



# THE CIRCLE

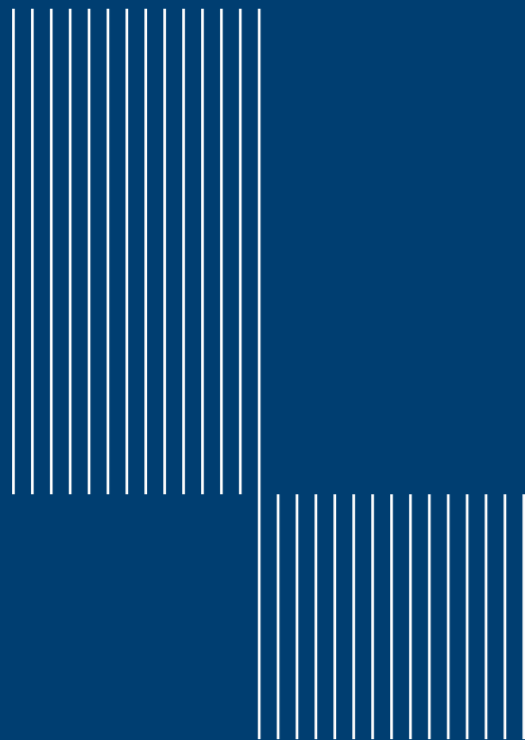
**WILLY  
NAESSENS**  
Industrial Buildings



# Construction

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# 100 building blocks with a circular story



Concrete. A foundation for generations to build the industry of the future upon. But what are we doing it for, if their own future is at stake? Our choices are set in concrete well beyond our own existence. We are acutely aware of this fact. We have already demonstrated that concrete construction can be sustainable. But we can and must continue to evolve. For our children. And grandchildren. With this in mind, we present our new product. The Circle®. Not the building of the future, but its building blocks. 100 elements that make any industrial building possible at lightning speed. A circular concept with unique building blocks. Components that are reused after use. Without any modifications. We've created 100 unique building blocks with a circular story. Because sustainable industrial construction starts with concrete. And ends with concrete.

**The Circle®**

A product of Industrial Buildings

# Sustainability by Willy Naessens Industrial Buildings

Module

# 01

# Sustainability vision

Sustainability is an ongoing matter. It is the key to long-term resilience and is central to our business vision. Therefore, our strategy and focus on sustainability are sharpened and aimed at remaining pioneers in the industry. We integrate the concept into all departments at Willy Naessens Industrial Buildings. To remain successful in a sustainable future, we started from the ESG strategy. ESG stands for Environmental, Social and Governance. The term is derived from the "Triple Bottom Line", also known as "People, Planet and Profits" (PPP).



## Concrete!

Within the Willy Naessens Group, we understand better than anyone else the impact of cement production on CO<sub>2</sub> emissions. This happens to be the most important component of our product of which we are so proud: concrete! That's precisely why we anticipate developments every day, which may seem distant today but are crucial for building more sustainably! After all, we are building for future generations. Your children and grandchildren!

As a family business, we believe it is essential to take care of future generations, which is why we adopt a targeted approach to circular construction. It is central to our corporate vision, with the key to success lying in our distinctive, integrated construction process. This not only makes circular construction with Willy Naessens Industrial Buildings more efficient but also more environmentally friendly.

For construction, you need steel and cement. A lot of CO<sub>2</sub> is released during the production process. "And yet we work with the right product", (Quote Dirk Deroose CEO). "After production, the hardening process continues for years, during which CO<sub>2</sub> is absorbed from the air. On top of that, our concrete elements are made as demountable building blocks. Easy to take apart for reuse. Concrete has a lifespan of 60 to 70 years. We just need to tell this story more."

## Embodied Carbon

We also think it is important to focus not only on operational carbon reduction but also on "embodied carbon". We continuously strive to improve concrete compositions. Within the Willy Naessens Group, The Circle allows us to calculate the amount of embodied carbon for each project.

We anticipate developments that are not yet imposed or seem necessary today but are important for circular construction. Over the coming decades, we are investing in the targeted reduction and offsetting of our CO<sub>2</sub> emissions (CO<sub>2</sub> neutral construction), but also in circular construction, reducing nitrogen emissions in the construction phase and the application of thoughtful use of alternative and renewable energy sources. This is a fine science when you start building with Willy Naessens Industrial Buildings.

We believe it's important to focus not only on operational CO<sub>2</sub> reduction, but also on "embodied carbon". Currently, the main focus is on reducing operational CO<sub>2</sub> emissions in the built environment (emissions due to energy supply and heating and cooling of buildings). With The Circle®, we make an important distinction in that 70% of our building is circular in reuse. Emissions released at the end-of-life, such as demolition and transport of materials, are kept to a minimum with The Circle®.




# Environment

As the long-term consequences of exponential industrial growth and energy consumption become visible, we must take action to reverse these effects and prevent further damage. After all, future generations are also entitled to a healthy living environment. This is what we do at Willy Naessens Industrial Buildings, also through The Circle®.

## Zero water discharge

Water is the basis for our products. We are very aware of this, which is why we make maximum use of every drop! We collect all wastewater in our concrete plants, filter it, treat it and completely reuse it. As a result, all our plants have a zero-discharge status, which is unique within the industry on this scale.

## Where we make a difference

-  Circular economy
-  Zero water discharge
-  Sustainable transport system

## Circular economy

Our R&D department works closely with our suppliers to make all our products and processes more sustainable. For example, optimising the concrete mix with less cement. Or recycling concrete to reuse our own materials in production. We also save as much as possible on heat generation.

