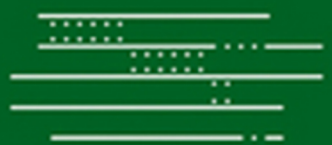
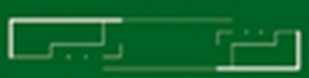
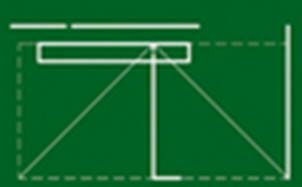





ROGER H. CLARK
MICHAEL PAUSE



PRECEDENTS IN ARCHITECTURE

ANALYTIC DIAGRAMS, FORMATIVE IDEAS, AND PARTIS

FOURTH EDITION

PRECEDENTS IN ARCHITECTURE

Analytic Diagrams, Formative Ideas, and Partis

Fourth Edition

Roger H. Clark
Michael Pause

JOHN WILEY & SONS, INC.

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To Judy and Kathy

CONTENTS

PREFACES

PREFACE TO THE FIRST EDITION

This book is about architecture.

In particular, it focuses on a way of thinking about architecture that emphasizes what is in essence the same, rather than different. Our concern is for a continuous tradition that makes the past part of the present. We do not wish to aid the repetition or revival of style whether in whole or part. Rather, by a conscious sense of precedent that identifies patterns and themes, we hope to pursue archetypal ideas that might aid in the generation of architectural form.

While architecture embodies many realms, we concentrate on built form. Without apology, we make no attempt to discuss the social, political, economic, or technical aspects of architecture. The domain of design ideas lies within the formal and spatial realm of architecture, and thus it is this arena that is explored in this book.

Obviously, a sound architectural idea will not, as a tool for design, inevitably lead to a good design. One can imagine many undesirable buildings which might originate with formative ideas. To be sensitive to the potential of archetypal pattern in design does not lessen the importance of concern for other issues or for the building itself. However, one commonality shared by the great buildings of this era with those of the past is a demonstrated understanding of basic architectural ideas which are recognizable as formative patterns.

Our analysis and interpretations are of built form and, therefore, may not necessarily coincide with the architect's intentions or the interpretations of others. The analysis is not all-inclusive in that it is limited to characteristics which can be diagrammed.

The intentions of this study are to assist the understanding of architectural history, to examine basic similarities of architects' designs over time, to identify generic solutions to design problems which transcend time, and to develop analysis as a tool for design. Of importance is the development of a vehicle for the discussion of ideas through the use of example. The understanding of history derived from this kind of investigation can only be obtained by far greater labor than that involved in acquiring a knowledge of history that focuses on names and dates. The reward for this effort is a design vocabulary that has evolved and been tested over time. We believe designers benefit from a comprehensive understanding of formative ideas, organizational concepts, and partis.

As a resource, this book offers factual graphic information on 64 buildings, a detailed analysis of each of these buildings, a range of designs by individual architects, a compilation of formative ideas for design generation, a collection of architectural images, and a reference for a technique of analysis. Some of this information is not readily available in other sources.

We are indebted to the Graham Foundation for Advanced Studies in the Fine Arts for support to make this study possible.

Any effort of this nature is the fruit of many encounters with individuals and ideas, but one debt in particular stands out as significant. Through a series of conversations with George E. Hartman, Jr., several years ago, some of our thoughts and ideas about architecture and history were focused. Since that time, he has continuously and enthusiastically offered support and encouragement. James L. Nagel, Ludwig Glaser, William N. Morgan, and the late William

Caudill each generously sponsored our efforts to secure assistance from the Graham Foundation. Roger Cannon, Robert Humenn, and Debbie Buffalin provided valuable help in locating material and information. For their assistance and support we thank several persons in the School of Design: Dean Claude E. McKinney, Winifred Hodge, the secretaries, and the librarians. The students in our classes have enriched, stimulated, and challenged our ideas, and encouraged us to record them in this volume. We fully acknowledge our debt to them.

A special acknowledgment is reserved for Rebecca H. Mentz and Michael A. Nieminen, whose considerable talents were used to draw the sheets reproduced in this volume. Without their skill, patience, diligence, and dedication this volume would not have been possible.

Our gratitude is extended to our families who have aided our efforts through sacrifice, devotion, and understanding.

To all other persons who have encouraged or in some way contributed to this study we collectively give thanks.

By making available the information that is presented in this volume, we hope to expand the understanding of precedents in architecture; to illustrate an educational technique that is useful to students, educators, and practitioners; and to demonstrate an analytic technique that can have impact on architectural form and space decisions.

PREFACE TO THE SECOND EDITION

The success of the first edition indicated that there was a need for conceptual and analytic information about architecture. Our experience with the first edition over the past decade demonstrated that the material has been useful as a tool for teaching architecture. It has provided a vocabulary for analysis that helps students and architects understand the works of others and aids them in creating their own designs. This approach continues to be useful and there was no apparent need to revise the information. Instead, the second edition gave us the opportunity to enrich the content of the analysis section by adding the works of seven architects. They were chosen initially to augment the content of the original sixteen architects. Some were selected for historical significance, some for lack of widespread documentation of their work. Others were picked because of emerging reputations and the production of a meaningful body of work since the publication of the first edition. All were selected because of the strength, quality, and interest of their designs. It is our intent to continue to show that design ideas transcend culture and time. Keeping the same format, we have added factual and analytic information on two or four buildings by each of the seven new architects.

While some may find this book useful for information about a particular architect or building, it is not our primary purpose to present any one building or architect exhaustively (e.g., photographs, written descriptions, or contract documents). Rather, our intention is to continue to explore the commonality of design ideas through comparison. To achieve this we have used the diagrammatic technique that was developed in the original study. While some of the architects and architectural authors have used diagrams to explain or inform others about the buildings included in this volume, the diagrams in this book are our own creation.

In addition to the acknowledgments cited in the preface of the first edition the following have helped make this edition a reality. The Graham Foundation for Advanced Studies in the Fine Arts supported our work for a second time; for this we are grateful. Van Nostrand Reinhold also contributed grant money to make this edition possible. Both of these sources aided our research and allowed for the production of the drawings.

While difficult to acknowledge all individuals who have contributed to or influenced our ideas, certain people's

efforts deserve recognition. We are indebted to Wendy Lochner for persuading us to attempt a second edition. Her support and encouragement were critical. The editorial staff at Van Nostrand Reinhold provided us with willing and valuable assistance. James L. Nagle, Victor Reigner, and Mark Simon supported our efforts through encouragement, suggestions, and recommendations. Peter Bohlin and Carole Rusche generously contributed valuable information on the works of some of the architects. Collectively, we thank the staff of the School of Design for their willing assistance.

Special recognition goes to Mara Murdoch who singlehandedly, with great skill, dedication, and patience, drew all of the new pages.

