

WORKS+WORDS 2019
Biennale in Artistic Research in Architecture
28 November 2019 to 19 January 2020

A House like Me

Anthropocene

Human activity is so comprehensive that it has now changed the Earth permanently. This change in the geological record has been proposed to define a new unit of time: the Anthropocene¹. The word comes from the Greek *anthropo-* that means “human” and *-cene* that means “new”, i.e. *The Human Epoch*.

Due to human activity, “the survival of many societies and of the biological support systems of the planet is at risk”². Drought, extreme rain and flooding caused by climate change are inevitable. Only “rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings)”³ may limit global warming to 1.5°C.

The word *sustainable* (Nachhaltigkeit in German) was first used in 1713 by Hans Carl von Carlowitz who described long-term thinking not short-sighted economic interests as necessary in forestry⁴. To Carlowitz, growth and harvest must be balanced through means of rationalisation, limitation and substitution.

A similar thinking is expressed by Ernst Haeckel who created the term *ecology* in 1866 using the Greek *oikos* that means “house” and *-logia* that means “explanation”, i.e. the doctrine of household. Interestingly, the Danish word for beauty (*skønhed*) coming from the German *schonen* that means “take care of” similarly suggests durability.

Sustainable development is described in the Brundtland Report of 1987 as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”⁵. The definition underlines the importance of aiming at long-term interests, not short-sighted profit.

In continuation, the UN has defined 17 goals for sustainable development⁶. In architecture, especially SDG 11, Make cities and human settlements inclusive, safe, resilient and sustainable as well as SDG 12, Ensure sustainable consumption and production patterns, seems relevant.

SDG 11 is about ensuring access to adequate, safe and affordable housing for all (11.1) and sustainable and resilient buildings utilising local materials (11.c). SDG 12 is about the efficient use of natural resources (12.2) and reducing waste generation through prevention, reduction, recycling and reuse (12.5).

The single biggest threat to sustainable development is global warming, expected to exceed 1.5°C around 2035, 2°C around 2053 and 3.2°C by the end of the century under current policies⁷. According to Climate Action Tracker, the world is not on track to limit warming to 1.5°C and meet the Paris Agreement goals⁸.

One part of a strategy may be to remove CO² from the atmosphere, either by using Carbon Capture and Storage technology (CCS) or by using plants to capture CO² through photosynthesis⁹. CO² is stored in wood e.g. furniture and buildings as long as they live and released to the atmosphere again when they decompose or burn.

¹ See, for instance: Ellis Erle C., *Anthropocene: A Very Short Introduction* (Oxford: Oxford University Press, 2018).

² UN, *Climate Change*, accessed 23 September 2019, <https://sustainabledevelopment.un.org/topics/climatechange>

³ IPCC, *Special Report. Global Warming of 1.5°C*, accessed 23 September 2019, <https://www.ipcc.ch/sr15/>

⁴ See: Arler Finn, 'Bæredygtighed og bæredygtig udvikling', in *Bæredygtighed – værdier, regler og metoder*, edited by Finn Arler, Mette Alberg Mosgaard and Henrik Riisgaard (Aarhus: Aarhus Universitetsforlag, 2015).

⁵ UN, *Our Common Future, Chapter 2: Towards Sustainable Development*, accessed 23 September 2019, <http://www.un-documents.net/ocf-02.htm>

⁶ See: UN, *The 17 Sustainable Development Goals*, accessed 23 September 2019, <https://sustainabledevelopment.un.org/>

⁷ See: Climate Action Tracker (CAT), *Warming Projections Global Update*, accessed 26 September 2019, https://climateactiontracker.org/documents/644/CAT_2019-09-19_BriefingUNSG_WarmingProjectionsGlobalUpdate_Sept2019.pdf

⁸ Ibid.

⁹ See: IPCC, *Special Report. Global Warming of 1.5°C*, accessed 23 September 2019, <https://www.ipcc.ch/sr15/>

According to the Climate Land Ambitions & Rights Alliance, biomass in forests and other ecosystems have the potential to capture and store more CO² than technological approaches¹⁰. This, however, requires a major shift in land use and management, including the end of deforesting, forest regeneration and massive forest expansion.

