

‘Interconnected Groups’: Alvar Aalto’s Competition for the Pohjola Office Building, Helsinki, 1964-65

*By Miguel Borges de Araújo**

*This article analyses the Alvar Aalto office’s competition entry for the Pohjola Office Building, Helsinki (2nd prize, 1964-65, unbuilt), named Maiandros. Aalto described the unique plan for this office building – with connected towers placed on a podium in a park, and a hybrid cellular/open-plan organization – as a plan of ‘interconnected groups’. The architectural critic Malcolm Quantrill discussed what remains one of Aalto’s least-known designs within the scope of what he called Aalto’s “modular works”. How and with what objectives did Aalto use the module in Maiandros? Is the project relevant to architectural theory and practice today? Based on a close study of the archival sources in the Alvar Aalto Museum, the current article tests Quantrill’s hypotheses, adapting them in terms of modular composition, modular construction and a modular environment. Thus, Maiandros is considered within the contexts of: 1) Aalto’s office building designs; 2) the changes going on at that time in Finnish architecture (through a comparison with the winning proposal); 3) the development of the modern office building (using as a reference, Reyner Banham’s 1969 book *The Architecture of the Well-Tempered Environment*).*

Introduction

In 1964-65, the office of Alvar Aalto – after 1958, a partnership between Alvar Aalto (1898-1976) and his wife Elissa Aalto (1922-94)¹ – took part in the invited architectural competition for the Pohjola Insurance Company Building (*Pohjolatalo* in Finnish) in Helsinki.² The other invitees were Viljo Revell (1910-64), Heikki Sirén (1918-2013), and Eino Tuompo (1917-2012). Aalto went on to the second stage of the competition (Figure 1) but lost the commission of what was then the largest office building in Finland to Viljo Revell (Figure 2). Since Revell died unexpectedly in November 1964, his collaborator Heikki Castrén (1929-80) was effectively in charge of the project, first, during the competition stage, under

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1. I have previously researched the collaborative dimension of the Studio Aalto. See, Miguel Borges de Araújo, *The Work of the Studio Aalto Collaborators: Practice, Craft and Theory. Datutop 36* (Tampere: Tampere University of Technology, 2018). See also a recent publication dedicated to Elissa Aalto: Mia Hipeli (Ed.), *Architect Elissa Aalto* (Jyväskylä: Alvar Aalto Foundation, 2022). From now on, I use Aalto as referring to their partnership and the studio of collaborators.

2. Stage 1 was submitted on December 17, 1964, and Stage 2 on March 9, 1965.

Revell's name, and then, under his own office name, until the Pohjola Building was completed in 1969.³

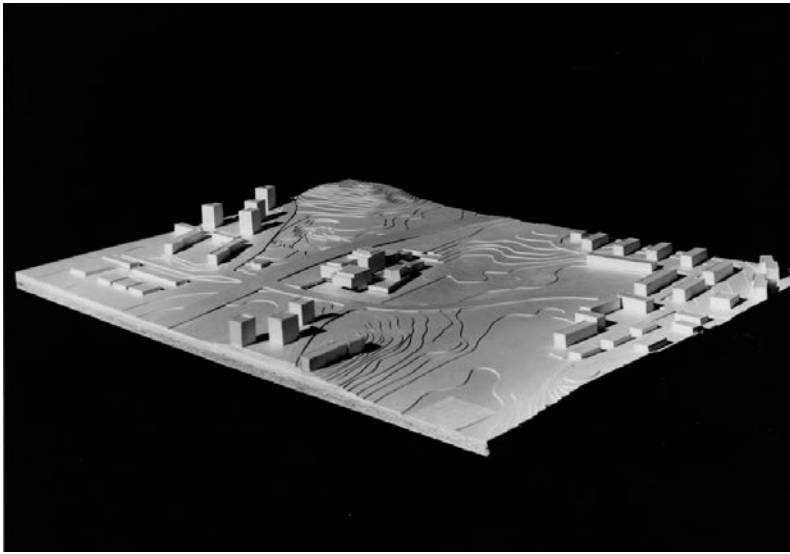


Figure 1. Alvar Aalto, Pohjola Building, 'Maiandros' (1964-65), Photo of the Scale Model Submitted to the Architectural Competition (2nd prize). Note the Plan of Interconnected Towers

Source: Museum of Finnish Architecture Archives, Helsinki (MFA).

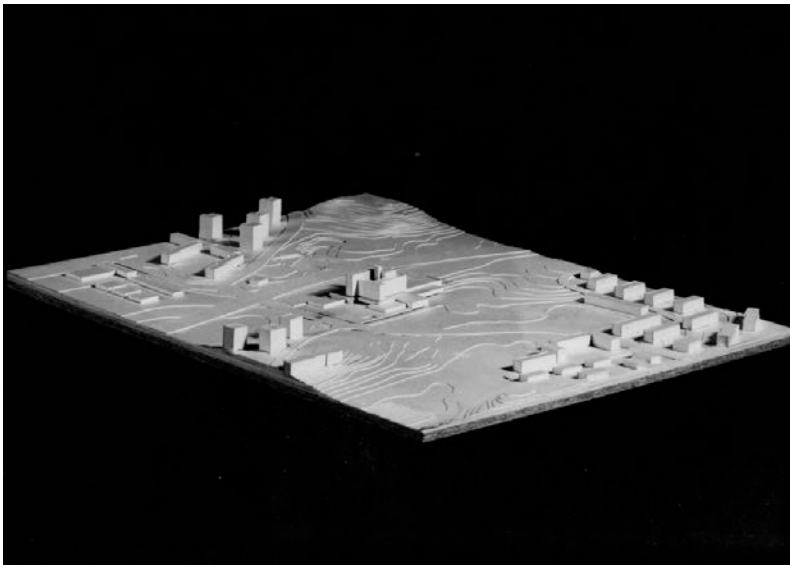


Figure 2. Viljo Revell/Heikki Castrén, Pohjola Building, 'Byromaani' (1964-65), Photo of the Scale Model Submitted to the Architectural Competition (1st Prize). Note the Pinwheel Tower Plan

Source: MFA.

3. The partnership Castrén-Jauhiainen-Nuuttila designed also an extension to the building in 1979. Incidentally, Jaakko Jauhiainen (1934-) had been a collaborator in Aalto's office in 1960-64; Marja Nuuttila-Helenius (1932-2016).

In the post-war period, the growth of the service sector, the congestion of historical city centres, and the development of office machinery created conditions for the emergence of large, suburban offices, including in-house car parking and extensive amenities.⁴ The nature of office work and the relationship between office buildings and the city have notably changed much since then.⁵ In 2015, the Pohjola Company moved to new premises closer to a transport hub in the city district of Vallila. The vacated office complex was partly demolished: the main tower, now without its secondary wings, was preserved and took on a new role as a multi-tenant office building and the centrepiece of a mixed-use master plan by JKMM Architects (Figure 3).⁶ I visited the Pohjola site in 2021, then under redevelopment (Figure 4), as it ceased to be the headquarters of the Pohjola company to become a new district of the city. It is a large park-like area, known as Niemenmäki, set between two post-war residential districts, Huopalahti to the east, and Munkkivuori to the west, and bordered by a major highway running north-south. My visit and empirical observations sparked a series of thoughts, which, although they go far beyond the scope of this article, I have attempted to synthesize in terms of two antithetical processes: the centralization of office work and suburbanization, and the decentralization of office work and re-urbanization. Is Aalto's project relevant to current architectural theory and design conditions?

