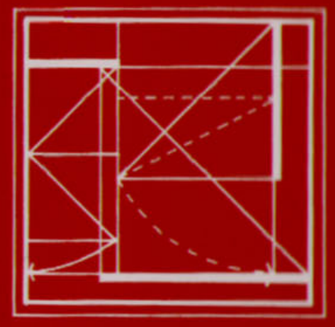
PRECEDENTS IN ARCHITECTURE

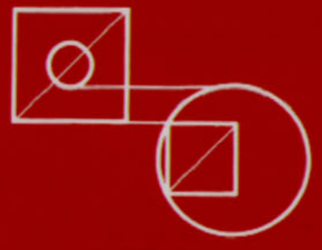
ANALYTIC DIAGRAMS, FORMATIVE IDEAS, AND PARTIS

Published by John Wiley & Sons, Inc., Hoboken, New Jersey
Published simultaneously in Canada

ISBN: 0-471-47974-8

THIRD EDITION





ROGER H. CLARK
MICHAEL PAUSE

ANALYSIS

In this section, 104 works of architecture are documented. The buildings are the designs of 31 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 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 sig-

nificant 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.

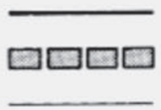
LEGEND

WALLS
COLUMNS
MAJOR BEAMS OVERHEAD

STRUCTURE

RELATED CONFIGURATION
REMAINDER OF BUILDING

PLAN TO SECTION

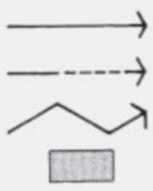


UNIQUE
REPETITIVE
REMAINDER OF BUILDING

REPETITIVE TO UNIQUE

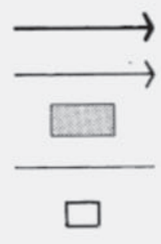
OVERALL SYMMETRY
LOCAL SYMMETRY
OVERALL BALANCE
LOCAL BALANCE
REFERENCED COMPONENTS
POINT AND COUNTERPOINT

SYMMETRY AND BALANCE



DIRECT
DIFFUSED
INDIRECT
INTERIOR SPACE

NATURAL LIGHT

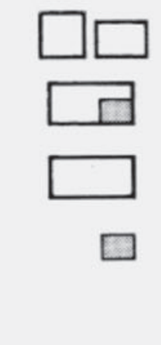


MAJOR CIRCULATION
SECONDARY CIRCULATION
USE-SPACES
REMAINDER OF BUILDING
VERTICAL CIRCULATION

CIRCULATION TO USE-SPACE

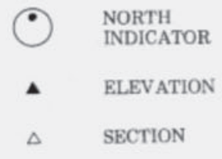
SQUARE
1.4 RECTANGLE
1.6 RECTANGLE
DIMENSION OR UNIT
ANGLE
GRID LINES
RADIUS CENTER

GEOMETRY



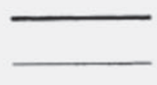
ADDITIVE UNITS
SUBTRACTION
WHOLE
SUBTRACTIVE UNIT

ADDITIVE AND SUBTRACTIVE



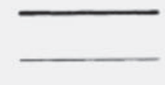
NORTH INDICATOR
ELEVATION
SECTION

FACTUAL SHEET



MAJOR MASSING
SECONDARY MASSING

MASSING



UNITS
REMAINDER OF BUILDING

UNIT TO WHOLE

MOST DOMINANT
TO
LESS DOMINANT

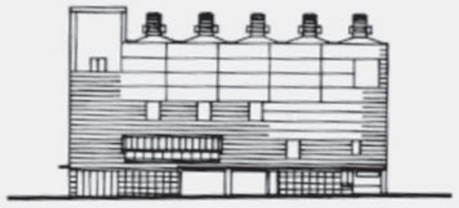
HIERARCHY

RAFAEL MONEO

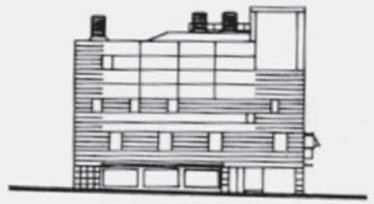
DON BENITO CULTURAL CENTER
BADAJOZ, SPAIN
1991–1997

