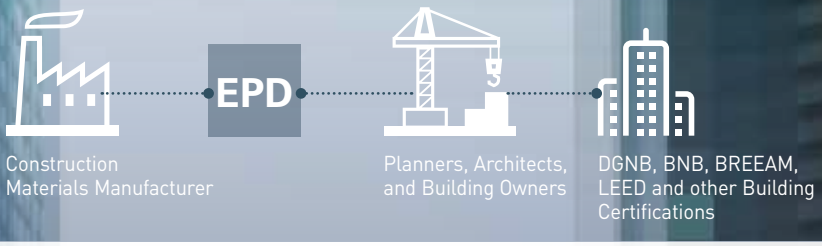
Institut Bauen und Umwelt (IBU)

The driving force for ecological sustainability

Focusing on details.
Seeing the big picture.

Institut Bauen und Umwelt e.V.

Sustainable
construction means
taking responsibility.
For the environment.
For the community.
And for each individual.



Institut Bauen und Umwelt e.V.

From construction materials to a sustainable building

Sustainable construction involves taking responsibility – for the environment, for the community and for each individual. Sustainable construction means taking a comprehensive view of each building and analysing every detail. In every building, in every house, a multitude of different products can be found. By the time all of these products have been manufactured, set in place, and are fulfilling their functions, a large number of resources has been used. The construction materials that are used all have differing requirements, based on the type of building, its use, and its location.

Each individual product has an impact on the ecological performance of the entire building. Therefore, the environmental impact of each individual construction product and component can only be assessed by looking at the entire building. Often, however, there is more to each single component than meets the eye: what resources have been utilised for each steel plate, each brick, each litre of paint, or each kilogram of insulation material? This can be difficult to assess, unless manufacturers share this information – as do the members of the Institut Bauen und Umwelt (IBU).

COLLECTIVE

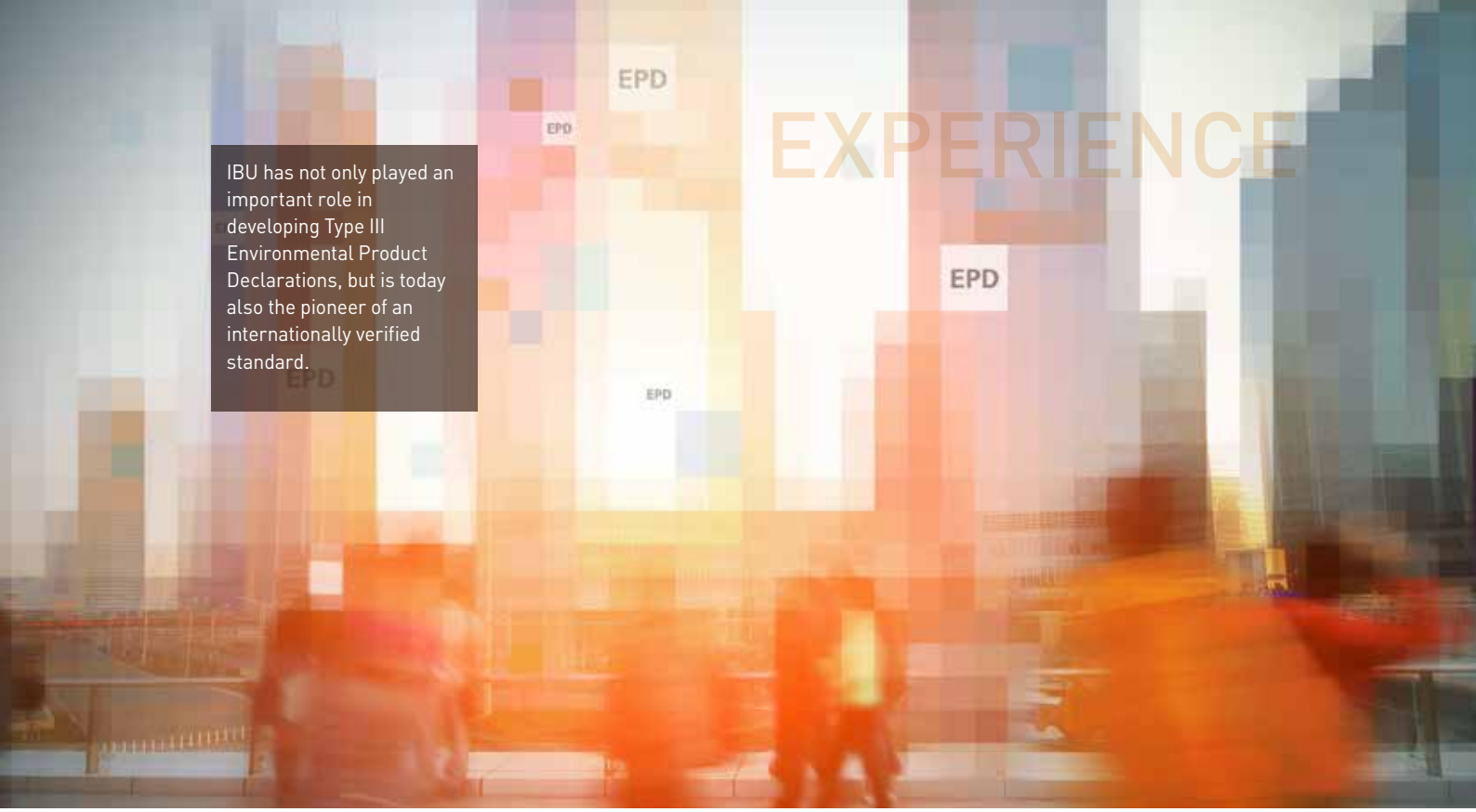
The Institut Bauen und Umwelt runs a declaration programme in Germany and Europe for construction materials and components. Under one roof, IBU unites more than 200 companies and associations who are committed to sustainability and to collectively ensuring that ecological aspects are taken into consideration in life-cycle assessments of buildings.