4. This process began up to a decade earlier in the US. Louise A. Mazingo, *Pastoral Capitalism: A History of Suburban Corporate Landscapes* (Cambridge: MIT Press, 2014). For example, the competition brief for the Pohjola Building, a copy of which can be found in the archives of the Alvar Aalto Museum, included offices for the general administration and for the various units of the company, including the front offices, centralized services, educational spaces, technical departments, restaurant, library, storage, gym, club room, and even rental apartments for employees. *Vakuutusyhtiö Pohjolan uuden toimitalo tilantarvesuunitelma* (Jyväskylä: Pohjola Kilpailu. Alvar Aalto Museum Archives, 1964).

5. For instance, this research was carried out during the COVID-19 pandemic, when social distancing promoted a shift to remote office work.

6. JKMM Architects designed also two of the seven new residential buildings. JKMM Architects, *Pohjola Housing – Urban Planning*.

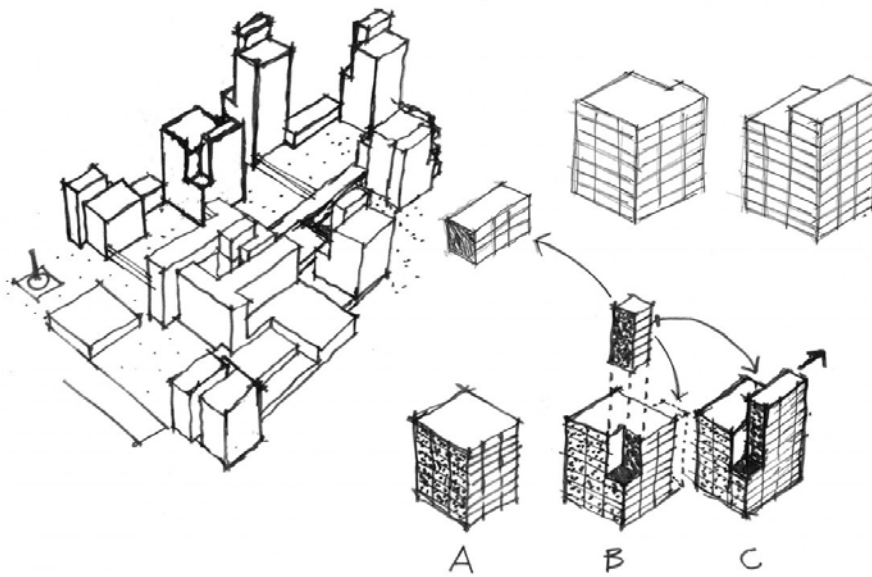


Figure 3. JKMM Architects/ Samuli Miettinen, Pohjola Housing Urban Planning (1st Prize in Invited Competition, 2014). This Early Sketch shows how the Pinwheel Tower Designed by Castrén (Drawn in a Lighter Grey) is preserved as the Centrepiece of the New District

Source: JKMM Architects.



Figure 4. View of the Pohjola Site (South), with the Main Tower of the Pohjola Office Building by Viljo Revell/Heikki Castrén (1964-69) in the Centre. To the Left and Right, Respectively, Two (of the Seven) Residential Blocks Proposed for the Pohjola Housing Plan by JKMM Architects (2014-21)

Source: Photo: Miguel Borges de Araújo, 2021.

The present article, which is part of ongoing research on Aalto's office building designs,⁷ measures the Maiandros against other projects and writings, as expounded below. In the process, it adds to a dispersed group of studies on Aalto's unbuilt designs.⁸

The Plan of Interconnected Groups

The client demands a spatial programme with open-plan offices without corridors . . . Instead of a high-rise office building with a lift, a horizontal office organization was to be proposed because in that way a maximum in flexibility could be attained.⁹

Instead of a high-rise building, the Aalto proposal comprised four square towers, three to seven storeys high, connected to each other and placed on a podium. The connected towers, with a hybrid cellular/open-plan organization, create a semi-continuous workspace with good exposure to nature. Drawing from the Ancient Greek river god, Aalto chose as the required pseudonym for the competition entry, which is one of his least-known works, the name Maiandros (Figure 5).¹⁰ Tellingly, the project seems to have been first published by accident: in 1967, Leonardo Mosso (1926-2020), an Italian collaborator of the Aalto office in 1955-58, and one of the first scholars on Aalto, illustrated his description of Aalto's competition for the BP Office Building in Hamburg, Germany (3rd prize, 1963-64, unbuilt) with a photo of a model of the Pohjola Building.¹¹

In *Alvar Aalto: Volume III*, the BP and the Pohjola buildings are presented side-by-side and described as plans of "interconnected groups".¹² The two projects show similarities in terms of their suburban location, interconnected towers, and use of grids. The BP towers are open plan (35 metres deep), with four structural bays and the core on the edge of the plan. The Pohjola towers (28,5 metres deep) comprise five bays and a central core. With the decrease in dimension and the

7. I have previously analyzed Aalto's office buildings in the Helsinki city centre. See: Miguel Borges de Araújo, "Alvar Aalto – Environment. Office Buildings in City Blocks: Atriums, Arcades and Spatial Grid Facades," in *(Ever)Green Alvar Aalto*, 4th Alvar Aalto Researchers' Network Seminar Proceedings (Helsinki: Alvar Aalto Foundation, 2018), 135-143.

8. The extreme example of which is Gareth Griffiths's (2020) article on Aalto's Israel Conservatory of Music. In the absence of a building or any design proposals, his sources are the letters exchanged with the client, discussed in terms of Aalto's design principles, the site, and the cultural context.

9. Alvar Aalto, "Pohjola 'Maiandros' Office Building in Helsinki," in Elissa Aalto and Karl Fleig (eds.) *Alvar Aalto. Volume III Projects and Final Buildings* (Zürich: Artemis – Verlag für Architektur, 1978), 78.

10. Maiandros does not feature in the publication about Aalto's unbuilt projects published by the Alvar Aalto Museum. Esa Laaksonen (Ed.) *Drawn in Sand: Unrealised Visions by Alvar Aalto* (Jyväskylä: Alvar Aalto Museum, 2002).