SECTION A

SECTION B



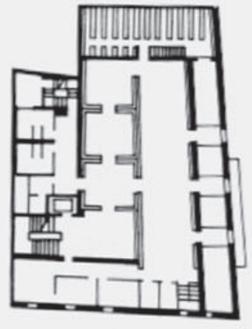
ELEVATION 1



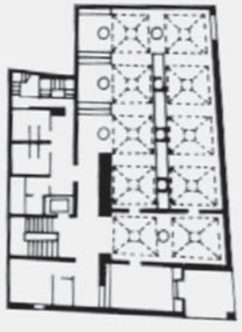
ELEVATION 2

SITE PLAN

MAIN FLOOR PLAN

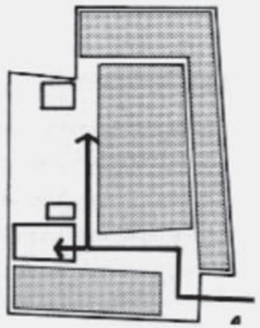


THIRD FLOOR PLAN



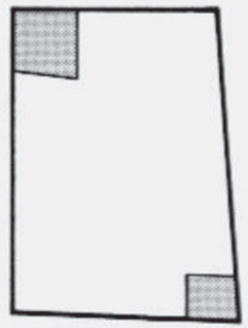
FOURTH FLOOR PLAN

STRUCTURE

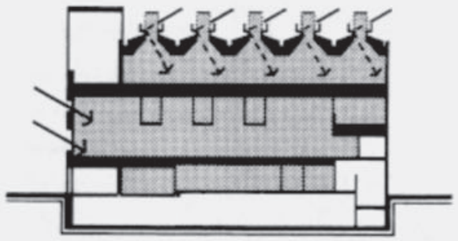


CIRCULATION TO USE

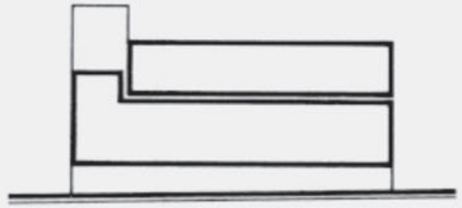
UNIT TO WHOLE



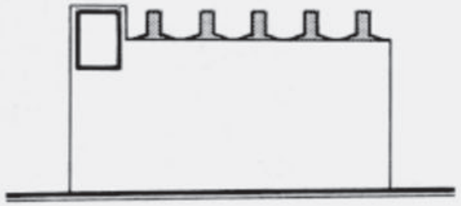
ADDITIVE AND SUBTRACTIVE



NATURAL LIGHT

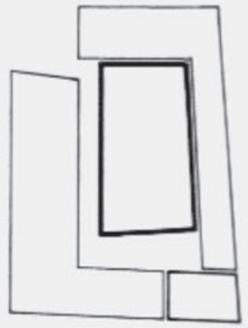


PLAN TO SECTION

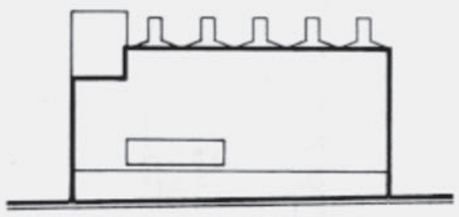


REPETITIVE TO UNIQUE

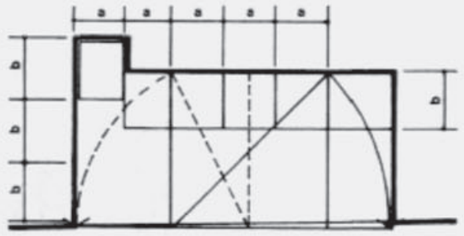
