

Level(s):
'What's in it for me?' series

European
Commission

LEVEL(S): What's in it for building renovations?



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Introduction

Renovation is one of the most powerful tools for extending the useful life of Europe's buildings and reducing their overall impact on the environment.

By providing a framework to view the sustainability of buildings according to circularity principles, Level(s) empowers professionals working across the built environment to take renovation into account at different stages of the life cycle, in ways that significantly improve buildings' performance and longevity. In doing so, Level(s) makes a valuable contribution to the European Green Deal and Renovation Wave goal to [boost renovation and the decarbonisation of buildings](#).

Opportunities for buildings professionals

Level(s) can help buildings professionals in their work to improve existing building stock by future-proofing it against climate change through renovation. To this end, Level(s) empowers you to take the whole life carbon impact of both embodied and operational emissions into consideration when thinking about renovation. Meeting clients' immediate needs, while also ensuring properties can be adapted as demands change, is essential to extending the lifespan of buildings and Level(s) creates opportunities to address this imperative in the design process too.

A further advantage is that Level(s) is a tool that can help to bring different kinds of professionals together to collaborate and to assess the options for improving sustainability, while learning how different decisions impact the performance of a building.

Here are some examples showing how different kinds of buildings professionals can contribute to a sustainable renovation agenda, while planning and delivering a renovation project or while taking decisions that have consequences for renovation at other stages of a building's life cycle.



Planning authorities, public procurers and developers

A decision to renovate the buildings you are responsible for may need to be taken after comparing the net environmental impact of alternatives such as doing nothing, postponing a renovation or demolishing and building anew. Level(s) includes a set of 16 indicators and a Life Cycle Assessment (LCA) methodology that can help you project and compare the lifetime sustainability performance of different scenarios across the six most important aspects of sustainability (the Level(s) macro objectives, see table overleaf).

Using Level(s) in this way will help you identify the most sustainable options and give you the evidence base you need to justify your solutions to stakeholders and decisionmakers.

Designers and architects

Level(s) helps you design buildings that can be renovated easily in future or modified as users' needs change. This extends their lifespan and is especially critical in limiting whole life carbon emissions. For example, when replacing an old building with a new one it can take several decades for the reduced in-use energy consumption of the new building to compensate for the carbon emitted during its construction.

The Level(s) indicator 2.3 'Design for Adaptability and Renovation' is based on market research and extensive testing on real building projects. You can refer to it when working on residential or office projects to interrogate your design as to how it could be improved and to make building adaptations as easy as possible when occupiers' needs change. You can also use it to compare design options' relative adaptability and to compare the as-built design's performance with earlier detailed designs.

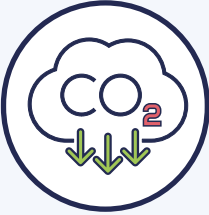


In much the same way, designers and architects can refer to several of the Level(s) macro objectives and indicators when working on a renovation project, in order to limit the environmental impact of the intervention, to maximise sustainability performance improvements and to prolong the lifespan of the building.

Property owners and site managers

Level(s) removes the guesswork when looking for renovation opportunities to improve the sustainability performance of your buildings. Each Level(s) indicator includes step-by-step guidance and checklists to ensure all of the most important possibilities are taken into consideration. Some examples of the sustainability improvements commonly identified using Level(s) are shown in the following table.

Sustainability performance improvement opportunities

The table shows some of the main sustainability performance opportunities that you can assess and monitor using Level(s), when thinking about renovation:

Level(s) macro objective	Performance improvement opportunities
<p>1. Greenhouse gas emissions along a building's life cycle</p> 	<p>A building renovation can create opportunities to:</p> <ul style="list-style-type: none">✓ improve the thermal efficiency of a building, as well as address other uses of energy such as lighting, heating and cooling to improve the overall quality of the property;✓ improve the building fabric, layout and technical services to address aspects that make buildings uncomfortable to occupy, such as cold/overheating and damp;✓ incorporate the self-generation and self-consumption of renewable energy;✓ consider ways to minimise the embodied CO2 of the renovation by evaluating options e.g. windows, insulation, finishings and renewable energy equipment.
<p>2. Resource efficient and circular material life cycles</p> 	<p>The remodelling of buildings, internal spaces and servicing may create opportunities to:</p> <ul style="list-style-type: none">✓ address shortcomings in providing for occupier needs – such as the need for more flexible space distribution, better accessibility, communal space and teleworking;✓ make properties more affordable to run in the present and into the future.
<p>3. Efficient use of water resources</p> 	<p>The upgrading and replacement of sanitary fixtures and fittings as well as new external landscaping are likely to create opportunities to:</p> <ul style="list-style-type: none">✓ specify water efficient taps, showers and baths;✓ introduce water saving systems, metering and monitoring, and making use of grey/rainwater;✓ design new low-water irrigation systems and select drought resistant plants.

4. Healthy and comfortable spaces



The remodelling of internal spaces may allow for improvements and modifications to be made to internal layouts and servicing – e.g. by introducing:

- ✓ daylight;
- ✓ natural cross ventilation and new point source mechanical ventilation.

