



Level(s) in practice series
No.1

LEVEL(S): Putting circularity into practice



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Introduction

If you have explored the introduction to Level(s) on the European Commission website and are looking for examples of how you might use the framework in practice, then this factsheet series is for you.

In our first edition, we interview construction and demolition experts and practitioners to understand how embracing Level(s) could help them to incorporate a circular approach to sustainability performance across the life cycle of buildings and building projects.

The Level(s) system can help you to monitor and address six sustainability performance macro-objectives (see quick reference guide, page 6). Here we will focus on some of the ways in which companies are planning to address **Level(s) Macro-objective 2: Ensuring resource efficient and circular material lifecycles.**

By taking action towards indicators under Macro-objective 2 you can improve your building's performance along circularity principles - saving and limiting the use

of raw materials, identifying opportunities for reuse or recycling, and ensuring buildings can be readily adapted as occupants' needs change over time.

Macro-objective 2 features the following four indicator areas, designed to assess the most important opportunities for improving resource efficiency and circularity:

- Bill of quantities, materials and lifespans
- Construction and demolition waste
- Design for adaptability and renovation
- Design for deconstruction

Read on to discover some of the opportunities built-environment sector professionals have identified to improve sustainability performance in different contexts.

Indicator 2.1

Bill of quantities, materials and lifespans

Indicator 2.1 is crucial for better building designs as it is a foundation for other indicators such as indicators 2.2 and 1.2 (life cycle global warming potential).

The Bill of Quantities (BoQ) serves many purposes, especially during the conceptual and design phases. It is helpful for making cost assessments and is typically relied on by tenderers when comparing bids by competing contractors. Furthermore, the BoQ is one of the measures used when completing life cycle assessments (LCAs). An LCA is increasingly a legal requirement in Member States, while many authorities request an LCA before issuing a building certificate.

Beyond legal and compliance requirements, the BoQ can also be used to improve and inform sustainability decisions.

In the conceptual phases of a building project, Level(s) can guide the discussion between professionals by using the indicators in a qualitative way. Level(s) makes it possible to allocate specific lifetimes to each building element, relative to the planned lifetime of the building. In the following design and construction stages, Level(s) provides the basis for quantification, analysis and for understanding the full life cycle.

“Through the Bill of Quantities, some really useful information is produced in every single construction project and so much of it is lost. Level(s) gives us an opportunity to search through this existing data, and, for instance, get information that is typically modelled – say for costings – and to see if this can be used to improve material efficiency or the carbon footprint.”

Simon le Roux, Ministry of the Environment, Finland



A special thanks goes to the following professionals who contributed their views to this publication:

Andrea Moro - iSBE Italia - International Initiative for a Sustainable Built Environment

Brian Højbjerg Sørensen - Sweco Denmark

Matti Kuittinen and Simon le Roux - Ministry of the Environment, Department of the Built Environment, Finland

Nadège Oury - Alliance HQE-GBC France

Nicolas Bermejo Presa - Saint-Gobain

Paula Rivas Hesse - Green Building Council España

Peter Andreas Sattrup - Danish Association of Architectural Firms

Valentina Marino - Green Building Council Italia

Opinions are their own, and do not necessarily reflect the views or strategies of their organisations or the European Commission.

Indicator 2.2

Construction and demolition waste

Indicator 2.2 aims to prompt professionals to systematically plan for the reuse and recovery of materials, through segregated collection during construction, renovation and demolition activities.

Today, high volumes of waste remain common in construction projects. Some interviewees estimate that 10 % of all building materials go to waste as excess and offcuts. In most Member States this waste becomes an expense, not only as an upfront cost but also due to waste management fees.

One challenge is to re-think standard technological and organisational practices and to establish new types of contracts across the value chain. This could include re-selling left-over materials back to the vendor or buying and prefabricating custom-size building materials to avoid excess unused materials or offcuts. Therefore, addressing Level(s) Indicator 2.2 often entails strengthening dialogue between building professionals on the demand and supply sides, who need to agree on measures collectively if they are to address sustainability criteria.

Level(s) provides an overview of the main definitions and best practices in this regard, while the indicators highlight the information to collect and show how to assess performance.

“This is why Level(s) is just common sense. I think there are still many unexplored opportunities for diminishing waste, but it requires more dialogue and collaboration across the value chain. Level(s) supports this.”

Brian Højbjerg, Sweco Architects

By working together in this way to obtain information on sustainability performance, Level(s) can help users to strengthen waste reduction in building projects.



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How does Level(s) help with introducing the circularity of building materials into planning and legislation?

