



## CASESTUDY BREEAM NEW PRODUCTION FACILITY RUINERWOLD

**BREEAM – project commissioned by Ruitenberg Ingredients B.V.**

### **Description of the project**

Due to a substantial growth of business activities, our production facility in Ruinerwold really had to be expanded. Behind the current building, a new facility will now be realized, we will have a larger, more efficiently equipped production area at our disposal. And that should keep us going for a while. The new building will be constructed in the characteristic Ruitenberg style and will comply with all current and expected (future) demands on the field of quality, food safety and environment.

### **Size of the project**

The new production facility has a total size of 4.687 m<sup>2</sup> gross floor area and is divided into a number of spaces, each with their own function and size, viz. office-/R&D- and additional spaces, production and test facilities, traffic areas and conditioned storage (both warm and cold). In the end, the building will be delivered with some empty spaces, with a view to future expansion.

The majority of the location, 4.569 m<sup>2</sup> (measured in accordance with NEN2580), will have an industry function. In addition, there are traffic area's (± 120 m<sup>2</sup>) and storage facilities (1.000 m<sup>2</sup>). Also, 110 m<sup>2</sup> of the total 4.687 m<sup>2</sup> surface, is intended for office use. The total plot area is 6.200 m<sup>2</sup>, whereas the area around the building measures 10.000 m<sup>2</sup>.

### **Sustainable building according to BREEAM methodology**

At Ruitenberg, we highly value corporate social responsibility. That is why we have chosen to design the new building according to the BREEAM methodology. BREEAM's 'Environmental Assessment Method' of buildings was originally developed by the Building Research Establishment (BRE), a British research organization, hence the name BREEAM. By creating a design that meets the pre-set criteria and by building according to the BREEAM standards for New Construction and Renovation, we will create a more sustainable environment, ensuring that the user, the society and the environment will benefit. BREEAM has a rating from 1-5 stars. It is our ambition to achieve 5 stars (outstanding) for this new building.

### *BREEAM\_NL assessments criteria*

The overview below pictures the criteria on which the design of the building is assessed for BREEAM\_NL. When all these so-called credits are implemented in a by the assessor approved way, we will receive a 5 stars score and we will obtain the corresponding certificate.

### *BREEAM-Certificate*

A BREEAM-NL New Construction Certificate can be achieved for 2 phases:

- **Design phase:** the certificate for the design expires after completion of the building.
- **Completion phase:** final certificate with no end date for the completed building

The score is made up of sub-scores for the various sustainability categories. These categories have their own value (weighing?): management (12%), health (15%), energy (19%), transport (8%), water (6%), materials (12,5%), waste (7,5%), land use & ecology (10%), pollution (10%). This leads to a total score, expressed in stars.

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

### *Criteria for the design phase*

MAN	1 - 2 - 3 - 4 - 6 - 8 - 9 - 11 - 12
HEA	2 - 3 - 4 - 5 - 6 - 8 - 9 - 10 - 11
ENE	1 - 2 - 4 - 5 - 26
TRA	2 - 3 - 4 - 5 - 7 - 8
WAT	1 - 2 - 3 - 4 - 6
MAT	1 - 5 - 7 - 8
WST	1 - 2 - 3 - 6
LE	1 - 3 - 4 - 6
POL	1 - 2 - 3 - 4 - 6 - 7 - 8

*A more detailed explanation of the assessments criteria can be found at <https://www.breeam.nl/keurmerken/nieuwbouw-en-renovatie/download>, Click on assessment guidelines for BREEAM-NL New Construction and Renovation BRL 2014 v2.0.*

### **Design phase**

For a practical implementation of our plans, a considerable number of measures and sufficient knowledge of the BREEAM methodology were necessary. Hence, we contracted the experienced consulting firm W4Y. Together with the contractors Aan de Stegge Twello, Heluto, Bakker and Van den Brink, W4Y will take care of a successful realization of our ambition. The parties mutually signed for the design and will closely collaborate during the building process.

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

Because of our 5 stars BREEAM ambition, a considerable number of sustainable measures are included in the design. The most innovative element is the climate control. This is a very important element given the function of the new building. Other sustainable design measures are amongst others: the installation of solar panels for generating power, the design of a traffic plan, the installation of charging stations for electrical vehicles and the involvement of an ecologist during the demolition, design and building process. This expert makes sure that the impact on flora and fauna during the entire project is limited and the ecological value during use increases.

### **Expected energy consumption**

Many energy-saving measures have been taken that will lead to reduction of the total electrical energy consumption. For heating, residual heat of the cooling installation will be reused with a heat exchanger. Besides this, natural gas is used for heating when the residual heat from the cooling installation isn't sufficient. The expansion of the production facility is therefore very energy efficient and scores 100 % better than a similar production facility built according to the building regulations. At this moment, we estimate a yearly energy usage of 30 kWh per m<sup>2</sup>. This makes the factory much more energy efficient than similar buildings.

### **Expected water consumption**

The sanitary facilities cause the highest building-related water consumption. It is expected that on average 6 persons a day will be present in the building. Based on this number of persons, the water consumption per day is estimated at 60 liters per day, equal to 3,65 m<sup>3</sup> per person per year.

### **Reduction of the impact on the environment**

The impact on the environment is already decreased significantly by reducing the energy usage and therefore the CO<sub>2</sub> emissions. But also the water-saving facilities, such as toilets, showers and taps contribute to a significant saving on water usage. Reduction of the environmental impact does not only take place within the building itself; also during the entire building process all parties involved must comply with high standards with respect to among others waste separation.

### **Costs / benefits**

The extra investments in sustainability merely consist of making smarter choices in the production process and placing extra energy- and water meters. This results in a saving on energy costs and "practice what you preach" with respect to the Corporate Social Responsibility aiming at the promotion of the sustainable energy and energy saving.

### **Tips for next projects**

After finalizing the building, the "lessons learned" will be drawn and added to the Case Study.

### **Our Personal attention of future users**

As a client, we are closely involved in the realization of the design and in the construction. Joris Rasing and Jos van de Werken were part of the design team, to be able to tailor the future building to the wishes and needs of the users. Both gentlemen will remain part of the construction team.

There are screens in all our affiliates, on which our employees can follow the construction activities via live streams. This keeps all of us informed of the progress.