



EUROTHANE® AL

POWERLINE®

Insulating systems used in agricultural and industrial buildings



TABLE OF CONTENTS

INTRODUCTION

THE ROOF

1 Insulation fixed to the bottom of the roof structure

- 1.1 *EUROTHANE QUATTRO system*
- 1.2 *Fastening with thin boards with screws or twisted nails with plastic cap*
- 1.3 *Thick boards with Z-profile*
- 1.4 *Lath/lath mounting*

2 Insulation fixed to the top of the roof structure

- 2.1 *Mounting on top of the bearers: fibre cement corrugated sheets*
- 2.2 *Mounting on top of the bearers: metal sheets*

INTRODUCTION

Since years, RECTICEL Insulation is a leading manufacturer of insulating boards used in agricultural, horticultural and industrial buildings.

The EUROTHANE product range has been especially developed for this purpose. This product range is available in 2 types of products:

EUROTHANE AL and EUROTHANE AL QUATTRO.

EUROTHANE AL QUATTRO is commercialised in a thickness from 30 mm to 60 mm. EUROTHANE AL is produced in a thickness from 30 mm to 120 mm.

The possibility of “customising”; with insulating boards up to 12 m long, enables reduction of the number of seams to the outermost minimum.

EUROTHANE AL is manufactured in a thickness of 30 mm to 120 mm and a width of 1200 mm. Therefore, it is the answer to all questions regarding internal living of agri- and horticultural buildings.

EUROTHANE AL products are coated with a straw-coloured vapour inhibiting aluminium laminate on both sides, an excellent protection against rodents and insects.

For the same reason, the insulating foam of the QUATTRO design is provided with an extra coating on the longitudinal ends.

EUROTHANE helps where needed: stable climate control, condensation prevention, excellent light diffusion, and an easy-to-clean surface.

EUROTHANE also plays an important role in storehouses and cultivation rooms. Temperature control and relative humidity require a decent insulating material with an adapted coating.

EUROTHANE boards can be used as well on the outside of the buildings (so-called cold roof/wall construction) as on the inside (so-called warm roof/wall construction).

In order to avoid thermal barriers and to create a good and continuous insulation, it is recommended that the same choice be made for roof and wall.

In addition to the use of EUROTHANE insulating boards, fastening and border finish are essential conditions for a good result which depends on temperature, relative humidity and ventilation systems used in the construction. Therefore, RECTICEL Insulation has developed installation instructions for the most current applications and constructions.

EUROTHANE boards, installed following these instructions, guarantee the best result.

RECTICEL Insulation remains at your service for advise concerning other installation methods.

THE ROOF

EUROTHANE insulating boards are attached to the top or to the bottom of the roof construction.

This depends on the place of the wall insulation. If the insulation is installed at the inside of the wall, the mounting has to be done at the bottom of the roof construction and vice versa.

The mounting of EUROTHANE boards at the bottom of the bearers results in

- the realisation of an even, continuous ceiling in addition to the insulation
- the prevention of places where remainders of dirt, dust and food accumulate
- the realisation of a better light diffusion, an even ventilation pattern and an even insulation surface which is very easy to clean.

When the insulation is placed above the bearers, it is possible to construct the total roof in one working period.

Due to "supercooling" of steel decks, the risk of condensation is larger than when using corrugated sheets. Therefore, it is necessary to pay extra attention to the draining of condensation water.

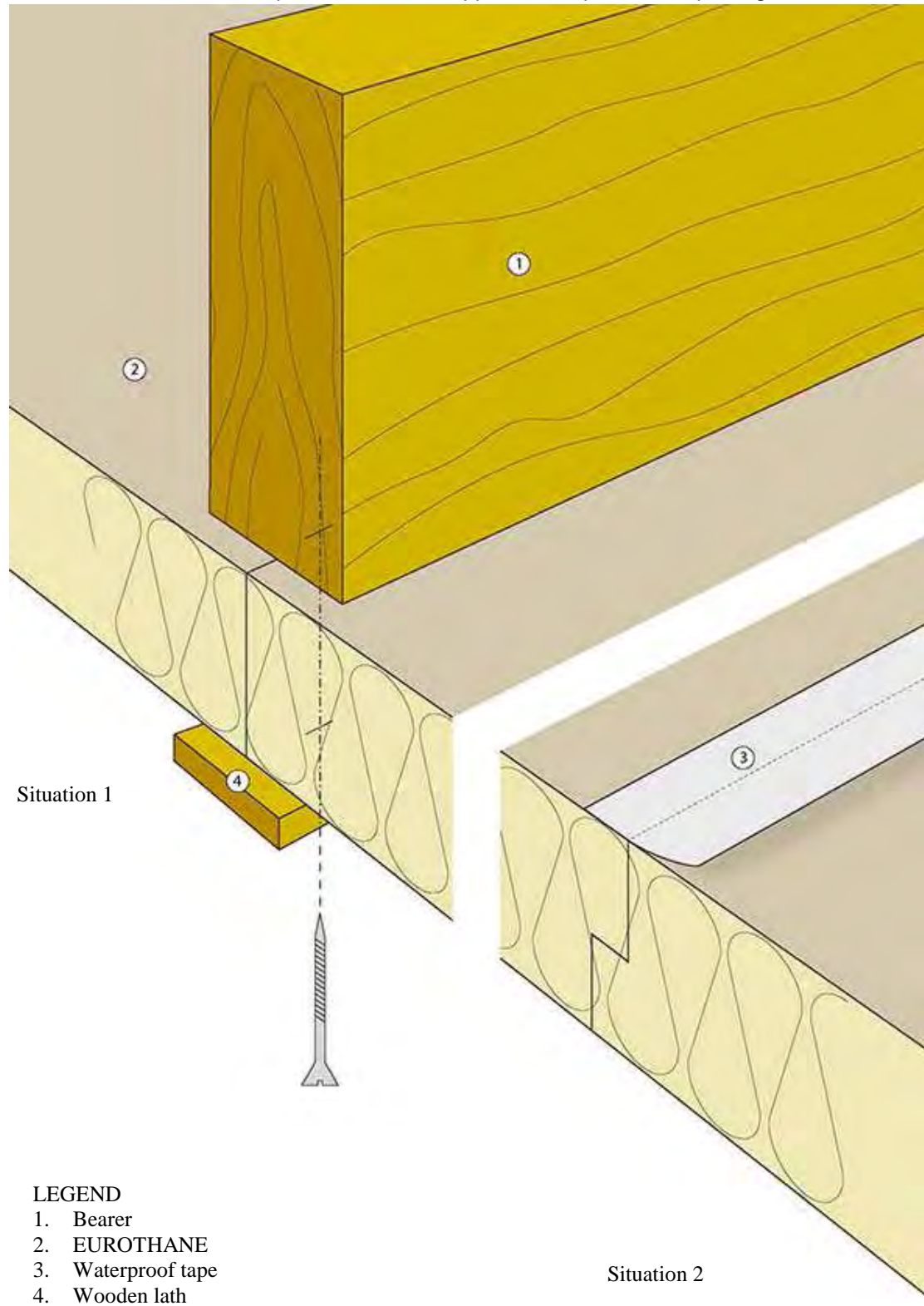
In both cases, the number of seams are limited to a minimum.

