

BURNING THE INERT

What is burning? The inert is burning.

Why is it burning? Because the inert holds the capacity to burn.

Who is performing the fire? The fire is performing.

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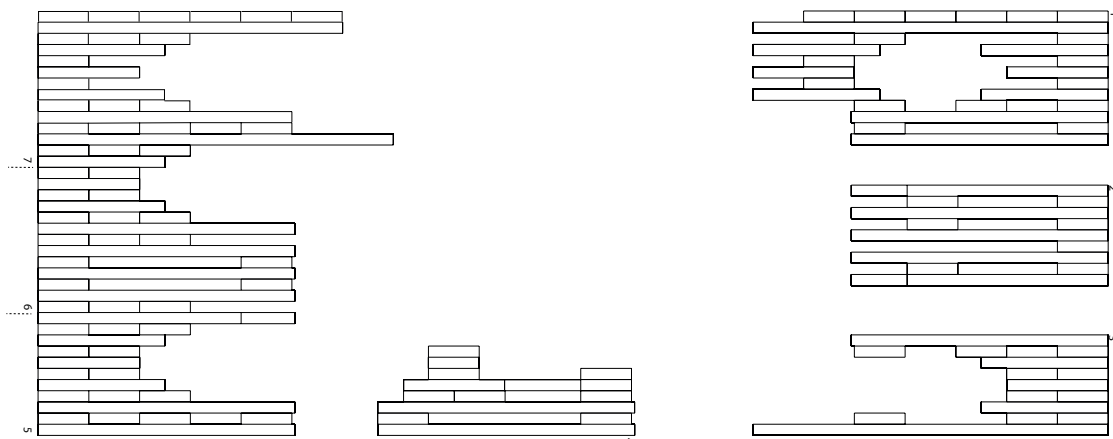
WHAT IS THE INERT?



The model is a lamination of wooden boards; a ‘homemade’ cross laminated timber (CLT) element where all the knots, bends and bulkinesses of the wood is absorbed, and balanced in the assemblage of the boards and glue. Through lamination the qualities and properties of the individual board is neutralised. It removes agency from the wood preparing it to take any form upon it; its materially becomes more inert.

The material is flexible and in the model, it forms an outer figure with inner spaces, embedded in thick and solid walls.

In the last 10 -15 years, many new wood materials have been developed. The materials



are designed to fulfil specific tasks in buildings - they are engineered materials. An example is CLT (Cross Laminated Timber) which is a relatively new engineered wood material. Low quality soft wood is glued together in layers eliminating the anisotropic qualities of the wood creating a uniform isotropic and fully calculable and reliable material. The material is solid and plastic in the sense that it can form curved faces and be cut with CNC (Computer Numerical Control) cutters into almost any shape. CLT is most commonly used as a structural materials in-between interior gypsum and exterior façade cladding.

CLT can be considered an inert version of a wood log if we focus on the material qualities. CLT has less inherent power of action, motion, or resistance than a wood log. It is calculable matter, ready to be formed by an external (human) design intention.

Houses are gatherings of materials put together by humans to constitute the specific house. Compositions of materials can be considered material assemblages - vibrant materials with different agencies put together creating more or less conflictual meetings accommodating external demands in relation to conditions like among others climate, construction and aesthetics.

The model is built to be burned; it is built by me: an architect investigating a material and a building technique with the purpose of burning it. It is built for the event of fire; to receive and catch the fire.

WHY IS IT BURNING?



CLT is an inert version of a wood log, but it still possesses some internal capacities; the capacity to burn is intrinsic to wood and CLT. This capacity could be claimed to represent a creativity in line with Brian Massumi's (Massumi 1992) approach to the anisotropic qualities of wood when he writes about the woodworker reading the signs of the wood when working with it. The signs are the qualities, which envelop a potential; the capacity to affect and to be affected. When reading these signs, the woodworker interprets the wood and develops what is enveloped in the sign. The signs are a contraction of time. It's an indicator of future potential and a symptom of the past (the growth of the tree, evolution of species and so on). (Massumi 1992)

The fire is, like the woodworker, also reading the signs of the wood, interpreting and developing what

the sign envelops. But the fire is not a sophisticated reader, it has only one way of reading. When the fire burns the wood, it transforms the material into another material. The bounded chemical energies in the wood is released by the fire and actualising the capacity of the wood.

Through this process, in the eyes of the spectator, the fire reveals some creative potentials of the inert. The new material created through the burning, the coal layer, shows new patterns, smells, colour than the wood.

