






LEED version 4

PRODUCT DATA FOR CERTIFICATION

URBANSCAPE GREEN ROOF SYSTEMS

LEEDv4 (Leadership in Energy and Environmental Design) is a voluntary standard that defines high performance green buildings which are healthier, more environmentally responsible, and more profitable structures. Credits for certification can be earned in various categories, each with a unique focus on sustainable design: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation and design process.





KNAUF INSULATION products can put you on the right track for the highest result for certification.

LEED Credit Category code	LEEDv4 Definition	Knauf Insulation Products contribution	Contributes towards
Sustainable Sites  Rainwater management	To reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site.	Urbanscape products are a rainwater control system that helps reducing peak rate of runoff from the site. See annexe 1: Urbanscape Green Roof Performance Evaluation Tool.	3 points
Sustainable Sites  Heat Island Reduction	To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.	Temperatures on the roof can be up to 45°C lower which reduce heat island effect and extend life of waterproofing (up to 50%).	2 points
Sustainable Sites  Protect or restore habitats	To conserve existing natural areas and restore damages areas to provide habitat and promote biodiversity.	The Urbanscape vegetated roof is counted toward the overall restored area calculation.	2 points
Sustainable Sites  Open Space	To create exterior open space that encourages interaction with the environment, social interaction, passive recreation, and physical activities.	Vegetated roof is an open space qualified for its environmental benefits. The presence of green areas has a relaxing psychological effect, helps to reduce blood pressure and lowers the heartbeat.	1 point
Energy and Atmosphere (EA)  Optimize Energy Performance	To achieve increasing levels of performance to reduce environmental and economic harms of excessive energy use.	Urbanscape products help reducing heating/cooling energy demand. See annexe 1: Urbanscape Green Roof Performance Evaluation Tool.	20 points

