
SUSTAINABILITY ROADMAP

Ghelamco ESG Corporate Policy and Guidelines
for Sustainable Real Estate Developments



GHELAMCO

INTERNATIONAL REAL ESTATE INVESTOR & DEVELOPER



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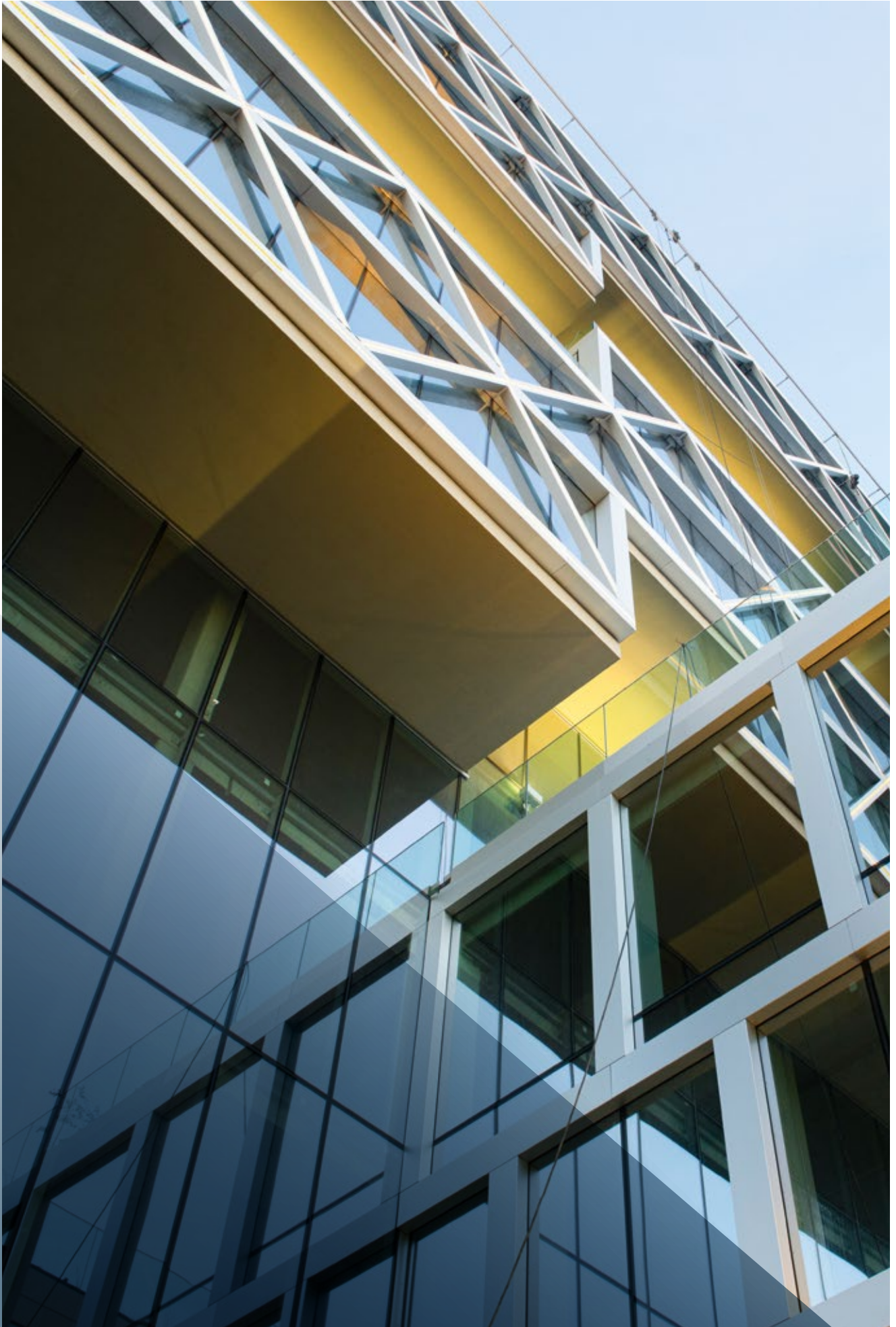
4. THE GHELAMCO WAY FORWARD

ANNEX: GREEN BUILDING CERTIFICATIONS EXPLAINED

GLOSSARY

Climate / Carbon Neutral	Various definitions exist, but in general it means a state of net zero carbon emissions achieved by reducing as much GHG (see below) as is being emitted in a process by absorbing or reducing emissions elsewhere.
CO ₂ e	CO ₂ -equivalents, measured in kg / tons. A unit to provide a common scale for measuring the climate effects (GWP, see below) of different gases.
CRREM	Carbon Risk Real Estate Monitor. A tool allowing investors and property owners to assess asset exposure to stranding risks (see below) by comparing them with science-based reduction pathways for energy and CO ₂ .
FE	Final Energy: A building's in-use energy consumption, including energy use by tenants. See detailed explanation in chapter 3.1.
GHG	Greenhouse gas. Umbrella term for climate-warming gases, such as CO ₂ .
GWP	Global Warming Potential is the heat absorbed by any greenhouse gas in the atmosphere. Measured in CO ₂ e (see above).
LCA	Life Cycle Assessment / Analysis: a methodology for assessing environmental impacts associated with all life cycle stages of a product / service.
(n)ZEB	nZEB: Nearly Zero Energy Building; ZEB: Zero Emissions Building. EU regulatory concepts designed to lower energy and emissions from buildings.
PE	Primary Energy: A building's theoretical consumption in kWh according to the design. See detailed explanation in chapter 3.1.
SBTi / SBT	The Science-based Targets Initiative (SBTi) is a non-profit organisation which collects companies' commitments to decarbonise in a public registry. These science-based targets (SBT) need to be strictly aligned with what is scientifically needed to keep the world from warming 1.5 or 2°C.
Stranded asset	An asset that has suffered premature write-downs or has even become a liability. In the context of ESG in real estate, stranding risks may result from the inability to sufficiently decarbonise an asset, making it unattractive for the owner or potential buyers due to regulatory constraints or lack of demand.
Transition risks	Risks resulting from the transition to a zero carbon or generally sustainable society.

1. GHELAMCO FUTURE-PROOF REAL ESTATE



‘This Playbook explains Ghelamco’s ambitions, policies, and approaches in providing sustainable real estate.’

1.1. SUSTAINABLE REAL ESTATE AT GHELAMCO

At Ghelamco, sustainable real estate has been a priority for over a decade. Since 2011, all of our developments have been carried out in line with BREEAM Excellent, DGNB Gold and Well Gold certification criteria. Although we continue to create buildings that have reached multiple certification standards, over the years we have expanded our view of sustainability.

Ghelamco considers real estate sustainable when it meets the needs of its stakeholders both today and for the future, while operating within the capacities of our planet.

For that reason, we consider needs as well as the building’s direct impact on its stakeholders – a building’s users, owners, investors and the local community. This means our buildings:

- provide high-quality environments for building users while ensuring they remain healthy by preventing the use of unhealthy building materials and incentivizing physical exercise.
- reduce their negative impact by minimizing greenhouse gas emissions and the use of valuable materials while striving for a positive impact on the local biodiversity and providing quality living space for people.
- allow healthy returns today for owners and investors while in the long run remaining attractive, future-proof assets by offering flexibility and avoiding the risk of being stranded.

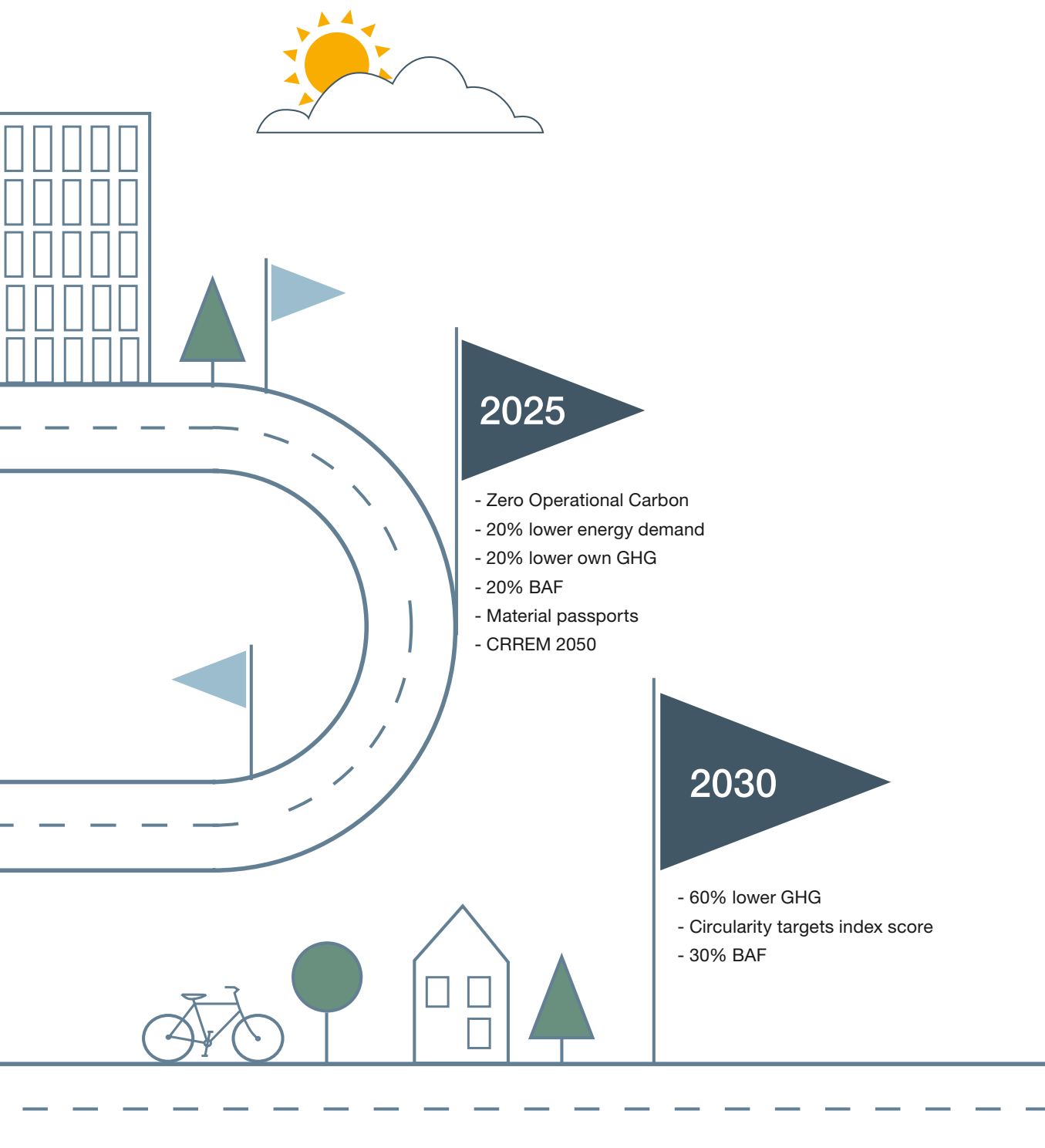
This Playbook explains Ghelamco’s ambitions, policies, and approaches in providing Sustainable Real Estate. It lays out the targets and guidelines on what sustainable real estate means for our developments, with a particular focus on office buildings in Belgium and Poland. In the future, we intend to broaden the scope of our ambitions to all building uses and to harmonize them across the Ghelamco Group. It serves as a basis for Project Briefs which guide and document in detail our buildings’ sustainability performance.

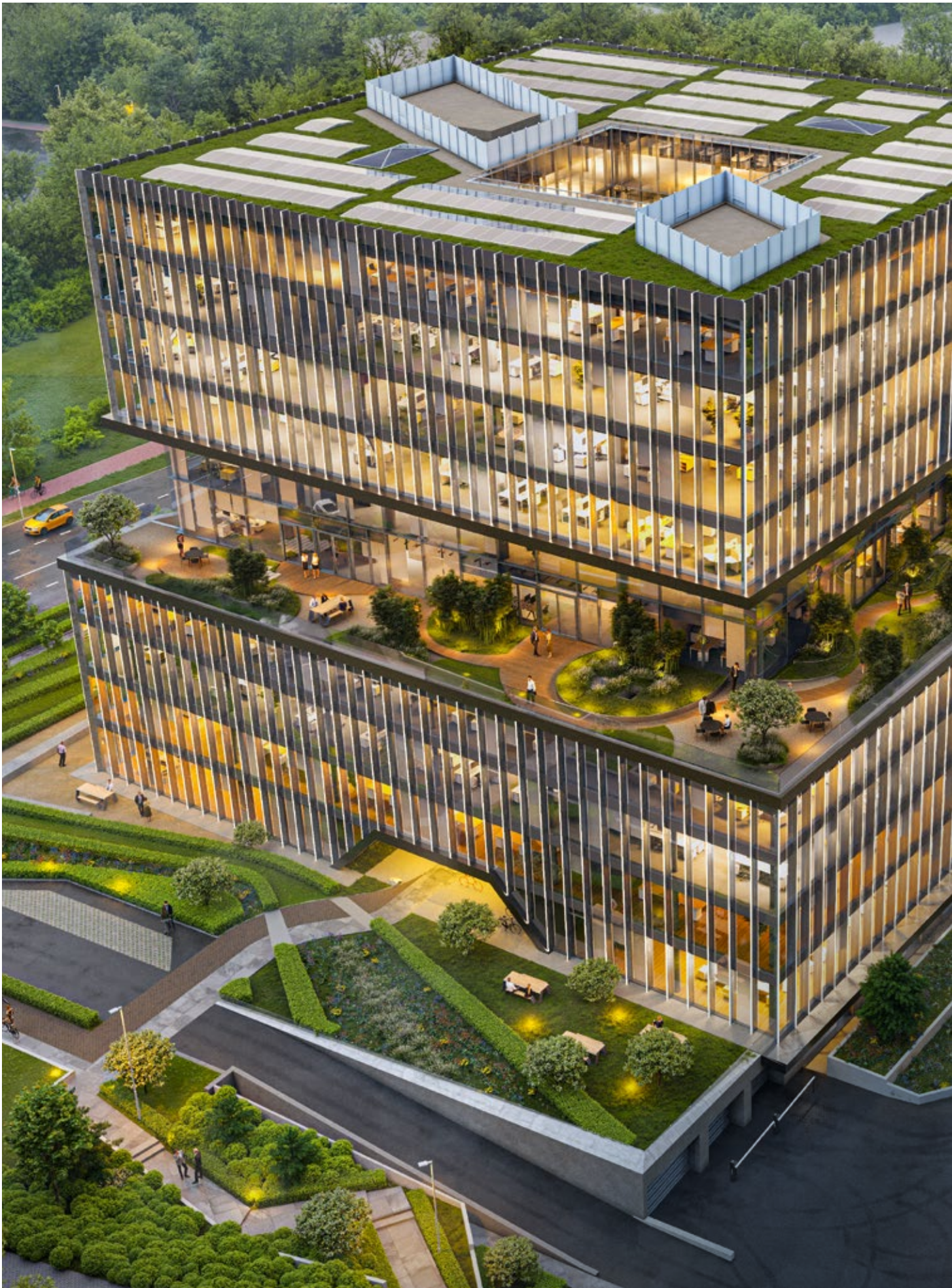
2023

- EU Taxonomy compliance
- Max renewables on site
- 25% more air and light
- Water Balance Factor > 70%

2027

- 55% lower GHG
- Embodied Carbon budget
- Circularity targets







‘Our ambition:
Future-proof real
estate – moving
towards a sustainable
future while
minimizing transition
risks for all
stakeholders.’

1.2. WHERE WE WANT TO TAKE GHELAMCO: OUR SUSTAINABILITY GOALS & COMMITMENTS

Ghelamco long ago made sustainable real estate a priority. Since 2011, all of our developments have been carried out in line with BREEAM Excellent / DGNB Gold and Well Gold certification criteria. Some of our projects challenge the limits of what is considered feasible.

