

# OKU OFFICE

**OKU Office**

**Case Study BREEAM**

**Koningin Wilhelminaplein 8, Amsterdam**

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# 1 Introduction

BREEAM-NL is an assessment method to determine the sustainability performance of a building. BREEAM stands for Building Research Establishment Environmental Assessment Method. The method was originally developed and introduced by the Building Research Establishment (BRE), a British research institute, somewhat comparable to the Dutch TNO. The addition NL makes it clear that this concerns the Dutch version.

BREEAM sets a standard for a sustainable building and then indicates the performance level of the assessed building. The system uses qualitative weighting: as a total score, the building or area is given one of the following ratings: Pass, Good, Very Good, Excellent or Outstanding (1 to 5 stars).

## 1.1 OKU Office

OKU Office is a dynamic office development in the heart of 'New-West' Amsterdam. A vision for the future that embraces Amsterdam's rich heritage, preserved and reimaged in the heart of the former Fashion District.



Figure 1 : OKU Office – OKU House

The development blends office space with a showroom/retail space. OKU Office is

ideally positioned and appointed to offer great possibilities in the heart of this thriving and fast developing part of Amsterdam.

## 1.2 Building

OKU Office was formerly known as Fashion House. A fashion atelier built in 1966 by the design of A.G. Postma en J.D. Postma. The entire building complex speaks with one formal language, with an emphasis on the horizontal craftsmanship of the famous early 20th-century Amsterdam School.

The redevelopment echoes the form and detailing of the original design, combining old and new to create a light and spacious building with the character that inspired its original design.



**Figure 2:** Former Fashion House building

### **1.3 Innovative and environmentally friendly design measures**

The following development measures have been taken into account for the OKU Office project:

- Flexibility in the office core, adaptable to multiple tenants;
- Re-using the original concrete construction of the building;
- Green rooftop for the tenants;

A collective heat and cold system (ATES installation). Buildings can independently use heat and cold simultaneously, while heat and cold can be exchanged on the rings; A landscape which is publicly accessible. The landscape supports sustainable use of plants and animals on the long term.

### **1.4 Measures to reduce the impact on the environment**

The ambition is to achieve the maximum score for all BREEAM construction site credits during the realization of the project. These are:

- The MAN 2 credit which stimulates responsible management of the construction site and its influence on surroundings.
- The MAN 3 credit stimulates responsible construction site management from an environmental perspective. That means sustainable use of materials, limitation of energy use and limitation of pollution.
- WST 1 oversees efficient use resources by effective waste management on the construction site.
- LE 3 stimulate to take measurements to protect present plants and animals on the construction site.

To limit the impact of the construction process on the environment and the surrounding area, much is possible during the realization of OKU Office.

### **1.5 A Conscious Builder (Bewuste Bouwers)**

To work in accordance with the Conscious Builder code of conduct. A Conscious Builder is the business card of the construction sector, uses the code of conduct on its construction sites and thus works in an environmentally aware, safe and sustainable manner. The General Contractor Dura Vermeer Bouw Midden West B.V. is part of the Conscious Builders (Bewuste Bouwers).

### **1.5.1 Environment**

First of all, the environment is taken into account. A Conscious Builder limits nuisance and disturbance to the environment. Construction site employees are aware of the impact of their actions on people, flora and fauna in the area. They communicate proactively before and during construction and deal adequately with questions, complaints and tips from the environment. The construction company has a policy to minimize the impact on the environment. The construction company takes measures and facilitates the construction site to build in a less environmentally harmful way.

### **1.5.2 Safety**

A Conscious Builder contributes to ensuring safety on the construction site and focuses in particular on the environment of the construction site. The employees on the construction site are aware of safety for themselves and for their environment. Next to this, a Conscious Builder pays attention to the safety, health and well-being of construction site employees and takes into account in all communications with non-native speakers. Construction site employees contribute to the overall image of the construction industry.

### **1.5.3 Professionalism**

Also, being neat is important. A Conscious Builder works in an orderly manner. It has been cleaned up on and around the construction site. This is expressed in a well-maintained building site, access roads and barriers. Equipment and equipment are tidy, clean, intact and maintained.

### **1.5.4 Environment and Care**

Lastly, the energy consumption of all work on the construction site and of all commercial transports to and from the construction site is monitored;

- Monitoring of water usage on the construction site;
- Measures are taken to prevent nuisance from dust and pollution of the soil, groundwater and surface water;
- The general contractor has an environmental policy plan for sourcing materials for the construction site;
- The general contractor and the are certified according to the ISO 14001 environmental management system;

- All temporary wood used for the realization of the project on the construction site has been produced in a responsible and legal manner and has an FSC or PEFC certificate;
- The release of waste on the construction site is minimized;
- The waste on the construction site is separated into at least 6 main groups;
- More than 80% of construction waste is recycled by the waste processor company;
- Prior to construction activities an ecological survey was done on the plants and animals at the location. During construction, work is carried out under the supervision of a recognized ecologist in accordance with an ecological work protocol so that minimal damage occurs to flora and fauna as a result of the construction.

