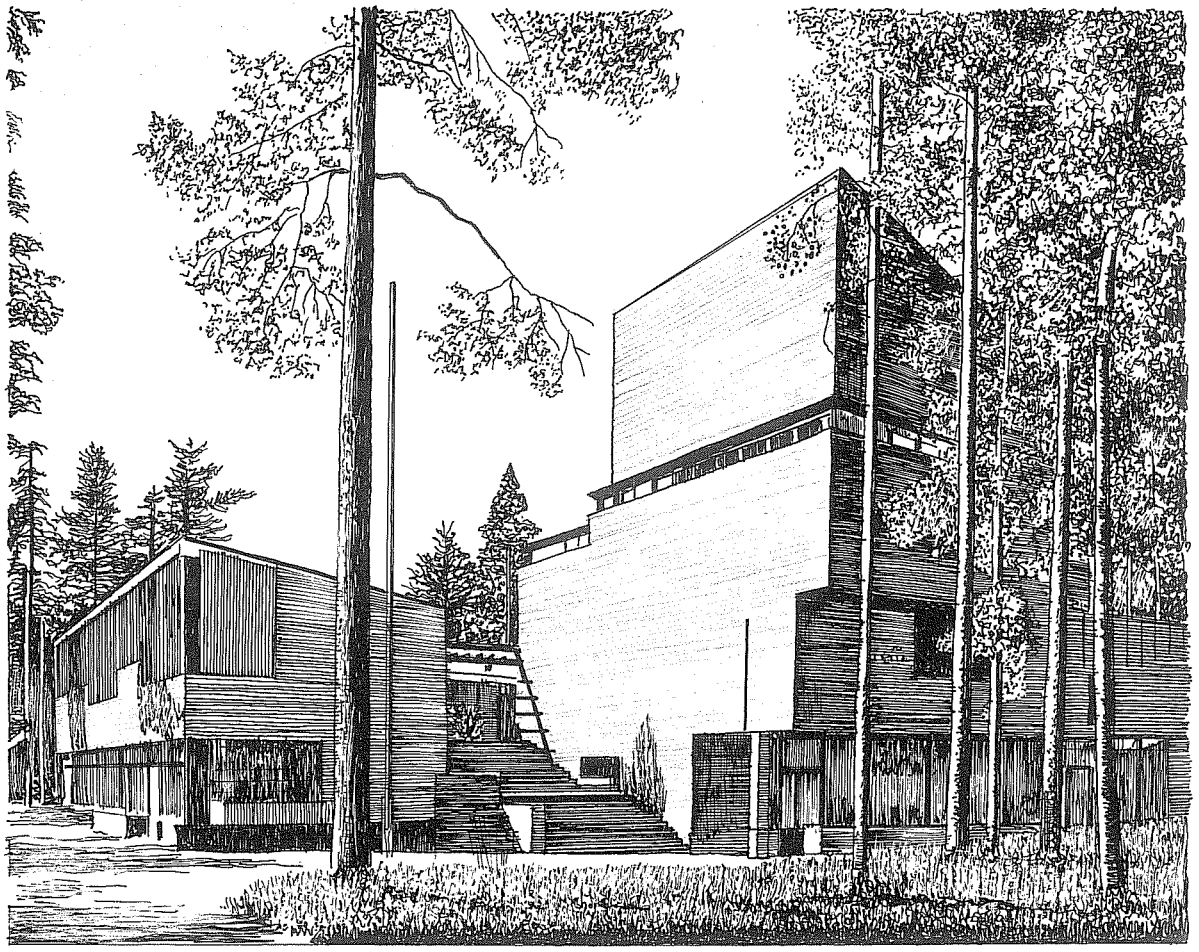


ALVAR AALTO TOWN HALL AT SAYNATSALO
1950-61

ALVAR AALTO

Of those architects considered to have been pioneers of modern architecture, the works of Frank Lloyd Wright and Alvar Aalto most closely correspond with the proposition advocated in part one of this book, that architecture results from an interaction between programmatic requirements, the Genius Loci and the culture in which the architecture exists.

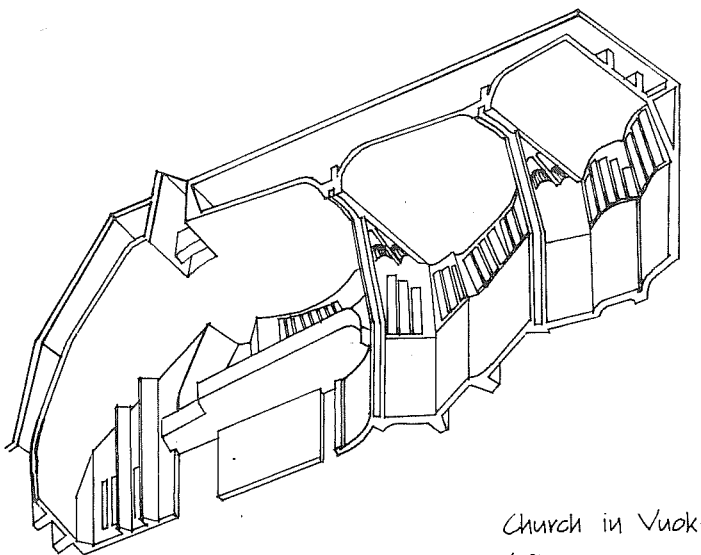
To some extent this is true of Le Corbusiers work, but his belief in universal solutions leading to standardization and his artistic as opposed to 'building' approach to design, place his output outside the central concerns of Wright and Aalto, each of whom made a significant contribution to the domestic architecture within his own culture. In this, these architects can be compared with Lutyens, who in his early houses similarly proposed an architecture rooted in his native land and owing inspiration to both landscape and tradition.

However, with regard to the traditional architecture within their respective cultures, a major point of departure for both Wright and Aalto was the desire to establish a fresh approach to the manipulation of internal space, and especially to redefine the relationship between inner and outer space.

In the case of Wright and Aalto, these explorations resulted in what has been termed an organic architecture, in which the elemental organization responds to internal requirements and external conditions simultaneously, each architect seeking to lock his building into its immediate topography.

In so doing, each architect uses a different kind of geometry. In Wright's work the organization is often controlled by systems which ensure homogeneity and unity as a direct result of the geometry itself. This is evident in his use of axes, the pinwheel and interlock

Aalto's work, by comparison, is more relaxed, less geometrically deterministic and more malleable, concentrating particularly on how ensembles interact with the landscape. There is an inner as well as an outer 'fluidity' in the way elements merge into each other, corresponding closely to D'Arcy Wentworth Thompson's description of cell growth.[1] Aalto often gathers his elements around a central foyer or court[2] and uses radial configurations in combination with linear forms.[3]



Church in Vuoksennisca (Imatra) 1956-59
(after an axonometric from Dizionario Enciclopedico di Architettura e Urbanistica, 1968-69.)

[1] Discussing the form of any portion of matter Thompson describes this as a 'diagram of forces,' explaining how an Amoeba tends 'to be deformed by any pressure from outside.' He refers to the fluid state of the organism and how its shape responds to forces exerted upon it. D'Arcy Wentworth Thompson, On Growth and Form, Abridged Edition, ed. by T. Bonner, Cambridge University Press, Cambridge, 1961, pp. 11, 12.

[2] See page 84

[3] See page 62.

ITALY AND FINLAND

The town hall at Säynätsalo is one of Alvar Aalto's most representative works in that the small complex of brick and timber buildings around a court encapsulates several themes which developed during his career. These themes can be traced back to two powerful influences on him, the one resulting from a trip to Italy in 1924 when he visited Florence, Padua and Venice, the other being the pervasive effect of the landscape of his native Finland.

In 1926, explaining the importance to him of Italian hill towns Aalto had written: 'The town on the hill... is the purest, most individual and most natural form in urban design.'[1] The Italian hill town remained a source of inspiration throughout his life and became so interwoven with his perception of the Finnish landscape that he often read the latter in terms of the former: 'Central Finland frequently reminds one of Tuscany, the homeland of towns built on hills' and in a description of how villages in Finland could be transformed, he explains how when he sees these villages, in his mind's eye he would 'make the church stand out as a more dominating element among the houses by building a little colonnaded square in front of it or by raising its spire. (The open square surrounded by architecture, is one of the most powerful rhythmic accents available in hilly country).[2] In 1924 he wrote:

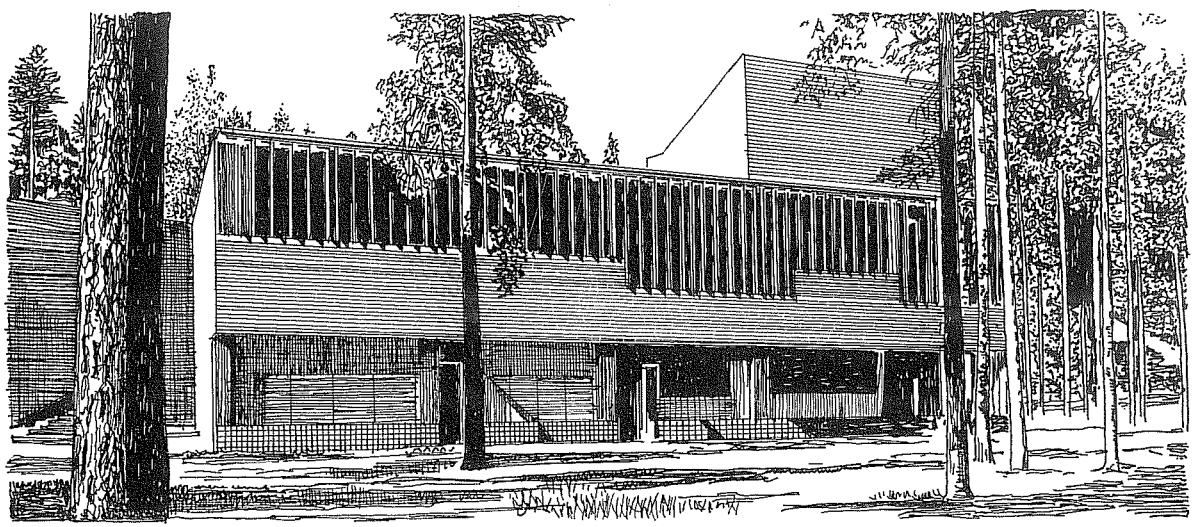
> Arriving at daybreak in a town which we have never been in before, we realize that there are laws, traditions, customs and details in this hustle and bustle which, just like the other phenomena of our day and age, are not just the movements of atoms, but energy directed into these channels and supervised by more developed individuals... Nothing does a town greater honour than a well-developed public life and beautiful, functional 'public places,' not the least of which is the market hall, the nerve center of its food distribution and morning bustle.[3]

1 Quoted from Göran Schildt, Alvar Aalto, The Decisive Years, New York, 1986, p. 13.
2 From Göran Schildt, Alvar Aalto, The Early Years, New York, 1984, p. 210.
3 Ibid., p. 253.

Aalto had taken particular note of the vertical accentuation given by the campanile to the Italian hill town, and again applying the principle to his homeland wrote:

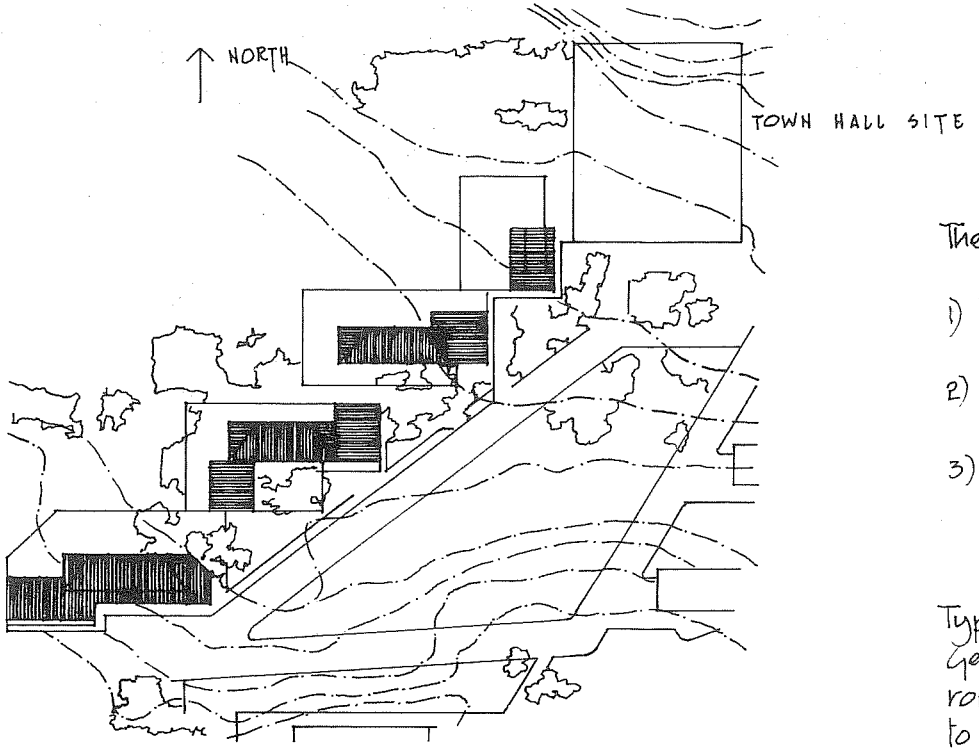
> Take an example, Ronnimäki Hill, which dominates the countryside around Jyväskylä, would only need a white campanile (tower) near (not at) the top for the whole area to acquire an extremely refined character. Even a lookout tower would do, but not one of those needlelike towers which function as a point of observation but not as an object of it. [1]

Despite the fact that the hillside on which the Säynätsalo town hall was sited had a very gentle slope which could not be compared to an Italian hill town, Aalto's design brings together several strands of his thoughts inspired by the visit to Italy. These include the notion of the town on a hill with the tower as a landmark, the enclosed court, the potential of stairs and the way architecture can mirror the vitality and express the essential character of a town.



[1] Ibid., p. 209.

SITE FORCES



PROPOSED SITE PLAN (not as built)

The main characteristics of the town hall site are :

1) The contours which delineate a gentle slope within a landscape of pine trees.
2) Two obliquely aligned routes which traverse the contours as they rise up the hill.
3) The layout of housing, echeloned alongside the routes but deployed rhythmically within the discipline of an orthogonal grid.

Typically Aalto's layout intended to reinforce the Genius Loci by strengthening linkages between routes, contours and the architecture. Responding to the setting of pine trees with their sense of randomness and verticality, Aalto proposes low horizontal buildings laid out in an informal yet ordered fashion.

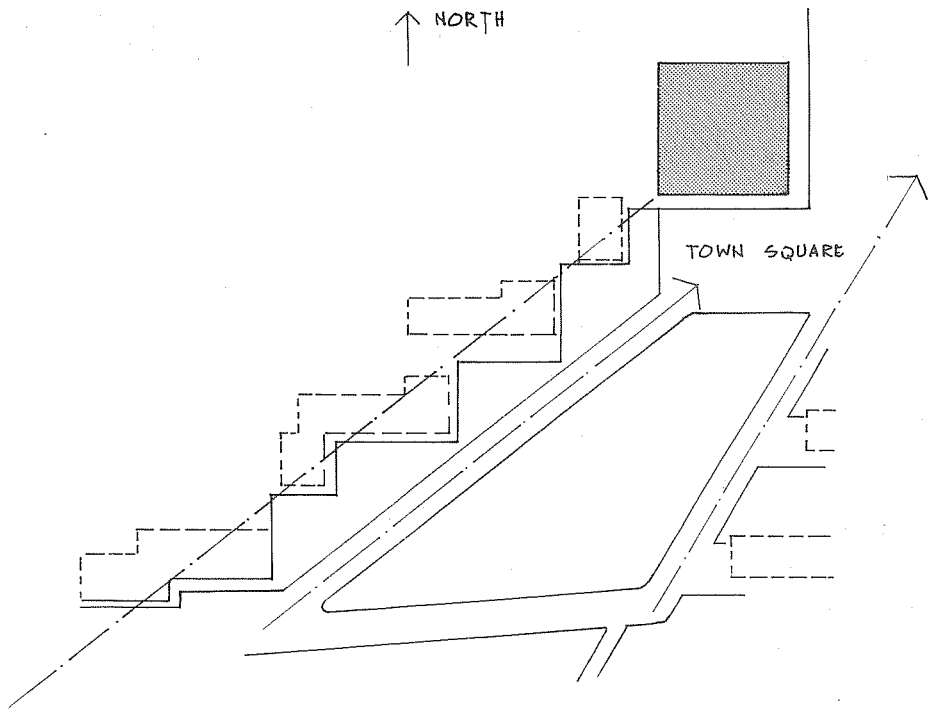
The proliferation of trees on the hillside gives a strong sense of nature on the site. This is not, therefore, the typical urban site as would normally be the case for a town hall, but instead represents an unusually direct interaction between man's activities and nature.

CENTROIDAL MASS

The town hall is situated at a nodal point where the routes conjoin to form the town square.

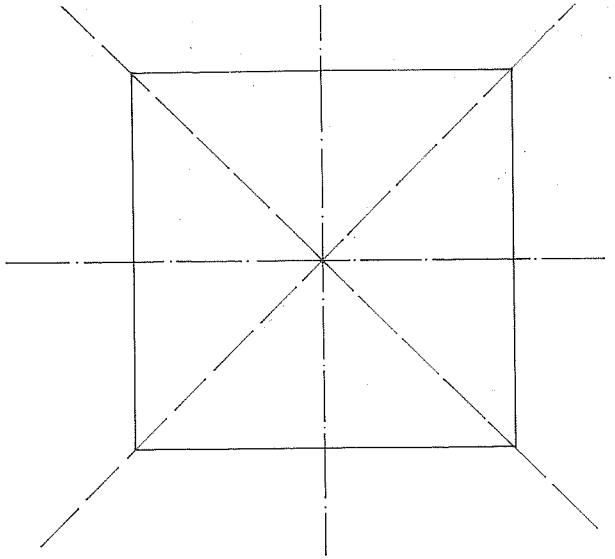
A centroidal form is proposed for the town hall, so positioned as to terminate the echeloned blocks of housing which lead towards the node.[1]

The oblique route and its supporting echelon rhythm of housing together constitute a powerful external vector inducing pressure on the centroidal town hall.



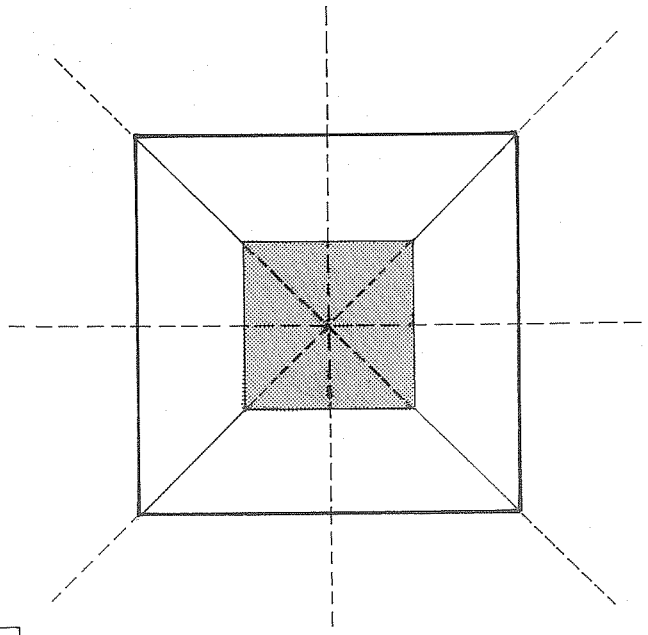
[1] see Peter Eisenman, doctoral thesis, The Formal Basis of Modern Architecture, Cambridge University 1963 p. 150

GENERIC FORM

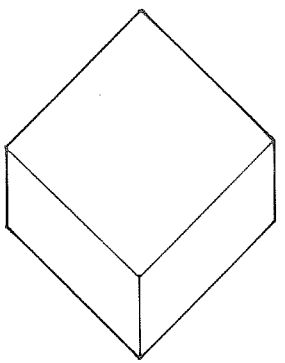


The generic form is centroidal, a symmetrical form with equal axes.

external vector



The centroidal mass becomes a courtyard. Sloping roofs point inwards to strengthen the feeling of enclosure. Echeloned housing produces an external vector which affects the form on the diagonal.

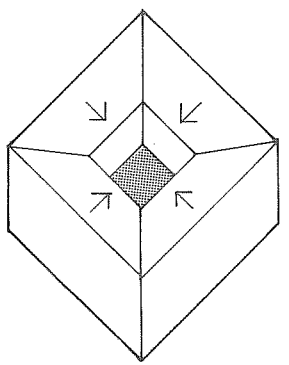


CONFIGURATIONAL READING

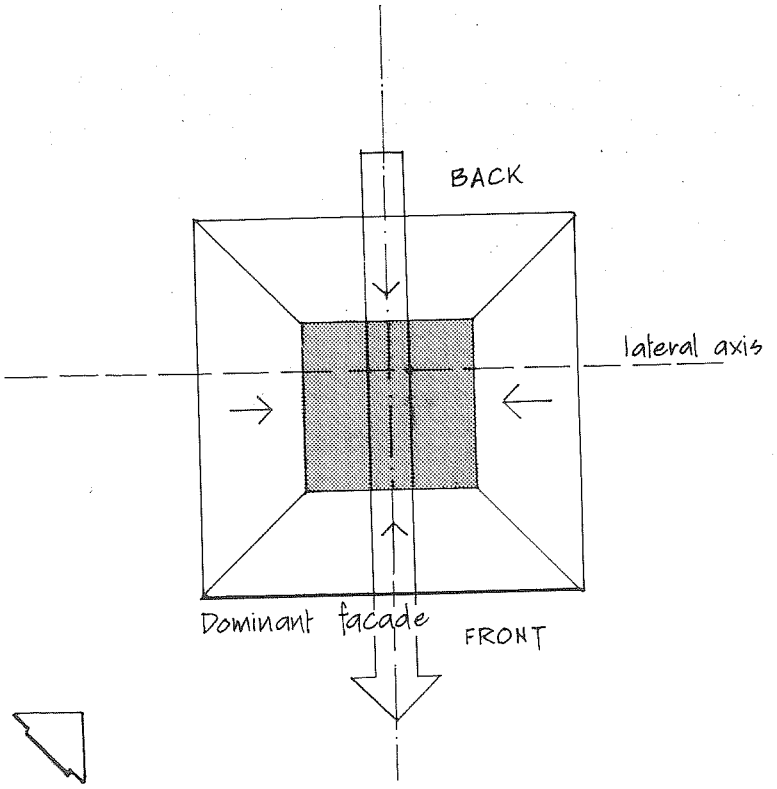
A symmetrical centralized mass eroded at its core or nucleus.

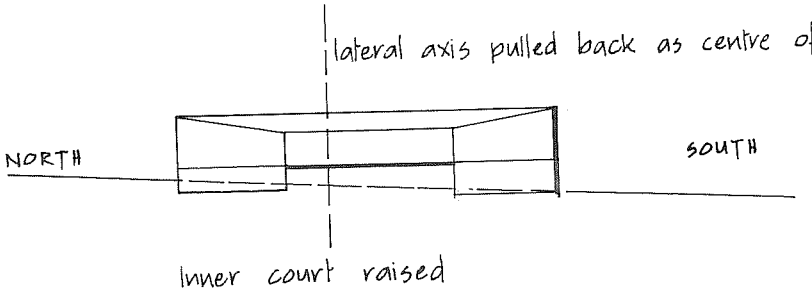
SYMBOLIC READING

A courtyard is a sheltered refuge which may suggest a sense of community. Diverse elements may be unified and become homogeneous around an enclosed courtyard.



EFFECTS OF SLOPE



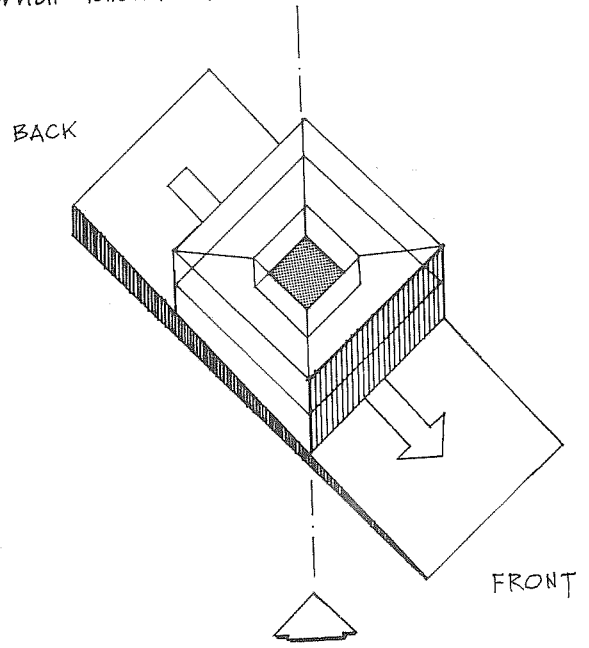


SECTION

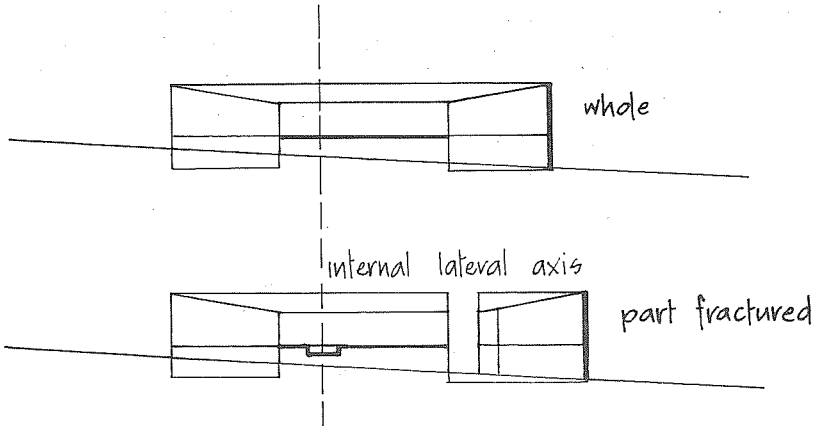
The directionality of the slope changes the form so that the south facing facade assumes a dominant role. The form becomes directional.

The internal court is raised to provide two levels of accommodation.

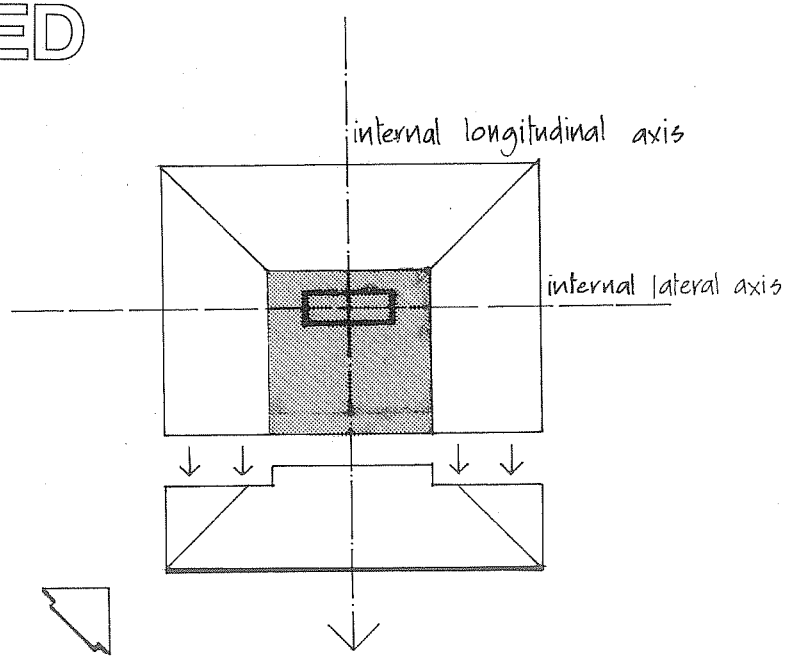
On a slope the centre of gravity shifts to pull back the internal lateral axis.

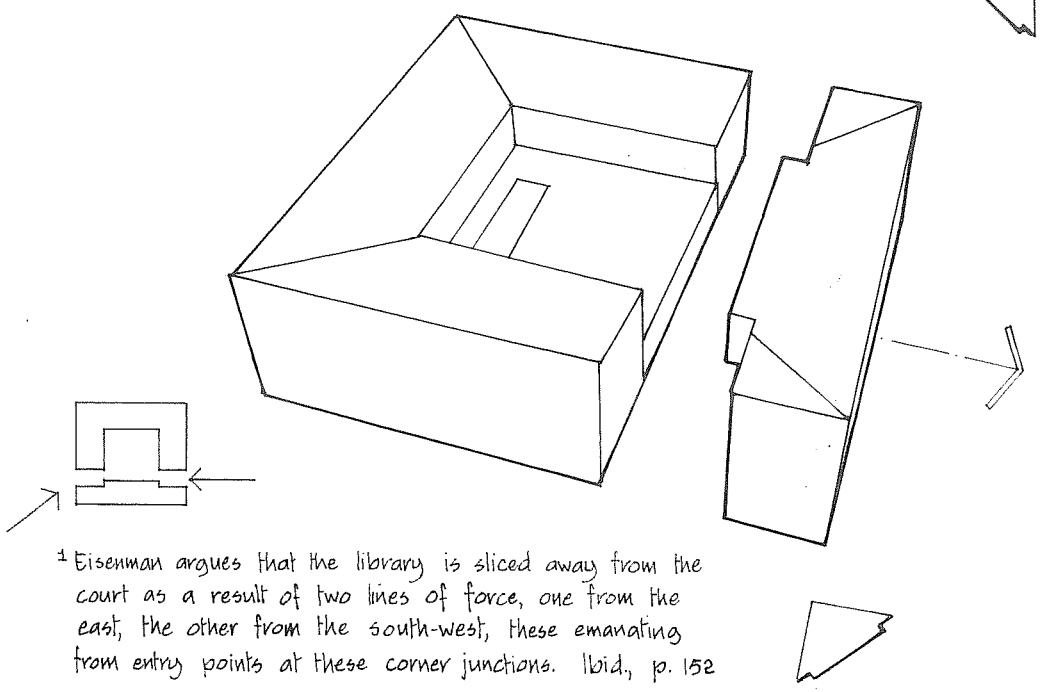


CENTROID FRACTURED



SECTIONS





The centroidal form is fractured by pulling away the southern side.[1]

A pool is placed within the courtyard where the internal axes meet. The form remains bi-laterally symmetrical and directional.

CONFIGURATIONAL READING

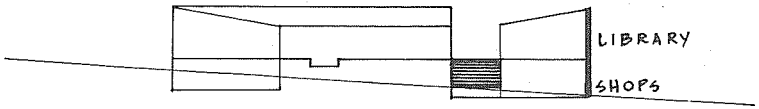
Fracture suggests possibility of tension between triple-sided court and separated part. Slightness of fracture retains gestalt of centralized mass with eroded nucleus.

SYMBOLIC READING

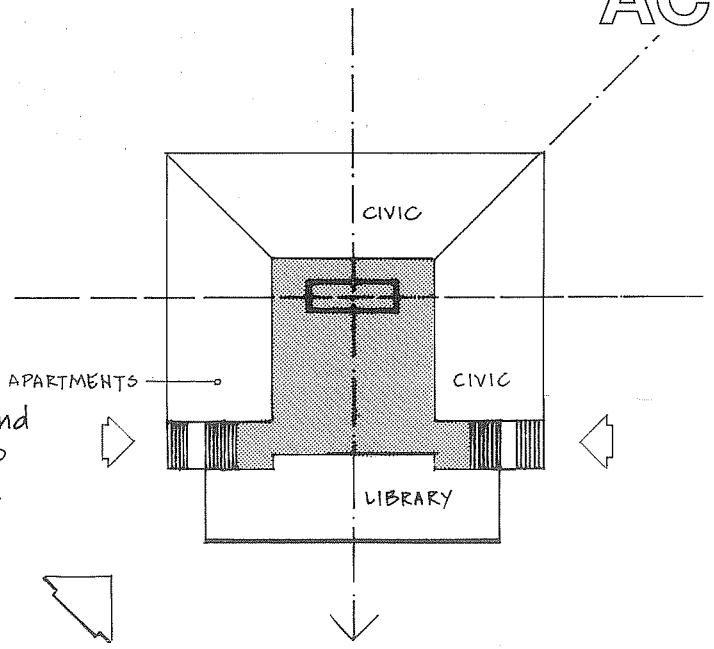
Courtyard enclosure and unity retained but court now accessable.

[1] Eisenman argues that the library is sliced away from the court as a result of two lines of force, one from the east, the other from the south-west, these emanating from entry points at these corner junctions. Ibid., p. 152

ACCESS

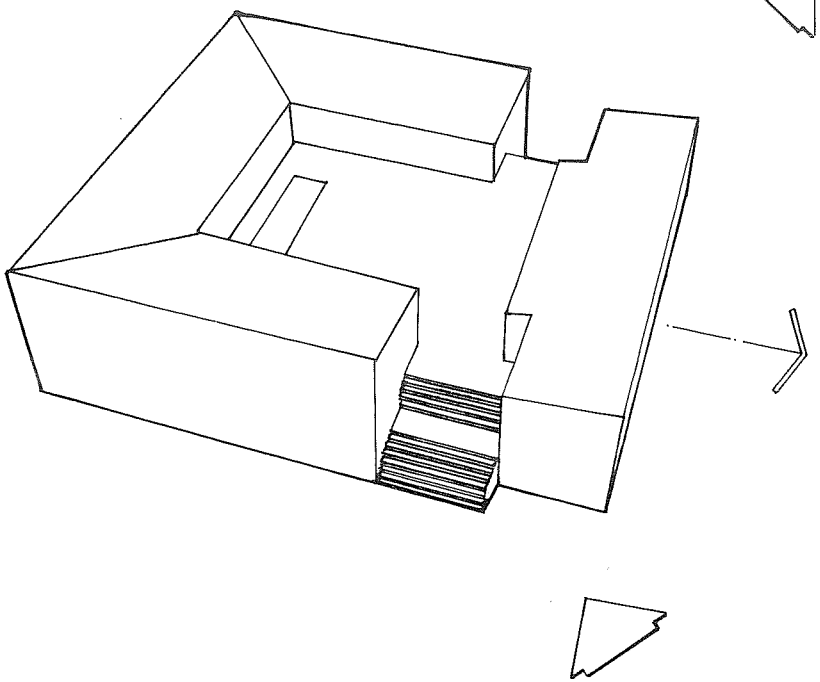


SECTION



ACCOMMODATION

The upper level is concerned mainly with civic and public activities with shops on the lower floor to the south and east. Apartments are placed in the western block.



Stairs give access to the court at the point of fracture. The south block is reduced in width but remains 'locked' into courtyard.

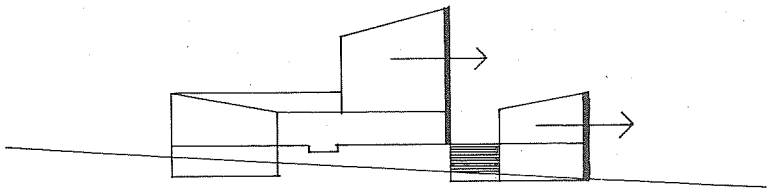
CONFIGURATIONAL READING

The form is bi-laterally symmetrical and the centralized mass with an eroded core remains as a gestalt. Where the southern block 'locks' into the court, the space at either side spills down in the form of stairs.

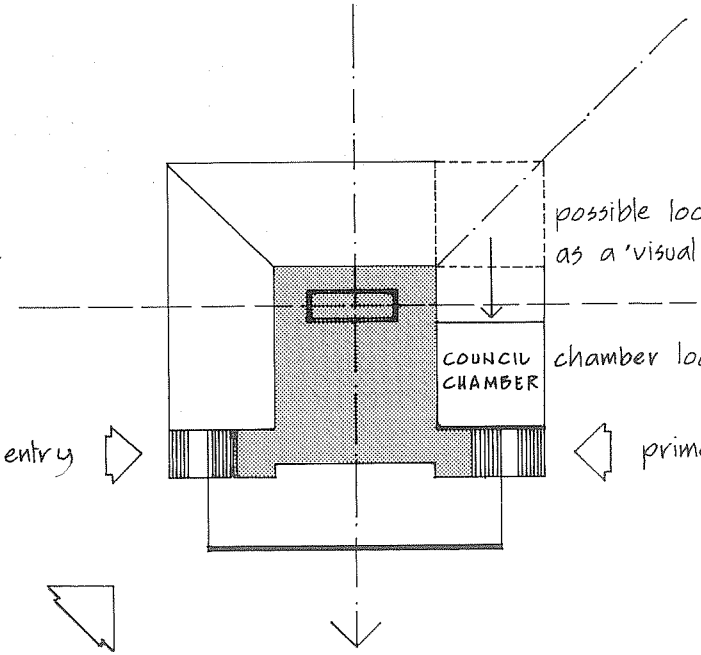
SYMBOLIC READING

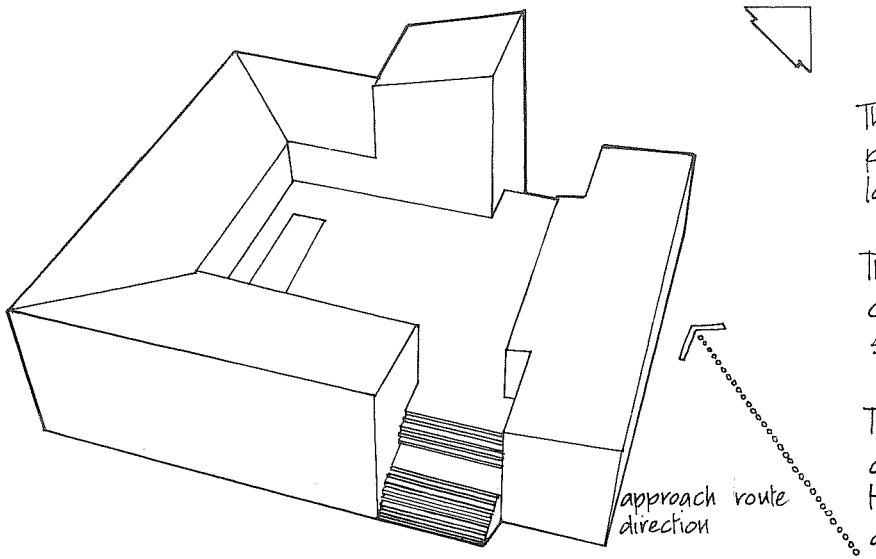
Contact is established between the inner private world of the court and the exterior without diminishing the sense of shelter and privacy.

COUNCIL CHAMBER



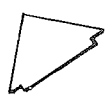
SECTION
Council chamber roof points in same southerly direction as does the fractured block.





SYMBOLIC READING
As the main element, the Council Chamber dominates.

CONFIGURATIONAL READING
The bi-lateral symmetry is distorted.



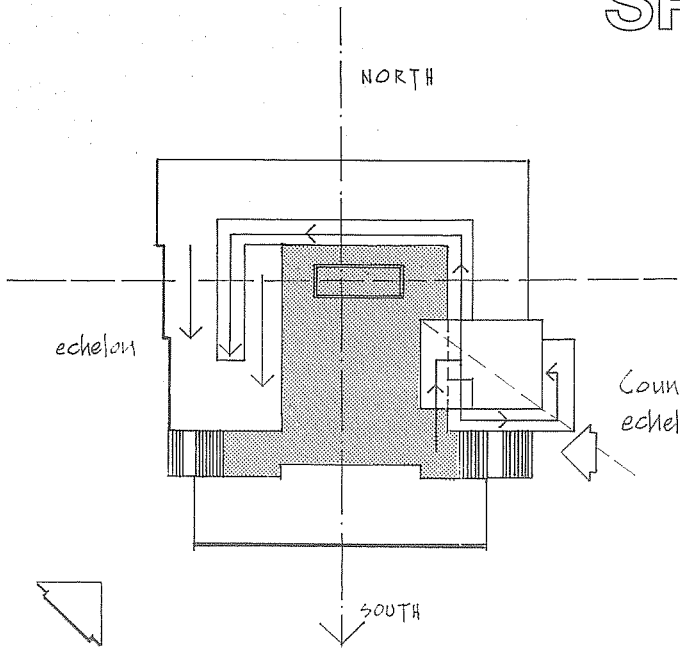
The council chamber has a key role in the complex, partly due to its importance, but also because a large volume is needed to house its activities.

This allows the architect to provide a focus within the complex and also to provide a visual stop when seen from the approach route.

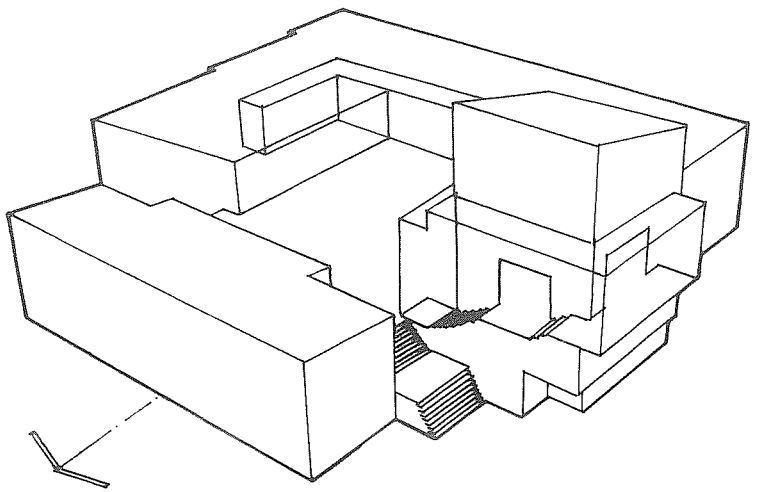
To do this, the chamber could have been placed on the oblique axis in the north east corner. Instead the chamber is located at the point of fracture, alongside the stair access from the public space. This relationship to the point of entry gives this particular entry added importance.

SPIRALS

The council chamber acts as the pivot for two spiralling movements, both anti-clockwise, one ascending around the chamber, giving access en route, the other spiralling around the court as a glazed corridor which continues internally.[1]



Council Chamber and circulation echelon on oblique.



SYMBOLIC READING

The spirals represent movement and in this case enclosure.

CONFIGURATIONAL READING

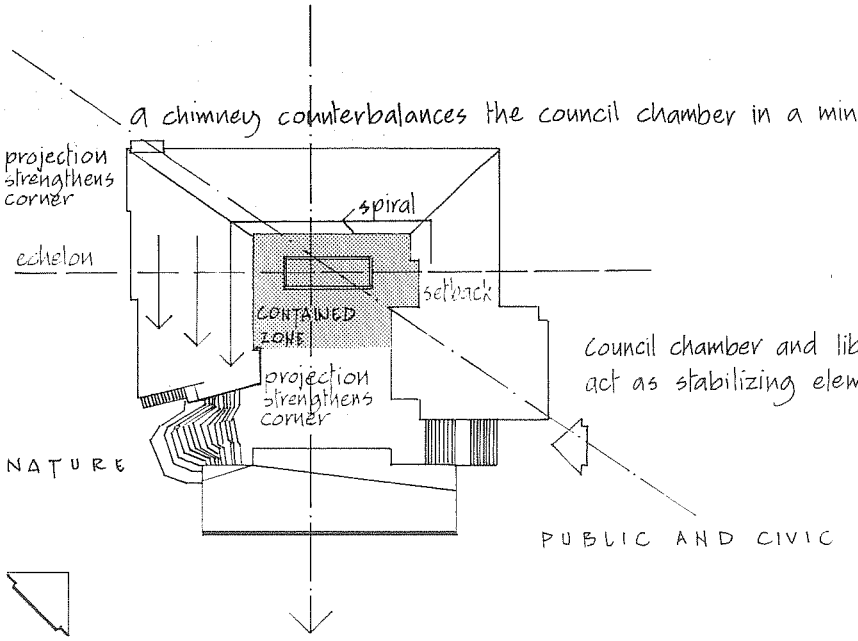
The Council Chamber pins one corner of the court. The courtyard spiral exerts pressure which threatens to close the south-western corner. An echelon on the west facade forms part of this pressure and the entire west side is strengthened to balance the mass of the council chamber. The council chamber entry point at court level extends out to form an enclosed corner of the court to the north-east. The pool is shifted off axis towards this corner.

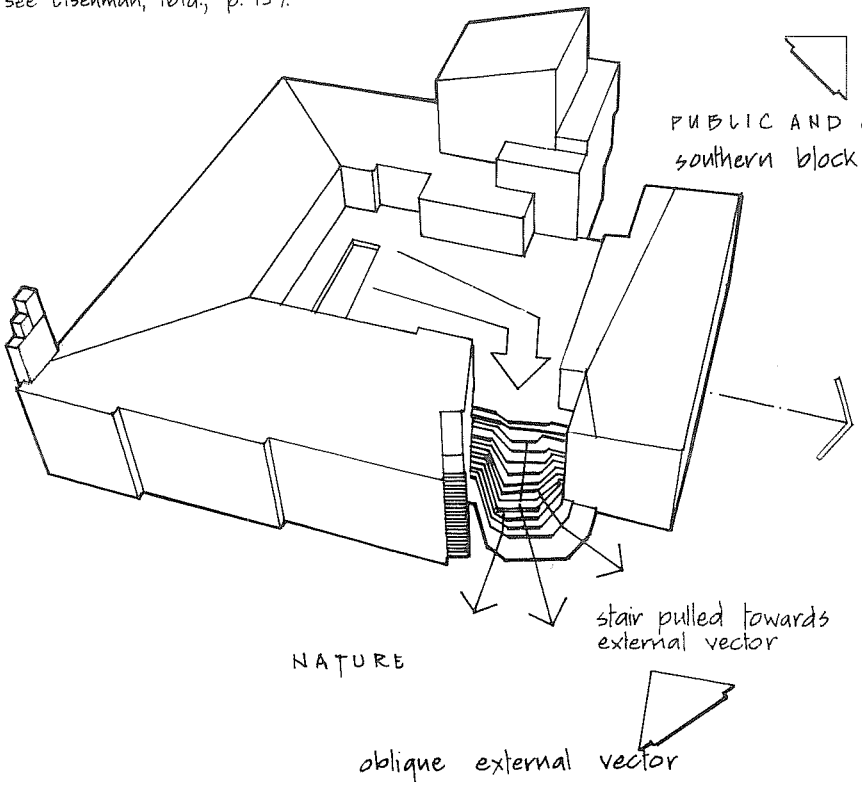
[1] Eisenman compares this spiral movement system to Le Corbusiers Pavillon Suisse, explaining the latter as the 'control of a pattern of behaviour, movement of people, which is external to the fabric of the building yet enforced on the observer by the presence of the building ... For Aalto the spiral movement is a quality of the work itself, the control of the volumetric arrangement by a perceptual reference to a generic spiral.' Ibid., p. 155.

FLOW

The attempt to close the court at the south-west corner is prevented by a build-up of internal pressure within the court which flows out of the space in a cascade of steps on the diagonal.[1] This flow, like a powerful current, shapes its 'banks' so that the edge of the west block is cut back sharply. The sharpness of this fractured edge is complemented by a straight stair leading to the apartments in the west block. A projection and setback create a contained zone within the court.

[1] see Eisenman, Ibid., p. 154.





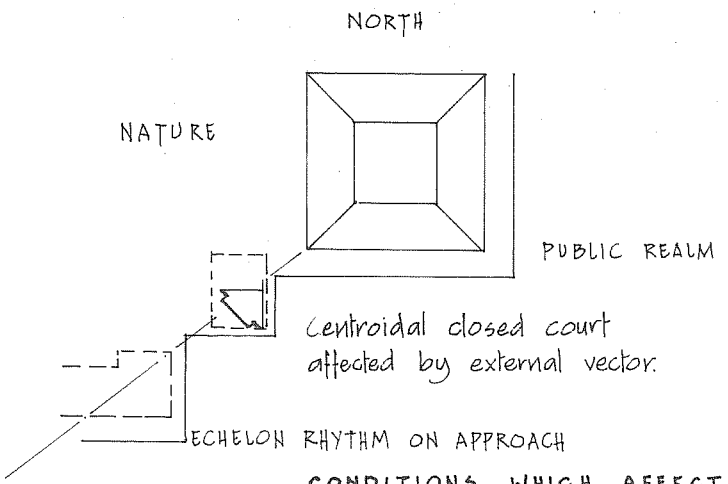
SYMBOLIC READING

The court may be interpreted either as a 'lake' which cascades outwards at its southern extremities, or more literally as a secluded garden with grass and planting. The contorted stair links the private world of the court with its landscape and symbolizes the organic energy inherent in Aalto's work. The stair, flowing on to the slope and into nature, contrasts with the regular formal stair leading from the public square to the civic realm of the council chamber.

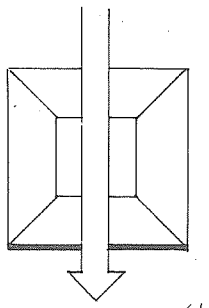
CONFIGURATIONAL READING

The volumes which enclose the court are distorted by the pressures created. The southern block remains a stabilizing element linked to the council chamber.

SALIENT ISSUES

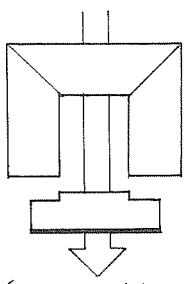


Centroidal closed court affected by external vector.

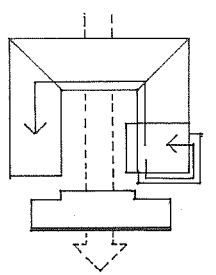


Slope makes form directional and south facing.

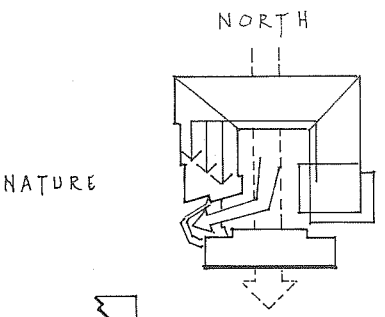
CONDITIONS WHICH AFFECT THE FORM (SITE FORCES)



Southern block pulled away to allow access.



Council chamber generates two spirals.



Pressure to close south west corner prevented by outward spillage from court. Stair pulled towards external vector.

ORDERING OF THE FORM IN RESPONSE TO SITE AND PROGRAMME

There are similarities in the courtyard treatment at Säynätsalo and Le Corbusier's monastery at La Tourette (1957-60). For an analysis of the monastery see G.H. Baker, Le Corbusier: An analysis of form, (Second edition, 1989), Van Nostrand Reinhold (International) Co. Ltd., London, pp. 267-298.