The model is built to be burned; it is built to receive and catch the fire. Materials in buildings constitute building elements holding specific properties, and have the capacity to lose their function – to “die”.

A wooden beam can be a loadbearing building element and it has the capacity to burn. The already identified properties are always actual, but the causal capacity to burn is not necessarily actual as long as the building doesn't burn (in so far as a capacity can be considered a particular capacity of something it is actual, but the capacity is not necessarily actualized.)

The capacity to burn disappears through its actualization! The fire dies out eventually. DeLanda writes about the relation between property and capacity: the capacity can be real without being actual and the technical term for this ontological condition is ‘Virtual’. “This double life of material systems, always actual and virtual, has been emphasised by contemporary materialist philosophers such as Gilles Deleuze: The virtual is not opposed to the real but to the actual. The virtual is fully real in so far as it is virtual... Indeed, the virtual must be defined as strictly a part of the real object-as though the object had one part of itself in the virtual into which it is plunged as though into an objective dimension.” (DeLanda 2015)

Burning is a virtual dimension of the unburned wood.

March 10. 2017 the model was burned at Danish Fire- and security Technical Institute inside the extinguish hall. The model, the homemade CLT, the inert version of a wood log, actualized its virtual dimension of its ‘capacity to burn’. The model did not ‘die’ from the fire; it was created through the burning, with its planning, staging, audience, documentation and the event itself. It gained a permanence through the photos and films shot at the event and through the memories of the gathered audience.

Strategy for the burning process:

The experiment aims at burning the interior without burning the exterior. The fire is supposed to carve out a space in the interior leaving the exterior as untouched as possible/protecting the exterior.

The structure is prepared for the fire. The lamination is perforated, leaving gaps, cracks, pipes and cavities throughout the structure for the fire to get oxygen from, pass through and providing a large material surface area to feed the fire.

The structure was never solid but the fire is supposed to act as a space shaping agent, carving out the interior.

The structure, which is built in seven sections, is assembled in the middle of the hall, clearing sufficient space around it in case of the structure collapsing during the fire.

Each section is levelled and potentially secured with metal straps in-between the sections.

The structure is placed on an insulation mat. The fibres of the insulation bat are soaked with fuel.

The inside of the structure is stained with fuel and the outside of the structure is stained with water.

Location: The extinguish hall at DBI

Date: 10.03.17 ; fire start at 11 am

Fire personnel: Reidar Dissing, Technical Assistant

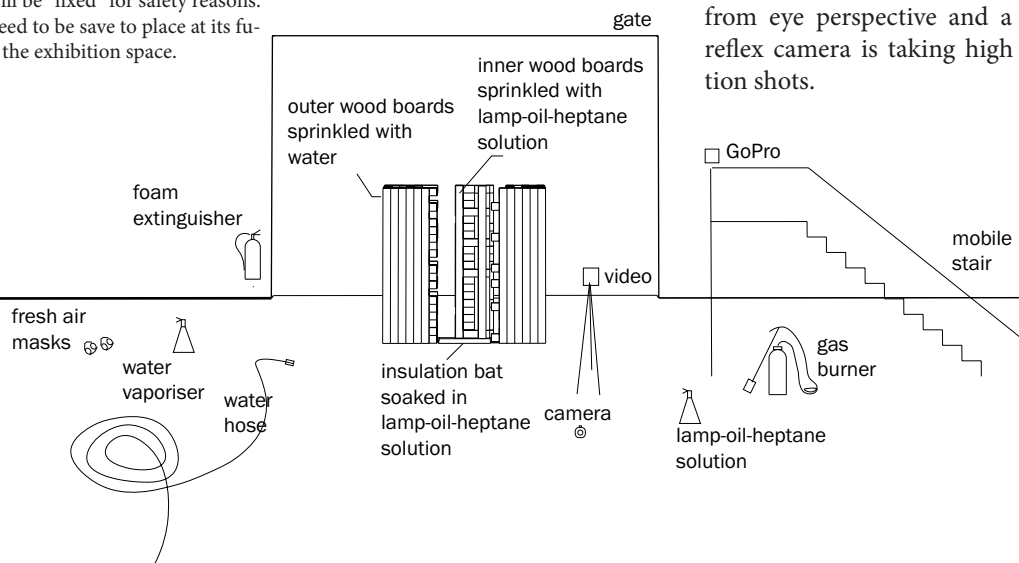
During the fire:

The insulation bat is lit, and the fire carefully observed. The fire must be extinguished before the structure becomes unstable. The fire is extinguished with water – not foam.

