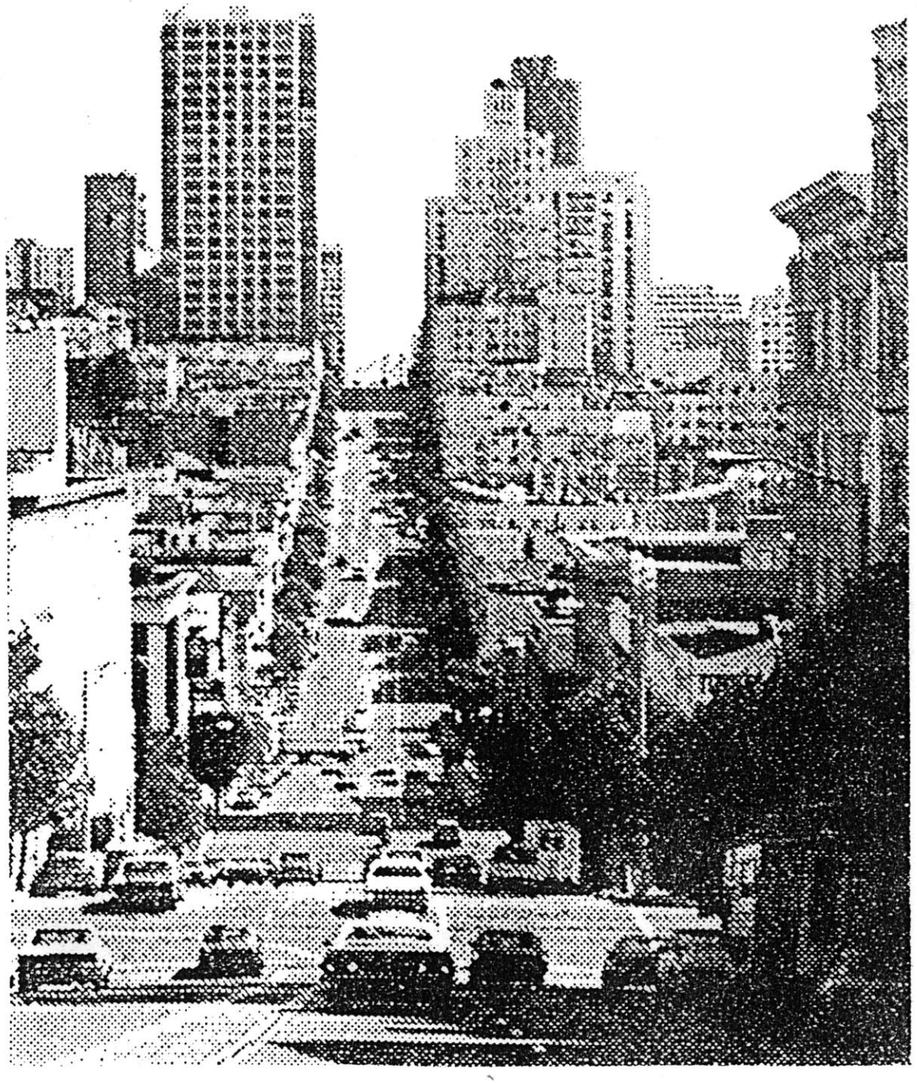
FROM GROUND TO SKY : An Exploration in Urban Continuities



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SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
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February 1988

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From Ground to Sky: An Exploration in Urban Continuities
by Kevin Michael Thornton

Submitted to the Department of Architecture on January 15, 1988 in partial fulfullment of the requirements for the Degree of Master of Architecture

Abstract

Urban skyscapes have been altered dramatically in this century with heretofore unprecedented powerful vertical surges. Yet it seems in most vertical buildings, the access and spatial sequence consists mainly of an articulated lobby or atrium and a high-speed elevator ride to one's destination. Little attention has been paid to the inherent possibilities of experience in the transition from ground to sky; of moving from one formal organization, (the city grid), to another, (a tall building)

The current predilection for maximizing allowable floor area has produced the so-called "pancake" type stacking of floors which generally gives no clues to the user as to where in the vertical organization they may be at any given moment. This minimization process has denied to tall buildings the spatial experience and continuity of access helpful to more successfully integrate these forms into a existing city fabric of dissimiliar size and nature of use.

In order to assist in the expression of a vertical continuity, the form and material of structure and other architectural treatment could invoke associations of a ground-rooted existence, sensations of feeling "under" or "within" a form of containment. A middle territory could also be sought for where one no longer feels a part of the ground but not yet quite within the realm of the sky, in effect, a zone of exchange between the two territories. Finally, the uppermost portions of a building could become celebratory of their position nearest that of the sky.

It is with an emphasis on ground to air continuity and experience that this thesis will explore a design for a vertical commercial /residential project in San Francisco, California.

Thesis Supervisor: Maurice Smith

Title: Professor of Architecture

Acknowledgments

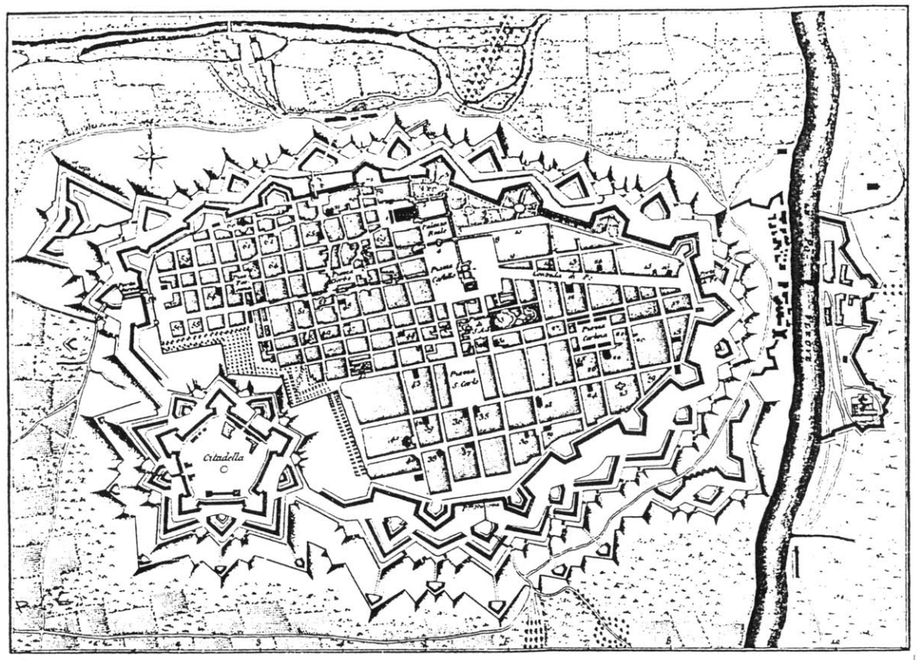
I wish to thank those special people close to me who throughout these long years of architectural study have shown endless amounts of support and encouragement.

-- To Jim, an incredible friend, colleague, and source of inspiration: may the collaboration continue ....

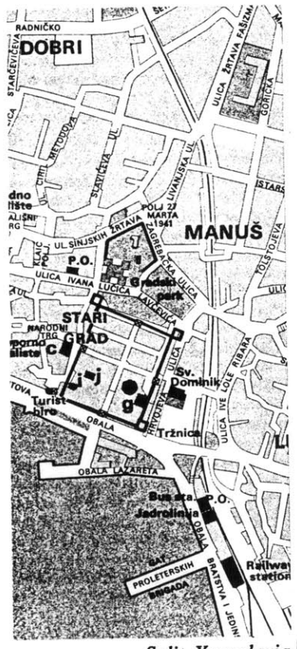
-- To Cyd, whose support, even from afar, helped smooth out the rocky times.

-- And lastly and most importantly, to my parents, without whose love and encouragement none of this would have been possible.

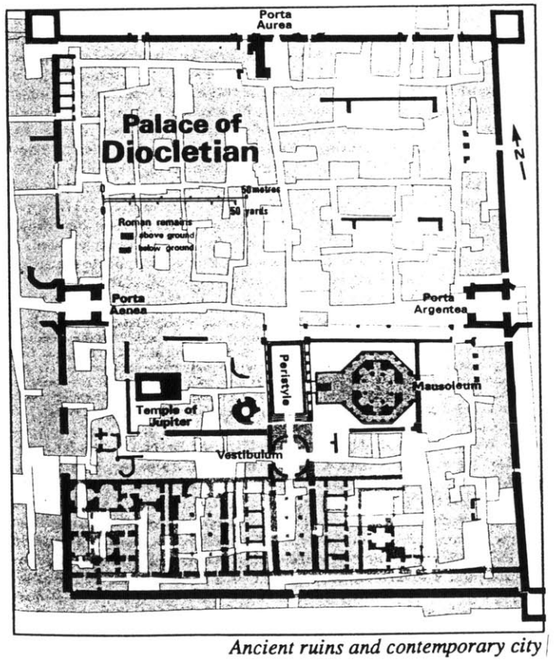
Table of Contents:



Miedeval Turin



Split, Yugoslavia



Ancient ruins and contemporary city

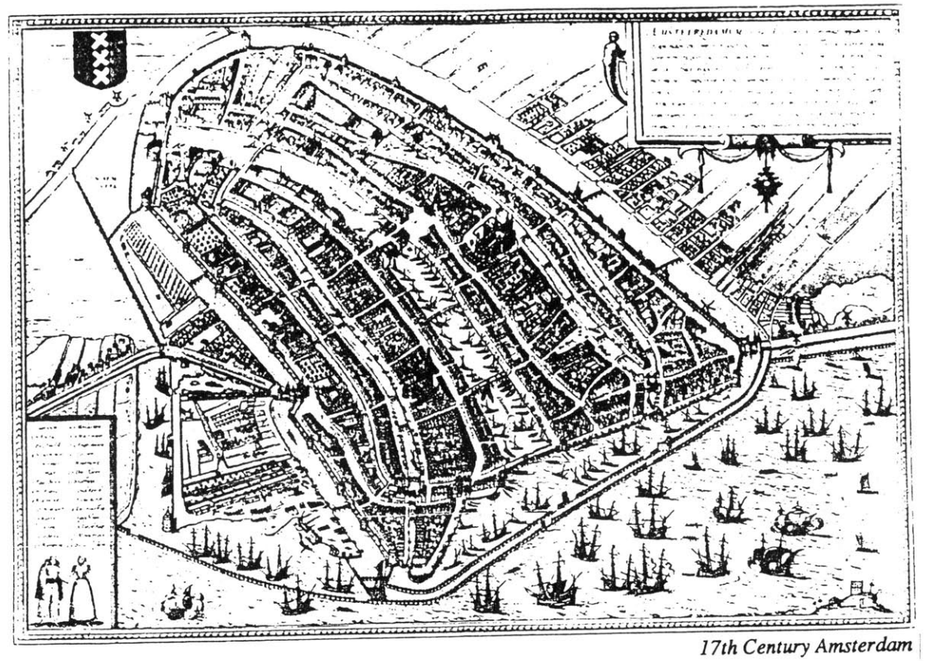
Urban Growth

Urban settings by their very nature can be vibrant and vital environments, ripe for change, transformation, decay, or growth.

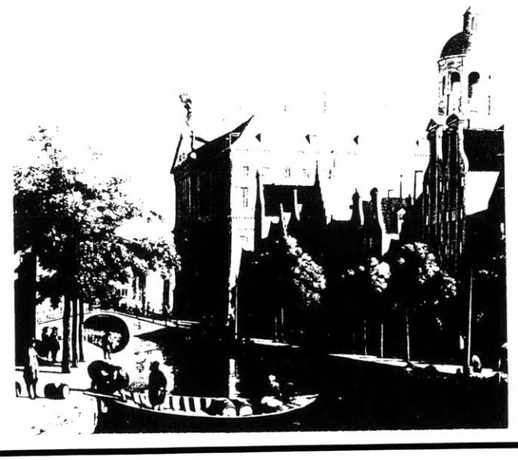
In the lifespan of any city, there will inevitably come a point when growth has seemed to reach a zenith, bounded and checked by physical or natural elements such as ancient fortified walls, mountains, rivers, seas, or very simply a lack of open land.

When this stage of urban growth is reached either densities increase internally or pressure to expand beyond the previous boundary was initiated.

In Europe, medieval walled towns expanded beyond their fortifications when the latter was rendered unnecessary by a calmer socio-political environment, thus establishing new districts and sometimes creating "old" and "new" towns in the process. In contrast, the city of Split, Yugoslavia grew by transformation and reinhabitation of ancient structures, finding



17th Century Amsterdam

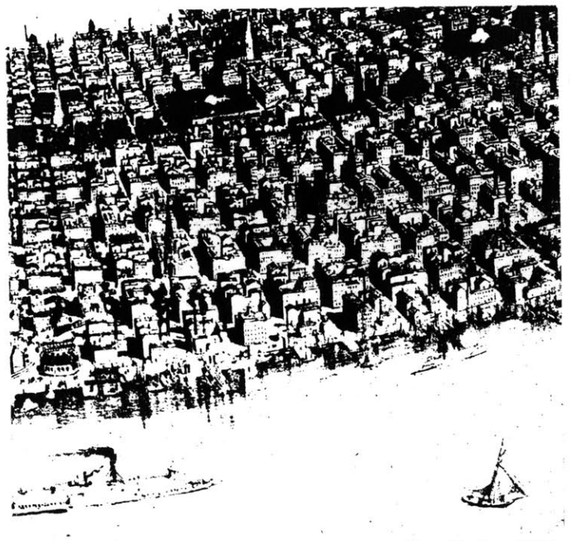


View of public access, Amsterdam

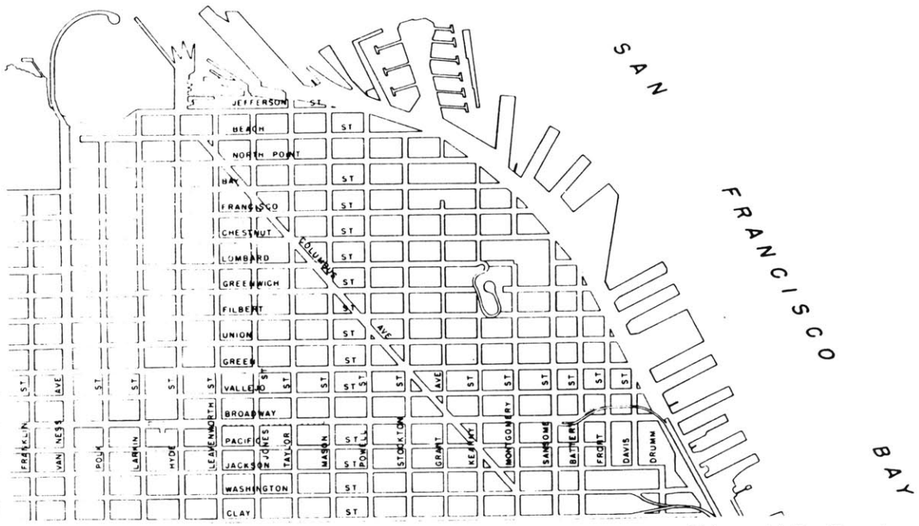
remnants of the Roman palace of Diocletian useful when defining its new sense of urbanity.

The City Grid

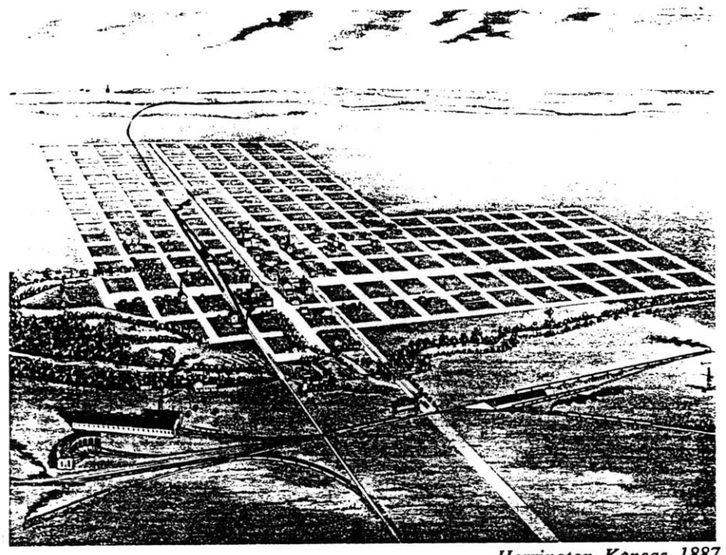
Other cities grew in a more populist fashion, requiring a political consensus on the need for expansion that would subsequently necessitate the provision for access. Seventeenth century Amsterdam grew in this manner; as the city center became crowded, provisions were made for new canals to be dug, and the city grew by entire districts at a time, sharing the themes of the previous fabric. Although this system has clear definition of path, canal, and roadway, the building forms themselves are clearly tied and subordinated to the access system, the canals, which are akin to a roadway network. The access system is the linkage mechanism between these essentially infill row-houses, and whereas the canal provides a serene alternative to a paved road it in essence stems from the same formal planning principle of grids and streets.



New York, 1880's

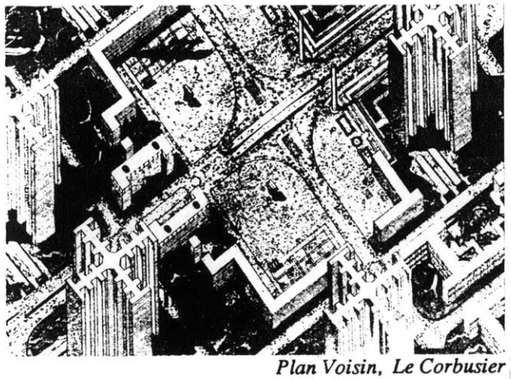


Urban grid, San Francisco

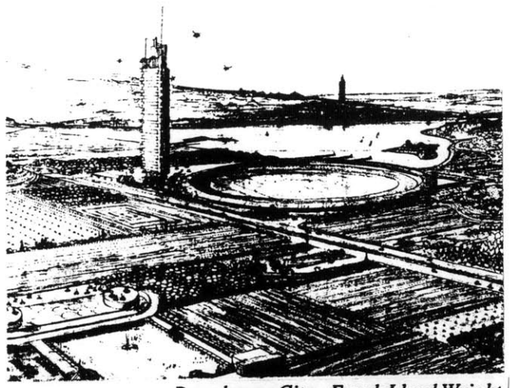


Herrington, Kansas 1887

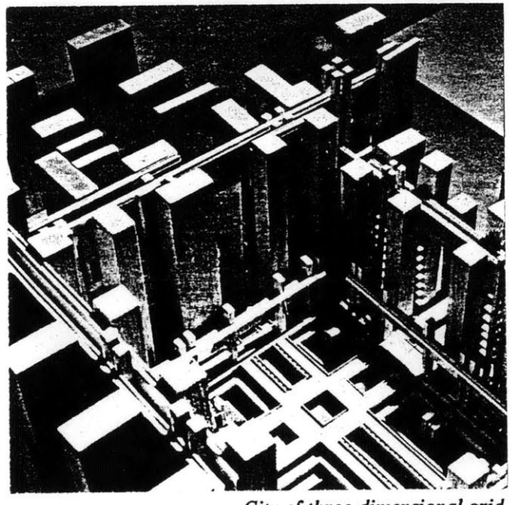
This type of planning became prevalent in America as cities began to enlarge and intensify in the mid-nineteenth century. Whether it was traces of urban democratic ideals or simply ease and speed of land speculation, the gridiron plans of this era clearly differentiated between lot, sidewalk, and street, establishing sharp and distinct boundaries between what is shared collectively as public domain and what is private. The street network became inviolable with urban building becoming items of infill rather than definers of space. In describing the New York City of his day, Frederick Law Olmsted, the creator of Central Park, said that "some two thousand blocks were provided, each theoretically two hundred feet wide, no more, no less; and ever since, if a building site was wanted, whether with a view to a church or a blast furnace, an opera house or a toy shop, there is of intention no better place in one of these blocks than in another." It was urban planning based on speed and speculation, within the American pioneering spirit of imaginary demarkation of the landscape for the purpose of being able to lay claim to the land. The strict grid was seemingly efficient and quickly provided control for the expanding cities.



Plan Voisin, Le Corbusier



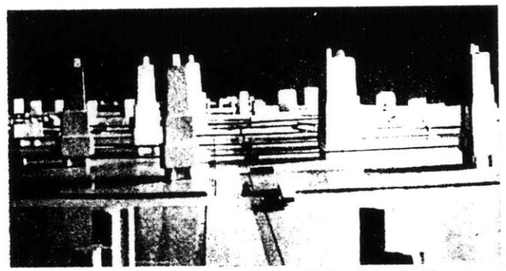
Broadacres City, Frank Lloyd Wright



City of three-dimensional grid

Modern Views of Urban Growth

With the advent of modern concrete and steel technology, traditional urban form has been altered and transformed by the influx of modern high-rise structures placed upon large open plazas, which provide little urban definition and cause the disappearance of the conventional street.



Town of the future, Varenzov

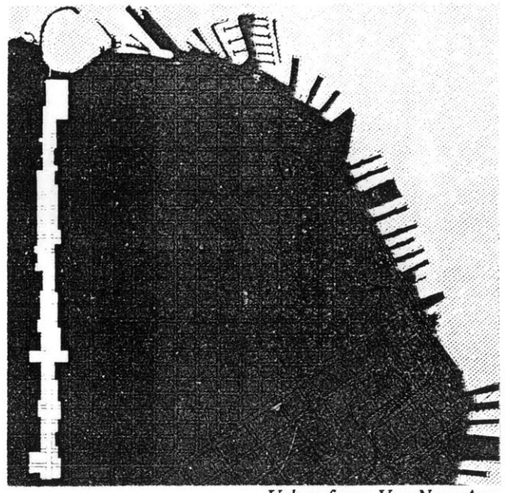
Attempts to provide urban definition can be seen in Le Corbusier's parkscape in the large spaces surrounding his isolated towers in the Plan Voisin. Wright skirts the issue of urbanity altogether by placing his tall building among the spacious fields of Broadacres City, his design for a quasi-agrarian satellite town.

Other urban solutions placed a three-dimensional access grid over the city, creating quite spatial means of movement.

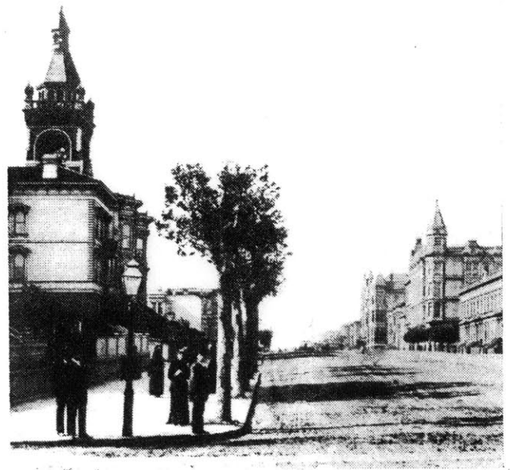
Today, in San Francisco, as the region around Van Ness Avenue begins to develop into a higher-density urban environment with mixed-use developments appearing along the avenue, city planners are concerned with the creation of an urban boulevard streetscape with the majority of building mass set back from the street edge. This image is similar to Louis Sullivan's vision of the city of setback skyscrapers from the 1890's.

Van Ness as urban boulevard, San Francisco City Planning

City of setback skyscrapers, Louis Sullivan 1890's



Urban form, Van Ness Ave.



Van Ness at Ellis, ca. 1890's

Van Ness at Hayes, 1906

The Van Ness Region: A Brief Background

The pre-Gold Rush village of 1000 inhabitants was established on a system of lots and street grids whose dimensions were crudely defined by early Mexican settlements near Portsmouth Square, in the heart of today's downtown.

In 1897 Jasper O'Farrell conducted a more involved survey correcting and extending the grid to cover a more extensive area of unsettled land. This plan set the stage for the ensuing flurry of development of the Gold Rush years, necessitating further land surveys as available land was consumed.

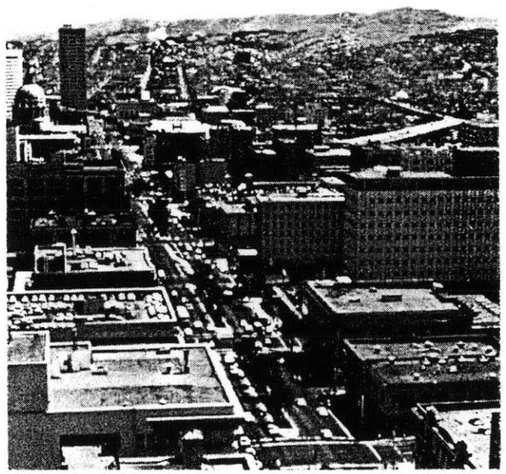
The Western Addition, as the sand dunes and chaparral west of Larkin Street (the extent of previous surveys) was called, was officially designated in the city sponsored Van Ness survey completed in the mid-1850's. Situated in the valley between Nob and Russians hills and Pacific Heights, the avenue that was to become Van Ness was intended to function as the central north-south spine for the city, connecting Market Street to the bay on the North, thus calling for a widening of the street to create a 125 foot wide avenue.

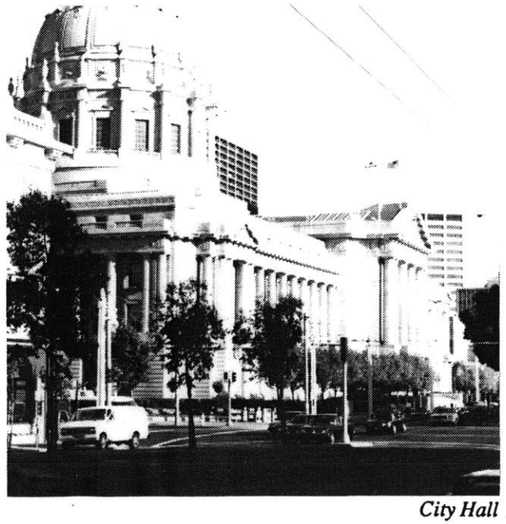
The nineteenth century land use pattern consisted mainly of wooden dwelling units with dense working class housing occupying the southern portion of the avenue while the middle and upper portions were home for wealthy San Francisco residents such as the Spreckels, Crockers, and Gianninis.

This land-use pattern for Van Ness continued until the great earthquake and fire of 1906 when the city's major businesses and commercial enterprises retreated briefly along Van Ness Avenues, which due to its great width became a natural fire break for soldiers battling the blaze. By 1909, the rejuvenation of the downtown district led to the exodus of these businesses from the avenue, and instead of returning to their purely residential character, the lower and middle portions of the avenue began to sprout commercial, industrial, and institutional uses within its fabric, while the northern portion retained its strictly residential character of private mansions, residences, or apartment buildings, a pattern that exists to this day.

Earthquake devastation, San Francisco, 1906

Van Ness Ave., view to south





City Hall

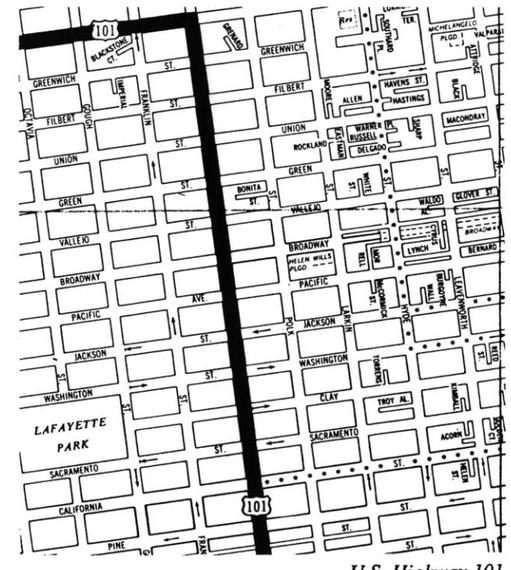
View north, up Van Ness

Auto dealerships along Van Ness

Looking south, down Van Ness towards site

By the 1920's, automobile oriented businesses emerged as a dominant use between Civic Center and Jackson Street with garages, showrooms, and grandiose buildings such as the 1926 Packard (now British Motors) dealership at 901 Van Ness Ave. Similar to what the architecture of the 1920's did to create the mystique of film, these showrooms glorified and dignified the use of the automobile by housing them in sumptuous settings. The resultant size of these buildings also reflected their desire to have a presence when viewed by persons traveling in cars at relatively high speeds.

The orientation of the avenue towards the automobile was further reinforced by the designation of Van Ness as U.S. Highway 101 following the Second World War. Its use as a major vehicular thoroughfare ran concurrent to the reorientation of businesses to a more regional and citywide market, thus ensuring the stature and prominence of the avenue within San Francisco's urban fabric.



U.S. Highway 101

Opera Plaza

Interior Court, Opera Plaza

Daniel Burnham Court
Wurster, Bernhardi, Emmons

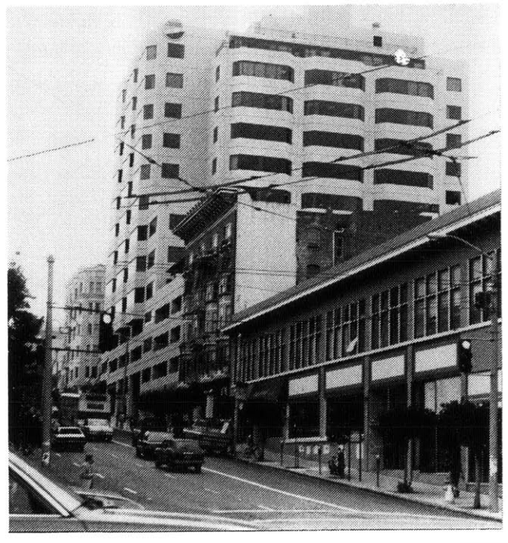
Urban Transformation

Since the late 1970's, the avenue has been undergoing yet another major transformation. The orientation of the avenue towards the automobile has declined as many showrooms have relocated to other parts of the city. The construction of a new Symphony Hall and State Office Building on Van Ness Avenue near Civic Center in recent years has begun to reinforce its urban character and importance.

Former auto showrooms have been renovated into restaurants or offices and newer mixed-use residential developments have begun to appear. With much of downtown construction essentially curtailed by the recently adopted Downtown Plan, developers and the city have turned their eyes towards the Van Ness area for possible development.

