A CONVENTION CENTER:
A Typological Approach to the Design of an Institutional Building

by
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ABSTRACT

If the analysis of an architectural design problem suggests the use of references and historical precedents, how should these be selected? Once selected, how can similarities or contradictions between the references and the problem at hand be evaluated? Simply put, how can a body of references be assembled and then made part of the design process?

As a concept, type provides a part of the answer to these questions. Since there is no consensus on the meaning and viability of this idea within a design process, the first part of this study is a discussion intended to define and clarify the term.

The second part of the study is a design exploration that takes up some of the issues raised in this discussion. Since the project is a convention center, a form of building for which no precedents are widely agreed upon, the question of how to conceptualize a new building type is posed. One of the oldest institutional building types, the monastery, is assessed as a possible prototype. The assumption is not that the Cistercian monastery was a convention center all along, but that the basic morphology of its plan suggests planning principles with a wider institutional application. This hypothesis is tested by using these principles to evaluate the plans of several twentieth-century buildings.

Thesis Supervisor: Tom Chastain
Title: Lecturer

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PART ONE

TYPE AND THE USE OF DESIGN REFERENCES

An Operational Definition of Type

The idea of type is grounded in eighteenth-century rationalism and its confidence that the encyclopedia could codify all knowledge. The first explicit formulation of the concept was developed by Quatremere de Quincy in his Dictionnaire historique de l'architecture. He drew an important distinction between type and model. For him type was "the original reason for the thing, which can neither command nor furnish the motif or the means of exact likeness, with the idea of the model the complete thing, which is bound to a formal resemblance." Quatremere's theory was a polemic against free expression in architecture

and although he talked of "imitative character" as opposed to mere copying and the "rules of grammar" that could be derived from neo-classical forms, his prescriptions were not explicitly operational. His essay on type was published without diagrams or drawings. It was, as Anthony Vidler points out, "hardly a working principle of design." 1 Nor did Quatremere's theory anticipate how the building would respond to various user expectations expressed as a program. This issue was addressed by Jean Nicholas Louis Durand, a contemporary and countryman of Quatremere, who in his capacity as a Professor at the Ecole Polytechnique developed a pedagogical approach to teaching architecture to the military engineers who were his students. Durand was less interested in discussing the aesthetic fine points of high architecture than he was in offering a synopsis of the kind of institutional buildings for which exact historical precedents did not always exist. The approach that he made to the hospitals, prisons, barracks, arsenals and bridges was based principally on that of construction. Durand expressed the principles upon which he saw architecture as being based in these words:

"1. The objects that architecture uses, that is to say, the elements of the structures.
2. The combination of these elements, in other words, the composition in general; and
3. The assembly of these combinations in the composition of such and such a structure in particular." 2

Key to this rationalist approach was the use of the grid to demonstrate the deployment of the major structure. Various classes of buildings were described by the deployment of particular building elements: columns, piers, pilasters, walls, doors, etc. on an

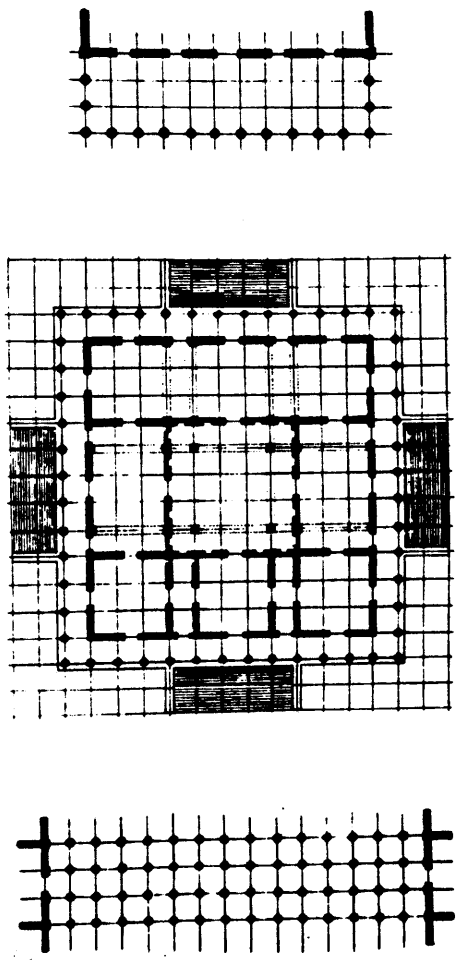


Fig. 1

orthogonal grid (fig 1). In addition to conceptualizing architecture as the placement of construction elements on a modular grid, Durand also offered a synopsis of representative examples of various building types. In the foreword to Recueil et parallele des edifices de tout genres anciens et modernes, he explained, "I classified the edifices and monuments according to their kinds; I arranged them in order of their degree of likeness; in addition I drew them to the same scale." This was nothing less than a radical doctrine, since it proposed a flexible response to the needs of a building program. Durand held that a flexible response to use was more significant than matters of style or architectural language. 3 But through its dissemination in handbooks and manuals and its systematization by the teaching at the Ecole des Beaux Arts, this "pragmatic" doctrine became a generic one. It was this aspect of

typological thinking that the Modern Movement reacted against. Walter Gropius expressed the new ideology in these terms: "A breach has been made with the past, which allows us to envision a new aspect of architecture corresponding to the technical civilization that we live in; the morphology of dead styles has been destroyed; and we are returning to honesty of thought and feeling." 4

By the 1960's, the Modern Movement was itself accused of being generic and formulistic. For Robert Venturi this was too simple an answer: "The Moderns employed a design method based on typological models and developed an architectural iconography based on their interpretation of the progressive technology of the Industrial Revolution. This would not have been a problem but for the uncritical ubiquitous application of the architectural language so derived." He went on to argue that Gropius "created an architectural style and spread a vocabulary of industrial forms that were quite removed from industrial processes." The result was a loss of symbolic meaning, especially given the fact that the language was not explicated. According to this argument, architecture was being starved of its meaning at the same time as it was becoming too rigid to respond to new functional needs. 5

Again the contention turns on a definition of typology which is too simplistic. Alan Colquhoun speaks of "typological problem-solution complexes" by which he means the sort of abstract knowledge that can become part of the design process. He also feels that type is the way that more general architectural meaning is conveyed as a common cultural property. 6

At issue here are a number of questions:

1. If new building types are a response to programs for which there are no historical precedents then a response which relies only on the program soon devolves into shallow planning without any architectural significance. The inference is that a complex program can spin a unifying architectural conception out of control. The implication is that a direct functional approach to the program is not the answer.
2. If a purely functional response is ahistorical then it risks being simplistic because it ignores the iconographic and symbolic meaning that resides in the historical continuities of form. But new institutional programs presume new buildings for which no types exist in history. The implication is that existing types are transformed and that a typological approach need not assume complete building types.
3. If type is used to refer to a series of fundamental elements that can be reconfigured, then it can both analyze and describe historical forms and inform current design problems.

The weakness of the historical approach alone is manifest in Nikolaus Pevsner's A History of Building Types. The author is quite candid "My selection from all of these possible types has been to some extent arbitrary." Although the commentary does watch for changes in function and planning, the organization of the material reflects "the order in which styles follow one another." This is a descriptive narrative of building projects with little or no attempt to deal with typology at a conceptual level. 7

What is needed is a way in which comparisons between buildings can be easily and accurately made. But the tendency is for consistent notational systems to become conceptually rigid and devolve into nothing more than taxonomies. This, as we have seen

above, runs the danger of creative design being replaced by a formalism based on the architectural language laid out by the taxonomy. One way of avoiding this dilemma is to make the distinction between type as a built form and as a concept.

As a concept describing the configuration of built and spatial elements, type is an intellectual system. If the relationships in the configuration are invariable, then what is being described is not a type but a model. It is easy to see that any example of a built type would require an infinite number of systems to describe it completely. This raises the issue of the level of abstraction that is appropriate. 8

For G. C. Argan the simplifying abstractions conceptualized by type are meaningful only when the different levels of built intervention are thought about separately. Thinking appropriate

to an understanding at the scale of urban intervention may not make sense at the level of the building, while thinking at the level of detail can be carried on independent to any understanding of the building's major structure. Within these levels, he uses the idea of type less to describe functional classifications of buildings than to understand the morphology whereby building types evolved: "the formal solution which, little by little, developed in order to answer that need in its historical development." 9

John Habraken picks up these same threads. He too understands type as a rule system that allows designing and building to be harmoniously conducted by many players. The results of this activity are the various built types themselves. When these rules are widely followed, it usually means that they are not questioned and are an implicit part of the culture. In such

cases the typological information is the building itself. Although attempts to describe type involve abstraction and reduction which "destroys the holistic power of the type," it is possible to make these descriptions. "The type can be described in many ways, as a spatial system, as a combination of technical systems, as a system of facades and decorations." Systems showing the configuration of elements of a particular type have a coherence understood in terms of a theme. Thematic systems are themselves understood in terms of the hierarchical relationship between their elements, their capacity, the implications of the territorial claims made within them, and the geometry of their organization. 10

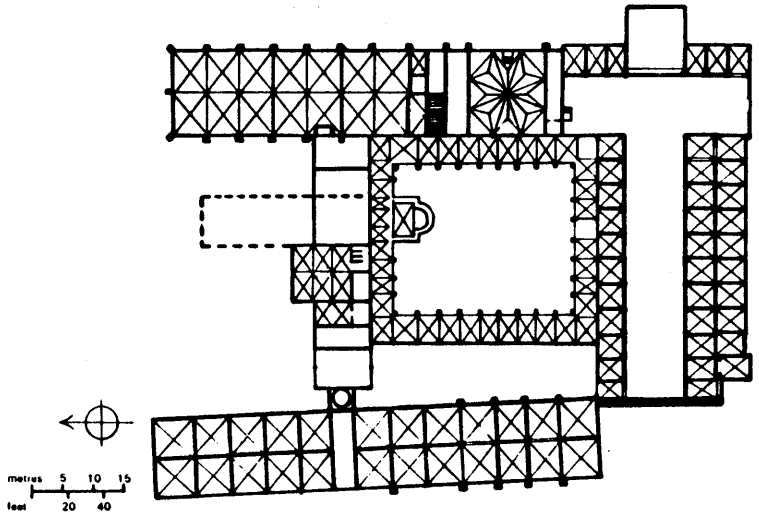
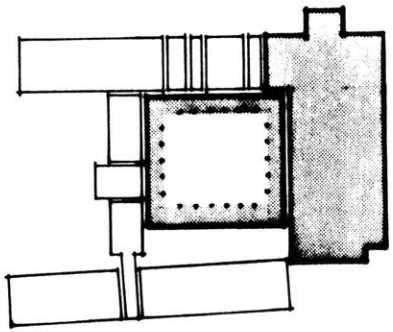


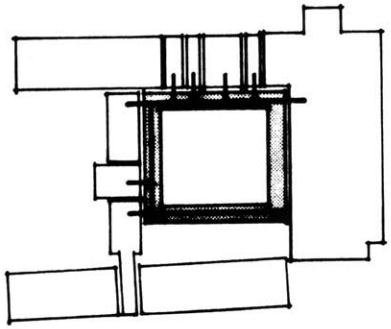
Fig. 2.1 Eberbach Monastery

The Cistercian Monastery as a Type

These buildings seem relevant to the design of a conference center for a

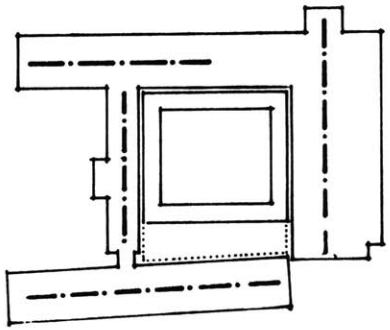


Typological Elements:
Cloister
Major Space
Secondary Spaces



The Cloister organizing the main spaces

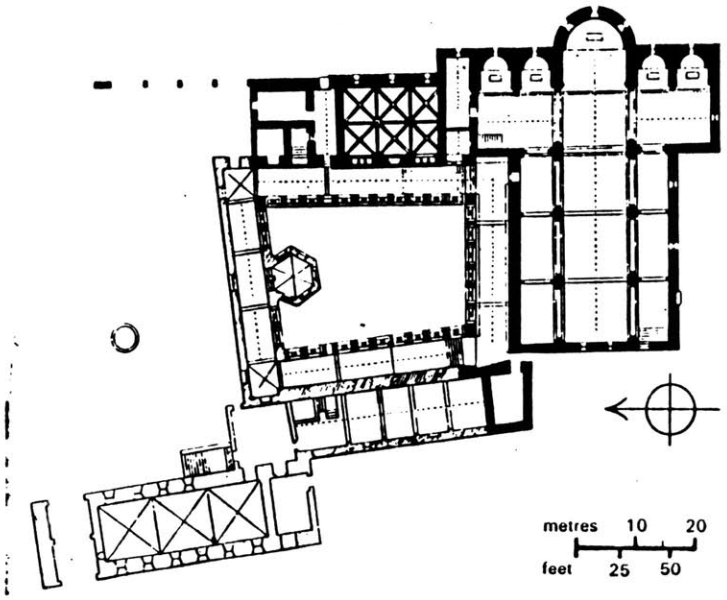
The cloister as access to the main spaces



The cloister sets up an organizing geometry.

number of reasons. Not only do the monasteries represent a sustained effort to plan and build for the collective life but the liturgical insistence on affiliation meant that collective space was developed in a very dynamic way. The formulation for realizing these objectives evolved slowly over a long period. Monastic rules established the same basic plan after the prototype had been built at Fontenay between 1130 and 1140. The asceticism of this particular order eschewed architectural elaborations and the basics of this plan were replicated over seven hundred times.

If we concentrate on the principles which explicate just the plan, it is possible to describe a representative monastery as a type made from the following elements: a major built space, an ensemble of secondary built spaces of various sizes, a courtyard and a cloister. These elements are invariably



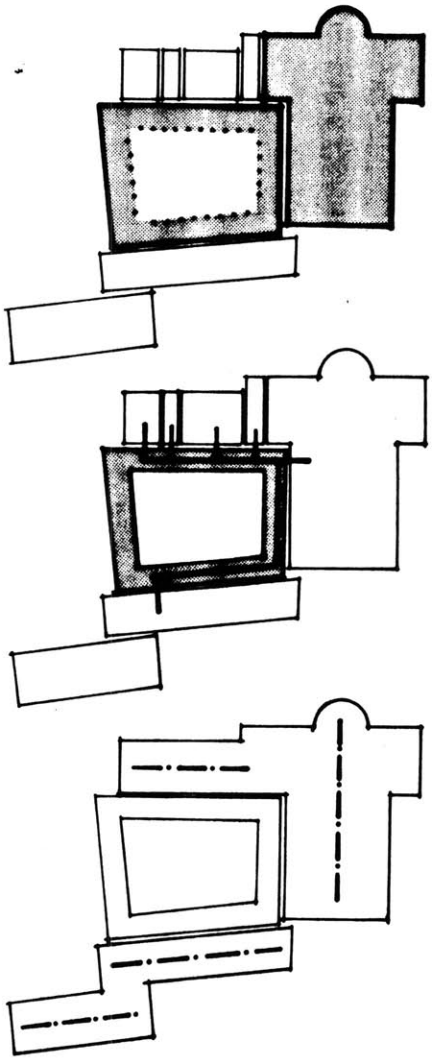
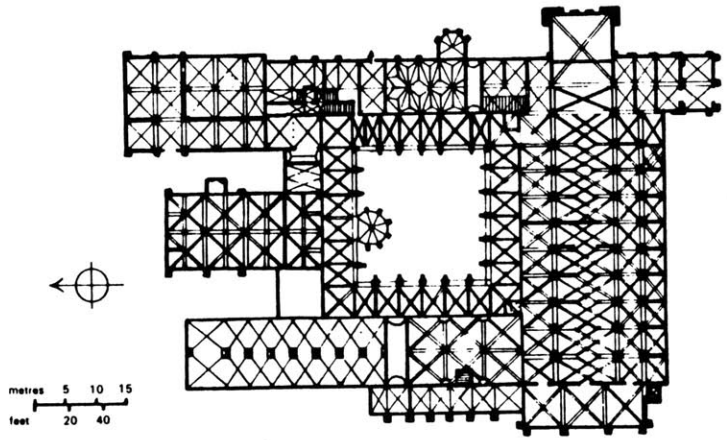
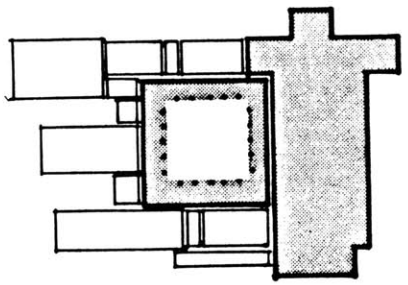
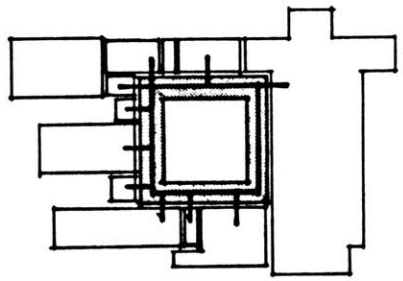


Fig. 2.2 Le Thoronet Monastery
As at Eberbach the cloister is transformed from an orthogonal form to meet site conditions. This form organizes the growth of the complex.







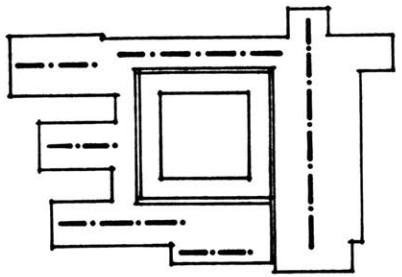


Fig 2.3 Maulbronn Monastery

organized around a clearly articulated center. The key to this relationship is the open and naturally lit courtyard. The primacy of this space is further emphasized by surrounding the court with a cloister which forms the access system. Territorially the precinct of the court and cloister control the spaces leading off from them. Courtyard and cloister also set up a geometry which organizes the other elements. These relationships are diagrammed for a representative selection of monastery plans. (fig 2)

Centering light, access and geometry creates an inward focus for the monastery as an institution. The most important manifestation of the collective life is the open precinct surrounded by the perambulatory. This form was built in response to the liturgical procession, but also served the needs of monks reading alone and meeting together as small groups. So

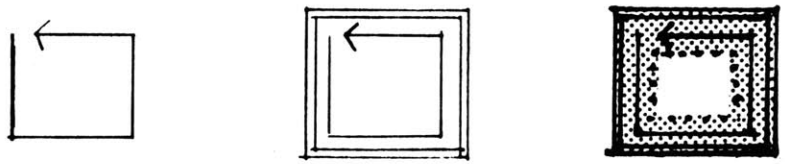


Fig. 2.4 Cloister as Node
☐ Access makes a circuit.
☐ This circuit as a built form.
☐The form is given light in the center.

