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**Green Solution House - Bornholm,**

Green Solution House is a sustainable knowledge and conference centre which can inspire you as a visitor to make sustainability part of your daily life and work. The design of the building itself is based on several parameters to show a holistic approach to sustainability. The building is certified to the standards of the recognised German Sustainable Building Council (DGNB), based on the criteria of the Active House vision and inspired by the Cradle-to-Cradle life cycle concept. The aim is to demonstrate the architectural solutions of tomorrow – today! The building is a demonstration facility presenting the latest developments in the field of sustainable architecture; we show that sustainability involves more than aspiring to green certification, and that it is possible to quantify our project’s high quality on the basis of several parameters.

Green Solution House welcomes guests for vacation, meetings and conferences.

Questions from the EU-Climate-Action:

*Can you state any concrete numbers of the reduction of greenhouse gas emissions or the energy savings achieved, or an estimation of the reduction of greenhouse gas emissions or the energy savings you foresee the project would bring?*

Green Solution House is based on a site with an existing hotel, situated in Ronne, Bornholm. The site has approx. 65,000 sqm., and currently consists of approx. 8,000 sqm. of buildings. The existing buildings are constructed in the '60s, '70s, '80s and '90s and are representative of the decades of construction methods and building style. It is precisely this diversity in construction which is seen as an important element in the project's value as a demonstration project. Thus, the project has a unique opportunity to demonstrate sustainable solutions implemented in the buildings, which represent 50 years of Scandinavian architecture, together with the construction of a unique new building on the same site.

The project transforms the existing hotel to a knowledge and conference centre with 92 rooms and conference facilities. This means that it is not possible to compare “before and after” numbers because the buildings, the business models and the customers will be very different in the future.

Even though we have this situation, we nevertheless tried to calculate the numbers wanted:

The existing hotel is based on district heating. This will be changed to solar panels and solar cells. The hotel can produce its own energy throughout at least spring and summer, and potentially also through autumn. In November, December and January it is possible that the district heating is needed depending on the number of guests using the facilities at the hotel.

The estimated savings on the energy and heat system will provide a saving of DKK 945.000 over a 20 year period. The energy production based on solar panels gives a reduction in the energy needed for warming up water compared to district heating estimated to 39.400 KWh or DKK - 27.600 a year.

The total C02saving is estimated to 2,5 tons a year – corresponding to 52,2 tons in the lifetime of the system, estimated to 20 years.

The existing hotel gets energy from the local power system which is based on more than 40% windpower from wind mills.

The production from the solar panels – given the budget on the utility of the capacity at the hotel – can cover the future need for energy. This will save 60.800 KWh a year – corresponding to DKK 85.700.

The total C02saving is estimated to 25,9 tons a year – corresponding to 518 tons over the lifetime of the system, estimated to 14 years.

- ***We believe that climate action is not only necessary, but also affordable. Can you let us know more about the project's cost-benefit ratio and how the input relates to the output?***

Green Solution House started as a beacon in the Bright Green Island strategy – the strategy that shows the way for Bornholm to become a sustainable society. Project manager Trine Richter developed Green Solution House from an idea to a real business case through the years 2010-2012 including finding the funding. During this period the local authorities and the EU Regionalfund financed the salary of the project manager because of expected impact of the society at Bornholm. In 2012 the project was finally financed by the private foundation CEM Foundation at Bornholm and several private foundations at Bornholm altogether DKK 65 mio. This was added up with DKK 20 mio. by the Danish Foundation Realdania.

Thus the cost-benefit analysis in the Green Solution House project can be measured as a single business but also as a private/public case which has an impact on the society of Bornholm. Added to this the Green Solution House will have an impact of the building sector in Europe which has been attainable by the cooperation with European companies as Velux, Saint-Gobain, amongst others.