DIAGONALS

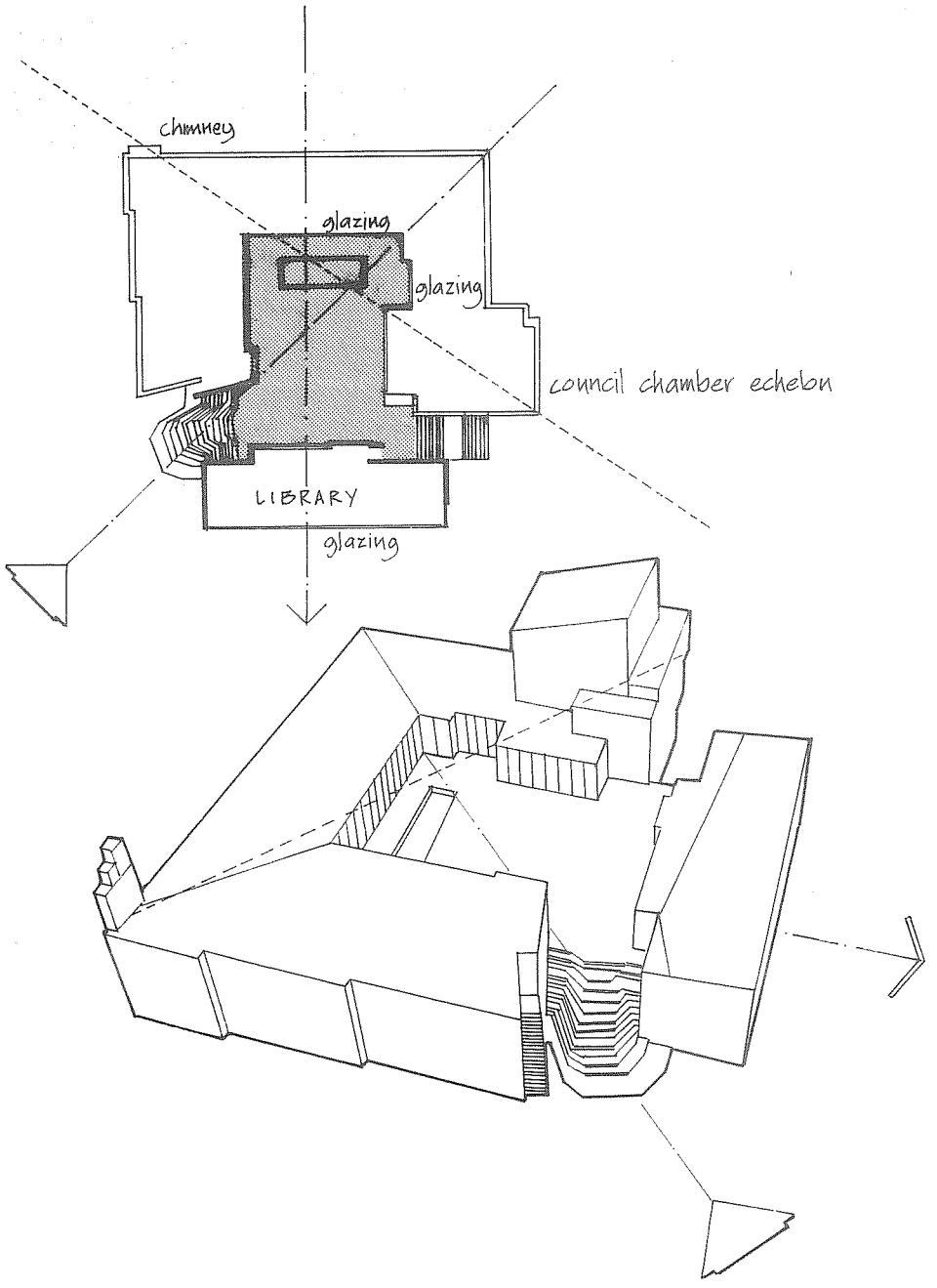
As Eisenman points out,[1] the circulation corridor is fully glazed on two adjacent sides of the court, whereas the other two sides have windows placed in solid walling. This reaffirms the diagonal condition imposed by the external oblique vector.

The library is extensively glazed on its southern side, affirming the south-facing frontality of the complex.

Had this glazing faced the court the effect would be to destroy the internal court reading in terms of the external vector and would also have consolidated the introversion of the complex.

With the actual fenestration deployment, two site conditions are satisfied, 1) the effect of the oblique vector on the court, and 2) the south-facing frontality induced by the slope.

The diagonal condition within the court is part countered by the opposite diagonal generated by the council chamber echelon and terminated by the chimney.

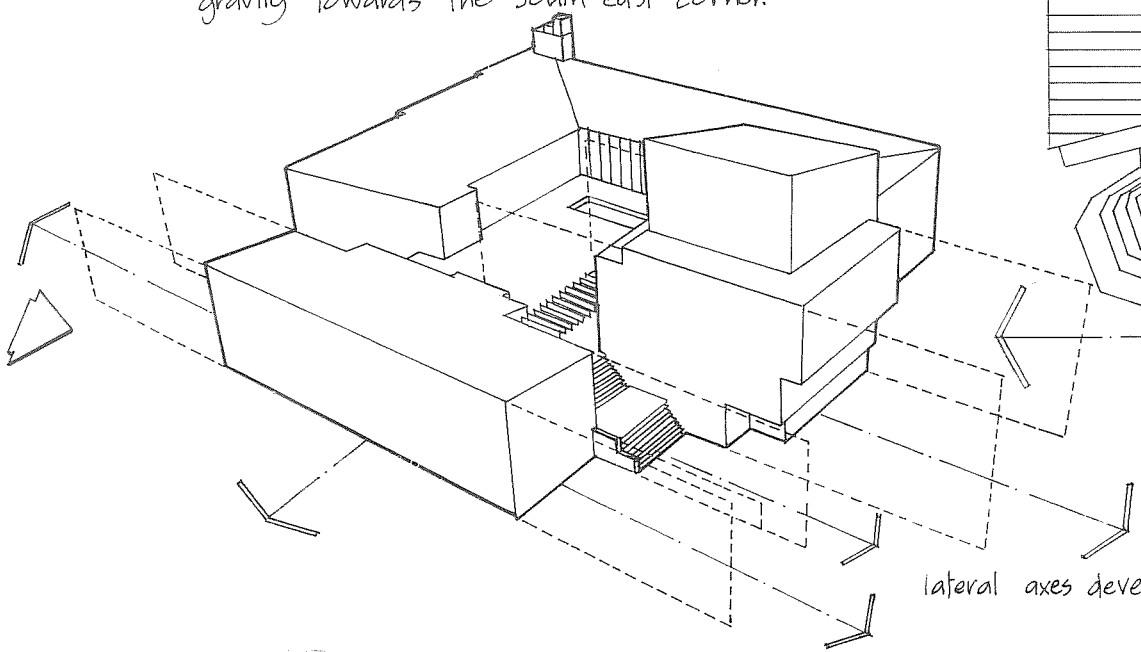


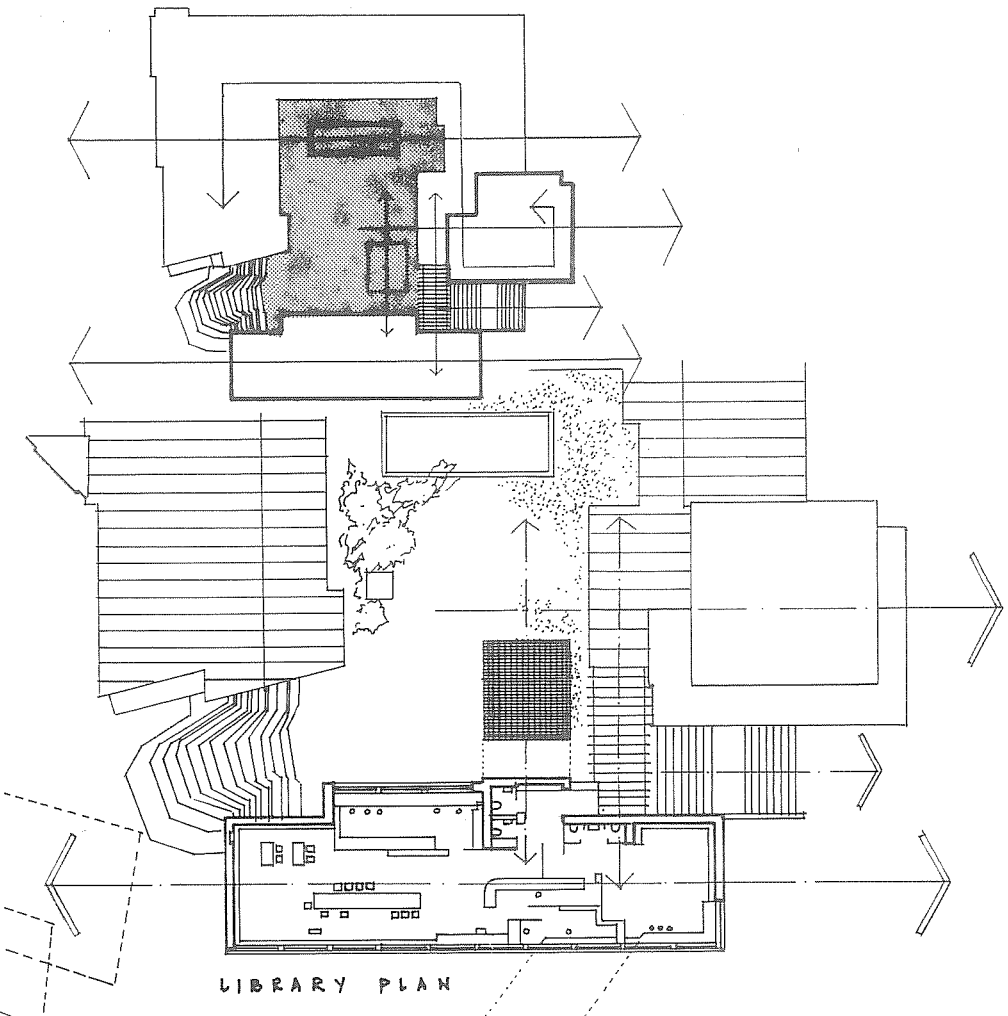
[1] Ibid., p. 154.

STABILIZING ELEMENTS

The council chamber and library act as stabilizing elements which counter pressures within the court. The lateral axis is developed in each configuration, by an outward cantilever in the council block, and by a linear deployment in the library.

The council chamber ensemble is locked on to the library by a pergola which turns movement into the civic suite. A brick paved area (visually aligned with a projection from the library) is placed alongside the pergola on a similar north-south axis. This supports the locking effect of the pergola and indicates a shift in the centre of gravity towards the south east corner.



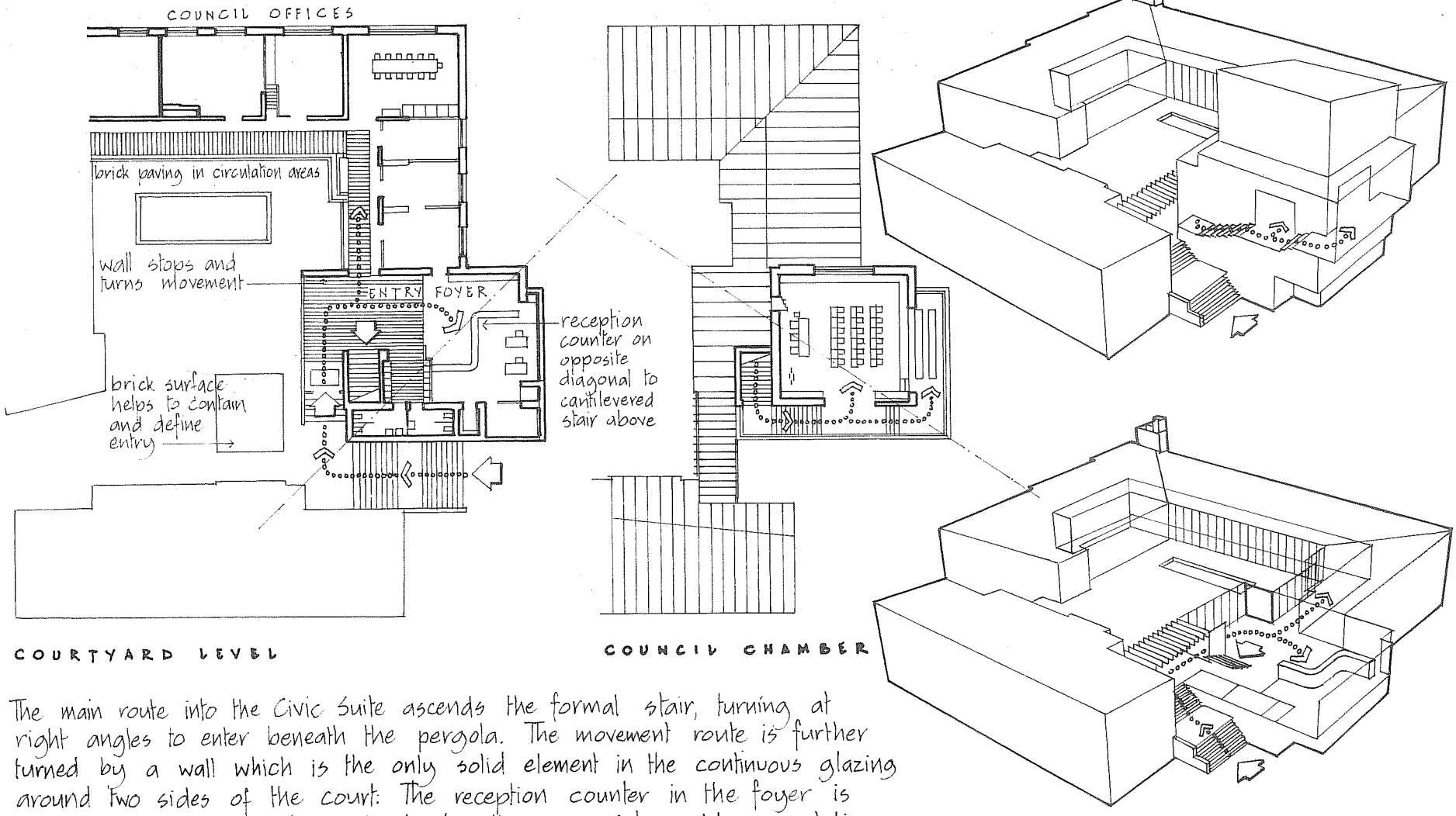


LIBRARY PLAN

echelon deployment along lateral axis of library

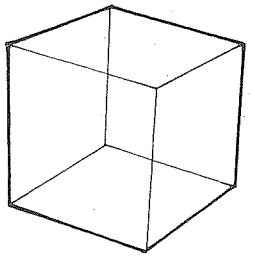
lateral axes developed by a series of vertical planes

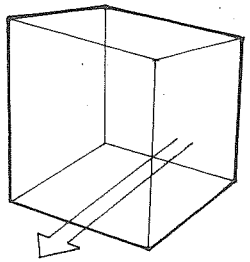
COUNCIL CHAMBER

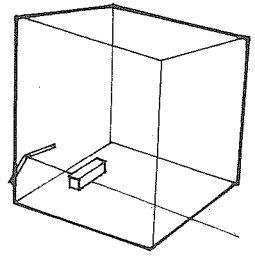


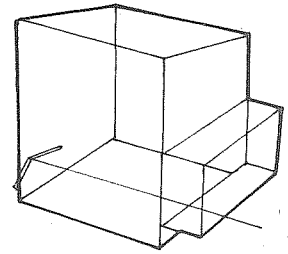
The main route into the Civic Suite ascends the formal stair, turning at right angles to enter beneath the pergola. The movement route is further turned by a wall which is the only solid element in the continuous glazing around two sides of the court. The reception counter in the foyer is echeloned on a diagonal which divides the space into public circulation on the courtyard side and office space and toilets opposite. The stair leading upwards towards the Council Chamber is opposite the circulation route which leads to offices around the court. Moving towards the Council Chamber the route spirals round, giving access at two different levels.

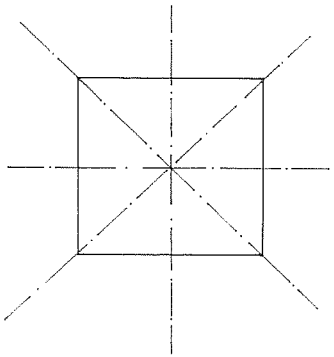
BOX TRANSFORMED



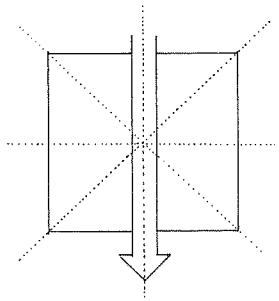




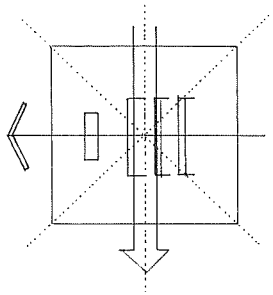




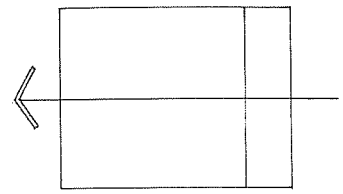
CUBIC BOX



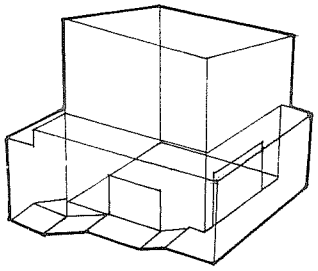
DIRECTIONAL NORTH / SOUTH



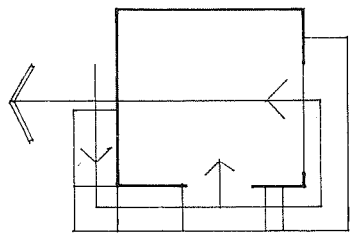
CHAMBER ALIGNED EAST/WEST

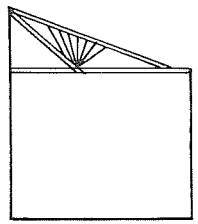


REAR ADDITION

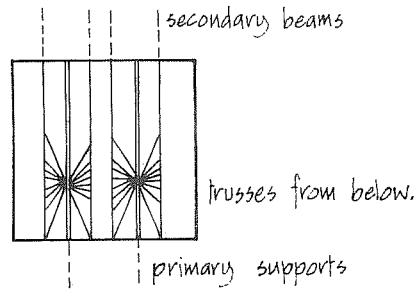


CIRCULATION SPIRAL



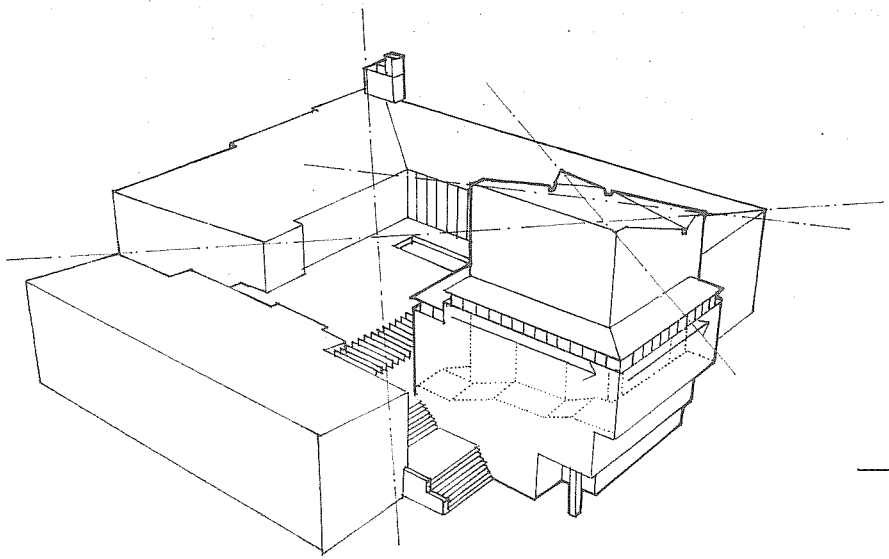


truss in section

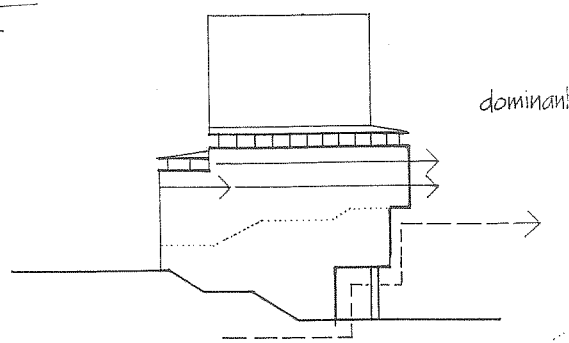


ROOF SUPPORTED BY OUTSTRETCHED 'FINGERS'

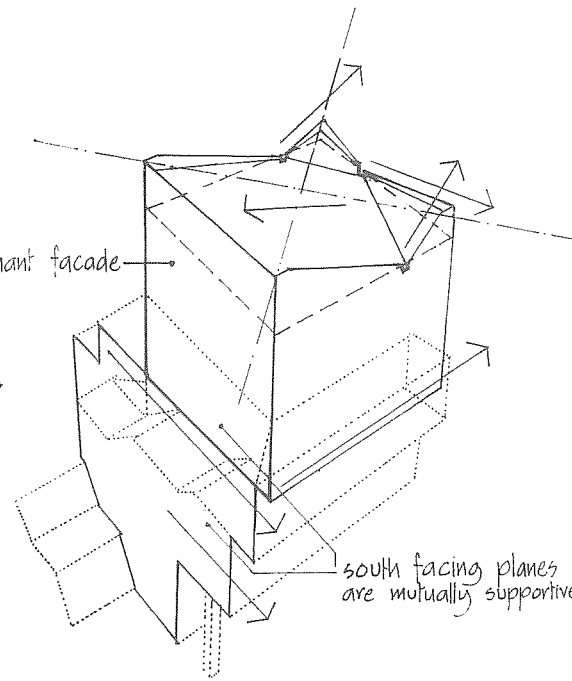
ENERGY



FENESTRATION 'MOVES' AROUND CHAMBER



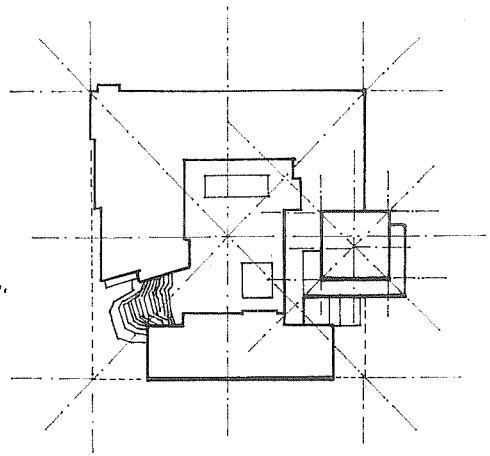
CANTILEVERS TO EAST



The sense of energy around the Council Chamber is developed in several ways. The horizontal slit windows lighting the spiralling route highlight and reinforce the sensation of movement.

Lateral pressure to the east is developed by the double cantilever of the southern plane alongside the entry stairs.

The roof of the chamber dips down from south to north but also ascends again at each corner whilst taking a further dip on the northern side.



ROOF FALLS AND RISES IN 4 DIRECTIONS

Council Chamber and generic form each have orthogonal and diagonal characteristics of a square plan.

COUNCIL CHAMBER

SYMBOLIC READING

At the heart of the ensemble and the community, the Council Chamber expresses its importance by its configurational arrangement. The plan is ordered and axial in an east/west direction. It is approached by a 'ceremonial' route after ascending the formal stair externally and the spiral route internally.

On the interior, the roof celebrates the aspirations of communal government with an emotive gesture in the form of the trusses, which speak of the trees and proud craftsmanship of the region.

The Chamber is the most expressive statement in the ensemble, representing order in its plan and energy in its three dimensional dynamism. The spiral movement symbolizes protection and heightens the importance of the Chamber itself.

Externally the upward tilt of the roof adds to the power and monumentality of the form. To the rear, the multidirectional pitches are similar to the roof trusses in evoking both the complexity and idealism of communal government.

CONFIGURATIONAL READING

The roof pitch gives the form a predominately south-facing role which conforms with a major characteristic of the complex. This alignment is reinforced by the power of the forward projection of the southernmost plane as it is extended by the spiralling route. This plane exerts pressure on the entry stair, whilst the cantilevers push the form out to the east, further strengthening the perceptual impact of the form.

To the rear of the roof, the corner treatment acknowledges the oblique characteristic of the complex. The spiral 'wrap-around' reiterates the orthogonal nature of the court and participates in the double spiral system generated by the chamber.

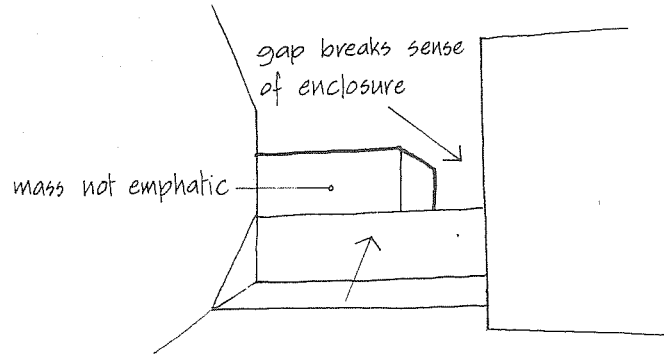
The chamber is therefore in a pivotal position, being pulled by two spirals, one around the court, the other around itself. The cubic form, with its roof rising (in different ways) to all four corners of the mass, is strong enough to resist any attempt to be pulled out of position by the spiral movement systems.

PERCEPTUAL FACTORS

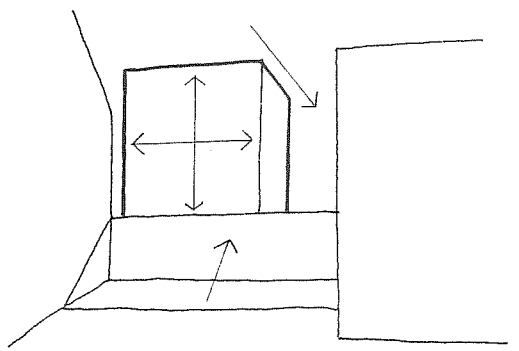
Aalto's deployment of forms in the Säynätsalo Town Hall seems linked to his close examination of the Italian hill town. The complex offers a series of visual experiences concerned with discovery as movement from either approach into the complex is carefully controlled. The organization of the massing provides several messages, amongst which are suggestions of mystery, complexity, energy, monumentality, informality and repose.

Jeremy Blake has considered these issues in an analysis of perceptual factors in relation to each approach to the building.[1] Blake explains how the Council Chamber provides a visual incident when approaching from the west, with the opening leading to the raised court creating a desire to explore. Blake asserts that had the mass expressing the chamber been insignificant, the composition would have failed, particularly if the space had been allowed to leak out at the eastern entry point.

Blake goes on to illustrate how a larger mass would provide the necessary visual stop, but that this would remain unsatisfactory if the space could still leak out.



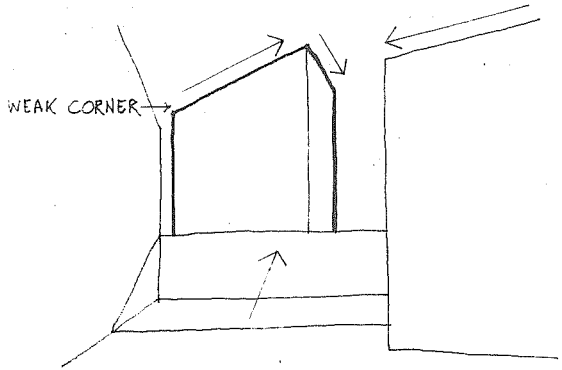
1) APPROACH FROM THE WEST
DESIRE TO ENTER AND EXPLORE, BUT WEAKNESSES IN COMPOSITION WITH SIZE OF DISTANT MASS AND GAP WITH VIEW OUT BREAKING SENSE OF ENCLOSURE.



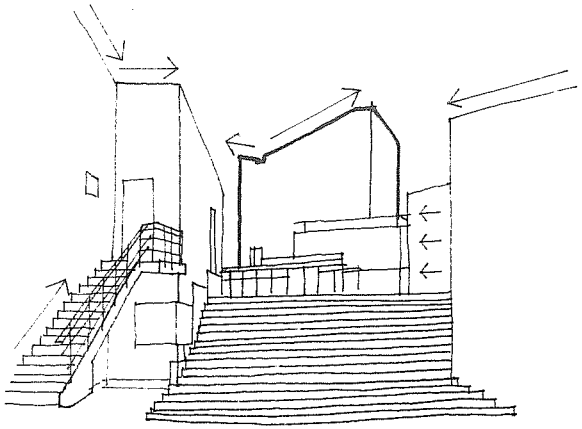
2) INTRODUCTION OF LARGE MASS ASSERTS SENSE OF FULL STOP ALTHOUGH WEAKNESS STILL EXISTS WITH VIEW OUT. RELATIONSHIP OF MASSES MORE EQUAL AND STATIC. PERMANENCE AND CALM.

DRAWINGS AFTER J.M. BLAKE.
CAPTIONS BY J.M. BLAKE.

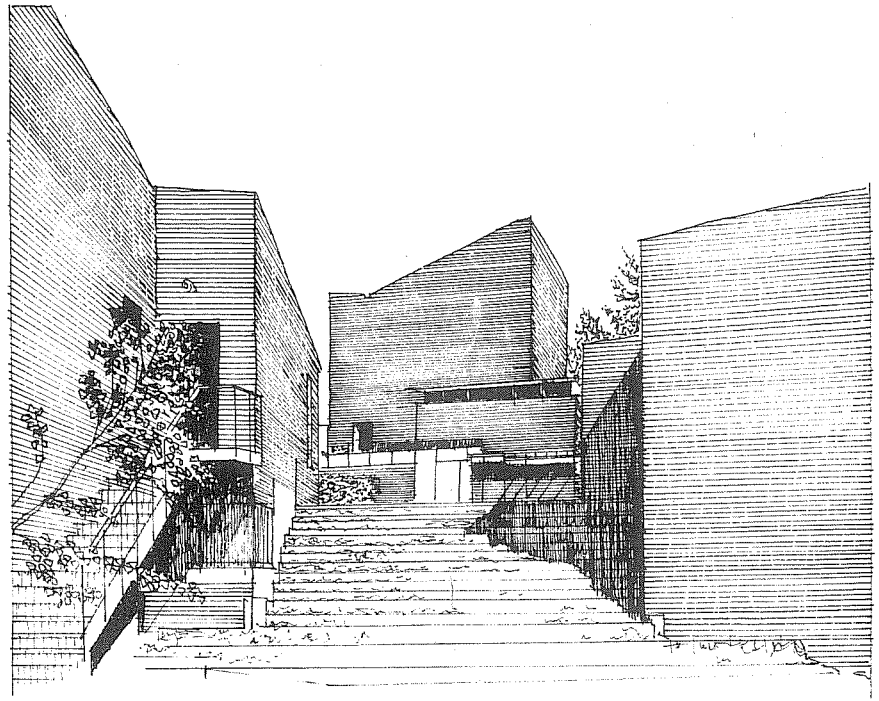
1 Jeremy M. Blake, 'Articulation, Alvar Aalto, Village Hall Säynätsalo,' Dissertation, School of Architecture, University of Newcastle-upon-Tyne 1976



3) VITALITY AND DRAMA BY CONTRASTS IN DIRECTION OF PITCHES AND OBLIQUE APPROACH UP STEPS. DOMINANT FACADE WEAKENED BY VIEW LEAKING OUT AND BY ANGLE OF VISION.

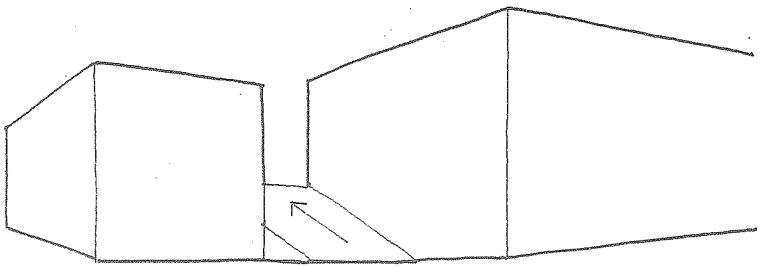


4) FURTHER VITALITY BY STEPPING OF SIDE MASSES. SENSE OF ENCLOSURE WITH MYSTERY OF PARTS UNSEEN. UPWARD ENTRY REINFORCED BY STAIRS TO APARTMENT. WEAK CORNER OF COUNCIL CHAMBER STRENGTHENED.

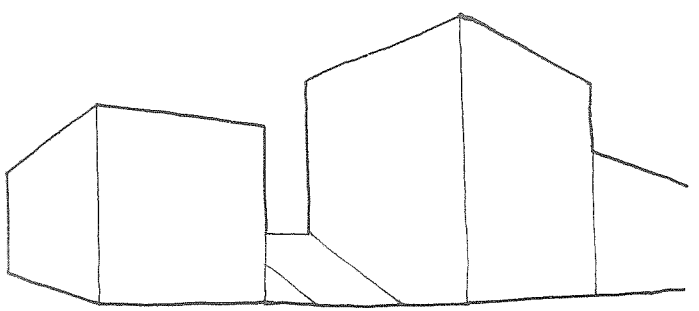


5) COUNCIL CHAMBER ROOF DIRECTIONS STABILISE THE MASS YET MAINTAIN EMPHASIS ON FRONT FACADE. THE EYE IS LED TOWARDS ENTRANCE UNDER PERGOLA AS WELL AS TOWARDS WHAT IS OUT OF SIGHT IN RAISED COURTYARD. THERE IS A COMPLETE FUSION WITH THE SITE BY THE IRREGULAR FLIGHT OF GRASS COVERERED STAIRS. THE MASSES ARE RESTRAINED AND DOMESTIC YET THEY MAINTAIN A SENSE OF VITALITY AND MONUMENTALITY.

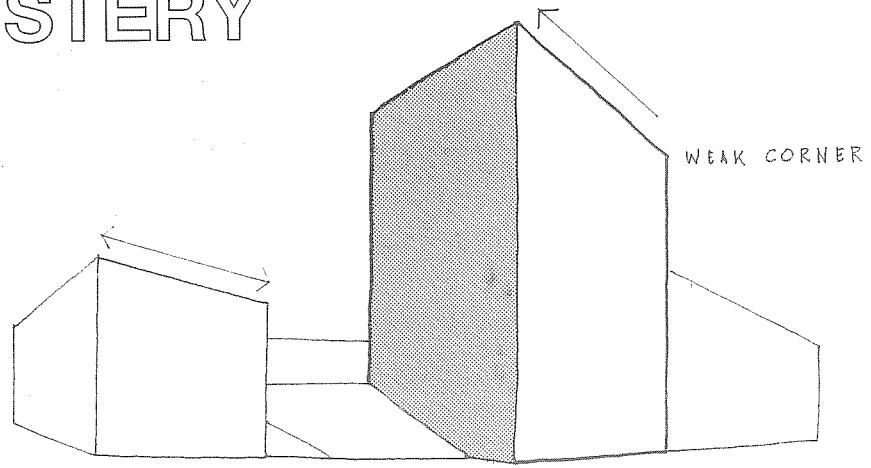
CONCEALMENT AND MYSTERY



1) **APPROACH FROM THE EAST**
MYSTERY OF EXPOSED YET ENCLOSED SPACE HEIGHTENED BY RAISED CENTRAL AREA. DESIRE TO ENTER AND EXPLORE.

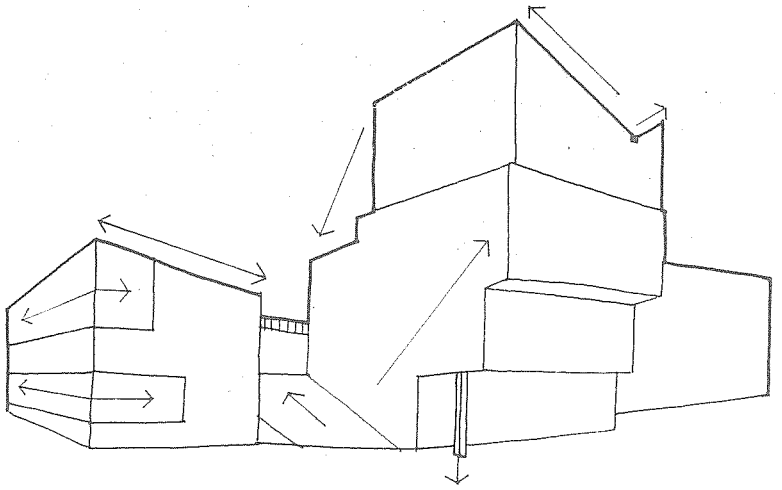


2) LARGER BUILDING MASS INCREASES DRAMA OF CONTRASTS IN THINGS SEEN AND NOT SEEN. APPROACH INTO RAISED COURTYARD MADE MORE MONUMENTAL AND MYSTERIOUS. NO SENSE OF FRONT OR REAR.

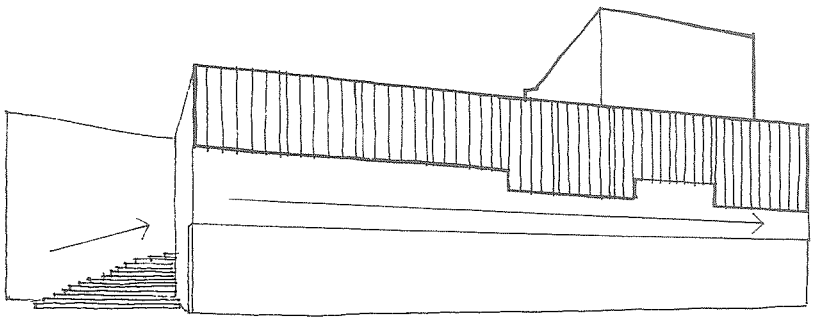


3) THE ROOF PITCH OF THE COUNCIL CHAMBER CREATES ASSERTIVE AND DIRECTIONAL 'FRONT' FACADE. HOWEVER LOWER POINT OF MAIN MASS SEEMS WEAK AND FORM REMAINS SIMPLISTIC.

DISCOVERY BEYOND

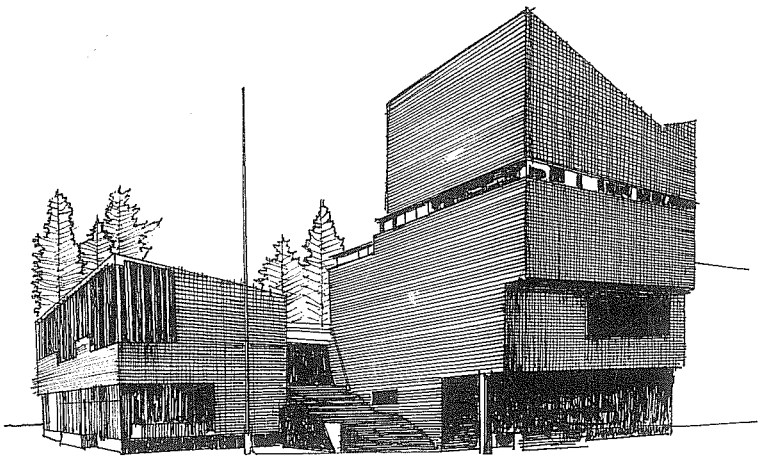


4) SENSE OF MYSTERY CONFIRMED BY PERGOLA WHICH ACTS AS GATEWAY TO UNSEEN UPPER LEVEL. MONUMENTALITY OF MASS MAINTAINED BUT CENTRAL ELEMENT BROKEN DOWN TO INDUCE SCALE AND VITALITY. CONTRAST BETWEEN OBLIQUE UPWARD ENTRY AND OUTWARD PULL OF COUNCIL CHAMBER CIRCULATION. COLUMN EMPHASIZES RELATIONSHIP WITH GROUND. WEAK CORNER OF COUNCIL CHAMBER ROOF STRENGTHENED. FENESTRATION IN SOUTHERN (LIBRARY) BLOCK TURNS CORNER AND POINTS TOWARDS ENTRY STAIR.



5) FROM THE CIVIC SQUARE THE ASSERTIVE RHYTHMIC SLATTED FACADE DOMINATES. BUT THE MASSING OF THE COMPLEX DRAWS THE EYE BEYOND — TO THE LEFT THE UNSEEN BECKONS AS THE CONVOLUTED STAIR INDICATES ENTRY, WHILST THE TWO LOWER PARTS OF THE SLATTED WINDOW MULLIONS DRAW THE EYE TO THE RIGHT. IN THIS DIRECTION THE CHAMBER AWAITS DISCOVERY.

BOLD AND DEFIANT



CIVIC APPROACH UP A GRANITE STAIR. FACADES BOLD AND ALMOST DEFIANT YET RESTRAINED BY SCALE OF WINDOWS AND PROJECTIONS. SENSE OF PERMANENCE AND CALM AS WELL AS MYSTERY AND AUSTERITY.

Blake's analysis of movement towards the building underscores the way Aalto uses massing to control the visitor. On approaching, the courtyard, with its detached southern block, suggests something beyond, an idea confirmed by the visually evident Council Chamber.

Aalto's forms are arranged so as to draw the visitor forward in ways that are appropriate to each approach route and his surface treatment locks the complex into the site in a manner that is specific to every part of the building.

Aalto also deals with the emotional responses of the observer, and as Blake points out, the complex manages simultaneously to suggest monumentality, a degree of domesticity, permanence, calm and vitality.

Aalto's design approach deals with the programme, the Genius Loci and meaning. His use of brick and timber has a cultural reference in that these materials are widely used in Finland. In its form, the building expresses the life of the community, and its relationship to the setting speaks of the strong sense of the landscape that pervades this country of forests and water.

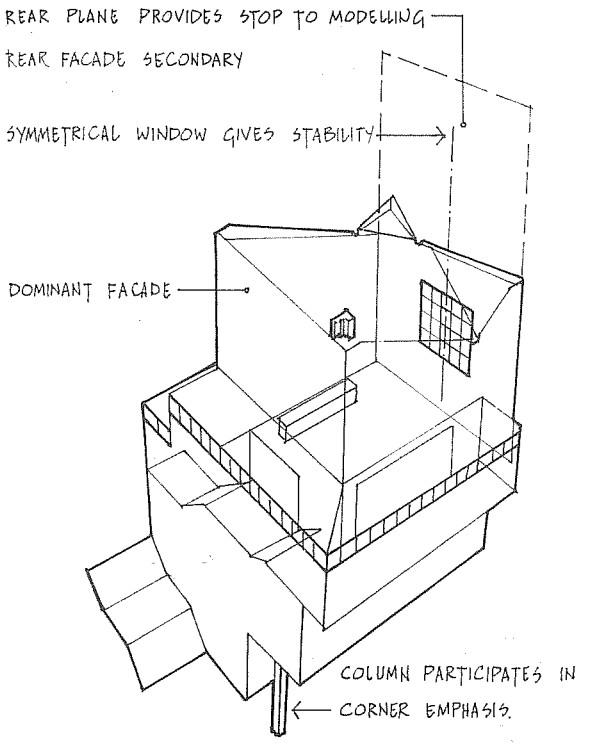
LIGHTING

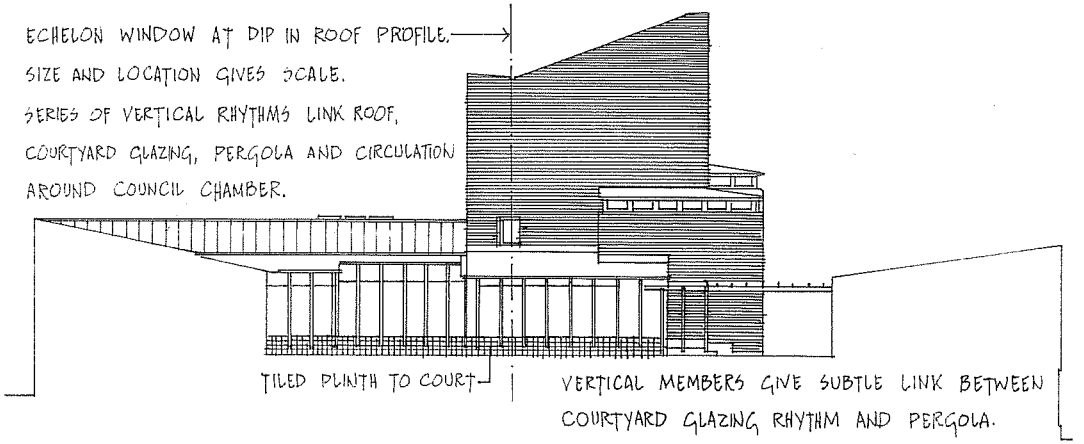
Aalto's lighting philosophy takes account of specific needs within the complex and the way fenestration affects surface treatment and massing.

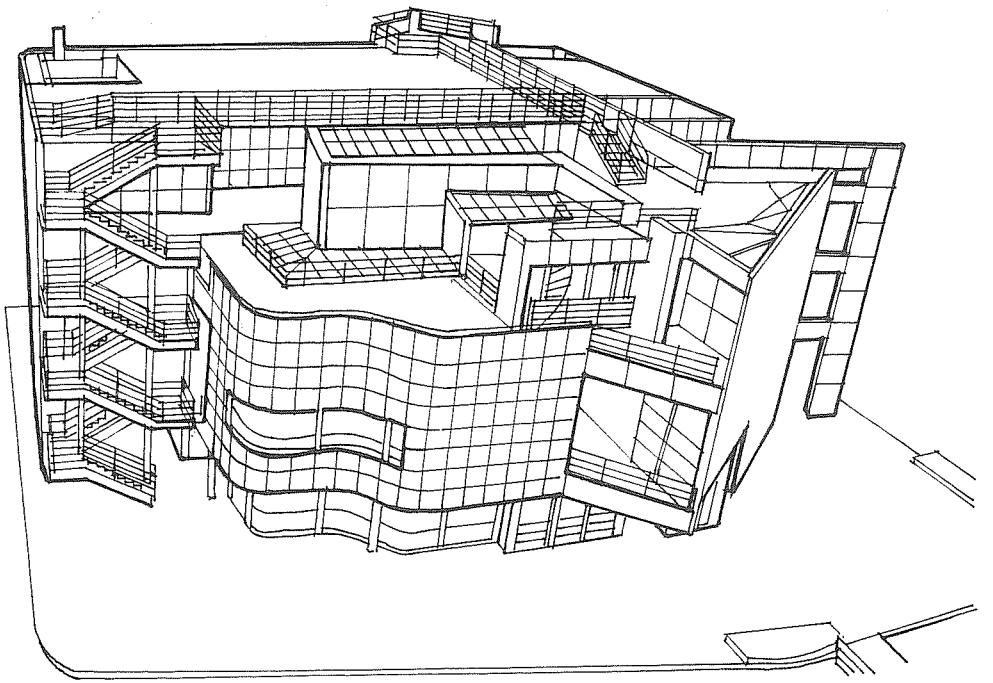
In the Council Chamber a large window lets in light from the north, whilst an echeloned window admits western sun. On the periphery, strip windows at high level light the circulation route which moves around the edges of the chamber.

The large northern window is placed centrally on the wall surface, giving a sense of symmetrical stability to a facade with a roof which pitches sharply upwards. As this is the rear of the mass, the erosion of wall surface caused by such a large window is appropriate, allowing the main weighting to be at the south-facing dominant side of the configuration. This northern plane is a clear stop to the modelling around the chamber, which builds outwards to the east and south, the spiral of the route being clearly indicated by the 'ribbon' of glazing.

The small echeloned window to the west filters the light so that the low rays of the western sun do not shine directly into the chamber. Its surface location does not erode the mass, which retains its power on the courtyard side, and its size gives scale to the facade.







RICHARD MEIER
THE ATHENEUM NEW HARMONY 1975–79

RICHARD MEIER

If Säynätsalo is a consummate demonstration of Aalto's organic architecture, Richard Meier's Atheneum at New Harmony, Indiana, similarly encapsulates the salient characteristics of the architect's personal style.

As Kenneth Frampton has explained,[1] Meier's work falls into an American tradition following on from the work of such influential Europeans as Mies van de Rohe and Walter Gropius. Frampton points out that a third generation of American architects have developed a style relating 'more to the Romantic end of the American ideological spectrum than to the Neoclassical ethos stemming from Mies.'

This third generation, continuing 'the tradition of the International Style through its independent return to pioneer sources,' comprised a group of three, Peter Eisenman, Michael Graves and Richard Meier. Later the group extended to John Hejduk and Charles Gwathmey.

Eisenman, Graves and Meier[2] were originally influenced by Colin Rowe, particularly by his interpretations of Le Corbusier's villas of the late twenties, and if Graves has shifted his position significantly away from these models, a modified Corbusian influence still pervades the work of Richard Meier.

[1] K. Frampton, Introduction to Richard Meier Architect, Buildings and Projects 1966-76, New York, 1976, p 7.

[2] Ibid., p. 8.

Typical of Meier's early work, the Smith House at Darien, Connecticut, although built in timber, has a distinctly Corbusian flavour in its compact organization, abstract imagery and sculptural presence. The house also demonstrates central principles of Meier's design strategy in the clarity and rigour apparent in his diagrammatic categorization of programme, structure, circulation, enclosure and entrance.

However, if a direct comparison be made between the Smith House and two of Le Corbusier's more canonical works, the Villa Savoye and 'les Terraces', (the Villa Stein de Monzie at Vaucresson) the differences are as important as the similarities.[3]

Le Corbusier's villas, although fully exploring the interaction between volume and space, using transparency and erosion of the mass as means of extending contact between the villas and their landscape, are characterized by three distinct 'restrictions.'[3] First, the use of concrete establishes its own kind of plasticity resulting in a strong sense of mass; second, Le Corbusier's adherence to the Greek classical tradition gives him a greater reliance on axiality as a discipline, resulting in his work having an inevitable monumentality; third, Le Corbusier's villas (including the Jaoul Houses) have a strong sense of horizontal stratification. By comparison, the Smith House is more

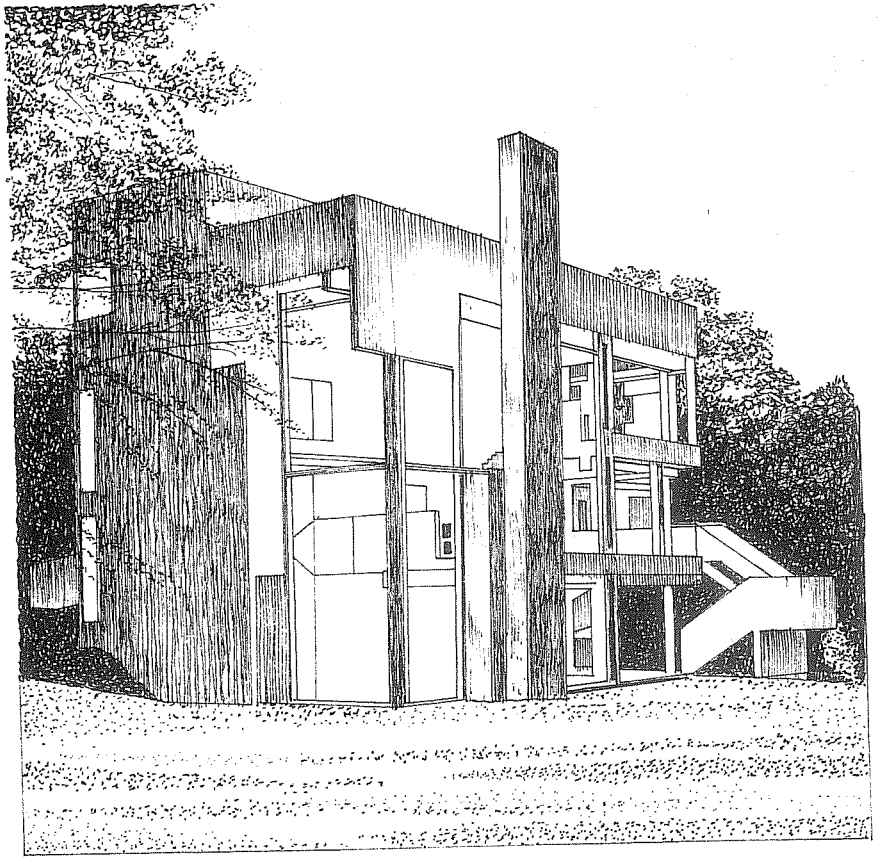
[3] See my analyses of Le Corbusier's villas in Le Corbusier: An analysis of form. (Second edition 1989). Van Nostrand Reinhold (International) Co. Ltd., London.

