Alvar Aalto’s Tuberculosis Sanatorium in Paimio:

Psychological Functionalism

Charlotte Jolly
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Thesis

Alvar Aalto’s Tuberculosis Sanatorium built from 1929-33 in Paimio, Finland, contrasts forms from nature with characteristics of modern architecture, with the intention of creating a spiritually stimulating and functional experience designed for its patients.

Background

Aalto lived from 1898-1976 and started his own firm in 1923 (Anderson, 2012 p. vii-ix). His father and grandfather had large effects on Aalto and it was his grandfather who stimulated Aalto’s philosophy towards nature (Lahti, 2000 p. 11). Trips to other inspiring countries such as France and Holland in the 1920’s brought features of modern style into Aalto’s design repertoire (Lahti, 2000 p. 15).

Philosophy

While Alvar Aalto designed modern architecture, his designs stand out from his fellow modern designers of the time with his unique features from nature and specified functionality.

Inspiration from Nature

“Nature, not the machine, is the most important model for architecture” - Aalto, 1938 (Curtis, 1996 p. 453).

His philosophy revolved around a cohesive relationship with the environment and he viewed his work as ‘bio-morphic’ (Pallasmaa, 2007 p. 19).
Psychological Functionalism

Pallasmaa describes his work as, “firmly committed to Functionalism, but a Functionalism that is grounded in humanist priorities...The overwhelming significance of his work lies above all in his direct approach to the operational and experiential factors in the functions of day to day living” (Pallasmaa, 2007 p. 15).

Aalto wanted to lessen the strain between the client and the interior environment he was living in, especially concerning the technology in the space (Pallasmaa, 2007 p. 22).

Design Language

Aalto’s buildings tend to display curvilinear, vegetal forms inspired from nature. One frequently sees reed-like forms in his buildings and circular light forms. His belief in the connection of biology and architecture is usually clearly evident. His buildings also take aspects from the International Style, such as modern use of materials, and ribbon windows. Finish vernacular and the modern aspects often mix. One of the things that most sets his buildings apart from other designers is his loyalty to the client’s needs in the space.
Case Study

Overview

To Aalto, the Tuberculosis Sanatorium (1929-33) in Paimio, Finland, was "an instrument of healing" (Pallasmaa, 2007 p. 109). Indeed, "He concluded that the sanatorium’s design needed to address an intertwined array of physiognomic, phenomenological, and cognitive phenomena particular to its afflicted users’ needs" (Anderson, 2000 p. 22).

Aalto won the contest for the design of the building. Two of the judges for the contest were advocates of modern design, indicating that Aalto’s design features aspects of International style (Paimio).

This is the first building to bring Aalto’s career to a bigger level (Lahti, 2000 p. 15). It is believed that he was inspired by the Zonnestraal Sanatorium (1926-1928) by Bernhard Bijvoet and Johannes Duiker in Hilversum, The Netherlands (Pallasmaa, 2007 p. 109).
Exterior

The exterior displays a large number of international style characteristics. These include ribbon windows, little ornamentation, few materials, and it is a relatively simple rectangular form. These modern features contrast with the vegetal forms found in the orange railings of the balconies. These contrasting forms provide a strong foundation for his psychological functionalism that relies on inducing a spiritual experience of the space.

However, there is more to the building than modern architecture characteristics and forms from nature. Since the Sanatorium was intended to treat patients with Tuberculosis, every part of the design developed from the needs of the patients. During this time period, it was believed that the best treatment for Tuberculosis patients was being around a green environment with fresh air and sunlight. This idea is part of the foundation of the building design (Curtis, 1996 p. 343). All parts of the building design include aspects to make it function better for its clients. The orientation of the building is intentional so that the patient rooms are facing optimal sunlight towards the south. The organization of the building comes from Aalto's thought that while most buildings are designed with a vertical client in mind, the patients here would usually be horizontal. This caused Aalto to organize the rooms of his building around a horizontal axis (Anderson, 2000 p. 22-24).
Inspiration from nature and features of modern architecture travel into the interior as well. The handrails along the stairwells exhibit more vegetal forms as the railings on the exterior did. International style aspects in the interior are seen in the modern use of materials and the fact that there is little ornamentation.