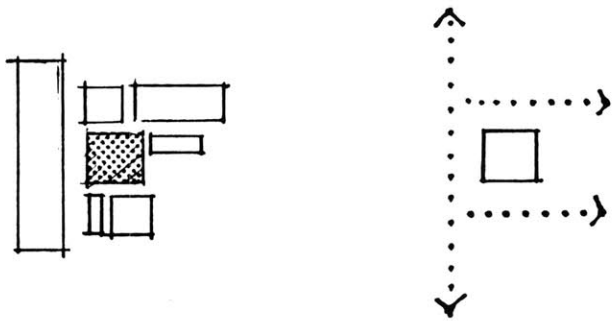
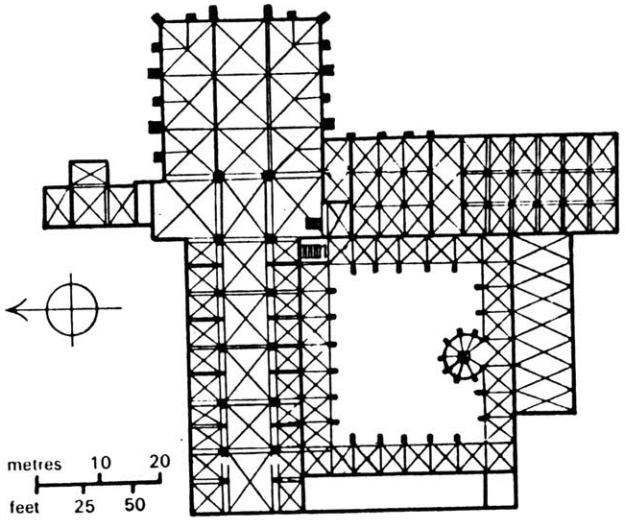


Fig. 2.5 Node as an Organizer
☐ The node organizes built spaces of different sizes
☐ The node sets up the geometry organizing the growth of these spaces



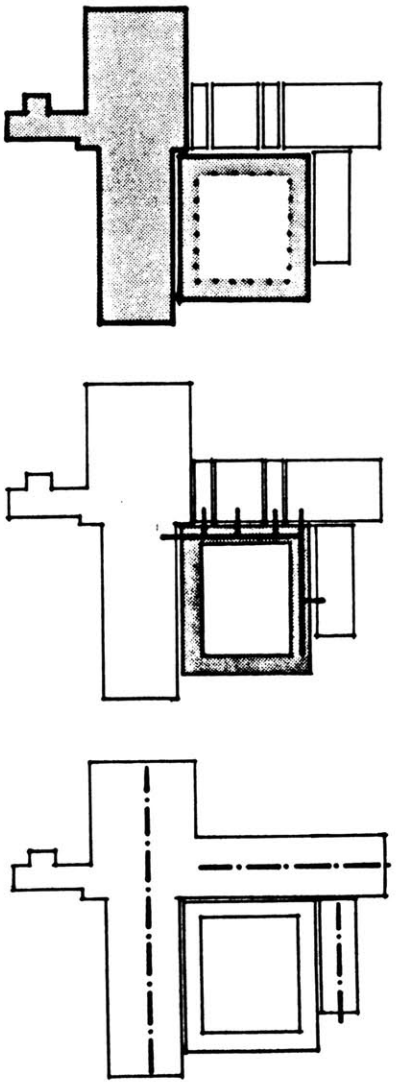
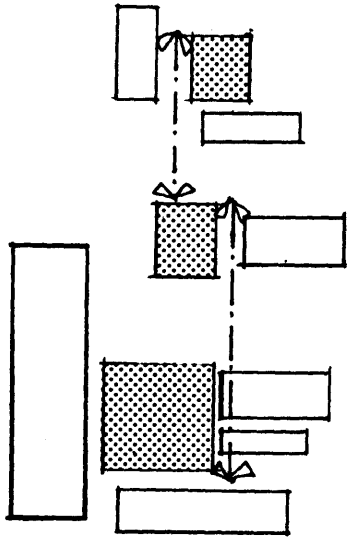


Fig 2.6 Heiligenkreuz Monastery

well does this form engender essential aspects of the collective life that a wider application than the monastery is suggested.

Variations in the Cistercian monastery type although small are significant. The relationship between the major space and the cloister are invariable in all examples with only minor changes in size. The number and organization of the secondary spaces is what gives this type its considerable capacity and flexibility. At the scale of the Clairvaux Monastery (fig 3), these planning principles are capable of giving coherence to institutional complexes of considerable size. 11 A series of courts and cloisters is linked by an extended access system. This system is generated by an extension of the cloister. Although the courts and cloisters still organize the auxiliary spaces attached to them, a hierarchy among these centers is clearly denoted by size.



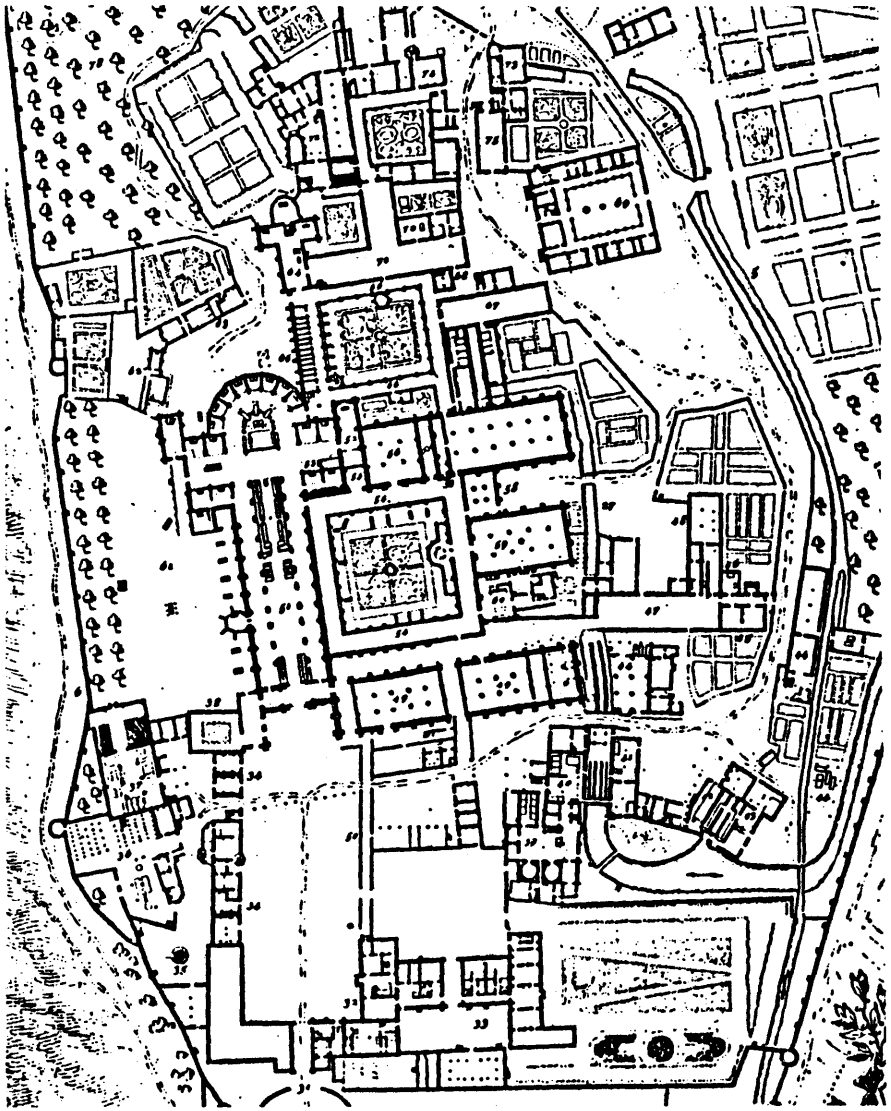


Fig. 3 Monastery Complex as a Series of Linked Nodes

□ Although Clairvaux is organized around several cloisters or nodes, the form as a whole is centered by being a spatial hierarchy

□ By setting up planning possibilities around each cloister two levels of flexibility in planning are possible

It is a commonplace of architectural history that such monastic forms exerted an extended legacy in institutional building. Peter Collins does well to remind us that even as late as 1750 it was one of the few prototypes for institutional building. 12 One would be tempted to suggest that since the Reformation, hospitals and colleges had been moved into monastery buildings and the form was conveyed by historical chance. But early built examples of hospitals, for instance at Kues and Brunelleschi's Oepedale Degli Innocenti, are easy to describe in terms of the Cistercian Monastery type (fig 4). The case that it was the excellence of the form that explains such borrowings is rather ironically made by one of Durand's plates. Although the cloister form is maintained, its potential as a means for flexible planning is rendered ineffective by its being contained within a symmetrical closed form. (fig 5)

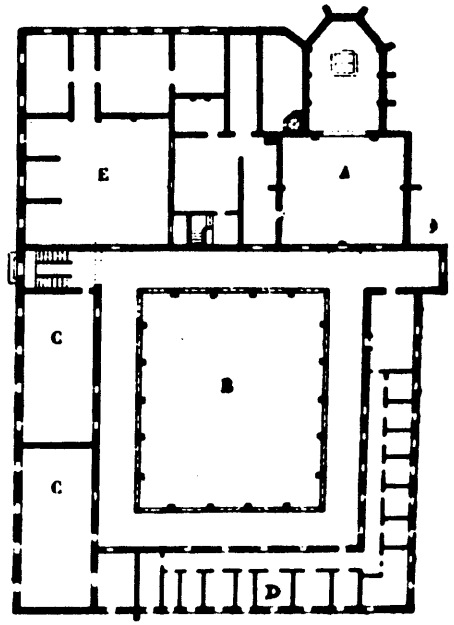


Fig. 4 Kues Hospital as a Cloister Organization

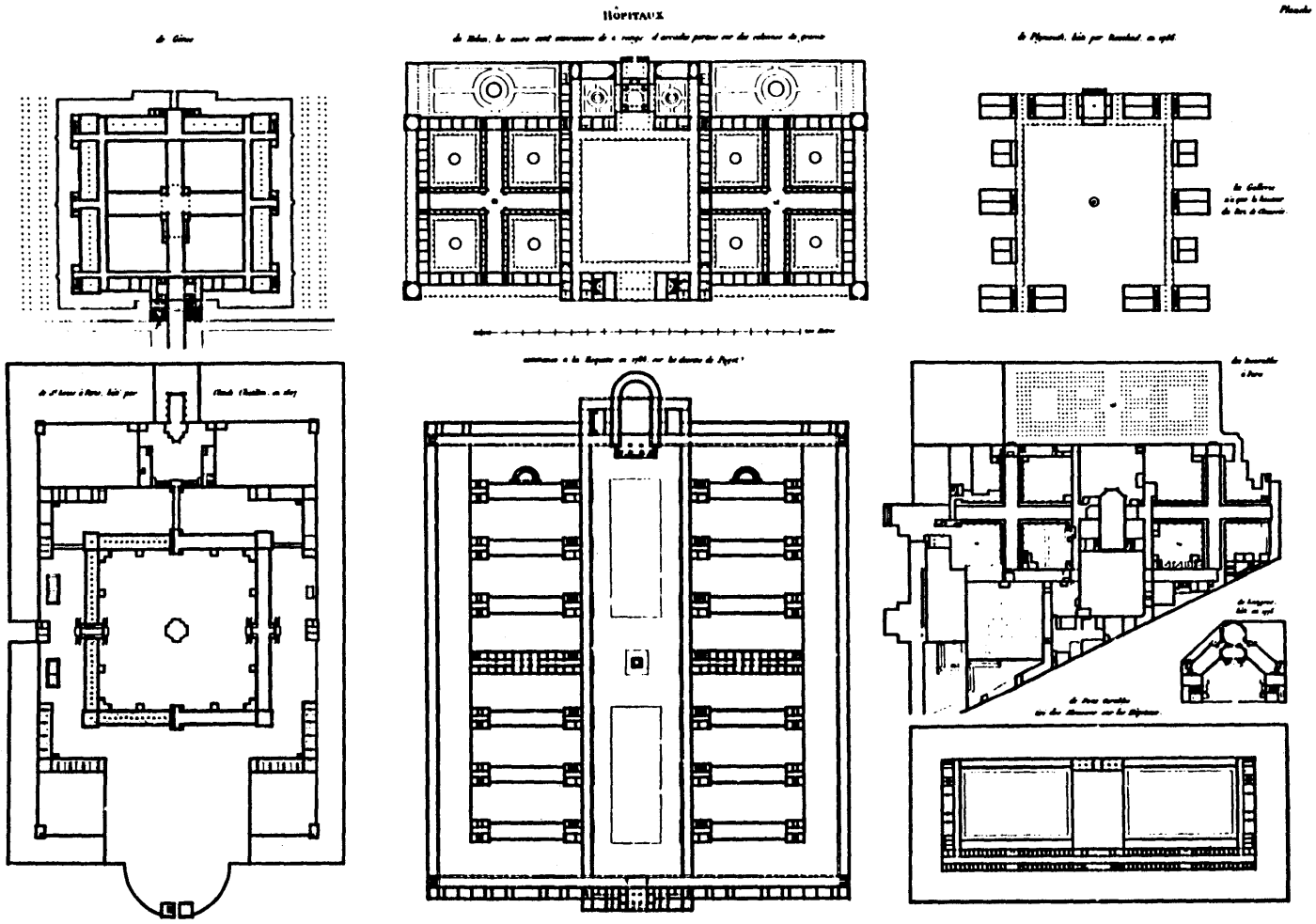


Fig. 5 Cloister forms where the decision to fix the peremeter and use axial organization results in a loss of flexible planning.

Twentieth-Century Examples of the Monastery Type

The Monastery of Sainte-Marie de La Tourette is as interesting for how Le Corbusier remained true to a twelfth-century monastery form as for how he transformed it. The program was essentially the same as that for any of the monasteries looked at earlier with the exception that the monks would have cells instead of sharing a dorter. In responding, Corbusier drew directly from a lifetime of speculation on the monastery as a type. The impression that the Charterhouse of Ema made on the architect when he first saw it as a young man is well documented. (fig 6) Le Corbusier's own words record how the building made him "conscious of the harmony which results from the interplay of individual and collective life when each results favourably on the other. Individuality and collectivity

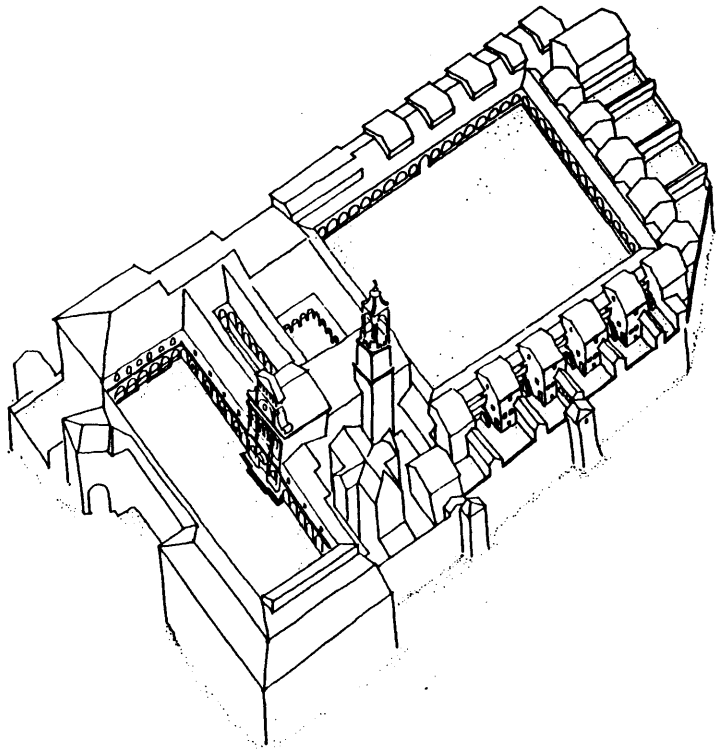


Fig. 6
"The Charter House of Ema"
The Galluzo Monastery

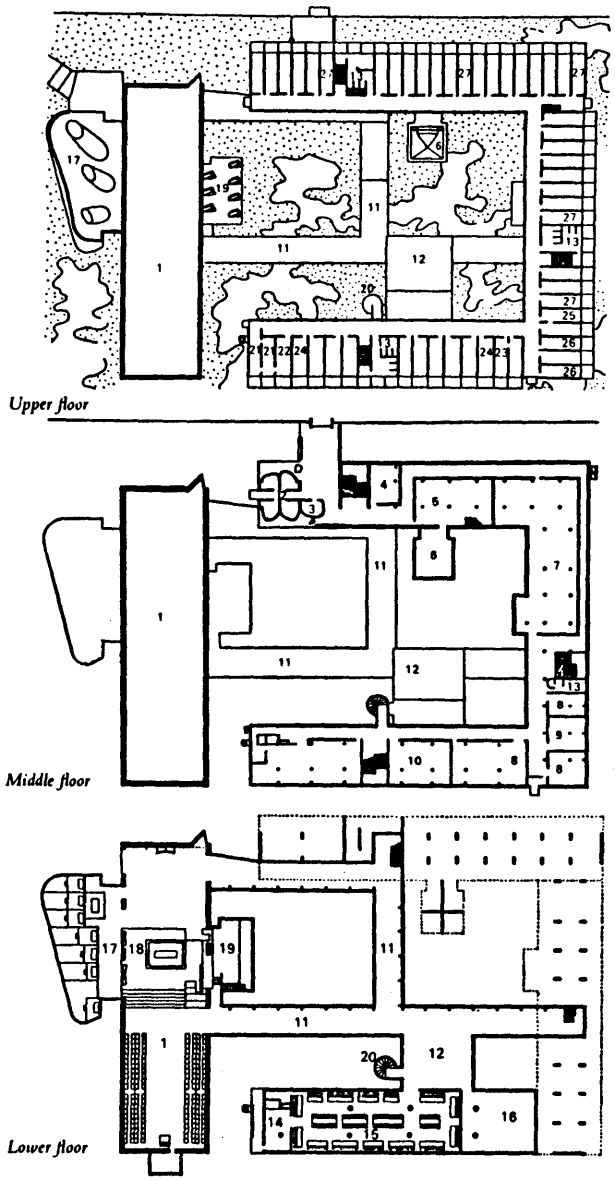


Fig. 7

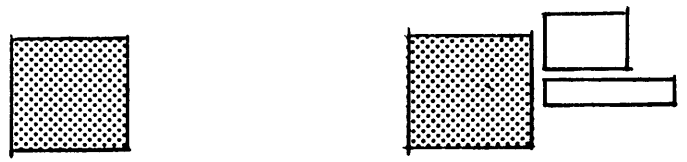
understood as a fundamental dualism." 13

The forms of La Tourette can be perceived as a transformation of those of the Cistercian monastery of Le Thoronet which Le Corbusier visited before begining work on his own monastery design. (fig 7) Colin Rowe draws attention to the "tension between longtitudinal and transverse movements"; Boesiger to the way "the circulation connects all the parts, in particular those which appear in a new form (the achievement of the traditional cloister form is rendered impossible here by the slope of the terrain)." What remains unsaid by both these critics is that the collective life of the monastery has to do with walking the circuit of the main precinct. 14

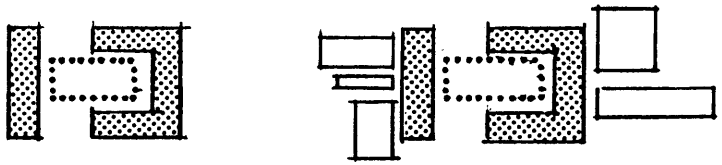
Typically this conception is most succinctly expressed by the architect himself: "I tried to make a place of meditation, research and prayer for the

preaching brothers. The human resonances of this problem guided our work...I imagined what forms, contacts, circulation would be needed so that prayer, liturgy, meditation and study would go on comfortably in this house." 15

To realize these objectives, Corbusier accepted the significance of the cloister, which became the organizing principle of La Tourette. But the form of the cloister was significantly transformed by being expressed not just at ground level but on each of the building's four major levels. At any one level the cloister does not allow a complete perambulation of the central space. Apart from the roof level which is open to the elements and the view, the other parts of the cloister are enclosed but only by glazing, which enables the whole of the cloister form to be revealed by movement through it. A consequence of developing the section



One level of flexibility



Two Levels of flexibility

Fig. 7.1
Although broken open in plan, the cloister form is still made to function as a node by being held together by circulation and light. This allows the possiblility that each element of the form can reflect independent planning decisions. Another level of flexibility is made possible by this division.

