

**European Technical Assessment****ETA 16/0847**  
of 09/01/2018

## General Part

<b>Technical Assessment Body issuing the ETA:</b>	RISE Research Institutes of Sweden AB
<b>Trade name of the construction product</b>	Marmoroc Baltic and Marmoroc Nordic
<b>Product family to which the construction product belongs</b>	Ventilated cladding kits
<b>Manufacturer</b>	Marmoroc AB Box 274 SE-731 26 Köping, Sweden Internet: <a href="http://www.marmoroc.com">www.marmoroc.com</a>
<b>Manufacturing plant(s)</b>	Marmoroc AB Polisgatan 2 SE-731 51 Köping, Sweden
<b>This European Technical Assessment contains</b>	13 pages including 4 Annexes which form an integral part of this assessment.
<b>This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of</b>	European Assessment Document 090020-00-0404, edition October 2016.

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Specific parts

## **1 Technical description of the product**

Marmoroc Baltic and Marmoroc Nordic are ventilated exterior wall cladding kits consisting of external cladding elements installed on a horizontal grid of metal rails screwed to a vertical subframe. The kits consist of all components specified in Annex 1 respectively. The materials and dimensions are given in Annex 1.

The Marmoroc Baltic and Marmoroc Nordic are made of mechanical components. The cladding elements are made of agglomerated stones. Performances according to Annex 2.

The Marmoroc Baltic and Marmoroc Nordic are non-load-bearing construction elements.

## **2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)**

The cladding systems are intended to be used as non-load bearing construction elements in facades in safety class 1 and 2 according to EN 1993-1-1.

The cladding systems do not contribute to the stability of the structure on which it is installed.

The cladding systems are not water tight but they protect the sub-construction from driving rain.

The performances given in Section 3 and the assumed working life are only valid if the periodic inspection and maintenance are made according to the manufacturers instructions.

The provisions made in this European Technical Assessment are based on an assumed working life of the cladding systems of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Essential characteristics and their performance

		Characteristic	Performance
BWR 2	Safety in case of fire	Reaction to fire	Clause 3.1.2.1
BWR 3	Hygiene, health and the environment	Water tightness of joints	Not watertight
		Drainability	The kit has a draining function
BWR 4	Safety in use	Wind load resistance	See Annex 3
		Resistance to vertical load	See Annex 4
		Impact resistance	Performance not assessed
		Resistance of profiles	Clause 3.1.4.1
		Bracket resistance	Clause 3.1.4.1
		Corrosion of metal components	See Annex 1
		Characteristics and Performances of the agglomerated stones according to Annex 2	

#### 3.1.2 Safety in case of fire

##### 3.1.2.1 Reaction to fire

The reaction to fire of the external wall cladding kits Marmoroc Baltic and Marmoroc Nordic, according to EN 13501-1, is Class A1 without the need of testing according to the EC Decision 96/603/EEC.

#### 3.1.4 Safety in use

##### 3.1.4.1 Resistance of profiles and bracket resistance

Resistance of profile resistance and bracket resistance are assessed for the kit. The results are presented in Annex 4.

#### **4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base**

According to the decision 2003/640/EC - Commission decision of date 4 September 2003, published in the Official Journal of the European Union (OJEU) L226/21 of 10/09/2003, of the European Commission the system of assessment and verification of constancy of performance (see Annex V to the regulation (EU) No 305/2011) given in the following table apply:

<b>Product(s)</b>	<b>Intended use(s)</b>	<b>Level or class</b>	<b>System</b>
Kits for exterior wall claddings	External finishes of walls	Any	2+

