SINTEF Technical Approval

TG 20415

Issued first time: 25.11.2014
Revised: 23.03.2020
Amended: 10.08.2022
Valid until 01.05.2025

Provided listed on
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SINTEF confirms that

Ampatop Aero plus wind barrier for wall and roof

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document

1. Holder of the approval

Ampack AG
Seebleichestrasse 50
9401 Rorschach
Switzerland
www.ampack.ch

2. Product description

Ampatop Aero plus is a triple layer membrane of polypropylene, produced for use as combined roofing underlay and wind barrier. The Material is stabilized against UV-light. Ampatop Aero plus is light grey on the outside and white on the inside. Ampatop Aero plus is printed in dark grey letters on the outside. Ampatop Aero plus will be supplied with an integrated tape outside, at the top, and inside at the bottom. Ampatop Aero plus can also be supplied without integrated tape, called Ampatop Aero. Dimensions and weight are shown in table 1.

Ampatop Aero plus can be purchased together with several accessories, described in table 3.

Table 1
Geometric properties of Ampatop Aero plus

Property	Measure	Tolerance	Unit
Roll width	1,5/3,0	-0,5 % /+1,5 %	m
Roll length	30,0/50,0	- 0 %	m
Straightness	-	< 30	mm/10m
Mass per unit	145	± 10 %	g/m²

3. Fields of application

Ampatop Aero plus is to be used as wind barrier on thermal insulated wall constructions as well as combined roofing underlay and wind barrier in pitched roof constructions with ventilated roofing and outside drain.

Ampatop Aero can be mounted transversal or longitudinal to the studs of a wall or to the rafters of a roof. See examples for mounting in figure 1.

Ampatop Aero plus can be used in hazard class 1-6 in fire class 1 in buildings up to three floors if each dwelling unit has direct access to the ground level (not via stairs or staircases). For other use, a fire safety analysis must be performed.

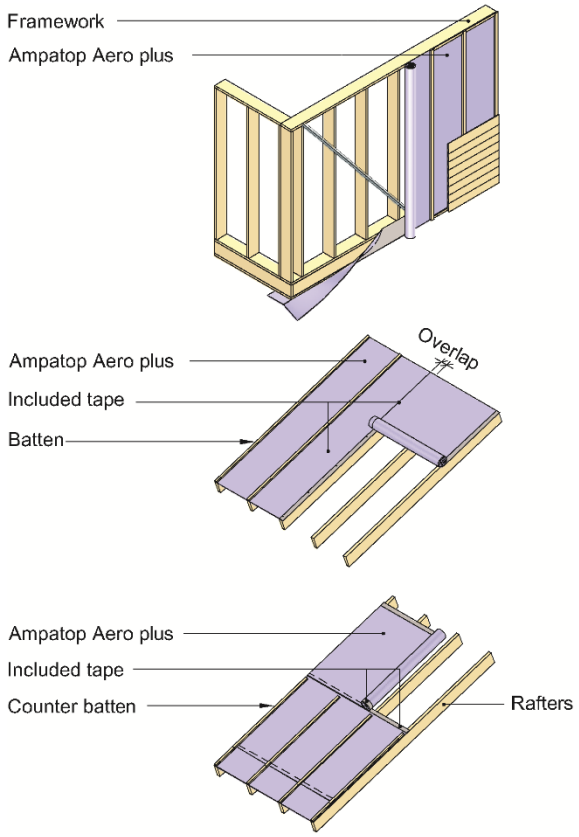

Fig. 1
Ampatop Aero plus mounting principles: at the top, horizontal mounted on a framework wall and underneath mounted in both directions on a roof.

4. Properties

Material properties
Material properties for Ampatop Aero plus are shown in table 2.

Properties related to fire
Ampatop Aero plus is classified in class E for "Reaction to fire" according EN 13501-1.

