ISSN 1828-5961

NATURAL GEOMETRIES. Inhabiting the forest

Today's desire to return to nature harks back to past eras and highlights the importance of revisiting historical experiences in order to address this longing. In the twentieth century, the benefits of rural life inspired urban proposals such as the Garden City. After World War II, reconstruction and rural-to-urban migration transformed social ethics, fostering a reconciliation with nature and a demand for healthy spaces and influencing urban projects.
This article critically analyses the suburban development of Tapiola (Finland), designed by Ottolivari Meurman in 1945, a landmark of post-war urbanism based on the ideals of the Garden City. Although its architecture did not always reflect the urban plan's ideals of integration with the natural landscape, the Suvikumpu residential complex (1962–1969; 1974–1980), designed by Raili and Reima Pietilä, stands out as an outstanding example of harmony between architecture and nature.
The research explores and assesses the landscape and housing design strategies of the two phases of the complex, highlighting the transition from the first to the second. While previous studies have ignored this second stage, this analysis addresses its substantial changes, assessing how they enriched the initial proposal and allowing a value judgement on the entire project.
The methodology focuses on the analysis of graphic documentation from the archive of the Arkkitehtuurimuseum (the Museum of Finnish Architecture), highlighting 'the architectural drawings as key in formalising relationships between architecture and nature. Suvikumpu emerges as a manifesto for an alternative way of doing architecture in harmony with the natural environment, claiming the relevance of these practices in current contexts.

Luis Miguel Cortés Sánchez
Architect (School of Architecture, University of Seville, 2018), researcher and PhD candidate in the Doctoral Programme in Architecture (University of Seville). His research focuses on the study and analysis of the processes of the transmutation of landscape in architecture, developed in the second half of the twentieth century.

Javier Terrados Cepeda
PhD Architect by the School of Architecture of Seville and Graduate Student at Cornell University (New York). He teaches Architectural Design in Seville since 1988. He has been visiting teacher in London, Panama City, Nancy, Graz, Madrid, Granada, Málaga and Barcelona. His PHD Thesis on experimental housing was awarded with the IUACC prize to the best architectural research in Andalusia (2010-11).

Panu Savolainen
Architect, historian and professor (tenure track) of the history of architecture and architectural conservation at Aalto University (Helsinki, Finland). He is currently specialising in medieval archaeology and twentieth-century suburbs. Savolainen has authored seven books, including a children's book, and circa 40 scholarly articles. He has also worked as a practicing architect.

Keywords:
architectural history; landscape design strategies; housing; nature; Pietilä

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

INTRODUCTION: ANALYSIS OF THE PROBLEM, THE OBJECT OF THE RESEARCH AND THE PROPOSED METHODOLOGY

Emphasising the benefits of living in rural environments motivated some of the most significant urban approaches that were developed during the twentieth century, such as Ebenezer Howard's Garden City approach (Hautamäki, 2022). The need for reconstruction and urban planning after the Second World War, together with the strong rural-to-urban migration process that altered the demographic balance in the main European metropolitan areas, generated a space for reflection on the nature of these new developments. The effects of the war reflected a change in the mentality of the population, as well as a change in the reconciliation with place and nature, which characterised the new urban reconstruction and growth projects (Clark, 2006).

In this sense, this research starts from a critical review of the urban development of Tapiola (Espoo, Finland) by Otto-Iivari Meurman in 1945, where he applied his insights into the urban theories of the Garden City (Meurman, 1947). The implementation of this urban approach was one of the urban landmarks in the rural areas of the 1950s and 1960s (Fernández-Vivancos González, 2016). However, to what extent did the architecture that was subsequently designed and built reflect the same natural ideals of this unique urban model? To what extent can we speak of a relationship between architecture and nature in the buildings designed and built? And if so, how was it addressed by architecture in terms of implantation and habitation?

In contrast to this landscape interest in the plan, which was mostly reflected in the design of public spaces through the work of Jussi Jännes (Fernandez-Vivancos Gonzalez, 2023; Hautamäki & Donner, 2021), the architecture proposed in this period only interacted with the existing landscape on a volumetric level. Even so, this research has identified one proposal that did address the formal relationship between architecture and nature as a project argument: the Suvikumpu residential complex (1962–1969; 1974–1980), designed by the architectural couple Raili and Reima Pietilä. Therefore, the purpose of this research is to approach this case study in order to recover, analyse and evaluate its design strategy, especially with regard to the relationship between the natural environment and the housing complex, as well as the proposed ways of living, based on the analysis and comparison of the two phases through which the entire complex was built.

As most of the research carried out on the subject has dealt with the history of the first phase (Fernandez-Vivancos Gonzalez, 2018), not paying attention to the second phase, this article responds to this gap in the previous studies and takes the transition from the first stage to the second phase as its central axis, analysing the changes introduced and the substantial modifications, which will allow a more informed value judgement to be made on both the first phase and the whole of the complex.

In order to achieve this objective, the methodology is based on the analysis of the graphic documentation produced by Pietilä in the framework of the development of the project. This documentation, which is mostly unpublished, ranges from sketches to execution plans, including models. The entirety of the aforementioned documentation is housed within the archives of the Arkkitehtuurimuseo (the Museum of Finnish Architecture [MFA]). The study has enabled the development of the analyses and relationships presented in this article along two principal lines: a retrospective that complements the complete history of the project and the significance of the graphic tool as a means of investigating and formalising the relationship between architecture and nature. This process has been complemented by a visit to the case study site and interviews with the inhaabitants, who allowed access to the interior of the dwellings.

The graphic documentation serves to enhance the value of the landscape and the representation of both the built and natural territory, which form an essential part of our cultural heritage (Chías Navarro & Papa, 2019). As evidenced by

Fig. 1 - From top to bottom: an aerial view of Tapiola in 1961 (source: KAMU Museum); Taskumattitalot Towers, 1959 (the author' photo 2023); Suvikumpu, 1980 (source: KAMU Museum).

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

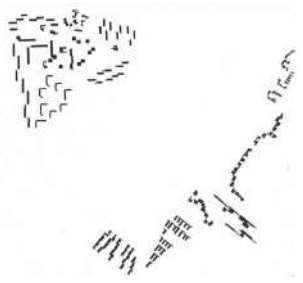
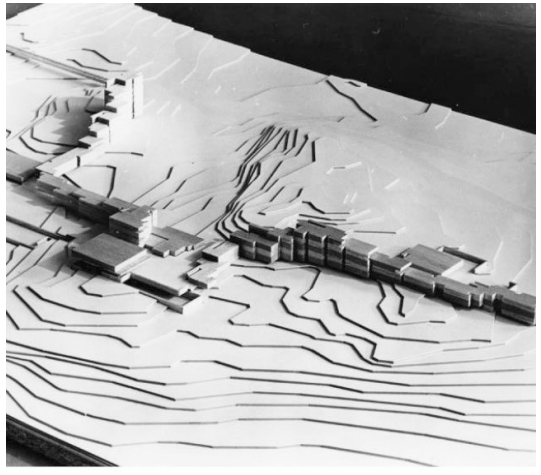


Fig. 2 - From top to bottom: The cover of Arkkitehti, no. 4–5, 1960; the illustration series 'Morphology and Urbanism"' 1690, Reima Pietilä.

Fig. 3 - From top to bottom: a model of Suvikumpu in the competition phase, 1962 (source: the MFA); a model of the topography and its relation to the volumes (source: the author's elaboration, 2023).



the preserved archive, the architectural drawings produced by the architects faithfully reflect their thought process and serve as a valuable tool for evaluating attempts to construct an architectural language based on the observation of the natural forms present in the surrounding environment.