Here, the dimensions of EUROTHANE insulating boards, available up to 12 m long, constitute a considerable advantage.

The maximum bearer distance depends on the insulation thickness used and the loads. In case of a board of 30 mm thick, the maximum distance is 1350 mm.

1. Insulation fixed to the bottom of the roof structure

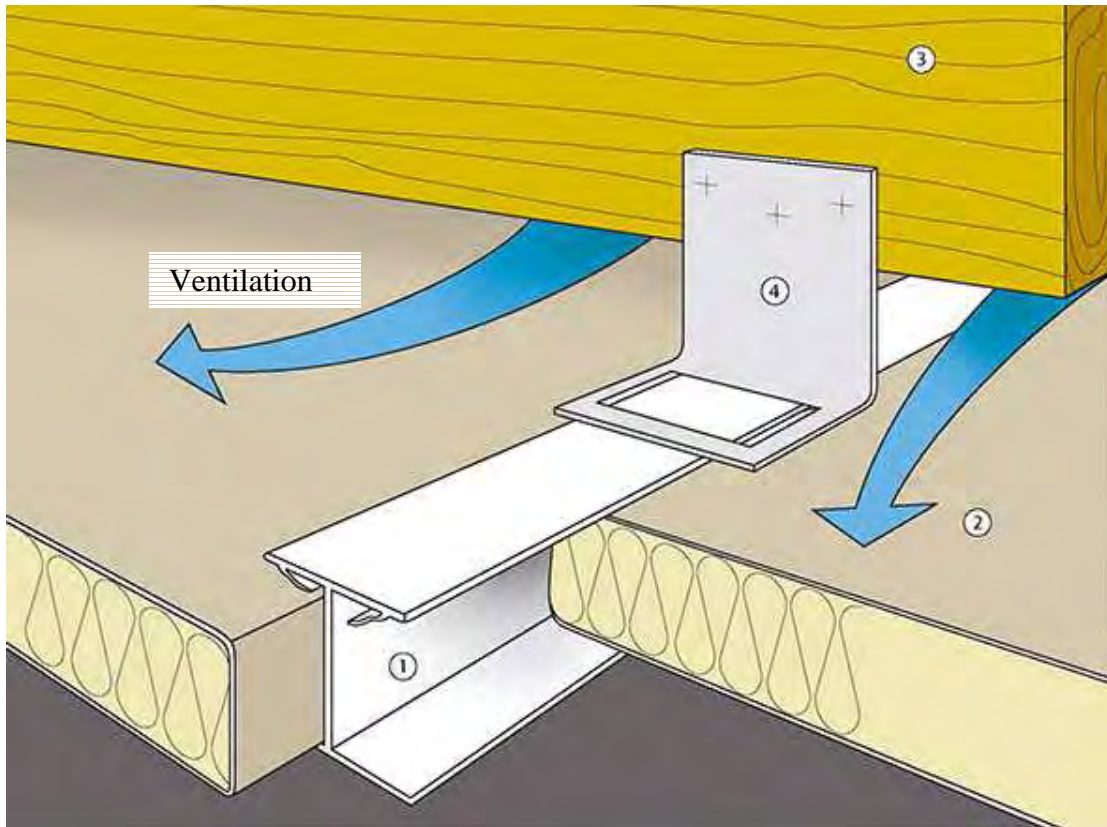
Insulation is preferably done with one board length, from ridge to gutter. If this distance is too large, two boards have to be used. Then the shortest board is the one to be mounted near to the ridge. It is recommended to let the crosscut seam connection coincide with a bearer. Finishing is done with a wooden lath (see situation 1). When the connection does not coincide with a bearer, a tape is stuck to the upper board, prior to the placing of the insulation



LEGEND

1. Bearer
2. EUROTHANE
3. Waterproof tape
4. Wooden lath

1.1. EUROTHANE QUATTRO system



1. PROFISOL H-profile
2. Eurothane QUATTRO
3. Bearer
4. Suspension bracket

• ADVANTAGES OF THE QUATTRO SYSTEM

Damaging is mostly due to transport, handling and mounting of the insulation boards. QUATTRO is provided with solid borders, able to stand rough handling.

