

Result summary

# VBI Appartementenvloer 320 Groen

VBI

|                     |               |
|---------------------|---------------|
| Calculation number: | ReTHiNK-70149 |
| Generation on:      | 08-07-2026    |
| Issue date:         | 22-05-2024    |
| Valid until:        | 22-05-2029    |
| Status:             | verified      |

R<THiNK



## 1 General information

### 1.1 PRODUCT

VBI Appartementenvloer 320 Groen

### 1.2 VALIDITY

**Issue date:** 22-05-2024

**Valid until:** 22-05-2029

### 1.3 OWNER OF THE DECLARATION



**Declaration owner:** VBI

**Address:** Looveer 1, 6851 AJ Huissen

**E-mail:** vbi@vbi.nl

**Website:** www.vbi.nl

**Production location:** VBI gemiddeld (Q1 2024 HSK)

**Address production location:** Looveer 1, 6851 AJ Huissen

### 1.4 VERIFICATION OF THE DECLARATION

The independent verification is in accordance with the ISO 14025:2011. The LCA is in compliance with ISO 14040:2006 and ISO 14044:2006. The EN 15804+A2:2019 serves as the

core PCR.

☐ Internal ☒ External

Rene Kraaijenbrink, LBP Sight

### 1.5 PRODUCT CATEGORY RULES

NMD Environmental Performance Assessment Method for Construction Works v1.2

January 2025 + Amendment 6

### 1.6 FUNCTIONAL UNIT

**Één vierkante meter kanaalplaatvloer**

Een kanaalplaatvloer inclusief wapening en voegvulling die voldoet aan het Bouwbesluit met een minimale levensduur van 100 jaar geproduceerd door VBI voor toepassing in Nederland, uitgedrukt per m<sup>2</sup>

Reference unit: square meter (m<sup>2</sup>)

### 1.7 CONVERSION FACTORS

| Description               | Value    | Unit           |
|---------------------------|----------|----------------|
| Reference unit            | 1        | m <sup>2</sup> |
| Weight per reference unit | 645.301  | kg             |
| Conversion factor to 1 kg | 0.001550 | m <sup>2</sup> |

### 1.8 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with options, modules C1-C4 and module D EPD. The life cycle stages included are as shown below:

(X = module included, ND = module not declared)

# 1 General information

| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|
| X  | X  | X  | X  | X  | X  | X  | X  | ND | ND | ND | ND | X  | X  | X  | X  | X |

The modules of the EN 15804 contain the following:

|                                                    |                                          |
|----------------------------------------------------|------------------------------------------|
| Module A1 = Raw material supply                    | Module B5 = Refurbishment                |
| Module A2 = Transport                              | Module B6 = Operational energy use       |
| Module A3 = Manufacturing                          | Module B7 = Operational water use        |
| Module A4 = Transport                              | Module C1 = De-construction / Demolition |
| Module A5 = Construction -<br>Installation process | Module C2 = Transport                    |
| Module B1 = Use                                    | Module C3 = Waste Processing             |
| Module B2 = Maintenance                            | Module C4 = Disposal                     |

Module B3 = Repair

Module D = Benefits and loads beyond the product system boundaries

Module B4 = Replacement

## 1.9 COMPARABILITY

In principle, a comparison or assessment of the environmental impacts of different products is only possible if they have been prepared in accordance with EN 15804+A2:2019. For the evaluation of the comparability, the following aspects have to be considered in particular: PCR used, functional or declared unit, geographical reference, the definition of the system boundary, declared modules, data selection (primary or secondary data, background database, data quality), scenarios used for use and disposal phases, and the life cycle inventory (data collection, calculation methods, allocations, validity period). PCRs and general program instructions of different EPD program operators may differ. Comparability needs to be evaluated. For further guidance, see EN 15804+A2:2019 and ISO 14025.