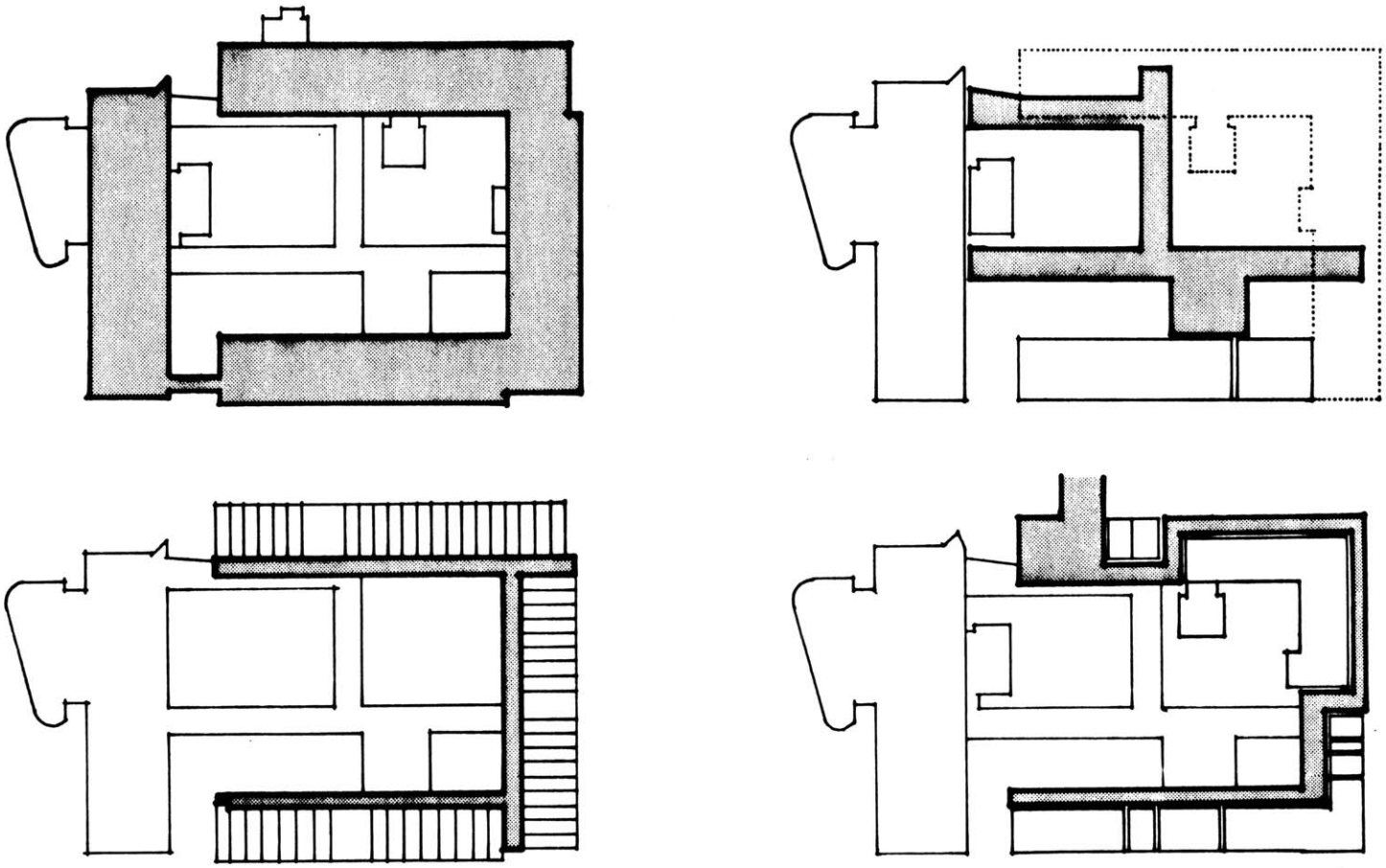


Fig. 7.2 Cloister at La Tourette
An opened cloister form is
completed by light and view.

in this way is to allow the cloister to be separated from the ground and the largest built space opening the building to the landscape. (fig 8)

By contrast Louis Kahn's project for a convent is an unsuccessful attempt to work with this monastery type. The program anticipated the traditional forms of cloister, chapel, refectory, school, library and rooms for the nuns to live in. All of the schemes proposed for this design consist of a building cluster contained within a cloister form opened on one side.

In terms of the monastery type, Kahn's scheme broke the cloister form into a series of segments which were not as in La Tourette reconfigured into a unified form. This abandoned the chief strategy for making the center. Instead a partial cloister is made into a containing form but without deriving any organizing geometry. Although Kahn argued "the elements of the plan

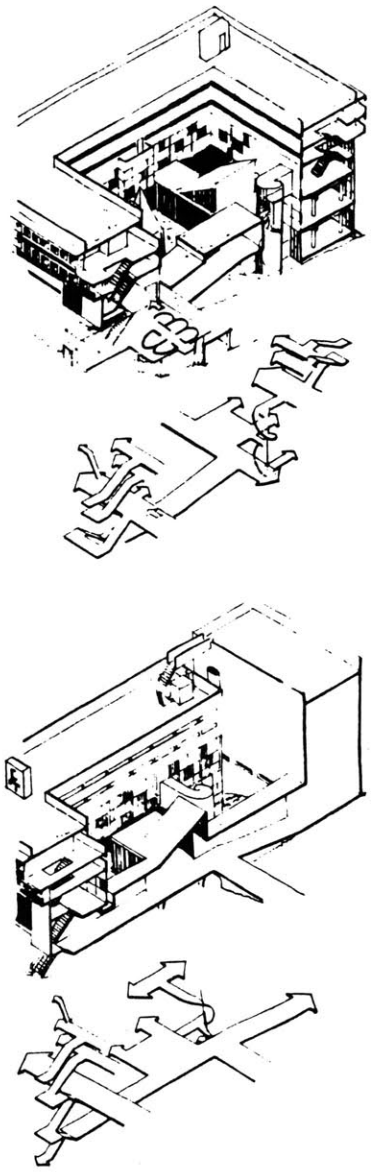
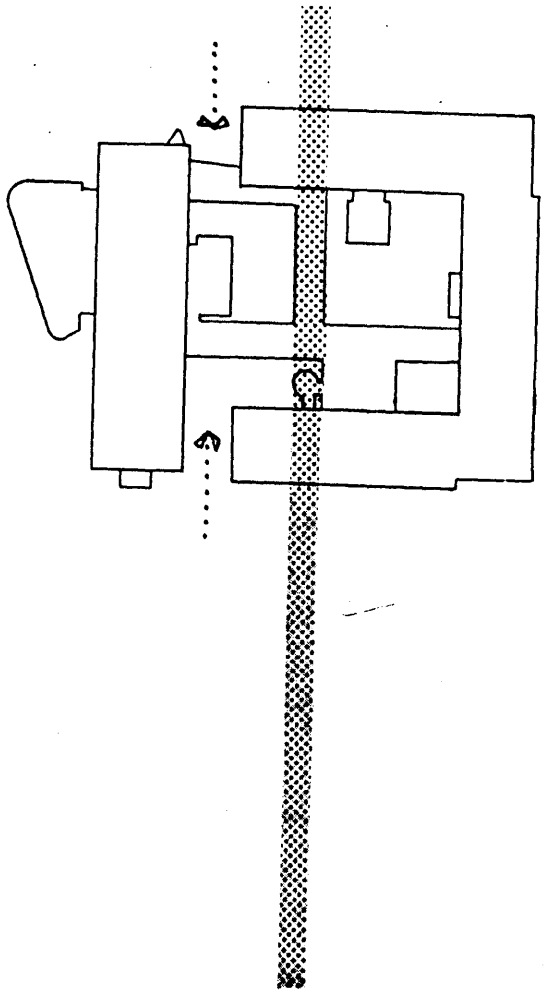


Fig. 7.3 Access Circuits at La Tourette



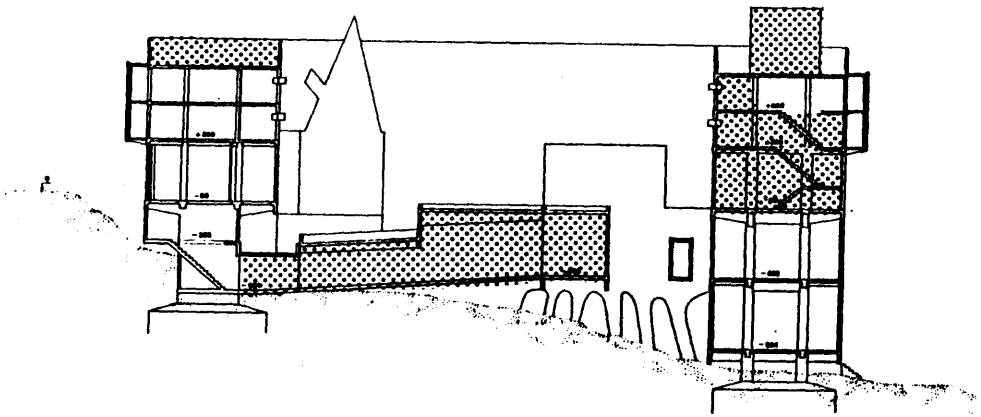


Fig. 8 Opening the Cloister to the Landscape

are almost floating, taking their position either from the contours of the hill brow or from the search for connection with the neighboring building," the scheme remains unconvincing and it was never realized. (fig 9)

The record appears to suggest that in fact Kahn shared the same objectives as the early monastery builders. We are left with this rumination: "The nucleus of the very beginning monastery was not a loss but new realizations came to it by considering the spirit of the monastery. It is for this reason my interest in this nucleus, in form realization, form meaning, the realization of inseparable parts of something." He also appears to have been looking for an additive form, "make the building find its own connections" was the way he put it. These ideas assume more coherence if they are seen as being connected to Kahn's long speculation on a theory of

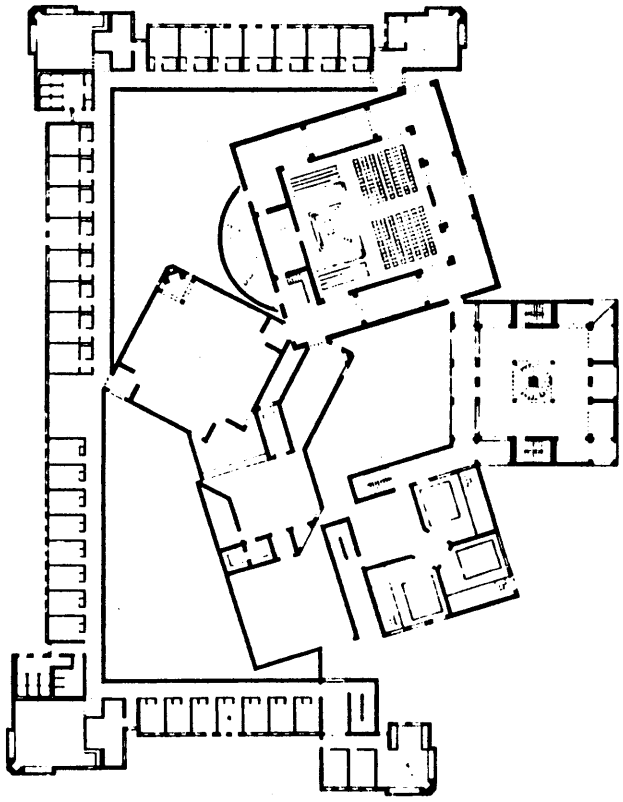
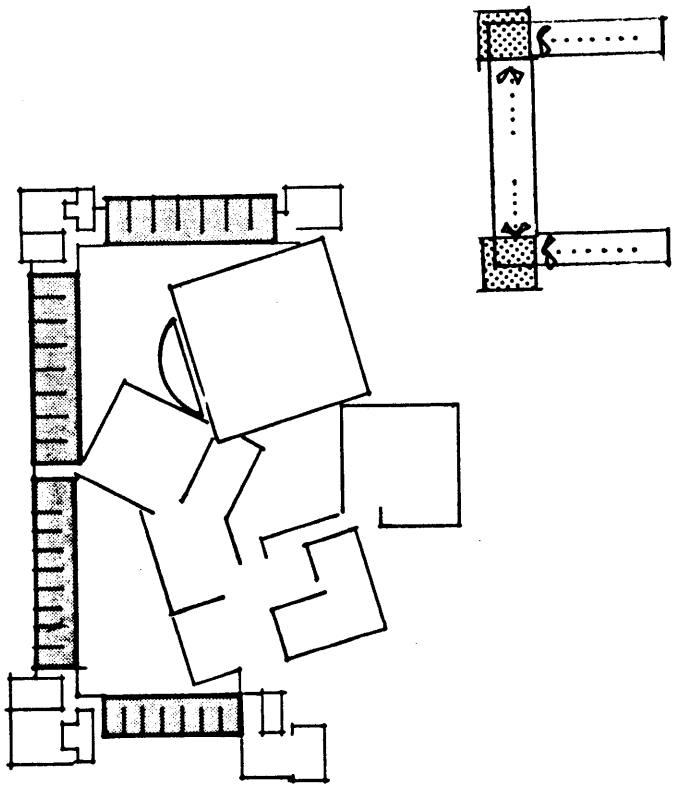
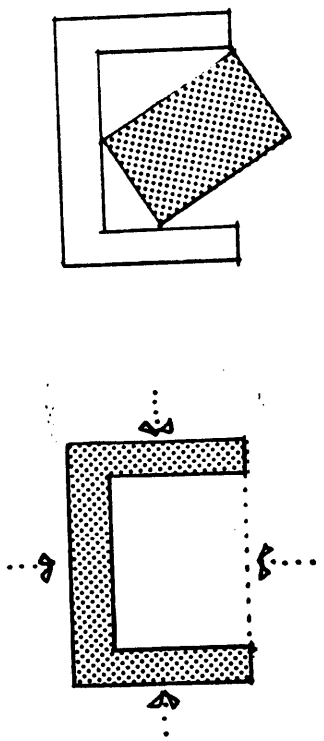


Fig. 9
Louis Kahn: Convent for the Dominican Sisters (Project)



9.1 Although the cloister broken open, the form is left incomplete. The wings of the cloister are segmented and additonal separations are introduced at the corners. The unifying effect of a continuity of light at the center is also given up



9.2 The attempt to achieve a freedom of planing within the court proves to be rather convoluted while no advantage is taken of planning of the outside of the quadrangle.

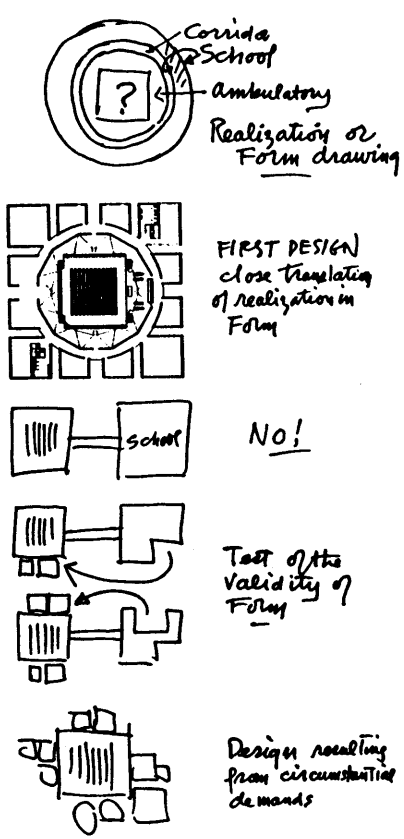
the institution which could be given expression in a form diagram.

If we consider his design for the First Unitarian Church we find a much clearer example of theory and implementation. According to this theory, design should be driven less by a narrow accommodation of program than by an attempt to build for fundamental social activities implicit in the client's commission.

According to Kahn, "one of the most important aids in the work that I do comes from the realization that any building belongs to some institution of man.... Institution stems from the inspiration to live. This inspiration remains meekly expressed in our institutions today. The three great inspirations are the inspiration to learn, the inspiration to meet and the inspiration for well being."

