

SINTEF Building and Infrastructure confirms that

## Baca CLASSIC 130, RED STRONG 180 and tapes

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

Baca Plastindustri AS  
 Ulsmågvegen 20  
 5224 Nesttun  
 Norway

### 2. Product description

Baca CLASSIC 130 and Baca RED STRONG 180 combined roofing underlay and wind barrier is a three-layer membranes of thermally bonded non-woven polypropylene fabric, sandwiching a microporous film, to achieve a vapour open membrane. Measures and tolerances are given in table 1.

Baca CLASSIC 130 combined roofing underlay and wind barrier is dark grey and labelled with its name, and information in black letters regarding mounting.

Baca RED STRONG 180 combined roofing underlay and wind barrier is red and labelled with its name, and information in black letters regarding mounting.

Additional products which can be used are the tapes Coroband and Coro Mix. The tapes are single sided and double sided with acrylic adhesive. Further information about tape products are given in table 3.

Table 1  
Measures and tolerances for Baca CLASSIC 130 and Baca RED STRONG 180

Property	Baca CLASSIC	Baca RED STRONG	Unit	Tolerance
Area weight	130	180	kg/m <sup>2</sup>	± 10%
Width	1,5 – 2,8 – 3,0		m	+1,5%/-0,5%
Length / Roll	50	50	m	+5%/-0%

Measured according EN 1848-2 and EN 1849-2.

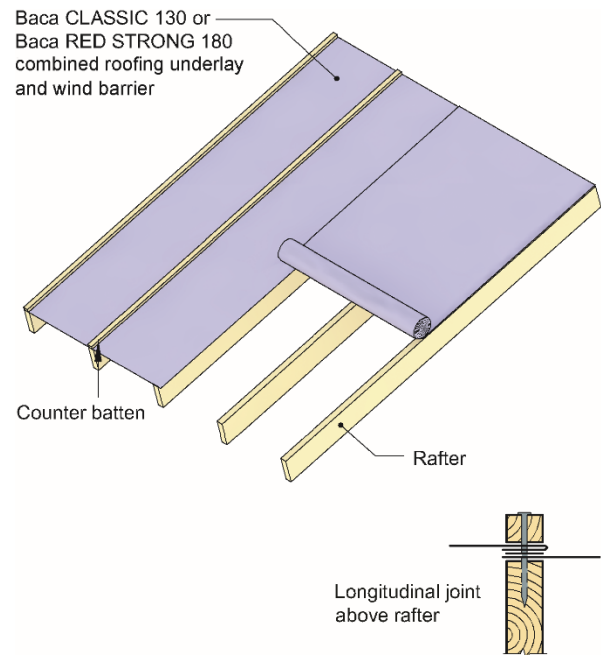


Fig. 1

Baca CLASSIC 130 or RED STRONG 180 combined roof underlay and wind barriers mounted along the rafters

### 3. Fields of application

Baca CLASSIC 130 and Baca RED STRONG 180 can be used either as wind barriers in thermal insulated, wall- and roof constructions or as combined roofing underlays and wind barriers in thermal insulated pitched wooden roofs with ventilated, discontinuous roofing with external drainage, see fig. 1. and 2.

Used as combined roofing underlay and wind barrier are these membranes particularly suitable for roofs with continuous thermal insulation from eaves to ridge. Membranes can may also be applied in pitched wooden roofs without insulation partly or in general.

Baca CLASSIC 130 and Baca RED STRONG 180 combined roof underlay and wind barrier can be used on roofs in buildings in hazard class 1-6 in fire class 1,2 and 3.

Table 2: Material- and construction properties for Baca CLASSIC 130 and Baca RED STRONG 180 combined roofing underlay and wind barrier