## 2 Product

### 2.1 PRODUCT DESCRIPTION

Appartementenvloeren zijn vrijdragende systeemvloeren van voorgespannen prefab beton voor toepassing als woningscheidende verdiepingsvloer of dakvloer in gestapelde woningbouw. De elementen kunnen worden voorzien van leidingsleuven ten behoeve van afvoer- en ventilatieleidingen. Deze vloertypes kunnen grote overspanningen tot meer dan 10m overbruggen, afhankelijk van plaatdikte. De werkende breedte van de vloerelementen is standaard 1200 mm. Mits remontabel toegepast zijn VBI kanaalplaten geschikt voor hoogwaardig hergebruik en voorzien van producentengarantie.

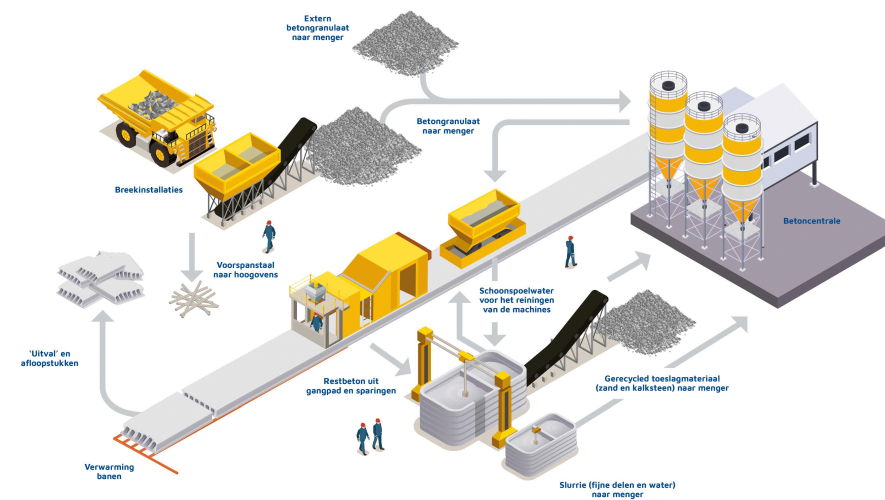
#### Producteigenschappen

- Werkende breedte: 300-1200mm
- Woningscheidend in combinatie met afwerkvloer of zwevend opgelegde dekvloer, afhankelijk van producttypegewicht.
- Dikte appartementenvloer: 200 t/m 320mm, zie producttype
- Sterkteklasse: C45/55
- Hoeveelheid wapening: zie invoer per vloertype

product description image

### 2.2 DESCRIPTION PRODUCTION PROCESS

Kanaalplaatvloeren worden geproduceerd middels het lange-bank systeem. Hierbij wordt het beton gestort in lange bekistingsmallen waarin meerdere kanaalplaatvloeren achter elkaar in een enkele stortgang worden geproduceerd. In de bekistingsmallen wordt voor het storten ontkistingsolie, (eventueel EPS voor geïsoleerde kanaalplaatvloeren) en voorspanwapening aangebracht. Als het beton uitgehard is worden de kanaalplaatvloeren op de juiste lengte gezaagd. Vervolgens worden de kanaalplaatvloeren met een kraan uit de mal genomen, gestapeld en getransporteerd naar het tasveld voor verdere uitharding. Enkele dagen later worden de platen afgeleverd bij de klant voor montage op de bouwplaats. De bekistingsmal is in deze studie beschouwd als kapitaalgoed en niet meegenomen in de LCA berekening.



### 2.3 CONSTRUCTION DESCRIPTION

In de toepassing (de constructiefase) worden de kanaalplaatvloeren met een kraan in de constructie aangebracht. Verder wordt de ruimte tussen twee vloerelementen gevuld met voegvulling.

Kanaalplaatvloeren worden in de regel afgewerkt met een afwerkvloer. Afhankelijk van de toepassing wordt op de kanaalplaatvloer een druklaag toegepast zodat de afwerkvloer ook een constructieve functie heeft. De afwerking is afhankelijk van de toepassing en daarom niet meegenomen in het milieuprofiel van de kanaalplaatvloer.