If we consider Kahn's form diagram with the first version of the plan, the connection is very easy to read. (fig 10) All aspects of the monastery typology are present in both diagram and plan. A diagram of the plan from which the building was made makes it clear that the issues of building, the center with the cloister form, are addressed here. Although the center in Kahn's church is the assemby room and not an open courtyard, it is top lit and very much the central space. Also the cloister form allows for the flexible deployment of secondary spaces. 16

Two schemes by Alvar Aalto provide another opportunity to consider "cloister", courtyard and attached elements as an organizing principle especially for an insitutional buiilding. As for Corbusier and Kahn, striving to build for the collective life was a recurrent theme in Aalto's work. Many of Aalto's buildings in some way focus on a courtyard or central void. The inspiration for this organizational theme



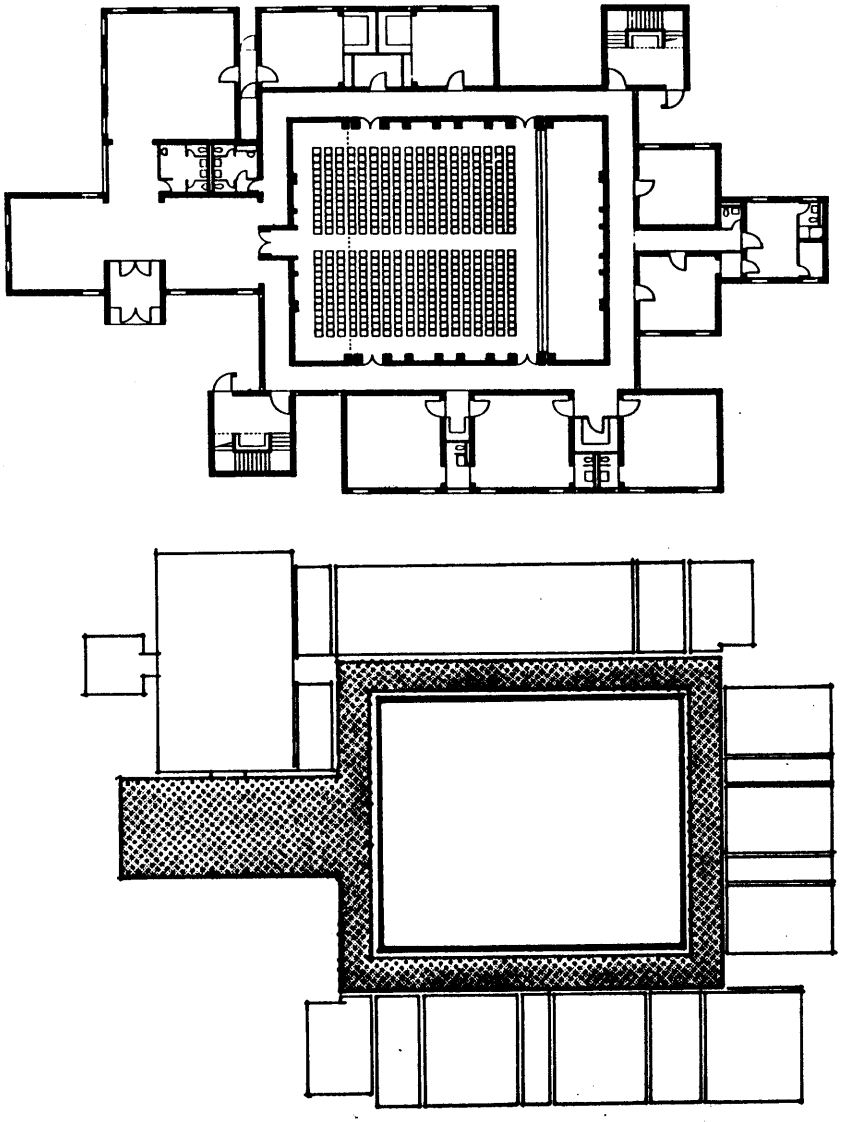


Fig. 10 Kahn's form diagrams for the First Unitarian Church and a comparison with a diagram showing the relationship of the elements of cloister, major space and secondary spaces.

cannot be explained as the borrowing of a monastery form. The motif of a grouping of subsidiary elements around a central core is found in other sources used by the architect. The open clusters of Karelian farm (fig 11) buildings provide one source and the atrium house and Roman forum are two others. 17

To some extent the use of one source over another influenced the approach taken. For example the open cluster of Aalto's summer house at Muuratsalo can be seen as an interpretation of the vernacular farm buildings of the region. Saynatsalo town hall, on the other hand, uses more delineated ordering principles whose origins could be deduced as Roman civic forms.

It seems likely that Aalto had no distinct prototype in mind but was working with the elements considered so far in our discussion. Again the implication is that typological

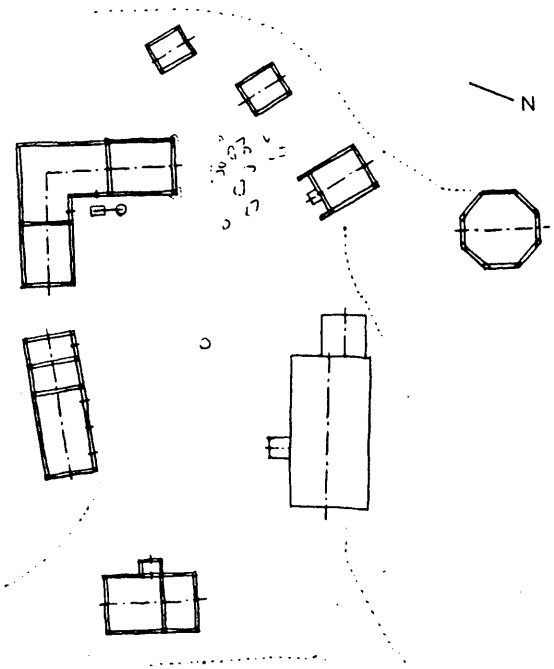


Fig. 11.1 A typical cluster of Karelinian farm buildings

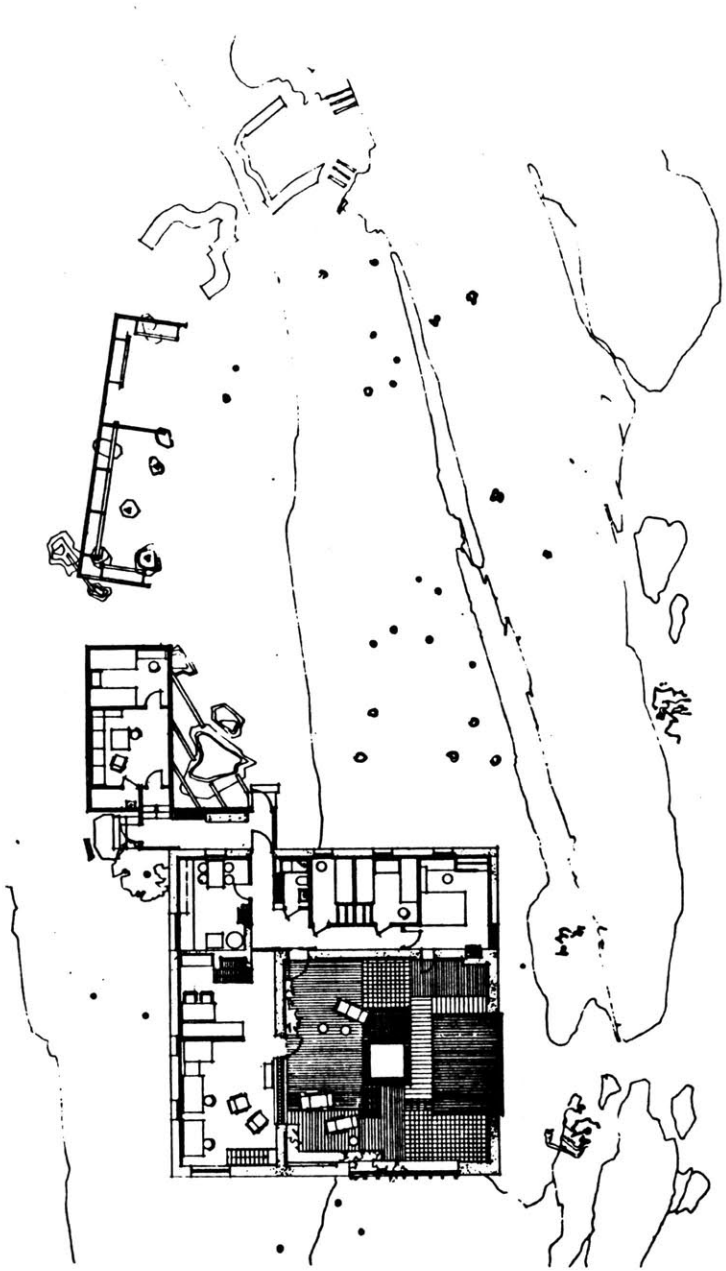


Fig. 11.2
Aalto: Summer House at Muuratsalo

similarities can be made on the basis of common elements and configurations instead of shared historical prototypes. That Aalto could design freely within the discipline of a typological approach is no longer taken to be a contradiction. Demetri Porphyrios draws attention to what he calls a typological drive in Aalto's thinking. This, as Colquohoun mentions, makes for a surprising connection between him and Corbusier.

Part of Aalto's sureness with typological forms came from his conviction that they are carried in the culture and have an associational value which allows architecture to communicate. For example in Western culture, the town hall has long been associated with the open court. Aalto's neo-classical training gave him the sense that valid historical forms were the language of architecture. But in his hands form language was not imitation but transformation. Still, Aalto strongly believed that such transformations should not extend beyond the meaning of the form. "In architecture, "he claimed,"what matters is time. Repetition and use makes things acceptable. I do not mean copying, but letting time distill thought without destroying it. Our 'sentiments are excited only because we have memory." 18

This suggests that Aalto's conception of type was a way of thinking of spatial units and not whole buildings. A discussion of the fan shape in Aalto buildings is a familiar one. Although an expedient shape for auditoria, Aalto's application of the form was much wider than this and the form was used pragmatically for library spaces focusing on a circulation desk and on a larger scale to unite different building geometries.

A planning process relying on the free manipulation of typological elements

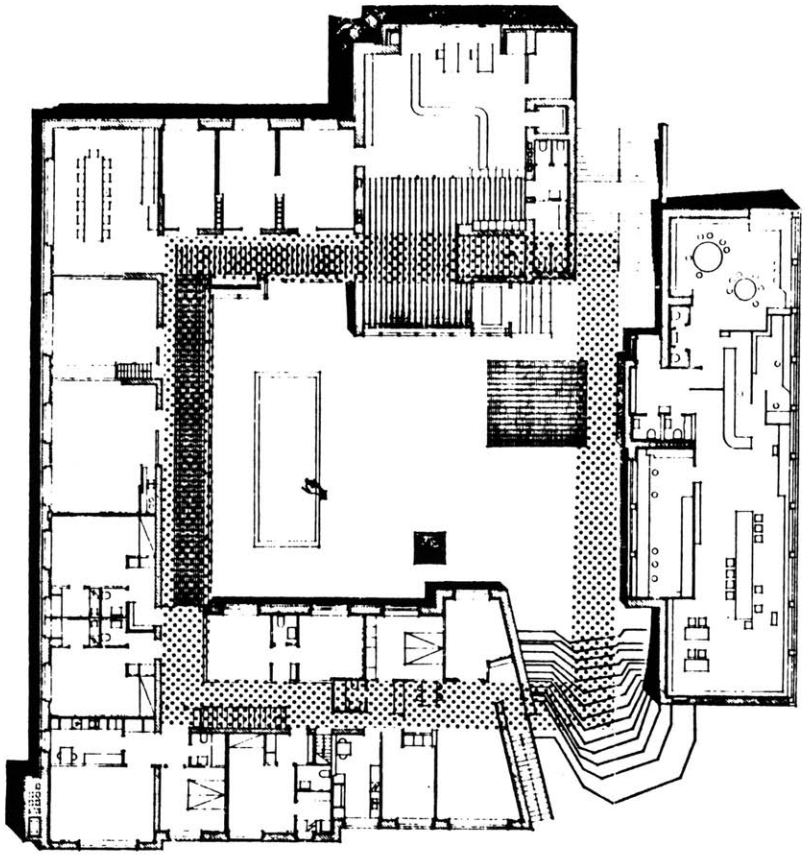


Fig 11.3
Aalto: Saynatsalo Town Hall

has to contend with how these elements come together. Peter Blundell Jones, referring generally to Aalto's post-War institutional buildings, describes the implications for circulation: "The articulation of volumes each according to its own rules and expressing its own purpose, produced dynamic in-between spaces used as entrance halls and foyers taking their character from the more positive elements around them and from their linking function rather than as defined enclosures in their own right." 19

This should not lead us to suppose that circulation is simply left-over space in Aalto's buildings as we can see by looking again at Saynatsalo town hall. The plan shows similarities to La Tourette. But small very significant changes in the configuration make the difference between a closed hierarchical institution which is partially opened to nature and an open democratic

institutional form which is only partly closed to nature. The difference lies in the way the circulation system is handled. At Saynatsalo the entrance is into the grassy court with the option of leaving again. The open court is a physical and spatial mediator between the primary and secondary spaces. In La Tourette the circulation serves as a direct conduit with the courtyard space serving merely as a processional interval In La Tourette the building forms the court; in Saynatsalo the court in a real sense forms the building. (fig 12) The institutional intentions in the Wolfsburg Cultural Center are also to provide an open forum in a municipal setting. But the setting is the noisy center of a bleak industrial town and not a village in the woods. The response is again to raise the courtyard but this time to protect it by the building. Again a well lit perambulatory in a cloister form is used as the intermediary

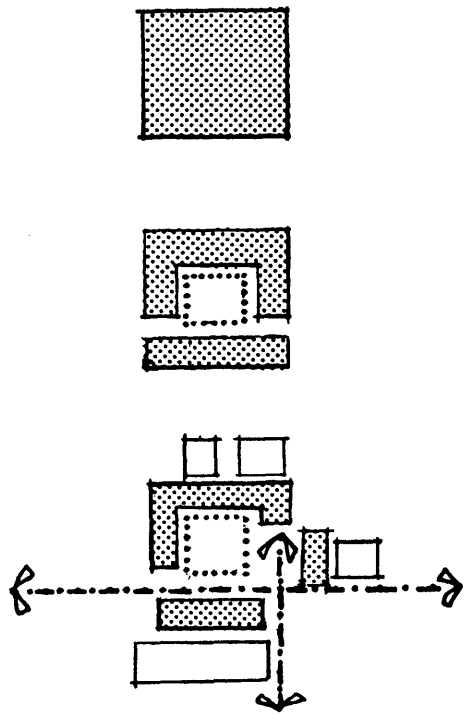


Fig. 12 The cloister form is opened up into not two but three elements. Each can be independently planned. In additon the form can respond to an external access system. Aalto has added another layer of flexibility to this organizational type.

between the major space, in this case the cluster of auditoria, and the secondary spaces. Again the cloister does not complete its circuit. At Saynatsalo the fourth side of the quad is left open; at Wolfsburg it is dropped below the court level and becomes the major circulation spine for the building at street level. This plays out another theme of La Tourette, that of splitting the complete cloister between different levels. (fig 13)

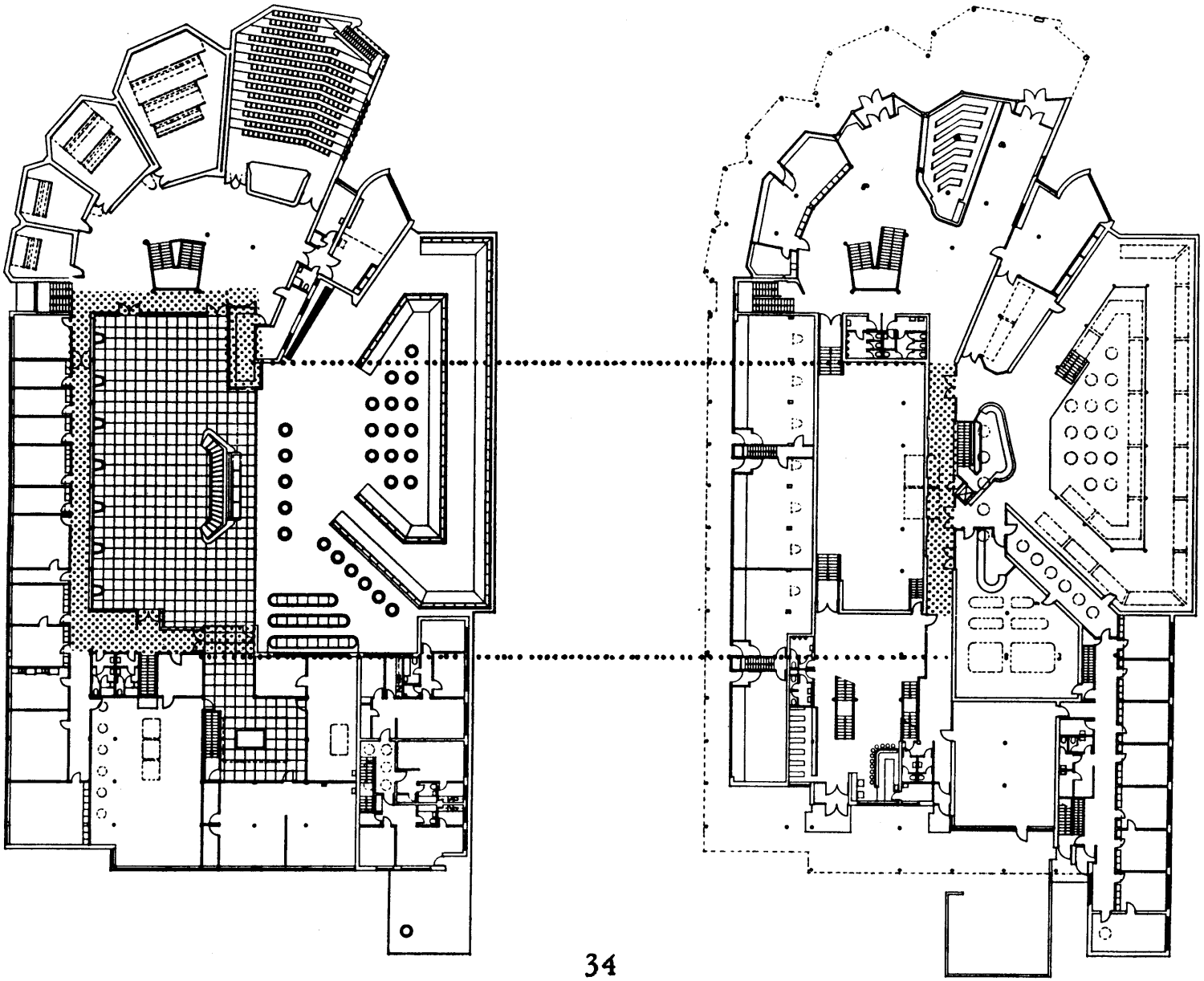
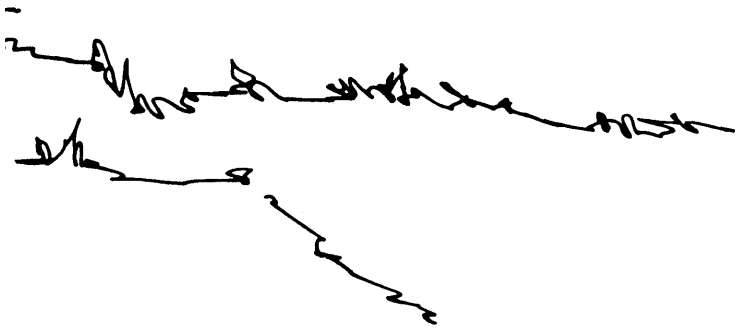