Property	Method	Baca CLASSIC 130		Baca RED STRONG 180		Unit
		DoP <sup>1)</sup>	Control limit <sup>2)</sup>	DoP <sup>1)</sup>	Control limit <sup>2)</sup>	
Dimensional stability, -Longitudinal -Transversal	EN 1107-2:2001	- -	< 2 < 2	- -	< 2 < 2	%
Water tightness	EN 1928:2000	W1	W1	W1	W1	Class
Air tightness material	EN 12114:2000	-	< 0,1	-	< 0,1	m <sup>3</sup> /(m <sup>2</sup> h50Pa)
Air tightness construction	EN 12114:2000	-	2,45	-	2,45	m <sup>3</sup> /(m <sup>2</sup> h50Pa)
Rain tightness of construction	NT Build 421	-	500 <sup>3)</sup>	-	500 <sup>3)</sup>	Pa
Tear resistance (nail shank) -Longitudinal -Transversal	EN 12310-1:1999	190 ± 57 250 ± 75	≥ 133 ≥ 175	250 ± 75 300 ± 90	≥ 175 ≥ 210	N
Tensile strength -Longitudinal -Transversal	EN 12311-1:1999 EN 13859-2:2014	330 ± 99 220 ± 66	≥ 231 ≥ 154	450 ± 135 300 ± 90	≥ 315 ≥ 210	N / 50 mm
Elongation -Longitudinal -Transversal	EN 12311-1:1999 EN 13859-2:2014	90 ± 27 130 ± 39	≥ 63 ≥ 91	75 ± 34 130 ± 39	≥ 41 ≥ 91	%
Water vapour resistance	EN 12572:2016	-	≤ 0,02	-	≤ 0,07	(S <sub>a</sub> ) m equivalent air-layer thickness

<sup>1)</sup> Declared value given in the manufacturers DoP (Declaration of performance)

<sup>2)</sup> Control limit shows values the product should satisfy during internal factory production control and audit testing

<sup>3)</sup> Result from type testing

Table 3

Product specification for associated installation components for Baca CLASSIC 130 and Baca RED STRONG 180 combined roofing underlay

Component	Materialtype	Description	Measures
Coroband	single sided PP spun bonded tape with an acrylic dispersion as adhesive	Reparation of ruptures, holes or cuts in Baca products.	Width: 50 mm / 75 mm / 100 mm Length: 25 m
Coro Mix	double sided acrylic dispersion tape with a reinforcement of polyester fibres	Overlap jointing of Baca products	Width: 20 mm / 40 mm Length: 25 m

Baca CLASSIC 130 and Baca RED STRONG 180 can be used as wind barriers on walls 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 stair cases). For other use, a fire safety analysis has to be performed.

Coroband tape is designed to be used to repair ruptures, holes or cuts in Baca CLASSIC 130 and Baca RED STRONG 180.

Coro Mix tape is designed to be used for joints of Baca CLASSIC 130 and Baca RED STRONG 180.

**4. Properties**

*Material properties*

Material characteristics for Baca CLASSIC 130 and Baca RED STRONG 180 are shown in Table 2.

*Safety in case of fire*

Baca CLASSIC 130 and Baca RED STRONG 180 have a reaction to fire class E according to EN 13501-1.

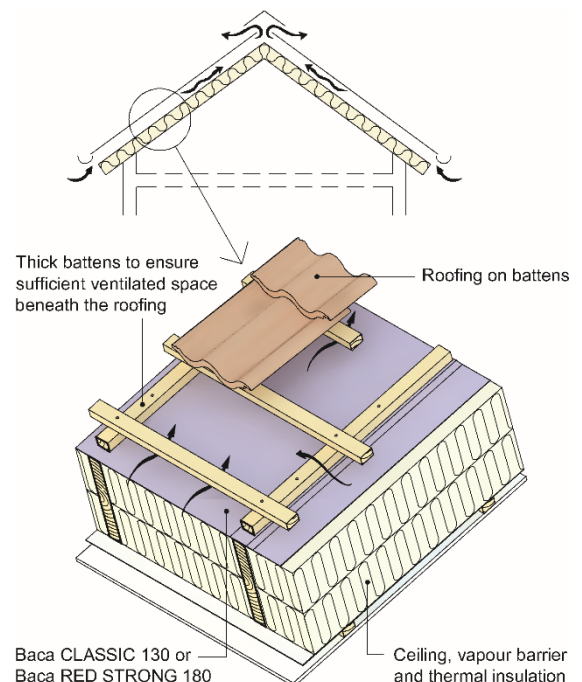


Fig. 2 Principle of Baca CLASSIC 130 or RED STRONG 180 as combined roofing underlay and wind barrier

*Durability*

The durability for Baca CLASSIC 130 and Baca RED STRONG 180 has been tested before and after exposure to artificial ageing according EN 13859-2 and are considered to have satisfactory durability during a construction period as long the products are not exposed to direct UV radiation in the finished construction.

Coroband and Coro Mix have been tested before and after artificially ageing. Tapes are considered to have satisfying properties of adhesion against Baca CLASSIC 130 and Baca RED STRONG 180 according SINTEF.