## 3 Results

### 3.1 ENVIRONMENTAL IMPACT INDICATORS PER SQUARE METER

#### CORE ENVIRONMENTAL IMPACT INDICATORS EN 15804+A2

| Abbr.     | Unit                     | A1      | A2      | A3       | A1-A3    | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total    |
|-----------|--------------------------|---------|---------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|
| GWP-total | kg CO <sub>2</sub> eq.   | 6.82E+1 | 5.10E+0 | 4.53E+0  | 7.78E+1  | 5.18E+0 | 3.13E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.79E-1 | 4.40E+0 | 1.04E+0 | 3.50E-2 | -5.29E+0 | 8.66E+1  |
| GWP-f     | kg CO <sub>2</sub> eq.   | 6.81E+1 | 5.08E+0 | 4.84E+0  | 7.80E+1  | 5.17E+0 | 2.90E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.79E-1 | 4.40E+0 | 1.04E+0 | 3.49E-2 | -5.30E+0 | 8.65E+1  |
| GWP-b     | kg CO <sub>2</sub> eq.   | 6.88E-2 | 6.32E-3 | -3.11E-1 | -2.36E-1 | 3.92E-3 | 2.16E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.75E-5 | 2.03E-3 | 5.98E-3 | 6.90E-5 | 1.60E-2  | 8.29E-3  |
| GWP-luluc | kg CO <sub>2</sub> eq.   | 2.55E-2 | 6.09E-3 | 2.17E-3  | 3.37E-2  | 1.58E-3 | 1.42E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.20E-5 | 1.61E-3 | 1.97E-4 | 9.74E-6 | -7.92E-4 | 3.78E-2  |
| ODP       | kg CFC 11 eq.            | 1.34E-6 | 1.02E-6 | 5.17E-7  | 2.88E-6  | 1.27E-6 | 3.26E-7 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.02E-8 | 9.71E-7 | 1.34E-7 | 1.44E-8 | -3.25E-7 | 5.33E-6  |
| AP        | mol H <sup>+</sup> eq.   | 1.18E-1 | 3.81E-2 | 1.58E-2  | 1.72E-1  | 1.66E-2 | 1.28E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.91E-3 | 2.55E-2 | 6.47E-3 | 3.31E-4 | -2.93E-2 | 2.07E-1  |
| EP-fw     | kg P eq.                 | 2.69E-2 | 5.17E-5 | 6.18E-4  | 2.76E-2  | 4.12E-5 | 1.09E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.01E-6 | 4.44E-5 | 3.22E-5 | 3.91E-7 | -1.91E-4 | 2.76E-2  |
| EP-m      | kg N eq.                 | 3.02E-2 | 1.52E-2 | 5.79E-3  | 5.11E-2  | 3.65E-3 | 4.38E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.29E-3 | 8.99E-3 | 2.58E-3 | 1.14E-4 | -7.33E-3 | 6.48E-2  |
| EP-T      | mol N eq.                | 4.28E-1 | 1.67E-1 | 5.33E-2  | 6.49E-1  | 4.07E-2 | 4.96E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.41E-2 | 9.91E-2 | 2.86E-2 | 1.26E-3 | -8.54E-2 | 7.97E-1  |
| POCP      | kg NMVOC eq.             | 1.07E-1 | 4.50E-2 | 1.31E-2  | 1.65E-1  | 1.60E-2 | 1.36E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.88E-3 | 2.83E-2 | 7.81E-3 | 3.65E-4 | -3.27E-2 | 2.02E-1  |
| ADP-mm    | kg Sb-eq.                | 1.14E-4 | 5.98E-5 | 7.53E-5  | 2.49E-4  | 9.20E-5 | 2.61E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.27E-7 | 1.11E-4 | 2.92E-6 | 3.19E-7 | -1.30E-4 | 3.52E-4  |
| ADP-f     | MJ                       | 3.91E+2 | 7.06E+1 | 6.02E+1  | 5.22E+2  | 8.40E+1 | 2.82E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.84E+0 | 6.63E+1 | 1.39E+1 | 9.76E-1 | -5.11E+1 | 6.68E+2  |
| WDP       | m <sup>3</sup> world eq. | 5.76E+0 | 2.84E-1 | -6.96E-2 | 5.97E+0  | 2.73E-1 | 1.77E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.14E-3 | 2.37E-1 | 6.30E-2 | 4.37E-2 | -3.76E+1 | -2.93E+1 |

