

VOICES FROM THE ARCHIVE: The archive as a testimony of the processes

The approach to the work of Finnish architects Raili and Reima Pietilä inevitably involves the analysis of the documentation preserved in their collection, housed in the archives of the *Arkkitehtuurimuseo* – the Museum of Finnish Architecture (MFA). Their process-driven design methodology is reflected in thousands of documents that trace the evolution of their innovative architectural and landscape concepts during the second half of the twentieth century. Donated by Raili Pietilä in 2004, the collection remains largely undigitised, with only a small portion catalogued within the MFA's main archive; the remainder is held in the museum's general repository. This article aims to recover and underscore the value of intermediate drawings in the formal development of architectural ideas, positioning them as key instruments for reconstructing the architects' conceptual and design processes. It posits that the materials gener-

ated during project development are fundamental to understanding the logic and articulation of the final architectural proposals. To address the substantial volume of unpublished and non-digitised material, a specific research methodology has been developed. The study focuses on a single case: the Dipoli building (1961–1966), with particular attention to the distinctive skylights of its organic roof structure. The findings are presented through graphic compositions that reveal the fluidity and iterative nature of the design process. The originality of the study lies in its visual interpretation of archival material, presenting a graphic narrative that enriches the understanding of the Pietiläs' architectural practice.



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INTRODUCTION

The approach to the work of Finnish architects Raili and Reima Pietilä inevitably involves the analysis of the documentation preserved in their collection, housed in the archives of the *Arkitektureumuseo* – the Museum of Finnish Architecture (MFA). Their process-driven design methodology is reflected in thousands of documents that trace the evolution of their innovative architectural and landscape concepts during the second half of the twentieth century. Donated by Raili Pietilä in 2004, the collection remains largely undigitised, with only a small portion catalogued within the MFA's main archive; the remainder is held in the museum's general repository.

The research presented here forms part of a broader study on the architectural output of the Pietiläs during the 1960s. This period, marking the couple's first joint works, was characterised by morphological experimentation in architecture, inspired by the natural forms of the landscape (Cortés Sánchez, 2024). This new architectural perspective set them apart from their contempo-



Fig. 2 - Photographs from the Pietilä's general archive (source: the author's photos, 2024).



raries, who championed a rationalist and functionalist approach in which landscape considerations played little to no role (Connah, 1989). Projects developed during this period, such as the Kaleva Church, the Dipoli building, the Suvikumpu residential complex, and the Finnish Embassy in New Delhi, exemplify the formal complexity influenced by natural forms (Qunatrill, 1985). This complexity is evident in the vast number of drawings produced, exceeding 3,000 in projects like Dipoli and the New Delhi embassy. These documents span all phases of the design process, from preliminary conceptual sketches and competition proposals to detailed project documentation, construction plans, and even materials prepared

post-completion for publications or exhibitions. The extensive timelines and numerous iterations highlight the process-driven nature of their work, which this study seeks to document and analyse. Consequently, the primary aim of this article is to assess and examine in detail the processes behind the creation of the architectural forms proposed by the Pietiläs—from the project's inception to its final construction. The focus is placed on identifying the impact of the landscape on the design, with the ultimate goal of understanding how it influences each phase of the process.

To this end, the research advocates for the material produced during the development of the projects as essential to understanding the proposed architectural works. This material is crucial in comprehending the decisions and motivations that guided the Pietiläs' thought and design process. Therefore, it is fundamental to establish a methodology capable of addressing this vast

Fig. 1 - Photographs of the Arkitektureumuseo - Finnish Museum of Architecture (MFA) (source: the author's photos, 2024).

amount of information. The focus on the processes undertaken and the associated documentation necessitated on-site consultation, as these drawings—unlike those commonly used or disseminated in the promotion of these projects—remain unpublished and undigitised. First, quantitative data (such as the number of drawings, dates, and types) were extracted and analysed to construct chronological timelines. These timelines aim to clarify the evolution and interaction of the projects, highlighting how simultaneous developments enriched the final architectural outcomes. Beyond temporal mapping, the research categorised the drawings to reflect their correspondence with specific phases of the project cycle. This approach makes it possible to identify shifts in focus throughout the design and construction phases, shedding light on how certain strategies were refined or repurposed over time.

For this article, the Dipoli building has been selected as a case study, with a particular focus on the distinctive skylights of its organic roof. Through a detailed analysis that delves into its corresponding documentation and identifies the design strategies employed, the aim is to exemplify the proposed hypothesis on the value of drawing as a trace of architectural processes. As Marja-Riitta Norri points out, “an architect does not create; he sketches” (Norri, 2023). The study also introduces a tailored categorisation system, developed specifically within this research, for the Pietilä archive. This system includes specific reference codes and thematic groupings to efficiently manage and interpret the materials.

THE ARCHIVE AS A RECORD OF THE CREATIVE PROCESS

The Pietilä archive presents several intriguing characteristics for researchers. On one hand, the majority of the works included are represented through a collection of hand-drawn sketches (as was typical for the time), covering all phases of each project—from the earliest conceptual sketches to detailed construction drawings. Notably, certain series of sketches reappear through-



Fig. 3 - Photographs of Raii and Reima Pietilä drawing in the studio (source: the MFA).

out various stages of the design process, reflecting an ongoing dialogue and iterative refinement. On the other hand, the presence of these sketches across all project phases highlights the direct involvement of the architects themselves in producing most of the drawings found in the archive. In this regard, the Pietiläs' approach aligns with Álvaro Siza's statement: “I make (working drawings) for quality control. I draw to the end” (Robbins, 1994, p. 155), underscoring the architect's continuous hand in every stage of the architectural and constructional definition of the project.

These two characteristics grant the archive exceptional significance as a record of the creative process of architects who were highly influential in the second half of the 20th century. Architectural archives often focus primarily on drawings that capture the initial conception of a project, emphasising the most “creative” or conceptual phase. This is the case, for example, with the personal



archive of Louis Kahn (1987), where the interest seems to lie predominantly in the stage where the concept and general morphology of the work are defined. In contrast, the Pietilä archive treats all phases of a project as repositories of exhaustive architectural reflections, ranging from the integration of the building into the landscape to the precise detailing of a skylight—where there is still room for profound investigations. The iterative nature of these inquiries is clearly documented in their drawings.

Ultimately, this is an archive where the architects' direct and continuous engagement with hand-drawn graphics throughout the entire design and development process serves not only to document the evolution of the project but also to reveal the very flow of architectural thought it entails. The physical examination of these drawings offers insights that can be lost in digital reproductions, such as corrections or traces of erased versions

of certain elements, which bear witness to the doubts and revisions inherent in the design process. This type of intensely personal and deliberative architectural drawing is inseparable from the progression of design thinking, which is neither purely verbal nor discursive in nature. As Ross Scheer (2014, p. 30) notes, “(Architectural drawing) is also a craft, a hallmark of the architect, whose exercise permits exploration for both visual and non-visual aspects of building and underlies a unique mode of understanding suited to designing spatial experience in all its complexity.”

The analysis of the Pietilä archive reveals an architectural practice that is fundamentally artisanal—an approach that seems perfectly suited to the type of architecture emerging in their major works. Their architecture was deeply rooted in the landscape, committed to an exploratory design process that sought to conceive buildings as extensions of the natural environment. Lacking precedents, predefined forms, or readily available references, their design process could only materialise through a patient cycle of trial and error, in which hand-drawing played a pivotal role.

“For the sportsman, craftsman, magician, and artist alike, the seamless and unconscious collaboration of the eye, hand, and mind is crucial. As the performance is gradually perfected, perception, action of the hand and thought lose their independence and turn into a singular and subliminally coordinated system of reaction and response” (Pallasmaa, 2009, p. 82). This quote by Juhani Pallasmaa highlights the relationship between the thought process, the gaze, and the act of drawing. Consequently, it emphasises the potential to reconstruct the unfolding of an intellectual journey through the careful examination of the drawings in which this process was exercised.

At the dawn of the development of digital technologies applied to architectural archiving, some researchers questioned the challenges of the future of archives. The usual focus was on the capabilities of digital reproduction and storage media in terms of their capacity, accuracy, and precision (Mitchell, 1996). It was hard to find any reservations about the limitations of the digital medium

as a comprehensive research tool when it comes to investigating the traces left by creative processes such as those of the Pietilä’s, which are so personal and artisanal in their graphic documentation.

