

# Principles guiding the FutureBalticBauhaus

The project context, vision and approach.



Interreg



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South Baltic

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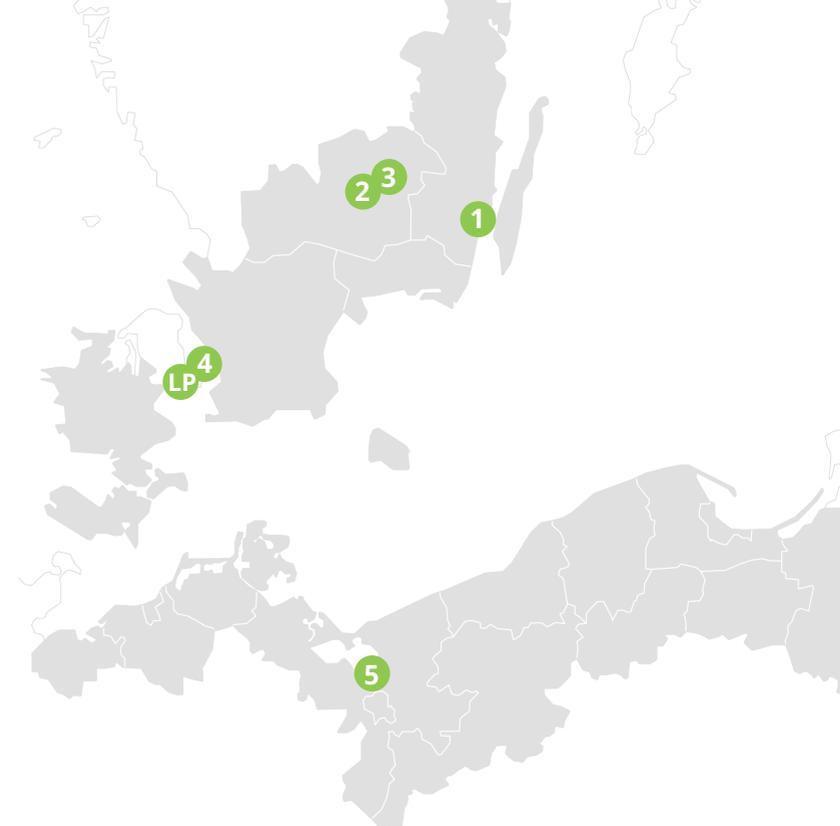
## South Baltic



is paving the way for a more circular and CO<sub>2</sub>-reduced building sector with:

- cross-border research and training sessions,
- a guideline and
- three pilot projects,

**all to give materials and building elements a second life.**



## Imprint

**Funded by:**  
Interreg South  
Baltic, co-funded  
by the European  
Union

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Cover Image:  
1 FBB concept  
June 2025

## The project partners

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Sweden

2. GodaHus, Sweden

3. Linnaeus  
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5. Hochschule Wismar,  
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The **goal** of this booklet is to explain and demonstrate the principles, goals and actions of the research project FutureBalticBauhaus.

The main **target group** are stakeholders of the building sector - architects, planners, engineers, builders, building owners, public decision-makers etc. - and generally anyone who is interested in circularity in the building sector.

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# WHY?

## 1. Introduction

**The idea and practice of reusing materials is there, has always been there, also in architecture. Yet the extent it is practiced, in modern architecture, needs to be higher if we are to reach our climate goals. For this, the approach and perspective we have needs to shift.**

The common challenge is to identify ways to reduce CO<sub>2</sub> emissions in the construction sector. This project aims to emphasise circular methods, to increase the knowledge on the topic and pass it on to all target groups of the building industry. These include public decision makers, planners and designers, building owners and developers, building companies, municipalities and policy makers. All have a vital stake in creating circular solutions.



## 1.1 Today's challenges

The building sector is also an urgent need to address building vacancies and prioritise building renovation.

is also an urgent need to address building vacancies and prioritise building renovation.

One is the lack of qualified workers, which impacts the quality and feasibility of projects. Additionally, regulatory frameworks pose significant challenges, especially for circular building practices. Current regulations often favour traditional, linear construction methods and can lack clarity or flexibility regarding the reuse of materials, certification of reclaimed components, or innovative approaches to waste reduction.

