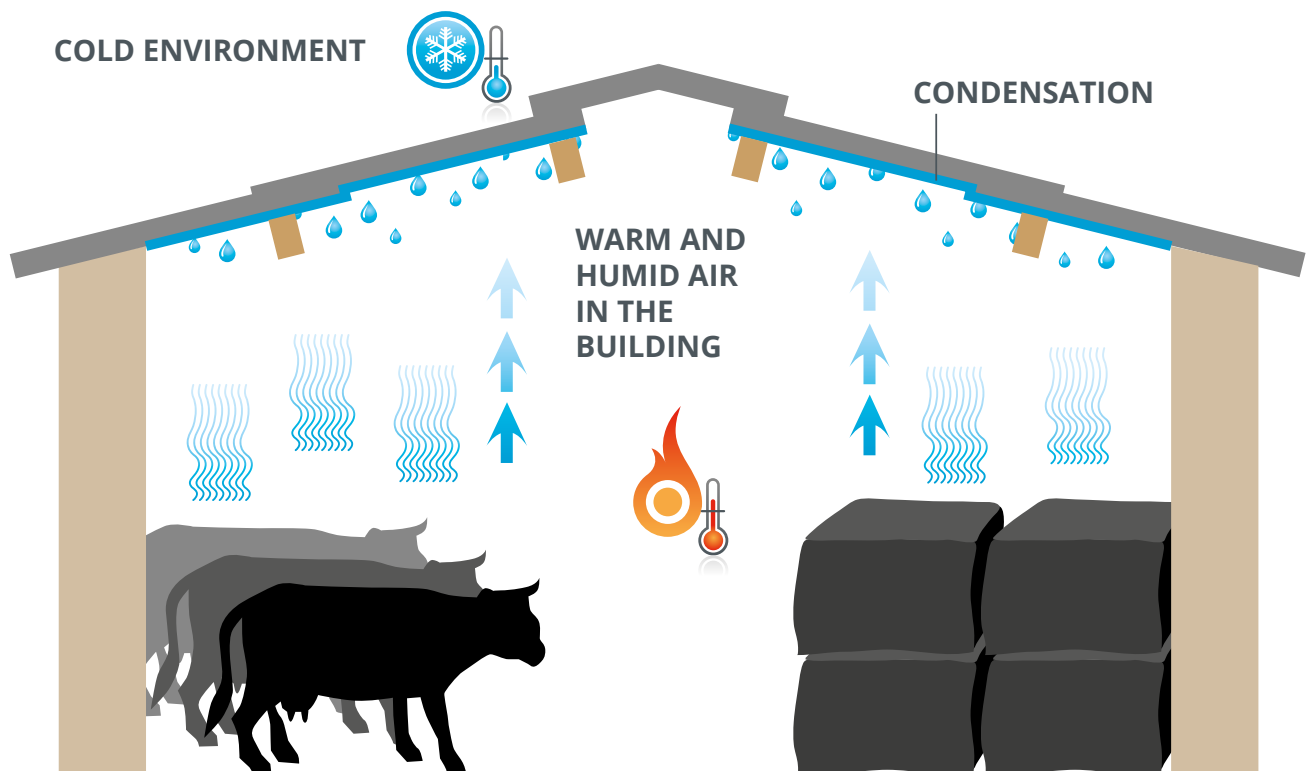
forms droplets. This change in state, where gas becomes liquid is called **"condensation"**.

In construction, this phenomenon occurs when the indoor air (warm) comes into contact with a cold wall (the temperature of which is below the dew point). This is particularly the case for single skin roofing and wall cladding.

### How to tackle this phenomenon?

The problem that this condensation can cause (see below) can be easily prevented. For cold roofs, BACACIER offers 2 solutions suitable for different environments: **COVABSORB** and **COVADRAIN**.

For these solutions to be fully effective, the building must be designed according to certain principles. The rules of installation are set out in this document.



When the outdoor temperature is lower than the indoor temperature, an uninsulated roof remains cold. When the warm air inside comes into contact with the cold sheet metal, water droplets form on the inside of the sheet metal.