COMPREHENSIVE

Environmental Product Declarations (EPDs) provide basic information that is needed in order to assess building quality on the basis of its ecological aspects, which is important for a comprehensive evaluation and, therefore, also for the life-cycle assessment of buildings.

PROACTIVE

The EPD programme is truly international in its orientation. On the basis of the DIN ISO 14025 standard, IBU has created a cross-sector industry standard. Throughout Germany, it is the leading organisation for the declaration of construction materials in accordance with the European standard EN 15804.



IBU has not only played an important role in developing Type III Environmental Product Declarations, but is today also the pioneer of an internationally verified standard.

IBU: a success story

FROM AUB TO IBU

IBU resulted from the work of a committee that was founded in 1982: AUB, (Arbeitsgemeinschaft Umweltverträgliches Bauprodukt e.V.). The aim of AUB was to increase its members' awareness of sustainability, to publish environmental information on construction materials, and, most importantly, to promote sustainable construction.

Ultimately, the committee, together with construction and environmental authorities in Germany, and in accordance with international standardisation processes, developed the first Type III Environmental Product Declaration Programme in Germany: the EPD programme.

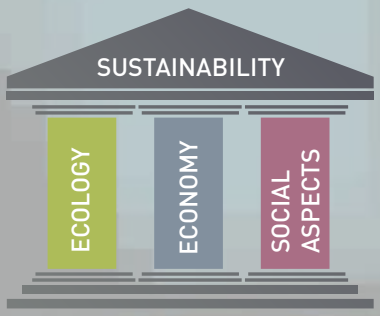
In order to place more emphasis on scientific requirements and competence, as well as on sustainable construction, in 2008, AUB was renamed „IBU" (Institut Bauen und Umwelt e.V.). In 2013, IBU moved from Königswinter, near Bonn, to Berlin, thereby also moving further into the public spotlight of political decision-makers and other network partners. To date, IBU has thirteen board members and a President, as well as 200 regular members, who are led by the team at the main office.

ALWAYS ONE STEP AHEAD

Internationally, IBU is one of the leading programme holders for construction industry EPDs, and is the first organisation in Germany to implement coordinated European standards for Environmental Product Declarations for sustainability in the construction industry. IBU's EPD programme includes comprehensive life-cycle assessment and an independent verification process. Experts from various universities, the Federal Environment Agency, the Federal Institute for Materials Research and Testing, the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety and Nature Conservation Associations supervise the work. More than 1,300 EPDs have been created so far.

Institut Bauen und Umwelt e.V.

An EPD includes the entire life-cycle of construction materials.



Three pillars of sustainability

STEP BY STEP TOWARDS OUR VISION

Closed-loop cycles and a waste-free economy – a vision that society and the construction industries are far from achieving. Nevertheless, the sustainability concept has become a political guiding principle. The "three-pillar model of sustainability" emphasizes that economy, ecology, and social aspects contribute equally to sustainable development. Current discussions attach an especially great degree of importance to ecology. It is characterised as the fundamental basis for sustainable development. This concept has long-since reached the building and real estate industry. The development of building certification systems has increasingly led real estate investors and housing companies to consider environmental factors when choosing products. Thus, EPDs are gaining in importance. They provide scientifically-based data regarding ecological and technical qualities that can be used for building assessment, and they assess the environmental impact of construction products and components. EPDs are internationally-recognised tools for building assessment.

