European Technical Assessment

ETA-13/0238
of 14 July 2015

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:
Deutsches Institut für Bautechnik

Trade name of the construction product
LUX ELEMENTS WATERTIGHT SOLUTION

Product family
to which the construction product belongs
Watertight covering kit based on inherently watertight boards for wet room floors and walls

Manufacturer
LUX ELEMENTS GmbH & Co. KG
An der Schusterinsel 7
51379 Leverkusen-Opladen
DEUTSCHLAND

Manufacturing plant
LUX ELEMENTS GmbH & Co. KG
An der Schusterinsel 7
51379 Leverkusen
Deutschland
LUX ELEMENTS GmbH & Co. KG
Maybachstraße 21
51381 Leverkusen
Deutschland

This European Technical Assessment contains
9 pages including 3 annexes which form an integral part of this assessment

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of

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Specific Part

1 Technical description of the product

"LUX ELEMENTS WATERTIGHT SOLUTION" is a watertight covering kit. The kit consists of the following components:

- Watertight board "LUX ELEMENTS-ELEMENT-VK" for walls and floors on the basis of an expanded polystyrene foam (EPS), on both sides coated with mortar on the basis of modified cement reinforced with a glass fiber fabric, in addition the water exposed side is covered with a waterproofing sheet on the basis of polyethylene reinforced with a polypropylene fleece:
  Main dimensions:
  - Length: from 1250 mm to 2500 mm
  - Width: 600 mm
  - Thickness: from 12 mm to 100 mm

  Other dimensions for length and width can be cut from the board.

- Watertight board "LUX ELEMENTS-TUB" for floors on the basis of an expanded polystyrene foam (EPS), both sides covered with mortar on the basis of modified cement reinforced with a glass fiber fabric, the water exposed side with an additional sealing on the basis of cement. The boards have an integrated slope in direction of a prefabricated penetration for the floor gully. The boards are available in different geometries and sizes.
  Main dimensions:
  - Length: from 300 mm to 3000 mm
  - Width: from 300 mm to 3000 mm
  - Thickness: from 20 mm to 100 mm

  Other dimensions for length and width can be cut from the board.

- Primer "LUX ELEMENTS-COL-HSV", if necessary
- Adhesive "LUX ELEMENTS-COL-AK" for fixing the board on substrate
- Adhesive "LUX ELEMENTS-COL-MK" for fixing the joints between the boards
- Sealing tape "LUX ELEMENTS-DRY-DB", width: 100 mm or "LUX ELEMENTS-DRY-DBV", width: 120 mm
- Sealing sleeve for corners, floor gullies and penetrations:
  - "LUX ELEMENTS-DRY -DBIE/DBAE" or "LUX ELEMENTS-DRY-DBVIE/DBVAE" leg length 105 mm to 120 mm
  - "LUX ELEMENTS-DRY-DBDZM" 120 mm x 120 mm or 150 mm x 150 mm
  - "LUX ELEMENTS-DRY-DBBM", cut from a foil, at least 100 mm x 100 mm
- Sealing mass "LUX ELEMENTS-DRY-ASK" for fixing and embedding the sealing details
- Adhesives for tiles on the basis of cement mortar respectively of epoxy resin, CE-marked according EN 12004:

  "LUX ELEMENTS-COL-FLEX"; "SCHÖNOX CF"; "Sopro’s No. 1"

The kit is intended to be used on a substrate and under a wearing surface, e.g. tiles. The wearing surface and its jointing material are not part of the kit, but are considered during the assessment of the intended use of the product.

Annex A1 shows the system build-up and Annex A2 shows the sealing details.

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1 EN 12004+A1:2012 Adhesives for tiles - Requirements, evaluation of conformity, classification and designation
2  Specification of the intended use in accordance with the applicable European assessment Document

The intended use of the watertight covering kit under a wearing surface is to create a floor and wall watertight covering for indoor wet areas at possible operating temperature of 5 °C till 40 °C.