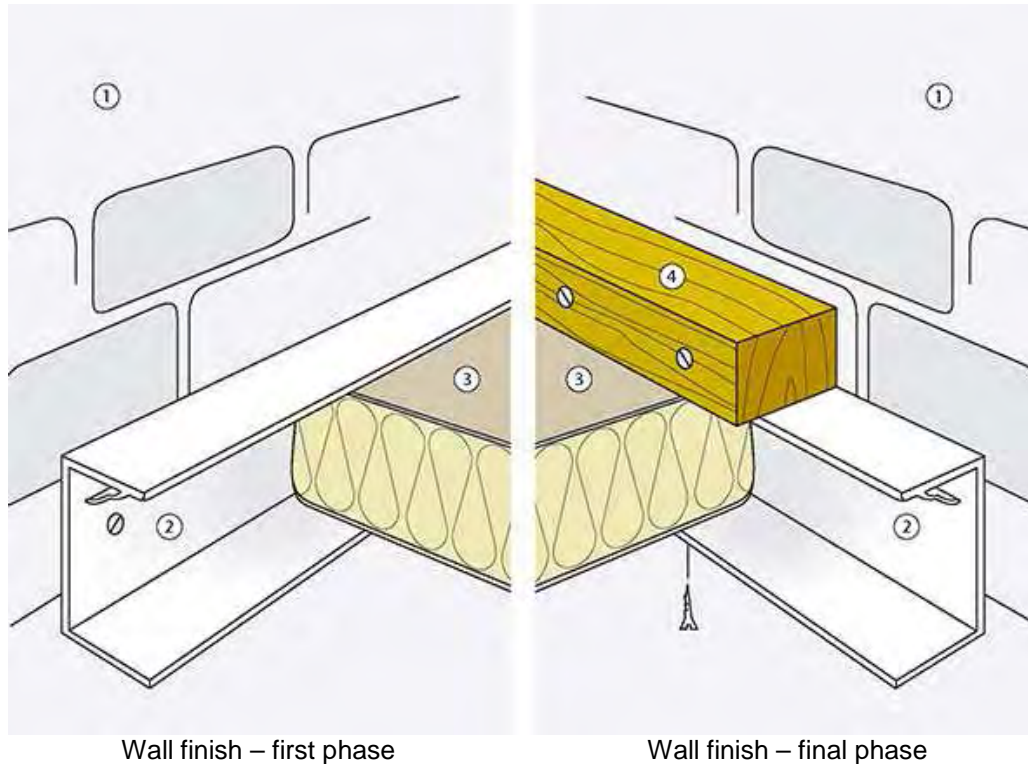
Mice, rats, birds and beetles cannot be avoided around stables, but they do have a natural aversion from draught.

The QUATTRO-system causes a situation in which these little animals no longer can find a draughtfree place between roof and insulation material, and thus no longer are encouraged to build there nests there.

They always search the easiest way to get in. Therefore, soft materials become their first victims. With the QUATTRO-execution, the foam can hardly anywhere directly be reached. The matching U-profile also makes the insulating board's extremities and wall connections inaccessible for unwanted visitors.

When stables are ventilated with air conditioning techniques, backpressures are sometimes used. In these cases, the PROFISOL profile prevents "false" air to be sucked in through the insulation connections.

The same clip function limits the bleeding of possible drain water through the board connection.



1. Wall
2. PROFISOL U-profile
3. Eurothane QUATTRO
4. Wooden auxiliary lath

The systems consists of 2 elements:
EUROTHANE AL QUATTRO and PROFISOL, the connection system.

- EUROTHANE AL QUATTRO

QUATTRO is a special design of EUROTHANE AL.

Just as EUROTHANE AL is provided on both sides with a straw coloured aluminium laminate, the QUATTRO design now also is continuously covered at the edges.

Thus, the polyurethane foam only is visible at the two cross section extremities of the insulating board.

The QUATTRO design allows the full use of the effective width (1225 mm).

QUATTRO is available in four thicknesses: 30, 40, 50 and 60 mm.

- EUROTHANE PROFISOL

The **PROFISOL profile** is made from PVC plastic.

The colour is similar to that of the QUATTRO insulation.

The PROFISOL H-profile is provided with 2 springing lips (1) (see cross-section) for a perfect clamping of the QUATTRO insulating board. A PROFISOL U-profile is also available for wall connections and the finish of insulating board extremities.

The profile ensures:

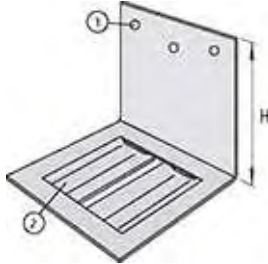
- a fast and easy fixing of the ceiling insulation;
- a perfect connection of the EUROTHANE QUATTRO;
- a windproof (draughtproof) sealing of the seams;
- a hygienic and decorative finish of the seams.



The **PROFISOL suspension bracket** is made out of Aluzinc.

This bracket is fastened to the bearers with stainless steel nails (1).

The maximum bearer distance depends on the used thickness and the upper load. In case of a thickness of 30 mm, the maximum distance is 1350 mm.