THE SMITH HOUSE

relaxed, more concerned with planes rather than mass and has a vertical rather than horizontal reading. The house evokes images of the American domestic tradition of Richard Neutra in particular, whose expansive and glamourous houses suggested an openness and opulence that is American and not European. Although as compact as Le Corbusier's villas, the Smith House is more permeable, but in its elaborate interplay of mass and membrane the house has a Corbusian richness of articulation.

These characteristics are retained in other important works, notably in the House at Old Westbury, so strongly reminiscent of the International Style, and in the Douglas House, which extends ideas generated in the Smith House.

Meier's plastic virtuosity and the capacity of his architectural language is demonstrated throughout his work, and the Atheneum, presenting a different kind of opportunity as a public building, has, like Le Corbusier's artist's residences, the right ingredients for Meier in being a very special kind of commemorative museum / information centre. This special quality emerges from the nature of the programme, with its historical and idealogical associations, and the site, these enabling Meier to exploit an articulation system based on circulation and an orthogonal grid to form a typically complex and elaborate statement.



THE SMITH HOUSE
DARIAN CONNECTICUT 1965-67

PROGRAMME

The town of New Harmony was founded by George Rapp and his followers in 1818. The Harmonists, as they were called, came from Wurttenburg in Germany. They were intensly religious, industrious, and believed it was necessary to create a harmonious world to prepare for Christ's second coming.

This religious community was self-sufficient and was based on agriculture and the making and selling of goods and merchandise. They lived communally, so everything could be shared – no rich, no poor, everyone to be equal.

In spite of its prosperity, there were problems, and so in 1825 New Harmony was sold to the Scottish philanthropist, Robert Owen. He sought to further those ideals on which his utopian community of New Lanark in Scotland had been based. Owen, like Rapp, was committed to the idea of a model community and attracted a wide following of scientists and educators.

This rich heritage and commitment to religion, science and education, powerful and universal utopian ideals, provided the roots for a community that embodied the spirit of energy and those heroic visions on which America was founded.

These idealistic beginnings to the town of New Harmony have continued through the nineteenth and into the twentieth century and it is presently enjoying a renaissance based on tourism. This influx of visitors has given cause to restore the historic buildings as reminders of the town's cultural heritage, but also to build a centre-piece – the Atheneum – for its historic district.

This tourist information centre at once expresses the modernity of the twentieth century, but also contains subtle clues to the past and has a pivotal role in the understanding of the town's complex history.

The architect, Richard Meier, was asked to conceive a building as a place in which the public would become aware of the uniqueness of this historic town. He was asked to provide a building which would use modern materials and techniques and which would give visitors a sense of excitement as they arrive at the town.

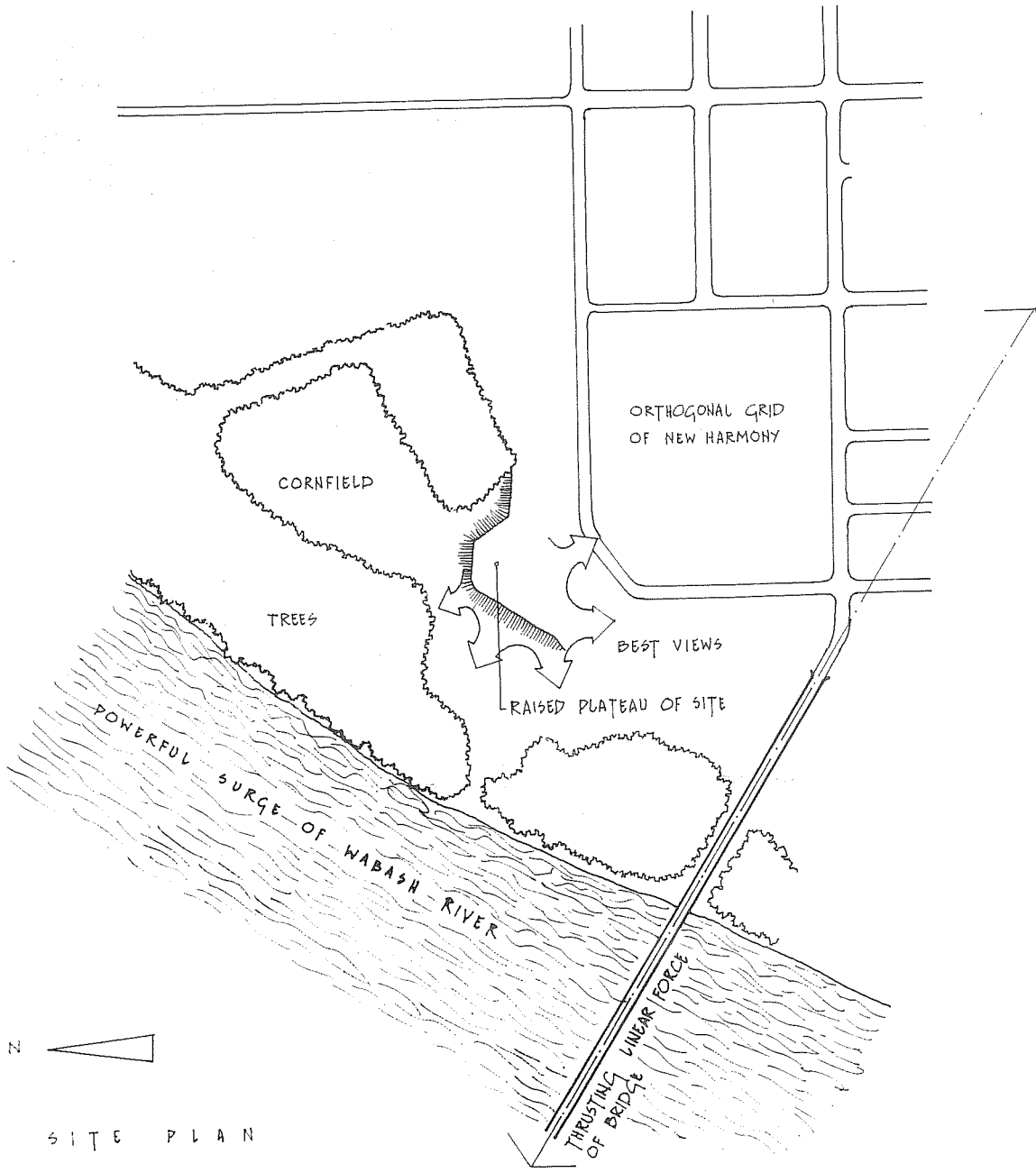
SITE FORCES

The Atheneum site is at a point where the river and the town interact with each other; the site is at the edge of the town, between it and the river. Because the river floods to varying levels each year, the site is raised on a shallow plateau. From this elevated location, views are in an arc around the site with good views towards the river and the town.

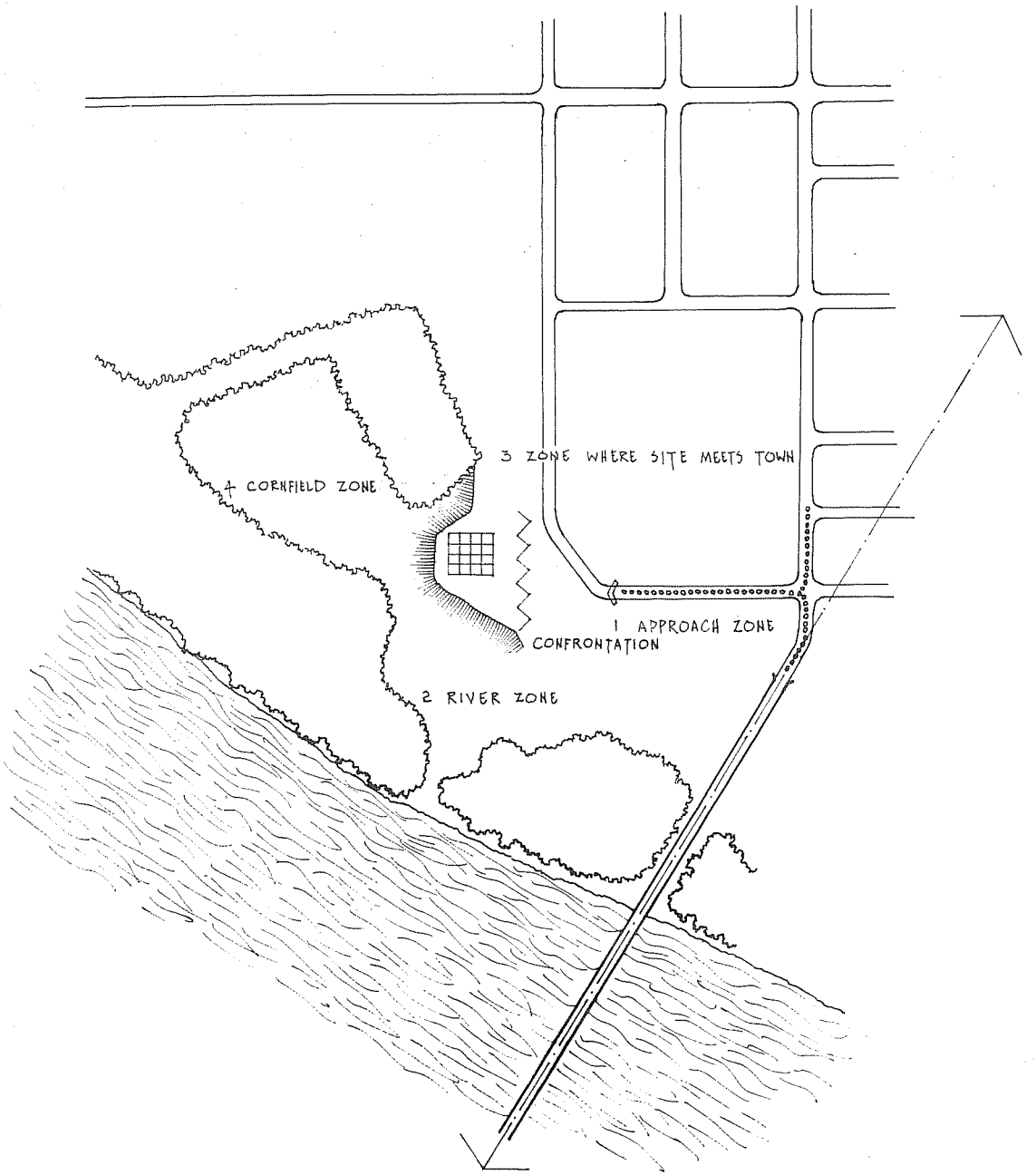
The river surges at an angle to the town, this being apparent in the way the bridge bends to cross the river, its angle being at variance with the town grid.

The placement of the Atheneum on the edge of the town by the river is appropriate because this way the town is preserved intact and the building can express those intellectual ideals on which the town was founded in an entirely modern way.

These two forces, town and river, are quite different. The river is broad, a powerful surging force bordered by trees and cornfields. It is visually compelling and the best views are towards it.



SITE PLAN

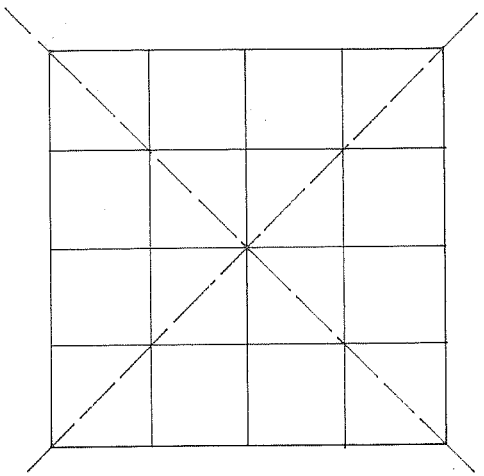


ZONES

By contrast, the town is a more placid ordered affair. It has a regular grid and is a product of man's imagination. So the task of the building is to mediate between man, as expressed through his intellectual idealism and the powerful and beautiful forces of nature.

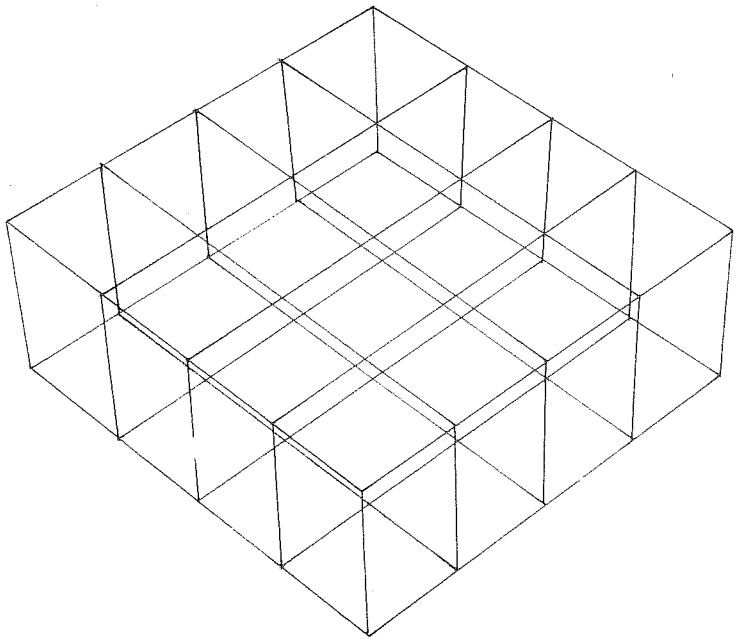
The way the bridge crosses the river at an angle seems to symbolize this interaction between man and nature. If we think of the site as a series of zones, there are four of these. First there is the zone of approach from the town. Most visitors arrive along the road forming the central axis of New Harmony, then turn at right angles towards the building. Secondly there is the zone between the building and the river, this being a symbolic access route from the river. Third there is the zone where the site meets the town, and fourth there is the area to the northeast, a cornfield surrounded by trees. Giving priorities to these zones, the approach is most important because this is the first point of contact, of confrontation, between visitor and building. Second is the river zone, where the building relates to the river and takes advantage of the views. Third is the zone where site and town meet, and fourth, the cornfield zone to the north and northeast.

ORTHOGONAL GRID



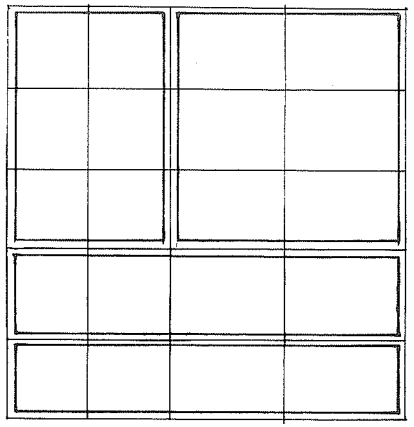
GENERIC SQUARE

Given the site conditions, Richard Meier exploits the opportunities by placing a square box on the site plateau with a structural grid adhering to that of the town grid. It is regular, symmetrical and orthogonal.



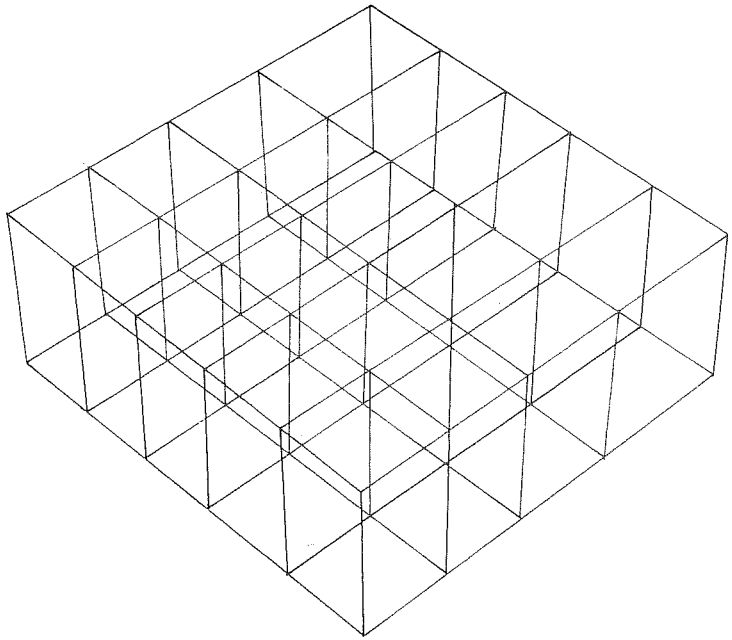
REGULAR SYMMETRICAL ORTHOGONAL

FUNCTIONAL GRID



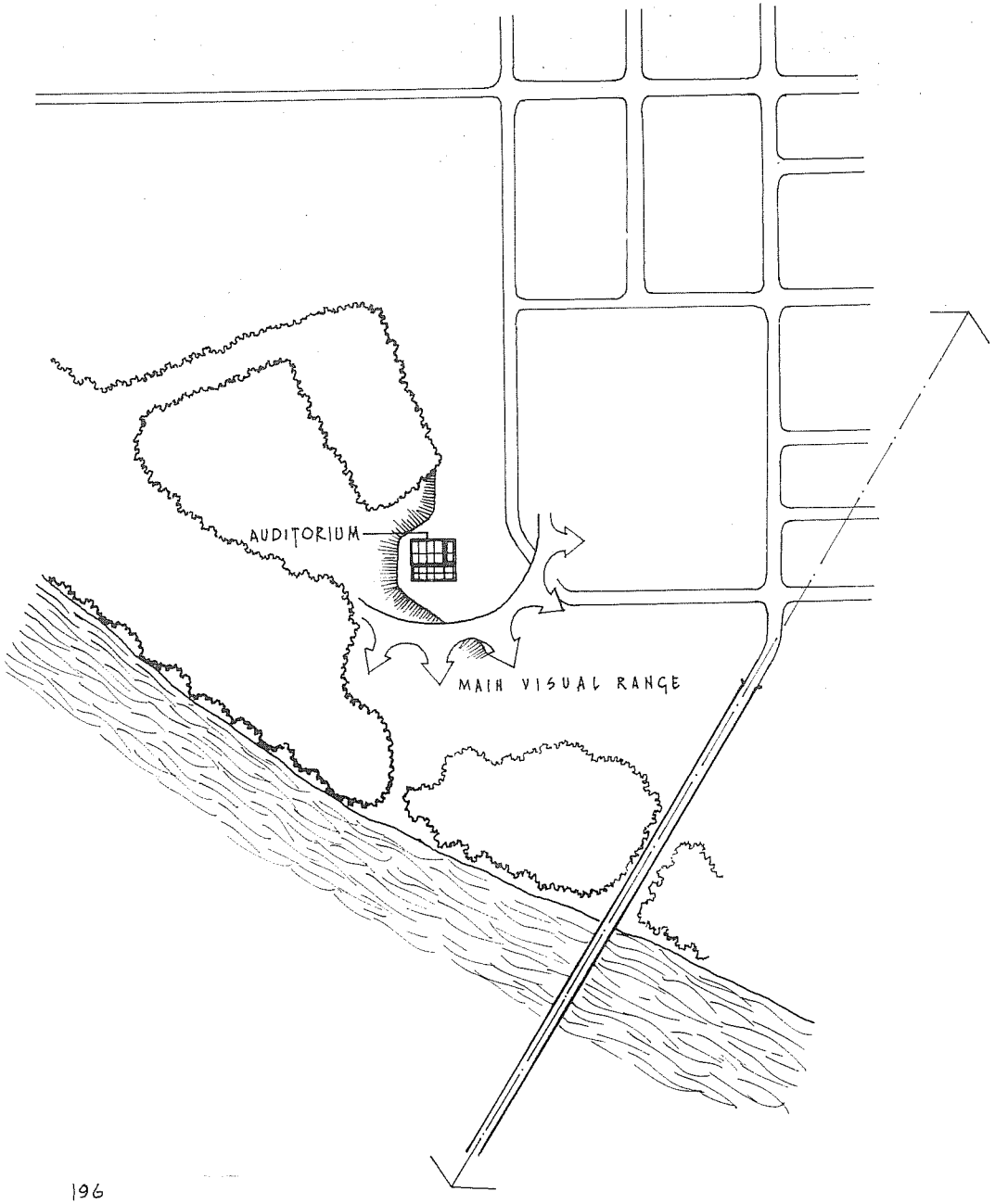
FOUR ZONES

The regularity of the orthogonal grid changes to accommodate internal functional needs resulting in a changed module. The new grid system can be subdivided into four distinct zones.



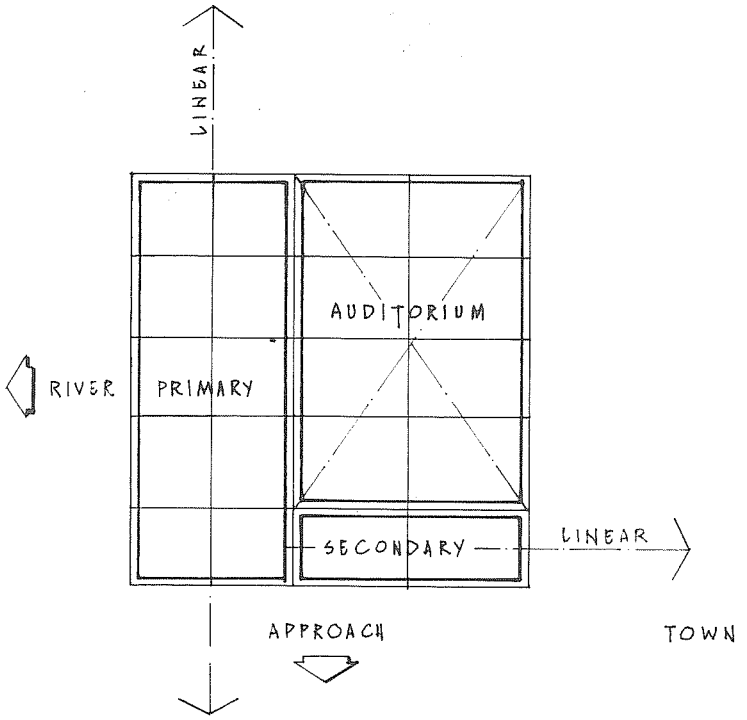
ADJUSTMENT TO ORTHOGONAL GRID

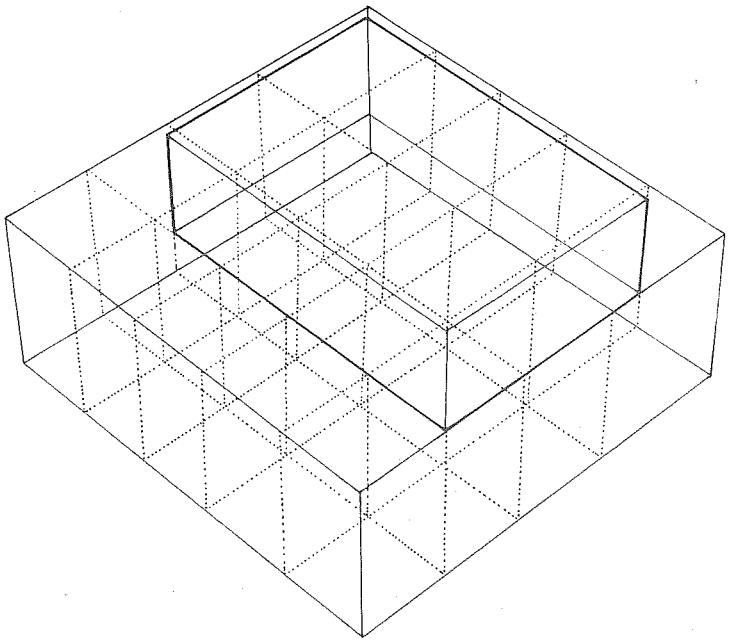
VISUAL RANGE



Accepting the prime visual opportunities as extending in an arc from north to southeast, Meier places the closed box of the auditorium on the northeastern side of the site.

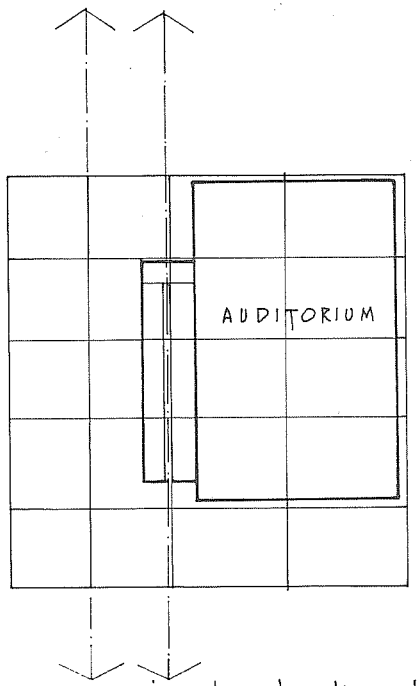
AUDITORIUM

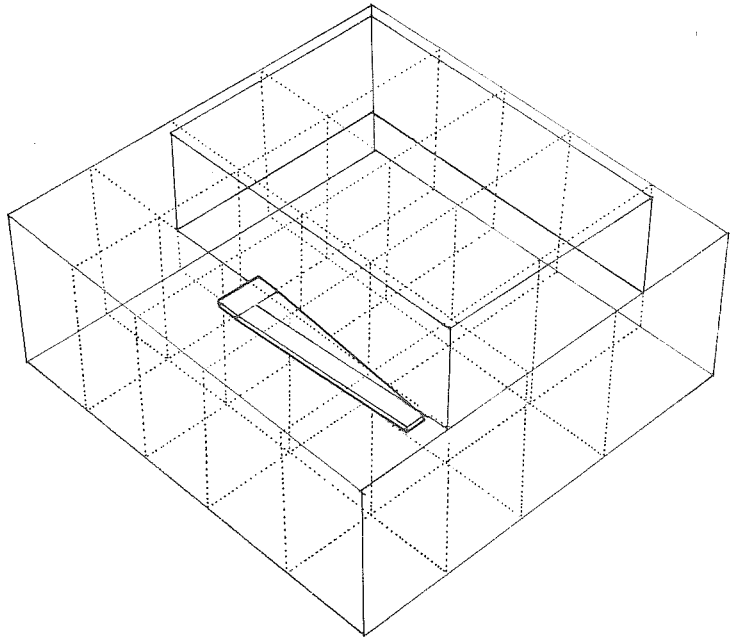




The way the auditorium is placed reorganizes the zones within the grid, resulting in the formation of two zones within the box, one larger than the other, a primary zone facing the river and a secondary zone facing the approach route.

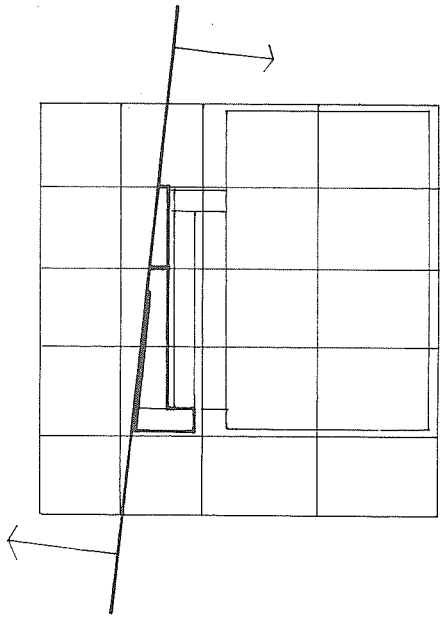
RAMP

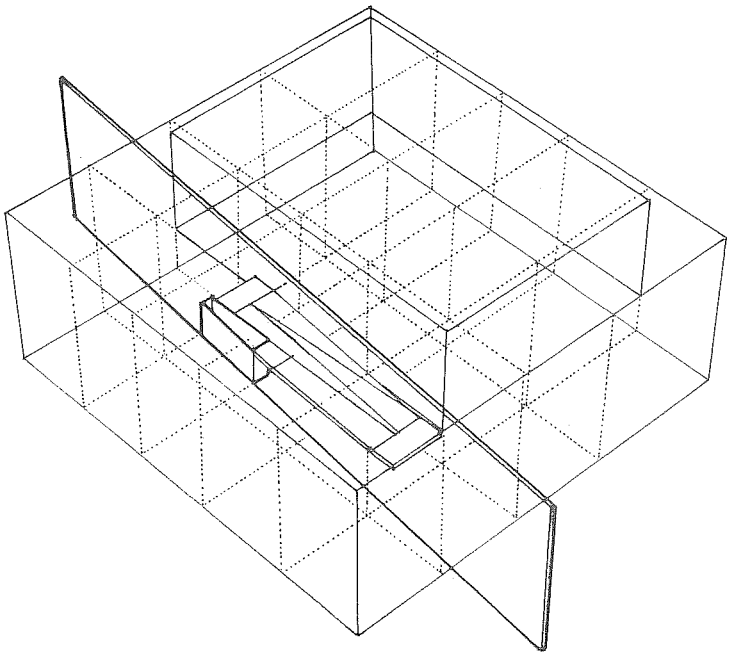




A ramp is placed adjacent to the auditorium so that it reinforces the linearity of the primary zone.

TILTED AXIS

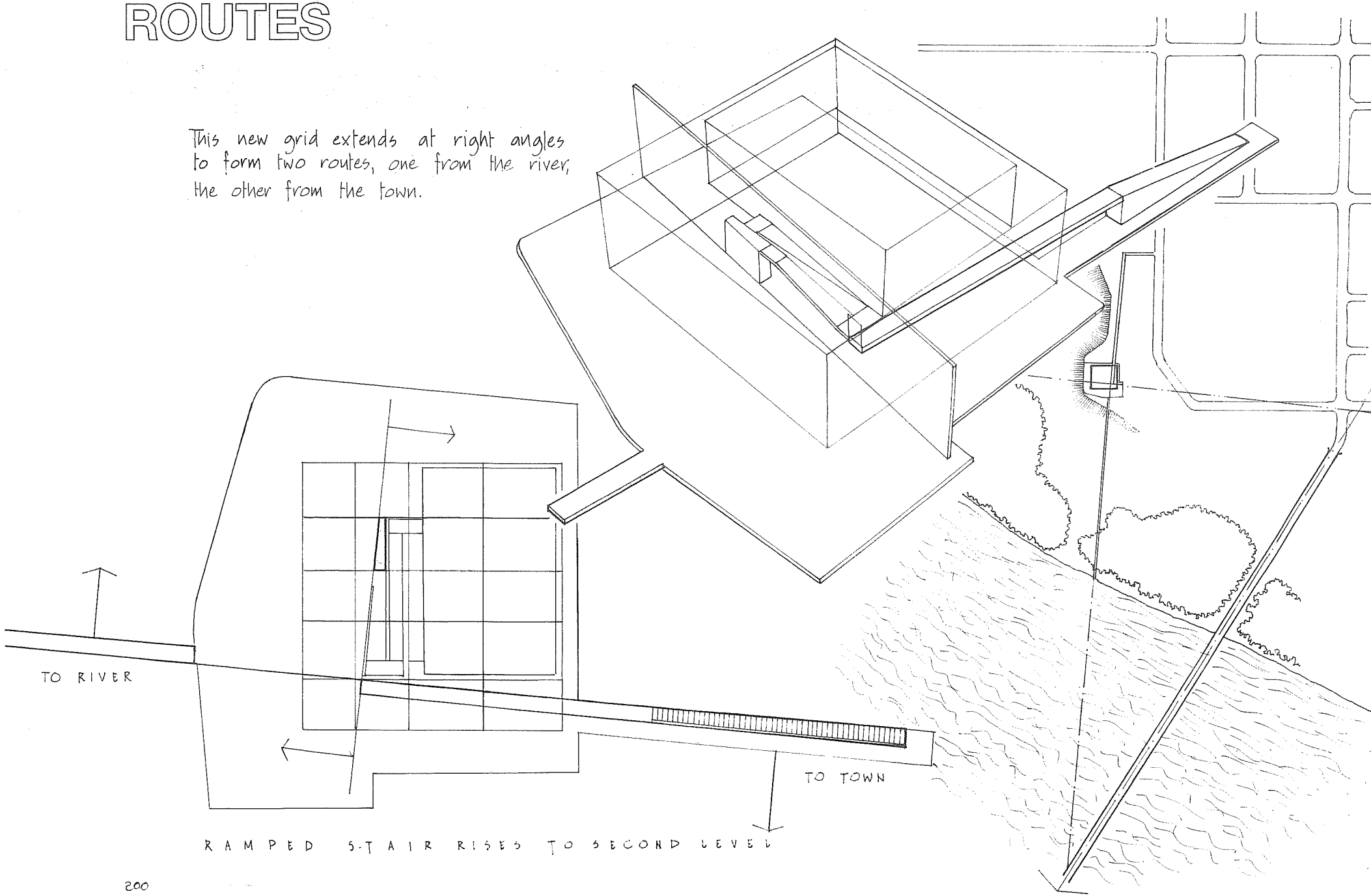




A 5° angle is introduced to the design so that the ramp adjusts to the new alignment. A core is formed where the two grids meet.

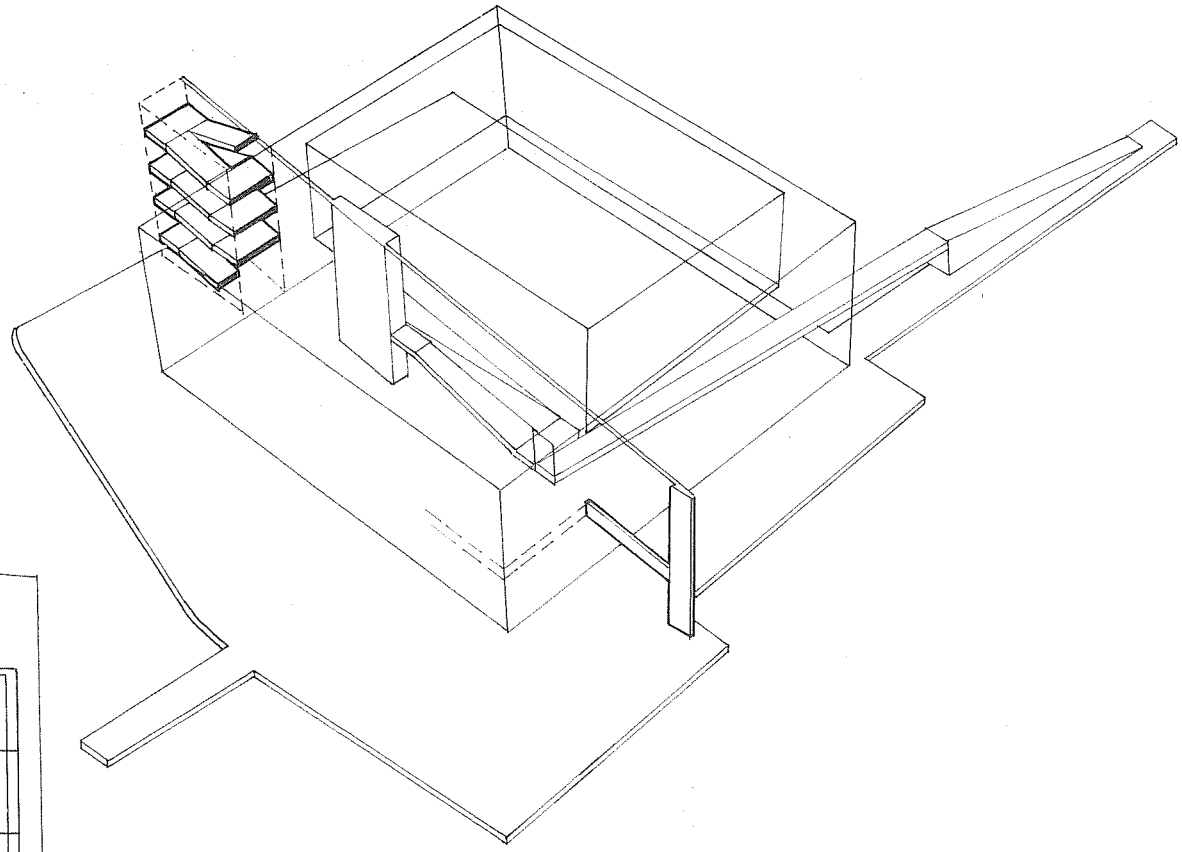
ROUTES

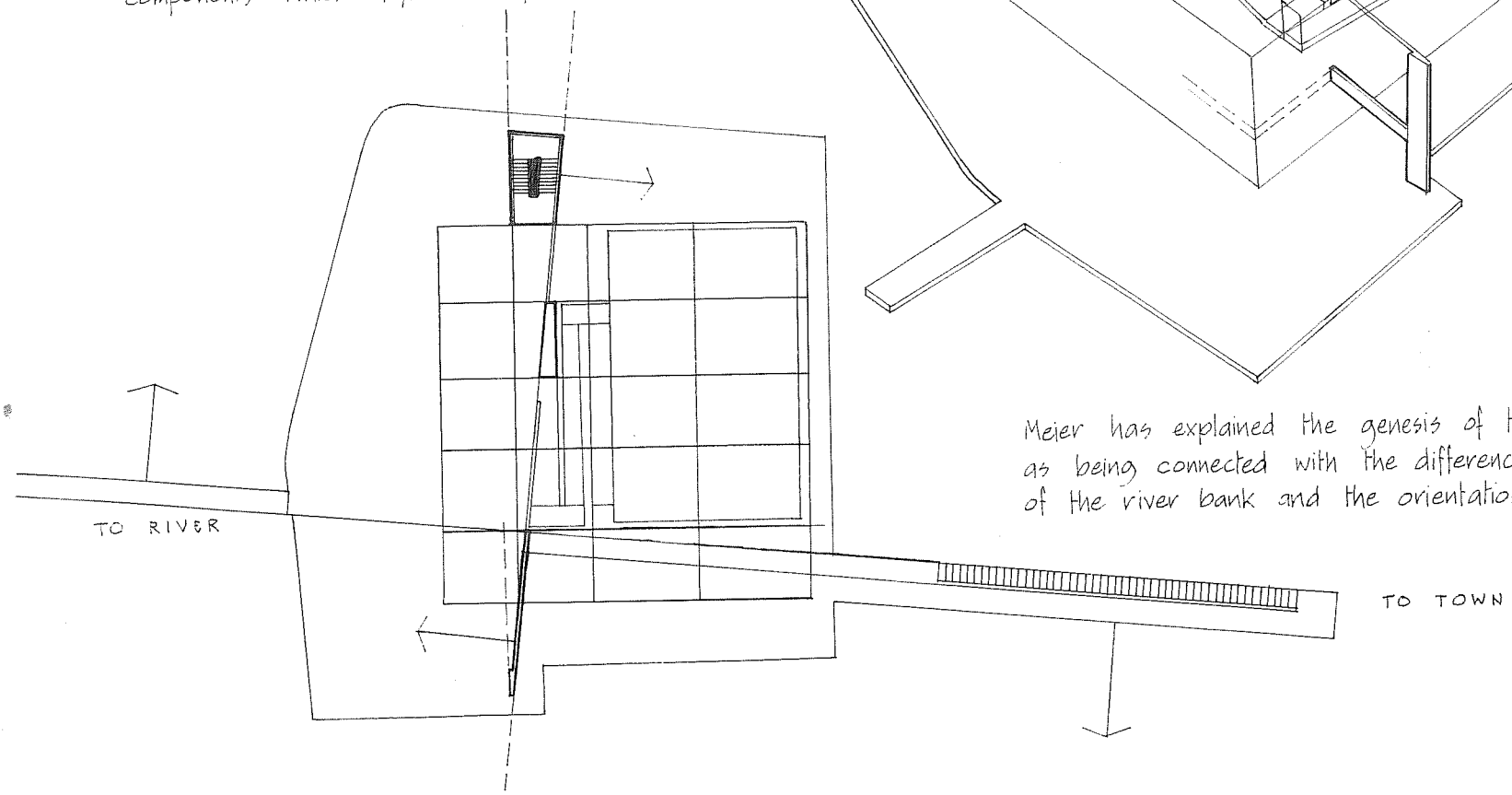
This new grid extends at right angles to form two routes, one from the river, the other from the town.



STAIR AND SCREEN

The new grid emerges from the box to form a stair to the north and a screen to the south. The stair ends the linear thrust taking it down to the ground like a lightning conductor, and it belongs to both grids. The route out of and into the building from the town punctures the screen and the screen emerges from the form as a thrusting linear force with horizontal components which define the floors.

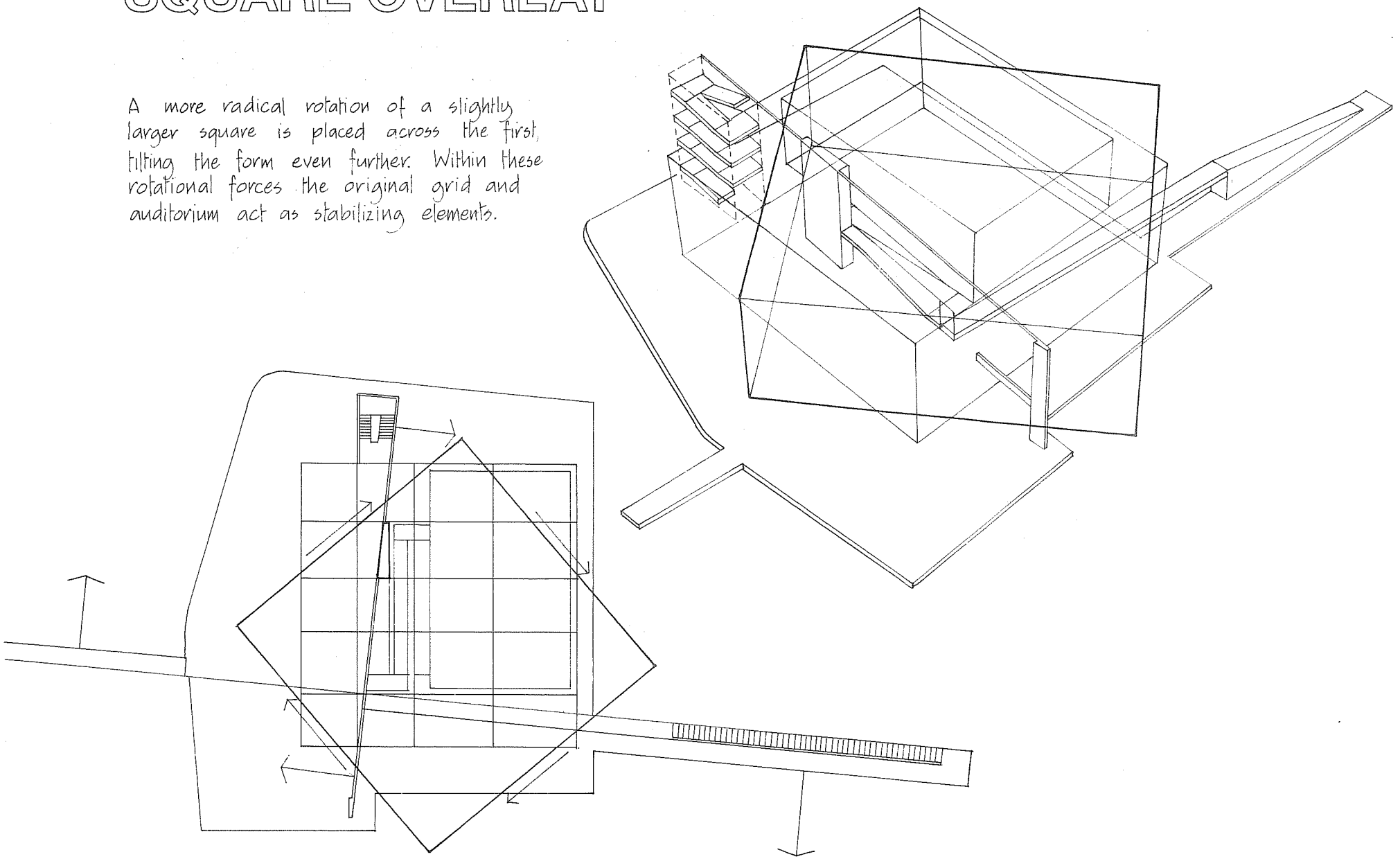




Meier has explained the genesis of the slight shift in grids as being connected with the difference in the skewed edge of the river bank and the orientation of the town grid.

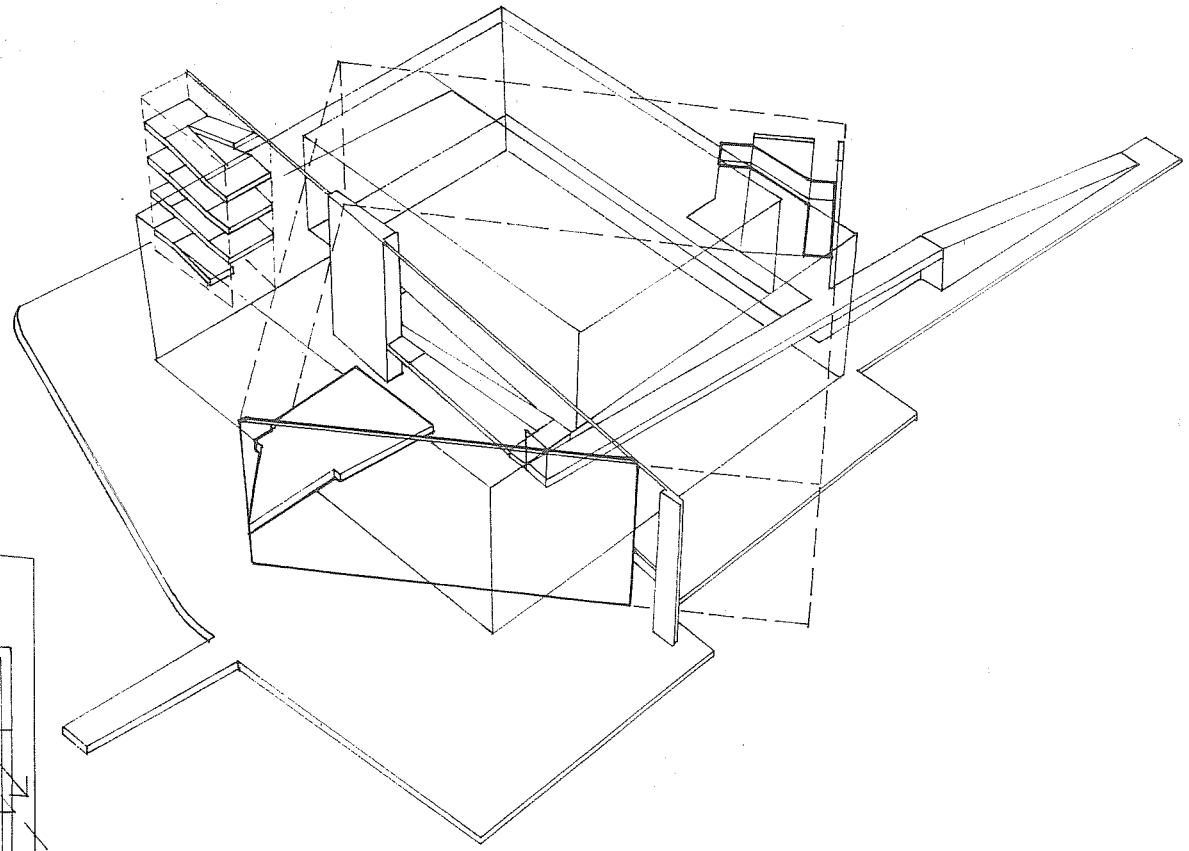
SQUARE OVERLAY

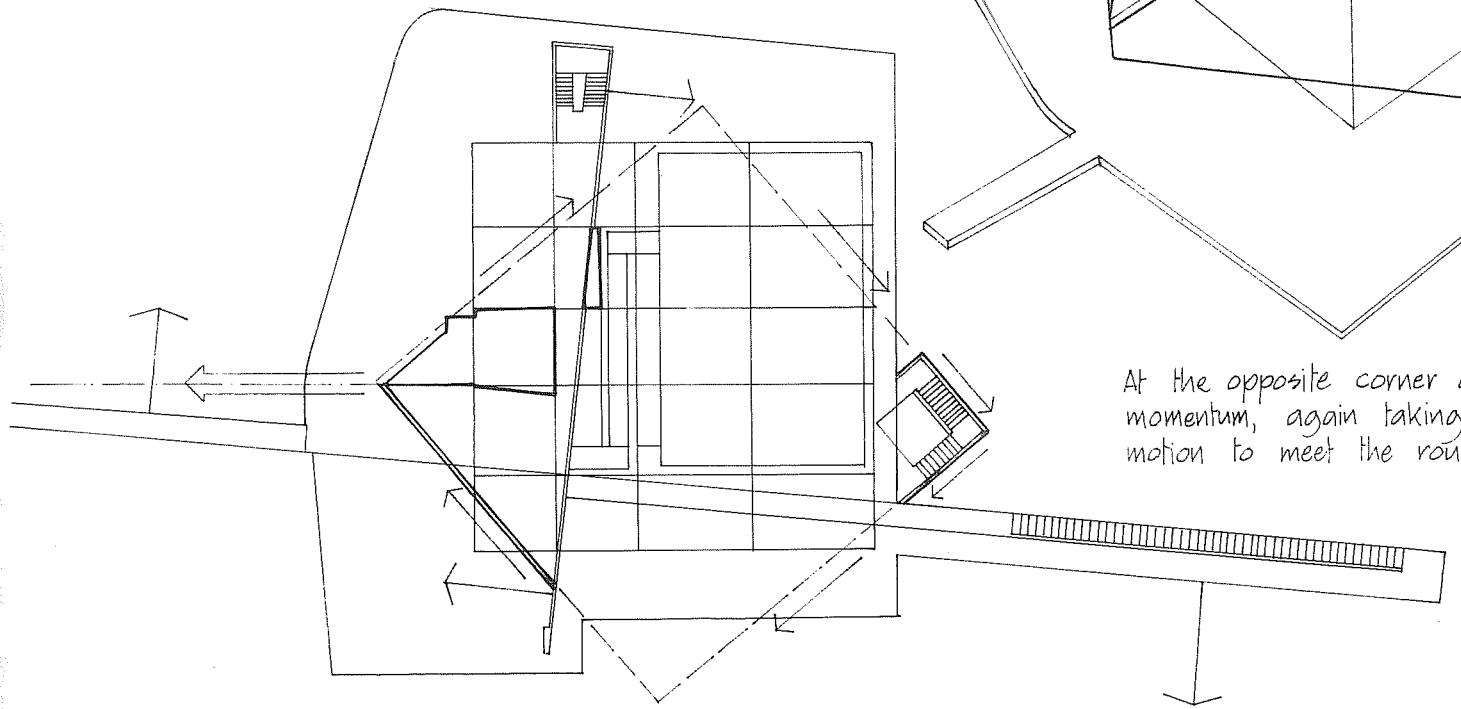
A more radical rotation of a slightly larger square is placed across the first, tilting the form even further. Within these rotational forces the original grid and auditorium act as stabilizing elements.



SCREEN AND STAIR

A screen delineates the square to the southwest giving expression to the turning moment. The corner is stated by the horizontal edge to an observation deck so that the vertical screen and horizontal edge come together to form a thrusting axis pointing along the original grid towards the river.