The built-environment professionals involved in testing the beta version of Level(s) see the potential for the framework to support public authorities, policymakers and public procurers at national, regional and local level through providing a common language and a taxonomy for sharing information regarding sustainable activities. This is especially the case in countries where environmental criteria are yet to be adopted.

“We have actually used this indicator in a regional regulation after the publication of Level(s). [...] Here, I suggested the region use the indicator in the regional law to calculate the amount of construction and demolition waste. [...] The moment you have a transnational framework it becomes much easier to push for new national legislation.”

Andrea Moro, iisBE Italia

Level(s) allows for easy vertical integration and coordination between international, national, regional and local levels of governance. This enables local level metrics to be aggregated to regional and national levels. International harmonisation, with a common taxonomy and methodology, also simplifies compliance with legislation and certification schemes among companies working across borders.

Indicator 2.3

Design for adaptability and renovation

Indicator 2.3 can help users to achieve significant environmental benefits through extending the useful life of buildings, including their structures and facades, which are associated with the most pronounced environmental impacts.

Design for adaptability is a concept that is yet to be adopted in many organisations. It involves designing buildings to be adaptable and flexible to changing markets and occupier needs, thereby extending their useful life. This concept often conflicts with current practices and business models, which have short time horizons.

International standards for construction do contain adaptability requirements, however they are often open to interpretation. These standards need to be contextualised case-by-case, according to the construction or renovation scenario and end-users' needs. In a field where design guidelines fall short, Level(s) provides a step-by-step process for considering and defining specific measures to extend the utility of buildings.

This can help to improve buildings' lifespan and value in the property market while underlining opportunities for recovering, reusing and recycling materials at the end-of-life stage. Improved adaptability means a longer building lifespan, boosting the value of the initial investment.

“On a project basis you can argue that the environmental criteria in Level(s) – in line with certification schemes – is a way to improve not just environmental quality, but overall quality and value of building projects.”

Peter Andreas Sattrup, Danish Association of Architectural Firms

By viewing the building as an asset for documenting the effects of different building design interventions, including adaptability and renovation measures, Level(s) enables advisors to incorporate lessons learned into future building projects. It also enables developers to consider sustainability performance factors when making property investment decisions.



Indicator 2.4

Design for deconstruction

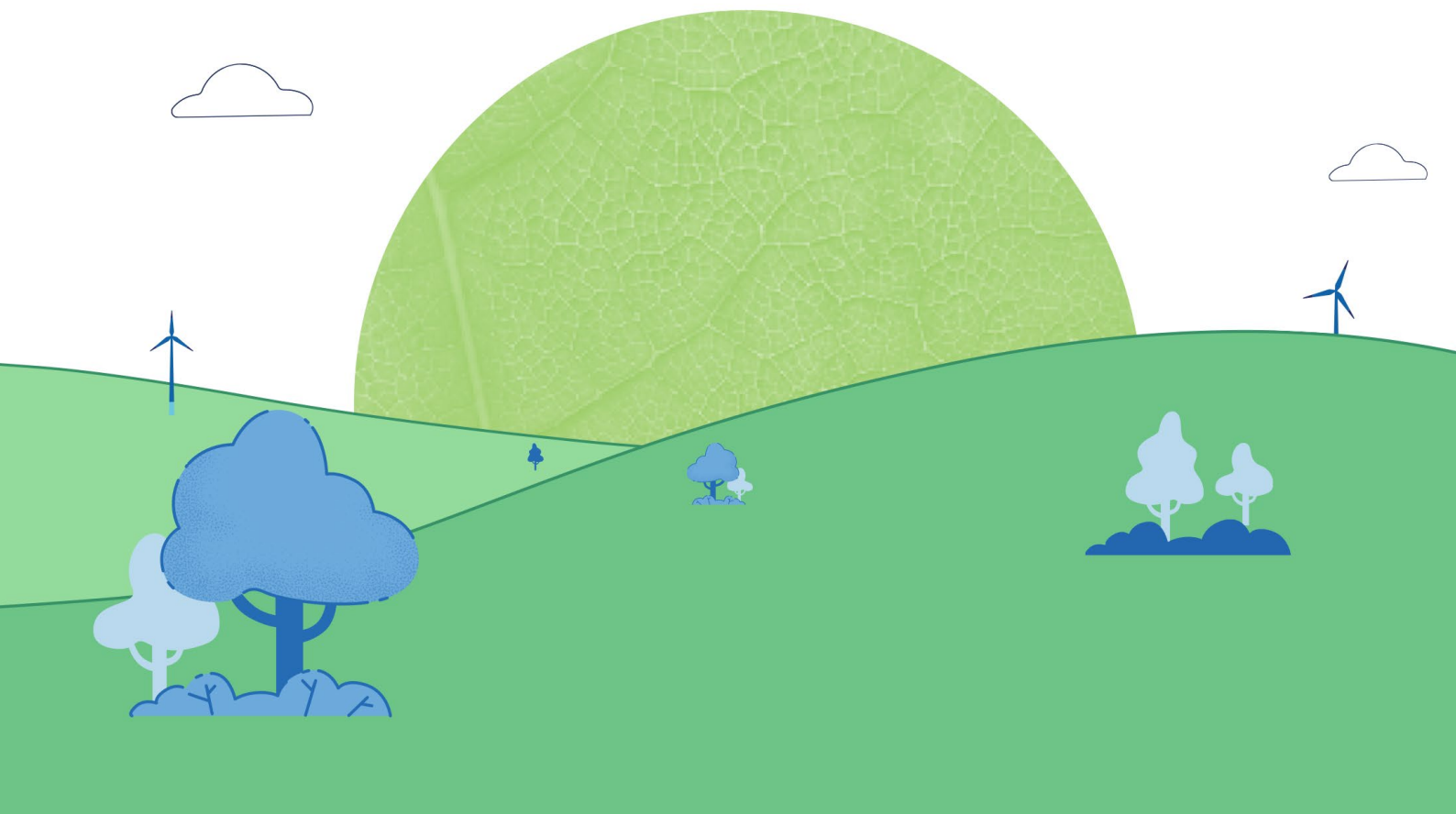
Indicator 2.4 supports designers and architects as they consider how materials will be recovered when the building reaches its end of life. By featuring circular approaches to the use of materials, they can reduce the construction sector's embodied life cycle impact and natural resource consumption.