Table 2 Ampatop Aero plus, product- and construction properties

Property	Test Method	DoP [1]	Control limit [2]	Unit
Water tightness	EN 1928 (A)	W1	W1	class
Rain and wind tightness construction	NT Build 421		300 [3]	Pa
Air tightness material	EN 12114	≤ 0,04	≤ 0,04	$m^3/(m^2\ h\ 50Pa)$
Air tightness construction	EN 12114	-	≤ 0,25 [3]	$m^3/(m^2\ h\ 50Pa)$
Vapour permeability	EN-ISO 12572	0,04 ± 0,02	< 0,06	(Sd) m equivalent thickness air-layer
Tear resistance (nail shank) L: T:	EN 12310	145 ± 30 185 ± 30	≥ 115 ≥ 155	N
Tensile strength L: T:	EN 12311-1	240 ± 25 180 ± 25	≥ 215 ≥ 155	N/50mm
Elongation L: T:	EN 12311-1	65 ± 15 40 ± 15	≥ 50 ≥ 25	%
Dimension stability	EN 1107-2	≤ 2	≤ 2	%

[1] The manufacturers Declaration of performance, DoP
[2] Control limit shows values, product has to satisfy during internal factory production control and audit testing.
[3] Result from type testing

Table 3 Accessories for Ampatop Aero plus

Accessories	Uses for	Material / Description	Measures
Ampacoll XT [1]	Taping of penetrations, alternative for joints	Acrylic tape with paper baking	Width 60, 75, 100, 150, 200, 250 mm Length 25 m Thickness 0,3mm
Ampacoll Flexx Pro [2] [3]	Taping of penetrations and reparations	Acrylic tape with PE foil baking	Width 60 mm / Length 40 m Width 100 mm / Length 25 m Width 150 mm / Length 25 m
Ampacoll BK 535 [1]	Taping of penetrations	Butyl based tape with PE-foil baking	Width 50 mm / Length 25 m / 5m Width 80 mm / Length 25 m Width 120 mm / Length 30 m
Ampacoll Primax	Primer for increasing adhesive properties	Solvent-free primer	1 L
Ampacoll ND Band	Protection of nail penetrations under counter batten	Expanding foam material with an adhesive on one side	30m x 60mm x 3mm

[1] Ampacoll XT tape has satisfactory adhesion to the surface of Ampatop Aero plus, painted and untreated wood, galvanized and stainless steel, painted and anodized aluminium, PVC, betong and GUX gypsum plasterboard.
[2] Ampacoll Flexx Pro tape has satisfactory adhesion to the surface of Ampatop Aero plus, painted and untreated wood, galvanized and stainless steel, painted and anodized aluminium and PVC.
[3] Ampacoll Flexx Pro can be used in areas where water accumulation is usually not possible, like at pitched roofs or vertical surfaces as result of penetrations without horizontal obstacles for draining of water on the underlay. At the upper sealing of chimney additional actions must be taken. See also fig. 4.

Durability
Ampatop Aero plus is considered to have satisfactory durability based on laboratory testing before- and after accelerated artificial climate ageing. The product must be protected against direct exposure to UV radiation in the complete construction. The product must be covered as soon as possible after installation at roofs and walls, without unnecessary delay.

Resistance against tread through
Resistance against tread through is not evaluated for Ampatop Aero plus.

Air tightness construction
The airtightness of the wind barrier makes it possible to fulfil any requirements regarding airtightness (n_{50}) given in the building regulations, and in the Norwegian passive house standards, before the vapour barrier is installed.

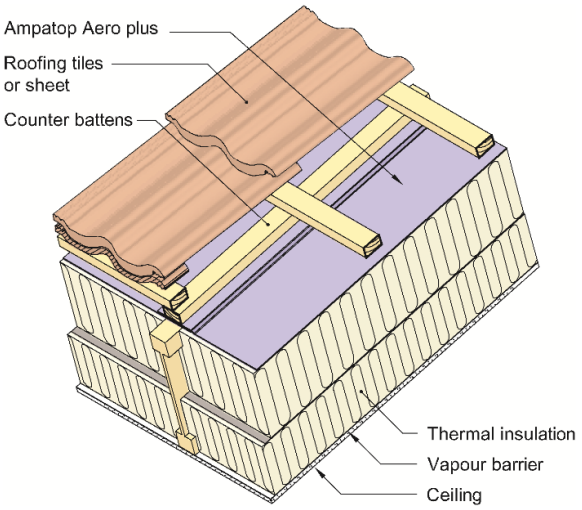

Fig. 2
Principle of the situation, Ampatop Aero plus in a roof construction.