#### **5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

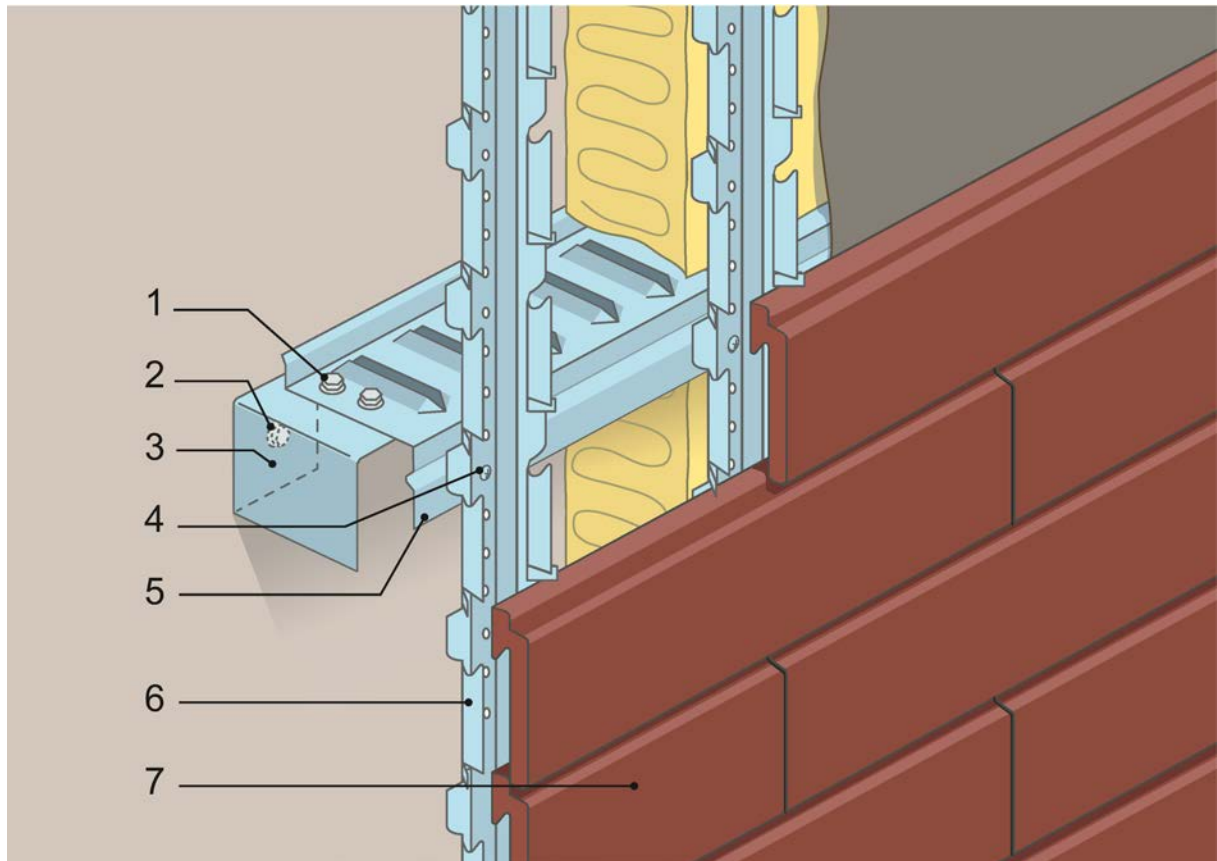
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Certification Manager

