



Installation instructions

Breathable sarking sheets:

DELTA®-MAXX TITAN
Thermomembrane
DELTA®-MAXX PLUS
Energy-saver membrane
DELTA®-MAXX
DELTA®-VENT N PLUS
DELTA®-VENT N

Breathable sarking and sheathing membranes:

DELTA®-FOXX PLUS
DELTA®-FOXX
DELTA®-VENT S PLUS
DELTA®-VENT S

Non-breathable waterproofing sheets:

DELTA®-FOL PVE
DELTA®-FOL SPF
DRAGOFOL

Non-breathable sheathing and waterproofing sheets:

DELTA®-FOL PVG PLUS
DELTA®-FOL PVG

General comments

When installing DELTA® roofing sheets, the generally recognised codes of practice should be observed at all times. When selecting a suitable product and/or working method, the physical aspects of the building element should be taken into account. DELTA® waterproofing, sarking, and sheathing membranes should be fastened with staples or clout nails so that the fastening elements are covered by longitudinal or transversal overlaps or counterbattens.

In any locations that cannot possibly be covered in this way, DELTA®-DICHTNAGEL fasteners should be used, or else the locations should be covered with DELTA®-MULTI-BAND. Such points, the number of which should be restricted to the minimum, should not be located in the main water flow, in valleys, for example. Overlaps should be sealed with DELTA®-MULTI-BAND or DELTA®-PLUS variants; with DELTA®-FOXX, DELTA®-PREN may be used as an alternative.

Temporary roofing. In January 2010, a set of new regulations developed by the Central Association of the German Roofing Trade (ZVDH) came into force. According to these regulations, temporary roofing may be required on roofs over attics used for residential purposes and/or equipped with heat-insulation. Sheets belonging to the UDB-A, UDB-B, and USB-A classes as defined in the product data sheets for waterproofing (USB) and sarking (UDB) sheets may be used for temporary roofing. Any other related points will be discussed in detail in these installation instructions.

In attics without interior furnishing, DELTA® waterproofing and sarking sheets must be protected from permanent exposure to sunlight.

Installation instructions for

Installation

(Fig. 1a and 1b) DELTA® waterproofing, sarking, and sheathing membranes should be laid out parallel to the gutter. Overlaps should be at least 10 cm wide. Lateral overlaps should be arranged under counterbattens. The printed side is the upper side which should face up when the sheet is laid out.

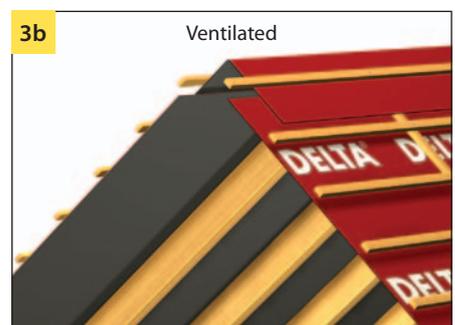
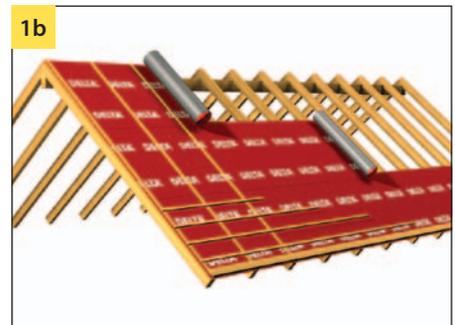
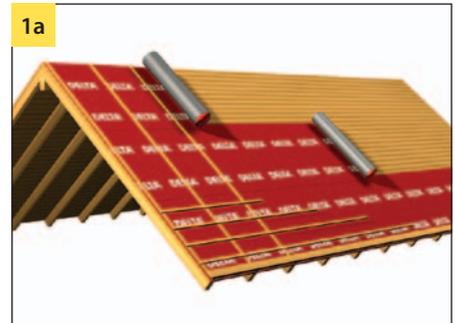
The manner in which waterproofing, sarking, and sheathing membranes are installed depends on whether the slope of the roof is standard or substandard. Any further requirements may be found in the **Code of Practice of the German Roofing Trade (ZVDH)**.