The suspension bracket ensures:

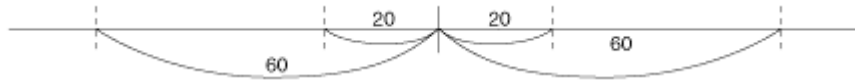
- the fastening of the profile to the bearers (min. 1 per bearer) (2);
- the maintenance of a ventilation gap between insulation and bearers.

The standard height of the suspension bracket is 70 mm, enabling a broad ventilation gap of 2 to 3 cm.

In certain constructions, the steel frame is higher than the bearers are, which makes a continuous insulation ceiling difficult or impossible. Here, suspension brackets are used with a height of 200 mm, enabling in most cases continuous insulation under the steel frame.

1.2. Fastening of thin boards with screws or twisted nails with plastic cap

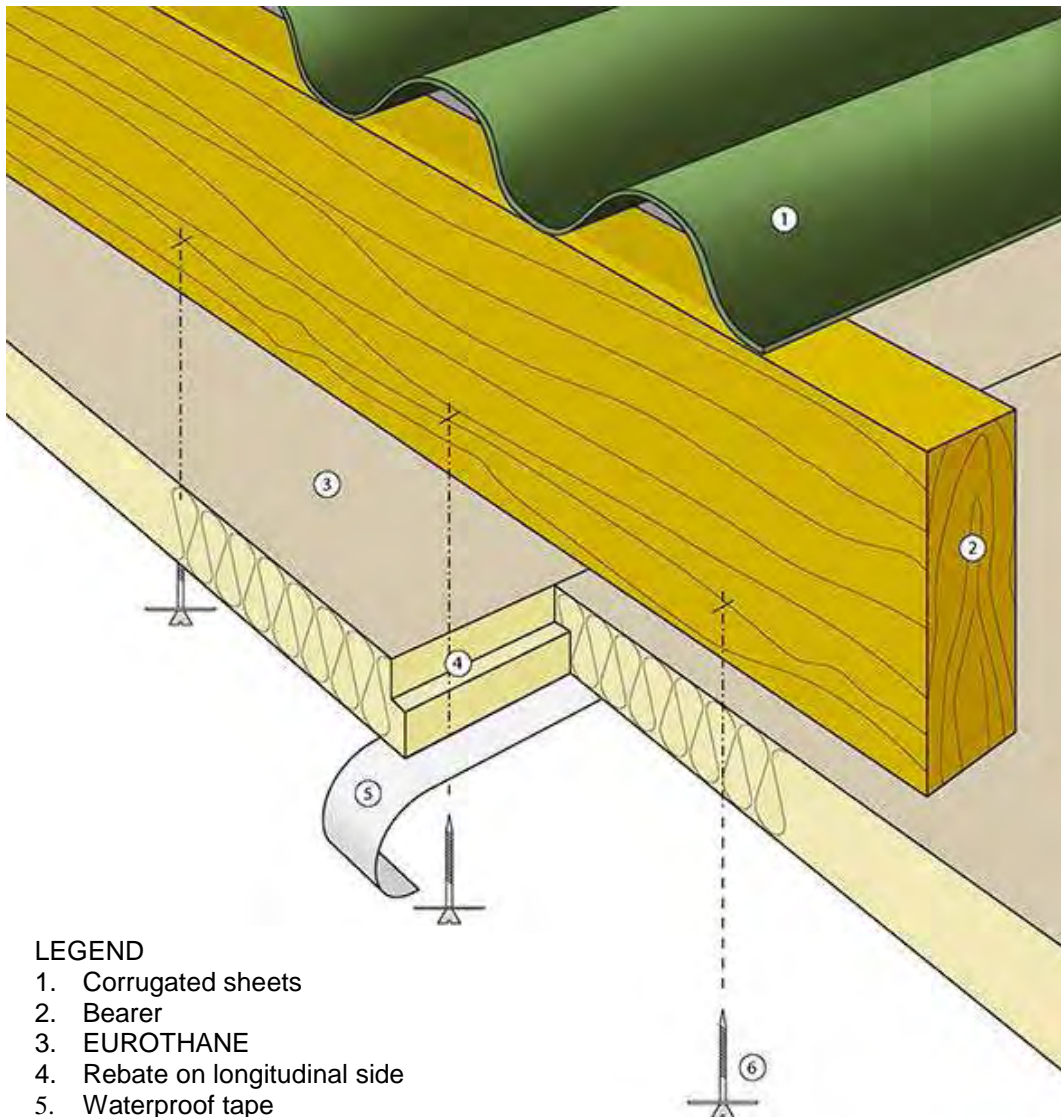
It is preferred to make three high-quality fastenings per bearer at 20 cm from the ends and in the centre of the board width.



The use of screws or twisted nails and washers is recommended. In each case, the fastenings have to penetrate the wood with at least 3 cm.

Bearer distance max. 1350 mm.

A seam finish with waterproof tape is recommended.



LEGEND

1. Corrugated sheets
2. Bearer
3. EUROTHANE
4. Rebate on longitudinal side
5. Waterproof tape
6. Nails or screws

Recticel points to the risk of accumulation of moist behind the bearers.