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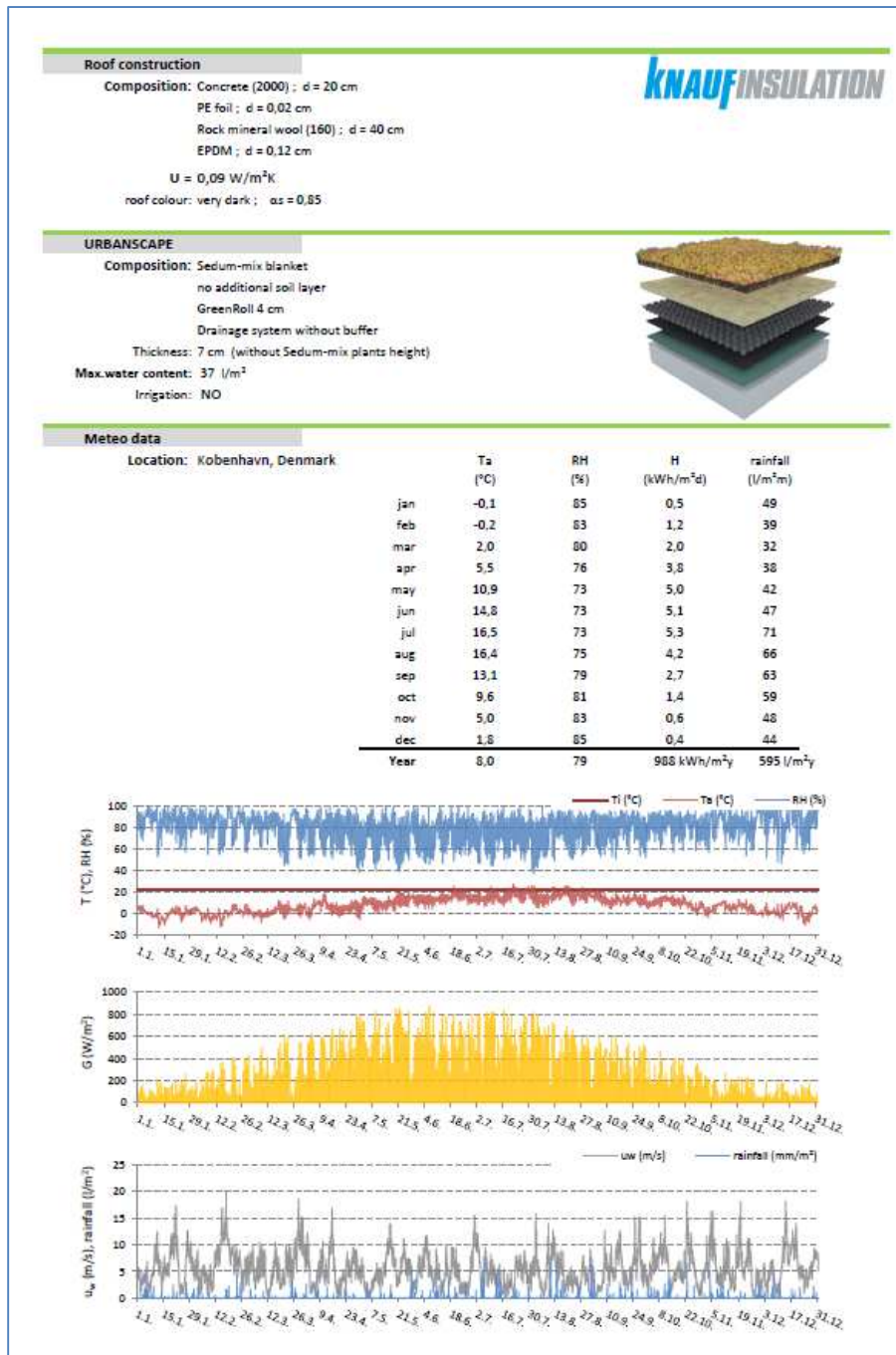
LEED Credit Category code	LEEDv4 Definition	Knauf Insulation Products contribution	Contributes towards
Materials and Resources (MR)  Building Product Disclosure and Optimization – Sourcing of Raw Materials	To reward project including products verified to be extracted or sourced in a responsible manner.	The Knauf Insulation Corporate Sustainability Report follows the Global Reporting Initiative (GRI) structure and gives detailed information about the sourcing of raw materials and recycled content.	1 point
Materials and Resources (MR)  Building Product Disclosure and Optimization – Material Ingredients	To reward project for which the products chemical ingredients are inventoried.	Green roll for Urbanscape products contains no ingredients listed on the REACH Authorization or Candidate list, nor Substances of Very High Concern list. See annexe2: REACH compliance letter.	1 point
Indoor Environmental Quality (EQ)  Acoustic Performance	To provide workspaces and classrooms that promote occupants' well-being, productivity, and communications through effective acoustic design.	Noise attenuation originating for example from rainfall/hail on the roofs. It keeps the living space quieter and more comfortable. See annexe 3: Airborn Sound Insulation for Urbanscape Green Roof Systems.	2 points
Indoor Environmental Quality (EQ)  Thermal Comfort	To promote occupants productivity, comfort, and well-being by providing quality thermal comfort.	Green roof is a design alternative for thermal comfort strategy. Due to green roof's cooling effect, and limiting sun radiation transfer through the roof there will be less heat radiation from the ceiling and air-conditioning will be minimized which will have positive comfortability feel and increased productivity for workers as well as more comfortable feel for the customer. See annexe 1: Urbanscape Green Roof Performance Evaluation Tool.	1 point