### Problems associated with condensation.

Condensation can:

- > damage stored goods and supplies;
- > disrupt operations inside a building

## BACACIER SOLUTIONS

Different environments = **customised solutions**

**BACACIER offers you two different solutions  
to resolve condensation problems in uninsulated buildings**

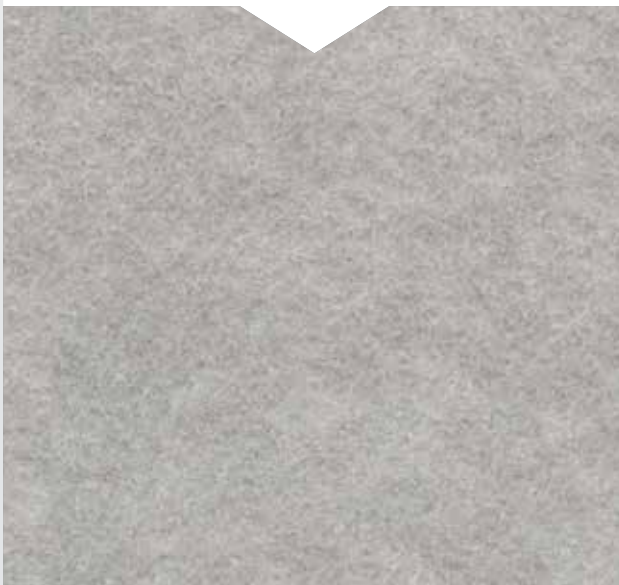


THE

**"EVAPORATING" SOLUTION**

COV**ABSORB** 

The first solution consists of **COVABSORB** non-woven felt which absorbs the water droplets until they evaporate by means of ventilation. **COVABSORB** is the ideal solution for all types of open buildings such as hangars, carports, garages, etc.

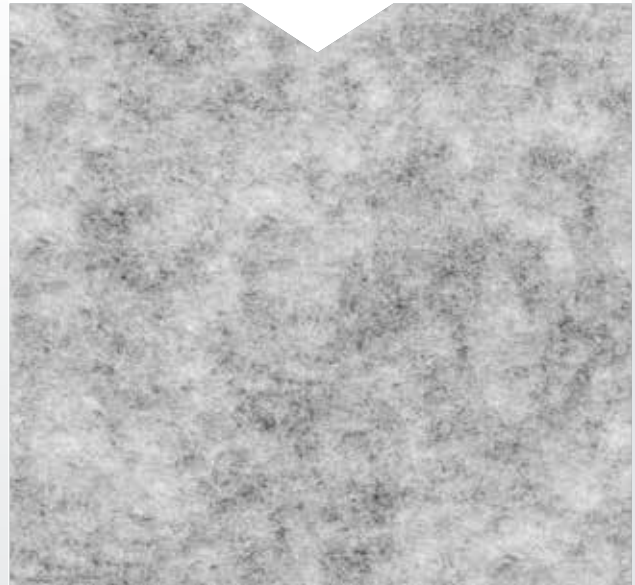


THE

**"DRAINING" SOLUTION**

COV**ADRAIN** 

In very high hygrometry buildings such as livestock farming, fodder storage, cheese maturation industry, cereal or wood drying, the **COVABSORB** product is at risk of reaching saturation point. BACACIER's solution: **COVADRAIN** which uses gravity to promote the evacuation of water to the outside.



▲ Samples can be sent to you on request. ▲

## GOOD DESIGN

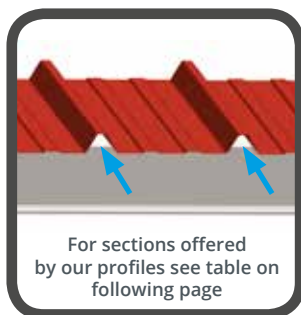
The solutions outlined above may be susceptible to problems if the design of the building does not meet the following criteria:

### TO ENSURE GOOD VENTILATION

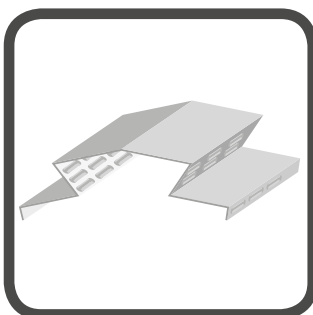
Ventilation is essential for condensation control solutions as it ensures total drying of the product. It also prevents the formation of mould. The minimum opening sections to be provided are shown in the box below.