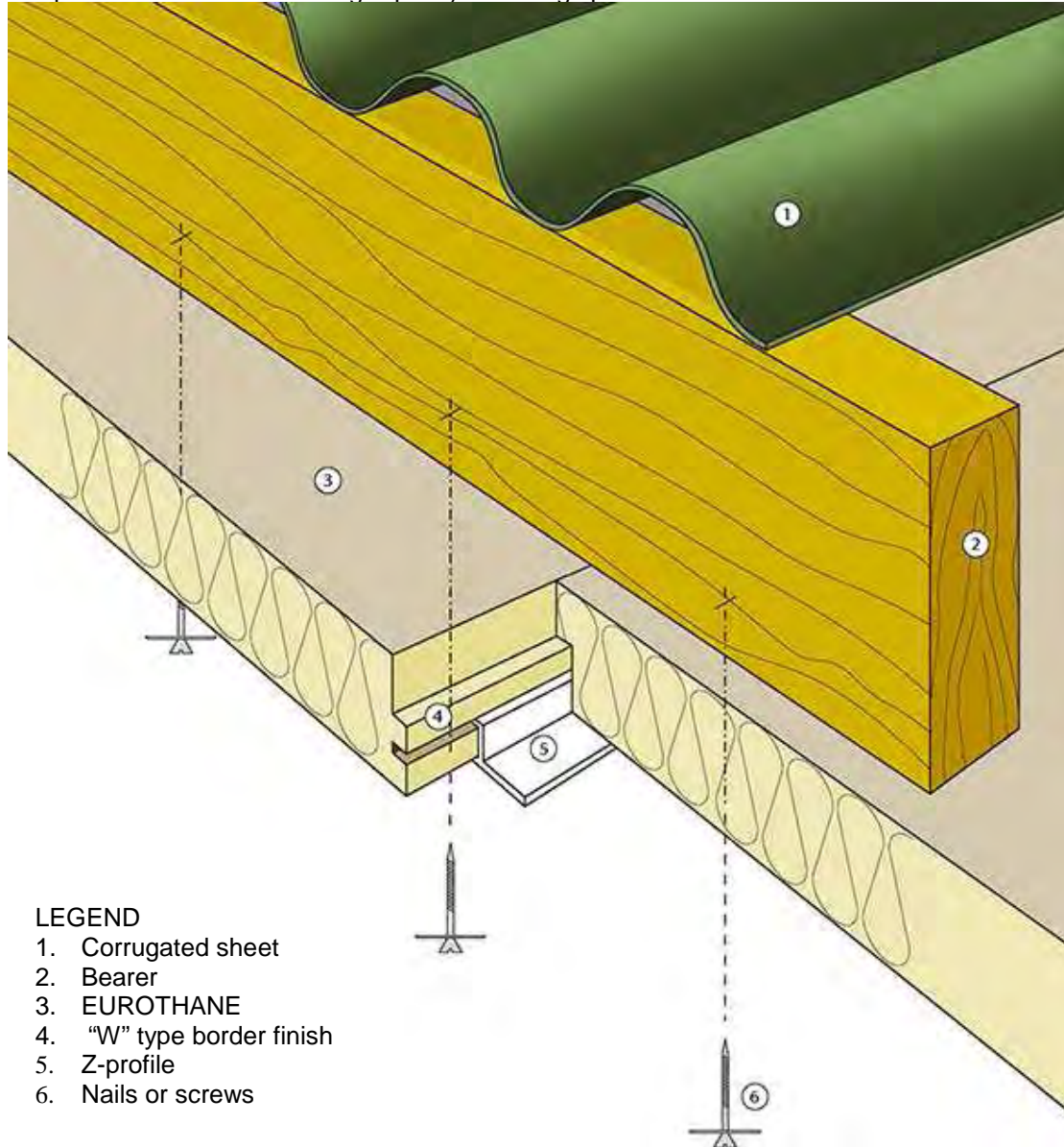
Especially with metal roof panels, this construction thus has to be avoided. Whenever a flat ceiling and a good sealing of the seams is desired, or in case of ventilation or the prevention of condensation, the QUATTRO system is recommended.

1.3. Thick boards with Z-profile

EUROTHANE is fastened with screws or twisted nails at the bottom of the bearers.

The connection between the boards is ensured by the combination of a "W" type border finish and a Z-profile (5).

It is preferred to make three high-quality fastenings per bearer at 20 cm from the ends and in



Recticel points to the risk of accumulation of moist behind the bearers. Especially with metal roof panels this construction thus has to be avoided.

1.4. Lath / lath mounting

This kind of fastening can be applied with thick as well as with thin boards and offers the ideal solution in case of air conditioning and/or moist production.

