

Metsäpaviljonski, Form Follows Wood



Nowadays, the emphasis in the design of exposition pavilions is mainly full of pseudo-technical or rhetorical ideas of progress. Nevertheless most of them do not communicate a vision. They show a lack of spatial qualities and continuity with the built environment. In general, there is not a common conservation agenda to adapt or reuse exemplary Modern Pavilions. Some emblematic cases are haunted icons, a consequence of undocumented, incorrect or simply fake reconstruction, whilst others are victims of neglectfulness and degradation. Nevertheless, what can we still rediscover by reviving or reconstructing Modern Movement Exposition pavilions? During the 1930s, pavilions were not only visionary and experimental manifestations of living systems but were also temporary and fast-built showrooms disseminating a cultural or ideological message.

By Cristian Suau

By exploring the work of the Finnish architect Alvar Aalto, we find that all his Modern timber exposition pavilions have been rapidly dismantled. What kind of continuity can we generate by rebuilding Aaltian pavilions? How did this sense of primitiveness become a manifesto for the use of rudimentary within Modern Movement Architecture? In order to respond to these queries, we must search on the idea of Aalto's space-frame as a "[...] fantastic structure of free forms; a building with an inner façade". This pavilion-type becomes an organism of assemblage.

Metsäpaviljonski or the Forest Pavilion, built in Lapua in 1938, was characterised by a sense of impermanency of the framework, fleetingness of the event, and primitiveness in the use of wood. The first condition refers to durability of the structure, the second one implies a transient condition of use, and the third one contains the essential material. Despite it being an ignored masterpiece of Nordic ephemeral architecture, the design cleverly combined Modern and traditional ideas of fabrication. The spatial outcome was both tent and hut. It synthesized a morphological transformation, evolving from a geometric form into a fluctuating organism. The Forest Pavilion was an elementary space for display: a primitive frame wrapped by turbulent and fibrous textile patches.

Exposition Pavilions as structures are inherently transitory. This establishes a double dialogue: from nature to architecture and from architecture to nature. Thus the Forest Pavilion emerges as a playful manifesto of primitiveness. Following a Semperian viewpoint, the Forest Pavilion re-bridges the ideas of Modernism rooted in vernacular living rather than avant-garde trends. It refers to the notion of the Finnish tent, *kota*, a temporary nomadic dwelling based on the logic of

'camouflage', where its skin constitutes the bark or shell. In the Forest Pavilion form follows wood.

Wood as Symphony of Lines

"The first fundamental feature of Karelian architecture that meets the eye is its use of a single building material. Few comparable examples can be found in Europe. It is forest architecture pure and simple, with wood dominating almost one hundred percent both as a building material and jointing. From the roof with its strong log structure, to the moving parts of the building, we find timber, which is generally left naked, without the effect of immateriality given by coloring. Timber is mostly used as close to possible in its natural size, according to its own scale. A tumbledown Karelian village is externally somehow related to Greek ruins, where the unity of material is also a salient feature, though in them wood is replaced by marble all the way up to the entablature".
Alvar Aalto,

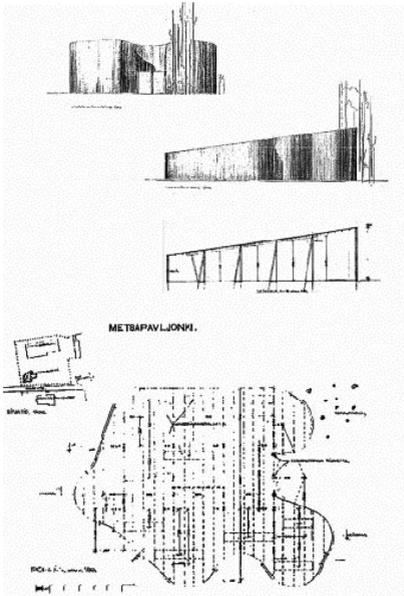
Karjalan Rakennustaide, Uusi Suomi, 1941.¹

If we analyse the initial sketches of the Finnish Pavilion at the Universal Exposition in Paris (1937), we can obtain a rectangular proto-form containing many weaving lines diagonally allocated. These were overlapped whirl-pooling figures: fluctuating surfaces wrapping the main exhibition hall. The application of woven lines confronting straight ones was part of the tectonics trail initiated with the ceiling in the Viipuri Library's lecture room (1931). In *Metsäpaviljonski*, these inner waving traces finally merge as released lines, which delimit its shape.