In the case at hand, the direct analysis of the physical medium on which the drawings were made—which brings the researcher into immediate contact with their actual size, materiality, scale, accidents, and corrections—offers a more complete understanding when undertaking the task of reconstructing the memory of a creative process. This approach, in some way, transports the researcher into the direct relationship with the drawings that the authors themselves experienced. Drawings that convey architectural works generate a type of architectural knowledge—the typical knowledge—related to the interpretation or analysis of the finished work. However, examining an archive like that of the Pietilä allows for a deeper investigation into the very essence of the thought process that generated their most innovative works.

The critic Malcolm Quantrill often joked about Reima Pietilä’s style of rhetoric: “Reima Pietilä seemed to confirm Brecht’s observation that ‘the Finns are silent in two languages’ when he suggested: ‘Aalto kept quiet about what he was up to, leaving it to others to try and explain.’ In contrast, Pietilä himself engaged in a seemingly interminable monologue about his theories and intentions” (Quantrill, 2008, p. 91). Critics of the Pietilä’s work often objected that their theory did not align with their free forms. Their theory was more of an anti-theory, and their free forms and poetics did not find an explicit conceptual framework. Perhaps only the use of metaphors (such as those employed in the slogans of their competition proposals) seemed to define a path toward understanding. Adrian Forty has highlighted how language—unlike architectural drawings, which seek to define a reality—enables signification, ambiguity, and metaphor. There exists only one type of drawing that exhibits some of the qualities of ambiguity and indistinctness characteristic of literary language: the sketch (Forty, 2000, p.38). This

modality could be considered the most accurate visual translation of Pietilä’s verbal metaphors.

Reima Pietilä often compared the design process to hunting and fishing: one cannot be sure whether they will catch something or if they will catch anything at all. For J. Pallasmaa, Pietilä’s working method was a blend of linguistic and visual inquiries: his sketches function as trials of invented words, while his spoken and written discourse often appears as a visual sketch (Pallasmaa, 2009, p. 73). In this sense, the meticulous examination of the creative process that direct analysis of the archive can provide proves to be a powerful tool for reconstructing the true intellectual framework behind the form of the projects.

A special mention should be made of the use of sketches that the Pietilä graphic archive presents. For Robin Evans, one of the most significant changes in architectural drawing practice in the 20th century was the increasingly frequent use of the sketch. While resembling a scaled drawing, the sketch is still projective in nature, but its ability to absorb many other interpretations gives it a different functionality (Evans, 1989, p. 33). Its relationship with the object is more of a suggestion than a description.

In some cases, the sketch has been presented as the expression of the foundational idea of the project, a way to freeze a supposed moment of inspiration. In contrast, with the sketches found in the Pietilä archive, which appear in all phases of the project—even in the final stages, including the construction details—it could also be interpreted as a mental tool for inquiry. It serves as a means of generating a vague cloud of suggestions, still indeterminate but inspiring, that stimulates the architect’s mind to explore various potential paths forward. The creation of any drawn image begins by questioning appearances and by making certain marks. The architect’s compulsive drawing is a reciprocal process. Drawing is not merely about measuring and placing on paper; it is also about receiving. It is a kind of dialogue (Berger, 2011, p. 61).

In any case, a graphic archive like that of the Pietilä’s undoubtedly holds an instructive value.

Unveiling, through the systematic reading of a project's drawings, the mental processes that generate a significant architectural work, holds particular interest as an academic proposal. Students and researchers, apprentices of design processes, can find in the explanation of these archives the keys, strategies, and practices that will help them develop their own creative processes. This perspective has led to architecture schools in many countries being some of the main promoters of architectural archives, paying close attention to preserving the "fragments of memory," precisely in a university community that glimpses and investigates its professional practice through the conceptual triad of material, gaze, and memory (Fernández Alba, 2012, p. 9)

THE PIETILÄ COLLECTION AT THE MFA

The origin of this collection dates back to 2002, when Raili Pietilä donated the majority of the studio's material. The cataloging work of the large number of documents received by the Finnish Museum of Architecture (MFA) spanned a two-year period, concluding in 2004 (Keinänen, 2007). The museum has two archives: a small one located in the main building in the center of Helsinki, and a larger one located on the outskirts of the city. The main building only houses a very limited selection of the material available in the museum, and these are reduced-size copies, not the original documents. During research visits, thanks to Petteri Kummala, who is in charge of research services and collection management, and Antti Aaltonen, MFA archivist, access was granted to the larger facilities, allowing for access to this unpublished documentation.

The catalogue of this documentation lists 80 files devoted to architectural projects, which encompass the complete body of their work. From the study of these files, the author of this research has counted over 35,000 drawings that make up the collection. Projects with a strong landscape character, such as the Kaleva Church (1175), the Dipoli building (3178), the Finnish Embassy in New Delhi (3055), the Suvikumpu residential complex,

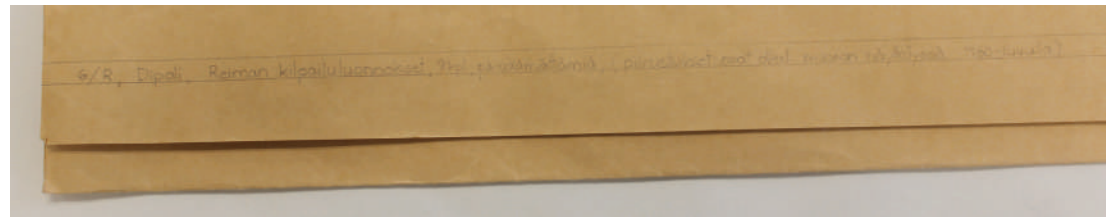


Fig. 4 - Photographs of the files and folders of the Pietilä collection in the general archive (source: the author's photos, 2024).

including the second phase of Suvituuli (1437), and the Mäntyniemi Presidential Residence (5135), which, according to the author and some critics, show a stronger connection to the landscape, represent more than 30% of the total output.

This amount of documentation requires a working method that allows for its operability. First, a preliminary task of identifying and locating the documents for subsequent analysis is necessary. However, the main challenge faced by this research does not lie so much in the quantity of documents, nor in the language (almost all of them are in Finnish, except for the drawing line, which maintains its universal language), nor in dealing with the size of the formats (in some cases, the length of some exceeds one and a half meters), but rather in extracting the necessary information from each document, such as the temporal identification of its creation.

The drawings catalogued in the archive are organ-

ized into categories based on the type of drawing. The number that appears first indicates the file to which the drawing belongs, while the letter that accompanies it (if any) refers to the type of drawing: "L" (luonnos = work) or "K" (kilpailuvaihe = competition phase), among others. This letter is followed by a number that individually identifies each document. However, there is a special category called "R" (Reiman käsivaraskitsi = Sketches and notes by Reima). This category generically includes all freehand drawings, sketches, and a wide variety of material produced by Reima Pietilä. In some cases, documentation that doesn't fit into the categories created by the museum itself is assigned to the "R" category. In this case, the letter "R" is not associated with any number that allows individual identification, so it has been necessary for the author of this research to create subcategories to assign a specific nomenclature to them (Fig. 4).

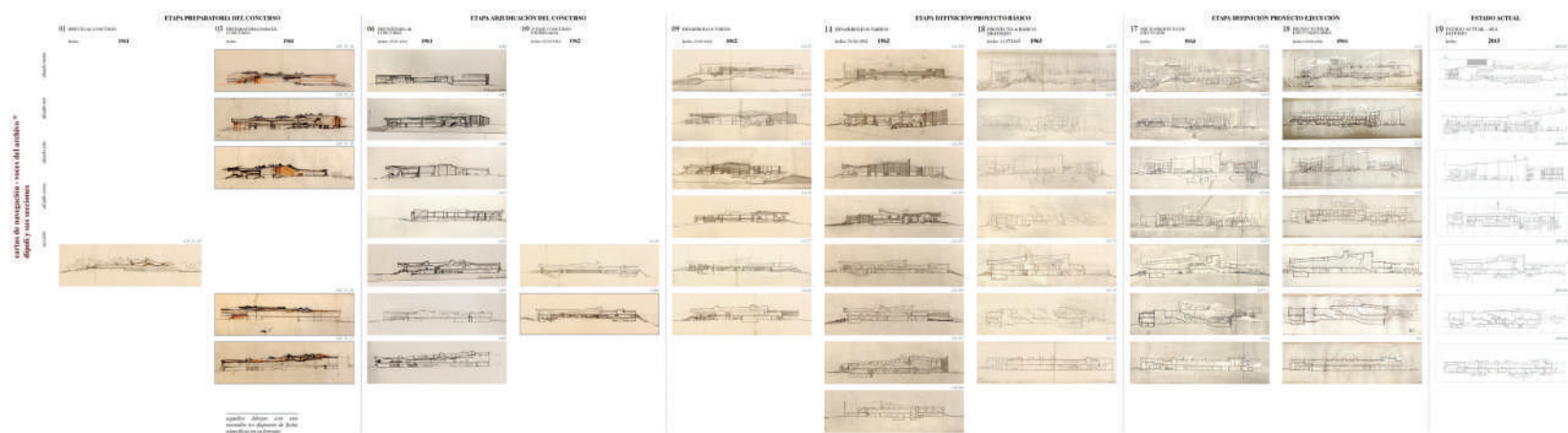


Fig. 5 - Navigation chart: Dipoli and its sections (sources: the MFA and the author's elaboration).