## Annexes

### Annex 1

#### Description of Marmoroc Baltic



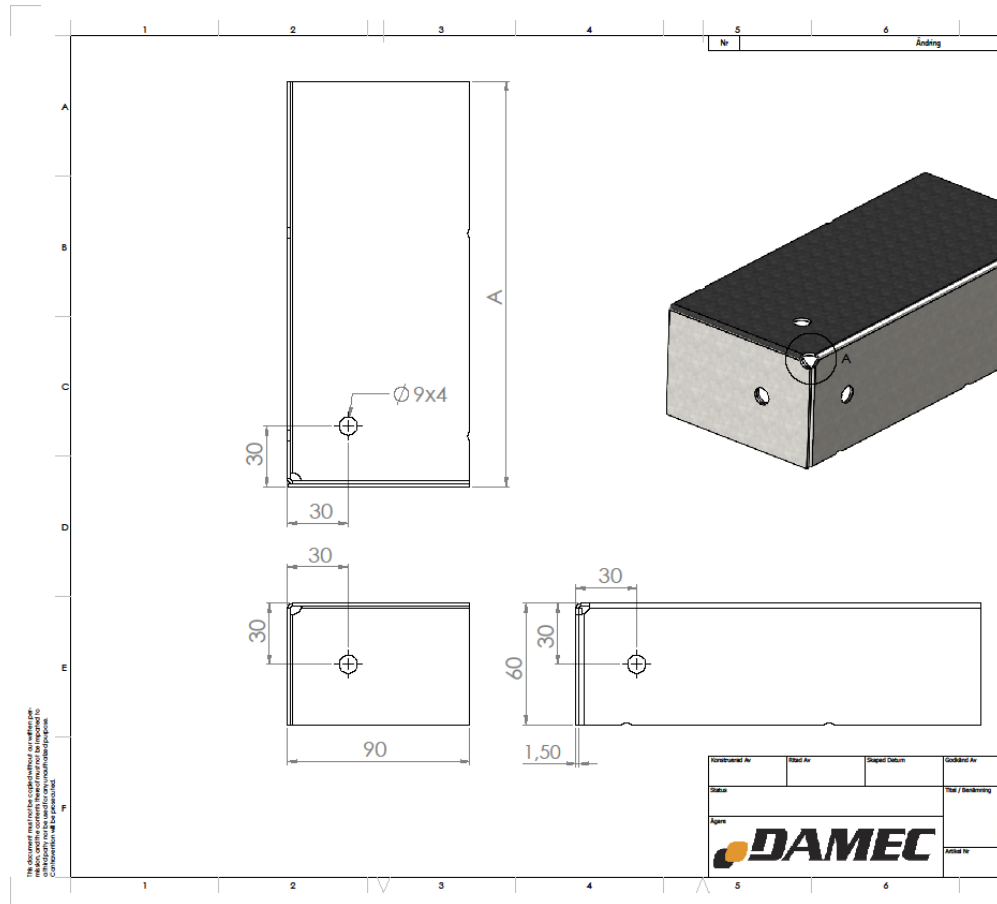
- 1 **Screws**, connect distance lath with wall distance, FZB ETA 10/0184\*
- 2 **Screws**, connect into existing wall/construction, FZB ETA 08/0190\*
- 3 **Wall distance**, hot dipped galvanized steel, S250GD + Z 275
- 4 **Screws**, connect mounting rail with distance lath, FZB ETA 10/0180\*
- 5 **Distance lath**, hot dipped galvanized steel, S250GD + Z 275
- 6 **Mounting rail BALTIC**, hot dipped galvanized steel, S250GD + Z 275
- 7 **Marmoroc BALTIC**, unreinforced tiles of cement and crushed marble

\* Screws where all relevant performances are equal or better may be used.