## Sustainable transport

Vehicle emissions have a significant impact on the environment and climate change. Through sustainable transport systems, we contribute to the environmental, social and economic sustainability within our group. For example, we operate in Denmark and Sweden, where transportation by boat is more common. This saves a lot of kilometres and CO<sub>2</sub> emissions. We transport more and more efficiently, as we produce and transport only what is needed for each project. We are also committed to producing electricity and hydrogen.

# Social

Willy Naessens Industrial Buildings recognises the importance of social sustainability and strives to improve relationships with customers, communities and society on a daily basis.

## Sustainable workplace

- A satisfied employee and a healthy workplace are the foundation within Willy Naessens Industrial Buildings



## Safety first

- Safety for our people is essential
- Clear protocols and measures are our most important asset to prevent accidents
- ISO 14001 (environmental management standard) and ISO 9001 (quality management standard) certified VCA Certificate (Safety, Health & Environment)

# Governance

## Solidly anchored sustainability

We are an honest, reliable and credible partner and we take our social and commercial roles extremely seriously. The desire to exceed strict environmental and social standards is deeply embedded in our DNA.

## Creating long-term value

To create long-term value and strengthen our position in the market, we must fully integrate sustainable development into our business. We realise this all too well. Our new product, The Circle®, is the ultimate proof of our commitment to achieving this.



Water wells  
Providing clean drinking water in areas where it's necessary.



Bee project  
On Willy Naessens' sites, we install baskets to improve biodiversity.



Promoting wind energy, including distribution, to support green energy initiatives.



Reduction of work pressure within the factories through increased automation.



Biogas in the Netherlands, as 30% of our revenue comes from there.



Implementing more standard routines within the workshops noticeably reduces workload.



Forest project near our headquarters.

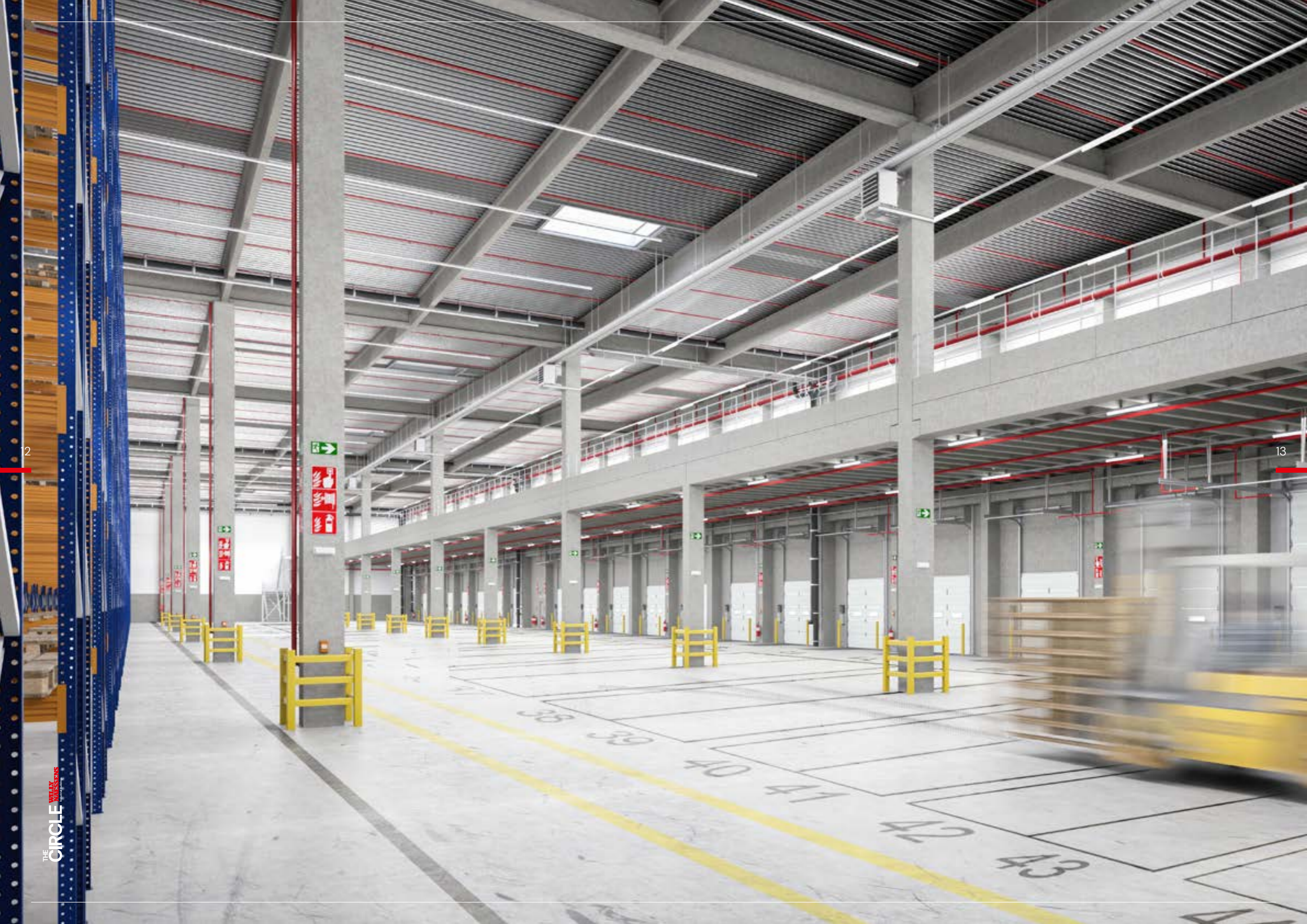


Applying new technologies to existing equipment. For example, excavators were equipped with GPS guidance, making it easier for the operator to plot the correct positions.