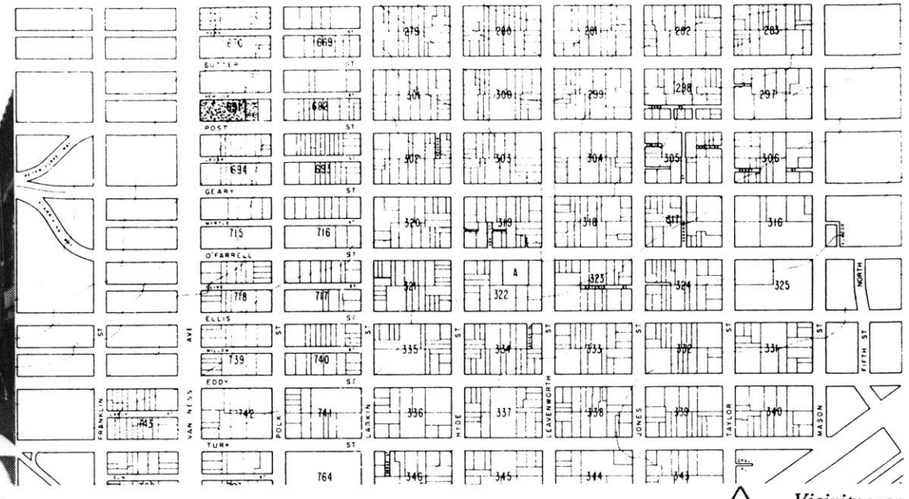
A Van Ness proposal was presented for adoption in 1986 that suggested and encouraged a policy of design for the avenue that would make it a habitable environment in the face of new development. Daniel Burnham Court, a recently completed mixed-use commercial/residential project was designed along the guidelines of the Van Ness proposal.

New Building size



Galaxy Theater

View of site



Vicinity map

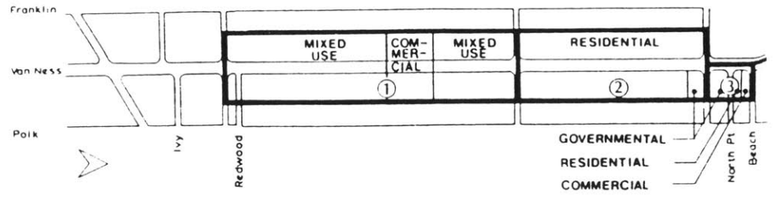
The Van Ness Proposal

Utilizing lessons learned from the "Manhattanization" of San Francisco's downtown, the city planners got a head start on the developers by devising the Van Ness proposal, a set of guidelines or governing principles for development along the avenue. The proposal contains numerous guidelines and suggestions for future development, calling for a more urbane approach to future projects whose aggregate street frontages recall masses and densities of major boulevards within European cities.

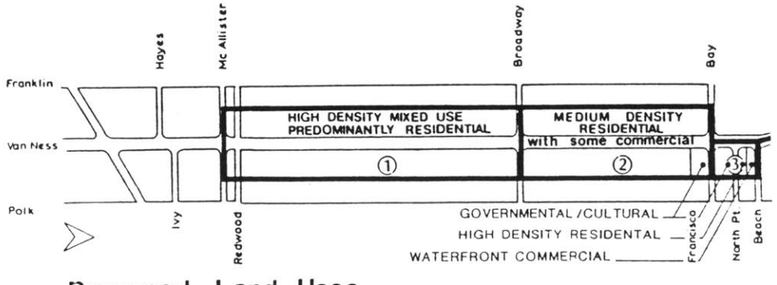
A separation of the bulk of the building into double towers is called for as an attempt to lessen the perceived weight of new buildings along the avenue as well as maintaining light and views.

A general concern for the quality of life at the street level led the city planners to call for a more attractive streetscape, apparently in a desire to invoke a residential boulevard image.

To begin to mitigate San Francisco's current housing crunch, any new developments along Van Ness would have to include a housing component of 7:1 FAR within a 130 ft. height limit and 4.5:1 FAR within the 80 ft. bulk district. Office uses would be limited to a FAR of 1:1. In general, 1 square foot of commercial space would be allowed for every three square feet of residential space added to the area, with additional office space being discouraged for the area.



Existing Predominant Land Uses



Proposed Land Uses

Policy 2

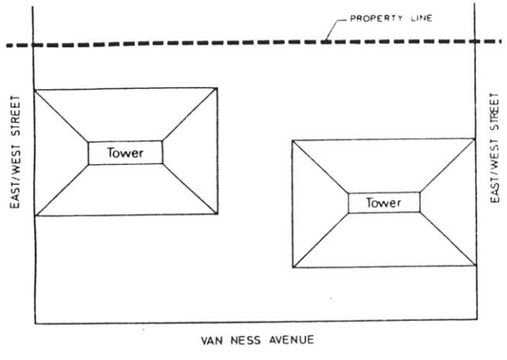
Create varied rhythms in developments on large lots by inserting vertical piers/columns, or changes in fenestration and materials to articulate what otherwise would be an undifferentiated facade plane.

North facing access court for residences

Policy 3

Incorporate setbacks and/or stepping down of building form on new developments – and major renovations when necessary – to increase sun exposure on sidewalks.

Public space for residents

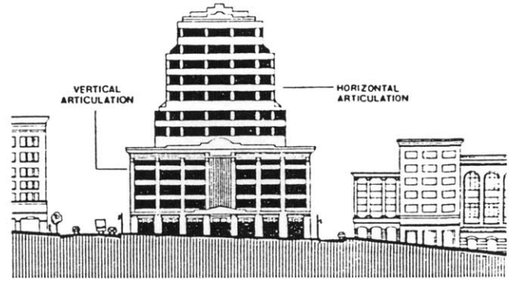


Van Ness proposal- Separation of vertical housing towers

Policy 6

Encourage separation of towers for buildings involving more than one tower.

View of towers, Daniel Burnham Court



Van Ness proposal- Integration of new building size

Policy 2

Encourage a regular street wall and harmonious building forms along the Avenue.

Planning policies within the Van Ness proposal

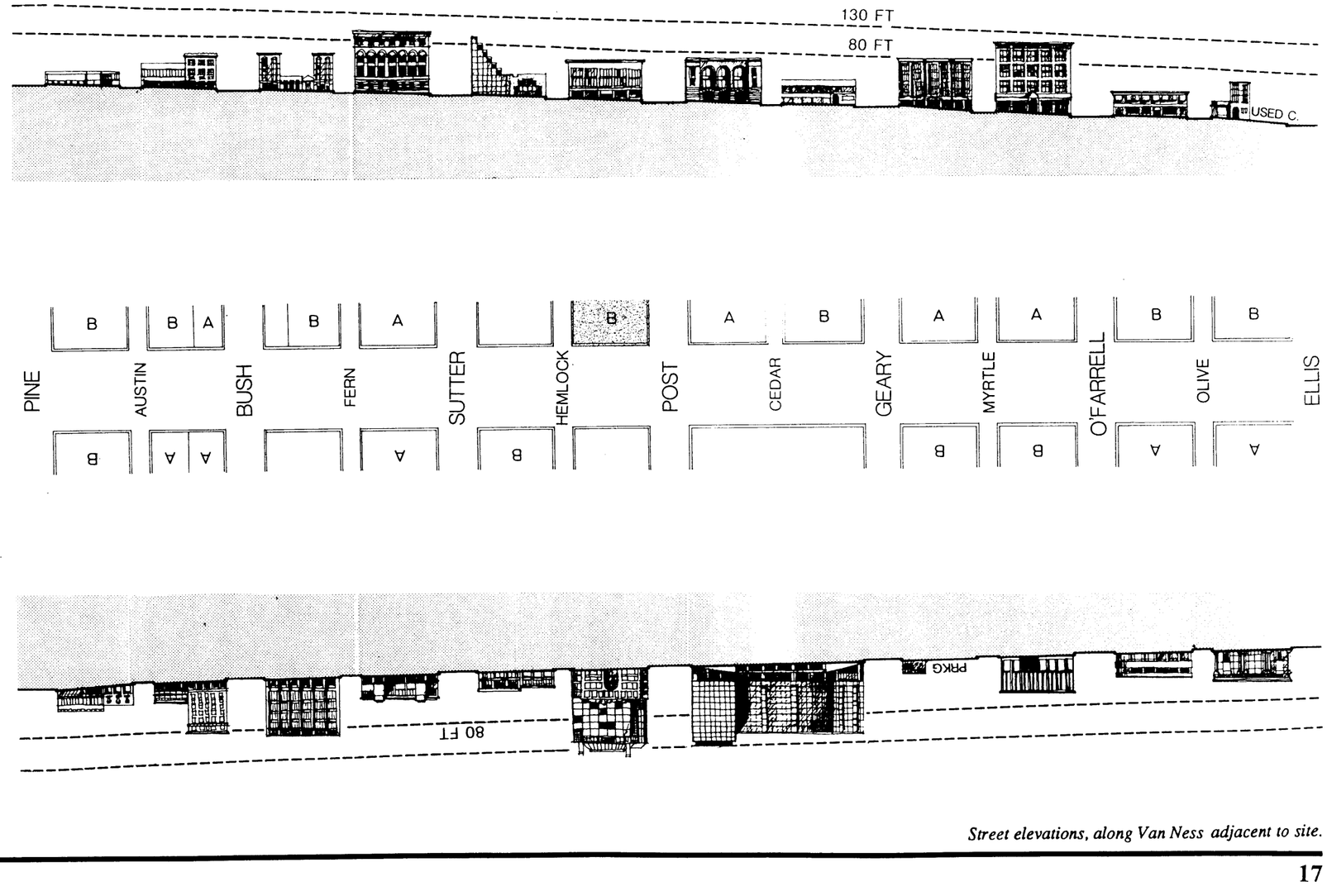
Commercial entrance, Daniel Burnham Court

Regency Theater | *Galaxy Theater* | *Existing building on site, currently undergoing renovation* | *Concordia Club*

Site

The site chosen lies at the northeast corner of Van Ness and Post Streets, a former auto dealership currently undergoing conversion to retail. To build taller on the site, the developers would be required to incorporate housing into the project. The site is adjacent to two movie theaters and a private club along Van Ness, with small retail nearby on Cross Streets. The program will be 1-2 floors of retail, 1 floor of office space, with the remainder being housing.

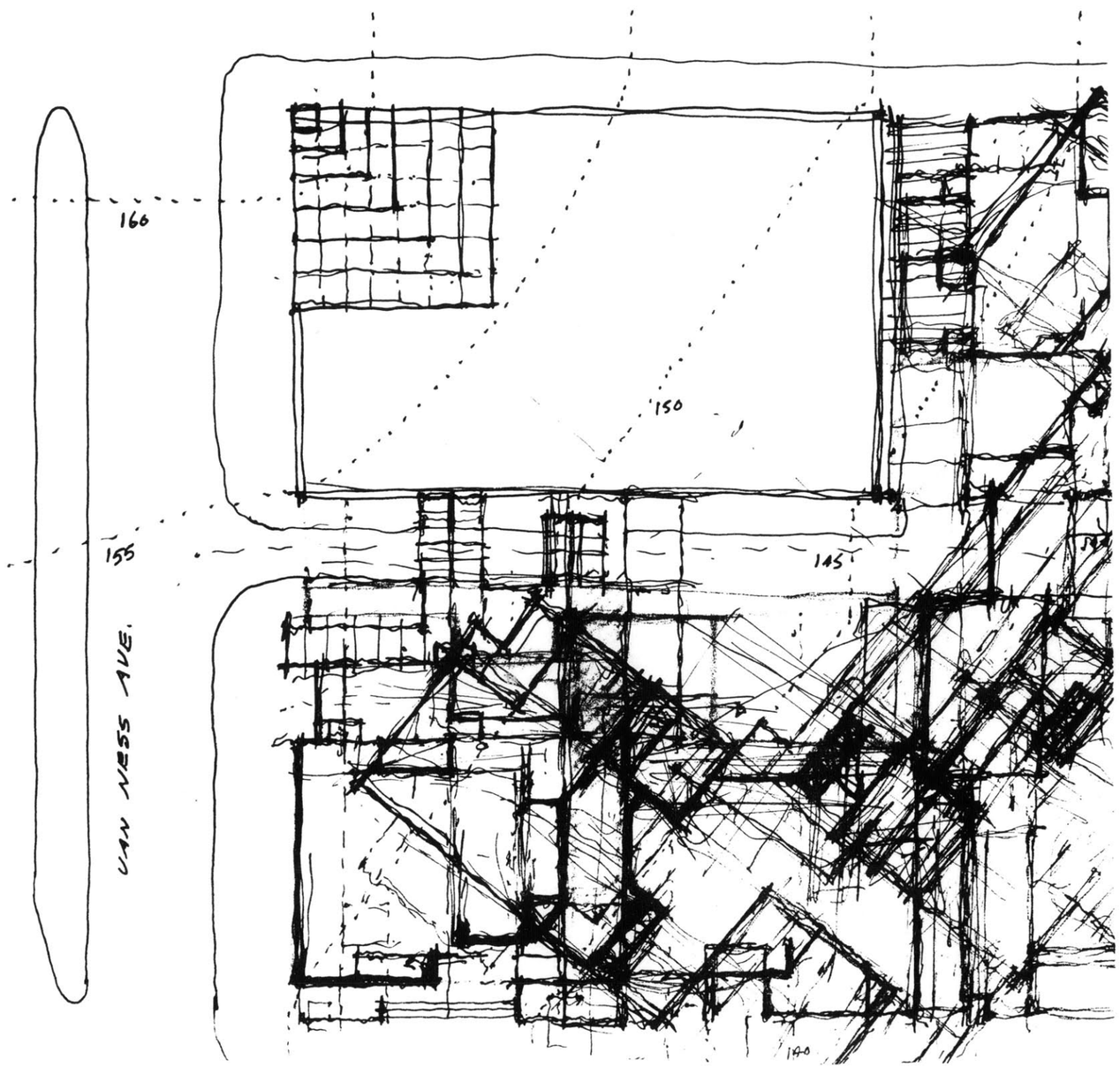
View of site



Street elevations, along Van Ness adjacent to site.

" Architectural features of any democratic ground plan for human freedom rise naturally by, and from topography. This means that buildings would all take on, in endless variety, the nature and character of the ground on which they would stand and, thus inspired, become component parts."

-Frank Lloyd Wright

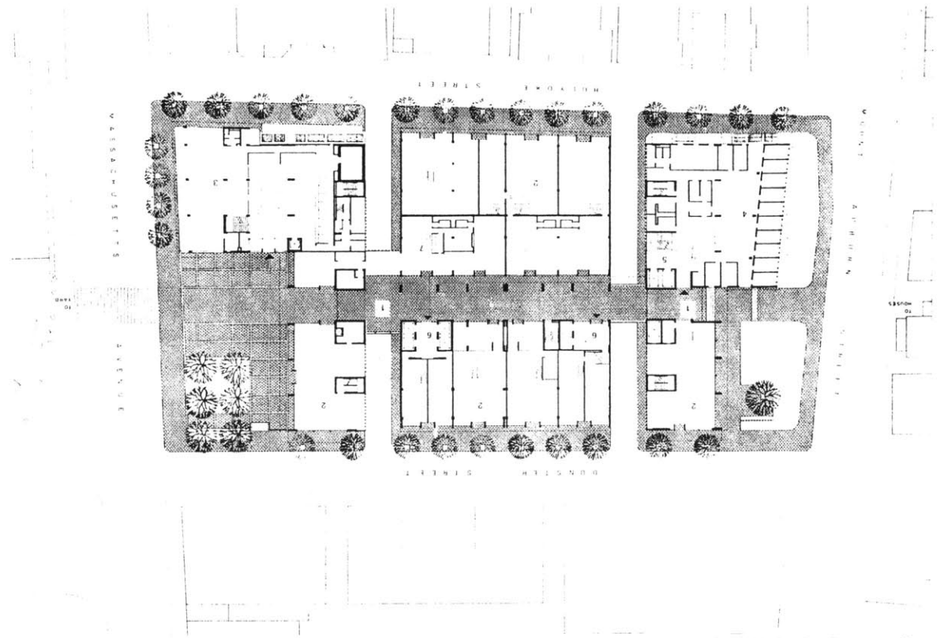


Shift in direction of public movement

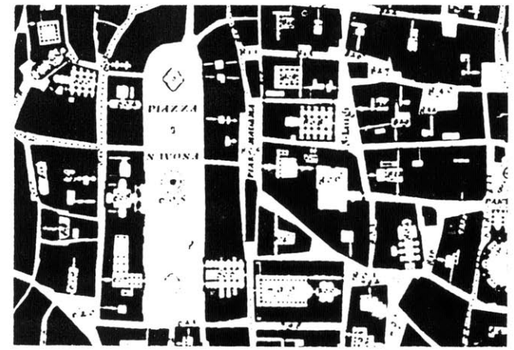
To facilitate level public movement through the site and adjoining half-block parcel, a shift in the ground path according to topography was initiated, which was translated vertically in the form of public access and collective territories. It was hoped that whenever seen, the direction shift would provide a visual clue to a territory public in nature moving up and through the building.

" Very often, when a single city block is closed to vehicular traffic, the result is not merely to reroute peripheral traffic, but also to generate other urban events a block or two or five away from the original planning decision."

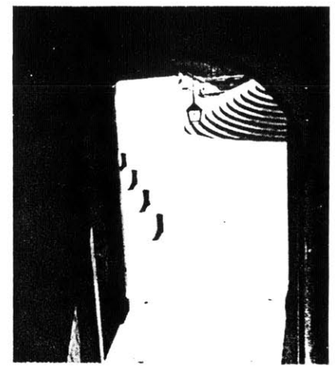
-Peter Blake



Plan, Holyoke Center, Sert



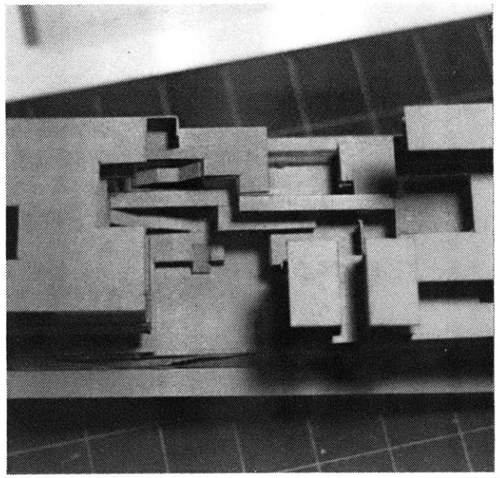
Nolli's figure-ground plan of Rome



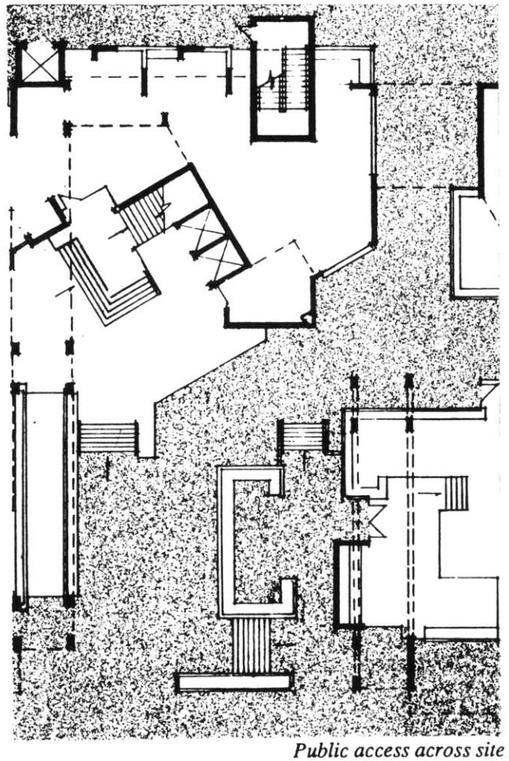
Pedestrian street, Holyoke Center, Sert

Successful pedestrian realms usually are a network of paths and urban spaces of various sizes and qualities, where one space anticipates the next, and travel along its route provides a multitude of spatial and sensory experiences.

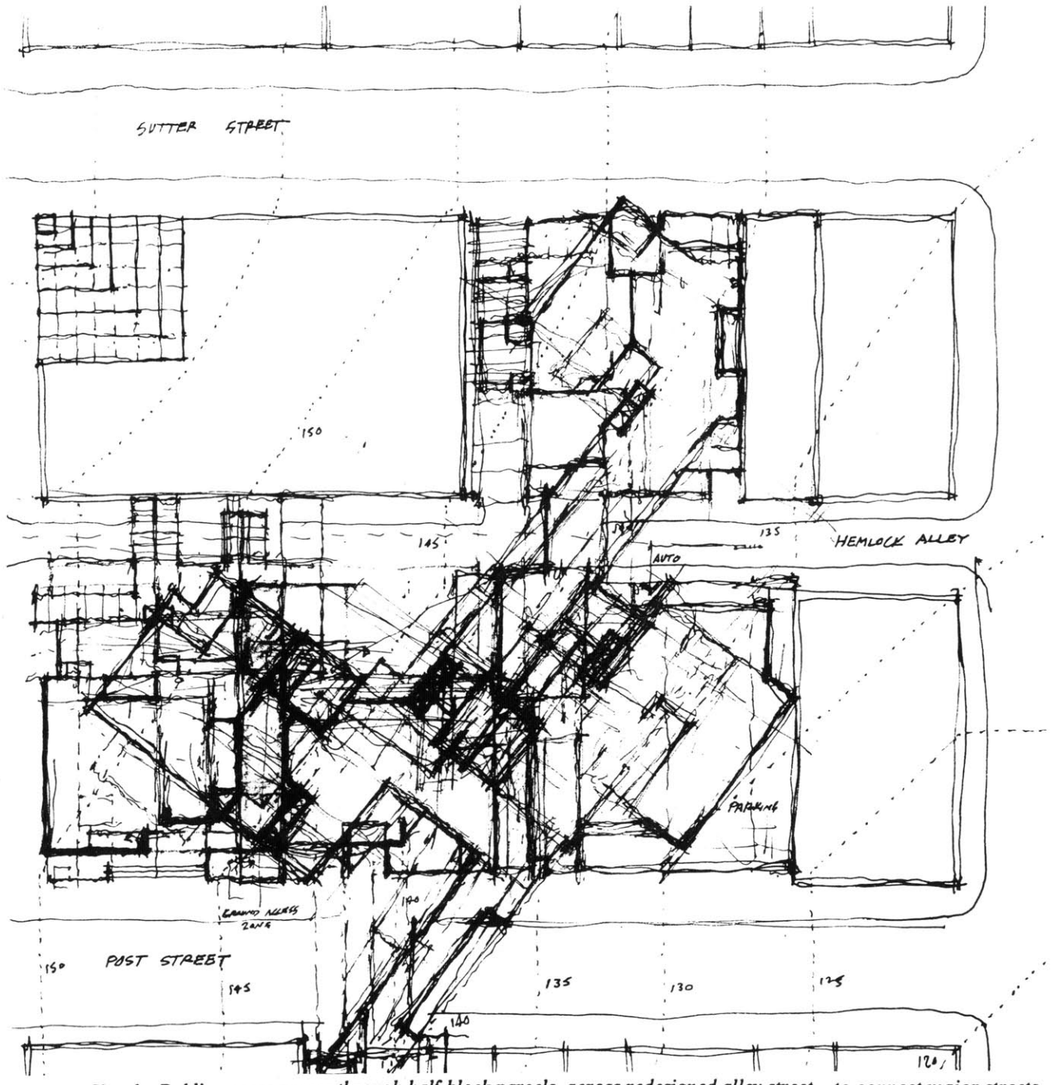
Sert employs a pedestrian street to link internal functions and two major Cambridge Streets, Massachusetts Avenue and Mt. Auburn Street, in his block-size Holyoke Center project.



Study model, Direction of public way across site

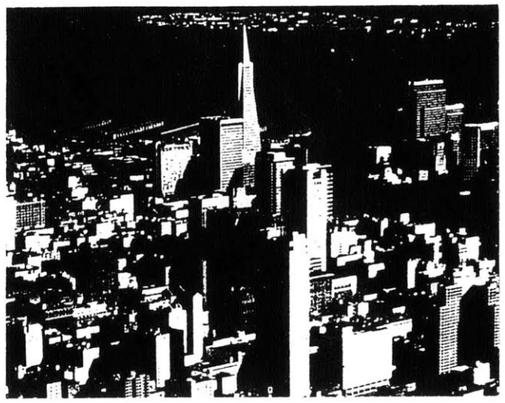


Public access across site

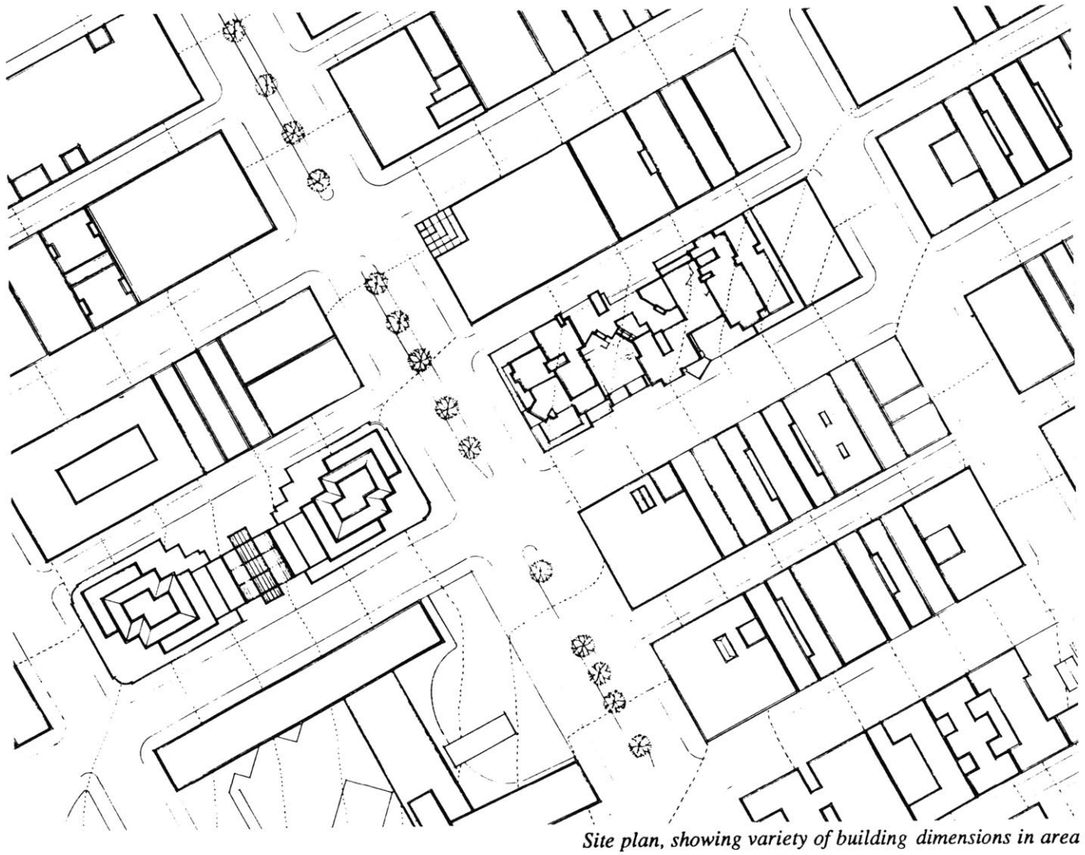


Sketch, Public access passes through half-block parcels, across redesigned alley street, to connect major streets

Initial site plan concepts considered bringing life to alley streets by linking half-block parcels with public access, passing along ground level retail spaces.



San Francisco views



Site plan, showing variety of building dimensions in area

A city's overall form is composed of an aggregation of various sizes and shapes; residential neighborhoods of domestic sizes and urban regions of high density and dimension. Sometimes there is an overlap of these different types of urban organizations or it is produced artificially by intense development activity. Both are true for the Van Ness area, where a variety of building sizes have coexisted for years, generally with larger buildings occupying the Van Ness frontage and smaller structures inhabiting the mid-block parcels. Currently development pressure has seen the emergence of a much larger vertical building size in recent years, appearing somewhat discontinuous or disassociated from its surroundings.

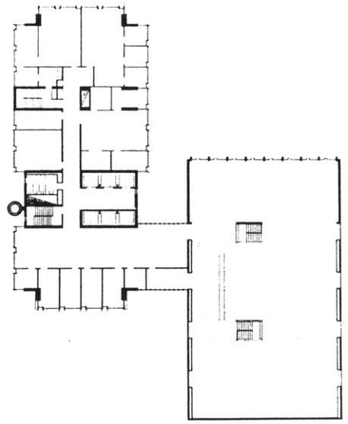
Mother's House, Amsterdam, Aldo Van Eyck

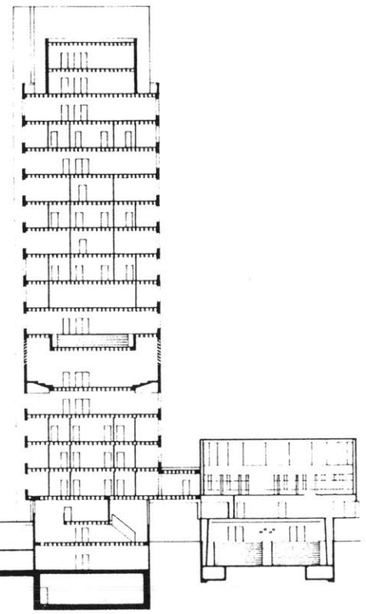
Street elevation

Sizes: Contextuality

Aldo Van Eyck illustrates a concern for contextuality through the use of size association in his facade treatment for the Mother's House in Amsterdam. Here elements within the elevation are carefully arranged to nearly align with elements of the adjacent, much older structures to achieve the effect of fitting in with surroundings while simultaneously appearing new and modern.