11. Leonardo Mosso, *Alvar Aalto: Teokset 1918-1967* (Helsinki: Otava, 1967), 158.

12. Alvar Aalto, "BP Office Building in Hamburg (Germany)," in Elissa Aalto and Karl Fleig, (eds.) *Alvar Aalto: Volume III Projects and Final Buildings* (Zürich: Artemis – Verlag für Architektur, 1978), 74.

change in the position of the cores, the Pohjola Building introduced, as it has been noted by Aalto's biographer Göran Schildt, the option between open-plan and cellular organizations.¹³

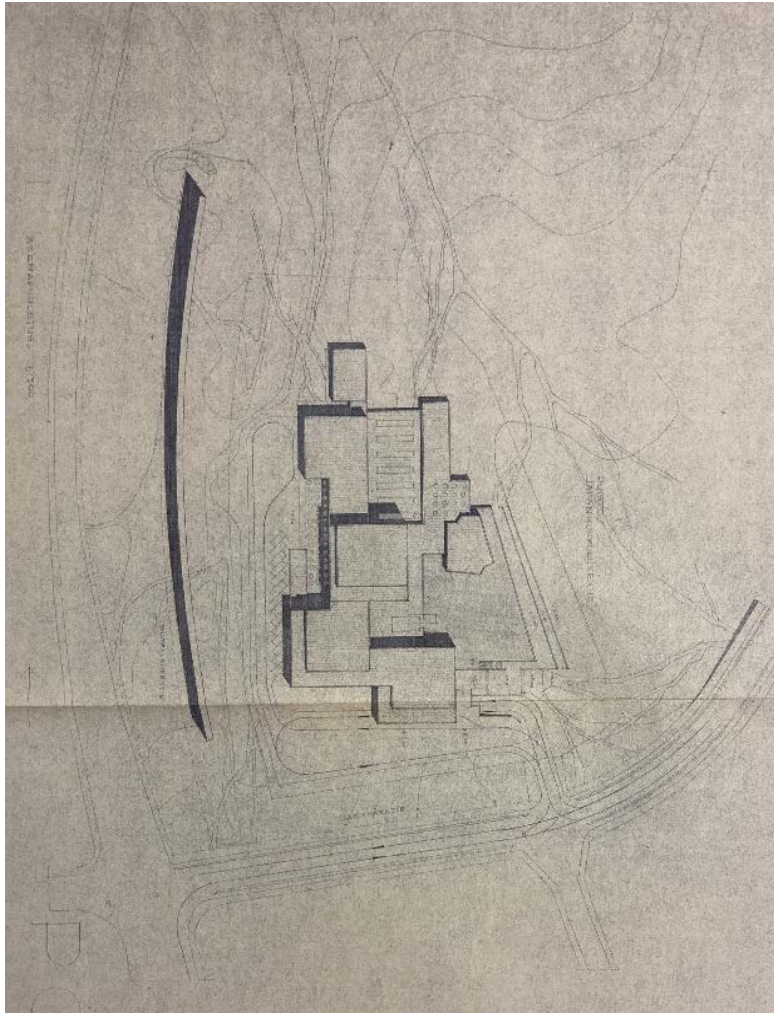


Figure 5. *Alvar Aalto, Maiandros (Stage 1): Site Plan Oriented North Upwards*
Source: Pohjola Kilpailu, Alvar Aalto Museum archives, Jyväskylä (AAM).

Modular Composition, Modular Construction and Modular Environment

Malcolm Quantrill (1931-2009) is one of the few scholars of Aalto's work to mention the Pohjola Building. However, he only analysed it indirectly, in the context of what he called Aalto's "modular works", and as "an extension of the planning system Aalto evolved for the BP Hamburg competition".¹⁴

13. Göran Schildt, *Alvar Aalto: A Life's Work: Architecture, Design, and Art* (Helsinki: Otava, 1994), 135, 144-145.

14. Malcolm Quantrill, *Alvar Aalto: A Critical Study* (London: Secker & Waburg, 1983), 153.

Quantrill did, however, outline a few intriguing hypotheses regarding Aalto's modular works. The present article adapted Quantrill's hypotheses in terms of: (1) modular composition, (2) modular construction and (3) modular environment. Module means small measure: the module is a set of dimensions or a geometry that serves as a rule for creating larger units. It is said that Aalto slighted the role of modules in design practice. Maiandros contradicts this: not only is each tower derived from modular dimensions, but it also constitutes the subunit from which the whole complex is derived. Throughout architectural history, modules have been used for different purposes. How, and with what objectives did Aalto use the module?

According to Quantrill, Aalto introduced a new approach to the conception of the plan, based on the repetition of a square unit, in the competition for the Malmi Funeral Chapel, Helsinki (1st prize, 1950, unbuilt).¹⁵ The motive behind the unit and repetition may have been circumstantial: faced with the programme of a large funeral chapel, Aalto preferred to divide the plan into three independent groups and to place the technical spaces in their centre. This resulted in a new relationship between the parts and the whole, in which the wings are equivalent to each other, and the centre is subordinated to them. Eventually, a modular composition developed from the original motive. For example, Quantrill refers to the Maison Carré, outside Paris (1956-9): the plan is based on a grid, over which the solid volumes of the rooms define the free-flowing entrance-cum-gallery-cum-living area.¹⁶ Quantrill even proposed an intriguing but, in my view, somewhat far-fetched parallel with the plans of Palladio's villas.¹⁷

Quantrill also connected the use of the module to construction materials and techniques, giving the example of the brick experiments in Aalto's Experimental House, his summer residence in Muuratsalo (1952-53).¹⁸ The floor and walls of the courtyard are built out of different bricks and brick bonds. Both rule and exception are used to emphasize the discipline and the expressive geometric possibilities of the module.

Finally, Quantrill suggested the environmental use of the module. He referred to Aalto's recreation of the atrium house type in a multi-storey apartment in the Hansaviertel block, Berlin (1954-7).¹⁹ The plan of each apartment comprises a central square-shaped living room connected to a deep, square-shaped balcony. Furthermore, the apartments, each also square in plan, are clustered in two tower cores, which jointly define an open-air entrance court on the ground floor.

15. Ibid, 137.

16. Ibid, 148.

17. Ibid, 150-153.

18. Ibid, 138-143. Note that Elissa Aalto worked already in the Aalto studio at this time and was a main collaborator in both the Experimental House and the Maison Carré projects.

19. Quantrill, *A Critical Study*, 144-145.

Materials and Methods

The main sources of the present study are the drawings and competition documents kept at the Alvar Aalto Museum archives. I examined two still uncatalogued folders, following the three hypotheses presented above, referring to other projects and writings when necessary.

The possibility of repetition suggests that the form remains somewhat open. One of the initial questions was whether the module represented a derivation of Aalto's typical, centralized plans (as implicit in Quantrill's comparison with the Palladian villas), or an alternative approach. For example, in the context of the rapid urban change at that time, the Japanese architect Fumihiko Maki (1928-) proposed in 1964 a famous distinction between "Compositional Form", "Mega-Structure" and "Group-Form" approaches to "collective form". Maki contrasted the first two, which he saw as essentially "static" or spatial, with an alternative temporal "ordering concept", i.e., "growth and change" (Group-Form).²⁰ With these distinctions in mind, I proposed comparing the Pohjola Building with other relevant designs by Aalto and reorganizing the archival drawings to produce a plausible reconstruction of the design process.²¹

Quantrill traced the source of Aalto's experiments with brick to the "painterly" influence of the De Stijl, and perhaps more compellingly to a reaction to the studies on Pythagorean proportions led by Aulis Blomstedt (1906-1979).²² Thus, he pointed to a crucial debate in Finnish architecture at that time, regarding the relationship between architecture and industrial building methods.²³ During the wartime in Finland (1939-44), Aalto, whose first commissions for standardized houses date back to the 1930s, directed a task force created by the Finnish Association of Architects (SAFA), which also included Blomstedt and Revell, for preparing the reconstruction period based on industrial building methods.²⁴ Disagreements regarding the status of industrial building emerged: Revell

20. Fumihiko Maki, *Investigations in Collective Form. The School of Architecture, No.2 – A Special Publication* (St. Louis: Washington University, 1964), 3-6.