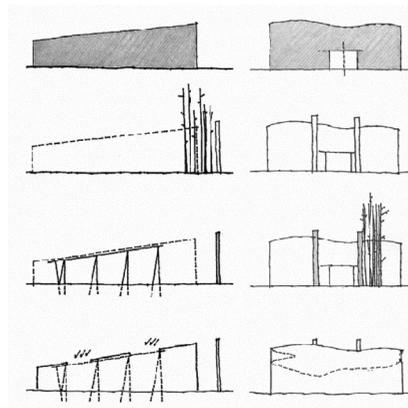
Anonymous and underestimated by the History of Modern Architecture, *Metsäpaviljonski*—a primitive and rural pavilion—appears as synthetic space of the Aaltian thoughts and, at the same time, completes its tectonics meaning rooted in the sense of "symphonic structure".

This implies a reflection on matter and time. In terms of matter, the Aaltian space is metaphorically frozen music, where lines in motion make matter. These interweave each other and thus generate a sequence of fluctuating tissues that emulate forest. In terms of time, the pavilion

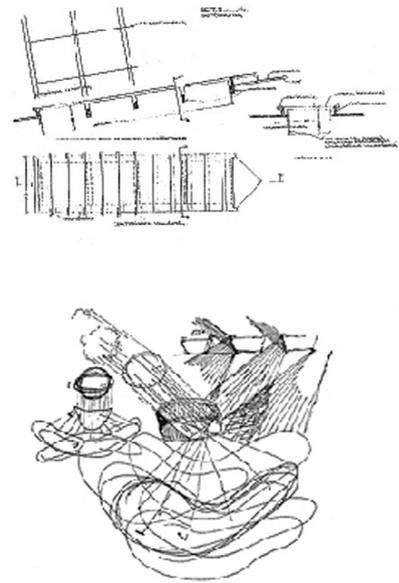
<. Detail of roof frame in Lapua Forest Pavilion. Source: Cristian Suau.



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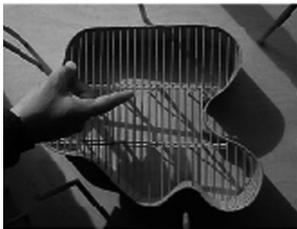
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signifies an ephemeral space, an instant-space.

During the construction of the Finish Pavilion at the New York World Fair in 1939, Aalto affirmed, “an exhibition is a momentary impression, a snapshot that can only succeed if it holds a profound and consistent analysis of Time and the Spirit”.² Both pavilion and the act for exhibiting recreate a cultural vision between built and natural environments. In this sense, wood emerges as appropriate substance of temporality due to its lightness and textile condition.

About Aalto’s architectural language of lines, Colin St. John Wilson affirms, “this is reflected as fundamental characteristic of the ‘structure’ of his creative action. This can be understood by two forms of drawing, an ideogram of two lines based on a continuous line confronting an undulating one. However, these two forms can only be

Figure 1. Original drawings of Lapua Pavilion. Source: Alvar Aalto Archive (AAA).

Figure 2. Studies of place, frame and light in Lapua Pavilion. Source: Cristian Suau.

Figure 3. *Metsäpaviljonki* and Viipuri Library natural light devices.

Figure 4. Original photography of Lapua Pavilion. Source: AAA.

Figure 5. Model making of *Metsäpaviljonki* at scale 1:25. Source: Cristian Suau.

imagined lines of an electroencephalogram, a footprint of cerebral processes in the sense that appear to be always in the argument of the Aaltian building as a complementary between the rigorous analysis and the turbulent emergence of fantasy”.³

The fascination of lines by Aalto is the understanding of movements and natural processes. For instance, the technological research on folding timber plies. In 1926, Aalto expressed that “[wood] should be curved, also ex-

perienced, like an unpredictable line, which runs through unknown dimensions to the mathematicians and, which is the embodiment of everything that form a contrast in the Modern world between the mechanical Brutalism and beauty of life".⁴

The lines evoke a topographic space of discontinuities. Nevertheless, how did the Aaltian space adapt to the surrounding? Central Finland is a discontinuous and fragmented geography. The Agricultural Fair of Lapua took place in June 1938. This event was a modest lab to test the primitive use of wood and its tectonics.