Recognizing the rising urgency for action on environmental and societal challenges – as well as the arising opportunities – Ghelamco has analyzed the impact we have and is devising more comprehensive ambitions and guidelines to contribute to solving these issues. Out of the UN’s 17 Sustainable Development Goals, we have identified 9 that Ghelamco can directly influence.

Guided by these SDGs we have the ambition to move towards a sustainable future while minimizing transition risks for all stakeholders – in other words to create Future-proof Real Estate.

‘Ghelamco commits to cut its
emissions by at least 60% before 2030.’

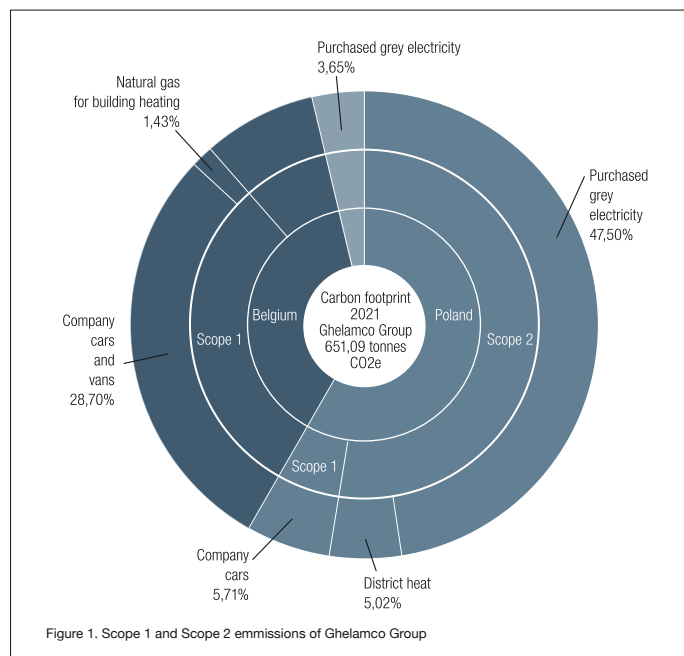


1.3. OUR SUSTAINABILITY GOALS & COMMITMENTS



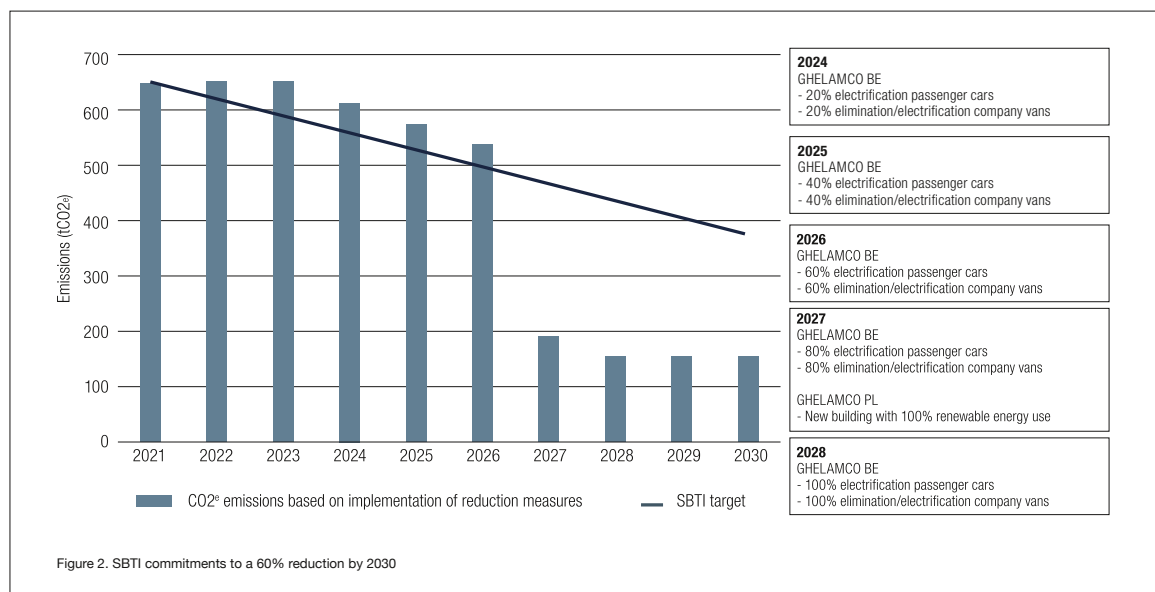
In order to achieve this ambition, Ghelamco has been working on reducing the impact of both our own corporate activities (scope 1 and 2) and our developments (scope 3).

On a corporate level, guided by the Science Based Targets Initiative (SBTI), we have analyzed our impact for the 2021 financial year and identified areas for improvement in the Belgian and Polish branches (see diagram). More specifically, we are aiming to electrify all our company cars from 2025 in Belgium and to move to a new office in Poland powered by renewable energy.



At Ghelamco we want to reduce the carbon footprint of all our activities to play our part in lowering the chance of global temperature rising above 1.5°C by 2100. As a result we have committed to reduce our direct emissions (**Scope 1 and Scope 2**) by **more than 60% before 2030**. This is well above the 42% required to limit global temperature rises above 1.5°C according to SBTI.

We are also preparing ESG reporting in accordance with CSRD ahead of the legally required timeline and voluntarily engaging in GRESB reporting in order to assess, compare and improve our sustainability impact.



Ghelamco sustainability strategy at a project level rest on **4 pillars:**

1

NET ZERO
IMPACT



Toward Net Zero impact: Ghelamco understands the efforts needed to transform the European economy towards carbon neutrality by 2050. This is why we are going beyond the EU's goals for zero-emission buildings by making all our projects Net Zero2 by 2025. We support efforts to decarbonize the electricity grid by covering 100% of energy needs in newly constructed buildings through on- or offsite renewables, which we provide ourselves or through 3rd parties. We ensure that our new construction projects have no stranding risk before 2050 (based on a CRREM analysis).

2

EU
TAXONOMY



EU Taxonomy alignment of all new developments: Our sustainability approach is holistic and covers all aspects of the EU-taxonomy framework, making sure that we invest in sustainable activities only. We not only focus on energy but aim to constantly improve our projects' performance on carbon, circularity, water and biodiversity. The increasing importance of green investments in the market will ensure that our projects remain an attractive opportunity for investors.

3

NATURE POSITIVE



Nature-Positive buildings: We do what we can to make sure our developments leave the local ecology in a better state than it was before. Legislation to drastically reduce embodied carbon and water use is only a matter of time. To stay in the lead, Ghelamco is working on targets for material use and circularity to reduce embodied carbon and steer our developments towards net zero water use.

4

HEALTH & WELLBEING



Health and Wellbeing: We create buildings people like to be in and around. We provide bright, comfortable and smart office space that contributes to people's health, improves productivity, and creates substantial value for our tenants. Through our buildings' attractive architecture, as well as open and accessible outdoor space, we help to build vital, flourishing neighborhoods.

² See Chapter 3.2 to learn how we intend to achieve that.

Ghelamco Targets

The table summarizes our specific targets for all new commercial developments by 2025, unless otherwise specified.







	ESG Priorities	New Office Constructions	Office Renovations
	EU taxonomy alignment	2023: All buildings aligned with EU Taxonomy requirements	
	Energy Efficiency³	20% below legal requirements (nZEB) or EPC Class A / equivalent E-Peil	EPC A or in top 15% of buildings in the region
	Renewable Energy & operational carbon intensity (B6)	<ul style="list-style-type: none"> • Maximum feasible on-site renewable energy production through on-roof PV and heat pumps. • Net Zero Operational Carbon -> Remaining energy needs are fully covered by off-site renewable energy provided by Ghelamco or third parties 	
	CRREM stranded risk analysis	No stranding before 2050	No stranding before 2040
	Lifecycle embodied carbon (A1-5; B1-5; C1-4, D)	<ul style="list-style-type: none"> • We apply defined principles on embodied carbon for all projects • We conduct LCA early in each project to reduce embodied carbon • We develop clear targets for embodied carbon per m² 	
	Circularity	<ul style="list-style-type: none"> • Apply circularity principles and Material Passport for all projects • Develop quantifiable 2030 targets (e.g. Madaster Circularity Index score, with long-term ambition of 100% circularity) • Non-thermal recovery of > 90% of construction/demolition waste 	
	Circular Water Use	<ul style="list-style-type: none"> • EU Taxonomy compliant • We do a feasibility study & business case for use, treatment and re-infiltration of greywater in the early concept phase of a project • We aim for a Water Balance Factor of 100% (Net Zero Water) 	
	Biodiversity	<ul style="list-style-type: none"> • Nature Positive • Biotope Area Factor (BAF) > 20% by 2025 and > 30% by 2030 	

‘To independently verify the performance of our buildings we pursue a multi-level certification system.’

A building compliant with the targets in the table above would be a holistically sustainable one. **To independently verify the performance of our buildings we pursue a multi-level certification system.** All our office developments must be certified for at least **DGNB Gold and WELL Gold** and are guided by the design principles these standards provide. We strive for additional certifications if they are highly recognized by local markets or underline a building’s particular strengths. For instance, BREEAM Excellent enjoys high international recognition, whereas WiredScore and SmartScore underline the claim for exceptional Smart Building performance. Those schemes are constantly updated and reflect the latest technologies and requirements for buildings.

Our approach to certification ensures that our ambitions to create sustainable real estate are easily recognizable for investors, buyers and users.

The following table provides an overview of our certification strategy (see Annex for details). **As a minimum each commercial project should aim for at least one “overall design” certification (BREEAM Excellent or DGNB Gold), and at least one wellbeing oriented certification (WELL Gold or Fitwel 1 star).** The greater focus on carbon and materials in the DGNB criteria (as of 2023) make it a more rigorous certification and therefore the preferred label. Based on the market strategy, financial feasibility, functionality, as well as other factors, additional certifications should be considered.

	Overall design	Zero Carbon	User Comfort	Connectivity
Mandatory certification goals				
Situational certification goals				

2. THE MAIN DRIVERS FOR SUSTAINABILITY IN REAL ESTATE

2.1. GLOBAL CHALLENGES

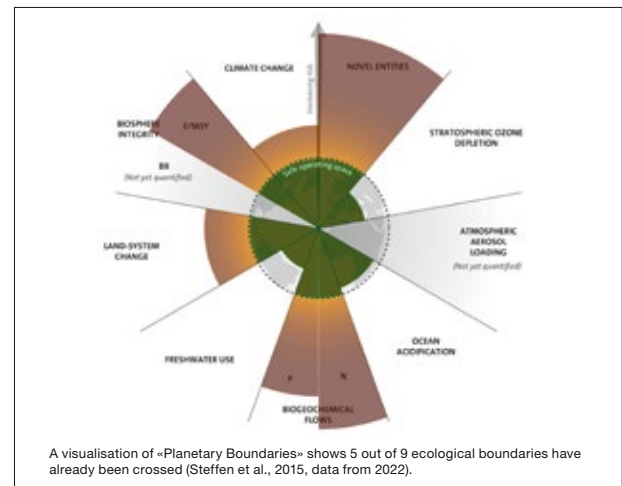
In 2015, the United Nations agreed on a list of goals the international community must achieve to tackle the world's most pressing problems. These 17 Sustainable Development Goals (or SDGs) have become a widely-accepted framework and are today being used to guide the strategies of companies, governments and other organizations.

When it comes to construction and real estate in the markets where Ghelamco is active, contributing to these goals means tackling two fundamental challenges: Natural limitations imposed on us by a finite planet and the health and well-being of the people in our society.

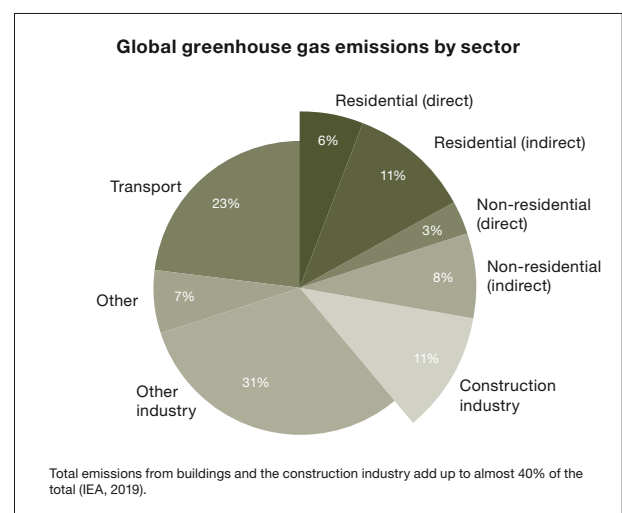
Natural Limitations

The widespread and massive overstepping of the limitations imposed on us by our natural environment. Since humanity started contravening these “Planetary Boundaries”, which define how much food, clean air and water and other “services” Earth can provide us, many of these effects have become well-known, but can also be observed by everybody. In the context of construction and real estate, three are of primary importance:

→ **Climate change** is a daunting issue, due to the fundamental changes to our economic system and society it requires. Construction and real estate contribute 40% to global carbon emissions, making it the biggest single contributor to climate change. This includes both the energy needed to heat, cool, and power a building, but also the “embodied carbon emissions” that result from producing and transporting a building's materials, its construction, its maintenance, and its eventual disposal.



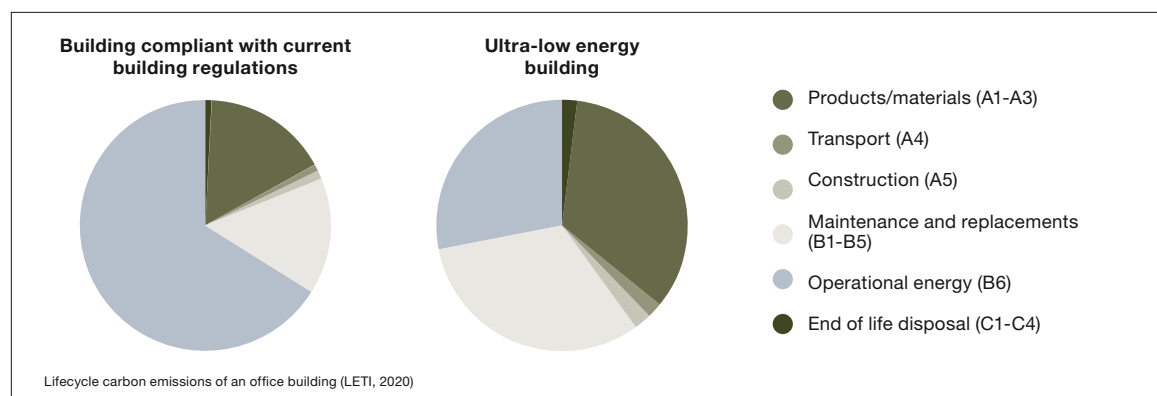
→ **Biodiversity loss** may be just as daunting. The current mass extinction of species, only the sixth in our planet's 4.5-billion-year history, is being mainly caused by human factors like destruction of habitats, overexploitation through logging, fishing or hunting and again, through climate change. A 68% reduction in wildlife populations since 1970 has already provoked serious concern in the scientific community. While the challenge seems far away, our built-up environment contributes to it both directly by reducing the space available to plants and animals and indirectly through the extraction and processing of the materials used in construction.