21. The documentation in the archives is substantial but not complete. Aalto probably put little effort into preserving the sketches of a losing competition entry; besides, the procedure used at that time of photocopying and editing drafts possibly obliterated part of the evidence. As usual in Aalto's office, the drawings are not dated nor signed. Incidentally, I was able to confirm that one of the collaborators was Eric Adlercreutz (1935-), then also in charge of the Nordic Union Bank, Helsinki (1960-65).

22. Quantrill, *A Critical Study*, 140-143.

23. Blomstedt was an architect, professor at Helsinki University of Technology, editor-in-chief of the architecture journal *Arkkitehti* (1941-45), and joint founder of the journal of architectural theory *Le Carré Bleu* (1958). He exerted a strong rationalist influence over the young generation of architects. On Blomstedt's studies, see Juhani Pallasmaa, "Man, Measure and Proportion. Aulis Blomstedt and the tradition of Pythagorean harmonics," in Riitta Nikula, Marja-Riitta Norri and Kristina Paatero (eds.) *Acanthus 1992. The Art of Standards* (Helsinki: Museum of Finnish Architecture, 1992), 6-25.

24. Elina Standertskjöld, "Alvar Aalto and Standardisation," in Riitta Nikula, Marja-Riitta Norri and Kristina Paatero (eds.) *Acanthus 1992. The Art of Standards* (Helsinki: Museum of Finnish Architecture, 1992) 74-84.

arguably represented a materialist and Blomstedt a classical-idealist mode of standardization. Instead, Aalto opposed the idea that new technology required the invention of a new architectural language, and he was convinced that industrial building components and practices could be gradually incorporated into the existing tradition according to a more practical process of “elastic” standardization.

Demonstrating humour and a good grasp of the situation at that time, characterized by a widespread belief in technology, Revell and Castrén named their entry for the Pohjola competition, *Byromaani*. The minutes of the competition jury,²⁵ which describe the “technical implementation” as a main merit of their design,²⁶ will be used here as a starting point to compare the two projects, thus clarifying the constructive dimension of the module. Interestingly, the copy of the minutes found in the Alvar Aalto Museum is annotated by Aalto (or one of his collaborators), including a list of proposed corrections to the jury’s comments. A valuable secondary source is the 2013 building survey report on Castrén’s Pohjola Building. The report describes, for instance, how Castrén began the project by testing in a full-scale building prototype the integration of structural and building services design.²⁷

Quantrill referred to Aalto’s use of the module in view of an environmental objective. In the block quote above, Aalto, referring to the Pohjola Building competition, pointed to the demand for open-plan offices. In the project description for the BP Building, which, as it was seen, employs a similar plan, Aalto added that open-plan offices have spatial limits that “involve the distances of the sources of illumination, windows and possibly other, more or less incalculable factors”.²⁸ This asked for a better understanding of the changes occurring in the design of office buildings at that time, which led me to examine the Maiandros in relation to a contemporary, ground-breaking book: Reyner Banham’s, *The Architecture of the Well-Tempered Environment* (1969).

Modular Composition: Spatial or Temporal Order?

My research started by browsing the published volumes of Aalto’s complete works and comparing office building designs. Seemingly, the plan of interconnected groups, based as it is on the repetition of a module, presents an exception to Aalto’s preferred centralized compositions. As already mentioned, Aalto first used an open-plan in the BP competition, then a hybrid cellular/open-plan in the

25. *Palkintolautakunnan arvostelu ehdotuksesta n:03 'MAIANDROS'* (Jyväskylä: Pohjola Kilpailu, Alvar Aalto Museum Archives, 1965).

26. Olli Helasvuo, Riikka Koivula, Maren Nielsen and Tapani Mustonen, *Pohjolan Toimitalo Lapinmäentie 1. Rakennushistoriaselvitys ja arkkitehtuurianalyysi* (Helsinki: Arkkitehdit Mustonen, 2013), 24-25. The report, which includes extensive drawings and photographs of the building, is available for download on the website of Arkkitehdit Mustonen: “Pohjolan Toimitalo”, Arkkitehdit Mustonen, <https://www.arkkitehditmustonen.fi/projects/pohjolan-toimitalo/>. [Accessed 1 March 2023.]

27. Helasvuo et al., *Pohjolan Toimitalo*, 27-28.

28. Aalto, “BP Office Building”, 74.

Pohjola Building. Later, he used one single open-plan module as part of a more complex plan in the competition for the Urban Centre, Castrop-Rauxel (1965, unbuilt).²⁹ Besides, Aalto's office workspaces are typically cellular. Cellular workspaces tend to be combined into linear wings, and wings into centralized compositions. In an open area, the wings serve as support to a dominant volume containing the social spaces. In a city block, the social spaces and the workspaces are stacked vertically, and the centre of the compositions is marked with an atrium.

In the House of Culture, Helsinki (1952-58), the office spaces are located in a rectangular wing perpendicular to the street that, juxtaposed with the free-curving auditorium wing, defines the entrance wing between them. Not *stricto sensu* an office building, the Helsinki University of Technology, now Aalto University, Espoo (1949-67), shows how the same theme adapted to a large campus. Conversely, in the Finnish Engineers' Association Building in the centre of Helsinki (1948-51), the office wing completes the street frontage, and the special hall develops below it through the interior of the urban block. Nearby, in the Rautatalo Building (1951-57), three office wings form a C-shape atrium inside the urban block. The most complex of Aalto's office buildings is the National Pensions Building, Helsinki (1948-56): in a tight triangular plot, the plan presents a composite of the two types described above: part is compact, with the office wings closely knit around a rectangular atrium, and part is open plan, with the wings articulated with the terraces.

If Aalto's office buildings broadly correspond to what Maki described as Compositional Form, the Pohjola Building, with its modular approach, could suggest an approximation to Group-Form. At this point, it became necessary to make a close study of the archive drawings. According to my reconstruction of the design sequence, Aalto started from his favourite centralized theme. In the initial stages (Figure 6), the dominant volume was a hollowed, cubic volume, six-storeys high. Linear wings extended from each corner of this dominant volume. Aalto may have had reservations about the quality of the light in the inner courtyard, which in the lowest levels was a covered atrium. Or perhaps he felt it necessary to address the expectation for open-plan offices. In a second group of drawings (Figure 7), the inner courtyard is eliminated, and the central volume becomes as narrow as the (now) three wings that extend from it. An entrance atrium appears between the south wings and a second atrium on the east side. In the final stages (Figure 8), the entrance atrium is also eliminated, the linear wings are replaced by open-plan modules, and extensions are introduced between the square modules. The similarities with the meandering arrangement of the BP project become clear (notably, in the end, rather than at the start of the design process).