Fig. 13
Aalto: Wolfsburg Cultural Center

PART TWO

A CONVENTION CENTER FOR HOG ISLAND

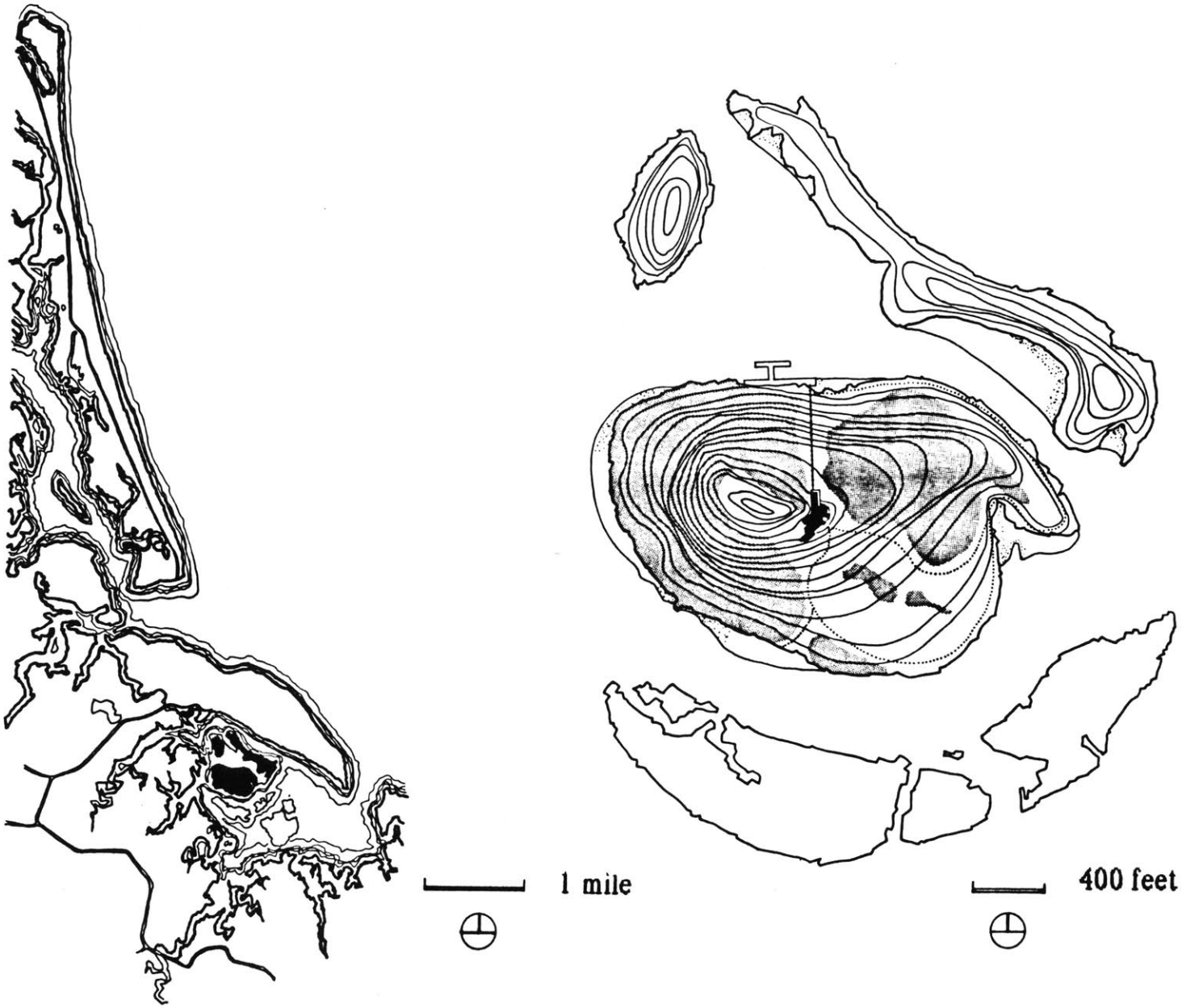


The Site

The usefulness of the type being discussed depends on how well it can accommodate the conditions of the site and the requirements of the program. Site observations were organized into an analytical description that provides clues for the siting of the building as well as its form. As the maps indicate, the site is a group of islands within a tidal estuary. Both the island and its surroundings are in their natural state. This was simplified into three main elements:

1. The configuration created by the three islands
2. The topography and woods covering most of Hog Island
3. Views and solar orientation

The first scenario introduced was that of arriving at the site. A number of positions were taken:


1 mile
400 feet

☐ The building should be visible from Argilla Road.

☐ Arrival should be either from the mainland by crossing Long Island and taking a ferry to Hog Island or directly by boat.

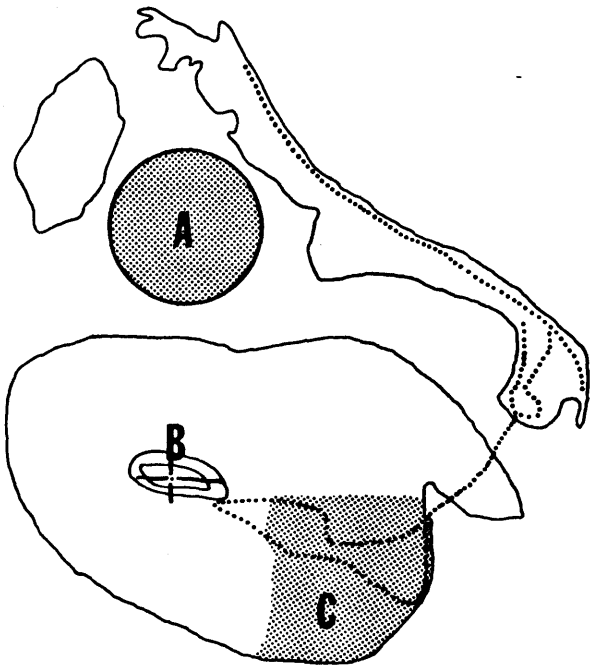
☐ Movement through the site was seen as a path system connecting the three distinctive places which were seen as:

A. The harbor

B. The hill

C. The long meadow.

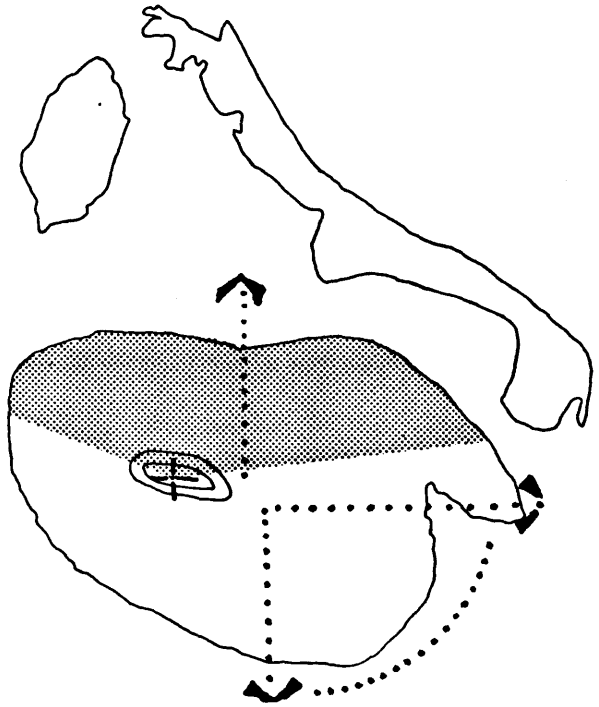
A crucial consideration in siting the building was that it should favor the network of paths which would not only serve the places above but do it by making the best advantage of the landscape, which is to say, by tending to remain parallel to the contours as opposed to crossing them; by being guided by existing edge conditions, for instance the woods defining the edge of Long Meadow; and by seeking the best views. 20

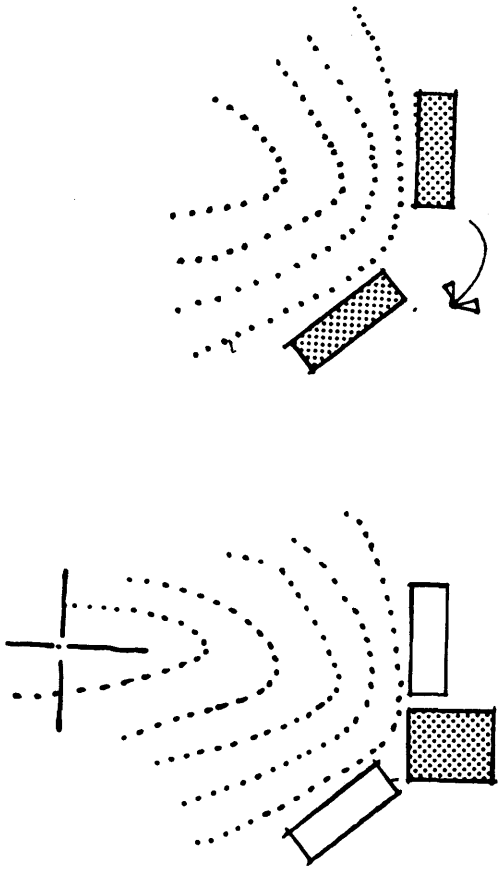


The relationship between site places and the path system which takes best advantage of the site.

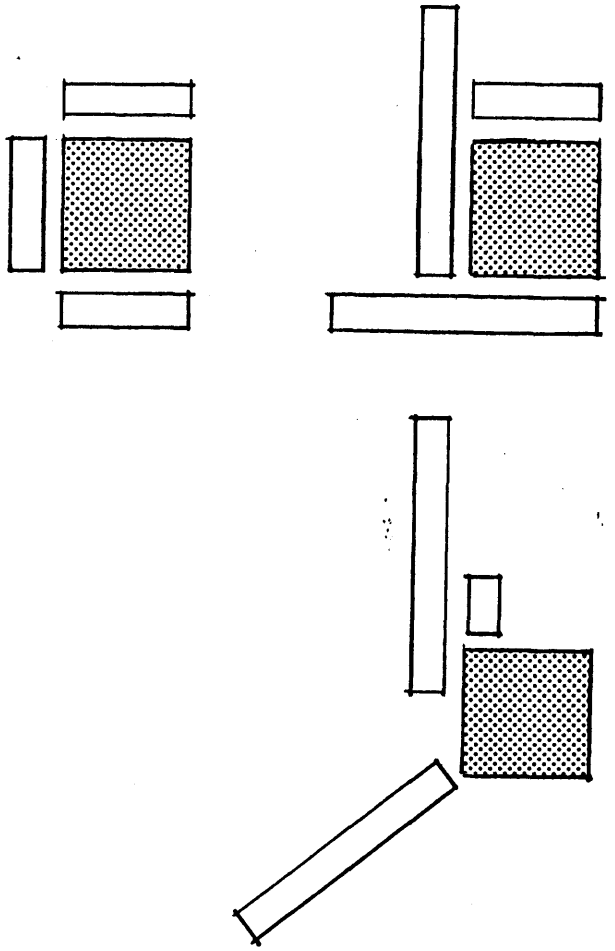
Since the site is a series of sloping (approximately 1:10) flanks around a hill rising 173 feet above sea level, building on these slopes was decided upon, especially when confirmed by considerations of path, view, solar orientation and place. The building was broken into two main components to be developed in a linear fashion parallel to the contours. This allowed the major access to be kept on the same level. The hill was left alone but considered for the part it could play in unifying the scheme.

Solar Orientation and Major Views



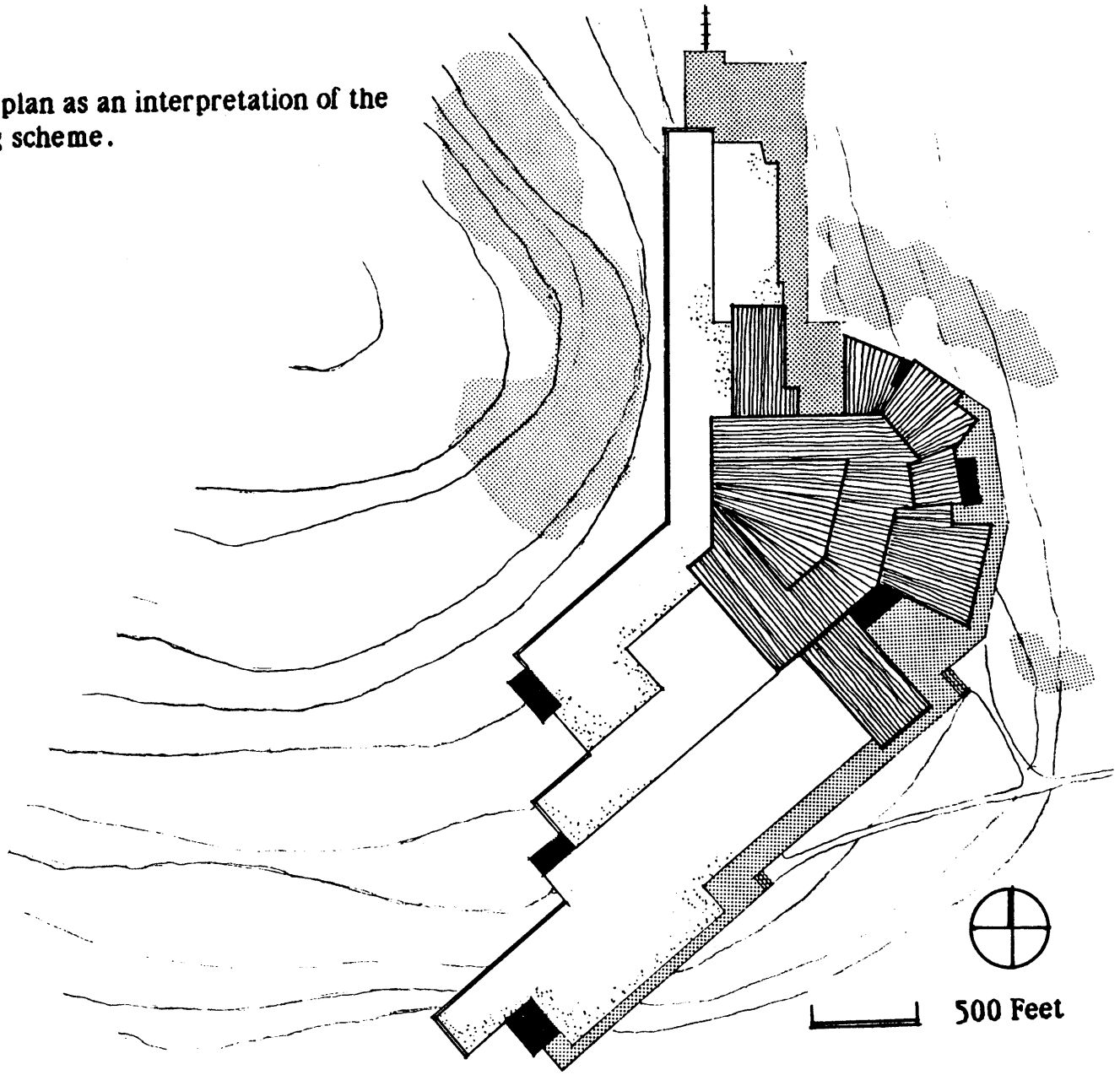


The planning scheme as a response to path, place view and solar orientation.



The Planning Scheme as a Transformation of the Traditional Monastery Form

The site plan as an interpretation of the planning scheme.



The Program

To give form to any institution requires anticipating activities as categories of space needs. Lawrence B. Anderson summed up these categories for one conference center as reception, conference rooms, offices, dining rooms and kitchen, auditorium and staff accommodation. He did not confuse this sort of planning as being the final design. "For clarity these spaces are grouped in categories, although [they] may well merge and overlap. Above all there is the wish to avoid the sin of too great precision, which might inhibit reformulation by the designer." 21

I used a client group to help develop Anderson's categories. The following spaces were chosen: reception, main meeting area, conference rooms, eating and drinking areas, kitchen, guest rooms, exercise and recreation facilities, staff offices and bedrooms, and outside spaces. With these elements in mind a number of issues were raised:

1. Should groups of activities be segregated into the same area?
2. Which activities would benefit from sharing the same or adjacent spaces?
3. Which activities should be allocated their own exclusive space?

Discussion of these questions led to an agreement that the functioning of this particular institution predicted four discrete sets of spaces:

1. A space (a restaurant for instance) to which the public could have free access.
2. A reception area for the convention center with eating and drinking facilities adjacent.
3. Meeting rooms and auditoria.
4. The guest rooms and recreational facilities.

In addition, connections to the outside should be possible for all spaces except the conference meeting rooms. A condition for the guest rooms is that

they represent a flexible planning element. The scheme should allow for the addition of extra rooms as well as changes in room size.

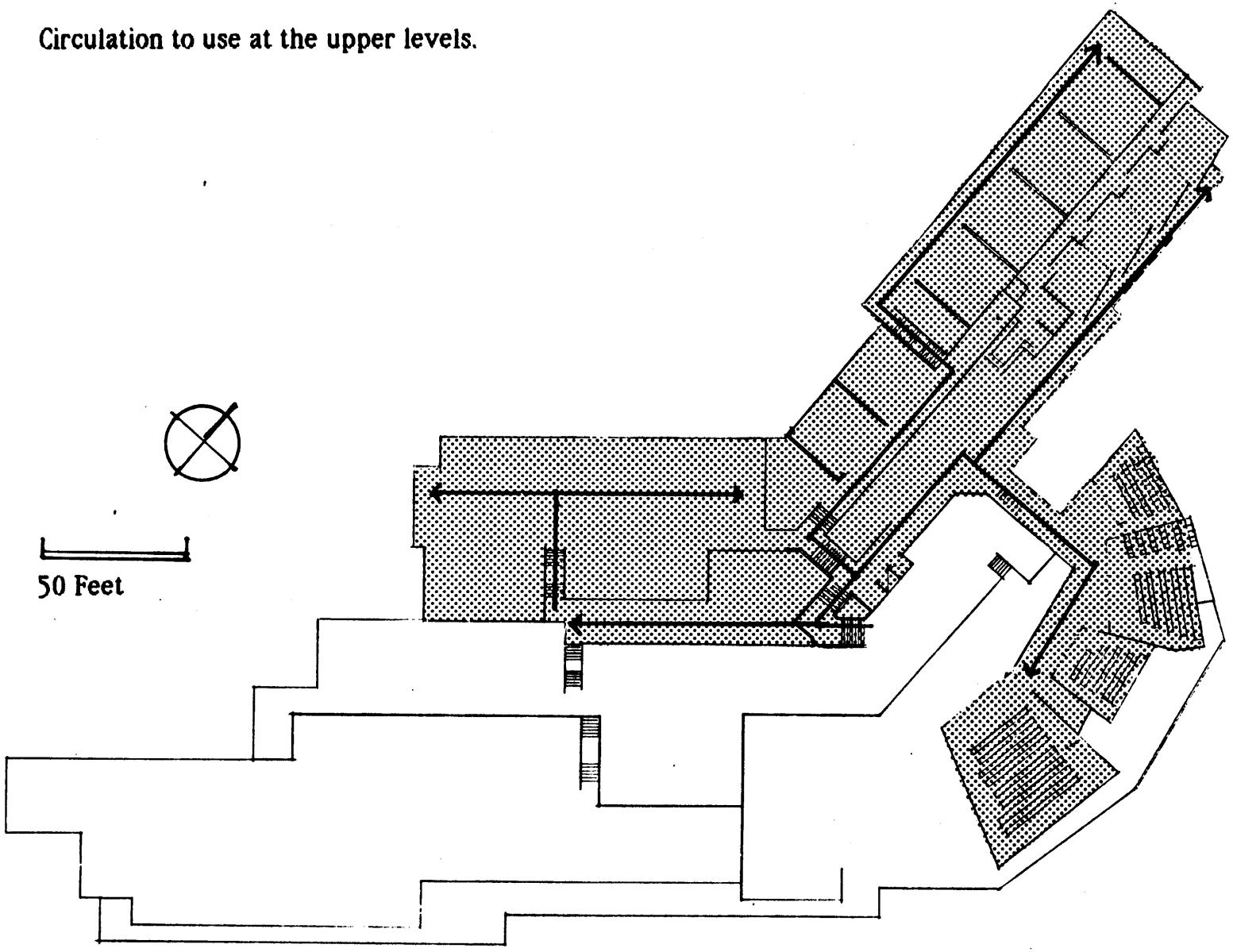
Again, a planning scheme using the same typological elements seemed appropriate. The flexibility that allowed for a free response to the site also provided an easy programmatic demarcation between a collective center and a series of individual rooms.