**GWP-total**=Global Warming Potential total (GWP-total) | **GWP-f**=Global Warming Potential fossil fuels (GWP-fossil) | **GWP-b**=Global Warming Potential biogenic (GWP-biogenic) | **GWP-luluc**=Global Warming Potential land use and land use change (GWP-luluc) | **ODP**=Depletion potential of the stratospheric ozone layer (ODP) | **AP**=Acidification potential, Accumulated Exceedance (AP) | **EP-fw**=Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater) | **EP-m**=Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine) | **EP-T**=Eutrophication potential, Accumulated Exceedance (EP-terrestrial) | **POCP**=Formation potential of tropospheric ozone (POCP) | **ADP-mm**=Abiotic depletion potential for non fossil resources (ADP mm) | **ADP-f**=Abiotic depletion for fossil resources potential (ADP fossil) | **WDP**=Water (user) depletion potential, deprivation-weighted water consumption (WDP)

### 3 Results

#### ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN 15804+A2

| Abbr.  | Unit              | A1      | A2      | A3      | A1-A3   | A4      | A5       | B1      | B2      | B3      | C1       | C2      | C3       | C4       | D        | Total   |
|--------|-------------------|---------|---------|---------|---------|---------|----------|---------|---------|---------|----------|---------|----------|----------|----------|---------|
| PM     | disease incidence | 1.57E-6 | 2.62E-7 | 2.02E-7 | 2.03E-6 | 4.54E-7 | 2.19E-7  | 0.00E+0 | 0.00E+0 | 0.00E+0 | 7.73E-8  | 3.96E-7 | 1.43E-7  | 6.44E-9  | -4.79E-7 | 2.85E-6 |
| IR     | kBq U235 eq.      | 1.99E+0 | 3.07E-1 | 1.22E-1 | 2.42E+0 | 3.67E-1 | 1.08E-1  | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.64E-2  | 2.78E-1 | 4.40E-2  | 4.00E-3  | -8.25E-2 | 3.16E+0 |
| ETP-fw | CTUe              | 5.52E+2 | 5.95E+1 | 5.22E+1 | 6.63E+2 | 6.69E+1 | 5.50E+1  | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.31E+0  | 5.92E+1 | 1.13E+1  | 6.37E-1  | -1.44E+2 | 7.14E+2 |
| HTP-c  | CTUh              | 5.10E-8 | 2.05E-9 | 3.35E-9 | 5.63E-8 | 1.62E-9 | 8.20E-10 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 8.08E-11 | 1.92E-9 | 2.67E-10 | 1.46E-11 | -1.95E-9 | 5.91E-8 |
| HTP-nc | CTUh              | 1.91E-6 | 5.28E-8 | 1.28E-7 | 2.09E-6 | 7.33E-8 | 2.58E-8  | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.99E-9  | 6.47E-8 | 7.57E-9  | 4.50E-10 | 4.92E-7  | 2.76E-6 |
| SQP    | Pt                | 1.22E+2 | 6.67E+1 | 3.28E+1 | 2.22E+2 | 9.61E+1 | 2.39E+1  | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.89E-1  | 5.75E+1 | 2.31E+0  | 2.05E+0  | -5.36E+1 | 3.51E+2 |