5. Environmental aspects

Substances hazardous to health and environment

Ampatop Aero plus contains no hazardous substances with priority in quantities that pose any increased risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

Waste treatment/recycling

Ampatop Aero plus wind barrier and tapes shall be sorted as residual waste on the building/demolition site. The product shall be delivered to an authorized waste treatment plant for energy recovery.

Environmental declaration

No environmental declaration (EPD) has been worked out for Ampatop Aero plus.

6. Special conditions for use and installation

General

Ampatop Aero plus must be mounted so that both an air and rainproof layer is obtained on the wall and ceiling.

As wind barrier Ampatop Aero plus, has to be used according principles shown in SINTEF´s Building Research Design Guide no. 523.255 *Bindingsverk av tre. Varmeisolering og tetting* and 525.101 *Isolerte skrå tretak med lufting mellom vindsperre og undertak*.

As combined roofing underlay and wind barrier Ampatop Aero plus has to be used according principles shown in SINTEF´s Building Research Design Guide no. 525.102 *Isolerte skrå tretak med kombinert undertak og vindsperre*.

Design considerations

Overlapping joints on studs or rafters has to have a minimum 100mm overlap and continuous clamp of battens. Ampacoll XT tape or Ampacoll BK 535 can be used on joints for additional safety against air and rain penetration.

Mounting Ampatop Aero plus transversal to rafters it is important to guarantee the adhesion of the adhesive stripes to give a continuous tightness to the joints.

Ampatop Aero plus can be used for roof slopes from 15°.

Installation

Under installation of Ampatop Aero plus shall the product be installed tensed on the studs or rafters to avioid folds in the adhesive joints.

In case of installation parallel to rafters, the product should be installed continuously from eave to ridge without transvers joints. All longitudinal joints need to be clamped continuously on top of a rafter.

In case of installation transversal to rafters, Ampatop Aero plus should be installed continuously from gable to gable. Mounting shall always start at the eave.

Dimensions of counter battens and ventilation space

The roofing shall have a ventilated space between the roofing and the underlay. For roofs with a maximum length between eaves and ridge of approx. 7 m the following minimum thickness of counter battens should be used depending on the roof pitch α:

	α < 30°:	36 mm
31º ≤	α < 40°:	30 mm
	α ≥ 41°:	23 mm

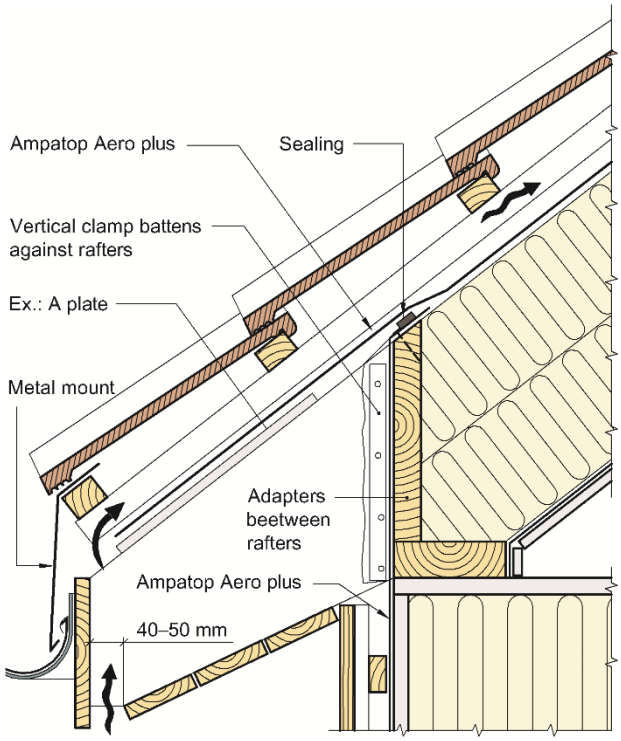

Fig. 3
Example of an eave between roof and wall with Ampatop Aero plus

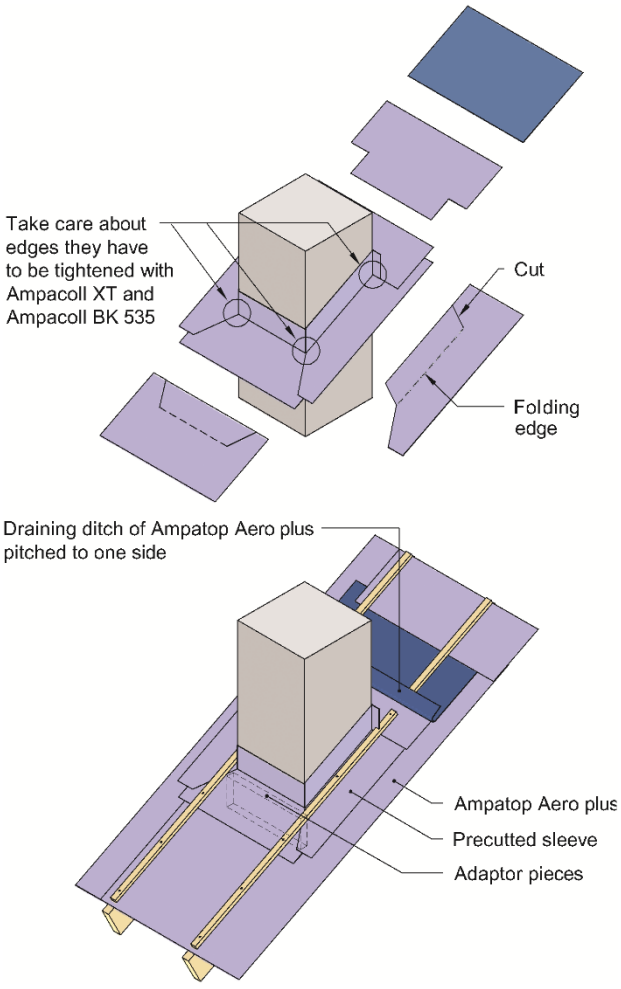

Fig. 4
Example of penetration of a chimney with Ampatop Aero plus

For larger roofs the distance between the underlay and the roofing battens should be increased, see Building Research design Guide no. 525.102 *Isolerte skrå tretak med kombinert undertak og vindsperre*

Counter battens shall be fixed in a way that ensure sufficient clamp for the joints of Ampatop Aero plus. There should not be used counter battens thicker than 36mm. Counter battens shall be fixed with screws or nails in max c/c 300 mm distance. Minimum screw or nail length shall be 2.5 times the thickness of counter or clamping batten. When mounting transverse to rafters, the counter battens is cut to the lower edge of the tape and mounted as the product is laid out.

On roof it is recommended to use Ampacoll ND Band between wind barrier and counter battens to avoid leakages because of nail penetrations.

Moisture in the building components
Wood-moisture in rafters, wall studs and all battens shall be in maximum 20 % (weight percent) when the wind barrier shall be mounted. Shrinking in the wood shall not decrease the ability to clamp the overlaps of the membrane.

Joints to other building components and penetrations
On roof Ampatop Aero plus shall be mounted with airtight connections to outer wall and with airtight overlap over ridges, eaves or valleys. Penetrations through roof (chimney, roof windows, pipes etc.), have also to be air- and watertight.

7. Factory production control

The product is produsedby Ampack AG; Seebleichestrasse 50, 9401 Rorschach; Switzerland.

The holder of the approval is responsible for the factory production control in order to ensure that Ampatop Aero plus is produced in accordance with the preconditions applying to this approval.

The manufacturing of the product and the manufacturer's system for factory production control (FPC) is subject to continuous surveillance in accordance with the contract regarding SINTEF Technical Approval.

Ampack AG quality assurance system is certified according to EN-ISO 9001.

8. Basis for the approval

The evaluation of Ampatop Aero plus is based on reports owned by the holder of the approval.

The evaluation of design and technical solutions are based on recommendations given in SINTEF Building Research Design Guides.

9. Marking

Each rolls of Ampatop Aero plus shall be marked with information about product name, producer, product name and the date of manufacturing.

The product is CE marked according to EN 13859-1 and EN 13859-2.

The approval mark for SINTEF Technical Approval No. 20415 may also be used.

10. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF

Hans Boye Skogstad
Approval Manager