The needed change of approach and mindset presents itself as a challenge for many decision makers.

Perhaps most pressing are the environmental challenges: constantly rising resource extraction threatens ecosystems, underscoring the importance of circularity in design and construction.

Furthermore, it is estimated that the building sector is responsible for a third of the waste generated globally<sup>1</sup>.

Studying the building stock shows that there



Image 2: waste management - pictogram

## 1.2 Why circular?

Construction and demolition activities contribute significantly to waste generation and resource depletion and are responsible for a considerable proportion of global greenhouse gas emissions. According to the German Energy Agency's (dena) Building Report 2021, **23% of total global emissions are caused by the extraction of resources<sup>2</sup>.**

A major solution to this problem of intensive resource utilisation is a more circular economy. Many of these new materials required by the construction sector are already available from existing buildings to be demolished.

**Urban mining** means to identify the existing resources in the building stock which have the possibility to be reused. With the use of already existing materials, less new resources need to be extracted and processed in typically high-energy-consuming processes, and thus the CO<sub>2</sub>-emissions of building projects are reduced.

Not only materials can be reused, but also whole components, such as pre-cast staircases, load-bearing structures, beams or wall elements, provided the way they were produced and installed allows it.



Image 3: construction waste

Nevertheless, although there are great examples on how circular building projects can work, the percentage of resources effectively being reused is too low, while the raw resources extracted for the huge demand of the building sector remains high. The “Circularity Gap Report 2025” even mentions that the circularity metric is declining<sup>3</sup>.

**With “business as usual” we will not be able to reduce emis-**

**sions and reach our climate goals.**

A new approach towards circularity is necessary, to reduce the raw materials needed by the building sector, as well as the waste it produces.

**What is already there, as existing buildings, components or individual materials, which can be given a second life?**

“Without strong global targets to hold us to the right path, we’re veering off course for several key indicators. Natural resource management and global material use trends are moving in the wrong direction: material extraction and waste generation are trending upwards, while recycling and controlled disposal rates are both trending downwards over a five-year period.”

~ Circle Economy, 2025, page 11<sup>3</sup>

# WHAT?

## 2. Objective

**The main FutureBalticBauhaus principle is to develop a design idea based on circularity for the South Baltic region and strengthen its regional identity, through enabling a more circular and sustainable building sector.**

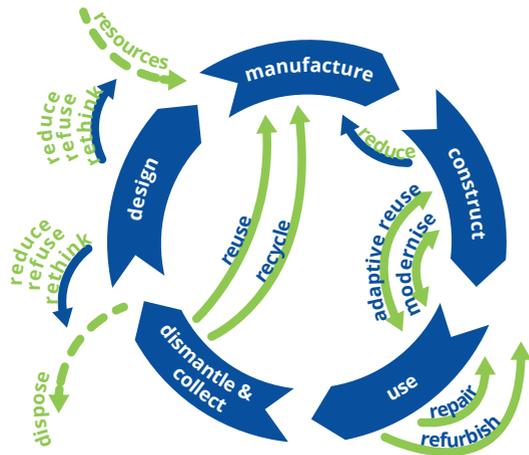
### 2.1 The way to a more circular building sector

The FutureBalticBauhaus project envisions a transformative shift in how buildings are designed, constructed, and repurposed, guided by the principles of circularity and regional identity. The aim is to help the building sector recognise the opportunities in using upcycled materials and components.

Besides the reduction of raw materials needed and thus of the CO<sub>2</sub> emissions emitted, reused components bring unique textures, histories, and narratives to projects, enabling innovative designs that connect to the region’s

culture and natural environment. By embracing these possibilities, FutureBalticBauhaus demonstrates how reused elements can substitute for new ones, reducing the demand for primary resources and lowering environmental impact.

At the core of this vision is the goal of building simply with reused materials and components. By prioritising simplicity, not only waste and resource use are reduced, but also the inherent beauty and character of reclaimed materials are celebrated. This approach challenges conventional ideas of



perfection, redefining architectural aesthetics as authentic, honest, functional, regional and sustainable.