**PM**=Potential incidence of disease due to PM emissions (PM) | **IR**=Potential Human exposure efficiency relative to U235 (IRP) | **ETP-fw**=Potential Comparative Toxic Unit for ecosystems (ETP-fw) | **HTP-c**=Potential Comparative Toxic Unit for humans (HTP-c) | **HTP-nc**=Potential Comparative Toxic Unit for humans (HTP-nc) | **SQP**=Potential soil quality index (SQP)

#### CLASSIFICATION OF DISCLAIMERS TO THE DECLARATION OF CORE AND ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

| ILCD classification | Indicator                                                                                           | Disclaimer |
|---------------------|-----------------------------------------------------------------------------------------------------|------------|
| ILCD type / level 1 | Global warming potential (GWP)                                                                      | None       |
|                     | Depletion potential of the stratospheric ozone layer (ODP)                                          | None       |
|                     | Potential incidence of disease due to PM emissions (PM)                                             | None       |
| ILCD type / level 2 | Acidification potential, Accumulated Exceedance (AP)                                                | None       |
|                     | Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater) | None       |
|                     | Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)         | None       |
|                     | Eutrophication potential, Accumulated Exceedance (EP-terrestrial)                                   | None       |
|                     | Formation potential of tropospheric ozone (POCP)                                                    | None       |
|                     | Potential Human exposure efficiency relative to U235 (IRP)                                          | 1          |
| ILCD type / level 3 | Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)                          | 2          |
|                     | Abiotic depletion potential for fossil resources (ADP-fossil)                                       | 2          |
|                     | Water (user) deprivation potential, deprivation-weighted water consumption (WDP)                    | 2          |
|                     | Potential Comparative Toxic Unit for ecosystems (ETP-fw)                                            | 2          |

### 3 Results

| ILCD classification | Indicator                                            | Disclaimer |
|---------------------|------------------------------------------------------|------------|
|                     | Potential Comparative Toxic Unit for humans (HTP-c)  | 2          |
|                     | Potential Comparative Toxic Unit for humans (HTP-nc) | 2          |
|                     | Potential Soil quality index (SQP)                   | 2          |

**Disclaimer 1** – This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

**Disclaimer 2** – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

#### CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A1

| Abbr. | Unit                   | A1      | A2      | A3      | A1-A3   | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total   |
|-------|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| ADPE  | kg Sb eq.              | 1.14E-4 | 5.98E-5 | 7.54E-5 | 2.50E-4 | 9.20E-5 | 2.61E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.27E-7 | 1.11E-4 | 2.92E-6 | 3.19E-7 | -1.30E-4 | 3.53E-4 |
| GWP   | kg CO <sub>2</sub> eq. | 6.68E+1 | 5.04E+0 | 4.77E+0 | 7.66E+1 | 5.13E+0 | 2.87E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.76E-1 | 4.36E+0 | 1.02E+0 | 3.43E-2 | -5.06E+0 | 8.53E+1 |
| ODP   | kg CFC 11 eq.          | 1.34E-6 | 8.20E-7 | 4.55E-7 | 2.61E-6 | 1.01E-6 | 2.66E-7 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.77E-8 | 7.74E-7 | 1.12E-7 | 1.14E-8 | -3.09E-7 | 4.53E-6 |
| POCP  | kg ethene eq.          | 2.73E-2 | 3.05E-3 | 1.72E-3 | 3.21E-2 | 3.28E-3 | 1.27E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.81E-4 | 2.63E-3 | 5.83E-4 | 3.65E-5 | -7.39E-3 | 3.28E-2 |
| AP    | kg SO <sub>2</sub> eq. | 8.34E-2 | 2.78E-2 | 1.18E-2 | 1.23E-1 | 1.35E-2 | 9.36E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.08E-3 | 1.92E-2 | 4.72E-3 | 2.51E-4 | -2.30E-2 | 1.49E-1 |
| EP    | Kg PO43- eq.           | 2.33E-2 | 5.95E-3 | 2.99E-3 | 3.23E-2 | 2.18E-3 | 1.95E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.72E-4 | 3.77E-3 | 1.05E-3 | 4.83E-5 | -3.38E-3 | 3.83E-2 |

