

# SAWA: Circular timber tall building under construction in Rotterdam

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## 1. Introduction

The urgency of current design and development goals is to create a neighbourhoods and cities that meets the following aspects of society:

- Health
- Biodiversity
- Inclusivity
- Circularity
- Community

In light of this urgency, Nice developers – a start-up development company in Rotterdam run by Robert Winkel and Mark Compeer – has developed the Nice building concept, which is set up to meet all these points.

Nice developers' goal is to realise an example that makes others reflect and drive them to do the same (or even better). This first example is SAWA, which is currently being built in Rotterdam.

SAWA sets a new standard in circular timber construction and adds value by contributing to CO<sub>2</sub> reduction, strengthening biodiversity and creating a circular building with affordable housing, where people care for each other and for the environment. SAWA, also known as the 'healthiest building in the Netherlands', is an example project for new generations, an important step in the sustainability objectives and tangible evidence that things can be done differently.



Image: Mark Compeer (l) and Robert Winkel (r) of Nice Developers at the SAWA site.

Nice Developers:

«We build the city with love for the neighbourhood and nature. Pioneering in a sustainable, nature-friendly and social way, we develop SAWA from and for the community. With SAWA, we are offering a gift to the city.»

## 2. Nice building concept

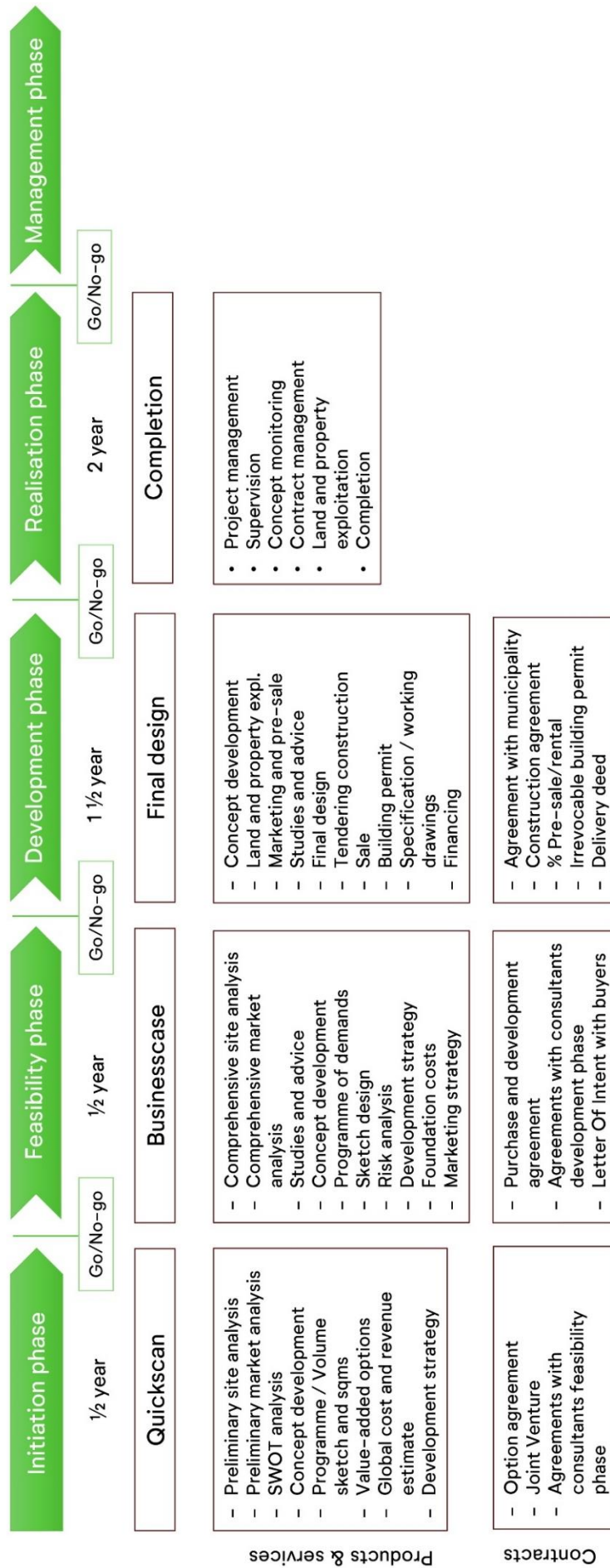
The Nice building concept is based on the certified and feasible building system of SAWA. Several types of models and shapes are possible. All of these variants are characterised by the same basic principles: full timber structure for CO<sub>2</sub> storage, circular construction, lavish greenery for biodiversity and well-being, communal spaces and affordable housing. One of the advantages of the Nice building concept is that a quick scan can be made at an early stage to determine the development potential.



