



# CASE STUDY



In the context of BREEAM-NL, assessment guideline for new buildings, credit MAN 9 - knowledge sharing, a case study is presented in this document. In the case study, the sections are classified according to the criteria requirements of the assessment directive.

## VENRAY New-build Logistics Centre



## Description of the building and location

The logistics centre will be built in the municipality of Venray, on the Smakterheide industrial estate. The logistics centre consists of 23,321 sq m warehouse (hall) and 790 sq m office space. In order to measure the sustainability performance of the logistics centre, the building will be BREEAM-NL certified.

The ambition is to certify the building with a score of 'very good' according to BREEAM BRL 2014 v2.0. Themes such as sustainability, flexibility and quality play an important role in the design of the building, as evidenced by the ambition of a BREEAM-NL score of 'very good'.

The province of Limburg is a logistics hotspot in Europe. Here, rail, road and inland shipping are well connected. For some years now, we have been working with partners, not in the least the province, to further improve the accessibility of Venray for residents, visitors and businesses by road (N270/Via Venray), water (Port Wanssum) and rail (Maas line, station area).

The accessibility in Venray is generally rated as (very) positive. The logistics centre in Venray is well located.



## Overview of areas

<b>Property</b>	<b>44,252 m<sup>2</sup></b>
<b>Warehouse</b>	<b>23,321 m<sup>2</sup></b>
<b>Office</b>	<b>697 m<sup>2</sup></b>



	Surface	Breakdown communal	Usable floor area	Work area	Work area > 55% of usable floor area
Meeting function	184 sq m	62,6 sq m	246 sq m	165 sq m	66,9 %
Industry function	23,873 sq m	27,7 sq m	23,901 sq m	23,429 sq m	98 %
Office function	336 sq m	114,5 sq m	450 sq m	249 sq m	55,4 %
Other function	44 sq m	-	44 sq m	-	-
Communal	205 sq m	-	-	-	-
<b>Total</b>	<b>26,641 sq m</b>	<b>204,8 sq m</b>	<b>24,641 sq m</b>	<b>23,843 sq m</b>	<b>96,8 %</b>

## Purpose

The provision of information about the building is very valuable for employees and visitors of the logistics centre. The proportion of consumers who consider it important for companies to do business in a sustainable manner has risen from 64% to 71% in 2016. People more often experience their own responsibility in this respect. Sustainability plays an important role in the construction and use of the logistics centre. Various sustainable measures have been taken for this building. These measures are discussed in this case study. The aim of this plan is to stimulate the provision of information about sustainable construction to users, visitors and other interested parties.



## Project team

Cooperation is very important to make a success of this project. The most important precondition for achieving the ambitions is that all participating parties and people are enthusiastic and support the same goal: a high level of ambition for the sustainable performance of the building. In order to realize the construction of the new building and achieve the BREEAM-NL score of 'very good', the following partners work together.



## Project team

Client	Gazeley
Architect	DENC
Contractor	Sprangers Bouwbedrijf & Huybergts Relou VOF
Project Management	DENC
BREEAM_NL Expert	M3E
Ecologist	NWC
Electrical installation	CroonWolter en Dros
Mechanical installation	CroonWolter en Dros

## Sustainability aspects

Sustainability and the environment are of great importance to our clients. BREEAM stands for Building Research Establishment Environmental Assessment Method. It is an assessment method to determine the sustainability performance of a building. (Building Research Establishment Environmental Assessment Method) is one of the most used method in the world.

The aim of BREEAM is to realize more sustainable buildings with minimal environmental impact. The BREEAM guidelines are therefore increasingly becoming the starting point for new buildings, renovations and area development. It is a certification that interprets sustainability in a broad sense.

A good BREEAM score increases the value of a building. In addition, a high BREEAM score strengthens the sustainable image and guarantees a healthier and more productive living and working environment.

The ambition is to achieve a BREEAM score of three stars, qualification 'Very good'.