*Resistance against tread through*

Resistance against tread through is not evaluated for Baca CLASSIC 130 and Baca RED STRONG 180.

**5. Environmental aspects**

*Substances hazardous to health and environment*

The product 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*

The product shall be sorted as residual waste. 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 the product.

**6. Special conditions for use and installation**

*General*

Baca CLASSIC 130 and Baca RED STRONG 180 should be installed in a way that provides both an airtight and a watertight layer on walls or roofs.

Baca CLASSIC 130 and Baca RED STRONG 180 used as wind barrier shall follow the principles in the following SINTEF Building Design Sheets:

- 523.255 Bindingsverk av tre. Varmeisolering og tetting
- 525.101 Isolerte skrå tretak med lufting mellom vindsperre og undertak.

Baca CLASSIC 130 and Baca RED STRONG 180 used as combined roofing underlay and wind barrier shall also follow the principles in SINTEF Building Design Sheet:

- 525.102 Isolerte skrå tretak med kombinert undertak og vindsperre.

*Design considerations*

Membranes used as combined roofing underlay and wind barrier the minimum pitch of the roof should be in minimum 10°.

Baca CLASSIC 130 and Baca RED STRONG 180 shall be installed parallel to the rafters and studs and clamped continuously as shown in fig. 1 and 2.

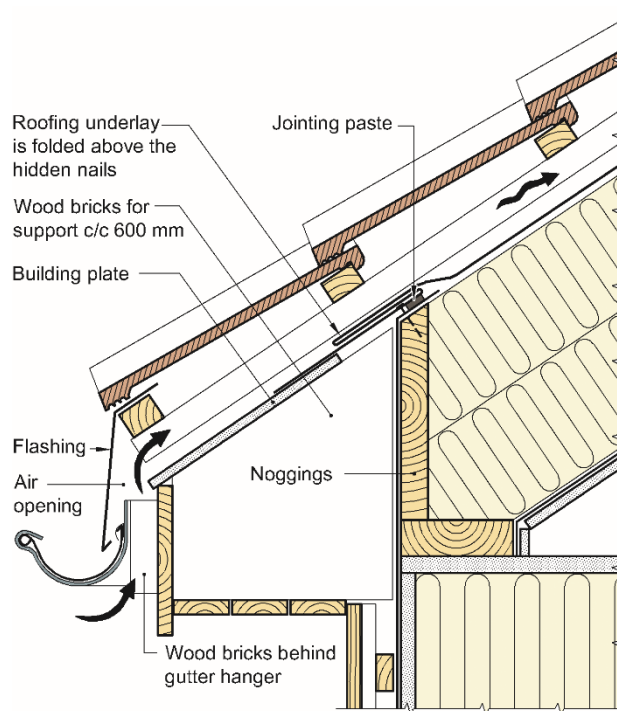


Fig. 3 Example of connection between combined roofing underlay and wind barrier in the roof in a construction without thorough rafters. The connection between combined roof underlay and wind barrier should here be sealed at the top of the nogging beam.

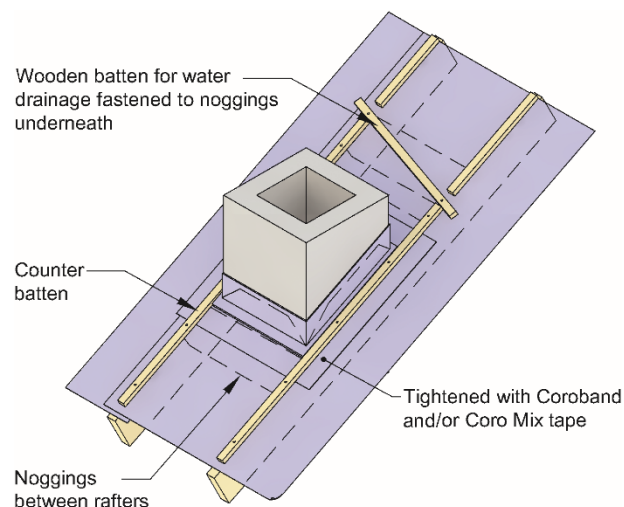


Fig. 4 Example of assembling a chimney bushing by using the combined roofing underlay and wind barrier and additional tapes.