Images: Various models based on the Nice building concept



## Roadmap to a circular timber building



### 3. Introduction to SAWA

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As the architect is also the initiator of this project, SAWA has led not only to a pioneering and award winning design, but also to a new way of project development based on 'shared values' rather than 'shareholder values'. SAWA proves that an escalation of ambitions is possible: that it is feasible to realise a circular wooden community building, where people can live together healthily, that serves biodiversity and an accessible housing market. This new approach is imperative and will become, if it is to Nice and Mei, the mainstream needed for a sustainable future for mankind and planet.

SAWA is being built in the Lloydquarter in Rotterdam. In August 2022 construction started and expected completion is in 2024. The project is initiated by Nice Developers and developed together with ERA Contour. Mei architects and planners is responsible for the architectural design.



Image: SAWA Rotterdam ©Mei architects and planners

## 4. First fully tall wooden residential building in Rotterdam

SAWA's exceptional feature is that the building is constructed entirely of CLT (cross laminated timber), whereby the use of concrete is kept to a minimum. This makes SAWA the first fully tall wooden residential building in Rotterdam. The building is distinctive in its appearance due to the generous green terraces, which refer to the history of the location and at the same time reinforce the biodiversity in the neighbourhood.

The conviction and drive of both client and architect to not only design but also realise a revolutionary concept like SAWA is nourished by the ambition to contribute to reducing CO2 emissions and the achievement of (inter)national climate goals on the one hand, and to create affordable housing at the same time.

### 4.1. Shared values

SAWA is being developed in the heart of the Lloydquarter district. Because of this location, by creating places in the design for encounters and by connecting to existing local initiatives, SAWA will be of added value for the entire district. The plinth of the building will contain various facilities, and the deck will act as a green connector between the building and surrounding green spaces (such as the neighbourhood garden), adding value for both residents and neighbours.

The residential concept in SAWA is distinctive because of the various shared functions – such as shared mobility, collective repair room and a vegetable garden – which actively create a community.



Image: SAWA Rotterdam ©Mei architects and planners



## 4.2. Core values

SAWA's design is based on four key core values: CO<sub>2</sub> reduction, enhancing biodiversity, and creating a circular building with affordable housing for an inclusive community:

### 4.2.1. CO<sub>2</sub> reduction

In the context of the Paris and Glasgow Climate Accords, the European Green Deal, the UN Sustainable Development Goals and the Rotterdam City Council's targets for reducing CO<sub>2</sub> emissions, the client and architect share the ambition to construct the building, including the main supporting structure, almost entirely in CLT. There are several advantages to building in CLT. First of all, wood stores CO<sub>2</sub>, thus reducing emissions. In addition, it is an excellent building material because, compared to concrete, it is lighter, faster, safer, more durable and also reusable. And above all, it increases living comfort.