In an architectural perspective, this points at three things: First, architects must profoundly rethink the way we built on this Earth. Second, wood as building material that stores CO² may have a new potential. Third, wood in furniture and buildings must be secured a long lifespan if the maximum effect is to be reached.

The question is then, is there an architectural answer to this.

Model

The work presented at Works+Words2019 is a 1:5 scale model of a pitched roof building¹¹. The model comprises three parts: a supporting base, a principal structure and an outside cladding.

Gottfried Semper, inspired by a traditional Caribbean hut, describe the four elements of architecture as hearth, roof, enclosure and mound¹². The four elements are related to the four production methods: pottery, carpentry, weaving and earthwork. Solid construction (stereotomy) and filigree construction (tectonics) designate two archetypical construction principles.

In continuation, Adolf Loos identifies the general task of the architect as to “provide a warm and liveable space”¹³. According to Loos, carpets are warm and liveable, but since houses cannot be built out of carpets, the second task of the architect is to invent “a structural frame to hold them in the correct place”¹⁴. Loos argues against imitation and in favour of the ‘principle of cladding’.

The W+W19 model comply with this basic composition: a base supports a structural frame that holds a cladding. From a technical perspective, the design is inspired by the properties of wood, the tectonics of joinery and basic structural principles including stabilising diagonal members.

In a historic perspective, the design is inspired by references such as the traditional Nordic timber-frame barn and the Japanese Ise Temple. In addition, contemporary interpretations of wooden construction such as works by Kenzo Tange and Kazuo Shinohara as well as Erik Korshagen and Ole Meyer are references of architecture.

The model is inspired not by the way the references look, but rather how they are. Heidegger points out that to the Greek *tikto* means “to bring forth or to produce”¹⁵. The Greek word for *technique* means neither art nor craft but rather “to make something appear, within what is present, as this or that, in this way or in that way”¹⁶.

In continuation, the W+W19 model may be understood as a synthesis of technique and aesthetics in which the qualities of wood that has been cut, planed and connected according to the tectonic and structural principles, presents a spatial character that creates meaning.

Matter

The base is made of four similar walls, each placed in the middle of the sides of a rectangle with the proportion ration 2:3. This leaves open the four corners, wider when seen across rather than longitudinal. The walls are statically dimensioned to ensure sufficient support as well as wind load stability in both directions.

¹⁰ See: CLARA, *Missing Pathways to 1.5°C. The role of the land sector in ambitious climate action*, accessed 23 September 2019, <https://www.climatelandambitionrightsalliance.org/report>

¹¹ A previous version of the project has been presented here: Andersen Nicolai Bo, 'Beautiful Tectonics - Corporeal Aesthetic in Tectonics as Sustainable Parameter', in *Structures and Architecture - Bridging the Gap and Crossing Borders*, edited by Paulo J.S. Cruz (London: Taylor & Francis Group, 2019), p. 134-142.

¹² See: Semper Gottfried, *The Four Elements of Architecture and Other Writings* (Cambridge: Cambridge University Press, 1989).

¹³ Loos Adolf, 'The Principle of Cladding', in *Spoken Into the Void* (Cambridge: The MIT Press, 1982), p. 66.

¹⁴ Ibid.

¹⁵ Heidegger Martin: 'Building Dwelling Thinking', in: *Martin Heidegger, Basic Writings* (London: Routledge, 2008), p. 253.

¹⁶ Ibid.

The base walls are built by lime based blocks. The material is inorganic, fire resistant and has a high load capacity. The tall base ensures that the wooden structure is kept dry, also during periods of extreme rain and flooding caused by future climate change.

The base gives the impression of resting steadily on the ground. The thickness of the opaque walls suggests weight and stability and gives the space an introvert character contrasted by the open corners allowing the space to expand diagonally.

The principal structure is a timber frame placed on the base. The timber frame is made of columns, braces and beams. The roof structure is made of large principal rafters with high inclination. A triangular configuration in the middle of the structure secures stability in all directions.

The traditional timber joints made entirely out of wood are able to absorb compression as well as tension. Wood is an organic material with high stability and low thermal conductivity. All principal structure joints are interlocking. The wood is planed and treated with lime soap, a traditional method to enhance the lifespan by protecting the wood from decay caused by wear and weathering.