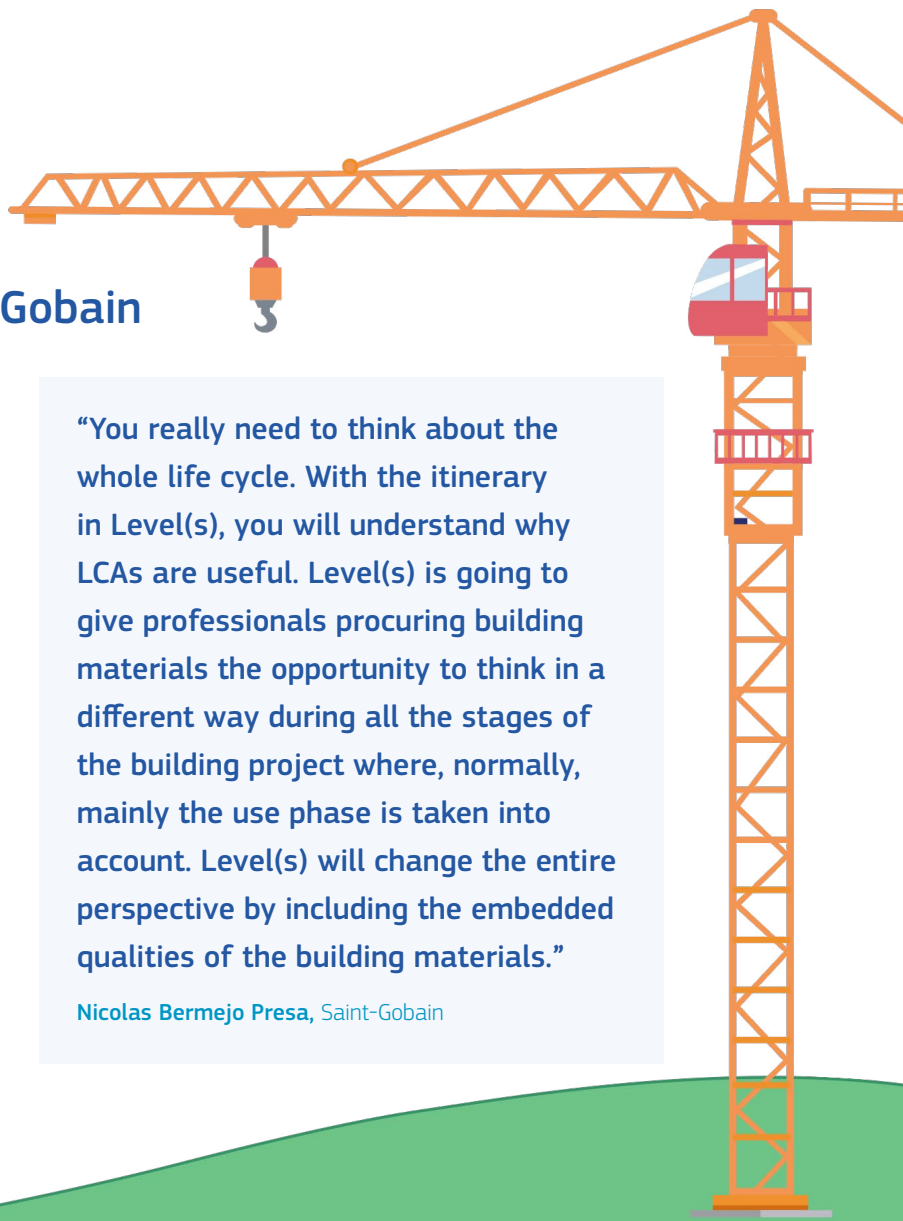
As with waste from on-site construction, this requires new ways of working, new logistics systems and new demolition processes. Through life cycle thinking, designing for deconstruction seeks to extend the utility of building materials by considering future opportunities for recovery, reuse and recycling.