Temporary roofing

Temporary roofing may be required if work has to be interrupted. In such cases, the waterproofing or sarking sheets installed must be capable of protecting the building or any of its segments below the roof from rain for a limited period of time.

All work should be done carefully enough so that these requirements can be met. This includes, for example, properly sealing seams with rising building elements and keeping water from penetrating through the fastening points of counterbattens and roof battens. This, in turn, requires using DELTA®-System components. We recommend sealing overlaps with adhesive tape. Because of the high degree of safety they offer, DELTA®-PLUS products with a self-sealing edge should be preferred. For recommendations about how to make overlaps, consult Table 1.

Under certain conditions, seams can only be made safely on a stiff substrate (e.g. hard sheathing) on which adequate pressure can be applied. Areas with several closely-spaced penetrations are a case in point.



DELTA® roofing sheets

The elements by which sheets are fastened should always be located within an overlap for cover. Fastenings that have to be left uncovered should either be made with DELTA®-VDN VORDECKNAGEL fasteners or covered with separate strips of sheet that are glued on. The number of such fastenings should be limited to the minimum, and they should not be located in main water courses, such as valleys.

As an alternative, sheets may be held in place by storm battens padded with DELTA®-SCHAUM-BAND SB 60 at the nailing points. After removing a storm batten, the penetration points of the fastening elements should be sealed. With roof coverings that are directly attached to the hard sheathing, such as slate, this is not necessary, provided that the storm battens are removed as and when the tiles are mounted.

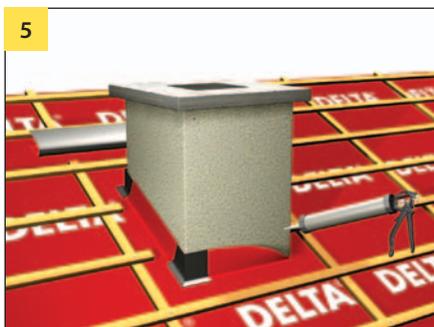
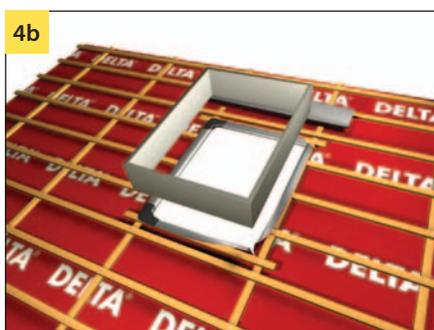
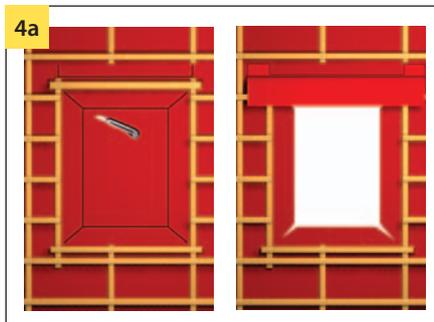
The time for which sheets used as temporary roofing may be left uncovered is limited to 4 weeks for VENT types and 6 weeks for premium types. The roof slope should be restricted to $\geq 16^\circ$.

Gutter/Ridge

(Fig. 2) Along the gutter, DELTA® waterproofing, sarking, and sheathing membranes should rest either on a drip plate below the counterbattens and the fascia board or on the eaves flashing above the fascia board. Water pockets and counter-slopes should be avoided.

(Fig. 3a) In unvented roof constructions, DELTA® waterproofing, sheathing, or sarking sheets should be stretched across the ridge for protection from snow and rain.