As we have seen, flexibility of planning can be achieved by manipulating the traditional monastery type. The question of how the basic elements of cloister with its attendant spaces are reconfigured, without losing the advantages of the traditional organization, depends on how well the following issues are addressed:

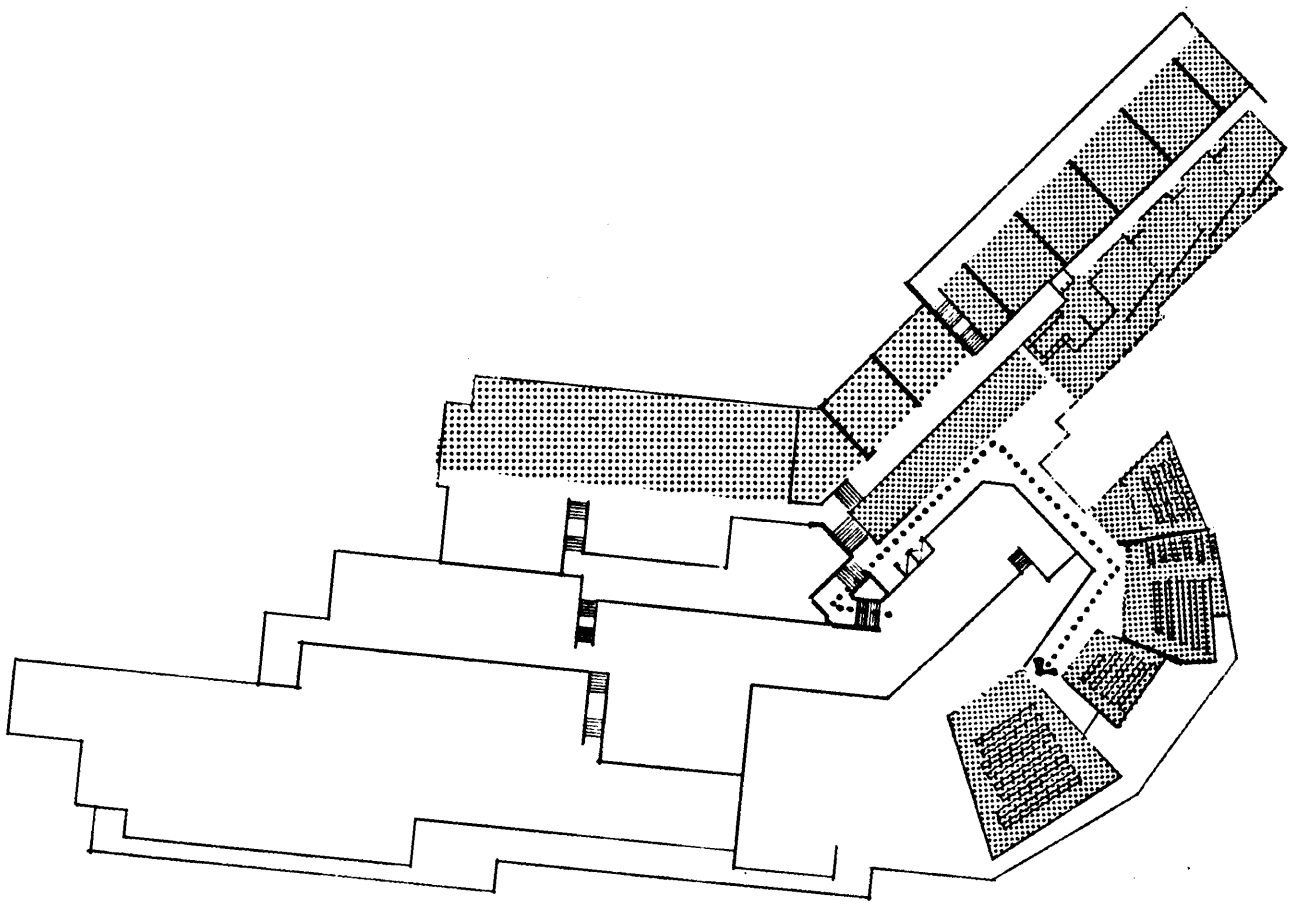
1. The use of a circulation loop as an organizer.
2. The replication of this organization.
3. Making a continuity of the loop by other means than duplicating a cloister form.
4. Breaking the cloister form into a series of elements.

The design exploration for a convention center was an attempt to understand these issues.

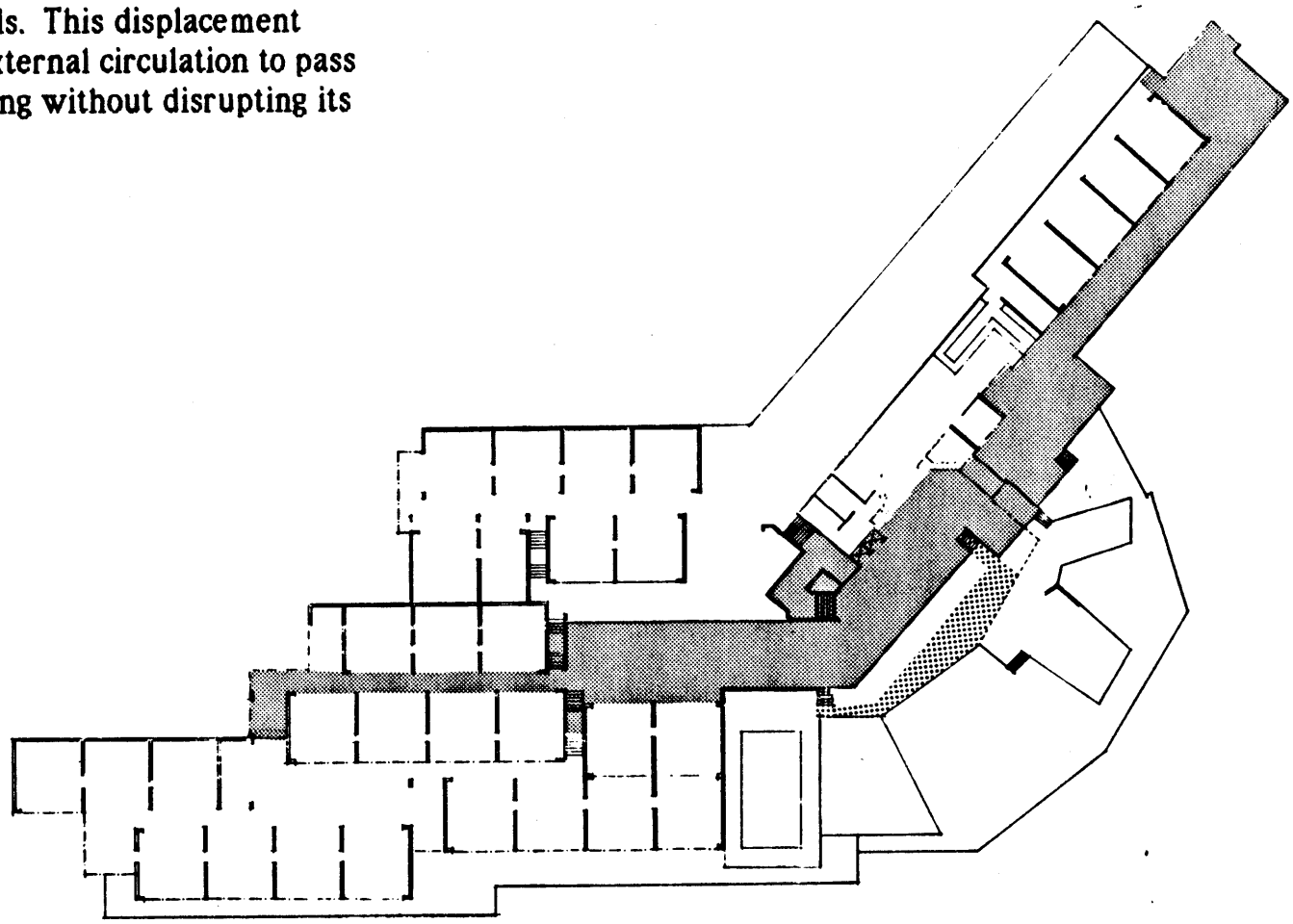
Circulation to use at the upper levels.

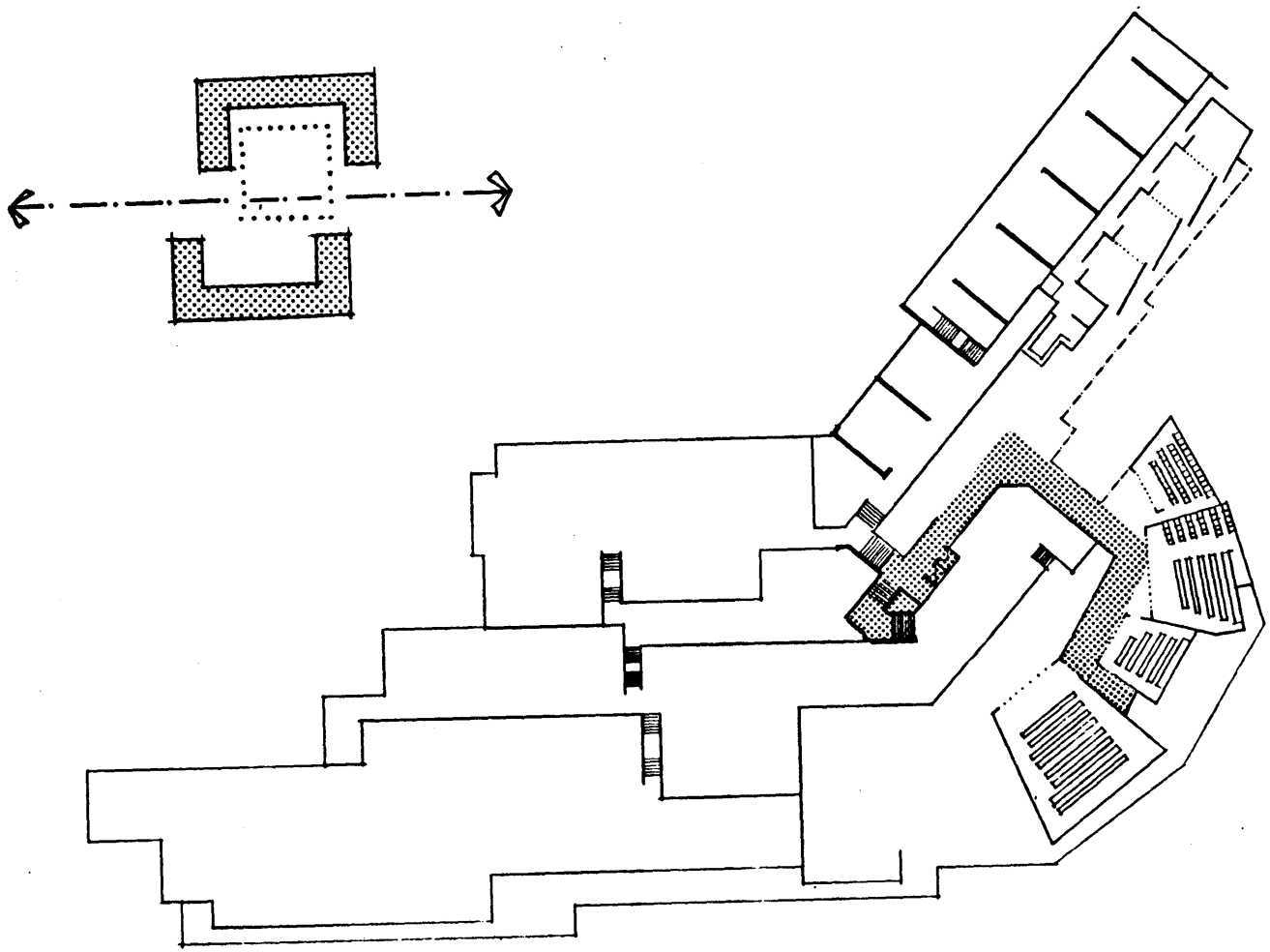


The organization of these spaces by a cloister form

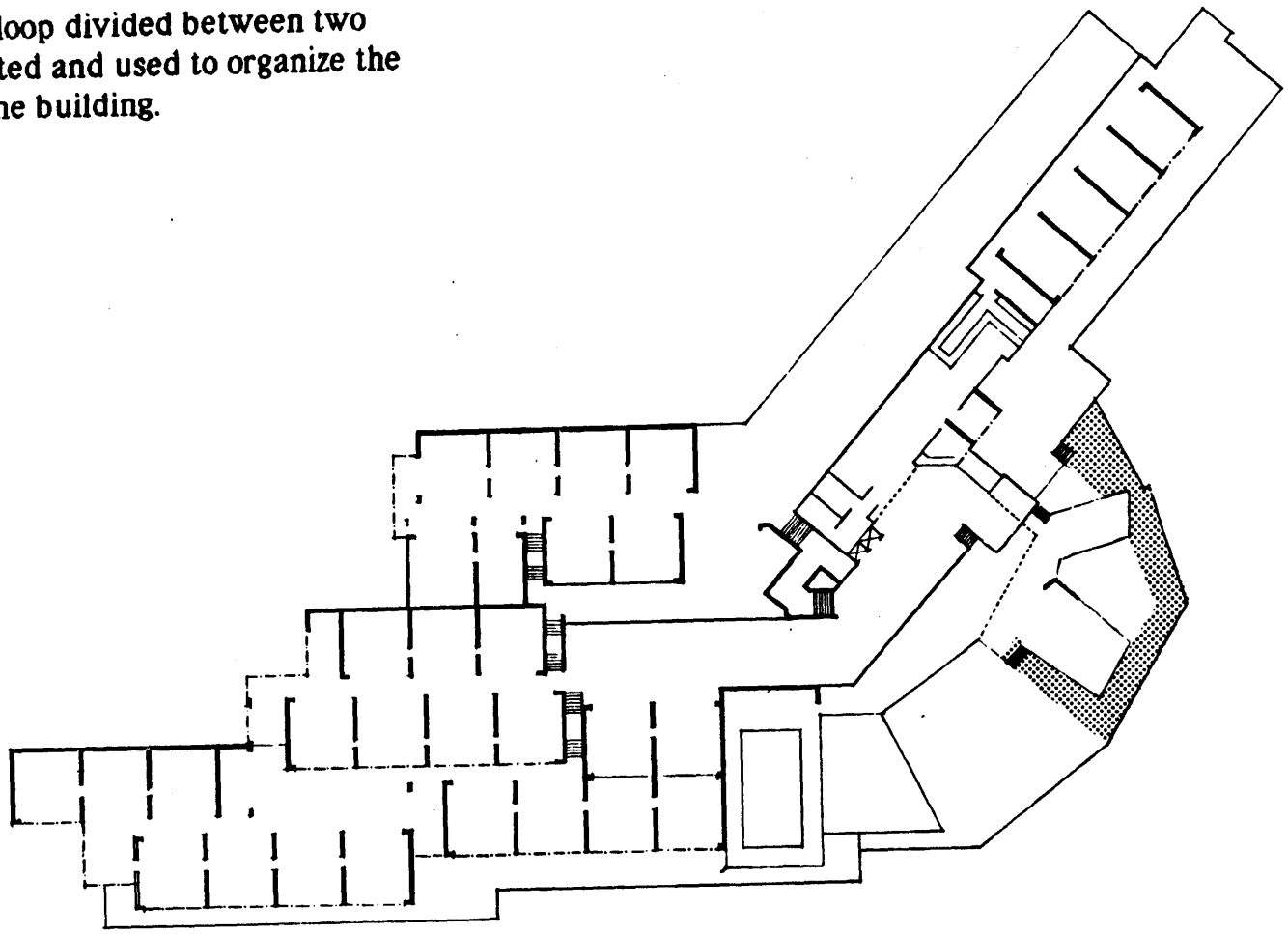


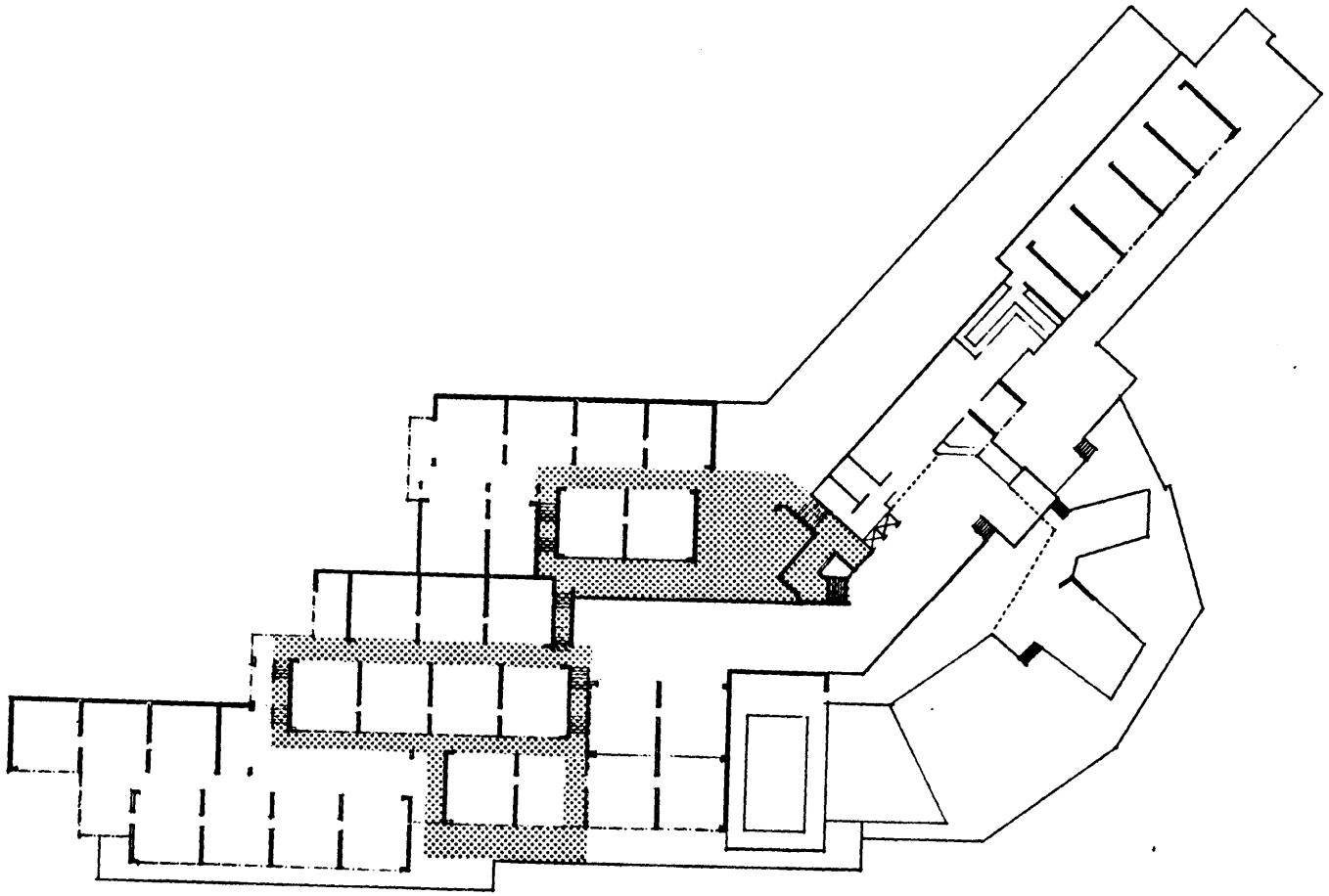
This main cloister is divided between the two principal levels. This displacement allows the main external circulation to pass through the building without disrupting its collective center.