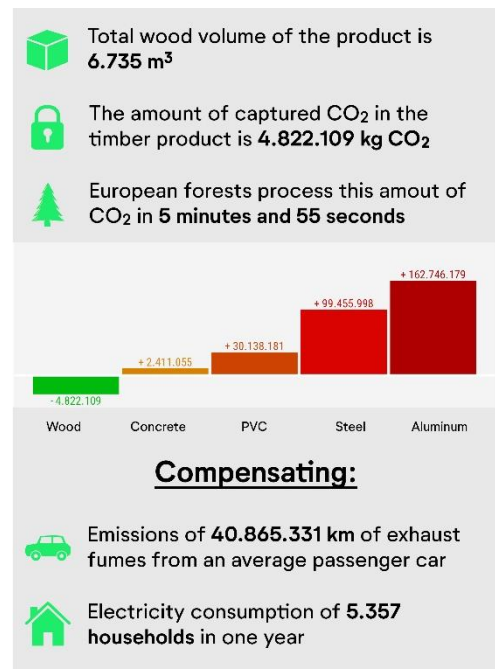


Image: SAWA Rotterdam – timber construction ©Mei architects and planners

Diagram: Carbon storage in wood calculated in SAWA, according to the calculation module of Centrum Hout

The wood is left in sight as much as possible in the houses and on the galleries and balconies. Only where the perception of the wood is minimal (storage, toilet, bathroom) will the wood be finished with plaster.

SAWA's innovation lies in bringing together all the elements that help to build a 50-metre-high residential building whose main load-bearing structure consists of more than 90% wood. Together with a team of international experts, existing solutions are combined and innovations are devised to optimise the use of wood; minimise the amount of concrete and steel in the design; and solve consequent fire, noise and vibration problems.

#### 4.2.2. Circular

SAWA is built using a modular construction system of wood, using dry, separable solutions (no casting). SAWA sets new standards in circular construction with a floor constructed from CLT topped with dry ballast instead of concrete. This makes the components in the floor fully circular and the materials can be detached and reused in the future (urban mining).

Image: SAWA Rotterdam – construction and floor structure  
©Mei architects and planners

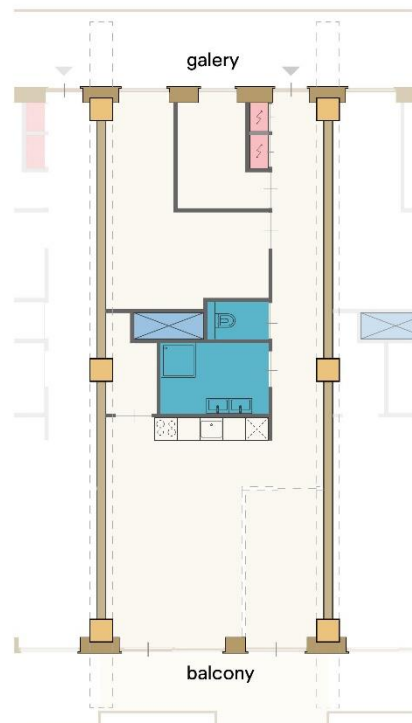
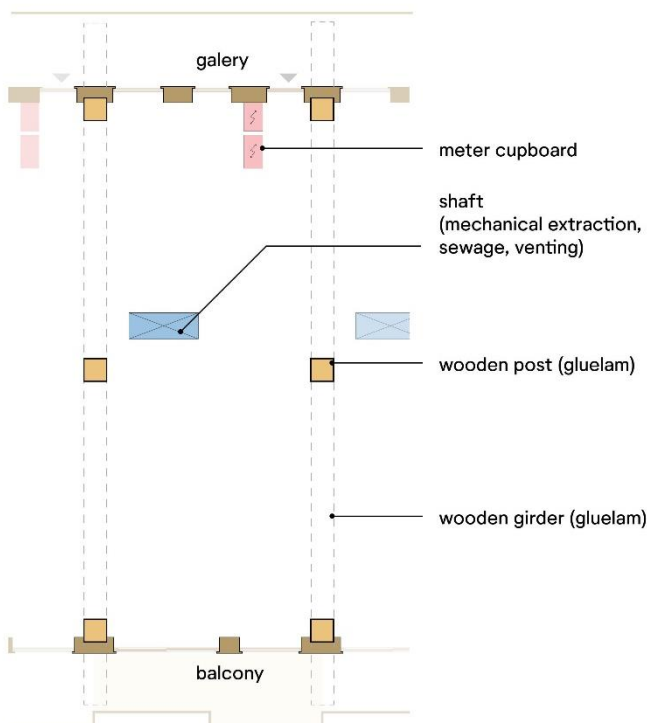


Image: SAWA Rotterdam – floorplans based on Open Building principle ©Mei architects and planners

SAWA's design is based on the Open Building principle: the main supporting structure consists of floors, beams and columns. This creates a high degree of flexibility and freedom of layout for both first-time buyers and future generations and contributes to the building's future-proofing.