**ADPE**=Depletion of abiotic resources-elements | **GWP**=Global warming | **ODP**=Ozone layer depletion | **POCP**=Photochemical oxidants creation | **AP**=Acidification of soil and water | **EP**=Eutrophication

#### NATIONAL ANNEX NMD

| Abbr. | Unit          | A1      | A2      | A3      | A1-A3   | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total   |
|-------|---------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| ADPF  | kg Sb eq.     | 1.94E-1 | 3.38E-2 | 3.15E-2 | 2.59E-1 | 3.99E-2 | 1.44E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.82E-3 | 3.21E-2 | 7.24E-3 | 4.67E-4 | -3.26E-2 | 3.22E-1 |
| HTP   | kg 1,4 DB eq. | 6.01E+0 | 1.72E+0 | 1.09E+0 | 8.82E+0 | 2.53E+0 | 6.56E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.02E-1 | 1.84E+0 | 2.43E-1 | 1.55E-2 | -2.75E+0 | 1.14E+1 |
| FAETP | kg 1,4 DB eq. | 2.03E-1 | 4.53E-2 | 1.36E-1 | 3.84E-1 | 6.89E-2 | 1.55E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.42E-3 | 5.36E-2 | 4.20E-3 | 3.69E-4 | 1.96E-3  | 5.30E-1 |

**ADPF**=Depletion of abiotic resources-fossil fuels | **HTP**=Human toxicity | **FAETP**=Ecotoxicity. fresh water | **MAETP**=Ecotoxicity. marine water | **TETP**=Ecotoxicity. terrestrial

### 3 Results

| Abbr. | Unit          | A1      | A2      | A3      | A1-<br>A3 | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total   |
|-------|---------------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| MAETP | kg 1,4 DB eq. | 5.21E+2 | 1.64E+2 | 8.80E+1 | 7.73E+2   | 2.71E+2 | 5.74E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.94E+0 | 1.93E+2 | 1.58E+1 | 1.32E+0 | -5.81E+1 | 1.26E+3 |
| TETP  | kg 1,4 DB eq. | 2.77E-1 | 6.72E-3 | 8.16E-2 | 3.65E-1   | 8.17E-3 | 3.71E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.68E-4 | 6.49E-3 | 2.98E-3 | 3.89E-5 | 1.29E-1  | 5.16E-1 |

**ADPF**=Depletion of abiotic resources-fossil fuels | **HTP**=Human toxicity | **FAETP**=Ecotoxicity, fresh water | **MAETP**=Ecotoxicity, marine water | **TETP**=Ecotoxicity, terrestic