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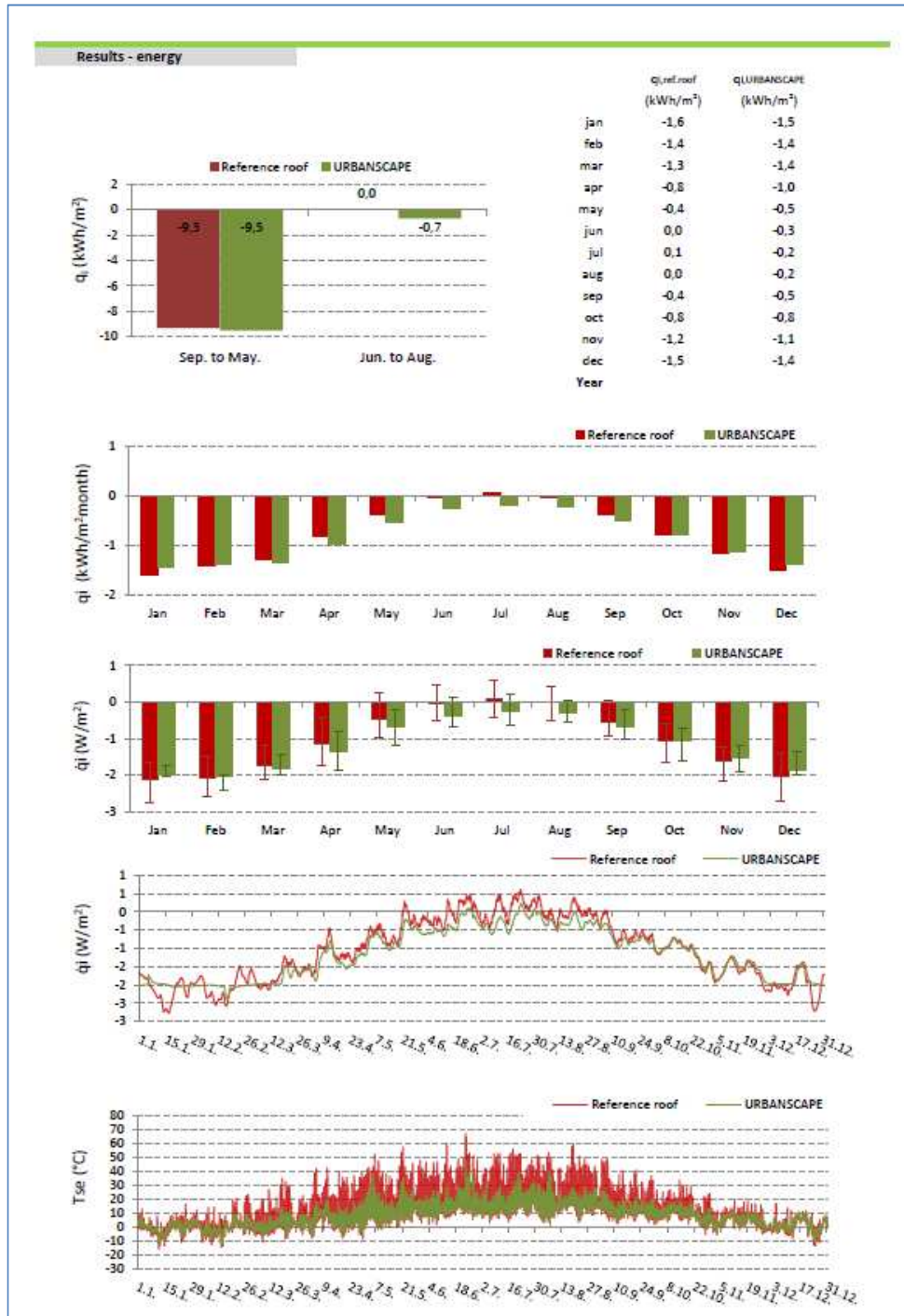
Annexe 1: Urbanscape Green Roof Performance Evaluation Tool.