The structure is made of Cross-laminated Timber (CLT). The trees used for SAWA come from sustainable production forests in West Germany. For every tree felled, four trees of a different type are planted back. The other materials used in SAWA are bio-based, whenever possible.





### 3.2.4. Inclusive

With a mix of owner-occupied and rental properties ranging from 50 to 165 m<sup>2</sup>, the future residents of SAWA will form a diverse community and a reflection of the city. Fifty apartments, about half of the number of dwellings in SAWA, are mid-rent apartments. This makes it accessible to all income groups to live in SAWA, including the group of middle-income people for whom it is increasingly difficult to find an affordable home in the city.

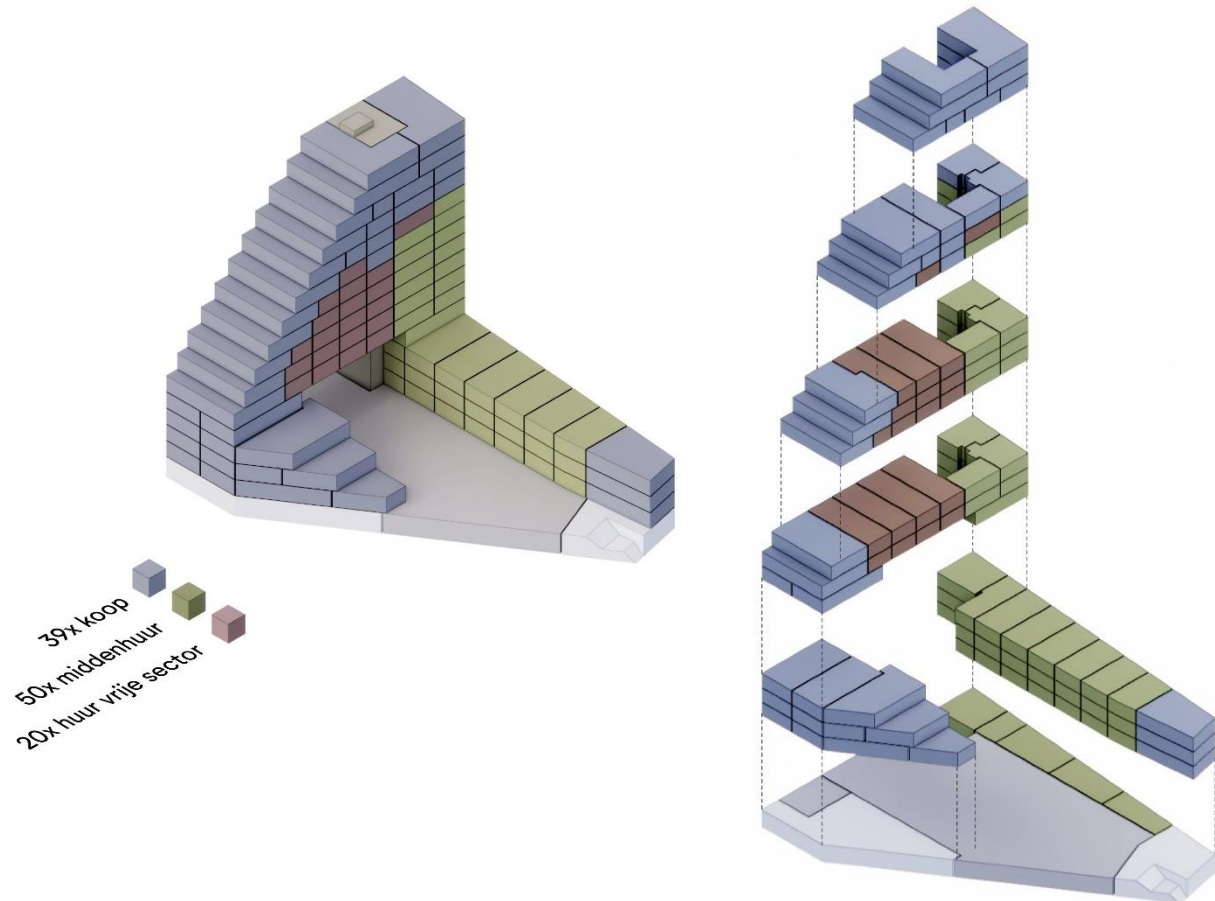


Image: SAWA Rotterdam contains 50 mid-rent apartments, 20 private sector rental, 39 owner-occupied apartments, restaurant and social facilities in plinth ©Mei architects and planners

### 4.3. Energy neutral

SAWA is a low-installation building, with a healthy indoor climate and possibilities for future adaptations. The houses are equipped with cross ventilation and temperature plus CO<sub>2</sub> controlled ventilation valves in the facade.

SAWA is not only the healthiest building in the Netherlands, but also energy-neutral. By using PV panels on the roofs in combination with «remote solar», sustainable district heating and other sustainable measures, SAWA has achieved an EPC of 0 (Energy Zero). This makes SAWA as a building energy-neutral, both after realisation and during the construction process.

After completion, SAWA itself generates the energy it needs for the communal facilities. The solar panels on the roof power the lift, the lighting in the galleries and the electric cars and bicycles.





Image: SAWA Rotterdam, situated in the Lloydquarter in Rotterdam  
©Mei architects and planners + WAX



Image: SAWA Rotterdam – The New Green Standard ©Mei architects and planners