### 3.2 INDICATORS DESCRIBING RESOURCE USE AND ENVIRONMENTAL INFORMATION BASED ON LIFE CYCLE INVENTORY (LCI)

#### PARAMETERS DESCRIBING RESOURCE USE

| Abbr. | Unit | A1      | A2      | A3      | A1-<br>A3 | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total   |
|-------|------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| PERE  | MJ   | 2.71E+1 | 1.29E+0 | 2.32E+1 | 5.16E+1   | 1.06E+0 | 2.03E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.07E-2 | 8.31E-1 | 7.89E-1 | 7.89E-3 | -3.20E+0 | 5.32E+1 |
| PERM  | MJ   | 0.00E+0 | 0.00E+0 | 1.46E+0 | 1.46E+0   | 0.00E+0 | 4.71E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0  | 1.50E+0 |
| PERT  | MJ   | 2.71E+1 | 1.29E+0 | 2.47E+1 | 5.31E+1   | 1.06E+0 | 1.24E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.07E-2 | 8.31E-1 | 7.89E-1 | 7.89E-3 | -3.20E+0 | 5.38E+1 |
| PENRE | MJ   | 3.64E+2 | 7.49E+1 | 6.43E+1 | 5.03E+2   | 8.92E+1 | 3.90E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.07E+0 | 7.04E+1 | 1.48E+1 | 1.04E+0 | -5.38E+1 | 6.68E+2 |
| PENRM | MJ   | 6.37E-2 | 0.00E+0 | 3.20E-1 | 3.84E-1   | 0.00E+0 | 3.95E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | -2.15E-3 | 3.82E-1 |
| PENRT | MJ   | 3.64E+2 | 7.49E+1 | 6.46E+1 | 5.04E+2   | 8.92E+1 | 3.00E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.07E+0 | 7.04E+1 | 1.48E+1 | 1.04E+0 | -5.38E+1 | 6.60E+2 |
| SM    | Kg   | 5.34E+1 | 0.00E+0 | 1.11E+0 | 5.45E+1   | 0.00E+0 | 9.37E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.70E-6  | 5.54E+1 |
| RSF   | MJ   | 3.36E+1 | 0.00E+0 | 6.71E-1 | 3.42E+1   | 0.00E+0 | 4.36E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0  | 3.47E+1 |
| NRSF  | MJ   | 7.84E+1 | 0.00E+0 | 1.57E+0 | 8.00E+1   | 0.00E+0 | 4.53E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0  | 8.04E+1 |
| FW    | m³   | 1.21E+0 | 1.09E-2 | 2.87E-2 | 1.25E+0   | 9.56E-3 | 4.35E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.97E-4 | 8.08E-3 | 4.64E-3 | 1.04E-3 | -8.79E-1 | 4.40E-1 |

**PERE**=Use of renewable primary energy excluding renewable primary energy resources used as raw materials | **PERM**=Use of renewable primary energy resources used as raw materials | **PERT**=Total use of renewable primary energy resources | **PENRE**=Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials | **PENRM**=Use of non-renewable primary energy resources used as raw materials | **PENRT**=Total use of non-renewable primary energy resources | **SM**=Use of secondary material | **RSF**=Use of renewable secondary fuels | **NRSF**=Use of non-renewable secondary fuels | **FW**=Net use of fresh water

### 3 Results

#### OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

| Abbr. | Unit | A1      | A2      | A3      | A1-<br>A3 | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D        | Total   |
|-------|------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| HWD   | Kg   | 3.14E-3 | 1.78E-4 | 4.13E-4 | 3.73E-3   | 2.04E-4 | 8.01E-5 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.04E-5 | 1.68E-4 | 2.54E-5 | 1.46E-6 | -3.90E-4 | 3.83E-3 |
| NHWD  | Kg   | 3.30E+0 | 3.09E+0 | 5.56E-1 | 6.95E+0   | 7.30E+0 | 1.39E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 4.54E-3 | 4.21E+0 | 1.93E+0 | 6.63E+0 | -6.21E-1 | 2.78E+1 |
| RWD   | Kg   | 5.13E-4 | 4.69E-4 | 1.15E-4 | 1.10E-3   | 5.73E-4 | 3.44E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.66E-5 | 4.36E-4 | 6.23E-5 | 6.41E-6 | -1.24E-4 | 5.52E-3 |