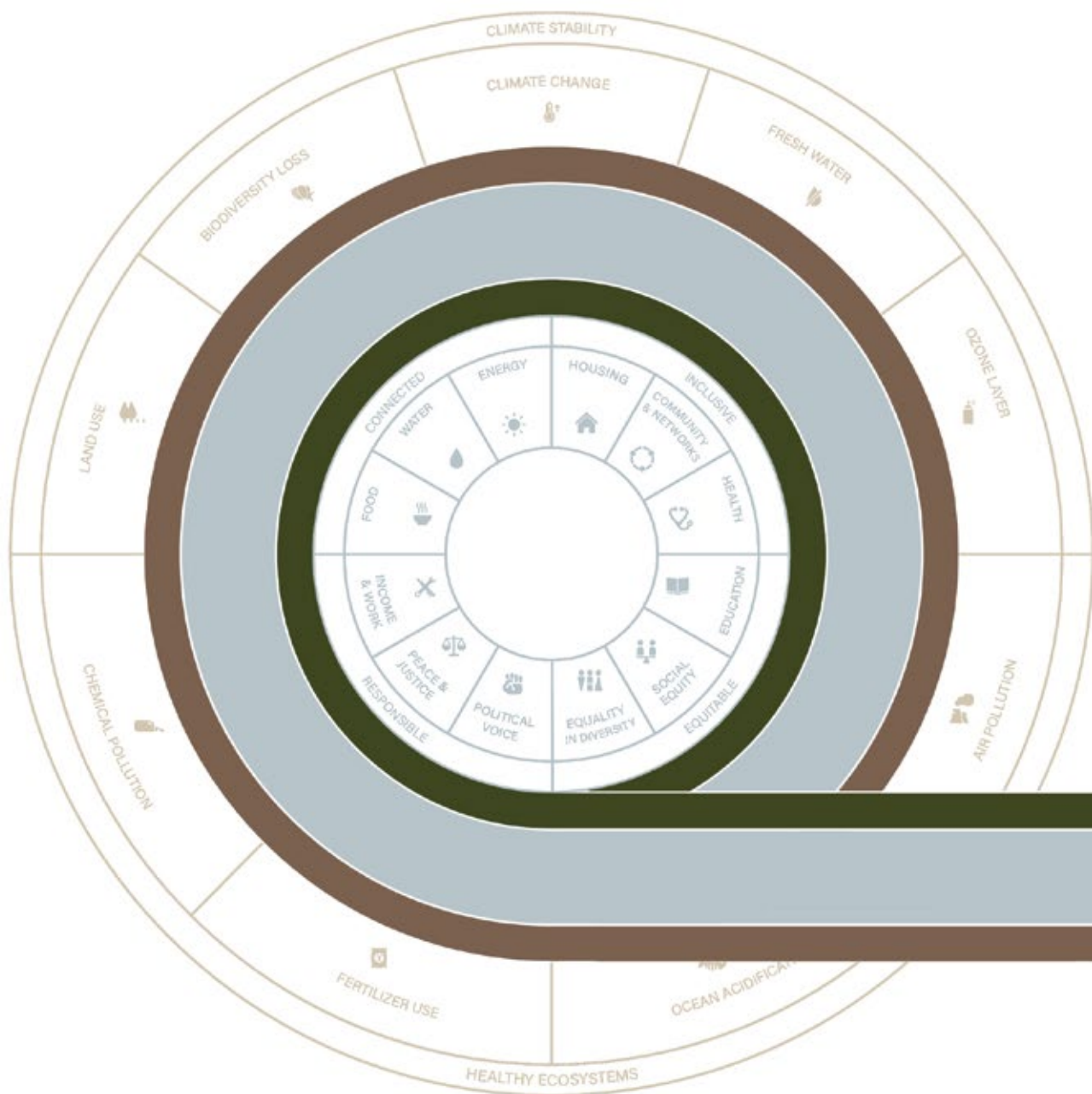
- **Pollution through “Novel Entities” such as plastics and certain chemicals.** It may not be obvious how a building contributes to pollution, but extracting and processing the materials used in construction can pollute local ecosystems and communities, particularly when originating in countries with low environmental standards. Finally, when the building nears the end of its useful life, its non-recyclable components will be landfilled or incinerated, adding chemicals that accumulate in the food chain.

Implications to addressing these ecological challenges

- **Saying goodbye to fossil fuels** that provide heat and power to most European buildings today, and which according to the International Energy Agency (IEA) are responsible for almost 40% of carbon emissions globally.
- **Considering a building’s lifecycle and value chain.** We need firstly to take a closer look at the materials we use and tap into low-carbon alternatives, and secondly to work with our contractors to ensure their supply chain is transparent about the negative impacts while making efforts to mitigate them. Over time, it will be essential to leave behind the linear thinking of take - make - waste defining today’s economy and business models, and there will be a need to adopt a more circular approach.



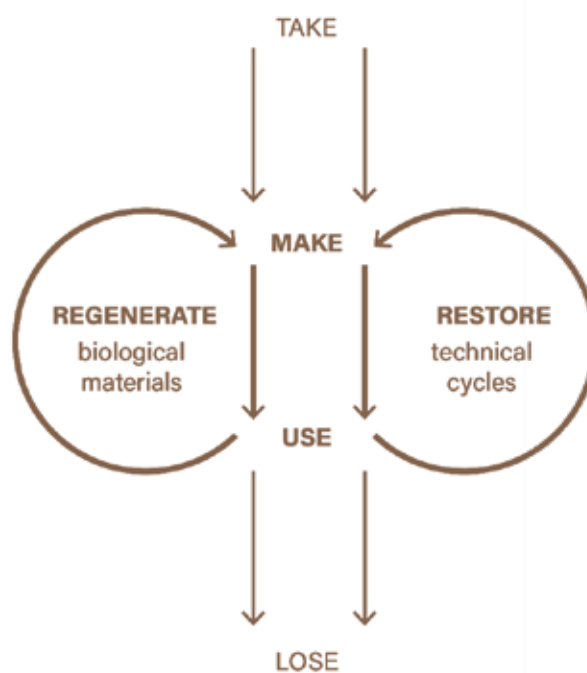
- **Thinking in circular material streams and eliminating waste.** The construction sector is responsible for 50% of primary material use and more than a third of all waste generated in the EU. At the same time, some materials used in construction, such as sand, are becoming increasingly scarce and expensive. According to one study, 85% of construction companies are concerned about the soaring prices of materials. For that reason, we should treat even seemingly abundant materials as precious resources and treat them as such. By reusing, renewing and recycling materials while maintaining the same material quality (i.e. avoiding “downcycling”), it is possible to relieve much of the pressure on ecosystems and ensure continued access to key resources. This requires smart design decisions and new skills on a building and material level, but it also presents opportunities to reduce lifecycle costs and improve supply chain resilience and building value.
- **Considering the local ecological impact of buildings.** The Urban Land Institute asserts that the real estate industry has a large impact on land use both within and outside of urban environments. Restoring and preserving natural systems are key to resilient and sustainable real estate, protecting material supply chains and preserving building value, while also achieving ambitious net zero carbon goals.



From Doughnut for Urban Development – A manual



REGENERATIVE AND DISTRIBUTIVE BY DESIGN





‘Evidence shows that where someone lives and works is the primary influence on whether they are healthy and well.’

2.2. HEALTH AND WELLBEING

Around the world, many communities and countries are facing troubling health trends. By 2030, chronic diseases will cause 52 million global deaths per year, nearly five times the number of deaths from communicable diseases. Chronic diseases are one of the major causes of death on the European continent. Between 1975 and today, the amount of overweight adults in Europe has risen from 40% to 53% according to the WHO. Diabetes and other “diseases of affluence” linked to a modern lifestyle, such as cancer and allergies, have become a burden on economies and the future of individuals, families, and communities.

In the face of these health challenges, the design of our built environment has become a key element in combating the risk factors for chronic disease. Evidence shows that where someone lives and works is the primary influence on whether they are healthy and well. The term Sick Building Syndrome has been coined to describe symptoms such as nausea or headaches resulting from a lack of ventilation or the use of unhealthy materials. Health does not stop or start at the doctor’s office – it begins in homes, workplaces, schools, and communities.

Through the design of new developments, people can be motivated to embrace active, healthy lifestyles and find support in maintaining a sociable, community-driven, and contented way of life.

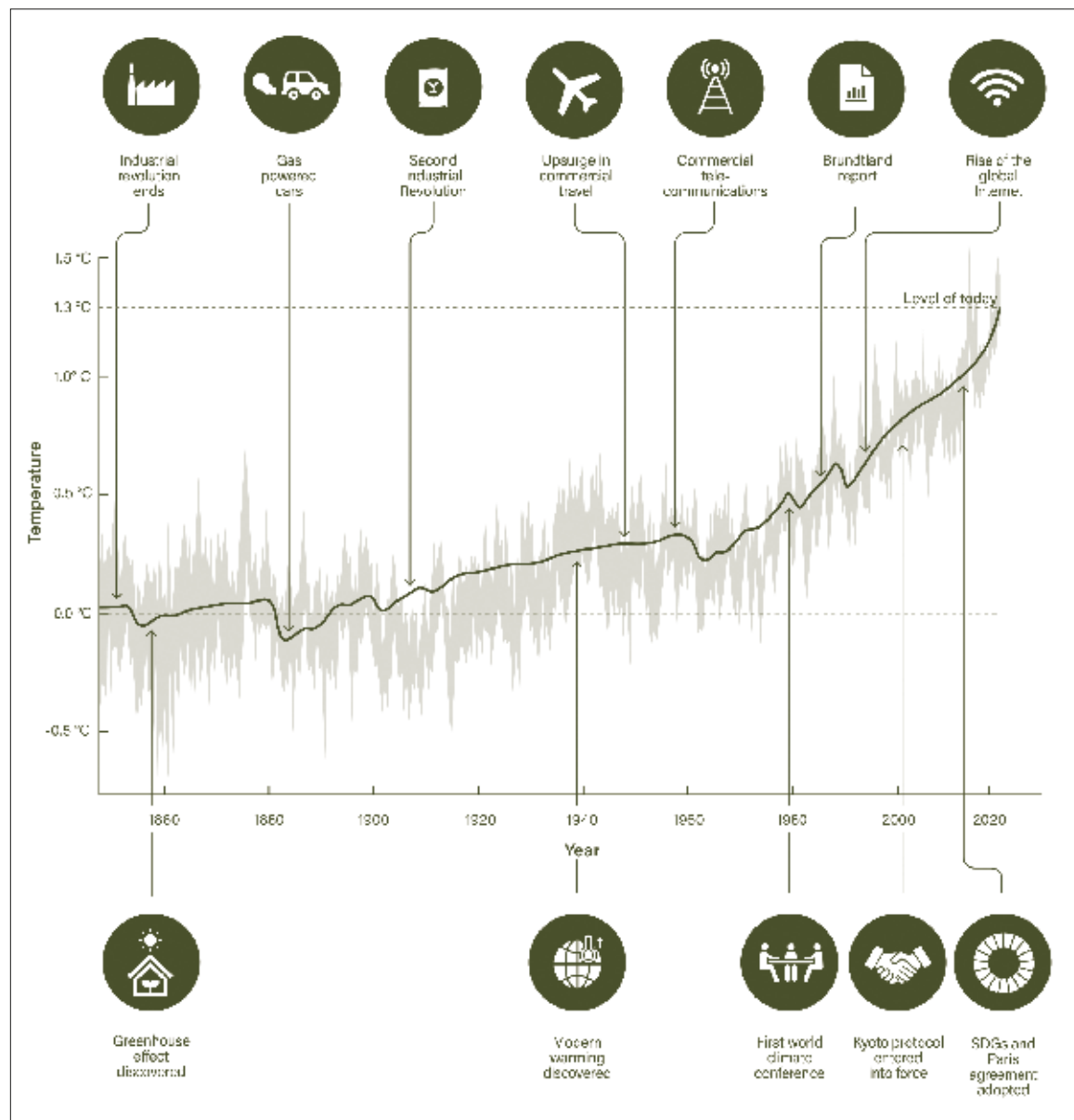
This means:

- **Creating comfortable, attractive environments:** Ensuring high levels of thermal comfort, daylight and air quality together with low levels of noise helps keep a building’s users happy, healthy, and productive. With working from home more popular than ever, ensuring high comfort levels, particularly in office buildings, helps motivate people to work from the office. This in turn ensures a good flow of interaction and ideas that are vital for a tenant company’s success.
- **Using healthy materials** that do not contain chemicals or emit hazardous gases that are detrimental to the health of humans and the environment, during production, use and disposal or recycling.
- **Encourage healthy lifestyles through smart planning and design**, e.g. through attractively placed stairs, or by selecting attractive, walkable and cyclable neighborhoods with access to nature for new developments.
- **Bringing people together in social settings** through flexible environments and policies to enhance opportunities for social engagement can improve mental and physical health. This includes reduced risks of depression, high blood pressure, or cardiovascular problems.

2.3. EUROPEAN AND NATIONAL POLICY

In their attempt to assume a leadership role in addressing these challenges, the EU has adopted a wide range of policies. These include the Nature Restoration Law aimed at the recovery of Europe's biodiversity and the Renewable Energy Directive to decarbonize the European energy system and the electricity grid. Out of all these, the announcement of the European Green Deal in 2019 arguably had the biggest impact on the building sector.

Its original purpose was to transform the continent into a more resource-efficient and competitive economy, but in the wake of the Covid-19 pandemic, the Green Deal also serves to revive the European economy. **In 2021, the EU enacted the European Climate Law to reduce greenhouse gas emissions by 55% by 2030 compared to 1990 and to become climate neutral by 2050.** Partly as a result, a flurry of new policies on both the EU and national levels have been launched and others are still expected, as member states are working to meet these ambitious goals. Those most relevant for the building sector are summarized below.



‘The new proposal aims for all new buildings to be Zero-Emission (ZEB) by 2028. The existing building stock shall be fully decarbonised by 2050.’

Building directive: zero operational emissions by 2030 (ZEB)

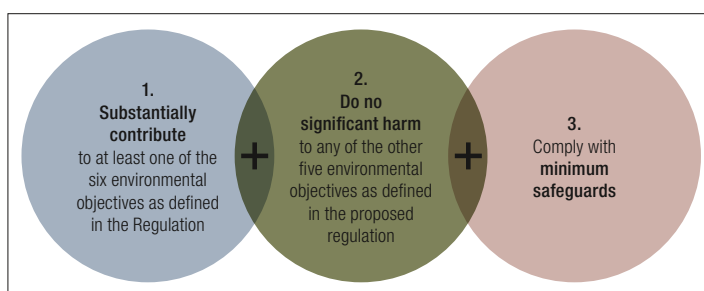
By 2020, the EU Energy Performance of Buildings Directive required member states to ensure that all new buildings in Europe were “nearly zero energy buildings” (nZEB). An nZEB achieves very high energy efficiency while the remaining energy needs are supplied from renewable sources to a very significant extent. In December 2021, the Commission proposed an update to reflect higher ambitions while providing EU countries with the flexibility needed to take into account the differences in their building stock.

The new proposal aims for all new buildings to be Zero-Emission (ZEB) by 2028. The existing building stock is to be fully decarbonized by 2050. The latter goal will substantially increase the rate of renovation, particularly for the worst-performing buildings. While the zero-emission goal refers to emissions during a building’s operation, the ZEB also requires the calculation of the life-cycle Global Warming Potential (GWP) and its disclosure through the building’s Energy Performance Certificate (EPC). The revised directive will also support better air quality, the digitalization of energy systems for buildings, and the roll-out of infrastructure for sustainable mobility.