So as not to impede air flow, it is essential not to obstruct the lower ribs and to provide a ventilated ridge.

If the section offered by the roofing ribs is not sufficient, additional devices can be provided, such as:



Natural ventilation under the profile



Ventilated double ridge\*



Cladding with vents\*

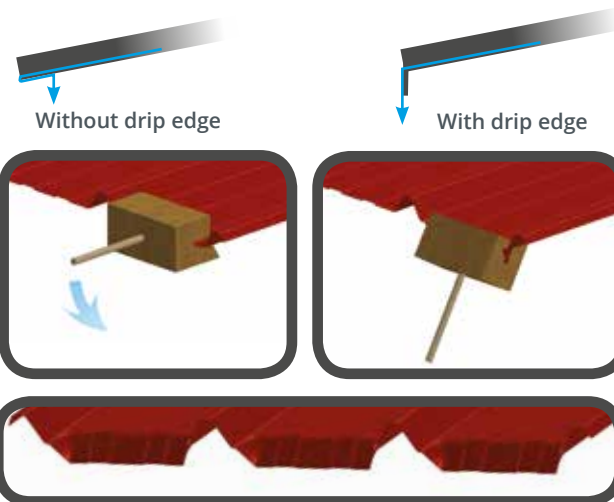


Vents\*

\* Ventilation surfaces offered by these accessories - page 170

### Create a drip edge at the bottom of the slope

To protect the felt and ensure its durability, a drip edge should be used at the bottom of slope of each sheet.



Drip edge

### ADEQUATE VENTILATION CONTROL (CF DTU 40-35)

Note, to ensure the evaporation of water, ventilation rules set out in DTU 0-35 by installing ventilated fittings. The air gap for each opening should not exceed 400 cm<sup>2</sup>/ml

Type of building	The minimum air gap of openings (air inlet or outlet), expressed as a fraction of the projected roof incline surface to ventilate.
<b>UNINSULATED BUILDING</b> Uninsulated building with air inlets in the cladding and roof outlets. <div> <p>inadequate ventilation</p> <p>adequate ventilation</p> </div>	<b>1/500</b>
<b>INSULATED BUILDING</b> Insulated building with air inlets in the cladding and roof outlets. <div> <p>inadequate ventilation</p> <p>adequate ventilation</p> </div> Continuous air space. Minimum thickness: 4 cm	<b>LOW HYGROMETRY BUILDING</b> <b>1/2000</b>
	<b>MEDIUM HYGROMETRY BUILDING</b> <b>1/1000</b>