PROFESSOR DR HORST BOSSENMAYER, PRESIDENT

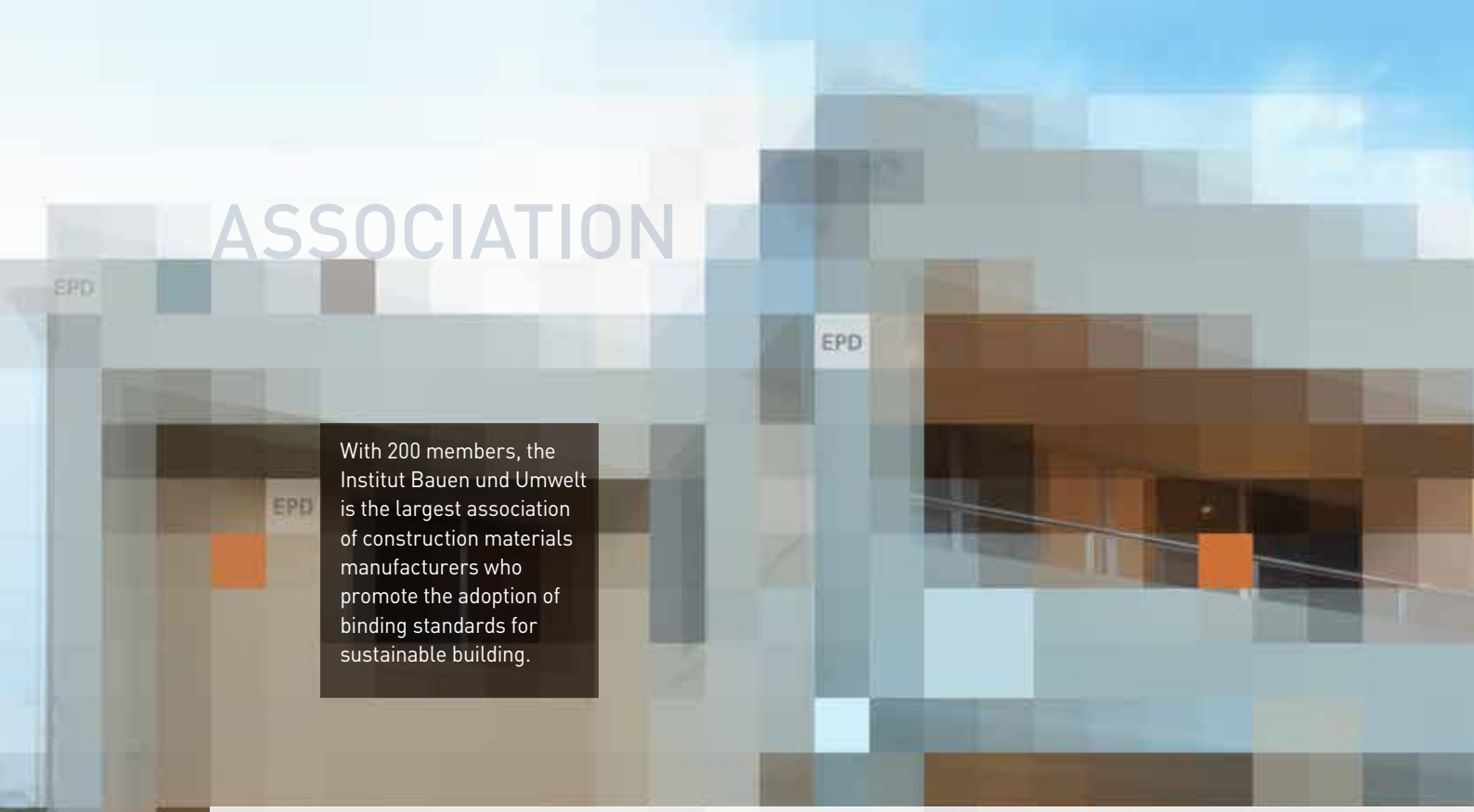
"IBU is the leading institution in Germany that is issuing EPDs for construction materials on a European-wide basis. And, its significance is growing. From the beginning, the construction materials industry has cooperated in enabling assessment of the sustainability of construction materials. These efforts are now bearing fruit".

HANS PETERS,
CHAIRMAN

"Our primary concern is to present the issue of sustainable building in a practical manner. This is achieved through the use of EPDs. They are applicable to all construction products, and enable assessment of the sustainability of an entire building, also taking into account the use and location of the building".

DR BURKHART LEHMANN,
MANAGING DIRECTOR

"Transparency, independence, and professionalism are the values by which we live, and they are the determining factors for IBU. We have created industrial standards that are used across all sectors. The number of our members is growing, and, Europe-wide, EPDs are becoming standard".



With 200 members, the Institut Bauen und Umwelt is the largest association of construction materials manufacturers who promote the adoption of binding standards for sustainable building.

IBU: a strong association

Increasingly, EPDs are being required for tenders. Because of its transparent procedures, the IBU's EPD programme has been extremely well accepted among building certification systems.