These drawings, belonging to the "R" category, are located within an unnumbered folder. A number has been assigned to each of these folders, in order, according to their appearance in the general catalogue. Additionally, an extra number has been assigned to each drawing within the folder. The resulting identification system is as follows: NumberFile.R_(folder)_(internal drawing).

The original signature has been complemented with this second part, created personally, as the museum did not have this detailed identification system for Reima Pietilä's drawings. This procedure has allowed for efficient work with the drawings, as the global signature of "NumberFile.R" was too generic to locate the plans and drawings in an individualized manner.

Once the task of nomenclature was completed and the plans identified with the corresponding signature, it was possible to cross-reference them with the rest of the documentation. From this point on, a working method was proposed based on the creation of what have been called "navigation charts." These navigation charts, understood as tools for

the methodology, have allowed the synthesis of both complete and partial processes, focusing on specific aspects or elements. Primarily, they consist of timelines through which the drawings have been organized. These charts allow for temporal navigation through the project.

Throughout the research, various navigation charts have been created (Fig. 5), which have facilitated the organization of the archive and the project, allowing for the construction of its genealogy. These charts include plans that already had dates, as well as others whose temporal position has been verified through the comparison of proposals, the drawing techniques employed, or through their overlay. These charts act as graphic tools to organize the documentation, showing the evolutionary record of the projects. The article focuses on presenting the navigation chart specifically developed for the skylights of the organic roof.

The number of drawings suggests a commitment to craftsmanship throughout the process. If Dipoli contains over 3000 drawings, how long does it take to produce such a quantity? We are talking



Fig. 6 - Aerial photograph of Dipoli. ca. 1969. Author: Martti I. Jaatinen (source: the MFA).

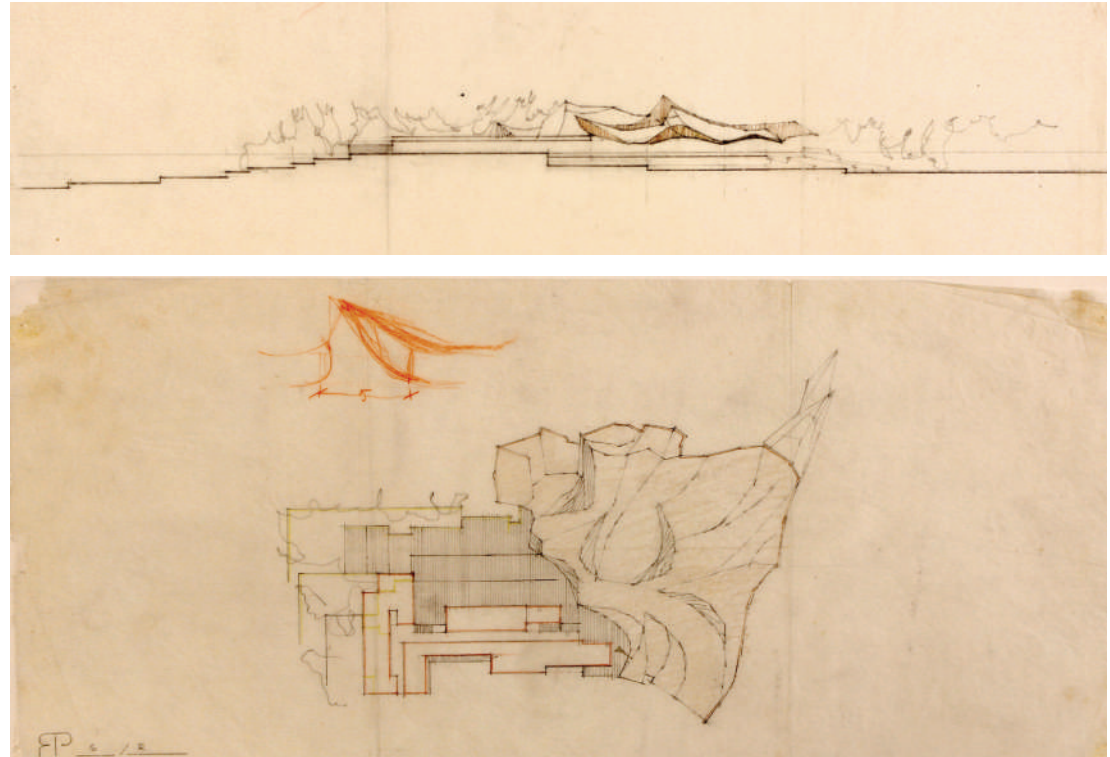
about true craftsmanship in the creation of these drawings, but also about a way of thinking linked to the production and control of form and its defence over time.

This type of landscape architecture precisely requires this craftsmanship and time, similar to nature, which needs time to grow, to erode, and to transform. This raises a question: with so many drawings, how can we only limit ourselves to studying the final or the first ones? How can we reduce the production of this project to three floors and two sections? Wouldn't it be more interesting to focus on how those three floors and two sections were reached?

In this sense, the key lies in paying attention to what happens in the "during." This article represents the intermediate space. What motivates this research is not so much the final result, but discovering how it was achieved—i.e., what processes and decisions marked the way. The verification of the hypotheses outlined aims to reconstruct the genealogy of the project and understand how it was worked, what methodologies were used, and how they were finally able to build a piece of landscape. Therefore, the task of selecting and preparing the graphic material that accompanies this research has been crucial. The impossibility of providing all the extensive existing documentation has involved a process of searching and selection with the aim of illustrating the construction process of these artificial natures in the best possible way.

THE GRAPHIC TRACE OF THINKING. THE CASE OF THE SKYLIGHTS OF DIPOLI

Among all the existing cases of project development in the Pietilä archive, which could illustrate the value of this archive as a record of a creative process guided by manual drawing, ranging from the initial idea to the constructive detail, we have selected the design of the skylights of the "organic" wing of the Dipoli building (Fig. 6). The case is illustrated with a selection of the existing plans. This part of the building, which contains the largest and most significant spaces, stands out from what we could call the "rationalist" part (with



clearly Cartesian geometry) by its design, which is expressly inspired by natural forms, indebted to the authors' intention to create "a fragment of landscape" [Cortés Sánchez et al., 2024].

In contrast to the functional dialogue established between the skylights and the rationalist wing of the building, which is based on efficiency and uniform light distribution, the skylights in the organic wing prioritize form over function, adopting a landscape perspective. The sculptural shape of the roof is the result of a process of transformation and adjustment, where the role of the skylights reinforces the discourse defended by the architects: the building emerges as a large rock formation amidst the landscape.

Fig. 7 - Above: West elevation. Below: Roof plan accompanied by a section diagram of the organic skylight. Proposal prior to the one submitted for the competition. ca. 1961 (source: the MFA).