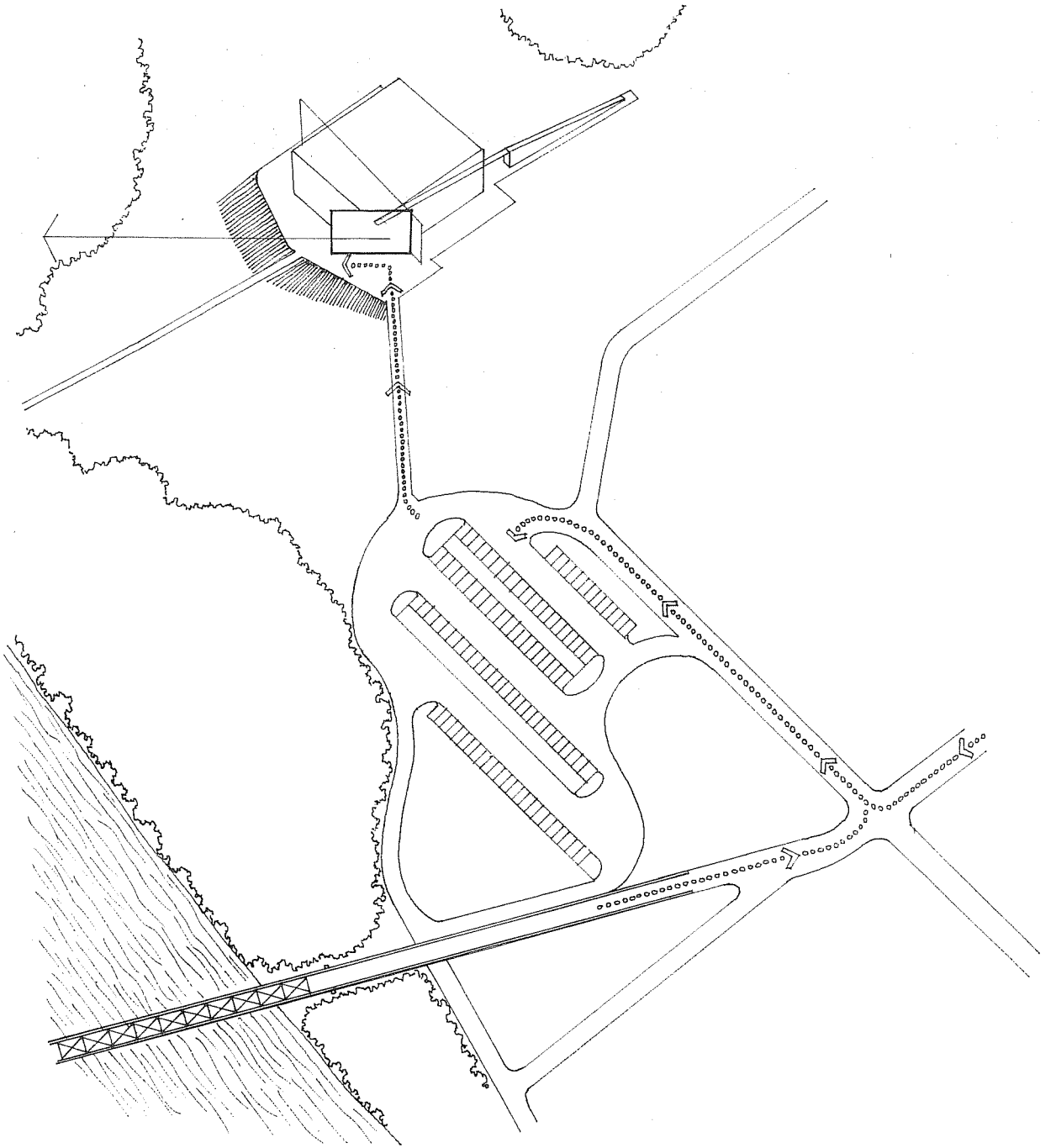
OBSERVATION DECK AT SECOND LEVEL

At the opposite corner a square staircase has its own turning momentum, again taking a route downwards in a cascading motion to meet the route leading out of the building.

APPROACH

The rotated square forming the screen provides a planar barrier, which upon arrival to the building turns the eye towards the river.

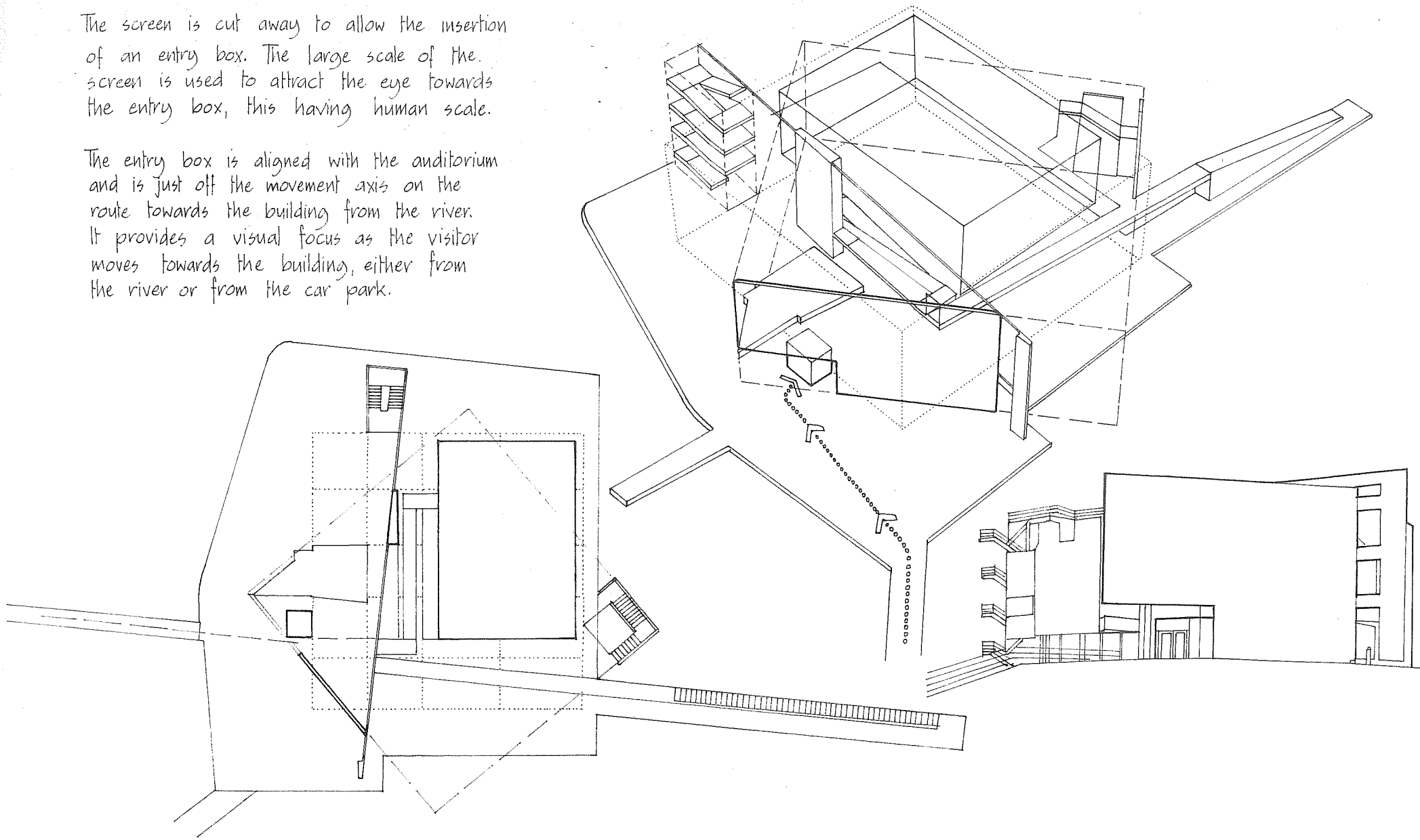
On approaching from the parking area, the eye and movement is turned towards the river. The approach route is at 90° to the screen, which prevents any view into the building.



ENTRANCE

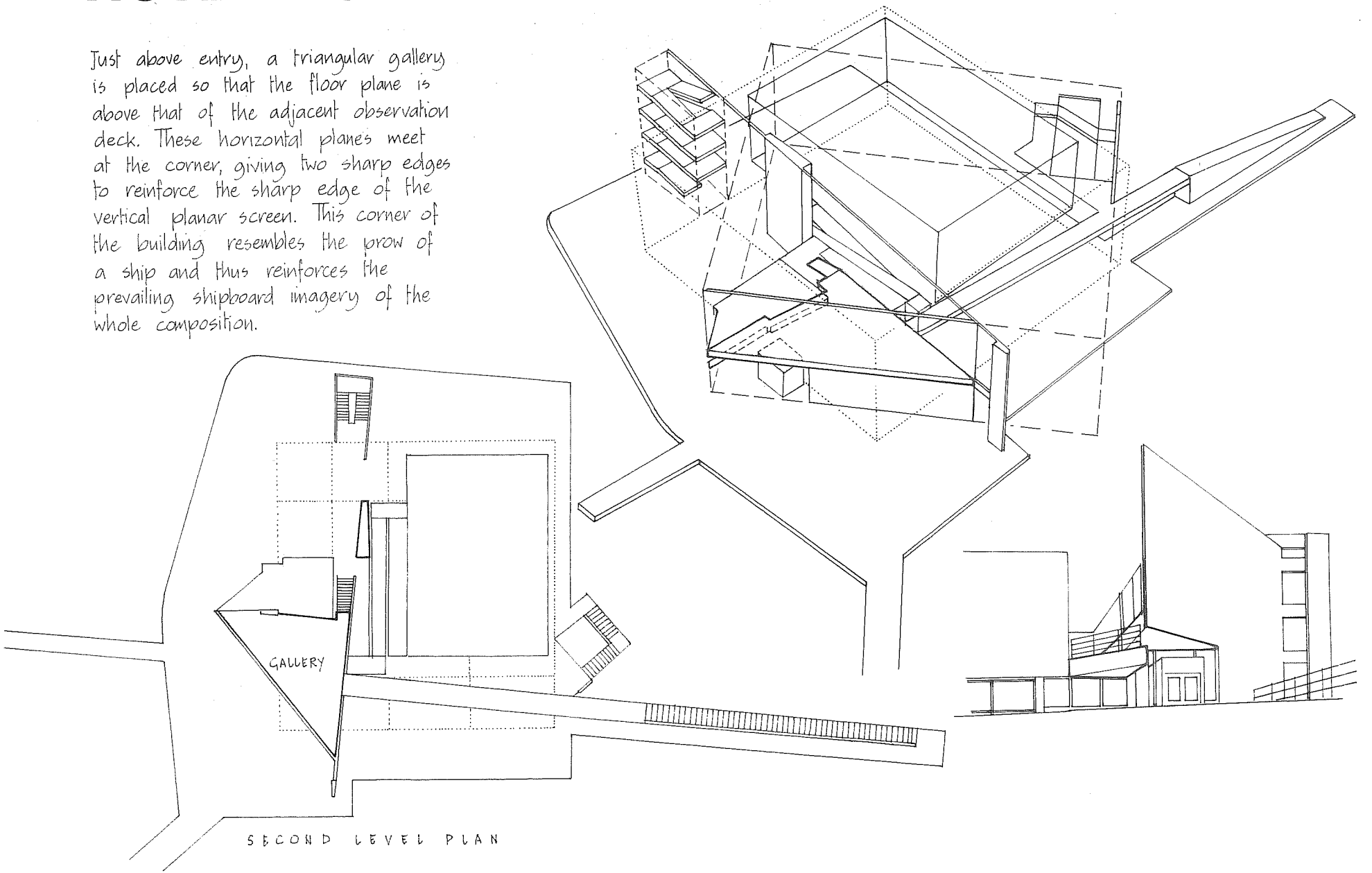
The screen is cut away to allow the insertion of an entry box. The large scale of the screen is used to attract the eye towards the entry box, this having human scale.

The entry box is aligned with the auditorium and is just off the movement axis on the route towards the building from the river. It provides a visual focus as the visitor moves towards the building, either from the river or from the car park.



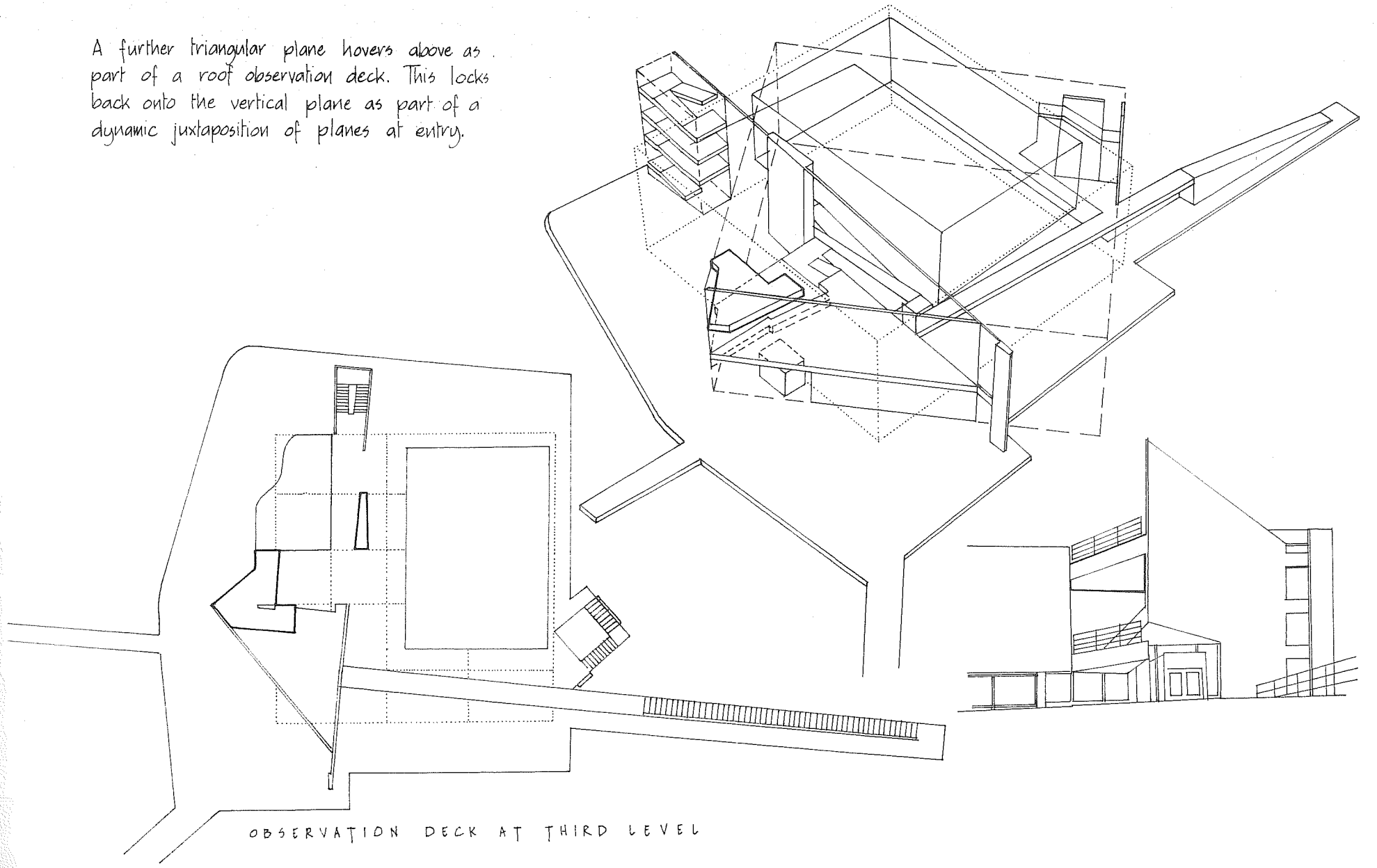
HOVERING PLANES

Just above entry, a triangular gallery is placed so that the floor plane is above that of the adjacent observation deck. These horizontal planes meet at the corner, giving two sharp edges to reinforce the sharp edge of the vertical planar screen. This corner of the building resembles the prow of a ship and thus reinforces the prevailing shipboard imagery of the whole composition.



DYNAMIC CORNER

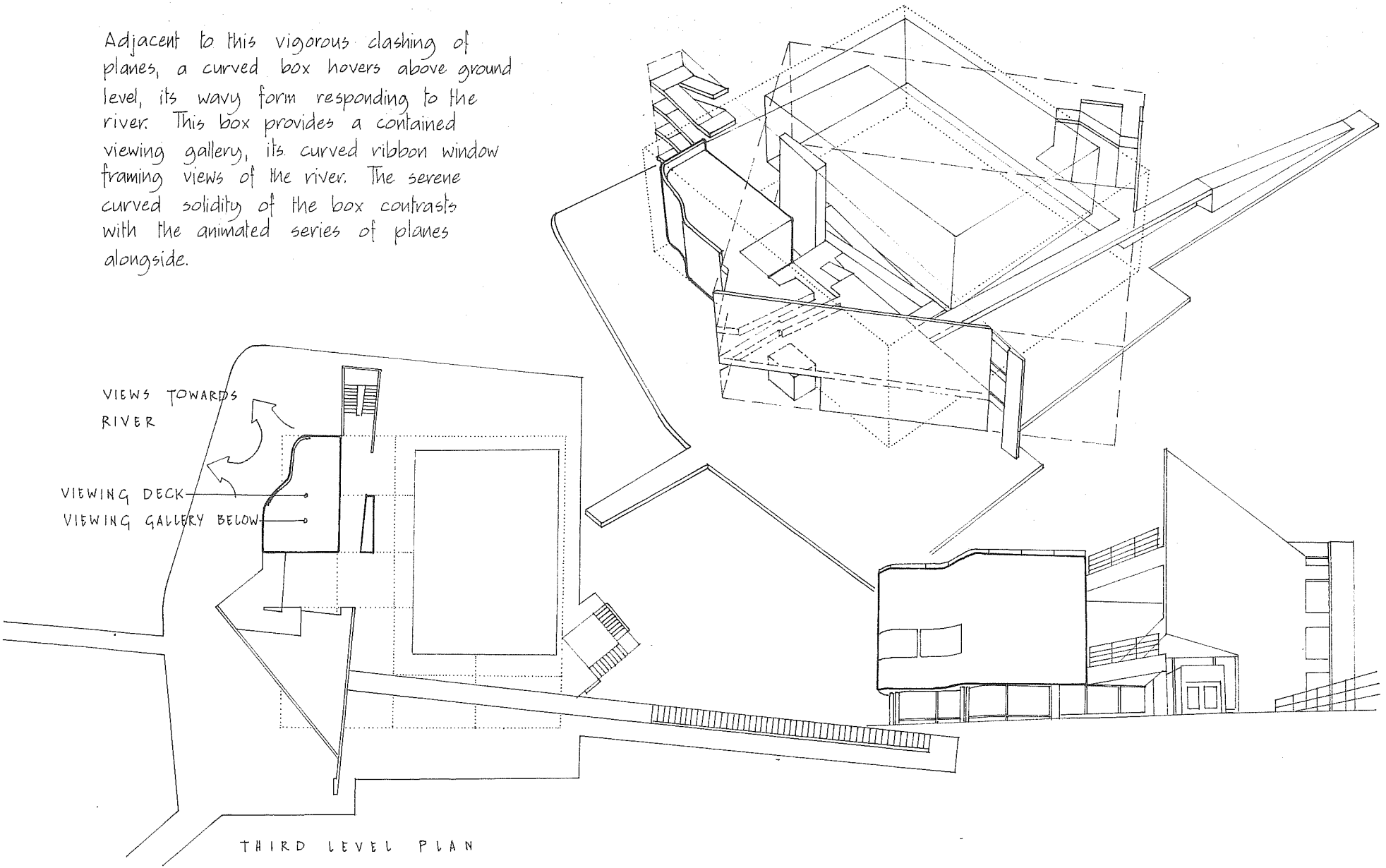
A further triangular plane hovers above as part of a roof observation deck. This locks back onto the vertical plane as part of a dynamic juxtaposition of planes at entry.



OBSERVATION DECK AT THIRD LEVEL

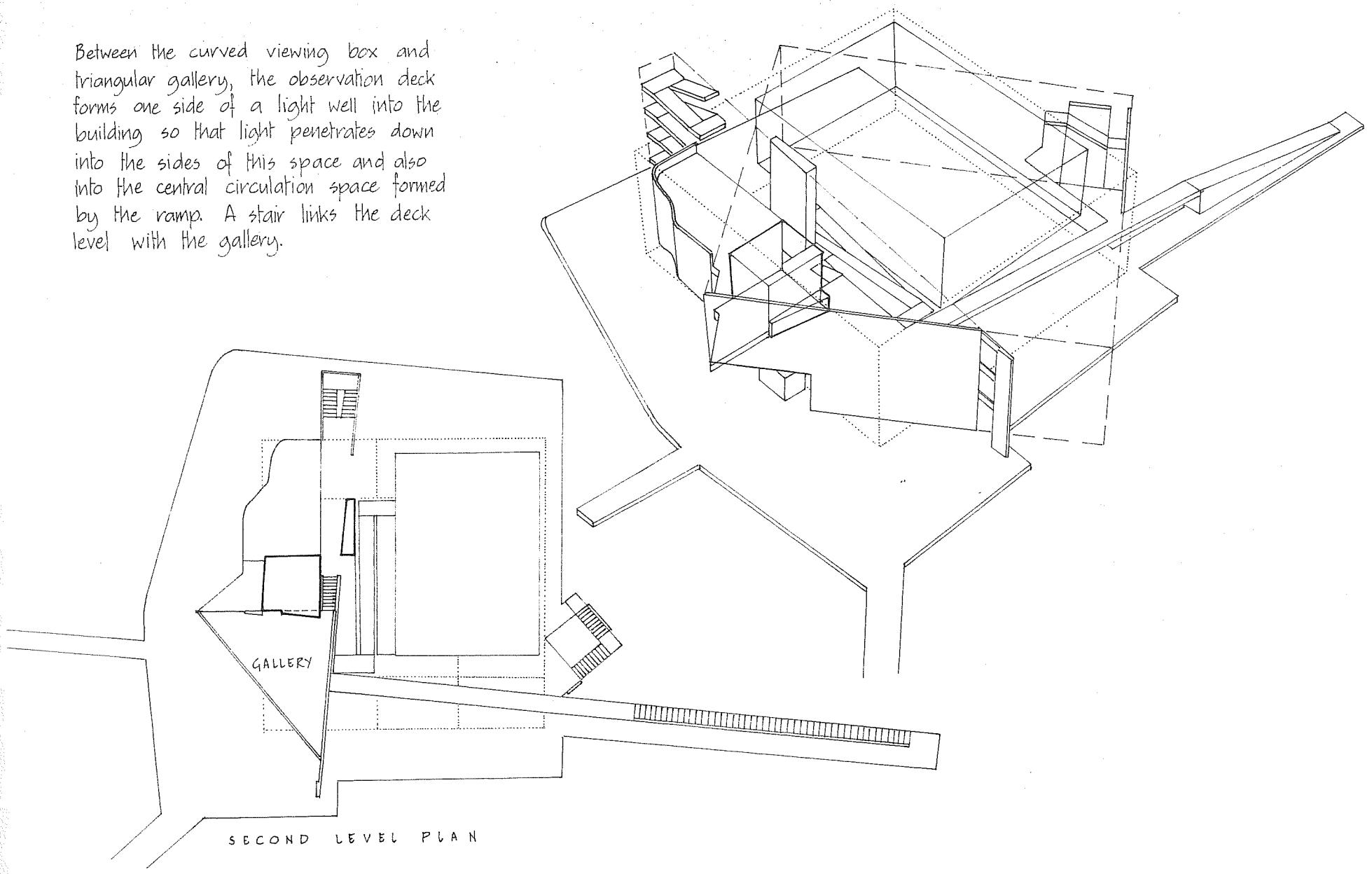
CURVED GALLERY

Adjacent to this vigorous clashing of planes, a curved box hovers above ground level, its wavy form responding to the river. This box provides a contained viewing gallery, its curved ribbon window framing views of the river. The serene curved solidity of the box contrasts with the animated series of planes alongside.

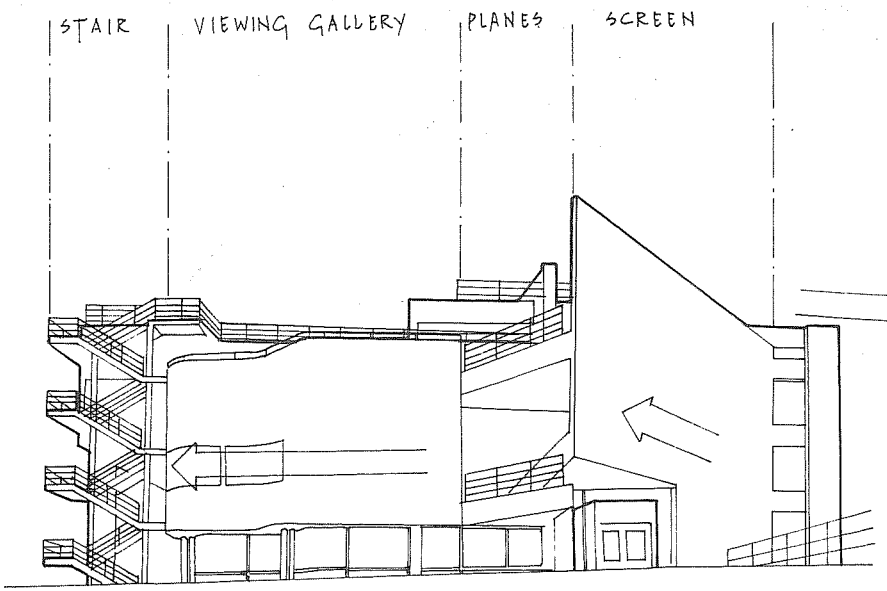


LIGHT WELL

Between the curved viewing box and triangular gallery, the observation deck forms one side of a light well into the building so that light penetrates down into the sides of this space and also into the central circulation space formed by the ramp. A stair links the deck level with the gallery.



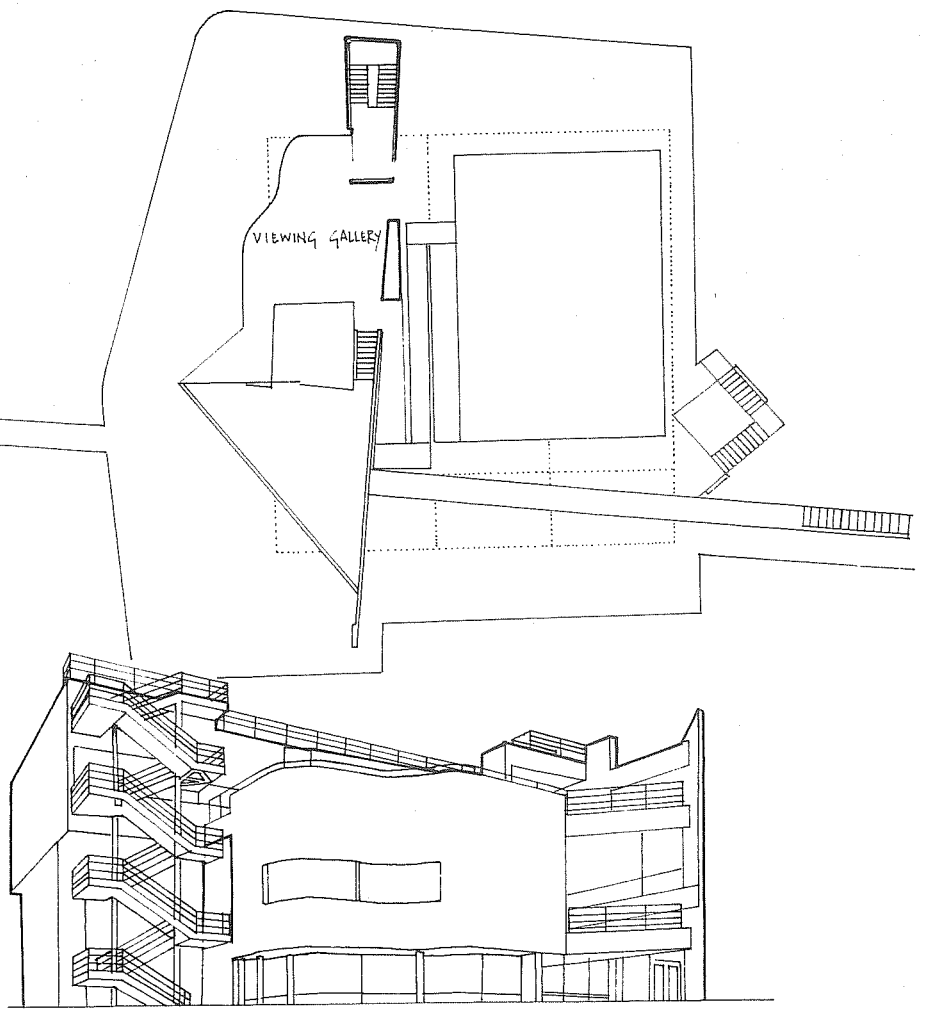
WEST FACADE



WEST FACADE

Visual movement along the west facade is from right to left, stopping at the stair, which forms a vigorous zigzag, taking the eye down to the ground.

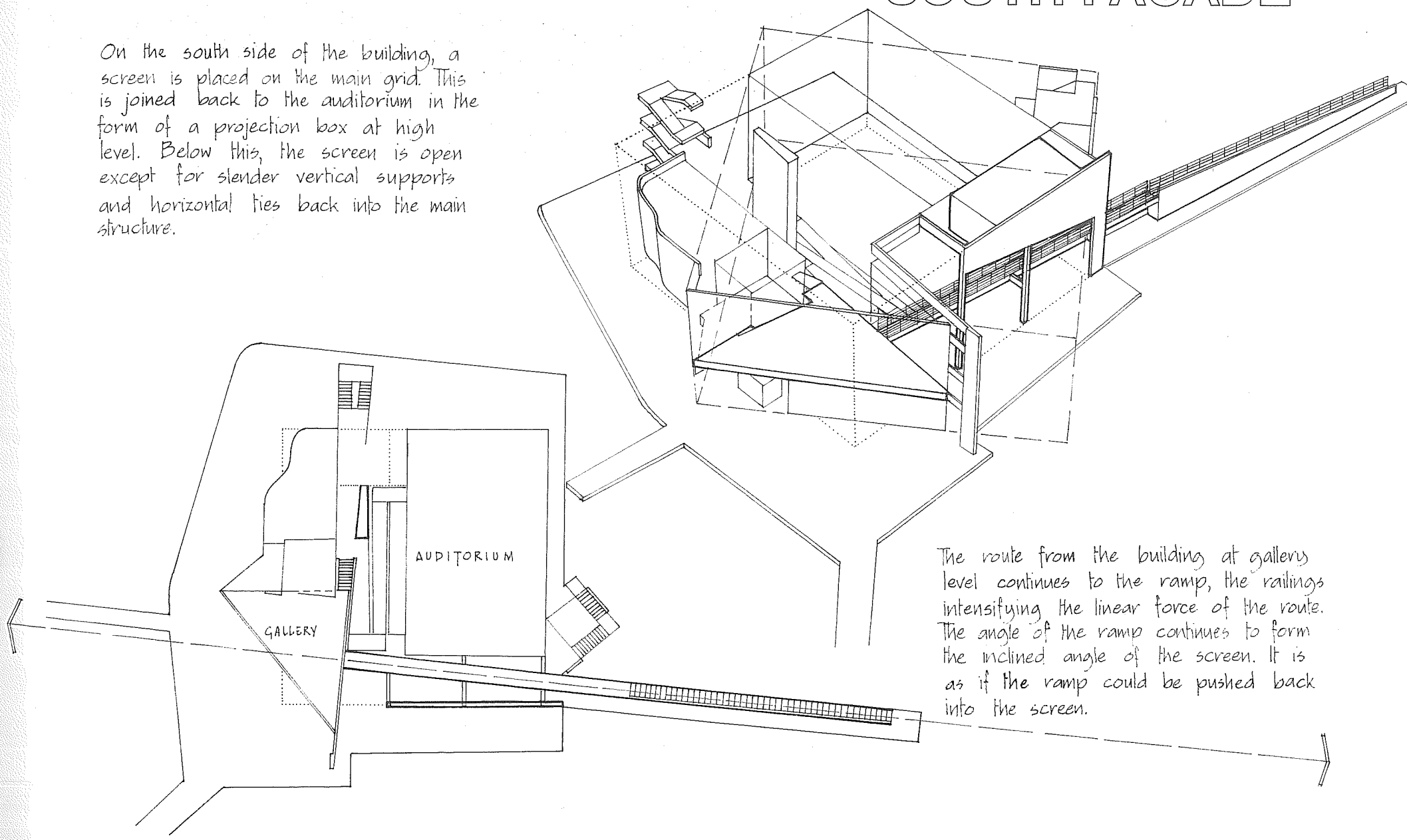
The composition integrates four major elements: the screen, which is a vertical plane; the hovering horizontal planes; the curved viewing box and the stair. The entry box also provides an important visual incident.



The stair pierces the viewing gallery at its northern end where the gallery extends to give access to the auditorium.

SOUTH FACADE

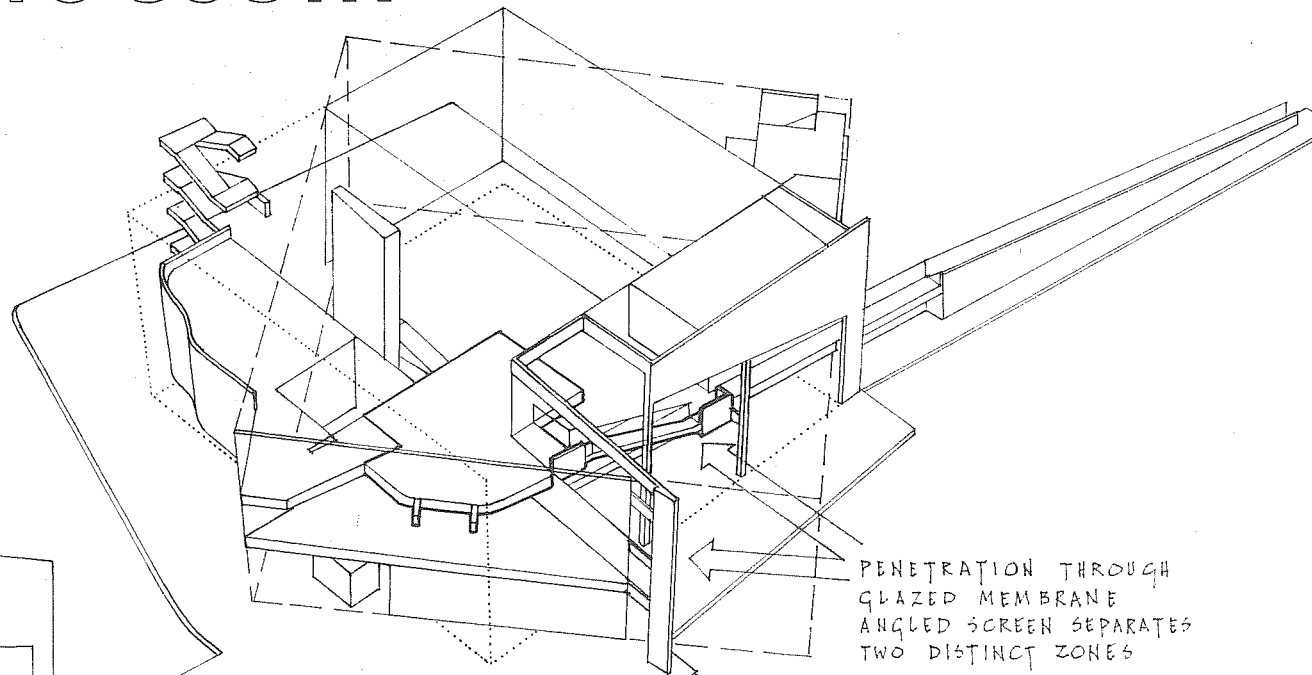
On the south side of the building, a screen is placed on the main grid. This is joined back to the auditorium in the form of a projection box at high level. Below this, the screen is open except for slender vertical supports and horizontal ties back into the main structure.

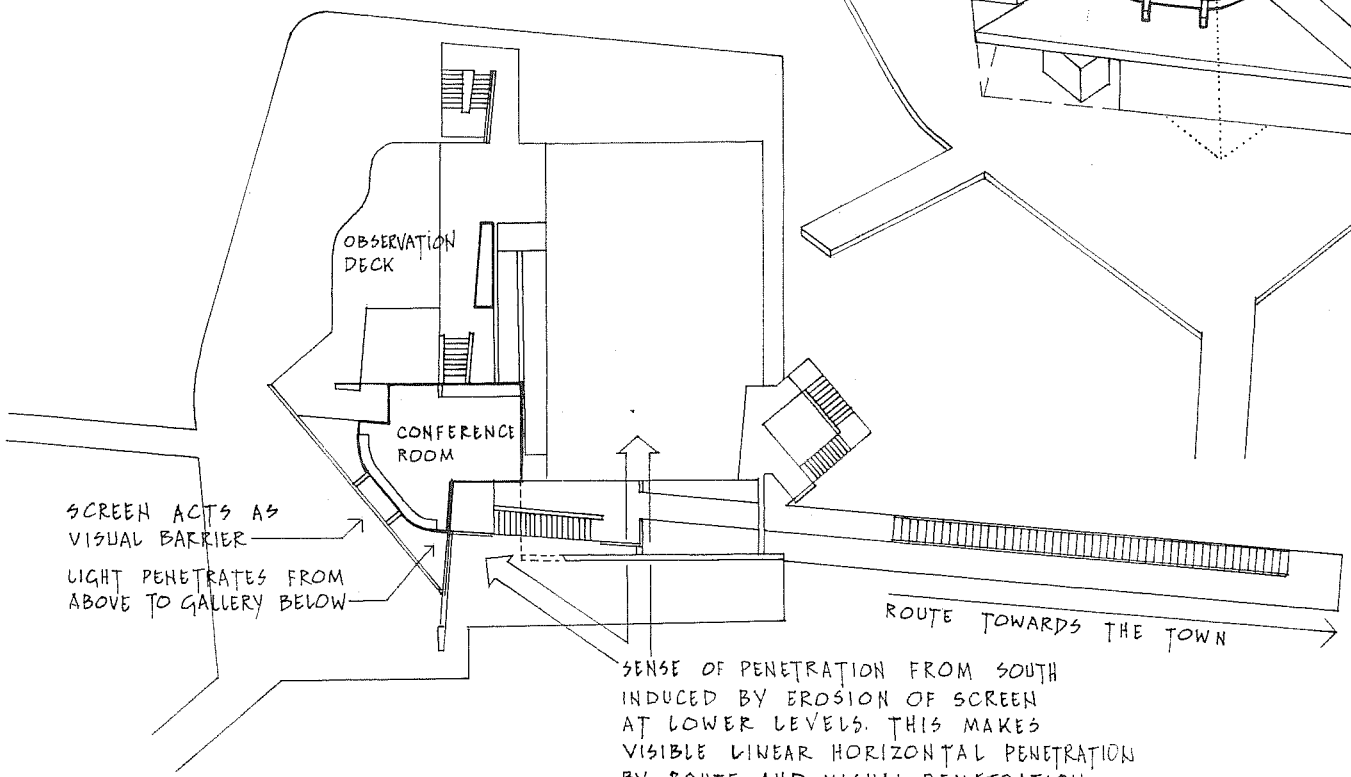


The route from the building at gallery level continues to the ramp, the railings intensifying the linear force of the route. The angle of the ramp continues to form the inclined angle of the screen. It is as if the ramp could be pushed back into the screen.

PENETRATION TO SOUTH

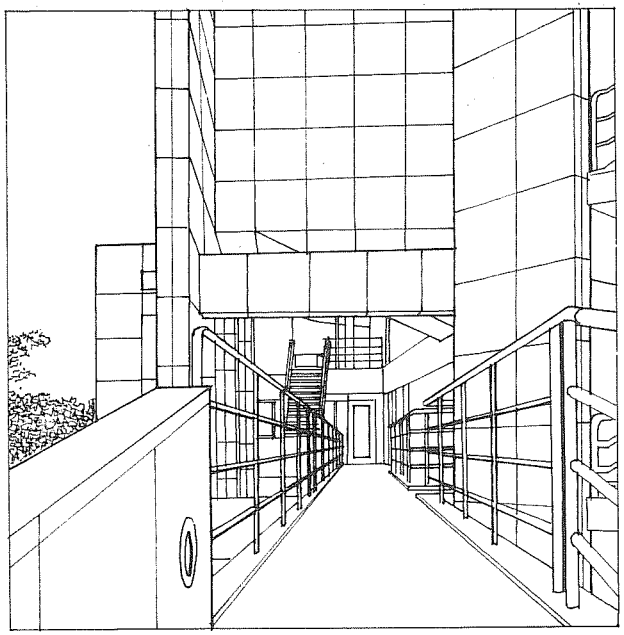
At an upper level, a conference room forms a space leading across a bridge to an observation deck. This is situated on the roof of the curved observation box. From the conference room, a stair descends onto the route out of the building, sliding alongside the main linear route in support of it.





Where the stair emerges from the conference room and meets the lower route, two solid panels punctuate the railings, indicating these pauses on the route. Apart from the auditorium and its projection box, this south side is mainly glazed, giving a sense of its penetrability. Unlike the west side, there is a distinct feeling of contact to the south, contact between building and town, the route leading towards the town.

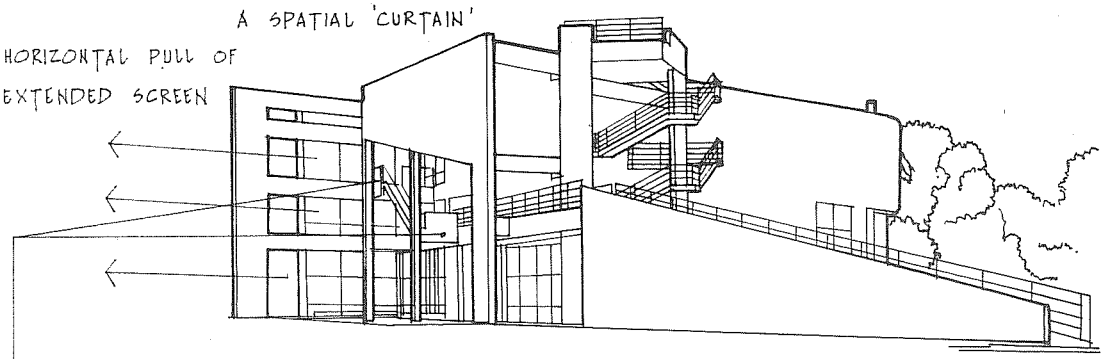
ROUTE FRAMED



PERSPECTIVAL EFFECT AS ROUTE PASSES THROUGH FRAME
ROUTE ENTERS GALLERY, IN SO DOING PUNCHING THROUGH THE ANGLED PLANE

SOLID UPPER PLANE OF SCREEN IMPLIES A PLANE BELOW
THIS IMPLIED PLANE IS DEFINED BY COLUMNS AND FORMS
A SPATIAL 'CURTAIN'

HORIZONTAL PULL OF
EXTENDED SCREEN

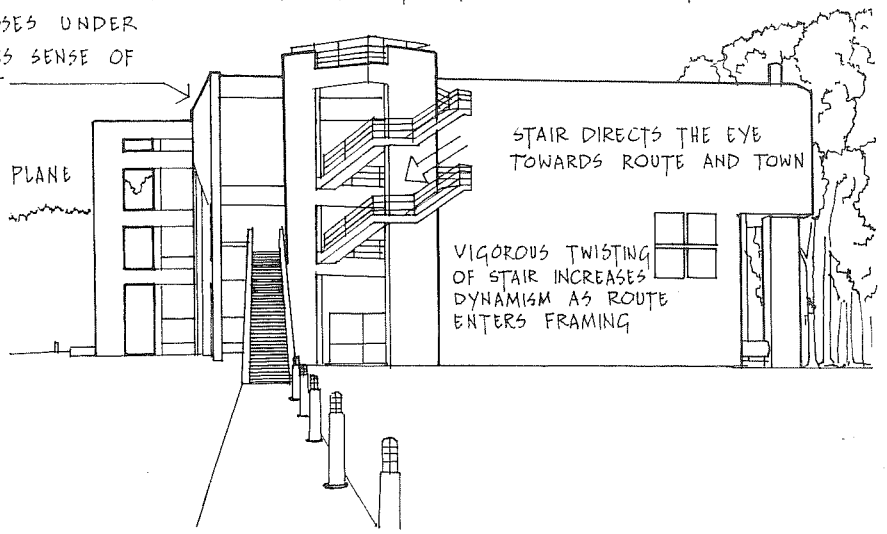


ROUTE PASSES THROUGH IMPLIED AND ACTUAL PLANES

PUNCTUATION POINTS AT TOP AND BOTTOM OF STAIR TO CONFERENCE
ROOM SLOW DOWN THE MOVEMENT AS THE BUILDING IS ENTERED

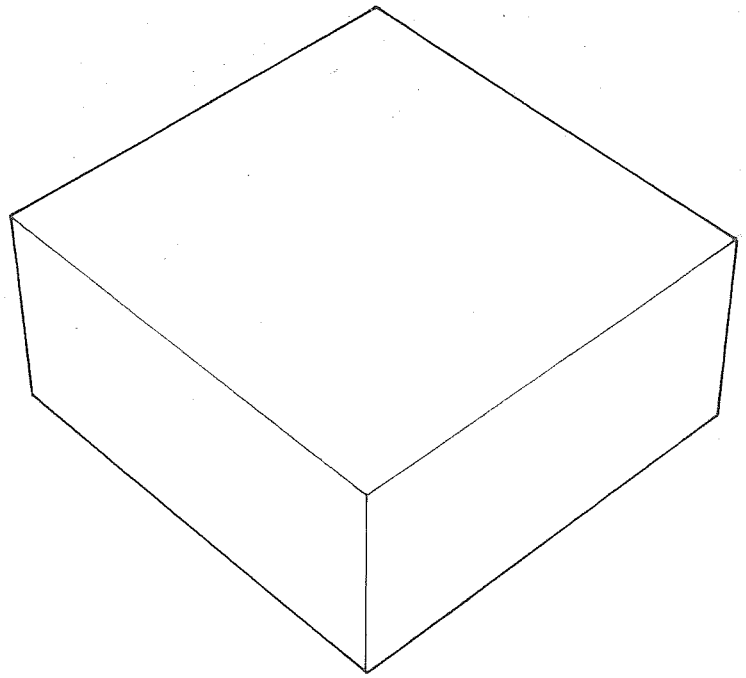
PROJECTION BOX CONTAINS ROUTE, GIVING A TUNNEL-LIKE EFFECT AS
ROUTE PASSES UNDER

SCREEN GIVES SENSE OF
CONTAINMENT

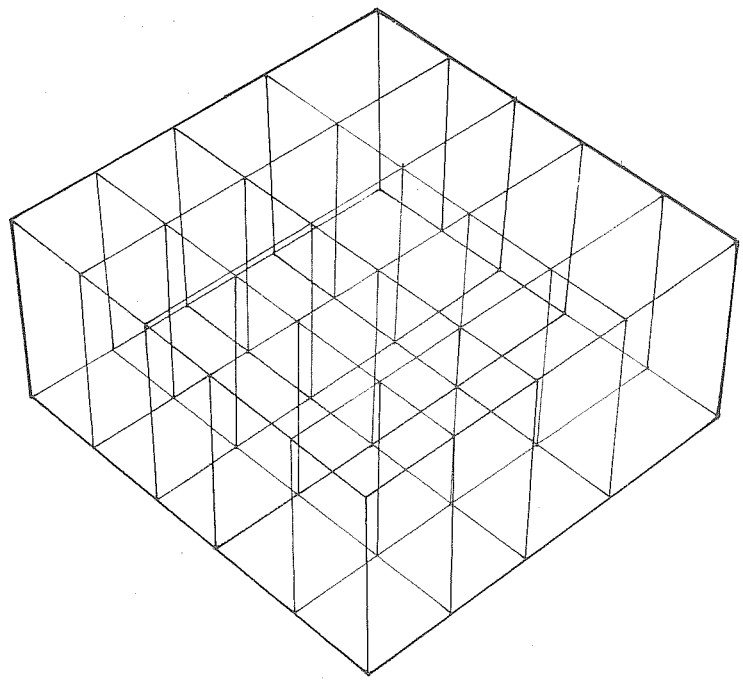


The route to and from the building is framed by vertical and horizontal beams. The route passes through implied and actual planes, sliding behind the outer screen and thrusting through the planes. The framing contributes towards a perspectival effect along the route.

TRANSFORMATION OF BOX



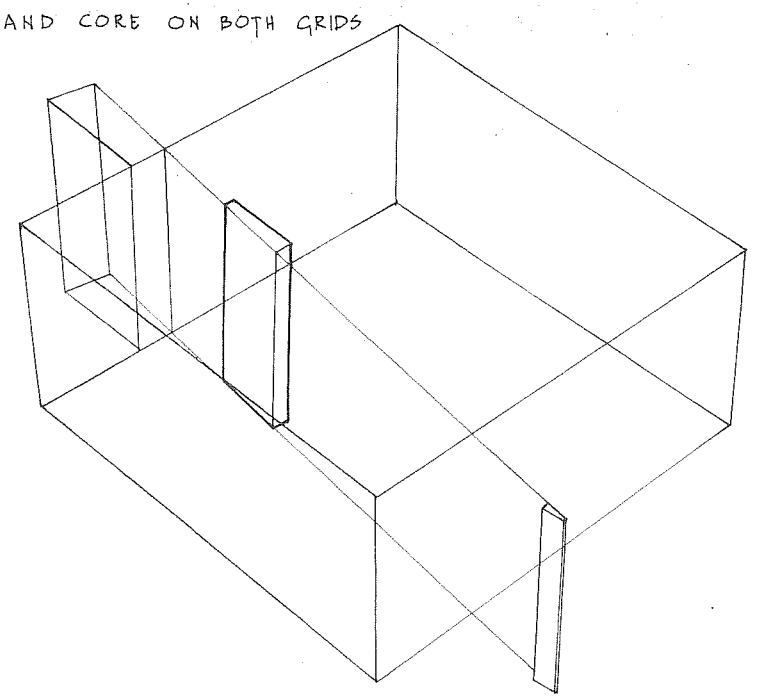
CUBIC BOX



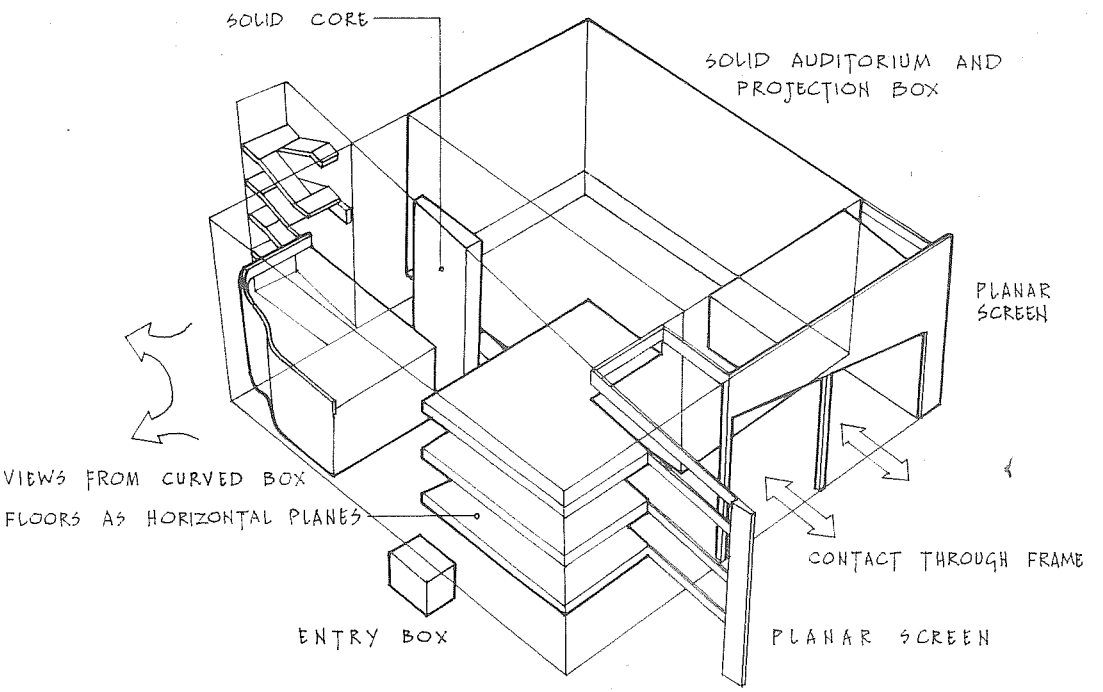
ORTHOGONAL GRID

If we summarize the development of the analysis, the initial box dissolves into planes and solids about two grids. Then along the new grid Meier pushes his linear route through, emerging from the building in the form of a ramp. Finally, a square is imposed on the cubic form allowing the formation of the front screen and square stair.