Finally, we wish to acknowledge all of our students, who have shown us that the study of precedents is a valuable tool for learning to design, and who continue to challenge us.

PREFACE TO THE THIRD EDITION

We commend to the reader the Prefaces to the first and second editions of this volume. Much of what is included in those Prefaces remains pertinent to us and our feelings about this work. The approach to understanding architecture presented herein continues to be useful and this edition again gave us the opportunity to enrich the Analysis section by adding factual and analytic information on two buildings by each of eight architects.

As with the previous editions, we have chosen to continue to present the buildings as a series of analytical diagrams that examine archetypal ideas. Our intention is to continue to explore the commonality of design ideas for comparison. We, of course, are aware that the architects examined herein may not have embraced the subjects of the diagrams nor, if they did consider the issues, approached them in the same way we have interpreted them. Thus, the diagrams are our own interpretations and some are more interpretive than others. Obviously these diagrams are then abstractions that focus on an issue that we have identified. For a particular architect or building a single diagram may be clearer or more revealing, which might suggest the identification of an issue of interest to the architect involved. By examining the buildings through the same issues it is possible to see relationships and nuances of development between architects and their buildings. We also understand that architecture has many manifestations—social, technical, economical, cultural, legal, and political. Any or all of these areas can impact the final form of the building, as can an individual architect's or client's personal predilection or whim.

Of those architects, for instance, that have been added for this edition, we know of Sigurd Lewerentz's interest in not doing things the conventional way. He is perhaps not as well known as some of the other architects in this volume, probably because he did not write about his work and did not teach. Fortunately, some publications have appeared in recent years that have chronicled his life and his work. We found it interesting that while he began with a refined, yet original, Classical language (at the Chapel of the Resurrection, for instance), his later work, represented here by the St. John's Church in Klippan, rejected that language. Yet there are similarities between the earlier and later work, as revealed by the analytical diagrams. His work demonstrates a subdued and restrained imagination that resulted in uncompromising and mysterious buildings.

Steven Holl seems to borrow from concepts of biology and geology in making sculpturally fluid spaces. While his buildings gesture toward their context, he has an obvious interest in the introduction and manipulation of natural light for the interior spaces of his buildings. Much has been written about the importance of his sketches and watercolors in capturing the feelings he desires for a building, yet his early interest in geometries is still demonstrated in his recent buildings.

Rafael Moneo's work included in this edition shows his intense use of the site, resulting in a building that is compact and basically fills the site. Through this compactness, Moneo reacts to the urban context while providing an autonomous and animated inner world. Herzog and de Meuron, on the other hand, give obvious priority in their work to the skin, the surface, of their buildings. Perhaps their desire is to create a visual and tactile surface that will create the perception that the built form has disappeared.

The common thread is that each of these architects has, regardless of their interest or considerations, produced built forms that include the physical and spatial realms of architecture. Architecture is not formless. In the end the built form may outlast the current fascinations and considerations. The issues we examine here may not be part of those considerations. Our analytical diagrams afford a way to understand buildings. In some cases they may help build a formal vocabulary. The issues examined could be the means for ordering or organizing an idea, or they may possibly be a way to generate a design. In any case, we can diagram what has been done, but not necessarily why it has been done.

The work that has been used for this third edition is in the same format as the previous editions. The new pages have been seamlessly inserted into the Analysis section in alphabetical order. This section now includes the work of thirty-one architects. Collectively they represent architects of historic importance and those who have produced meaningful work recently. All were selected not only because of the quality and strength of their work, but also because they afford the opportunity to explore buildings, their organizations, and ordering ideas, through comparison.

We began exploring the analysis of architectural precedents in the 1970s and first published such work in a student publication of the School (now College) of Design at North Carolina State University. That volume, titled *Analysis of Precedent*, appeared in 1978. Van Nostrand Reinhold published the original edition of *Precedents in Architecture* in 1985 and the second edition followed in 1996. Both editions have been through several printings, and each has been translated into Spanish and Japanese. We are also aware that these editions have been translated on an ad-hoc basis into Korean and Chinese. The second edition received an International Architecture Book Award from the American Institute of Architects. The jury for this awards program, which included books from publishers worldwide, commented that "*Precedents in Architecture* provides a vocabulary for architectural analysis that helps architects understand the works of others and aids in creating original ideas. Whether a novice or professional, this work enriches the reader's design vocabulary."

The success and longevity of this work suggests there is a need for this information about architecture. As we started to produce the material for this third edition, we were keenly aware of the initial premise for the study—the commonality and significance of design ideas that transcend time and place. As the work progressed, these assumptions have been reinforced. Architectural ideas are the underpinnings of architecture upon which other concerns—social, technical, economical, cultural, legal, and political—are layered.

In addition to the acknowledgments cited in the prefaces to the first and second editions, we wish to recognize some people directly related to this edition. It is always difficult to thank adequately all of the individuals who have had an influence on this work or have contributed to its development. We are indebted to each of them whether they knew they had an influence or not. Certain people, however, deserve to be mentioned specifically. This edition would not have existed at all without the efforts of Margaret Cummins of John Wiley and Sons. She approached us about considering a third edition, and she made it all possible by securing for us a grant from John Wiley to support our work. Her powers of persuasion, suggestions, and encouragement were

critical. The other members of the editorial, art, and production staff at Wiley were also helpful. Peter Q. Bohlin, James L. Nagle, and Victor Reignier encouraged us through suggestions and recommendations. We also thank the College of Design, its administration and staff, for their willing assistance.

As with previous editions all of the pages in this edition are from original drawings. While we are responsible for the content of the drawings, Jason Miller has with diligence, patience, and great skill interpreted our sketches to create these thirty-two new pages. We owe him a special thank you.

Finally, as we have done previously, we wish to thank our students, who reinforce, challenge, and question constantly while demonstrating that analytical processes are valuable as a tool for design. They make each day an interesting pleasure.

PREFACE TO THE FOURTH EDITION

Our commentary in the original, second, and third editions remains relevant and we commend the reader to them. The methodology of analysis and the formative ideas presented continue to be a useful means for providing a vocabulary for understanding the architectural work of others and for creating architecture. It provides a tool for connecting architectural works regardless of time or origin. Thus, it affords the opportunity to transcend style, culture, and type. It reminds us that there is more to architecture than a picture or a well composed photograph.

As with the previous editions we have added to the Analysis section of the book with the desire to present factual drawings and information about the buildings, along with our analysis of these buildings. The new information presents the work of seven architects with two buildings by each of them. This new work has been seamlessly inserted into the Analysis section using the techniques and format that were developed previously. The analytic diagrams are our interpretations and are thus abstractions that purposely eliminate some information found in the plans, elevations, and sections of the buildings. The desire through these abstractions is to highlight the particular issue being examined. By presenting the factual information on a page adjacent to the analytic diagrams our intention is to aid the reader in connecting the factual information with our interpretation. Placing all of the analytic diagrams on one page affords the reader the opportunity to accumulate information about the building. One can also read from page to page to compare any one analytic diagram to see how different architects addressed that particular issue. Alternatively, one can refer to the Formative Idea section of the book to see collections of diagrams of buildings by various architects about one archetypal idea.