Expression of large building size,





Boston University Law School, Plan and section, Sert

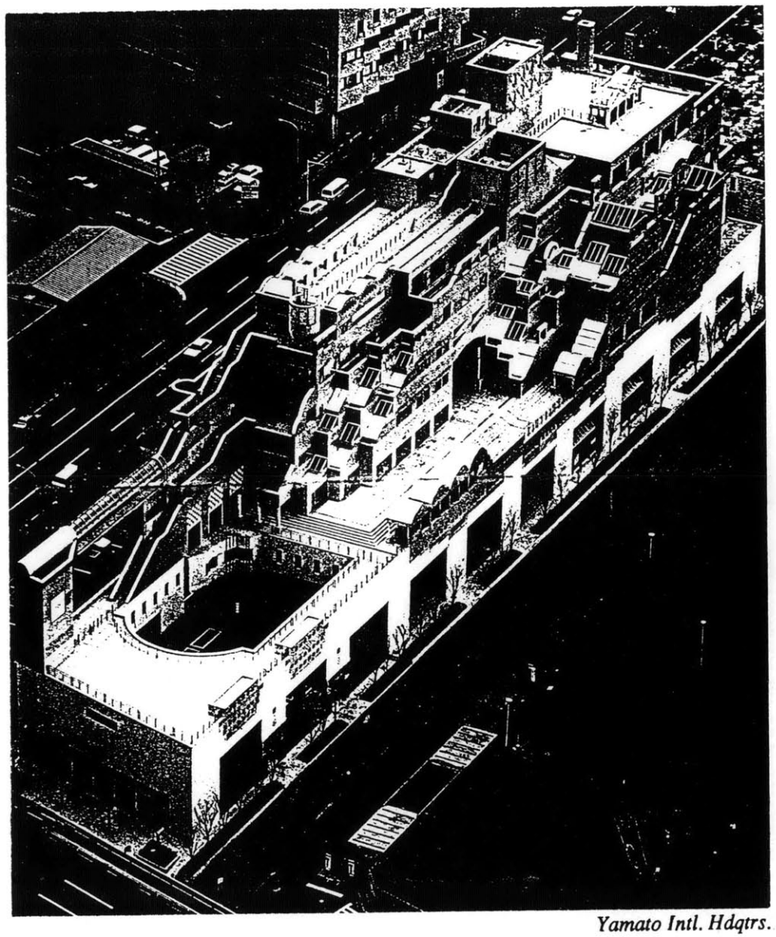
Boston University Law School, Sert

Vertical Building Size

Sert finds larger building sizes by placing large public spaces, such as the auditorium in his Boston University Law School building, high up in the building, which then allows him to express this large public size to the exterior face, breaking up the elevation into various compositional sizes and elements.

Variety of sizes, Yamato Intl. Hdqtrs.

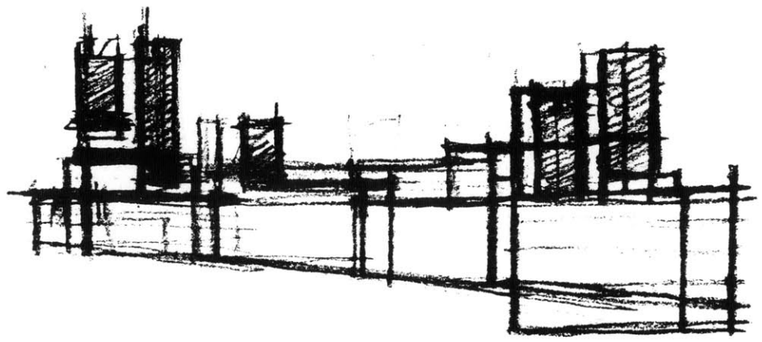
Elevation view, varied building sizes



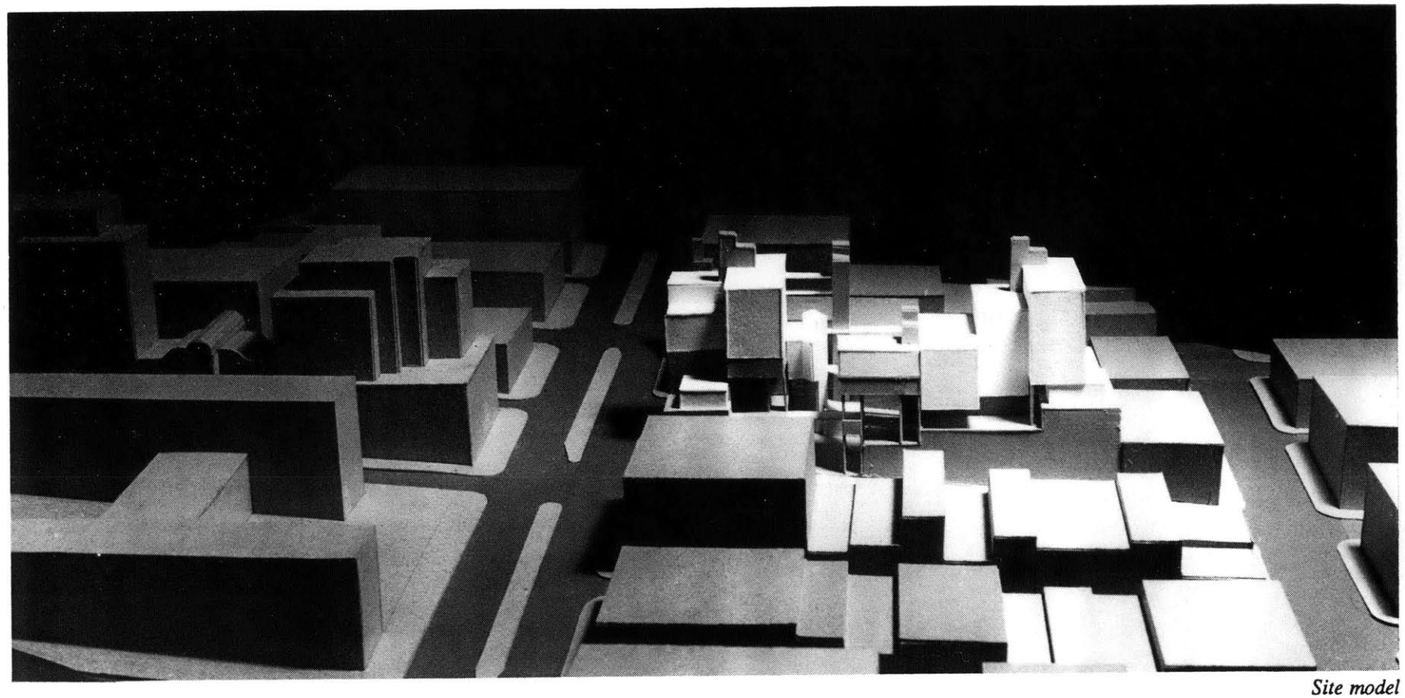
Yamato Intl. Hdqtrs.

Horizontal Building Size

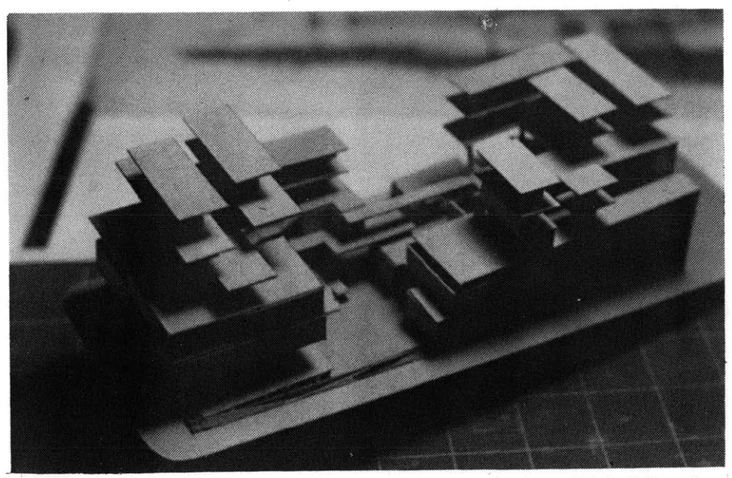
Architect Hiroshi Hara establishes a sort of urban plinth of public uses upon which rests the stepped back floors of offices and meeting rooms in his Yamato International Headquarters.



Sketch, Upper level housing volumes take on dimension of mid-block parcels



Site model



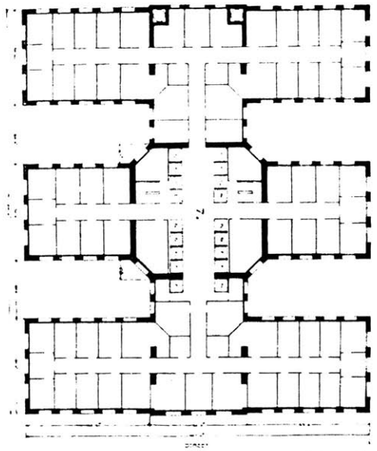
Study model, building sizes

Early sketch of building volume as seen from Van Ness Ave.

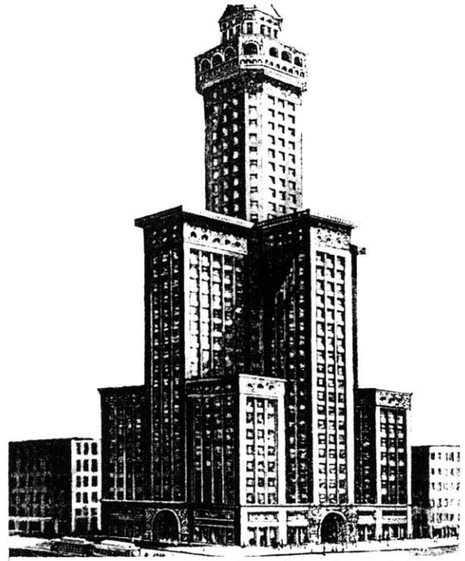
Sizes: Van Ness Area

It was desired to decrease the volume of the upper portions of the project to reduce bulkiness, and thus it would be possible to express sizes which associate more with existing mid-block dimensions.

A size discontinuity ? *Torre Velasca, Milan, Mailand*



Plan, Fraternity Temple



Fraternity Temple project, Louis Sullivan

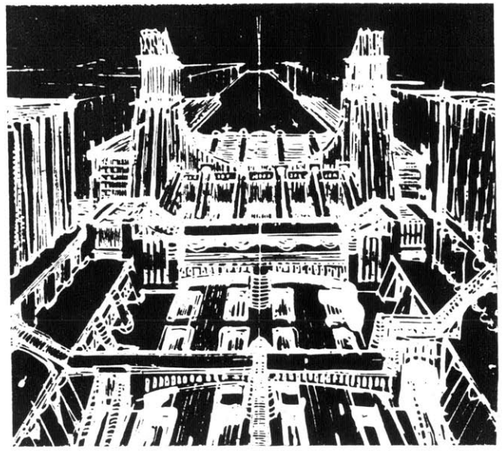
Ideal city of setback skyscrapers, Louis Sullivan

The Tall Building as an Architectural Idea

Ever since the modern technology to build vertically was first introduced over a century ago in Chicago, architects have been intrigued by the possibilities inherent in this new building organization in addition to grappling and struggling with the issues that the tall building presents us with.

One of the first architects to begin to analyze this building typology was Chicagoan Louis Sullivan, whose tall building designs by the 1890's were early pioneers of the modern "skyscraper." Although Sullivan desired to artistically embellish his structures with beautiful organic referencing in a confusing attempt to "make natural" his buildings, and while his writing stresses the all-importance of the individual, many of his commissions seem to emphasize corporate and authoritative concerns; he still recognized crucial issues relating to the tall building question. As David Andrews states in Louis Sullivan and the Polemics of Modern Architecture, "Sullivan argued for a setback formula on purportedly humane grounds, [and] while it clearly does not utilize every bit of space above a given city plot, still it creates as much rentable area as is consistent with what Sullivan terms public welfare -- the need of the individual for sufficient air to breathe and light to see."

Sullivan's use of setbacks, lightcourts, elevator cores, and other modernistic principles in his Fraternity Temple design of 1891 and its aggregation into an idealized vision of a city of Setback Skyscrapers illustrates how he foresaw city growth.

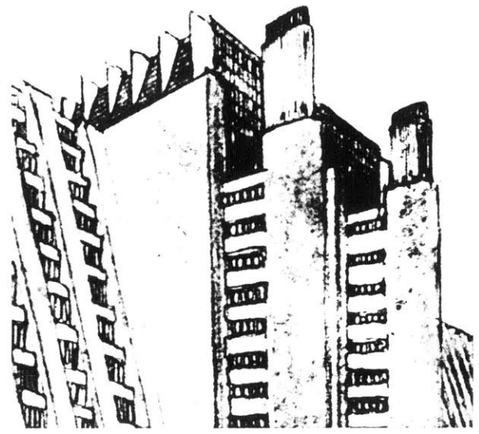


Railway station, Sant' Elia

" We no longer feel ouselves to be the men of the cathedrals, the palaces, and the podiums. We are the men of the great hotels, the railway stations, the immense streets, colossal ports, covered markets, luminous arcades, straight roads, and beneficial demolitions.."

-Antonio Sant'Elia
July 1914

To the Futurists, a group of Italian visionaries at the beginning of this century, the "museum city" of the past had been the object of scorn; instead the modern city they reveled within was one of pulsating human energy. Of movement and access occurring at numerous levels and various directions, provided for by the industrial technology and mechanical energy of their modern world. In Tisdall and Bozzolla's Futurism, the theme of the futurist city was a "romantic collage

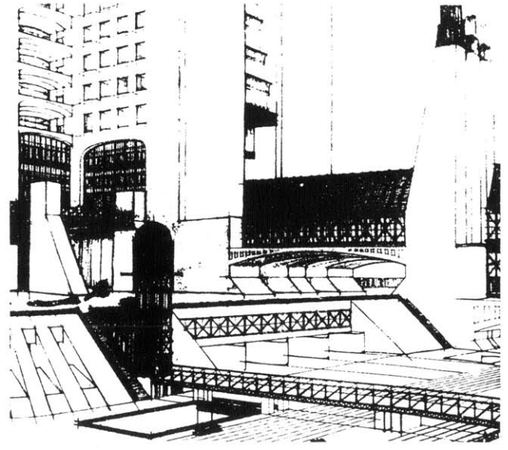


Stepped building profile, Sant' Elia

of arsenals and shipyards, greedy railway stations, factories, and bridges striding the rivers like giant gymnasts."

Buildings which grew from and paid homage to this industrial energy were to be grouped in high-rise clusters with each element "extraordinarily ugly in its mechanical simplicity," according to Tisdall and Bozzolla. As with Sullivan, a stepped back profile was utilized by Sant'Elia to increase the access to light and vary the building outline.

For the Futurists the street would no longer simply lie like a doormat at ground level but would plunge many stories into the earth to embrace levels of traffic below. Pedestrian access

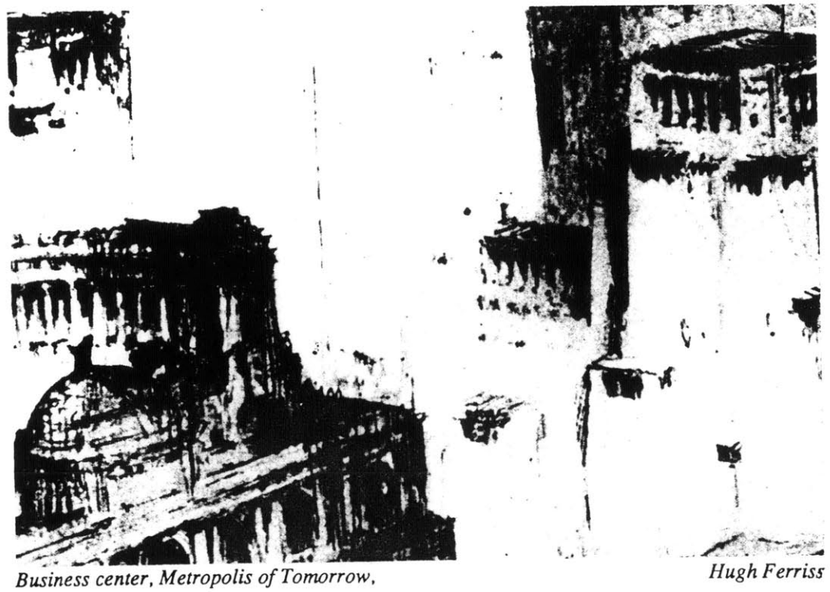


Futurist city

would be linked by metal gangways and moving pavement.

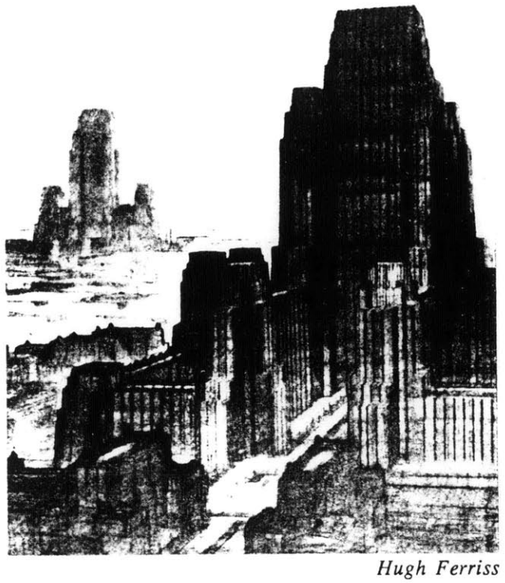
The Futurist building thus existed within a system in which structures, mechanized and pedestrian traffic, were to coexist in space yet function separately. It seems to be a joyous celebration of mechanized ingenuity but also begins to harken towards possible future solutions to the problems of density and congestion in urban settings. The dreams of this group of thinkers would be crushed by the onslaught of World War I yet their prophetic visions of futuristic urban environments remain.

Defensive towers, Western Caucasus

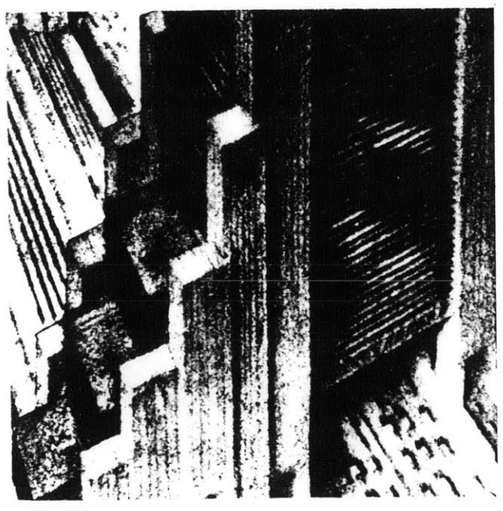


Business center, Metropolis of Tomorrow,

Hugh Ferriss



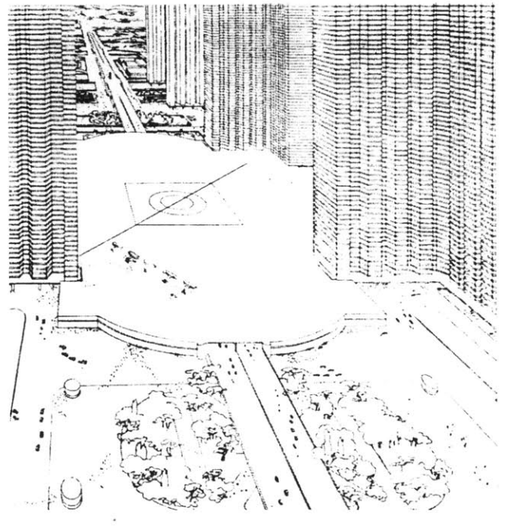
Hugh Ferriss



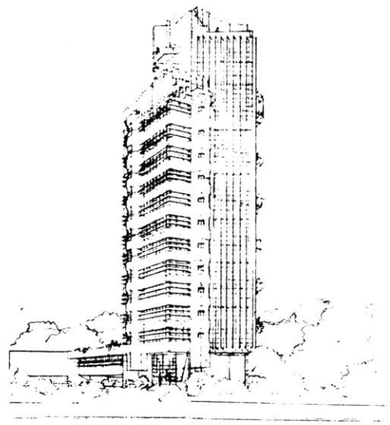
Hugh Ferriss

In Hugh Ferriss' Metropolis of Tomorrow urban growth and densification is achieved by widely-spaced, massive urban centers, modern day ziggurats creating a romanticized cityscape glimpsed through the urban haze. Ferriss, like the Futurists, employs principles of setback building design and a layering of access systems, yet his formal aesthetic is quite fortresslike and defensive in nature, recalling older vernacular structures such as the fortified towers of Svanetia in the Western Caucasus.

Le Corbusier's vision of tall buildings within the city again layers the various access systems and tries to solve the problem of density and providing open space by building widely-spaced vertical towers with open plazas and natural landscape between. Yet the scale and proportion are so severe that any association to the ground is destroyed beyond a few floors and the size of the open spaces are so large that territoriality becomes ambiguous and the human scale is rendered insignificant.

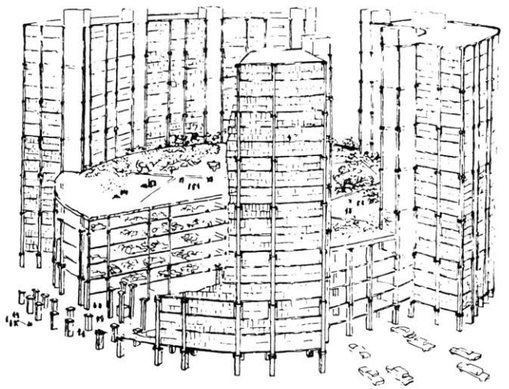


Tall buildings, Le Corbusier

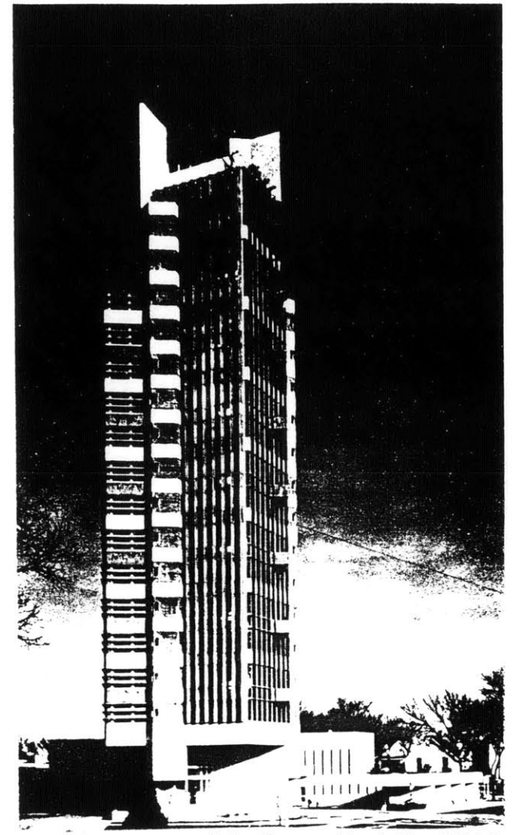


Price Tower, Frank Lloyd Wright

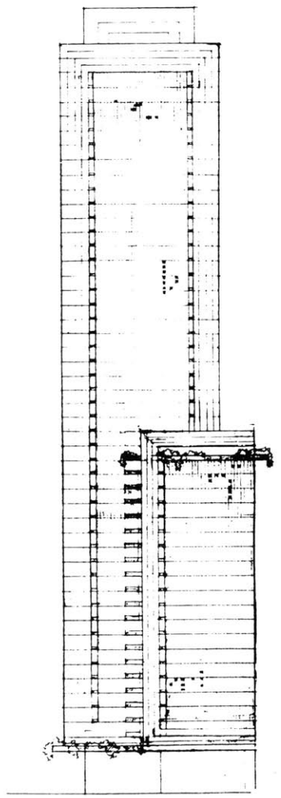
Philadelphia City Plan, project, 1956–57. Plan.

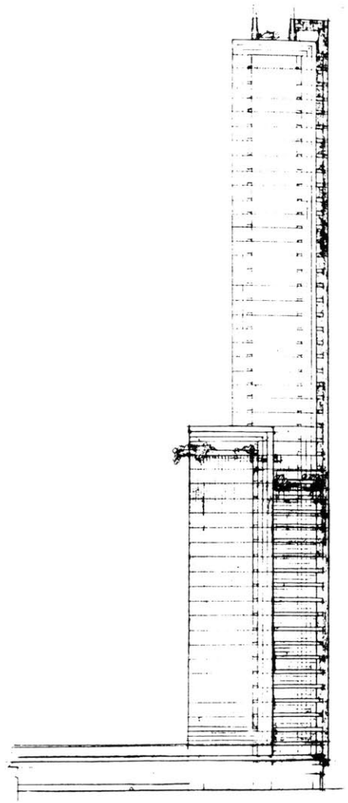


Center City project, Philadelphia, Louis Kahn



Price Tower, Frank Lloyd Wright

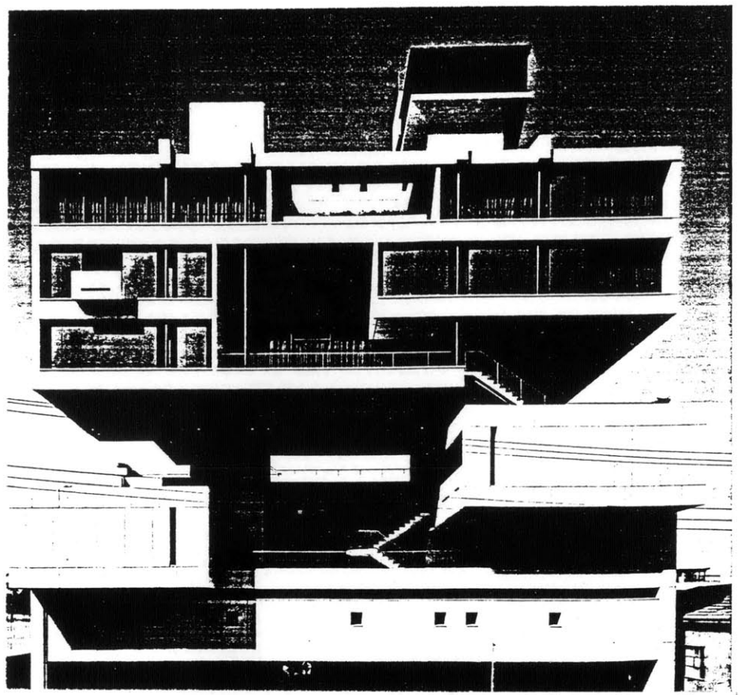




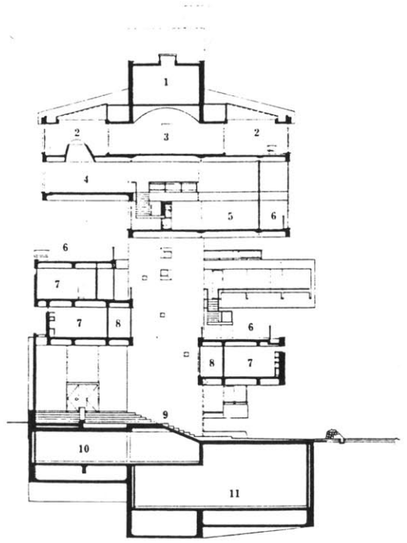
County seat, Broadacres City Frank Lloyd Wright

Louis Kahn's proposal for center city, Philadelphia, looks at urban buildings which incorporate parking and landscaping in the upper levels, an attempt to establish a "new ground level" for inhabitations above. These structures aggregate and are linked by access into an urban system, yet still are overly object-like sculptures foreign to the existing urban context in both size and form. But it is the addition of the new reference ground level that begins to establish a continuity from the ground to a space several stories above.

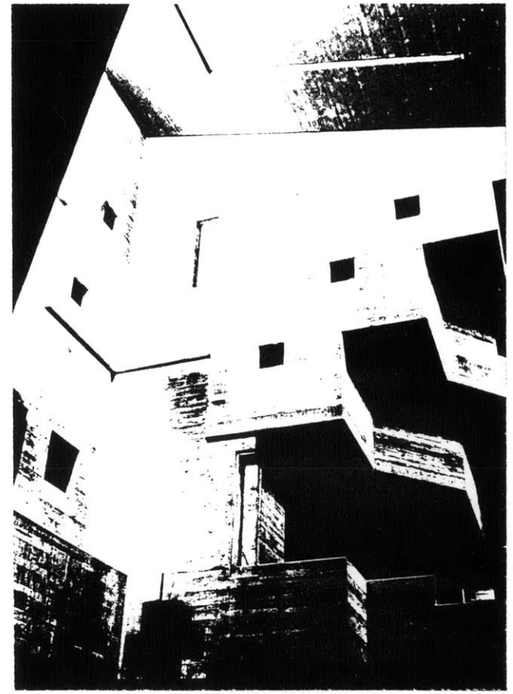
Wright's tall building would stand open and free in the environment, like an agricultural tower serving as a beacon in the landscape.