However, restricting regulations which are inconsiderate towards circular processes often create barriers to widespread implementation. Harmonising these rules across local, national, and EU levels is essential for enabling material reuse, streamlining certification processes, and fostering innovation.

The approach on building projects needs to change, to be able to close the loop in the resource life circle. Here approaches like the **R-strategies** are to be reflected on. The so-called R-Ladder defines the hierarchy of the different circular approaches into categories from refusing, over reusing and refurbishing towards recycling, with landfill being the last category and with that the worst-case scenario in the chain. Recycling for example is considerably closer to linear models in comparison to reusing and refurbishing.<sup>4</sup>

Image 4: re\_sourcing architecture building life cycle

## 2.2 Regional identity and design idea through circularity

An important focus of FutureBalticBauhaus is on aesthetics: how does the visual output of circular design vary from more typical projects? **Circular building challenges traditional notions of perfection, embracing the imperfections and narratives of reused materials.**

This approach not only fosters a new aesthetic paradigm - one that values authenticity and character - but also prompts a re-imagining of how we define beauty in architecture.

Central to this aesthetic evolution is the regional context, which must inform and reflect the design concept. The aim is to develop

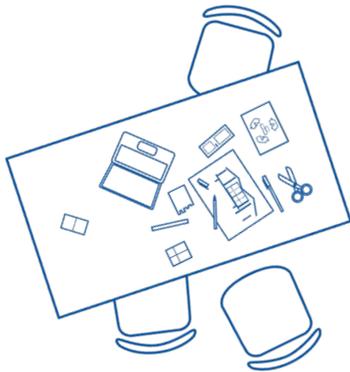
a design identity that resonates with local traditions and natural surroundings, by using regional materials and components, drawing from the architectural language of the South Baltic Region.

No two projects are the same just as no two regions share the exact same context. Circular building requires a tailored approach that reflects the unique conditions of each site, community, and context. This individualised perspective ensures that projects meet local needs while adhering to the overarching principles of sustainability and circularity. Regional context means not only embracing and using the commonalities the

### 2.3 Bauhaus as a concept

South Baltic countries have, but also the differences.

Through these goals, the FutureBalticBauhaus advances a framework that addresses today's challenges while celebrating the distinctiveness of the South Baltic Region. Rooted in circularity, collaboration, and the beauty of imperfection, these principles lay the foundation for a regenerative approach to design.



The historical Bauhaus movement of the 1920s created a worldwide design vision.

"The Bauhaus movement's main motto is "form follows function." It means producing modern and sophisticated designs while focusing on the function of all elements. In Bauhaus designs, while an object's shape should assist its function, visual components should also remain aesthetically pleasing. By eliminating the use of extra ornamental elements, Bauhaus artists sought to capture the objects' nature. In other words, Bauhaus is founded on a simple, no-gimmicks and no-frills philosophy that prioritises function-

ality over aesthetics for aesthetics' sake."  
~ Chervinska, N., 2023<sup>5</sup>

The influence of Bauhaus-founder Walter Gropius' design concept reaches over countless functions, urban design as well as communication design and has influenced the approach to design worldwide.

**Yet is the regional context being considered?**

Where the Bauhaus movement achieved worldwide recognition and implementation, the New European Bauhaus aims for more regional and sustainability-oriented principles. This initiative creates a vision of Europe-wide sustain-

able design principles with a focus on culture and regionality.

**So, what could a FutureBalticBauhaus concept look like, combining a new, sustainable, aesthetically pleasing as well as functional design language with the regional context of the South Baltic area? This is one of the principles guiding the Future-BalticBauhaus project.**

### 3. Aesthetics of reuse

Today, when thinking of a circular building project, some will picture a reclaimed wood façade with a colourful opening made of reused windows. Others will think of an unclean, chaotic composition of reclaimed materials.

In Paris, the Pavillon Circulaire is an example on how resources

can be collected from other demolished sites or even dumpsters and given a second life in a new project. Yet the design still strives for a certain perfection, a clean design. Furthermore, attributable to this approach, the unknowing user is limited in their recognition of the repurposed materials.