5. Adaptation and resilience to climate change



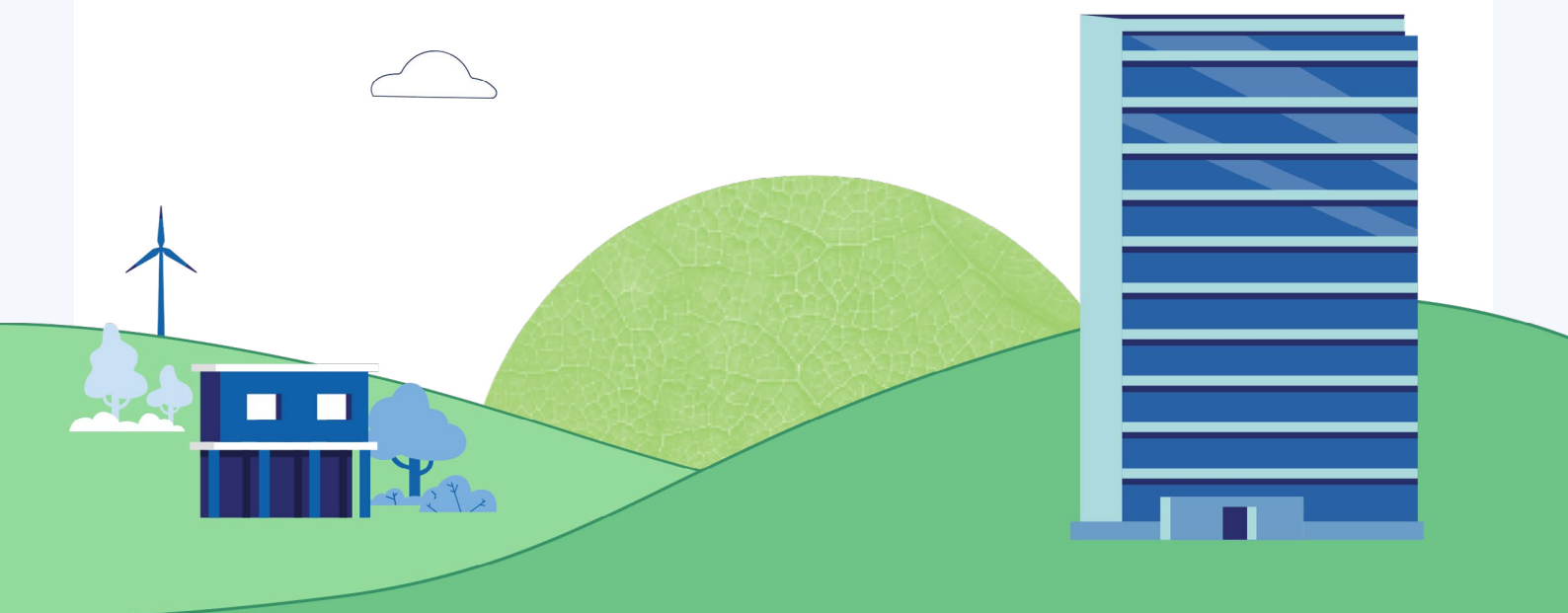
The environmental resilience of an existing building will depend to some extent on the original design characteristics, but there may also be opportunities to improve:

- ✓ internal layouts;
- ✓ heating, ventilation, and air conditioning systems, ventilation pathways and the performance of the building fabric;
- ✓ nature based solutions – e.g. green infrastructure on/around the building.

6. Optimised life cycle cost and value



By encouraging a dialogue between design teams, clients and property valuers, the long-term value of sustainability features can be better taken into account in market valuations of properties. The ability of well designed, healthy and sustainable buildings to hold and create value, whether through minimising overheads, creating attractive properties or minimising future risks, is increasingly becoming a differentiator between properties on the market.



Start using Level(s) with help from the eLearning programme

If you are interested in using Level(s) in the context of renovation, the Level(s) eLearning programme will help you to get going.

The eLearning programme is the perfect resource for users with some experience of Level(s) who want to improve their understanding about each of the Level(s) indicators and macro objectives, and how they support your renovation goals.

At the end of each eLearning module, you will find a case study illustrating applications of Level(s) on a realistic building project. Where relevant, the tips section of the case study describes how you might apply the lessons learned if your project is a renovation.

You can access the eLearning programme by following the link on the home page of the Level(s) website.



A Level(s) renovation in practice

Renovating the headquarters of a large French insurer



Fern, a company providing circularity solutions to the construction sector, project managed an office renovation for their client, **MAIF**, a French insurance firm. They collaborated with circular economy consultants **Eco Intelligent Growth, part of Grupo Construcía**, to deliver the project using Level(s). We asked Fern CEO Cécile Imbert to share the team's experience.

Could you please summarise the scope of your recent renovation project?

