



Helsinki's cool wood school

At TKK, the Helsinki technical university, one of Europe's best-regarded courses in contemporary timber architecture and design, continues to attract students worldwide. Director **Pekka Heikenen** describes what's in store for those signing up to Wood Studio

A first impression for those entering the architecture school's workshop within Helsinki Technical University could be that of stepping into an efficient building factory. For instance this summer you would have found a huge pile of smooth fir board sitting on the workshop floor, packed and ready to be transported to the Jyväsjärvi lake shore, close to the central Finnish town of Jyväskylä, the former hometown of the best known Finnish architect Alvar Aalto. In one part of the workshop a group of students are hard at work on some last detailing, while the sweaty workshop foreman looks on.

Behind this busy atmosphere lies the final work of the department's Wood Program. The students are finishing preparation for their project, a Summer Sauna to be built on the Jyväsjärvi lake shore. The perspiration is because the building needs to be ready in time for the Midsummer festivities.

The Sauna project is simulating a flexible industrial timber construction method. Students have been designing structures and preparing for the realisation of the project during the whole spring term, guided by their teachers. This is the last phase of the project where

the feasibility of the details is tested by constructing the buildings' components and erecting the building with their own hands.

The Programme

Over the last 13 years, the Wood Studio has built 18 different models of wooden architecture. The work has been enormous, and has led to the accumulation of a vast amount of expertise, knowledge and skills in wooden construction. Wood as an organic material is one of the most challenging building materials and therefore learning through making plays a central role in the TKK Department of Architecture Wood Program. The Wood Studio came out of the establishment, in 1995, of a timber architecture professorship, which was established with the purpose of coordinating the timber construction teaching in the architecture department and in the laboratory of Wood Technology and Construction Engineering. As this cooperation developed it was noticed that in the university's different departments teaching the use of wood was being given at many levels and that there were possibilities for cooperation with the Technical Research Centre of



Left: *Forest rester* 2001/2's Aitta guest house. Several woods, including larch, aspen, spruce, oak and alder, were applied to make the truss and walls.



Finland and other Otawood groups. This opened the way for a training program with the aim of covering the whole field of timber construction.

The background

The program has developed significantly, with an English-language Wood Program launching in 1999, as an internationalised version of the former Wood Studio. Learning by working with one's own hands is at the heart of the programme with one of the main goals being to design and build an innovative wooden building during the one year course. This is supplemented by a multi-faceted year-long teaching package organised around the hands-on design and building.

Contents

Wood Program's main themes focus on exploring the architectural, technical and ecological properties of wood. The aim is to become acquainted with the whole lifecycle of wood and to study wood as a traditional, as well as a modern, building material. The Wood Program provides a thorough and all-round view of the whole chain of wood construction, starting from the tree in the forest and ending up with a wooden building or structure.

The Wood Studio works around two main periods. In the autumn, less extensive structures at a scale of 1:1 are constructed, and in the spring the students will build an entire wooden building. The teaching of wooden architecture is divided into three parts: lectures, design, and workshops with excursions.

The goal of the first period is to demonstrate the connections between the material and architectonic shape. During the autumn term, students learn how to use wood, and study the key elements of wooden architecture: wooden materials, joints, frames, and cladding. This is quickly followed by design work, with students getting hands-on experience in working with wood. Students also have the right to make mistakes. Every assignment starts with a short analysis that is intended to familiarise students with the subject and foster



Top: *Sofa Sauna* The Telтта Sauna completed during 2002/3 used 10 LVL boards, a kilometre of pine shafts and canvas.

Bottom: class of 03 working on the living unit

excitement in the practice work carried out in groups. The course ends with a design competition that chooses the main project of the term: a wooden building or structure built together by the group.

The whole spring term will be taken up by the design and construction of the main project. The idea is to study various alternatives more analytically than in conventional architectural design. Architectonic parts of the solution are made by comparing alternatives worked on by groups and choosing the solution that best fits the logic of the project. In the future, the importance of design will be emphasised and an effort will be made to make building as easy as possible.

Acquainting the students with wood materials and wood construction is divided into three parts. The lectures emphasise the theoretical background of wood and acquaintance with timber construction through demanding design tasks and a versatile excursion program. The first lecture series, held jointly at the department of architecture and in the laboratory of Wood Technology, outlines the theoretical background. Specialists from various timber construction fields give guest lectures. The lecture subjects vary between the

biological and technical properties of wood and details on timber construction. The second part is formed of tutored design studios where students get to know the details of timber construction and architectural forms of expression. The subjects of the design task vary and the tasks are tutored by designers working in timber construction.