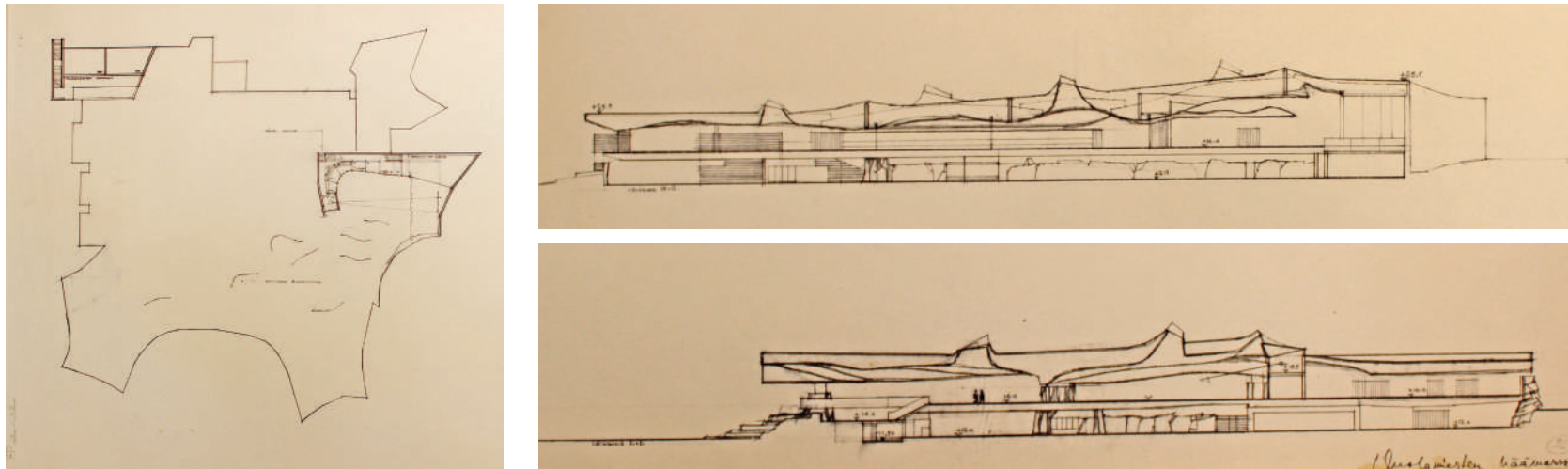


Fig. 8 - Plan presented for the competition. Left: Roof plan submitted for the first phase of the competition. Right: Section A-A' and Section B-B' (source: the MFA).

The pre-competition sketches show a single irregular volume that groups the larger spaces under one element—the roof. However, the absence of sections from the first proposal of the project—prior to the one developed for the competition—along with the limited availability of floor plans and an elevation (Fig. 7), which appears to represent a section, makes it difficult to understand whether the complex volumetry that rises as the building's roof included perforations designed to allow light into its interior.

The elevation hints at this. The roof sections fold and rise, reaching towards the sky. However, it cannot be confirmed, based solely on this drawing, whether each of these sections acts as a skylight in itself. It is thanks to the roof plan where this issue is clarified (Fig. 7). Not in terms of the information on the floor plan itself, which remains just as uncertain as the elevation in this regard, but because alongside it is a section drawing, in

orange, that outlines the geometry of these roof sections: a skylight oriented vertically, with a larger opening at its base, measuring five meters.

In the competition proposal, the roof plan does not represent this reality (Fig. 8), possibly a decision made to avoid rejection for being too bold. In the competition's roof plan, eight skylights can be counted, drawn very faintly with a curved geometry. They are recognizable because the annotation "kattovalon aukkomuotoja" (the shape of skylight openings) appears. It is necessary to refer to the sections and elevations in order to appreciate the true nature of the proposed skylight.

In the section panel presented for the competition, the formalization of the previous approaches is shown (Fig. 8). The undulating curve of the roof surface is perforated in the center of the span of the structure to open up to the sky. Under this roof, a continuous space is proposed, intended for the three main halls and their vestibule, enhanced

by this continuous ceiling surface that connects all the spaces and allows the versatility and flexibility required by the program's needs.

The limited presence of the skylights in the plans from the first phase of the competition was reduced even further in the submission of the second phase. The documents from that phase have not survived over time, but there is a set dated March 2, 1962, which closely resembles the ones that were submitted (Vesikansa, 2014). The only preserved section from this series (Fig. 9a) does not show any skylights in this roof, not even in projection, despite the section passing through the distinctive spaces. In this section, interior lighting is achieved by raising the roof along its entire perimeter, placing large windows in the facade. On the north side, the elevation rises considerably above the roof level of the rationalist wing.

In the series from July 8, 1962, substantial changes can be seen in the sections and elevations. In

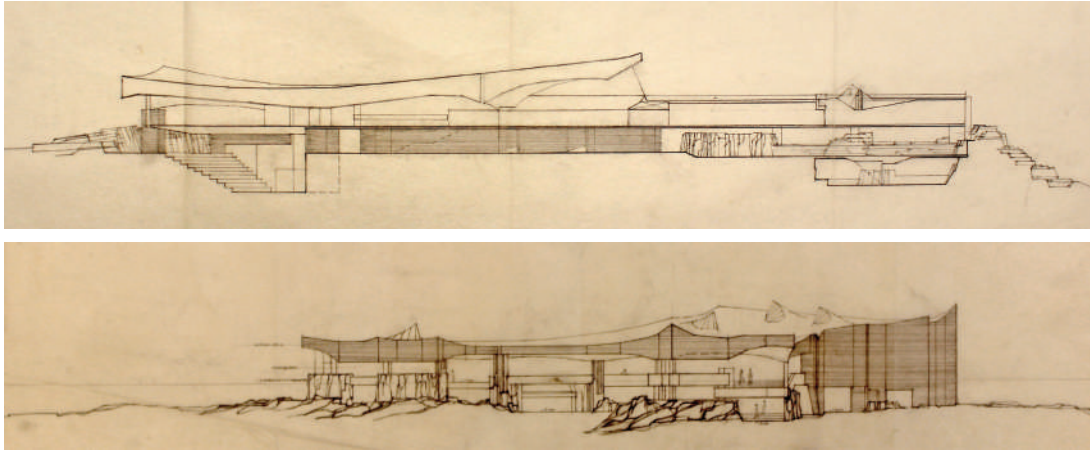
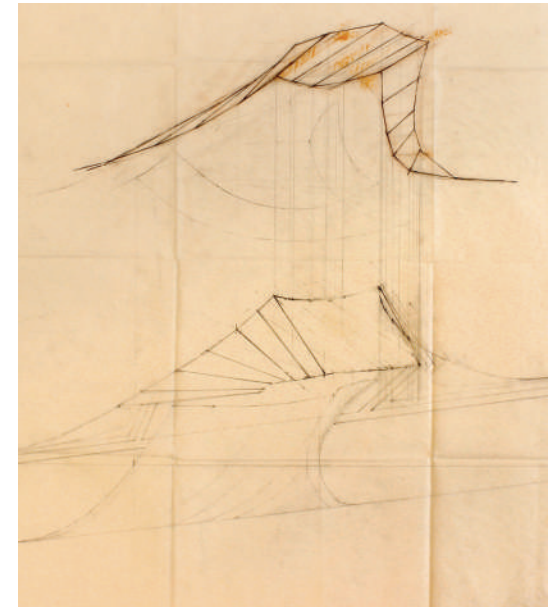
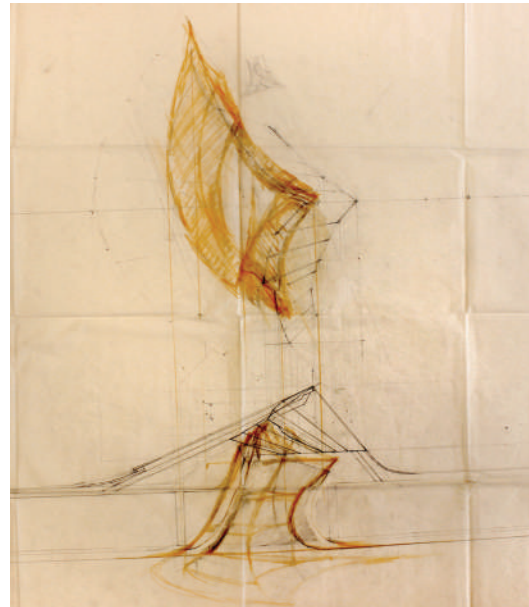


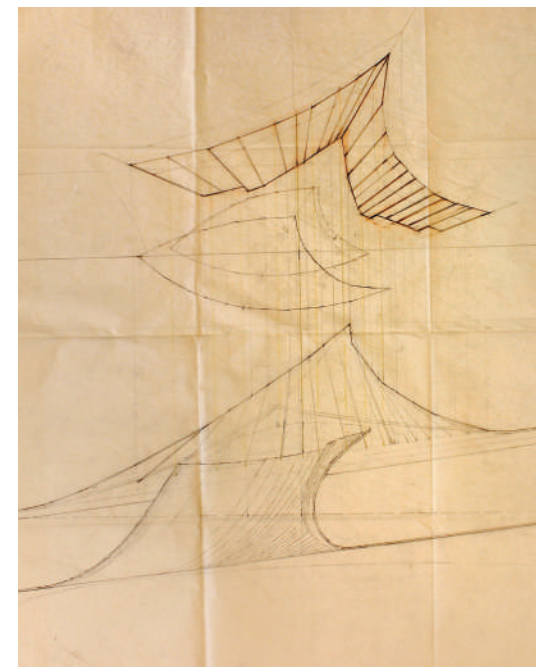
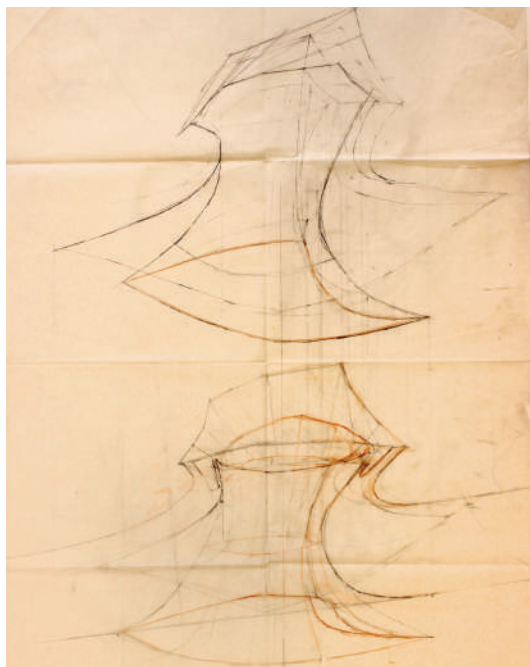
Fig. 9 a-b - Abobe a: Section B-B, version 02/03/1962. Below b: South elevation, version 08/07/1962 (source: the MFA).