29. Alvar Aalto, "Urban Centre, Castrop-Rauxel (Germany)," in Karl Fleig (ed.) *Alvar Aalto: Volume II 1963-1970* (Zürich: Artemis – Verlag für Architektur, 1971), 26-29.

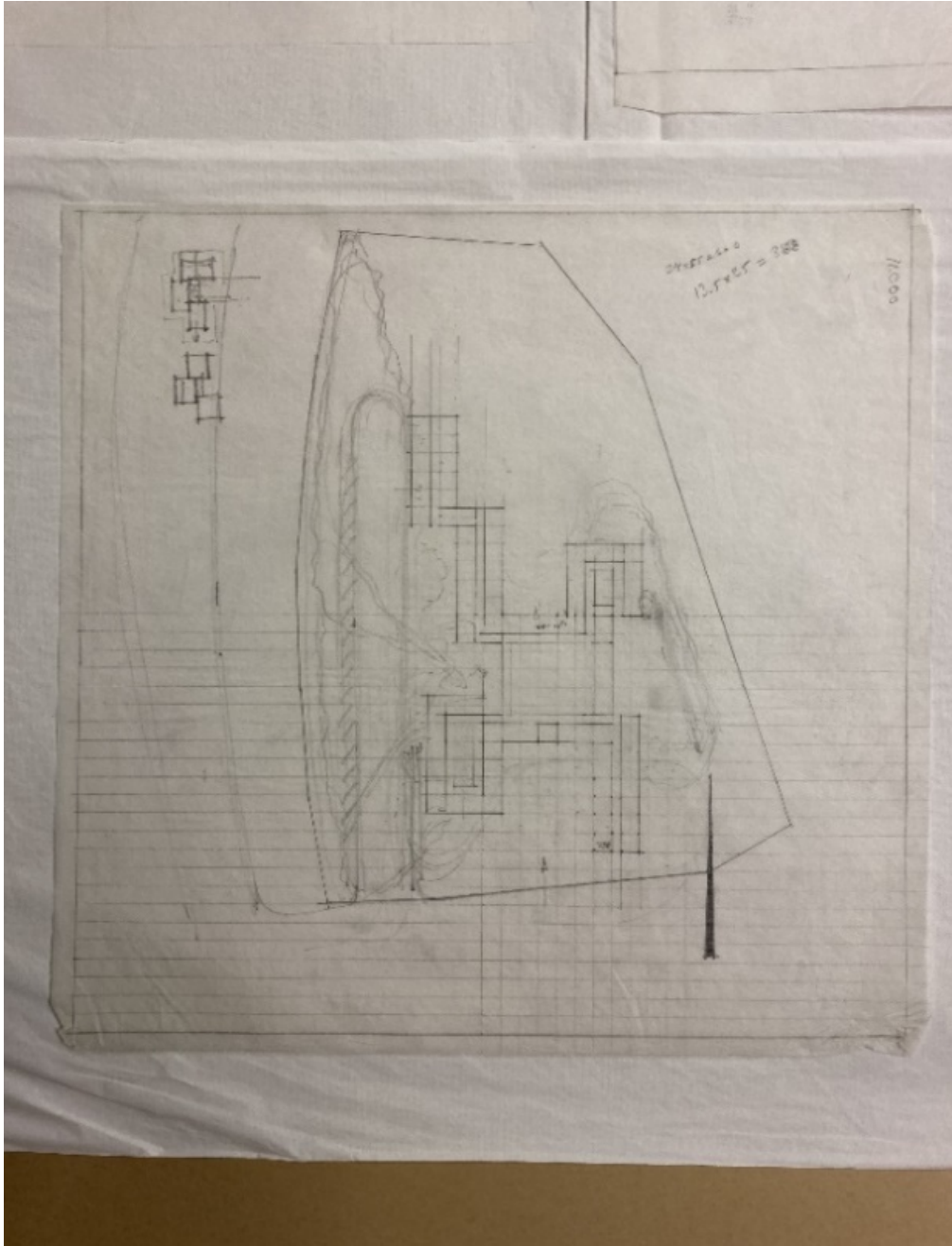


Figure 6. *Maiandros (Stage 1), Plan Oriented North up (Initial Design stage)*
Source: Pohjola Kilpailu, AAM.

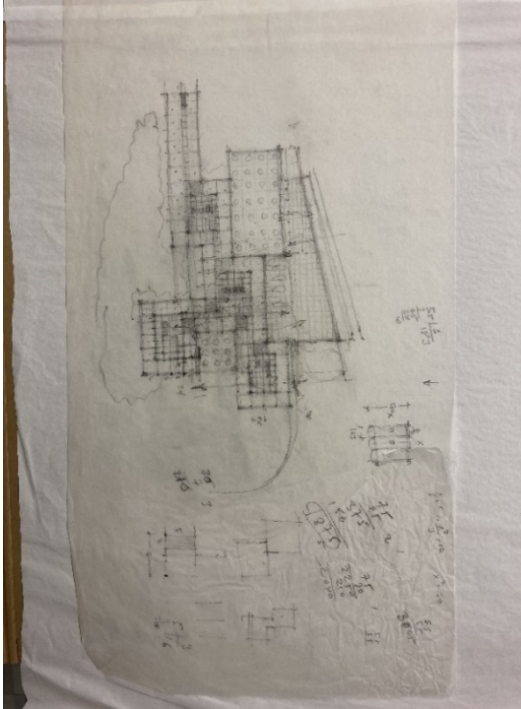


Figure 7. *Maiandros (Stage 1), Plan Oriented North Upwards (Intermediate Design Stage).*

Source: Pohjola Kilpailu, AAM.

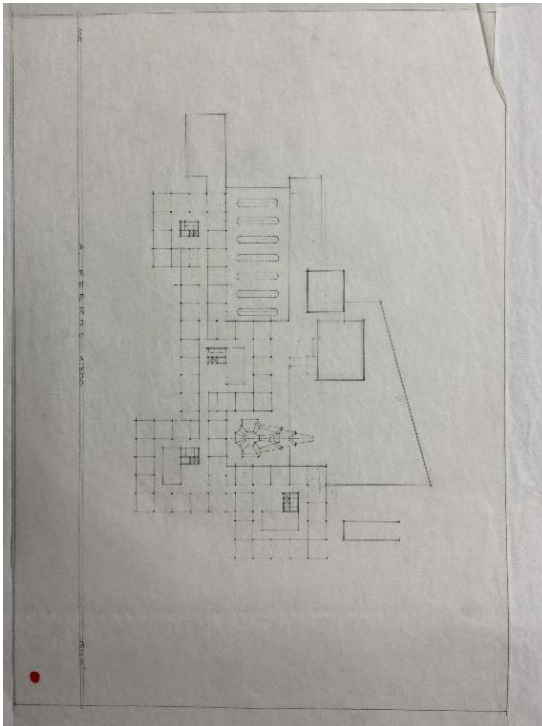


Figure 8. *Maiandros (Stage 1), Plan Oriented North Upwards (Final Design Stage)*

Source: Pohjola Kilpailu, AAM.