CONTEXT AND APPROACH: TAPIOLA'S GARDEN CITY

The conceptual background to the urbanistic genesis of the Tapiola district can be traced back to the theoretical proposals of Ebenezer Howard's Garden City and, more closely, to the writings of Lewis Mumford, especially *The Culture of Cities* (1938). This text greatly influenced some of the most prominent voices of the Finnish avant-garde, such as Eliel Saarinen, Alvar Aalto and Otto-Iivari Meurman (Nikula, 1998). Tapiola's plan has been regarded as an exemplar of a Garden City since its inception. The initial formulation of the plan appears to have been influenced by the ideas of Howard and Mumford. Tapiola's development in the 1950s and 1960s significantly impacted on the conceptualisation of landscape design in Finland (Ruokonen, 2016).
However, the subsequent urban development of the Tapiola district exhibited a shift towards a more canonically rationalist formalisation, evident in both its layout and the buildings that completed it. The efficiency sought in the composition of the residential complexes and the prestige gained by modular geometries and the prefabricated systems of the time meant that this sought-after interrelation between architecture and nature remained more of a game of contrasts. The white prismatic buildings are isolated in a composition that only refers to the organic urbanism that inspired it in the curvature of its roads and in the low general density adopted. The forest and the emerging rocks serve to fill in the voids, forming a mass that lacks a formal structure. The lake reference is tamed in the form of large rectangular ponds (Fig. 1).
The interest in the work carried out in Tapiola is reflected in the numerous publications that reported on it. In 1960, issue 4–5 of the Finnish architectural journal *Arkkitehti* devoted some of its pages to the urban plans that had been completed in the Helsinki metropolitan area during the previous years. This issue included descriptions of some of the urban developments in Tapiola, as well as other areas, such as Pihlajamäki and Lehtisaari (Ahola, 1960; Kivinen, 1960b, 1960a). In these projects, it is evident that the proposals were informed by the Cartesian and modular order of the rectangular prism (Fig. 2).
It is noteworthy that in the same issue, despite employing a distinct methodology, the graphic compositions of the exhibition 'Morphology and Urbanism', created by Reima Pietilä (Pietilä, 1960a) and showcased that same year in Helsinki, were published. In these works, Pietilä puts forth the proposition that novel methodologies be employed in the domain of urban design, with a view

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

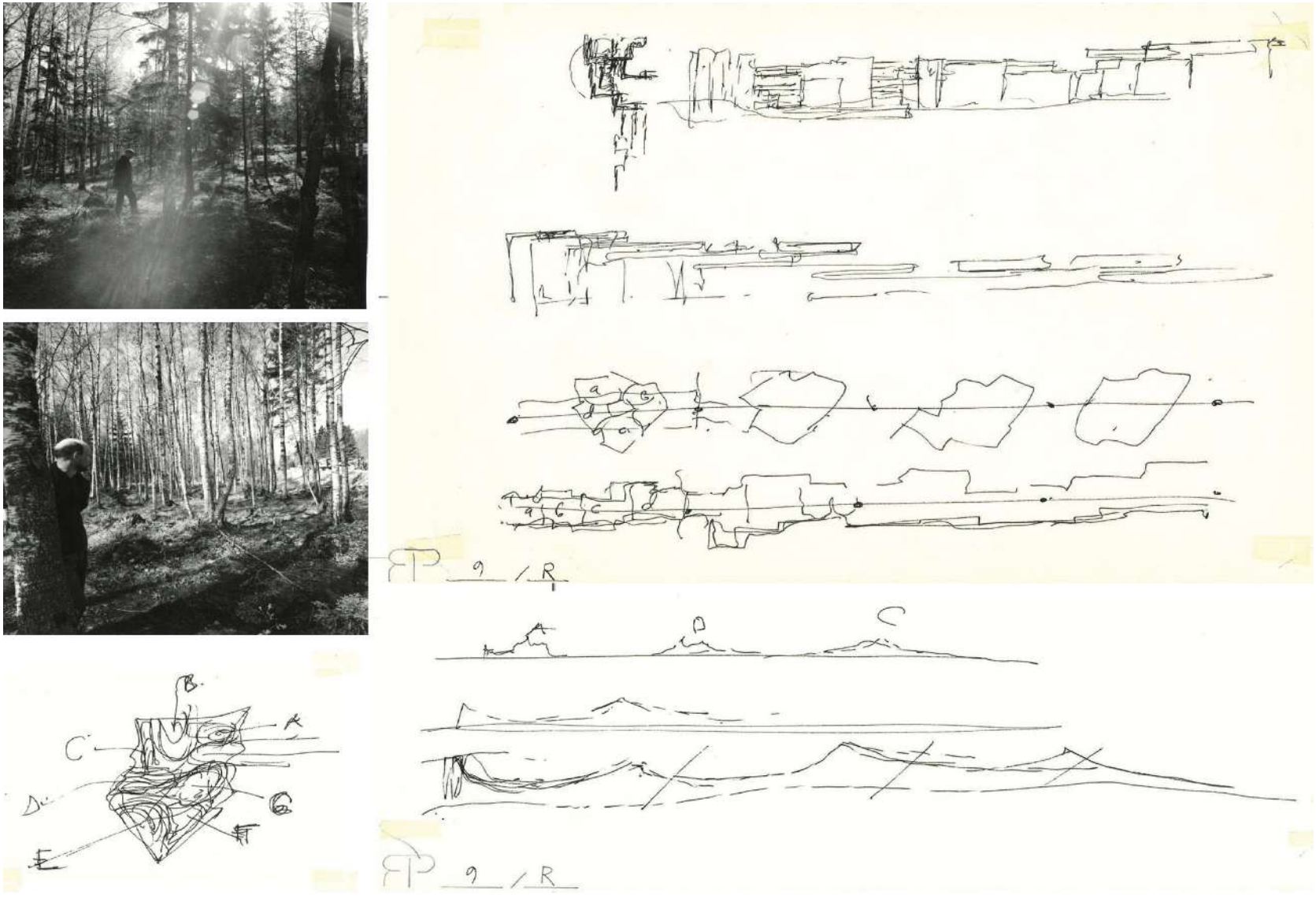


Fig. 4 - The first sketches of volumetric approximations in relation to the topography of the site (Reima Pietilä, 1962; source: the MFA).

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

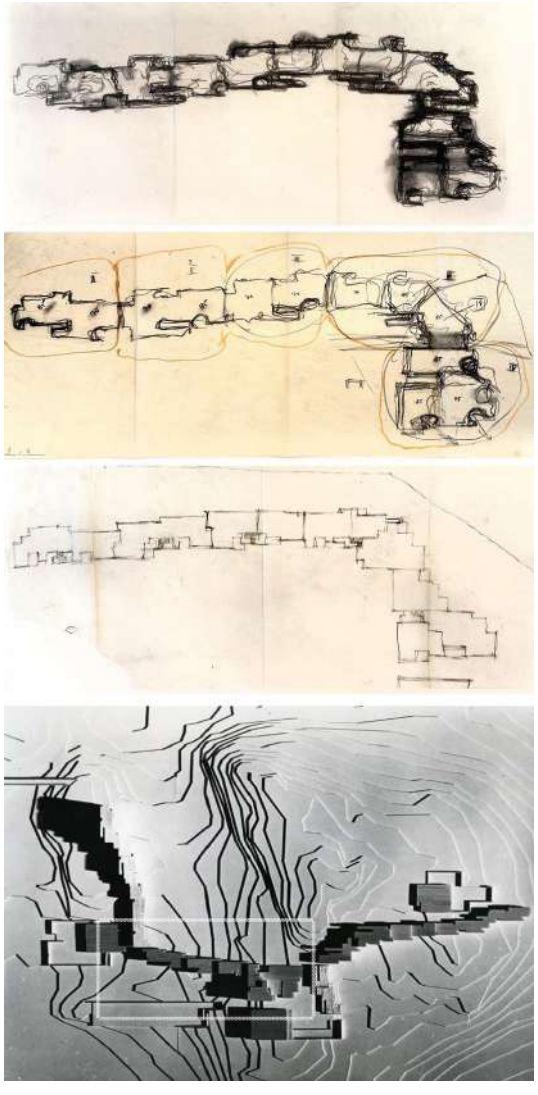


Fig. 5 - From top to bottom: a sketch sequence of the general volume of the proposal, Reima Pietilä, 1962 (source: the MFA); a model of Suvikumpu in the competition phase, 1962 (source: the MFA).

to fostering a deeper understanding of the interrelationship between urban and rural environments. He advances the notion of urban models that draw inspiration from the forms observed in natural landscapes. His architectural approach entails a pursuit of conceptual and formal equilibrium with respect to topography and vegetation, among other factors (Pietilä, 1960b). The cover of the issue features an illustration by Reima Pietilä, which is part of the compositional series.
The Suvikumpu residential complex exemplifies the formal and reflexive construction of these illustrations. It was the first built project where this search for a formal balance between architecture and nature could be put into practice. The similarities between some of the graphic compositions in the series and the model of the proposal for the Suvikumpu competition provide evidence to support this hypothesis (Fig. 3).