## EVAPORATION SOLUTION – COVABSORB



# COVABSORB

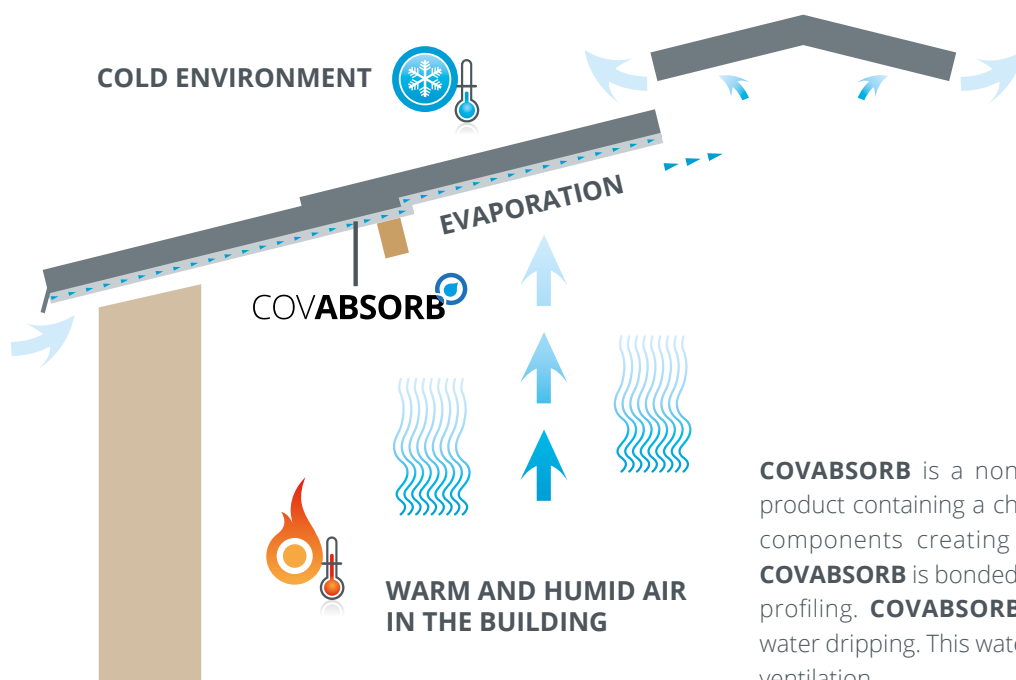
Storage and installation guidelines

- > The general storage and handling prescriptions must be respected.
- > COVABSORB panels must be stored in a dry place.
- > If a cut out section is not possible and to prevent problems related to capillarity, we advise you to remove the felt using a heat gun in risk areas (valley and end laps). These problems can also be prevented by applying a clear varnish to the felt.



### Applications

- > **INDUSTRIAL BUILDINGS**
- .....
- > **FACTORIES**
- .....
- > **GARAGES**
- .....
- > **CANOPIES**
- .....
- > **GARDEN SHEDS**
- .....



**COVABSORB** is a non-woven industrial textile product containing a chemical binder and special components creating a very porous surface. **COVABSORB** is bonded to the sheet metal before profiling. **COVABSORB** prevents condensation water dripping. This water evaporates by means of ventilation.

## Technical specifications

Absorption capacity (according to NF P 15-203-1)

**530 g/m<sup>2</sup>**

Reaction to fire (according to EN 13501-1)

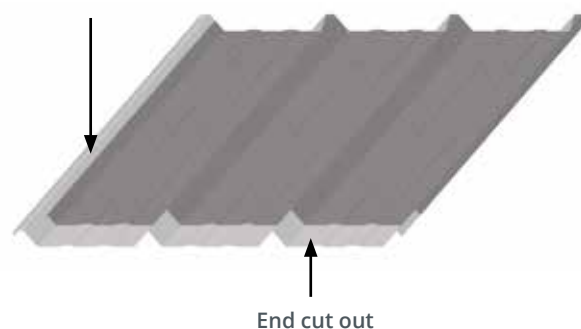
**A2-s1,d0**

## Cut out

Making a cut out prevents the occurrence of certain problems (felt lifting off, formation of mould, etc.) caused by extreme conditions and inadequate installation.

That is why it is recommended to leave a gap in the felt at the end and side laps.

Side cut out



## Ventilation

To ensure that the ventilation criteria defined on the previous page are verified and to determine whether additional measures are necessary, the table gives the natural ventilation surface areas offered by our various profiles.

Profile	COVEO 3.35	COVEO 3.39	COVEO 3.45	COVEO 4.35	COVEO 4.37	COVEO 4.40	COVEO 1030	COVEO 850
Ventilation surface area cm <sup>2</sup> /ml	49	57	66	60	57	68	125	25



## DRAINING SOLUTION – COVADRAIN



**COVADRAIN** 

**Storage and installation advice**

- > The general storage and handling conditions described on page 448 should be met.
- > COVADRAIN panels must be stored in a dry place.
- > So as not to impede the drainage of water to the outside, COVADRAIN should not be burnt or saturated at the bottom of the panels.