The proposed design sequence suggests that Aalto conceived the module in spatial, rather than temporal terms: the vertical organization of the building, with the interconnected towers coupled with the centralized ground floors, marked by a double-height atrium with a projecting lantern, establishes a spatial limit and even a topographical orientation. Consequently, the repetition of the square modules at most creates the illusion of a process of growth and change. But the analysis of this group of drawings helps to contrast Aalto's and Maki's approaches in another way: the successive drawings suggest a design practice based on composition, i.e., on introducing and testing relationships, asymmetries, fragmentations, etc. Thus, the Pohjola Building combines some of the compactness of Aalto's urban office buildings with the openness to the landscape that is characteristic of his suburban plans.

Modular Construction: Structural Grid and Grid Façade

The "Competition jury's evaluation", Stage 1, describes the Maiandros as a centralized office building with four connected towers.³⁰ The jury was impressed with the integration of the building masses on the site, and with the character of the building without excessive decoration. It expressed reservations about the integration of the technical spaces and some details, for example, the ambiguous treatment of the sloping roofs used to disguise the elevator rooms on the top floors. These points were reiterated in Stage 2, with the jury highlighting by contrast the technical (if not visual) clarity of Castrén's design.³¹ Taking these comments as a starting point, I started comparing the projects, focusing on their structure and façades.³²

Both Aalto and Castrén concentrated the special room programmes on the ground floor and used a structural grid to simplify the design and construction. In a multi-storey building, the outline of the structural elements is very important, since it affects the flexibility of the workspaces as well as the articulation between the lower and upper parts. In Aalto's design, not only a tower is a module to be repeated, but the tower itself is modulated by a structural grid. This grid is compact, with 5,5 x 5,5 metre bays and slender pillars and beams that allow greater control over the massing. One bay can be divided into two cellular offices, two bays into three offices, etc. The grid permits exceptions: for example, in each tower module, the four central pillars are replaced by the solid walls of the service core. A wider area for socializing including a pantry is thus created in the centre. A similar, elastic conception surfaces when comparing the Pohjola Building and the BP Building: whereas in the latter, the modules are simply juxtaposed, in the former, an additional, extension element is introduced. The extension increases the elasticity of the plan since its dimension (i.e., the dimension of the gaps between modules) can be individually adjusted to improve the articulation between the

30. *Palkintolautakunnan arvostelu ehdotuksesta n:03 'MAIANDROS' (1965).*

31. Helasvuo et al., *Pohjolan Toimitalo*, 25.

32. See note 26.

towers, podium, and underground parking. Indeed, perhaps the biggest change between Stages 1 and 2 results from the jury's suggestion to relocate the car parking, originally located in a second basement (Figure 9), to a new position between the building and the western limit of the plot (Figure 10). In its final version, one basement is eliminated, the parking is less cramped, and the access from the parking to the atrium (on the basement and semi-basement levels, respectively) is improved.

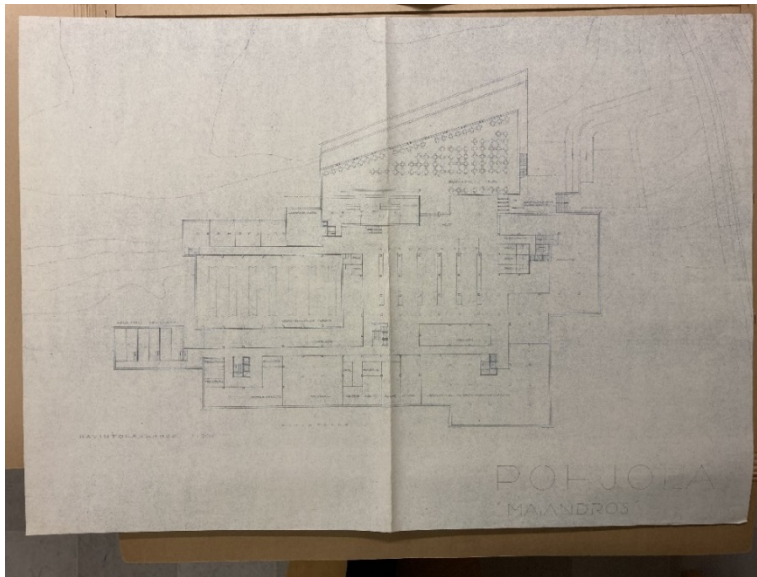


Figure 9. *Maiandros (Stage 1), Basement Plan, the Car Parking is One Level Below this on Level -6.0.*

Source: Pohjola Kilpailu, AAM.

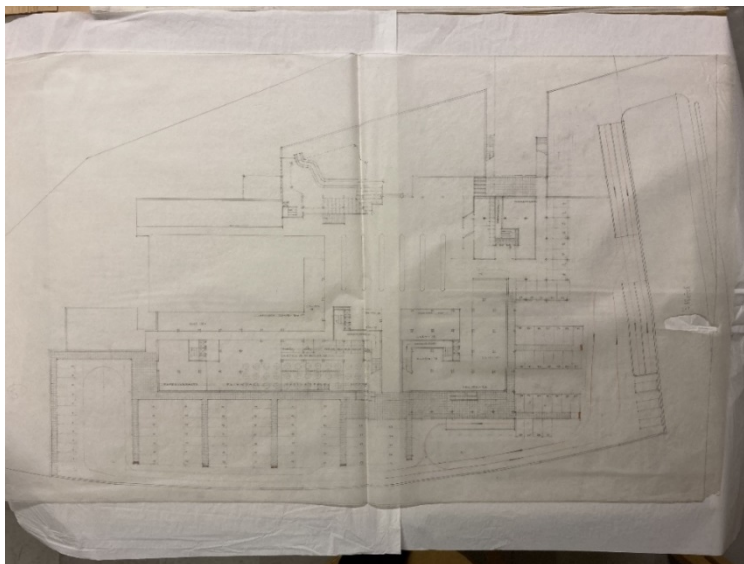


Figure 10. *Maiandros (Stage 2), Basement Plan, the Car Parking is Between the Building and the West Limit of the Site*

Source: Pohjola Kilpailu, AAM.

Castrén's design exemplifies the primacy of the system, starting from the choice of the building material and technology. Large precast concrete elements produced offsite are assembled into a pinwheel plan, with four identical wings centred on a central shaft. Castrén used a much wider 8,5 x 8,5 metre grid. The structural elements are clearly articulated, including twin-pillar and twin-beam elements that create a technical channel for the building services.³³ This solution extends to the design of the façade in a way that, as we have seen, convinced the jury.