# Long-term added value

We like to involve customers in our story, which is why we set out to find the ideal circular building. The Circle® shows customers that we have our own operations and supply chain in good order. That is why we continue to lead our industry in ensuring sustainability.



# Sustainable and Circular Construction

Module

# 02

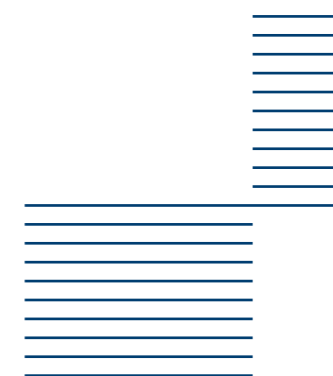




# Circularity

With The Circle®, Willy Naessens Industrial Buildings has a circular product on its hands. But what exactly is circularity? Circularity assumes that products of today are at least the raw materials for tomorrow. A product is therefore circular when you can dismantle it after use and then reuse or recycle the materials. The goal is a world without waste.

It stands in contrast to the throw-away and replacement culture and its enormous impact on the earth. Circular building means applying the principles of circularity in construction. A building is circular if, during construction and management, resources remain in a closed loop, with no harmful emissions to air, water and soil.



# CO<sub>2</sub> neutral

All in-house production, transport, and assembly activities carried out by Willy Naessens Industrial Buildings are fully certified as carbon-neutral.

[www.sustainabilitybywillynaessens.com](http://www.sustainabilitybywillynaessens.com)



# The Circle<sup>®</sup>

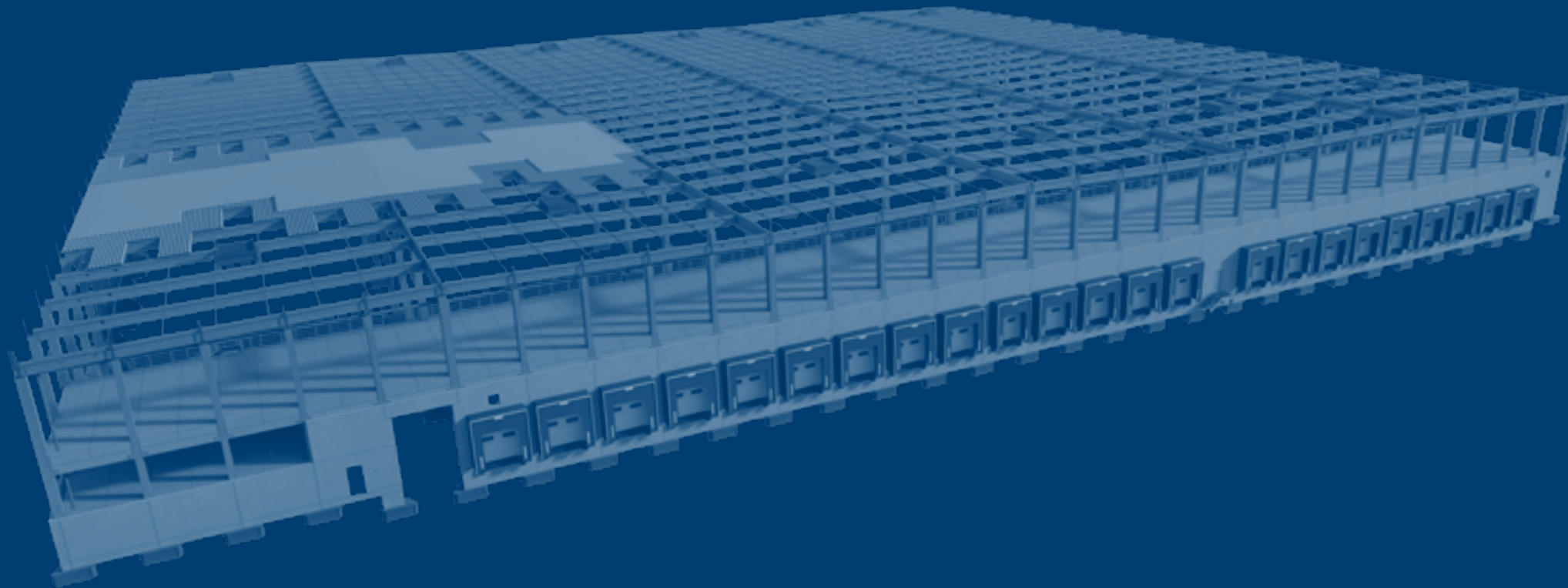
Module

# 03

# The future of concrete construction



Circular construction is the future. As drivers of innovation in concrete construction, we owe it to our stakeholders to be at the forefront of circularity. And because sustainability is deeply ingrained in our DNA, it was an easy choice for us to fully commit to the realisation of our innovative construction concept The Circle®.



# The fastest way to a circular industrial building

The Circle® is a ground-breaking concept where 100 different building blocks make any industrial building possible. Within two hours, together we create a final design with a real-time indication of the total investment. Our 3D tool knows all the details of the building blocks, so you no longer need to have anything drawn, inspected or calculated. Designing with this tool is as easy as building with the well-known toy blocks from your childhood. The Circle® is a sustainable and future-proof solution that by definition requires no higher investment than our traditional construction. The building blocks are circular in re-use and with a project of The Circle® we aim for at least an "Excellent" score on BREEAM, with the possibility of achieving "Outstanding".