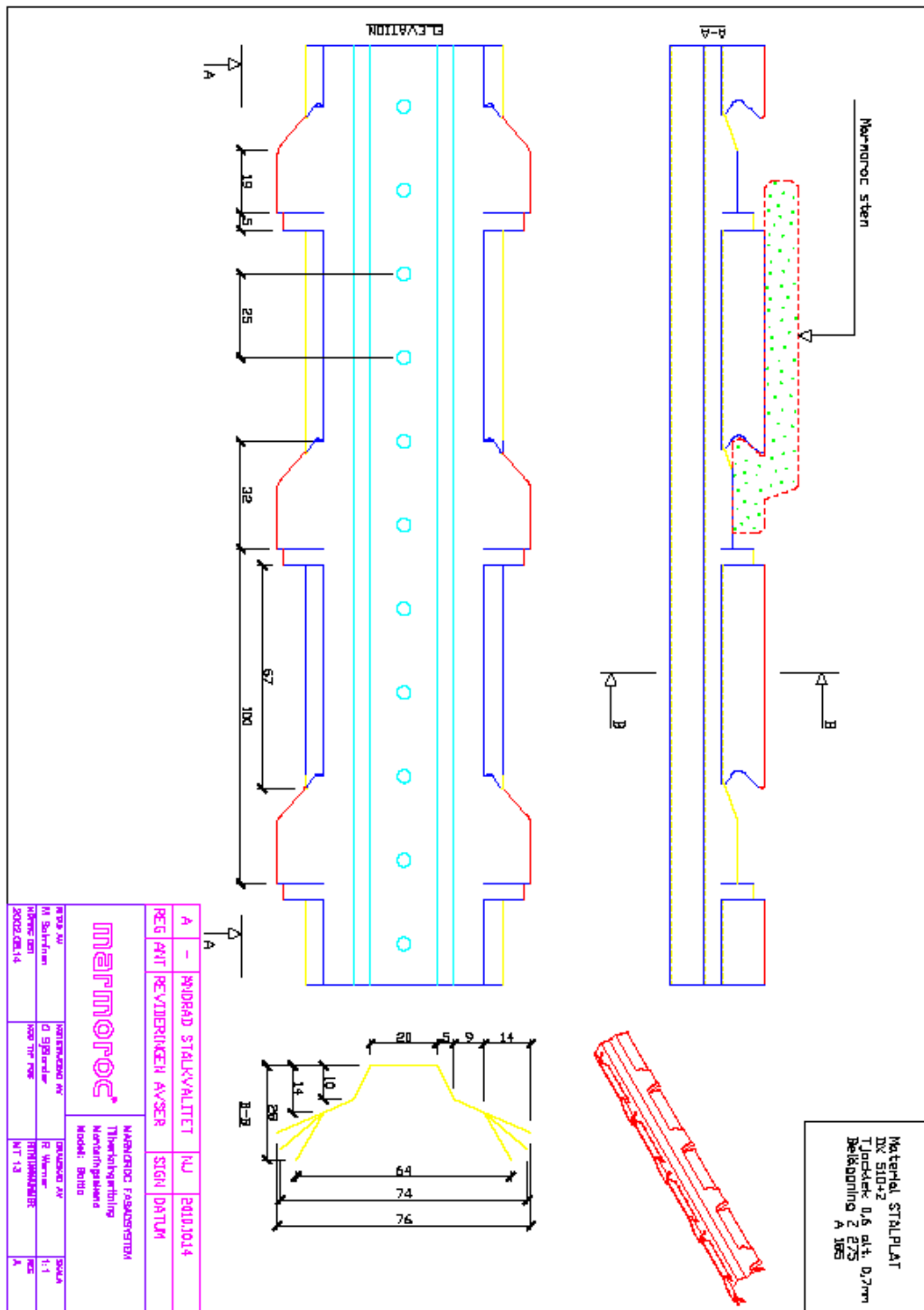
#### Dimensions Marmoroc BALTIC

600x100 mm and 300x100 mm

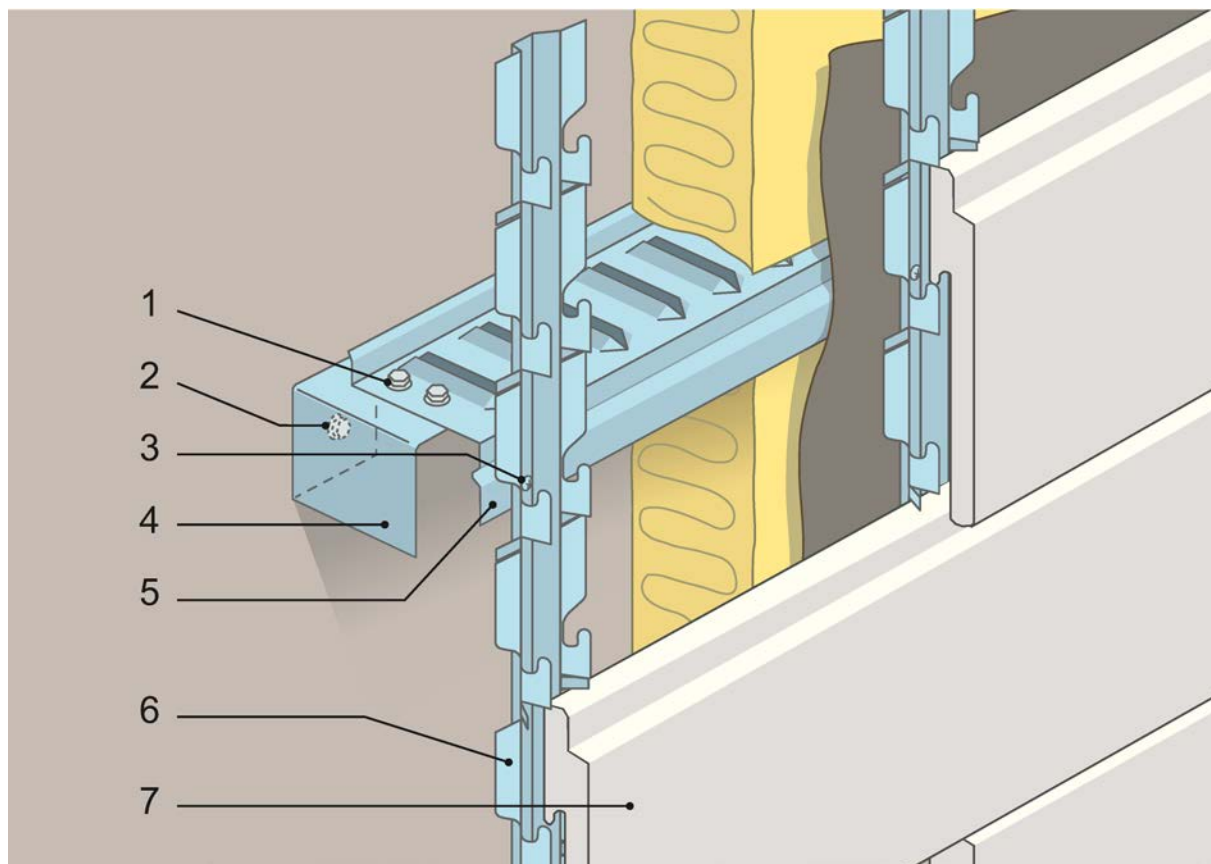
## Description of Wall distance



# Description of Mounting rail BALTIC



## Description of Marmoroc Nordic



- 1 **Screws**, connect distance lath with wall distance, FZB ETA 10/0184\*
- 2 **Screws**, connect into existing wall/construction, FZB ETA 08/0190\*
- 3 **Screws**, connect mounting rail with distance lath, Bright galvanized ETA 10/0180\*
- 4 **Wall distance**, hot dipped galvanized steel, S250GD + Z 275