The wall cladding as well as the roofing should be finished as soon as possible after the product has been installed, to prevent that the wind barrier is freely exposed to weather and/or UV radiation for a longer time period. Thermal insulation, vapour barrier and the interior lining shall not be installed before the exterior cladding or roofing has been finished and the underlay is checked to be mounted properly.

Because of minimizing the pressure at the overlaps due to shrinkage of the studs or the rafters, the moisture content of the timber should not exceed 20 % when installed.

#### Installation

All the joints shall have minimum 50 mm overlap and all the joints, edges and connections to other components shall be clamped against the studs, sills, rafters etc. with battens. During installation, the products should be installed tightly fixed on rafters and walls to avoid folds in the membranes.

#### Counter battens and ventilation space

Spaces between combined roofing underlay and roofing have to be ventilated. Recommended heights for counter battens related to different lengths of rafters are mentioned in table 4.

Table 4. Recommended height of counter battens (mm), depending on roof pitch and roof length.

Roof pitch	Roof length (m) <sup>1)</sup>	
	7.5	10
10 – 30 °	36	36 + 36
31 – 40 °	30	36
≥ 41 °	23	36

<sup>1)</sup> Measured along the pitched rafter from eave to ridge

For bigger sized roofs should distances of roofing underlay and battens be improved according to SINTEF Building Design Sheet:

- 525.102 *Isolerte skrå tretak med kombinert undertak og vindsperre.*

Counter battens shall be fixed with screws in max c/c 300 mm distance. It is recommended to use screws which have no thread in the length of the counter battens height.

#### Combination with wooden board sheeting

Baca CLASSIC 130 and Baca RED STRONG 180 may be applied as roofing underlay in combination with wooden board sheeting provided a total water vapour resistance of maximum  $s_{d}$ -value = 0,5 m.

If using wooden sheeting made of plywood or OSB-boards, the water vapour resistance should be documented.

Baca Combined roof underlay and wind barrier can be assembled directly to wooden board sheeting made of spruce or pine in old roofs which are reconstructed and insulated.

#### Connections to other components and structures

Baca CLASSIC 130 and Baca RED STRONG 180 shall be installed with airtight connections to exterior walls wind barrier. In addition shall also all other details be airtight performed, like ridges or valleys. Penetrations through roof (chimney, roof windows, pipes etc.), have also to be performed both water- and airtight. Examples for construction details are shown in SINTEF Building Design Sheet:

- 525.102. *Isolerte skrå tretak med kombinert undertak og vindsperre.*

#### Transport and storage

Baca CLASSIC 130 and Baca RED STRONG 180 shall be stored under dry conditions, where rolls are placed on pallets and wrapped.

#### 7. Factory production control

The product is produced of GLOBAU Sp. Z o.o, Kolejowa 1, 46-040 Ozimek, Poland.

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

The manufacturing of the product is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF Technical Approval.

#### 8. Basis for the approval

The approval is based on properties documented in the following reports:

- SINTEF report 102010396-4, dated 18.11.2015, Air- and rain tightness / material properties
- SINTEF report 102009556-4-1, dated 02.09.2015, Type testing for Coro band and Coro Mix
- SINTEF report 102009556-4-2, dated 08.04.2016, Driving rain testing
- SINTEF report 102009556-4-3, dated 23.06.2017, Air tightness testing
- SP report 5P01843-1, dated 24.02.2015, Determination of air permeability
- Technical University Berlin report AX 131001-2, dated 14.02.2014, Determination of driving rain resistance of breathable membranes
- TSUS, Test report no. 90-16-0162, dated 2016-09-09, Material properties for Baca LIGHT 100
- VTT report Testing of water tightness of a roof underlay, dated 06.06.2011 (rain tightness)
- SP report 3P02295, Step Through test of WALKI@Roof Breath 230, dated 23.07.2013 (step through resistance)
- TSUS, Test report no. 90-16-0163, 2016-09-09 (material properties - Classic)
- TSUS, Test report no. 90-16-0161, 2016-09-08 (material properties – Red Strong)

### 9. Marking

Each roll of Baca CLASSIC 130 and Baca RED STRONG 180 are marked with information about product name, name of the manufacturer and date of manufacturing. The product is CE marked in accordance with EN 13859-2. The approval mark for SINTEF Technical Approval No. 20607 may also be used.



Approval mark

### 10. Liability

The holder/manufacturer has sole product responsibility according 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 Building and Infrastructure

A handwritten signature in blue ink that reads "Marius Kvalvik".

Marius Kvalvik  
Approval Manager