Level(s) Indicator 2.4 makes it possible to compare how easily building materials are reused and recycled in a variety of scenarios. Furthermore, at the design stage, Level(s) supports professionals to embed reuse and recycling plans into the building project from the start, for example by defining steps and measures to simplify the separation of materials at each life cycle stage.

“At the end-of-life stage, either the building has economic value or else it’s something nobody wants to deal with, so it makes sense to consider deconstruction from the beginning.”

Paula Rivas Hesse, Green Building Council España





Industry perspective: Saint-Gobain

Saint-Gobain delivers building materials and solutions for building projects and was involved in testing the beta version of Level(s). The company has previously transitioned to the usage of Environmental Product Declarations (EPDs) for their building materials, based on the European normalised approach (EN15804) with the use of third-party verification and integration with ISO14040, and a cradle-to-grave system boundary.

While EPDs for material producers are not mandatory, Saint-Gobain expects the wider use of Level(s) to incentivise material producers to provide EPDs for their building materials. EPDs contain the data needed to assess the environmental specifications of building products, including resource use in the product stage as well as waste production at the product and end-of-life stages. EPDs are indispensable to then assess buildings from a whole life cycle perspective.

“You really need to think about the whole life cycle. With the itinerary in Level(s), you will understand why LCAs are useful. Level(s) is going to give professionals procuring building materials the opportunity to think in a different way during all the stages of the building project where, normally, mainly the use phase is taken into account. Level(s) will change the entire perspective by including the embedded qualities of the building materials.”

Nicolas Bermejo Presa, Saint-Gobain

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Tips from Level(s) users

- Level(s) is a reporting tool, not a certification scheme or rating system with specified benchmarks. While Level(s) puts the user on a path towards being able to go through with more advanced certification schemes, the main purpose is to get professionals to embrace life cycle performance thinking.
- Approach the framework as a flexible tool. Although Level(s) can appear complex at first glance, not all sustainability indicators need to be included initially.
- Adopting the Level(s) common language for sustainability performance assessments can help users to avoid having to present the same information to various authorities in different ways. The benefits of a common language framework will increase over time as Member States and certification providers align reporting requirements with Level(s).
- Level(s) is helping to inform the implementation of Member States' built-environment policies on full life cycle environmental performance. Therefore, using Level(s) to build competencies is an effective way to prepare for new legislation.

Find out more about Level(s) on our [website](#)

Join the Level(s) [LinkedIn group](#)