LANDSCAPE DESIGN STRATEGIES: THE SUVIKUMPU RESIDENTIAL COMPLEX

The decision to select the Pietilä project for the construction of the Suvikumpu residential complex, in contrast to other proposals that employed a rationalist language more aligned with Tapiola's existing architectural style (such as those of Aulis Blomstedt, Pentti Ahola or Aarno Ruusuvuori, who were also involved in the competition), signifies a re-evaluation of the fundamental principles that guide Tapiola's architectural approach. This approach sought to establish new relationships between architectural design and the surrounding landscape in an urban setting that had been named after Tapio, the Finnish god of nature, who, according to Finnish mythology, resides in its forests (Cuellar Jaramillo, 2017). The usual interpretations of the Pietilä's work in Tapiola emphasise its fractured volumetry, which is indebted to the topography of the place and which almost appears as an extension of it, homothetically reproducing the profiles of the land in which it is located (Fig. 4).
Undoubtedly, the uniqueness of the site – determined not only by topography but also by the lush vegetation, mostly composed of birch trees – made both elements unavoidable when considering a proposal in this environment.
The black charcoal with which Reima Pietilä sketches the first proposed layout gives the drawings a wooded appearance rather than a built-up appearance. The design process starts with an intentionally diffuse graphic representation which becomes progressively more concrete as the drawings follow one after the other (Fig. 5).
A more detailed examination of the volumes that house the dwellings reveals the use of diagonal compositions and repetition with variations of

Fig. 6 - From top to bottom: a colour sketch of the elevation in relation to the vegetation, Reima Pietilä, 1962 (source: the MFA); an elevation of the proposal and photographs of the snow-covered residential complex, 1969 (source: the MFA).

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

Fig. 7 - A sequence of Mondrian's drawings of almond trees.

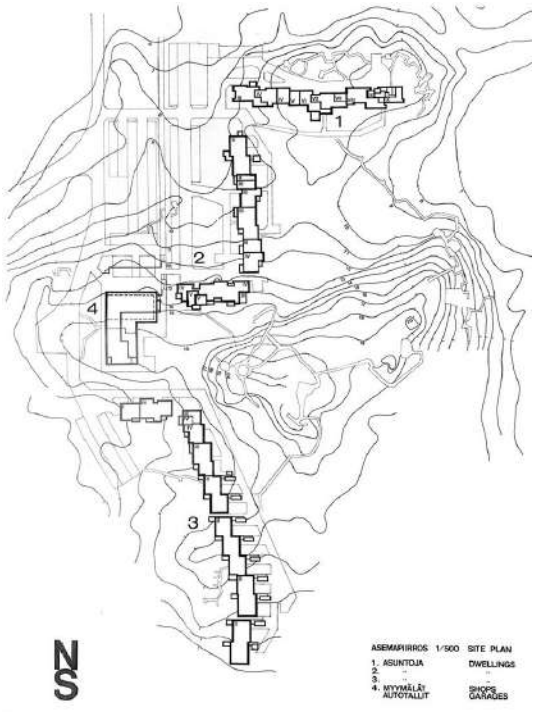


Fig. 8 - Above: the plan of the first-phase residential complex, 1969, Raili and Reima Pietilä (source: the MFA) (above). Below: a photograph of the snow-covered residential complex (the author' photo, 2023).

the residential types. This serves as a strategy of mimesis of the visual texture of the forest, which is composed of repetitive vertical elements and individual variants of the same tree species. The result is a living space that is always crossed diagonally. One might even identify a reference to the surrounding plant morphologies in the precise heights of the buildings, which mirror those of the trees (Fig. 6). This would be a logical consequence of the approach undertaken by the authors, who camped in the forest for a few days as part of their process of understanding the architectural problem they were facing in the competition.

These critical analyses have also identified the chromatic mimesis generated by the combination of the green tint of the textured concrete with the white stucco panels. In a distant vision of the whole, this creates an effect that recalls the misty vision of a snowy birch forest. From this perspective, Suvikumpu is perceived as a petrified forest, surrounded by the pre-existing birch forest. The compositional techniques employed in its creation bear resemblance to a kind of 'pixelisation' of the masses of trees, rocks and snow that constitute the canonical image of the Finnish forest.

For an architect like Reima Pietilä – whose career began in the heart of the strictest modular rationalism and who had on occasion cited Neo-plasticism as one of his references (Connah, 1989) – the well-known process of progressive abstraction exemplified by the series of images of an almond tree by Piet Mondrian in which a naturalistic representation is successively abstracted ('pixelised', as we would say in our time) until it ends up as one of his characteristic compositions of framed coloured rectangles, should not be alien (Huyghe et al., 1972) (Fig. 7). In a similar process, a voluntarily blurred gaze on nature can inspire a type of architecture, also blurred like Pietilä's sketches, which alludes to an intermediate visual space where nature and architecture, forest and artifice meet.

However, there is still another step that can be taken in search of a more concrete interpretation of this enigmatic work. The key to this may be provided by the architects themselves through the metaphors with which they habitually describe their works or through the slogans (synthetic metaphors) with which they identify their competition proposals. It is well documented how the Pietiläs used to schematise the ideas that gave shape to their projects using brief metaphors (Cortés Sánchez, 2023). From this perspective, and with a view to a more precise understanding of the Pietiläs' creative process, the chosen motto for the Suvikumpu competition, *'Tuohivirsut juoksuhaudassa'* ('Strips of birchbark in a dug-out'), would appear to have a certain relevance. In order to identify the formal references of the envelope of the residential complex, it would no longer be necessary to utilise the distant, blurred vision of the forest;

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

instead, it would be sufficient to focus on the detail of the bark of the birch tree that makes up the envelope. Each trunk can be considered a vertical composition of bands of smooth white background and rough green bark that sometimes peels away from it.
The compositional overlap between the white stucco enclosures and the green textured-concrete terraces could thus be interpreted as an architectural representation of the surrounding trees themselves, suggesting that the concept of inhabiting the forest could be taken to an extreme: residing within the birch trees themselves (Fig. 8).
The selection of green textured concrete as the material for the building envelope is not coincidental. This material, which resembles the bark of the birch tree, forms the envelope of the terraces, which are conceived as rooms with open windows. They are sheltered within the space between the two layers of bark, with the outer one about to peel off completely.
The architects themselves described the character of the building as follows: 'Forest site architecture where the layout follows the contours of the rock; a pre-Bauhaus design in homage to Theo van Doesburg. The detailed sensitivity of green in the building is a replica of forest form and space: spruce green, pine green and birch green' (Norri & Connah, 1985).

THE EXPERIENCE OF INHABITING SUVIKUMPU: SUVIKUMPU FROM ITS GRAPHIC PRODUCTION

In order for a collective residential complex, working with a basic type of dwelling, to be considered optimal, it is necessary to avoid the strict and modular repetition that would permit maximum economic performance and to avoid an image of uniformity that would be incompatible with the variety that is present in nature. It is necessary to operate with a considerable number of variants in the composition, both in terms of the plan and elevation. These variants are based on small alterations in the position of the pieces. While the project and construction of these variants imply a certain degree of craftsmanship, they do not compromise the economic viability of the complex.
In this sense, Suvikumpu, comprising a total of 170 dwellings, maintains a delicate equilibrium between, on the one hand, the visual variety afforded by the diagonal, staggered composition, both in plan and in section, the generation of a set of small variants of the types of dwellings and, on the other hand, the use of a single basic type of dwelling and a limited set of elements on the façade. It was essential that this balance be achieved in order for the residential complex to be realised; however, it was abruptly disrupted in the second phase of the residential development, which was known as Suvituuli, executed in the 1980s. This phase of development was described by its authors as a 'prefabricated-dimensioned version of the original Suvikumpu design' (Norri & Connah, 1985).