BREEAM NL

Pass	★	≥ 30%
Good	★★	≥ 45%
Very good	★★★	≥ 55%
Excellent	★★★★	≥ 70%
Outstanding	★★★★★	≥ 85%



In order to achieve this score, the following innovative and environmentally friendly design measures were taken:

### Consumption

Expected energy consumption	95.5	kWh/m <sup>2</sup> GFA
Expected consumption fossil fuels	75.4	kWh/m <sup>2</sup> GFA
Expected consumption renewable energy sources	20	kWh/m <sup>2</sup> GFA
Expected useage of water	10	M <sup>3</sup> /person/year
Expected % rainwater and/or greywater	55	%





## Sustainability aspects

- Sustainable energy systems; By means of various measurements of the consumption of gas, water and electricity and by reporting to the building management system, it is possible to monitor the consumption and make the installation function more efficiently. In addition, a heat recovery system is integrated in the air handling unit
- Warehouse 23,321 sq m, 697 sq m office and property: 44,252 sq m
- Traffic areas in sq m (NEN 2580); approximately 200 sq m
- Storage areas in sq m (NEN 2580); approximately 10 sq m storage containers
- % area of land intended for use by the (local) community (if applicable); n.a.
- % of surface area of buildings used by the (local) community (if applicable); n.a.
- Expected energy consumption in kWh/sq m GFA; 95.5 kWh/sq m
- Expected consumption of fossil fuels in kWh/sq m GFA; 75.4 kWh/sq m
- Expected consumption of renewable energy sources in kWh/sq m GFA; 20 kWh/sq m
- Expected water consumption in m<sup>3</sup>/person/year; 10 m<sup>3</sup>/person/year
- Expected % of water consumption obtained from rainwater or greywater; 55%
- Sustainable energy systems; By means of various measurements of the consumption of gas, water and electricity and by reporting to the building management system, it is possible to monitor the consumption and make the installation function more efficiently.
- High insulation values for the thermal shield: Rc values of 4.5 m<sup>2</sup>K/W (facade) and 6.0 m<sup>2</sup>K/W (roof)

## Sustainability aspects

- The lighting will be applied with energy saving LED lighting
- Installed power 6.0 W/m<sup>2</sup> LED lighting
- Control of lighting by means of sweep pulse switching in combination with daylight switching and presence detection
- Automated control systems; There will be a building management system (BMS) present in the form of the desktop PC and an app for the mobile device
- Heating by electric soil/outdoor air heat pump
- Heating delivery system; cost efficiency system and underfloor heating
- Warehouse HE-heaters with low Nox
- Hot water by means of close-in boilers
- Grey water systems for flushing toilets
- Ventilation system; This system consists of an air handling unit with mechanical supply and mechanical exhaust for a healthy indoor climate including a heat exchanger for the office and a roof fan in the hall
- A steel bicycle parking facility will be built into the outdoor area to encourage employees to travel by bicycle
- Charging points for electric cars in the parking lot. The charging stations are accessible to both staff and visitors and are powered by solar panels
- Encourage carpooling
- All the wood used in the building is FSC certified



## Quality of the process

In order to steer the project in the right direction, a number of measures have been taken to monitor and manage the process. The following measures have been taken to ensure the quality of the process.

- Appoint commission manager
- Contractor is 14001 certified
- Contractor is FSC certified
- External BREEAM expert(s) and assessor
- Thermographic test to ensure the quality of the thermal shell
- Measurement of air permeability showing that the building meets the design specifications with regard to airtightness



## BREEAM rankings



The ambition is to achieve a BREEAM-NL 'Very good' score (★★★) for this project, with a weighted score of >55%. This score is determined based on the following scores for the 9 categories.

63%

Management

63%

Gezondheid

42%

Energie

67%

Transport

88%

Water

46%

Materialen

83%

Afval

73%

Landgebruik & ecologie

55%

Vervuiling

## Costs and benefits

There are three types of costs associated with the BREEAM certification process for this project:

- 1. Costs for the BREEAM certification process itself;
- 2. Costs of investments for obtaining credits with an ROI;
- 3. Costs of investments to obtain credits without a direct ROI.