Fig. 10 a-b - Formal exploration of the skylight. ca. 1962. a: 6.TL_1_07. b: 6.TL_1_08 (source: the MFA).

this version, the roof retains its characteristic thickness, but certain areas aim to finish the perimeter with a reduced depth. The skylights are redesigned, following the pointed shape reminiscent of the initial approaches from 1961. These skylights, unique in their geometry, no longer exhibit any geological character, even though the rocky appearance begins to make a more prominent appearance, both in the building's perimeter and in the finishes of the interior spaces on the ground floor (Fig. 9b). The continuity of the rock into the building's interior is consolidated.

The interest in exploring this pointed shape as a possible skylight led to the creation of multiple drawings, in which Raili and Reima Pietilä described and rethought these geometries. In drawing 6.TL_1_07 (Fig. 10a), the section of this skylight and its potential projection in plan are shown. Drawing 6.TL_1_08 (Fig. 10b) does not represent the same skylight. However, the structure of the type is the same. In this case, the authors are clear in their design, which is evident in its development. The technical drawing shows the section and, instead of the top view, presents the front





view from the plane of the roof. The authors compose the skylight using two skins: on one side, the extension of the outer plane of the roof; and on the other, the extension of the interior ceiling plane of the spaces. It makes sense that the material of the ceiling, suspended from the roof, would be different, such as wood, acting as the interior skin of the piece. Meanwhile, the exterior finish would be related to the copper and glass vertical slatted roof. The drawing 6.TL_1_09 (Fig. 11a) belongs to this formal exploration: the resolution of the junction between the two surfaces that form the skylight. In this case, the drawing focuses more on the intersection of both surfaces, presenting two views. The authors play with the overlap of the front view and its perspective to compare intersections and control the contour of the shape. In drawing 6.TL_1_10 (Fig. 11b), these same formal explorations continue, while drawing 6.TL_1_11 (Fig. 11c) concludes the inquiry with the definition in

section and plan of the type of skylight proposed for the roof. This follows the previously described strategy, defined by the composition of two planes. Again, the extended curved surface of the roof of the rooms creates the opening of the skylight, while the polygonal shape of the exterior roof forms the shell that closes it, with part of it made of vertical slats and another part of glass. Despite the definition of the drawing, the roof structure is not depicted in it. On September 19, 1962, the first complete set of plans, drawn at a 1/100 scale, was submitted. Again, the skylights show significant changes. The pointed shapes are discarded, and the rocky character of both the roof and the skylights begins to materialize, although still subtly. Nine skylights emerge from the roof. In this series, only the floor plans are dated; however, a record of all existing documentation has been made, identifying sections that do not have a creation date but resem-

Fig. 11 a-c - Formal exploration of the skylight. ca. July 1962. a: 6.TL_1_09. b: 6.TL_1_10. c: 6.TL_1_11 (source: the MFA).

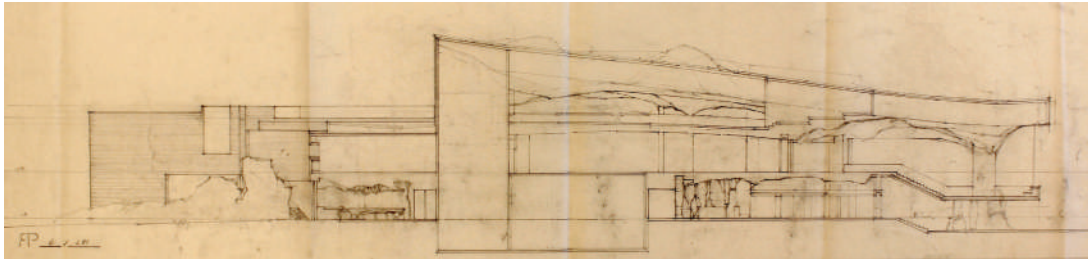
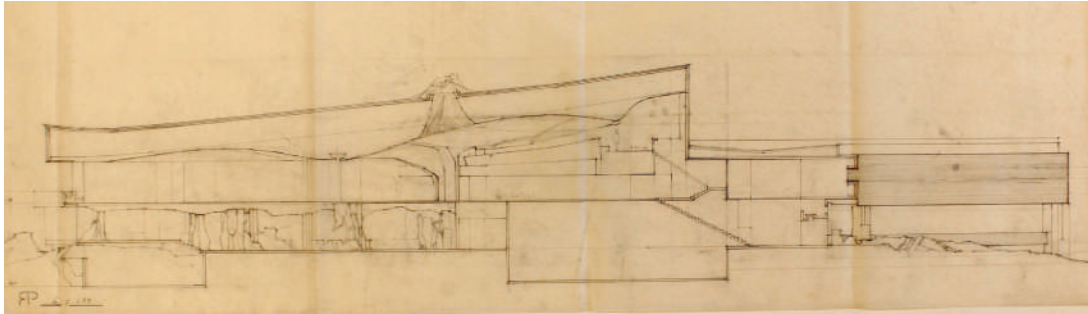


Fig. 12 a-b - Above: Cross-section 1. a: 6.L77. Below: Cross-section 2. b: 6.L81. ca. September 1962 (source: the MFA).

ble this proposal. To verify this, a comparison was made with the floor plans created on 19/09/1962, which do not have sections directly associated with them by date or nomenclature. This comparison has confirmed that sections 6.L77 (Fig. 12a) and 6.L81 (Fig. 12b) match, allowing them to be temporally positioned during this period. These represent a state prior to the sections finally delivered in the July 1963 set of plans.

The proposed perforations to create light points and openings in the “cave” must remain consistent with the geological discourse of the project. Therefore, the decision is made to design a skylight resembling more of a “crack” or “rupture” in the rock forming the roof, rather than a simple hole, which would imply a cleaner and purer cut. Raili and Reima Pietilä avoid that purity, staying true to the geological reality they aim to recreate. This drawing is a clear reflection of that intention (Fig. 13). The underside of the roof, somewhat



Fig. 13 - Freehand section of the roof, skylight, and the space beneath it, ca. late 1962. Reference: 6.R_2_15 (source: the MFA).