Metsäpaviljonski was an elementary space for exhibit. It displayed the products of local timber companies. Jarl Jaatinen, based on Aalto's guidelines, executed the design.⁵

The Tectonics of the Textile

Only four original drawing sheets exist in the Alvar Aalto Foundation. They describe both spatial and technical aspects of *Metsäpaviljonski*. Two sheets refer to the general plan and location and elevations and the others contain the constructive sections of roof detail, skylight and wall. This rural pavilion was situated nearby a main road and erected within a woody lot of thin conifers.

The Lapua Pavilion evokes the same poetical sense of wood captured by the French poet Francis Ponge in his masterpiece entitled "Notebooks of a Forest of Pine Trees" (1940). The forest (read also *Metsäpaviljonski*) appears like a "piece of nature"; "a relative haven"; "a place sanatorium; and (...) a hall of music". Ponge adds, "Everything is perfectly set up, without excesses, to leave the man in solitude. That vegetation and animation are disclosed to the heights, nothing to distract the view. Everything is dormant, through the multiplication of similar columns".⁶

The *Metsäpaviljonski* main frame consisted of a repetitive system of tripod-columns of 5" in diameter. The structural grid consisted of three modular frameworks of 3.50x4.50 m each. In his book *Alvar Aalto* (1995), Richard Weston erroneously indicates that its outer dimensions were 18.00x14.50 m, with a variable roof height from 4.75 m to 2.75 m. It will be appropriate clarify in the original drawings their exact dimensions.

The Aaltian standardization is made by unity within variety of elements of assembly. It is nonlinear geometry. Therefore, we obtain a combined system of concave and convex curvatures, without orthogonal corners. The analysis of the original drawings indicates new vestiges: the layout of this pavilion is defined by non-Cartesian geometry, a space defined by the logic of turbulences: a constellation of whirlpools.

In terms of skin, Aalto manufactures a sort of mirror-wallpaper, a façade that is mimetic with the exterior. The

principal threshold consisted of two trunks. The visitor finds an opening that is driven by concave walls towards an access. Crossing this position, we find an enclosed space. It is fluctuating, rough and with distorted depths. The wall establishes the limits. The wall is defined by a modular panel system based on studs of 2"x 4". The roof beams are logs (200 cm radius each). The outer cladding is made of overlapped vertical planks.

According to Göran Schildt, he argues this constructive detail was extracted from the undulating ceiling of the Viipuri Library's lecture room. This assertion is insufficient. By confronting composition, textures and geometries we find a sort of bewilderment. The ceiling of the lecture room is a homogeneous and smooth surface. It is a plane, which floats horizontally and follows the foliage of Tarkkeli Park. Nevertheless, the main space of *Metsäpaviljonski* intertwines curved planes of diverse heights.

The surfaces are heterogeneous and rough. The planes roll and wrap vertically the whole shape. Therefore, they are the result of endogenous and exogenous twirling, where the roof is a perforated and tilted plane. It defines a celestial refuge. Its undulating limit constitutes the effect of an alchemical process of transformation of matter, from light to wood. What is the Forest pavilion? Is it the attempt to re-merge the missing part of the Viipuri library? Certainly Aalto applies the same principles of reflectivity of sound in acoustics into natural light.

Forest Frame of *Metsäpaviljonski*

In order to understand the main structural criterion of *Metsäpaviljonski* it is necessary to study the cross section. The main structural frame is a timber chassis or core, which consists of eight tripod-columns within a grid. The columns are anchored on the ground. Over the core hangs a sloping roof, supported by timber beams every 700 mm. The wall surrounds the exhibit space. The roof frame subtly rests on it. Each modular panel has 600 mm of width. The roof is a suspended plane; it levitates and shades the main space. The skylights perform like musical figures on a pentagram. Every opening transforms the natural light into a symphonic canopy.

Apparently the system of external siding is the result of overlapped planks that resemble a variant of similar sheathing systems used in the Finnish Pavilion in Paris and Villa Mairea. It creates the sensation of a dense forest. Inwards we appreciate the same sensation.