Costs that have to be spent on the certification process itself include, for example, the registration of the project and the appointment of experts and assessors.

The costs for investments with an ROI include, for example, the costs for sustainable measures such as more energy-efficient installations and lighting, and solar panels. The savings achieved with these investments ensure that the investment pays for itself within a few years. Especially if measures are also eligible for subsidy schemes.

Costs for investments without a direct ROI concern measures that focus on immaterial and more difficult measurable goals, such as the health and welfare of personnel. Many of the measures in the 'Health' category are measures whose effect on productivity has been scientifically demonstrated. However, it is not (yet) possible to attach figures to this for a project. The aim is to make buildings healthier and thus provide a better living environment for people, resulting in higher productivity and lower absenteeism. As personnel costs amount to approximately 90% of operational costs, a small effect on productivity and absenteeism will lead to a significant contribution to the reduction of total operational costs. These measures will therefore certainly have an indirect ROI.



## Tips

With the experience gained from this project, the following recommendations are made:

# 1

Start early with making an inventory of which credits can or should be obtained. A number of credits can only be obtained if this is started in time and/or with the help of people and companies in the area, e.g. during consultation (MAN 6).

# 2

Interactive process, and certainly with regard to BREEAM, this means that the process must be monitored continuously in order to guarantee the quality and achieve the set objectives.

# 3

The reallocation yielded initial points. During the demolition of the existing section, no thought was given to the reuse of materials from the outset. This can make the difference between demolishing or dismantling parts. We have noted this in the lessons learned section.





	Oppervlakte	Verdeling gemeenschappelijk	Totaal Gebruiksoppervlak	Verblijfsgebied	Verblijfsgebied >55% van Gebruiksoppervlak
Bijeenkomstfunctie	184 m <sup>2</sup>	62,6 m <sup>2</sup>	246 m <sup>2</sup>	165 m <sup>2</sup>	66,9 %
Industriefunctie	23,873 m <sup>2</sup>	27,7 m <sup>2</sup>	23,901 m <sup>2</sup>	23,429 m <sup>2</sup>	98 %
Kantoorfunctie	336 m <sup>2</sup>	114,5 m <sup>2</sup>	450 m <sup>2</sup>	249 m <sup>2</sup>	55,4 %
Overige gebruiksfunctie	44 m <sup>2</sup>	-	44 m <sup>2</sup>	-	-
Gemeenschappelijk	205 m <sup>2</sup>	-	-	-	-
<b>Totaal</b>	<b>26,641 m<sup>2</sup></b>	<b>204,8 m<sup>2</sup></b>	<b>24,641 m<sup>2</sup></b>	<b>23,843 m<sup>2</sup></b>	<b>96,8 %</b>

Opdrachtgever	Gazeley
Architect	DENC
Aannemer	Sprangers Bouwbedrijf & Hu
Bouwmanagement	DENC
BREEAM-NL Expert	M3E
Ecoloog	NWC
E-installaties	CroonWolter en Dros
W-installaties	CroonWolter en Dros



## Tips

Met de opgedane ervaring bij dit project kunnen de volgende aanbevelingen worden gedaan:

1

Start vroegtijdig met het inventariseren welke credits gehaald kunnen c.q. dienen te worden. Een aantal credits kunnen alleen gehaald worden indien hier tijdig mee gestart wordt en/of met de hulp van personen en bedrijven in de omgeving, bijv. bij consultatie (MAN 6).

2

Interactieve proces, en zeker met betrekking tot BREEAM betekent dit dat het proces continu in de gaten moet worden gehouden om de kwaliteit te waarborgen en gestelde doelen te halen

3

De herbestemming leverde initiële punten op. Bij de sloop van het bestaande gedeelte is er niet vanaf het begin nagedacht over hergebruik van materialen. Dat kan het verschil maken tussen het slopen of ontmantelen van onderdelen. Dit hebben wij genoteerd onder lessons learned.

