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FOCUS TOPIC: SUSTAINABLE PLANNING & ARCHITECTURE













SUSTAINABILITY IN PLANNING & ARCHITECTURE

Human beings consume the Earth's capital more rapidly compared to nature's capacity to regenerate itself. This has been a trend for decades, a development we have still not managed to change. On the contrary we are getting even closer to the tipping point year by year. Referring to IPCC latest report we have 8,5 years left to stop the temperature to rise more than 1,5 degrees.

The construction industry is responsible for a substantial negative impact on the environment. Thus, a true revolution in the characteristics of planning and building needs to take place in order to tackle the environmental issues we no longer can ignore.

We, architects, together with all other parties involved in planning and construction, need urgently to change present ideals, routines and priorities in order to achieve more sustainable solutions.

This approach calls for an urban planning that promotes public transport, cycling and walking, which can be achieved with denser and more mixed-used developments. The private car should no longer be the first choice.

One of the key factors in all building projects is to exploit local climate and local environmental resources and energy-related factors such as daylight and possible solar heat gains based on the use of site analysis at the very start of any project. A sustainable architecture is an architecture that also seeks to reduce the negative environmental impact of building and constructing by efficiency and moderation in the use of materials, energy, development space and the ecosystem at large. An architecture that should with the help of passive and active techniques such as solar panels and the use of materials capable of storing energy, reduce the energy needs for heating and ventilating buildings and increase their ability to capture or generate their own energy.

This also includes promotion of environmentally friendly construction techniques and material use during the building process, including recycling of already used material, within the framework of a collaborative economy aimed at achieving best possible result with a minimum of natural resources.

Measures for achieving sustainability should furthermore be based on a life cycle economy approach including consideration of future maintenance, demolition recycling and costs and consequences. It should finally promote balanced developments that have positive impacts on health, comfort and improved livability for future inhabitants.

We all in the building industry have to commit to this work and these targets jointly. It is perhaps more a mental problem; we need naturally to think and plan in a sustainable way. If we manage this, we can be able to stop the increasing of carbon dioxide emissions so we can stop the temperature rise.

Britt Almqvist, PERSPECTIVE Stockholm









JORVAS SORTTI STATION JORVAS , KIRKKONUMMI, FINLAND



Waste management and recovery in Helsinki region is mainly handled through so-called Sortti stations owned and operated by Helsinki Region Environmental Services HSY. Customers bring their recyclable waste to a Sortti station and leave it in pallets containing different types of waste, from which they are taken to further recycling.

The Sortti station in Jorvas is the fifth station in Helsinki metropolitan area. It consists of a base building, a container hall and shelters for heavy machinery and pallets. The pallets containing different types of waste are covered by a large canopy with tilted columns that support a massive roof structure.

In order to have as little environmental impact as possible, the above-ground parts of the Jorvas Sortti station have been constructed with wooden structures. The buildings are mainly made of cross-laminated timber panels, ie CLT, and glulam beams and columns.

Wood visible surfaces are both indoors and outdoors. The buildings are clad in untreated Siberian larch. which becomes gray with the weather over time. Indoors, CLT and glulam beams are left exposed. The wooden interior surfaces of the base are treated with protective wax, which protects the wooden surface from the darkening effect of light. The station is heated with geothermal heat and there are solar panels on the canopy that provide some of the power used in the station.

Designed by PERSPECTIVE Helsinki

Photography: Max Plunger





CADIX ANTWERP, BELGIUM



17.700 m² commercial and residential space 71 apartments and underground parking **Breeam excellent**

Designed by PERSPECTIVE Antwerp In collaboration with Sergison Bates

The Cadix project currently under construction will receive the Breeam Excellent certification in the post construction stage.

The quality of the spaces, its height (2,8m) and light admissions are remarkable. The building is conceived as a sustainable shell. Above that, the comfort level offered is guaranteeing the clients an optimal living environment. All apartments are designed according to the 'Lifetime Homes' criteria.

Heating and cooling are carbon free with a geothermal installation and heatpumps. The sanitary hot water is produced locally by the means of electrical boilers and solar panels. All ventilation is based on a system 'D', including air quality monitoring (demand-driven air volume)



VILLA MARGUERITE

ISSY-LES-MOULINEAUX, FRANCE

Villa Marguerite is a 5-story high building over a basement, composed of 5 flats, designed by PERSPECTIVE Paris, handed over in August 2019.

As the first building permit was submitted in 2016, the regulation was under the RT 2012 (thermal regulation) and based on the objective of reducing the energy consumption. The objectives are clear. The construction materials need to be detailed at the building permit stage, with also the heating system chosen, confirming with a calculation note the aims will be reached. At the end of the construction, the building controller or a certified engineer checks and certifies it has been done following this initial calculation. RT 2012 focuses over 5 points: building envelope, air ti-

ghtness, heating, hot water production and ventilation for the achievement of a total consumption less that 50kW/



In the new regulation to be applied in 2020, but still under discussion by the legislator, the aim and means are higher: energy balance of a new building should be positive. Also what is taken in account in the new regulation will include all the appliances in the building, not just the insulation but the energy production and the global environmental footprint, and generally all means to suppress energy waste thanks to intelligent consumption management tools.