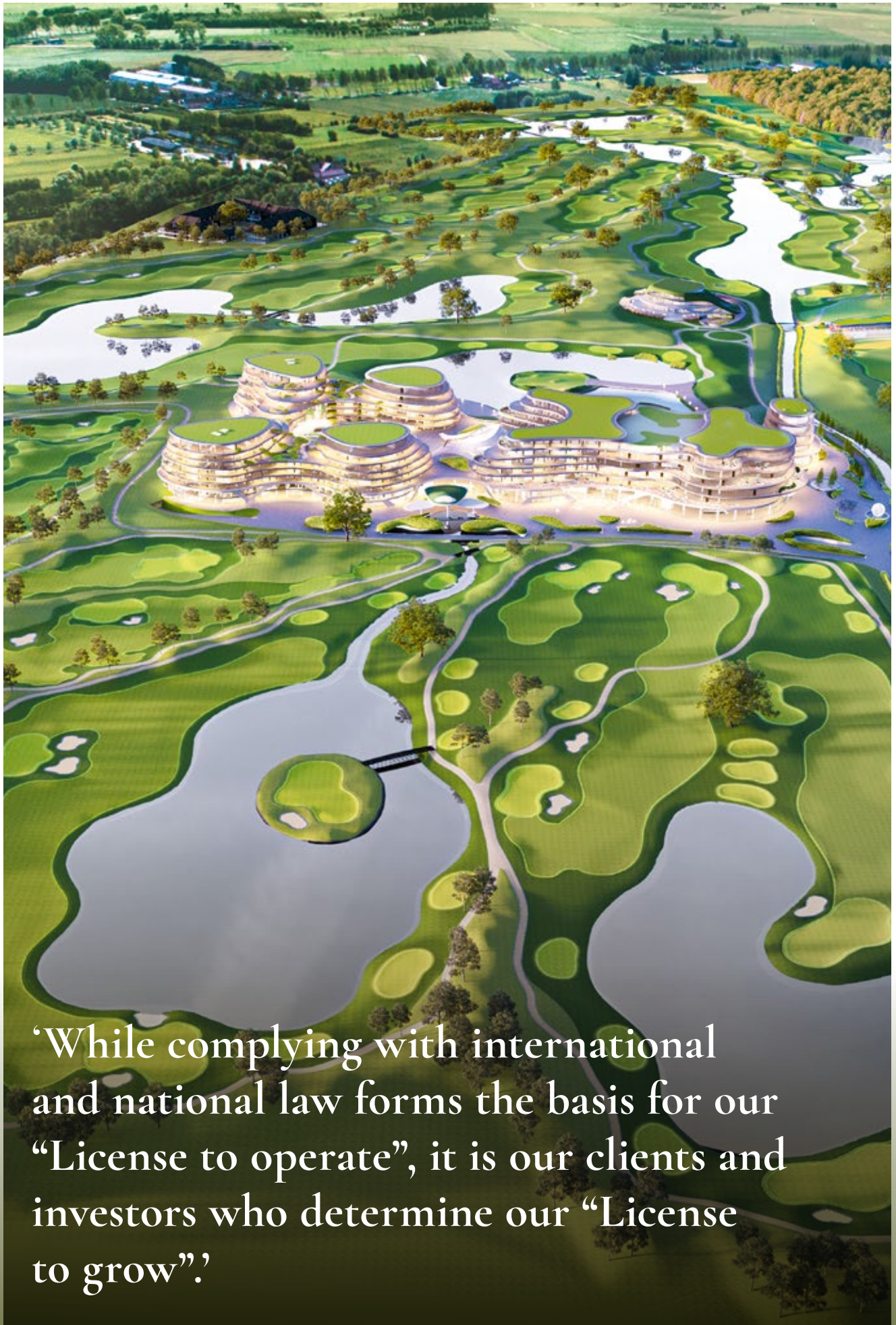
EU Taxonomy: Setting the rules for green finance

The EU Taxonomy is an important framework to determine which economic activities can be classified as “sustainable” or “green”. This will ensure that companies’ claims of sustainability can be held against a predefined set of criteria, which is laid out in detail for a range of economic activities. The goal is to prevent greenwashing and to ensure that particularly green investments meet certain standards and are more comparable. For an economic activity such as the construction or renovation of a building to be considered green, it has to:

1. Substantially contribute to at least one of six defined environmental objectives.
2. Do no significant harm to the remaining five objectives and
3. Ensure minimum standards regarding human rights and governance are upheld.



Especially the first two points have strong implications for Ghelamco as a real estate developer. To consider the construction or renovation of a building as a “green activity”, the six environmental objectives have to be addressed. The construction or renovation has to:



‘While complying with international and national law forms the basis for our “License to operate”, it is our clients and investors who determine our “License to grow”.’

1. ... contribute to **climate change mitigation** by substantially reducing energy use.
2. ... conduct an assessment of **climate risks** for the building and take results into account.
3. ... ensure **low water use** by appliances.
4. ... consider **circular economy principles** by planning for the building's future change of function and ensure high re-use or recycling of construction and demolition waste
5. ... **prevent pollution** from dangerous substances inside and outside the building
6. ... ensure a (new) building **does not compromise ecologically valuable or arable land**

The EU Taxonomy also influences what companies have to report. As of January 2023, companies must assess and disclose the percentage of their economic activities that are aligned with the EU Taxonomy's definition of "green".

National Policy in Belgium

As a member state of the European Union, the above-mentioned policies & drivers are ratified into Belgian and regional law. The Future Building standard will overcome some of the current flaws in the energy calculation methods. It is foreseen that by 2025 a new standard will become active that will simplify the current methods and anticipate a better correlation between real and calculated energy performance. The gradual focus shift on carbon emissions from operational to embodied will be integrated, and it will emphasize the monitoring of real-time energy usage and carbon emission to steer people's behavior.

The decarbonization of the electricity grid is a cornerstone for climate change mitigation. Due to the high availability of nuclear power and a frontrunner position in wind energy the Belgian electricity grid emission factor is below the EU-27 average, which also reduces buildings' operational emissions from the use of electricity. The challenge lies in how Belgium will become independent of almost zero-carbon nuclear energy whilst still lowering grid emissions.

2.4. CLIENT & INVESTOR DEMANDS

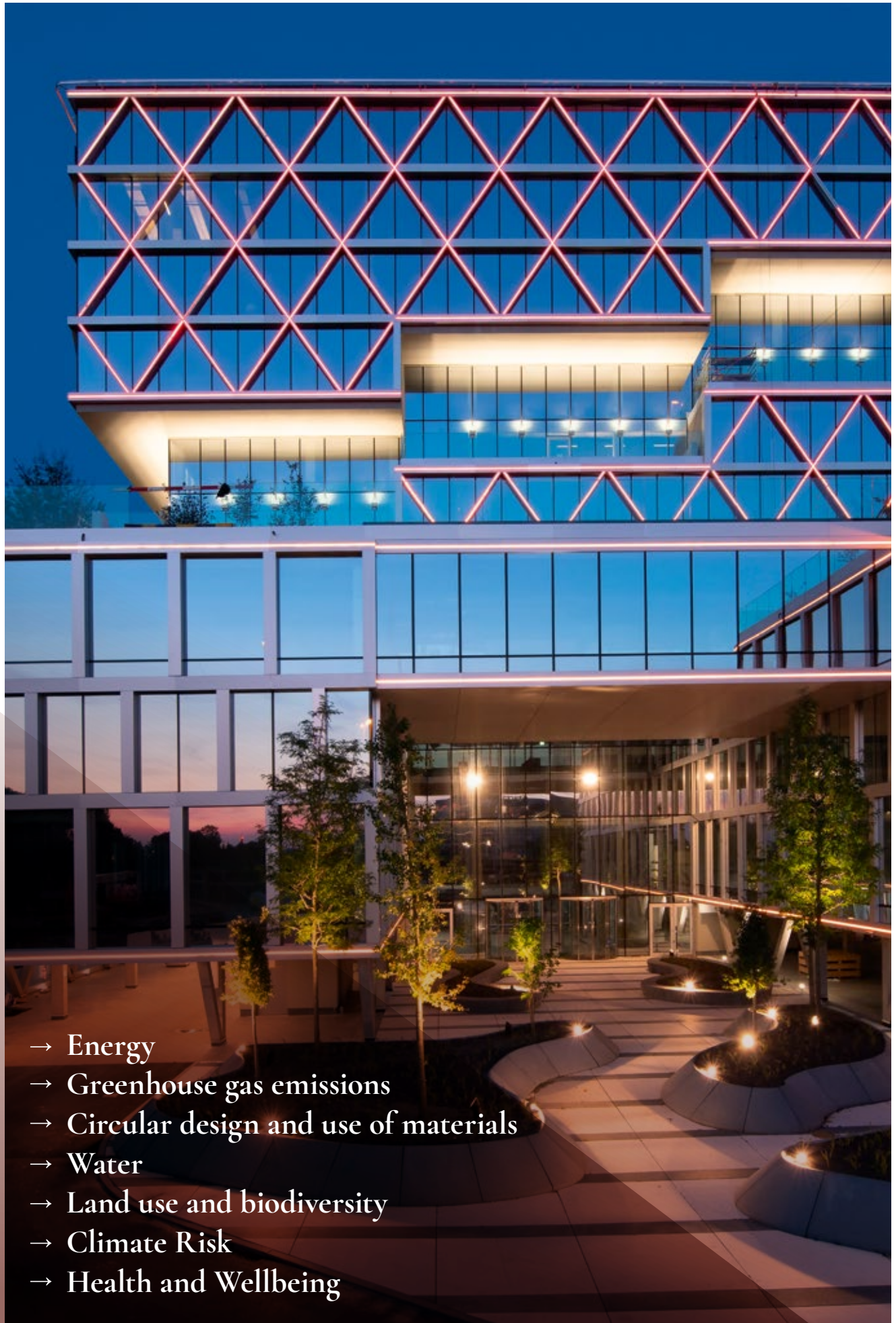
While complying with international and national law forms the basis for our "License to operate", it is our clients and investors who determine our "License to grow".

To our clients, owning or operating a sustainable building brings a wide number of benefits. Providing high-quality, healthy workspaces strengthens their attractiveness as an employer, while low-emission buildings significantly reduce a client's corporate carbon footprint, especially if they are in the service industry. Demands by both consumers and regulators for transparency and sustainability performance are increasing on a multitude of sustainability factors, from emissions and water use to circularity.

Likewise, as financial actors, our investors face increasing scrutiny to disclose and improve their portfolio's performance on Environmental, Social and Governance criteria (ESG). Both the EU's Sustainable Finance Disclosure Regulation (SFDR) and client demand motivate especially large investors to reduce the carbon footprint of their financial products. To do so, investors in real estate are increasingly looking for EU Taxonomy-compliant buildings, to prove their "green" investment.

Our transparent and ambitious approach to green building certification and EU Taxonomy alignment helps both our clients and investors to confidently showcase their green credentials.

3. THE GHELAMCO ECO-DESIGN PRINCIPLES FOR REAL ESTATE DEVELOPMENT



- Energy
- Greenhouse gas emissions
- Circular design and use of materials
- Water
- Land use and biodiversity
- Climate Risk
- Health and Wellbeing

Our holistic approach to sustainability has resulted in eco-design principles to guarantee state-of-the-art future-proof design. These guidelines address the most important areas where a building can have a negative impact to be reduced or a positive impact to be strengthened:

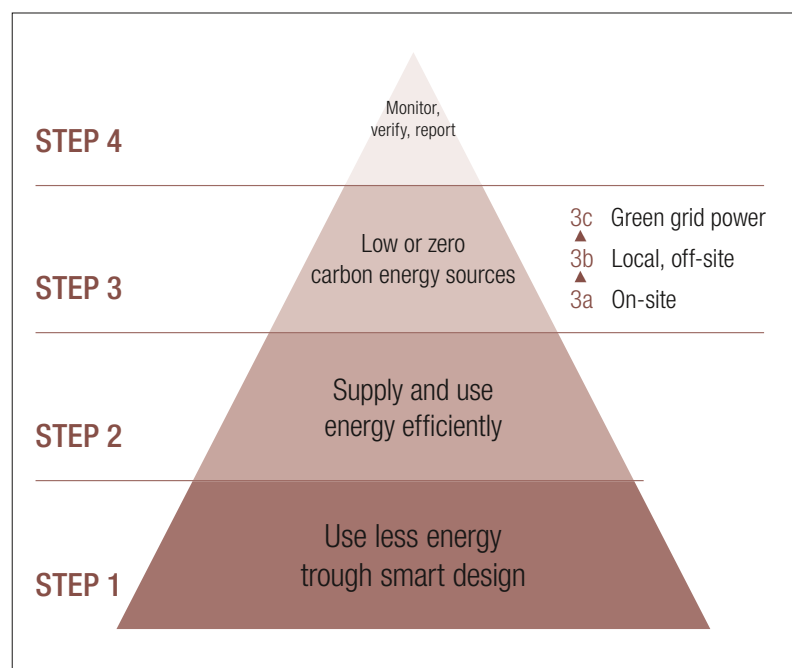
- **Energy**
- **Greenhouse gas emissions**
- **Circular design and use of materials**
- **Water**
- **Land use and biodiversity**
- **Climate Risk**
- **Health and Wellbeing**

With this, we want to create benchmark ecosystems for decades to come.

3.1. THE 4-STEP GHELAMCO ENERGY STRATEGY

A building's energy use during the operation today contributes roughly 2/3 to its lifecycle greenhouse gas emissions. To progressively lower this impact the Ghelamco Energy Strategy adheres to the 4-step Energy Hierarchy:

- **STEP 1 – Use less energy.** The first step aims to reduce the need for cooling and heating in the first place. We plan a building's orientation, architectural features and building envelope in a way that makes optimal use of local conditions, such as sunlight, shading, surrounding buildings and climate.



- **STEP 2 – Supply and use energy efficiently.** We always prefer efficient heating and cooling technologies that are highly energy efficient. Our approach also considers end-user needs and behavior, both technologically (e.g. presence detectors) and for dimensioning. In doing so we intend to avoid rebound effects⁴.

⁴ The reduction in energy savings from higher energy efficiency due to behavioral changes (e.g. keeping an LED light on when leaving the room) or other systemic responses (e.g. planning for higher lighting levels than are justified by user needs).



Spotlight: Understanding the difference – **Primary Energy (PE)** and **Final Energy (FE)**.

When measuring energy use, we need to distinguish between the following scopes:

- 1. A building's theoretical consumption according to the design, measured in kWh of Primary Energy (PE).** This is the figure stated on an Energy Performance Certificate (EPC or PEB/EPB in Belgium), which allows comparing the energy performance of different buildings. This measure expresses how much energy has to be produced from external sources to cover the building's energy demand. It includes all energy meaning gas, heat & cold as well as electricity to power the building's infrastructure, excluding renewable energy produced on-site. It does NOT include occupants' energy use, e.g. for servers, laptops etc.
- 2. A building's in-use energy consumption, measured in kWh of Final Energy (FE).** This is the consumption according to energy bills (for gas, district heating/cooling, electricity) minus energy sold to the grid. As such it measures the real-life energy consumption of a building, including all energy consumed by the building's occupants.

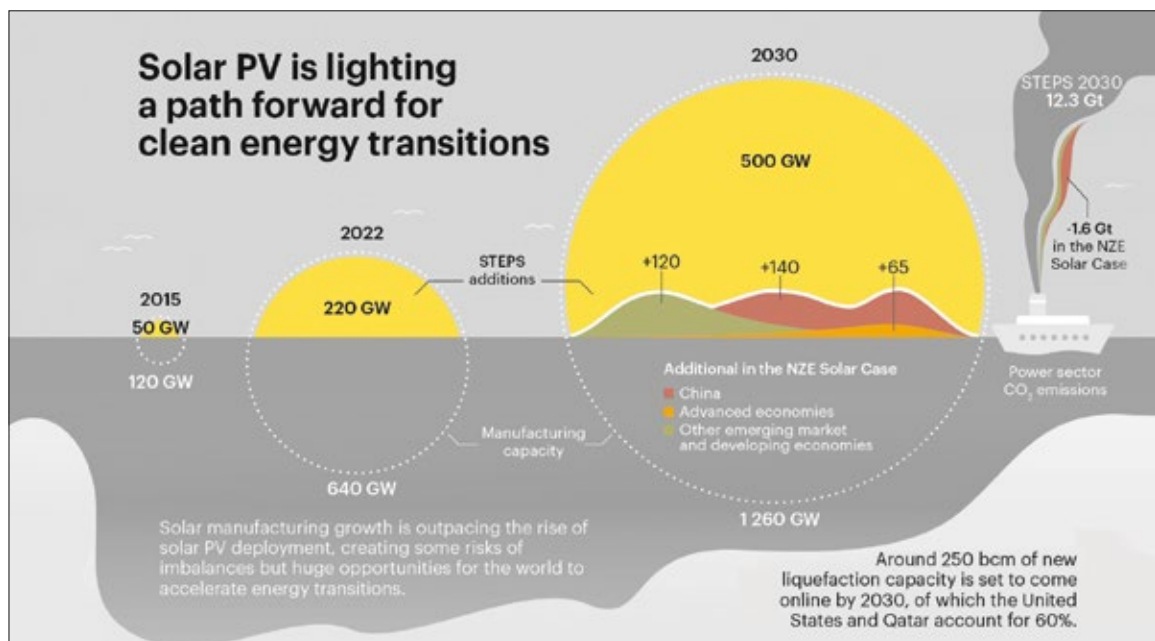
It is key to keep PE and FE apart when talking about a building's energy use to avoid confusion because the difference between both can be substantial. For instance for electricity, 1 kWh of FE equals 2.5 kWh of PE in Belgium, a factor which is defined by the country's electricity mix and power infrastructure (for gas, the factor is 1). Similarly, every kWh produced by an on-site PV system reduces FE by 1 kWh but PE by 2.5 kWh.