The sharp pitched roof of the principal structure gives a feeling of upward rise in contrast to the horizontal expansion of the *piano nobile*. The upward feeling of pull inside the tall space counteracts the downward feeling of push performed by gravity. The contracting feeling of the timber beams ties the expanding feeling of the space together. The fragile feeling of the filigree structure is balanced by the feeling of stability provided by the triangular elements.

The outside roof cladding is made of horizontal plywood sheets supported by battens. The battens rest on common rafters supported by timber purlins on top of the three principal rafters. Along each side of the building, a pergola with low roof inclination is attached. All the cladding wood joints are overlapping. The roof boards are standard size plywood sheets clad with roofing felt. Made of SBS-bitumen and covered with pebbles the material has high perforation resistance.

The construction principle allows the building to be insulated according to the demands of the building regulations¹⁷, without hiding the principal structure behind insulation and gypsum boards. The large roof with high inclination protects the wooden structure from water as well as from UV radiation, thus prolonging the lifespan of the building.

The thin roof cladding visually distanced from the underlying structure gives the impression of scales providing protection to the body of the building. The lime-soaped surface of the wood gives a soft, almost abstract feeling. Overlapping joints endow the cladding with a crispy feeling as it thins out towards the roof edge.

The exterior figure of the building and the interior space in combination with the tectonic articulation and structural principle performed by the material properties of wood give the house an ambiguous feeling of 'rest' and 'rise', 'contraction' and 'expansion', 'pull' and 'push'. These double tendencies balanced in one single structure endows the building with a feeling of perfect, dynamic balance.

Body

The German philosopher Hermann Schmitz distinguishes the material body from the felt body as the basis for the conception of human experience¹⁸. The material body is what we can see and touch, whereas the felt body is the location of affective involvement manifesting itself in corporeal impulses.

According to Schmitz, the body is a "resonating antenna spreading and absorbing feelings as atmospheres"¹⁹. Bodily communication takes place when a body is absorbed by a corporeal dynamic that connects it with another body or physical object through movement in itself or suggestions of movement and through synesthetic characters, i.e. form or colour associations.

¹⁷ See: Trafik-, Bygge- og Boligstyrelsen, *Bygningsreglementet*, accessed 23 September 2019, <http://bygningsreglementet.dk>

¹⁸ See: Schmitz, Hermann, *Kort indføring i den nye fænomenologi* (Aalborg: Aalborg Universitetsforlag, 2017) and Schmitz, Hermann, *Kroppen* (Aalborg: Aalborg Universitetsforlag, 2017).

¹⁹ Schmitz, Hermann, *Kort indføring i den nye fænomenologi* (Aalborg: Aalborg Universitetsforlag, 2017), p.122.

By means of suggestions of movement and synesthetic characters, the corporeal feelings as atmospheres are strengthened or lowered through pure sensation or affective involvement. As a result, bodily communication makes situations, defined by being whole, meaningful and complex.

In the W+W19 model, bodily communication takes place between the body of the building and the body of the perceiver when absorbed by the material effect and the dynamic of the tectonic articulation and structural elements.

The human body identifies with the body of architecture in balance against the push of wind and pull of gravity. The perceiver understands columns in relation to bones in the human body, tension members in relation to muscles and material effects in relation to the skin. Through pure sensation or affective involvement, the building communicates a feeling of dynamic equilibrium to the perceiver.

In continuation, architecture may be understood as an event taking place as communication between the body of the perceiver and the body of the building. The space of the felt body is – in contrast to the abstract Euclidian space (x,y,z) – defined by the downward pull of gravity and the upward push of the standing body; in front of and behind; to the one side and the other.

When experiencing architecture, an emotional connection between the body of the house and the body of the perceiver is thus established. The material effect and static tension is felt as the work of architecture resonates with the temporary fragility of the human body.

In this perspective, the quality of architecture is not the result of an intellectual exercise. The perspective is not abstract but always anchored in the body. The meaning of architecture is neither an objective property to the building itself, nor a purely subjective matter of personal taste. Rather, the house presents aesthetic knowledge in physical communication with me.