SYMMETRY AND BALANCE

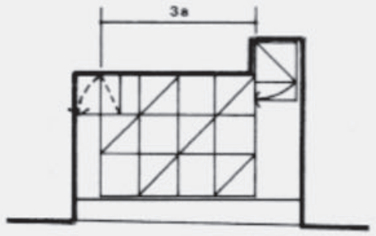


HIERARCHY

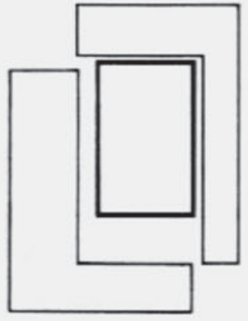


MASSING





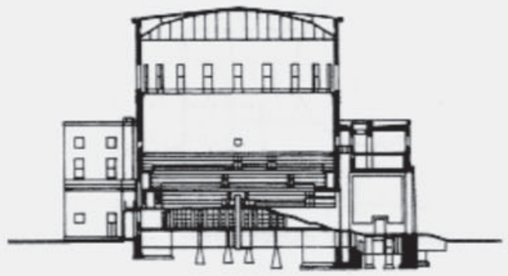
GEOMETRY



PARTI

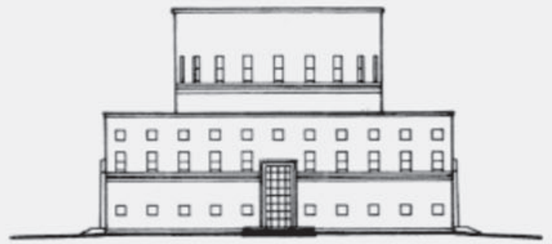
ERIK GUNNAR ASPLUND

STOCKHOLM PUBLIC LIBRARY
STOCKHOLM, SWEDEN
1920–1928

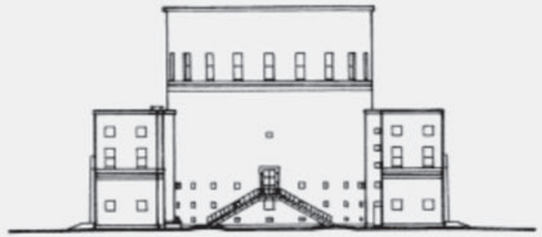


SECTION A

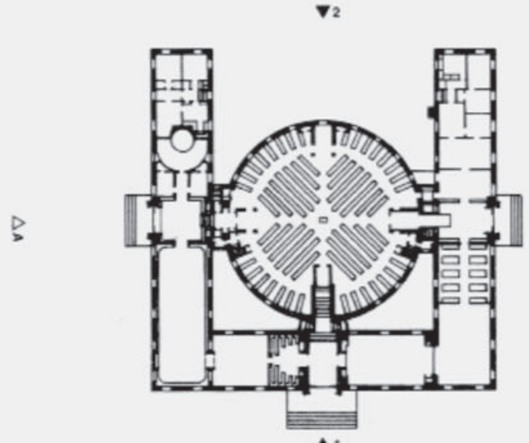
SITE PLAN



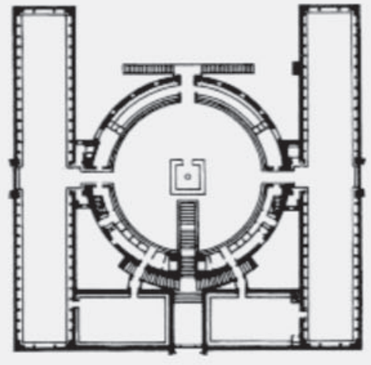
ELEVATION 1



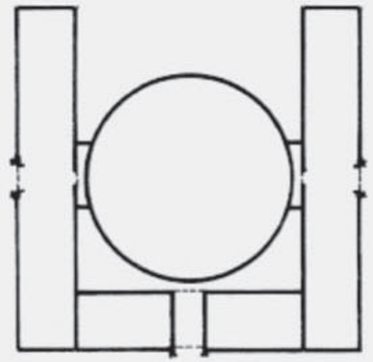
ELEVATION 2



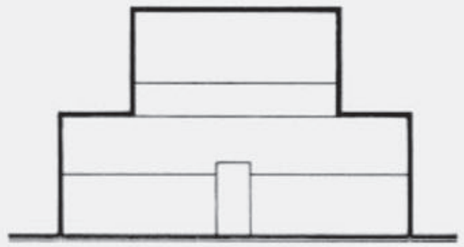
LOWER FLOOR PLAN

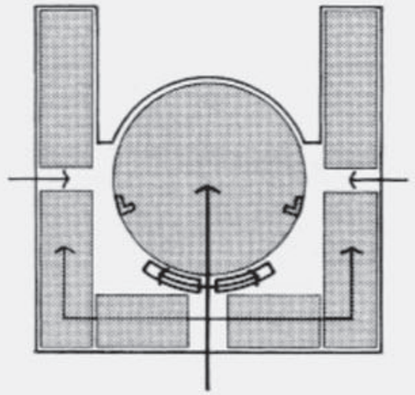


UPPER FLOOR PLAN

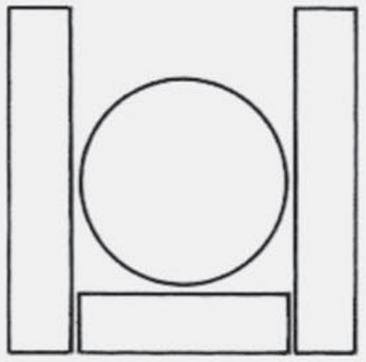