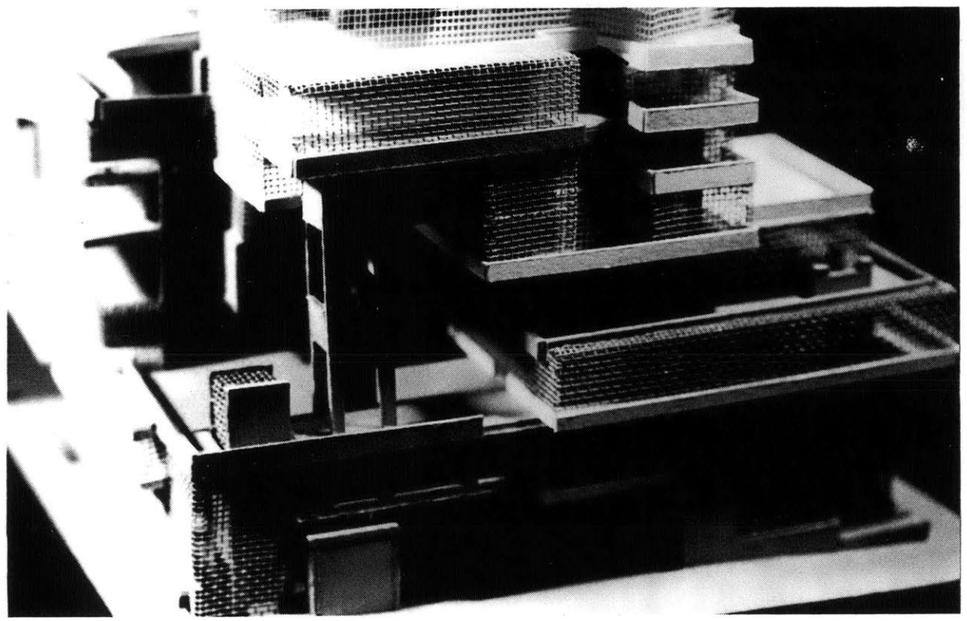
Kuwaiti Embassy, Kenzo Tange



Section



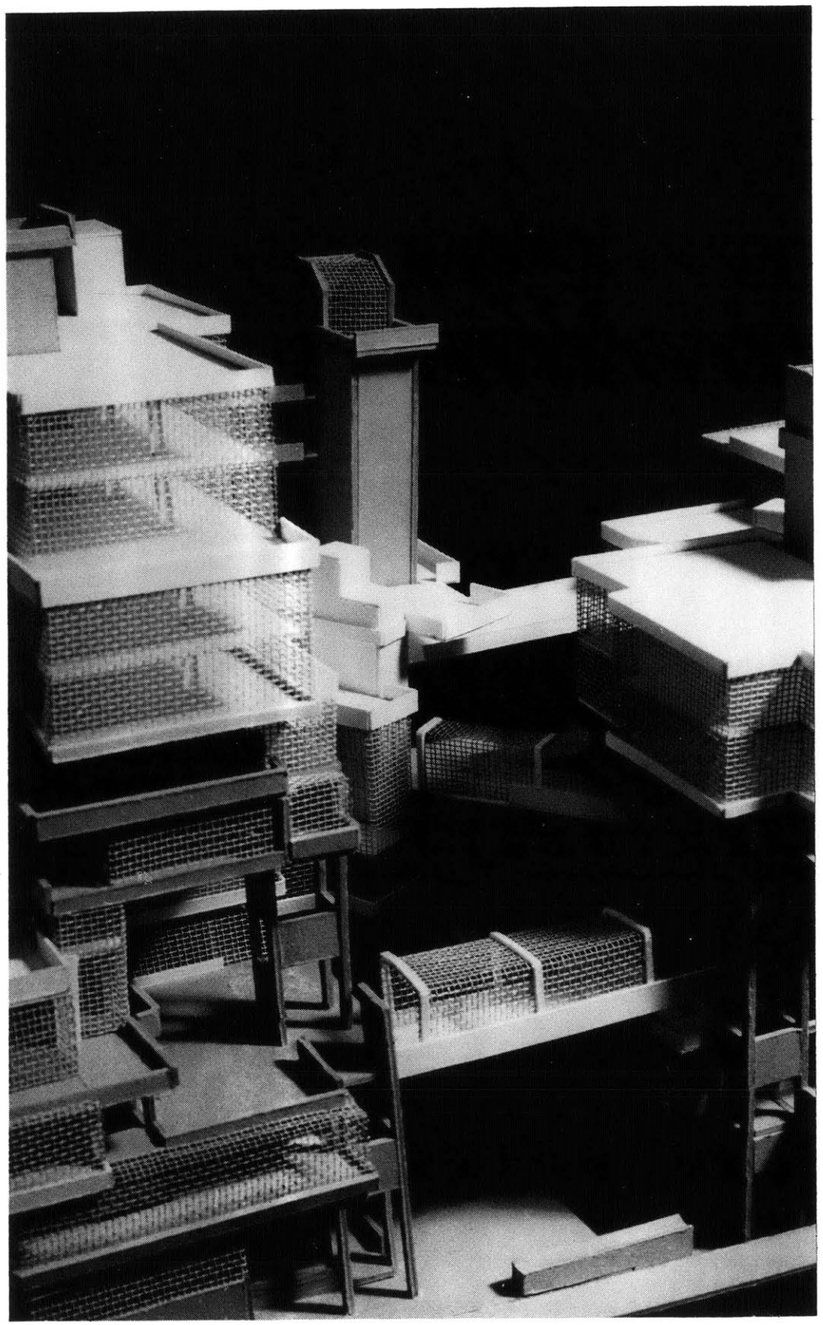
St. Nicolas Church, Walter Forderer



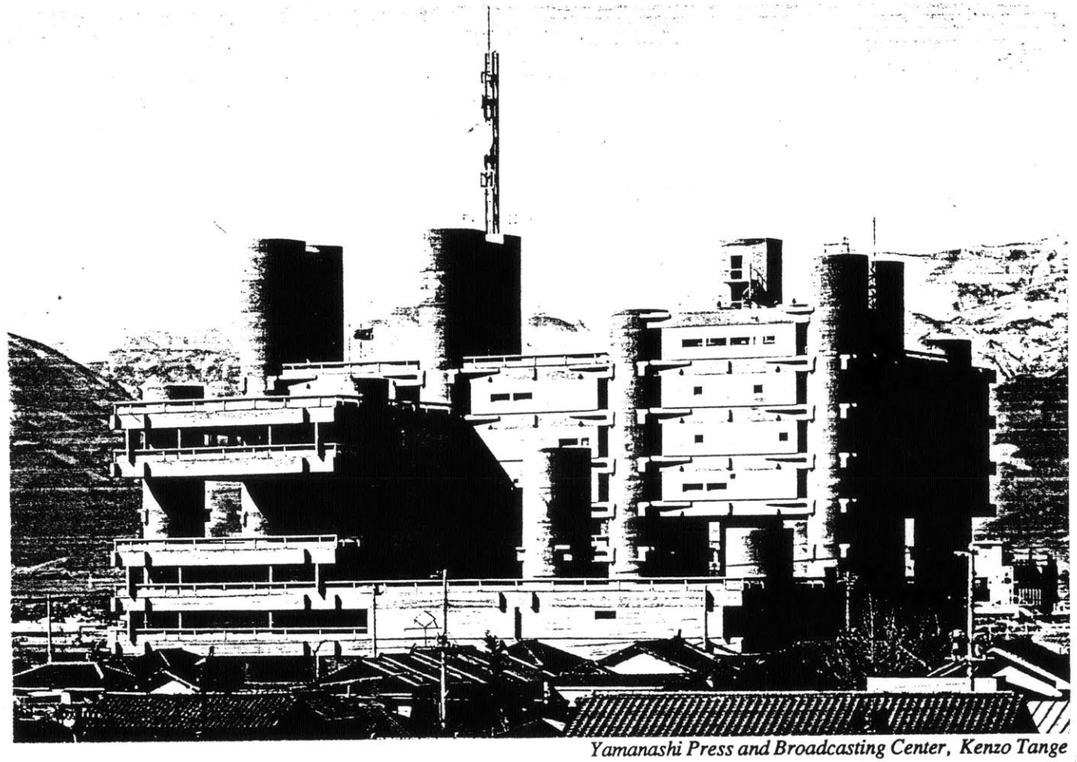
Continuity in section

An ease of movement from the horizontal to the vertical or upward visual continuity are two means by which vertical movement can be more easily facilitated or made more interesting. These qualities begin to establish a vertical continuity within built organizations.

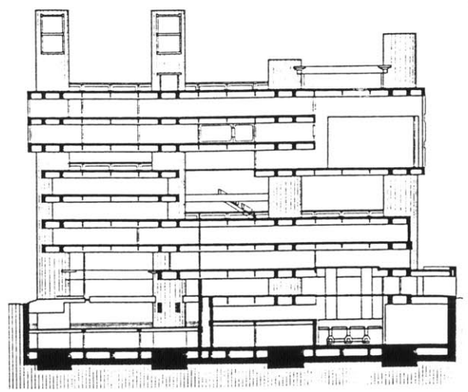
A building's section can contribute highly to its vertical continuity. In Tange's Kuwaiti Embassy or Forderer's Church of St. Nicholas, large vertical dimensions are established by either the absence of floors or multi-storied spaces. These large vertical dimensions draw the eye upward, to views of territories above. The qualities can become expressed to the exterior of a structure as by



Space as vertical continuity



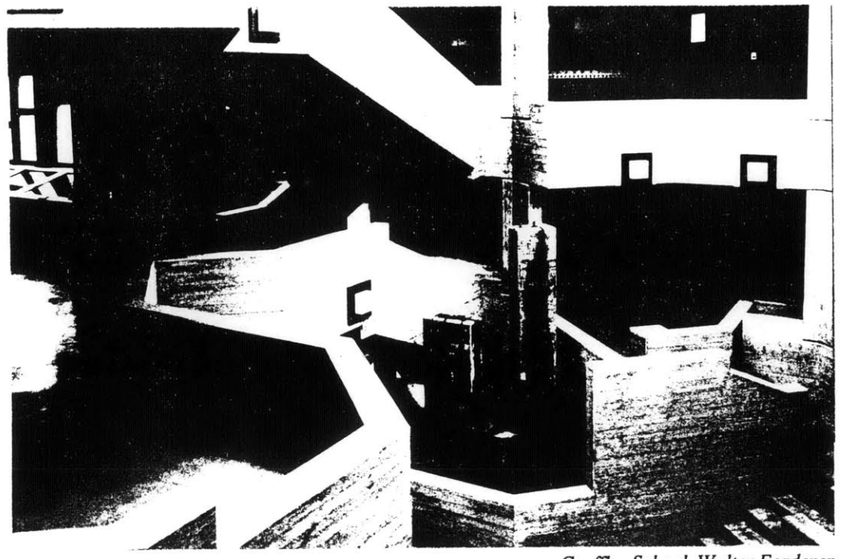
Yamanashi Press and Broadcasting Center, Kenzo Tange



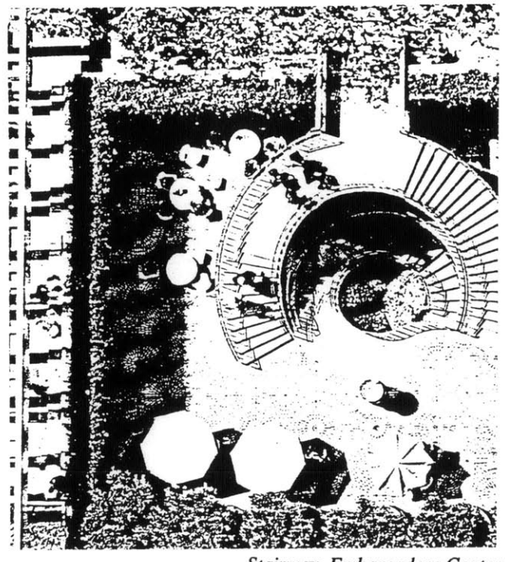
Section

Tange's Yamanashi Press and Broadcasting Center in Kofu City, Japan. By allowing for whole chunks of the building to be carved out as space, various sized volumes within the building become readable, expressive of its function as a mixed-use development.

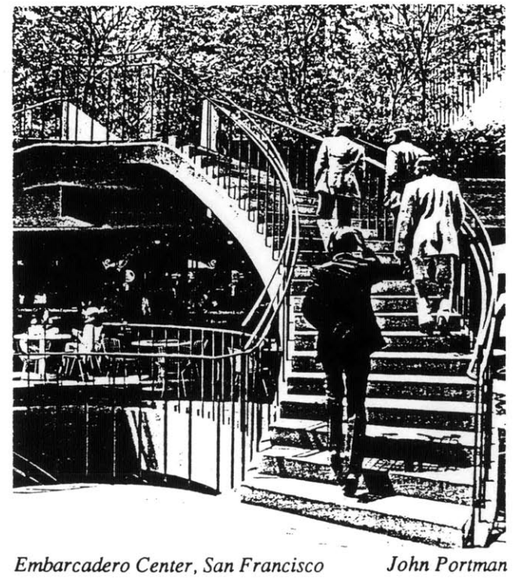
Ease of movement in the vertical dimension helps establish public continuities that enable the upper portions of a built organization to become more readily accessible.



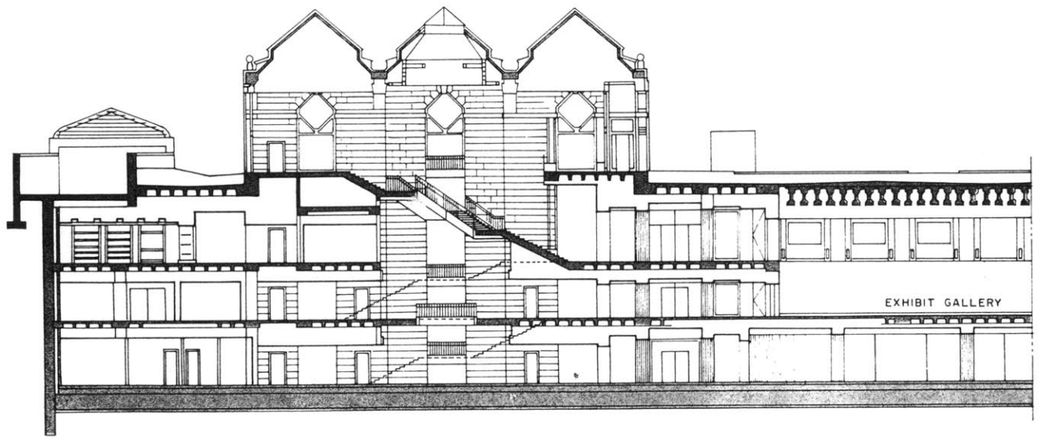
Groffler School, Walter Forderer



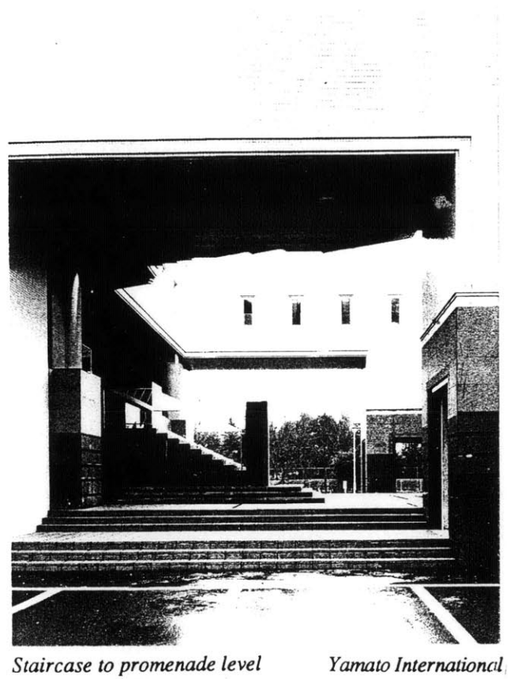
Stairway, Embarcadero Center



Embarcadero Center, San Francisco *John Portman*



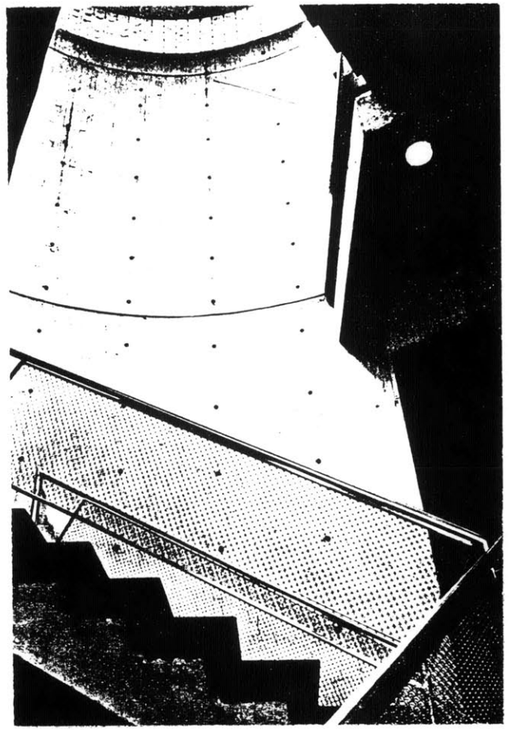
Section, Center for African, Near Eastern, and Asian Culture, Wash. D.C.



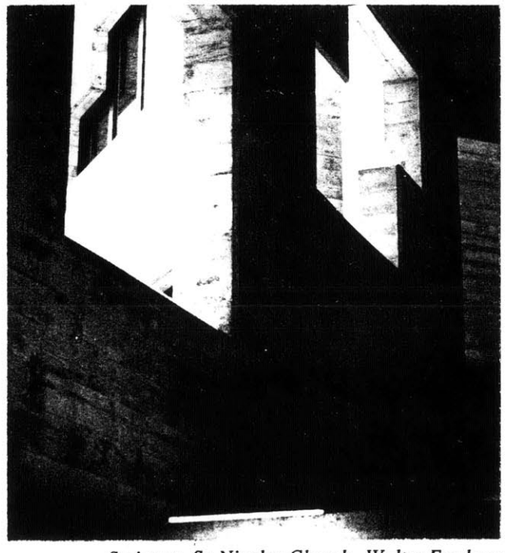
Staircase to promenade level *Yamato International*

Stairwells and stairways can set up vertical continuities within public access zones. In Forderer's Groffler School and the Center for African, Near Eastern, and Asian Culture in Washington, D.C., generous open stairs provide views to floors above and below.

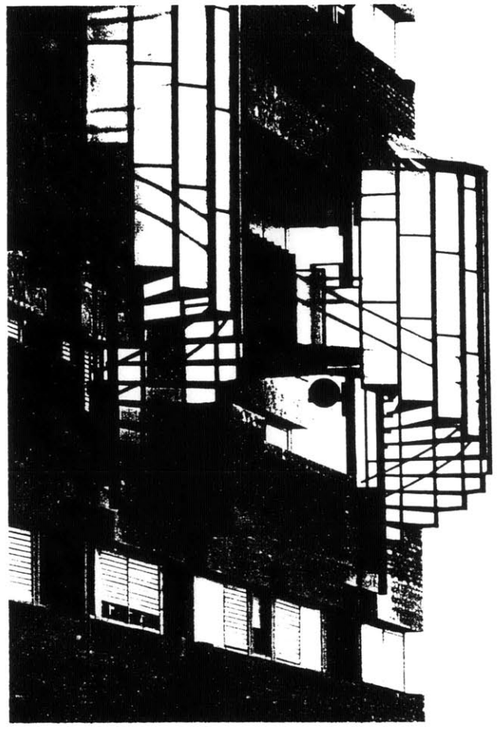
In the Yamato International Headquarters Building, a wide public stair provides a continuity of access to the promenade level. In Portman's design for Embarcadero Center in San Francisco, open vertical stairs provide access between various horizontal promenade levels.



Stairwell, Yale University Art Gallery, Louis Kahn



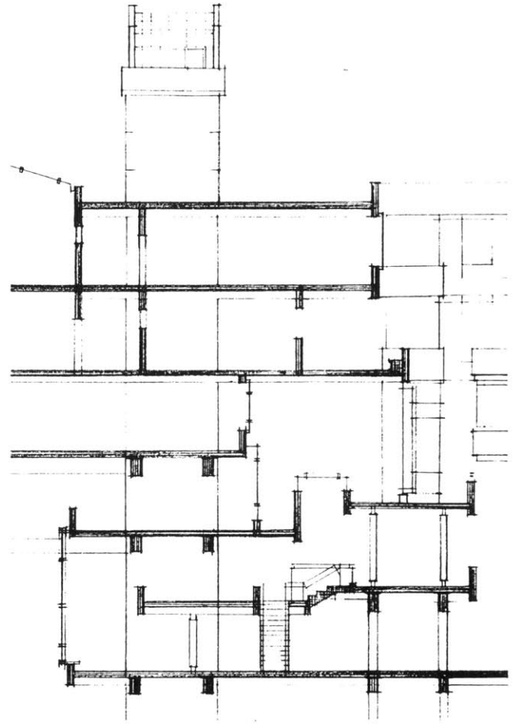
Stairway, St. Nicolas Church, Walter Forderer



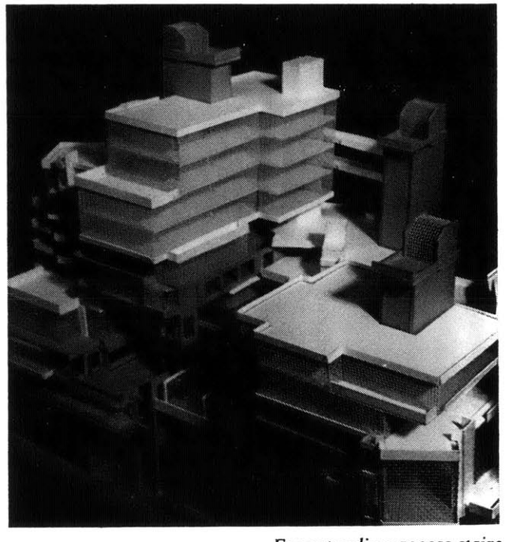
Teacher's housing, Pineda, Spain
Matorell, Bohigas, Mackay

Stairways can entice one to move upward by the use of light and shadow. A wash of light across a wall from an overhead light source or pools of light from wall openings provide destinations or alternating light and dark places which set up a rhythm to vertical movement.

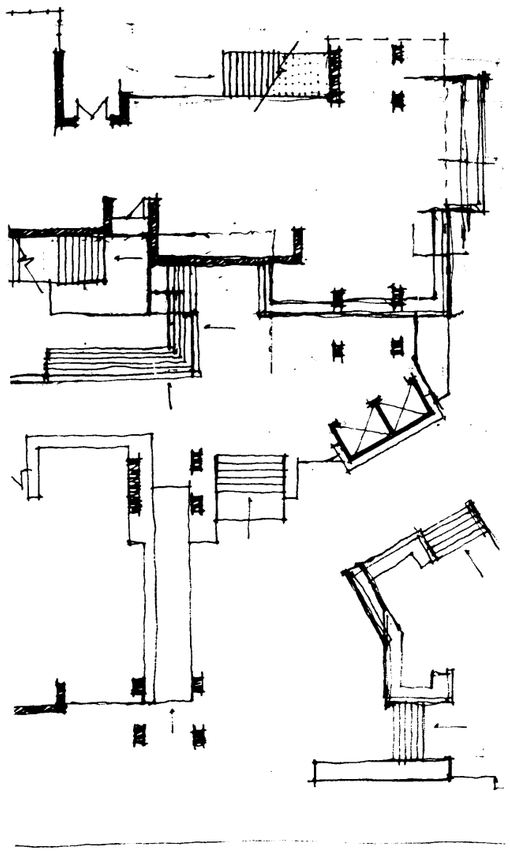
In the upper housing levels, stairways could take advantage of their height and be placed to the exterior for access to light, air, and views.

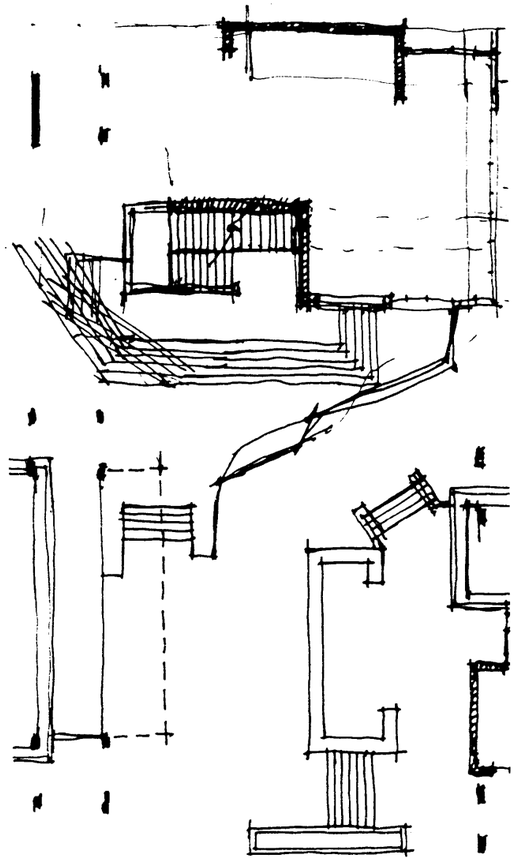


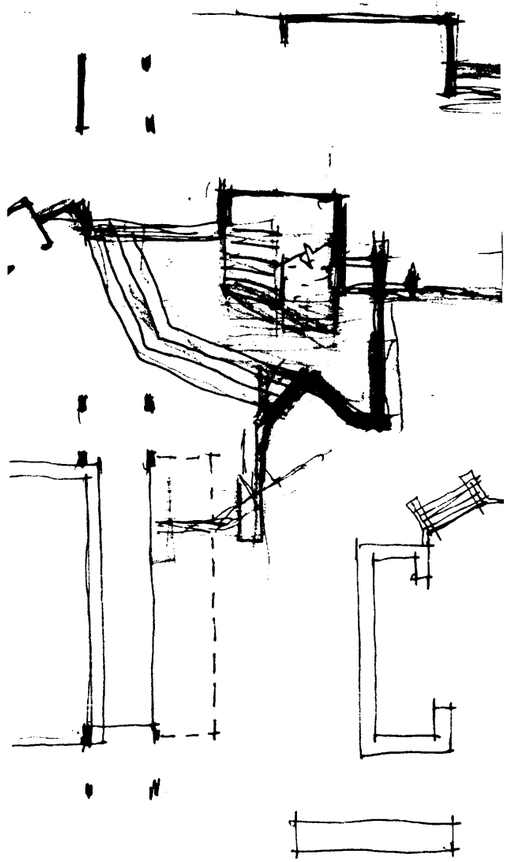
Stair section sketch

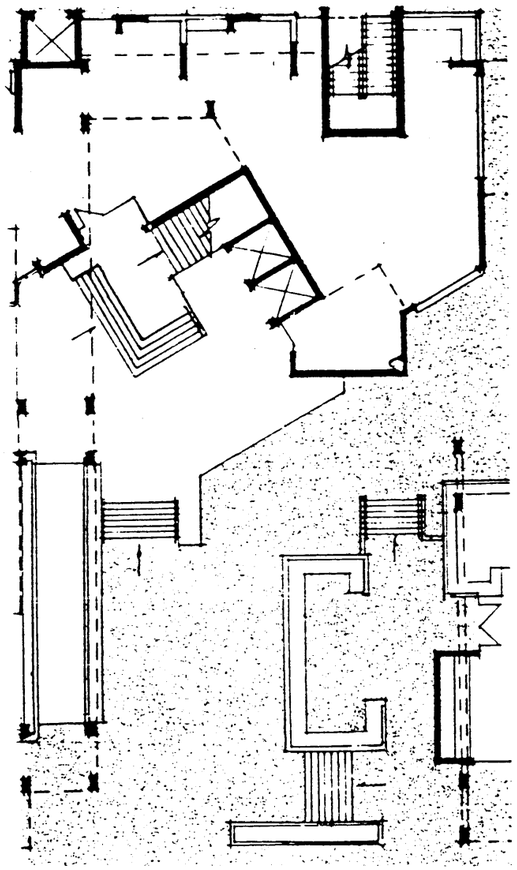


Free standing access stairs

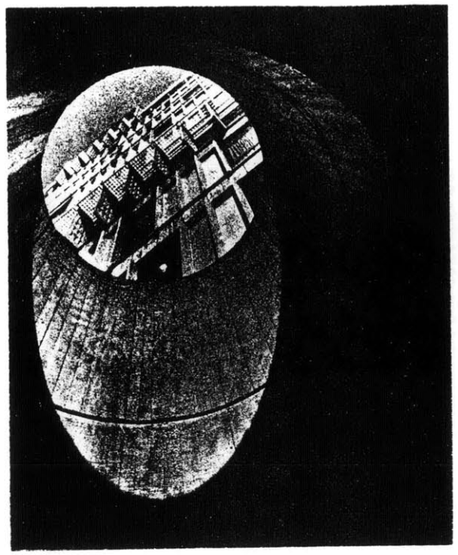




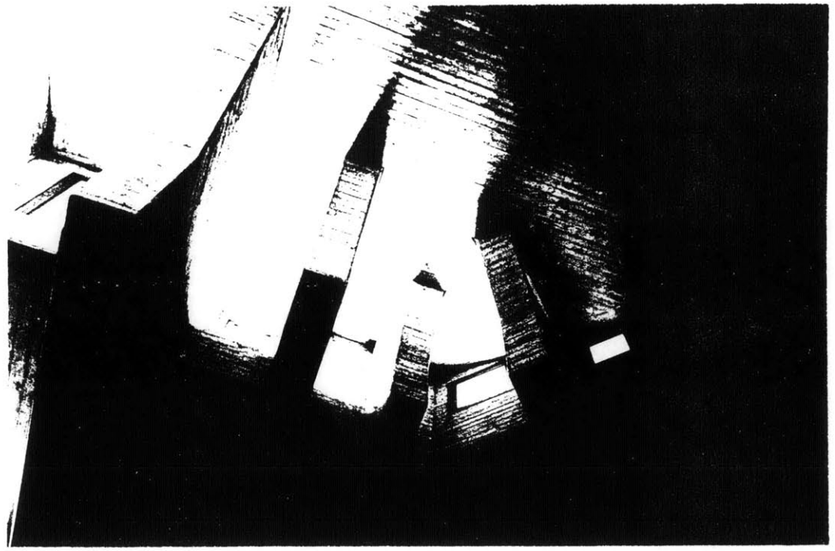




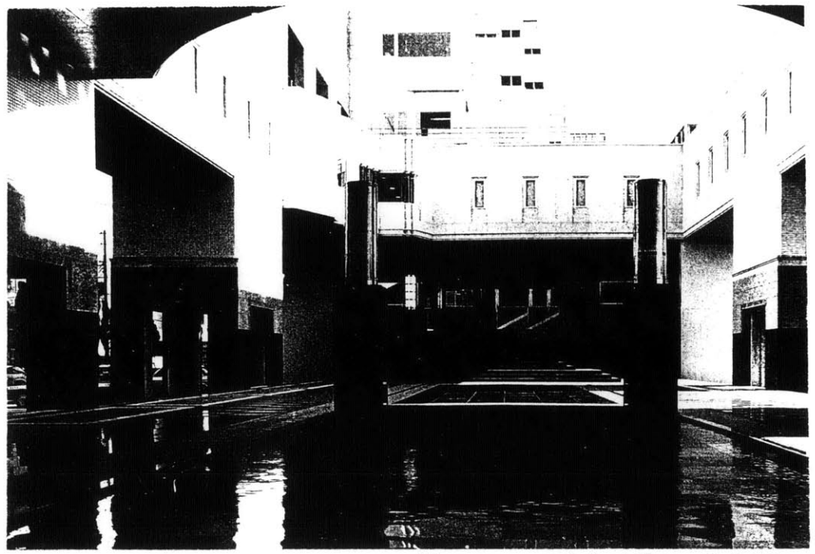
Public stair sketches



Upward views, Holyoke Center, Sert



Church, Walter Forderer



View to promenade level, Yamato Intl. Hdqtrs.

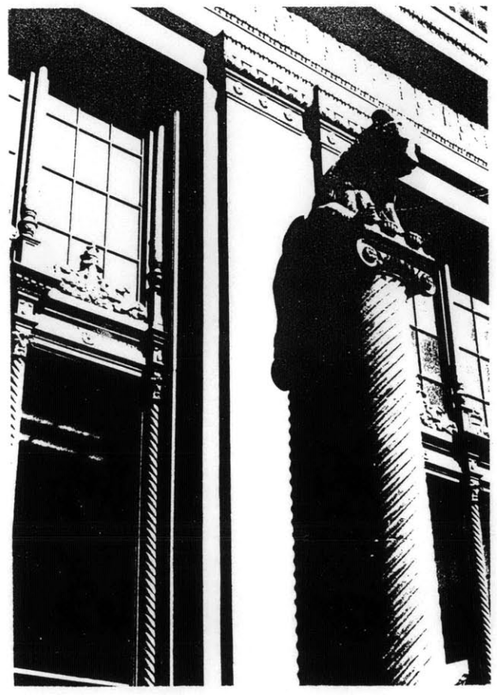
Spatial columns provide light and views to above

" Upwards it striveth to build itself with pillars and stairs, life itself: into far distance it longeth to gaze outwards after blessed beauties- therefore it needeth height."