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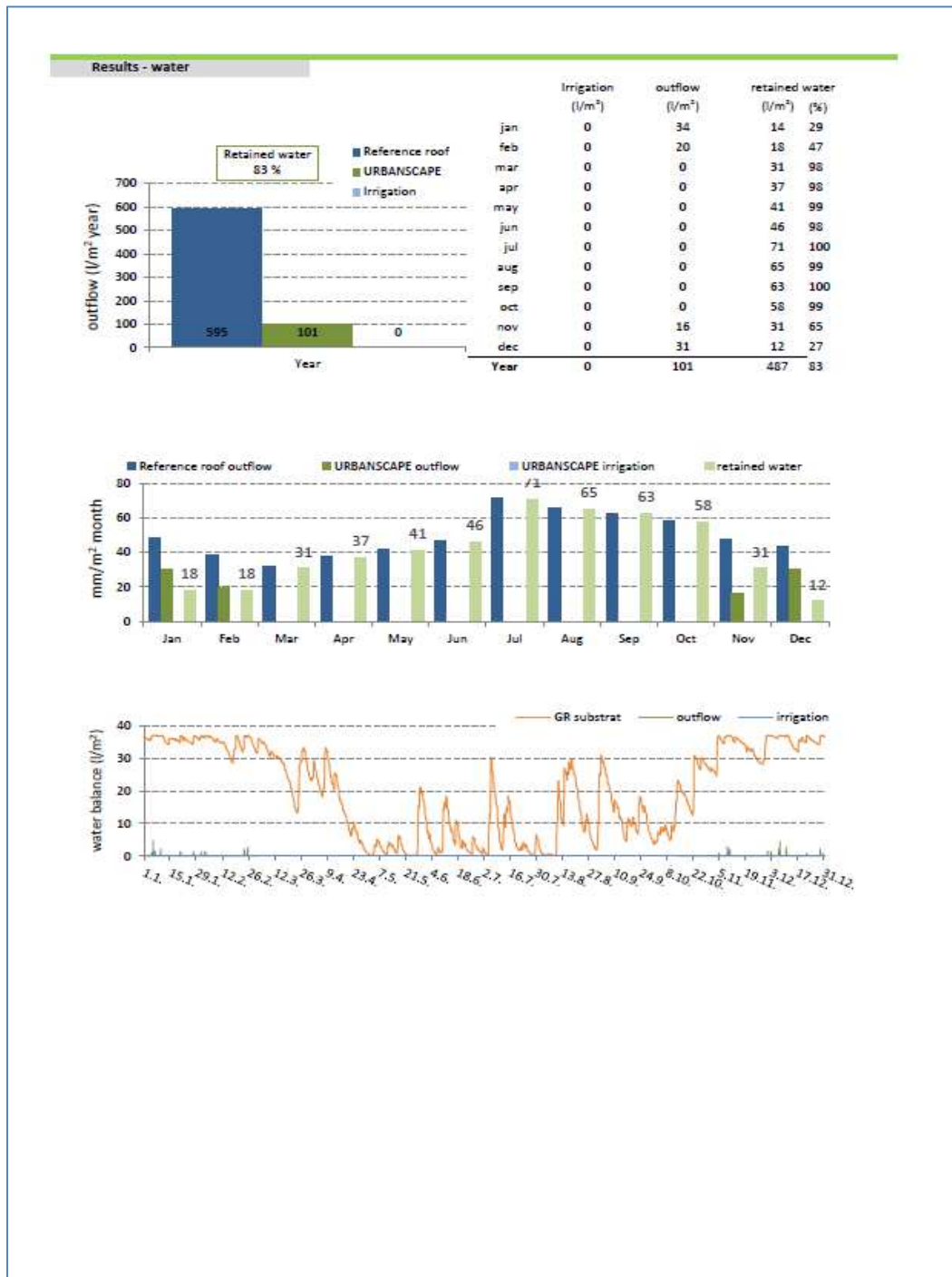
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Annexe 2: REACH compliance letter



Subject : Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH); Regulation (EC) No 1907/2006.

Dear Customer

Thank you for your enquiry with regard with regard to the following products: –

- Urbanscape HTC Green Roll.

Knauf Insulation has registered Mineral Wool Insulation; manufactured or imported by the following legal entities and used in the manufacture of the products listed above, under the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH); Regulation (EC) No 1907/2006.

- Knauf Insulation D.O.O – Skofja Loka, Slovenia


The registered fibres meet the following definition:-

- **EC number:** 926-099-9
- **Definition:** Man made vitreous (silicate) fibres with random orientation with alkaline and alkali earth oxides ($\text{Na}_2\text{O}+\text{K}_2\text{O}+\text{CaO}+\text{MgO}+\text{BaO}$) content greater than 18% by weight and fulfilling one of the nota Q conditions.
- **Public name:** MMVF note Q fibre
- **Classification:** Not classified (manmade vitreous (silicate) fibre with and index number of 650-016-00-2 fulfilling one of the note Q conditions in the Classification, labelling, packaging regulations (CLP) (EC) No 1272/2008, as amended in regulation (EC) No 790/2009 and thus exempted from classification.

The registration is confirmed by the receipt of registration numbers for each of the listed legal entities by The European Chemical Agency (ECHA). The registration numbers are included on the relevant company product safety data sheets.

Knauf Insulation mineral wool products do not contain any substance of high concern (SVHC) in concentration above 0.1% w/w, Asbestos or Crystalline silica. Furthermore Knauf insulation mineral wool products do not contain any substances listed in the Annex XVII of the REACH regulation.