## 5. Team SAWA

SAWA is initiated by Nice Developers and developed together with ERA Contour. Mei architects and planners is responsible for the design. Focus Real Estate is the investor of all rental housing, mid-rent and free sector rent.



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The development was established through collaboration with an integral team of experts. SAWA's innovation process – in this case the fire safety, and noise and vibration research of the timber structures – has been validated through 7 second opinions by an experts from across Europe, including ETH Zurich, ARUP and KIT Holzbau und Baukonstruktion.

## 6. Mei architects and planners in Germany

Mei architects and planners is founded by Robert Winkel and established in Rotterdam. Their work is founded on respect for the environment: for the history of the location, the current context and future living environment. Based on our expertise in the field of adaptive re-use of architectural heritage, new build projects and urban development strategies, they work on designs that put the user first. With creativity, expertise and courage, they introduce innovative technical applications and user concepts that contribute to social and ecological sustainability. With an ambitious, international team, they realise leading projects at home and abroad, including in Germany.

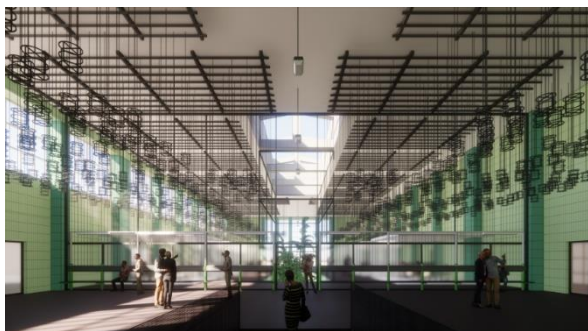


Image left: From coal to culture; redevelopment of a former mine complex in Hamm ©Mei architects and planners; Image right: Transformation of flag factory into comfortable living-working ensemble in Bonn ©Mei architects and planners

## 7. SAWA on tour

SAWA is a pioneering example project for many and provides an answer to a multitude of current social issues facing not only the real estate and architecture industry, but society as a whole.

SAWA's full timber scale model is a desirable object at many fairs and exhibitions and travels throughout Europe.

After the New Institute in Rotterdam and the International Architecture Biennale, the model was on display at Expo Real in Munich in October 2022.



Image: Full timber scale model of SAWA Rotterdam ©Frans Parthesius