STRUCTURE

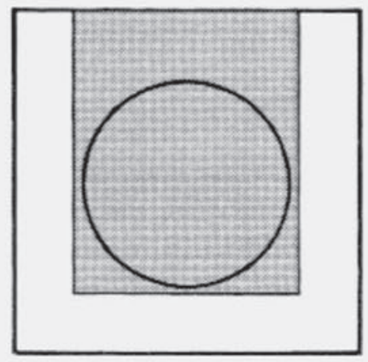




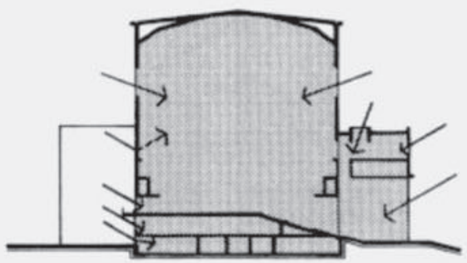
CIRCULATION TO USE



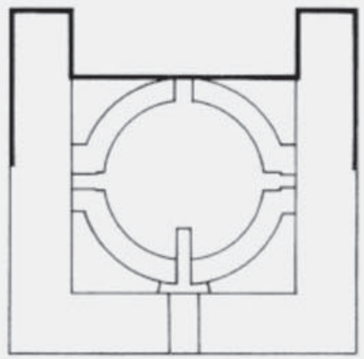
UNIT TO WHOLE



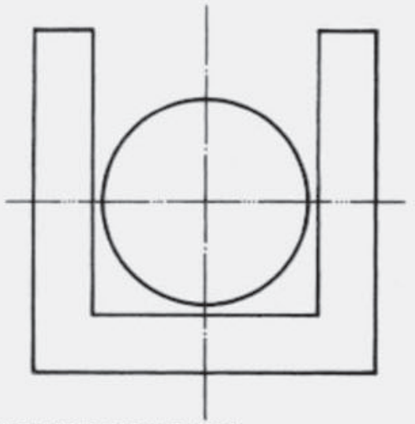
ADDITIVE AND SUBTRACTIVE



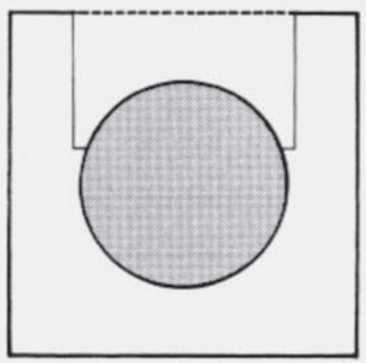
NATURAL LIGHT

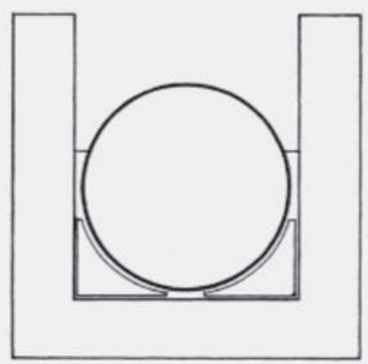


PLAN TO SECTION

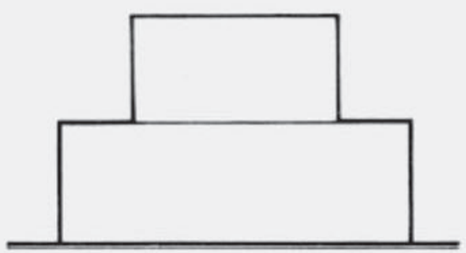


SYMMETRY AND BALANCE

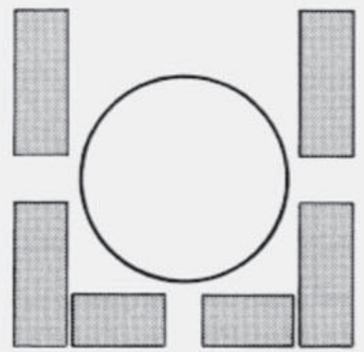




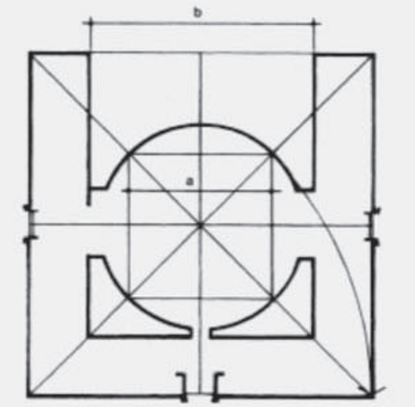
HIERARCHY



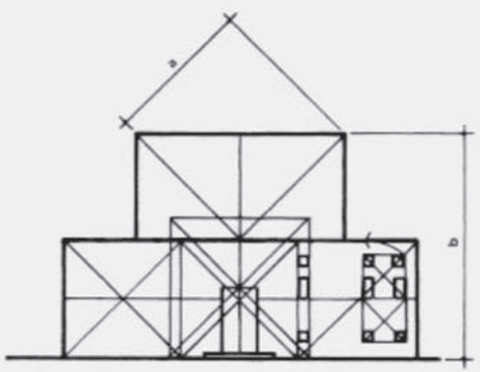
MASSING

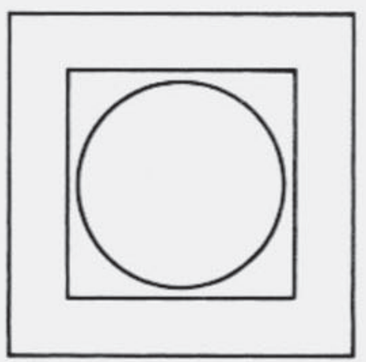


REPETITIVE TO UNIQUE



GEOMETRY





PARTI