

Sustainability is an important focus of the Dutch Pavilion for the World Expo 2010, Happy Street.

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The design of Happy Street

The main theme for the Shanghai World Expo 2010 is “Better City Better Life”. The winning architect for the competition of the design for the Pavilion of the Netherlands, John Körmeling, responds to this theme with his unique “Happy Street”. (See also Happystreet.nl and www.holland-expo2010.nl)

John Körmeling’s views on urban planning as well as on architecture are the basis of his design for Happy Street. In his view, a “Better City” starts with a good street. A good street should be a street full of life where people can meet, live, work, eat, play and shop.

This means that, in the architects view, the solution should not be sought in making more gated communities with only apartments, where people only sleep at night, or planning more industrial areas where people only work during the daytime, or large shopping malls, that will only be empty and unsafe at night. On the contrary, a good street should combine all these functions and offer a variety of buildings and activities thus ensuring a better quality of life: “Better City, Better Life”.

In his design for Happy Street John Körmeling combined many different functions in buildings using the best examples in various Dutch architectural styles. On Happy Street there can be found: different types of houses, a factory, offices, cinema, workshop, a football field, a farm, warehouse, water tank-station, a greenhouse, a bank, a sand dredger and even the typical Dutch countryside is represented with it’s canals and grasslands, cows and sheep.

Sustainability

This concept for Happy Street refers to a very global view on sustainability. Sustainable development as it was mentioned in the UN Brundtland report was defined as: “a development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” The now widely accepted view is, that sustainability has three main influential pillars. In simple terms one could speak of the three “P”s: namely People, Planet and Prosperity. “People” refers to the human social cultural aspects, “Planet” refers to

limiting our ecological impact on the environments and “Prosperity” (formerly “Profit”) refers to the economical aspects and also the ability for people to earn their income. These three aspects should be carefully considered and balanced while addressing sustainability. Depending on differences in the level of development between countries and people, as well as differences in perception of urgencies, these different views can, of course, result in views with different focus-points on how to approach sustainability problems.

With regard to “People”, it is clear that the concept of Happy Street starts with the human aspects. It starts with the quality of life in the direct living area of the people. While founding its views on existing theories and using existing architectural styles it addresses the human aspects with a new vision for the future and at the same time Happy Street results in a very new spatial concept. Addressing the human aspects of sustainability on a conceptual level but yet in a very clear and direct way is one of the main strong points of the Dutch pavilion.

Planet

For the assessment of the ecological aspects of a building we now have methods to quantify the impacts of the materials and energy involved in the building. In so called Life Cycle Assessment (LCA) methods, a building can be regarded as a product-system. Of all the involved processes regarding the construction and use of the building the amounts of materials and the energy use can be calculated. The interventions on the environment and it's effects on, for example human health, or, on global warming potential (CO₂), can thus be quantified. We can calculate for example how much CO₂ is involved in the construction, use and demolition of the building. If we look at the ecological impacts of the Dutch pavilion as a building, we can calculate the involved amounts of CO₂ reasonably accurately.

To keep the impact of the Dutch Pavilion as low as possible, the main material used for the pavilion is steel. Steel can be recycled many times and has a high level of sustainability. But still there are many problems in using these assessing methods. For example: Where to draw the boundary line of the system? Should we not also include the amounts of CO₂ involved in the traveling of all the millions of people visiting the expo building? And about the energy use: The building is only used for one year, so, should we use a lot of insulation material, thus limiting the amount of energy used? But the material used for insulation perhaps involves more energy or a bigger impact than we can save in only half a year of use. For example if we use solar panels, we will probably not use them long enough to actually create a positive impact.

Service life of Buildings and Expo

Generally speaking a World Expo building could be regarded as not sustainable, because the service life of an expo building is extremely short. All the impacts need to be depreciated over a very short period, so the impacts per year of use are extremely high. Looking at the buildings itself and the traveling involved, the Expo should perhaps be more regarded as a kind of “world- party”, it will only be

there for a short period. On another level however the World Expo can be regarded as very sustainable. China and more specifically the city of Shanghai uses the World Expo to revitalize large areas of land previously occupied by rather old and polluting industries. These areas, not before long situated at the outskirts of the city, are now, due to the fast expanding city of Shanghai, practically at the centre of the city. All the infrastructure of roads, services et cetera for the expo, were planned and now constructed for a much longer period. They serve the Expo, but are ready to turn the Expo area successfully into living city areas after the Expo has finished.

Because the Dutch Pavilion and its materials will probably only be used for a very short period, it was intended in the negotiations with the contractor and suppliers to only lease the materials, especially the steel, from the suppliers, and/or to arrange take-back-guarantees with the contractor. Unfortunately all stakeholders involved in the building process are far from ready for this kind of sustainable building. For example Chinese contractors with the necessary licenses for constructing buildings in Shanghai, are not the same companies that hold the necessary licenses to demolish.

To further more elongate the service life of buildings, China is encouraging cities to investigate the possibility of relocating pavilions to various cities in China. Also for the Dutch Pavilion there has already been contacts in this direction. This is a potential way to further lower the impacts on the environment.

The Exposition in the Dutch pavilion

Apart from all sorts of other technical, cultural and artistic items that will be on display, the exposition of the Dutch pavilion provides many examples that have a direct link to sustainability. Some examples (without being complete) are briefly mentioned here:

- The water tank-station for example addresses the problems in the world regarding the general availability of clean drinking water as well as the possibility of using water as an energy transport system.
- Examples of new improvements in the fields of bio-diesel and fertilizer production will be on display.
- Developments in electrical cars and the winning solar car of the Delft University are shown.
- Further more a new design for a simple technology cooking stove "smokeless stove" is on display. It is designed to be used in developing countries, ensuring a highly efficient use of fire wood, thus limiting the use of fossil fuels.
- With regard to Human health, the TU/e University of Technology, Eindhoven shows their latest developments in research towards an artificial grown human kidney.

- The technology with which the lost nuclear submarine Koersk, a potential future ecological hazard, was lifted from the ocean bottom by the Dutch company Smit, is shown.
- Home Pharming a futuristic concept of Philips, where people can grow their own food in their homes, based on local recycling is shown.

Conclusion

Without taking the fairly easy and general popular approach to sustainability, by using Dutch windmills and using solar panels to limit it's short time energy use, the Dutch Pavilion addresses the broad problems of sustainability on the social cultural level as well as the ecological and economical level. The Dutch Pavilion covers a very wide scope of aspects and shows possible solutions. The examples are shown, both on a very conceptual level, in the building itself, as well as examples of Dutch technology and solutions on a highly practical level in the items on display. In short, the Dutch Pavilion addresses the main theme of the Shanghai World Expo 2010, "Better City Better Life" ,in an excellent way, in many different ways and on many different levels.

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