The natural light does not enter through eleven skylights of 2500x500 mm, wrongly counted by G. Schildt, but light-catchers with variable lengths. Aalto will implement a similar lighting system at the Finnish Pavilion in New York (1939). In summertime, the roof is the only contact with the sun. Like in Viipuri Library's skylights, light is

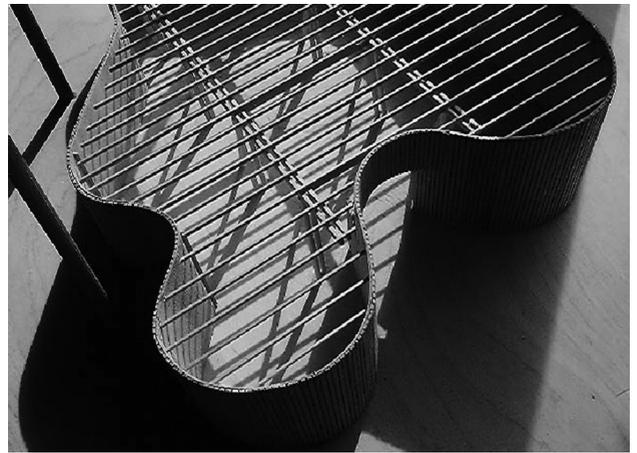
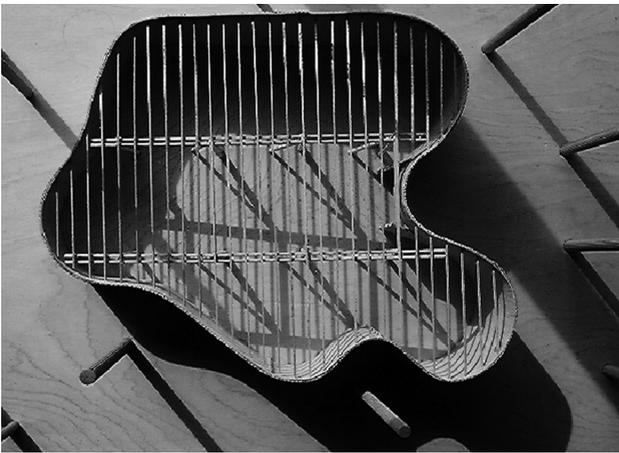


Figure 6. Photography of Lapua Pavilion, 1937. Source: AAA.

Figure 7. Comparative illustrations of preliminary sketch of timber handle at the Finnish Pavilion in Paris, 1937; and detail of vase designed by Aino and Alvar Aalto for the Savoy Restaurant in 1937. Source: AAA.

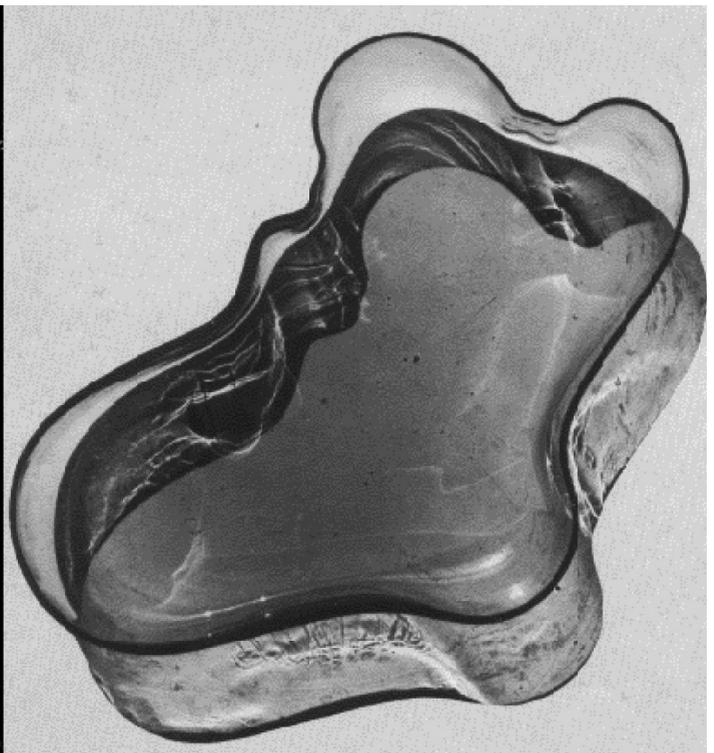
Figure 8. Detail of roof frame in Lapua Forest Pavilion. Source: Cristian Suau

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smoothly canalized through the openings. Light begins to draw woven surfaces beneath the roof. The sun does not represent a cosmic force but a caloric one. The sun is tactile warmth.

In term of landscape integration is essential the comparison of *Metsäpaviljonski* and *L'Annunziata* by Fra Angelico. The boundaries of domestic and rural worlds are treated in a non-hierarchical way. It is a picturesque scene where the green field and the temple are placed at the same level. This generic background contains a winter scene. The building implies sanctuary surrounded by a Naturalist territory.