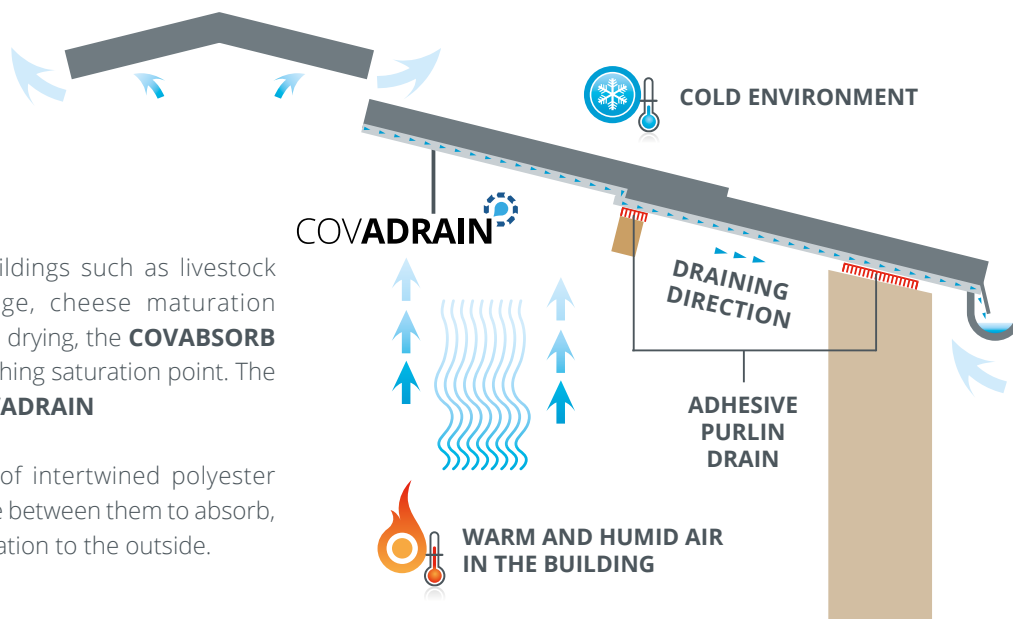


### Applications

- > **LIVESTOCK BUILDINGS**
- .....
- > **FODDER STORAGE**
- .....
- > **SPORTS HALLS**
- .....
- > **FACTORIES**
- .....

In high hygrometry buildings such as livestock farming, fodder storage, cheese maturation industry, cereal or wood drying, the **COVABSORB** product is at risk of reaching saturation point. The BACACIER solution: **COVADRAIN**

**COVADRAIN** is made of intertwined polyester fibres with enough space between them to absorb, hold and drain condensation to the outside.



## Technical specifications

Absorption capacity\*

**750 g/m<sup>2</sup>**

Fire rating (according to EN 13501-1)

**B-s1,d0**

\* Indicative value

## Special features of COVADRAIN

### More absorption

COVADRAIN has a greater absorption capacity than COVABSORB. In addition, if the weight of the water exceeds a certain value, the surplus is drained to the outside provided that the prescriptions given below are met.

### Ventilation

Installing a draining product does not, under any circumstances, ensure adequate ventilation. Indeed, firstly, the product behaves like an absorbing product. It is therefore essential to ensure that the product is dried properly to prevent the formation of mould.

### Drainage

Several provisions must be followed so as not to impede drainage.

#### Pitch

The minimum roof slope must be **12%**.

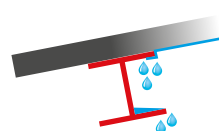
The length of the panels should be **limited** according to the slope as shown in the table below:

Roof slope %	12 (7°)	25 (14°)	38 (21°)
Maximum length m	4	6	9

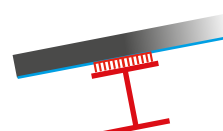
#### Drainage continuity

(butyl joint on silicon paper or purlin drain)

It is compulsory to provide a drainage continuity device to prevent dripping lines across the purlins. Note: adjust the length of the fixings (take the thickness of the drainage continuity device and the felt into consideration).



Without purlin drain



With purlin drain

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