(Fig. 3b) In vented roof constructions, DELTA® waterproofing sheets should end approx. 50 mm and DELTA® sheathing and sarking sheets approx. 30 mm below the apex of the ridge. Across the resultant ventilation opening, a sheet strip may be stretched above the counterbattens so as to overlap the entire sheet surface by no less than 15 cm. In undeveloped attics, where humidity convection cannot be ruled out, adequate cross-ventilation may be achieved, for example, in the manner shown in Fig. 3b.



In such cases, a relatively large opening in the ridge area as well as other openings may be required.

If an open ridge or arris is needed for a temporary roof, the client will have to be consulted on whether such openings are admissible during the building phase or should be made when the roof covering is finished.

Windows

(Fig. 4a) When installing a moonroof window, begin by determining the position in which the upper and lower mounting laths for the window should be fixed. Remove the counterbatten to make room for the sheet gutter and make cuts in the DELTA® waterproofing, sheathing, or sarking sheet as shown in Fig. 4a. Make a frame around the window opening with lath sections, turn back the sheet strips and attach them to the laths. Make a sheet gutter on the ridge side of the window using sheet strips approx. 30 – 40 cm wide and of sufficient length, making sure that the gutter slopes towards one side so that intruding water will flow into a neighbouring batten field. When windproofing is required, seal the overlaps laterally and transversally.

For a temporary roof, extend the sheet strip of the sheet gutter to the next horizontal overlap on the ridge side and wrap it around with adhesive tape as per Table 1. This eliminates the need for cutting into the surface.

(Fig. 4b) Use DELTA®-FLEXX-BAND for rain-proofing the gaping joints at the corners. Insert the moonroof window into the opening thus created and fasten it. If windproofing is required, and/or if the counterbattens or frames are located at a distance from the window, separate sheet strips should be attached to the window. Make sure that the joints between the sheets turned back on the frame on the one hand and the substrate and the window on the other may be wind-proofed with DELTA®-THAN or DELTA®-MULTI-BAND. Corners should be sealed with DELTA®-FLEXX-BAND.

Joins

(Fig. 5) Joints with rising building elements are made by running up and fastening either the sheets themselves or separate sheet strips. If separate sheet strips are used, they should be attached to flat surfaces with DELTA®-MULTI-BAND and any corners sealed with DELTA®-FLEXX-BAND. When windproofing is required, use DELTA®-THAN to connect the sheet to the rising building elements. Attach an inclined sheet gutter as shown in Fig. 4a above any penetrations in the masonry.

Making a temporary roof requires making additional seams with rising building elements and protecting them from seepage.

Nail seals

(Fig. 6) To keep water from penetrating through the fastening the points of counterbattens and roof battens, we recommend applying DELTA®-SCHAUM-BAND SB 60 underneath the counterbattens.

In temporary roofs and roofs with sub-standard slopes, DELTA®-NAGELDICHTUNGSBAND must be used. When laying out sheets on hard sheathing, it makes sense to use DELTA®-SCHAUM-BAND SB 60 to compensate for any variations in board thickness or sheathing deformations. To obtain a proper sealing effect, the DELTA®-DICHT-BAND D 50 and DELTA®-DICHT-BAND C 50 nail-sealing strips must be pressed to the substrate during laying.

All DELTA®-NAGELDICHTUNGSBAND types must be sufficiently pressed on to the substrate with counterbattens etc.

Valleys

(Fig. 7) Valleys should be made by providing a structure of laths or boards to support the valley formwork and the ends of the counterbattens. Mount the formwork on the structure and cover it with a sheet strip wide enough so that the sheets overlap sufficiently and can be taped to the valley sheet at a distance from the supporting structure.

Alternatively, begin by covering the supporting structure with the valley sheet and attach the valley formwork on top.

General notes

As a general rule, DELTA® waterproofing, sheathing, and sarking sheets are exposed to open-air weathering and, consequently, to UV radiation for a certain length of time. This time is regulated by the specific exposure limits of each product. Sheets may be exposed to UV radiation even after the roof covering has been finished as light may penetrate into undeveloped attics through windows etc., which exposure should be avoided by suitable steps.