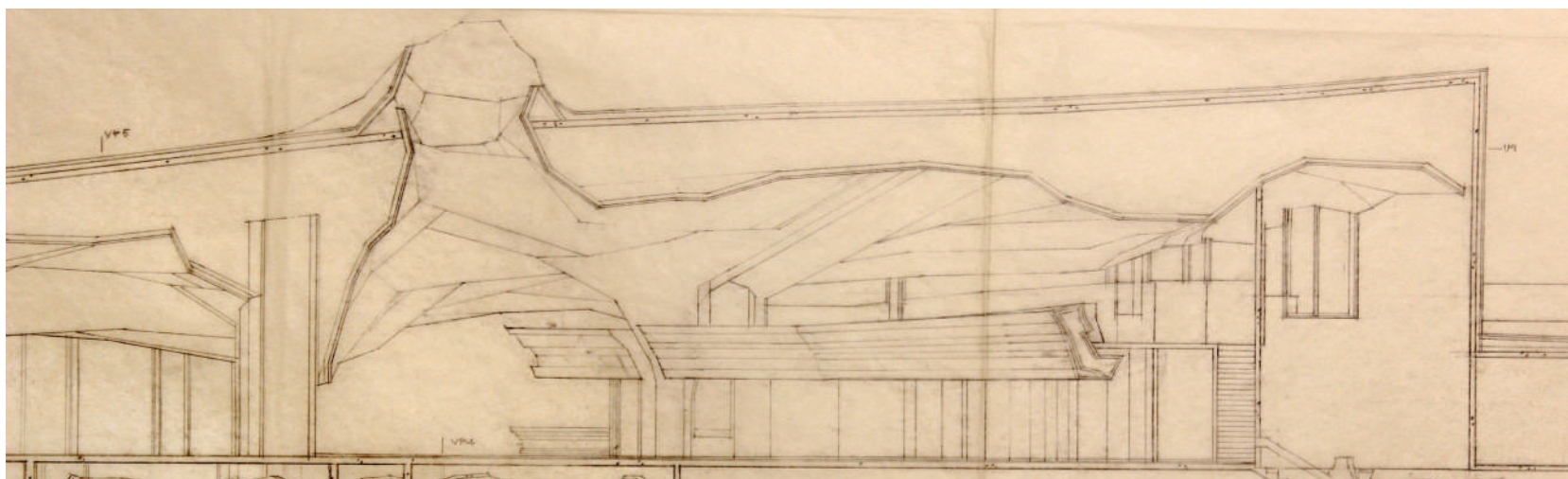
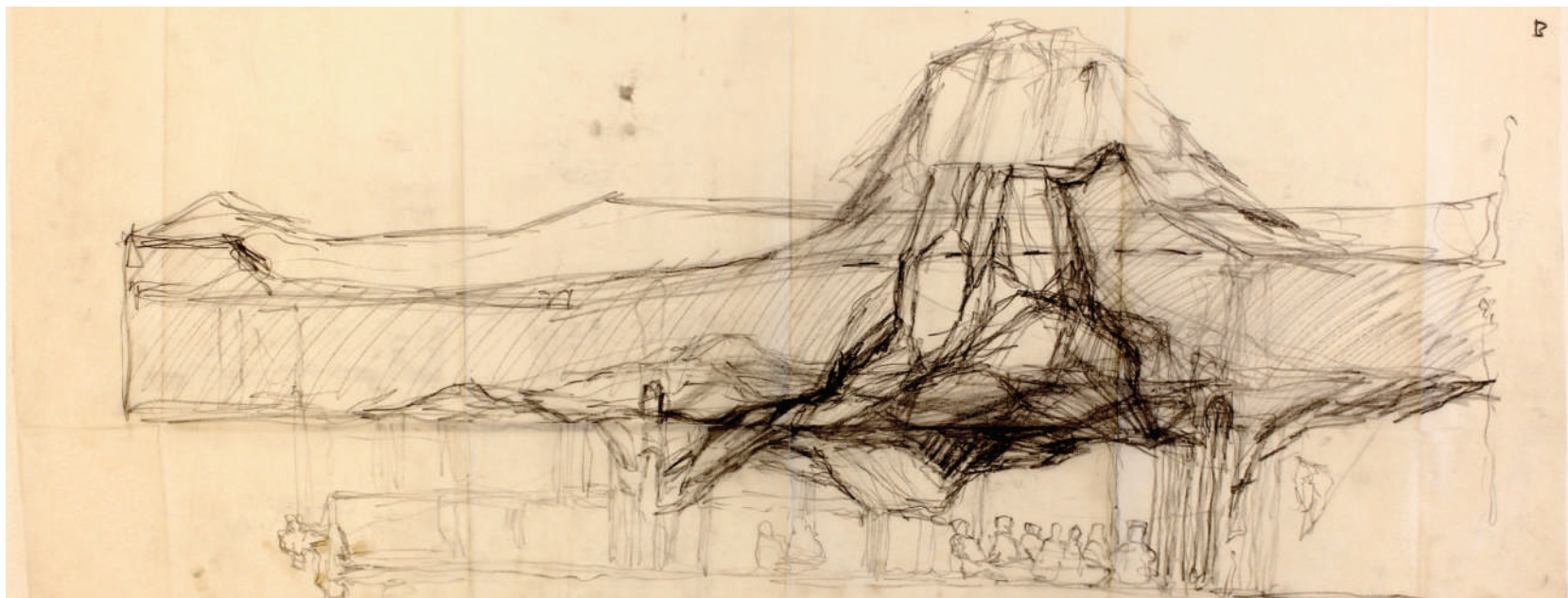


Fig. 14 a-b - Above a: Freehand section of the roof, the skylight, and the space beneath it, ca. late 1962. Ref: 6.R_2_16. Below b: Detailed area of section C-C'. Main drawings of the project. 11/07/1963. Ref: 6.L_75 (source: the MFA).

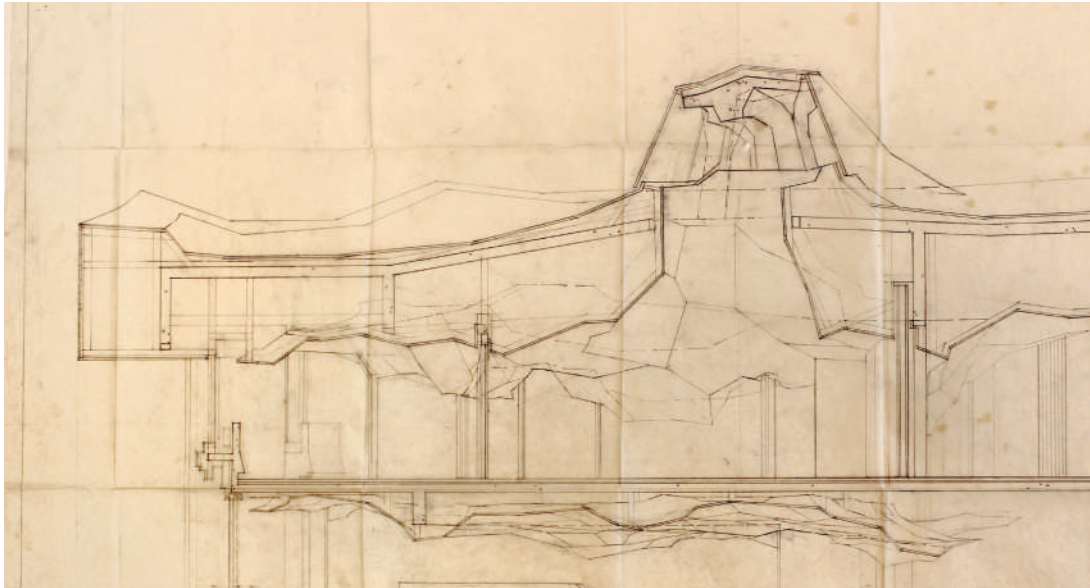


Fig. 15 -Section through the auditorium. c. 1963. Reference: 6.TL_1_16 (source: the MFA).

more regular, is interrupted by a much more abrupt void, whose size progressively decreases as it reaches the exterior. The interior face of this void is irregular: through an irregular triangulation of multiple planes, it seeks to reproduce a geological form resulting from a fracture.

The Pietilä continue exploring the narrative of the geological space, the cave, as a meeting place for the "cavemen", as referenced in the competition's slogan. In this new drawing (Fig. 14a), unlike the previous one, the boundary between the interior of the building and the exterior is clearly visible. It is a vast space, better described as a transitional space. The roof extends beyond the defined line of the façade, accentuating the sense of refuge. These working drawings highlight Raili and Reima Pietilä's main interests in the project. The idea of the cave space, stated in the competition's slogan, begins to materialize with greater strength. The intensity of the freehand drawings faithfully