We are aware that the built form from any architect is the result of multiple considerations – social, technical, economic, cultural, legal, and political – not the least of which are the programmatic peculiarities and the client's interests and concerns. Of the architects we have added to this edition we know, for instance, of the importance that the region has had on Brian MacKay-Lyons. His architecture takes advantage of local building skills while responding to the particular geography and climate of the site where he builds. Others have even referred to him as "the poet of place." However, the importance of place does not change his apparent interest and abilities in other issues of form like geometry, proportion, spatial manipulation, and the relationship between the plan and section that consistently appear in his buildings.

Tom Kundig has indicated on many occasions that his source of inspiration has always been "the large landscape" and clearly he makes gestures in his work to that landscape. He has also written about the seminal influence of a sculptor

through interactions early in his life that still impact his thinking and his work. It seems that this early influence is manifest in his sophisticated use of materials and the importance of craftsmen in creating his custom-made mechanical devices or contraptions, most often referred to as "gizmos," that are found in his work. But it appears that between his interest in the language of details and the larger landscape he is also interested in other archetypal ideas.

If Brian MacKay-Lyons is the poet of place, Thomas Phifer could be considered the poet of the pavilion. Using a more universal language of twentieth-century modernism, Phifer creates precise minimalist sculptures that are sometimes solid, but more often transparent. These pavilions are geometrically derived and, when transparent, visually delicate with a series of layers of scrims and mesh panels that alter the light quality while maintaining views. The ephemeral quality of these pavilions, often setting within a landscape that is equally as controlled as the architecture, is constantly altered both internally and externally by the changing climatic conditions.

In the two houses by Stephane Beel it is obvious he reveals much about the house and its site through the process of entry. Villa Maesen is a linear building of close to two hundred feet in length located in a former kitchen garden of a nearby chateau that features a series of prominent walls. In essence, the villa becomes a new inhabited wall sited parallel to the longest existing wall and is located the same distance from that existing wall as is the width of the house. With the villa approximately the same height as the wall, one then enters into the house through a space that is the negative of the house. Villa P is also a linear scheme, but in this instance the line is bent to form four sides of a court. Entry is through a gap in the bent linear form, across a bridge, through the court, to the door on the opposite side of the court. While the form of the house might be expected on a flat site, in this case there is a sloped site that is revealed as one crosses the bridge. Beel refers to this court as a "floorless patio."

From October 2009 until the end of January 2010, David Chipperfield had a comprehensive exhibit of his work at the Design Museum in London titled "Form Matters" that distinguishes between shape and form. In his terms shape is organic, more the result of consequence; while form implies discipline and is something that could be constructed. Therefore, whatever its provocation, it is form that we design. Chipperfield himself is a conservative form maker. He is not interested in creating buildings that constantly tell us how clever the architect is, nor is he interested in expression for the sake of expression. His quiet architecture nonetheless is special.

We have chosen each of the architects to add to this edition of the book because we believe their work is strong and that their buildings add depth to the issues we have analyzed. However complex the architecture may be, or however many concerns the architect grappled with, or whatever their motives or interest may be, each of the architects has produced built forms that can be analyzed. As stated previously, these built forms may very well outlast the architect's interests and their current fascinations and considerations. We understand that the architect may not have considered what we have diagrammed, but the diagrams can describe the formal aspects of the building as we interpret them. So we can diagram what has been done – the form – while we also understand that may not be why it was done. Through the analysis we have created one story about the building that can be related, not all of the stories that are possible.

As indicated in the Preface to the Third Edition, *Precedents in Architecture* has been continuously published since 1985 first by Van Nostrand Reinhold and subsequently by John Wiley & Sons. It has been translated into at least four languages and in 2006 the China Architecture and Building Press published the Third Edition in Chinese. The

success and longevity of this work suggests the desire for this information and reinforces the initial premise of the need for exposing the design ideas that transcend time and place and that underpin the making of architectural form.

In addition to the acknowledgments cited in the previous prefaces, we wish to recognize some individuals directly related to this edition. We are indebted to Brian MacKay-Lyons and to Thomas Phifer for each generously agreeing to provide us with information about two of their houses that had previously not been published so that we could include their work in this edition. At Brian Mackay-Lyons' office, Lisa Morrison and Sawa Rostkowska were especially helpful. At Phifer's office, Stephen Varady was similarly helpful.

This edition would not have existed at all without the efforts of Margaret Cummins of John Wiley & Sons. As with the third edition, she approached us about considering a fourth edition. As previously stated, her powers of persuasions, her suggestions, and her encouragement were each critical to the development of this edition. We are profoundly grateful that she cares about this book and is willing to act on its, and thus our, behalf. The other members of the editorial, art, and production staffs at Wiley were also helpful and deserve our thanks. It is impossible to adequately thank all the individuals who had an influence on this work, contributed to its development, or encouraged us to continue pursuing the analysis of precedent and this book in particular. Look what you started, George E. Hartman, Jr., FAIA Emeritus, those many years ago.

As with previous editions all of the pages in this edition are from original drawings. We have produced the analytic diagrams in freehand on tracing paper, thus we are responsible for their content. As was the case with the third edition, Jason Miller has interpreted our sketches and diagrams to precisely draw the twenty-eight new pages in this edition. We owe him a special thank you for his precision, dedication, diligence, patience, and great skill in producing the drawings; and for his sense of humor in dealing with us.

Finally, over many years now our students, as well as those from other schools, have demonstrated that the study of precedents as presented herein is a valuable tool for design. They have challenged us and made each day we teach interesting through their questioning and discovery.

Roger H. Clark
Michael Pause
June 2011

INTRODUCTION

The renewed and growing interest in architectural history and historic architectural example has focused the need to clarify the link between history and design. History studied in the academic sense of seeing our place within a continuum, or in the strictly scholarly sense of knowing the past, can limit our knowledge as architects to little more than names, dates, and style recognition. Seeing between and beyond the layers of historical styles, within which architecture is generally categorized and presented, can make history a source of enrichment for architectural design.

The search, in this study, is for theory which transcends the moment and reveals an architectural idea. The technique for this search is the careful examination and analysis of buildings. The desired result is the development of theory to generate ideas with which to design architecture.

This volume is organized into two parts. The first concentrates on the analysis of 118 buildings which are presented in both conventional drawings—site plan, plan, and elevation—and diagrams. The second identifies and delineates formal archetypal patterns or formative ideas from which architecture might evolve. It can be observed that certain patterns persist through time, with no apparent relationship to place.