If DELTA® waterproofing, sheathing, or sarking sheets are to be used not only as supplementary systems but also for temporary roofing purposes, the foregoing detailed instructions regarding temporary roofs should be observed. Sarking sheets that are to be used for temporary roofing purposes should belong to class UDB-A and/or USB-A or, given the approval of the manufacturers, to class UDB-B.

DELTA® sarking sheets belonging to class UDB-A and UDB-B may be used as temporary roofing. Where enhanced requirements apply (e.g. long open-air weathering periods, valuable goods to be protected), sheets belonging to class UDB-A should be used. If a temporary roof is to be made with components that do not belong to the DELTA®-System (e.g. adhesives, nail sealing strips, etc.), the manufacturer of such additional material shall demonstrate and warrant that a temporary roof comprising DELTA® sarking or waterproofing sheets featuring adequate resistance to ageing and protection from driving rain can be made with such supplementary material.

DELTA® sarking sheets belonging to class UDB-A and UDB-B may also be used for temporary roofing when installed as waterproofing sheets.

■ These installation instructions show examples. Other versions are admissible provided they conform to the generally re-

cognised codes of practice. Any deviations required may be discussed with Dörken GmbH & Co. KG on a case-by-case basis.

■ An extensive collection of details as well as standard requests for tender are obtainable at www.doerken.com.

Table 1: Making of overlaps (and bonded seams)

Substrates should always be clean, dry, free from dust, frost, and grease, and sufficiently free from porosity. Bonded seams may be made from $\geq + 5$ °C. For details, see our instructions for using products belonging to the DELTA® range of adhesives.

DELTA® sheets	Longitudinal overlaps	Transversal overlaps/connecting strips	Seams with rising building elements	Corners, pipe lead-throughs
DELTA®-MAXX COMFORT	Integrated self-sealing edge	DELTA®-MULTI BAND	DELTA®-THAN	DELTA®-FLEXX BAND
DELTA®-MAXX PLUS	Integrated self-sealing edge	DELTA®-MULTI BAND	DELTA®-THAN	DELTA®-FLEXX BAND
DELTA®-VENT S PLUS	Integrated self-sealing edge	DELTA®-MULTI BAND	DELTA®-THAN	DELTA®-FLEXX BAND
DELTA®-VENT N PLUS	Integrated self-sealing edge	DELTA®-MULTI BAND	DELTA®-THAN	DELTA®-FLEXX BAND
DELTA®-FOL PVG PLUS	Integrated self-sealing edge	DELTA®-MULTI BAND	DELTA®-THAN	DELTA®-FLEXX BAND
DELTA®-MAXX	DELTA®-MULTI BAND	DELTA®-MULTI BAND	DELTA®-THAN	DELTA®-FLEXX BAND
DELTA®-FOXX PLUS	Integrated self-sealing edge	DELTA®-PREN oder DELTA®-THAN	DELTA®-THAN	DELTA®-FLEXX BAND
DELTA®-FOXX	DELTA®-PREN	DELTA®-PREN	DELTA®-THAN	DELTA®-FLEXX BAND
DELTA®-VENT S	DELTA®-MULTI BAND	DELTA®-MULTI BAND	DELTA®-THAN	DELTA®-FLEXX BAND
DELTA®-VENT N	DELTA®-MULTI BAND	DELTA®-MULTI BAND	DELTA®-THAN	DELTA®-FLEXX BAND
DELTA®-FOL PVG	DELTA®-MULTI BAND	DELTA®-MULTI BAND	DELTA®-THAN	DELTA®-FLEXX BAND

DELTA®



Dörken GmbH & Co. KG
Wetterstraße 58
D-58313 Herdecke
Tel.: +49 23 30/63-0
Fax: +49 23 30/63-355
bvf@doerken.de
www.doerken.de

A company of the Dörken Group