'Sure. MAIF's management needed a major renovation of the 500 m2 communications department at their headquarters. It was considered a pilot project to commit to the implementation of the circular transition of MAIF real estate assets and align with the EU Taxonomy criteria, with help from Level(s). The project entailed a complete overhaul of interior design, electrical installations, heating, ventilation and air conditioning.'

What led you to use Level(s) in the project and how did the framework align with your project goals?

'MAIF is committed to assessing the environmental impact of its buildings throughout the entire life cycle. To achieve this, we teamed up with Eco Intelligent Growth to implement their Lean to Cradle True Value approach, which includes the Level(s) framework.'

Level(s) provides a common language for addressing environmental impact from the design phase to the use phase, which means MAIF could continue using the framework to monitor sustainability performance now that the renovation is complete. The voluntary and flexible nature of the framework made it possible to adapt its application to MAIF's renovation project needs. Level(s) also provided us with guidelines to guarantee traceability and reliable information, which we needed to assess the environmental impact of the building on greenhouse gas emissions and to assess the cyclability and material health of the products used. It was also a way to align the renovation with the EU Green Deal, the EU Taxonomy criteria, the new Circular Economy Action Plan and French regulations.'

How did Level(s) help you to assess and monitor sustainability performance on the project?

'Level(s) was helpful in providing a common methodology and a common language to develop the project, so that all stakeholders had the same understanding of the parameters and of what we needed to optimise in order to enhance sustainability and circularity. The framework was helpful for improving sustainability performance throughout the building's life cycle while gaining an understanding of its environmental impact and of the lifespan of the materials used. It also prompted us to consider construction and deconstruction waste as well as the resilience of the project along its life cycle. Additionally, using Level(s) made it possible to make sure that MAIF's real estate assets comply with European construction sector observatory policies, while reducing regulatory risks by ensuring alignment with current and future standards.

To promote the circularity of materials and reduce waste, we conducted a selective diagnosis of products and materials before the dismantling process. We voluntarily decided to set up the diagnosis to help reduce waste and integrate circular management principles, in accordance with Level(s) indicator 2.2 (Construction & Demolition waste and materials).

In terms of waste, 66.4 % of dismantled materials were recovered (more than 40 % have been reused in new offices and 25.9 % have been recycled). In terms of carbon footprint, 16.6 tonnes of greenhouse gas emissions were avoided through reuse and recycling.

We used most of the Level(s) indicators addressing the macro-objectives relevant to our office space renovation, which we found to be those related to life cycle greenhouse gas emissions (macro objective 1), ensuring the resource efficiency and circular material life cycles (macro objective 2), water resource efficiency (macro objective 3), and providing for healthy and comfortable spaces (macro objective 4).'

What would your advice be to anyone considering using Level(s) on a renovation project and do you have any tips to help achieve the best possible results?

'It was especially important to ensure everyone involved – designers, construction personnel, and our client – understood the Level(s) framework, so I would recommend providing some training, for example by ensuring everyone completes the relevant modules of the Level(s) eLearning course (available on the [Level\(s\) website](#)). Moreover, to enable the building's circularity, emphasis should be placed on disassembly and modular design, starting with the designer or architect's earliest drawings.

It's important to involve the client in the creative process too. We addressed the project as a co-creation process and worked together closely to build and deliver the project to the client's satisfaction, while integrating the Level(s) framework.

Last but not least, it's vital to ensure that the construction professionals you appoint understand the Level(s) framework and it is important that they agree, in advance, to fulfil all the requirements needed for a team project like this. This was achieved by making the adoption of Level(s) a mandatory requirement when tendering for building contractors.'

Find out more

Level(s)

Visit the website

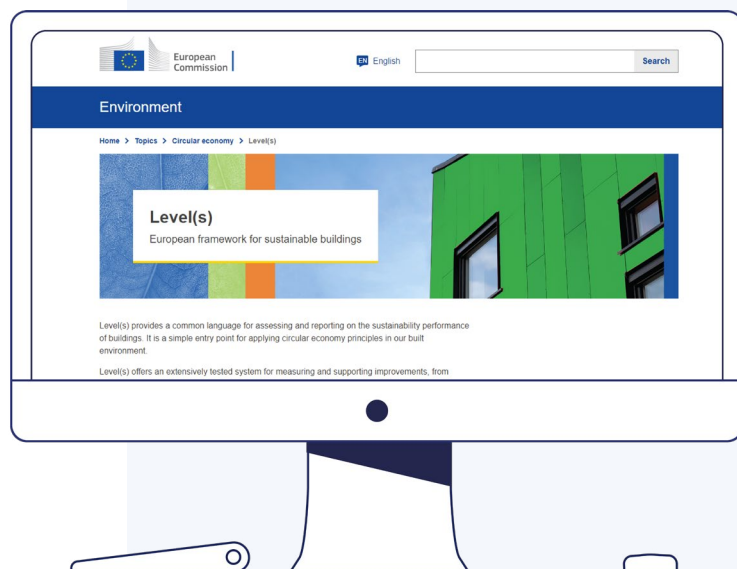
Get to know the Level(s) macro objectives and indicators by clicking the 'Let's meet Level(s)' button at:
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