The first phase: 1962–1969

The reference to the way that the forest is crossed, always following the diagonals that define the random position of the trees, not only influenced the compositional decision regarding the general volumes and their implantation, it also had repercussions for the interior composition of the dwellings, where the diagonal tends to cross the space, reinforced in some cases by mobile elements.
The graphic documentation in the MFA archive includes more than a hundred sketches in which Reima Pietilä repeatedly explored multiple possible combinations. These drawings, frequently accompanied by annotations, permit the reconstruction of the methodology employed by the architect.
The first approach focused on the relations to be established between the spaces. For this, Pietilä relied on conceptual diagrams such as the one in Figure 9, entitled 'Tilankäyttö + Joustavuuden ehtoja' ('The Use of Space and the Prerequisites of Flexibility'). In it, the kitchen (K) and the bathroom (HT), shown in orange, are the compositional core of the diagram, around which the bedrooms (M) and the living room (O) are arranged. Next to this diagram, its application appears in what resem-

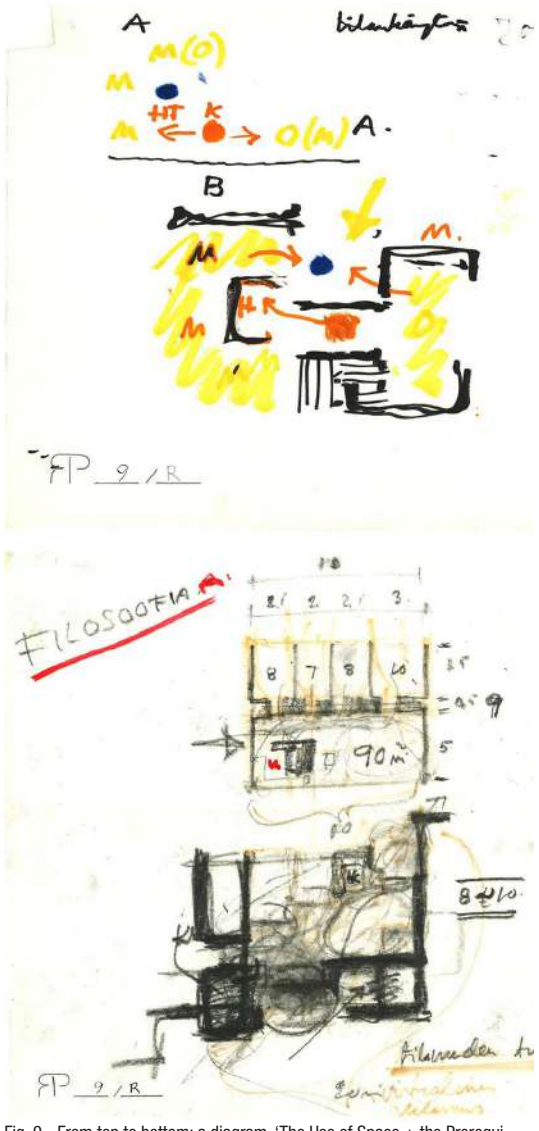


Fig. 9 - From top to bottom: a diagram, 'The Use of Space + the Prerequisites of Flexibility'; A sketch, 'Filosoofia' (1962, Reima Pietilä; source: the MFA).

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

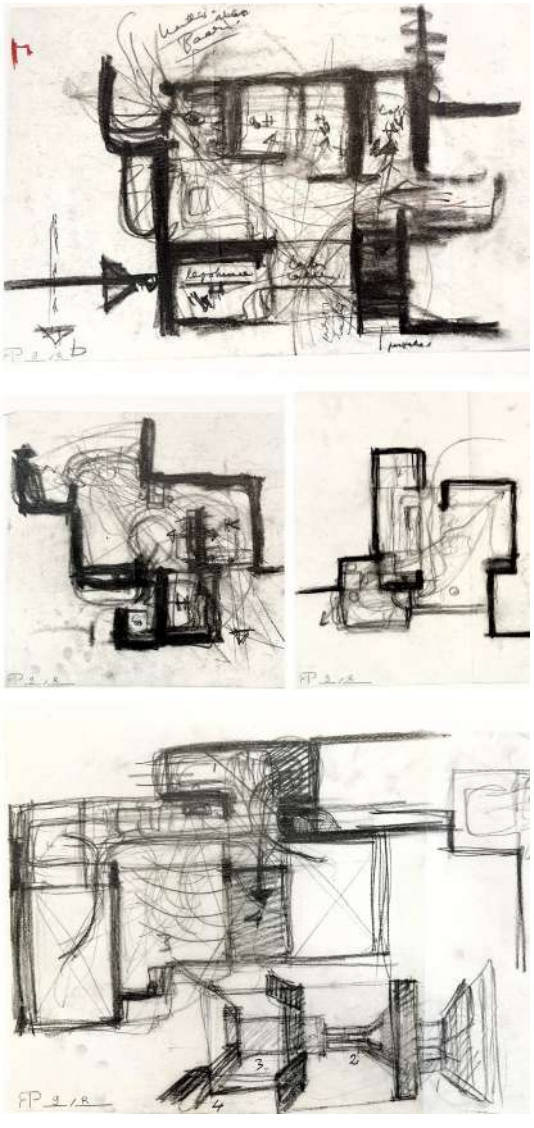


Fig. 10 - Spatial diagrams of the configuration of types with the diagonal as an organisational vector (1962, Reima Pietilä; source: the MFA).

bles a house plan. The yellow shading connecting the spaces around the kitchen and bathroom shows the idea of spatial continuity. A large arrow points from the exterior towards a large interior space (possibly the terrace), symbolising the introduction of the exterior landscape into the house from this space, the terrace (the blue dot), which is positioned as the determining room.
In essence, this scheme elucidates the architects' comprehension of the fundamental premise of the proposed residential typology: a fluid spatial configuration, not constituted by the mere aggregation of discrete rooms, but rather by the unrestricted movement of individuals and their gazes around the sole fixed and rigid enclosures within the composition – namely, those that comprise the wet core (the kitchen and bathroom).
Pietilä contrasts his approaches with others whose configuration is the result of the application of more 'classical' typologies in living spaces. Figure 9, entitled 'Filosssofia', shows how, at the top, he draws what could be categorised as a standard type of the period, where the rooms are arranged around a band with the same orientation, while on the opposite side are the daytime spaces, such as the living room and kitchen. Pietilä goes so far as to dimension these spaces, which are grouped into three parallel strips of 3.5, 0.5 and 5 metres, with a total width of 9 metres. Faced with this proposal, he suggests the decomposition of these standardised programmatic bands in favour of one with a variable depth of between 8 and 10 metres that allows for setbacks. In this configuration, the diagonal that crosses to both sides clearly appears, connecting the exteriors of both façades and becoming the main relationship space of the dwelling: the living room. The rooms are connected to this central space from both sides, while the kitchen, identified with the letter K, becomes a direct and continuous appendix to the living room.
With this strategy, Pietilä generates a certain typological variety with slight displacements of the pieces, integrated into a system where these displacements do not compromise the integrity of the adopted type. This new spatial configuration had hardly any precedent in Tapiola, where it was more common to find the aforementioned standard typology based on the modular juxtaposition of similar rooms.
A set of interior spaces is proposed that escapes from systematisation and rigid repetition, seeking a diversity of spatial experiences, stretching the interior perspectives, using the diagonal as a compositional guide (Fig. 10). This connection with the forest is an experience that users perceive from the moment they enter the house. The inhabitants themselves highlight the 'natural im-