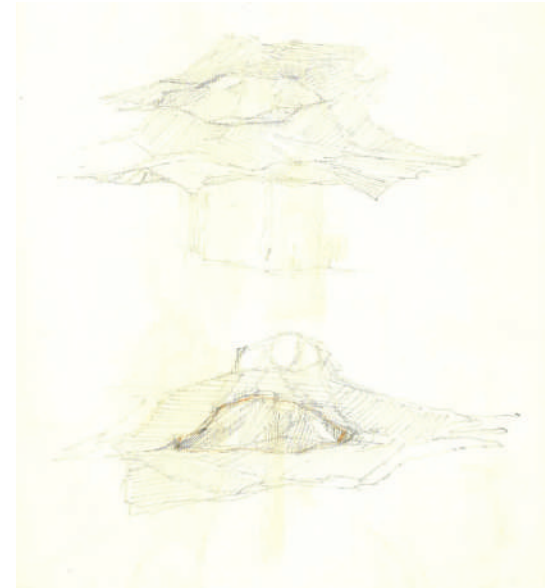
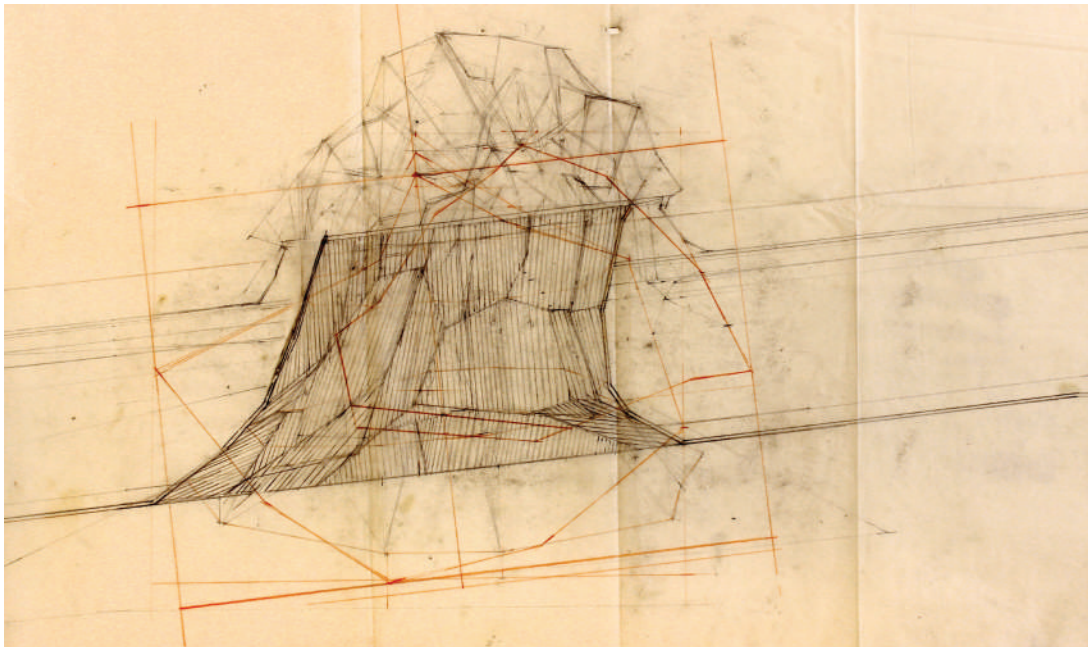
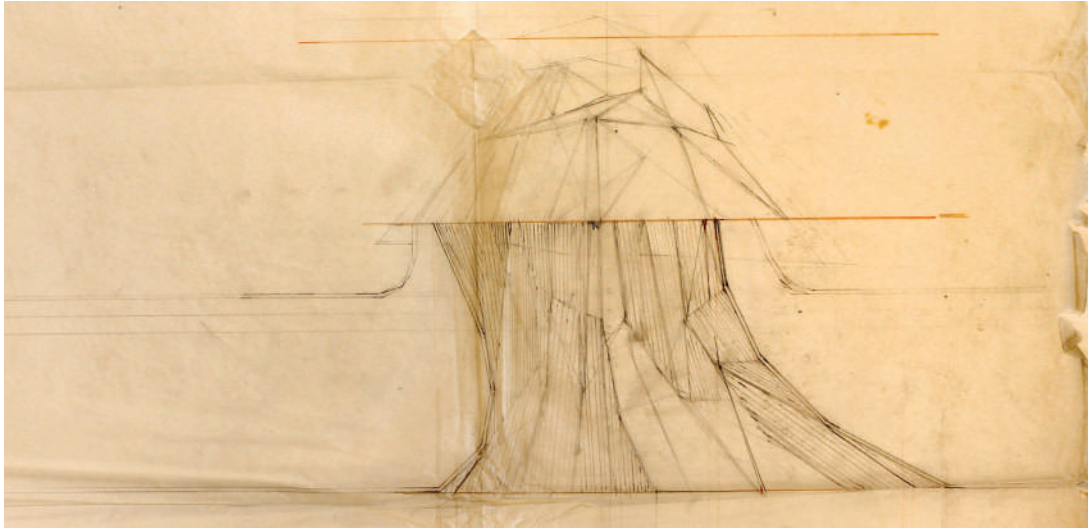


Fig. 16 - Freehand perspectives of the relationship between the skylight and the surface of the ceilings of the halls. Reference: 6.R_16_07 and 6.R_16_09 (source: the MFA).



recreates that cave interior, illuminated by the upper cracks. The realization of these geological skylights in architectural plans is achieved with the sections presented in July 1963 (Fig. 14b). The sketches and diagrams became the main documents of the process.

The plan 6.TL_1_16 (Fig. 15) presents a section at a 1/20 scale showing the space designated for the building's auditorium. On the upper floor, beneath the ribbed roof, is one of the large upper halls, while on the lower floor is the auditorium, with a double height. Drawings 6.R_16_07 and 6.R_16_09 (Fig. 16) belong to the same series. They represent a dreamlike depiction illustrating the meeting between the geological and heavy roof and the skylight that penetrates it, with a vertical plane that seems to represent the facade. This duality in the drawing, between the weight of the roof and the lightness of the carpentry, seeks to convey a sense of weightlessness in the roof. In the background, a very transparent facade, with few elements, connects the interior to the exterior, blurring the boundary between the interior space and the surrounding forest.

The following series of drawings addresses this issue in detail. Drawing 6.TL_1_06 (Fig. 17a) marks a shift in approach from the original idea with which the design of the skylight's interior surfaces was being addressed. Initially, these surfaces featured sharply curved and continuous lines, which have now been replaced by a faceted triangulation of those shapes.

In this same vein, drawing 6.TL_1_12 (Fig. 17b) shows a more detailed formalisation of the idea presented in the previous sketch. The geometric complexity of the element is remarkable, and its development in two dimensions forces the authors to resort to advanced geometric description techniques to control the desired shape. In this draw-

Fig. 17 a-b - Above a: Geometric definition of the interior surface of the skylights, ca. 1963. Reference: 6.TL_1_06. Below b: Geometric definition of the interior surface of the skylights with the superimposition of its plan in orange, c. 1963. Reference: 6.TL_1_12 (source: the MFA).

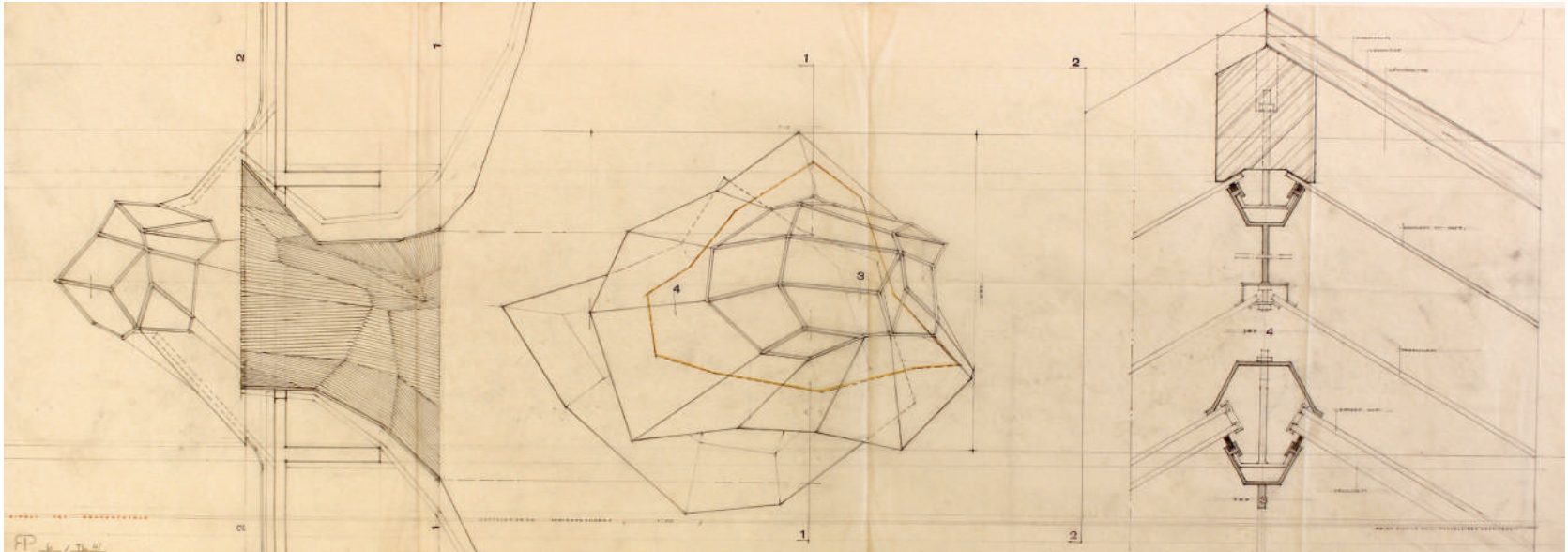


Fig. 18 - Geometric definition of the interior surface and exterior crown piece of the skylights, c. 1963. Reference: 6.TL41 (source: the MFA).

ing, the overlay of plans and sections, covering multiple levels (the lower void, the upper void, and the shell), seeks to illustrate the form envisioned by the Pietiläs. The use of colour helps to identify the different planes, with orange highlighting the outlines of the main elements in plan.