Transformation of the existing building and construction of new buildings has created jobs for about 100 craftsmen in the period of the year of construction. The operation of Green Solution House would directly create between 60 to 70 new permanent full-year positions in the tourist sector at Bornholm. Please consider that the Island of Bornholm has 40.000 citizen, approx. half of the citizen have a job, and 25% of the employees work for the municaplities. A project as Green Solution House which lengthen the touristseason at Bornholm with up to 3 month due to the meeting-and conference tourist will have a measurable impact of the society at Bornholm in general.

- ***Can you state any concrete financial benefits or savings through your project? We will not need to know your business numbers, an indication of how and where savings occur would be sufficient. The more concrete, the better****.*

The existing hotel will according to budgets of operation double the turnover form DKK 10 mio. to DKK 20 mio. in the first full year of operation. The occupancy rate at the hotel today is 26% a year. This is calculated on a season of 6 months. The occupancy rate in the first year of the new business is expected to be at least 35% and in a 5 years period 55%.

The budget shows a minor surplus the first year because of very conservative measuring of the numbers of guests. Added to this a delay in the building process can be expected which is included in the budgets. After 3 – 5 years it will be possible to continue the renovation of the other buildings at the site and develop the conference centre which will be built for disassembly. This means that new materials can be implemented and the building can continue to be an interesting showroom for sustainable solutions.

***Let us learn more about the size of your project and let us know how many people are involved in the project.***

The size of the project is measured in construction cost is DKK 85 mio. During the last 3 years the project manager Trine Richter has worked on her own on the behalf of the Business Center Bornholm and the municipality. When the funding was in place the organization behind the project expanded to local, national and international companies in order to reach out to the world to collect the best of ideas, knowledge, and innovative thoughts. In the existing hotel has 12 employees – this has risen to approx. 22 persons.

- ***Your project is an ambassador of the world we like. Would you be able to estimate how many people you reach with your project?***

Green Solution House becomes the first Science and conference center in the world based on circuit thoughts inspired by CradletoCradle © and the principle "Designed for disassembly." This particular approach to the building has already attracted the attention from both domestic and foreign material suppliers. These material suppliers have on their own initiative approached Green Solution House, because they will use Green Solution House as a living showroom for their products. This provides a unique opportunity for material suppliers to enter into new collaborations to serve the development of sustainable materials. The cooperation between companies and scientists who are pioneering the field of environmental, health and social sustainability will create new solutions benefitting not only the partners but also the population of the world.

Green Solution House is a vivid example of how material suppliers, knowledge institutions and investors can collaborate in new ways in order to create a unique building design based on the CradletoCradle principles. This will also be true in the future because the buildings are "Built for disassembly ', which means that the buildings will constantly be subject to material replacement: new sustainable materials developed on the knowledge from the usage in Green Solution House will replace existing materials.

Precisely this approach to construction requires new forms of collaboration with material suppliers, knowledge institutions and knowledge-intensive investors. Usually, these relationships end when construction ends and the operation of the building starts. However the partners maintain cooperation in a network to ensure an attractive platform for further development of products and a continuously sharing of knowledge. Green Solution House is a piece of living architecture that continuously becomes the object of great national and global interest.

Green Solution House gathers American and European companies in a forum focused on the development of sustainable solutions in the construction sector as well as in energy related sectors.

The European building sector consumes about 40% of total energy consumption in Europe, and design research can help to reduce this energy consumption, which opens up a promising and extensive market for architects and construction companies. Green Solution House incorporates innovative thinking within industrial design and architecture, and supports a paradigm shift from an economy based on fossil fuels for a green economy. Green Solution House and its partners are "first movers" in this field.

Green Solution House is part of a network with the Danish Design Center for Sustainable Construction, Center for energy saving in buildings v / Technological Institute and the Energy Service for ensuring that collection of knowledge by linking PhD students for the project, and maximize opportunities for exchange of experience and knowledge sharing.

Danish Design School will integrate Green Solution House as the practical example of a training module for design students. The idea is that teaching must take place in Green Solution House, and that students must be inspired to develop the industrial design based on the circuit principles. The same module will be developed for students of architecture, and can be replecated to other designschools in Europe.