Buildings that represent a range of time, function, and style, and architects who exemplify seemingly different approaches to architecture were selected. This selection was tempered by availability of information; some architects and some buildings were not included because the material available did not permit thorough analysis.

Preference was given to built buildings in lieu of projects, which are included in the second part only when they represent pertinent examples of an idea. While the analytic technique utilized in this volume is applicable to groups of buildings, this study is limited to single works of architecture.

The information available for the selected buildings contained inconsistencies in some areas. When discrepancies did occur, every effort was made to verify the accuracy of the information. If it could not be totally verified, then reasonable assumptions were made. For example, a site plan was never drawn by Robert Venturi for the Tucker House; therefore, the site plan indicated in this volume is inferred from other information.

In some instances, particular buildings are cited in the literature by more than one name. For example, La Rotonda by Andrea Palladio is often referred to as Villa Capra. Less frequently it is called Villa Almerico, after the name of the family for whom it was originally built. In cases where such multiplicity occurs, buildings are identified in the body of this study by the most frequently used name and in the index by the several names used.

Opinion also differs about dates attributed to several buildings. Because of the length of time it takes to complete a building or because of the imprecision of recorded history, it is often difficult to establish an exact date or series of dates for a building. The significance of the date is simply to place the work in a chronological context. When conflict did occur between sources, the date that is ascribed most often is the one used.

Undoubtedly, the complexity of architecture often makes it difficult to attribute a building to a single person. It is clear that buildings, regardless of when executed, are the products of partnerships or collaborations and the result of inputs from several persons. However, for the sake of clarity, the buildings in this study are assigned to the person who

is normally recognized as the designer. For instance, Charles Moore is listed rather than the several associations which might be included for each building. Similarly, Romaldo Giurgola is acknowledged instead of the firm in which he is a partner.

In the analysis part of the study, the plan, elevation, and section for any individual building are drawn at the same scale. However, the scale between any two buildings varies depending upon building size and presentation format. Site plans are oriented to correspond generally to the orientation of the floor plan, and north is indicated where known.

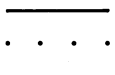
To communicate the analysis of the buildings and the formative ideas in this study, a diagram or a set of diagrams is utilized. The diagrams are drawings that, as abstractions, are intended to convey essential characteristics and relationships in a building. As such, the diagrams focus on specific physical attributes which allow for the comparison of that attribute between buildings independent of style, type, function, or time. The diagrams are developed from the three-dimensional form and space configurations of the building. They take into account more information than is normally apparent in a plan, an elevation, or a section. To reduce the building to its essentials, the diagrams have been intentionally simplified. This elimination of all but the most important considerations makes those that remain both dominant and memorable.

For the analysis, it was necessary to establish a graphic standard so that comparison could be made between the diagrams. In general, heavy lines are used in each diagram to accent a particular issue. In the formative idea part of the study, the plan, elevation, or section of the building is drawn lightly for orientation purposes, while the issue being analyzed and compared is indicated by heavy lines or shading. The following legend indicates the specific graphic standard used for the diagrams in the analysis section.

This study is not exhaustive; rather, examples are included to illustrate the nuances of the idea. It is rare to find a building configuration which embodies a single formal theme in absolute purity. More normal is a variety of patterns layered upon one another—the consequence of which is the potential for the richness that can evolve from multiple interpretations. In this study dominant patterns have been identified, but this is not to suggest that others do not exist.

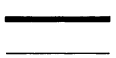
LEGEND

STRUCTURE



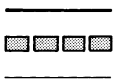
WALLS
COLUMNS
MAJOR BEAMS OVERHEAD

PLAN TO SECTION



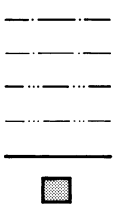
RELATED CONFIGURATION
REMAINDER OF BUILDING

REPETITIVE TO UNIQUE



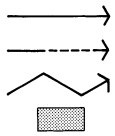
UNIQUE
REPETITIVE
REMAINDER OF BUILDING

SYMMETRY AND BALANCE



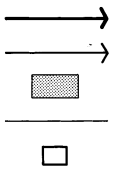
OVERALL SYMMETRY
LOCAL SYMMETRY
OVERALL BALANCE
LOCAL BALANCE
REFERENCED COMPONENTS
POINT AND COUNTERPOINT

NATURAL LIGHT



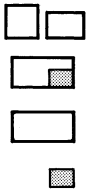
DIRECT
DIFFUSED
INDIRECT
INTERIOR SPACE

CIRCULATION TO USE-SPACE



MAJOR CIRCULATION
SECONDARY CIRCULATION
USE-SPACES
REMAINDER OF BUILDING
VERTICAL CIRCULATION

ADDITIVE AND SUBTRACTIVE

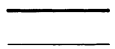


ADDITIVE UNITS
SUBTRACTION
WHOLE
SUBTRACTIVE UNIT

FACTUAL SHEET

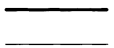
NORTH INDICATOR
ELEVATION
SECTION

MASSING



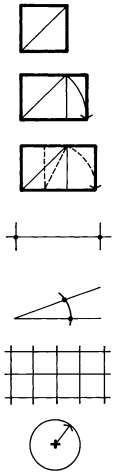
MAJOR MASSING
SECONDARY MASSING

UNIT TO WHOLE



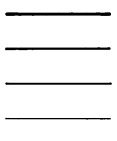
UNITS
REMAINDER OF BUILDING

GEOMETRY



SQUARE
1.4 RECTANGLE
1.6 RECTANGLE
DIMENSION OR UNIT
ANGLE
GRID LINES
RADIUS CENTER

HIERARCHY



MOST DOMINANT
TO
LESS DOMINANT

ANALYSIS

ANALYSIS

In this section, 118 works of architecture are documented. The buildings are the designs of 38 architects. For most architects, four buildings are presented which are representative of that person's work. The material is ordered with the architects arranged alphabetically and the buildings for each architect presented chronologically and successively.

Each building is recorded on two adjacent pages; the left-hand page documents the building with name, date, and location as well as drawings of the site plan, floor plans, elevations, and sections; illustrated on the right-hand page is a series of eleven analysis diagrams and the parti diagram which culminates in and summarizes the analysis for the building. The parti is seen as the dominant idea of a building which embodies the salient characteristics of that building. It encapsulates the essential minimum of the design, without which the scheme would not exist, but from which the architecture can be generated.

A major concern of the analysis is to investigate the formal and spatial characteristics of each work in such a way that the building parti can be understood. To accomplish this, 11 issues were selected from the widest range of characteristics: fundamental elements which are common to all buildings, relationships among attributes, and formative ideas. Each issue is first explored in isolation and then in relationship to the other issues. This information is studied to discern reinforcement and to identify the dominant underlying idea. From the analysis and the resulting parti for each building, similarities and differences among the designs can be identified.