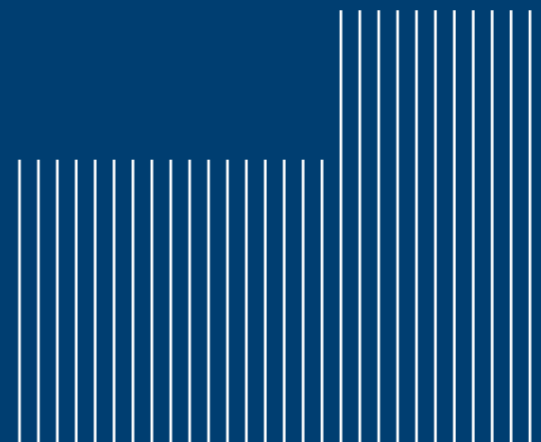
**100 building blocks, endless possibilities**



**Lightning-fast from initial idea to final design**



**Circular in reuse**



# 100 building blocks, endless possibilities

Both architecturally and technically, The Circle® maximises the use of a fixed number of elements that are always in stock. These elements make any industrial building possible. Production, transport and installation are all managed in-house by our construction group. This ensures organisational stability and flexibility, so that every stakeholder benefits from a lightning-fast approach. Our employees too.

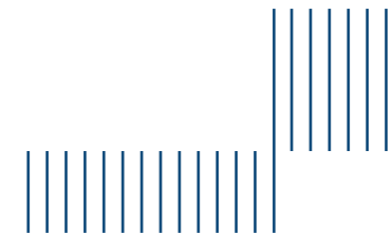
## Record-breaking time to market

Because all the details of the elements are known in advance, the process accelerates on multiple fronts. Add this to the speed of the design, production and construction processes and you end up with minimal "time-to-market".

# Lightning- fast from initial idea to final design

Together with Willy Naessens Industrial Buildings, you design your industrial building modularly, using our innovative 3D tool. This is so easy, it feels just like building with the familiar toy blocks from your childhood. Within just two hours, you have a final design with a real-time indication of the total investment. All specifications, dimensions and costs are known per component, so the final design is ready in no time.

- No construction drawings required
- From design to delivery in no time
- Real-time indication of total investment
- No rework costs





# Circular in reuse

The cradle-to-cradle process focuses on recycling. At Willy Naessens Industrial Buildings, we focus mainly on reuse. The Circle® is a textbook example of this.

## No material waste

70% of all elements can be reused for subsequent building projects without any modification. The remaining 25% of the elements are fully recyclable, meaning that virtually none of the material is wasted. By comparison, most buildings usually only manage a circularity in reuse of 10%.

## BREEAM

The entire concept has been assessed by an independent external party. With our new circular concept, we achieve a significantly higher score on BREEAM. In particular, the demountable nature of The Circle® contributes to a better rating. With The Circle®, we aim for at least an “Excellent” score on BREEAM and possibly even “Outstanding”.

## Financing

A sustainable and circular property offers favourable financing terms. A project from The Circle® is 95% circular (with 70% in re-use and 25% in recycling) and achieves a high BREEAM score (aiming for “Excellent” and possibly “Outstanding”). By choosing The Circle® you maximise your chances of obtaining favourable financing.

# Demountable and reusable

When demolishing and recycling elements, you only get the value of the material, but to make the elements usable for a second phase of life, they must retain their value. That is why we made 70% of the structure and technical installations of The Circle® demountable and reusable.

- Dry-mounted
- Roof structure with removable screw connections
- Facade panels in both concrete and sandwich panels, and window surrounds demountable from columns
- Removable from demountable columns