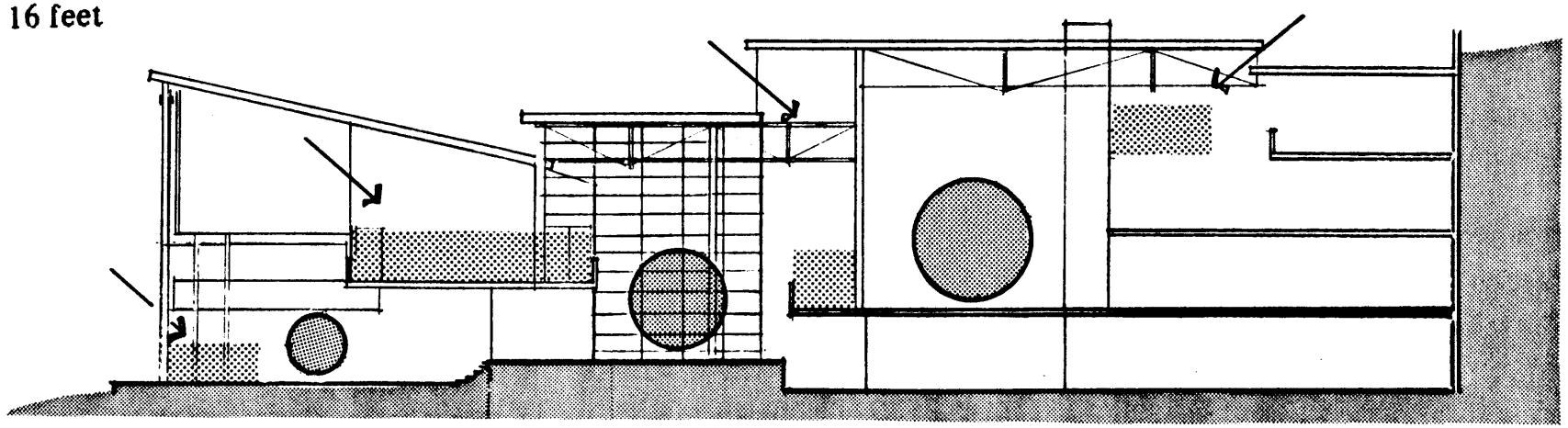
The circulation loop divided between two levels is replicated and used to organize the other parts of the building.

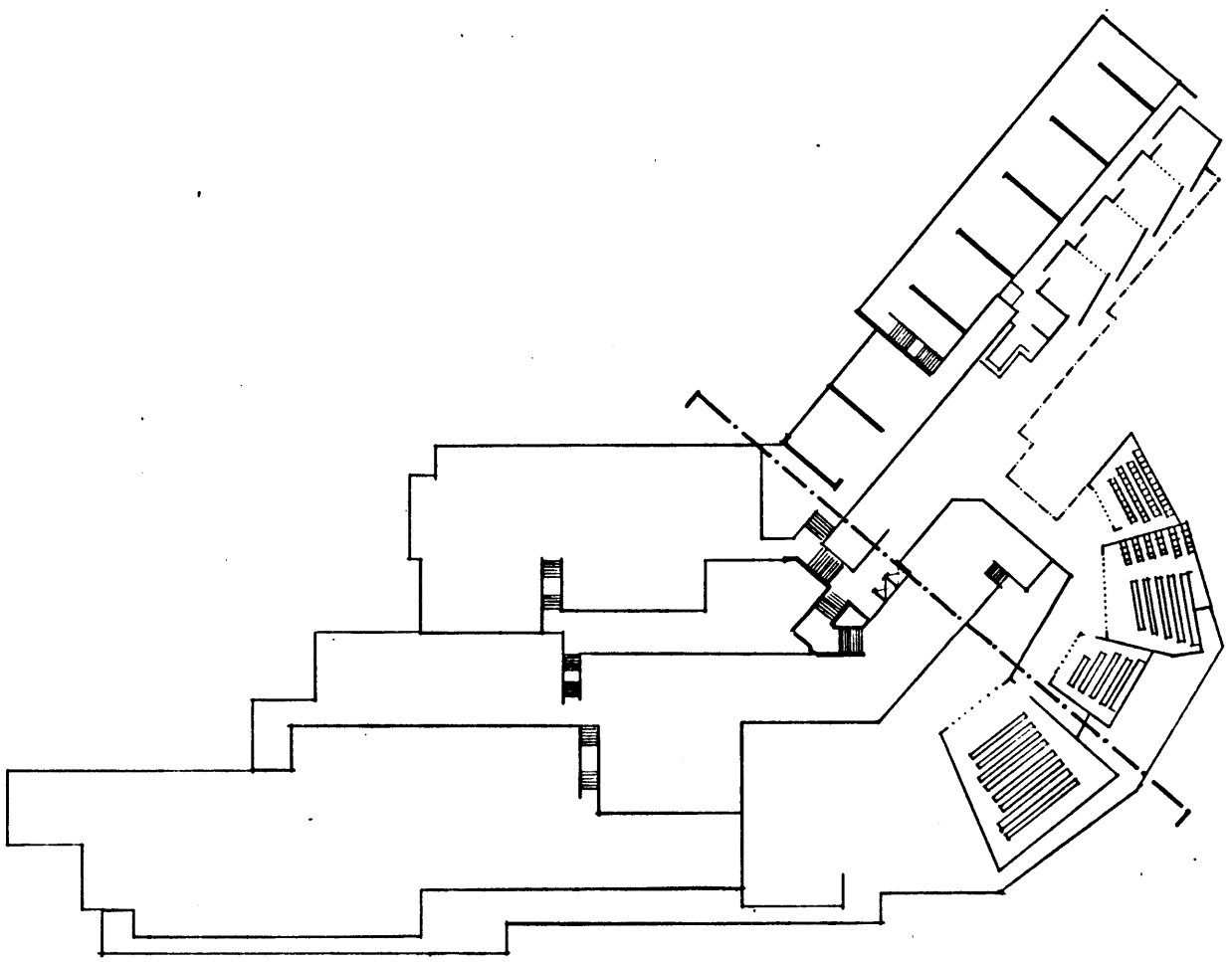


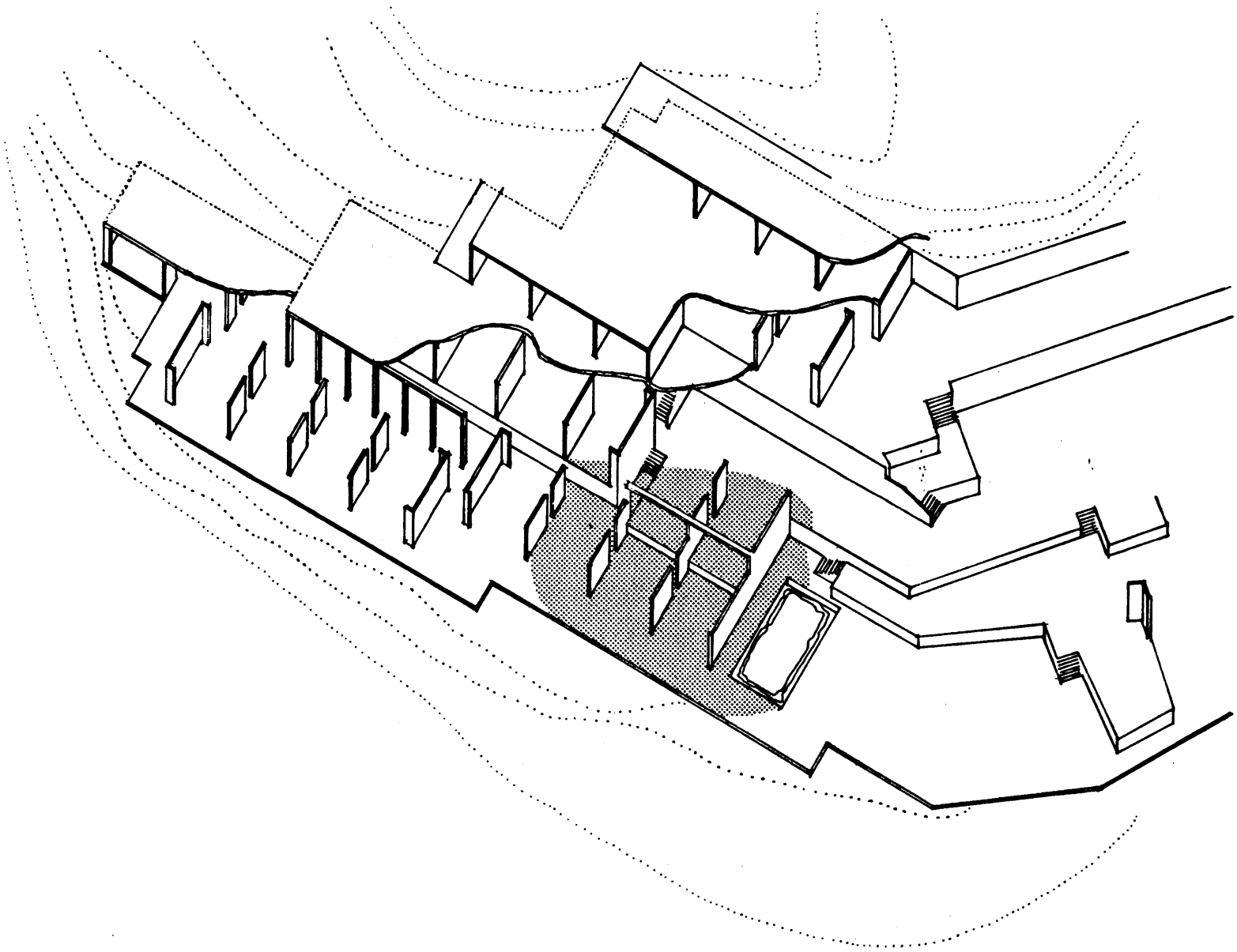


The loops organize the main public spaces.

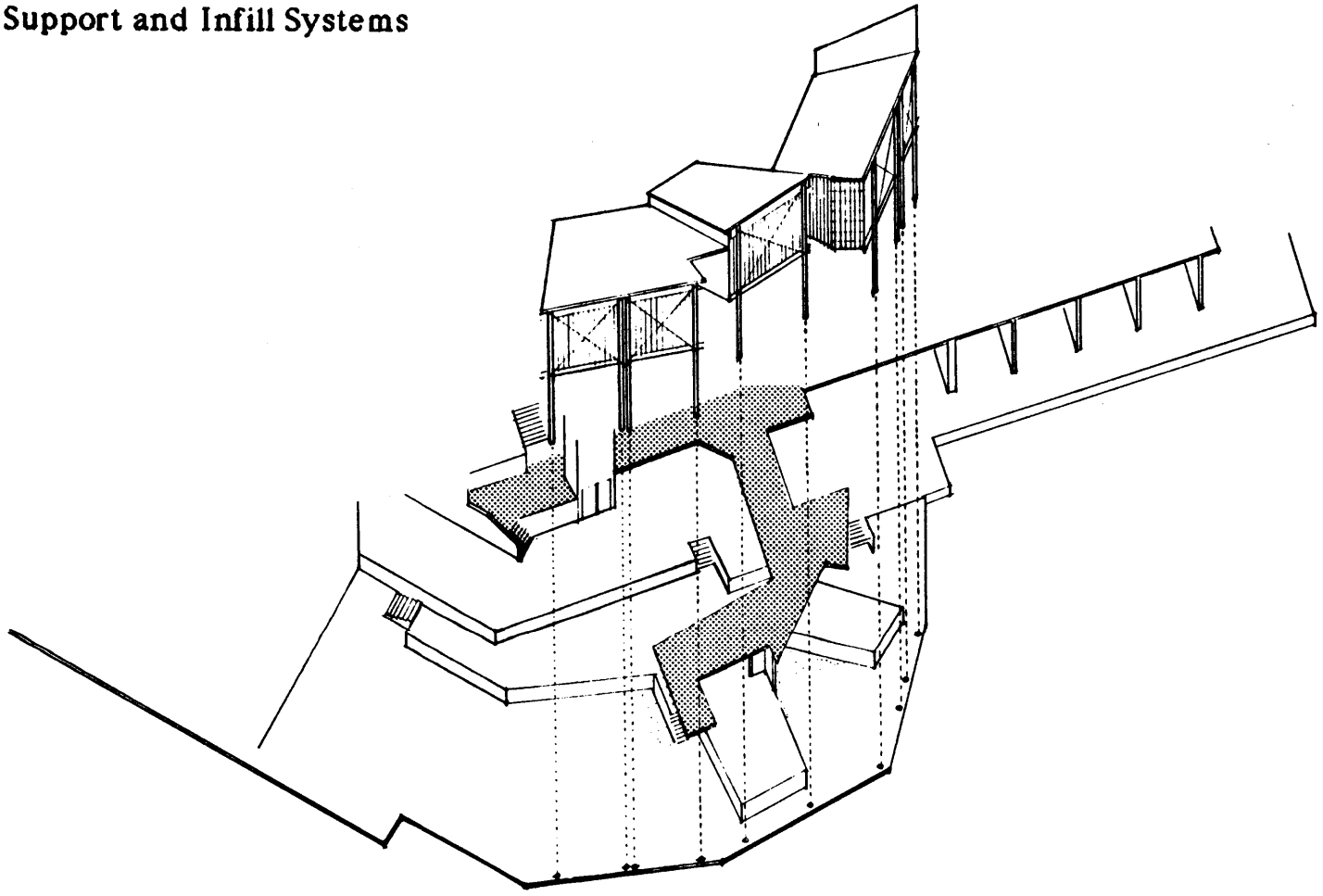
16 feet







Support and Infill Systems



The Guest Rooms

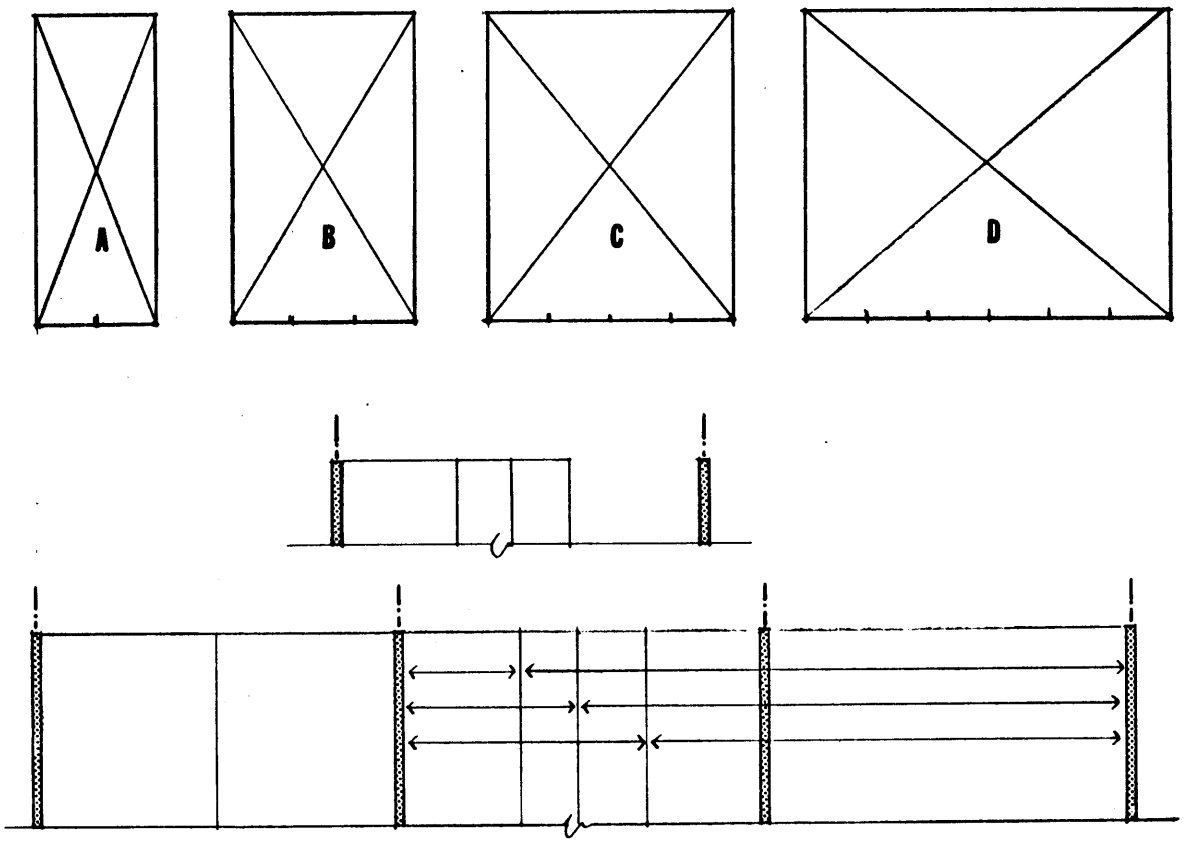
The guest rooms were organized as a series of single and double loaded corridors. Rooms and corridors were developed as terraces of single-story construction. It was considered important that the plan should allow for the construction of additional rooms and that the size of the rooms should be easy to change after construction. These objectives were accommodated by using a support-infill approach. 22 The support was conceived as a series of parallel bearing walls carrying concrete planks which made the roof. The infill elements were based on wood construction.

Corridors

The objective was to limit the run of room entrances to six and to offset room entrances in double loaded corridors. Junctions between short corridor runs became common rooms which also provided a light source. Corridors were always concluded with a common space. These locations also provided a location for the stairs.

Modular coordination

The layout for the support walls was based on the optimum spacing for four room sizes. Using a 4'-0" module, a 24'-0" spacing for the support walls, allowed all combinations of room sizes to be accommodated within the bays. This spacing was also compatible with placing large and smaller rooms in adjacent bays to make suites.