- Friedrich Nietzsche

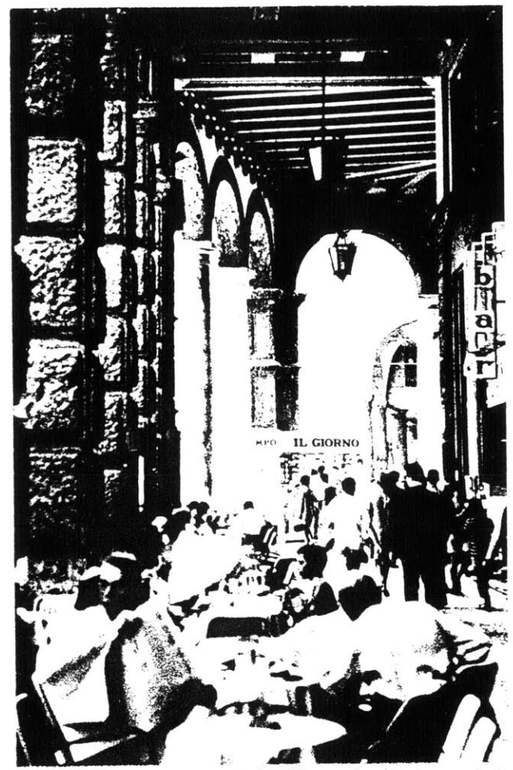
Visual Continuity

Another form of vertical continuity, more virtual than actual, is visual continuity. Upward views enhanced by light draw one's attention upward, sometimes providing views and clues to inhabitations above.



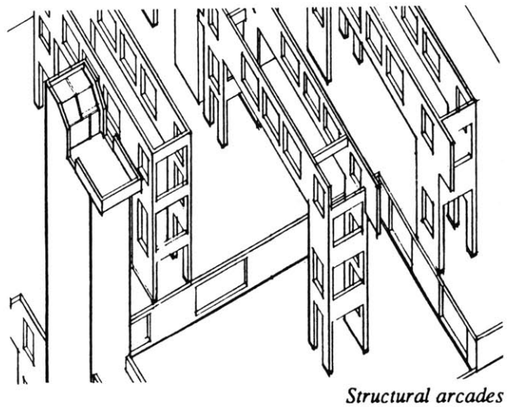
Waterfront at Algiers

City size dimension, arcade, Spain



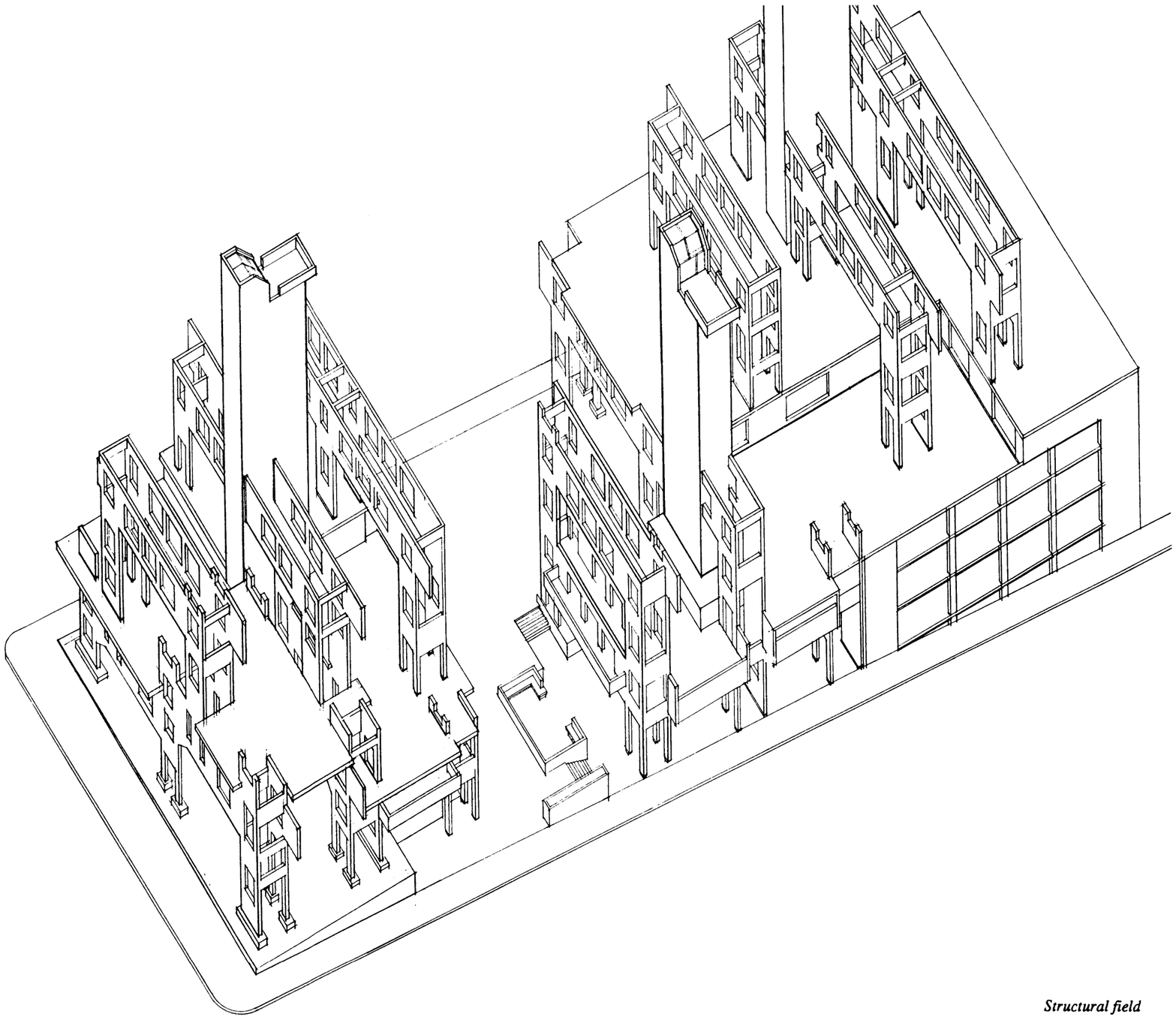
Habitable portico, Bologna, Italy

Arcades: An Urban Size Definition

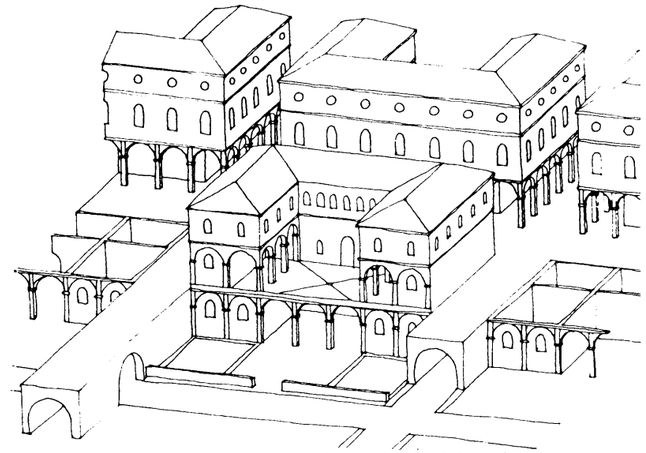


Structural arcades

The Vrendiel truss structure sets up forms that can be inhabited similar to that of arcades. These old world arcades were of a collective dimension, encompassing the lengths of entire blocks and provided either a use or access dimension at the building edge, as well as a transitional space between building and street.



Structural field

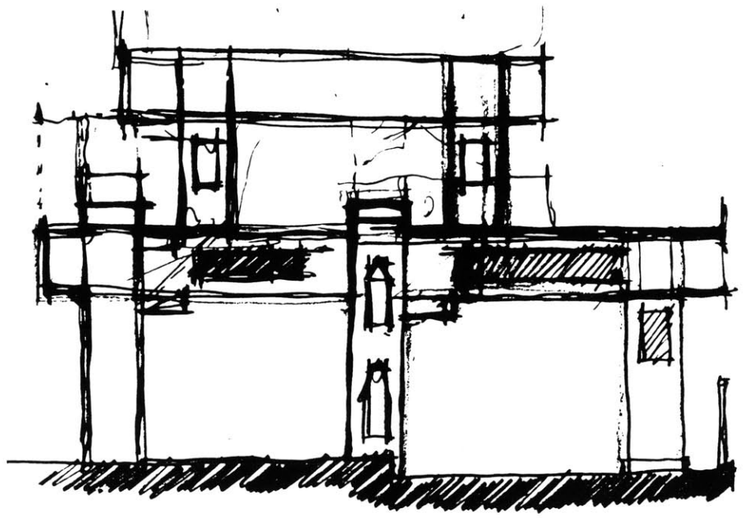


Leonardo Da Vinci's Two level city

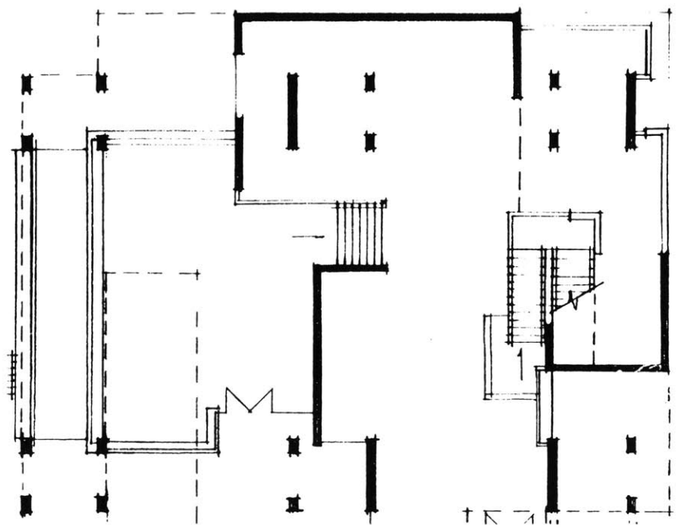
Structural Arcades

The arcades are arranged in the field as structure, and multiplied vertically to become habitable frames supporting reference levels.

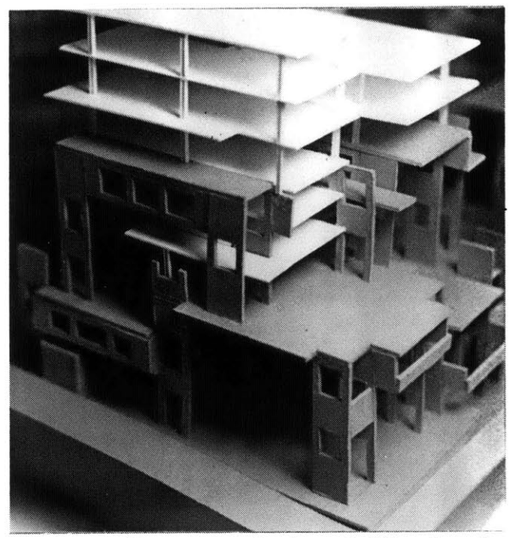
In Da Vinci's conception of a two-level city, the arcades are multiplied, recognizing the fact that the behavior of arcades was a feature desirable at numerous levels of a city.



Structure sketch, Column and habitable structural floor

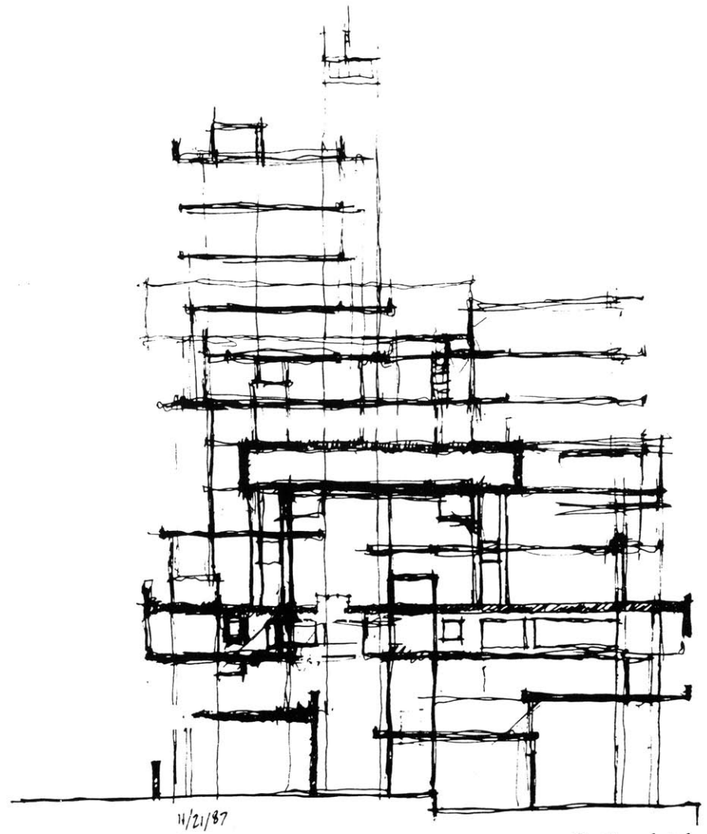


Plan

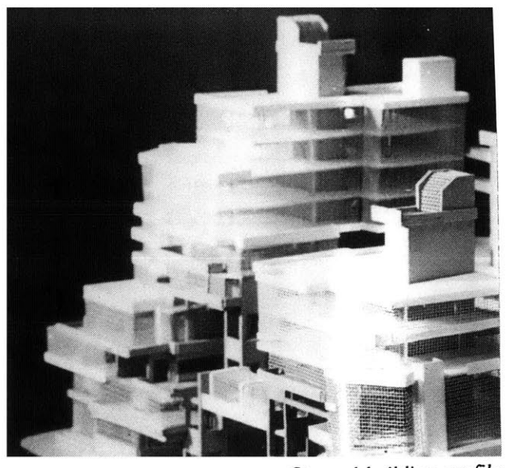


Structure creating larger building dimension

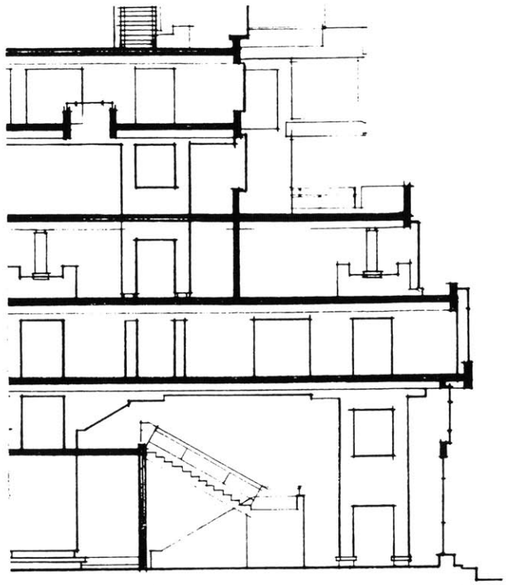
Structure was utilized as an aid in expressing ground to sky continuities by being capable of spanning long distances, both horizontally and vertically, in order to carry large portions of the building at a time or cover large outdoor territories. The use of concrete Vrendiel trusses sets up habitable structural floors which carry floors above while spanning over open public territory. The large spatial columns rise three floors to establish volumetric zones where floors can be more optional, allowing for openings which increase a sense of vertical continuity.



Section sketch



Stepped building profile

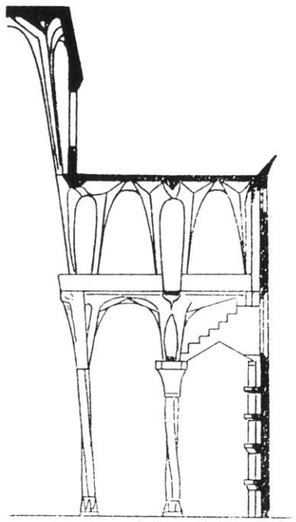


Column displacement establishing setbacks

"The only way the integrity of the street can be preserved in the city of towers is by making clear transitions from high to low elements. In essence two separate building types are needed within one envelope- a low type that responds to the street-level public realm and a high-rise level that steps back to accommodate private needs above the city."

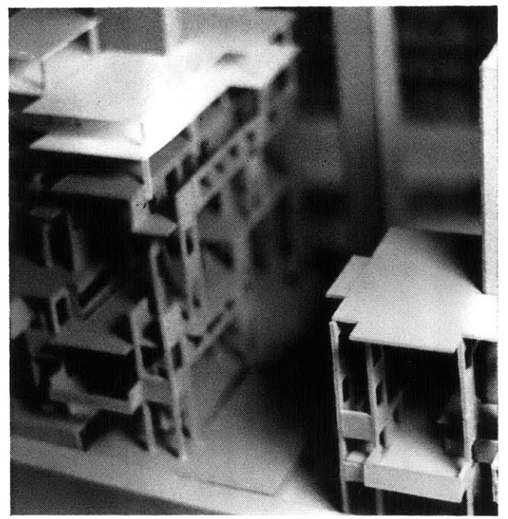
R.Trancik
-Finding Lost Space

To begin to establish setbacks at both edges, the second level of trusses is displaced along the beam line, which starts to establish vertical zones defined by structure. These zones would be either inhabited with floors or left open as public space, thereby building vertical sizes.

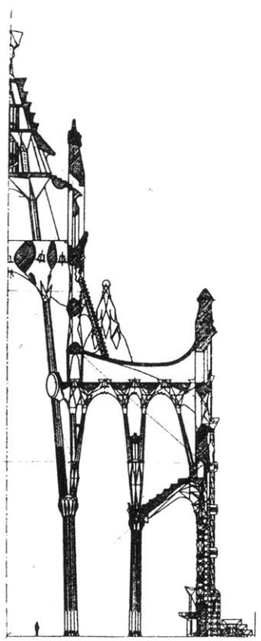


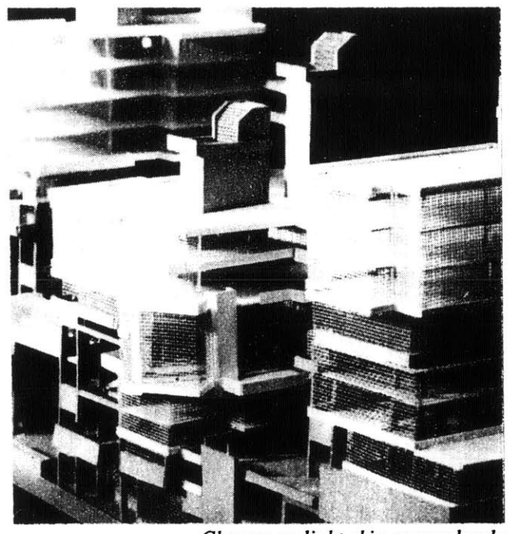
Structural sections, Antonio Gaudi

Antonio Gaudi



Heavy ground structure

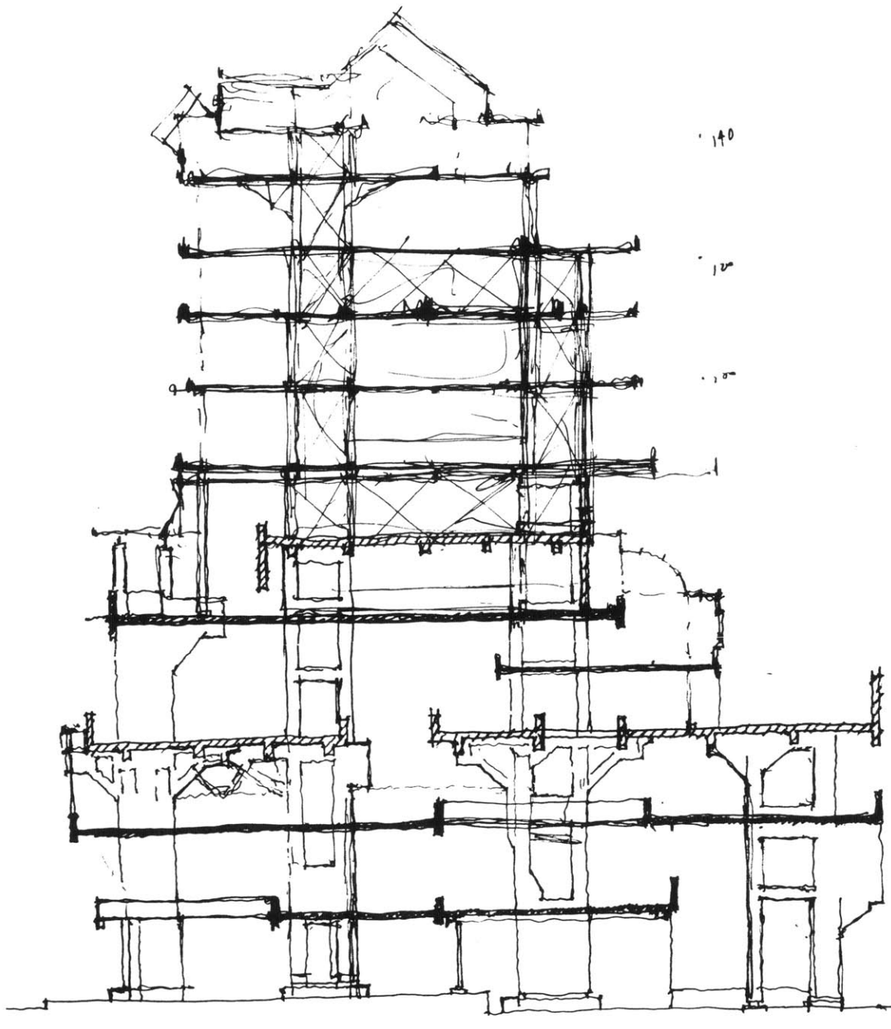




Closure as light skin, upper levels

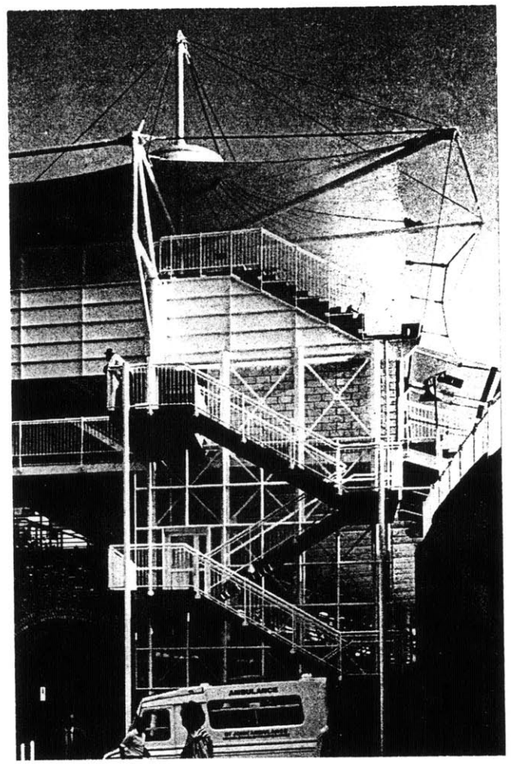
Ground and Sky: Heavy and light

The heavy concrete structure by its nature feels more ground rooted and based, and combined with closure elements could define territories with strong ground or earth-based associative qualities. The structure of the upper levels becomes more columnar, lighter in effect, when supporting housing levels; and its closure would take on qualities of being a wrapped skin rather than the infill elements between heavy structural forms below.

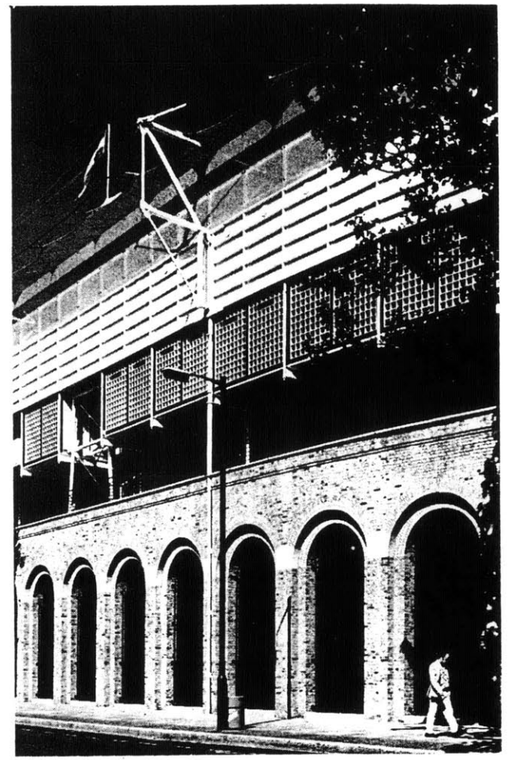


section sketch 10/26/87
West Portion

Structure sketch, heavy and light structure

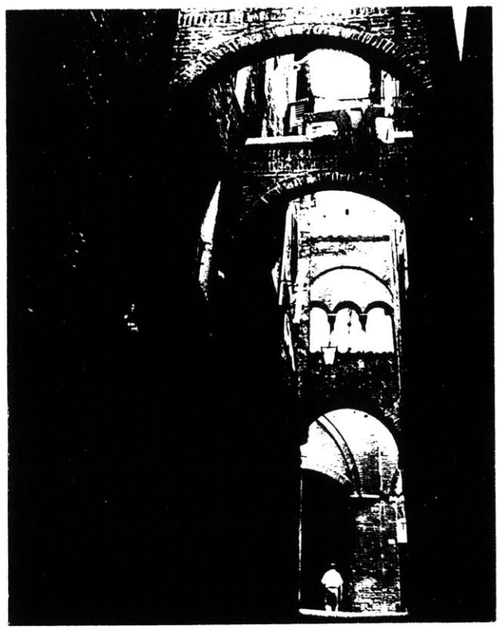


Heavy and light forms



Reviewing stand, St. John's Wood

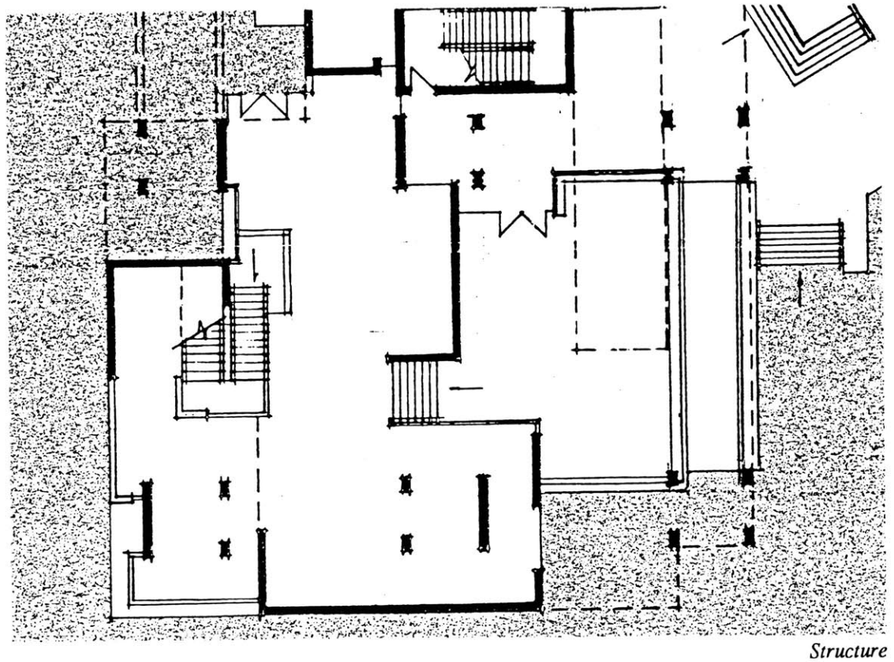
A mixture of heavy ground structure combined with lighter elements above can be seen in the renovation/addition in the St. John's Wood reviewing stand, where ground and sky associations become evident due to their differing nature of materials, forms, and construction.



Siena

Verona

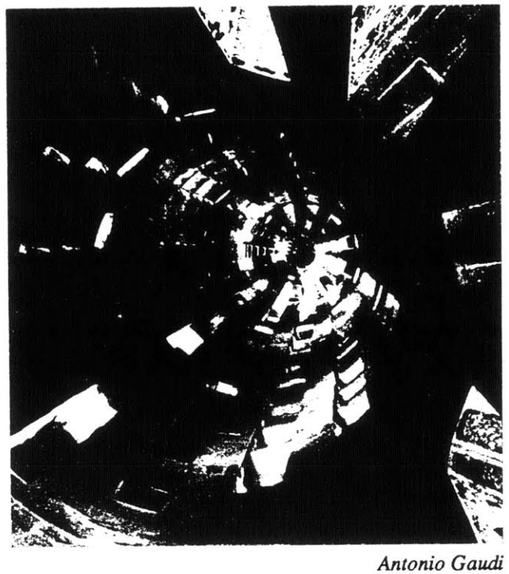
Matera, Italy



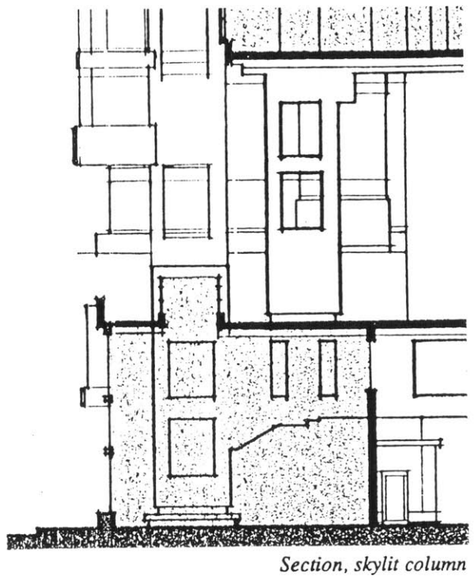
Structure

Structure and Public Access

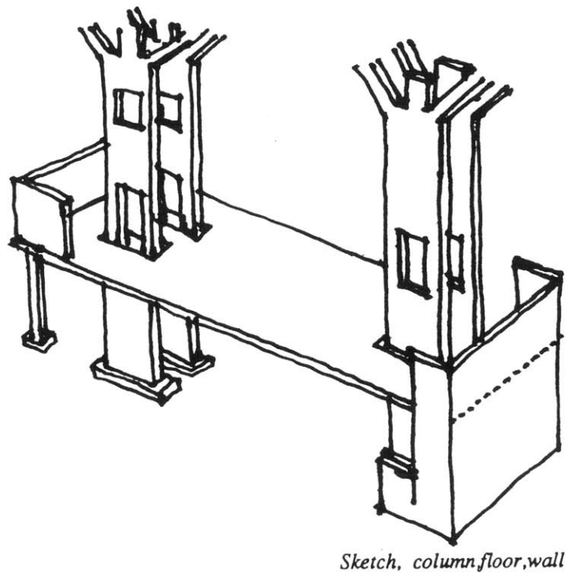
Structure can become habitable and define the form of public access, providing a rhythm of form and light to movement.