# Everything in-house

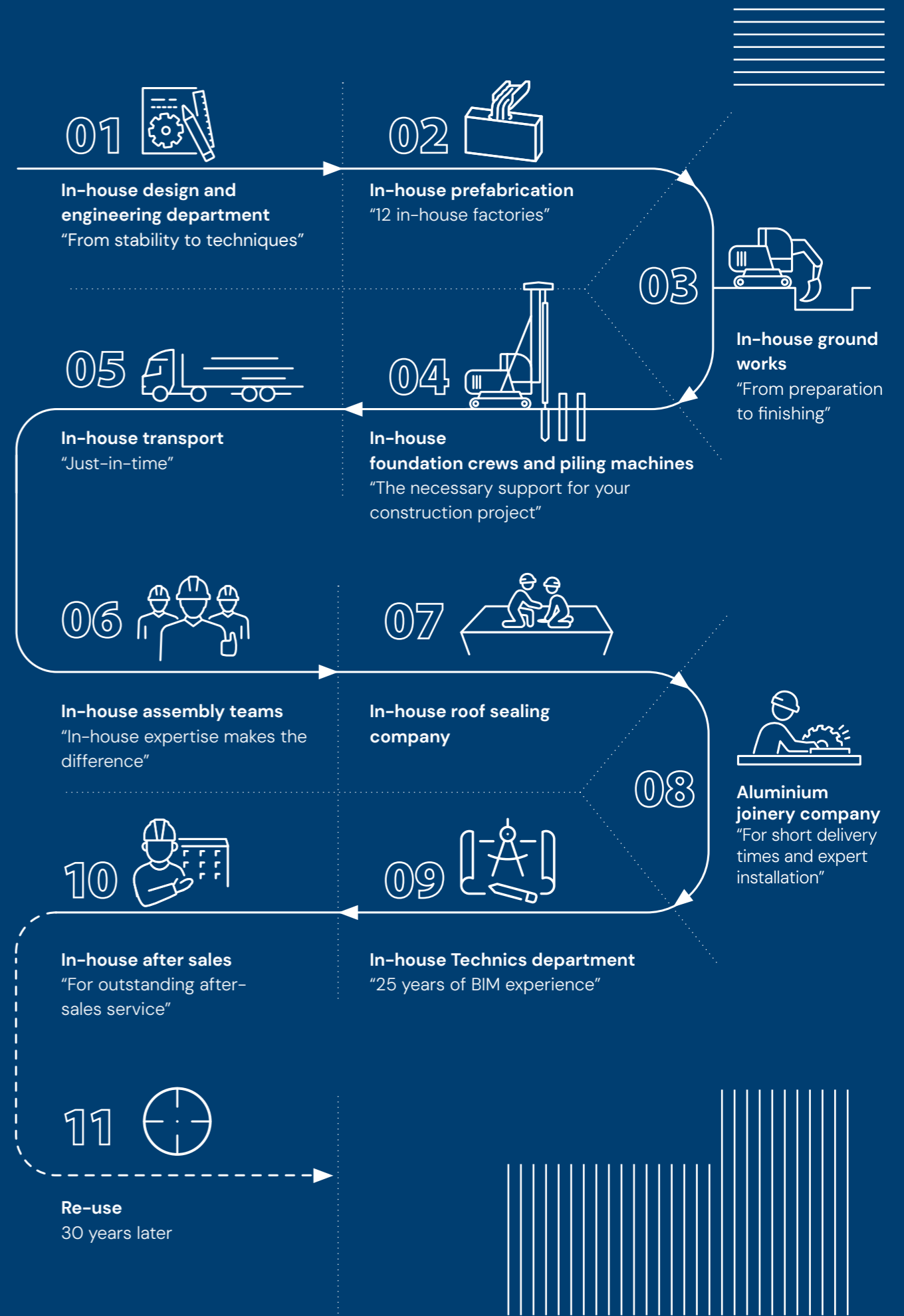
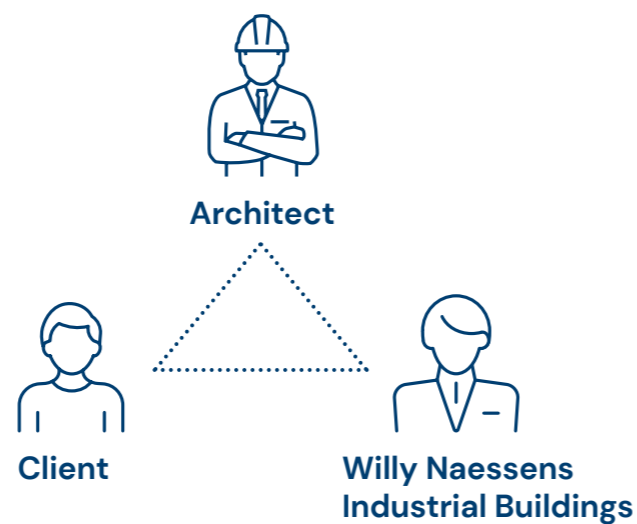
Willy Naessens Industrial Buildings uses a unique concept and working method where everything is in-house. As we often say ourselves: "What we consider important we do ourselves". We completely manage the essential disciplines within the construction process ourselves. There is no loss of information in communication because all entities are optimally coordinated.

- Concrete from our own factory
- Own equipment
- In-house specialists throughout the entire construction process
- Production quality, speed and smooth planning guaranteed

# Building team

For a project from The Circle®, a specialist project team works closely with the client and the architect. The speed of this concept ensures synergy within this team, which brings a number of benefits.

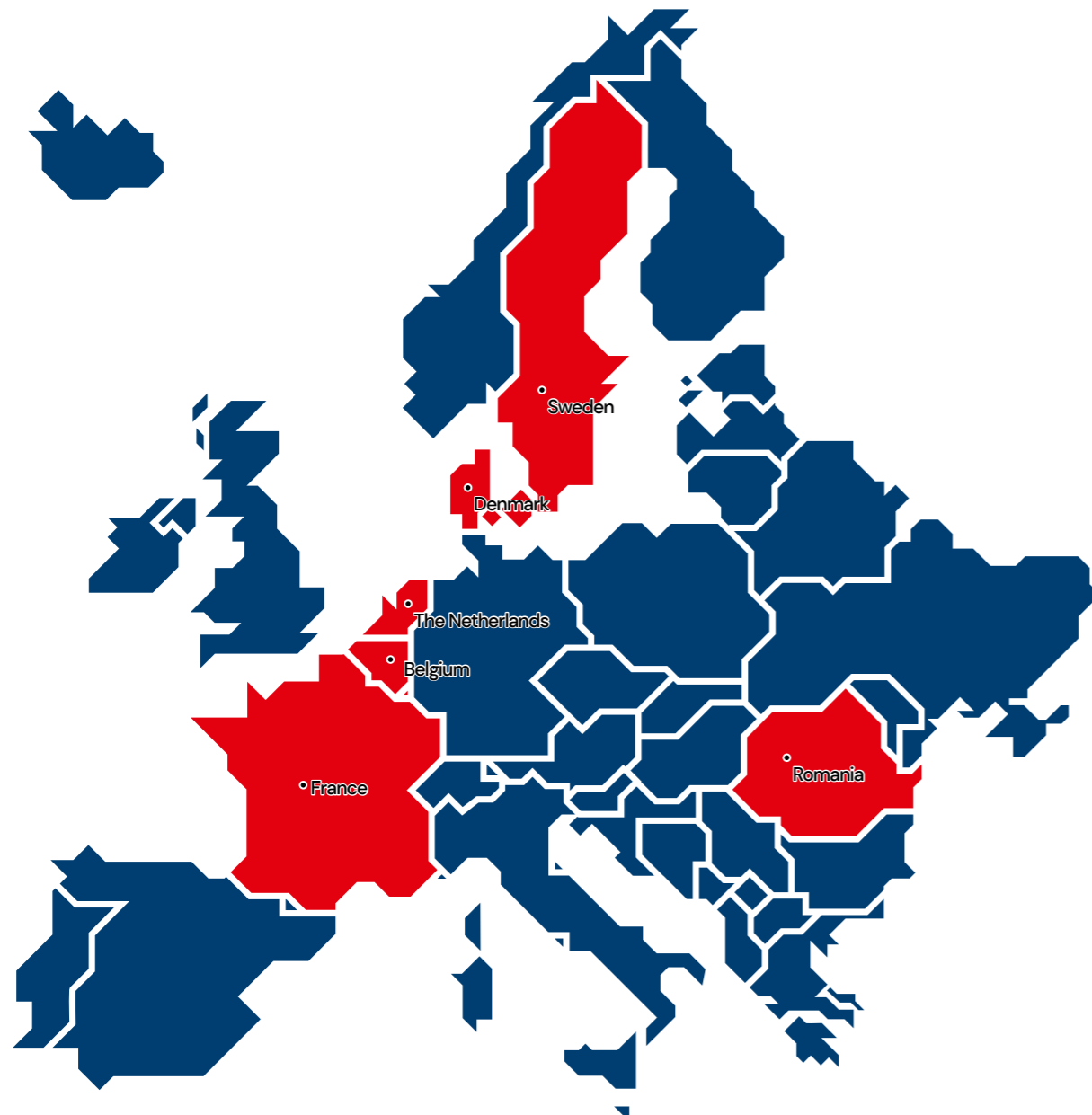
- Streamlined process
- Unforeseen circumstances remain minimal
- Faster response in every phase (see diagram)