**HWD**=Hazardous waste disposed | **NHWD**=Non-hazardous waste disposed | **RWD**=Radioactive waste disposed

#### ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

| Abbr. | Unit | A1      | A2      | A3      | A1-<br>A3 | A4      | A5      | B1      | B2      | B3      | C1      | C2      | C3      | C4      | D       | Total   |
|-------|------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| CRU   | Kg   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0   | 0.00E+0 | 5.24E-3 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 5.24E-3 |
| MFR   | Kg   | 2.07E-1 | 0.00E+0 | 1.29E+1 | 1.31E+1   | 0.00E+0 | 3.28E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.39E+2 | 0.00E+0 | 0.00E+0 | 6.85E+2 |
| MER   | Kg   | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0   | 0.00E+0 | 1.71E-6 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.71E-6 |
| EE    | MJ   | 0.00E+0 | 0.00E+0 | 1.38E-1 | 1.38E-1   | 0.00E+0 | 3.15E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.02E-1 | 7.41E-1 |
| EET   | MJ   | 0.00E+0 | 0.00E+0 | 8.73E-2 | 8.73E-2   | 0.00E+0 | 2.00E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.81E-1 | 4.69E-1 |
| EEE   | MJ   | 0.00E+0 | 0.00E+0 | 5.07E-2 | 5.07E-2   | 0.00E+0 | 1.16E-4 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 2.21E-1 | 2.72E-1 |

**CRU**=Components for re-use | **MFR**=Materials for recycling | **MER**=Materials for energy recovery | **EE**=Exported energy | **EET**=Exported Energy, Thermic | **EEE**=Exported Energy, Electric

## 3 Results

### 3.3 INFORMATION ON BIOGENIC CARBON CONTENT PER SQUARE METER

#### BIOGENIC CARBON CONTENT

The following Information describes the biogenic carbon content in (the main parts of) the product at the factory gate per square meter:

| Biogenic carbon content                           | Amount  | Unit |
|---------------------------------------------------|---------|------|
| Biogenic carbon content in the product            | 0       | kg C |
| Biogenic carbon content in accompanying packaging | 0.04767 | kg C |

#### UPTAKE OF BIOGENIC CARBON DIOXIDE

The following amount of carbon dioxide uptake is taken into account. Related uptake and release of carbon dioxide in downstream processes are not taken into account in this number although they do appear in the presented results. One kilogram of biogenic Carbon content is equivalent to 44/12 kg of biogenic carbon dioxide uptake.

| Uptake Biogenic Carbon dioxide | Amount | Unit              |
|--------------------------------|--------|-------------------|
| Packaging                      | 0.1603 | kg CO2 (biogenic) |

## 3 Results

### 3.4 ENVIRONMENTAL COST INDICATOR NL PER SQUARE METER

Using the environmental cost indicator (ECI) method, which is presented in the NMD Determination Method (2020), the results are aggregated to the single-point score. The ECI is a relevant valuation method, especially in the Dutch construction sector. In the Netherlands, it is a prerequisite for public tenders. The aim of the indicator is to show the shadow price for environmental impacts of a product or project. The application of single-point scores is an additional assessment tool for eco-balance results. However, it must be pointed out that weightings are always based on a value maintenance and not on a scientific basis (EN 14040). The ECI results are shown in the following table.

| Module EN15804                                          | ECI NL 2010   | Share in total (%) |
|---------------------------------------------------------|---------------|--------------------|
| A1 Raw Materials Supply                                 | € 4.59        | 70,3 %             |
| A2 Transport                                            | € 0.60        | 9,2 %              |
| A3 Manufacturing                                        | € 0.44        | 6,7 %              |
| A4 Transport from the gate to the site                  | € 0.60        | 9,2 %              |
| A5 Construction - Installation process                  | € 0.27        | 4,1 %              |
| B1 Use                                                  | € 0.00        | 0,0 %              |
| B2 Maintenance                                          | € 0.00        | 0,0 %              |
| B3 Repair                                               | € 0.00        | 0,0 %              |
| C1 De-construction / demolition                         | € 0.04        | 0,6 %              |
| C2 Transport                                            | € 0.53        | 8,1 %              |
| C3 Waste processing                                     | € 0.11        | 1,6 %              |
| C4 Disposal                                             | € 0.00        | 0,1 %              |
| D Benefits and loads beyond the product system boundary | € -0.64       | -9,8 %             |
| <b>ECI NL 2010 per functional unit</b>                  | <b>€ 6.53</b> |                    |

## 4 Contact information

| Publisher                                                                         |  | Operator                                                                          | Owner of declaration                                                                |
|-----------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
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