The fire should be kept inside the structure as much as possible. This will be attempted keeping the outer wood moist during the fire.

After the fire:

If the fire has developed instability of the structure this will be “fixed” for safety reasons. The structure need to be save to place at its future position at the exhibition space.



Documentation:

Three cameras are prepared for documentation. One GoPro camera is doing a stop motion picture from a mobile stair elevated to a bird's perspective, a video camera is filming from eye perspective and a mobile reflex camera is taking high resolution shots.

WHO IS BURNING?

The fire is!

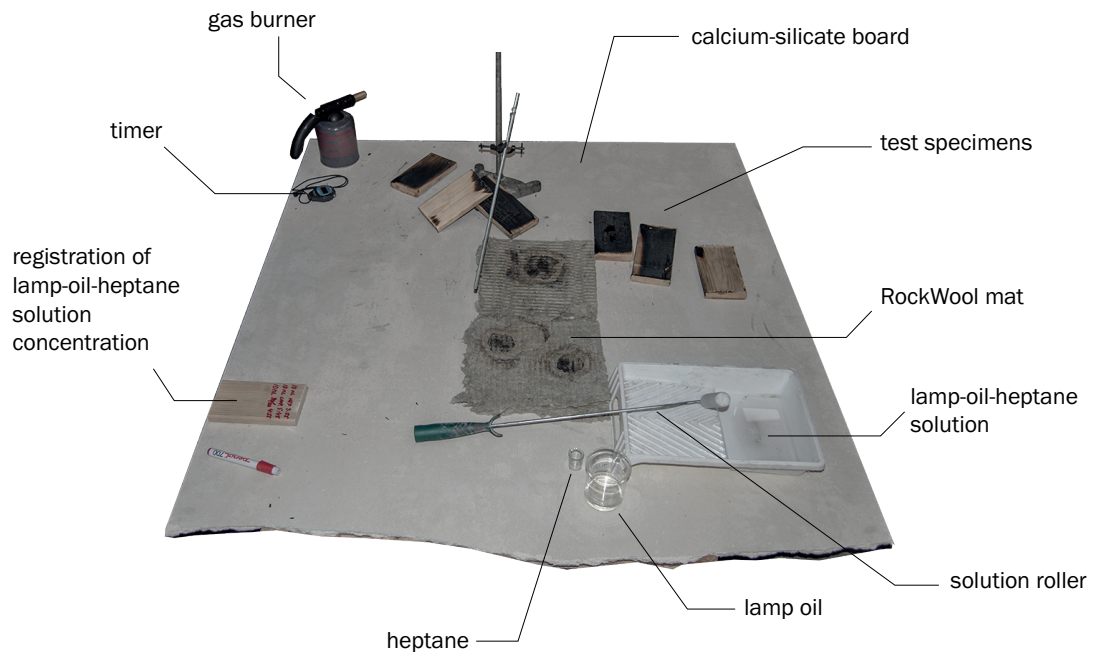
The fire is the agent reading the signs of the material. The fire is an event both affecting and being affected by its fuel. The wood is affecting and being affected by the fire. A vital element in the wood fire assemblage is oxygen, characteristic for all oxidation assemblages.

The flame is connected to wood and air as its fuel; it shapes and is shaped by the wood and spatial context. Through the event and the documentation of it there is added new members to the assemblage; the spectator. And as mentioned before it is through the eyes of the spectator that the fire reveals some creative potentials of the inert. Its creation of a new material can be perceived a creative action. But as Graham Harman precisely points that ‘fire burns cotton stupidly’ (Harman 2011:44f). The fire is reading the signs of the wood, but fire is a bad reader. It tends to be a destructive or at least a simpleminded reader only looking for something to eat.

What does it mean to be vibrant and have agency? I claim that agency means to have the capacity to affect and to be affected. This capacity is not restricted to humans but to all things and matter.

Fire holds that capacity and so does less vibrant materialities like CLT and all other materials constituting the assemblages of our buildings. Materials are always in a process of generation and degeneration – materials are vibrant.