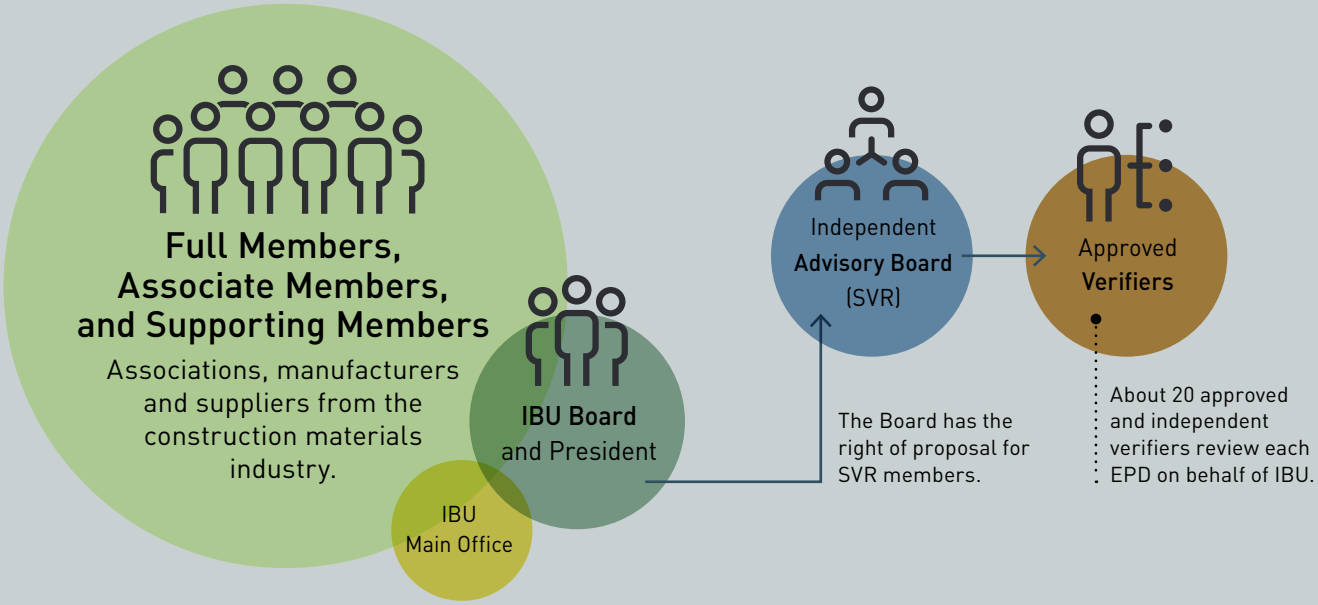
MEMBERSHIP: DIVERSITY – VARIETY – BENEFITS

At IBU, there are about 200 members from a number of different companies and associations. They come from various sectors throughout the construction materials industry, the structural and civil engineering sector, and from the technical building equipment sector. The 150 companies, 40 associations, and 80 additional declaration owners primarily come from Germany but other European and non-European countries are also represented. Together, they own more than 1,300 EPDs.

Any association or individual company from the construction materials industry is eligible to become a member. In order to also be able to serve small and medium sized companies, a number of different EPD models have been developed. This makes IBU members who are manufacturers of construction products and components, or who are technical building service companies, pioneers in the field of sustainability. Owning an EPD shows that they are making an effort to continuously improve the quality of their products in terms of their environmental impact.

Further, EPDs provide a competitive edge, since they make it easier for manufacturers to gain access to tendered construction projects.

→ *A list of our members can be accessed at: www.ibu-epd.com*



IBU organisation and elements

OUR SERVICE: EFFECTIVE AND EXTENSIVE

To provide the best possible support for its members, IBU is committed to compiling scientifically-based assessments of construction products. The IBU team is available to answer all questions regarding the creation of EPDs, information-sharing, and consulting. Throughout the entire process, they stand ready to assist. The Environmental Product Declaration will then be verified by an independent third party and officially released, along with the IBU logo.

As a founding member of the „ECO Platform", an association of European programme holders, IBU promotes international networking. Cooperation agreements based on mutual recognition of Environmental Product Declarations exist with other EPD programmes in Europe and North America. The long-term aim is the mutual recognition of EPDs both in Europe and worldwide.

SERVICES OFFERED BY IBU:

- Flexible EPD solutions
- EPD Online Tool
- Publishing of EPDs
- Link to the construction material database: ÖKOBAUDAT
- Regular newsletters to provide up-to-date information
- PR and Marketing
- Consulting, lectures, and workshops
- Effective media activities
- Commitment to a Europe-wide mutual recognition of EPDs – ECO Platform
- Publication of EPDs in international EPD programmes
- Communication with sustainability experts and representatives from politics and standardisation
- Participation in political and normative committees

EPDs from IBU provide clarity and generate added value

EPDs provide clarity, because they make it possible to see which raw materials have been used in construction products, what the energy requirements are, and what the environmental impact will be. A life-cycle assessment can, for instance, quantify contributions to global warming, ozone reduction, acidification of soil and water, or shortages of resources.

The range of technical information available makes it possible to assess the performance of a construction product within the context of a building. This includes information on compressive strength and life-cycle, as well as heat and sound insulation.