Form Follows Matter

In *Metsäpaviljonski*, the symphony of free forms is poetically built by turbulences of light and sound. The textile surface, initially sole and internal, became a textile shape, an amorphous body. The tectonics meaning is characterized by the following factors: non-uniform composition; fluctuating plan (variable layout); and wood as textile skin and tectonics frame.

Aalto stated the desire to synthesize irreconcilable terms or dialectic structures: vernacular versus Modern; natural versus artificial; or intuitive versus rational. He always repeats and scales geometrical patterns. For instance, if we observe the preliminary plan of the Finnish Pavilion in Paris, the initial form followed the logic of a liquid shape. Inside appears a sort of inhabited formations articulating abstract topographies. In the Lapua Pavilion, the light lines have shaped the inner space liquid with an edge built by concave and convex folds.

Finale

How should we reinterpret the Aaltian tectonics trail? In the essay called "The Trout and the Stream", Alvar Aalto reflects on restless organisms led by turbulences. A similar approach can be found in the water flow studies of Leonardo da Vinci. Aalto always traces a spatial layout of spa within spa within spa; a process of fractal bifurcations where larger vortexes splits in smaller. This "Aaltian organic whole" is essentially a space in motion: a model of vortexes within vortexes *ad-infinitum*. Its turbulent lines enter into fractional spaces that remain trapped between planes and solids. Is this order of turbulences a new spatial continuity?

This order consists of continuous lines that chaotically define a vacuum liquefied. The space should be represented like liquid in motion between two cylinders. The external cylinder remains stationary while the internal rotates. The movements generate a flow in which the different parts of the liquid are relocated through rotations. In these bifurcations appear inner fluids that vary at dif-

ferent frequencies. In order to increase their rotation, the regular movement disintegrates in random fluctuations. These alterations occur due to all components of the movement are interconnected.

The *Metsäpaviljonski* is a thermal home. "(It) is constructed as a hangar, a warehouse, or a shed (hall). Senile masts touched on verdant conical tress... Infinite columns argue the absence of roof".⁷ The Forest Pavilion is an assembled organism. Its standardized parts and materials have the qualities that enable the largest possible number of combinations. The Aaltian pavilion uses both biological and topological analogies that understand the architectural nature as a set of cellular processes towards a textile outcome.

Notes

1. Schildt, G., *Alvar Aalto in His Own Words*, Otava Publishing Co., Helsinki, 1997, 117-118. *The original text titles Uusi Suomi (The Karelian Architecture)*, written by Aalto, A. (November 2, 1941), Alvar Aalto Archives, no 4127.
2. Smeds, F., *Architecture and Images in the Finland Pavilions*, Tampere-Paino Oy, Tampere, 1993, 54.
3. Colin St. J., *Alvar Aalto and the State of Modernism*, Architectural Reflexions: Studies in the Philosophy and Practice of Architecture, Butterworth Architecture, London, 1992, 91.
4. Text extracted from an unpublished manuscript by Alvar Aalto. See book *The Decisive Years* by Göran Schildt, 12.
5. See Alvar Aalto Archives (AAA). DY, 280; figure 312.
6. Ponge, F., *Cuadernos del Bosque de Pinos*, Tusquets ediciones, Barcelona, 1976, 27 and 98. Ponge insisted in using a dictionary during his regular walks in the forest. He poetically referred to two notions: hangar or enclosed storage and forest as forbidden land.
7. *Ibid*, 99.

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Holds a Ph.D. in Architecture and Master in Urban Design (ETSAB). He has an international teaching and advanced postdoctoral research experience on Architectural Design, Theory of Architecture and Urban Design in Europe and also Latin America. He also has a practice experience in housing, urban design projects and consultancies overseas. He was senior architect/project leader in the Office for Metropolitan Architecture (OMA) in Rotterdam. In addition, he has obtained several awards in design entry competitions such as EUROSPAN and others. His current research mainly covers the following fields: Architecture, Cities and Polyvalence; Socio-cultural Analysis and Theory of Modern/Contemporary Architecture; and Sustainable Architecture. He has a solid foundation of design excellence; conceptualization; innovative and cross-disciplinary vision; and leadership in effective international team-work environments. Since mid 2007 he is a lecturer in Architecture at the Welsh School of Architecture (WSA), UK and also lead an NGO called RECICLARQ in Barcelona: www.reciclarq.org