PLANES AND SOLIDS

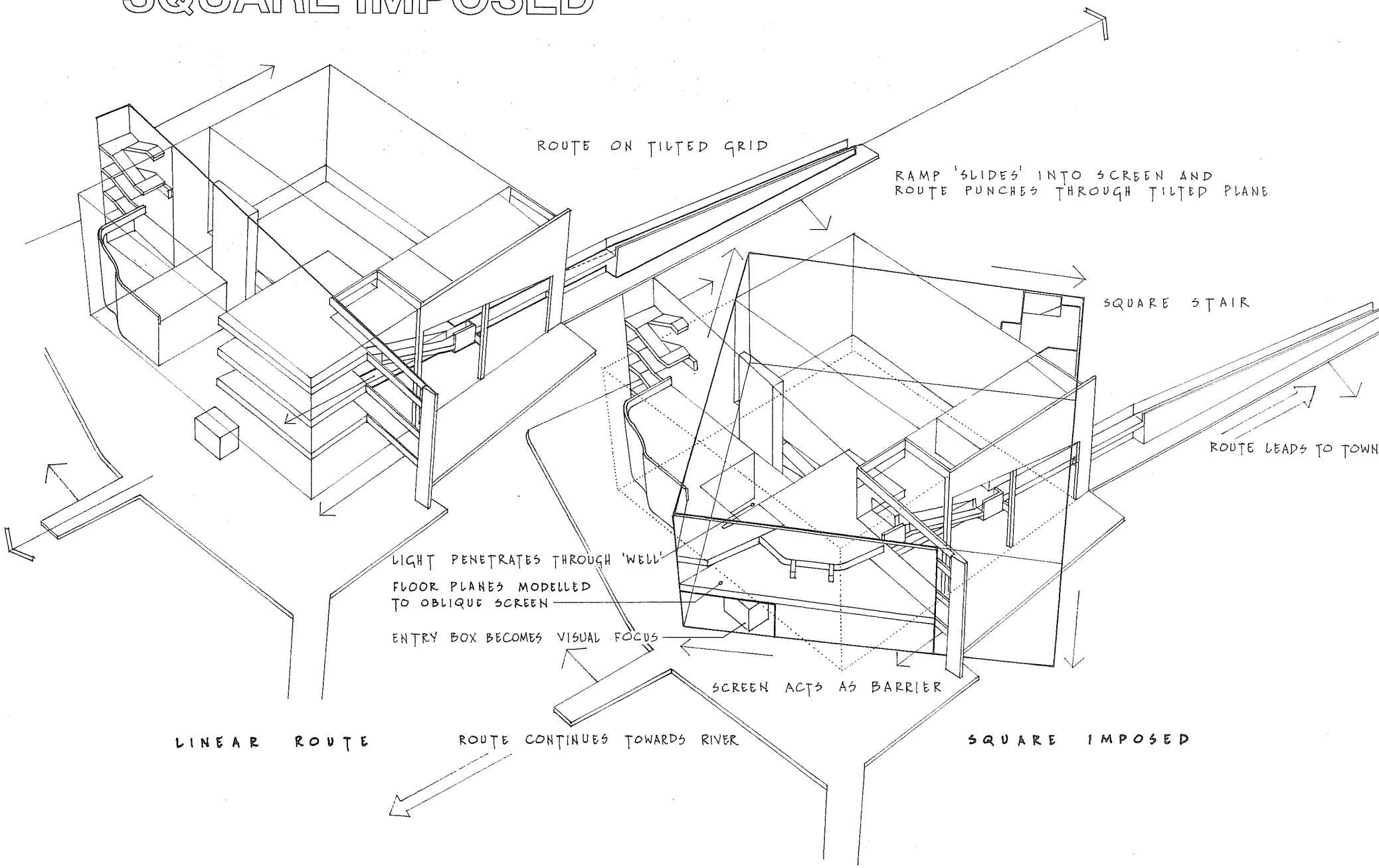


TILTED AXIS



PLANES AND SOLIDS ON TWO GRIDS

SQUARE IMPOSED

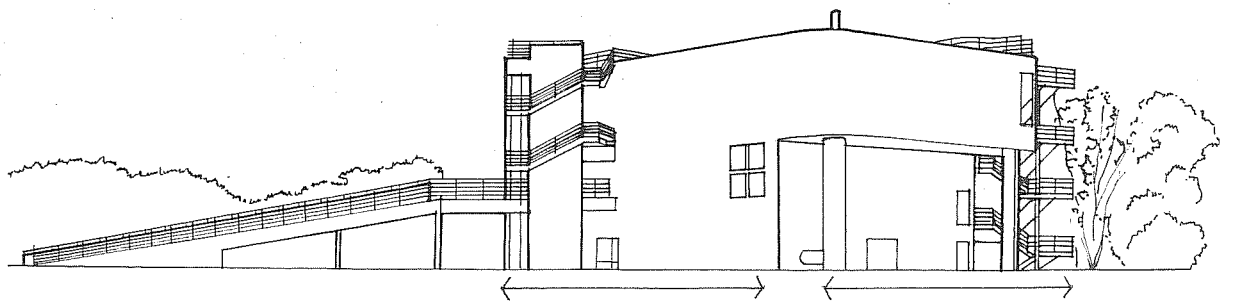


CURVED ADDITION

To complete the form, an addition is placed on the rear of the building. It is curved in response to the natural setting, the soft pastoral quality of the cornfield.

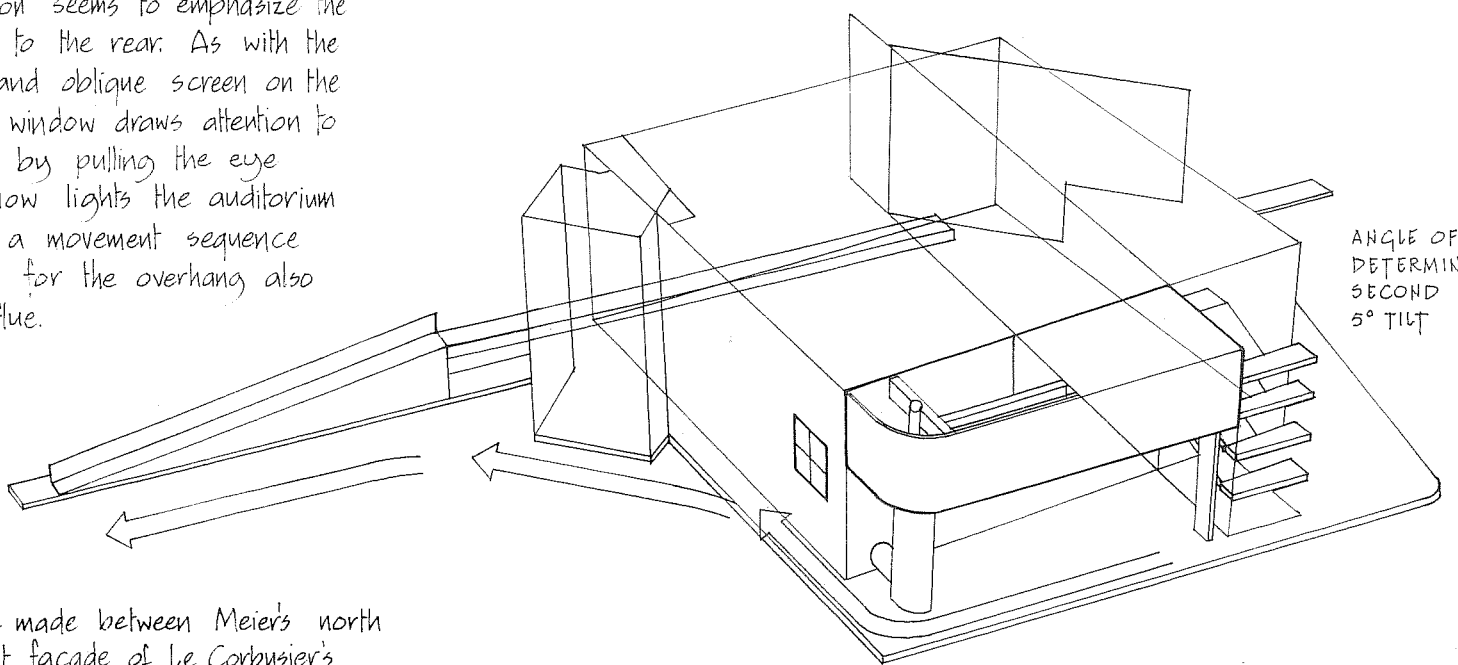
This is added onto the cubic mass, and the angle of the extremity is determined by the stair which is on the second grid. This addition locks the stair into the whole.

A square window concludes the composition and makes a very strong design statement. This square punctuation seems to emphasize the solidity of the mass to the rear. As with the two sets of stairs and oblique screen on the approach route, the window draws attention to one of the corners by pulling the eye toward it. This window lights the auditorium and forms part of a movement sequence inside. The support for the overhang also contains the boiler flue.



VISUAL INCIDENTS DRAW THE EYE TOWARDS EACH CORNER

VIEW FROM NORTH EAST



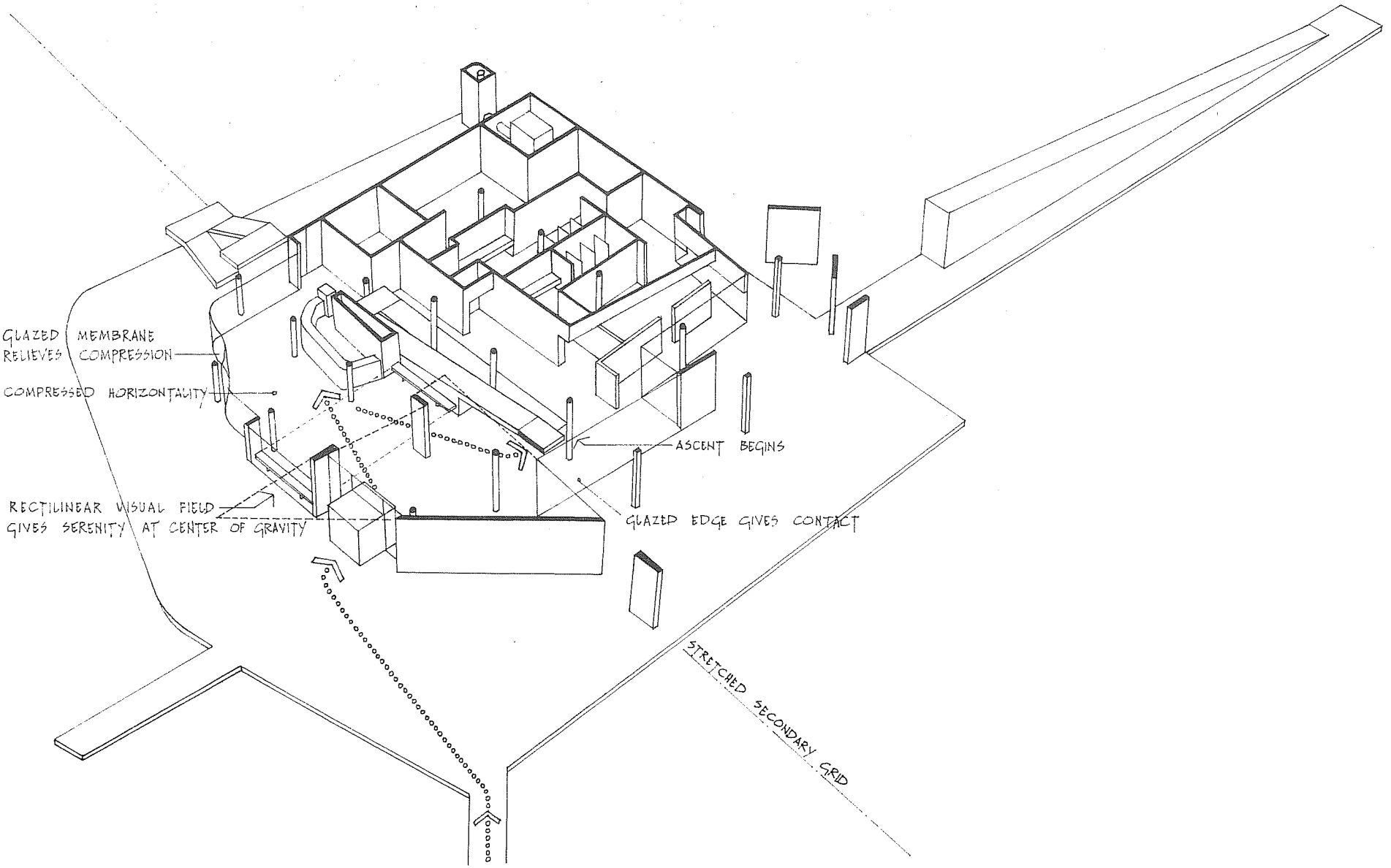
ANGLE OF ADDITION DETERMINED BY SECOND GRID AT 5° TILT

THE EYE IS LED PAST THE CURVE, BELOW IT, AS THE LOWER VOLUME IS CUT AWAY. THE STAIR TO THE WEST STOPS THE SPACE AT THE RIVER SIDE WHILST THE TURNED SQUARE STAIR DIVERTS THE EYE TOWARDS THE RAMP.

A comparison can be made between Meier's north elevation and the east facade of Le Corbusier's chapel at Ronchamp.[1] In each case the upper volume forms a spatial 'curtain' which can be likened to the proscenium arch in a theatre.

1 see G.H.Baker, Le Corbusier: An analysis of form, (Second edition 1989). Van Nostrand Reinhold (International) Co. Ltd., London, p. 256.

GROUND LEVEL



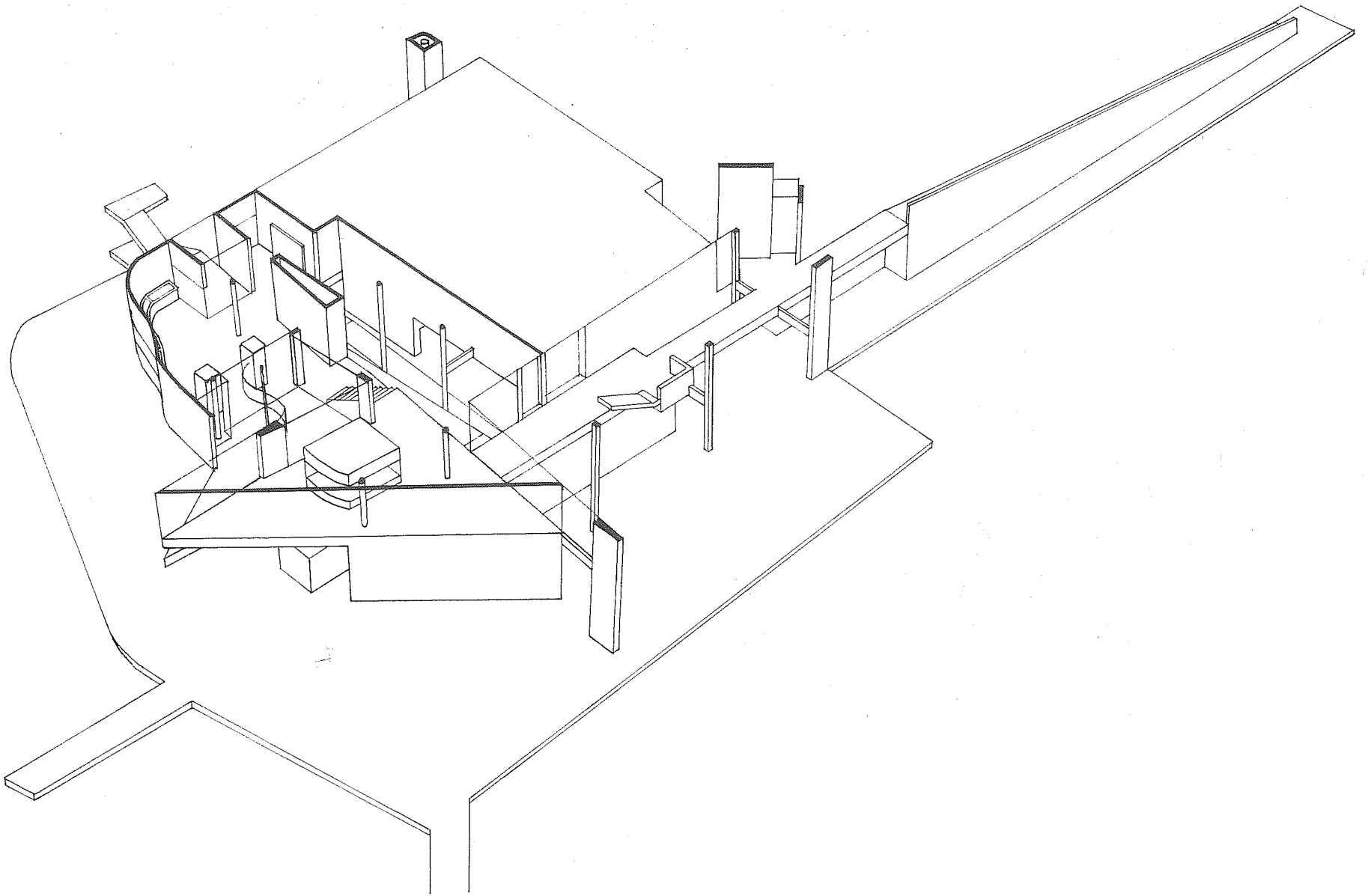
On entry, the eye is drawn to the information counter. The space to the left of entry is kept low with a feeling of compression which begins on movement through the entry box. The low scale is preserved by the entry desk whose high counter top has the effect of making the ceiling seem lower. The sense of horizontal compression is relieved by the glazed curved membrane at the edge of the space and by a higher ceiling to the right of entry in the triangular section.

Two low bench seats reinforce the feeling of compressed horizontality between the floor and ceiling. Being directly opposite each other, they form a rectilinear visual field which has a stabilizing role, being at the centre of gravity in the composition. The serenity which they provide helps to prepare for the vigorous animation of the movement sequence.

From the information counter, movement is under the ramp projection above and adjacent to the base of the ramp. The ramp, which leads to the floor above the main entry space, draws the eye by its sculptural form. The ramp reinforces the feeling of stretching imposed by the second grid and sets in motion the spatial sequence from the low horizontal entry space in a gradual ascent through a central vertical shaft which is toplit above the ramp. The space is stretched out along the oblique plane of the secondary grid. The core and counter observe this grid as does the final ascent of the ramp and eastern side of the external stair.

The orthogonal grid is stated by the way the columns are disposed and the overlaid square is expressed through the screen adjacent to entry. The space is animated by the tension between the primary grid and the stretched secondary grid.

SECOND LEVEL

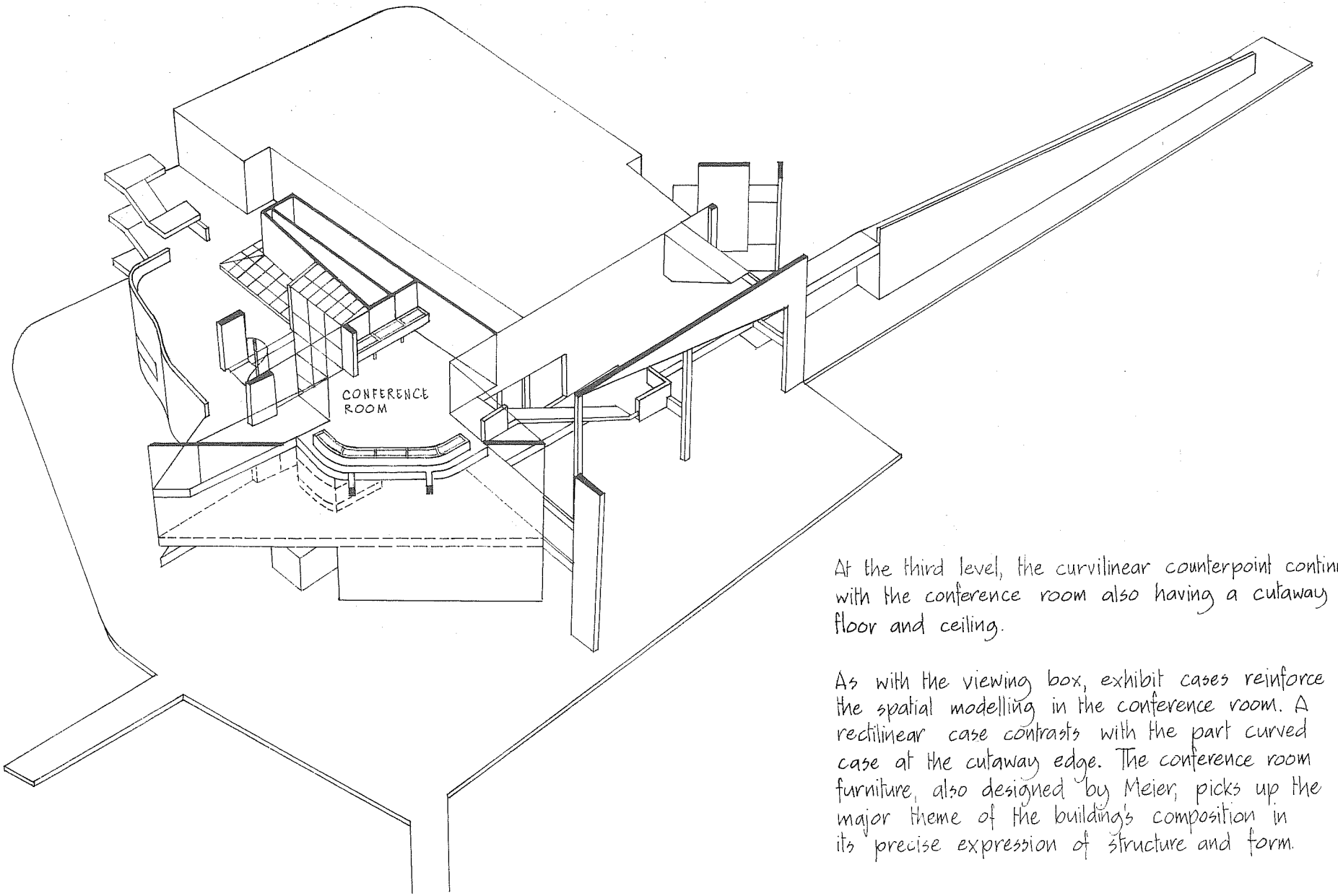


At the second level, the spatial compression is reversed with the low ceiling to the triangular gallery now behind the screen. The gallery to the curved viewing box, being at a lower level, has a higher ceiling. Between the two is the light well.

The visual dynamism consists of the combined interaction of spiraling stair and the swirling outer wall of the viewing box (supported by the swirling curved container for exhibits) these being set against the stretched angled wall into which the triangular gallery adds further dynamism. As on the entry level, triangle and curved box are set against each other dramatically.

Behind the stretched, angled, wall the triangular gallery contains the model of New Harmony. This has a curved end which becomes part of the ceiling above. Light is fed down in the gap between the cutaway and the external oblique screen.

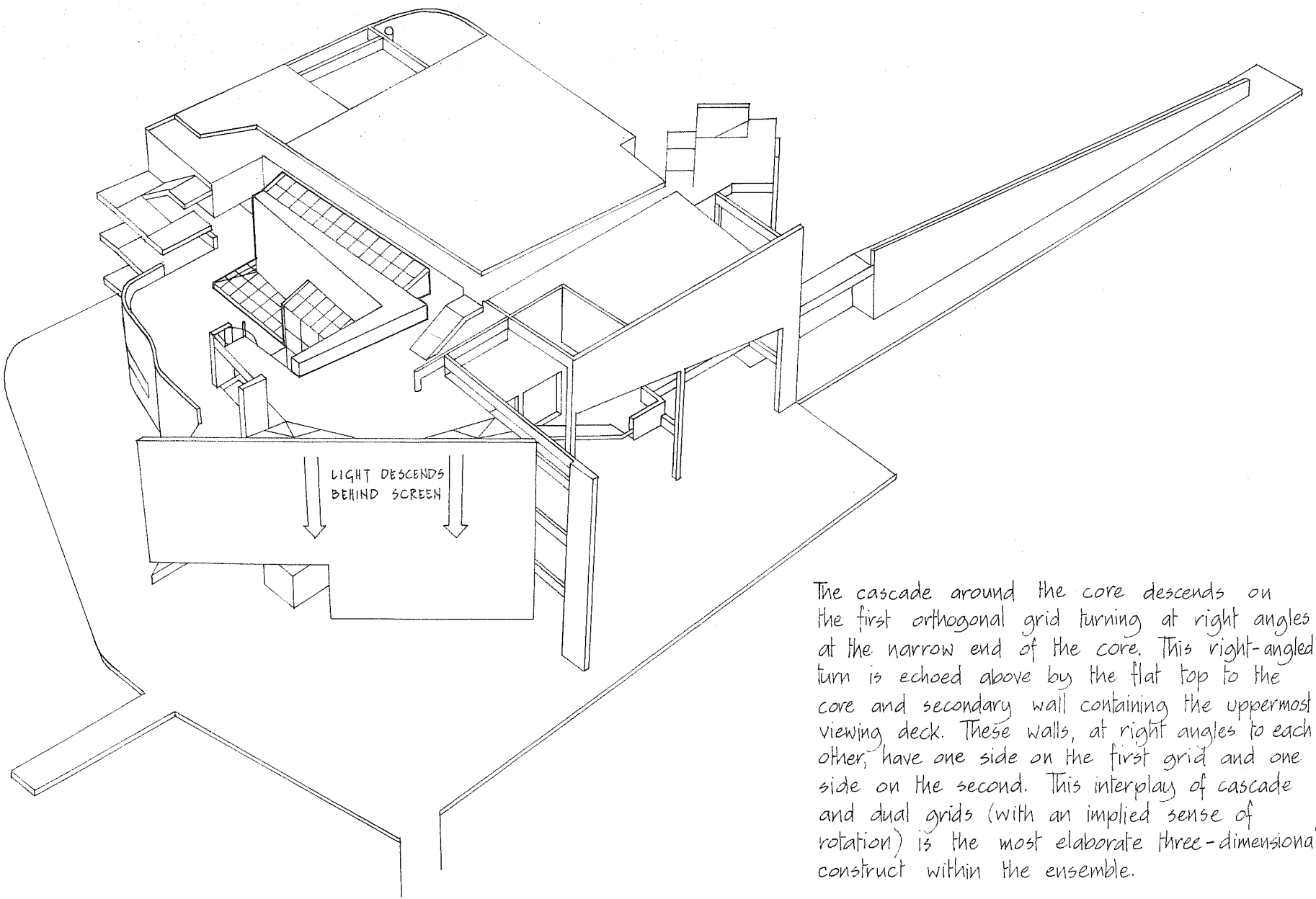
THIRD LEVEL



At the third level, the curvilinear counterpoint continues with the conference room also having a cutaway floor and ceiling.

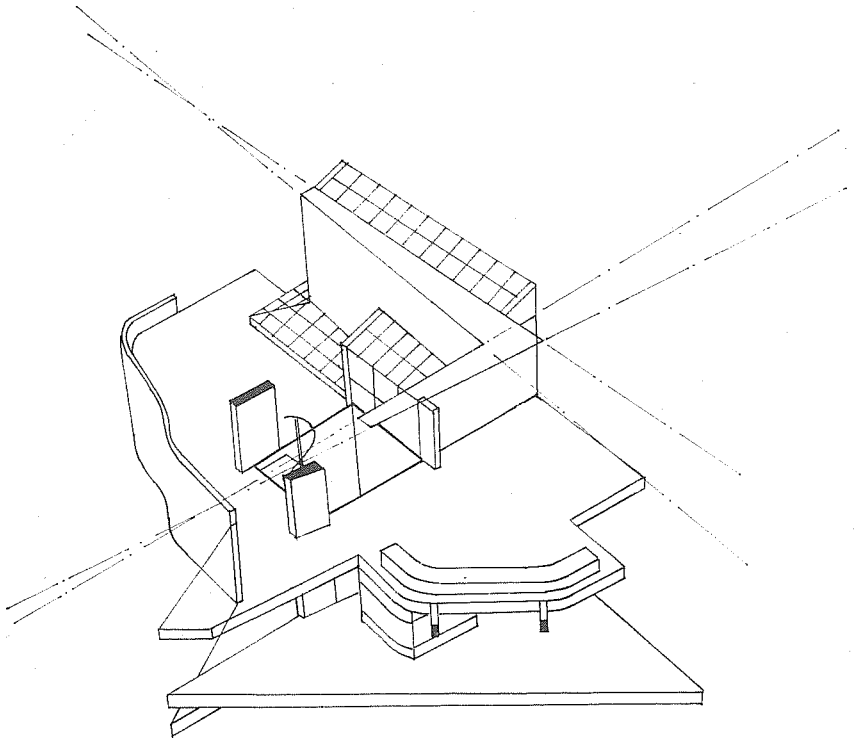
As with the viewing box, exhibit cases reinforce the spatial modelling in the conference room. A rectilinear case contrasts with the part curved case at the cutaway edge. The conference room furniture, also designed by Meier, picks up the major theme of the building's composition in its precise expression of structure and form.

CASCADE AROUND CORE



The cascade around the core descends on the first orthogonal grid turning at right angles at the narrow end of the core. This right-angled turn is echoed above by the flat top to the core and secondary wall containing the uppermost viewing deck. These walls, at right angles to each other, have one side on the first grid and one side on the second. This interplay of cascade and dual grids (with an implied sense of rotation) is the most elaborate three-dimensional construct within the ensemble.

VISUAL INTERLOCK



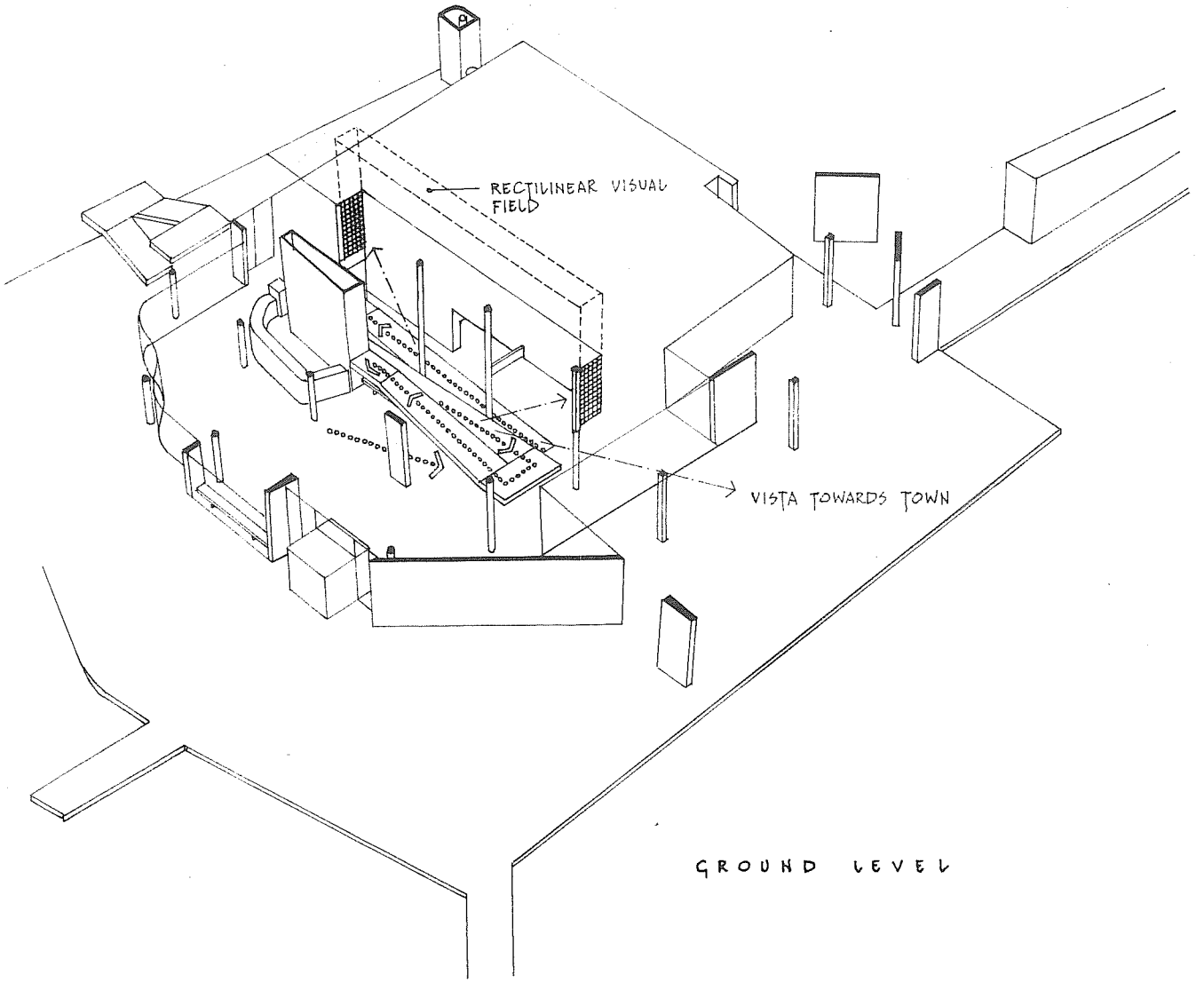
The climax in the three-dimensional modelling of these elements occurs in the way Meier crashes together the curved viewing box and the cutaway layers in the triangular section behind the screen.

They slot together about the light well, which is also part of the exciting cascade of rooflights and the corkscrew of the spiral stair.

Vertical space, cascading glass, sloping ramp and hovering planes are all locked together in a way that is determined by the function of each element.

ELEMENTS LOCK TOGETHER ABOUT THE LIGHT WELL FULLY EXPLOITING THE DUAL GRID SYSTEM

MOVEMENT SEQUENCE

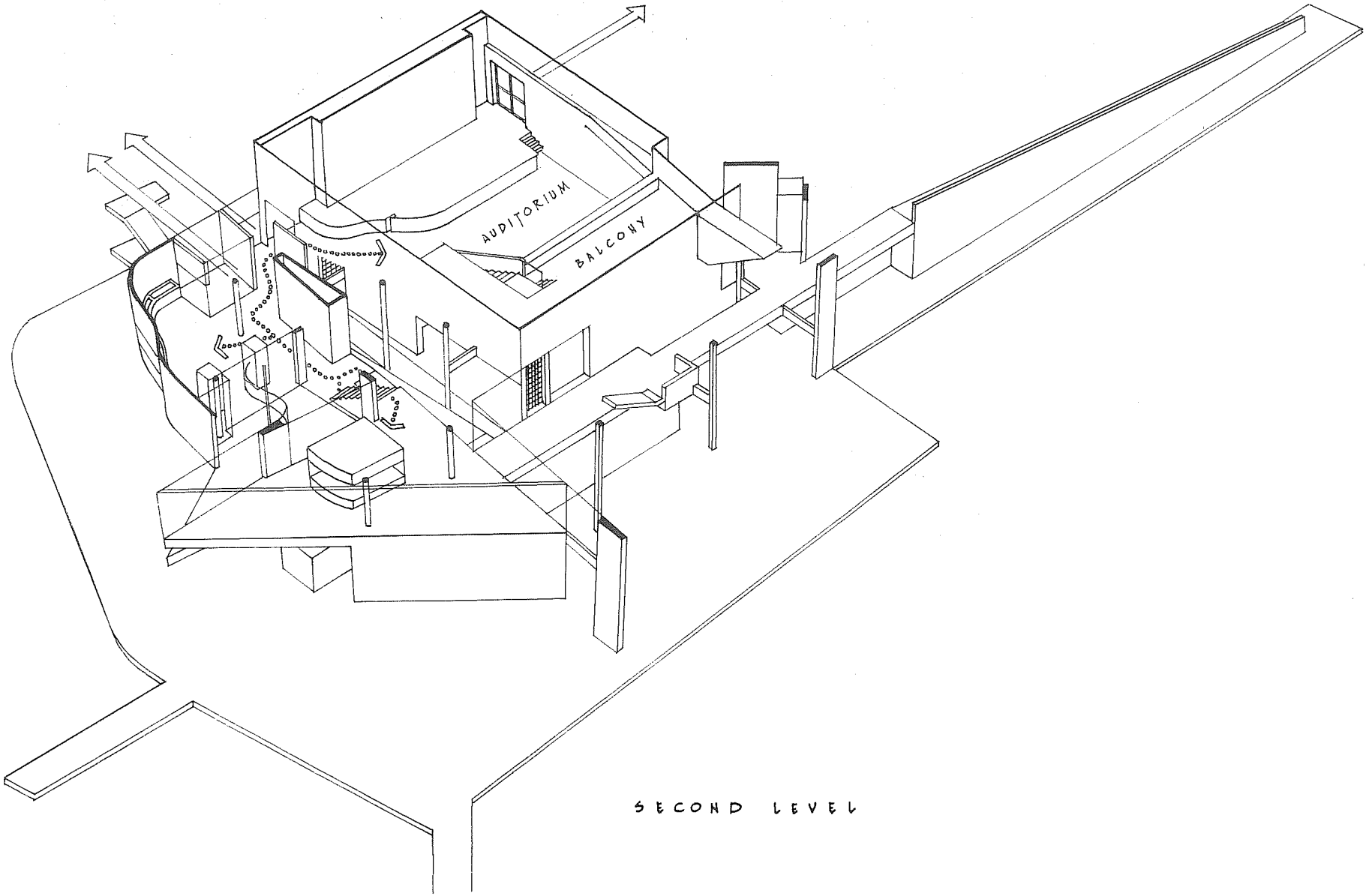


From the ground level entry space, the visitor is drawn towards the ramp by its own overhang, then moving upward at the side of the core on the first orthogonal grid.

On moving along this first part of the ramp, the eye focuses on a panel of glass bricks. These are repeated at the opposite end to form an implied rectilinear visual field.

After the first landing, we are moving away from the core, with vistas into the town. Finally, after one last turn, we are moving along the new imposed grid and the ramp is stopped by the core. Its oblique alignment on plan links it visually with the core.

MOVEMENT SEQUENCE 2



SECOND LEVEL

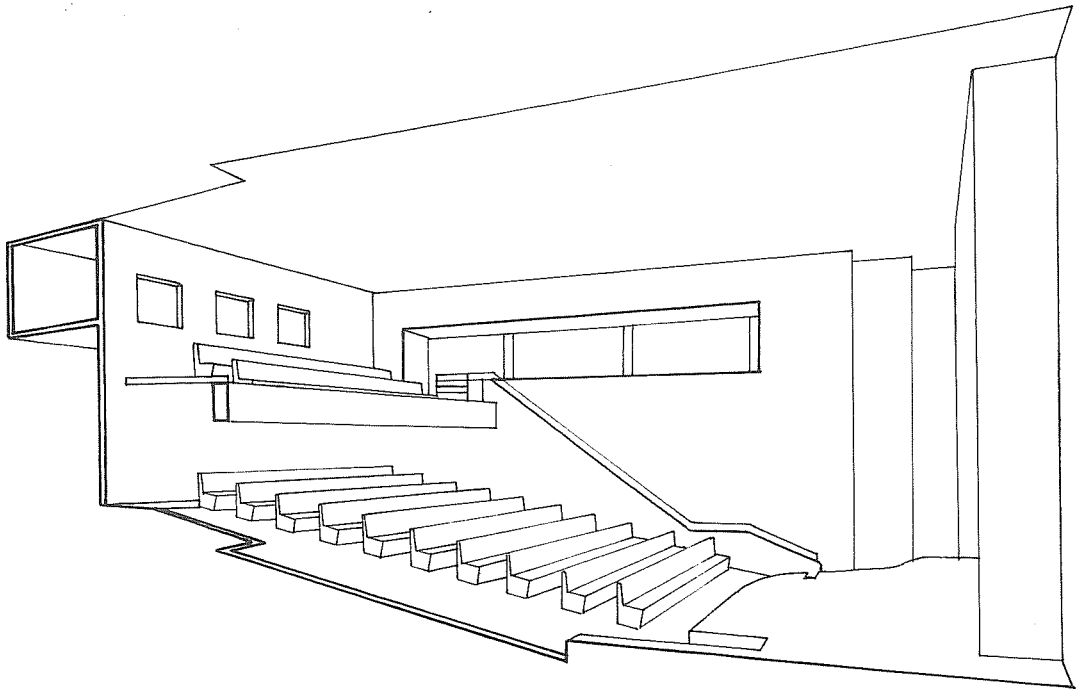
At the top of the ramp the visitor moves past the core towards either the curved viewing box, the triangular gallery, or more directly towards the auditorium.

Visitors start their introduction to New Harmony by seeing a film in the auditorium and on this direct route, movement is drawn by a view through a window directly ahead, then past a pivot door with a further view out; finally there is a right turn into the auditorium where a square window gives the last view out as visitors file to their seats.

This conclusion to the route, arrival in a contained box, is an appropriate termination of the movement sequence, psychologically representing arrival in a darkened enclosed space, in contrast to the openness of the route itself.

This final movement is directed by the curved stage edge, yet another counterpoint in the series of curves. Incised into this curve is a niche which marks out the orthogonal grid, the end of the stairs up to the stage and the start of the stairs to the gallery.

AUDITORIUM



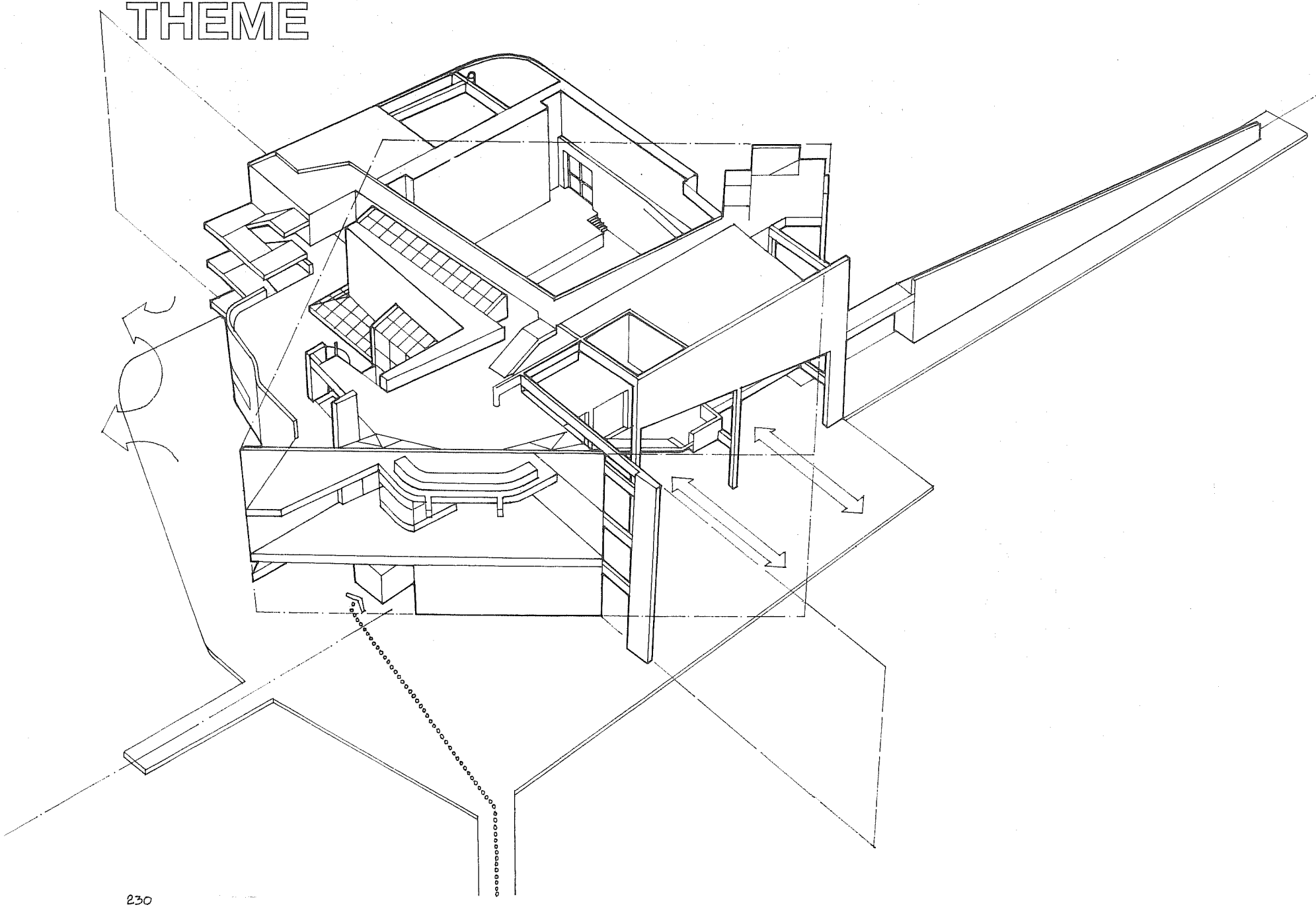
AUDITORIUM

The auditorium is a sculpted rectilinear box in which the overhanging balcony becomes a device which keys in the stair ascending to it. The side gallery is incised into the adjacent side of the box.

The balcony edge extends in a very subtle gesture obliquely on the second grid along the longer side of the box at higher level. The major oblique in the box is the sloping floor with its regular rhythm of seats and the major shape in the box is that of the curved stage.

Only two colours are used to articulate these elements. A plain white is used for the walls, screen and main part of the ceiling, with a dark grey 'carpet' extending over the stage, seats and stairs.

THEME

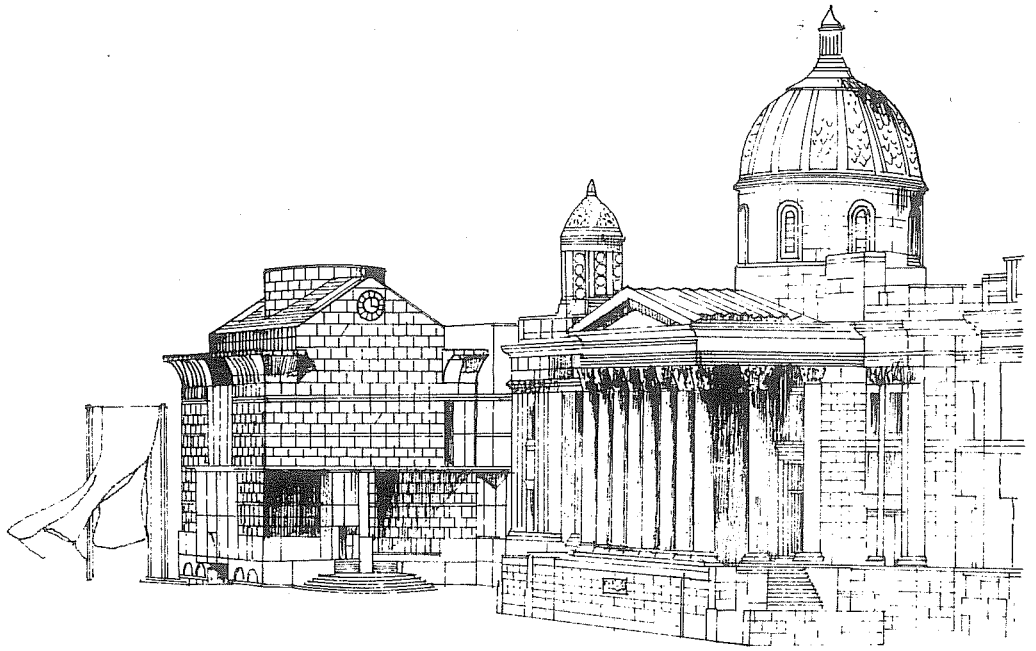


The design theme for the Atheneum is concerned with the exploitation of the possibilities afforded by imposing a slight shift to an orthogonal grid. The dynamic thrust of the main imposed tilted plane sets up a tension within the cubic box which is strongly reinforced by having placed against it a series of horizontal triangular planes held by the oblique vertical plane which delineates a third geometry, that of the imposed square.

The main route is a particularly dynamic furtherence of the tilted grid, its linear force puncturing the planes of the orthogonal grid before meeting the main oblique plane.

Functional elements such as the curved viewing box, ramp, auditorium and entry box are deployed in accordance with their precise role and are treated accordingly. The curve of the viewing box responds to the river. The ramp is placed centrally to give access to the various levels. Deep back lighting is provided by the light well and by the rooflight cascade over the ramp. Further deep lighting occurs behind the oblique screen. Stairs reinforce both the main oblique thrust and superimposed implied square.

Individually and in their totality, forms, spaces, routes, views and light have a symbolic as well as a practical role. They demonstrate indirectly and abstractly those ideals with which Meier links the building with New Harmony's rich and complex past. He does not speak to us with obvious and banal references. Instead, he uses allegory and metaphor in the way the elements are organized and the way the building is sited so that we are made aware of the river on which the town was founded, the sense of order and harmony inherent in Rapp's vision, and the intellectual utopian commitment of Robert Owen.



JAMES STIRLING
EXTENSION TO
THE NATIONAL GALLERY, LONDON
competition entry

JAMES STIRLING

The work of James Stirling is characterized by its diversity and an eclecticism which can be traced back to his wide-ranging architectural interests as a student at the University of Liverpool.

As the architect explains, his interests 'oscillated backwards and forwards between the antique and the just arrived Modern Movement,'[1] and like Meier, Stirling acknowledges a debt to his teacher Colin Rowe. A fascination for English Baroque architects such as Archer, Vanburgh and Hawksmoor can be contrasted with an interest in the Constructivists and Le Corbusier. English Victorian architecture, Frank Lloyd Wright's concrete block houses and Johnson Wax building are other sources, as are English castles, French chateaux, Bavarian Rococo, Venetian palazzi and English country houses.

First in partnership with James Gowan, followed by a long association and partnership with Michael Wilford, Stirling quickly acquired an international reputation with a series of important buildings in the fifties and sixties. This has continued, with each decade reflecting current preoccupations. The Ham Common Housing pays homage to Le Corbusier's Maisons Jaoul; Leicester Engineering, Cambridge History and the Florey Building show an interest in a glazed skin and hard planar components; St Andrews University Residential Expansion is articulated in pre-cast concrete, whilst 'high tech' prefabrication is in evidence at the Olivetti Training School at Hazelmere.

In the seventies and eighties, opportunities presented by competition-winning designs for buildings in strongly contextural situations in Europe and the United States have seen a change towards a greater attention given to massing and surface treatment. Again this reflects the general architectural shift away from abstract functional modernism towards a broader architectural canvas.