- 5 **Distance lath**, hot dipped galvanized steel, S250GD + Z 275
- 6 **Mounting rail Nordic**, hot dipped galvanized steel, S250GD+Z275 / **Mounting rail Nordic**, hot dipped galvanized steel painted with polyester (25 µm) on the exposed surface and painted with polyester (8 µm) on the not exposed surface, S350 GD ZMA
- 7 **Marmoroc NORDIC**, unreinforced tiles of cement and crushed marble

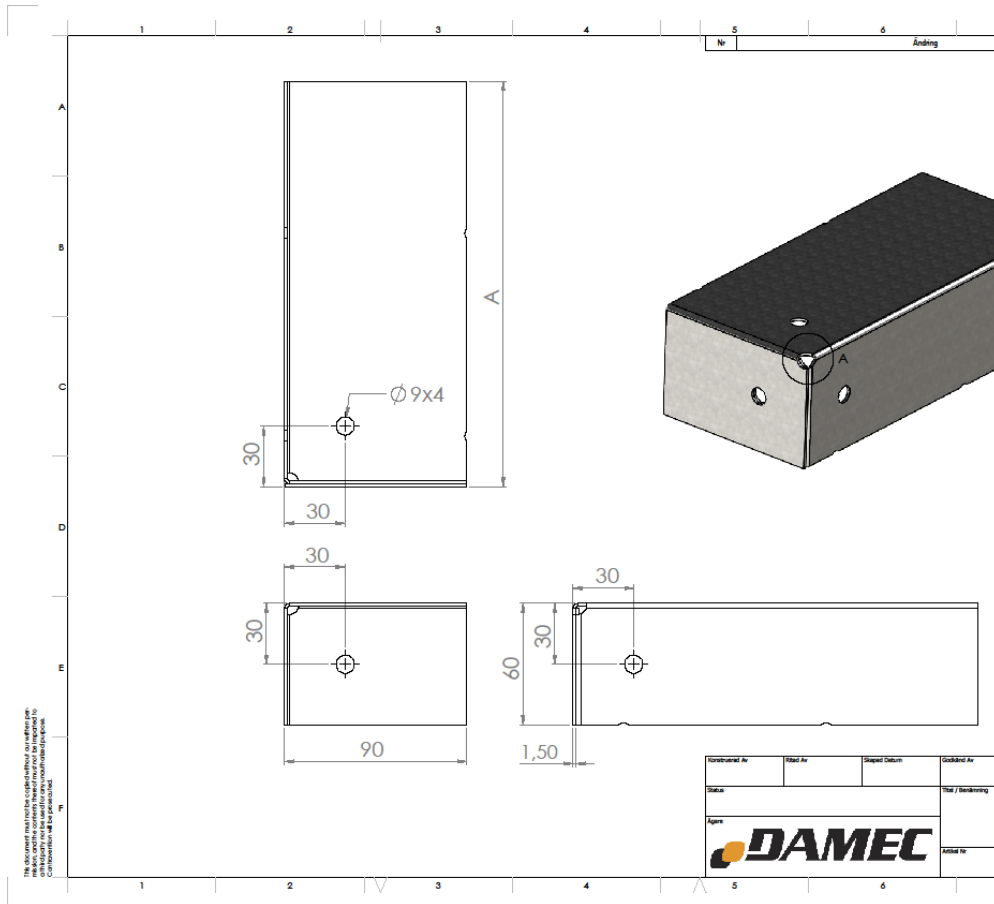
\* Screws where all relevant performances are equal or better may be used.