The viewer notices the intentions behind everything in the interior, and thus, it becomes clearer that Aalto has a unique design consisting of functionality, forms from nature, and features from modern architecture. The bright yellow color used throughout the interior was probably designed with the psychological states of the patients in mind. Yellow can produce a happier mood than blue, for example, and for tuberculosis patients, this is extremely important. Aalto’s version of Functionalism does not stop there, however.

The reception desk, upon first glance, has a curved structure from nature that almost literally invites the viewer up to it. This functional, concave part leading up to the assistance window appears to be accessible for those in wheelchairs, which is highly appropriate. Designing the complete second half of the reception desk to be made from windows makes it even more inviting. The color, as well, connects to the color of the stairwell. Yet, the materials remain a part of modern architecture, keeping Aalto’s building up-to-date at the time it was built.
The patient rooms, perhaps, show the largest number of features of Aalto’s psychological functionality. Aalto produced sketches in the design process, showing his thinking behind all of these special aspects. The lighting in the rooms was designed keeping in mind that a patient would want adequate light for reading near the head of the bed. In the image in the lower right, Aalto sketched the difference between a normal, healthy client’s light needs standing up, and those of a patient at the sanatorium. The heat was designed so that the feet at the end of a bed would receive enough heat. For when patients would want to look out towards the Finish landscape, there is a footrest underneath the window along with a platform to act as a desk. The balconies as well, are accessible for beds to be rolled out onto them. Special sinks were designed to reduce noise and splash (Anderson, 2000 p. 24). The handles on the doors can swing down to stop sleeves from catching on them (Pallasmaa, 2007 p. 116). The floors beneath the windows are even at a slope to stop dust from building up (Pallasmaa, 2007 p. 78). All of these details demonstrate the importance Aalto places on psychological functionalism.
Paimio Chair

As one keeps focusing closer in on the Tuberculosis Sanatorium, the importance Aalto’s psychological functionalism becomes increasingly evident.

It is believed that Aalto received inspiration from the Bauhaus designs and from Marcel Breuer’s chairs of tubular steel that Aalto owned in his own home (Pallasmaa, 2007 p. 78). From this, one can see the features of modern style, such as the empty structure of it, and the curved form, present in other Bauhaus chairs. Vegetal forms can also be seen in the curved form of the chair and frame.

Like the exterior and the interior of the building, there are visible features of both modern style and inspiration from nature. However, the main idea behind the design of the Paimio chair further illustrates his unique psychological functionalism. The frame of the chair is made of birch wood and the seat is made from mahogany. The curved form that the chair ended up with was only established through careful study by Aalto of what exact angle would provide the best comfort to support the breathing of the tuberculosis patients (Pallasmaa, 2007 p. 78).
Summary

In the exterior of the Tuberculosis Sanatorium, modern aspects are the most visually frequent, compared to vegetal forms or evidence of functionality. However, as one focuses closer into the building, the modern features are put in the background to the vegetal forms and the importance of Aalto’s psychological functionality. The table below provides a visual summary.

| Tuberculosis Sanatorium  
Paimio, Finland  
1929-33 | Inspiration from nature | International Style inspiration | Psychologically functional |
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<td>Philosophy</td>
<td>“Nature, not the machine, is the most important model for architecture” – Aalto, 1938 (Curtis, 1996 p. 453).</td>
<td>The main characteristics include, “the stress on volume rather than mass, regularity, the avoidance of architectural decoration, etc” (Curtis, 1996 p. 257).</td>
<td>“Instead of mechanical functionality, he began to emphasize the psychological and emotional dimensions of architecture and criticized the tactile and psychological deficiencies of Marcel Breur’s chromed steel furniture” (Pallasmaa, 2007 p. 42).</td>
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| Exterior | • Curved balcony railings | • Ribbon windows  
• Steel-reinforced concrete structure  
• Little ornamentation | • Direction of patient rooms to sun  
• Balconies accessible for patients’ beds |
| Interior | • Curvature of balusters- similar to the vegetable forms of Art Nouveau | • Materials  
• Heating in rooms  
• Sink design  
• Light for reading in patients’ rooms  
• Window-desk-footrest | |
| Paimio Chair | • Curvilinear form | • Little ornamentation | • Curved form intended to ease breathing |

Conclusion

It is these two qualities of International Style features mixed with inspiration from nature that distinguish Alvar Aalto’s work and the Tuberculosis Sanatorium is no exception to that. When these are combined, this helps provide a suitable foundation for Aalto’s psychological functionalism.
References

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