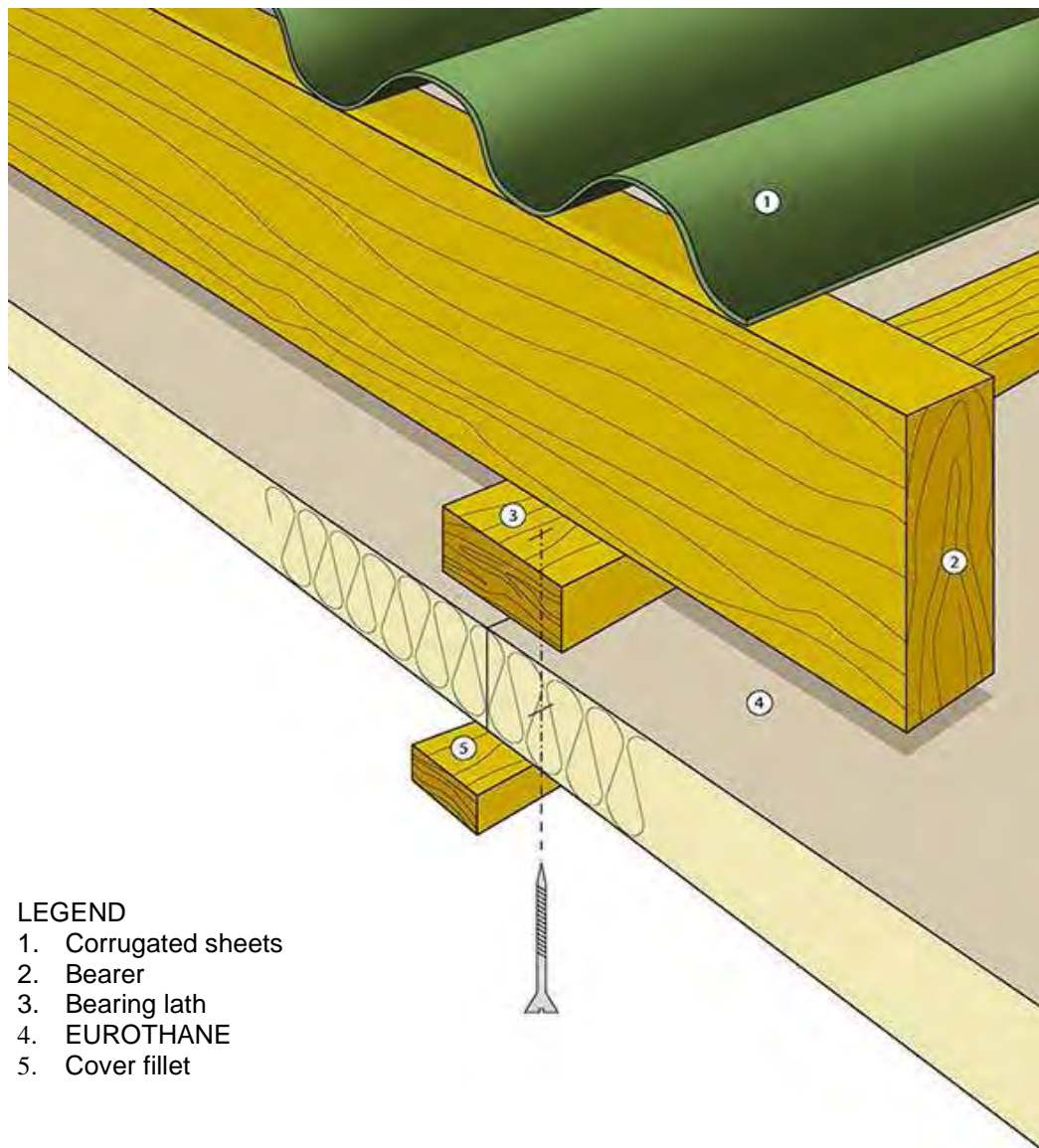
First, a bearing lath (e.g. 70 x 40 mm) is fastened to the bottom of the bearers.

The center-to-center distance is determined in function of the live width of the insulating board chosen.

The insulating boards are mounted at the bottom of and parallel with these laths. They are provisionally kept in place with a few nails. When the following board has been mounted, a planed cover fillet (40 x 20 mm) is screwed in the bearing lath located above. The distance between the screws is 50 cm.

Because of the clamping function of the lath / lath connection, an airtight board connection is realised, making the use of a supplementary bearer redundant.

Moreover, in this manner, a ventilation gap is created between bearer and insulation.

