

Die Fortbildungsakademie NRW in Herne (1997–1999)

NRW Training Academy in Herne (1997–1999)

L'académie de formation continue du land NRW à Herne
(1997 – 1999)

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Wood has been used in buildings for centuries.

Usually, wood was locally available or imported from nearby regions and then used for the roof structure of prestigious buildings. It was most of the time hidden by ornamental and decorative elements.

I've been teaching in Austria for 12 years now, and the structure of the Kupelsaal in Wien is a good example of it



During the past, only people living in regions where wood was abundantly available, for example in northern Europe or in mountains, could build exclusively with wood.

In the 90's, I build a Chalet in the Alps using second hand wood.

If using the appropriate species of wood, the material has the particularity to gain in terms of quality with age, even under the attacks of weather and climate.





Since the start of my career, I have considered wood as an especially shapable and useful material.

Early projects in my career, such as the School of Architecture of Lyon, social Housings in Tassin



an energy efficient school nearby Paris



I have always considered ecological and solar design as a structural element of my work as an architect.

'Sustainable development' as a concept appeared at the beginning of the 80's amongst professionals. Its main concern was energy efficiency and production, for example solar and other renewable energy productions.

Concerning architecture, building 'sustainably' or 'eco-responsibly' seems to be a better translation of the sustainable development concept. We give more attention to the preservation of the natural resources available on earth, such as air, water, land, energy and materials.

Wood is a unique material with unique properties and will be more and more used in the future. Wood is renewable and contributes to the preservation of biodiversity under the condition of being cut and replanted from controlled forests, it.

As an entirely renewable resource, it helps preserving sufficient resources for the generations to come.

Wood can be recycled several times.

It can go through a full cycle of uses : structural massive timber can be transformed into smaller planks, then cut into small shavings, then transformed into paper and finally used for heating.

Wood is made from the CO₂ in the air, thus stores part of the carbon and helps keep the atmosphere clean. On top of that, it requires a minimal amount of energy in order to be put to use.

It is almost possible to store as much green house gas as we emit by designing buildings made of wood.

These properties explain why wood has become a main component of my designs for 20 years now despite a cultural misconception of the value of wood in buildings.

Training center of Mont-Cenis

In 1990, we won the commission for the training center of Mont-cenis in Germany. This building is the first project in which I used wood extensively. It has been used in the structure, the skin and the walls of the building.



or my own house in Lyon made of plywood boards protected by an oversized roof structure, illustrate my interest in the material.





The center includes a 170 rooms hotel,



teaching classes, a restaurant, a multi-purpose room, a playing field and a library.



The project has taken place as a part of the IBA Emscher Park exhibition/development, which goal was to restructure the region from a cultural as well as an ecological point of view.

Even if the fantastic properties of wood we described before made it the obvious choice of material, the project was about showing more than a good material. It was about using it smartly.



The building is a positive energy building, which means that it produces more energy than it uses.

The roof constitutes a proper solar energy plant, with 10.000 square meters of photovoltaic cells. It has produced more than 1 Mega Watt of electricity since 1995.



Nowadays, using new generation photovoltaic cells would increase this production up to 1,7 Mega Watt of electricity.

From an energy point of view, we could categorise the energy efficiency devices as follows: active devices i.e. photovoltaic cells and passive devices. Concerning the project, a good example of passive device is the giant greenhouse that shelters the different elements of the program.

This design is extremely effective. The temperatures inside the building are very similar to those of Nice when it is actually located in Northern Europe.



Factually, it means that the inside of the building benefits from a 10 degrees southern climate, thus reducing the quantity of energy required.

On site was a disused coal mine from which methane was escaping. Methane is a much more effective green house gas than CO₂.

The project includes the harvest of that gas, which is then burned. It produces hot water and electricity for the whole neighbourhood while transforming methane into carbon dioxide and steam.

Rainwater is collected and used for the pools and the fire security system.



Let's get back to wood.

The wood used for construction has been cut from a nearby forest, where it had been left to dry naturally for two years.

Because most of the embedded energy of wood comes from its transportation and artificial drying, the production of the timber used in the construction required a negligible amount of energy.



Raw, then cleaned and sanded tree trunks are used for the structure of the greenhouse.

Once prepared as described, these trunks are assembled using metal moulded pieces. The timber structure of the greenhouse is made of both solid and glued-laminated timber.



