

The Zuidkas

The building as an energy source

Sustainable design demands a broad, integral approach. After all, it is not only about physical benefits such as energy-efficiency, but primarily about human values, to which the quality of the architecture and the connectivity of the building with its surroundings create an essential added value. The material and immaterial values and performance of a sustainable building can be assessed and expressed by a calculation model which more clearly demonstrates its investment value and return on investment than that of a non-sustainable building. Four factors are of importance in such a model: 1) energy efficiency, 2) recyclability or re-use, 3) durability and 4) human activities under the influence of the building. If we all recognise the importance and interrelatedness of these factors, mathematicians and idealists will finally unite and arrive at the same conclusions.

Starting from the above viewpoint we formulated a number of sustainability aspects that in our eyes are essential for a sustainable, intelligent building. These aspects each have their own importance to the requirements a building ought to fulfil. You might wish to determine them objectively in a measurable unit, so that you could weigh them up against each other. A sort of weighted average based on fuzzy logic in which each value is equally important or one just a little more and the other a little less. Perhaps the weighting could also alter depending on the project, the location or the client. But it is certain that through progressive insight some aspects will disappear or, on the contrary, be added, and that the focus of a certain aspect will shift. For the *Zuidkas* (Southern Greenhouse) we have selected the following nine aspects that we at this moment, for this project, for this assignment, consider opportune.

CO₂ EMISSIONS: aim for minimum CO₂ emissions, including by limiting traffic movements through combination of functions.

HEALTH: a comfortable interior climate, sufficient daylight and view promote people's wellbeing and health.

LIFETIME: flexibility of function and layout of the building offer the possibility for modification in the future. The materials should also be selected with an eye to their expected lifetime, adaptability or re-use based on the cradle to cradle principle.

CONNECTIVITY: connectivity means that the building is connected with its surroundings in a logistical and sociocultural sense.

BEAUTY: beauty contributes to the appreciation of a building by its users. People will take better care of the building. They will feel better in it.

SURROUNDINGS: because of increasing building density in urban spaces, landscape areas do not have to be sacrificed to low-density urban developments.

ENERGY FLOWS: by combining energy flows, among other things, light, heat, cooling and ventilation can be handled intelligently and efficiently.

USER VALUE: people must be able to make a building their own. For this reason, functionality and adaptability are important points of concern.

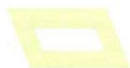
INNOVATION: new (technological) developments will lead to new concepts (of work), in the same way that ICT has led to flexible workspaces, for example. Anticipating new developments is therefore important.

Our concept of the Zuidkas flows logically from these sustainability aspects. Thinking from the viewpoint of CO₂ reduction, energy efficiency and health, an unusual mixture of functions in a building has developed: living, working, school, parking, retail, restaurants, a park and a biogas power plant. All this is linked by a glass construction envelope that encompasses various kinds of 'greenhouses': CO₂ greenhouses, hybrid greenhouses, a buffer zone and atriums. The objective is to make an intelligent autarkic building where energy and CO₂ flows can be interchanged and waste flows can be converted into heat and energy, and also to minimise the total discharge from the building, reduce the energy demand to a minimum, and above all to create an attractive, pleasant and healthy living environment for people. A building as a miniature city, embedded in the urban architectural fabric of the Amsterdam Southern Axis. A sustainable United Habitation.

We see it as our task to achieve a design that produces energy both in a technical and a human sense. Intelligent buildings have a great influence on society. They invigorate it and lead to new insights and improved performance. In this way, the building as an energy source becomes a reality.



0ak



12



16



11



15



10



14



09



13



08



12



07



06



03



-2



05



02



-3



04



01



-4



03



00



02



-1