This way of approaching wood is practical, which is essential during Wood Program's third semester, where students get acquainted with the use of wood through excursions and workshops at the practical level. The result is that each year a wooden building or structure gets being designed and materialised through the Wood Program. Present projects include an ice-cream kiosk in the town of Hanko and a marine watch tower by the sea shore in city of Helsinki. Plans for the next year include, among other projects, participation in the Solar Decathlon to design and build an energy-efficient or rather self-sufficient wooden house. During the excursions students get acquainted with the Finnish forests and the different wood species, the tradition of timber construction, contemporary architecture and the Finnish wood industry.



Above: a second 2002/3 Wood school project was *Transformer*, opening from a minimal box in winter into a bar and cafe kiosk during the summer months, the walls hinged onto the glulam timber pillar beam frame.

Left: model making is used extensively within the studio course.

Students

Teamwork is the most important aspect of Wood Program. A project always has a main architect, but it should be possible for all the students to participate in the development of the project. Work is carried out in groups and the goal is to create good wooden architecture, so the greatest challenge is usually the refining of ideas, rather than adding new ideas.

Within the Wood Program, students learn by doing things themselves, and they often learn more from each other than from the teachers. Based on the idea that it is better to learn in groups, lecture series, studies, guided workshops and other theoretical parts that support the hands-on work have been added to the programme. Collaboration and working together is the best part of Wood Studio, and at the same time can prove challenging. If these challenges can be overcome, the project succeeds and everyone can be proud: 'we have built a house together!' This requires the students and teachers to be committed to the achievement of a common goal

Academically the Wood Programme is a one-year tuition-based non-degree full time program for advanced students and architects. Architects, engineers and students from different parts of Europe, North and South America, Australia and from Asia have all enrolled in the Wood Program. Our aim is to give students a general introduction to wood as a living organism, to the different uses of wood and concentrate on particular questions regarding wood. Learning by doing is central to the teaching process within the Wood Studio. It is important to feel the weight of wood with one's own hands, how it bends and cracks, what kind of surface it has and how strong the wood is. Although the time is limited to one year, this one year at the Wood Studio is an effective and unforgettable learning experience. Our goal is to offer students an experience that cannot be gained from books.

We believe the Wood Program opens the door to the versatile world of the use of timber. We know that design of a wooden building demands competence, skill and artistic sensitivity, and therefore we try to inspire students to go deeply into the essence of wood architecture and to continuously study and work with wooden buildings. A wooden building is extremely high tech and in comparison, seen from an architect's point of view, construction of a mobile phone, for example, is as easy as ABC.

FURTHER

Wood Studio's Pekka Heikkinen has led the Wood Program since 1999.

For further information about Wood Program see arkkitehtuuri.tkk.fi/engl/woodprog or contact Pekka direct on pekka.heikkinen@tkk.fi

Farewell to the local saw-mill

Despite the popularity of timber frame construction and upsurge of new timber buildings around the country, the English local timber economy remains in dire straits, symbolized by the quiet disappearance of the local saw mill. Carpenter **John Russell** doffs his cap in respect.

*'See-saw Marjorie Daw,
Johnny shall have a new master;
He shall have but a penny a day,
Because he can't work any faster.'
Anon¹*

This familiar nursery rhyme still sung by many 20th century children may be a direct reference to the ancient craft of 'see-sawing' timbers on trestles with giant 'pit' saws.^{2,3} If so, it attests to the significance of the timber milling industry in the lives of our ancestors. Sawmills were widespread in the countryside, particularly in the wooded southern English counties. One can find many old stationary mill sites scattered throughout the villages of Kent, Sussex and Hampshire. They were places of noise and dust and hard labour, where lumber was produced for all manner of domestic and industrial uses. From fencing to furniture, from a building's beams to its floorboards and cladding. Today the UK's timber industry is in a much diminished state. Approximately eighty five percent of our timber is imported.⁴ Much of this is pulpy softwood bought in the Baltic, America and increasingly from Eastern Europe. Not only is this economically troublesome since it represents a colossal percentage of the UK's balance of payments deficit, but in addition there are concerns about the importation of timber particularly hardwoods from unsustainable sources.^{5,6}

For many years, probably from after the end of the World War 1 onwards, the number of hardwood mills in the UK has been in decline. Whilst the Forestry Commission has been surveying biennially the number of UK mills since 1996, the exact extent of this decline over the decades is not entirely clear.⁷ I was recently told by a local miller that in 1953 there were in what is