But the most important and challenging aspect of the RT 2020 will be sensibilization on the individual asked to consume less and that its habits evolution will be the key success of the achievement of the goal set by this new regulation.



DE NIEUWE DOKKEN GHENT, BELGIUM

75.000 m² residential, offices, commercial and underground parking space 400 apartments **Breeam excellent**

Designed by PERSPECTIVE Antwerp

'De Nieuwe Dokken' in Ghent is a truly innovative sustainable neighbourhood of about 400 dwellings, a kindergarten and primary school, indoor sports infrastructure and some offices, local services and commerce.



Designed to be carbon free in its heating and production of sanitary hot water, the quarter is equipped with a district heating network of the latest generation. It is tied in by from different sources: locally produced biogas from methanizing faecal water and organic kitchen waste which are both collected by a vacuum drainage system, by 'riothermie' i.e. recuperation of wastewaters' thermal energy and excess process heath from a nearby factory. All waste water of the neighbourhood is captured and sanitized up to the level of surface water quality, and it is supplied to the nearby factory to be used in its production processes, thus closing loops at very short distance.These installations are installed and operated by Ducoop, a cooperative third party social impact investor.

A number of buildings in this quarter will be certified to either passive-house standard or a **Breeam excellent** scheme.

The overall score on the City's sustainability measurement tool is 93,9%.

To achieve these very ambitious scores, insulation levels are very high and all materials are selected in function of their CO² emissions, favouriting local sourcing.



BUSINESS GARDEN POZNAN, POLAND

A unique office park with a high profile in all issues of sustainability, designed by PERSPECTIVE Stockholm.

Total area: 90 000 m² of office space with restaurants, landscaping & underground garages LEED Platinum

The buildings are energy-efficient and constructed with environmentally friendly materials. Environmental and social sustainability is reflected in ample bike parking and accessbile public transport.

The landscaping stimulates outdoor activities and meetings and incorporates local flora and rain water recovery.





HOUSING DEVELOPMENT

SANTA EULALIA, IBIZA, SPAIN

PERSPECTIVE Madrid has recently finished a Residential project in Santa Eulalia, Ibiza. We consider this a good sample of sustainability criteria applied to architecture, a general approach PERSPECTIVE has implemented in all the projects since the group was founded.

The 20 unit complex is composed by 3 blocks located in a former agricultural sloped plot south oriented surrounded by pine trees and with the typical Ibiza retaining walls.

In order to define the best strategies to make the compound sustainable the site was carefully analysed. Ibiza has very mild winters and hot and humid summers, therefore goals in terms of energy conservation required to maximize solar gains in winter and to block the summer sun, at the same time it was important to provide natural ventilation in order to cool down the building.

Taking these consideration into account, the blocks where placed at different levels adapting them to the natural ground, thus maintaining the shape of the plot and reducing the excavation volume. In addition, blocks were oriented true south, following the slope, thus letting main windows capture sun in winter and daily sea breezes. Overhangs, porches, and window moveable louvers, allows wind to cross ventilate the building while blocking most of the sun. Ceiling fans in all rooms provide an extra comfort in mild days.

Vernacular architectural characteristics have been conserved and also contribute to sustainability, white walls of the buildings reduce solar gains in summer, at the same time, the retaining walls were built using the natural stone of the site, following traditional Ibiza architecture. The pavements used in the landscaping and parking, was made of concrete blocks on top of a sand base, coloured in accordance to the natural surroundings. All these elements are permeable, thus not modifying the natural flow of water. Trees and shrubs and various local species, were planted to shade the hard surfaces in order to refresh outdoor temperature in the natural surroundings.

In addition to these, there is a cooling system with heat pumps to be used in extreme hot days. Finally, to provide hot water, solar panels have been installed on the roofs.



HOUSING DEVELOPMENT OEIRAS, PORTUGAL



Total area: 22.112 m² Designed by PERSPECTIVE Lisbon

On the outskirts of Lisbon, a mere 15-minutes from the city center, this high-standard apartment complex covers a 3.829 sqm land parcel on a hillside overlooking a green valley to the East and the river Tagus to the South.

Distributed along 4 blocks with 5-floors each, this new development will host 94 apartments with typologies ranging from 1 to 4 bedrooms. Most of the ground floor taken by retail shops.



ENTRALISED OFFICES FOR THE DEPARTMENT OF **JUSTICE & TIPPERARY TOWN COUNCIL** TIPPERARY, IRELAND

Designed by PERSPECTIVE Dublin

Competition winning design providing a new headquarters for Tipperary Town Council and new Offices for the Department of Justice and Law Reform, to accommodate the Irish Naturalisation and Immigration Service (INIS).

The INIS offices provide accommodation for 188 staff in a two and three storey building, and the new Civic Offices accommodate over 40 staff in a three-storey building which also includes a single storey Council Chamber. These office buildings are highly flexible and sustainable, with an A3 BER and LEED 'Gold' Rating. The raised floors and additional vertical shafts can accommodate heat recovery ventilation, future proofing the building against climate change.



DECENTRALISED GOVERNMENT OFFICES ROSCOMMON TOWN, IRELAND

Designed by PERSPECTIVE Dublin

Competition winning design providing new 6,000m² headquarters for the Property Registration Authority with flexible workspace for 220 staff. The building is highly sustainable with BREEAM 'Excellent' Rating.

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