*The design strives for a certain perfection, a clean design.*

Even in existing buildings, owners strive for a certain perfection. Algae on façades, for example, is not harmful for the building, and yet it is removed more often than not. Strong chemicals are sprayed on façades to prohibit any algae-growth. Small cracks, stains and “bruises” in building

exteriors and interiors are immediately “fixed”, with the result of an unnecessary resource use. Dents in metal façades, like in the image below, cause the replacement of the metal sheets. Other metal façades are specially designed, often resulting in a higher resource-use, to have a “dented effect”, a more three-dimensional character.

**All this is a question of aesthetics and the approach of the user. Why do we strive for this perfection? How “readable” is the finished project and thus how “honest” the design?**

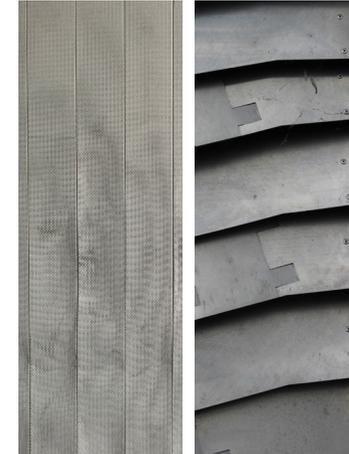


Image 5: The Pavillon Circulaire in Paris, pictogram

Image 6: Metal façade overlapping, with dented effect

Image 7: Dented metal façade

### 3.1 Designing the imperfect: an eco-friendly design opportunity?

The FutureBalticBauhaus concept sees this as an opportunity in the approach towards circularity in the building industry. **The aim is to study how the output changes when planning and building with reclaimed materials.** Additionally, the process towards the output will be studied in the pilot projects.

One example for the implementation of imperfect design is the InnovationPort in Wismar. Here the existing wall has been kept in its original state,

without trying to “polish or perfect” it. New elements and equipment have been added to the old structure. There is clarity regarding what is new and what already existed, a stylish design aesthetic for the historical warehouse.



Image 8: the InnovationPort in Wismar, interior

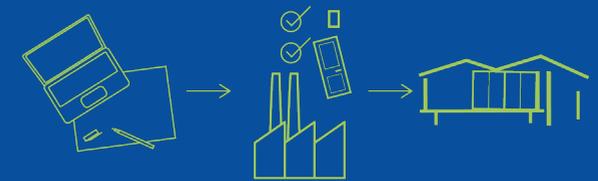
Image 9: the InnovationPort in Wismar, interior

# HOW?

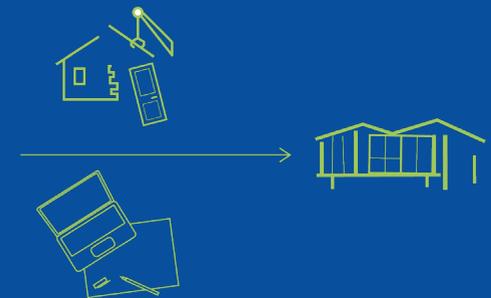
### 4. Impact on the building sector: new planning methods, outputs and processes

For the building industry to become more circular, changes in the approach must be made. Planning processes will need to adapt from the typical “ordering” materials for new buildings towards a more “consider what is already there first” approach.

**new from new:**



**new from old:**



As mentioned further above, the output also changes, and it is important that the approach towards it shifts accordingly.

Furthermore, a focus needs to be put on the location and distribution of these materials and components up for reuse. This will be necessary in order to simplify processes and make materials available.

Image 10: changes in the planning process

#### 4.1 Building life phases: planning for demountability

An essential focus in planners' approach in new projects should also be on designing with the possibility of future demountability. Materials and layers which are not permanently sealed together and joints which can easily be taken apart are techniques which greatly enable a circular distribution and reuse of the imbedded materials or components. It is important to make decisions for the future use of the resources, for after the "end of life" phase of a building. An ArchDaily article mentions "Deconstruct - do not demolish" (Moreira, S., 2024<sup>6</sup>), a valid point which needs to be considered from the beginning of a project

and certainly also be followed through in the actual deconstruction phase.