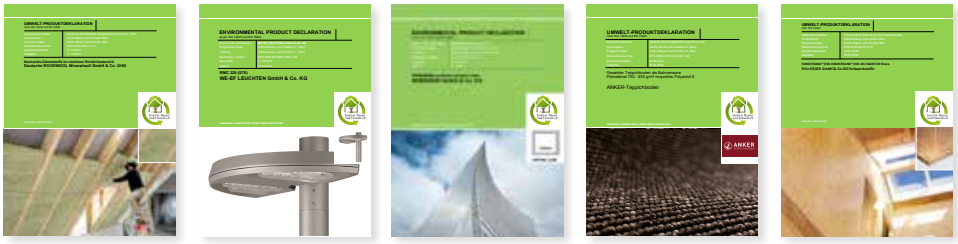
EPDs also show the extent to which an end-of-life product will be able to be readmitted to the technical production cycle and the ecosystem. It includes environmental and health related data, such as indoor emissions values. Thanks to this clarity and transparency, the long-term effects of individual construction parts on the ecosystem can be evaluated.

EPDs: THE BASIS FOR BUILDING CERTIFICATION

EPDs are created by manufacturers, verified by independent experts, and then published by IBU. The comprehensive and detailed information contained in them is an important cornerstone of building certification systems such as DGNB, BNB, BREEAM and LEED.

Planners, architects, engineers, building owners, facility managers, and auditors – along with anyone else who may be interested – can quickly gain an overview of life cycle assessment parameters and product-relevant environmental impacts by consulting a publicly-accessible EPD at one of these locations:

- on the IBU website (www.ibu-epd.com)
- in the IBU online tool (https://epd-online.com)
- on manufacturers' websites
- in the BBSR ÖKOBAUDAT construction material database
- in DGNB-Navigator



ECO LABEL COMPARISON

	Type I	Type II	Type III
Example	• Der Blaue Engel (German Eco Label) • European Environmental Label • nature plus • DGNB-Certificate • FSC	• Philips Green Tick Logo • Siemens Norm SN 36 350	• EPDs published by IBU
DIN-requirements	ISO 14024	ISO 14021	ISO 14025
Awarding	• Certification by third party needed	• Voluntary self-declaration; at manufacturer's sole responsibility	• Verification needed by an independent third party
Target Group	• Private and commercial end-consumers • Relevant for public procurement	• Mostly private end-consumers	• Manufacturers in the supply chain • Planners, architects and building certifiers • More and more relevant for public procurement
Content	• Qualitative data • Demonstrate one essential environmental quality	• Separate environmental aspects • Criteria freely selectable	• Complex, quantitative data • Based on life-cycle assessment • Neutral

Type III Environmental Product Declarations (EPDs) supply comprehensive, quantitative product information.

EPDs: A NEUTRAL SYSTEM

There are three types of environmental labels and declarations: Type I, in accordance with ISO 14024, indicate one or two environmental aspects and are targeted at private and commercial end-consumers. Type II are manufacturers' declarations, which, in accordance with ISO 14021, supply further product information. The EPDs issued by IBU are classified as Type III.

Using a standardised system, EPDs summarise and record scientifically-determined data that has been obtained from the life-cycle assessment of an individual product. Factual, neutral, without bias.

Only if it is possible to compare separate EPDs for a particular product made by different manufacturers for a specific installation, do experts possess a tool that they can use to select the most environmentally-friendly product.

Type III Environmental Product Declarations are applicable to a variety of products and services, including complex systems. Principles and procedures are consistent with ISO 14025. Additionally, IBU EPDs are consistently declared and verified in accordance with the European standard EN 15804.

CONTENTS OF AN IBU-ISSUED EPD

In accordance with EN 15804, an EPD is published as a digital document. It contains a life-cycle assessment and statements regarding:

- **impact on the environment**
  greenhouse effect, acidification, over-fertilisation, ozone depletion, summer smog, shortages of resources
- **resources and End-of-Life scenarios**
  energy and resource use, output flows, waste categories
- **product behaviour**
  indoor emissions, soil and water

Various modules of the life-cycle assessment show product processing and installation in the building, conditions of use, and disposal, as well as the potential for recycling and re-use.

THIRD-PARTY VERIFIED EPD ISO 14025 and EN 15804 Institut Bauen und Umwelt e.V.

Three steps for creating an EPD

For the creation of EPDs, many different people are involved: manufacturers, experts, independent verifiers, and the public. This guarantees reliability, objectivity and transparency.

1 CREATING PRODUCT CATEGORY RULES

EPDs are created on the basis of a Guidance Text (PCR – Product Category Rules), which consists of two parts.

Part A contains uniform rules for the different product subgroups; these are created and maintained by the Advisory Board (Sachverständigenrat, SVR). It contains calculation rules for life-cycle assessment and requirements for the underlying background reports.

Part B contains requirements for the content of the different product subgroups described in the respective EPDs. IBU serves as moderator for committees who define each product subgroup for products that have similar features and functions.

The committees define evidence parameters for structural engineering details that are required to be declared as well as for environmental and health-related evidence. This procedure, carried out by IBU members working together with external experts, allows creation of a draft of the new PCR Guidance Text Part B.