The issues selected for the analysis are: structure; natural light; massing; and the relationships of plan to section, circulation to use-space, unit to whole, and repetitive to unique. Also included are symmetry and balance, geometry, additive and subtractive, and hierarchy.

STRUCTURE

At a basic level, structure is synonymous with support, and therefore exists in all buildings. At a more germane level, structure is columnar, planar, or a combination of these, all of which a designer can intentionally use to reinforce or realize ideas. In this context, columns, walls, and beams can be thought of in terms of the concepts of frequency, pattern, simplicity, regularity, randomness, and complexity. As such, structure can be used to define space, create units, articulate circulation, suggest movement, or develop composition and modulations. In this way, it becomes inextricably linked to the very elements which create architecture, its quality and excitement. This analysis issue has the potential to reinforce the issues of natural light, unit to whole relationships, and geometry. It can also strengthen the relationship of circulation to use-space and the definition of symmetry, balance, and hierarchy.

NATURAL LIGHT

Natural light focuses on the manner in which, and the locations where, daylight enters a building. Light is a vehicle for the rendering of form and space, and the quantity, quality, and color of the light affect the perceptions of mass and volume. The introduction of natural light may be the consequence of design decisions made about the elevation and section of a building. Daylight can be considered in terms of

qualitative differences which result from filtering, screening, and reflecting. Light which enters a space from the side, after modification by a screen, is different from light which enters directly overhead. Both examples are quite different from light which is reflected within the envelope of the building before entering the space. The concepts of size, location, shape, and frequency of opening; surface material, texture, and color; and modification before, during, or after entering the building envelope are all relevant to light as a design idea. Natural light can reinforce structure, geometry, hierarchy, and the relationships of unit to whole, repetitive to unique, and circulation to use-space.

MASSING

As a design issue, massing constitutes the perceptually dominant or most commonly encountered three-dimensional configuration of a building. Massing is more than the silhouette or elevation of a building. It is the perceptual image of the building as a totality. While massing may embody, approximate, or at times parallel either the outline or the elevation, it is too limiting to view it as only this. For example, on the elevation of a building the fenestration may in no way affect the perception of the volume of the building. Similarly, the silhouette may be too general and not reflect productive distinctions in form.

Massing, seen as a consequence of designing, can result from decisions made about issues other than the three-dimensional configuration. Viewed as a design idea, massing may be considered relative to concepts of context, collections and patterns of units, single and multiple masses, and primary and secondary elements. Massing has the potential to define and articulate exterior spaces, accommodate site, identify entrance, express circulation, and emphasize importance in architecture. As an issue in the analysis, massing can strengthen the ideas of unit to whole, repetitive to unique, plan to section, geometry, additive and subtractive, and hierarchy.

PLAN TO SECTION OR ELEVATION

Plan, section, and elevation are conventions common to the simulation of the horizontal and vertical configurations of all buildings. As with any of the design ideas in this analysis, the relationship of plan configuration to vertical information may result from decisions made about other issues. The plan can be the device to organize activities and can, therefore, be viewed as the generator of form. It may serve to inform about many issues such as the distinction between passage and rest. The elevation and section are often considered to be more closely related to perception since these notations are similar to encountering a building frontally. However, the use of plan or section notations presumes volumetric understanding; that is, a line in either has a third dimension. The reciprocity and the dependence of one on the other can be a vehicle for making design decisions, and can be used as a strategy for design. Considerations in plan, section, or elevation can influence the configuration of the others through the concepts of equality, similarity, proportion, and difference or opposition.

It is possible for the plan to relate to the section or elevation at a number of scales: a room, a part, or the whole building. As an issue for analysis, the plan to section relationship reinforces the ideas of massing, balance, geometry, hierarchy, additive, subtractive, and the relationships of unit to whole and repetitive to unique.

CIRCULATION TO USE-SPACE

Fundamentally, circulation and use-space represent the significant dynamic and static components in all buildings.

Use-space is the primary focus of architectural decision making relative to function, and circulation is the means by which that design effort is engaged. Together, the articulation of the conditions of movement and stability form the essence of a building. Since circulation determines how a person experiences a building, it can be the vehicle for understanding issues like structure, natural light, unit definition, repetitive and unique elements, geometry, balance, and hierarchy. Circulation may be defined within a space that is for movement only, or implied within a use-space. Thus, it can be separate from, through, or terminate in the use-spaces; and it may establish locations of entry, center, terminus, and importance.

Use-space can be implied as part or all of a free or open plan. It can also be discrete, as in a room. Implicit in the analysis of this issue is the pattern created by the relationship between the major use-spaces. These patterns might suggest centralized, linear, or clustered organizations. The relationship of circulation and use-space can also indicate the conditions of privacy and connection. Basic to employing this issue as a design tool is the understanding that the configuration given to either circulation or use directly affects the manner in which the relationship to the other takes place.

UNIT TO WHOLE

The relationship of unit to whole examines architecture as units which can be related to create buildings. A unit is an identified entity which is part of a building. Buildings may comprise only one unit, where the unit is equal to the whole, or aggregations of units. Units may be spatial or formal entities which correspond to use-spaces, structural components, massing, volume, or collections of these elements. Units may also be created independently of these issues.

The nature, identity, expression, and relationship of units to other units and to the whole are relevant considerations in the use of this idea as a design strategy. In this context, units are considered as adjoining, separate, overlapping, or less than the whole. The relationship of unit to whole can be reinforced by structure, massing, and geometry. It can support the issues of symmetry, balance, geometry, additive, subtractive, hierarchy, and the relationship of repetitive to unique.

REPETITIVE TO UNIQUE

The relationship of repetitive to unique elements entails the exploration of spatial and formal components for attributes which render these components as multiple or singular entities. If unique is understood to be a difference within a class or a kind, then the comparison of elements within a class can result in the identification of the attributes which make the unique element different. This distinction links the realms of the repetitive and the unique through the common reference frame of the class or kind. Essentially, the definition of one is determined by the realm of the other. In this context, components are determined to be repetitive or unique through the absence or presence of attributes. Concepts of size, orientation, location, shape, configuration, color, material, and texture are useful in making distinctions between repetitive and unique. While repetitive and unique elements occur in numerous ways and at several scales within buildings, the analysis focuses on the dominant relationship. In the analysis, this issue generates information which strengthens or is reinforced by the concepts of structure, massing, units related to whole, plan related to section, geometry, and symmetry or balance.

SYMMETRY AND BALANCE

The concepts of symmetry and balance have been in use since the beginning of architecture. As a fundamental issue of composition, balance in architecture occurs through the use of spatial or formal components. Balance is the state of perceptual or conceptual equilibrium. Symmetry is a specialized form of balance. Compositional balance in terms of equilibrium implies a parallel to the balance of weights, where so many units of "A" are equal to a dissimilar number of units of "B." Balance of components establishes that a relationship between the two exists, and that an implied line of balance can be identified. For balance to exist, the basic nature of the relationship between two elements must be determined; that is, some element of a building must be equivalent in a knowable way to another part of the building. The equivalency is determined by the perception of identifiable attributes within the parts. Conceptual balance can occur when a component is given additional value or meaning by an individual or group. For example, a smaller sacred space can be balanced by a much larger support or secondary space.