### 5. Implementation in the FutureBalticBauhaus project

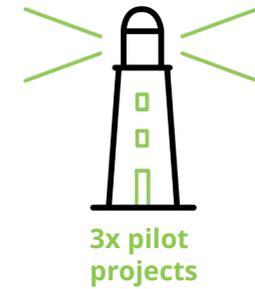
#### 5.1 Cross-border cooperation

For this common cause in paving the way for a more circular building industry, the cross-border nature of the project is essential. Only by acknowledging the situation and culture in several countries can these principles be achieved, especially regarding a regional design idea.

#### 5.2 Pilot projects, training and a guideline

The principles of FutureBalticBauhaus are brought to life through three interconnected components: three pilot projects, a training programme, and a guideline. Together, these elements aim to demonstrate, refine, and share innovative methods for circular building, fostering a regional design idea for the South Baltic Region.

The pilot projects serve as practical examples to explore how the reuse of materials and components can be integrated into every stage of a building's life cycle. They will focus on incorporating reused materials during the planning phase, optimising the distribution



of reclaimed components, and showcasing methods for designing buildings that can be easily disassembled at the end of their use. These pilots will provide concrete examples, illustrating how circularity can be successfully implemented.

To support the adoption of this approach, the training programme will equip planners, architects, engineers, and decision-makers with the skills needed to plan and work with reused materials and embrace designs that prioritise disassembly and adaptability. Participants will also explore the aesthetics of reuse and how this approach can reshape

perceptions of beauty in architecture while addressing sustainability goals.

The guideline will then present these approaches reflected in the pilots and the training programme, as well as assemble and establish the concept of the FutureBalticBauhaus. It will emphasise architectural principles that celebrate imperfection and reuse while rooting designs in the South Baltic Region's cultural and environmental context.

## 6. Implementation examples

### 6.1 Vorarlberg region

"Clear lines, glass and local wood: modern and traditional architecture go well together in Vorarlberg. This can be experienced in many places all over the country."

*~from Architektur und Baukultur - Urlaub in Vorarlberg, Österreich. 2025, translated<sup>7</sup>.*

An example for a regional design idea resulting from the culture and local materials, techniques and architectural language of ad for the Vorarlberg region.



### 6.2 Platforms for material-reuse

Madaster, Concular, Restado, Bauteilnetz, Rotor/ Opalis, Abriss-Atlas, CC Built, are some of the platforms and databases which are making a circular building sector possible, by enabling the location and distribution of materials and components up for reuse. With tools like these, digitalisation is already making circular construction a lot more efficient.

Image 11: New and old architecture in Vorarlberg, pictogram

### 6.3 K.118, Winterthur

*Baubüro in situ, 2021*

Three new storeys were added to this existing warehouse, using merely reused or renewable materials. Building parts from more than five torn down buildings were collected and given new use in this project, without intense adaptation. Several were even located and stored before the design process was completed, and thus were able to influence the final outcome.

The steel staircase from a torn down office building had near perfect dimensions for the project and was attached to the building, creating one of the fire exits. Reused windows from a different torn down building were



doubled and joined to meet today's energy requirements. Even steel beams and posts were re-purposed and influence the overlapping character the new floors have.

A built example demonstrating it is possible to reuse and give new life to torn down building parts and how the planning can be done.<sup>8</sup>

Image 12: K.118 project in Winterthur, pictogram

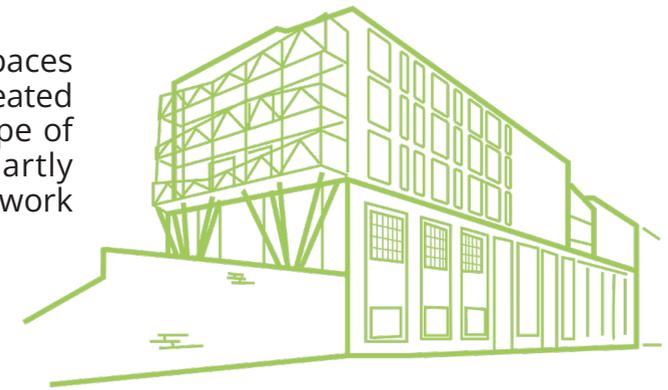
Image 13: CRCLR house in Berlin, pictogram