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

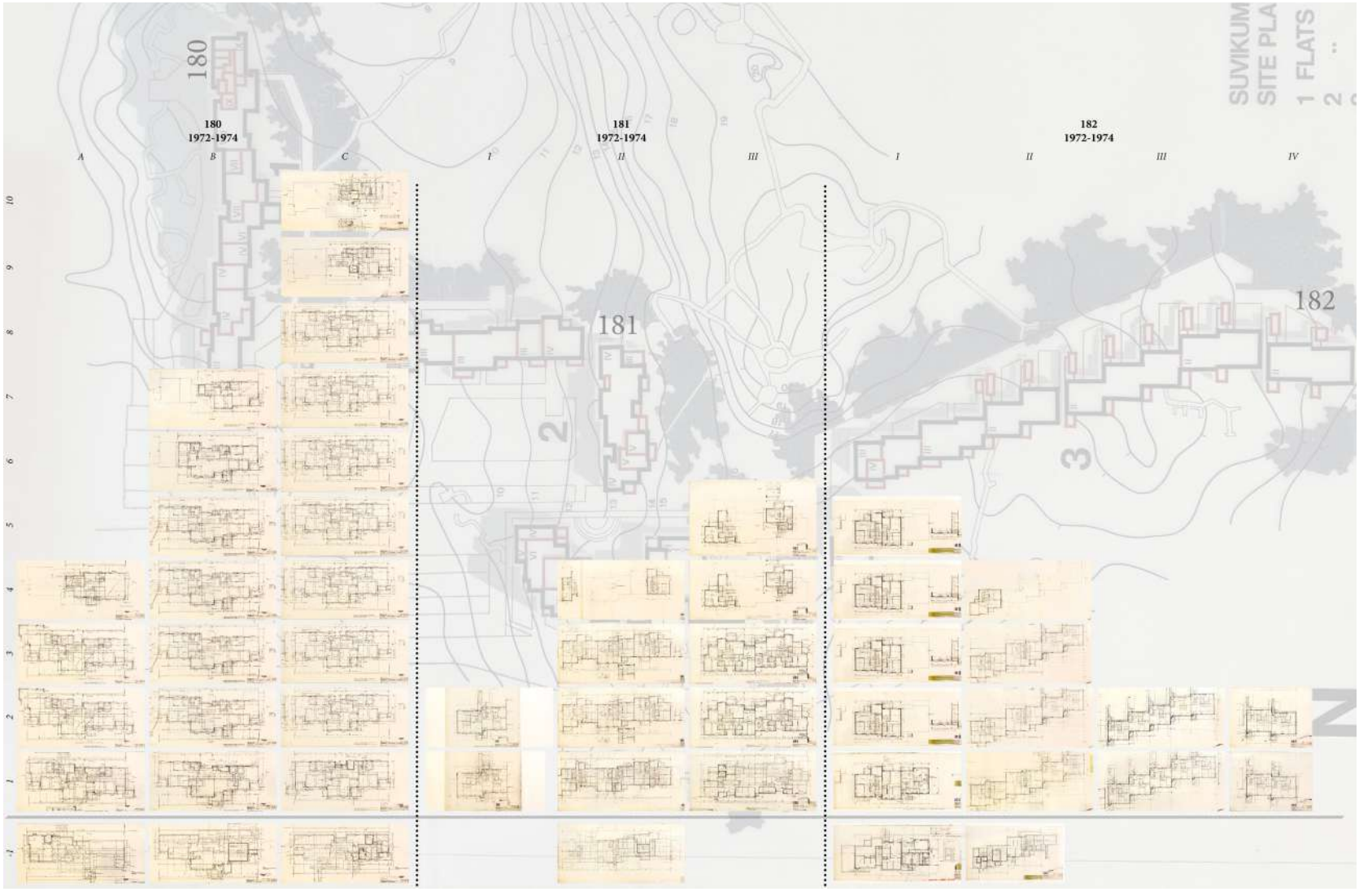


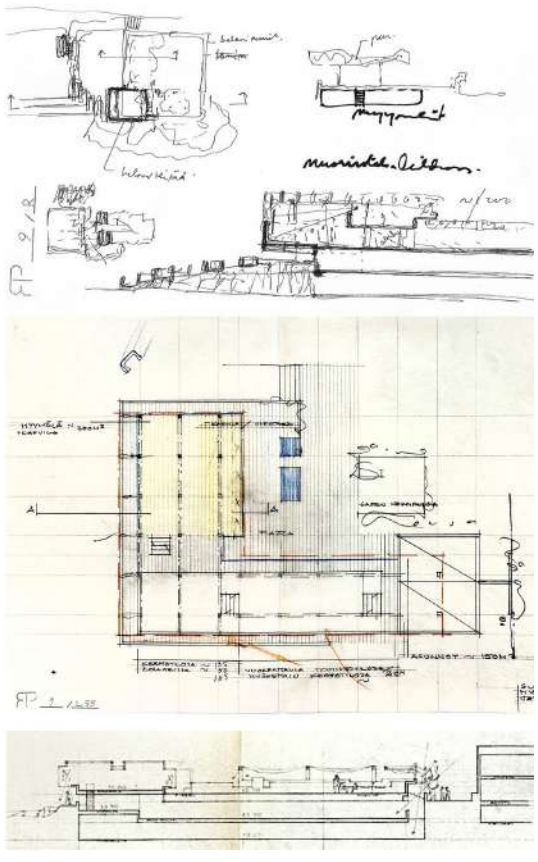
Fig. 11- A typological atlas together with all the floors of the first phase (sources: the MFA and the author's elaboration).

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

Fig. 12 - Different types of dwellings in the first phase together with the photographs of authors' visit (source: the author's elaboration, 2023).

Fig. 13 - Initial sketches and the basic planimetry of the commercial building of the first phase, 1962–1964, Raili and Reima Pietilä (source: the MFA).



mersion' of this connection with the forest due to its presence from all perspectives thanks to the multiple openings in the façade, further extending the diagonal views to the exterior.
Suvikumpu offers a typological variety of up to 40 types, thereby providing the potential for a multitude of living arrangements that can cater to the heterogeneous requirements of the users. The housing options range from one to four bedrooms, encompassing both ateliers and studio flats (Figs 11 and 12).

The second phase: 1972–1982

The extended duration of the project was attributable to the postponement of the second phase's conclusion. The initial phase's construction was concluded in 1969; however, the subsequent phase's development did not resume until 1972, after which there wereintermittent periods of activity, and it was not completed until 1982.
In the initial phase of the project, the area in question was earmarked for the erection of a commercial building, conceived by the architects as a

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

'piazza' that would serve as a focal point for the social life of the residents of the residential complex (Fig. 13).
The design was conceived with the intention of providing the user with multifunctional spaces, encompassing a range of uses from offices to meeting points for neighbours. While there are various iterations of the proposal, they all sought a building of moderate height. In the initial version from 1962, some spaces were even covered with textiles. In subsequent versions, the building became more substantial, taking advantage of its location to articulate access points and circulation routes, with the car park situated in close proximity. The proposal addressed the difference in elevation by incorporating the car park into multiple levels, reaching the upper level where the commercial programme was developed.
The final documentation pertaining to the commercial building was produced in 1966, coinciding with the commencement of construction on the residential buildings. This resulted in the piazza project being placed on hold. In 1972, work resumed, and the initial documentation for a new dossier was produced in Pietiläs' office. The second phase of the project, which was to be known as the 'Suvituuli kerrostalo' (the 'Summer Wind Apartment Building'), saw the central 'piazza' of the original plan replaced with a new residential building. This decision was probably motivated by the success of the first phase, which was reported in international journals such as the Italian *Abitare* (1971).
The experience of the initial phase served as a point of departure and a point of reference for the formal configuration of the new block. This consideration is reflected in the preparatory drawings in which the elevations of the entire complex are presented as a base (Fig. 14). Section a–a' shows the formal adaptation of each volume to the requirements of the programme, recreating the line of the terrain, an aspect that marked Reima's initial approaches to the site (as we saw in Fig. 4). Therefore, the first sketches of the new building are based on the premise of avoiding a uniform crest height. As in the local landscape, the horizontality of the terrain is interrupted by mounds of different heights, where the granite emerges from the lush vegetation. This altimetric variability is replicated by the architects at roof level.
The geometrisation of nature is reflected in these drawings. The architects represented the forest by means of prisms of different dimensions, in the same way as they began to shape this new architecture (Fig. 15). The process of abstraction that guides their design strategy is evident in this layout, where architecture and vegetation share the same type. The process of abstraction, which also occurred on a second level corresponding to the texture of the vegetation, was transferred to