The small buildings sheltered by the greenhouse are made of wood as well, except for some elements made of concrete in order to respect the fire regulations.

It would have been possible to make them of wood too, but we couldn't afford them.

The skin of the buildings protected by the greenhouse as well as most of the inside walls are made of plywood.



The design has been awarded the Eurosolar prize, the wood construction prize and many other awards.

The building has been delivered in 1997 and inaugurated in 1999. The fact that it has since then been fully booked shows its success. The design demonstrates that we can combine wood, technology, ecology and modernity in the same construction.

As an architect, sustainability is my main commitment.

I have been trying for 20 years, ever since that project, to reduce the impact of buildings on our environment. Wood is one of the most useful materials in order to achieve this goal.

It is not always easy to persuade clients to use timber.

Slowly, and against preconceived ideas, more and more people understand that wood not only ages well, but also resists fire.

Most people are very critical towards its change of color while aging.

Personally, I like when the material changes, matures and slowly reaches its final appearance.

Since the 90's, I built several constructions made of wood like the market hall in Lyon





or the Botanical Gardens in Bordeaux.





For each building we have delivered, the users are very satisfied with the result.

And I don't know whether it is thanks to the design or the use of wood.

Probably both.

Wood is often appreciated for its warmth and human dimension which contrast with the cold and often monumental use of concrete.

However, the training center's greenhouse is of monumental proportions!

I have been able to use wood for the construction of the housing units of a hospital in Lyon.

This entity is located on the roof of the building, just above the surgery blocks.



Each material visible on the building is related to a use. The groundfloor is essentially made of glass and welcomes the user. The surgery and radiology facilities are covered with stainless steel and the rooms are made of wood.





Halle Pajol

We are currently building a four floors high wooden building in Paris.

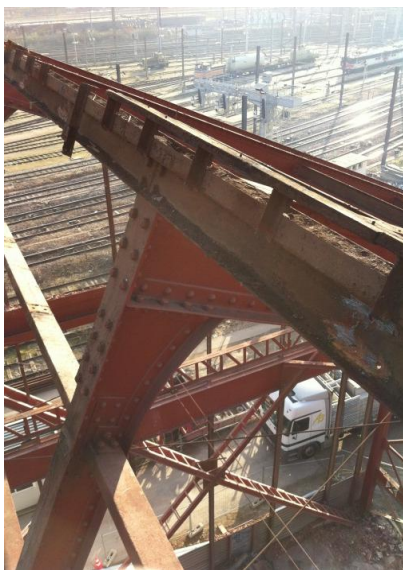
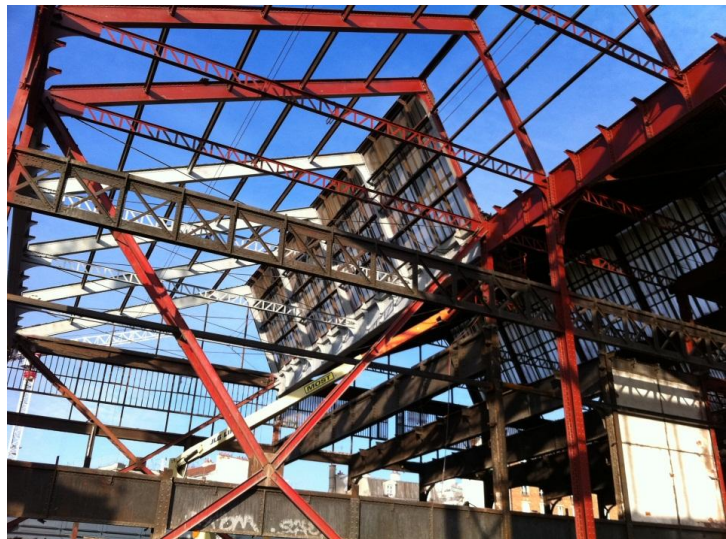
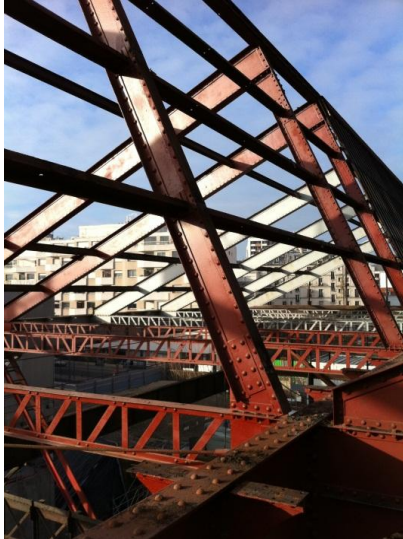
The project includes a youth hostel, a library, a large conference room, some shops and a garden.