Quick reference guide

The Level(s) macro-objectives and indicators

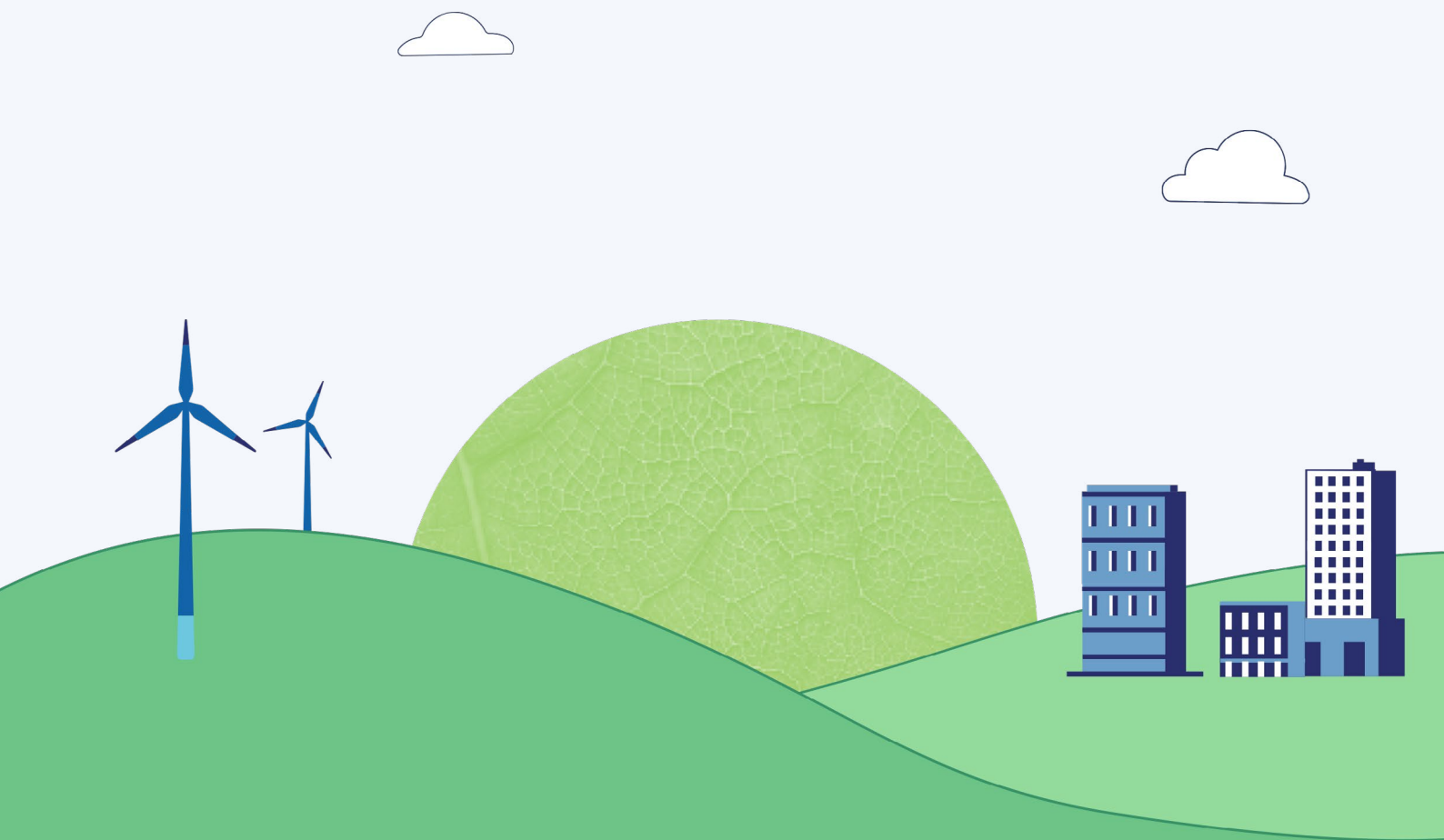
Level(s) is made up of 6 macro-objectives and 16 performance indicators. In this guide, we have focused on the indicators under **Macro-objective 2: Resource efficient and circular material lifecycles**.

| Thematic areas | Macro-objectives | Indicators | | | |
|--|---|--|--|--|-------------------------------|
| Resource use and environmental performance | 1. Greenhouse gas emissions along a building's life cycle | 1.1 Use stage energy performance (kWh/m ² /year) | 1.2 Life cycle Global warming potential (CO ₂ eq./m ² /year) | | |
| | 2. Resource efficient and circular material life cycles | 2.1 Bill of quantities, materials and lifespans | 2.2 Construction and demolition waste | 2.3 Design for adaptability and renovation | 2.4 Design for deconstruction |
| | 3. Efficient use of water resources | 3.1 Use stage water consumption (m ³ /occupant/year) | | | |
| Health and comfort | 4. Healthy and comfortable spaces | 4.1 Indoor air quality | 4.2 Time out of thermal comfort range | 4.3 Lighting | 4.4 Acoustics |
| Cost, value and risk | 5. Adaption and resilience to climate change | 5.1 Life cycle tools: scenarios for projected future climatic conditions | 5.2 Increased risk of extreme weather | 5.3 Sustainable drainage | |
| | 6. Optimised life cycle cost and value | 6.1 Life cycle costs (€/m ² /year) | 6.2 Value creation and risk factors | | |

Background to Level(s)

The European framework to sustainable buildings

Level(s) was developed and tested in close collaboration with the built-environment sector before its launch in October 2020. It provides a new European approach to assess and report on the sustainability performance of buildings, throughout their life cycles. Using existing standards, Level(s) provides a common language for building sustainability, which can be used directly in building projects and portfolios, or as a basis for other initiatives, policies, schemes and actions, to include life cycle thinking and circularity.



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