The following uses are intended:

* Floor and/or wall surfaces with only occasional direct exposure to water, e. g. at a good distance from shower or bathtub;
* Floor and/or wall in shower areas or around bathtubs used for a few showers daily, e. g. in ordinary dwellings, multifamily houses and hotels;
* Floor and/or wall surfaces with exposure to water more frequent or of longer duration than normally anticipated in dwellings, e. g. public wet rooms, schools and sport facilities.

The watertight membrane is intended to be used on flexible substrates e.g. plywood, chipboard, gypsum, anhydrite or similar material vulnerable to water and on rigid substrates e.g. masonry or concrete.

The product should be used in connection with the following types of gullies:
Plastics – type ABS and PE – with clamping ring and collar or prefabricated by LUX ELEMENTS

The gullies are not part of the kit. It is up to the responsibility of the user to use suitable products of the given type.

The performances given in Section 3 are only valid if the watertight covering kit is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead the assumption of working life of the watertight covering kit 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  Mechanical resistance and stability (BWR 1)
Not applicable

3.2  Safety in case of fire (BWR 2)

<table>
<thead>
<tr>
<th>Essential characteristic</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction to fire</td>
<td>See Annex A1</td>
</tr>
</tbody>
</table>

3.3 Hygiene, health and the environment (BWR 3)

<table>
<thead>
<tr>
<th>Essential characteristic</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content and/or release of dangerous substances:</td>
<td></td>
</tr>
<tr>
<td>Component: Tile adhesive (CE-marked)</td>
<td>See Declaration of Performance of the product</td>
</tr>
<tr>
<td>All other components</td>
<td>The chemical composition of the product has to be in compliance with the composition deposited at the Technical Assessment Body (DIBt). The product does not contain dangerous substances according to EOTA TR 034 (version May 2014)</td>
</tr>
<tr>
<td>Vapour permeability</td>
<td>See Annex A1, declared value</td>
</tr>
<tr>
<td>Watertightness</td>
<td>See Annex A1</td>
</tr>
<tr>
<td>Crack bridging ability</td>
<td>See Annex A1, category</td>
</tr>
<tr>
<td>Bond strength</td>
<td>See Annex A1, category</td>
</tr>
<tr>
<td>Scratching resistance</td>
<td>See Annex A1, declared value</td>
</tr>
<tr>
<td>Joint bridging ability</td>
<td>See Annex A1, category</td>
</tr>
<tr>
<td>Watertightness around penetration</td>
<td>See Annex A1, category</td>
</tr>
<tr>
<td>Impermeability at sealings</td>
<td>See Annex A1, declared value</td>
</tr>
</tbody>
</table>

3.4 Safety and accessibility (BWR 4)

<table>
<thead>
<tr>
<th>Essential characteristic</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slipperiness</td>
<td>See Annex A1, declared value</td>
</tr>
</tbody>
</table>

3.5 Protection against noise (BWR 5)
Not applicable

3.6 Energy economy and heat retention (BWR 6)
Not applicable

3.7 Sustainable use of natural resources (BWR 7)
For the sustainable use of natural resources no performance was investigated for this product.
3.8 General aspects

The verification of durability and serviceability is part of testing the essential characteristics and by additional tests on the kit respectively on the components:

<table>
<thead>
<tr>
<th>Essential characteristic</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions stability</td>
<td>See Annex A1, declared value</td>
</tr>
<tr>
<td>Resistance to temperature</td>
<td>See Annex A1, category</td>
</tr>
<tr>
<td>Resistance to water</td>
<td>See Annex A1, category</td>
</tr>
<tr>
<td>Resistance to alkalinity</td>
<td>See Annex A1, category</td>
</tr>
<tr>
<td>Resistance to mechanical wear</td>
<td>See Annex A1, declared value</td>
</tr>
<tr>
<td>Cleanability</td>
<td>See Annex A1, declared value</td>
</tr>
<tr>
<td>Reparability</td>
<td>See Annex A1, statement of the manufacturer</td>
</tr>
<tr>
<td>Thickness</td>
<td>See Annex A1, declared value</td>
</tr>
<tr>
<td>Applicability</td>
<td>See Annex A1, declaration</td>
</tr>
</tbody>
</table>

The verification of durability and serviceability is only ensured if the specifications of intended use according to Annex B and the specifications of the technical file of the manufacturer are kept.