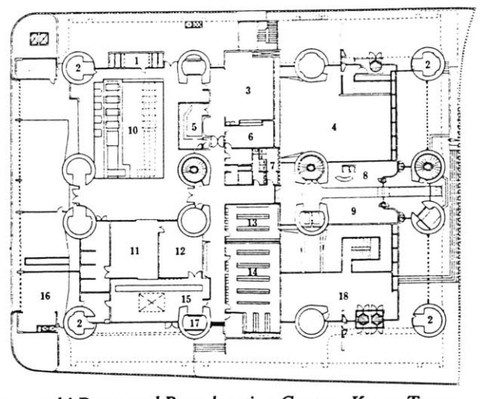
Antonio Gaudi



Section, skylit column



Sketch, column,floor,wall



Yamanashi Press and Broadcasting Center, Kenzo Tange

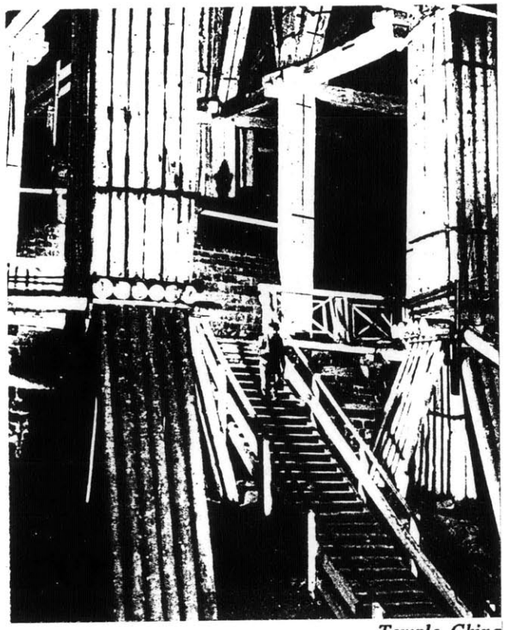
Spatial Columns

Columns can be spatial, allowing them to become habitable similar to that of the truss beams, or by leaving them open, they act as lightwells to build vertical continuities. Tange employs spatial columnar elements in his Yamanashi Press and Broadcasting Center but inhabits them many times with duct space or fire stairs.

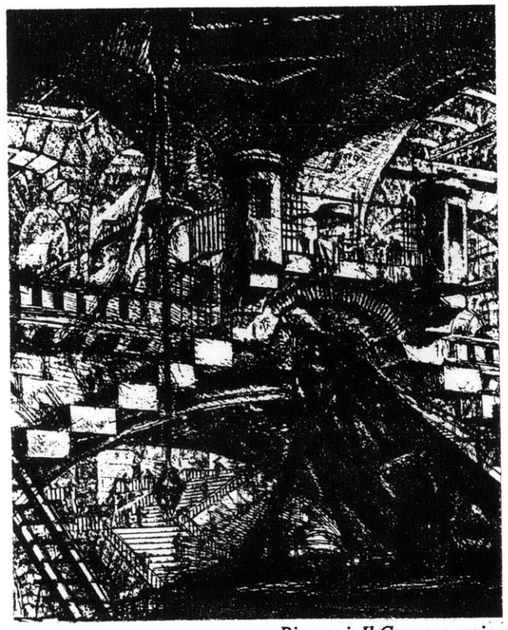
" What is building without intimate relationship to the ground it stands upon and the inhabitants who occupy it ?"

-Frank Lloyd Wright

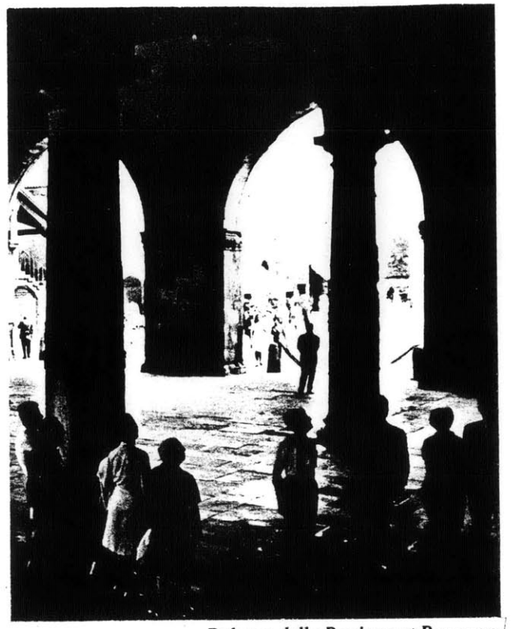
Ground Forms



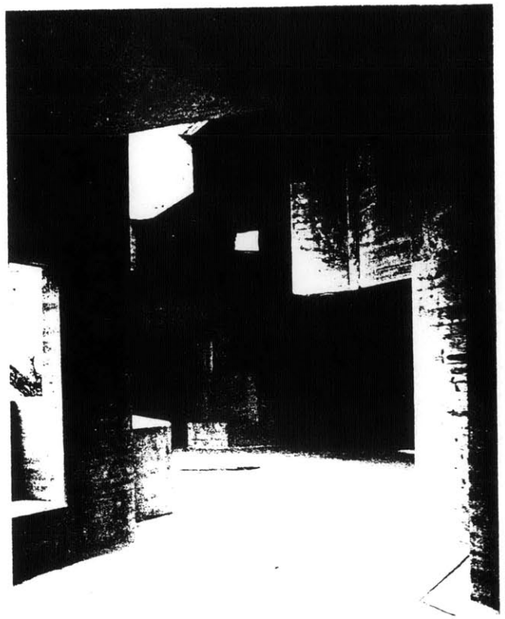
Temple, China



Piranesi, Il Carcere series



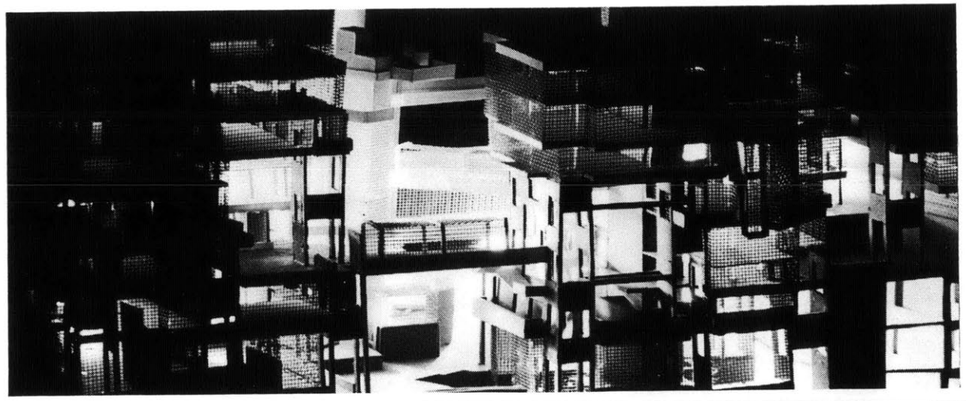
Palazzo della Ragione at Bergamo

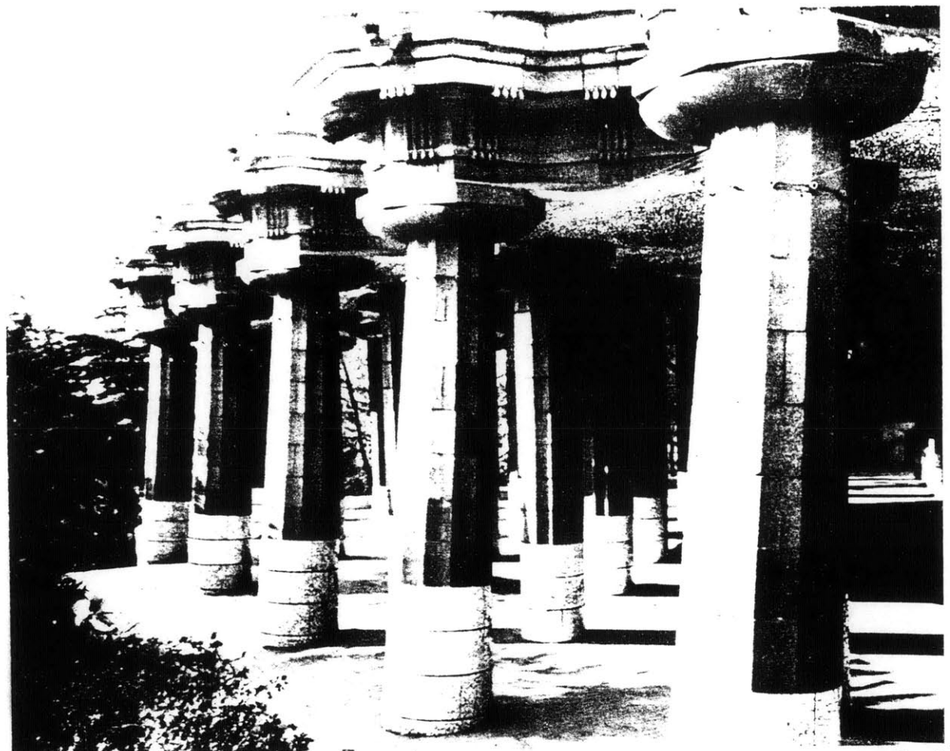


St. Nicolas Church, Walter Forderer

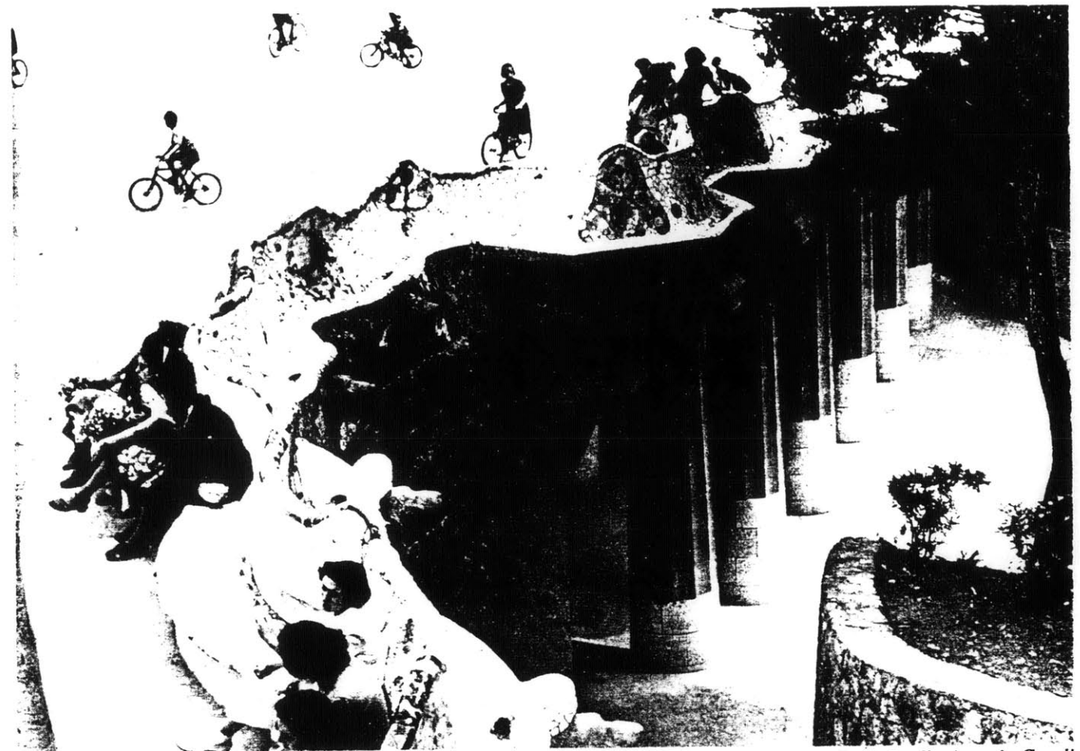
Certain forms and materials have very strong ground association and seem to be a part of and rise directly up from the earth.

Other forms enclose volumes that define a zone or territory nearest the earth, which one moves through in an ascension upward. The first reference level was intended to enclose a volume of floors which lent themselves to qualities of heaviness and solidity, with light entering through openings in walls and structure.

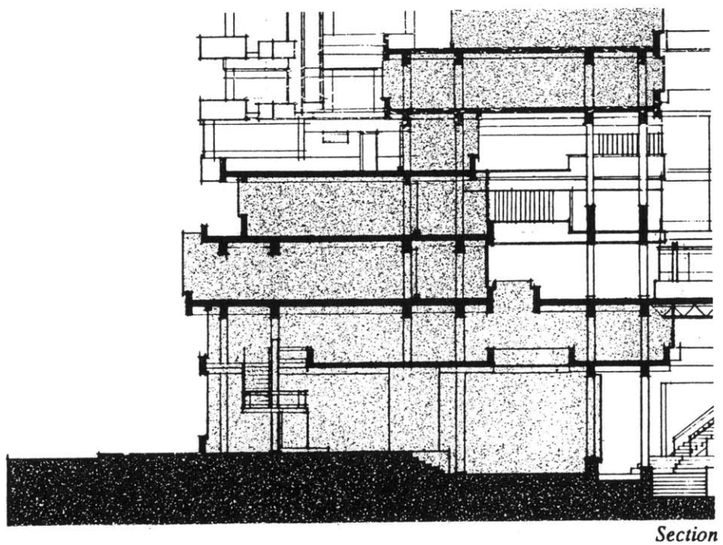




Gaudi

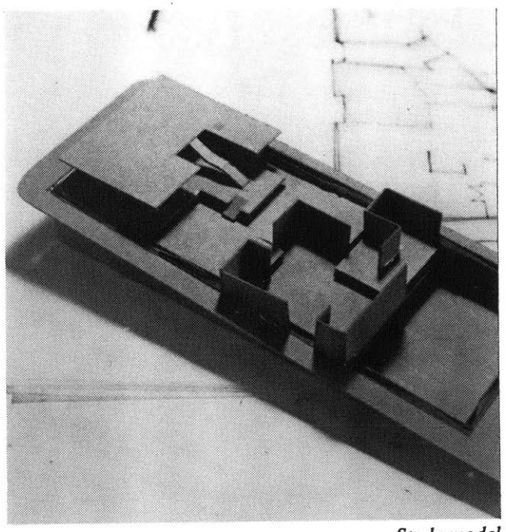


Park Guell, Antonio Gaudi

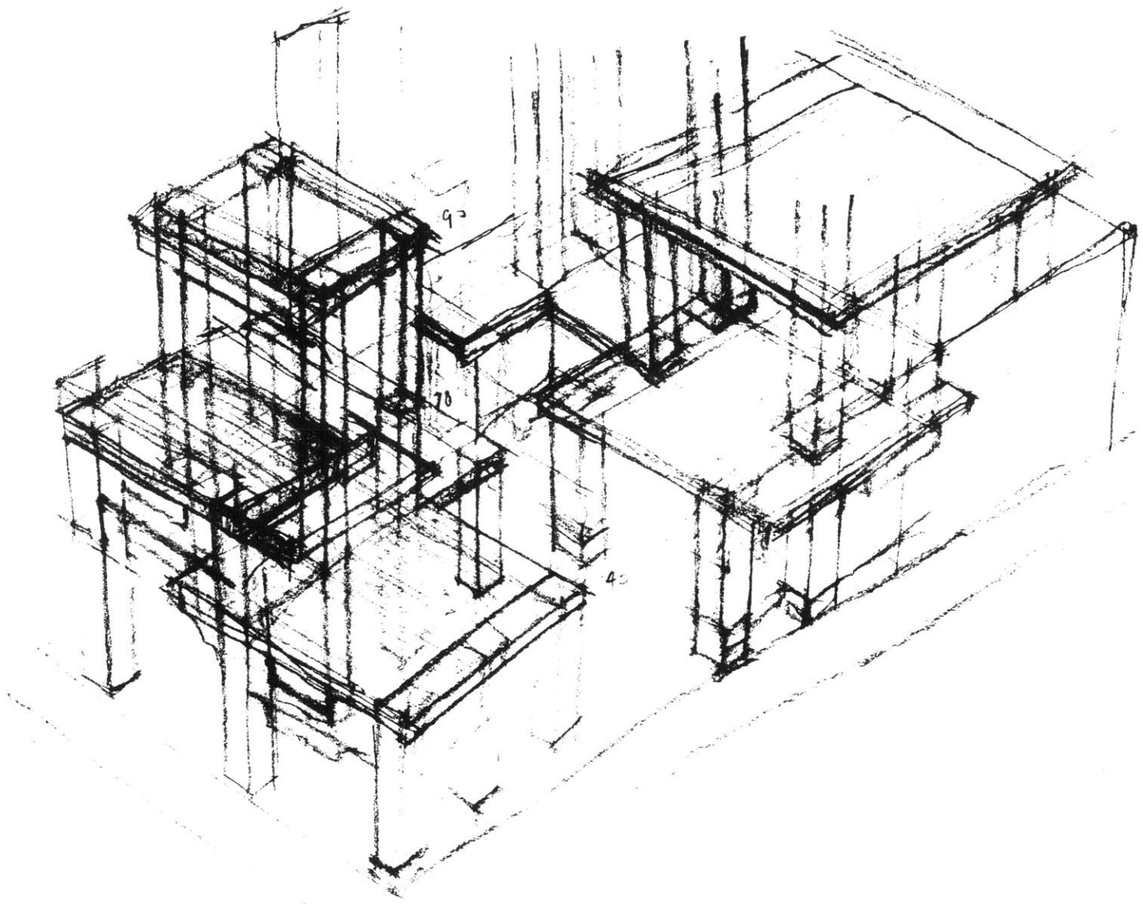


Section

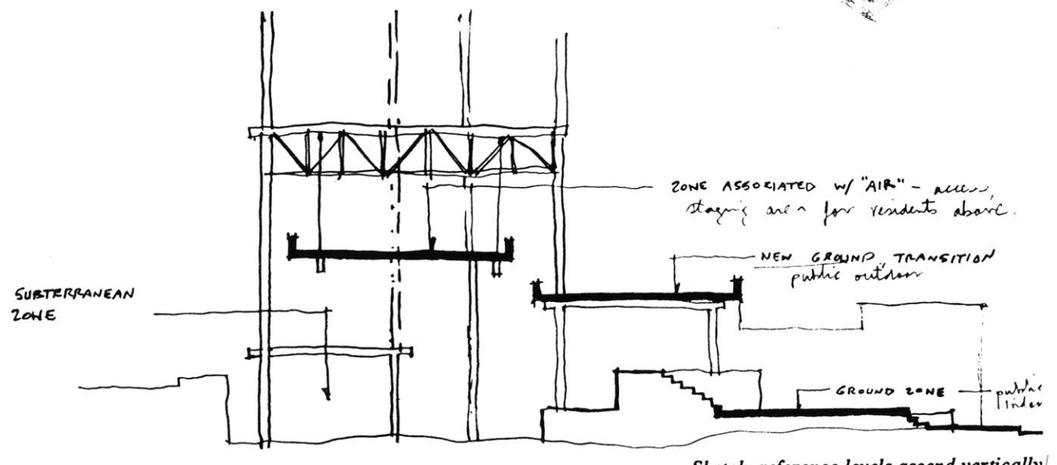
Gaudi's structure in the Park Guell defines a covered zone below a public reference plane.



Study model

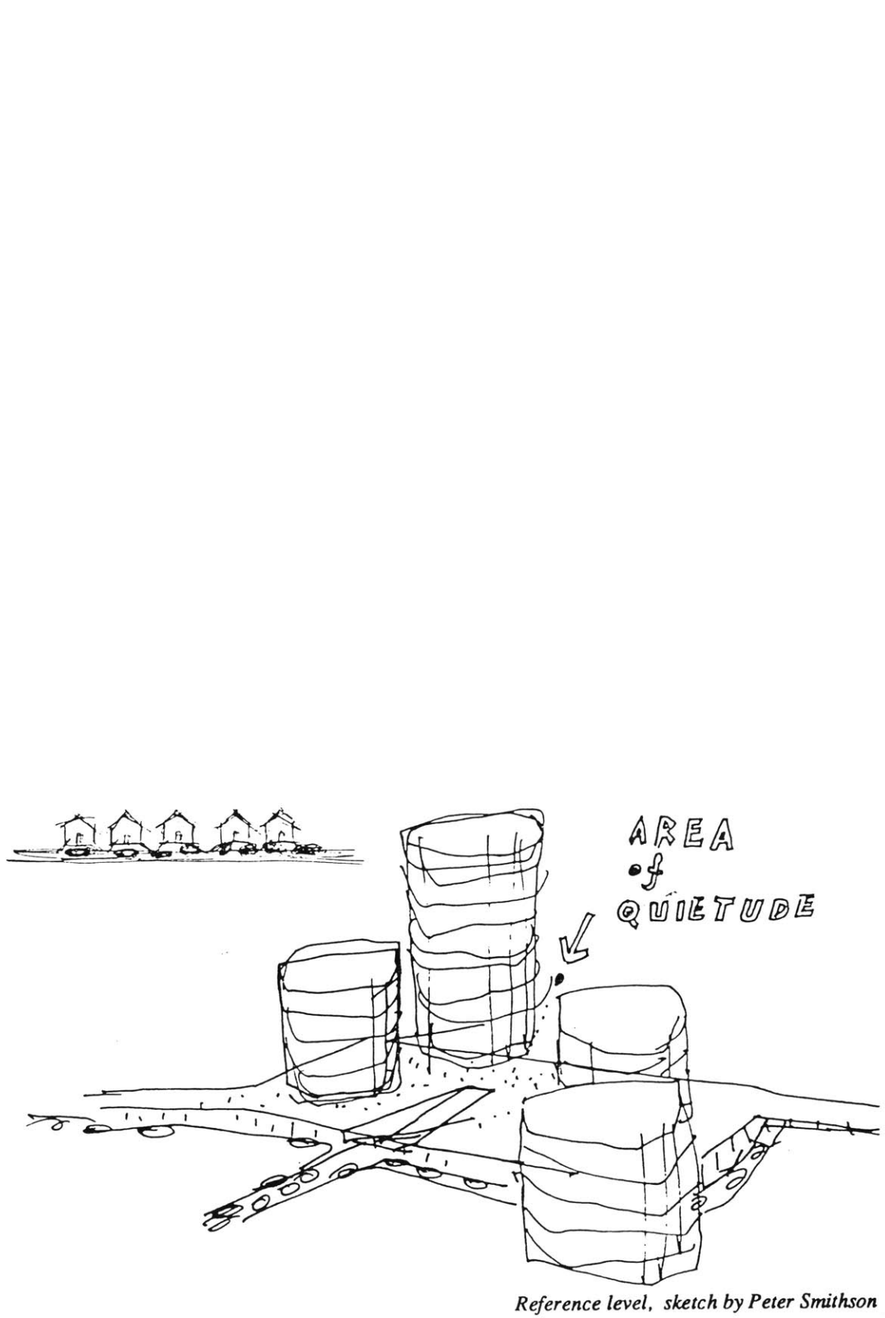


Axonometrics, Sketch of reference levels

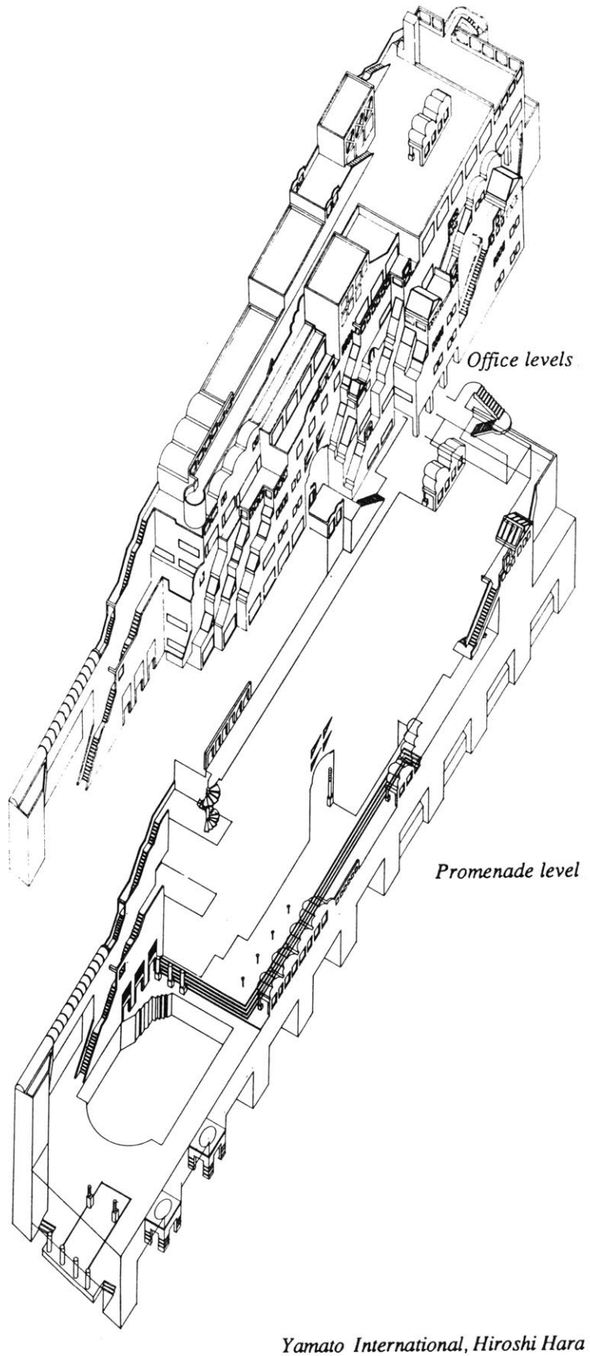


Sketch, reference levels ascend vertically

Reference levels can aid in establishing vertical continuity by easing the passage of ground to sky, providing visual and physical connections within the vertical organizations.



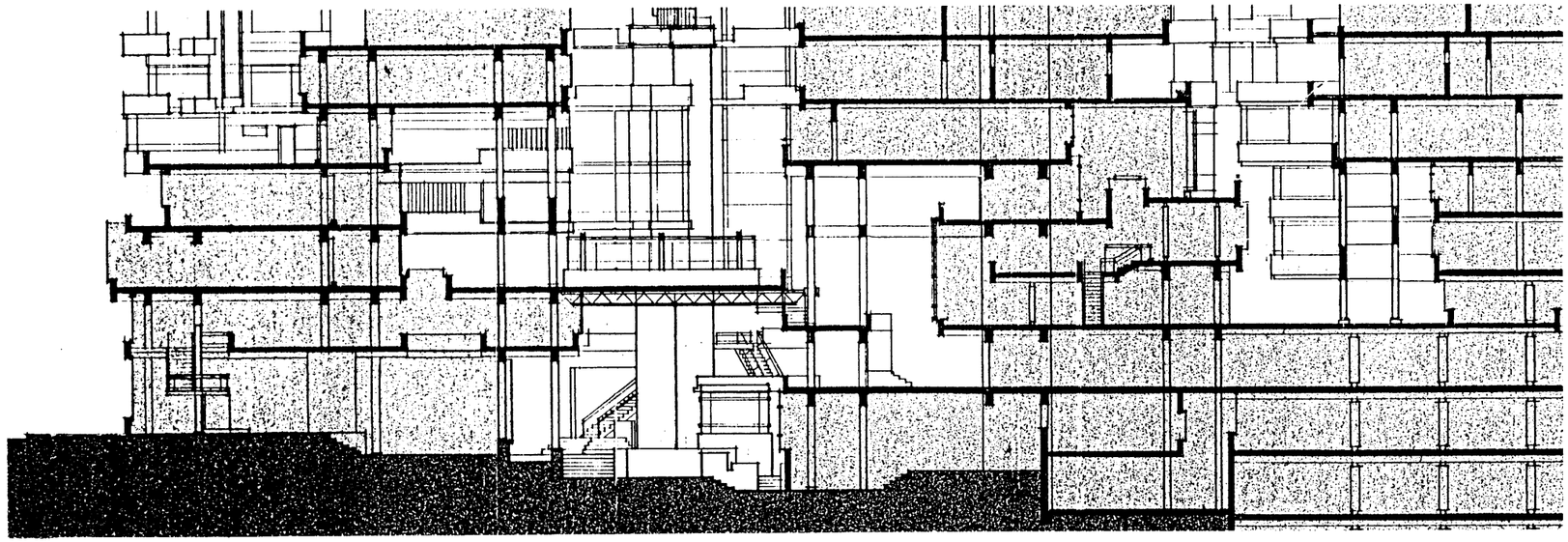
Reference level, sketch by Peter Smithson



Yamato International, Hiroshi Hara

Yamato International *View of promenade level*

In the Yamato International Headquarters, by Hiroshi Hara, a promenade level provides an intermediary horizontal definition between the ground level and offices above.



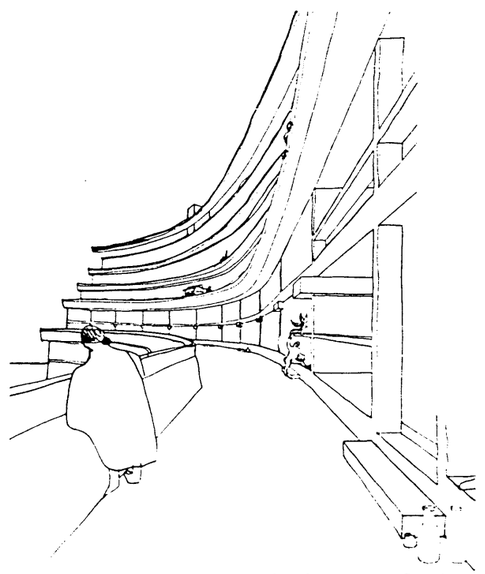
View of public reference level

The reference levels can act as points of orientation or association. Collective zones providing points of public access to or from privacies, they provide outdoor space for several adjacent floors of residences, thus establishing a variety of overall building sizes.

" But is Vertical City, in fact, the most desirable human habitat? Is it worth fighting for? Is it even a desirable alternative to low-rise living, or to suburban sprawl?