# The Circle® also knows no boundaries topographically

Willy Naessens Industrial Buildings operates in several European countries, and the building concept is flexible enough to be implemented anywhere in the world.

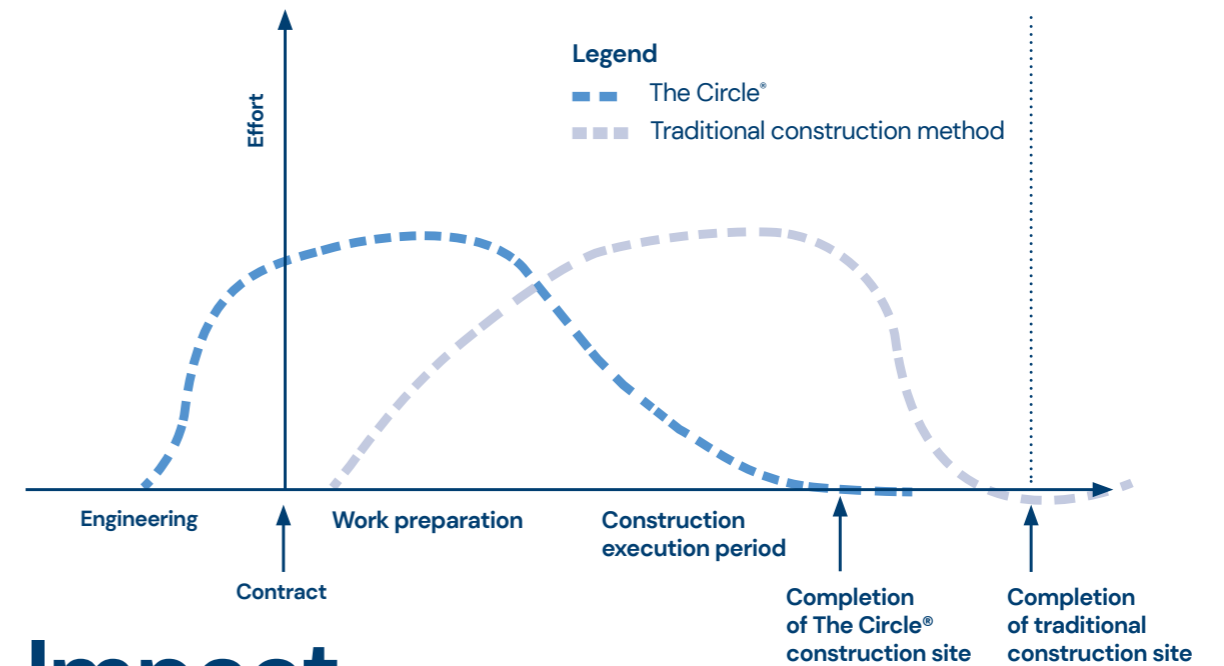
- Also works with standard technical installations
- Building can be kept warm or cool in all countries where Willy Naessens Industrial Buildings operates
- Geometric parameters never cause problems
- Quickly adaptable in case of changing (local) regulations



# Just-in-time Just-in-case

Throughout the entire process, we waste as little time as possible and work as efficiently as possible, without compromising on productivity. No on-site storage is required. After unloading the trucks, we assemble the elements in one go.

Since the elements are as identical as possible, we can produce them in advance. This ensures optimal logistical planning, making the building operational faster. Due to fixed stock, we only need to transport them to the right site.



## Impact

The standard building blocks make transport and production much more sustainable.

