

INTRODUCTION

The assessment of sustainability of buildings is a cornerstone for sustainable building policies. The “building assessment model” should provide standards for

- building owners striving for higher environmental standards to have a means of measuring, evaluating and demonstrating that effort;
- a common basis by which building owners, design teams, contractors and suppliers, can formulate effective environmental and social performance improvement strategies;
- gathering and organising detailed information on the building that it can be used to lower operating, financing and insurance costs, lower vacancy rates and increase marketability;
- assisting the design process by providing a clear declaration of what are considered the key environmental and social considerations and their relative importance.



Figure 1: The cathedral of St. Corbinia is a good example for an environmental and sustainable building

BUILDING ASSESSMENT

Sustainable building assessment is an instrument to show the environmental performance of a building as one basic aspect of sustainability. The building’s performance is to a large extent derived from the performance of its building components, i.e construction products by Life Cycle Assessment (LCA) principles. Scenarios for the construction stage, operation, maintenance, repair, reconstruction or demolition are included.

Next to the LCA indicators energy and resource consumption or contribution to climate change, indoor air quality, or quality of ground-water and soil are considered as well.

A common database for all products helps architects or other parties to systematically acquire the data for calculating the sustainability of buildings.

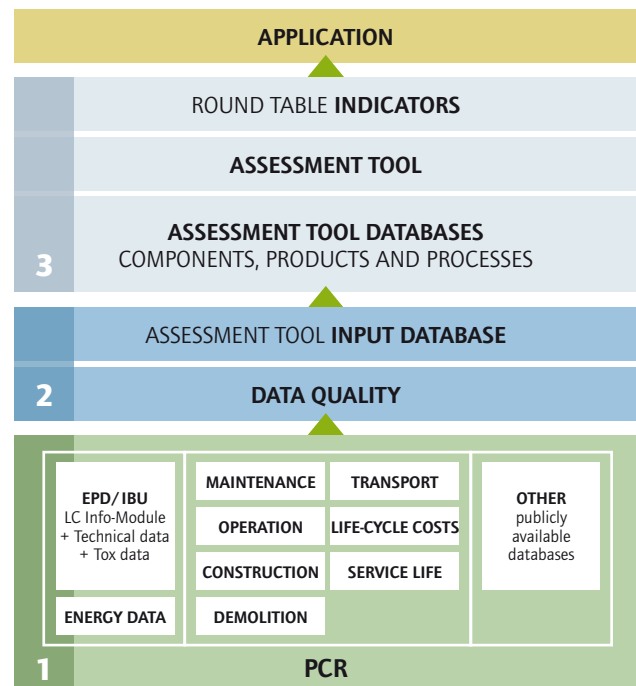


Figure 2: Structure of the building assessment model in 3 sections

- 1) Data acquisition
- 2) Provision of data to the public
- 3) Building assessment tool

INTERFACES AND REQUIREMENTS

Data used for modelling the building's life cycle has to be credible, consistent and complete, without gaps and overlaps. Therefore requirements for data quality are applied.

The data itself is audited by an independent third party. Starting point for data quality requirements are the Product Category Rules (PCR) documents provided e.g. by the German environmental product declarations (EPD) program of "IBU, Insitut Bauen und Umwelt" for construction products.

Future reference will be the results of the European standardisation project in CEN TC 350, "sustainability of construction works". This project treats a.o. the following relevant subjects: PCR for construction products, background data for LCA of construction products, description of the Life Cycle of a building.

EPD data tested by independent third parties are supposed to become the future database for building assessment.

The assessment tool should provide the user with results that can be plugged and played within his usual CAD surroundings. The results could also be documented as part of a building pass, like an expanded energy pass. They could also be allocated to certain safeguard subjects like climate change, resource or land use efficiency. A description of a building's sustainable performance on the basis of such safeguard subjects would be much more vivid and understandable than the plain indicator results.