The plan 6.TL41 (Fig. 18) synthesizes the various approaches and developments of the parts that make up the studied skylight. Both the lower part, which connects to the ceiling of the rooms, and the interior surface of the void, as well as the exterior finishing piece, are presented. The drawing includes a top view of the skylight showing the set of planes that form its multiple surfaces, as well as a cross-section. Additionally, two 1:1 scale details are included, illustrating the junctions between materials, joinery, and the substructures that support them, making it one of the few drawings where the substructure is clearly depicted with a dashed line.

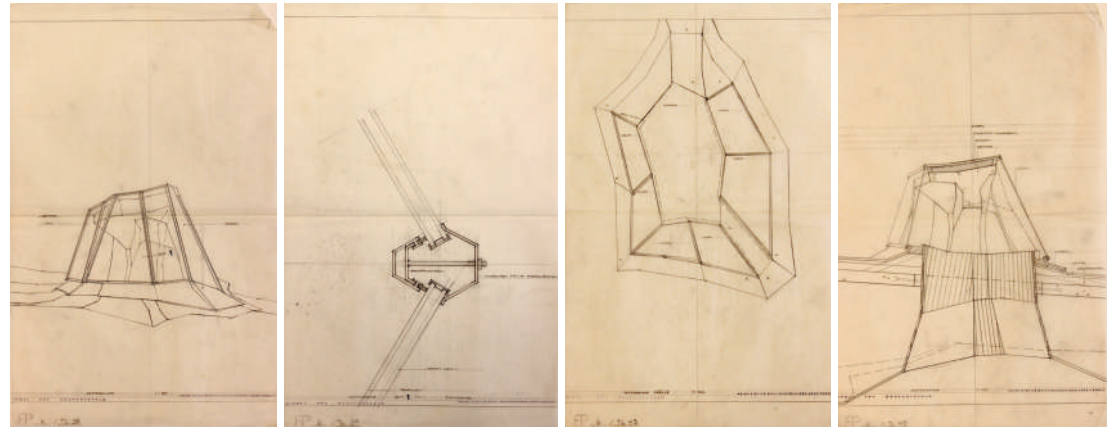


Fig. 19 a-d - Skylight version ca. 1963. a: Perspective view of the exterior cap piece of the skylight. Ref: 6.TL38. b: Detail of the carpentry of the exterior cap piece. Ref: 6.TL39. c: Top view of the exterior cap piece. Ref: 6.TL43. d: Complete section of the skylight. Ref: 6.TL45 (source: the MFA).



Fig. 20 - Photograph of the visit to the Dipoli roof (the author' photo, 2024).

The plan 6.TL38 (Fig. 19a) shows the front view of this new proposal. Brief annotations specify the materiality of the main elements: betoni, lasi, and kupari (concrete, glass, and copper). Large glass surfaces, framed by slender carpentry, give the piece a "crystalline" appearance. In plan 6.TL39 (Fig. 19b), detail 1 specifies that the carpentry is also made of copper (Outokumpu oy: n kupariprofilili), which is significant, as this material was not commonly used for constructing carpentry. Plan 6.TL43 (Fig. 19c), a top view, complements the front view, allowing for a clear identification of the arrangement of materials. At the highest part, copper is used as the finish, while the lateral vertical planes are mainly composed of glass, particularly in the central lower and right lateral areas. On the side corresponding to the north, an opaque copper cladding reappears. The series ends with plan 6.TL45 (Fig. 19d), which shows a complete section of the skylight at a 1/25 scale.

CONCLUSIONS

The availability of an extensive archive like that of the Pietilä, where all the drawings created by the architects during the development of their projects and construction supervision are preserved, allows for a meticulous reconstruction of the creative thought process that fuelled their projects, especially their major works.

An architecture focused on constructing buildings that could be interpreted as fragments of the landscape necessarily had to be developed through an experimental and handcrafted exploration process, with manual drawing serving as the main tool for proposal, trial, refutation, and, ultimately, the adoption of a range of extraordinarily novel formalizations.

The memory of the evolution of this exploration is faithfully stored in their comprehensive graphic archive, where it is possible to discover how

seemingly secondary elements, such as the skylights of the Dipoli building, ultimately sculptural and innovative, underwent a creative process as intense as that of the main body of the building they serve.

From an academic perspective, the exposure of archives like this is highly useful, as the sequences of these meticulously drawn thoughts allow for the unveiling of examples of creative processes that can inspire future architects in their design strategies. It is no surprise, therefore, that more and more frequently, Schools of Architecture are joining the list of promoters of architectural archives from donations by architects recognized by critics and historiography.

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REFERENCES

- Berger, John. *Sobre el dibujo*. Editorial Gustavo Gili, Barcelona, 2015
- Connah, R. (1989). *Writing architecture: fantasmas, fragments, fictions: an architectural journey through the 20th century*. Raken-nuskirja Oy.
- Cortés Sánchez, L. M. (2024). The Implementation of Cartographies of Imagined Landscapes in the Architectural Project. In L. Hermida González, J. P. Xavier, J. P. Sousa, & V. López-Chao (Eds.), *Graphic Horizons* (pp. 322–330). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-57583-9_38
- Cortés Sánchez, L. M., Terrados Cepeda, J., & Savolainen, P. (2024). The dissolution of boundaries: landscape strategies applied to the Dipoli case. *Landscape Architecture and Art*, 25(25), 36–45. <https://doi.org/10.22616/j.landarchart.2024.25.04>
- Evans, R. (1989). Architectural projection. In E. Blau & E. Kaufman (Eds.), *Architecture and its image: Four centuries of architectural representation* (pp. 19–35). Canadian Centre for Architecture.
- Forty, Adrian. *Words and Buildings. A Vocabulary of Modern Architecture*. Thames and Hudson, London, 2000.
- Kahn, L. (1987). *The Louis I. Kahn archive: Personal drawings*. Garland Publishing.
- Keinänen, T. (2007). Raili and Reima Pietilä's drawings archive at the Museum of Finnish Architecture. In A. Niskanen, S. Jetsonen, & T. Lindh (Eds.), *Hikes into Pietilä terrain* (p. 143). Rakennustaiteen Seura; Taidehistorian Seura.
- Mitchell, W. J. (1996). Architectural archives in the digital era. *American Archivist*, 59(2), 264–271.
- Norri, M.-R. (2023). "An architect does not create, he sketches." Observations of Reima Pietilä's sketching process and sketches. In *Verbal Sketching, Image Sketching, Imagination: Reima Pietilä and the Creative Process of Architecture* (pp. 144–163). Oku Publishing; Arkkitehtuurimuseo.
- Pallasmaa, J. (2009). *The thinking hand: Existential and embodied wisdom in architecture*. John Wiley & Sons.
- Quantrill, M. (2008). Breaking the culture of silence: The case of a talkative Finnish architect. In R. Connah (Ed.), *The ark of architecture: Selected writings of Malcolm Quantrill* (pp. 91–108). Rakennustieto Publishing.
- Quantrill, M. (1985). *Reima Pietilä: architecture, context and modernism*. Rizzoli.
- Fernández Alba, A. (2012). Inventario emocional de la memoria. In P. Rivas, B. Ruilope, & M. Suárez (Eds.), *El legado del arquitecto: Los archivos de arquitectura de la ET-SAM* (pp. 8–9). Marea Libros.
- Robbins, E. (1994). *Why architects draw*. MIT Press.
- Ross Scheer, D. (2014). *The death of drawing: Architecture in the age of simulation*. Taylor & Francis.
- Vesikansa, K. (2014). Constructing identity: The competition for the Dipoli Student Union Building in 1961–62. In L. Volker & B. Manzoni (Eds.), *5th International Conference on Competitions 2014 Delft* (pp. 416–434). Delft University of Technology.