The SVR performs a detailed examination of the draft for consistency between the product groups and for completeness. Thereafter, before the SVR releases the document, planners, building owners, authorities, and anyone else who is interested, have the opportunity to discuss the draft in an online forum and to suggest improvements.

2 CREATING AN EPD

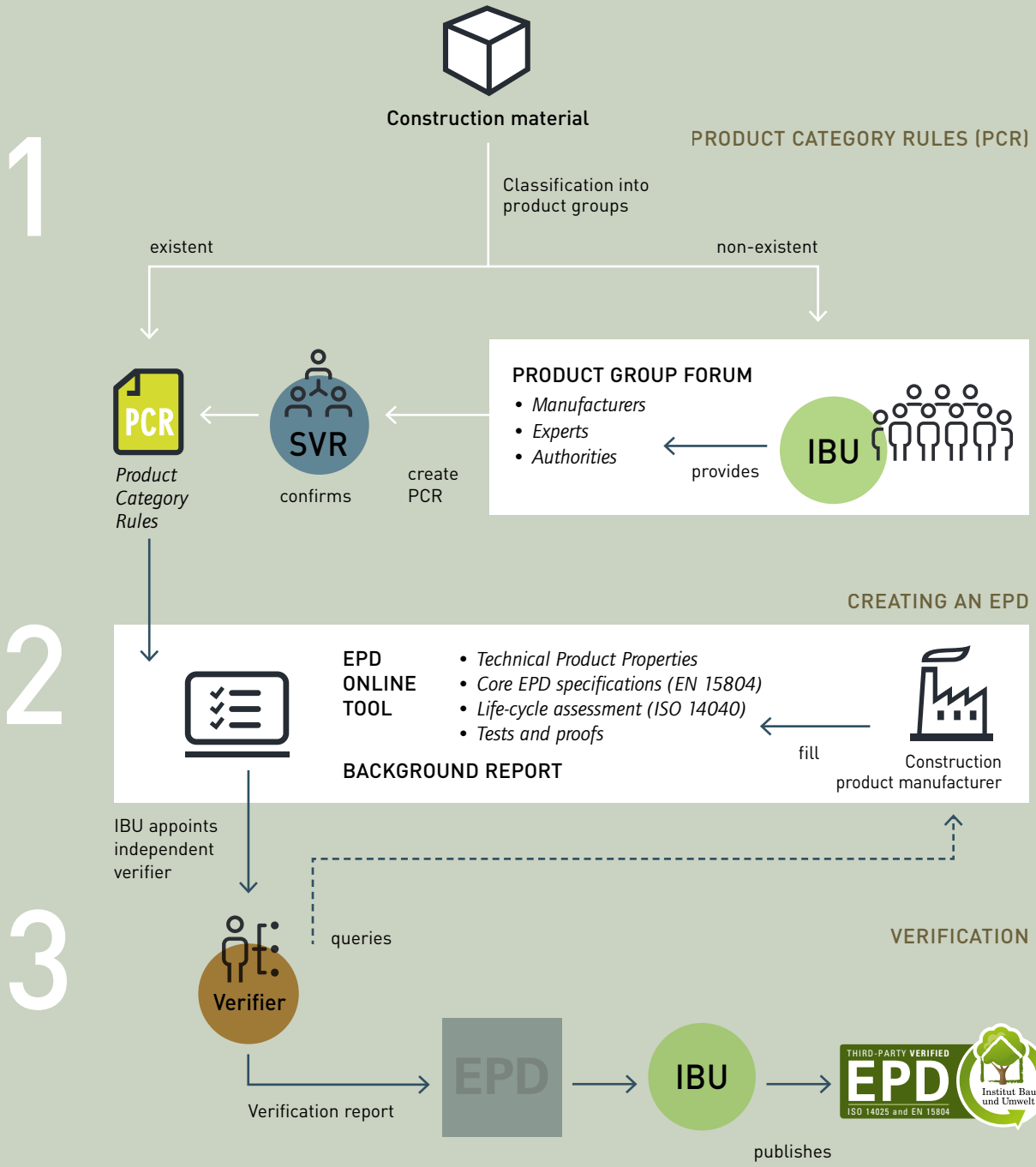
In the second step, on the basis of the guidelines contained in PCR Guidance Text Part B, the EPD is created. In order to review the results of the life-cycle assessment, an additional "background report" must be prepared on the basis of PCR Part A. The underlying life-cycle assessment model, as well as the assumptions made and allocation methods used, will be derived from this report. An easy-to-use EPD Online Tool is available for use by all involved parties, enabling them to create EPD documents themselves.

3 INDEPENDENT VERIFICATION AND CONFIRMATION

During the third step, independent verifiers, appointed by the SVR as independent third parties, review the EPD and the background report to assure consistency with the principles of standards ISO 14025 and EN 15804. Following a review for completeness, plausibility, and consistency of the calculations and information provided, a verification report is compiled. Once this is completed, the EPD will be published by IBU. An EPD is valid for five years. Following this period, an update will be required.