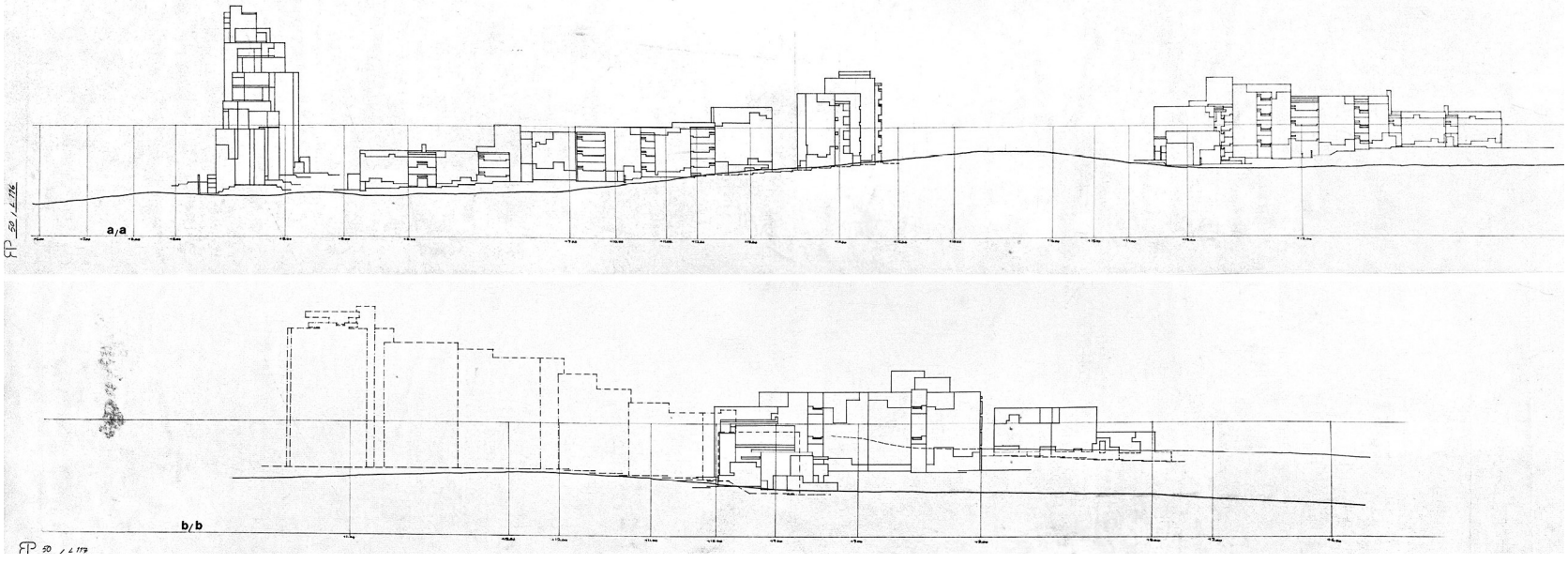


Fig. 14 - General elevations of the first phase complex (Raili and Reima Pietilä, ca. 1972; source: the MFA).

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

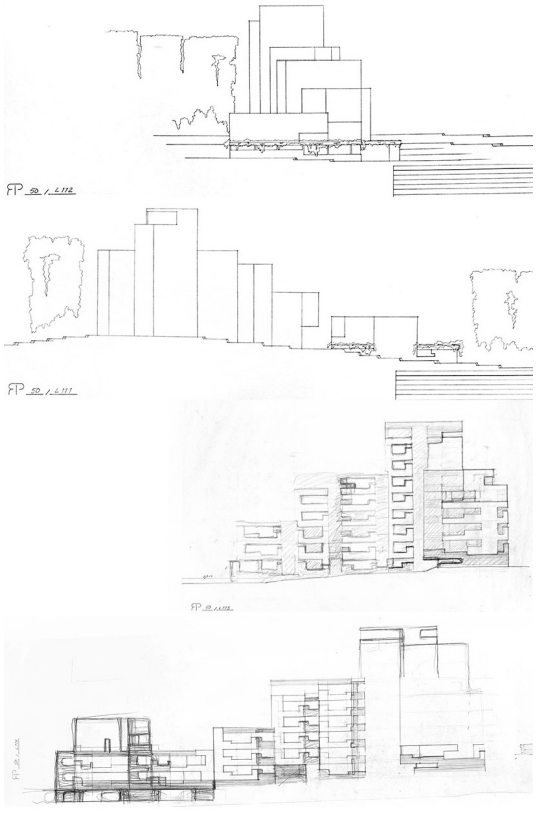


Fig. 15 - The geometry of the Suvituuli façade (Raili and Reima Pietilä, ca.1972; source: the MFA).

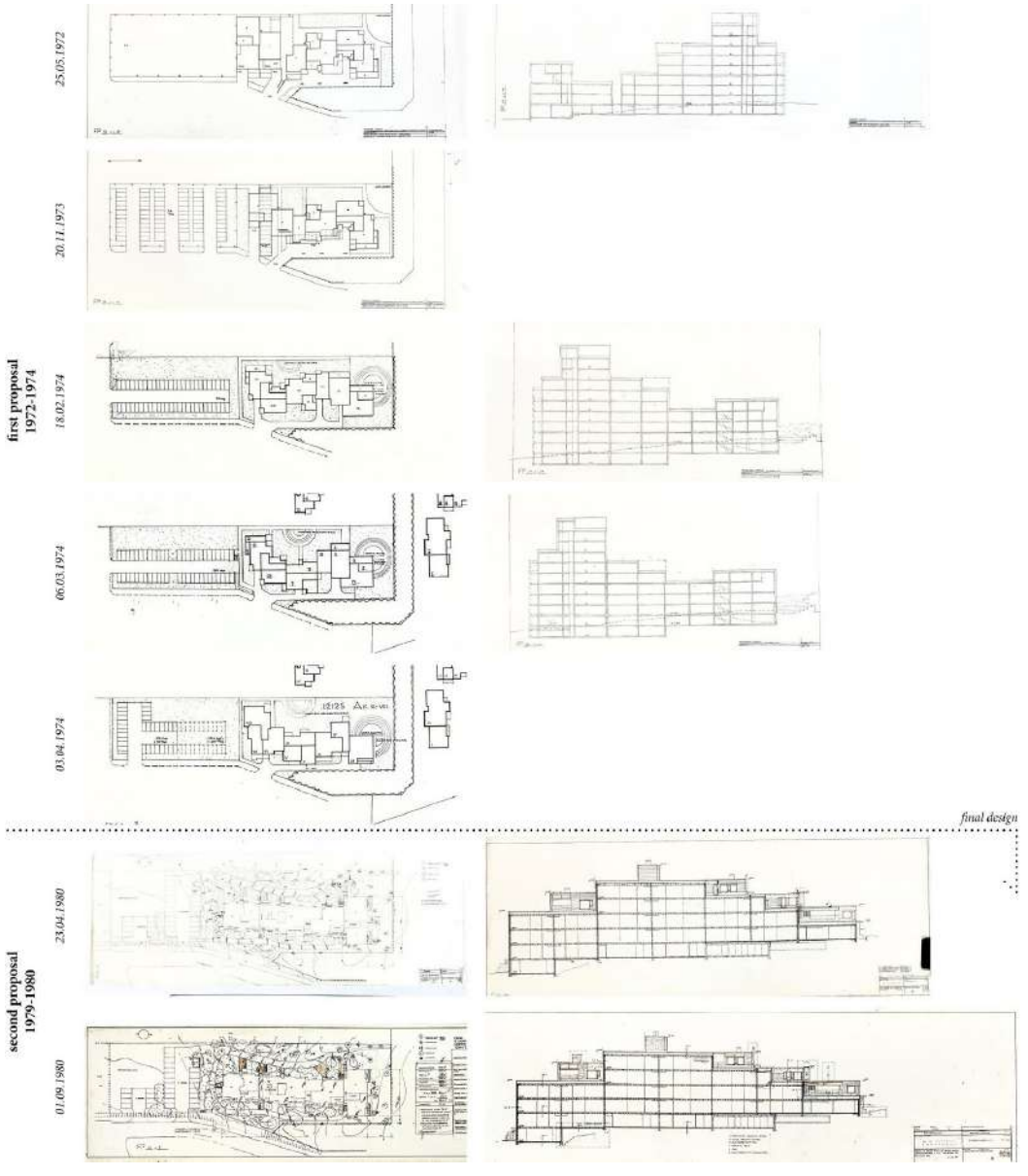


Fig. 16 - The sequence of all the proposals developed for the new Suvituuli building (Raili and Reima Pietilä; source: the author's elaboration).

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

Fig. 17 - Elevations, sketches and details of the Suvituuli façade in relation to nature (ca. 1978, Raili and Reima Pietilä; source: the MFA).

the elevations, as observed in the initial phase. Raili and Reima Pietilä initiated the definition of the distinctive envelope by employing the identical geometric patterns that were previously utilised, comprising the abstraction of the singular texture of the birch.

The appearance of the new volume increasingly resembled that of its predecessor (Fig. 15). However, despite beginning with clear and, to a certain extent, already proven premises, the project underwent numerous modifications. In general terms, these variations can be grouped into two clearly differentiated periods: those developed between 1972 and 1974, and those implemented between 1979 and 1982 (Fig. 16).