A
B
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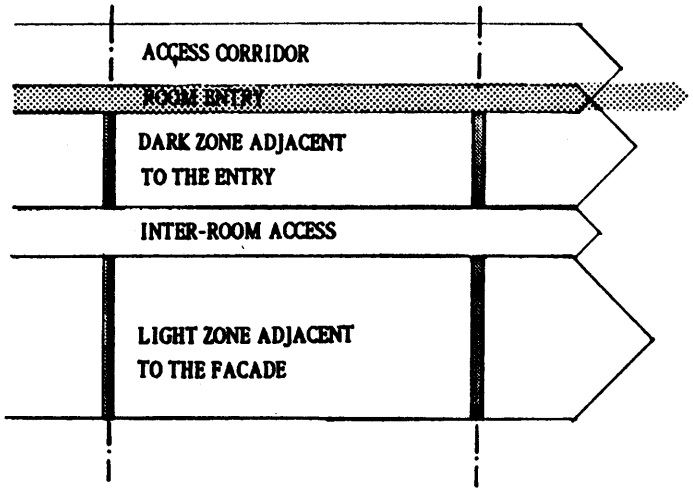
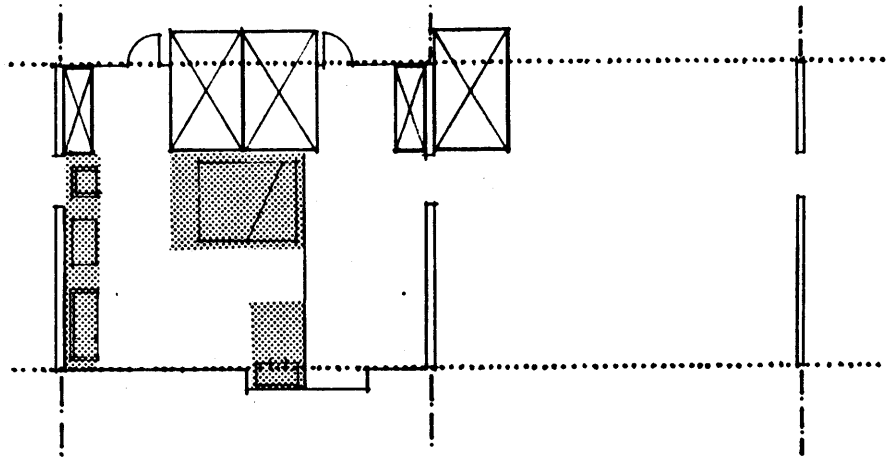
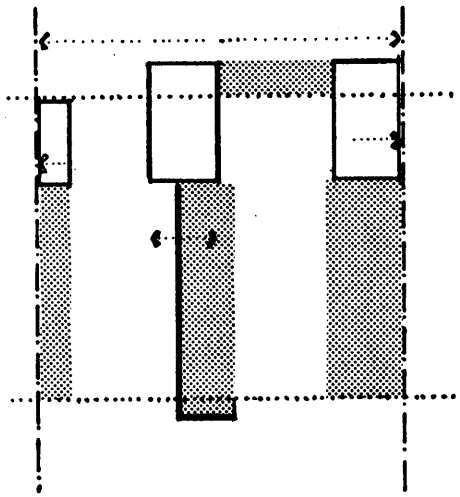
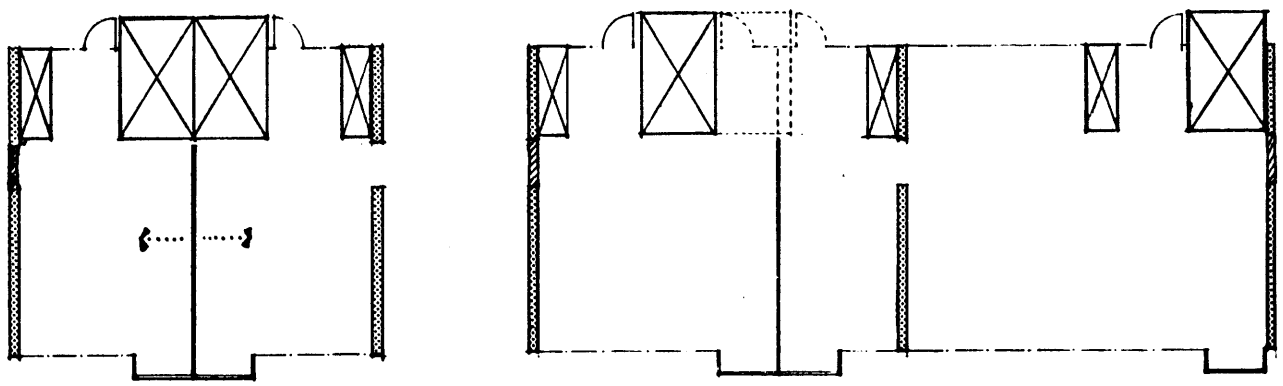


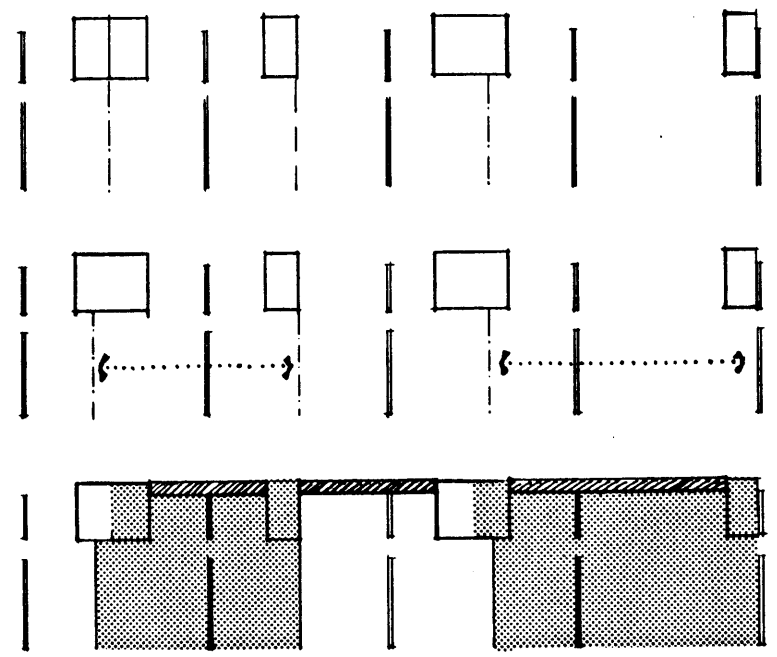




Zoning

A number of use zones were set up perpendicular to the support bays. These zones were based on light, access and use and served mainly to help make the decisions of where to locate the largest infill elements and where to open the support walls to allow access between the rooms.

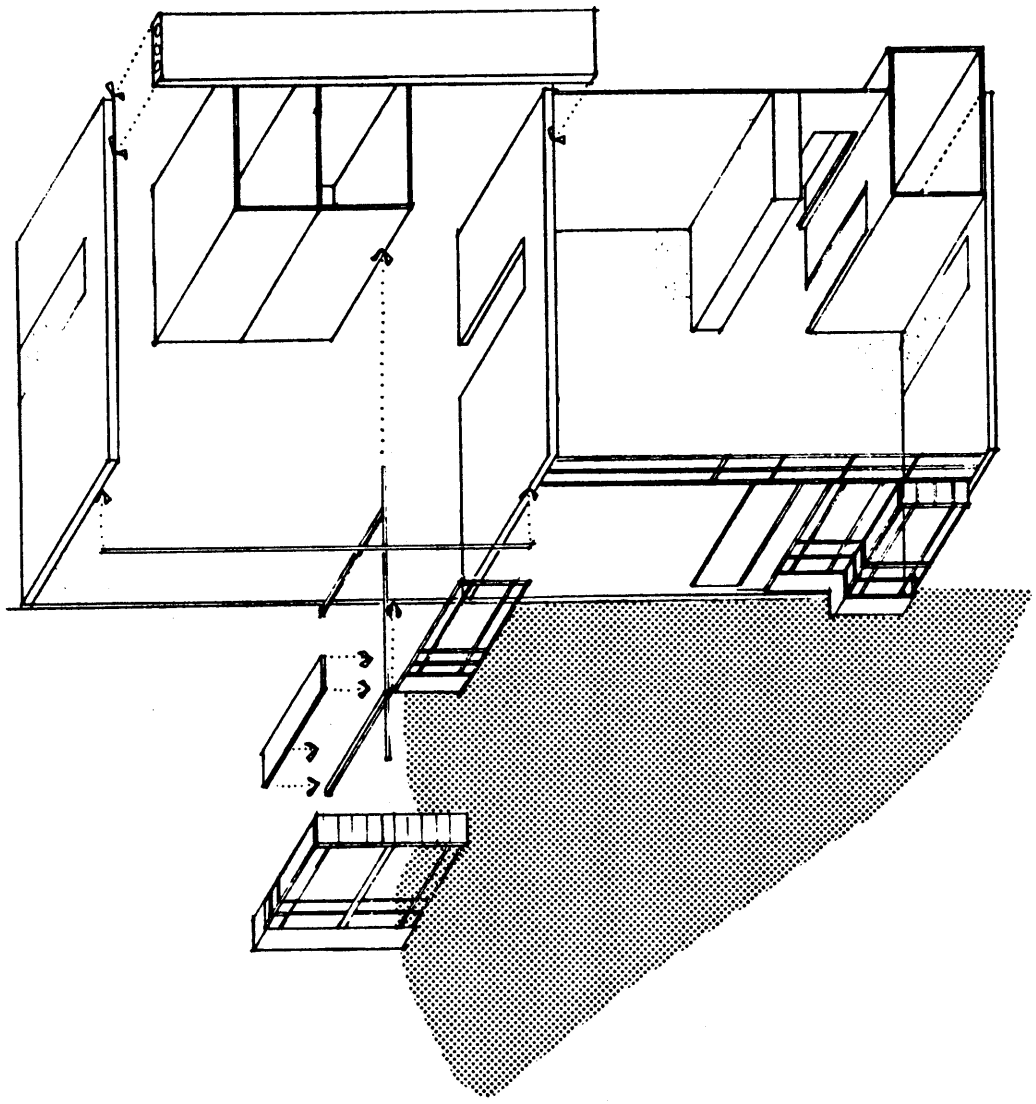




Infill Elements

Each guest room was understood as a number of activity and use spaces which were seen to be: entry, washing and storage, socializing, sleeping and working. The deployment of elements within the support bays was intended to set up discrete spaces for these activities. The elements themselves were broken into three classes: the bathroom and closet "boxes," the partition wall and study bay and the facade.

The bathroom set up the entry zone to the room from the corridor, and the bathroom and the closet made a foyer within the room. Movement of the bathroom "box" within the support bay established the main demarcation between the rooms with the partition wall and work bay setting up a series of

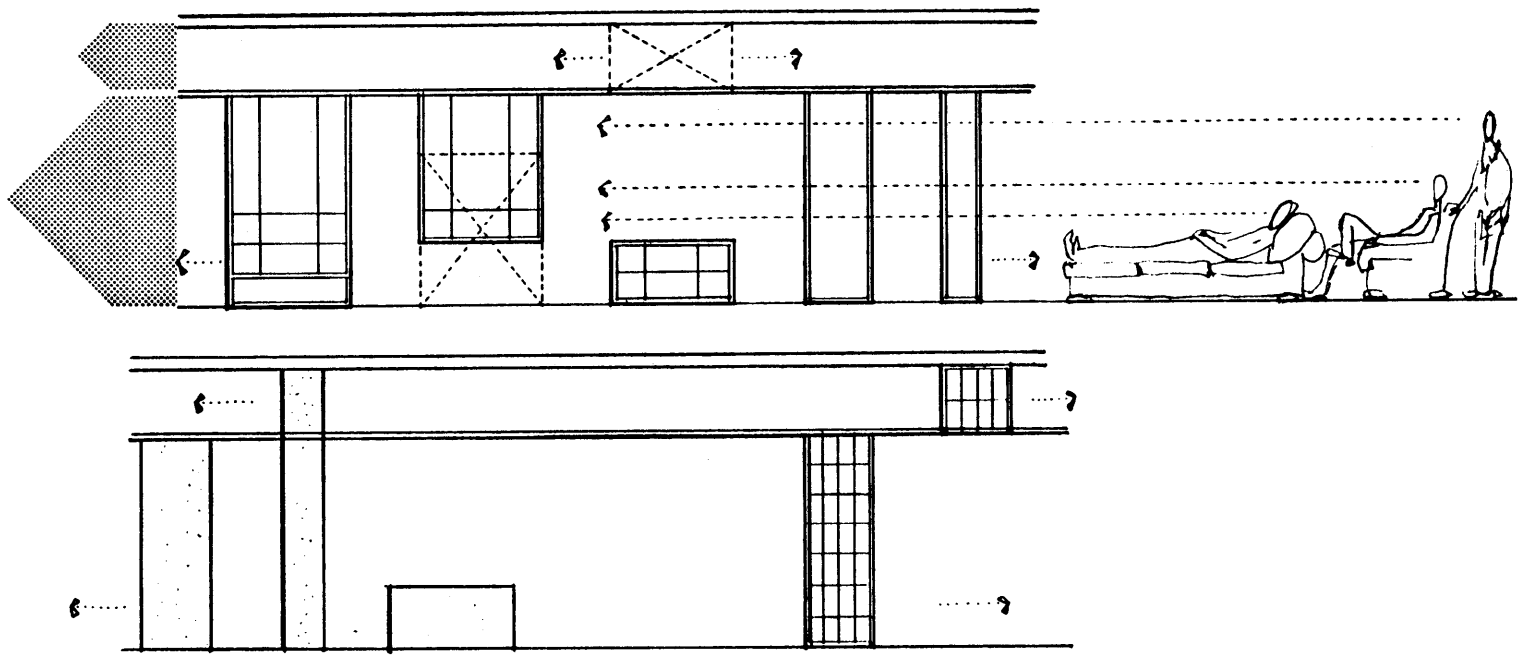


smaller space moves. Bathrooms could either be doubled up or used by themselves.

Facade

The facade was planned to respond flexibly to the changing use decisions within the rooms. All of the facade elements are interchangeable and can be placed within two zones. The 9'-0" high support bays were divided at 7'-0" by a transom which divided the facades into two independent placement zones. The facade also had to respect the support walls every 24'-0".

Transparent, translucent and opaque facade elements were used. Horizontal and vertical integration was organized by the window mullions which also respected lines of sight and horizontal use dimensions.



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2. Durand, Precis des lecons d'architecure donnees a l'Ecole Polytechnique Paris 1802-1805 I, 4

3. Recueil et parallele des edifices de tout genre anciens et modernes (Princeton: Princeton Architectural Press: 1982) foreword; See Rafael Moneo, "On Typology" Oppositions 13 (Summer, 1978), esp 28-32

4. Walter Gropius, The New Architecture and the Bauhaus (Cambridge: MIT Press, 1965) 19

5. Robert Venturi, Learning from Las Vegas (Cambridge: MIT Press, 1972)135-136, 137, 162; Complexity and Contradiction in Architecture (New York: Museum of Modern Art, 1966, 19

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7. Nikolaus Pevsner, A History of Building Types (Princeton: Princeton University Press, 1976) 9, 10

8. See Stanford Anderson, "Types and Conventions in Time: Towards a History for the Duration and Change of Artifacts" Perspecta 18 (1982) 109-117; Moneo Ibid esp 23-28

9. See Micha Bandini, "Typology as a Form of Convention" A.A. Files 6 (May, 1984) esp 75-76; Werner Oechslin, "Premises for the Resumption of the Discussion of Typology," Assemblage 1 (Oct, 1986) 37-52

10. N. John Habraken, "The control of Complexity," Places 4 No. 2 (1987) 7, 8; The Appearance of the Form (Cambridge: Atwater Press, 1985; Transformations of the Site (Cambridge: Atwater Press, 1983); "Control Hierarchies in Complex Artifacts" Paper for the International Design Conf. Boston, 1987

11. See Wolfgang Braunfels, Monasteries of Western Europe (London: Thames and Hudson, 1972) esp 67-110

12. Peter Collins, Changing Ideals in Modern Architecture (London: Faber and Faber, 1965) 219; Pevsner, Ibid 142: Durand, Recueil et parallele pl 29

13. William Curtis, Le Corbusier: Ideas and Forms (Oxford: Phaidon, 1986) 181

14. Colin Rowe, "La Tourette" in The Mathematics of the Ideal Villa and Other Essays (Cambridge: MIT Press, 1982) 186; W. Boesiger, H. Girsberger, Le Corbusier 1910-65 (Zurich: Les Editions d'Architeckture, 1967) 266

15. Quoted in Le Corbusier: Architect of the Century (London: Arts Council of Great Britain, 1987) 250

16. For the presentation of the two schemes discussed, including Kahn's annotations see Louis Kahn: Complete Works, 1935-1974 ed. Heinz Ronner, Sharad Jhaveri (Basel and Boston: Birkhauser, 1987) 2nd. ed pp.302-310, 116-123; one of institution quotes was cited in John Lobell, Between Silence and Light: Spirit in the Architecture of Louis Kahn (Boston: Shambala, 1979) 44 and Richard Saul Wurman, ed., What Will Be Has Always Been: The Words of Louis I. Kahn (New York: Rizzoli, 1986)

17. Norberg-Shulz describes this typical configuration: "The buildings come either in cluster formations or in semi-open enclosure arrangements." Christian Norberg Shulz, Timber Buildings of Europe (Tokyo: Edita, 1978) 243 This freedom of form is precisely what appealed to Aalto. "When the Karelian village is at its best," he wrote, "it uses the terrain's topography, views and other values in an instructive manner ... Here we truly have a building plan, in the best meaning of the word, that adapts itself to Finnish nature." (Sketches: Alvar Aalto ed., Goran Schildt (Cambridge: MIT Press, 1985) 83

18. Coquohoun, "Alvar Aalto: Type verses Function" in Essays 75-80; Demetri Porphyrios, "The Burst of Memory: Annessay on Alvar Aalto's Typological Conception of Design" Arch Design 49 (1979) 143-148, quote 147.

19. "Aperspective Space" in Arch Rev 1093 (March 1987) 22

20. Although using the term as a way of analyzing an urban setting, Cullen defines a concept of "place" using some of the following criteria: occupied territory as defined by shade, shelter, amenity and convenience and the distinction between here and there as established by change of level, vistas, closure etc. See Gordon Cullen, The Concise Townscape (New York: Van Nostrand, 1975) esp. 21-56. The importance of the concept of "path" as a form of cognition is stressed by Kevin Lynch, Image of the City (Cambridge: MIT Press, 1960) 47, passim; and as a

"moving view" in Site Planning
(Cambridge: MIT Press, 1984) 205

21. Lawrence B. Anderson, "American Academy of Arts and Sciences Architectural Program." MSS. October 3, 1977, 9.

22. N. John Habraken et al., Variations: The Systematic Design of Supports
(Cambridge: Laboratory of Architecture and Planning, 1976)