The right EPD for every requirement – on the basis of their long-standing experience, the IBU team can competently and comprehensively advise you, with an eye to your individual goals.

An Overview of the Three Steps



IBU's EPDs ARE FLEXIBLE

IBU-issued EPDs come in modules. This means that manufacturers have the choice of creating a Core EPD that is in accordance with EN 15804 or an IBU EPD, which provides additional information and certification.

Whether the EPD to be created is for a company, a company group, or an association, IBU offers an appropriate EPD model. Alongside Product EPDs, there are also Model, System and Average, and Association EPDs. There are alternatives available for any manufacturer who wishes to create an EPD.

Core EPD
EN 15804

IBU EPD
EN 15804 plus additional information

Product, Generic and Average EPD

ECO Platform EPD

Independent experts ensure quality

The Advisory Board (Sachverständigenrat, SVR) represents the highest expert authority for the work of IBU.

Eleven non-salaried members work to supervise and ensure conformity to standards and the quality of the IBU EPD programme verification procedure.

The SVR is made up of individual experts who come from a variety of sectors, including science, standardisation, construction and environmental agencies, as well as nature conservation associations.

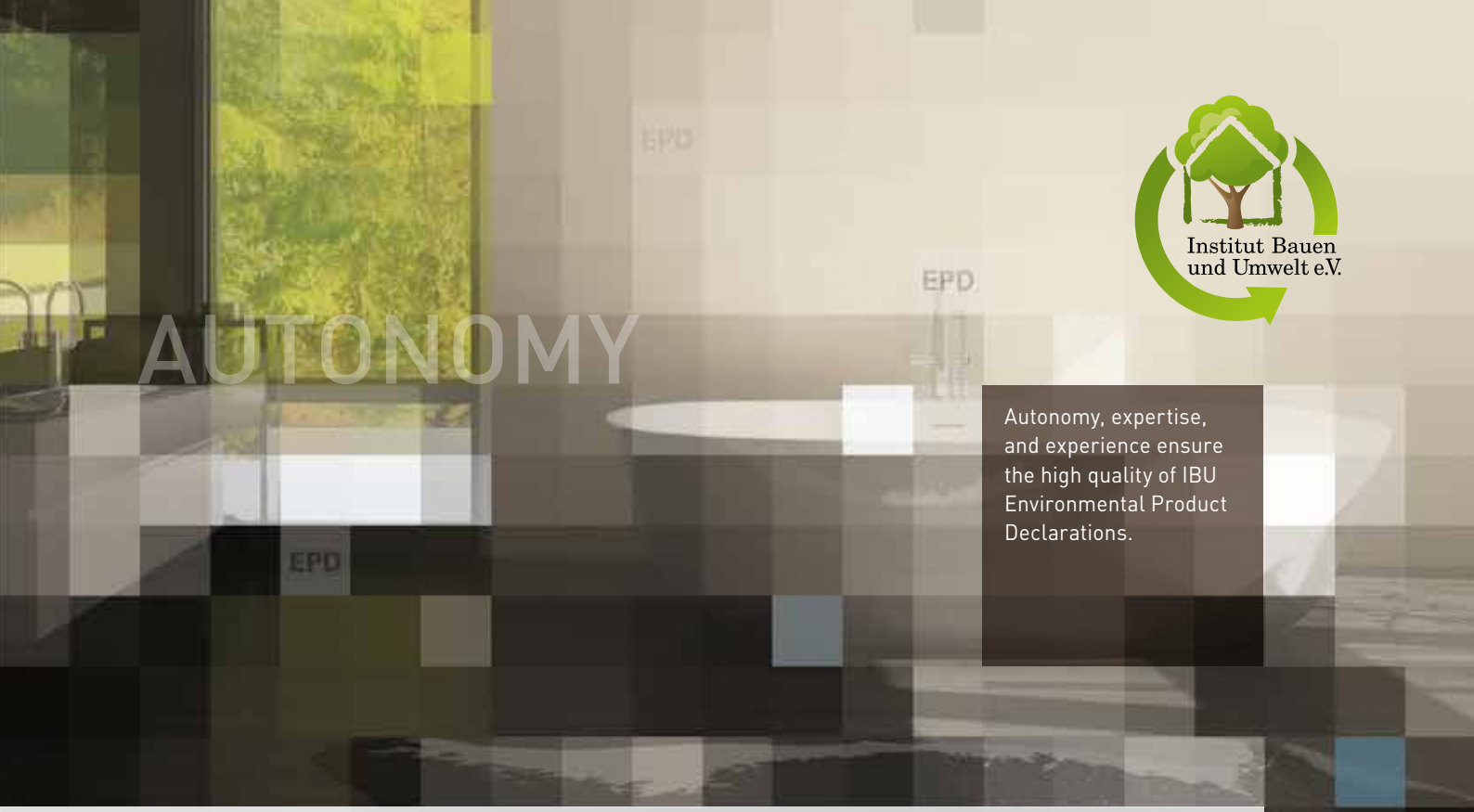
SVR

The Advisory Board (SVR)