Whereas balance is developed through differences in attributes, symmetry exists when the same unit occurs on both sides of the balance line. In architecture this can happen in three precise ways: reflected, rotated about a point, and translated or moved along a line.

Both symmetry and balance can exist at the building, component, or room level. As scales change, a distinction is made between overall and local symmetry or balance. Consideration of size, orientation, location, articulation, configuration, and value is involved in its use as a formative idea. Balance and symmetry may have an impact on all of the other analysis issues.

GEOMETRY

Geometry is a formative idea in architecture that embodies the tenets of both plane and solid geometry to determine built form. Within this issue, grids are identified as being developed from the repetition of the basic geometries through multiplication, combination, subdivision, and manipulation.

Geometry has been used as a design tool since the very beginnings of architectural history. Geometry is the single most common determinant or characteristic in buildings. It can be utilized on a broad range of spatial or formal levels that includes the use of simple geometric shapes, varied form languages, systems of proportions, and complex form generated by intricate manipulations of geometries. The realm of geometry as an architectural form generator is a relative one of measurement and quantification. As a focus for this analysis, it centers on the concepts of size, location, shape, form, and proportion. It also concentrates on the consistent changes in geometries and form languages that result from the combination, derivation, and manipulation of basic geometric configurations. In the analysis, grids are observed for frequency, configuration, complexity, consistency, and variation. As the pervasive attribute of buildings, geometry can reinforce all of the issues used in the analysis.

ADDITIVE AND SUBTRACTIVE

The formative ideas of additive and subtractive are developed from the processes of adding, or aggregating, and subtracting built form to create architecture. Both require the perceptual understanding of the building. Additive, when used to generate built form, renders the parts of the building

as dominant. The perception of a person engaging an additive design is that the building is an aggregation of identifiable units or parts. Subtractive, when utilized in designing, results in a building in which the whole is dominant. A person viewing a subtractive scheme understands the building as a recognizable whole from which pieces have been subtracted. Generally, additive and subtractive are formal considerations which can have spatial consequences.

Richness can occur when both ideas are employed simultaneously to develop built form. For example, it is possible to add units together to form a whole from which pieces are subtracted. It is also possible to subtract pieces from an identifiable whole and then to add the subtracted parts back to create the building.

The manner in which the building whole was articulated, and the ways in which the forms were rendered, was important to the analysis. This was achieved by observing massing, volumes, color, and material changes. Additive and subtractive, as ideas, can strengthen or be reinforced by massing, geometry, balance, hierarchy, and the relationships of unit to whole, repetitive to unique, and plan to section.

HIERARCHY

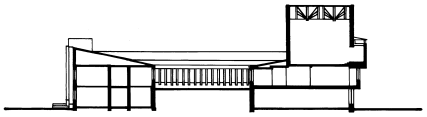
As a formative idea, hierarchy in the design of buildings is the physical manifestation of the rank ordering of an attribute or attributes. Embodied in this concept is the assignment of relative value to a range of characteristics. This entails the understanding that qualitative differences within a progression can be identified for a selected attribute. Hierarchy implies a rank ordered change from one condition to another, where ranges such as major-minor, open-closed, simple-complex, public-private, sacred-profane, served-servant, and individual-group are utilized. With these ranges, the rank ordering can occur in the realm of the formal, spatial, or both.

In the analysis, hierarchy was explored relative to dominance and importance within the built form through examination of patterns, scale, configuration, geometry, and articulation. Quality, richness, detail, ornament, and special materials were used as indicators of importance. Hierarchy, as a design idea, can be related to and support any of the other issues explored in the analysis.

