The role of EPD’s

- Recent developments in Denmark

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## Environmental/sustainability documentation

Essential standards regarding environmental labelling and declarations (ISO)

- ISO 14020: Environmental labels and declarations — General principles
  - ISO 14024: Environmental labels and declarations — Type I environmental labelling — Principles and procedures
  - ISO 14021: Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)
  - ISO 14025: Environmental labels and declarations — Type III environmental declarations — Principles and procedures
Sustainable development (SD)

A development that meets the needs of the present without compromising the ability of future generations to meet their own needs
(from UN “Brundtland report”, 1989)
Elements of an LCA (ISO 14040/44)

Applications:
- Decision supporting tool regarding relative environmental sustainability:
  - product development
  - strategic planning
  - public policy planning
- Marketing:
  - Ecolabels
  - EPD
- Identification of hot-spots in the life cycle of a product/service

Definition of goal and scope

Inventory

Environmental impact assessment

Interpretation
Essential standards regarding sustainability assessment on construction works and product declarations (CEN/TC 350)

- Sustainability/LCA on construction works; Buildings and Civil engineering works
  - EN 15978: "Sustainability of construction works – Assessment of environmental performance of buildings - Calculation method
  - EN standard on civil engineering works in preparation

- Environmental declarations on construction products (EPD)
  - EN 15804: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
What is an EPD?

It’s a product declaration by which a producer can document a number of (environmental) properties for his product.

Which properties can be declared?

Environmental properties (emissions, resource consumptions) covering the whole life cycle of the product:

- CO₂-emissions
- Energy consumption
- Water consumption
- Generation of waste
- ...

Environmental Product Declaration - EPD
EPD: Life cycle stages

The life cycle of the product, covers the following:

- Material stage
- Production stage
- Use stage
- End-of-life stage
- (Transport stage)
### Life cycle stages and modules (MND = module not declared)

<table>
<thead>
<tr>
<th>Product</th>
<th>Construction process</th>
<th>Use</th>
<th>End of life</th>
<th>Beyond the system boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw material supply</td>
<td>Transport</td>
<td>Manufacturing</td>
<td>Transport</td>
<td>Installation process</td>
</tr>
<tr>
<td>A1</td>
<td>A2</td>
<td>A3</td>
<td>A4</td>
<td>A5</td>
</tr>
</tbody>
</table>

| X | X | X | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND |
EPD: How does it look; Example

Used bricks

Owner of declaration
Gamle Mursten ApS
Skotlandsvej 16,
5700 Svendborg
VAT No.: DK-10134412

Programme operator
Danish Technological Institute
www.dti.dk

Programme
EPD Danmark
www.epddanmark.dk

Declared products
Used bricks (whole and half), machine cleaned and hand sorted

Production site
Svendborg and Hedehusene, Denmark

Products use
The used bricks are used in new buildings and renovations. The bricks are used in brick-built walls, columns and partition walls.

Declared unit
1 tonne used bricks (whole and half), which are machine cleaned and hand sorted at Gamle Mursten
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>A1-A3</th>
</tr>
</thead>
<tbody>
<tr>
<td>GWP</td>
<td>[kg CO₂-eq.]</td>
<td>2.70</td>
</tr>
<tr>
<td>ODP</td>
<td>[kg CFC11-eq.]</td>
<td>1.34E-09</td>
</tr>
<tr>
<td>AP</td>
<td>[kg SO₂-eq.]</td>
<td>0.0617</td>
</tr>
<tr>
<td>EP</td>
<td>[kg PO₄³⁻-eq.]</td>
<td>0.0135</td>
</tr>
<tr>
<td>POCP</td>
<td>[kg ethene-eq.]</td>
<td>-0.00749</td>
</tr>
<tr>
<td>ADPE</td>
<td>[kg Sb-eq. ]</td>
<td>3.35E-06</td>
</tr>
<tr>
<td>ADPF</td>
<td>[MJ]</td>
<td>274</td>
</tr>
</tbody>
</table>

**Caption:**
GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources
Demands for EPD’s – now and in the future

The market

EU-legislation, standardising og CE-label

Danish legislation

Now!

Not yet BUT IT WILL COME!...!
Both a preliminary (generic data) and a final (specific data) LCA needs to be done.

"Voluntary sustainability class"

Data used for at least the final LCA needs to be:
- Valid
- Created according to EN 15804
- Third party verified

The aim: To become a mandatory part of the building regulation in 2023.
How to make an EPD

Producer
Owner of the product for declaration

Program operator

LCA-consultant
Data acquisition and LCA modelling

Verifier
Independent third part verification
- by using conventional method

Verification procedure for conventional EPD’s

1. EPD, Project Report and verification report
2. Verification dialogue
3. Completed verification Report and EPD

Secretariat

Manufacturer/LCA consultant

Third party verifier

Approval and publication
- by using an EPD-tool

**INPUT**
- Recipe (composition)
- Transport data
- Energy consumption
- Waste

**OUTPUT**
- EPD with results
- by using an EPD-tool
- by using an EPD-tool

Verification procedure for EPD-tool generated EPD’s
Demands on EPD format and content

- Competency Requirements (CV)
- Checklists
- Management of the process

Verification process

- EPD database
- Existing program instructions
- Information and contact
- ...

Steering committee

- Aalborg Universitet
- Dansk Green Building Council
- Dansk Byggeri
- SDU
- Bonava
- Søren Jensen Rådg. Ing.
- Arkitema
- Danske Tegl
- VinduesIndustrien
- SBI
- Bygherreforeningen
ECO Platform – market driven harmonisation
Contact

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