

## Report

**LOGICROOF V-RP 1,2 mm /**

**TechnoNICOL 4,8 × 80 screw + 1/80 washer /**

**MWR / Steel deck 106-profile**

Order number: 0233-L-11/1 Ref.: ARH/GZ

**Principal** : Zavod Logicroof Ltd.  
Vostochniy promuzel 21  
391000 RYAZAN (RUSSIAN FEDERATION)  
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**Contact person** : I. Nagaev  
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**Subject** : resistance to dynamic wind forces

**Order date** : 2011.10.14

**Report date** : 2012.04.02

**Rapporteur** : A.R. Hameete

**Authorisation** : J. Sanders

**Initials** :



Pages : 8  
Tables : 3  
Annexes : 5

## 1 Introduction

By order of Zavod Logicroof Ltd. and BDA Keuringsinstituut B.V. has determined the resistance to wind load of a single layer, mechanically fastened roof waterproofing system with a **LOGICROOF V-RP 1,2 mm** roof waterproofing sheet in combination with a **TechnoNICOL 4,8 × 80 + 1/80** fastening system on a substructure of a trapezoidal steel deck.

The suppliers and the data of deliverance of the used products are mentioned below.

Product	Supplier		Date of delivery
	company	person	
Roof waterproofing sheet	Zavod Logicroof Ltd.	-	2011.12.19
Fastening system	Zavod Logicroof Ltd.	-	2011.12.19
Insulation	BDA Keuringsinstituut B.V.	-	2012.01.25
Substructure	BDA Keuringsinstituut B.V.	-	2012.01.25

See annex E for photos of the products and further package data.



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## 2 Investigation

The investigation on the resistance to dynamical wind forces has been performed according to EN 16002:2010 – Flexible sheets for waterproofing – Determination of the resistance to wind load of mechanically fastened flexible sheets for roof waterproofing.

The test result of the wind uplift test has been interpreted according to the European directive ETAG 006:2000/Amended:2007 – Guideline for the European Technical Approval of systems of mechanically fastened flexible roof waterproofing membranes.

The test has been performed in week 7, 2012.  
See annex C for the test schedule.



### 3 Construction of the test specimen

The data of the construction of the test specimen are mentioned in the table below.  
 The various layers are mentioned from below upwards.  
 The specifications of the used materials are mentioned underneath the table.

Layer	Construction		Date
	company	person	
Substructure	BDA Keuringsinstituut B.V.	P. Golverdingen	2012.01.25
Thermal insulation	BDA Keuringsinstituut B.V.	P. Golverdingen	2012.01.25
Fastening system	Dakdekkersbedrijf Rudde B.V.	G. Sterken	2012.01.26
Roof waterproofing sheet	Dakdekkersbedrijf Rudde B.V.	G. Sterken	2012.01.26

The construction of the test specimen has been supervised by Mr P. Golverdingen of BDA Keuringsinstituut B.V.

The specimen has the effective test dimensions of 6,00 m × 2,00 m and has been built up according to the prescription of the principal from below upwards:

#### Substructure

- \* Trapezoidal steel deck, 106-profile, thickness 0,75 mm.

#### Thermal insulation

- \* MWR insulation boards, dimensions 2000 mm × 600 mm, thickness 100 mm, mechanically fastened with 1 fastener per board.

#### Roof waterproofing sheet (first layer)

- \* LOGICROOF V-RP 1,2 mm roof waterproofing sheet, production code 16/12/11 20:49.
- \* The spacing between the individual fasteners has been set at 0,25 m.
- \* The spacing between the rows of fasteners has been set at 1,94 m.



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#### **Fastening system roof waterproofing sheet**

- \* Roofing screw : TechnoNICOL 4,8 × 80 (228683)
- \* Washer : TechnoNICOL 1/80
- \* The distance from the fastening system to the edge of the roof waterproofing sheet has been set at approximately 10 mm (see annexes A and D).