- non-salaried appointments
- made up of various experts
- approves PCRs (Product Category Rules)
- appoints verifiers
- checks conformity to standards

MEMBERS OF SVR

1. **Til Bolland**
   Federal Environmental Agency (UBA)
2. **Dr. Tanja Brockmann**
   Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR)
3. **Dr. Antje Eichler**
   Central Federation of the German Construction Industry
4. **Prof. Dr. Matthias Finkbeiner**
   Technical University of Berlin
5. **Prof. i.R. Dr. Arno Frühwald**
   University of Hamburg
6. **Prof. Dr. Bruno Hauer**
   University of Applied Sciences Nuremberg
7. **Director and Professor Dr.-Ing. Oliver Jann**
   Federal Institute for Materials Research and Testing (BAM)
8. **Johannes Kreißig**
   German Sustainable Building Council (DGNB)
9. **Dr. Eva Schmincke**
   German League for Nature, Animal Protection and Environment, Tübingen (DNR)
10. **Dr. Frank Werner**
    Environment & Development, Zurich
11. **Prof. Dr. Heinrich Wigger**
    Jade University of Applied Sciences



Institut Bauen und Umwelt e.V.

AUTONOMY

Autonomy, expertise, and experience ensure the high quality of IBU Environmental Product Declarations.

HIGH REQUIREMENTS FOR VERIFIERS

Verifiers appointed by SVR must meet high requirements in terms of their qualification and competence.

These are experts from the areas of science and standardisation, and from testing and certification agencies, who have comprehensive knowledge regarding products, methods, and standardisation. Before they are approved by SVR, they must undergo a supervision phase, where experienced verifiers assist them with their work.

In addition, they must agree to continually attend further training seminars within the IBU programme.

Verifiers are selected and appointed by IBU for EPD projects. They are responsible for making a detailed review of each and every EPD document. Additionally, they ensure that decisions taken by the SVR are implemented. Their independence guarantees neutrality towards the declarations holders. IBU-issued EPDs thus meet the requirement of „independent third party verification".

Independent verifiers

- are experts for LCA of construction products and components
- review EPDs submitted by manufacturers for plausibility, conformity, and completeness, as well as verifying the transparency of calculations and details
- create background reports to be submitted to IBU
- are experts who come from across Europe

Environmental compatibility and sustainable use of resources are more in demand than ever when it comes to construction products. Because of this, sustainable building is enjoying success – in Germany, in Europe, and worldwide.

Focusing on details. Seeing the big picture.

In the construction industry, sustainability is becoming more and more important. EU Construction Products Regulations (CPR) recommend using EPDs to assess the sustainability of resources and the environmental impact of buildings. For this reason, the demand for construction products that have an EPD is increasing – in Germany, in Europe, and worldwide. Since member companies and associations operate in a variety of markets, IBU promotes cross-border recognition of EPDs.

THE PATH: EN 15804 FOR EVERYONE

In Germany and throughout the world, EPD programmes operate in accordance with ISO 14025. They are valid for all industries, but the construction industry has been the pioneer. Therefore, the European Committee for Standardisation (CEN/TC 350) has specified rules for creating EPDs that go above and beyond the declarations made in the ISO. In April 2012, EN 15804 took effect. It contains basic Product Category Rules for declaring construction products and services of all kinds, and paves the way for worldwide-recognised EPDs.

European programme holders, first and foremost IBU, have advanced the harmonisation of EPDs with the EN 15804 standard.

THE AIM: EUROPE-WIDE RECOGNITION

Together with other programme holders from different countries, IBU is campaigning for mutual recognition of a European Core EPD.

IBU played a leading role in the foundation of the „ECO Platform" in Brussels, which was launched in June 2013. Under this, programme holders commit themselves to consistently applying the standards of EN 15804.

Common principles apply for quality management and verification procedures. The stated goal: unrestricted recognition of construction products on the European market.

ECO PLATFORM

Members

IBU members

- are trusted, because their products have been verified by independent third parties
- recognise the optimisation potential of their products
- are seen as companies who assume responsibility
- by creating an EPD, provide evidence of environmentally-conscious planning and purchasing decisions
- have a competitive edge in the market
- profit from being part of a strong association

→ *www.ibu-epd.com*

Texts: Angela Neumann PR, Lingen • Editing: Anita Kietzmann (IBU) • Design: weeks.de, Munich
As of: 2017 • Printed on FSC-certified recycling paper.

GERMANY

Institut Bauen und Umwelt e.V. (IBU)
Panoramastr. 1
D – 10178 Berlin

Phone +49 30 30 87 74 8-0
Fax +49 30 30 87 74 8-29
info@ibu-epd.com

Focusing on details.
Seeing the big picture.

Institut Bauen und Umwelt e.V.