In Castrén's design, the structural elements accumulate the role of infrastructure and extend out to the façade. In Aalto's design, a skeleton frame is enclosed by a non-loadbearing façade. Although Aalto was sceptical about rigid industrial building systems, he was not opposed in principle to prefabrication. A large commission like this could have, conceivably, provided the occasion to experiment with prefabrication, which at that time was becoming widespread.³⁴ As objected by the jury, the drawings of Maiandros remain relatively open regarding this level of detail. Aalto tested at least two alternative grid façades, each of them coherent with the structural grid, and thus with the module. Initially, the grid is vertical in proportion (Figure 11), later it is horizontal and clad in granite (Figure 12). It should be noted that both Aalto and Castrén choose granite as the façade cladding material, possibly a nod to the façade of the historical headquarters of the Pohjola Insurance Company on Aleksanterinkatu, Helsinki, designed by Gesellius, Lindgren & Saarinen (1899-1901).³⁵ Based on other grid façades designed by Aalto, it is possible to speculate that the grid façade could have combined craftsmanship with industrial techniques. For example, Aalto often introduced a rhythm to the grid façades by adding a second cladding material, or by playing with fixed and operable window elements. A handmade correction made over a draft of the elevation suggests that in the Pohjola Building, the rhythm could have resulted from an irregular arrangement of the mullions, as in the façade of the National Pensions Institute (Figure 12).

Modular Environment: Between Building and Nature

According to the third hypothesis in this study, Aalto used the module to establish an environmental unit capable of sustaining and making tangible to the senses the relationship between building and nature.

As mentioned earlier, Aalto had reservations regarding the limits of large open-plan spaces.³⁶ His approach can be considered as being counter to the context of the evolution of the modern office building. For this, I refer to a

33. Helasvuo et al., *Pohjolan Toimitalo*, 64-79.

34. Aalto (unsuccessfully) attempted this step in the contemporary project for the Gammelbacka Housing area, Porvoo (1966, not built).

35. Herman Gesellius (1874-1916), Armas Lindgren (1874-1929) and Eliel Saarinen (1873-1950).

36. Aalto, "BP Office Building", 74.

contemporary book, Reynar Banham's *The Well-Tempered Environment* (1969). Banham describes how the development of building services contributed to the emergence of tall and deep-plan buildings. Among other problems, power-operated buildings (supposedly) made the interiors limitless and separate from the surrounding environment, while the change of status of the building services raised questions of representation. Two of Banham's examples illustrate this: Frank Lloyd Wright's (1867-1959) Larkin Building, Buffalo, USA (1903-06, demolished in 1950), and Louis Kahn's (1901-74) Richards Medical Research Laboratories, Philadelphia, USA (1957-62). The Larkin Building, formed by two open-plan wings on each side of a narrow atrium, explored early innovations in lighting and mechanical ventilation and thus anticipated deep-plan buildings.³⁷ Interestingly, Castrén's collaborator Juhani Katainen (1941-) described the principle of the Larkin Building as an inspiration for the Pohjola Building.³⁸ According to Banham, Kahn was the first to resist the technical possibilities of air-conditioning when the technology became mainstream in the 1960s.³⁹ Instead of concentrating the laboratories in one large building, he broke down the programme into small units for the sake of preserving the scale and clarity of the interior space. Moreover, he displaced the infrastructure to the outside, making it invisible from the inside, thus introducing a distinction between "served" and "servant" space.⁴⁰

Like the Larkin Building, Castrén's Pohjola Building is based on a central space that is essential for the environmental performance of the building: fresh air is forced-in, flowing upwards through it. Because of its vertical proportion, however, this space lacks the scale that, in the Larkin Building, rendered visible the exchange between outside and inside. Furthermore, the Pohjola Building exemplifies the interest, seen also in the Richards Laboratories, in the visual representation of the building services. As mentioned in the previous section, the façade elements were meticulously designed to integrate structure and ventilation. The increased status of the infrastructure is demonstrated by the location of the machine rooms, inserted between the social spaces and the workplaces, in what was traditionally the building's *piano nobile*.

Although Aalto was, throughout his career, interested in the building services technology,⁴¹ his buildings hardly prioritize this aspect. In Maiandros, the freestanding site plan, north-south orientation, interspersed solids and voids, and integration in the topography, suggest instead a close relationship with established environmental models (Figure 11). The scaled-down volumes bring the building into the scale of the surrounding parkland and residential areas.

37. Reynar Banham, *The Architecture of the Well-Tempered Environment* (London: The Architectural Press, 1969), 86-92.

38. Helasvuo et al., *Pohjolan Toimitalo*, 23.

39. Banham, *The Well-Tempered Environment*, 181-182, 208-228.

40. Banham, *The Well-Tempered Environment*, 248-257.

41. For an account of the innovations in building services in Aalto's Vyborg Library (1927-35) and National Pensions Institute Building (1949-1956), see, Seija Linnanmäki, "Aalto's ideas on air-conditioning – how Finland became a 'Fanland'?", paper presented at the *Alvar Aalto Researchers' Network Seminar*, Seinäjoki, 12-14 March 2012.

Conversely, the gaps between the towers create diagonal vistas and facilitate navigation through the workspaces. To be sure, the plan of interconnected groups would have afforded not only four aspects for each tower but also a series of openings into the sunken podium, including a lantern in the atrium, conical reflectors in the library, gym, and printing rooms, and a panoramic window, connecting the restaurant to the park and the morning light. In each of these instances, the notions of comfort and landscape are intertwined, as in the combined living room and balcony of the Hansaviertel block.