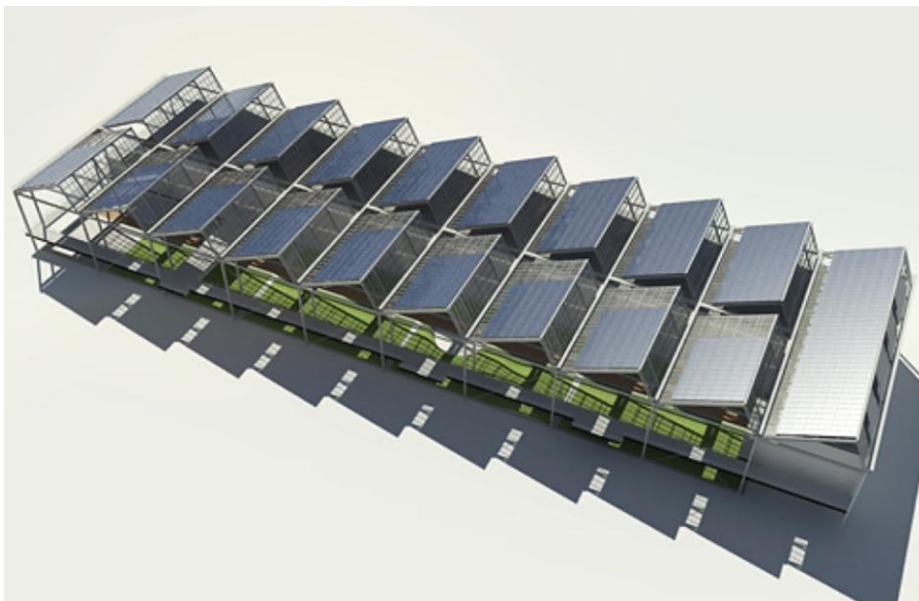
The whole project is sheltered by an already-existing metallic hall structure.



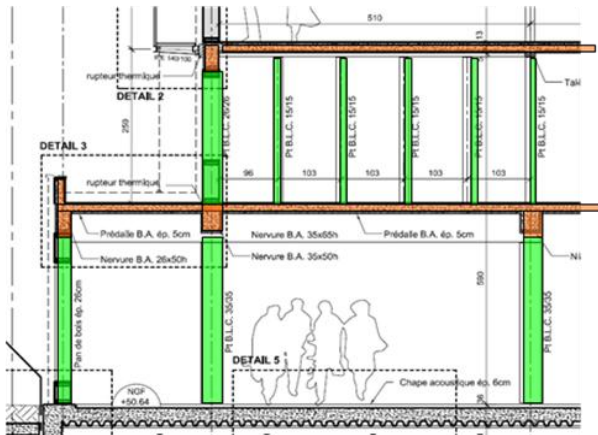


We covered this structure with 3.500 square meters of photovoltaic cells. This building will be the first positive energy building of central Paris.

In order to comply with thermic requirements and regulations, the structure of the building is made of wood and concrete.



The vertical elements (pillars and walls) are made of wood and the slabs are made of concrete.



This building is very innovating and I am very impatient seeing it delivered, which is planned to happen in September 2012.





The company's other projects that are currently under construction are more traditionnal. These projects are housings, and either made of wood or of a combination of wood and concrete, for example in Rouen, Bordeaux,



Nancy,



Versailles



and Vitry.



Each of these buildings is energetically very efficient.

When computing the carbon balance of an energy-efficient project, we realise that a major part of CO₂ emissions is imputable to the nature of the materials.

Even when the regulations limit the use of wood, we find ways to use it.

Office building in St-Denis

For example, we delivered in August a positive energy office building which external walls structure is made of wood.

This design enables the owners to reshape the skin much more easily than with traditional walls and therefore to adapt the construction to different uses and activities.

Sustainability is also about making buildings flexible in time, thus reducing the energy and resources required when changing of use.

Finally, I would like to show a picture with people, because at the end, it is for them that we build.



