

The return of Estonian wooden architecture

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A large quantity of Estonian timber is exported abroad as a cheap commodity. Unique Estonian wooden architecture might help us to add value to Estonian raw material, create more environmentally sustainable housing, and manage local forests more efficiently.

Sille Pihlak

People have lost faith in architecture as a way to improve the human environment [1], with hope regarding the feasibility of such improvement declining over the past fifty years in particular [2]. The emergence of this attitude has been aided by the monolithic and unfriendly human environments resulting from 1950s and 1960s urban planning, which we are still surrounded by. The mindset is further deepened by modern architecture – glass high rises that reflect the new capitalist system, and the new suburbs of questionable architectural quality. Where or what is Estonian local architecture?



Figure 1: Tartu pedestrian tunnel and bridge competition entry. 1st prize. Freeform shingle surface, tinted according to the UV value simulations. Rendering: Practice for Architecture, Research and Theory.

Materiality awareness

Wood is our main renewable natural resource, but the urban population of today is alienated from it. Luckily there are still areas with centuries-old wooden architecture in the larger Estonian cities and towns. Despite the fact that new wooden buildings make up a marginal part of local architecture, logging has not decreased. In fact, 91% of timber not used for power or heat generation is exported [3] – for use in log homes in the Alps, saunas in the backyards of Central Europe, the interior of the Oslo Opera House. In this regard, Estonia has become a producer of a cheap commodity, not adding much value to it. It seems we cannot be bothered to look for novel ways to design wooden products which might add character to the local timber and increase the price of exports.

How might we bring wooden architecture back to our building culture and use it to create a healthier and more sustainable (urban) human environment?

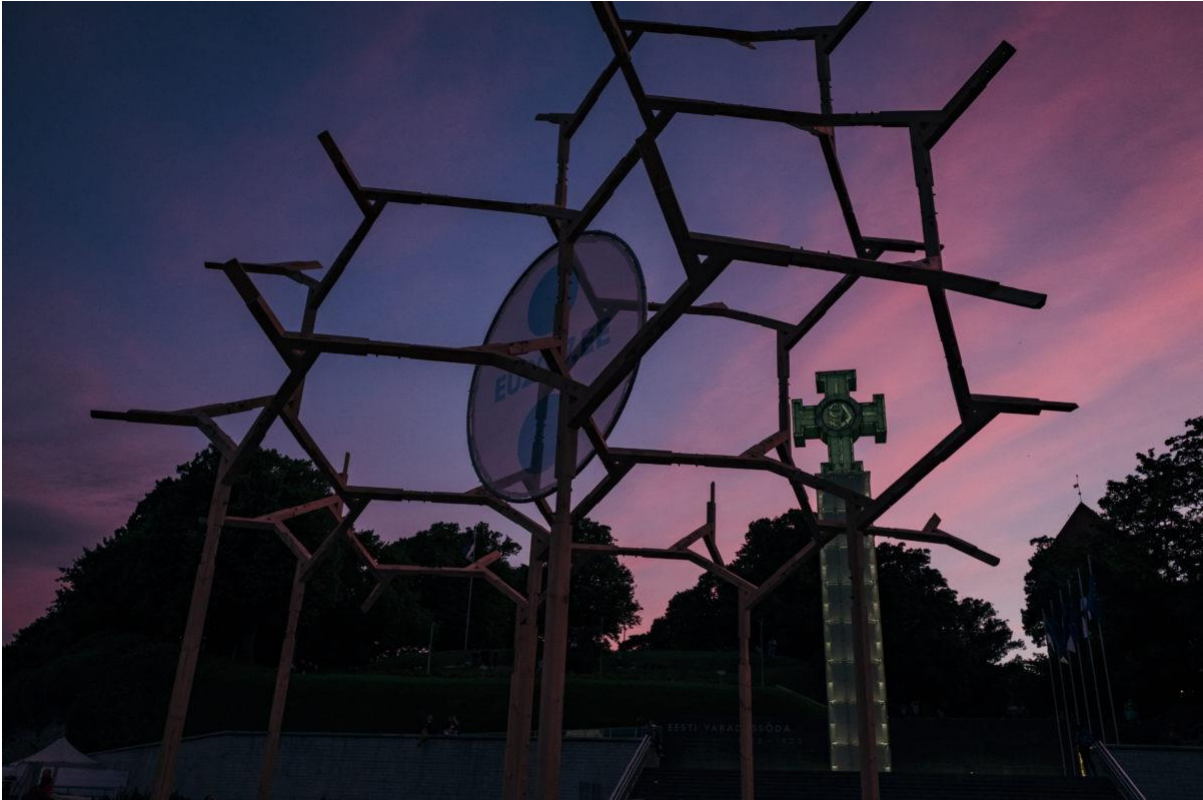


Figure 2: Estonian EU presidency Opening Ceremony Installation at Freedom Square in Tallinn, Estonia. An endlessly growing structure constructed out of a single repeating element. Photo: Tõnu Tunnel.

Digital society and modern architecture have something in common

Architecture is moving away from the narrative (architect-engineer-builder) design process. [4] The process where a concept design created by the architect is passed on to the engineer, who solves the technical problem of producing blueprints and an operational design, is far from ideal. The architect is left out of most of the process, and any later changes due to engineering or construction-related limitations may no longer be in sync with the original concept design. The inclusion of environmental technologists at an early stage of the design process provides much better opportunities to develop novel wooden architecture solutions.