## 1.6 Progressive measures in the social-economic field

- Refurbishing the green strip on the north side as a result of the (re)development of the Koningin Wilhelmina square;
- A renowned landscape design which stimulates Interaction;
- Publicly accessible hospitality and retail units;
- The solution for parking with residents (OKU House) and office employees (OKU Office) In the basement of OKU Office;
- Renovate the office so that it is in line with future and sustainable office tenant requirement.

## 1.7 Buildings specifications

**Table 1:** Building specifications overview

<b>Total site area in hectares</b>	• 2,054 sqm (0.2054 ha)
<b>Gross floor area (GFA) in sqm</b>	• 6,738 sqm
<b>Lettable floor area (LFA) in sqm</b>	• 5,823 sqm
<b>% area of land intended for use by the (local) community</b>	• 100%

## 1.7.1 Consumption

**Table 2:** consumption overview

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<b>Expected energy need in kWh/sqm GFA</b>	<ul style="list-style-type: none"><li>• 54,31 kWh/sqm</li></ul>
<b>Expected usage of fossil fuels in kWh/sqm GFA</b>	<ul style="list-style-type: none"><li>• 41,98 kWh/sqm</li></ul>
<b>Expected usage of renewable energy sources in %</b>	<ul style="list-style-type: none"><li>• 34,8%</li></ul>
<b>Expected water usage in sqm/person/year</b>	<ul style="list-style-type: none"><li>• 7.3 sqm/person/year</li></ul>
<b>Expected % of water usage to be obtained from Rainwater or gray water</b>	<ul style="list-style-type: none"><li>• 0%, no greywater system</li></ul>

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# 2 Sustainability

## 2.1 Ambition

The ambition for the certificate for the OKU Office project (office part) is BREEAM Excellent (4 stars).

## 2.2 Technical solutions

### Mechanical Installations

#### Generation of heating and cooling

Heating and cooling is provided through a local (Aquifer) Thermal Energy Storage (ATES), WKO (Warmte – en Koude opslag in Dutch). Surplus heat is stored in a ground water reservoir in the summer so it can be used in winter to provide heating in winter via a heat pump. Conversely, the system is used in summer to cool OKU Office. In accordance with BREEAM, each group will be provided with an energy meter, which can be read remotely.

#### Distribution of heating and cooling

The distribution of heating and cooling is done by means of an integrated climate ceiling. Per office floor two control panels are installed. The distribution of heating and cooling In the common office areas and hospitality units are done by means of underfloor heating.

#### Ventilation

All offices and indoor areas are mechanically ventilated with 45 m<sup>3</sup>/person. Ventilation units are integrated in the climate ceiling. Fresh air will be filtered and, if desired, heated or cooled, supplied to the space. Exhausted air will returned to outside.

Per floor two room control units are provided to control climate( - 2.0°C - + 2.0°C).

### Electrical installations

#### Generation of electricity

Electricity is generated via a transformer of 400 kVa.

## **Lighting**

The office building will be fitted with high frequency LED lighting and fixtures which are integrated in the climate ceiling. Corridor areas are executed in LED spots. The office floors are provided with daylight/motion sensors (1 per 40 sqm, conform BREEAM) in combination with daylight control, regulated per grid. The LED lighting will be controlled with a DALI-system and is adjustable per working zone. General lighting will be centrally switched by a touch panel.

## **2.3 Process and organization**

The integral design team of project OKU Office consisted of a developer (Boelens de Gruyter), an architect (KCAP), installation consultant (DGMR), fire safety and building physics consultant (DGMR), a structural engineer (Van Rossum), cost consultant (IGG Bouweconomie) and a consultant for BREEAM (DGMR). The complete design team attended a design meeting every two weeks. The construction team has been given the joint responsibility to achieve the BREEAM Excellent score

## **2.4 BREEAM-rating and score**

The design certificate is expected in Q3 2023.

## **2.5 Costs/benefits of sustainability**

The sustainability ambitions have been fully integrated into the assignments from the start. That is why it is difficult to substantiate concretely what the costs and benefits are of making the building more sustainable.

## **2.6 Tips for the future**

During the project, continuous research was carried out into the implementation of innovative and sustainable measures. Despite the sustainable added value, not all of these measures could be implemented. That is why the following topics are recommended for (sustainability) in the future:

- Include a comprehensive cost-benefit analysis;
- Earlier integration of the landscape architect in the process;
- Earlier integration of a hydrologist in the project.

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