Ghelamco's 2025 targets for the consumption of primary and final energy are defined as energy intensities, meaning consumption per m² and year.

	ESG Priorities	Measured in Primary Energy (PE)	Measured in Final Energy (FE)
	Energy Efficiency³	<ul style="list-style-type: none"> • 20% below legal requirements (nZEB) and EPC Class A / equivalent E-peil • EPC A / Equivalent E-peil 	
	Renewable Energy	On site production of >15% (renovations) and >20% (new construction)	The building's and tenant's remaining energy needs are fully covered by off-site renewable energy provided by Ghelamco or third parties, making all developments 'Net Zero Carbon in use'.

→ **STEP 3 – Low or zero-carbon energy sources, no fossil fuels.** The third step of the strategy will seek to maximize the provision of low and zero-carbon energy to meet the remaining demands of the development. As such we aim for all our new developments to be net zero emission buildings (ZEB) by 2025, exceeding the EU’s ambition to reach that goal by 2028.⁵ We do not use fossil fuels, either for heating or backup generators. The hierarchy of low and zero-carbon energy is as follows:

1. **Prioritise on-site renewables** to cover as much of the building’s energy needs as possible.
2. **Ensure access to off-site, local renewables** covering the building’s and tenants’ remaining energy needs. This is achieved by providing our building’s future tenants with long-term power purchase agreements (PPAs) of at least 10 years. The energy for these agreements is either produced by facilities such as solar power plants, owned by Ghelamco or by facilities owned by third parties with whom Ghelamco has signed contracts. Off-site renewables include district heating & cooling obtained from renewable sources or industrial waste heat, as well as local energy communities.
3. **Green power from the grid.** Since Ghelamco commits to directly cover all a building’s energy use with on- or off-site renewables, green power from the grid is only necessary for specific high-energy uses such as EV charging or large server rooms.



→ **STEP 4 – Monitor, verify and report on energy performance.** The final stage of the process will optimize building services performance in all seasons, verify performance against design intent, close any performance gaps, and report on true performance and lessons learned. This fairly new phase has become an essential part of the process because it provides energy usage data to the user, gives feedback on estimated vs actual usage, and can be used as a practical basis for managing energy use.

⁵ It is important to note that it has not yet been set out when a building can claim to be a ZEB in terms of energy use. Until this is the case, we always aim for alignment with EU Taxonomy requirements.



3.2. CARBON EMISSIONS

Operational Emissions

Ghelamco follows a strategy to ensure all our developments are “Net Zero Carbon” by 2025.

What does this mean? We want to fulfil the legal requirements to reach as close to zero as possible with any remaining reabsorbed from the atmosphere.

As explained below, the carbon emissions of a building over its lifecycle can be divided into two groups:

1. Operational carbon” are emissions produced during the building’s use, either directly by burning oil or gas for heat or indirectly by using district heating and electricity produced through sourcing fossil fuels somewhere else.
2. “Embodied carbon”, meaning all emissions that were generated in extracting, processing and transporting a building’s materials, during construction or renovation and finally if materials have to be disposed of at the end of their useful life.

We will focus first on operational carbon. **Ghelamco aims to create buildings which have Net Zero operational emissions. The energy strategy operational carbon down to zero implies a combination of lowering a building’s energy consumption and providing any remaining energy needs entirely through zero-carbon energy on site or through PPAs.**

In many cases, however, covering all a building’s remaining energy needs with renewables on site or nearby is not possible – think of a high-rise building with very little roof space compared to its floor area in a densely built urban area. Also, regular grid electricity in most of the EU will not be zero carbon for the foreseeable future. Achieving zero emissions leaves us with three options:

- A) Producing enough renewable energy off site, through local energy communities or our own power plants, to cover the building’s residual energy use. Even if these installations are not physically connected to the building, establishing a long-term power purchase agreement (PPA) of 10+ years leaves us with a Zero Emissions Building (ZEB) according to EU 2028 requirements. Through this, the long duration provides investment certainty to the power provider.
- B) Purchasing certified zero-carbon energy from the grid would achieve the same goal, but with the added risk of losing access to green energy if demand outstrips supply in the future.
- C) Offsetting any remaining operational emissions by purchasing certificates on the voluntary carbon market.

As a developer, Ghelamco sells the finished building, meaning options B & C above are items that need to be agreed on with our tenants. Our energy strategy aims for long-term access to off-site renewable energy through renewable energy developments which can be connected with building developments via a PPA, making our buildings “Net Zero Operational Emissions in use”. The intention is to bring tenants along on the decarbonization journey and convince them to enter into a green PPA. Only in cases where the client does not wish to sign a PPA with us might we opt for “Net Zero Ready” buildings, leaving the procurement of green energy or off-sets for the buyer to handle.

Ghelamco currently does not recommend offsetting operational emissions. Instead, we recommend that our buyers secure long-term (> 10 years) green power purchase agreements (PPA), through Ghelamco or another provider. Furthermore, the electricity should be either from 100% renewable sources or certified to comply with EU Taxonomy definitions for green electricity. The logic is somewhat different for embodied carbon, as we will explain further below.

Whole life carbon explained

Whole life carbon encompasses all carbon emissions that arise as a result of the energy used in the construction, operation, maintenance and demolition phases of a building.

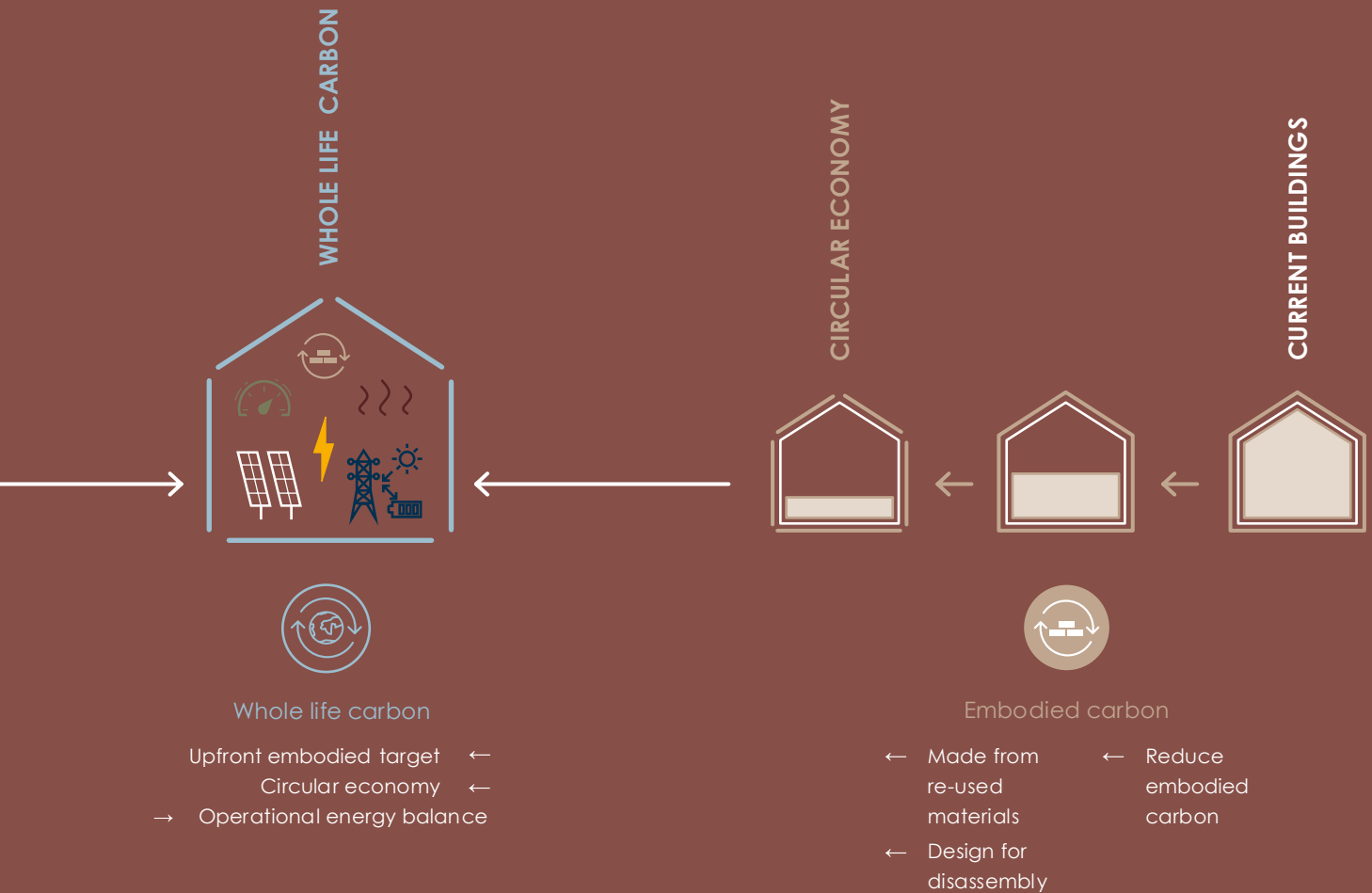
Figure 0.5 below shows the operational carbon reduction stages on the left, and the embodied carbon reduction stages on the right.



Whole life carbon = Operational carbon + Embodied carbon

A new building that meets net zero operational carbon does not burn fossil fuels, is 100% powered by renewable energy, and achieves a level of in-use energy performance in line with our national climate change targets. See Appendix 0.

Best Practice targets for embodied carbon are met, the building is made from re-used materials and can be disassembled at end of its life - in accordance with the circular economy principles.



Commercial offices

Operational energy

Implement the following indicative design measures:

Fabric U-values (W/m².K)

Walls	0.12 - 0.15
Floor	0.10 - 0.12
Roof	0.10 - 0.12
Windows	1.0 (triple glazing) - 1.2 (double glazing)
Doors	1.2

Fabric efficiency measures

Air tightness	<1 (m ³ /h. m ² @50Pa)
Thermal bridging	0.04 (y-value)
G-value of glass	0.4 - 0.3

Power efficiency measures

Lighting power density	4.5 (W/m ² peak NIA)
Lighting out of hours	0.5 (W/m ² peak NIA)
Tenant power density	8 (W/m ² peak NIA)
ICT loads	0.5 (W/m ² peak NIA)
Small power out of hours 2	W/m ² peak NIA)

System efficiency measures

MVHR	90% (efficiency)
Heat pump SCoP	≥ 2.8
Chiller SEER	≥ 5.5
Central AHU SFP	1.5 - 1.2 W/l.s
A/C set points	20-26°C

Window areas guide (% of wall area)

North	25-40%
East	25-40%
South	25-40%
West	25-40%



Balance daylight and overheating



Include external shading



Include openable windows and cross ventilation



Maximise renewables to generate the annual energy requirement for at least two floors of the development on-site



Form factor of 1 - 2



Reduce energy consumption to:



Energy Use Intensity (EUI) in GIA, excluding renewable energy contribution

Reduce space heating demand to:



From the LETI Climate Emergency Design Guide

Preventing stranded assets using CRREM

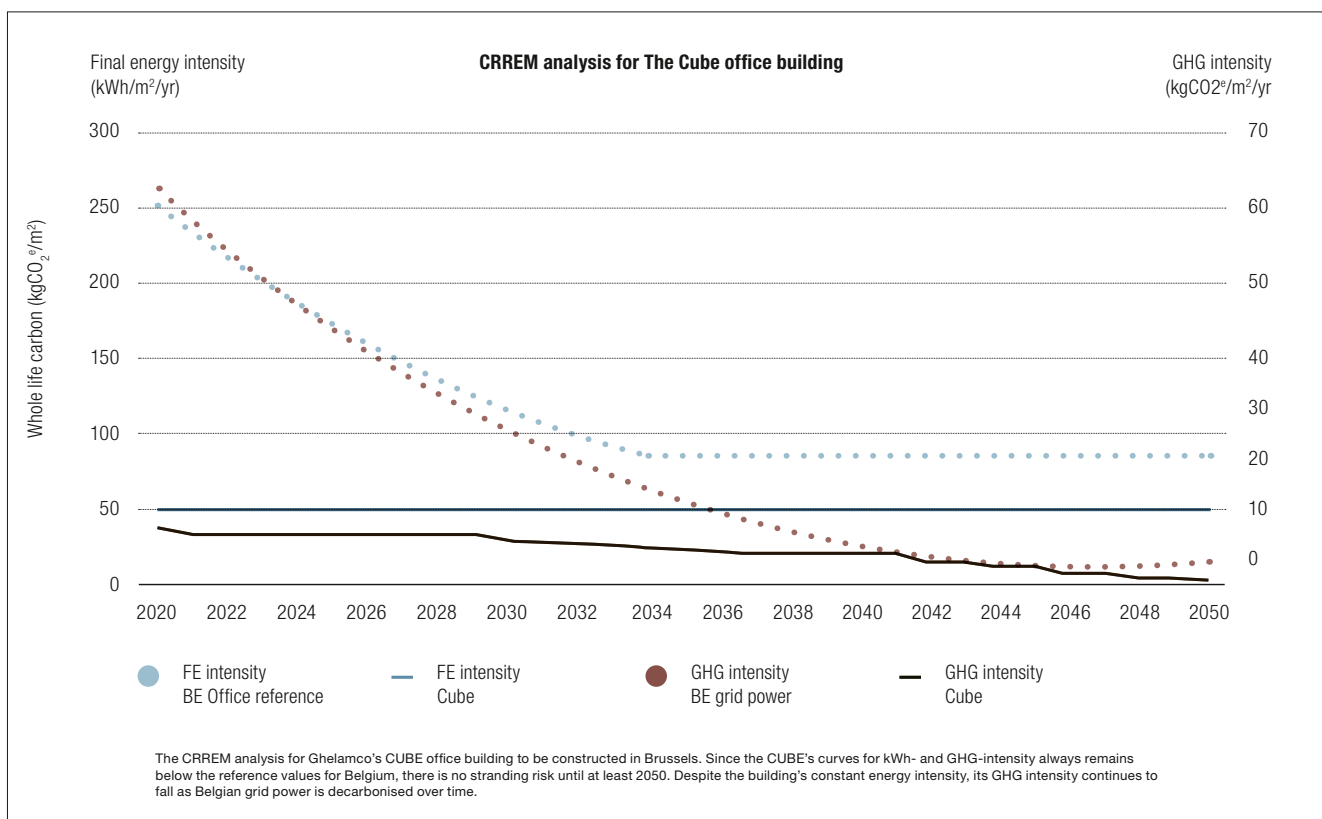
Climate change and accompanying regulatory changes might endanger the business case of real estate companies if no measures to transform the property stock under management are taken. The poor energy efficiency of existing buildings and low refurbishment rates means a substantial part of the building stock might face a situation where they do not meet future market expectations, exposing them to write-downs. This is known as the risk of “stranded assets”.