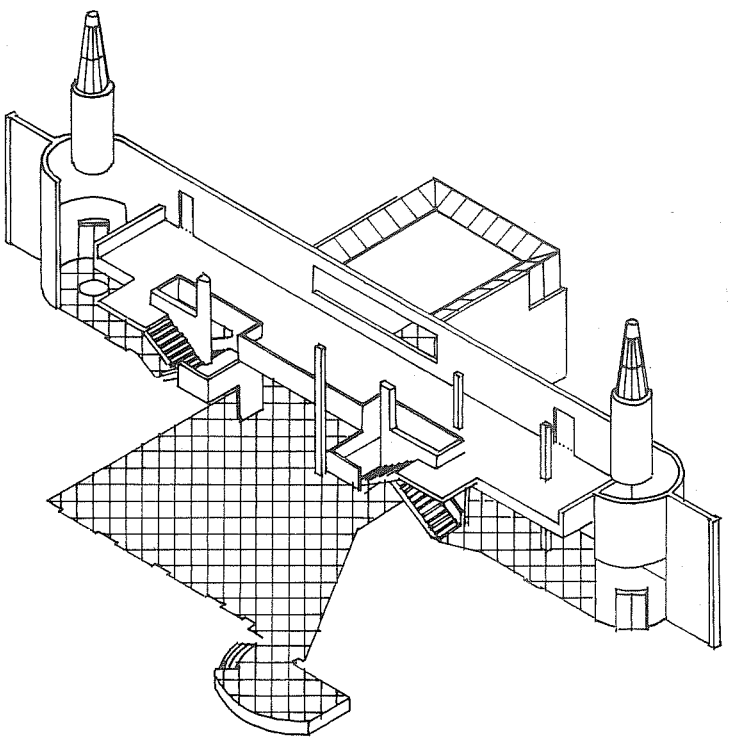
In these later works, as with the late work of Le Corbusier, Stirling has evolved an architectural language drawing on the breadth and depth of his interests. Again, as with Le Corbusier, the opportunities presented have coincided with already present skills in articulation together with a greater understanding of the role of architecture and particularly the effect of mass, space, surface, light and colour on the human psyche. The Staatsgalerie in Stuttgart, for example, makes reference to old and new, with 'Egyptian cornices, Romanesque windows, Constructivist canopies, ramps and flowing forms – a union of elements from past and present.'[2]

The unsuccessful competition submission by the Stirling Wilford partnership for the Extension to London's

[1] Taken from 'James Stirling: Architectural Aims and Influences,' an address given at the ceremony for the presentation of the Royal Gold Medal by the Royal Institute of British Architects, R.I.B.A Journal, September 1980, pp. 36, 37.

[2] Ibid., p. 37.

National Gallery has been chosen to conclude the present study because the intended project aptly exemplifies the main argument put forward in this book. This has been to demonstrate that great architecture depends on an understanding of the role of architecture with reference to examples from both past and present; on a concern for a sensitive response to programmatic requirements in terms of the Genius Loci and prevailing culture; and also to show how the many layers of richness of architectural concepts can be revealed by diagrammatic analysis.



RICE UNIVERSITY 1979-81

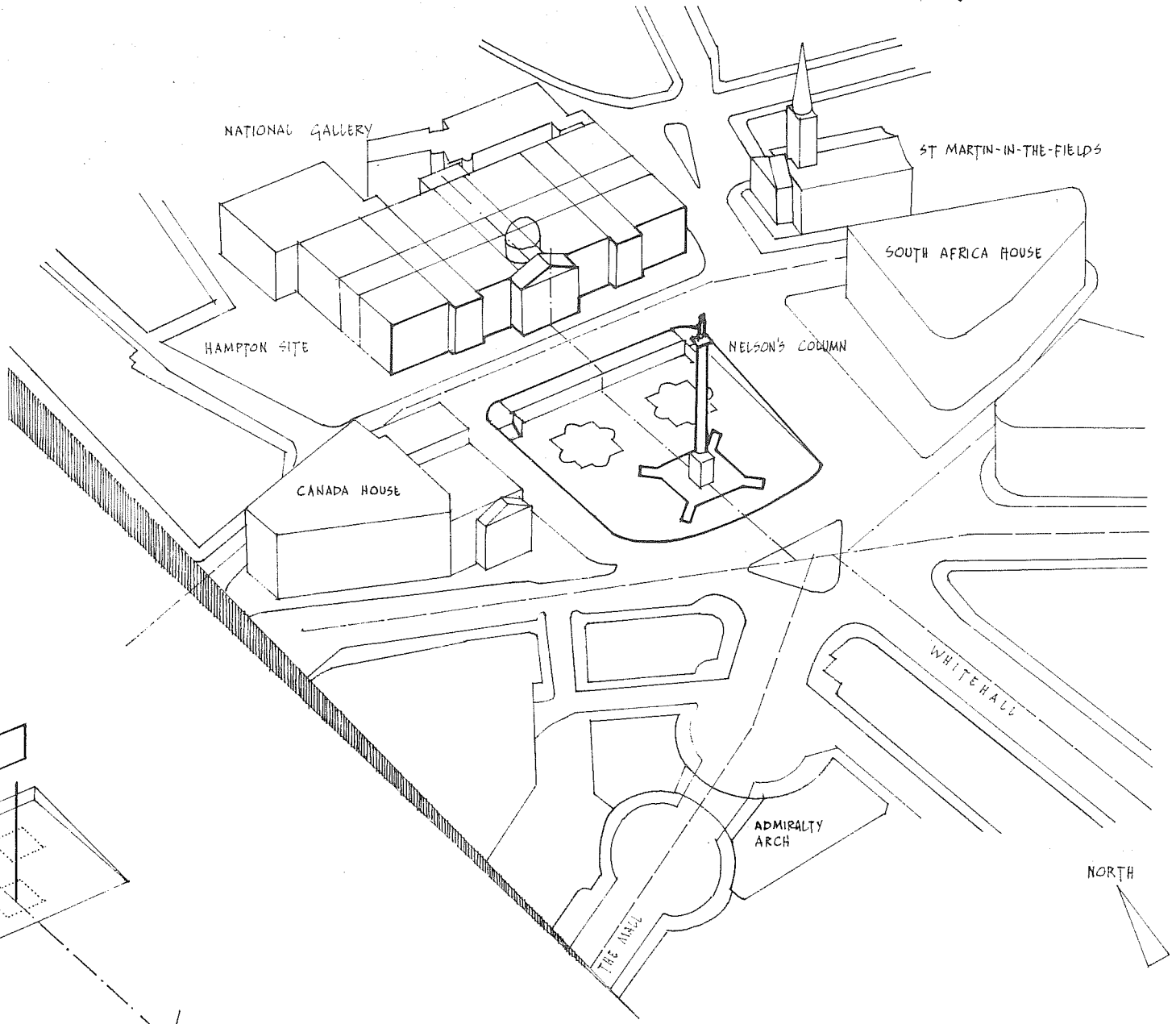
SITE FORCES

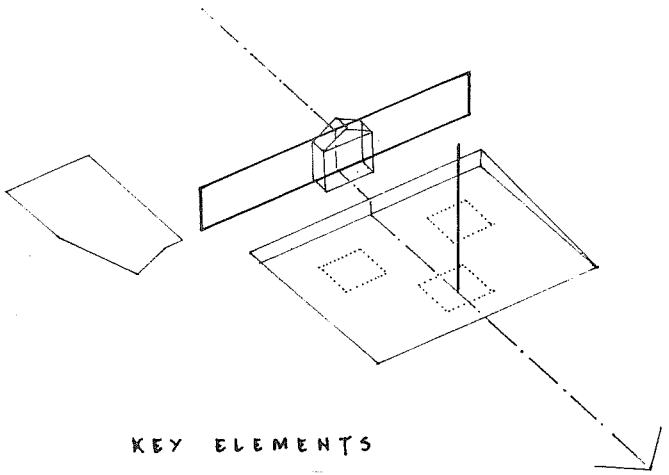
As part of the triangle linked by the Mall, Whitehall and Birdcage Walk, and containing Buckingham Palace, Westminster Abbey and the Palace of Westminster, Trafalgar Square has considerable cultural significance. The presence of the National Gallery facing the Square adds an authority that becomes possible when a major art collection and the commemoration of a significant historical event combine in a key location.

Although flanked to east and west by substantial building masses, the square dissolves on its southern side, and the cultural forces are expressed through the media of the square and Gallery facade, which, despite the traffic flow and fragmented nature of the rest of the Square, act as a convincing symbolic ensemble. This is due to the way square and facade are locked together by symmetry and by the simple combination of monument, fountains and Wilkins' long facade, which acts as an urbane low-key backcloth, gaining in impact by its dominant position above the Square. Wilkins' use of the classical language with its distinctive hierarchy of elements, establishes the identity of the Gallery in a manner appropriate to the majority of its paintings, which were composed to a similar representational compositional code.

The key elements are the horizontal plane of the Gallery facade, punctuated by the central portico, set against the contained space of the square with its fountains, and the vertical feature provided by Nelson's column.

TRAFALGAR SQUARE



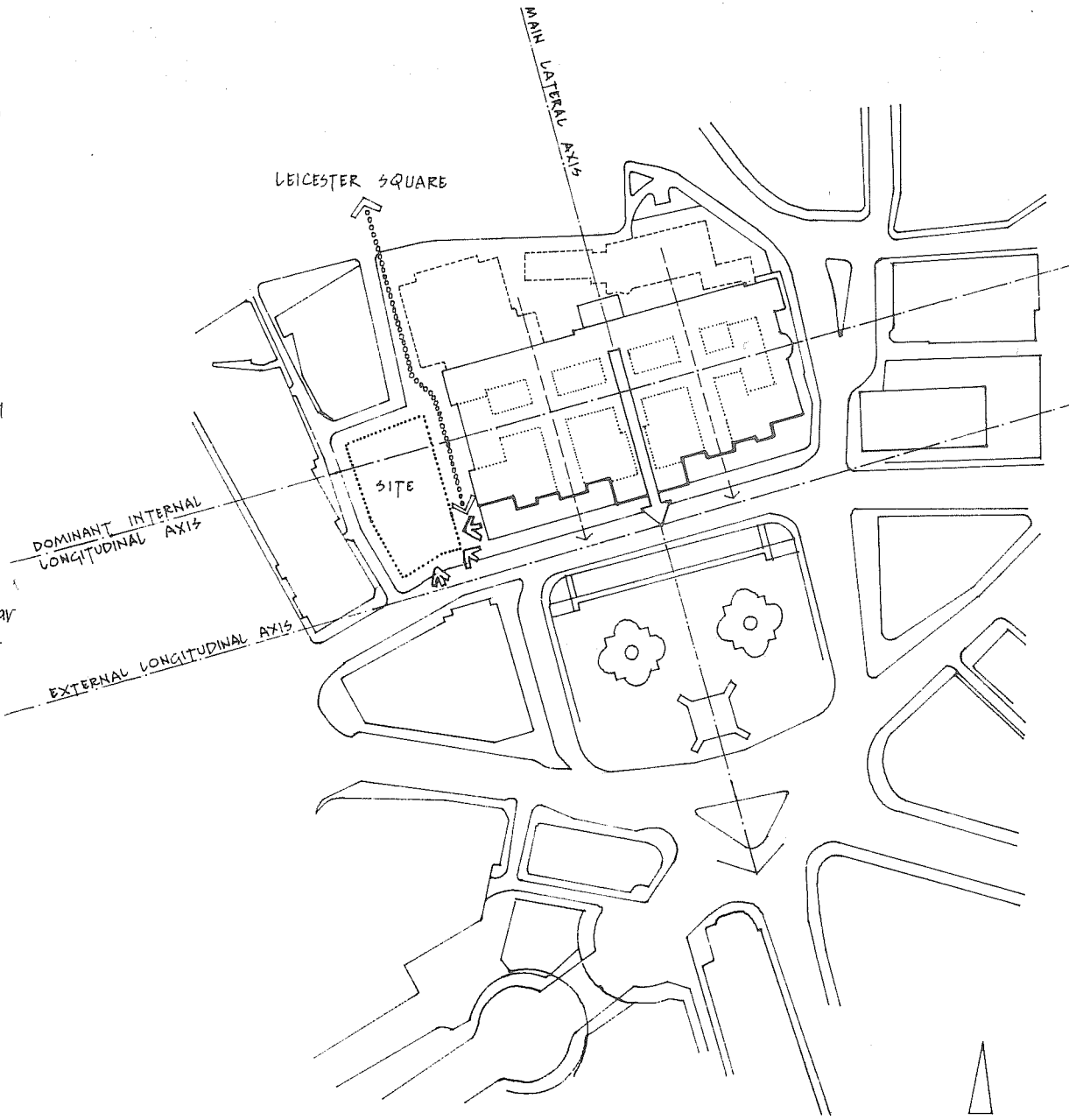


KEY ELEMENTS

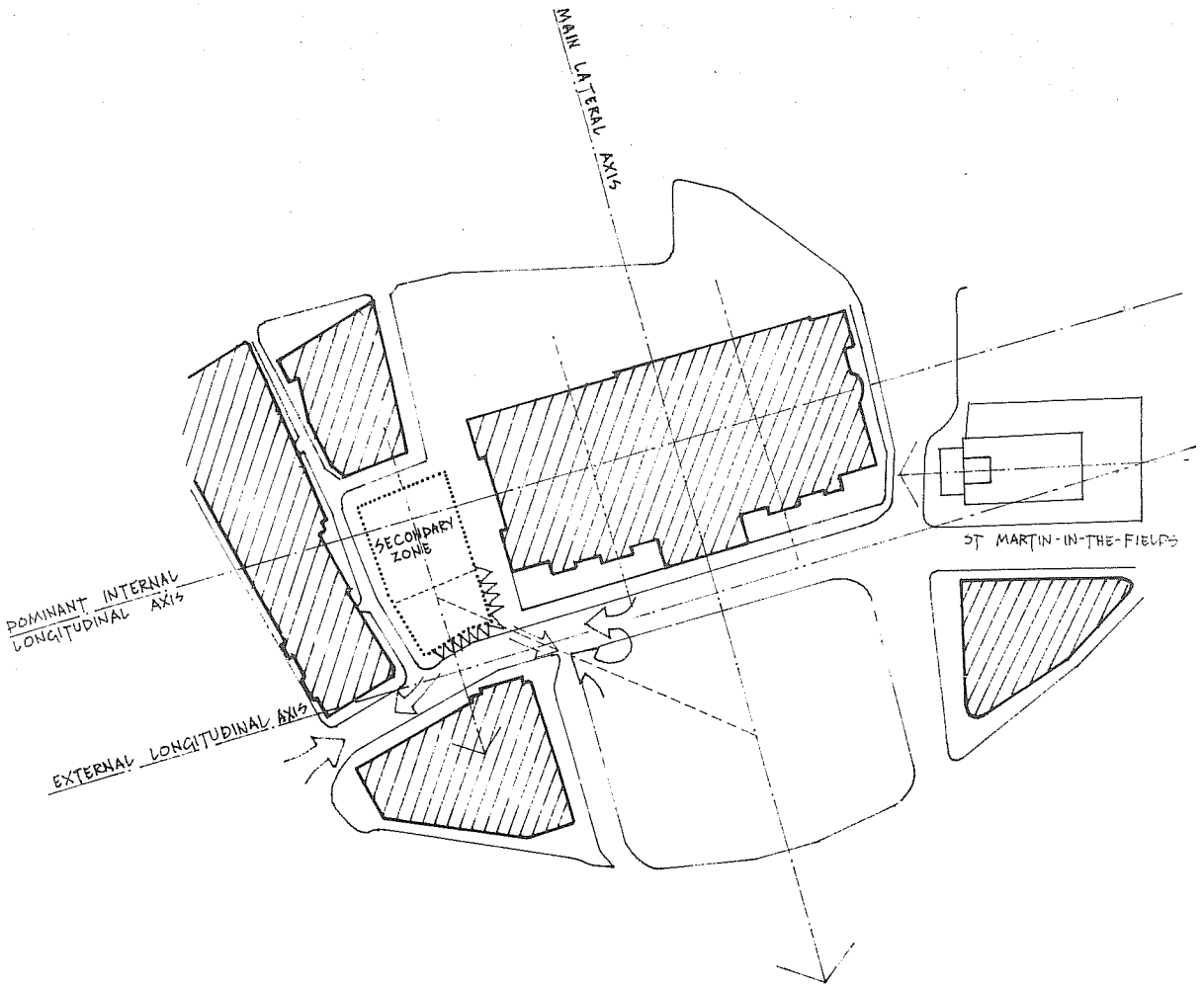
NATIONAL GALLERY AND HAMPTON SITE

The principal facade of the National Gallery may be read as a plane with a rhythm of forward projecting pavilions. The three central pavilions express the main internal gallery circulation, whilst the central thrust of the entry portico defines the main lateral axis.

The dominant internal longitudinal axis, which also defines an important circulation route, is parallel to the external longitudinal axis which runs along the north side of the square. This internal axis provides a link opportunity to the proposed extension on the Hampton site, which is slightly wedge-shaped, diminishing at its southeastern corner, and there is a possible route through the site linking Trafalgar and Leicester Squares. (The route to Leicester Square ensures that Trafalgar Square forms part of the entertainment network of central London, giving a sense of one kind of node leading to another).



HAMPTON SITE



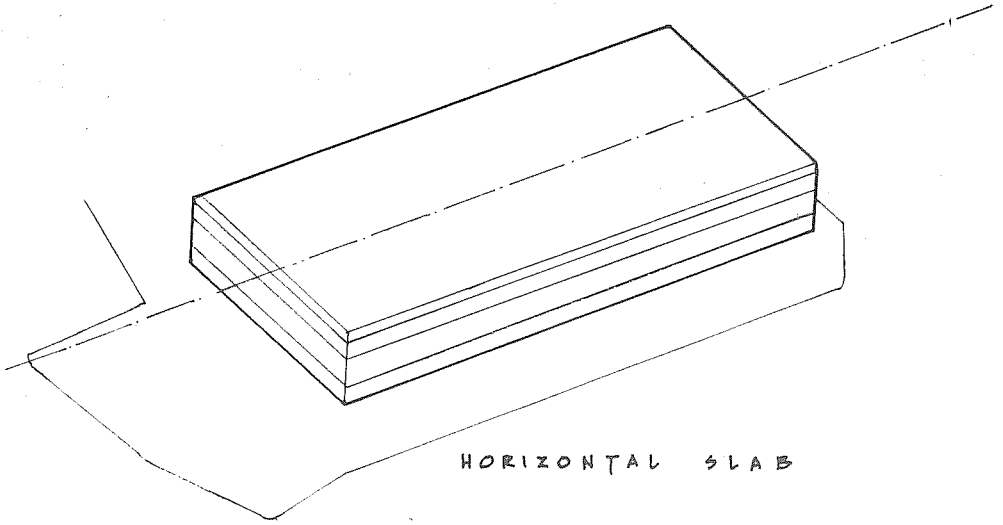
Although the extension site forms a potential stop to one end of the main Gallery facade, and can in this sense be compared to St. Martin-in-the-Fields, the two situations are quite different. Whereas the latter is in a relatively exposed position with its main longitudinal axis pointing towards the Gallery, the former is more enclosed and its main axis runs laterally at right angles to the longitudinal axis of the Gallery.

The site's location creates a link potential between it and Trafalgar Square, inducing a diagonal condition at the southeastern corner of the site. Because it is the access zone, visible from Trafalgar Square, this edge of the site offers the greatest potential for development. There is a secondary zone to the rear.

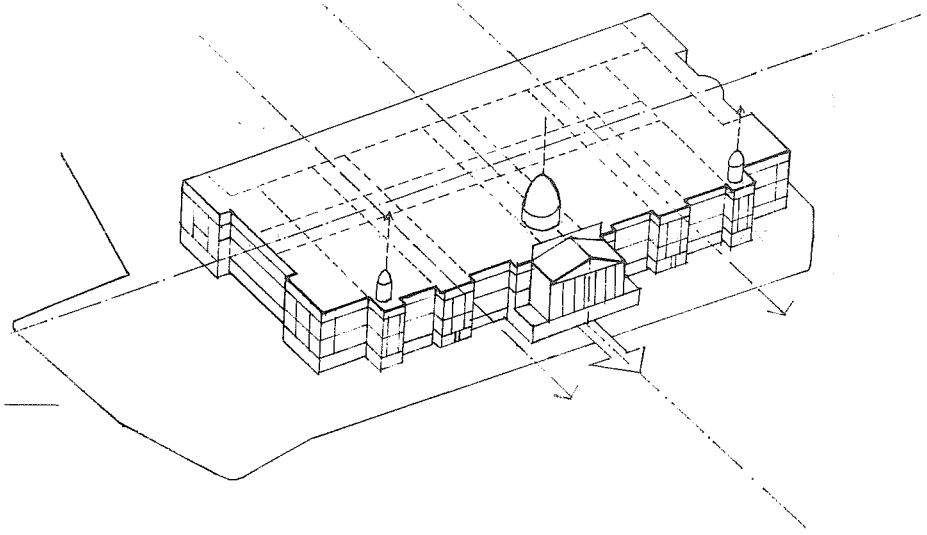
NATIONAL GALLERY

The Gallery may be read as a horizontal slab with a front and a back. This horizontality is furthered by the layering in which the plinth establishes a base, with a cornice defining the elevational 'canvas.'

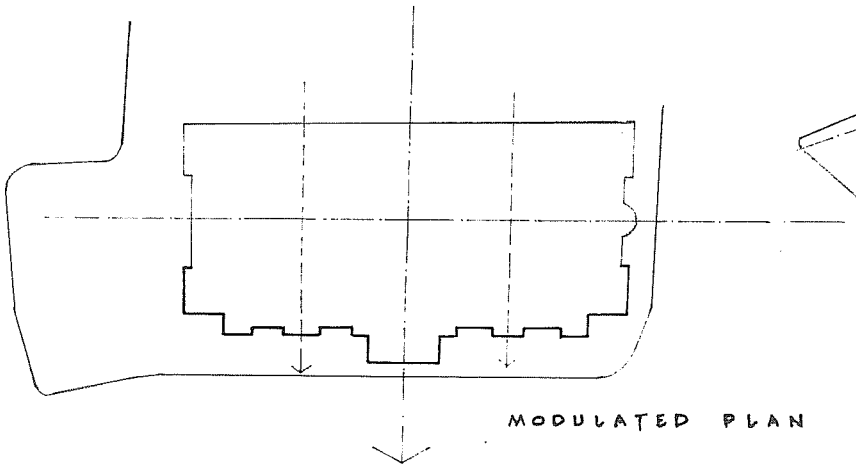
An intermediate horizontal band separates the two rows of windows (the upper being blind) which animate the facade. Conforming to classical design principles, the elemental disposition is hierarchical, with clearly defined axes controlling the main gallery organization.



HORIZONTAL SLAB



HIERARCHICAL FACADE



MODULATED PLAN

Because of the length of the facade, the external profile of the plan is carefully modulated so that the main axes of the gallery arrangement receive external expression. This occurs in the pavilion-like projections identified by columns, and at entry by a pedimented portico with a dome immediately to the rear.

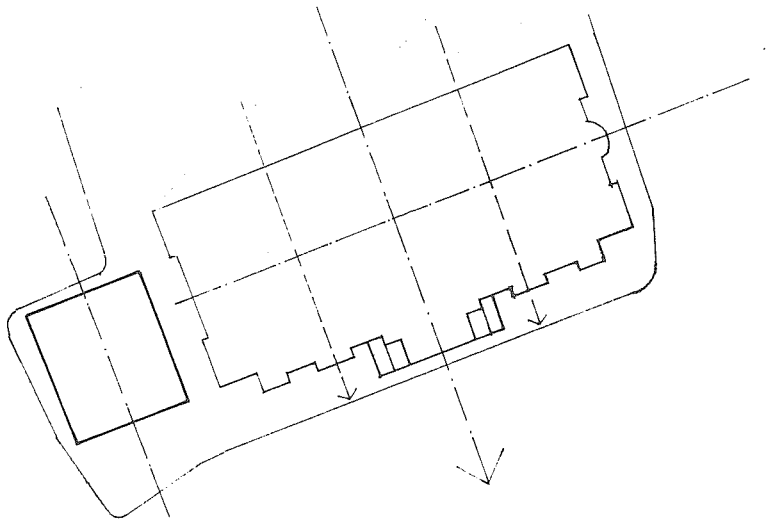
Care is given to stopping the facade at each end with first a projection surmounted by a dome, followed by a setback where the actual corner occurs. The twin domes at each end have a base which ensures a distinctly vertical thrust.

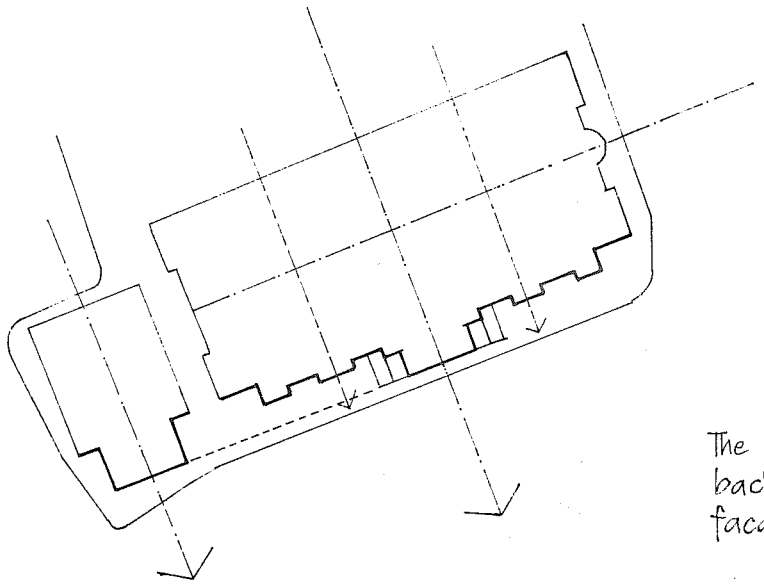
The surface treatment is low-key with a concern for balance between verticals and horizontals. Although the facade is predominantly horizontal the clusters of columns give localized vertical readings so that when viewed obliquely the facade emphasis becomes vertical.

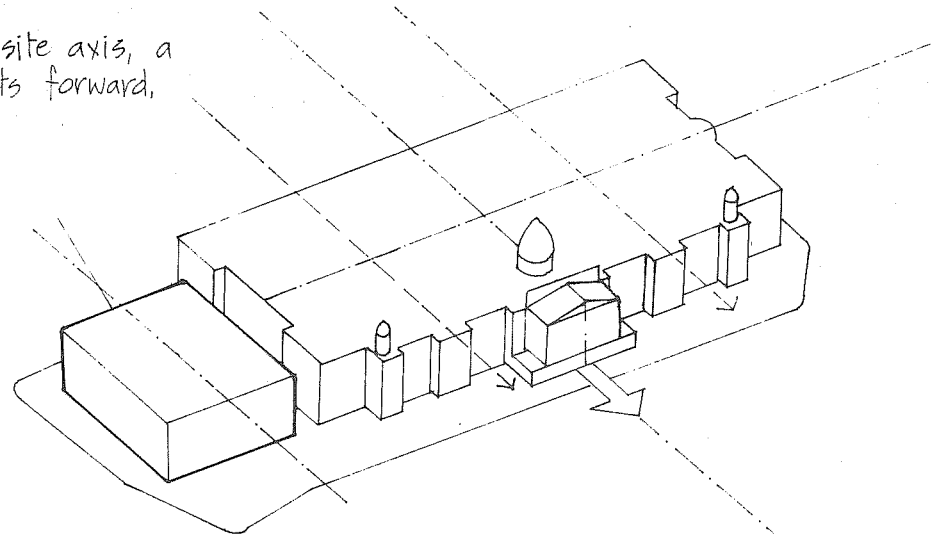
The use of stone has several consequences for the National Gallery. The Gallery has a mass rather than a planar reading. In combination with the classical language, the use of stone gives the Gallery monumentality, authority and dignity. The sculpting of the mass with pilasters, cornice and columns gives considerable surface richness with the play of light and shadow.

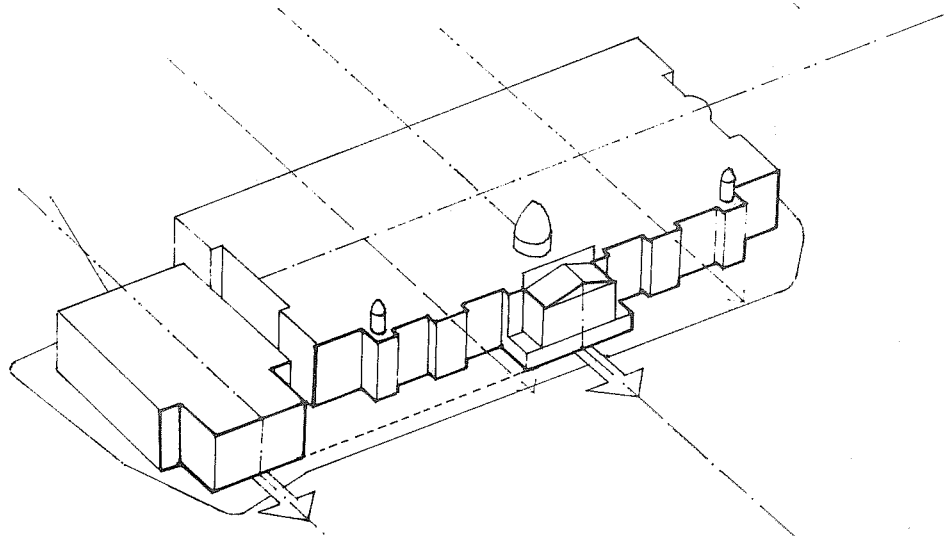
THE EXTENSION

The generic form is linear in acknowledgement of the linear site axis, a static slab alongside the National Gallery. A pavilion projects forward, reduced in width because the site diminishes at this point.



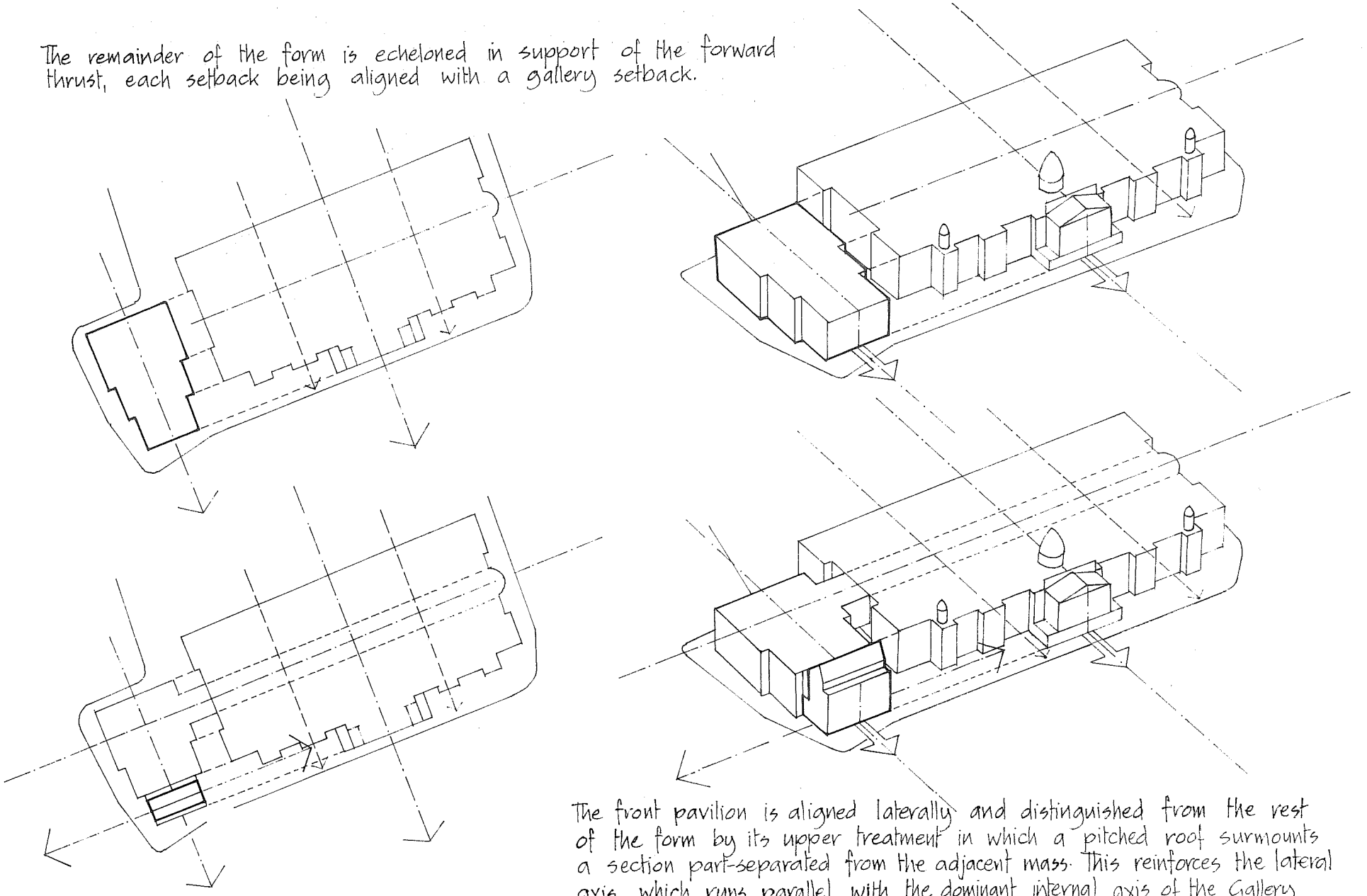






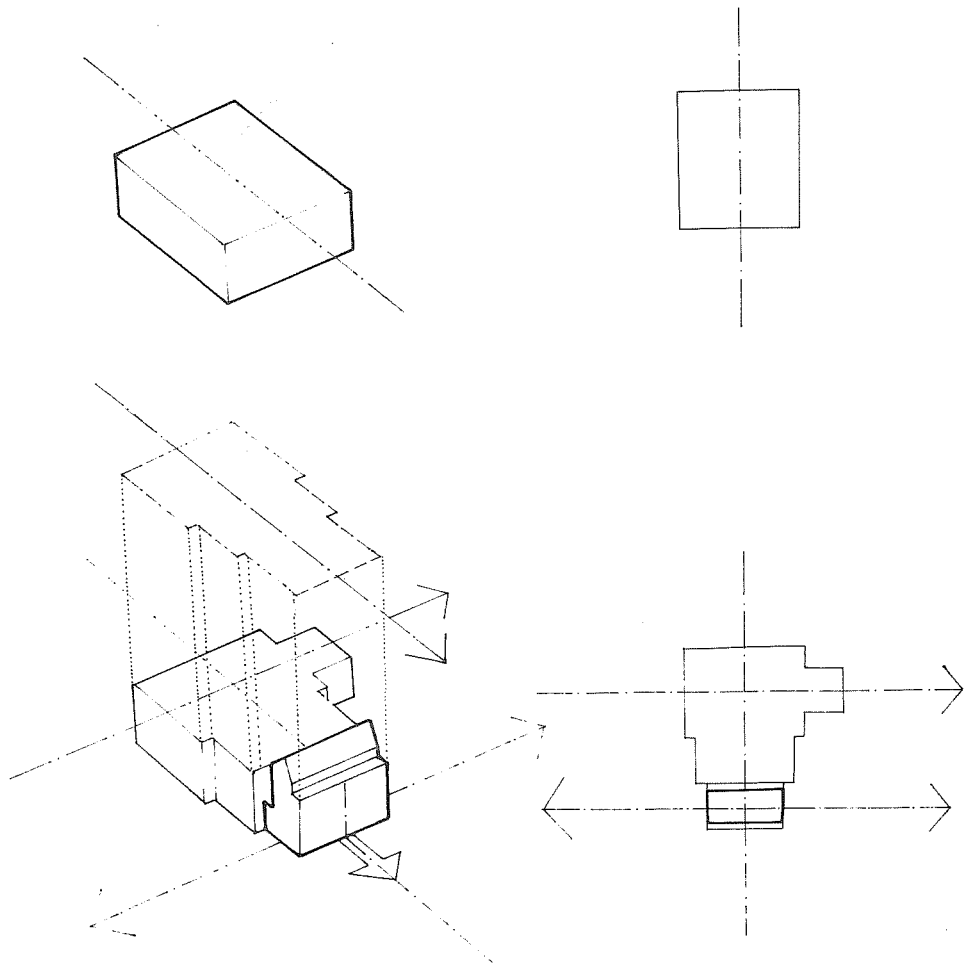
The pavilion, aligned with the Gallery portico, picks up the forward-backward rhythm of the pavilion projections on the main Gallery facade. The form is now directional.

The remainder of the form is echeloned in support of the forward thrust, each setback being aligned with a gallery setback.



The front pavilion is aligned laterally and distinguished from the rest of the form by its upper treatment in which a pitched roof surmounts a section part-separated from the adjacent mass. This reinforces the lateral axis which runs parallel with the dominant internal axis of the Gallery and with the Gallery facade.

THEME



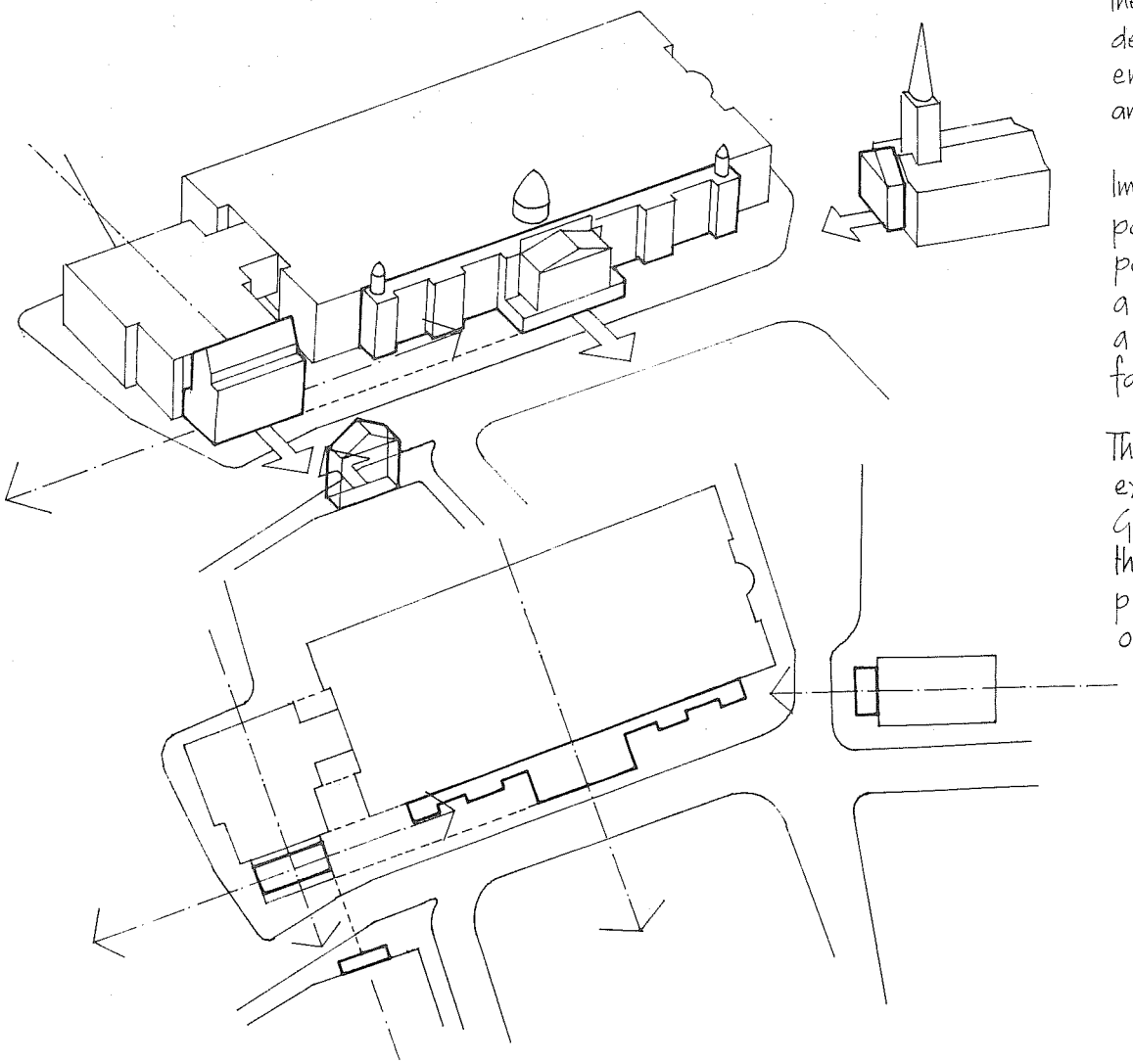
By separating the forwardmost projection of the echeloned mass, Stirling and Wilford recognize zonal differences in the site and establish a powerful contrast with the rest of the form which nevertheless remains part of the echelon system. This transforms a formerly static mass into a dynamic configuration, establishing the theme of the work, which is to exploit the opportunity afforded by a contextual situation to animate and dramatize one part of the form in contrast with the rest.

This dynamism is induced by the axial shift, and by the contrast of the vertical linearity of the forward pavilion when compared with the horizontal, slab-like remainder; opportunities for animation are provided by entry and by identification of the role of the building, particularly in relation to the existing Gallery.

The relationship between the pavilion and the rest of the extension affords a further opportunity to reconcile two geometric configurations, the symmetrical directional organization of the whole and the lateral thrust and part independence of the pavilion itself.

The theme is also concerned with the 'two worlds' encompassed by the programme, the Neo-classical world of the National Gallery and the twentieth-century world of the extension. This semantically rich opportunity is realized through the structure, materials and architectural language used in the extension.

PAVILIONS

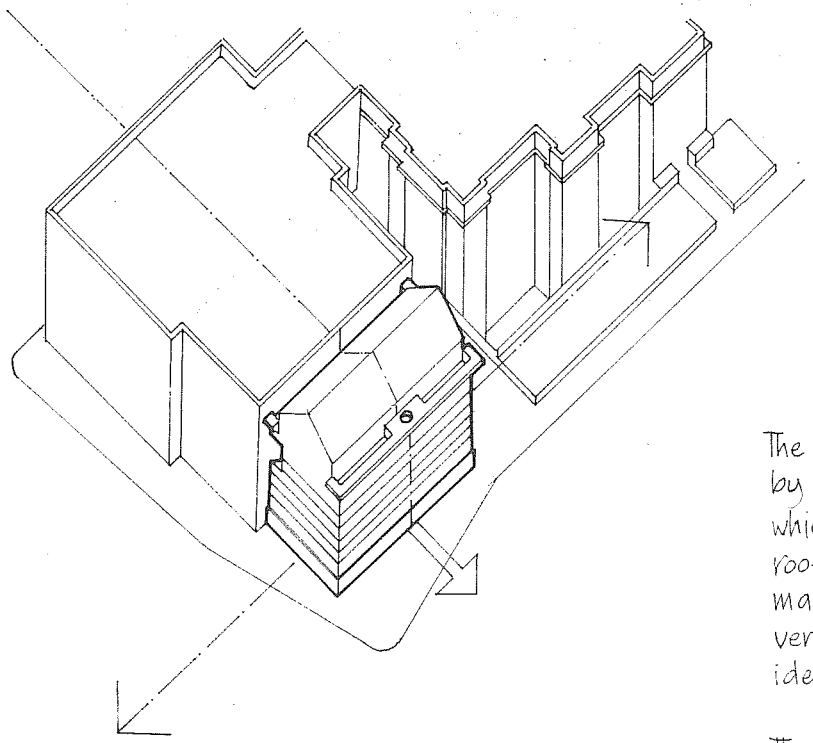


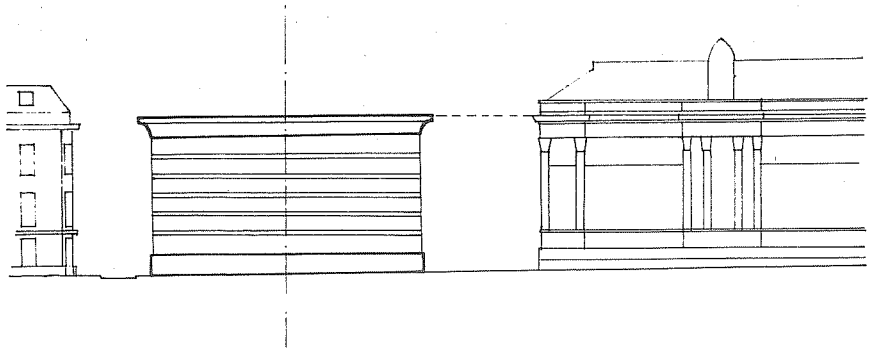
The idea of the portico as a pavilion defining entrances is a major device employed by the Neo-classical buildings around Trafalgar Square.

Immediately opposite the site is the portico to Canada House whilst the portico of St. Martin-in-the-Fields provides a similar incident, this time acting as a stop to the east end of the Gallery facade.

The pavilion to Stirling and Wilford's extension stops the west end of the Gallery whilst being aligned so that the eastern end of the pavilion is placed on the centre of the portico opposite.

THE PAVILION



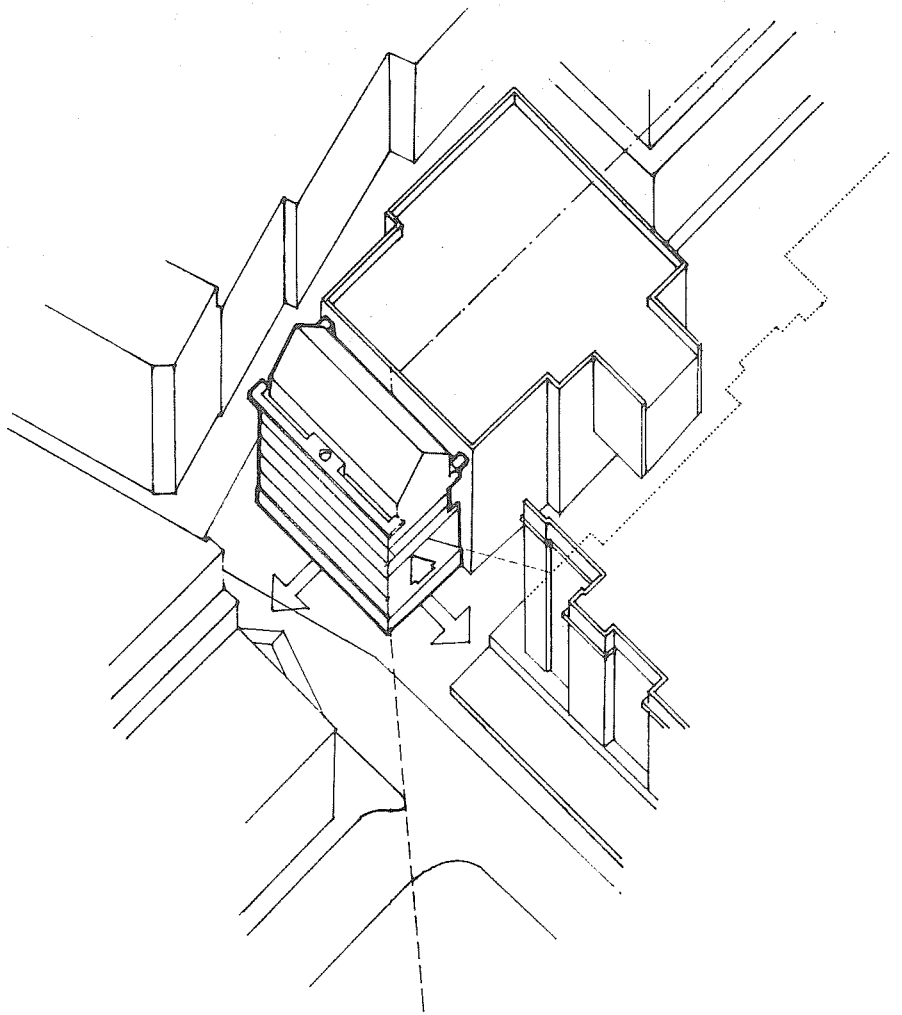


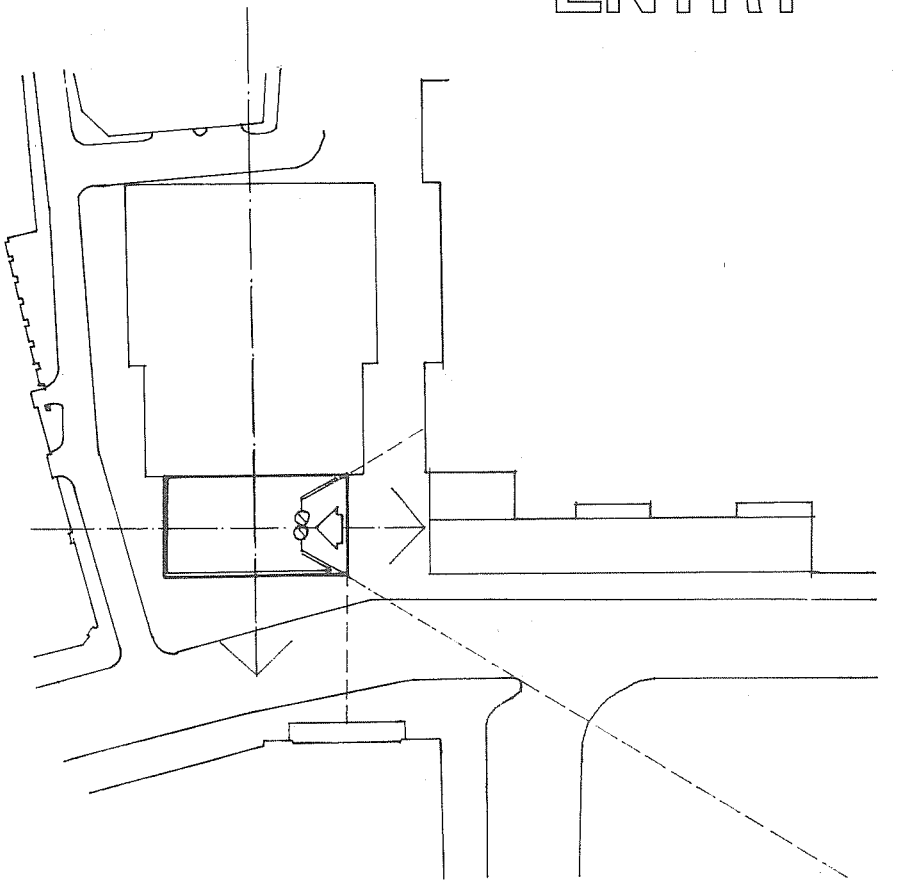
The lateral axis established by the alignment of the pavilion is reinforced by horizontal indentations in the facades, by a plinth and cornice which echo these features of the National Gallery, and by the pitched roof, which defines the axis. Although this linear emphasis echoes the main horizontal layering of the Gallery, it contrasts with the localized vertical reading at the south west corner, establishing a separate identity for the extension pavilion.

This separate identity creates a problem at the point of junction with the main configuration, particularly where the cornice meets the adjacent mass. This is resolved by attaching the cornice to the mass by two 'brackets,' one at either end. This is reflected on the south side by indentations in the cornice so that when seen from above, it appears to have a flat top which joins the mass at either end and also at the centre.

The horizontal indentations in the Portland stone facade give it a 'mass' reading similar to that of a Renaissance palazzo (as the architects describe it). This is carried through with the provision of a base (plinth), middle and top (cornice) as with the National Gallery.