The MFA archive records five versions dated between 1972 and 1974. The variations resulting from the initial proposal during this period are not particularly significant as the concept of a volume divided into multiple sections of varying heights is retained in each iteration. However, while the first version proposed a larger section with two distinct volumes, subsequent versions opted to unify them into a single volume. Additionally, the number of levels and their positioning underwent changes throughout the variations. In the initial proposal, the pinnacle of the edifice, with an elevation of eight storeys, was oriented towards the east, representing the highest point of the site. In the subsequent proposals, there was a reversal of this arrangement. The tallest tower was situated on the west side, the lowest point of the site, while the lower part of the building, comprising four storeys, was located on the highest point. This decision was likely motivated by the desire to achieve compositional balance with the surrounding buildings. Only the western building, number 181, reached ten storeys, with the remaining structures ranging from two to six storeys.

The five-year suspension of the project, coupled with the developer's new objective of reducing production costs, resulted in a comprehensive redesign of the proposal. Upon its resumption in 1979, the project was approached with a clean slate, leaving no formal trace of the previous proposals. The two versions in the archive, one dated

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

1979 and the other 1980, are practically identical with only minor alterations to the layout.
The radical alteration to the proposal was characterised by a modification to the construction system. While the initial proposals of this second phase sought to maintain the handcrafted character of on-site construction and attention to detail, as the architects themselves have stated, in this final iteration they have opted for a prefabricated construction system. It is curious to note that during the 1960s, a period when this system exerted significant influence on contemporary architecture, the opposite approach was advocated. Subsequently, in the 1980s, this method was chosen once more. It would appear that Raili and Reima Pietilä were in disagreement with regard to the implementation of the system in question, which was imposed by the developer of the building. In addition, there were a series of disagreements about the design and the time available for its development and execution. The graphic representation of the final proposal demonstrates the efforts made to preserve the initial intervention's original landscape objectives. Figure 17 illustrates how the definition of the envelope was developed in accordance with the same experimental approach concerning the integration of the material with the natural environment, although the degree of achievement was not identical. Despite these efforts, the problem was that *nature* does not equal *standardisation*; the intrinsic richness of the variability of rhythms is what makes nature unique. Attempting to standardise it goes against this principle, and therefore, its application in architecture was successful when architecture was governed by the same score, a situation completely the opposite to that of this latest development.

This had a direct impact on the proposed modes of habitation. As illustrated in the comparative table (Fig. 18), the process of simplification resulted in a reduction of the number of housing types. Consequently, the distinctive character that had

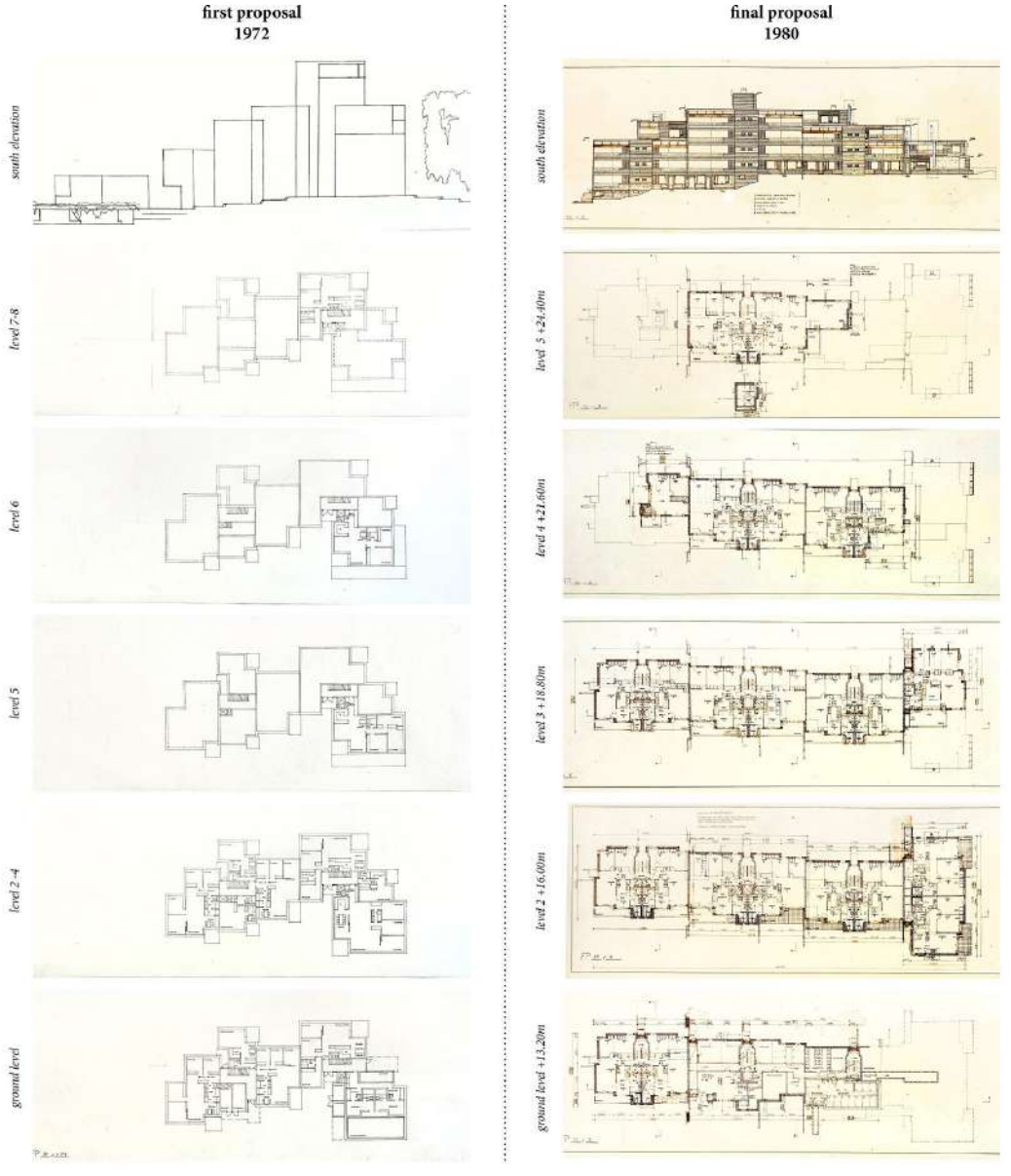


Fig. 18 - A comparative table of the first proposal of the first phase and the last proposal of Suvituuli (source: the author's elaboration).

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

Fig. 19 - Photographs of the Suvituuli building, ca. 1984 (source: the MFA).

been a key factor in the success of the residential complex was lost. In its place, a greater emphasis was placed on typologies that, while bearing resemblance to earlier designs, are more outdated than those proposed initially or those constructed during the first phase.
In the final design, the compositional play on the ground plan is minimal; there are only small setbacks and a recurrent use of symmetry. The residential floor plan was resolved with a single type: a pass-through dwelling with the living room and terrace facing south, while the bedrooms are grouped in a block (of two or three) with a north façade, together with the kitchen and bathroom, which are located next to the sauna. On the top floor, there is a two-storey type of flat with a small workshop on the upper floor, but the same structure is maintained (Fig. 19)
In contrast, the initial proposal presented a considerably more diverse typological ensemble. As in the initial phase, a general trend is maintained of not allocating the surface area of the dwelling to circulation spaces. In this case, the living room incorporates the potential routes and becomes a space with indistinct boundaries that connects all the rooms, avoiding excessive compartmentalisation and allowing visual access to the exterior through multiple diagonals.
It is accurate to conclude that the architects employed the repetition of architectural types in a stacked formation, thereby achieving a highly variable result on the ground plan. It is evident that the absence of a uniform crown height, despite the stacking of the same architectural type, serves to increase the overall variability. In some of the upper storey types, there is a setback in the façade that accentuates this diversity. For example, the dwelling located on the southeast corner is set back from floor 4 to floor 6, thereby altering both the overall volume and the living space (varying the surface area and the number of rooms). Furthermore, the strategic position of the corner terraces contributes to this compositional play and to the depth of the façade.