### 6.4 CRCLR Haus, Berlin

*Die Zusammenarbeiter, LXSy architects, ZRS engineers, 2023*

An old brewery with added new timber storeys turned into a hub for new ways of communal living and working. Several parts of the building's former roof were reused for the new addition. The steel truss was repurposed as balcony railings and the roof of the greenhouse in the centre of the building.<sup>9</sup>

For the interior spaces LXSy architects created a diverse landscape of working areas, partly for the global network



*Impact Hub.* These interior spaces are formed by a two-storey timber structure inserted into the existing hall. This "house in house" method minimises the interventions made on the exterior façade. Many of the added materials were "rescued" on de-construction sites, museums, exhibitions and used as is or repaired and renovated only where necessary.<sup>10</sup>

## 6.5 The appellation contrôlée and building type e

In Germany, the "Gebäudetyp E" (Building Type E) has been introduced to simplify and expedite construction processes. The "E" stands for "einfach" (simple) or "experimentell" (experimental). This classification encourages planners to deviate from certain non-essential standards and could be a chance to motivate more experimental approaches regarding reusing materials.<sup>11</sup>

This standard as well as similar ones, like the appellation contrôlée, a certification allowing

exceptions to be made in the production of certain products, are initiatives pushing towards the direction of more innovative, experimental approaches. A good chance for encouraging more non-standard circular strategies and processes in the building sector.

# The way forward

**Through these principles, FutureBaltic-Bauhaus will guide towards and demonstrate the feasibility of circular design. It strides to create a shared vision for a more sustainable, aesthetically pleasing and regional built environment in the South Baltic Region.**

Throughout the project we will implement, reflect on and further develop these principles.

Follow our progress throughout the project on our website:  
<https://fbb.holbaek.dk/>



Image 14: Workshop in Wismar as part of the training programme and analysis for the project

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# Images

Image 1: FBB concept: K. Hellicar, Hochschule Wismar, 2024

Image 2: waste management - pictogram: by storyset on Freepik, [www.freepik.com](http://www.freepik.com), edited, 2025

Image 3: construction waste: by onlyyouqj on Freepik, [www.freepik.com](http://www.freepik.com), 2025

Image 4: re\_sourcing architecture building life cycle: K. Hellicar, Hochschule Wismar, 2025

Image 5: The Pavillon Circulaire in Paris, pictogram: K. Hellicar, Hochschule Wismar, 2025

Image 6: Metal façade overlapping, with dented effect: K. Hellicar, Hochschule Wismar, 2025

Image 7: Dented metal façade: K. Hellicar, Hochschule Wismar, 2025

Image 8: the InnovationPort in Wismar, interior: K. Hellicar, Hochschule Wismar, 2025

Image 9: the InnovationPort in Wismar, interior: K. Hellicar, Hochschule Wismar, 2025

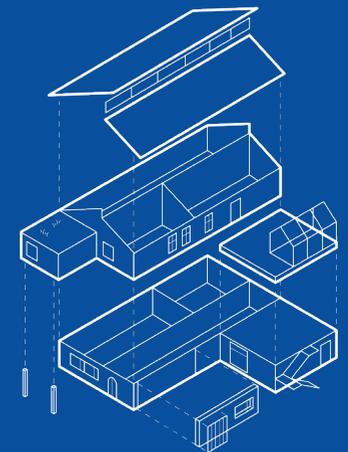
Image 10: changes in the planning process: K. Hellicar, Hochschule Wismar, 2025

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Image 13: CRCLR house in Berlin, pictogram: K. Hellicar, Hochschule Wismar, 2025

Image 14: Workshop in Wismar as part of the training programme and analysis for the project: M. Kaden, Hochschule Wismar, 2025



All further pictograms are by K. Hellicar, Hochschule Wismar, 2025