- More efficient use of raw materials
- Lower energy consumption
- Less local CO<sub>2</sub> emissions due to limited crane and transport movements
- Less waste and surplus

### Sustainable Development Goals

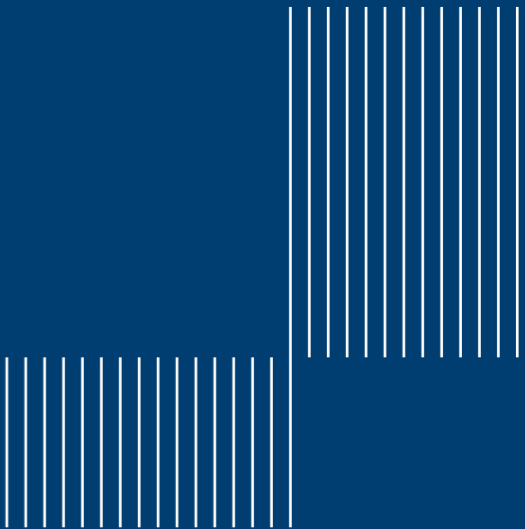
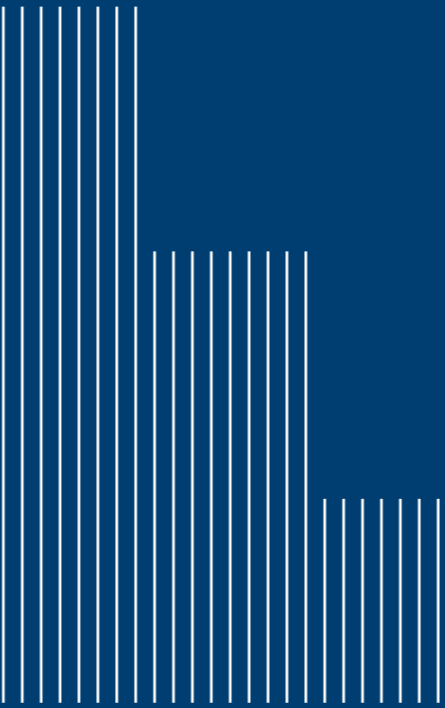
Industrial buildings built with The Circle® have a lower footprint than regular concrete construction systems. With the Sustainability Development Goals (SDGs) in sight, it is highly relevant for end users to include building with The Circle® in the plans of future industrial premises. For companies that, for example, place a high priority on innovation and sustainability from their Sustainability goals (SDGs), "The Circle" provides them with a concept that aligns with these objectives.



# Concrete Approach

Module

# 04







# Alongside the client

We work with our client from start to finish. In the initial phase, with the assistance of the architect, we develop an optimal plan aligned with the client's ambitions. Subsequently, we determine the scope of the project based on the plot. Then we

look at which building regulations apply. Our goal is to collaboratively establish a comprehensive plan with the client and architect during the early stages of the construction project, capturing all the client's ambitions.

# Modular design

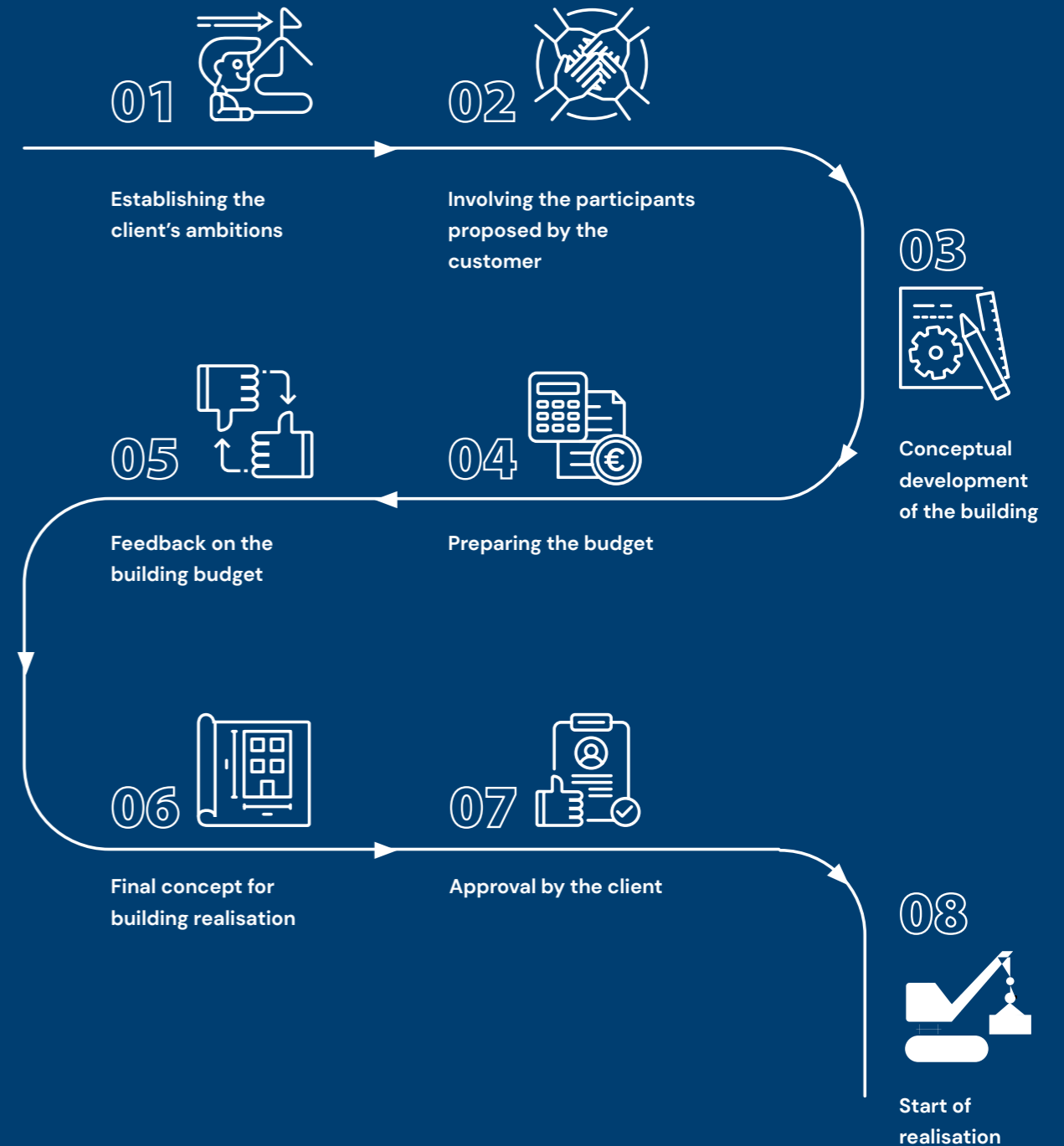
- Modular framework dimensions of 24m x 12m at desired clear height
- Collaboration with the architect to adhere to location-specific standards
- The building can be flexibly configured as the beam ends do not protrude under the other roof beams, and the free height is available everywhere
- Clear height based on sprinkler heights and standards
  - 12.20 m (clear height 10.75m)
  - 13.70 m (clear height 12.25m)
  - 15.20 m (clear height 13.75m)