Fortunately, the practice of having all parties from the architect to the builder work on a single 3D model is becoming more widespread in modern architecture. [5] This replaces the above linear process with an iterative system, which is a prerequisite for designing effective human environments. Amendments made to the CAD design reach all parties simultaneously, which helps them arrive at an optimally economical and energy-efficient solution. The parametric design, widely used in architecture, where changing any one parameter results in the automatic adjustment of the entire solution, makes managing ever more complicated geometries faster and easier.

Computer-friendliness has become a national feature for Estonians. Therefore, one might hope that among Estonians digital cooperation will catch on quickly. Estonian wood industries employ impressive technology – from automated production lines to multi-axis CNC mills (Computer Numeric Control, a computer-based control system which enables precise physical reproduction of digital designs – ed.). The Faculty of Architecture at the Estonian Academy of Arts has many years of practice with small-form wooden design, and Estonian engineers are highly experienced in the designing of wooden buildings and structures.

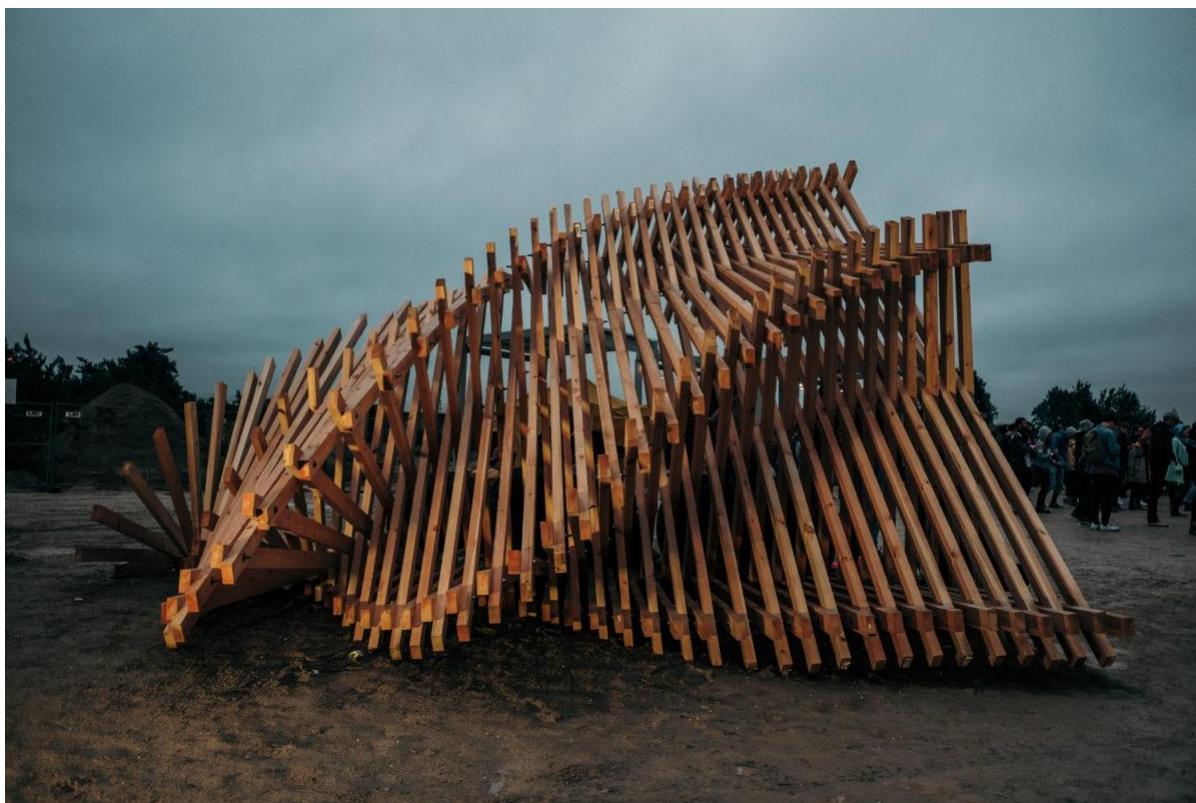


Figure 3: Rheological Formation installation at Into the Valley music festival in Rummu, Estonia. Parametrically generated stage, consisting of 328 elements, which were CNC-thrilled without joinery and assembled within a day. Photo: Tõnu Tunnel.

Adding value through design

It would appear that Estonia has all the prerequisites for innovation in wooden architecture. In that case, all we are lacking is belief in our ability to locally and autonomously design and produce high added-value wood-based products, buildings, and human environment. Together we may well arrive at novel log home designs rooted in tradition but implemented in a modern fashion. How wonderful it would be if such new wooden architecture found its way to our streets and suburbs!

Combining our digital mindset with local raw materials might result in novel and original Estonian wooden architecture and more human-friendly living environments, not to mention the opportunity to increase the value of local timber and manage our dear forests significantly more meaningfully.

- [1] Bingler, Steven; Pedersen, Martin C. 2014. How to Rebuild Architecture. – The New York Times, 15.12.
- [2] Excerpt from the video “Bjarke Ingels: Advice to the Young”, 7:10.
- [3] In 2014, 90,8% of timber was exported. Source: Puuinfo.
- [4] Excerpt from the 03.12.2015 lecture by engineer Jan Knippers in the course of the Estonian Academy of Arts Faculty of Architecture open lecture program.
- [5] E.g. CAD programs.