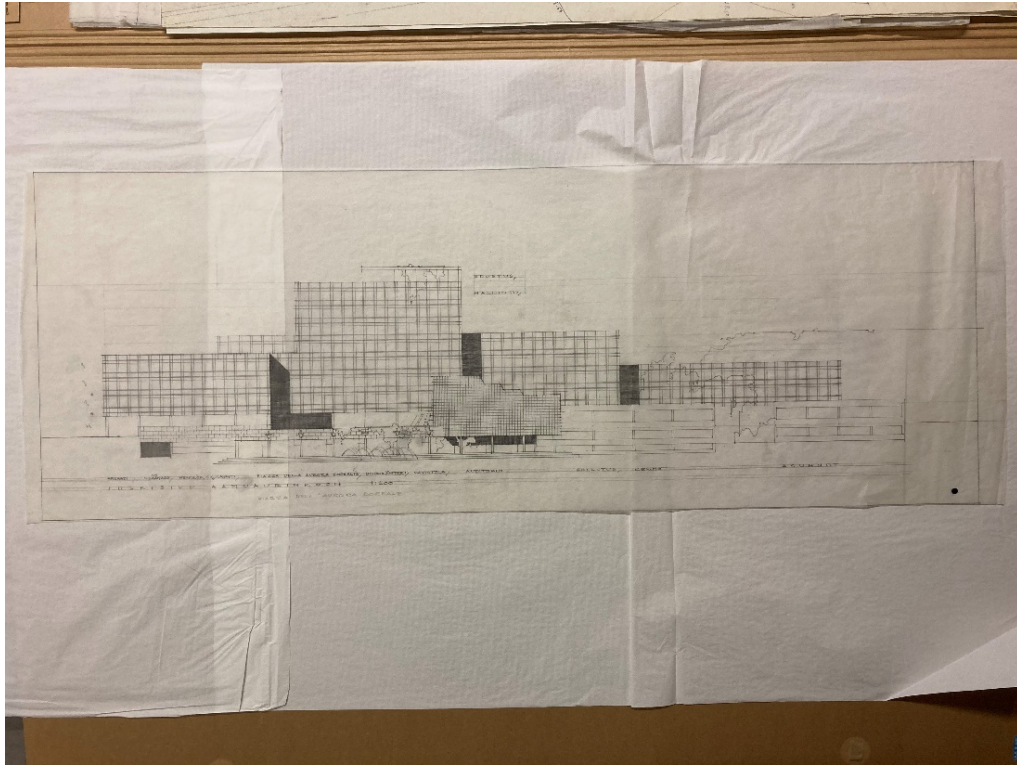


Figure 11. *Maiandros (Stage 1), East Elevation (Study with Vertical Grid Façade)*
Source: Pohjola Kilpailu, AAM.

Like Kahn, Aalto resisted the technical possibilities and established a spatial limit or module for the plan: 28.5 x 28.5 x 3 metres. This limit also involved a distinction between a central area for temporary use, and a well-lit area for intensive work along the edges of the module, 7 metres deep. It should be noted, however, that since Aalto conceived the plan in terms of an alternative cellular/open-plan use, the spatial quality of this central area would have been subject to the number of partitions added. Kahn granted infrastructure the status of servant space, and hence visibility. Instead, Aalto hid the machine rooms in the basement and made the ducts run through the tower cores. In Aalto's cellular office buildings, he uses the partitions between cells and corridors to create suspended ceilings. The height is therefore lower in the corridor than in the workspaces, while near the windows, the slab edges are upturned to maximize the inflow of daylight. Whereas in a cellular office, the user often has control over the windows, in an open-plan

office, control is centralized. The drawings of Maiandros do not show how Aalto would have solved the nuances introduced by the open-plan organization.

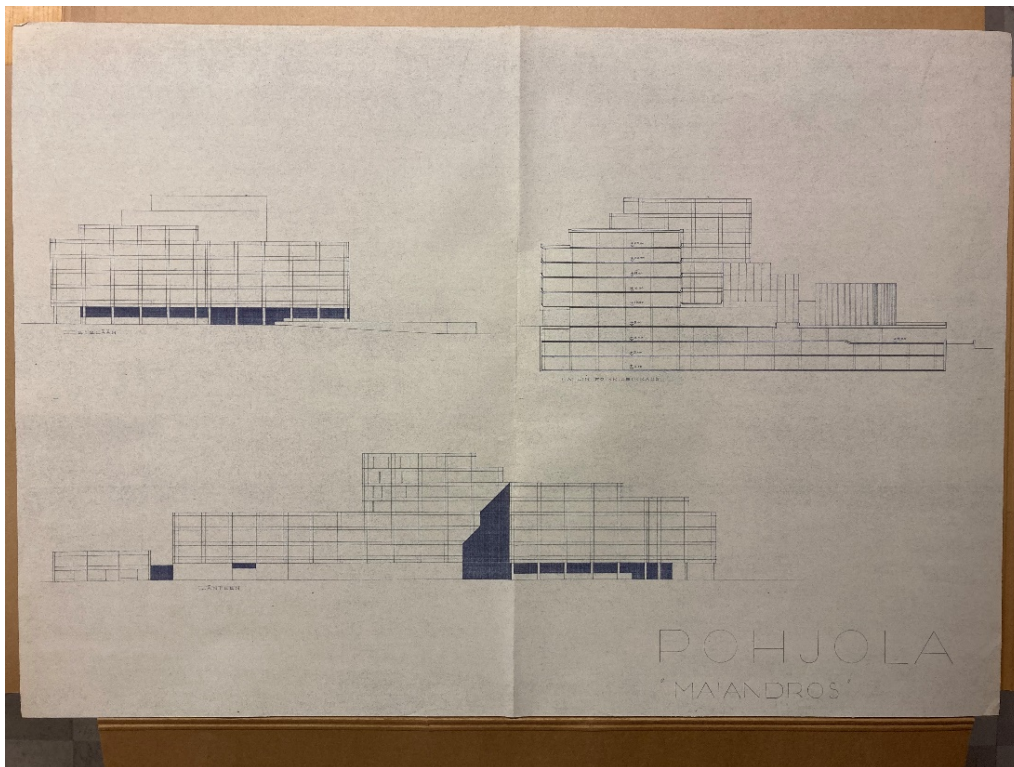


Figure 12. *Maiandros (Stage 1), South and West Elevations, Longitudinal Section (with Corrections Sketched by Hand)*

Source: Pohjola Kilpailu, AAM.

Discussion

The post-war period created conditions for the centralization of office work in large company headquarters located outside city centres. In this context, Aalto's competition design for the Pohjola Building tested what Quantrill called a "modular" approach. At a time when the site of the realised competition's winning proposal by Castrén is being redeveloped, it seems worthwhile going back to Aalto's alternative proposal. The comparison with other office building designs by Aalto demonstrated that Maiandros owes something to Aalto's other urban office buildings, that is, the vertical organization of the social spaces around an atrium and the workspaces above. The close study of the archival drawings suggests that, starting from a centralized composition, Aalto arrived at a solution combining centralized and decentralized principles by establishing (and repeating) a small unit (a tower module). This complex spatial order arguably provides greater flexibility for use.

Quantrill underscored the relationship between the module and the discipline imposed by materials and techniques. To what extent do the latter two condition the former? The development of industrial building methods in Finland at that

time made this a critical issue. On first inspection, Aalto's use of a structural grid and grid façade could suggest an interest in industrial methods, and therefore a convergence with Castrén. However, Aalto's grids remained only lines on paper, intended to ease the design and construction tasks. The grids and modules conceived in this way enable play: as in the (missing) central pillars that break the regularity of the structural grid. Aalto arguably considered that design and construction should relate in an elastic way and influence each other reciprocally. The drawings of the grid façades suggest that Aalto was not overly concerned with anticipating the details. However, it is well-known that the development of industrial building methods went rapidly in the opposite direction. By focusing on construction, the analysis highlighted the historicity of the project: the lost competition arguably marks the moment Aalto begins to lose his influence in Finnish architecture.

According to *The Well-Tempered Environment*, the development of the modern office building went towards a growing dissociation between building and nature, but also a growing concern with the status and representation of the building service infrastructure. The analysis of the Maiandros competition entry confirms the hypothesis adapted from Quantrill of Aalto's conception of a modular environment. Indeed, and in light of current concerns, Aalto's approach seems to represent a more advanced understanding of the issue of ecology. As exemplified in the design of the interconnected towers (each providing four visual aspects) and of the topographic podium with special openings, Aalto conceived of comfort and landscape as connected notions. His objective was to create not only a well-performing and comfortable space but also an image of the latter in terms of a balanced relationship between natural and built elements.

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