## Dimensions Marmoroc NORDIC

600x200 mm and 600x100 mm



## Description of Wall distance





## Annex 2

### Agglomerated stones

The **Marmoroc BALTIC** and **Marmoroc NORDIC** are cladding elements of agglomerated stone tiles according to the harmonized standard EN 15286. These tiles are not grooved.

The tiles are composed of cement and crushed marble and are unreinforced.

The main characteristics are given below.

Characteristic	Reference to EN 15286	Value
Reaction to fire	4.2.3	A1
Flexural strength	4.2.5	≥7,0 MPa
Thermal shock	4.2.8	Performance not assessed
Dangerous substances	4.2.12	Performance not assessed
Freeze/thaw	4.2.13	Performance not assessed

#### Dimensions Marmoroc BALTIC

600x100 mm and 300x100 mm

#### Dimensions Marmoroc NORDIC

600x200 mm and 600x100 mm

## Annex 3

### Wind load resistance

#### Loadcase: Wind load, suction

$v_b = 26$  m/s, terraintype 0

$w_d = q_k \times 1,4 \times 1,5 \times 0,83$  at outer boundary

$w_d = q_k \times 1,1 \times 1,5 \times 0,83$  at other area

Level	Zone	$q_p$ kN/m <sup>2</sup>	Distance	Point load	Field moment	Support moment	Shear force
			Flap stud	kN $F_{vd}$	kNm $M_{fd}$	kNm $M_{sd}$	kN V
0-8 m	Outer boundary	1,13	0,6	0,355	0,213	0,219	0,893
	Other area	1,13	0,6	0,279	0,167	0,172	0,702
8-20 m	Outer boundary	1,34	0,3	0,210	0,126	0,130	0,530
	Other area	1,34	0,6	0,330	0,198	0,171	0,832
20-100 m	Outer boundary	1,76	0,3	0,276	0,166	0,171	0,691
	Other area	1,76	0,6	0,434	0,260	0,269	1,093

#### Loadcase: Wind load, pressure

$v_b = 26$  m/s, terraintype 0

$w_d = q_k \times 1,0 \times 1,5 \times 0,83$

Level	Zone	$q_p$ kN/m <sup>2</sup>	Distance	Point load	Field moment	Support moment	Shear force
			Flap stud	kN $F_{vd}$	kNm $M_{fd}$	kNm $M_{sd}$	kN V
0-8 m	Outer boundary	1,13	0,6	0,253	0,152	0,157	0,638
	Other area	1,13	0,6	0,253	0,152	0,157	0,638
8-20 m	Outer boundary	1,34	0,3	0,150	0,090	0,093	0,378
	Other area	1,34	0,6	0,300	0,180	0,186	0,756
20-100 m	Outer boundary	1,76	0,3	0,197	0,118	0,122	0,496
	Other area	1,76	0,6	0,394	0,236	0,244	0,993

## Annex 4

### Mechanical resistance

#### Loadcase: Continous load

$$g = (0,35 + 0,09) = 0,44 \text{ kN/m}^2.$$

$$l = 4 \times 0,3 \text{ m} = 1,2 \text{ m}$$

$$\gamma_d = 0,83 \times 1,2 = 1$$

Level	Zone	$q_p$ kN/m <sup>2</sup>	Distance Flap stud	Point load kN $F_{vd}$	Field moment kNm $M_{fd}$	Support moment kNm $M_{sd}$	Shear force kN V
0-8 m	Outer boundary	1,13	0,6	0,0792	0,0475	0,0490	0,200
	Other area	1,13	0,6	0,0792	0,0475	0,0490	0,200
8-20 m	Outer boundary	1,34	0,3	0,0396	0,0238	0,0245	0,100
	Other area	1,34	0,6	0,0792	0,0475	0,0490	0,200
20-100 m	Outer boundary	1,76	0,3	0,0396	0,0238	0,0245	0,100
	Other area	1,76	0,6	0,0792	0,0475	0,0490	0,200