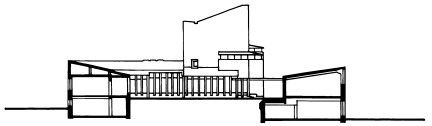
ALVAR AALTO

ALVAR AALTO

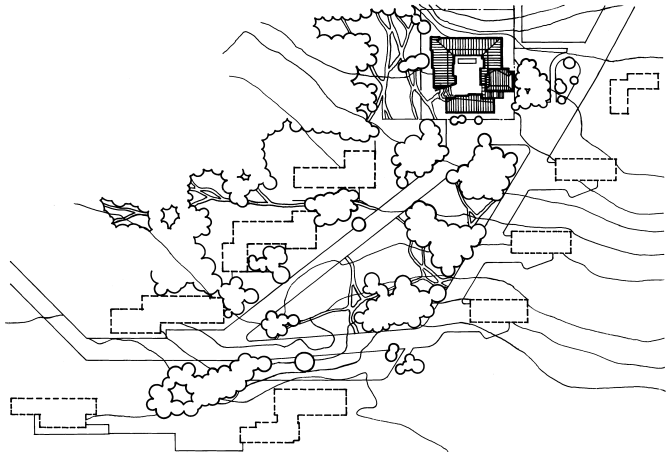
TOWN HALL
SAYNATSALO, FINLAND
1950–1952



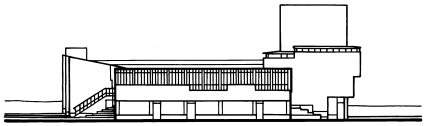
SECTION A



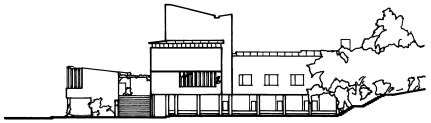
SECTION B



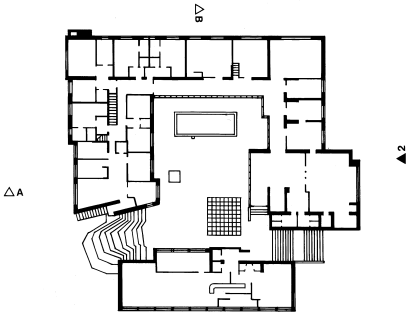
SITE PLAN



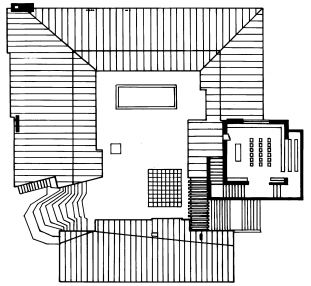
ELEVATION 1



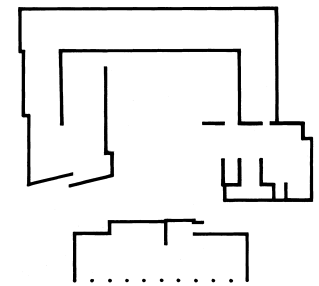
ELEVATION 2



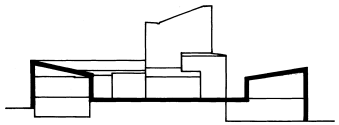
MAIN FLOOR PLAN

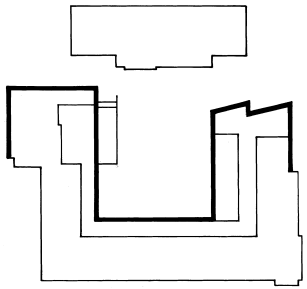


UPPER FLOOR PLAN

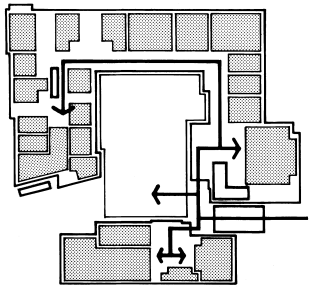


STRUCTURE

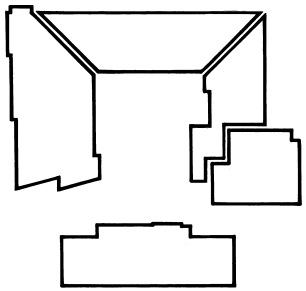




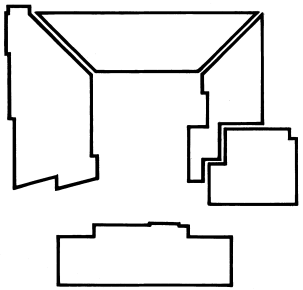
PLAN TO SECTION



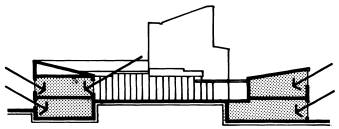
CIRCULATION TO USE



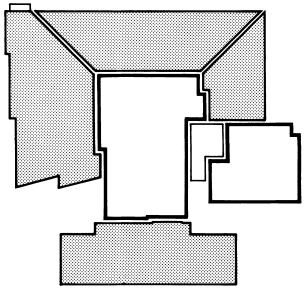
UNIT TO WHOLE



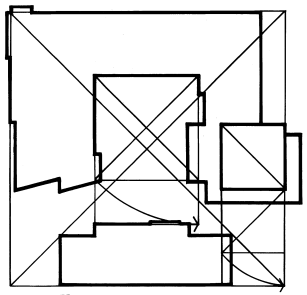
ADDITIVE AND SUBTRACTIVE



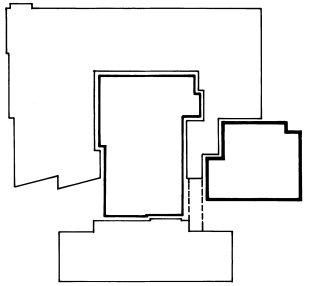
NATURAL LIGHT



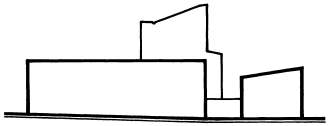
REPETITIVE TO UNIQUE



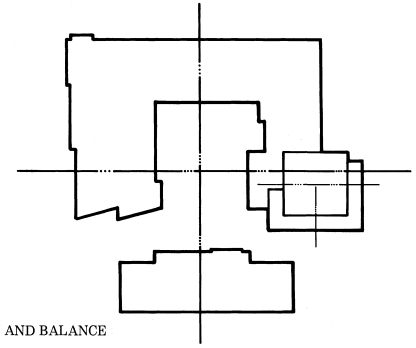
GEOMETRY

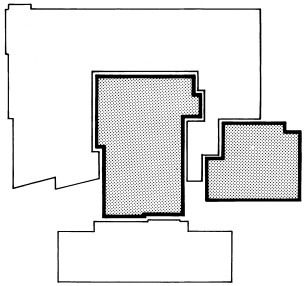


HIERARCHY

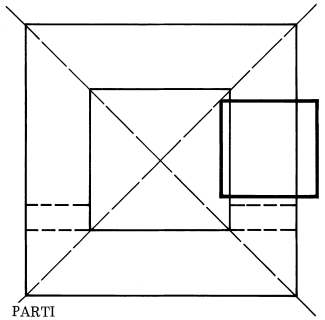


MASSING





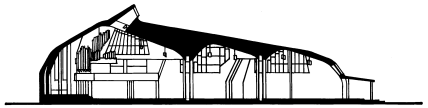
SYMMETRY AND BALANCE



PARTI

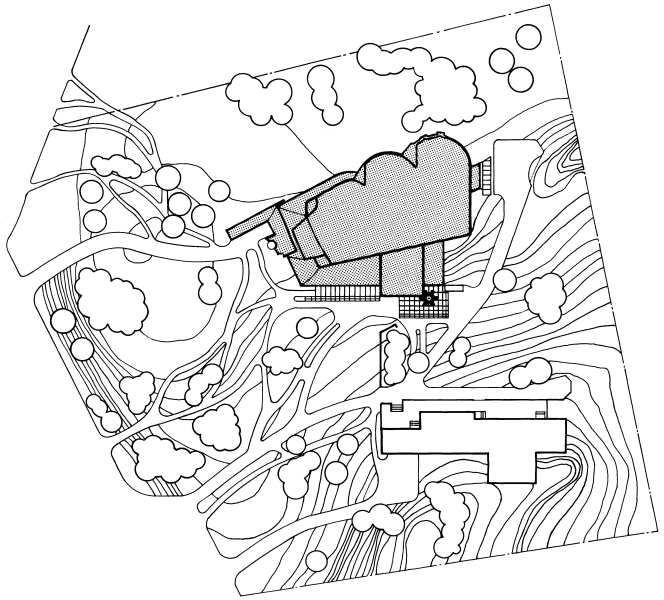
ALVAR AALTO

VOUKSENNISKA CHURCH
IMATRA, FINLAND
1956-1958

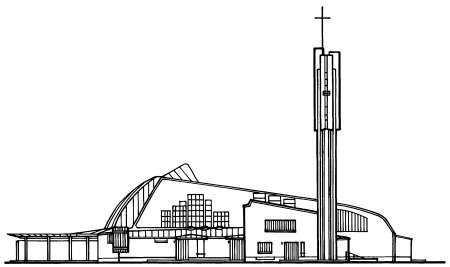