The fixation at the perimeter has been realized using wooden planks, with dimensions of 120 mm × 18 mm, whereby the roof waterproofing sheet has been welded around the planks. The mutual spacing between the fasteners at the perimeter fixation has been set at 0,25 m.

A photo report of the construction of the test specimen has been given in annex A.



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## 4 Results

At the first 90% step of the cycle of  $\Delta W_{\max 100\%} = 1400$  N (theoretical load) per fastener the test specimen has collapsed by tearing of the roof waterproofing sheet at the position of the fastening system.

See also the photos in annex B.

According to EN 16002:2010 the test result is 1300 N (theoretical load) per fastener.

According to ETAG 006:2000/Amended:2007 the admissible (design) load for the wind uplift resistance is 693 N per fastener (see paragraph 5: Determination admissible (design) load).



## 5 Determination admissible (design) load

The test result of the wind uplift test has been interpreted according to the European directive ETAG 006:2000/Amended:2007 – Guideline for the European Technical Approval of systems of mechanically fastened flexible roof waterproofing membranes.

The admissible (design) load for the wind uplift resistance has been specified in the next formula:

$$W_{adm} = \frac{W_{test} \cdot C_a \cdot C_d}{\gamma_m}$$

Wherein:

$W_{adm}$  = admissible (design) load for the wind uplift resistance (N per fastener);

$W_{test}$  = test result (N per fastener);

$C_a$  = geometric correction factor;

$C_d$  = statistical correction factor;

$\gamma_m$  = material/safety factor.

The result and the correction/safety factors are given below.

System	$W_{test}$	$C_a$	$C_d$	$\gamma_m$	$W_{adm}$
See paragraph 3 for the buildup of the test specimen	1300	0,8	1,0	1,5	693





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**Remark:**

The results are only related to the investigated samples, products and/or systems. BDA Keuringsinstituut B.V. is not liable for interpretations or conclusions that were made in consequence of the results obtained. In case the sampling has not been performed by BDA Keuringsinstituut B.V., no judgement can be given with regard to the origin and representativity of the samples.

Gorinchem, 2012.04.02

The laboratory

A.R. Hameete



BDA Keuringsinstituut B.V.