The Carbon Risk Real Estate Monitor or CRREM is a widely recognized tool that allows investors and property owners to assess the exposure of their assets to stranding risks. It contrasts a building’s energy and emission data with science-based reduction pathways between today and 2050. If the building’s emissions remain too high, the tool will identify the stranding year.

For existing buildings, this approach allows evaluating the impact of different renovation scenarios to prevent or at least extend this stranding point. CRREM analysis for new construction demonstrates to investors that an asset will remain valuable for decades to come.

Ghelamco uses the CRREM approach for all our assets. **All our projects need to be built in a way that ensures they are safe from stranding until at least 2050, based on the 1.5°C pathway if supplied with renewable energy.**

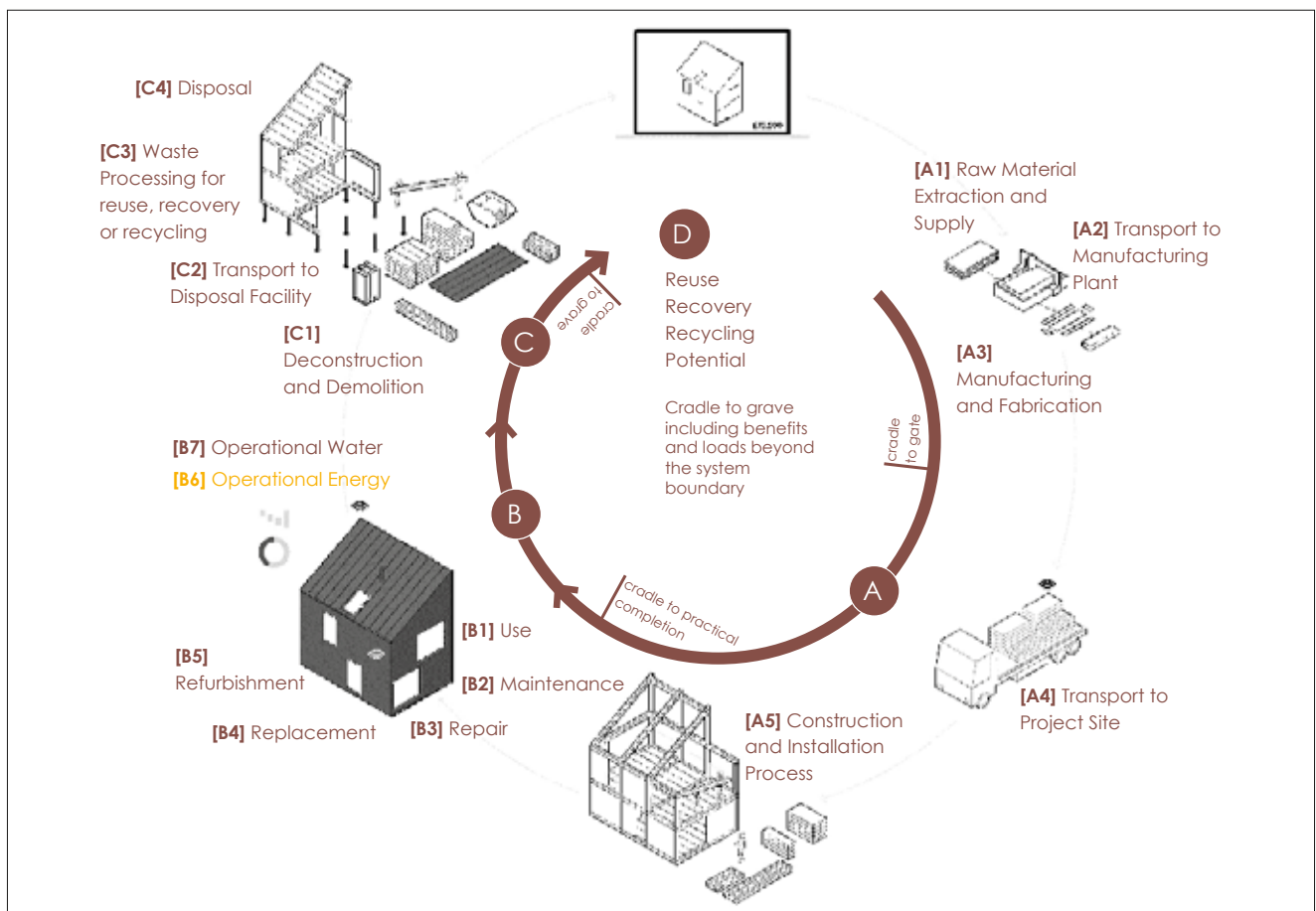
‘All our projects need to be built in a way that ensures they are safe from stranding until at least 2050, based on the 1.5°C pathway if supplied with renewable energy.’



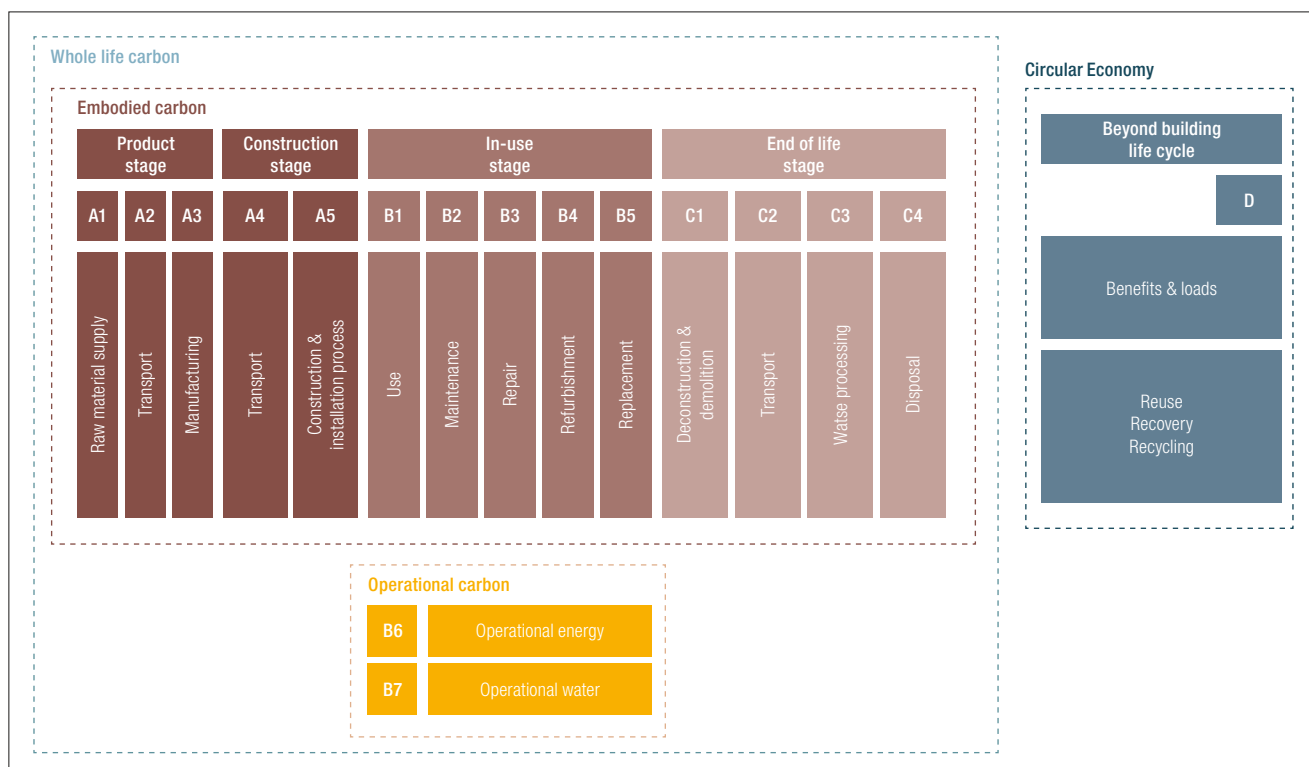
Embodied carbon emissions

“Embodied carbon (EC): The carbon emissions associated with the extraction and processing of materials and the energy and water consumption used by the factory in producing products and constructing the building. It also includes the ‘in-use’ stage (maintenance, replacement, and emissions associated with refrigerant leakage) and ‘end of life’ stage (demolition, disassembly, and disposal of any parts of product or building) and any transportation relating to the above.” - London Energy Transformation Initiative (LETI)

‘Although there are no legally binding goals for reducing embodied carbon yet, we believe this is only a matter of time. The Zero Emission Building standard already includes the disclosure of embodied carbon as part of the Energy Performance Certificate.’



To determine how much embodied carbon is hidden inside a material or building, a Lifecycle Analysis (LCA) has to be conducted. It considers the greenhouse gas emissions of every step of the value chain to arrive at the total emissions used to make, use and dispose of the object. Knowing the source of a building’s embodied carbon is the first step to avoiding them. This is why Ghelamco conducts an LCA early in every project development when it is still possible to choose lower carbon materials, say, or change the building’s structure.



A zero emissions target for embodied carbon is more difficult to achieve than even operational carbon. This is due to the complicated supply chains in construction and because much of the emissions associated with making materials are not energy-related. Instead, they are emitted through chemical processes in the production of especially steel and cement, for which there are no scalable replacements yet. Until our economy has achieved a much higher degree of circularity (see the next section), a goal for zero embodied emissions thus becomes very difficult to set.

Net zero embodied carbon targets provide at least a temporary alternative. As for operational carbon, a net zero target involves offsetting remaining carbon emissions by financing carbon mitigation projects saving a corresponding amount of carbon elsewhere. These projects can, but do not have to, take place in the offsetting company's own value chain, since GHG emissions have (in theory) the same effect no matter where or by whom they are emitted. The quality and impact of these offsets can vary wildly, however, so great care needs to be taken in selecting them.

Although there are no legally binding goals for reducing embodied carbon yet, we believe this is only a matter of time. The Zero Emission Building standard already includes the disclosure of embodied carbon as part of the Energy Performance Certificate. Having to radically reduce embodied carbon will upend the building industry, requiring entirely new approaches to construction and materials.

Performance on embodied carbon requires benchmarks and a standardized methodology. Although some benchmarks are available, in the absence of a national calculation method (similar to EPB), it is difficult to make comparable calculations between different buildings. To avoid invalid comparisons and green washing we do not yet set a numerical target for embodied carbon, but instead monitor it closely in all our projects and explore ways in which it can be reduced.

5 Ghelamco **Circular Design Principles:**

1

CHANGE-ORIENTED
DESIGN



2

CIRCULAR &
HEALTHY MATERIALS



3

MATERIAL
PASSPORT



4

LOW-CARBON
MATERIALS



5

MINIMIZE
WASTE



In the meantime, to reduce the levels of embodied carbon in our projects, we:

- **Always consider renovation options.** Before any demolition takes place, a study is conducted on how the building could be renovated and how much this could save on embodied carbon and materials. The results are taken into account when the final decision is taken. If the best option for renovation would prevent us from reaching our goals on operational carbon or user comfort, we develop a strategy on how to reuse as much material as possible. See the chapters on operational carbon, circular design and smart building design for additional details.
- **Conduct an LCA early in each development process**, ideally followed by updates as the project progresses, and use the findings to implement measures to reduce embodied carbon.
- **Adhere to the principles of circularity** (see the next chapter).
- **Work on developing clear goals for embodied carbon per m²** based on consistent methodology. As our expertise on low-carbon construction develops, our ambition is to work not just with a financial budget for our projects, but also with a carbon budget.

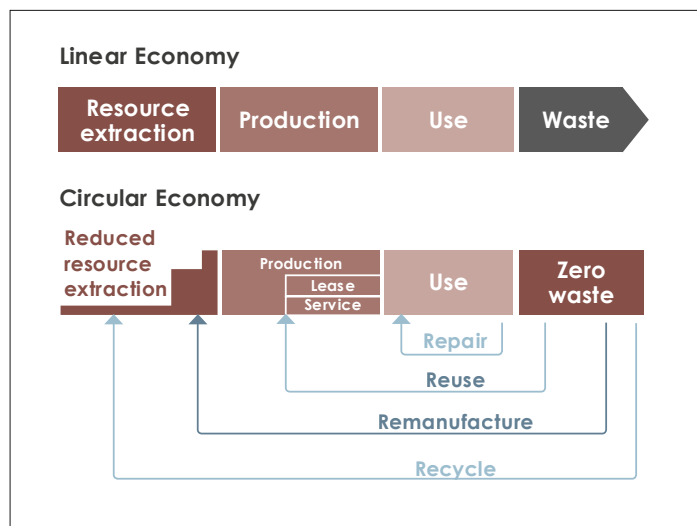
3.3. CIRCULAR DESIGN – FROM WASTE TO RESOURCE

In the face of various environmental crises, but also rising awareness of associated health impacts, the conscious use of materials is rapidly gaining importance. We therefore strive to apply the principles of the circular economy so that we limit our dependence on virgin raw materials. We also use smart design that is adaptive and flexible to ensure our buildings remain valuable for decades to come.

Recognizing the long-term need for 100% circularity, we follow five main principles:

- **We start every project with a change-oriented design in mind.**

The aftermath of the pandemic is seeing a significant drop in the need for office space, particularly in urban centers, whereas attractive housing remains in demand. This development demonstrates the value of designing buildings in a way that keeps them open for changes in their use. As the needs and wishes of our users change, we create buildings that support these changes efficiently. Our building design and construction techniques support circularity and in particular demonstrate, concerning ISO 20887(288), how they are designed to be more resource efficient and adaptable to changing uses. This also requires buildings to be designed for disassembly and easy cost-efficient reuse or replacement of components.



- **We strive to use circular, healthy materials and prefer contractors capable of supplying them.** Materials must be able to be reused as much as possible to allow for the highest possible value retention.



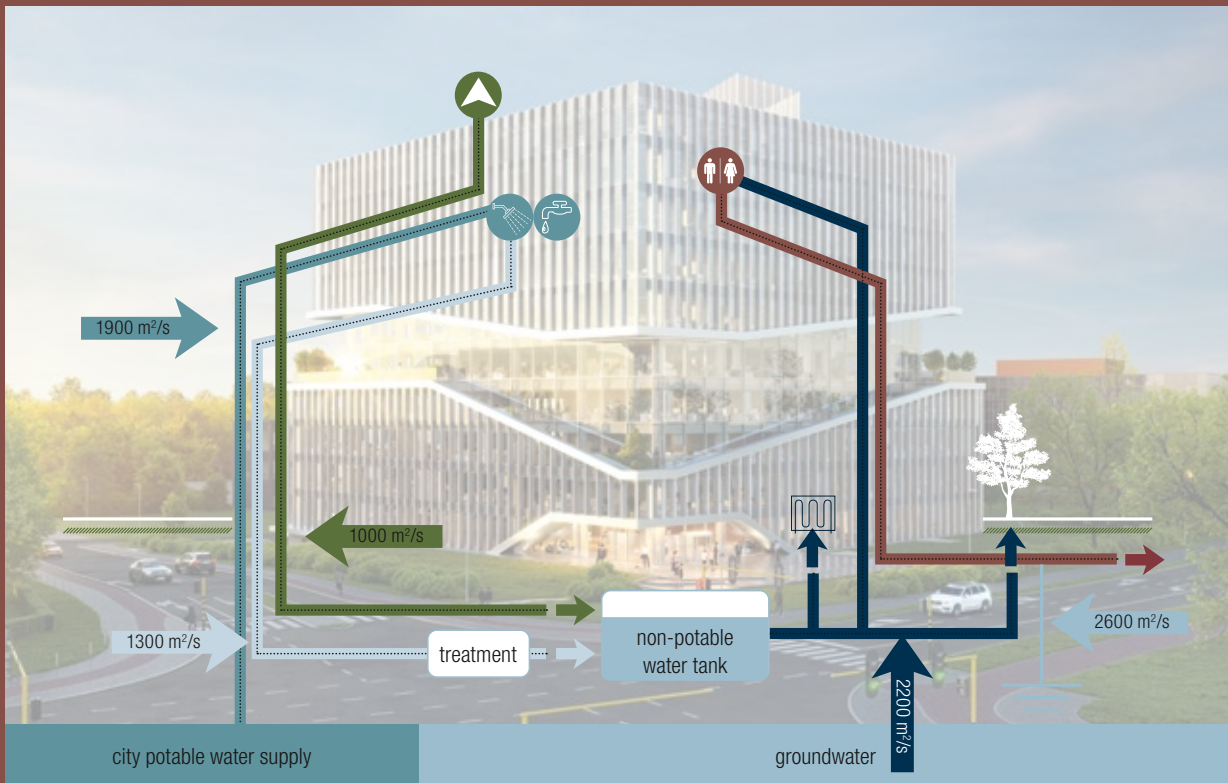
Recycling – breaking down components into their materials – is thus only the second-most favored option of recovery if re-use is not possible. Recyclability is increased by favoring materials with separable and thus easily recyclable components (e.g. screwed instead of glued).