If you have any questions please do not hesitate to contact us; details below



Bruno BLIKI
Product Regulatory Affairs Manager
Knauf Insulation
SDS@knaufinsulation.com

URBANSCAPE HTC GREEN ROLL REACH DECLARATION – OCTOBER 2015 1

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Annexe 3: Airborne sound insulation for Urbanscape Green Roof Systems

Evidence of Performance
Airborne sound insulation of flat roofs

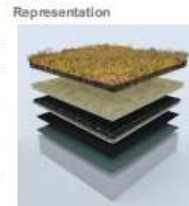
Test Report
No. 15-002251-PR01
(PB X01-F01-04-en-01)



Client Knauf Insulation, D.O.O.
Trata 32
4220 Skofja Loka
Slovenia

Basis
EN ISO 10140-1: 2010
+A1: 2012 + A2:2014
EN ISO 10140-2 : 2010
EN ISO 717-1 :2013
15-002251-PR01 (PB X01-F01-
de-01) dated 16th of October
2015

Product	Flat roof as green roof
Designation	Urbanscape Green Roof
Cover	20 – 40 mm Vegetation mat, m' = 23.0 kg/m ² 40 mm Green roof substrate of mineral wool fibre, m' = 4.9 kg/m ²
Insulation	
2 nd separation layer	12.5 mm Drainage system, m' = 0.72 kg/m ²
1 st separation layer	0.5 mm LD PE- film, m' = 0.5 kg/m ²
Vapour barrier	2.5 mm EPDM, m' = 3.4 kg/m ²
Supporting construction	160 mm Reinforced concrete floor, m' = 400 kg/m ²



Representation

Instructions for use
This test report serves to demonstrate the sound insulation of a flat roof. As set out by the German Bauregelleiste (Construction Products List), evidence of compliance in Germany is possible only in the form of an AbP (national technical test certificate). This test report cannot be used as a substitute to be included in a national technical test certificate (AbP).

Overall dimensions	5,000 mm × 5,270 mm
Total thickness	236 – 256 mm
Area related mass	432.5 kg/m ²
Result	Weighted sound reduction index R_w , Spectrum adaptation terms C and C_{tr}

Validity
The data and results given relate solely to the tested and described specimen. Testing the sound insulation does not allow any statement to be made on further characteristics of the present construction regarding performance and quality.



$$R_w (C; C_{tr}) = 57 (-3; -8) \text{ dB}$$

Notes on publication
The ift Guidance Sheet "Conditions and Guidance for the Use of ift Test Documents" applies. The cover sheet can be used as abstract.

ift Rosenheim
16.10.2015

J. Keminger
Dr. Joachim Hessinger, Dipl.-Phys.
Head of Testing Department
Building Acoustics

S. Bacher
Stefan Bacher, Dipl.-Ing. (FH)
Operating Testing Officer
Building Acoustics

Contents
The test report contains a total of 9 pages.
1 Object
2 Procedure
3 Detailed results
4 Instructions for use:
Data sheet (1 page)

Verf.-Nr.: 1304-46 / 01.10.2014

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Prüfung und Kalibrierung – EN ISO/IEC 17025
Insulation – EN ISO/IEC 17026
Zertifizierung Produkte – EN ISO/IEC 17065
Zertifizierung Managementsysteme – EN ISO/IEC 17021



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URBANSCAPE GREEN ROOF SYSTEMS

Evidence of Performance

Airborne sound insulation of flat roofs



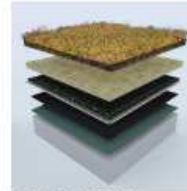
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 No. 15-002251-PR01
 (PB X03-F01-04-en-01)

Client Knauf Insulation, D.O.O.
 Trata 32
 4220 Skofja Loka
 Slovenia

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Insulation	20 mm Green roof substrate of mineral wool fibre, m' = 2,3 kg/m ²
2nd separation layer	12.5 mm Drainage system, m' = 0.72 kg/m ²
1st separation layer	0.5 mm LD PE-film, m' = 0.5 kg/m ²
Vapour barrier	2.5 mm EPDM, m' = 3,4 kg/m ²
Supporting construction	160 mm Reinforced concrete floor, m' = 400 kg/m ²
Overall dimensions	5,000 mm × 5,270 mm
Total thickness	216 – 236 mm
Area related mass	429,9 kg/m ²

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Result Weighted sound reduction index R_w
 Spectrum adaptation terms C and C_{tr}

 $R_w (C; C_{tr}) = 55 (-3; -7) \text{ dB}$

ift Rosenheim
 16.10.2015


 Dr. Joachim Hessinger, Dipl.-Phys.
 Head of Testing Department
 Building Acoustics


 Stefan Bacher, Dipl.-Ing. (FH)
 Operating Testing Officer
 Building Acoustics

Via-Pac-1014-06 / 01.12.2014

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