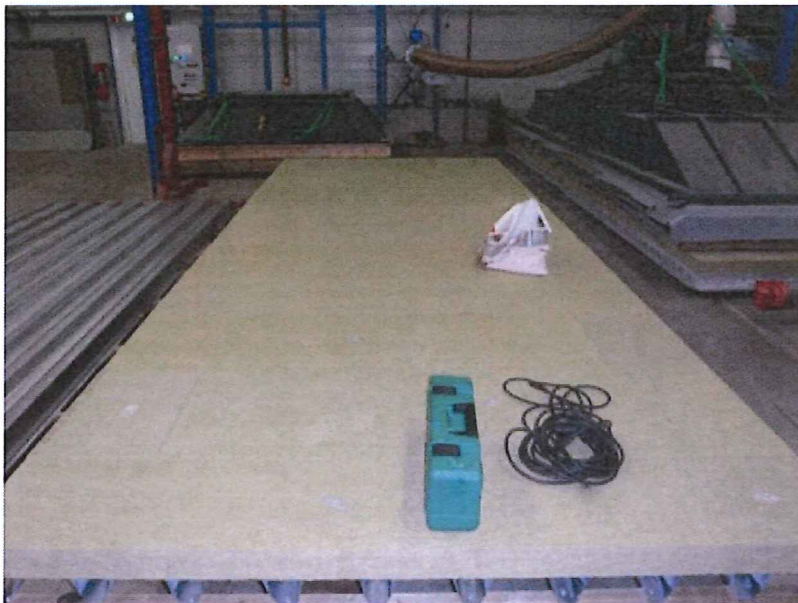
C.W. van der Meijden BSc





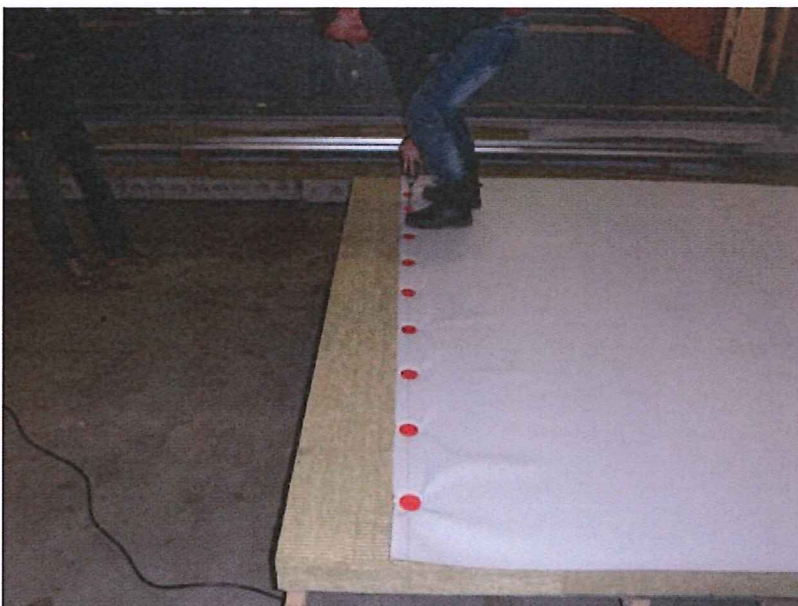
**Foto 1**

The insulation has been fixed on the profiled steel.



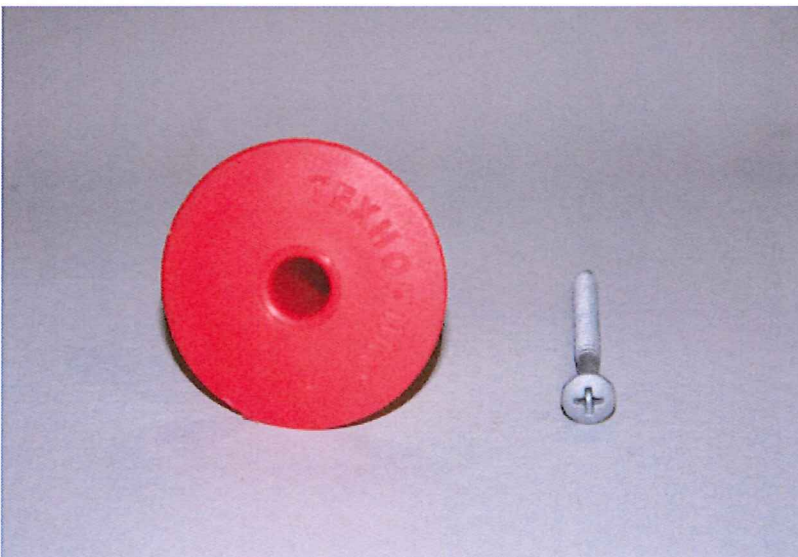
**Foto 2**

The roof waterproofing sheet is fastened.



**Foto 3**

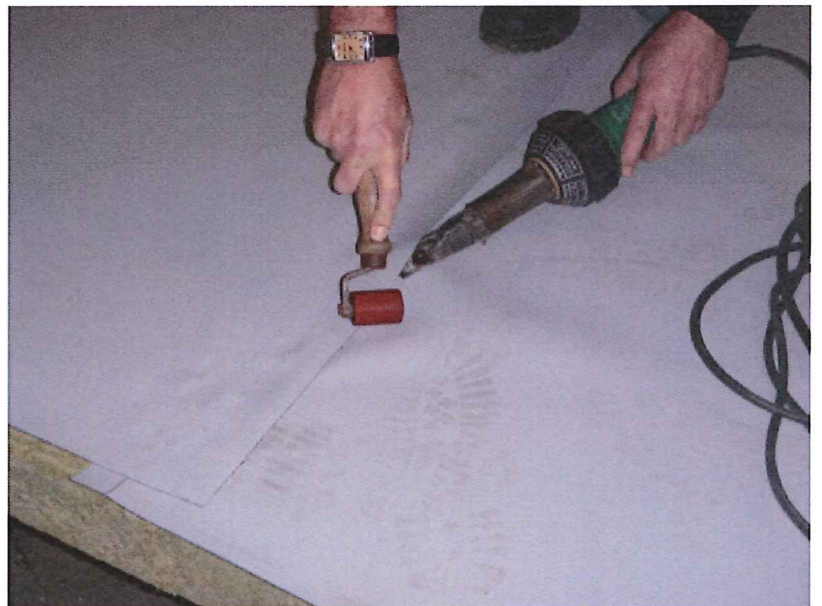
Detail of the fastening system.