Many of the products used in buildings today contain harmful substances, preventing the material from being reused. In addition, these may have considerable negative impacts on indoor air quality. The use of certified cradle-to-cradle materials with Environmental Product Declarations (EPDs) and Health Product Certificates (HPCs) is thus favored above others when selecting suppliers - traceability and transparency are two key drivers to challenge the construction industry.

- **We create an inventory of all used building materials with the Madaster platform.** This facilitates the reuse of materials and helps safeguard the quality of materials “stored” in a building. This helps our clients avoid the need for downcycling materials during future works on the building, thus closing the cycle. To help implement this strategy, every new development will feature an elaborate Material Passport by 2025. Furthermore, we aim to develop a minimum target for a Madaster Circularity Index score to be valid by 2030 at the latest. The MCI is a scientific measuring instrument to determine the circular potential of a new or existing building. Using these tools, we will have clear metrics measuring how circular a building is and how it can be conserved and re-used by future generations.
- **We explore ways to strategically integrate low-carbon materials,** such as EU Taxonomy-compliant green steel and concrete in our supply chain and will develop KPIs to measure our progress. The indicators will directly have an impact on the carbon footprint and the environmental results from the LCA mentioned in the previous section.
- **We minimize waste generated during construction and operation,** starting by examining any materials already present in a building to be renovated or demolished. Such an Urban Mining Assessment forms the basis for a plan to reuse materials on site or to identify valuable materials to sell on the secondary market. Finally, at least 90% (by weight) of the non-hazardous construction and demolition waste generated on the construction site is prepared for reuse, recycling or other non-thermal recovery – with an ambition to achieve recovery as close to 100% as possible. We facilitate operational waste handling by providing dedicated areas for sorting and storage, taking into consideration local possibilities of recycling.

Advancing circularity in buildings is not only a technical challenge but also a systemic one. While this is partly a result of outdated policy frameworks, today’s ways of doing business are also to blame. At Ghelamco, we recognize our responsibility to challenge the way we do business. As part of our longer-term strategic process, we will therefore also analyze our current business model for obstacles slowing us down in achieving fully circular buildings.

Case Study: Net Zero Water at the Cube



schematic of the Cube office building showing water flows and the calculation of the water balance in 1000m³/year.

Ghelamco's Cube will be Belgium's first LEED-certified Net Zero Water building, completely offsetting its water use. To achieve this ambitious goal, the Cube applied the following principles:

- Reducing demand by employing low-water consumption sanitary installations and fittings.
- We maximized the production of alternative water sources to offset purchased freshwater through infiltration and capture. The infiltration and water buffering capacity goes well beyond the actual Flemish guidelines (hemelwateroets).
- Greywater is treated on-site and reused for irrigation, toilet flushes and adiabatic cooling.
- All green infrastructure is foreseen to capture and infiltrate stormwater back into the original water supply. The capturing capacity is augmented through green roofs and vegetation.

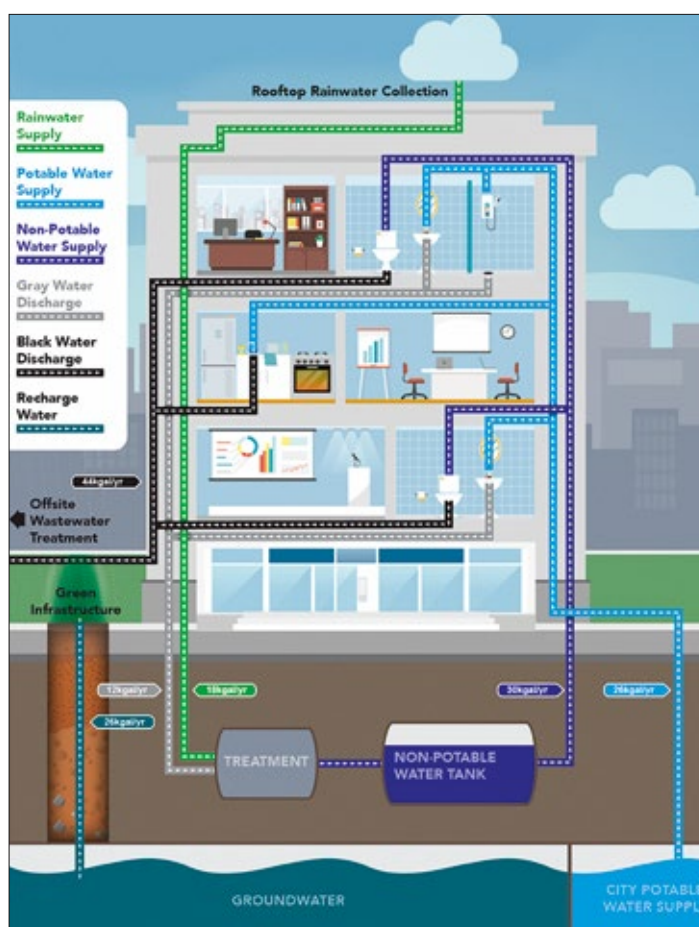
3.4. RESPONSIBLE WATER MANAGEMENT


Flooding, water scarcity and droughts are major concerns for Belgium and much of Europe in light of climate change. Water is an essential resource for agriculture, industry, and society as a whole. Therefore, appropriate water management has risen on the list of priorities and will continue to do so as a way to build resilience against climate change. In Belgium, this is already reflected in the Blue Deal of the Flemish government. Ghelamco, therefore, strives for a circular use of water. As such we

- Minimize water use, especially potable water. We want to use potable water where it is most valuable, meaning for drinking and hygiene. This can be achieved through water-efficient fixtures and toilets and by avoiding its use for other purposes such as irrigation.
- Maximize water collection from alternative sources (rainwater and used water, not from toilets, such as process water or water reuse from sinks, showers or dishwashers), to be treated on-site and used for flushing toilets or irrigation.
- Minimize wastewater discharge and replenish local natural water sources where possible after on-site treatment.

To gain experience with the last two measures, we conduct a feasibility study and business case during the concept phase of every project, evaluating potential for implementation. The

purpose of this policy is to increase the Water Balance Factor (WBF). The WBF equals total potable water consumed minus total alternative water used and water returned to the source. It demonstrates a circular view of water use, which we believe holds much promise in a drier future marked by climate change.



	ESG Priorities	New Constructions	Renovations
	Circular Water Use	<ul style="list-style-type: none"> • EU Taxonomy compliant • We do a feasibility study & business case for the use, treatment, and re-infiltration of gray water in the early concept phase of a project • We aim for a Water Balance Factor of 100% (Net Zero Water) 	




‘Ghelamco aims to be nature positive. A nature-positive development leaves biodiversity or the natural environment in a measurably better state than before.’

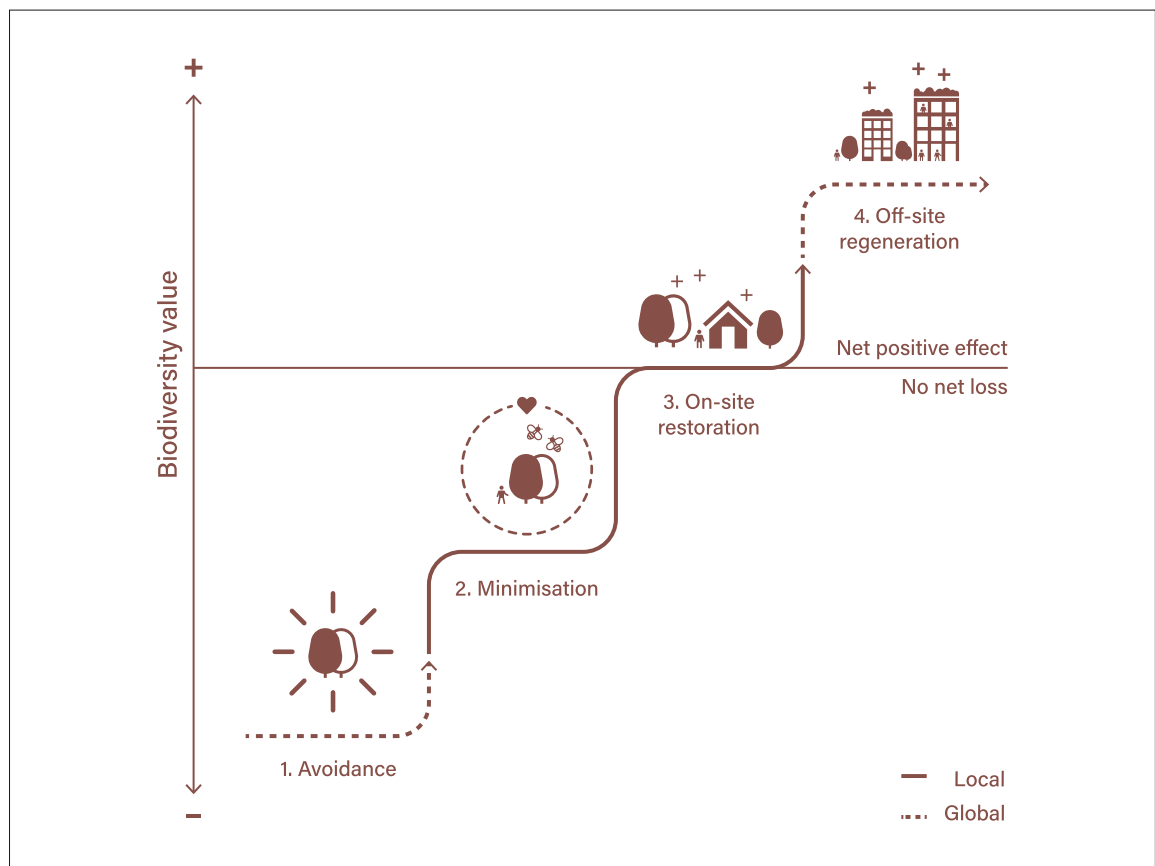
3.5. ECOLOGY, BIODIVERSITY AND ADAPTATION TO CLIMATE CHANGE

Ghelamco aims to be nature positive. A nature-positive development leaves biodiversity or the natural environment in a measurably better state than before. We measure this through the Biotope Area Factor (BAF), or the ecologically effective green surface area in % of the total land area. At the same time, an increasingly shifting climate requires us to increase our buildings’ resilience to extreme weather events such as floods, and long-term changes such as heat and water stress. We integrate these considerations very early in the planning process and make use of the synergies between a nature positive approach and climate resilience:

1. **Site selection:** We do not build on pristine greenfield, wilderness or prime farmland, which is aligned with EU Taxonomy requirements. We prefer brownfield developments or renovation of existing buildings and conduct a climate risk assessment before any site is selected.
2. **Enhancing the ecological performance of the site:** Based on an expert ecologist’s before-and-after assessment, we use a project’s features (e.g. roof, outdoor space) to create habitats for local flora and fauna, and to reduce soil sealing. As an added benefit, such nature-based solutions mitigate the urban heat island effect and contribute to user comfort and well-being.
3. **Integrating water retention in the ecosystem:** We use ecological features such as ponds as a buffer for stormwater, trying to mimic natural site hydrology processes.

Measures to increase biodiversity and climate resilience also have a compelling business case. They reduce transition risk and marketability, particularly in the case of highly visible biodiversity solutions. Tenants and members of the local community can see and benefit from green roofs or native landscaping, with a positive impact on a building owner’s brand.

	ESG Priorities	New Constructions	Renovations
	Biodiversity	<ul style="list-style-type: none"> • Nature Positive • Biotope Area Factor (BAF) > 20% by 2025 and > 30% by 2030 	



3.6. HEALTH AND WELLBEING IN BUILDINGS AND NEIGHBORHOODS

Whether we are aware of it or not, our surroundings significantly affect our health and well-being. Because people spend approximately 90 per cent of their time indoors, buildings play a critical role in minimizing exposure to toxins and protecting the health of occupants. Noise pollution and poor lighting can take their toll on stress levels, whereas the restorative effects of natural environments, daylighting, and quiet spaces can positively affect physical and mental health.

At Ghelamco, we base ourselves upon the evidence-based solutions that form the input for the WELL and FITWEL certification schemes and ensure that all our developments achieve at least WELL Gold certification. This improves performance particularly on:

- **Air quality and thermal comfort** which are optimized to be well above legal requirements. We ensure that we apply thoughtful design to prevent negative effects from arising in the first place. This means we take care to use healthy, low-emission materials and building components to prevent the occurrence of harmful substances such as formaldehyde or carcinogenic VOCs in the air. We implement green roofs wherever possible to mitigate the urban heat island effect and design the building in a way that reduces the need for active heating, cooling, and ventilation.
- **Natural light** which has been shown to improve well-being. Studies link exposure to daylight to increased productivity and better mood in office workers. Our buildings therefore employ a high window-to-wall ratio

to ensure most or all workspaces benefit from natural light.

All streets and public spaces outdoors are well lit to improve personal safety and encourage people to walk more at night because they feel safer. However, light pollution is minimized with automated lighting shutoffs at night and after periods of inactivity.

- **Sound** within an enclosed space, such as from ventilation systems, conversations or outside traffic has been shown to hinder productivity and focus. We address this through the planning of our technical systems, such as an isolated and balanced HVAC system, façade fortification or internal absorptive materials.
- **Access to nature** has links to positive health outcomes. Many studies cite the calming effects of spending time in nature, and health can be harmed by a lack of exposure to nature. Outdoor space, therefore, acts as an extension of the building with gardens, paths, seating, water features and trees providing shade and increasing outdoor comfort. We also encourage the integration of indoor biophilic elements in tenant spaces as they aesthetically enhance space, improve air quality and offer noise reduction. And finally, we prefer to develop sites with existing access to nature in the form of parks or other natural spaces, as long as this does not conflict with ensuring excellent accessibility to the site – see below.

All our office buildings are WELL Gold Certified, independently verifying a healthy environment and a very high level of user comfort.

Human Scale: Mobility & Community

Despite the well-known benefits of exercise, few adults get enough physical activity. In an era of sedentary jobs, extended screen time, and long commutes sitting in cars, it's no surprise that health researchers are telling us "sitting is the new smoking." Design and development practices can make a significant impact by increasing opportunities for physical activity in daily life. Several studies show that people who live in places with good pedestrian amenities, bicycle infrastructure, and access to trails have higher rates of physical activity and lower body weight. Park and playground access is also critical since people who live within walking distance of a park tend to exercise more than people who lack park access.

We hope that the neighborhoods we help create eventually evolve to allow human-scaled living and thus do not require motorized transport. Walkable communities oriented toward pedestrians and cyclists contribute to their user's health and well-being as well as reduce the need for energy-intensive means of transportation. To spur this development, we ensure that our buildings are easily accessible in a car-less fashion by

- prefer sites close to well-served public transportation hubs
- Provide sufficient bicycle storage and other facilities such as showers to encourage biking
- engaging with local operators of shared mobility schemes to ensure easy access to shared cars and bikes on-site or nearby
- ensuring that the services offered on location (gyms, cafeterias) do not unnecessarily duplicate locally available services, but complement them instead.