SECTION A

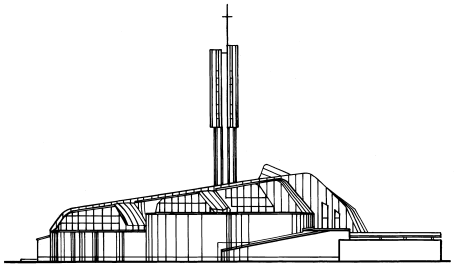
SECTION B



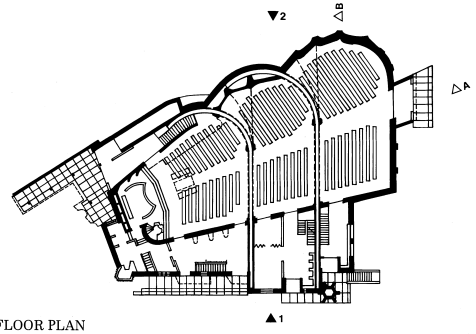
SITE PLAN



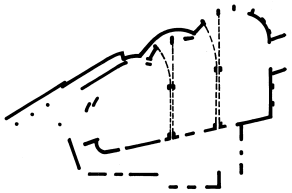
ELEVATION 1



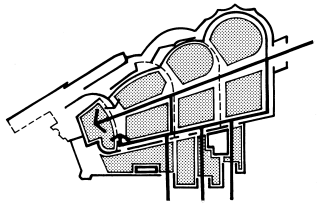
ELEVATION 2



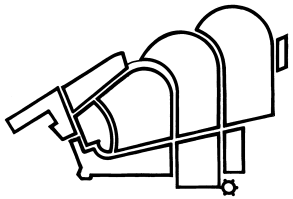
FLOOR PLAN



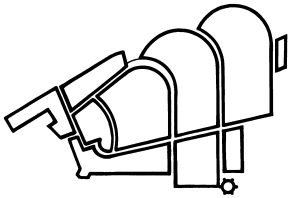
STRUCTURE



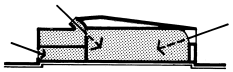
CIRCULATION TO USE

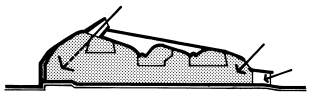


UNIT TO WHOLE

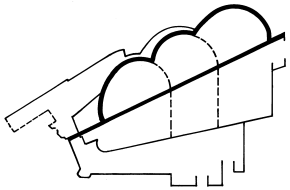


ADDITIVE AND SUBTRACTIVE

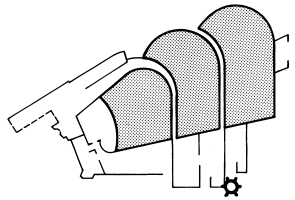




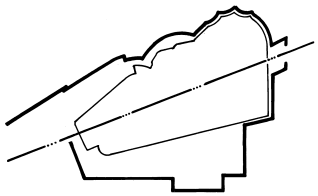
NATURAL LIGHT



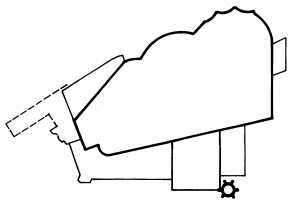
PLAN TO SECTION



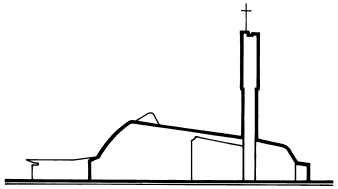
REPETITIVE TO UNIQUE



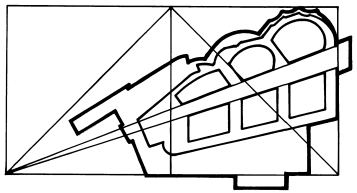
SYMMETRY AND BALANCE

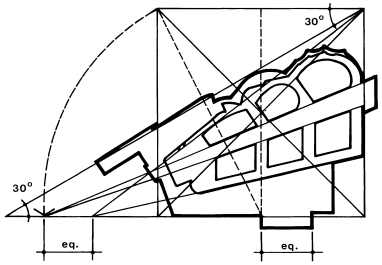


HIERARCHY

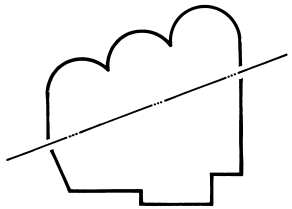


MASSING





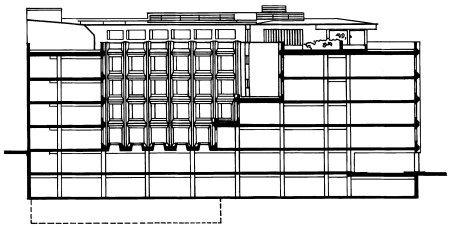
GEOMETRY



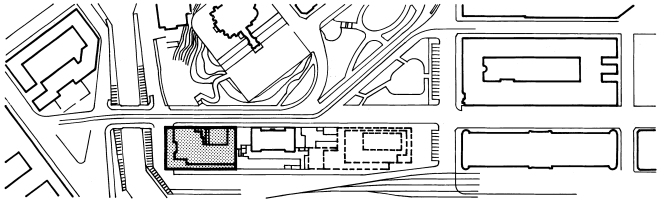
PARTI

ALVAR AALTO

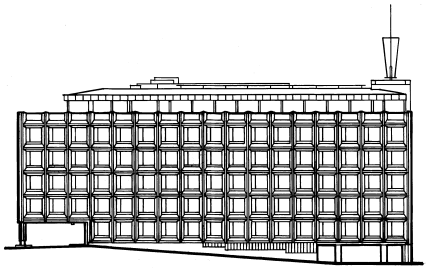
ENSO-GUTZEIT COMPANY HEADQUARTERS
HELSINKI, FINLAND
1959–1962



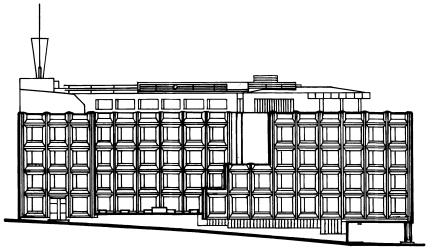
SECTION A



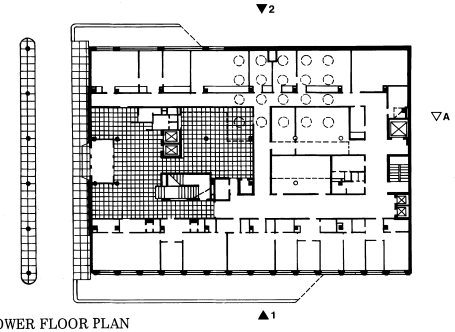
SITE PLAN



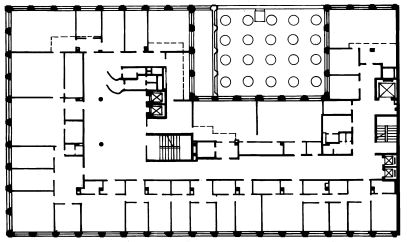
ELEVATION 1



ELEVATION 2



LOWER FLOOR PLAN



UPPER FLOOR PLAN