**Foto 4**  
The distance from the fastening system to the edge of the roof waterproofing sheet.



**Foto 5**  
The joint is welded.

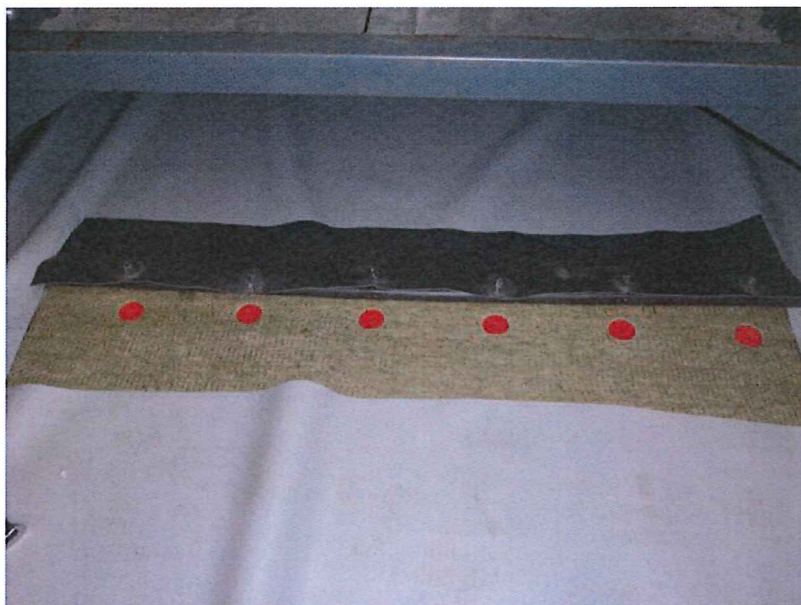


**Foto 6**  
The test specimen is ready for testing.





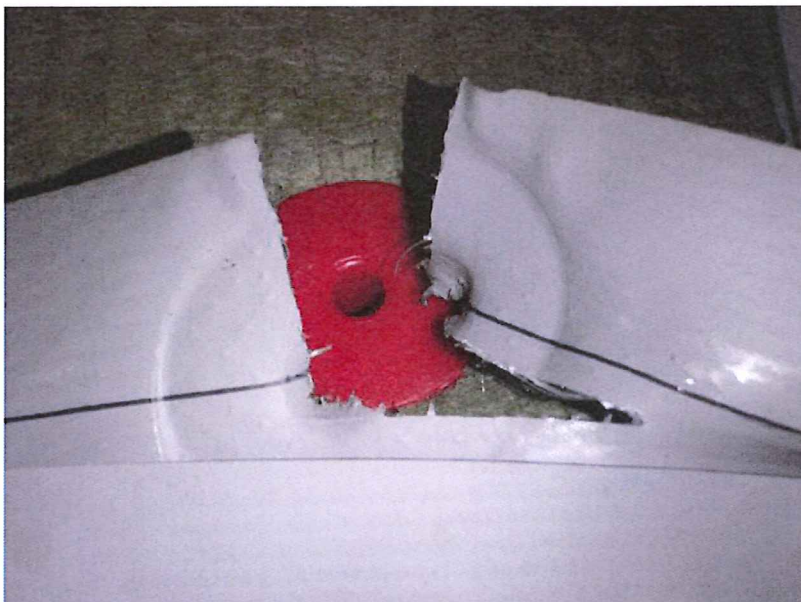
**Foto 1**  
Failure mode.