CONCLUSIONS

The analysis of the complete process of the development of the Suvikumpu residential complex, through the sketches and plans in the MFA archive, reveals how a well-defined design argument (based on interpreting the Finnish forest landscape through the architectural composition and interior design of the dwellings) could be successfully developed in the constructive materialisation of the first phaseof the complex.
A set of coherent strategies collaborated in this proposal of mimesis of the natural environment: the homothetic relationship of the profile of the built volume with the existing topography, the recreation of the textures and colours of the wooded panorama in the visual features of the envelope, the use of the diagonal composition in both the general volumetric development and the interior design of the dwellings, the subtle deployment of a multitude of small variations on the basis of a single type of dwelling and, finally, the understanding of the building's skin as tree bark on the verge of breaking off, which, in its 'detachment', generates the most singular and attractive spaces in the complex: the balconies, authentic ambiguous rooms – neither completely exterior nor completely interior – sheltered in the juxtaposition of the two types of enclosure that define the envelope.
In this first phase, the choice of the construction system (a combination of brick masonry covered with mortar, and textured and coloured concrete walls, formed in situ, executed in a systematic but relatively artisanal way) contributes with simplicity to the formal and typological expression sought. However, in the second phase, Suvituuli, penalised by a lengthy development time and the imposition of the cost-saving prefabricated building system, proved to be incompatible with the strategies of formal manipulation that had proved successful in Suvikumpu.
Since prefabrication systems with numerical control of the parts were not sufficiently advanced at that time, the savings that were supposed to be made in prefabricated constructions had to be

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

necessarily based on the greatest possible modular rigidity, on the greatest possible repetition of identical parts and on the smallest possible number of accidents and variants, leading to favouring simple, prismatic and, if possible, symmetrical compositions. This was a complete reversal of Suvikumpu's staggered, diagonal and variant layouts, which were a consequence of the sought-after transmutation of the forest into architecture. The natural balance between repetition and variation, between building craftsmanship and the latest technologies, between rationality and picturesqueness, between nature and artifice in Suvikumpu was suddenly (as it had been in the rest of the Tapiola district) only a dialogue of contrast between canonical functionalist architecture and the surrounding nature; it was no longer the game of naturalistic mimesis with which the Pietilä's major works, including the Suvikumpu residential complex, had been filled.

The influence of the construction system in the modification of the project's premises reached the point that the type of dwelling itself was denaturalised, the second phase reproducing a conventional composition of rooms distributed in a conventional manner into a day zone and a night zone within a regular rectangle. In the first phase, the diagonal composition, at the ends of which are the entrance to the dwelling and the green concrete terrace, presents an interesting heterodoxy: the entrance is through the night area, which becomes the most 'public', and the sequence culminates in the main room and, more specifically, in the concrete 'outdoor room', which recalls peeling tree bark. The experience of inhabiting a dwelling has its most intimate space, the one that culminates the sequence of access to the dwelling, in the very forest from which it comes.

In the first phase, the type of dwelling incorporated the diagonal visual openings that are characteristic of the forest space into its spatial sequence. The access corridor can open up at will on one of its sides by means of a sliding partition, generating a lateral extension of the circulation space which, in any case, funnels its perspective towards the corner of the balcony. The windows

Fig. 20 - Photograph of Suvikumpu from the main road. 1969 (source: KAMU Museum).

are not perceived as such but as openings of different widths at different heights of the envelope, somehow appearing more as irregular interstices between vegetation than as windows.

All these attempts to remotely recreate what could be the experience of inhabiting the surrounding forest have been lost in the second phase, where the imposed construction system and the consequent rigid distribution of rooms that were adopted derive more from the experience of a conventional flat, organised with closed rooms along a central corridor and where the exterior room of the first phase, with two of its sides open to the forest, has been transformed into a full frontal balcony that reinforces the image and the space of a flat façade open to a street that does not really exist (Fig. 20).

The visual, physical and psychological relationship with the surrounding landscape, which in the first phase was articulated with different resources (fragmented and naturalised treatment of the envelope, diagonalisation of the living space and dissolution of the limits of the interior rooms) is impoverished in the second phase by the impositions of a construction system that is based on modularity and volumetric simplification.

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10

ISSN 1828-5961

ACKNOWLEDGEMENTS

The first author would like to give thanks for the contract FPU19/04929 and the short research stay (EST24/00472) at Aalto University (2024), both funded by the Ministry of Universities of the Government of Spain. The authors would like to express their gratitude to the Arkkitehtuurimuseum (the MFA), Antti Aaltonen and Petteri Kummala for granting them access to the archives and also to Saija Hollmén, a researcher at Aalto University, and the residents of Suvikumpu for their invaluable assistance in facilitating access to the dwellings.

REFERENCES

Ahola, P. (1960). Tapiolan pohjisen lähiön asemakaava. Arkkitehti : Finsk Arkitekturtidskrift = Finnish Architectural Review, 4–5, 87–89.

Chías Navarro, P., & Papa, L. M. (2019). Territories, places and landscapes with figures. Disegnarecon, 12(22), 1–10.

Clark, P. (2006). The European city and green space: London, Stockholm, Helsinki and St. Petersburg, 1850-2000. Ashgate.

Connah, R. (1989). Writing architecture : fantomas, fragments, fictions : an architectural journey through the 20th century. Rakennuskirja Oy.

Cortés Sánchez, L. M. (2023). Reima Pietilä and the morphology of architectural language. Criticlall: V International Conference on Architecture Design & Criticism, 2023, 105–115. https://idus.us.es/handle/11441/150260

Cuellar Jaramillo, Á. R. (2017). El bosque habitable : la experiencia de construir ciudad paisaje en Finlandia [Universitat Politècnica de Catalunya]. In TDX (Tesis Doctorals en Xarxa). https://upcommons.upc.edu/handle/2117/112426#.Y-0qQKfyzdY.mendeley

Fernandez-Vivancos Gonzalez, E. (2018). Dissident practices. Raili and reima pietilä's design for the Suvikumpu housing development. Revista Proyecto, Progreso, Arquitectura, 18, 74–87. https://doi.org/10.12795/ppa.2018.i18.05

Fernandez-Vivancos Gonzalez, E. (2023). Topology of the intermediate space. The work of landscape architect Jussi Jännes in Tapiola. VLC Arquitectura. Research Journal, 10(1), 25–49. https://doi.org/10.4995/vlc.2023.17429

Fernández-Vivancos González, E. (2016). Utopías de reconstrucción. TAPIOLA, BREVE HISTORIA DE UN SUEÑO OLVIDADO [Universitat Politècnica de València]. https://doi.org/10.4995/Thesis/10251/62200

Hautamäki, R. (2022). From sparse to compact city – shifting notions of nature in post-war residential landscapes in the Helsinki region. Planning Perspectives, 37(6), 1179–1203. https://doi.org/10.1080/02665433.2022.2036224

Hautamäki, R., & Donner, J. (2021). Modern living in a forest – landscape architecture of Finnish forest suburbs in the 1940s–1960s. Geografiska Annaler: Series B, Human Geography. https://doi.org/10.1080/04353684.2021.1989320

Huyghe, R., Rudel, J., & Burollet, T. (1972). El Arte y el mundo moderno . Planeta.

Kivinen, O. (1960a). Lehtisaaren asemakaava. Arkkitehti : Finsk Arkitekturtidskrift = Finnish Architectural Review, 4–5, 90–92.

Kivinen, O. (1960b). Pihlajamäen asemakaava. Arkkitehti : Finsk Arkitekturtidskrift = Finnish Architectural Review, 4–5, 93–95.

Meurman, O. I. (1947). Asemakaavaoppi. In Asemakaavaoppi. Otava.

Mumford, L. (1938). The culture of cities . Harcourt, Brace and Company.

Nikula, R. (1998). Construir con el paisaje: breve historia de la arquitectura finlandesa. Otava.

Norri, M.-R., & Connah, R. (1985). Pietilä : modernin arkkitehtuurin välimaastoissa : intermediate zones in modern architecture (Martinpain). Suomen rakennustaiteen museo.

Pietilä, R. (1960a). Exhibition: "Morpholgy and Urbanism."

Pietilä, R. (1960b). Suomalainen yleiskaava 1960. Arkkitehti : Finsk Arkitekturtidskrift = Finnish Architectural Review, 4–5, 97–102.

Ruokonen, R. (2016). Tapiola muuti maisemasuunnittelun = Tapiola changed Finnish landscape architecture. Arkkitehti, 113(6), 62–65. https://www.proquest.com/scholarly-journals/tapiola-muuti-maisemasuunnittelun-changed-finnish/docview/1875117316/se-2?accountid=14744

Vi presentiamo ora Suvikumpu: un quartiere poco lontano da Helsinki, quasi un pezzo di città che vorremo fosse nostro. (1971). Abitare, 100, 123–134. https://www.proquest.com/scholarly-journals/vi-presentiamo-ora-suvikumpu-un-quartiere-poco/docview/55525161/se-2?accountid=14744

DOI: https://doi.org/10.20365/disegnarecon.33.2024.10