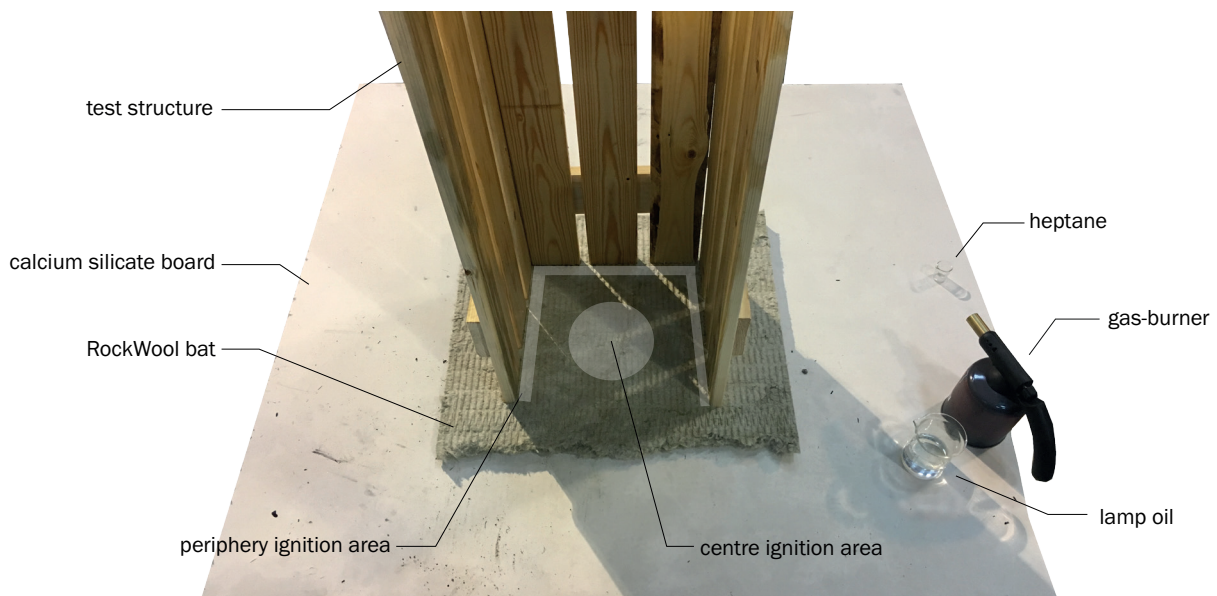
Testing the fire



Testing the burning method

Before burning the structure a smaller scale experiment is conducted in order to determine:

- the concentration of the lamp-oil-heptane-solution
- the burning time of different solutions
- the required time to stain the structure with the solution
- the evaporation time of the solution
- the position of the solution in the insulation mat
- the effectiveness of the water sprayed on the exterior



The question of material agency is discussed by scholars in different fields; archaeology, social science, philosophy, art and architecture to name the most dominant. Social theorists argue that previous ideas of agency have been too narrow by defining agency in relation to the human subject, ignoring the agency of materiality or the non-human in general (Jones and Cloke 2008).

We, humans, are materials; “we are walking talking minerals” (Margulis and Sagan, *What Is Life*.) This act of burning the inert is a philosophical exercise attempting to analyse architecture from the view of a vital materialism, taking into account the agency of the constituent parts of architecture: the materials - the building products; “A lot happens to the concept of agency once nonhuman things are figures less as social constructions and more as actors, and once humans themselves are assessed not as autotons but as vital materialities.”(Bennett 2010:21)

CONTEXT

Wood is conceived as THE natural, living building material. To say that wood is a living material will be agreed by most. Then to state that wood can be an isotropic, predictable fill material to put in between our inner and outer cladding can be a radical statement, but nevertheless a reality when concerned with new engineered wood materials like CLT.

To discuss the qualities of CLT, in the way it is currently used one is left to discuss it on a macro-level. CLT can lower the CO2 emission if it replaces materials like concrete and steel because of its “lower production energy and lighter weight (transport). Wood has gone from a sensuous natural material conceived 1:1 to an abstract conceived matter discussed on a macro society level.

CLT is designed to pose as little resistance as possible when opposed to a form. The material behaviour and qualities of the wood is oppressed by form projected on to it. For what reason? Is it for the convenience of a building process? Is it to enhance the control of the material? Probably both, but with the gain of convenience and control the creativity of the material is lost.

BIBLIOGRAPHY

- Bennett, J. 2010. *Vibrant matter : a political ecology of things*. Durham: Duke University Press.
- DeLanda, M. (2015) *The New Materiality: The New Materiality*. *Architectural Design*, 85, 16-21.
- Harman, G. (2011) *The quadruple object*.
- Jones, O. & P. Cloke. 2008. *Non-human agencies: trees in place and time*. In *Material Agency*, 79-96. Springer.
- Massumi, B. 1992. *A user's guide to capitalism and schizophrenia : deviations from Deleuze and Guattari*. Cambridge, Mass.: MIT Press.