**Foto 2**  
Detail of the failure mode.



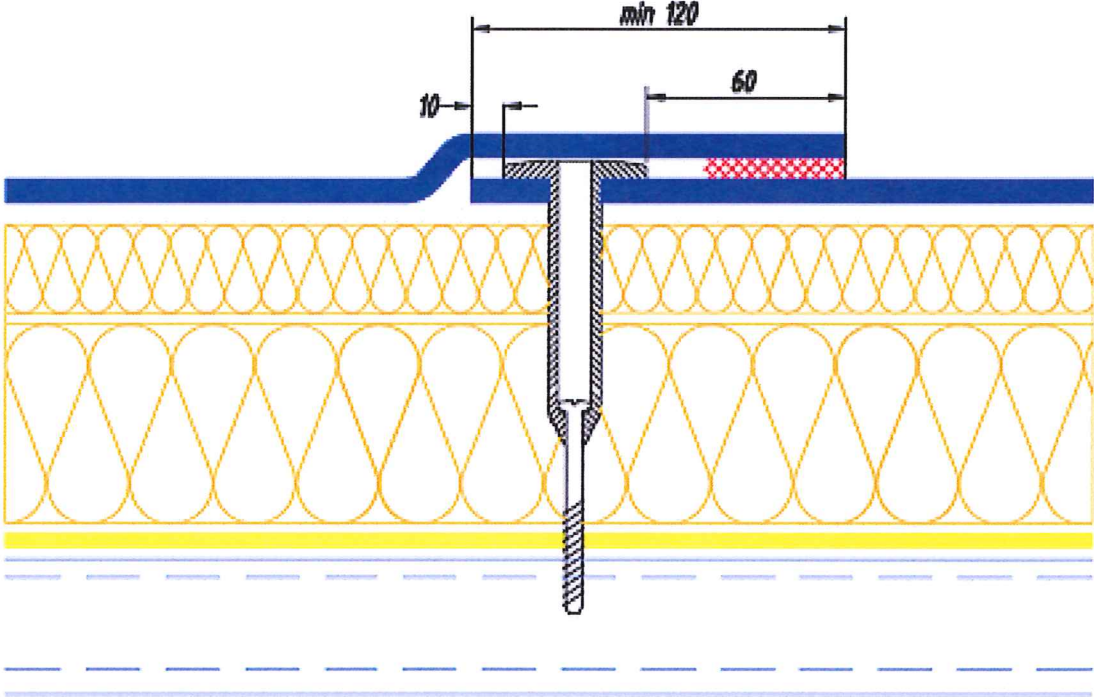
**Foto 3**  
Detail of the failure mode.