The built environment can further contribute to less car-dependent mobility by providing safe passages for pedestrians and cyclists to access public transportation and other local services or parks. Where this is not within our responsibility or possibilities, we engage with local authorities to encourage their creation.



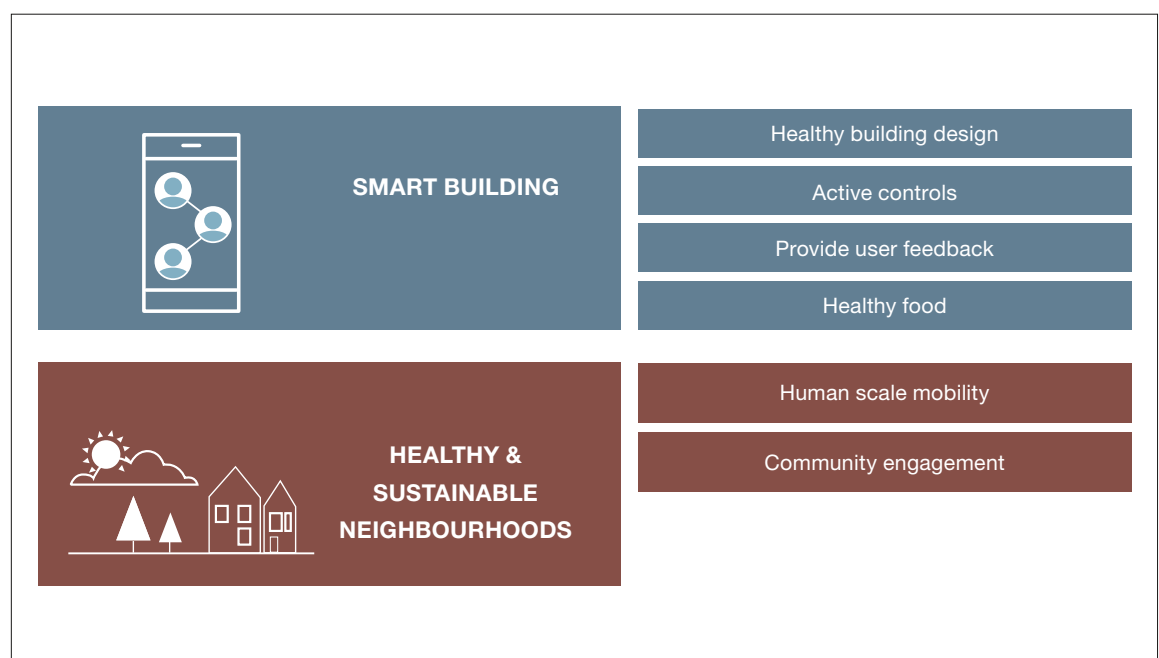
Enhance opportunities for social interactions & community engagement

Ghelamco considers it as part of our mission to help build vibrant new neighborhoods. In a human-scale environment that promotes building users to move on foot and by bike, more frequent interactions between a building's users and the local community become possible. Positive social interactions are facilitated by nearby parks and plazas, multi-purpose community rooms, and rooftop spaces as well as health and sports programs or other events to take place on the premises. Occupying a space in this multi-tenant building will offer good strategies for strengthening a client's workplace community identity and support a variety of goals related to health and well-being.

Naturally, the services foreseen to be provided in a building are complementary to the services already available in the neighborhood – an additional gym adds little value if there are already several within walking distance. Our office building apps can further stimulate the use of local services by notifying about local cultural and sports events.

A Smart Building promotes health & sustainability through design

A smart building is commonly associated with a high degree of digitization and connectivity of all building components to optimize or customize operations. Ghelamco's approach to smart buildings goes beyond this understanding. On one hand, we see the physical building as a tool which, through smart design decisions, has a positive impact on people's well-being and through technology can interact with them to improve impacts on sustainability & health. But we also recognize the building as part of its neighborhood. This means incentivizing building users to venture beyond the perimeters of the plot on foot or by bike, and facilitating interaction with the local community. By fostering this openness our buildings contribute to a vibrant neighborhood and the social well-being of building users. In adopting a multidirectional approach at the intersection between building design, user behavior and neighborhood, we want to create additional value for building owners, users and the local community.





‘The impact that occupants have on energy consumption varies but a review of behavioural change programs concluded that behavioral savings potential could reach approximately 20%.’

Active controls

Active controls allow facility managers and building users to individually adjust the parameters to improve comfort levels or optimize energy use. At the same time, a smart building should also be automated to a degree that makes these interventions redundant. Our buildings are therefore actively steered with IoT sensors to optimally balance daylighting, temperature and air quality.

The active controls can easily be upgraded to the wishes of the tenant with features such as

- Workspace reservation
- Active steering of air and temperature to the expected presence
- Temperature control on mobile application
- Lighting scenes in meeting rooms
- Automated shut-off of power circuits for equipment

The more granular and the more active the controls are made, the more the building will be adapted to the real occupancy profile, whilst limiting energy waste.

Improve efficiency by providing feedback to users

We believe that our responsibility minimizes our building’s energy use doesn’t stop when tenants move into the building. The goal is to minimize the difference between the energy performance as per the design and in use. Smart building systems can support facility management to continuously optimize operations by providing detailed information on air quality – but there is only so much that can be done without accounting for the behavior of a building’s end users.

The impact that occupants have on energy consumption varies but a review of behavioral change programs concluded that behavioral savings potential could reach approximately 20%. It has been shown that less than 50% of the equipment is turned off and less than 10% of desktop computers enter low-power mode. That shows clear opportunities not only for energy management but also for behavioral change in office buildings.

Heating and electrical consumption can be positively affected by users reducing consumption during occupied and unoccupied periods and by determining where waste is occurring. Providing users with eco-feedback, gamification and the possibility of social interaction to compare with others can nudge them to adapt their behavior without sacrificing comfort levels.



‘Since as Ghelamco we do not operate our own buildings, we instead pursue a program which assures that tenants comply with the healthy food policy. In respective buildings, the policy applies to all unstaffed areas serving foods or drinks like vending machines, honor bars, micro-markets etc.’

Promote physical activity, healthy food and drinking water

What we eat and drink directly affects our well-being. Unfortunately, unhealthy foods are cheap and readily available, and sugary drinks like soda are a major contributor to today’s obesity epidemic. Vending machines are ubiquitous, but they usually sell snacks and drinks that are high in sugar, salt, and fat and have little nutritional value. Thoughtful integration of strategies that promote access to healthy food and drinking water can bolster health and the appeal of projects and communities.

Since as Ghelamco we do not operate our own buildings, we instead pursue a program which ensures that tenants comply with the healthy food policy. In respective buildings, the policy applies to all unstaffed areas serving foods or drinks like vending machines, honor bars, micro-markets etc. It requires a choice of one of the following architectural practices...

- Prioritize healthy food and beverage options through layouts and communication AND/OR
- Increase healthy food and beverage options above policy levels (> 75%)

... and of one of the following pricing incentive practices

- Offer healthy food and beverage options at a lower price than other options OR
- Offer rotating pricing specials on healthy food items.

In case a vending machine, honor bar, or micro-market is made available in a tenant or common space, a free potable water supply will be provided at the same location.

4. THE GHELAMCO WAY FORWARD



‘This Sustainability Playbook represents the current state of Ghelamco’s ambitions and approaches to how our business contributes on a sustainable society and economy.’

Looking at the dynamism of the sustainability landscape in recent years, from regulation to consumer and investor priorities, there is no reason to believe that conditions will remain as they are now. Several major shifts can already be observed, as the science and awareness of environmental and social issues evolve. For instance, a stronger focus on circular building and embodied carbon is likely. On a local level, many cities and municipalities are taking bold steps to vitalize their neighborhoods, as new ideas surrounding spatial development and social equity take hold.

This Sustainability Playbook represents the current state of Ghelamco’s ambitions and approaches on how our business contributes to a sustainable society and economy. It is also a base from which further steps can be taken. Here is what we plan to do next:

- Complete our ambitions and guidelines to better reflect the diversity of our activities, including non-office buildings.
- Expand on the ideas and ambitions developed in this Playbook to determine a comprehensive Sustainability Strategy with the involvement of key stakeholders, harmonized across the Ghelamco Group.
- Build the necessary structures and database for transparent Sustainability reporting according to the EU’s CSRD requirements.
- Work with our clients to develop and pilot frameworks which ensure that our buildings can be and are operated in a way which ensures they create long-term stakeholder value. This could be done through (shared) mobility concepts, tenant incentives to use public transport or community engagement.
- Develop topical strategies on strategic issues such as circularity and embodied carbon.

In the meantime, we welcome questions and inspirations and look forward to working with all our stakeholders to create the real estate of the future.

ANNEX

Green building certifications explained

	<p>DGNB Gold</p> <p>The DGNB certification was developed to make sustainable construction practical, measurable and therefore comparable. First introduced to the market in 2009, the system has been continuously developed and is now not only considered the most advanced in the world but is also internationally recognized as “the Global Benchmark for Sustainability”.</p> <p>As a tool for design, planning and optimization, the DGNB system is based on three key paradigms that distinguish it from other certification systems available on the market:</p> <ul style="list-style-type: none"> - Lifecycle view: Within the certification process, the entire life cycle of a project is consistently taken into account, and instead of individual measures, the overall performance of a project is evaluated. - Holistic: DGNB considers ecological, socio-cultural and, uniquely for green building certification, economic criteria and process management. Achieving a high score thus requires resolving conflicting targets and achieve cost-effectiveness for an optimal outcome, which sets DGNB apart from otherwise similar standards such as BREEAM or LEED. - Performance oriented: The DGNB system evaluates site as well as technical and procedural quality with a holistic approach. The performance of these qualities is assessed through certification criteria. <p>DGNB divides its certifications into four levels: Bronze, Silver, Gold and Platinum. Ghelamco’s policy is to achieve ‘Gold’ for all our developments.</p>
	<p>BREEAM Excellent</p> <p>BREEAM (Building Research Establishment’s Environmental Assessment Method) is the world’s leading method for assessing the sustainability of projects in the built environment. This method sets the standard for best practices in sustainable design and has become the de facto yardstick for describing the sustainability performance of buildings and areas. By applying and using BREEAM, performance requirements are provided for improving the sustainability of areas and buildings. In this way, they create added value and reduce risks for the tenants, users and owners of the buildings.</p> <p>BREEAM divides its certifications into six levels: from Acceptable (In-Use scheme only) to Pass, Good, Very Good, Excellent to Outstanding. Since BREEAM criteria show a strong overlap with DGNB, Ghelamco’s policy is to achieve at least ‘Excellent’ for developments in markets where BREEAM enjoys particularly high market recognition.</p>
	<p>Edge: Zero Carbon</p> <p>EDGE (“Excellence in Design for Greater Efficiencies”) is a green building platform that includes a green building standard, a software application, and a certification program. EDGE helps discover technical solutions at the early design stage to reduce operational</p>

	<p>expenses and environmental impact. Based on the user's data input and selection of green measures, EDGE projects operational savings and reduced carbon emissions. This overall picture of performance helps to articulate a compelling business case for building green.</p> <p>To achieve the EDGE Zero Carbon standard, a building must demonstrate a 40% reduction in operational energy consumption, 20% in water use and embodied energy in materials as compared to typical local practices. Furthermore, it must also demonstrate an energy supply of 100% on- or off-site renewables (with renewal required every 4 years). Proof of having purchased carbon offsets is also permitted (renewal every 2 years), but not in line with Ghelamco's policy. EDGE is aligned with international green finance standards, including GRESB, ICMA, CBI, and CDP.</p> <p>One year after the final Edge Advanced certification, and once 75% of the building is occupied, the operational data of the building needs to be submitted. A proof will need to be delivered that the assumptions of the Edge Zero Carbon certification are met.</p> <p>Ghelamco pursues the Edge Zero Carbon certification in select cases to independently verify our claim of buildings "Ready for net zero operational carbon" with 100% renewable energy on-/off-site.</p>
	<p>WELL Gold: User health and wellbeing</p> <p>The WELL Building Standard version 2 (WELL v2™) certifies buildings that positively impact the health, engagement and productivity of all employees, backed by the latest scientific research. WELL v2 provides a set of strategies that aim to advance human health through design interventions and operational protocols and policies to foster a culture of health and well-being. The standard draws expertise from a diverse community of WELL users, practitioners, public health professionals and building scientists around the world. This latest version of WELL has proven itself to be a scalable and globally applicable feature set that is responsive, inclusive and adaptable to fit any environment or organization seeking to elevate human health and promote well-being for all. The certification mechanism is organized around ten concepts:</p> <ul style="list-style-type: none"> - air - nourishment - movement - sound - mind - water - light - thermal comfort - materials - community <p>WELL divides its certifications into four levels: Bronze, Silver, Gold and Platinum. Ghelamco's policy is to achieve WELL 'Gold' for all our developments.</p>
	<p>Fitwel 2-Star</p> <p>Like WELL, Fitwel focuses on social metrics when assessing a building's performance. The Fitwel Scorecards include 55+ evidence-based design and operational strategies that enhance buildings by addressing a broad range of health behavior and risks. Each strategy is associated with unique point allocations based on the strength of associated evidence and the demonstrated impact on occupant health. This means that strategies with stronger, multi-faceted impacts receive more points, resulting in a healthy office or living environment.</p> <p>Fitwel addresses health as an interconnected system – with no single dominant category or area of focus – and, as such, all strategies are voluntary, with no individual</p>

	<ul style="list-style-type: none"> - Impacts Surrounding Community Health, meaning anyone who lives, works, plays, or learns in the neighbouring areas. - Reduces Morbidity and Absenteeism to promote decreased rates of chronic disease and mental health conditions. - Supports Social Equity for Vulnerable Populations to include a view on vulnerable populations including children, the elderly, disabled, or socio-economically disadvantaged persons. - Instils Feelings of Well-Being by promoting inclusion, relaxation, and perceptions of safety through clean spaces, enhanced connection to nature, and opportunities for social engagement. - Enhances Access to Healthy Foods by diversifying outlets and sources of healthy food options, promoting healthier choices, and reducing their cost through pricing incentives. - Promotes Occupant Safety by taking measures to decrease the risk of crime and injury. - Increases Physical Activity by incorporating opportunities for movement into everyday life whether through encouraging active transportation or promoting stair use. <p>Fitwel divides its certifications into two levels, 1- and 2-star. Since Fitwel criteria show a strong overlap with WELL, Ghelamco's policy is to achieve Fitwel 2-star for developments in markets where the certification enjoys particularly high market recognition or upon request.</p>
 <p>SmartScore GOLD</p>  <p>WiredScore GOLD</p>	<p>WiredScore Gold & SmartScore Gold</p> <p>The WiredScore certification assesses, certifies, and promotes digital connectivity and smart technology in homes, offices, and neighborhoods globally. Digital connectivity is vital to the way we live and work. Through skill, experience and industry knowledge, WiredScore makes the world's buildings better connected, enabling a more collaborative and innovative future. WiredScore Gold ensures that a building has the connectivity capacity for virtually any tenant. Any building achieving WiredScore Gold displays impressive connectivity and has a proven ability to keep up with the digital demands of today's tenants.</p> <p>SmartScore identifies best-in-class smart buildings that deliver an exceptional user experience, drive cost efficiency, meet high standards of sustainability and are fully future-proof. Its score-card has been designed to assess every building against the outcomes and benefits expected of a smart building. It is organized to deliver functionality on the following levels:</p> <ul style="list-style-type: none"> - Communities and services: Placing community, services and information in the hands of users. - Sustainability: Improving and reporting on the sustainability of the building. - Individual and collaborative productivity: Creating spaces that enable people to be at their most efficient and effective. - Health and wellbeing: Creating safer and healthier working environments. - Maintenance and operations: Optimizing the building's space and systems. - Security: Providing a safer place to work and innovate. <p>Depending on our strategy for a particular building, Ghelamco may pursue the WiredScore and SmartScore Gold certifications.</p>



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