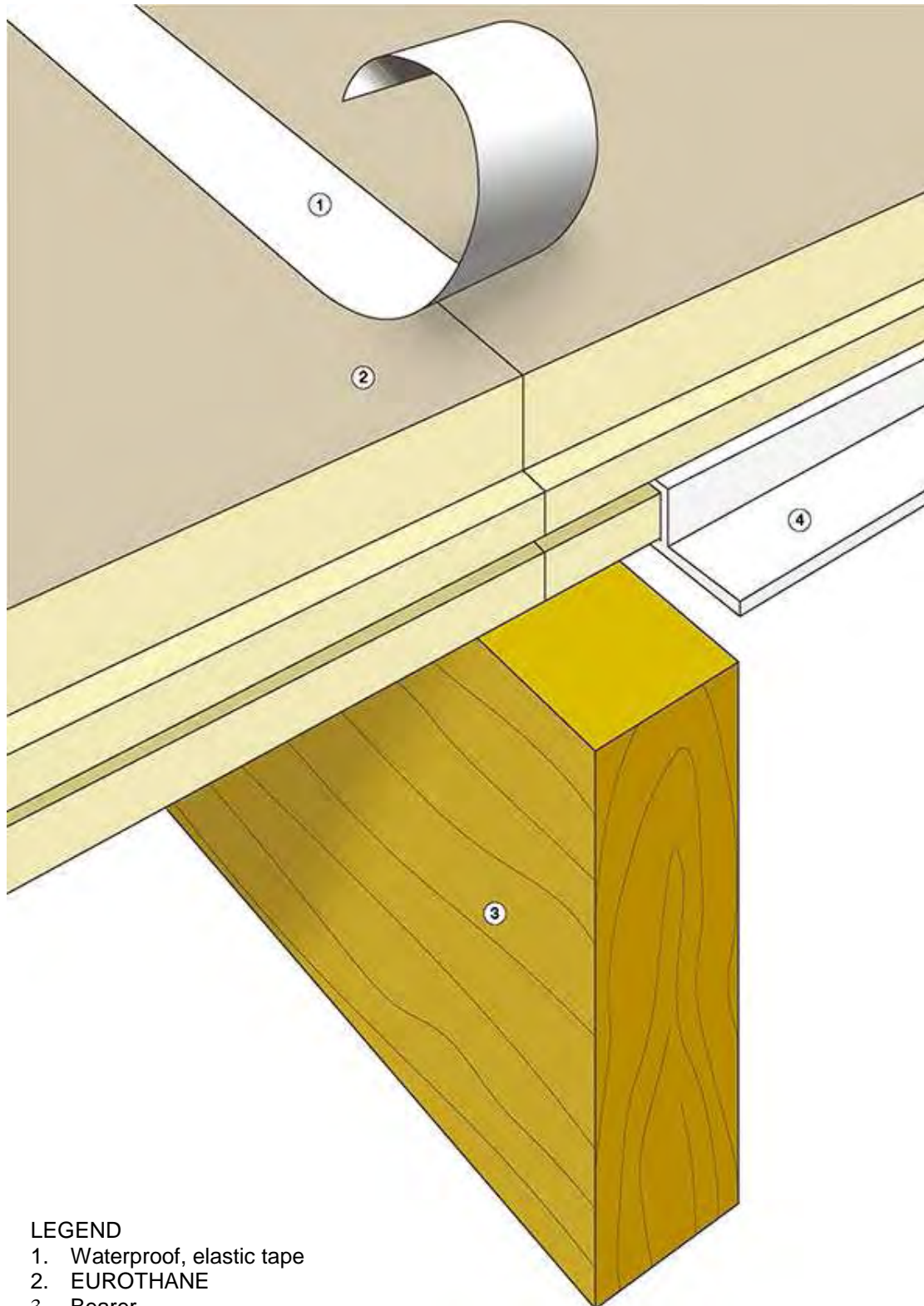


LEGEND

1. Corrugated sheets
2. Bearer
3. Bearing lath
4. EUROTHANE
5. Cover fillet

2. Insulation fixed to the top of the roof structure

Insulation is preferably done with one board length, from ridge to gutter.
If this distance is too large, the cross-cut connection has to be made at the lower bearer height and is finished on top with the same tape (see detail).



LEGEND

1. Waterproof, elastic tape
2. EUROTHANE
3. Bearer
4. Z-profile

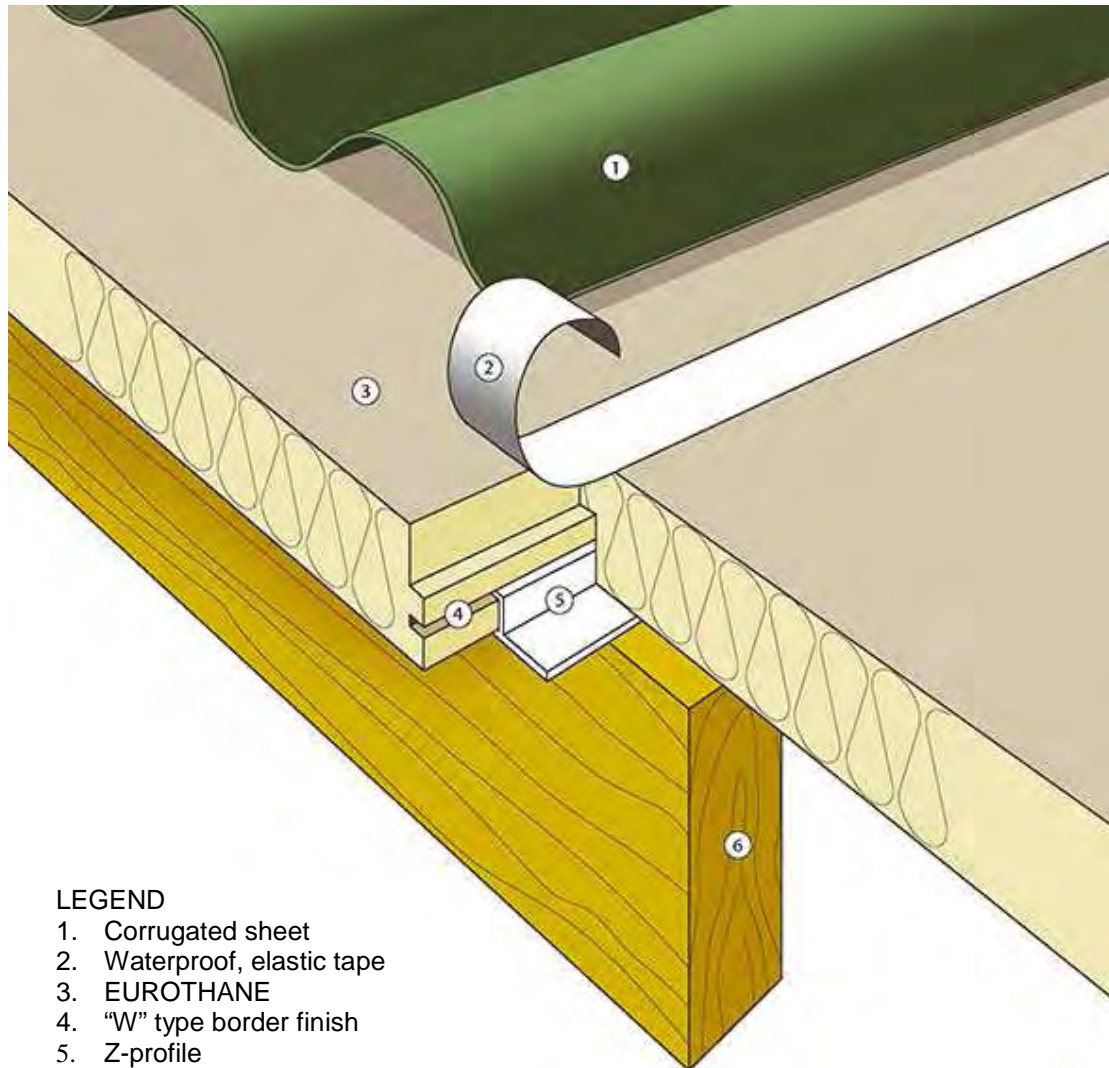
2.1. Mounting on top of the bearers : fibre cement corrugated sheets

This construction assumes the use of fibre cement corrugated sheets.