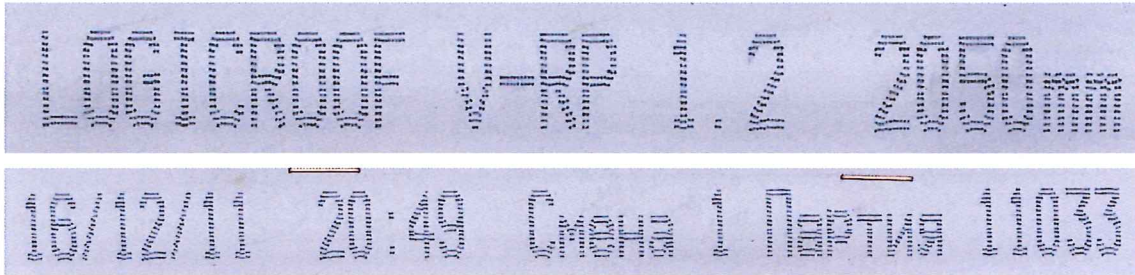


**Fixation**



**Package data**

**Roof waterproofing sheet**



**СЧЕТ-ПРОФОРМА/PROFORMA INVOICE №**  
 Номер счета (если необходимо) / Invoice number (if applicable)

**ОТ КОГО /SENT BY**  
 Компания/Company Name: Zavod Logicroof Ltd.  
 ФИО/Отдел/Name/Department: Kraeva E.N./laboratory  
 Юридический адрес/Legal address: 391000, Ryazan, Vostochny promuzel, 21  
 Фактический адрес/ Actual address: 391000, Ryazan, Vostochny promuzel, 21  
 Реквизиты фирмы: ИНН 6230054971; КПП 623001001; ОКПО 96067115; ОГРН 1066230044990; Рязанское ОСБ № 8606 СБ РФ  
 Расчетный счет 40702810953000102993; ВАЛЮТНЫЙ счет в Рязанском ОСБ № 8606 СБ РФ ( в ЕВРО) Текущий счет 40702978253000100333  
 Транзитный валютный счет 40702978153000200333  
 (ИНН, КПП, ОКПО, ОГРН, расчетные счета валютный и рублевый, наименование банка / Account details)  
 Город/Индекс City/Postal Code: Ryazan, 391000  
 Страна/Country: Russian Federation  
 Тел./Факс/Tel./Fax No.: 8(4912) 911-389

**КОМУ/SENT TO**  
 Компания/Company Name: BDA Keuringsinstituut B.V.  
 ФИО/Отдел/Name/Department: Mr. Koert (K.) van Zee/ laboratory  
 Адрес/Address: Avelingen-West 33  
 Город/Индекс City/Postal Code: GORINCHEM NL 4202 MS  
 Страна/Country: The Netherlands  
 Тел./Phone No.: +31 (0) 183 669690

**НАКЛАДНАЯ №/AIRWAYBILL No.**  
 54 8501 2900  
 Кол-во мест/Number of pieces: 2  
 Вес Брутто/Total Gross Weight: 64 kg  
 Вес Нетто/Total Net Weight: 63 kg  
 Carrier: DHL Express

№ п/п	Наименование, материал, область применения, размер, торговая марка количество и другие отличительные признаки товаров / Full description of goods	Код товара по ТН ВЭД / Customs Commodity Code	Страна происхождения товара / Country of origin	Количество (кг/шт) / Quantity	Цена товара (валюта) / Subtotal value, Currency
1	Waterproofing PVC roof sheets LOGICROOF V-RP 1.2 mm		RF	1 roll (35 sq.m.)	170 €
2	Telescope fasteners TechnoNICOL 1/80		RF	120 pcs.	5€
3	Self-tapping screw TechnoNICOL 4,8x60		Taiwan	120 pcs.	5€
4	Matching bit for the screw tool OB Ph 2x200		Taiwan	1 pcs.	1€
Общая стоимость, валюта/Total value, currency					181 €

Таможенная процедура - ЭК10. Цель экспорта / Reason for export: Permanent export of samples for testing, free of charge

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Генеральный директор/ General director \_\_\_\_\_ ФИО/Name Bugrov A.M.  
 Подпись/Signature \_\_\_\_\_  
 Главный бухгалтер / General accountant \_\_\_\_\_ ФИО/Name Bugrov A.M.  
 Подпись/Signature \_\_\_\_\_

Место для печати / Stamp place



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### Fastening system






Substructure



# BIJLBOUW B.V.

EN 14782

2011

uw referentie	: 11306- Gorinchem		
produkt	: Warmdakplaten		
type	: VD 106R/750		
dikte	: 0,75 mm		
uitvoering A	: Sendzimir verzinkt		
uitvoering B	: Sendzimir verzinkt		
brandklasse	: klasse A1		
gewicht	: 1.413,0 kg	hoeveelheid	: 144,00 m <sup>2</sup>
aantal	lengte	aantal	lengte
30	6400		