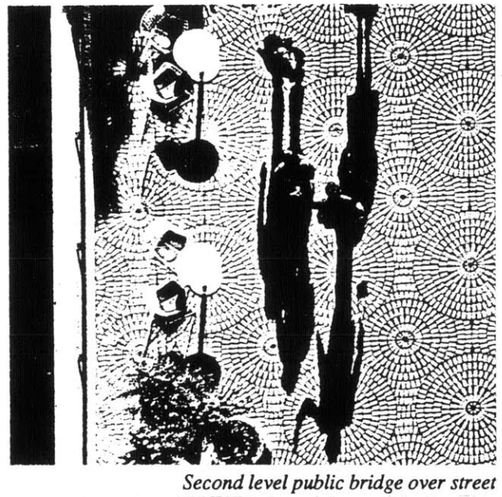
The answer quite clearly is no. In the Vertical City, the sidewalk is replaced by the elevator. The sidewalk, a place of conversation and confrontation, is replaced by a capsule, a mute place enlivened occasionally by piped-in jukebox melodies."

-Peter Blake



Sidewalks in the sky, Peter Smithson

Aqueduct at Perugia



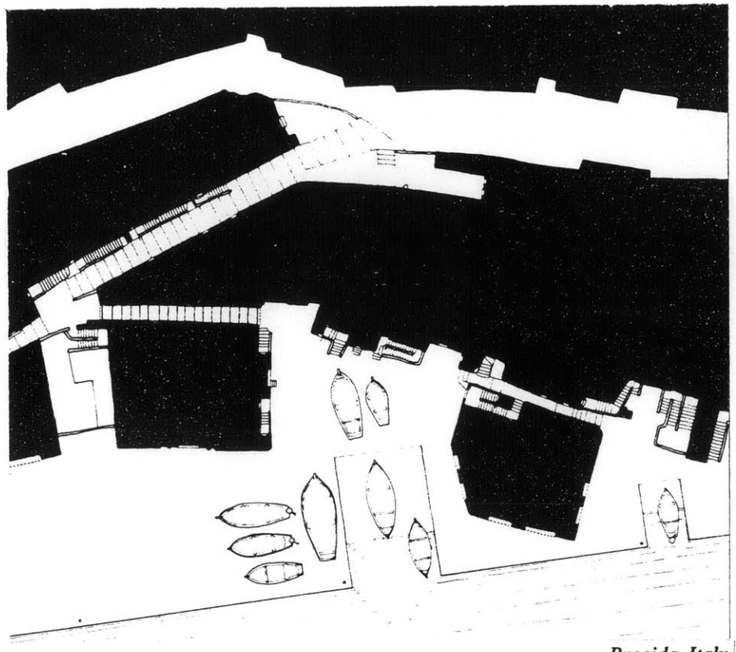
Second level public bridge over street
Embarcadero Center, San Francisco, John Portman

Via Degli Asini, Brisighella, Italy

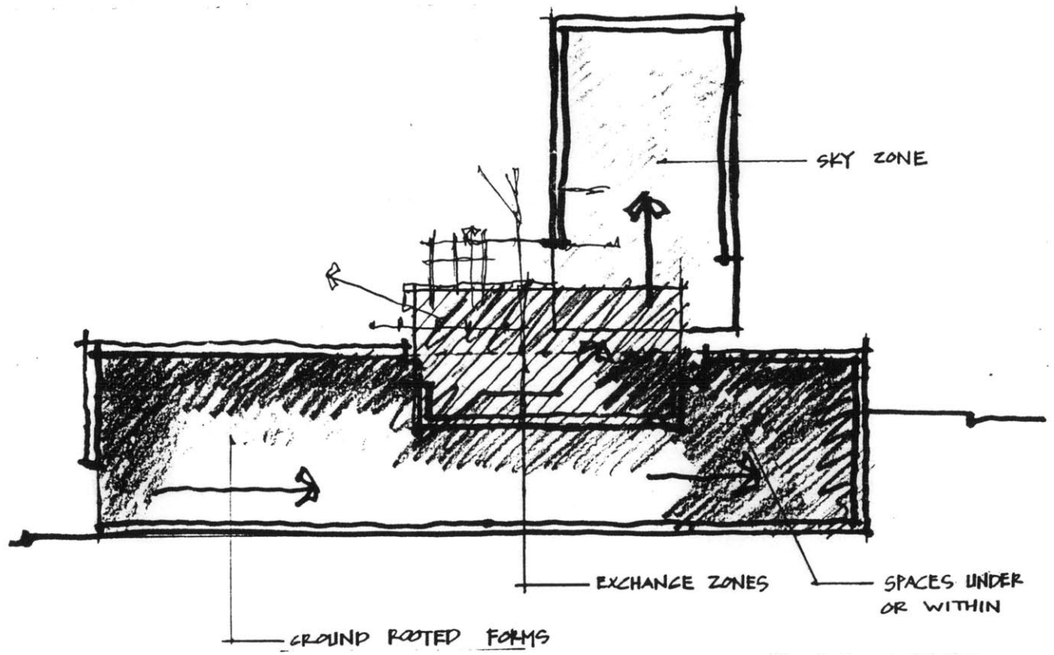
Exterior view

Public Continuities

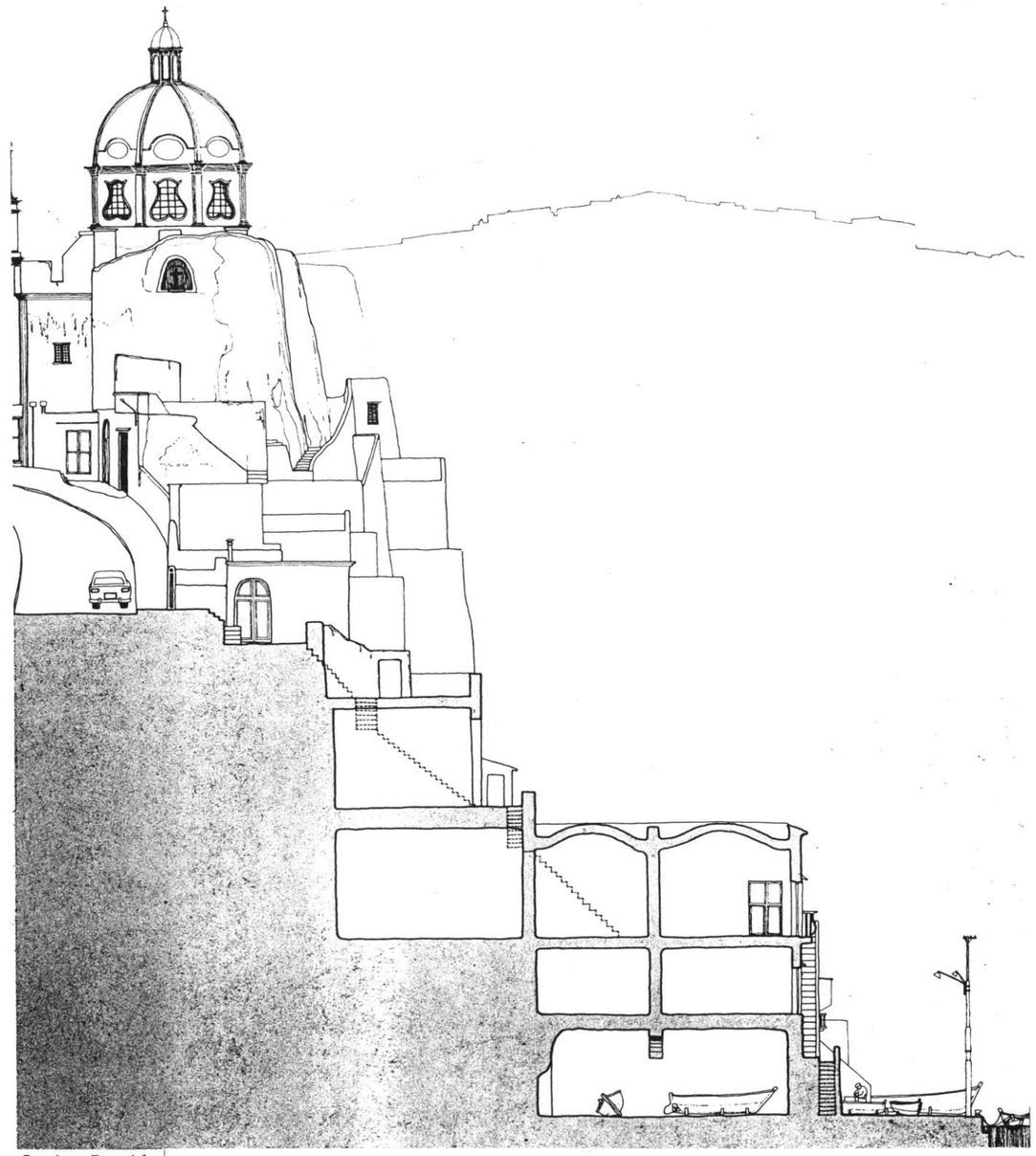
An example of an elevated old world public continuity can be seen in the Via Degli Asini in Brisighella, Italy, where a second storey public street serving residences above is placed on top of ground level merchant space, becoming part of the building volume.



Procida, Italy

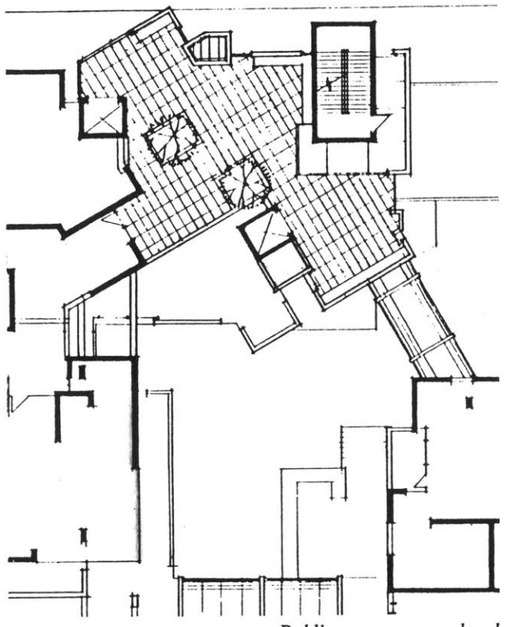


Sketch of vertical building zones

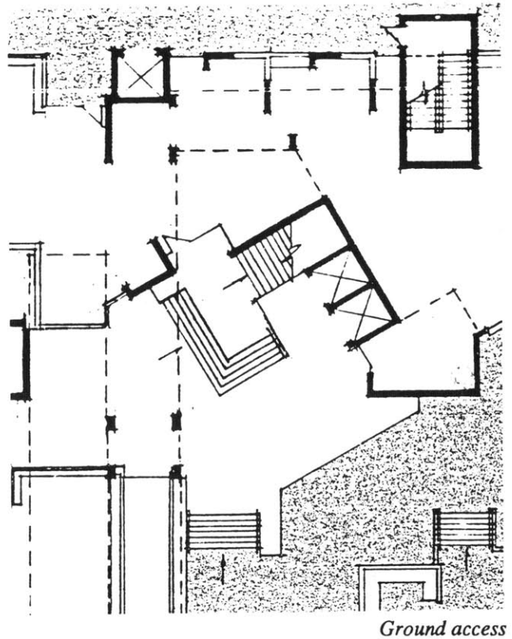


Section, Procida

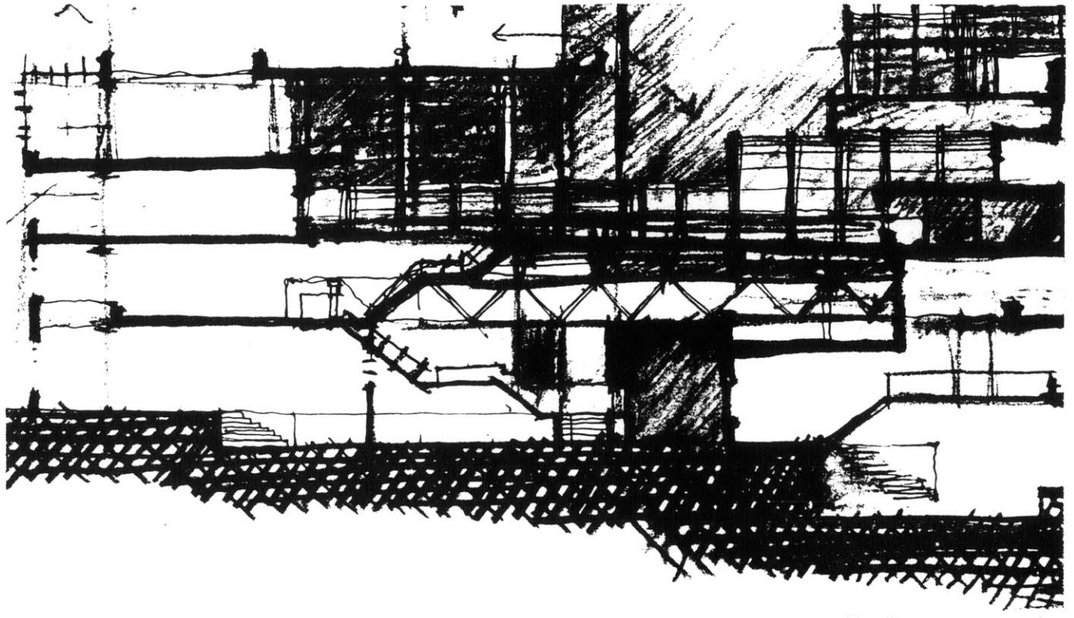
In Procida, a stairway passes amongst privacies linking two public continuities: the water-front and village street.



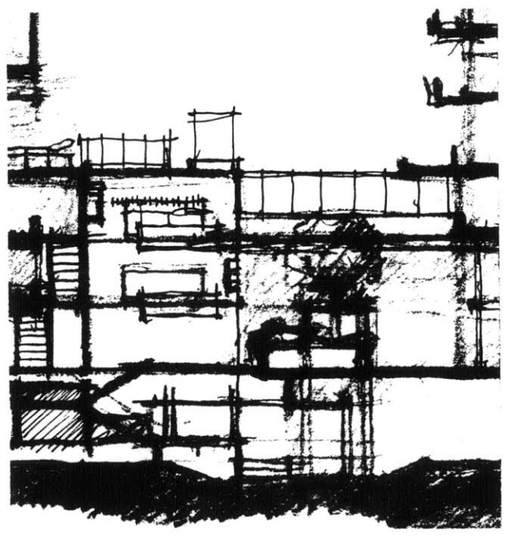
Public access, upper level



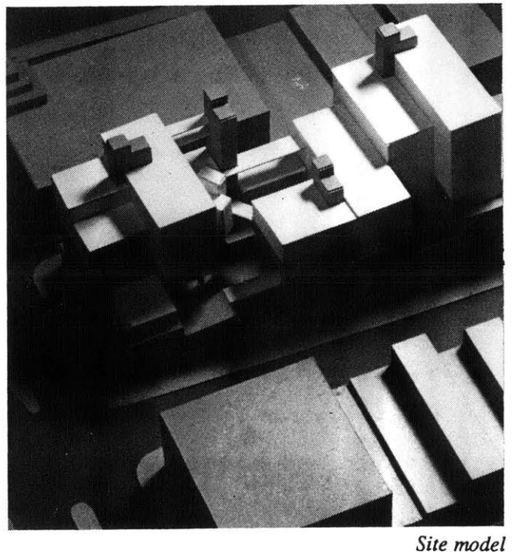
Ground access



Sketch, access connections



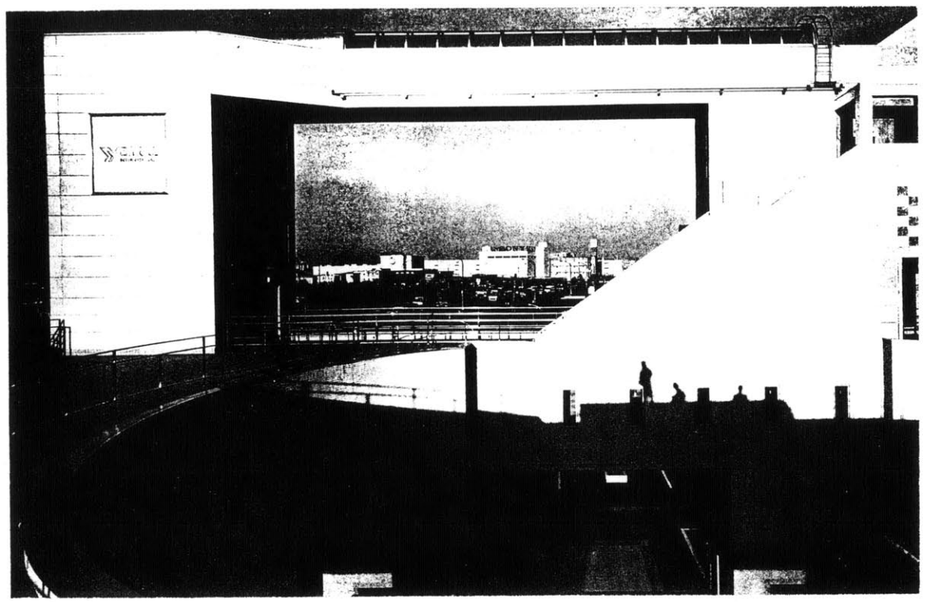
Sketch



Site model

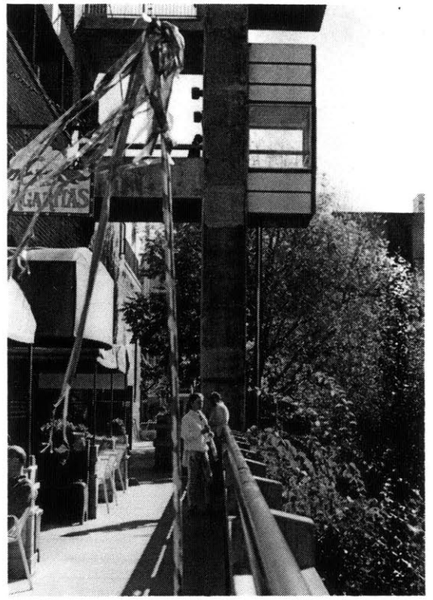
Reference Levels as Public Continuities

To serve as a link between the west and east portion of the project, access, privacies, and public collective space combine within several floors to form a volume with access junctions in various directions. Public access to office space and residences is placed above ground floor retail and reached by the staircase in the plaza.

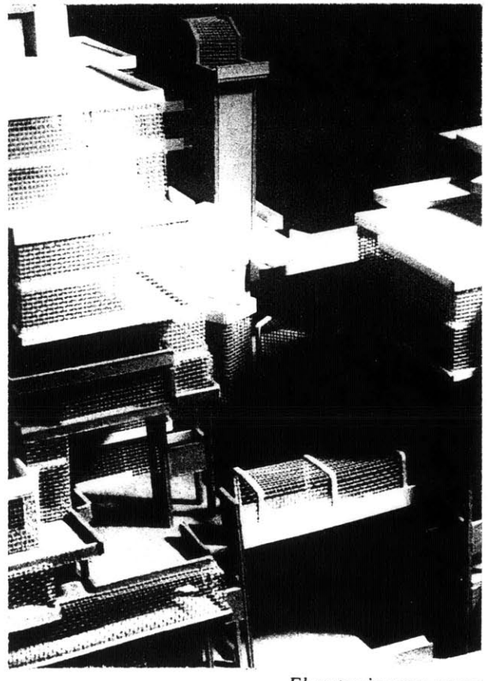


Elevator, Yamato Intl. Hdqtrs.

The Cannery



Elevator access, The Cannery, San Francisco
Joseph Esherick

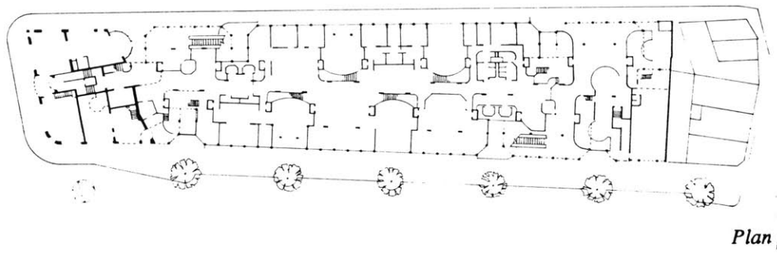


Elevator in open space

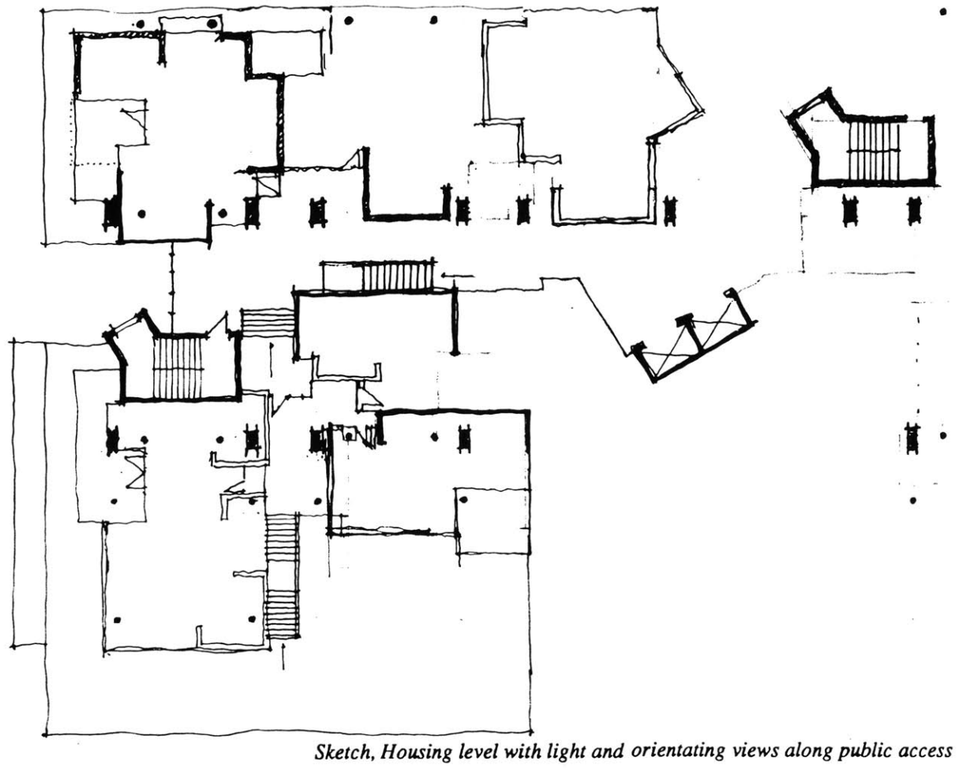
Elevator Access

Elevator access can become a more celebratory experience; by pulling the elevator shaft out of the center of the building and allowing it to stand free, elevator travel can be enhanced with the possibility of light, views, and open air.

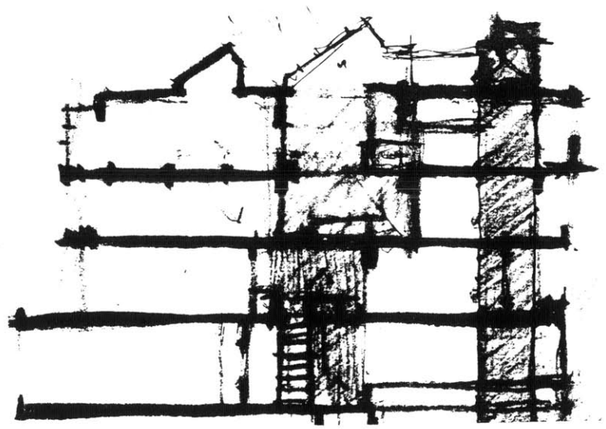
Corridor, Theo Bosch



Plan



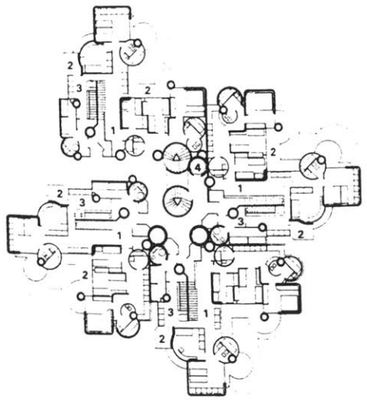
Sketch, Housing level with light and orientating views along public access



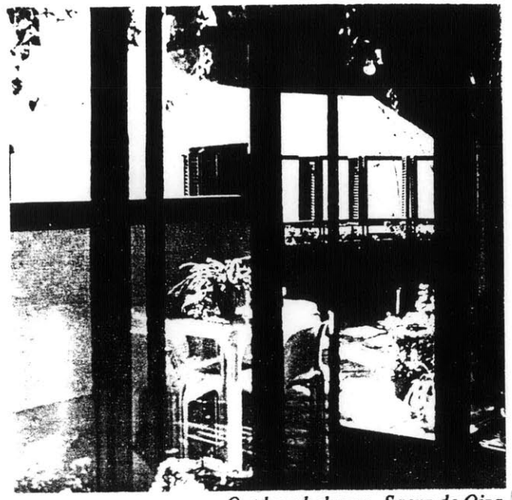
Sketch, moving vertically towards the light

Access and Light

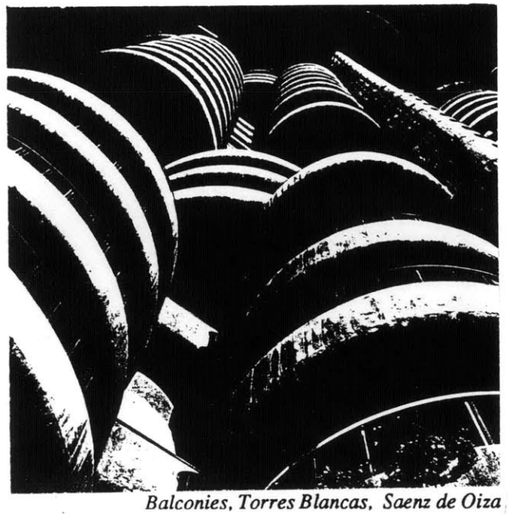
The experience of movement along housing level corridors can be heightened by providing natural light and view to the surrounding city. Light could also provide an access goal when one moves vertically to upper housing levels.



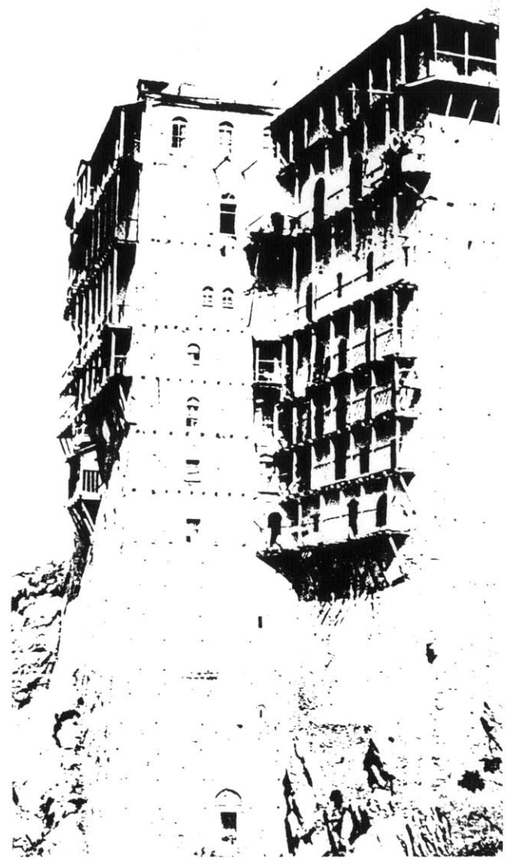
Plan



Outdoor balcony, Saenz de Oiza

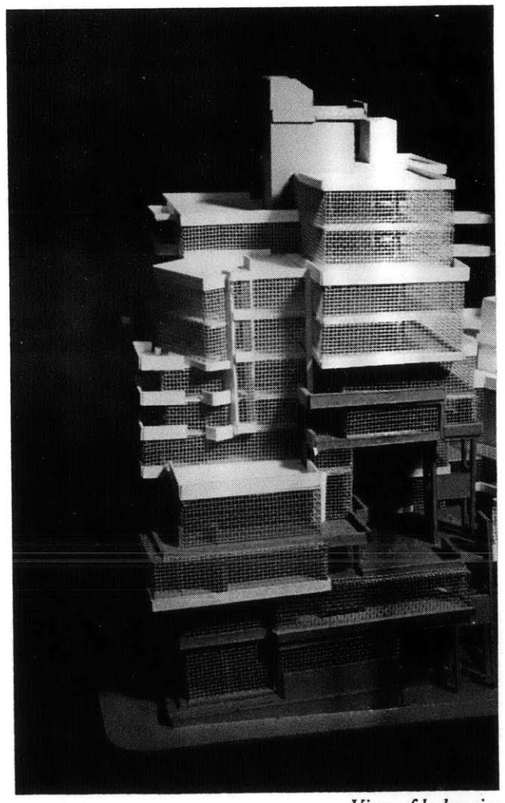


Balconies, Torres Blancas, Saenz de Oiza



Balconies, Mt. Athos

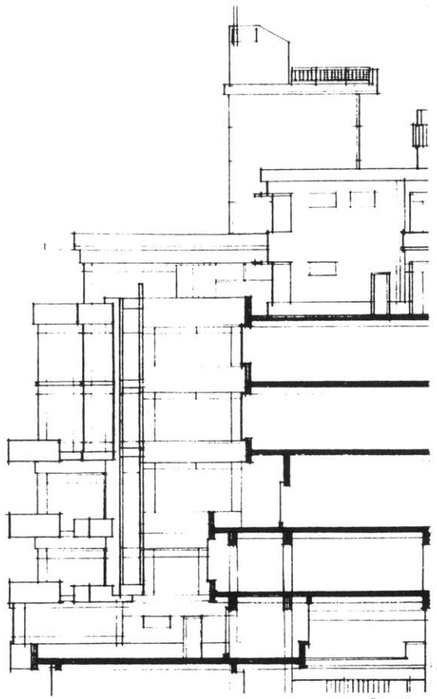
Private balconies, housing, Herman Hertzberger



View of balconies

Private outdoor space

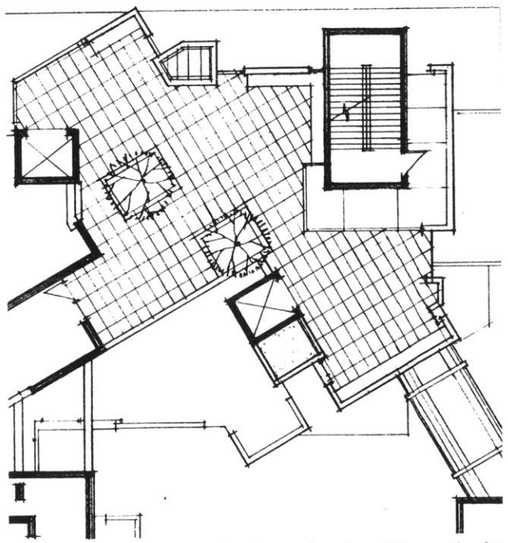
When one lives high in the air, immediate ground access is sacrificed and must be replicated in some manner in the sky. Therefore, private outdoor balconies or terraces become crucial as displaced private landscape and provide sensory contact with the elements.