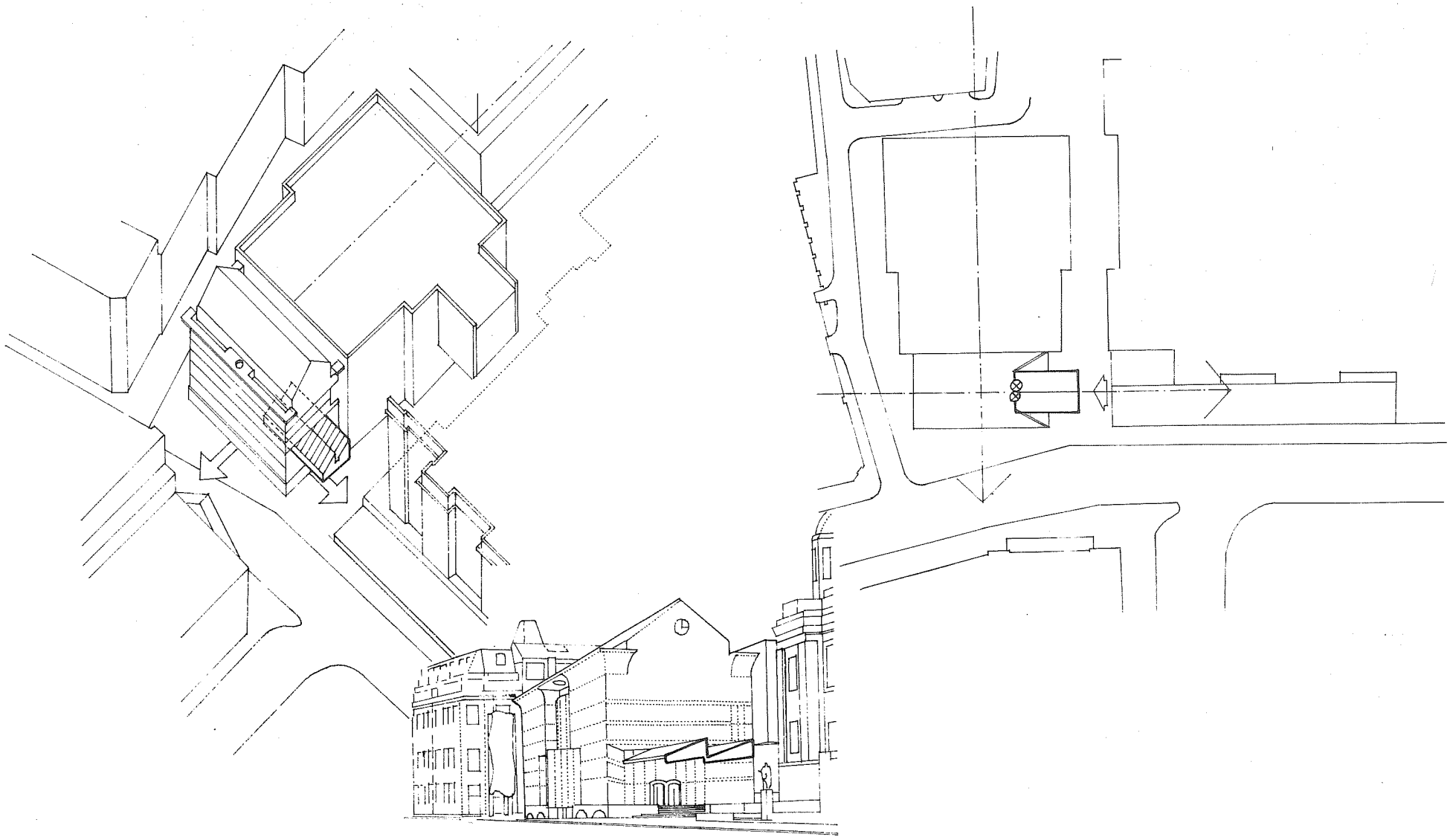
ENTRY





The forward pavilion may be read as a linear box, which becomes directional with the wedge-shaped opening in the lower part of the end facing the National Gallery. This erosion of the mass establishes a link with the space fronting the Gallery and (on oblique) with Trafalgar Square.

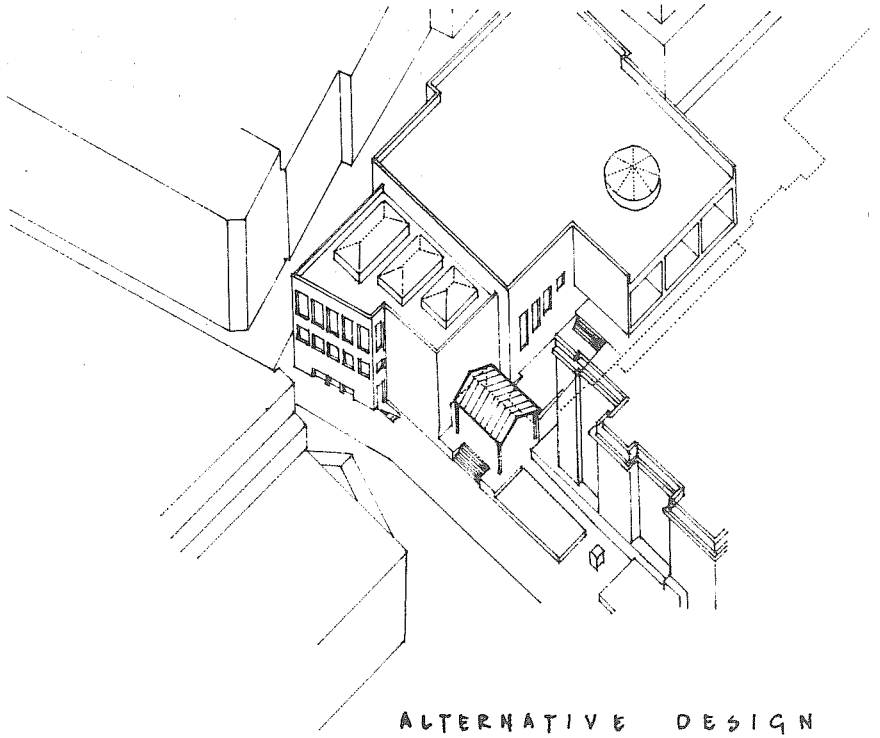
CANOPIES



If the wedge-shaped opening invites entry and expresses a link with Trafalgar Square, further definition of entry is added by twin translucent projecting canopies.

These exert a linear rhythm, the more forceful because two obliques are placed alongside each other. Their shape, position, length and translucent quality suggest that they are sliding through the box rather like those swords used by magicians who 'pierce' a lady in a box several times.

The canopy exerts further directional thrust, reinforcing the linear axis and the link with the space fronting the Gallery.

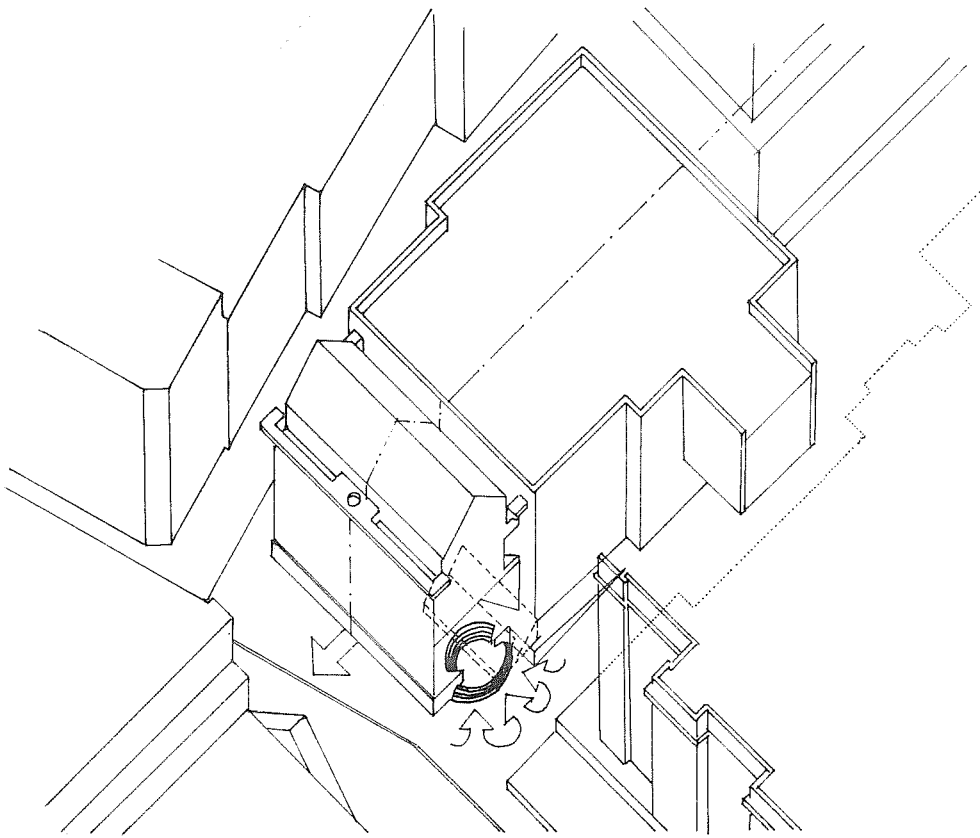


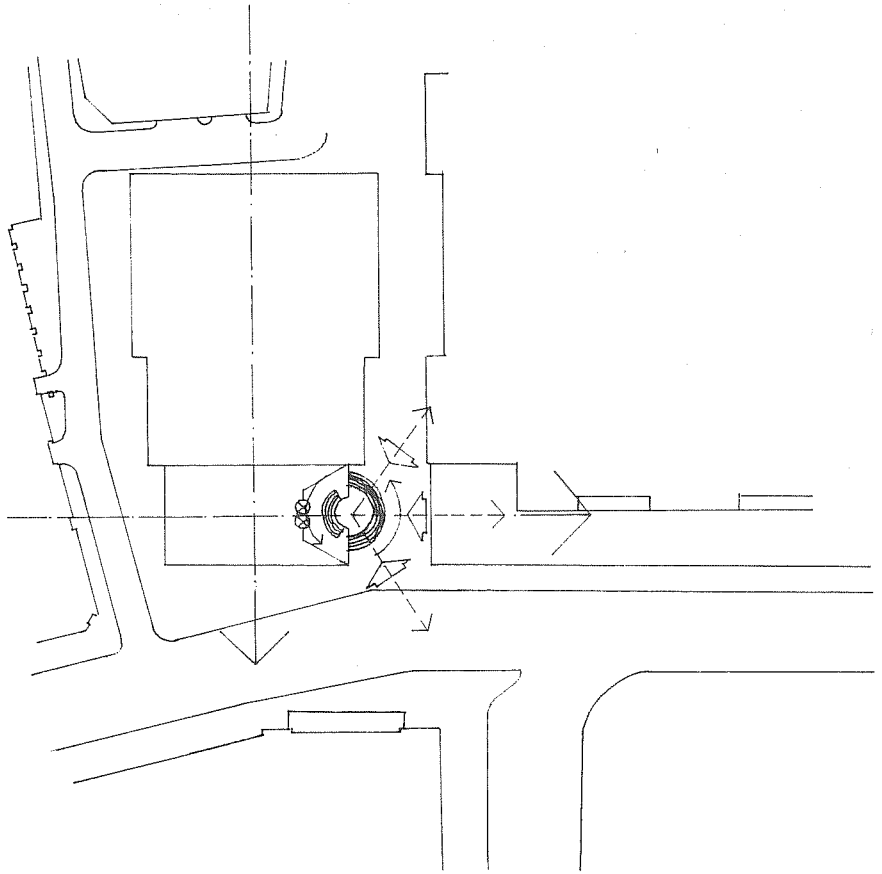
ALTERNATIVE DESIGN

In an alternative design submission (scheme C), Stirling and Wilford proposed a forward pavilion with an angled projection which picks up the alignment of Pall Mall East as it enters Trafalgar Square. Compared with the preferred solution, this results in a restless distortion of the forward mass, which, despite its echelon, fails to lock satisfactorily into the rest of the configuration.

For this design the canopy is a simple pitched roof, giving a serenity necessary to alleviate conflicts caused by the pavilion which it fronts.

CIRCULAR STAGE

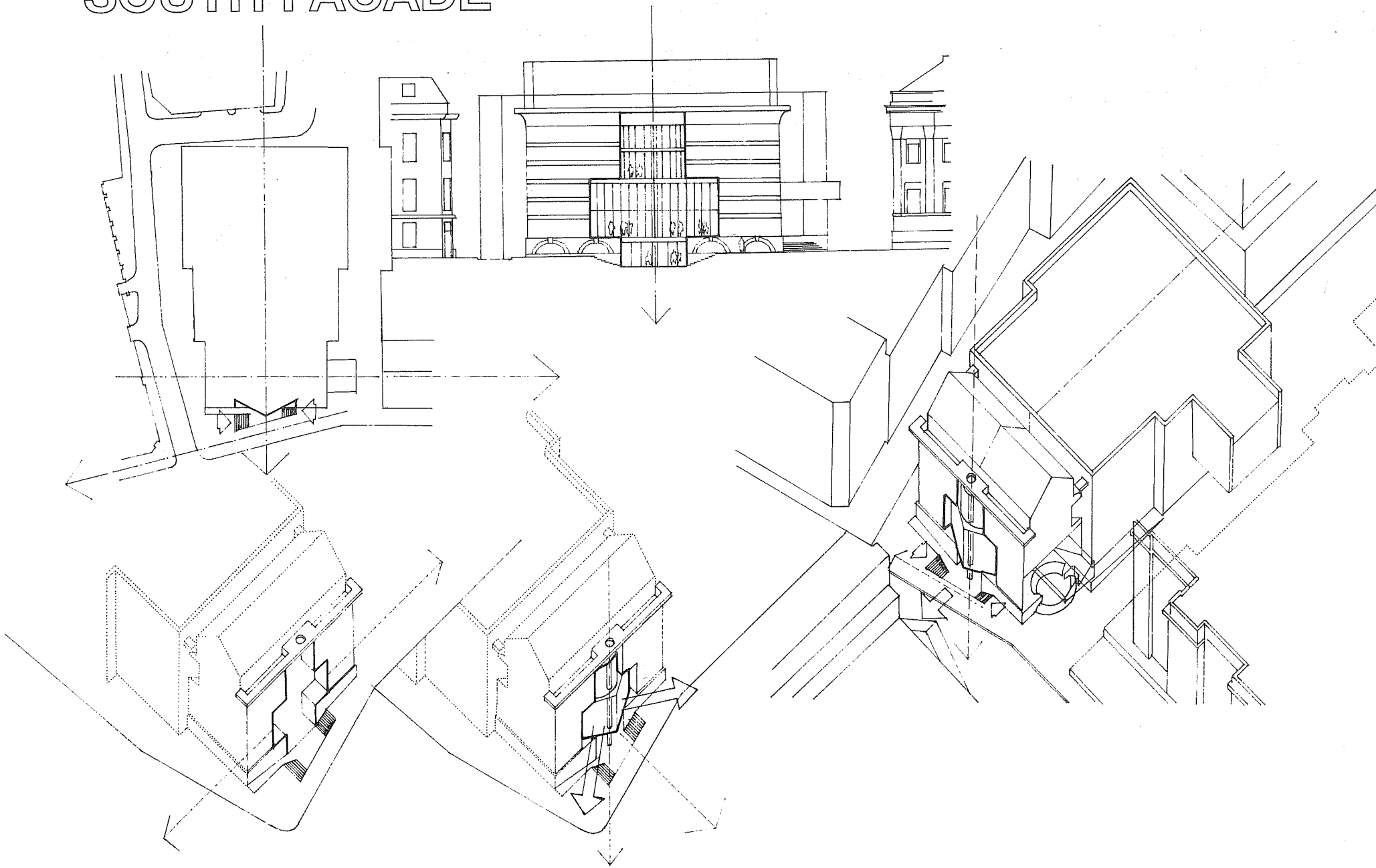




By opening up the box at one end, an inside/outside space is created. This opportunity is furthered by the circular place (described by the architects as a 'stage') which creates a kind of proscenium opening with a circular revolving stage.

This entire device, the wedge-shaped opening in the box and circular stage set into the podium, is a focus which pinpoints entry decisively, being supported by the translucent canopy above. The richness of the solution is compounded by the range of forms used and by their interacting energy components, which comprise: the dramatic and powerful opening into the box; the wedge-shaped 'embrace' of the sides; the stability/movement of the circular stage, itself given an added dimension by being half into and half out of the podium; and finally, in sharp contrast to the rest, the poised elevated thrust of the canopy, gaining in impact by being translucent, by having a double rhythm and containing twin obliques.

SOUTH FACADE



The south facade facing Pall Mall East has its mass reading broken through a double piercing by glazed bays which give views from the building along Pall Mall East and towards Trafalgar Square. It is as if the mass has been pulled sideways centrally. Delineating the dominant internal axis of the configuration, an oblique pointed form thrusts outwards, being surmounted by a more serene curved bay. This erosion also disrupts the cornice, now seen centrally as a slender plane, this being made explicit by the hole which reveals its depth.

The force of this disruption continues downwards, piercing the ground plane and podium in the form of an entry point at a lower level. This is reached by stairs, the outer boundary of which is set at an oblique angle, taking up the external direction of the pavement and of Pall Mall East.

As with the entry facade, elements are compressed together between plinth and cornice. The impact of these forms is increased by the fact that they are transparent (in contrast to the solidity of the mass which they pierce), and by the way their vertical rhythm of glazing bars contrasts with the horizontality of the facade indentations. In furtherence of this vertical/horizontal contrast a downward thrust is also in operation with the presence of a central column which pierces the floors behind the glass, becoming external where it penetrates the baseline at plinth level. Although this column does not coincide vertically with the circular hole in the cornice, the one externalizes the other, the circular hole alluding to the idea of vertical penetration made manifest by the column.

The final directional thrust is at pavement level, where the oblique frame to the stairs giving entry to the shop completes the 'display' whereby a series of primary forms comprising transparent curved and oblique membranes in the vertical plane are juxtaposed against an oblique erosion of the ground plane in such a way as to animate and to an extent dramatize the ensemble.[1]

Four semi-circular windows are located in the plinth, giving light to the shop, this symmetrical deployment increasing the sense of monumentality, whilst the rhythm of curves gives a serene base, countering the dynamism of the punctured mass above. In this sense these windows belong first to the plinth or base, and also to the horizontal mode of the facade plane, their distinctive shape identifying their special function.

[1] This is similar to a familiar tactic in Le Corbusier's work whereby several contrasting forms are compressed together to dramatize a composition for a particular reason. See my analysis of the Monastery of La Tourette, Le Corbusier: An Analysis of Form. (Second Edition 1989) Van Nostrand Reinhold (International) Co. Ltd., London, pp. 267-98.

DESIGN PRINCIPLES

WINDOWS IN THE PLINTH

The windows, in common with several other major elements in the design, perform several roles. These may be defined in terms of the way the theme of the work is interpreted by four constituents of the design strategy :

1. To ensure that every element observes the geometric properties of the configuration as a whole (this being an echeloned symmetrical mass with a directional thrust).
2. To ensure that every element in the design serves its particular function with a shape appropriate in usage and meaning.
3. To ensure that elements conform to what has been perceived as the overall function of the extension within its context and (more specifically) to the theme of the design. (To animate and dramati e one part of the form in contrast with the rest in terms of the 'two worlds' of the program).
4. To ensure that elements observe a correct relationship to their own particular part of the design, this to take account of the geometric characteristics and properties of each specific part of the design.

If we take these in turn in respect of the windows in the plinth :

1. The position of the windows supports the overall symmetry of the form

2. Their shape identifies a particular function, (that of lighting a space below ground level as opposed to giving a view out).
3. Their treatment (with keystones) has classical overtones which allude to the image of the building as a palazzo, this being part of the general perception of the relationship between the extension and the National Gallery.

4. Their semi-circular shape ensures a serene rhythm which supports the passive role of the plinth as the base and foundation of the composition.

MODERN AND POST-MODERN

Although the pierced cornice has Post Modern overtones in its ambignous series of readings (solid from below, indentations from above), as does the explosion out of the box by twin transparent forms, the integrity of the Modern Movement functional credo is retained. This is evident in the way each device signifies a multi-faceted specific function (the upper fenestration gives a view out whilst recognizing internal differences of use – the curved bay signifies galleries whilst the oblique bay signifies the more animated movement at entry level). Similarly, the presence of a column which pierces each floor behind glass before emerging below the base plane of the pavement has both a Modern and Post-Modern flavour: Modern in the way a structural member behind glass shows the freedom given by twentieth century technology, Post-Modern in the device contradicts the mass reading of the 'palazzo'.

CONFRONTATION AND CORRESPONDENCE

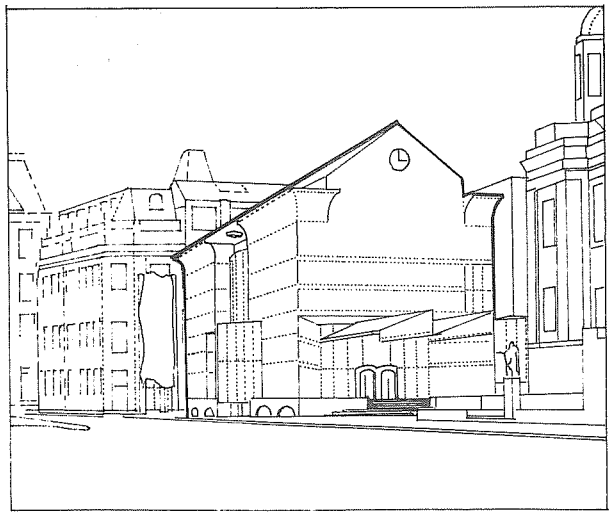
The entire scenario of the extension thus sets out to confront its National Gallery neighbour with several propositions. First it is an independent adjunct, a point made by the architects who explain this in terms of its horizontality when compared to the nearest corner of the National Gallery: second it is linked to its neighbour not only physically, but also by its shape and alignment – the pavilion is symmetrical, it projects forward like the portico to the National Gallery and the mass reading and palazzo image correspond to these features of the National Gallery; third, in contradiction to these correspondencies, the extension sets out to challenge its neighbour. Whereas the National Gallery is straightforward, uncomplicated, honorable and true, the south elevation of the extension is complex, has several layers of meaning, and is by comparison an intellectual puzzle which speaks through metaphor and allusion of present-day attitudes to history, art and technology.

PRIMARY FACADE

The design poses a problem as to which facade (entry to the east or the Pall Mall facade) should be primary. As expressed, the primary reading is held by the entry facade by virtue of its verticality and by the implied pediment provided by the gable end to the pitched roof: as the architects explain, the facade gains additional force by being read as 'a face... looking sideways towards the National Gallery, beyond St. Martins-in-the-Fields, and obliquely into the square.'[2]

This tactic relates to the architects' description of the forward pavilion as 'the head on a body where the rest of the anatomy does not have the same density of external features.'[3]

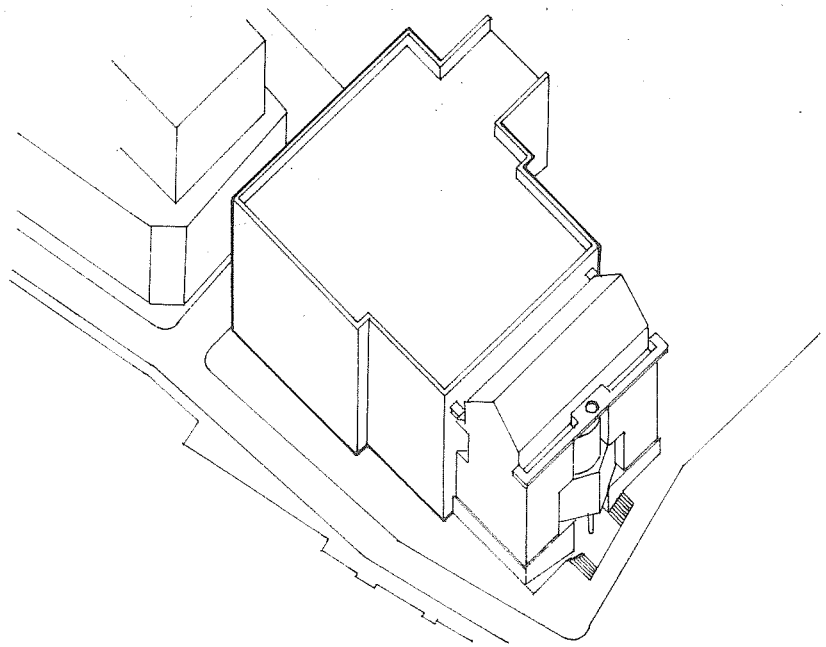
The distinctive presence of a small clock face confirms the symmetry of the gable and increases the sense of 'personality' which, when combined with the 'ears' of the cornice, makes this a friendly and 'approachable' facade.

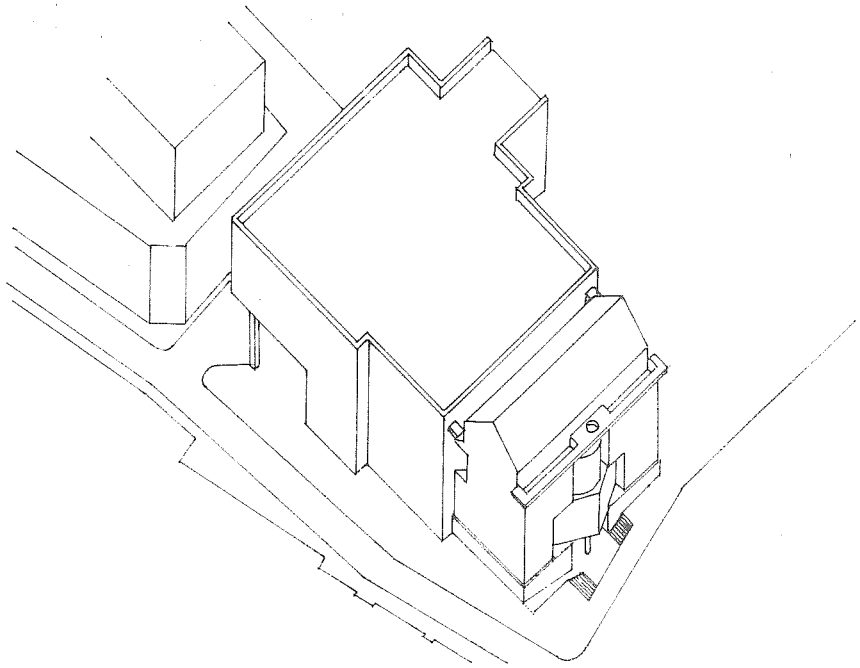


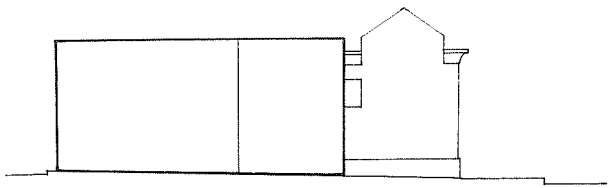
[2] Taken from the architects' comments in their explanatory article, Architectural Design, 56 1/2 1986, p. 70. This 'face' is similar to that used by Stirling and Wilford in the Fogg Museum at Harvard University, see Architectural Review, July 1986, pp 26-33.

3 Ibid p. 71

WEST FACADE

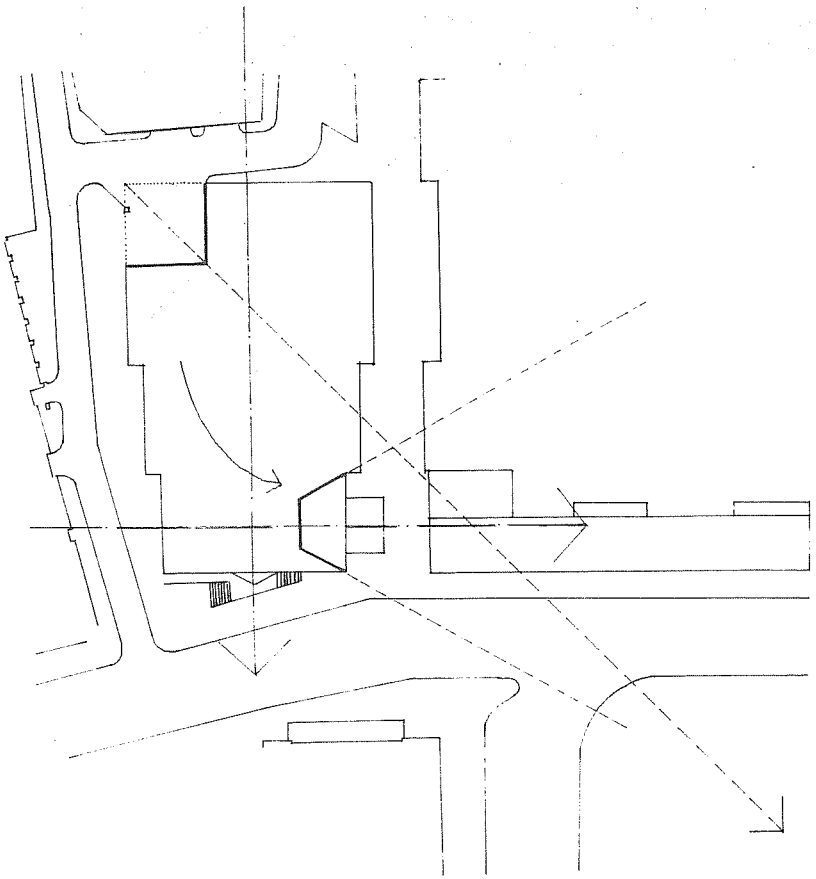


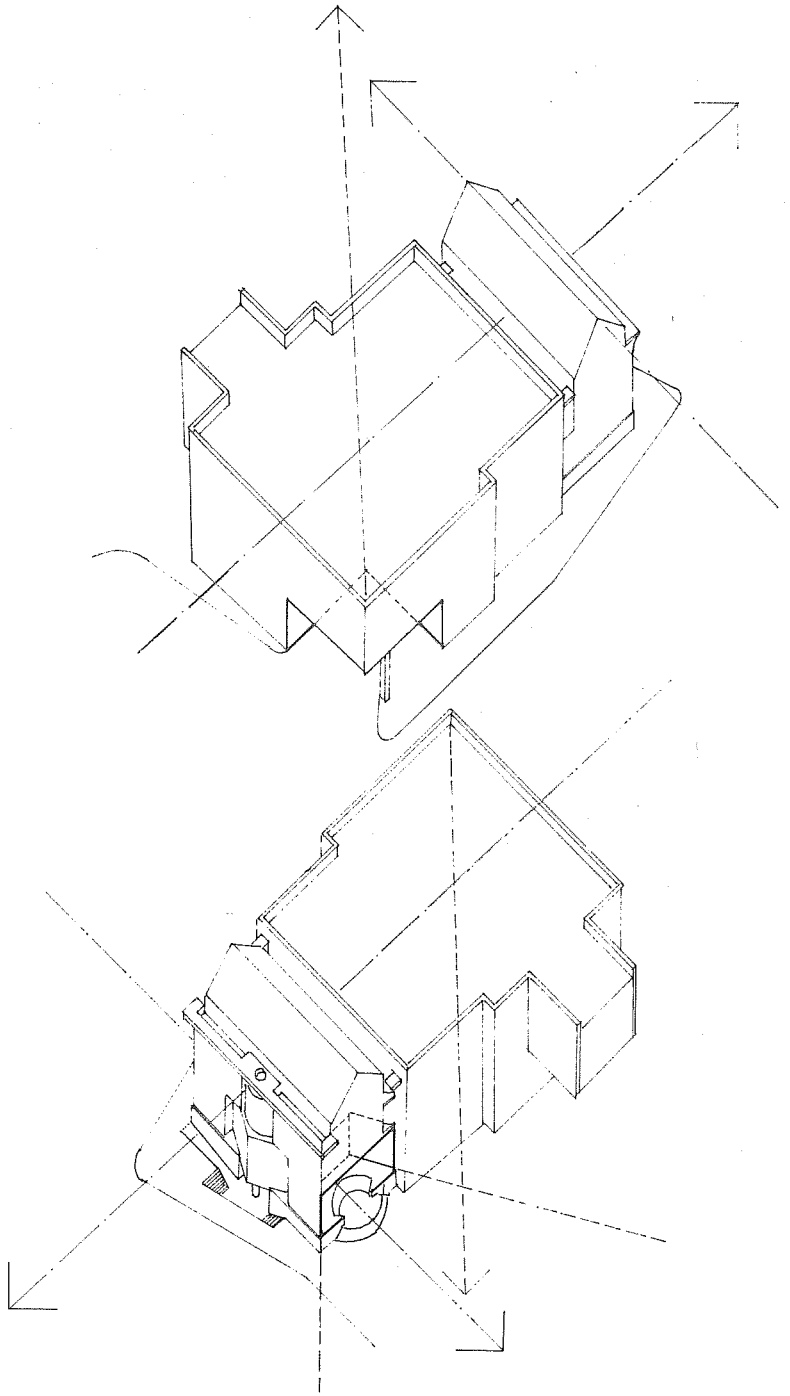




The generic slab has a ground-hugging boxiness that remains with the echelon transformation. Moves to diminish this are put in operation by breaking the rear mass at mid-point with a decisive erosion in the north-west corner to allow vehicle access under the form

DISTORTION

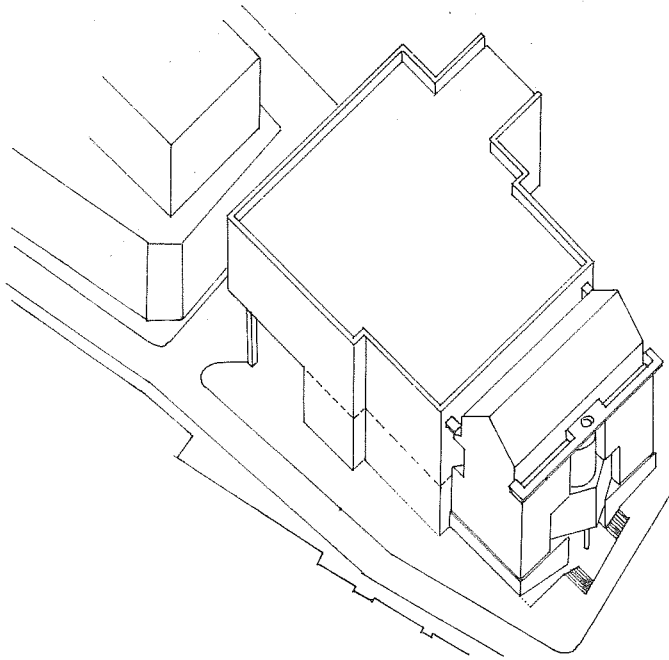


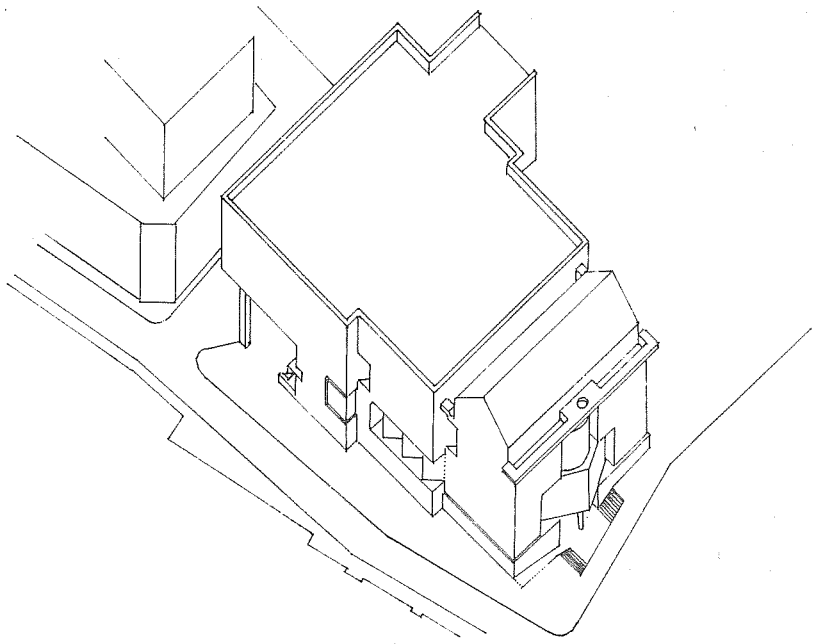


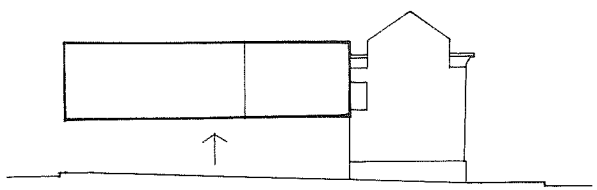
This device has several consequencies. It confirms the 'back' reading of this part of the ensemble: raising the mass creates the impression that the rear boxes are no longer ground hugging; it also significantly erodes a corner, which, although secondary to any reading towards Pall Mall or the square, can be read as opposite to these in importance or potential. The erosion also sets in motion an oblique, which, if carried through, continues towards Trafalgar Square.

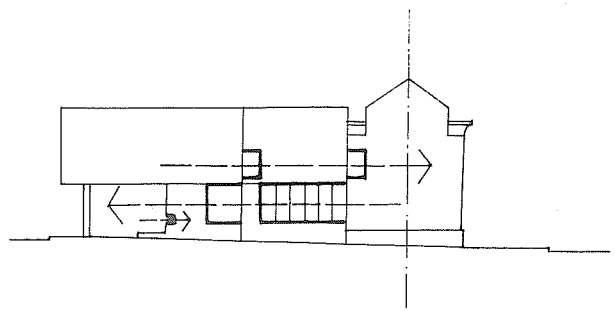
The symmetrical echelon form is thus distorted by this turning motion. It is securely held by many other devices, particularly by the central thrust of the longitudinal axis, but there is pressure exerted on the form in a particular direction, i.e. towards the entry point where it faces Gallery and square, this being the main zone of the configuration.

MASS OR PLANES









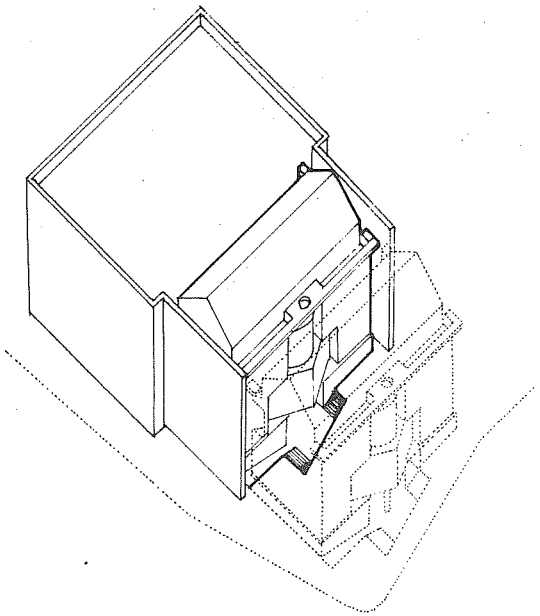
WEST ELEVATION

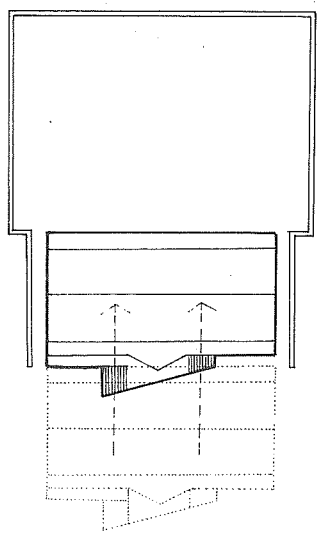
This elevated section sets in being an implied continuity in the separation of upper from lower, expressed in the west elevation by fenestration incisions. These incisions affect the mass reading, particularly at the lower (entry) level where the mass dissolves into a series of planes.

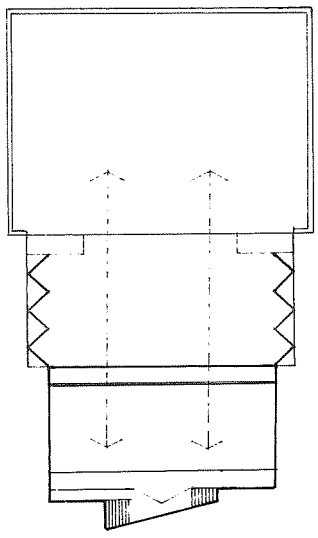
This dichotomy, between a mass or planar reading for the rear of the configuration, is affected by the way the edge of the mass is raised above the flat roof to give a distinct skin or planar reading. This is furthered by the way the incisions push and pull in different directions suggesting both separation and linkage between the two boxes. This movement is stopped by the forward pavilion, although the incision immediately below the cornice bracket attaching it to the rear has its own forward thrust.

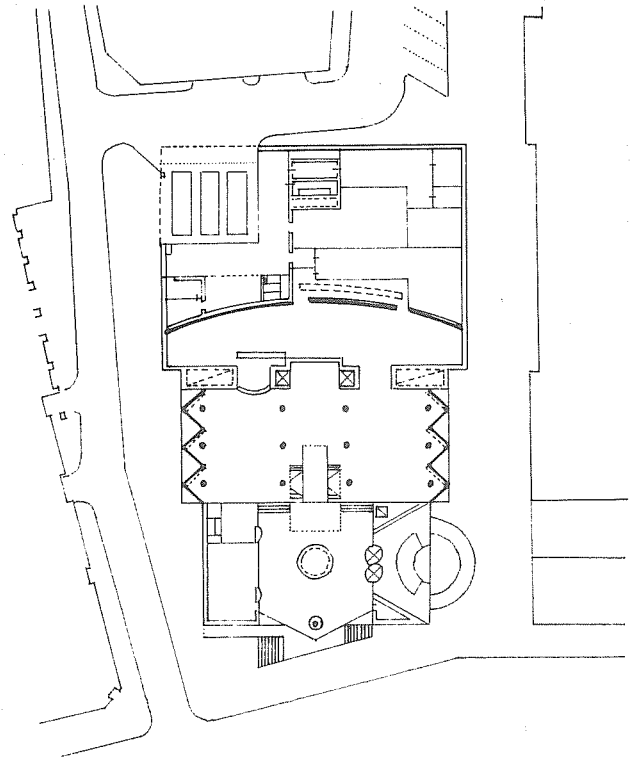
The result of these devices is that the elevation loses its mass reading and becomes taut and planar, although it is also part of a series of boxes, which by implication could all slide into each other.

SLIDING BOXES







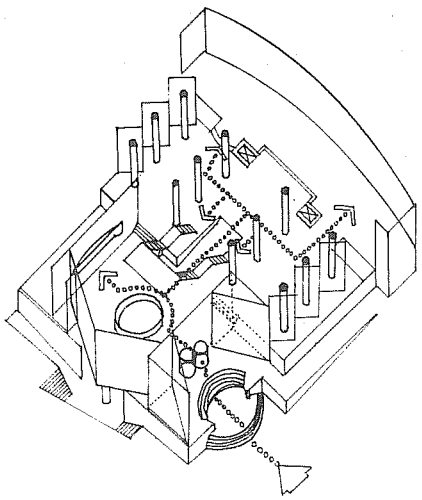


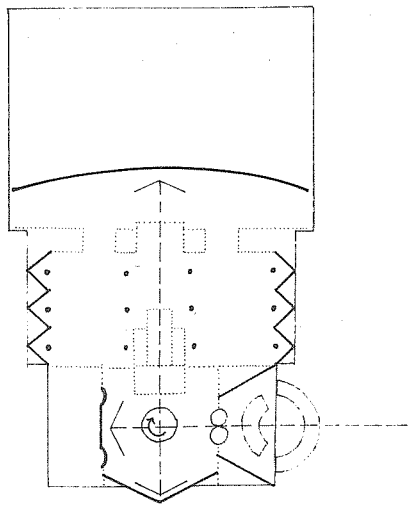
The echelon form may be read as three boxes, each capable of sliding into the one behind. As if in acknowledgement of this possibility the centre box has its edge in the form of a zig-zag at entry level, this 'concertina' allowing the forward pavilion to slide back into the main slab.

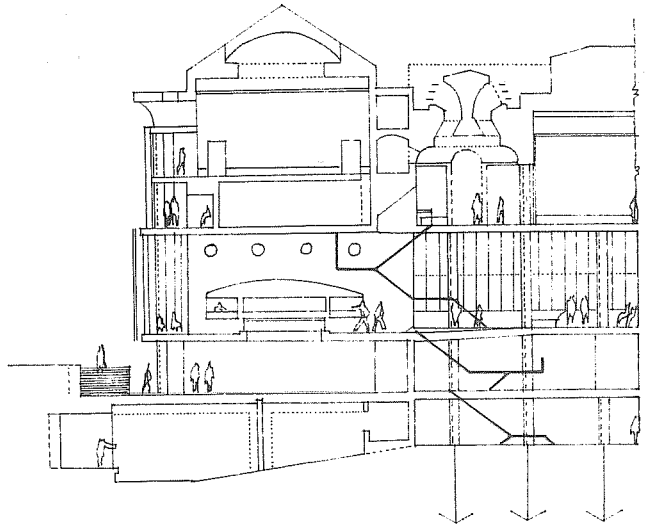
This sliding is held by the rows of columns in the foyer which pin the box in position. The columns continue down to the baseline below pavement level, their symmetry and shape signifying on the one hand circulation zones and on the other the structural principle of the building, which is to have a reinforced concrete frame and floor slabs with certain loads transmitted through columns.

The regular columnar rhythm of the foyer gives it a 'hypostyle hall' reading which combines order and formality with structural logic. Within a series of multivalent boxes the columns stabilize literally and metaphorically.

MOVEMENT AND STRUCTURE



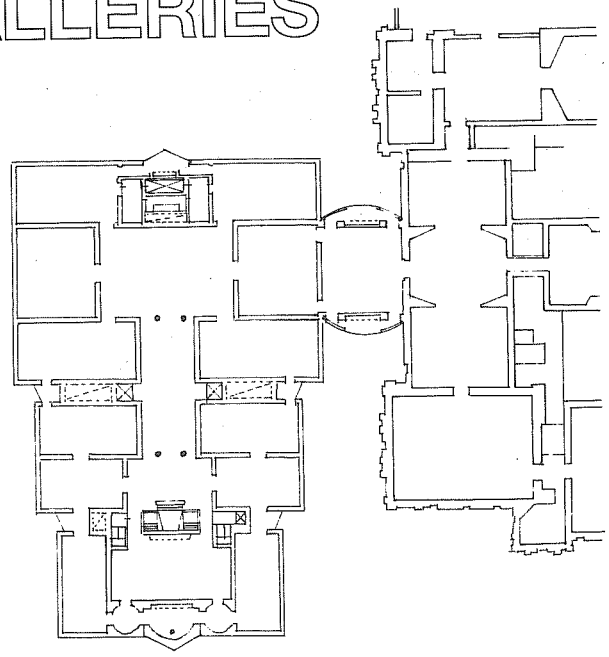




The movement progression from entry goes into a lobby towards a circular opening where the transverse and longitudinal axes meet. This sets in motion movement north along the axis into the transitional foyer zone leading towards the restaurant. From here movement dog-legs back again to the galleries above. The 'elasticity' of this zone signifies that it is a preparatory area at the centre of gravity of the configuration without a decisive directional or functional role. It mediates between back and front and, because of the stair location, between entry and gallery levels.

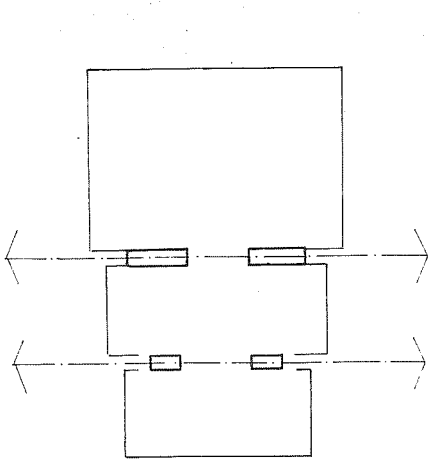
The stair is a major element, the main focal device of this spatial sequence, its central location and shape affirming the axis and its three dimensional and monumental presence identifying the movement route. By thrusting forward or back dependent on the main direction to be followed the stair becomes a vector of movement having considerable although muted energy. By its function it signifies not only its use but the predominant directional thrust of the building along the linear axis. The precise position of the stair enables it to move from box to box as appropriate, furthering the notion of interaction between the boxes. The movement axes create vistas which are appropriately terminated, the first by the cloaks, curved (in elevation); the second by the curve (in plan) of the restaurant wall. The finality of this restaurant wall signifies the end of movement and of the main circulation zone.

GALLERIES

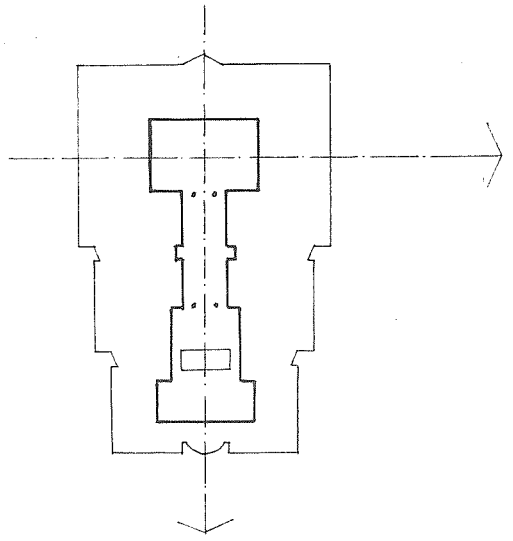


PLAN AT GALLERY LEVEL

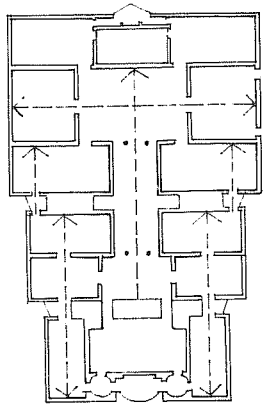
NATIONAL GALLERY



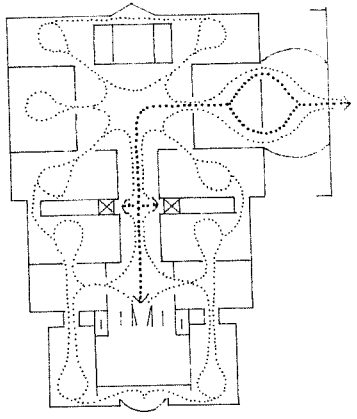
THREE BOXES SEPARATED BY SIDE WINDOWS DUCTS AND LIFTS



CIRCULATION CORE



VISTAS IN GALLERIES



CIRCULATION ROUTES

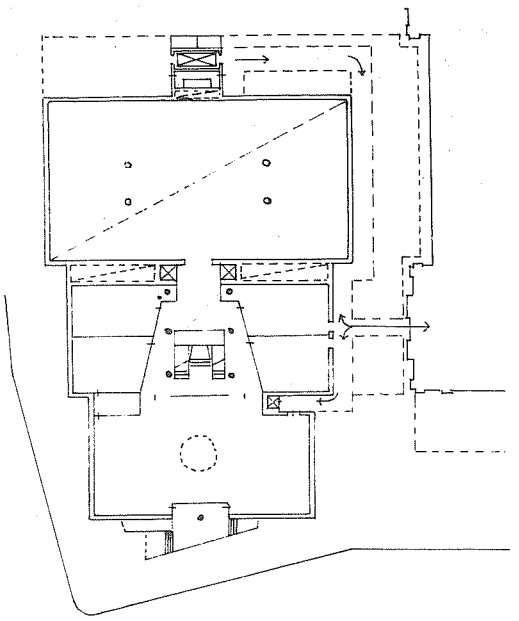
Above, the gallery level takes over the upper section. This floor is bi-laterally symmetrical, being controlled by the dominant linear axis. This ensures a harmonious and serene disposition of galleries with a series of vistas arranged on the linear axis.