# Together at the controls

We prepare the budget using our custom web tool. Together with the client and architect, we simulate the desired building in real life. In no time, we create a realistic 3D model. Together with the customer, we determine the required content of the building: offices, loading docks, ground-level gates, emergency doors, mezzanine, lighting and techniques.

- Real-time design with the customer/client
- Real-time indication of the total investment
- 3D animation and photos of the property

# Step-by-step plan



# Cladding

All elements fit together without additional secondary steel structures. The profiles of the window frames fit into the sandwich panels in such a way that no additional structure is required. During the assembly of the sandwich panels, the aluminium window panel can be fitted directly. The façade is erected in no time and is both wind and watertight.

Facade construction is always in consultation with the client.

- ISO concrete walls up to 3 or 6 metres high
- Loading and unloading docks
- Window bands
- Ground-level gates
- Doors
- Sprinkler tank and sprinkler container
- Offices inside or outside



# Mezzanine floors

We have developed a completely new precast floor element with a polished finish.

- The element can be fully dismantled
- The elements can be laid together with minimal joints
- No temporary guardrails required, as they are installed during assembly

## Specifications

- Maximum overload – 1.000 kg/m<sup>2</sup>
- Fire resistance – REI'120
- Mezzanine floor span – 12m

# Technical Installations

Module

# 05

# Technical Installations

BREEAM Excellent is fully supported from the technical installations.

## High voltage

We provide a high-voltage cabin as required. 250kVA is provided per 10,000 m<sup>2</sup> of warehouse space.

## Electricity

The LED lighting in the warehouse and mezzanine operates entirely on the basis of presence detection and self-set schedules to minimise energy consumption. LED lighting can be controlled based on daylight sensors. Additionally, there is ample power supply to accommodate desired installations. Solar panels and charging stations are further developed in consultation with the client.

## Fire detection

The hall, office and mezzanine always have fire detection systems compliant with applicable standards. In addition to a fire detection system, a fire prevention system, an ESFR sprinkler system is provided in accordance with applicable standards.

- Indoor lighting – LED lighting (EN 12464)
- Exterior lighting – spotlights for every two loading and unloading bays (min. 10 LUX per 10 metres)
- Escape route and emergency lighting (EN 1838)
- Three-phase socket for docks (16A)
- Central charging station for forklift trucks



# Mechanical installations

## Warehouse

In the warehouse, the heating is designed to guarantee an indoor temperature of 10°C in winter. Energy consumption is kept to a minimum by centralised smart control of the installation.

- Minimum indoor temperature of 10 degrees

## Office

The duct units as a delivery system take comfort in the offices to a higher level. An energy-efficient D system complements the HVAC installation. Naturally, all connected systems comply with all regulations.

- Air/water system for offices

- Centrally controlled installation
- Central heaters installed on the first row of columns after the mezzanine
- Fans distributed on the roof to keep heat in the working zone

- Air/air system

- Healthy climate and comfort:

❄️ 22 degrees Celsius

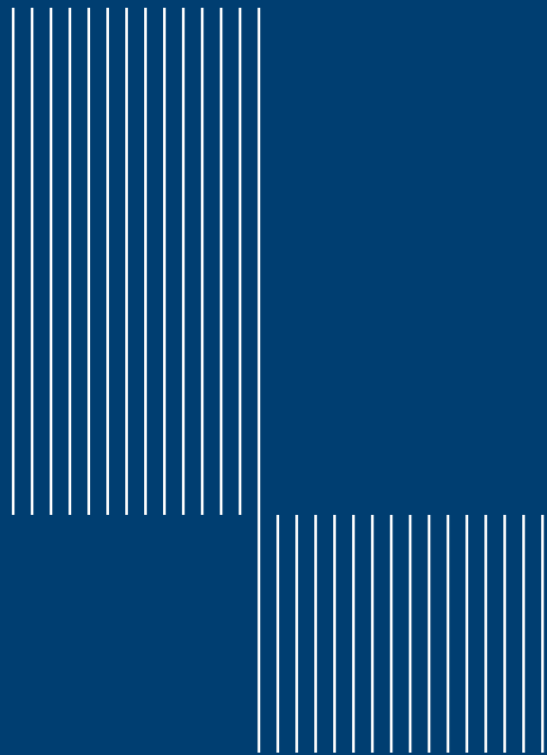
⚙️ 24 degrees Celsius

- Duct units as a delivery system in combination with energy-efficient D-system in compliance with regulations



# Help build a circular future with The Circle®

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We are already taking a step towards the circular future of industrial construction. Will you join us in taking that next step?

Go to [www.industriebouw.be/en/the-circle](http://www.industriebouw.be/en/the-circle) and make an appointment with Willy Naessens Industrial Buildings.

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