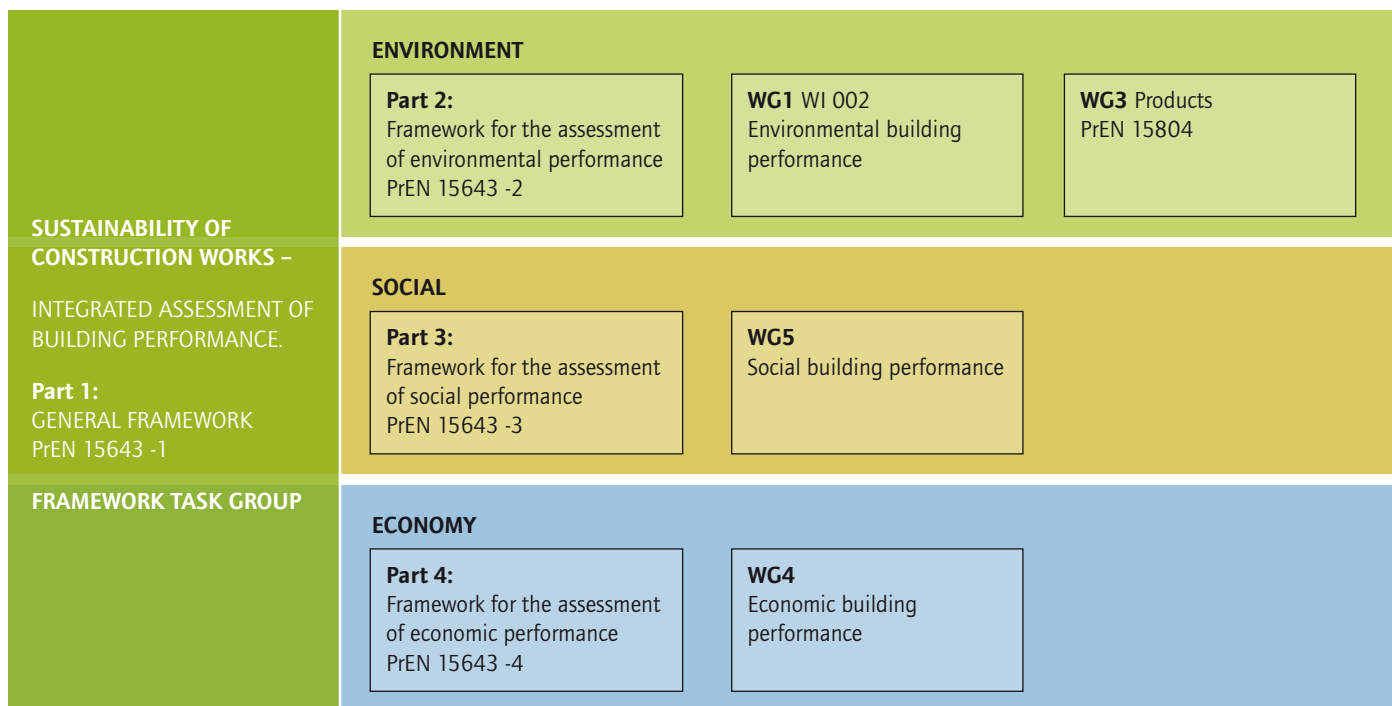


Figure 3: CEN TC 350 program

HOW DOES THE BUILDING ASSESSMENT MODEL WORK?

The three sections of a potential model are described:

- data acquisition;
- provision of data to the public;
- calculation of the indicator results

The producers of construction products will be responsible for data acquisition and the maintenance of data quality. EPDs by program holders such as the IBU provide aggregated data sets on impact level to the public, labelled according to verified data quality. The assessment tools using this publicly available and "quality labelled" data to calculate the indicator results should be provided privately. The providers of these tools will be responsible for the quality and credibility of their data. The users are expected to be architects, planners and purchasers in the construction sector.

ISO TC 59	WG1	ISO CD 15392 General Principles ISO TR 21932 Terminology
	WG2	ISO TS 21929 Sustainability indicators Part 1: Framework for development of indicators for buildings
	WG3	ISO DIS 21930 Environmental Declaration of Building Products
	WG4	ISO TS 21931 Framework for methods of assessment for environmental performance of construction works Part 1: Buildings

CEN TC 350	Task Force: Framework document
	WG1 Environmental performance / Calculation methods for environmental performance / Use of EPDs
	WG2 Building Life Cycle
WG3 PCR / Communication formats / Generic data	

figure 4: Overview showing the international standardization work on environment and sustainability

STANDARDISATION

The current status of the standardisation work in the field of building assessment is presented as follows: Standardisation of EPD on ISO-level is completed. ISO 14025, the generic document, provides requirements for methods and procedures for the development of an EPD program and EPD as well as their verification. ISO 21930 provides sector specific requirements for a PCR framework for construction products. The European standardisation project in CEN TC 350 will provide – based on the ISO work – construction sector specific and European requirements for comparable and credible EPD. EPD fulfilling such prerequisites are expected to become a major communication tool for the European Integrated Product Policy, e.g. as compliance tool for the amended Construction product directive.

The ISO documents dealing with sustainability indicators for buildings and environmental assessment of buildings are not fully completed. Here again the European project intends to provide regional and sector specific requirements – based on the ISO work – for fair and comparable assessments of buildings applicable in European building policies.

The European approach relies stringently on LCA for the building as well as for the building products. The indicators will be LC- indicators and optional additional parameters for the environmental performance of the building, such as parameters for indoor air quality.

These companies have already had their products assessed by the IBU:



ENVIRONMENTAL PRODUCT DECLARATIONS

Instruments for sustainable
building policies



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