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


<table>
<thead>
<tr>
<th>Product</th>
<th>Intended use(s)</th>
<th>Level or class</th>
<th>System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watertight covering kits</td>
<td>For building works</td>
<td>-</td>
<td>2+</td>
</tr>
<tr>
<td>for wetroom floors and walls</td>
<td>For uses subject to regulation on reaction to fire</td>
<td>E</td>
<td>3</td>
</tr>
</tbody>
</table>

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

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 14 July 2015 by Deutsches Institut für Bautechnik

Dirk Brandenburger beglaubigt: Hemme
1 Primer "LUX ELEMENTS-COL-HSV", if necessary
2 Adhesive "LUX ELEMENTS-COL-AK"
3 Watertight board
"LUX ELEMENTS-TUB" or "LUX ELEMENTS-ELEMENT-VK"
4 Adhesive "LUX ELEMENTS-COL-MK" for fixing the joints between
the boards
5 Sealing mass for Details "LUX ELEMENTS-DRY-ASK"
6 Sealing tape
"LUX ELEMENTS-DRY-DB" or "LUX ELEMENTS-DRY-DBV"
7 Tile adhesive (see Annex 2)
8 Wearing surface (e. g. tiles)
(not part of the kit)

Applicable to the watertight covering kit:

- Thickness of the watertight boards
  12 mm to 100 mm
- Working life
  25 years
- Reaction to fire
  EN 13501-1: class E
- Statement on dangerous substance
  see section 3.3
- Water vapour diffusion resistance factor
  (23 °C – 50/93 % r.h.)
  \( s_d = 85 \) m
- Watertight
  not relevant acc. ETAG 022-3
- Scratching resistance
  pass
- Impermeability at sealings
  all directions < +/- 1 %
- Dimensional Stability
  not relevant acc. ETAG 022-3
- Resistance to mechanical wear
  reparable
- Cleanability
  npd
- Reparability
  Not relevant acc. ETAG 022-3
- Slipperiness

Levels of categories according ETAG 022 with relation to:

- Use category related to BWR 3
- Crack bridging ability
- Bond strength
- Joint bridging ability
- Water tightness around penetrations
- Resistance to temperature
- Resistance to water
- Resistance to alkalinity

<table>
<thead>
<tr>
<th>LUX ELEMENTS WATERTIGHT SOLUTION</th>
<th>Annex A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUX ELEMENTS GmbH &amp; Co. KG</td>
<td></td>
</tr>
<tr>
<td>System built up, characteristic values and classifications</td>
<td></td>
</tr>
</tbody>
</table>
Main dimensions of sealing details:

<table>
<thead>
<tr>
<th>Component</th>
<th>Width</th>
<th>Leg Length</th>
<th>Length/Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUX ELEMENTS-DRY-DB</td>
<td>100 mm</td>
<td>at least 115 mm</td>
<td>120/120 mm; 150/150 mm</td>
</tr>
<tr>
<td>LUX ELEMENTS-DRY-DBV</td>
<td>120 mm</td>
<td>at least 110 mm</td>
<td></td>
</tr>
<tr>
<td>LUX ELEMENTS-DRY-DBIE</td>
<td></td>
<td>at least 100 mm</td>
<td></td>
</tr>
<tr>
<td>LUX ELEMENTS-DRY-DBAIE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUX ELEMENTS-DRY-DBVIE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUX ELEMENTS-DRY-DBVÆE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tile adhesives

- LUX ELEMENTS-COL-FLEX
- SCHÖNOX CF
- Sopro's N°1

LUX ELEMENTS WATERTIGHT SOLUTION
LUX ELEMENTS GmbH & Co. KG

Components

Annex A2
Installation

The levels of use categories and the performance of the waterproofing kit can be assumed only, if the installation is carried out according to the installation instructions stated in the technical file of the manufacturer, in particular taking account of the following points:

- installation by appropriately trained personnel,
- installation of only those components which are specified components of the kit,
- installation with the required tools and adjuvant,
- precautions during installation,
- inspecting the substrate surface for cleanliness and correct treatment,
- inspecting during installation and of the finished watertight membrane and documentation of the results.