Please refer to the manufacturer's prescriptions for the mounting of the corrugated sheets.

For buildings with internal climate class IV or a building in overpressure, extra attention has to be paid to the seam finish.

In exceptional cases when condensation cannot be avoided, the draining of condensation water may be considered to be done via the corrugated sheets, taking account of the required seam sealing of the roof.



LEGEND

1. Corrugated sheet
2. Waterproof, elastic tape
3. EUROTHANE
4. "W" type border finish
5. Z-profile
6. Bearer

Possible condensation leaks can be drained via the insulating board.

The border finish – "W"-type combined with matching Z-profile and sealed on top with a waterproof, elastic tape – ensures a continuous insulating shield.

2.2. Mounting on top of the bearers : metal sheets

This construction ensures extra safety when metal sheets are used as roof deck.

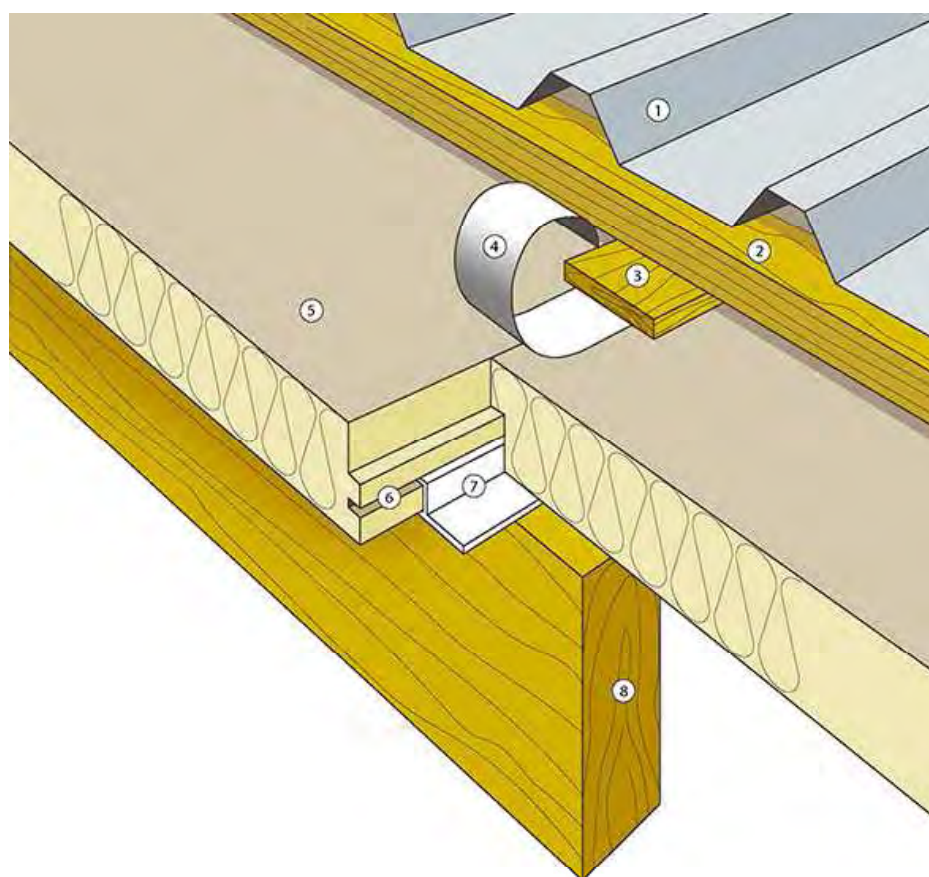
Please refer to the manufacturer's prescriptions for the mounting of the metal sheets.

Due to the phenomenon "supercooling" of metal sheets, the risk of condensation is larger than when using corrugated sheets. Therefore, it is necessary to pay extra attention to the draining of condensation water.

When the metal sheets are directly mounted on the insulating boards, the contact surface would be too large and the thermal load would be too heavy.

The construction described takes these facts into consideration.

The border finish – "W" type combined with matching Z-profile and sealed on top with a waterproof, elastic tape – ensures a continuous insulating shield.



LEGEND

1. Metal sheet
2. Wooden lath 50 x 70 mm
3. Transverse member 22 x 68 mm
4. Waterproof elastic tape
5. EUROTHANE
6. Border finish type "W"
7. Z-profile
8. Bearer

On top of this tape a wooden transverse member is attached from ridge to gutter, assuring an extra clamping of the structure and meanwhile enabling the draining of condensation water.

Square with these members, wooden laths are mounted, serving as support for the metal deck. Using this lathing, every direct thermal contact with the insulation is avoided.

Due to its closed character, a roof construction with metal sheets is more susceptible to wind loads. Therefore, lathing dimensions and fastenings have to be thoroughly examined.