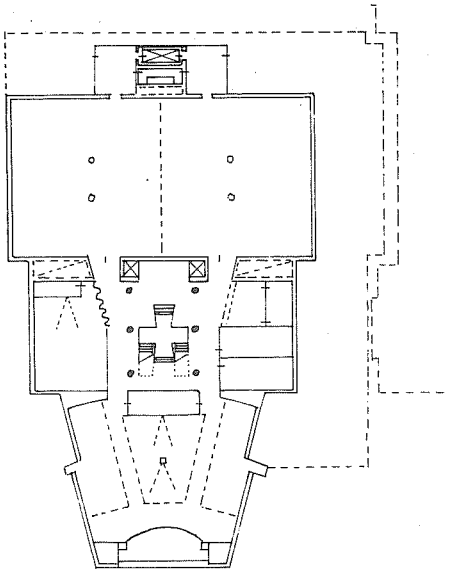
The form is self-contained with each of the three boxes 'separated' by side windows, ducts and lifts. This containment excludes the link, placed as a separate element on the transverse axis (dominant longitudinal axis of the National Gallery). The separate reading of the link is furthered by the curved exterior, which signifies that this is a special independent zone, neither Gallery nor extension.

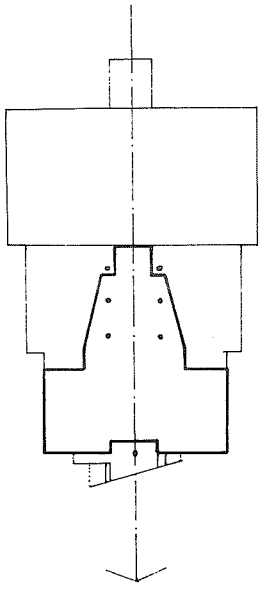
The exterior curve in the form of a bay signifies a calm and restful zone. Throughout the design the various zones have a shape intended to signify their use, as for example the rest zone of the circle at entry, the inward movement identified by canopy and wedge shape, the holding areas in the lobby and foyer, followed by the calm, contemplative dignity of the galleries, whose vistas encourage movement in a slow and reflective manner.

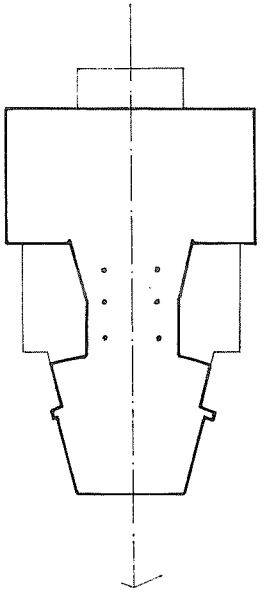
The configuration has a circulation core around which the galleries are placed. The shape of the core contrasts with the outer echelon in having its major zone to the north, reversing the general directional thrust of the pavilion. This 'holding' zone is, however, at a centre of gravity between extension and National Gallery, its size warranted by its location and role. Columns define the major spaces and reinforce the general bi-lateral symmetry and identify circulation zones.

LOWER LEVELS



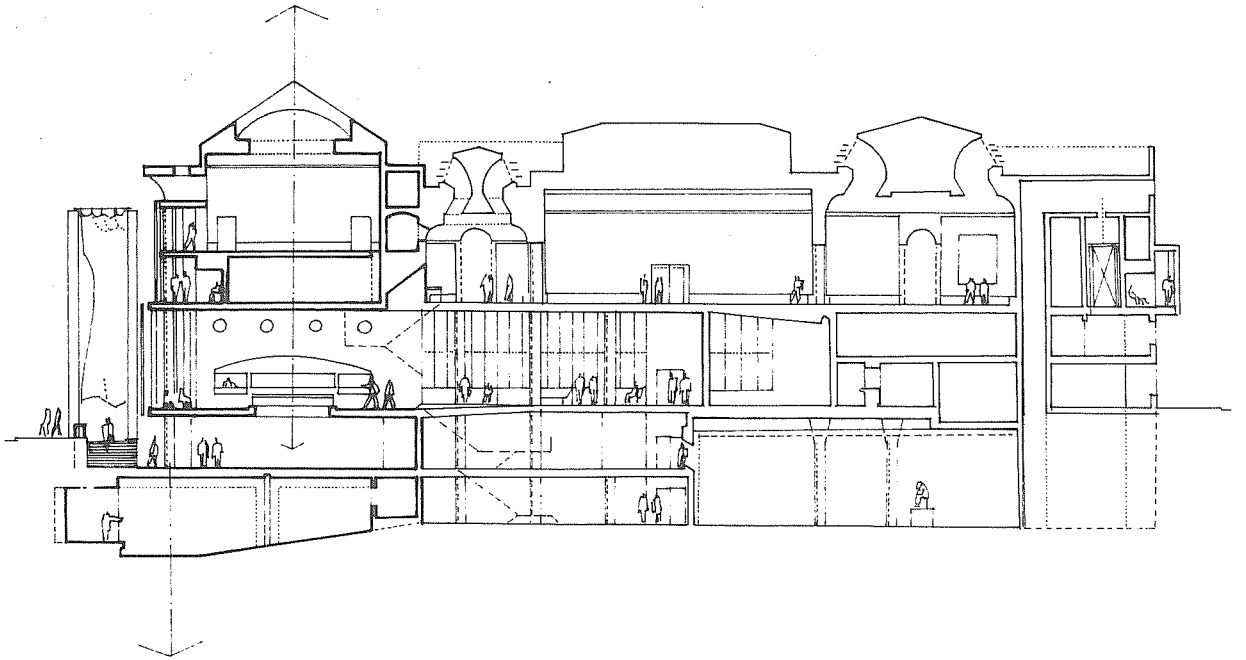






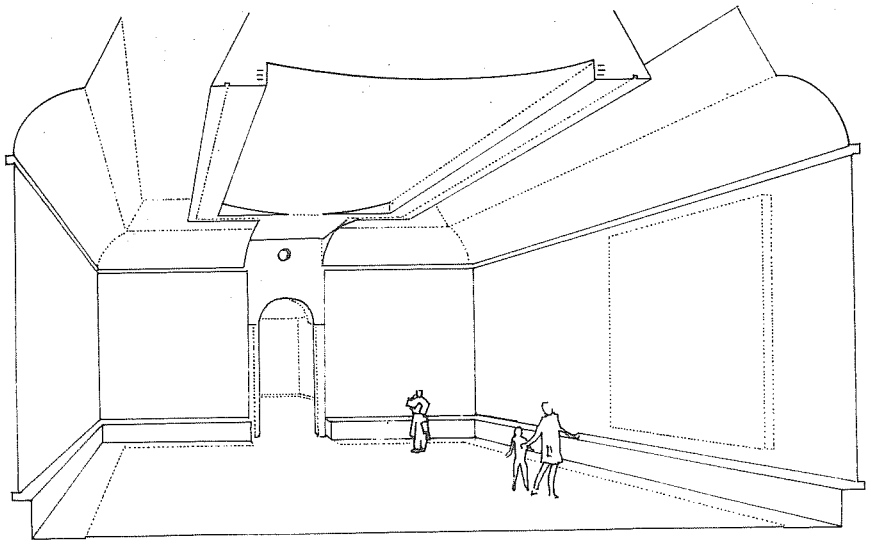
At shop level the three boxes are clearly defined with a wedge picking up the special quality of the central circulation zone, whilst at the lower level the fan shape of the auditorium gives a further interpretation of the echelon idea, the squeezing of the fan maintaining the forward thrust. At each level columns signify circulation zones.

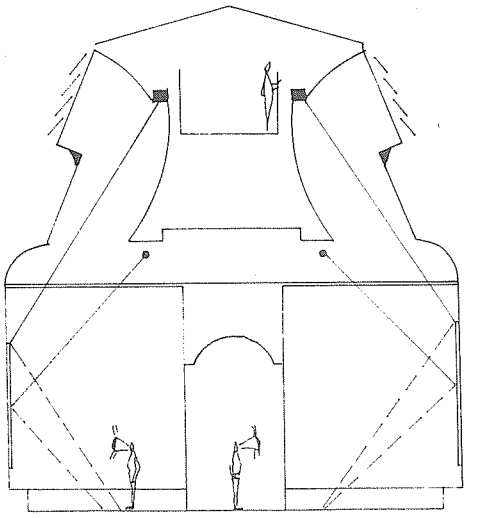
SECTION



As seen in section, the forward pavilion has a vertical force, which is expressed externally by the ridge of the pitched roof and internally by the piling up of spaces (boardroom and information stacked at the top), with the circular opening in the entry lobby looking down to the shop. The column behind the glazed projections embodies the vertical emphasis within the pavilion.

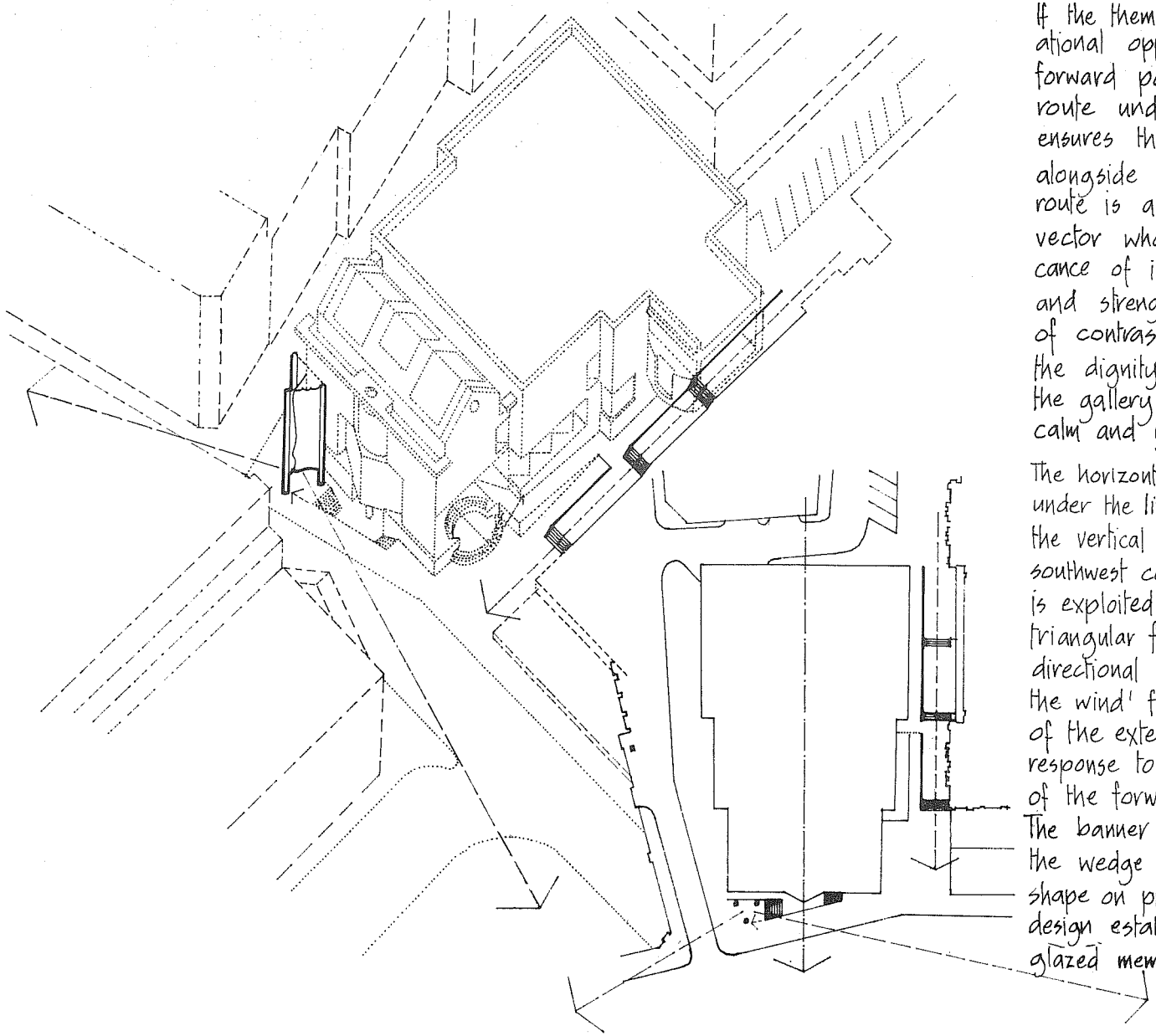
LIGHTING





The lighting section for the galleries uses curves to give appropriate lighting and when combined with the use of curves inside the galleries, serves to give three-dimensional enrichment in a graceful manner, reinforcing the idea of dignity inherent in the gallery layout. The section also accommodates space for maintenance.

ROUTE AND BANNER

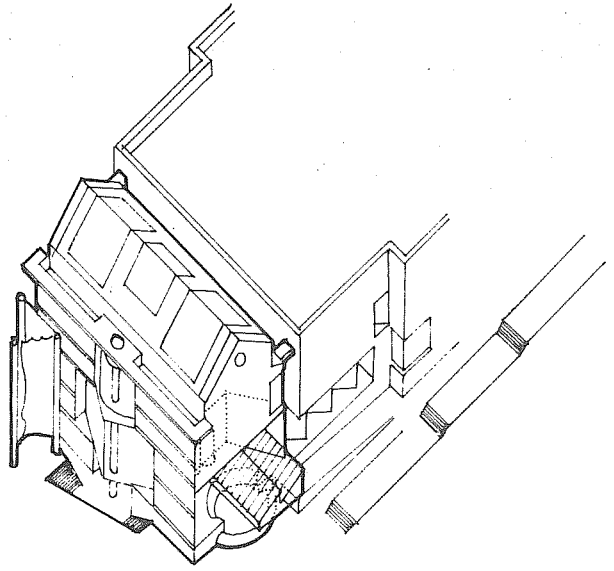


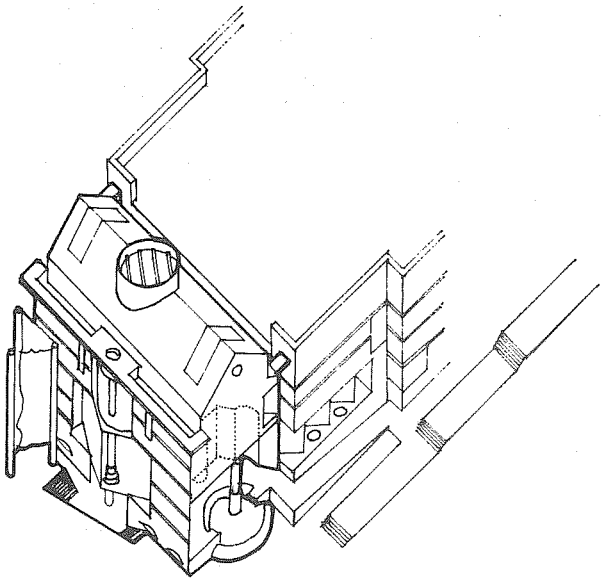
If the theme of the work is to exploit the configurational opportunities provided by the laterally thrusting forward pavilion within an overall linear echelon, the route under the link alongside the National Gallery ensures the primacy of the linear reading. Placed alongside the vigorous articulation of the masses this route is a calm, regular, absolutely straight movement vector whose slow pace does not diminish the significance of its role. Its serenity, cascading horizontality and strength of purpose gives it a vital position of contrast within the ensemble. In this, it echoes the dignity of the whole composition and particularly the gallery level of the extension, being similarly calm and yet assertive in a very low key manner.

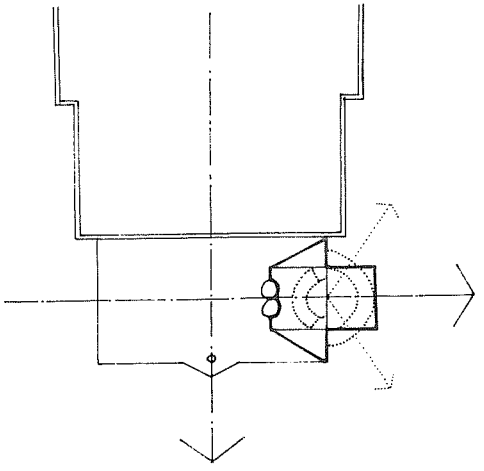
The horizontal linearity and flat permanency of the route under the link alongside the National Gallery contrasts with the vertical fragility and transience of the banner at the southwest corner. But, as with the route, functional purpose is exploited to enhance the totality. The vitality of this triangular feature gives a visual link that is multi-directional and also by its 'scaffolding' and 'blowing in the wind' formation, contrasts effectively with the solidity of the extension. This addition is a far more satisfactory response to the wedge-shaped corner than the distortion of the forward mass as seen in Scheme C.

The banner strengthens a corner which is exposed by the wedge shape at this part of the site, its triangular shape on plan extending the play of obliques in the design established by the roof pitch, the projecting glazed membrane at entry, the edge to the stairs down to the shop at pavement level and by the wedge shaped walls at entry.

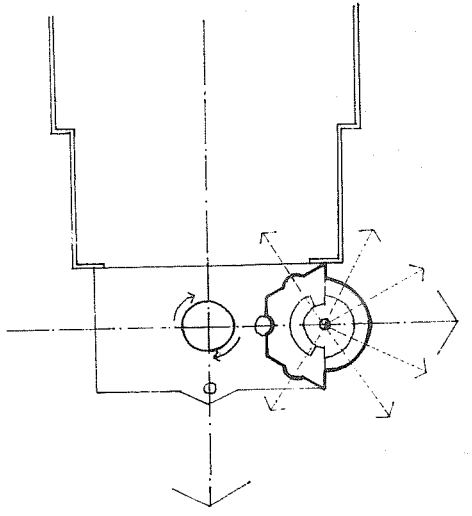
DEVELOPED DESIGN







INITIAL DESIGN



DEVELOPED DESIGN

MASS EXPLODES

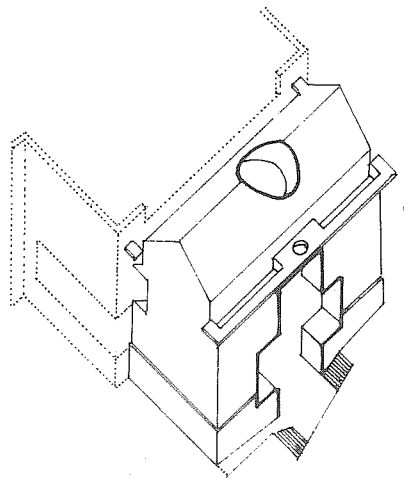
There are two main changes to the design as first submitted. First and most significant is the addition of the central drum to the pavilion. This is intended to give additional weight so that the extension may more happily balance with its opposite number, St. Martin-in-the-fields.

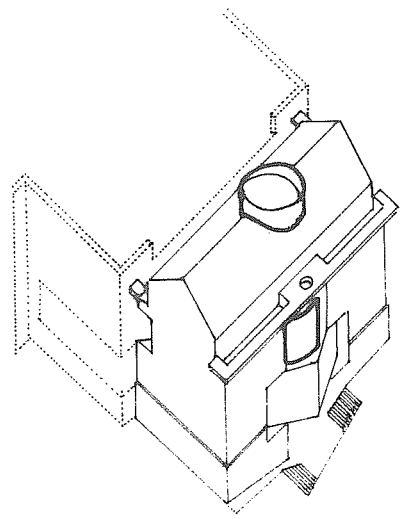
Second, the entrance configuration is no longer wedge-shaped with canopies. Instead, the circular 'stage' has been reinforced by curves which now extend into the walls at each side of entry, and the centre is marked by a single column.

This use of the circle, in the form of a cylinder in the centre of the pavilion and reinforcement of the circular 'stage', has several consequences which materially affect the design. The central cylinder reduces the linearity of the pavilion, giving it a pronounced centroidality which, when coupled with the stone cladding to drum and pitched roof, increases the sense of mass.

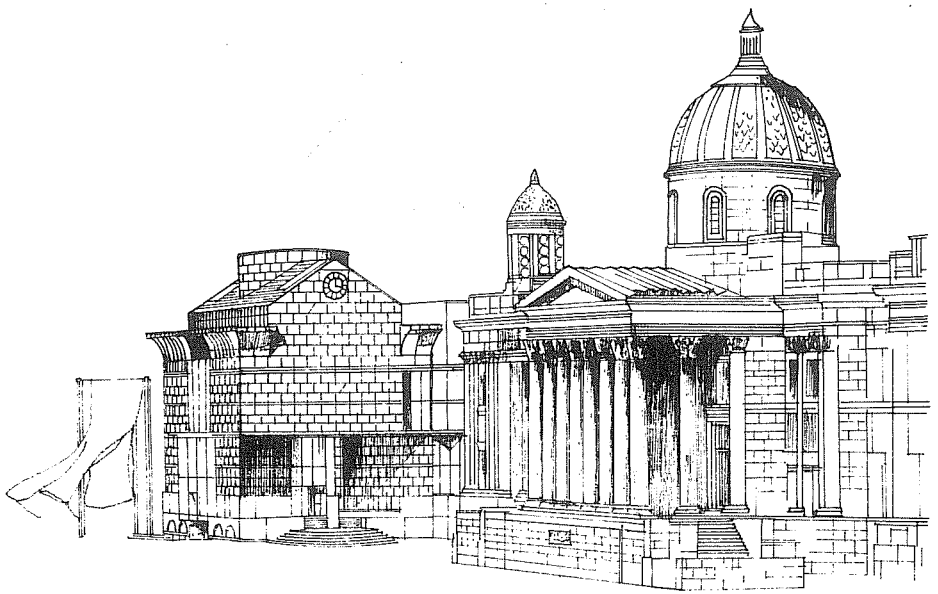
The way the drum pierces the obliques of the roof with its potential to revolve strongly reinforces the central piercing of the south facade by the glazed membranes.

Just as the mass is pulled out to accommodate this, so too does the mass now explode through the roof, so that, as on the facade, the internal is externalized - the drum lights the boardroom and signifies its importance, the membranes also express internal roles and the upper curved bay and drum 'communicate' with each other.





PAVILION TO PALAZZO

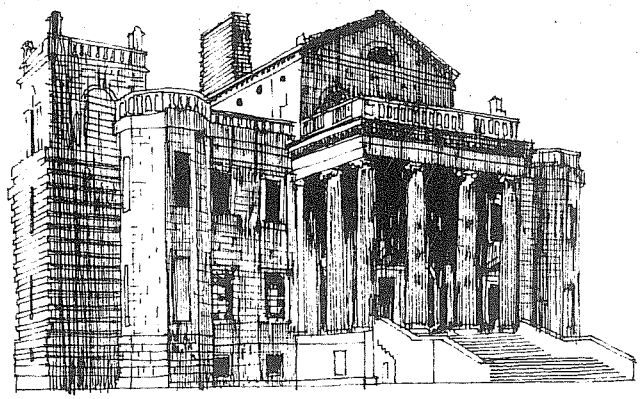


Although the mass is pierced so vigorously, it is strong enough to resist, and its stability is not threatened in any way, so that, on the contrary, the central addition adds power as does the juxtaposition of drum and portico on the National Gallery.

Despite the absence of a dome, the drum to the extension establishes a resonance with the National Gallery, the contradiction of the absent dome furthering the series of allusions already operating in the pavilion.

The change in character from the earlier proposal is a dramatic exploitation of the focal point where lateral and longitudinal axes meet, increasing both the monumentality and sense of historical association. The plugging of this focus changes the image decisively from pavilion to palazzo — always the architects' intention, but now confirmed.

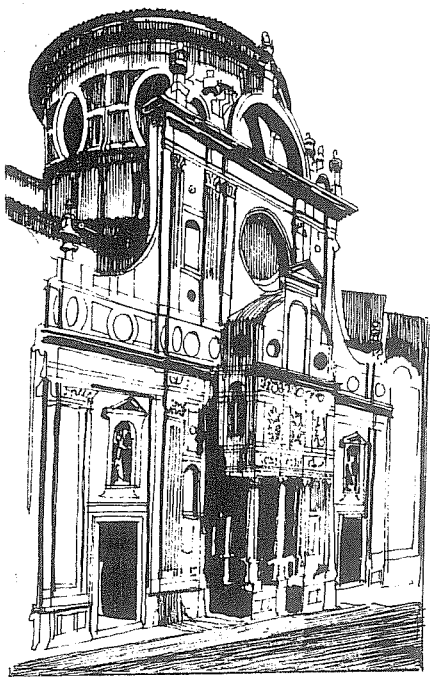
HISTORICAL REFERENCES



SEATON DELAVEL NORTHUMBERLAND

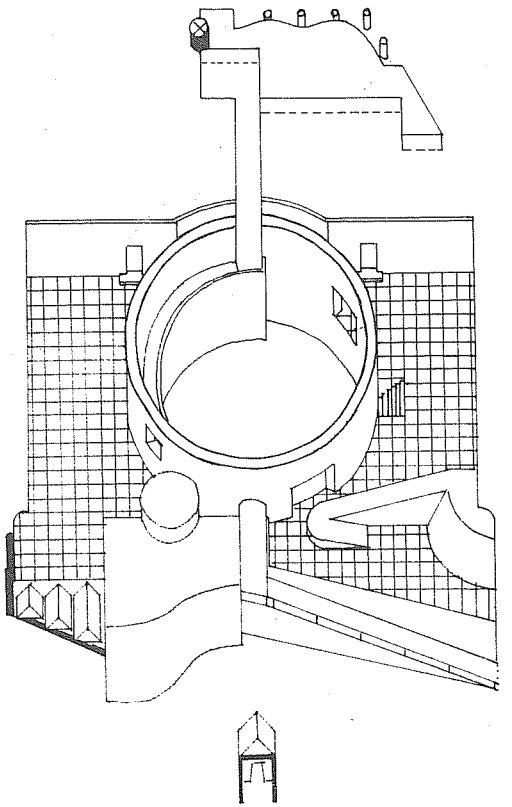
The total cladding of stone with the rich surface pattern of joints and heavy cornice has a sense of compact power reminiscent of Vanbrugh's Seaton Delavel, similarly a piled up sculpted mass with considerable theatrical content, being similarly animated and full of incident.

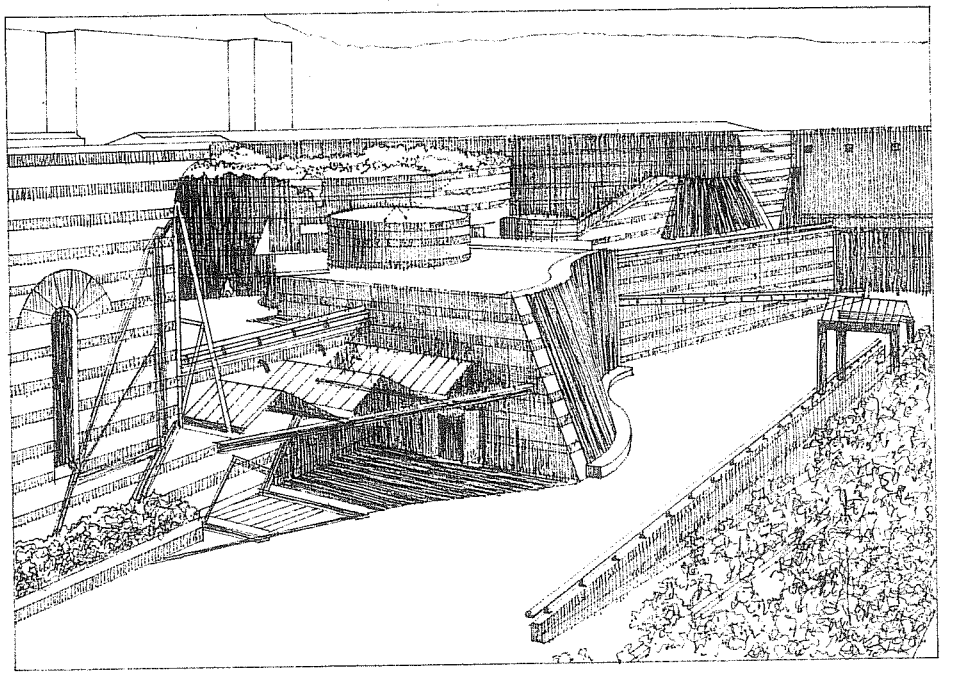
There is also a similarity with Mastro Jacopo's S Maria dei Miracoli at Brescia, in which the drum is placed behind the plane of the main facade, itself symmetrical and with a central forward thrust developed flamboyantly at cornice level with a series of semi-circular arches. The composition is held by the twin doorways at either side and by the strength of the central elements including the drum, the potency of this configuration being due to the close juxtaposition of drum and facade plane (each contrasting elements) with the stability of the drum permitting liberties on the facade.



S MARIA DEI MIRACOLI BRESCIA

STAATSGALERIE, STUTTGART

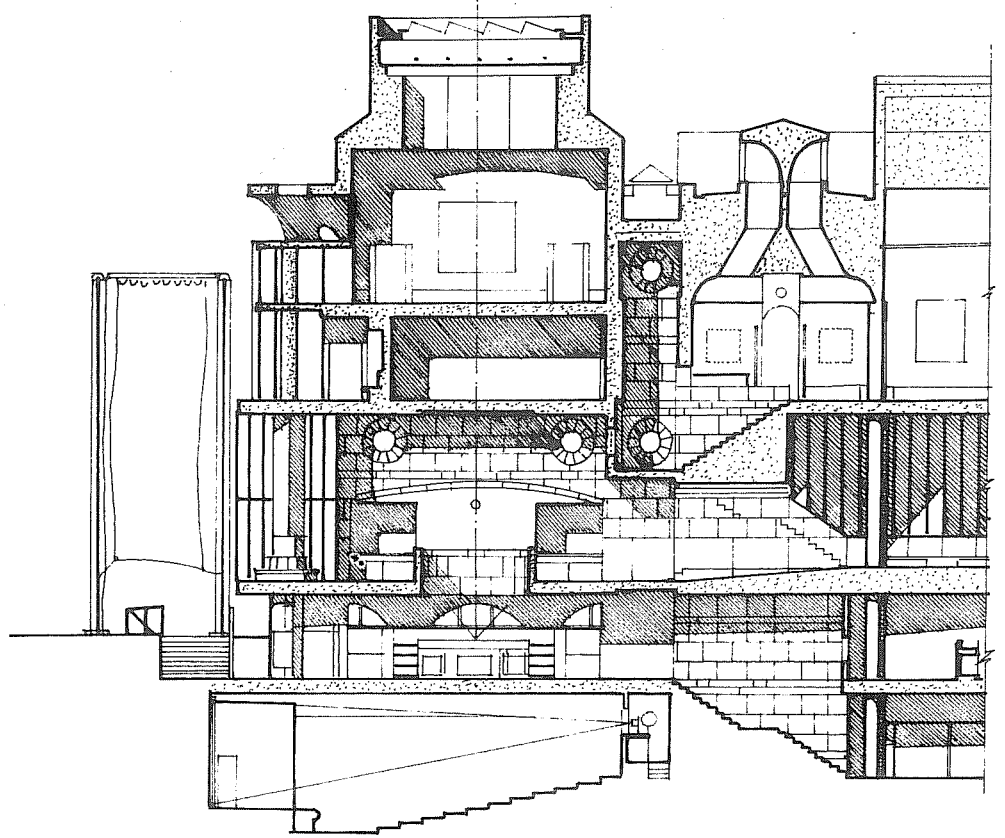




STAATSGALERIE STUTTGART

This is not dissimilar to the way the central drum of the Staatsgalerie at Stuttgart allows Stirling and Wilford to manipulate the forms immediately in front of it. The potential of a drum to 'turn' gives the form in all these examples of its usage a double reading; it is both static and dynamic, stable and yet mobile.

DRUMS AND VISTA



LONGITUDINAL SECTION

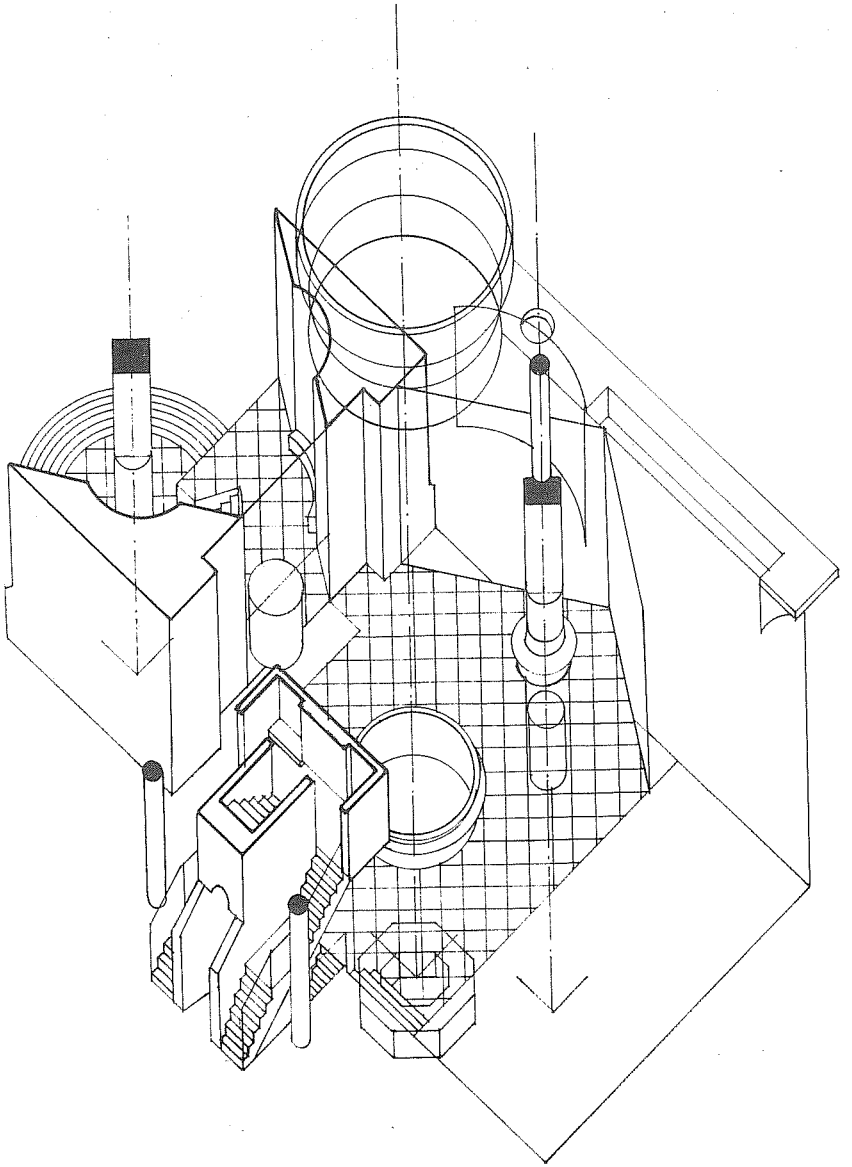
DRUMS

The cylindrical penetration of the mass at roof level continues with the cylindrical drum of the hole looking down from entry level to the counter of the shop, this stopping the downward thrust.

VISTA

On gaining entry, the vista is stopped with greater moment by the treatment of the facing wall containing the cloaks. This becomes unambiguously bi-laterally symmetrical with the positioning of the twin rectilinear counter openings below the curve, and with circular openings above each.

SCULPTED FORMS AND SPACES

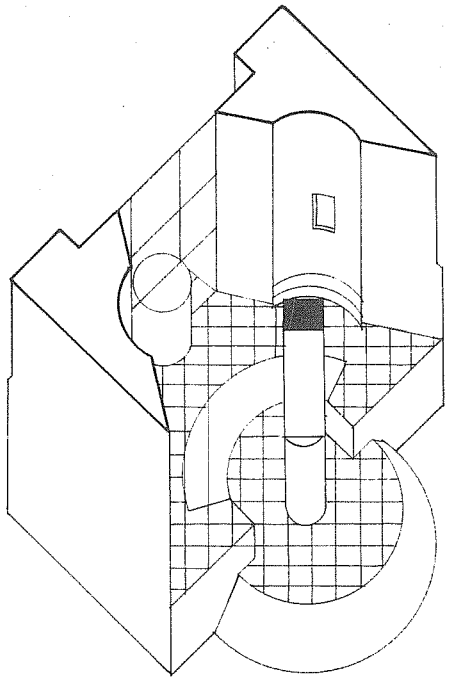


This weighty penetration of the mass by cylindrical voids is echoed and contrasted by the piercing of the floors by the forward central column behind the glazed membranes. This seizes the opportunity present in the submitted Scheme A, but extends the idea into several further dimensions.

At the top the column is now directly below the hole in the cornice, and is slender and cylindrical. It changes at entry level to become square in plan, but turned so that the four edges of the square are most apparent; this sits on a cylindrical base up to plinth level comprising a drum surrounded by seats and concludes at shop level with a sturdy stone-clad cylinder.

The turned square column slots into the diagonal floor pattern at entry level which, along with the circular drum, signifies a holding zone. The metamorphosis of the column, changing to respond to each activity zone – simple elegant cylinder/tranquil galleries – turned square and 'rotating' seats/active entry zone – sturdy, structurally 'functional' cylinder/below ground, holding everything up – is typical of the design philosophy in which the potential of each element is exploited as a demonstration of sculptural and evocative virtuosity.

ENTRY



A similar development occurs at the entry point where a column acts as a central focus for the circular 'stage'. This also changes from having a cylindrical base to having a turned square plan above, which in combination with the revolving/static 'stage' has both rotational and stable readings.

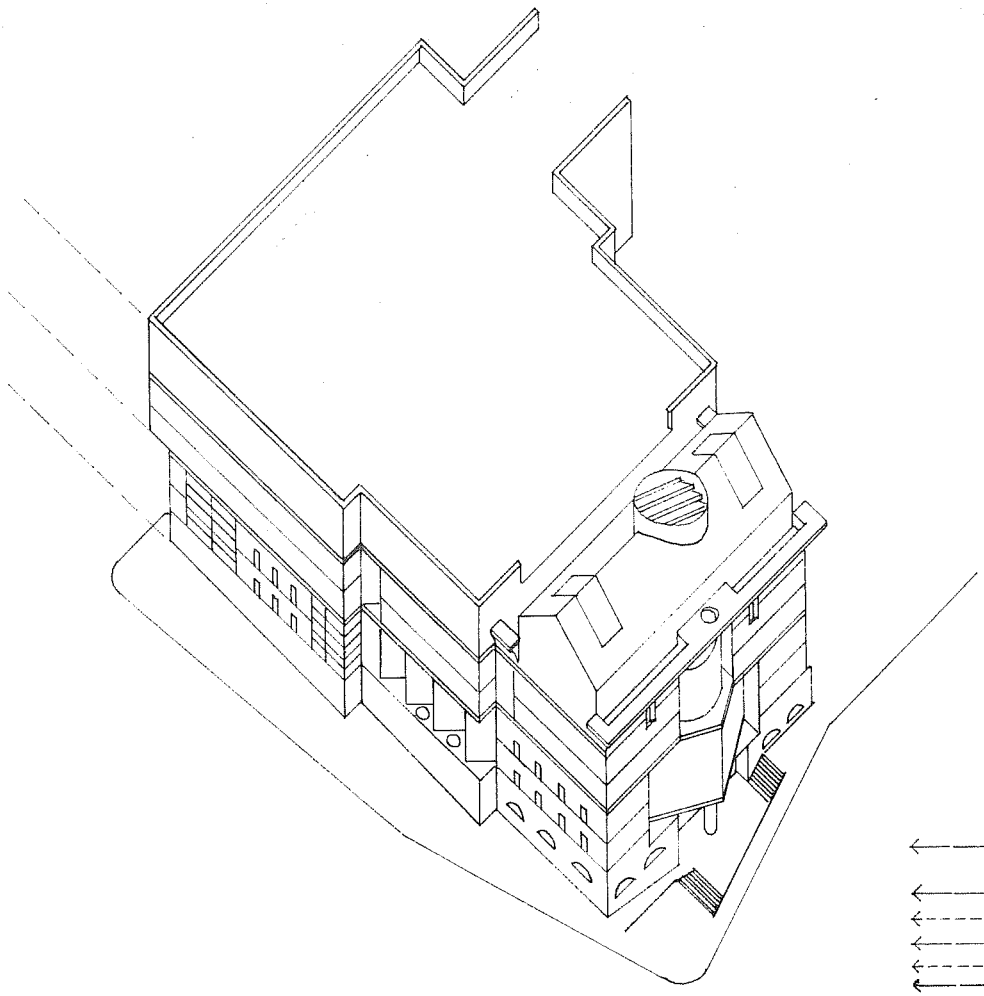
The isolation of the column and its multifaceted profile remains consistent with the way the extension seeks to mediate between the two worlds of the program. In all the nearby Neo-classical buildings, the column is eloquently expressive. The porticos by Smirke Wilkins and Gibbs each speak symbolically of entry by reference to Greek and Roman, using base, fluting and capitals to make their point. Within their rectilinear portico format they each enframe views outwards.

Similarly, within a circular format, Stirling and Wilford's column makes its own statement of entry and is consistent to its circular geometric frame, in its singularity perhaps referring to another column in Trafalgar Square.

The central location of a single column also delineates the axis of the palazzo in a way which necessitates not two but one cylindrical entry point, with a consequent funnelling of movement into a potential 'bottleneck'.

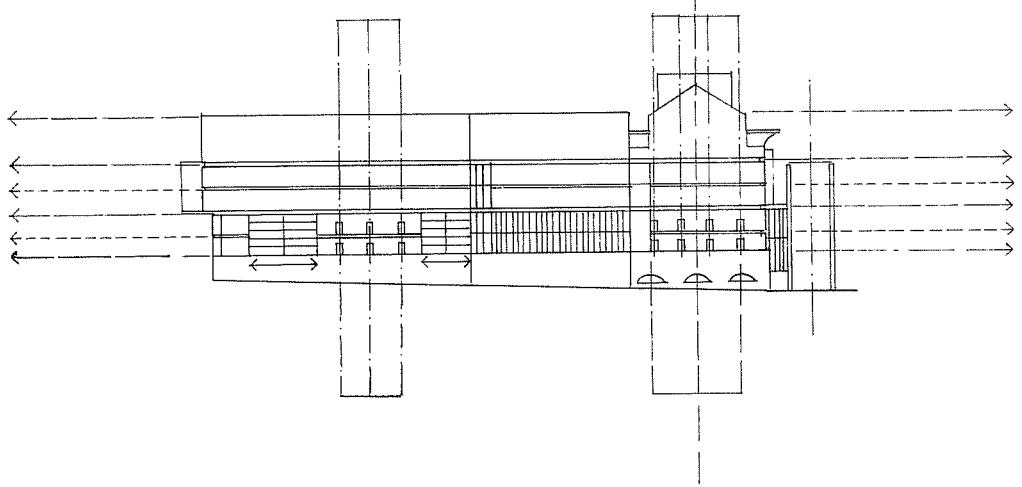
Niches on the side walls amplify the curvilinear theme and inset windows reinforce the bi-lateral symmetry. The cylindrical base is up to plinth level, the turned square column locking into the diagonal floor plan of the initial holding zone.

WEST ELEVATION

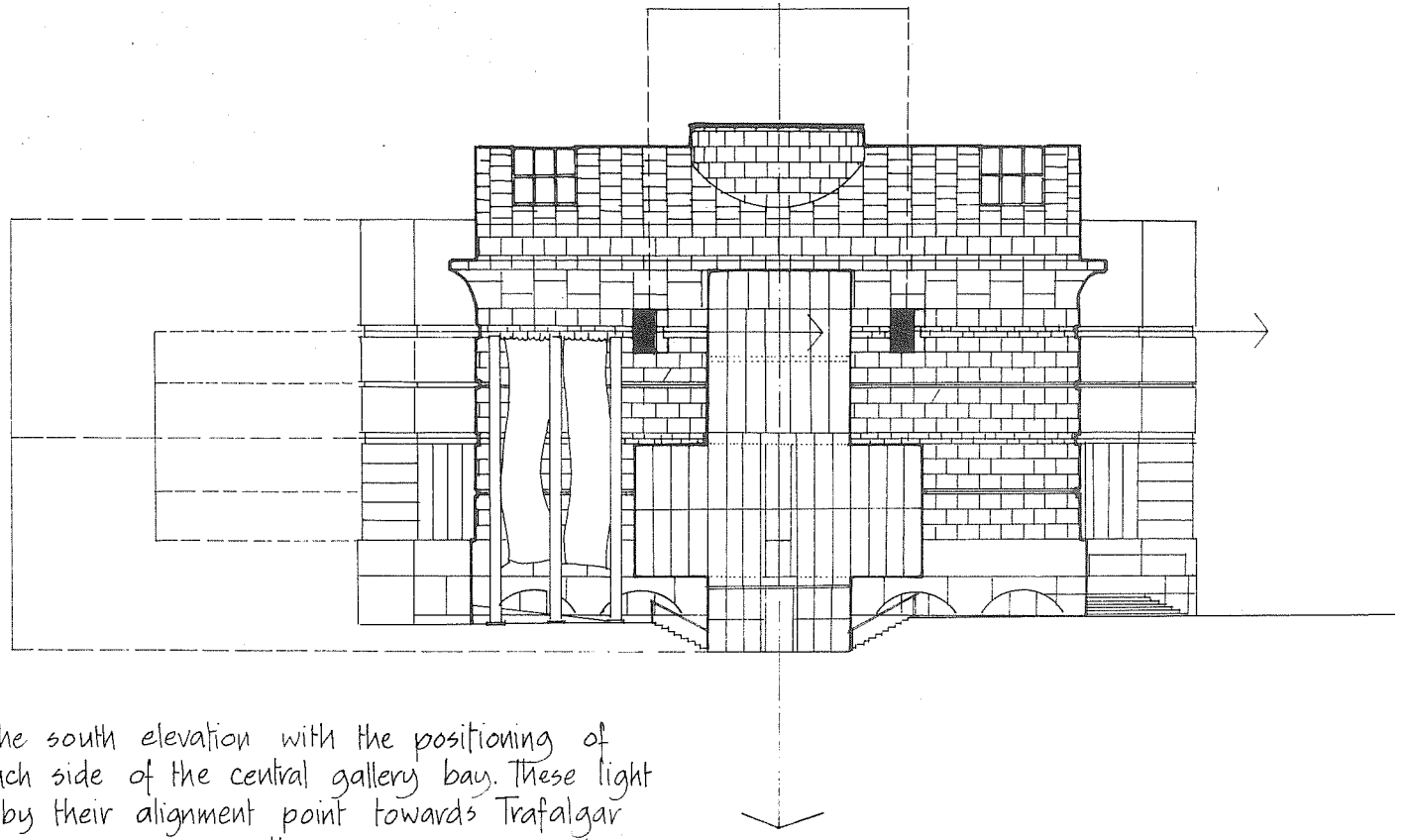


The palazzo now forms part of a more homogeneous whole by virtue of a continuation of the incised courses along the rest of the configuration, although the rear boxes are not stone-clad. The pulling/pushing movement has gone as the design has become more static and monumental. The Modern Movement functional overtones recede as the ensemble concentrates instead on harmony and 'commodity'

Yet there are echoes of Modernism with the horizontal stretched windows in the rear box, which contrast with the insistent vertical rhythm of three pairs of inset windows. The symmetry of this group slows down the prevailing horizontality and increases the mass reading. Similarly four pairs of windows set up a symmetrical rhythm on the palazzo, this being supported by the three semi-circular basement windows. These devices encourage an independent reading of the palazzo. As in the first submission the elevation can be divided into a calm upper and an animated lower zone, the latter now containing a considerable variety of fenestration.



SOUTH ELEVATION



Something similar happens on the south elevation with the positioning of twin rectilinear windows on each side of the central gallery bay. These light the boardroom suite and also by their alignment point towards Trafalgar Square. As with any small opening in a mass they increase rather than diminish the mass statement.

The arcuated basement windows are more subdued than in the first submission and now without keystones, their curvilinear rhythm enriching the plinth, now raised to match that of the National Gallery. The external profile of the building increases the sense of plasticity and when combined with the surface treatment enriches the form.

DESIGN STRATEGY

In any important city centre location, the greatest architectural problem lies in the external image which a building presents. By comparison, the interior is easy; modern architecture has won many advantages over Neo-classical in the organization of circulation and space, the provision of effective lighting and the elimination of pretentiousness and monotony. But the outside remains a problem; the Modern Movement and its successors have not yet convincingly managed to emulate the architecture of previous periods in giving an appropriate cultural identity for major works in historic locations.

Stirling and Wilford have attacked this problem, chiselling out a plan profile for their extension which picks up the outline of the National Gallery, pushing a pavilion forward which fulfils a similar role to the portico of its neighbour whilst managing to project a friendly face towards Trafalgar Square as inviting in its message as its portico but without its overblown cultural implications. The pavilion also stops Wilkins' long facade at its west end in a similar manner to the way St Martin-in-the Fields stops the east end.

A favorite device in London's Neo-classical buildings is the use of deeply recessed coursework in stone. This gives scale, increases the impression of mass and, as part of the classical language, has an inbuilt authority which gives that sense of importance so appropriate in a capital city. This is not copied but is alluded to in the Stirling Wilford extension in a way which sets up a similar mass reading but, by the wide separation of the courses, establishes an undisputed contemporary identity for the building.

This is typical of the design strategy in which, throughout, Stirling and Wilford play a subtle game of cross-reference between the extension and its neighbour, and thereby between past and present, reinforcing key items in the National Gallery such as the need to provide serene and dignified galleries, but enhancing the external modelling by its bag of twentieth-century tricks which include penetration of the box, exploitation of contrasts between mass and plane, geometrical transformations and distortions, a pediment in a kind of metamorphosis, not to mention a series of allusions and metaphors, some direct, some indirect, to its neighbour, to art and to creativity.

But all this is done within a framework of formality; plans and sections exhibit strict geometrical control, observing those correct principles of classical architecture which insist on the establishment of a carefully controlled movement sequence based on the vista and modulated by an observance of axes and by a studied disposition of elements.

In their more recent work the Stirling Wilford partnership in common with the Post-Modern movement has been exploring the possibilities of mass and surface with the intention of communicating with a wider audience. Their approach has reversed several Modern Movement canons as the late twentieth-century mood swings towards a more romantic range of expression.

Where the Moderns gave structure an almost moral role central to the logic of the program, this now changes so that columns, for example, express a multitude of meanings. Where symmetry was usually avoided it is now exploited. Often entrances were played down, now they can be celebrated. Where the Modernists used geometry as an overriding discipline, this is now sublimated to serve rather than control. From the harsh Constructivist geometry of Stirling's early works and the inherent hostility apparent in the search for consistency in a pure but limited design sense, the expressive range now extends towards form and surface seen psychologically as friendly or serene and having a capacity to endure.

Stirling and Wilford now part company from Post-Modern clichés in the seriousness with which they draw from source. Their statements are not platitudinous, but instead seek as did the Victorians, to use history in an appropriate way, mixing traditional forms such as the drum with late twentieth-century geometrical freedom.

Colin St. John Wilson has argued that architecture is born of use, and that it invents forms that 'celebrate a way of life', insisting that the message of the work must be recognizable in an intelligent way. The integrity of the Stirling Wilford proposal resides in the way the geometrical organization and modelling of the form respond to the precise needs of the building in both a functional and symbolic sense. The galleries are tranquil receptacles for works of art; the circulation has a subdued grandeur which is consistent with the syntax of the general arrangement in which forms and spaces convincingly explain themselves. The design, like that of the National Gallery, is rather low-key but with a dynamism and freshness of spirit which seek to provide a civilized and unpretentious ambience for the viewing experience.