A House like Me

As pointed out, as long as deforesting ends and forests are regenerated and expanded massively, wood has a potential as a building material that stores CO². The house exemplifies how wood protection by design may help secure the structure a long lifespan and thus prolong the CO² storage capacity. Furthermore, the house exemplifies how to prepare for the extreme rain and flooding caused by climate change. However, it seems as if humans in the Anthropocene have become aesthetically numb.

Curzio Malaparte describes his house on Punta del Massullo on the eastern side of Capri as *casa come me*, a house like me²⁰. In a phenomenological perspective, the human body identifies with the body of the house by communication through pure sensation or affective involvement.

The work of architecture engages the perceiver and gives a meaningful feeling of connection to the world. In this perspective, meaning in architecture is created not through symbols or signs but rather through mere presence created by the material architectural vocabulary. Architecture is an autonomous discipline based on natural forces like gravity, light and photosynthesis. In continuation, climate conditions are not something architects can choose to accept or ignore; rather it is central to the creation of architectural meaning.

As a possible architectural answer, A House like Me suggests an experience of common being between the building and me that may encourage to take better care of the world. Maybe aesthetic knowledge through bodily communication may help to rethink the way we built on this Earth.

Acknowledgements

This paper is a part of the research project “Building - Heritage - Value” which is about the transformation of existing buildings, historical knowledge and technical mastery into a contemporary architectural practice. The research project is a part of the research effort “FORAN” – a partnership between Realdania and KADK.

References

²⁰ See: McDonnough Michael ed., *Malaparte - A house like me* (New York: Clarkson Pettey Publisher/Verve Editions, 1999).

Andersen Nicolai Bo, 'Beautiful Tectonics - Corporeal Aesthetic in Tectonics as Sustainable Parameter', in *Structures and Architecture - Bridging the Gap and Crossing Borders*, edited by Paulo J.S. Cruz (London: Taylor & Francis Group, 2019), p. 134-142.

Arler Finn, 'Bæredygtighed og bæredygtig udvikling', in *Bæredygtighed – værdier, regler og metoder*, edited by Finn Arler, Mette Alberg Mosgaard and Henrik Riisgaard (Aarhus: Aarhus Universitetsforlag, 2015).

CLARA, *Missing Pathways to 1.5°C. The role of the land sector in ambitious climate action*, accessed 23 September 2019, <https://www.climatelandambitionrightsalliance.org/report>

Climate Action Tracker, *Warming Projections Global Update*, accessed 26 September 2019, https://climateactiontracker.org/documents/644/CAT_2019-09-19_BriefingUNSG_WarmingProjectionsGlobalUpdate_Sept2019.pdf

Ellis Erle C., *Anthropocene: A Very Short Introduction* (Oxford: Oxford University Press, 2018).

Hegger Manfred, Drexler Hans, Zeumer Martin, *Basics – Materials* (Basel: Birkhäuser, 2006).

Heidegger Martin: 'Building Dwelling Thinking', in: *Martin Heidegger, Basic Writings* (London: Routledge, 2008), p. 239-256.

IPCC, *Special Report. Global Warming of 1.5°C*, accessed 23 September 2019, <https://www.ipcc.ch/sr15/>

Loos Adolf, 'The Principle of Cladding', in *Spoken Into the Void* (Cambridge: The MIT Press, 1982).

McDonnough Michael ed., *Malaparte - A house like me* (New York: Clarkson Pette Publisher/Verve Editions, 1999).

Schmitz, Hermann, *Kort indføring i den nye fænomenologi* (Aalborg: Aalborg Universitetsforlag, 2017).

Schmitz, Hermann, *Kroppen* (Aalborg: Aalborg Universitetsforlag, 2017).

Semper Gottfried, *The Four Elements of Architecture and Other Writings* (Cambridge: Cambridge University Press, 1989).

Trafik-, Bygge- og Boligstyrelsen, *Bygningsreglementet*, accessed 23 September 2019, <http://bygningsreglementet.dk>

UN, *Climate Change*, accessed 23 September 2019, <https://sustainabledevelopment.un.org/topics/climatechange>

UN, *Our Common Future, Chapter 2: Towards Sustainable Development*, accessed 23 September 2019, <http://www.un-documents.net/ocf-02.htm>

UN, *The 17 Sustainable Development Goals*, accessed 23 September 2019, <https://sustainabledevelopment.un.org/>