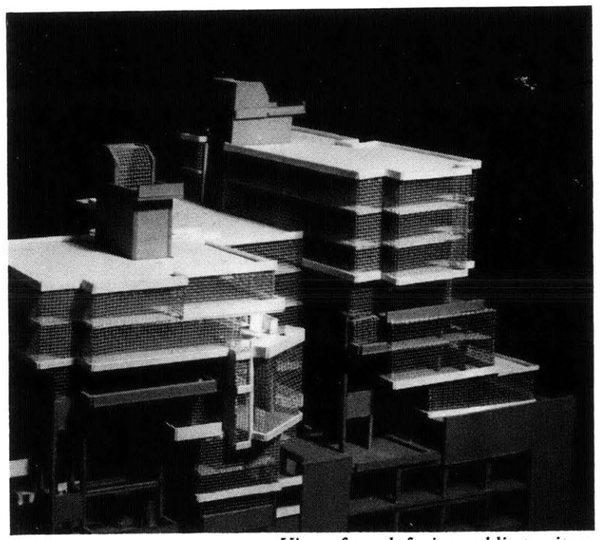
Section

Axonometric showing public and private outdoor space

Berlin housing, Herman Hertzberger



Plan, upper level public continuity

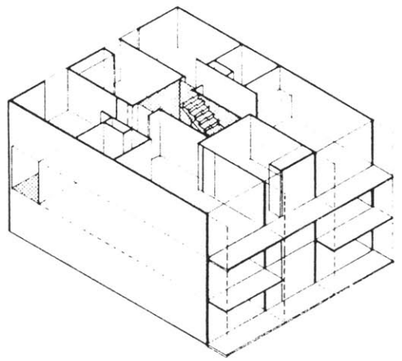


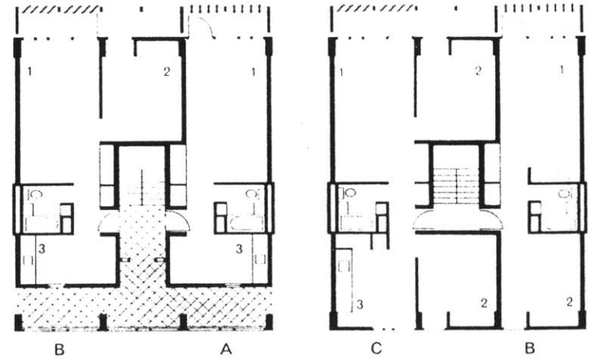
View of south-facing public territory

Collective outdoor space

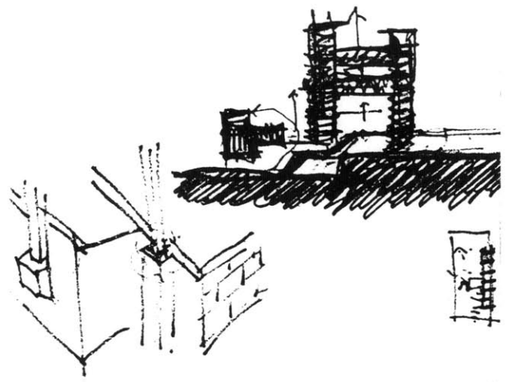
In addition to private outdoor space, multi-family housing organizations should have large public spaces which unite the individual elements into a larger urban whole and provide a collective focus for residents. Hertzberger provides both types of outdoor space, public and private, in his Berlin housing project.

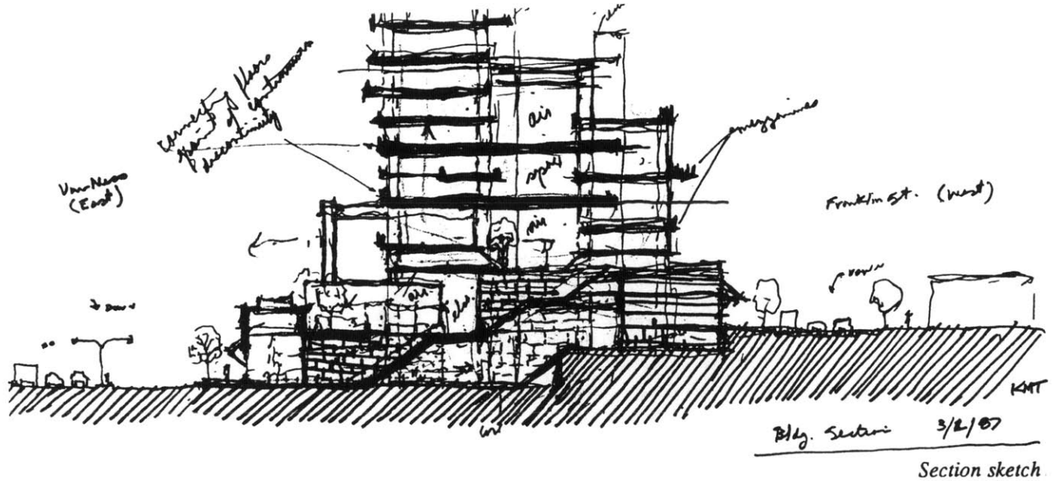
Peabody Terrace, Sert



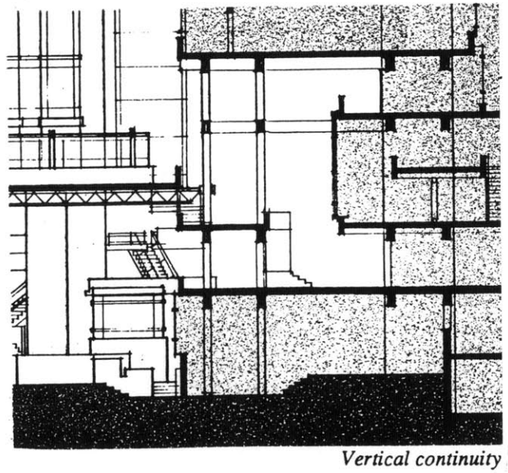


Peabody Terrace, Unit plans and axonometric



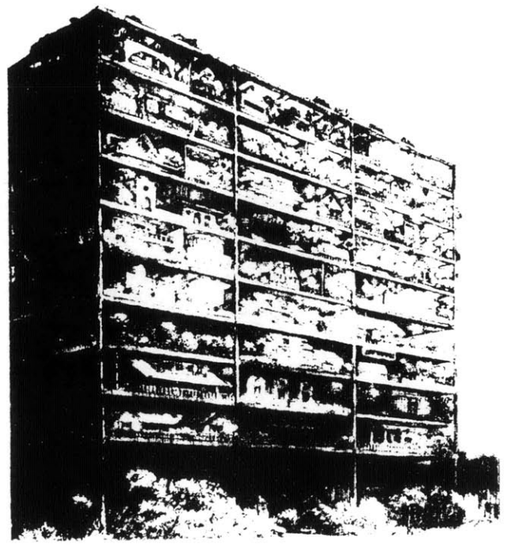


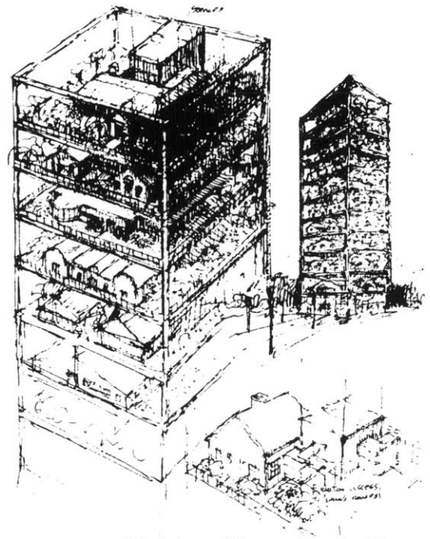
Section sketch



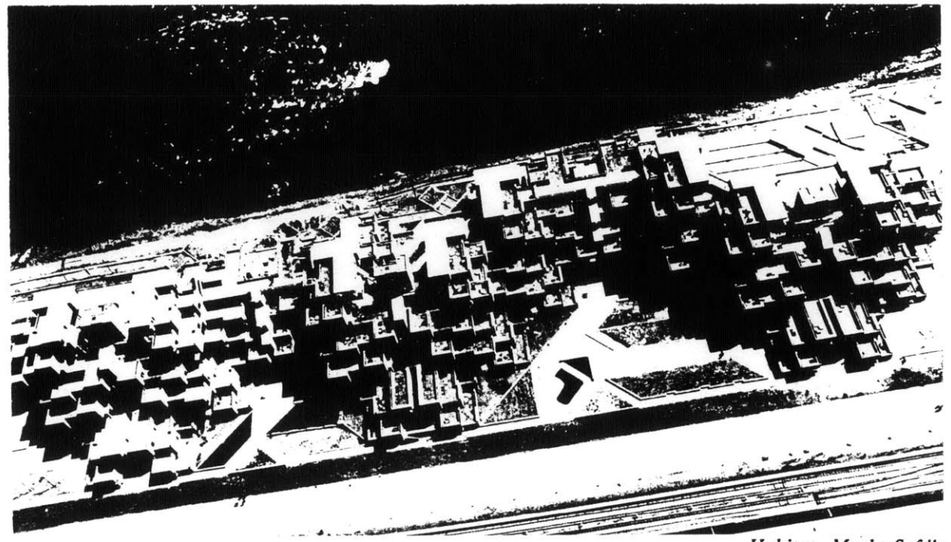
Vertical continuity

Sert employs a method of two levels of housing served by a single access corridor and vertical stairs in his Peabody Terrace student housing project. This breaks from the usual repetitive stacking of floors and allows for elimination of the access corridor at every other floor, building greater vertical continuity between floors.





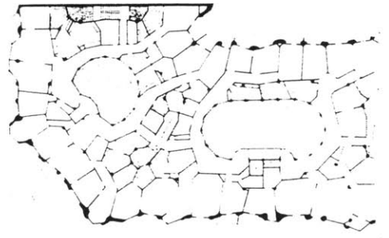
Highrise of Homes, Site Architects



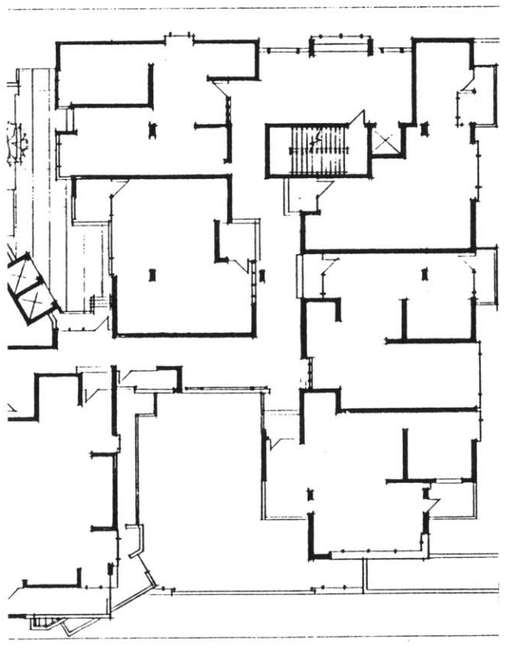
Habitat, Moshe Safdie

" Any building that boasts an irregular exterior wall, with projections and indentations that might cast interesting shadows (and Disperse high-velocity up and downdrafts), may generate as much as 8 to 10 percent less in rentable floor area than a building with a sheer, smooth skin that projects blandness and boredom to the outside world (and helps generate fierce mini-tornadoes at sidewalk level)."

-Peter Blake



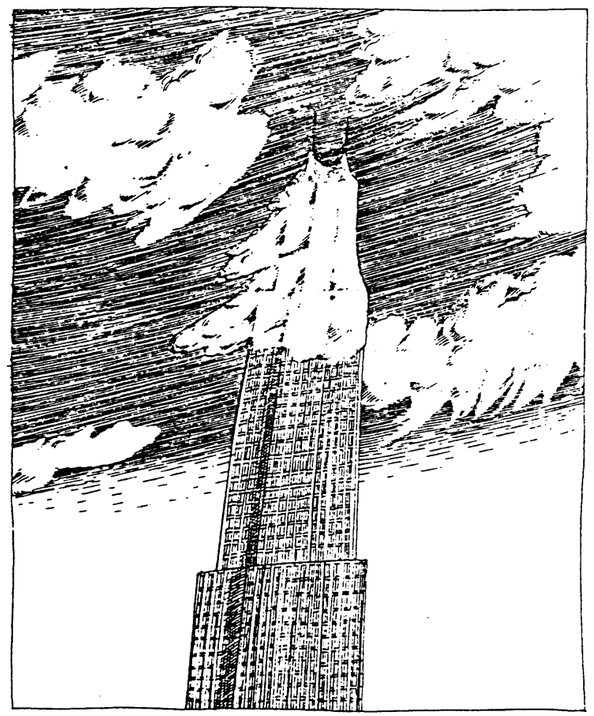
Casa Mila, Antonio Gaudi



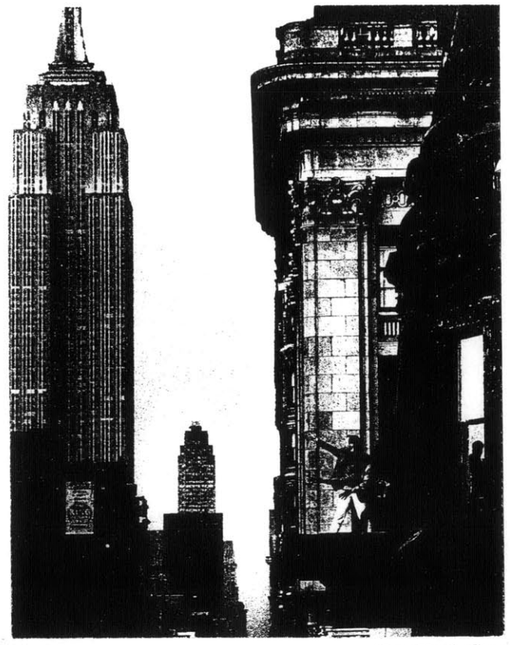
Unit variation

Individuality in multi-family housing is a desired and important quality that enables the resident to attach a stronger sense of place or home to a particular unit. Unit variation may add some cost to a project, but could avoid the problems of lack of identity and boring repetition that prompted site architects to conceive of their highrise of homes project, a parody of vertical inhabitation.

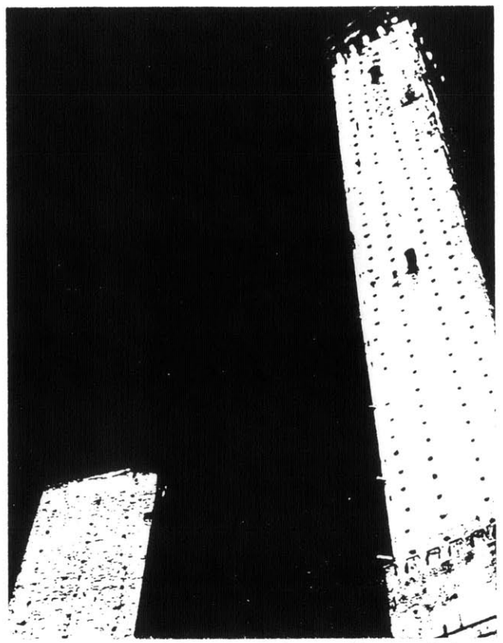
Gaudi achieves tremendous unit variation in the floor plan of his Casa Mila project. Variation can also be achieved in the process by which units are aggregated, as seen in Habitat by Moshe Safdie.



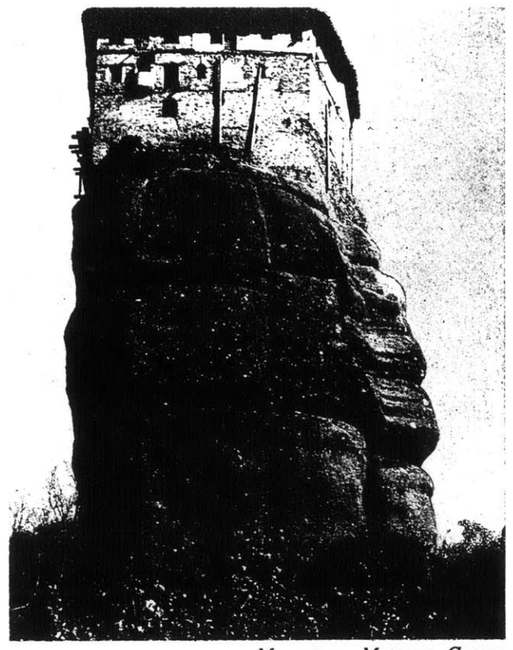
Eiffel Tower during construction



New York City



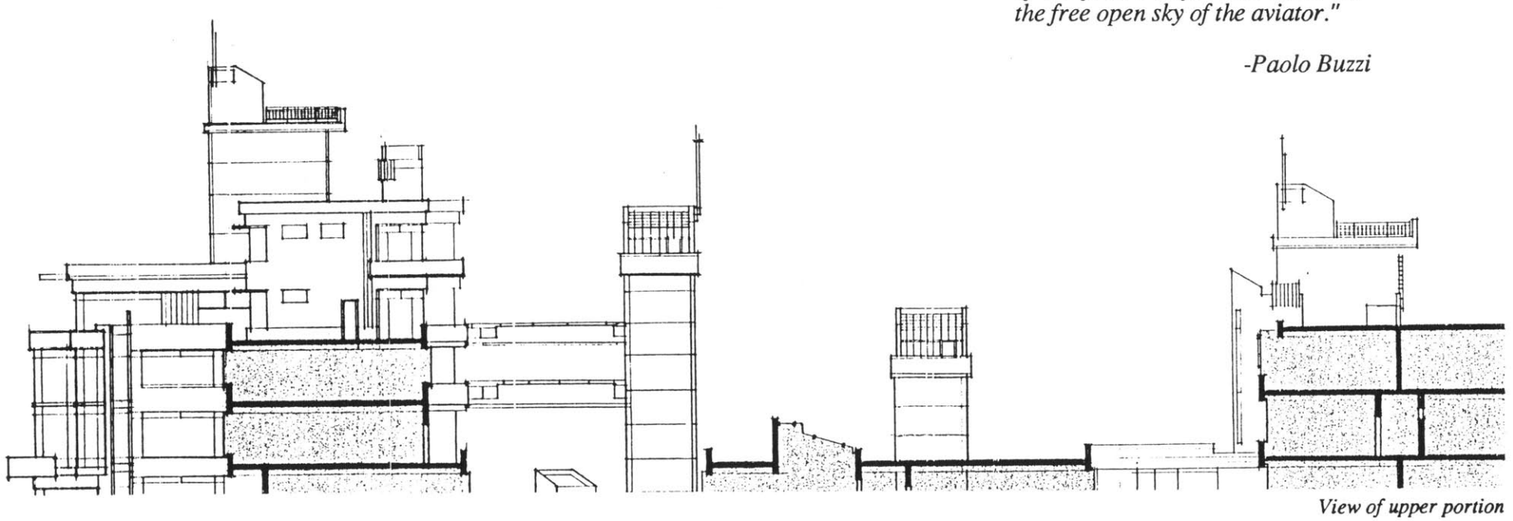
Towers, Bologna



Monastery, Meteora , Greece

" Raise the massive constructions of the future city, raise them into the free open sky of the aviator."

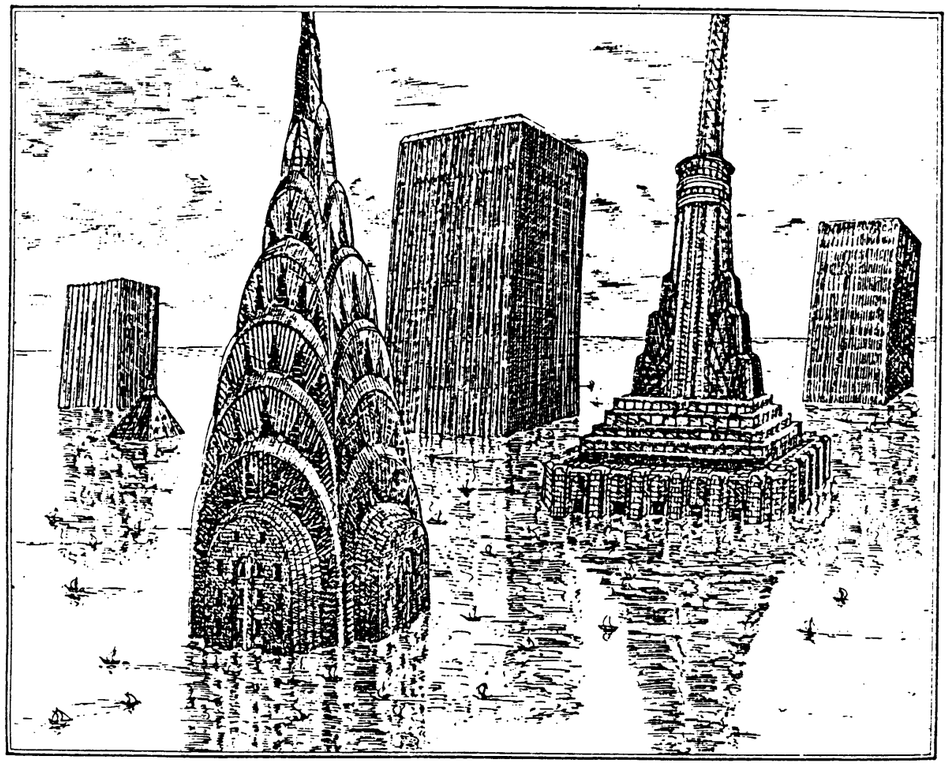
-Paolo Buzzi



View of upper portion

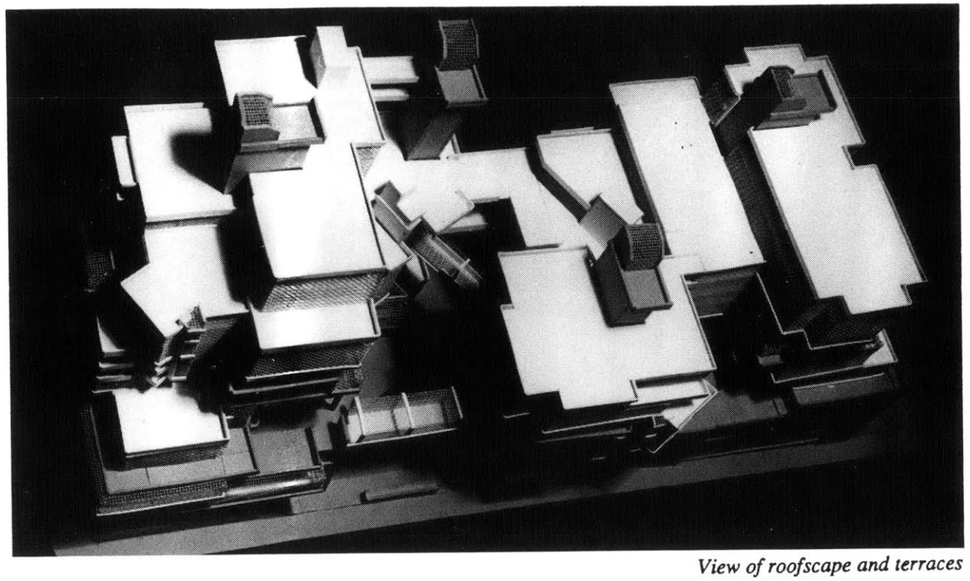
Vertical habitations were once places of escape or defense, whose shear height or location made reaching them difficult.

But in modern times, with the advent of steel and elevator technology, people have begun to live and work in vertical buildings. These tall structures could have territories expressive and celebratory of their location high in the air, public and private areas of light, views, steel, and open air in their uppermost portions.



Roofscapes

Casa Mila, Antonio Gaudi

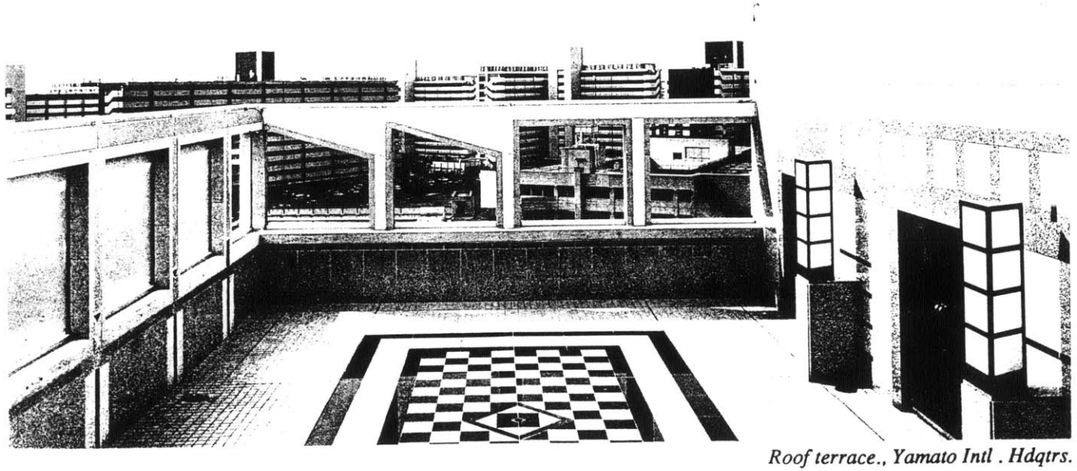


View of roofscape and terraces

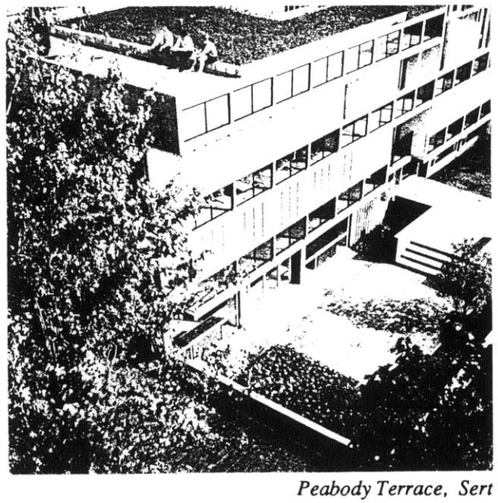
Roofscapes

Roof terraces were intended to become shared collective territories for adjacent private residences, while roofscapes could be created within public access space by the expression of vertical access elements.

Gaudi utilizes the roof as built landscape in the Casa Mila, while Sert brings actual landscape onto the roofs of Peabody Terrace student housing. The austere and decorative roof terrace of Yamato International provides light and air as well as an even more austere view of the surrounding cityscape.

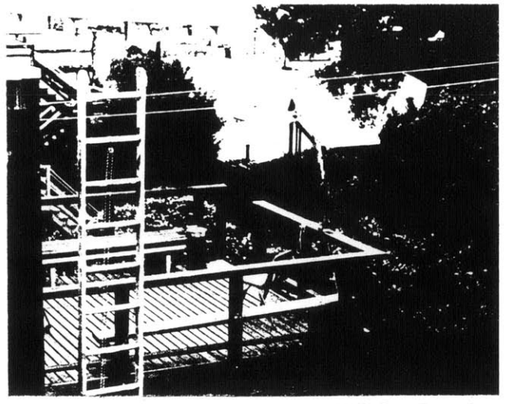


Roof terrace., Yamato Intl . Hdqtrs.

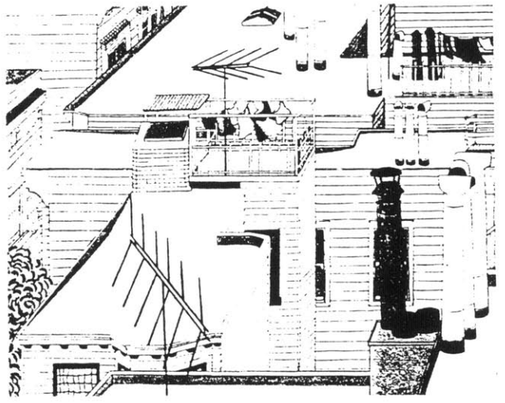


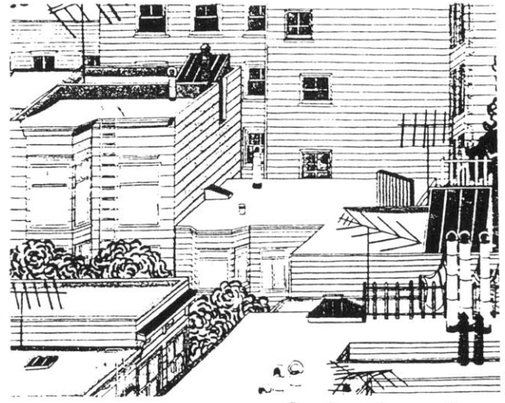
Peabody Terrace, Sert

Roofscape sketch, Unite' de Habitation, Le Corbusier



Roof deck, Potrero Hill, San Francisco

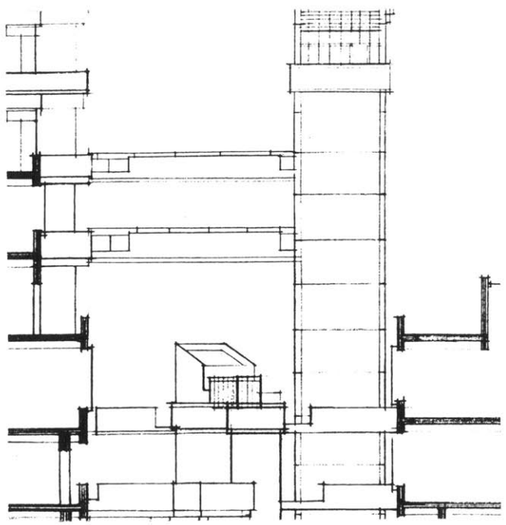




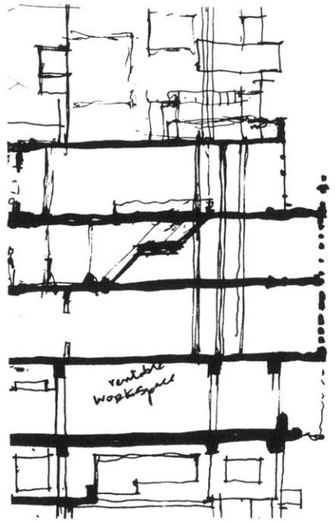
San Francisco roofscape

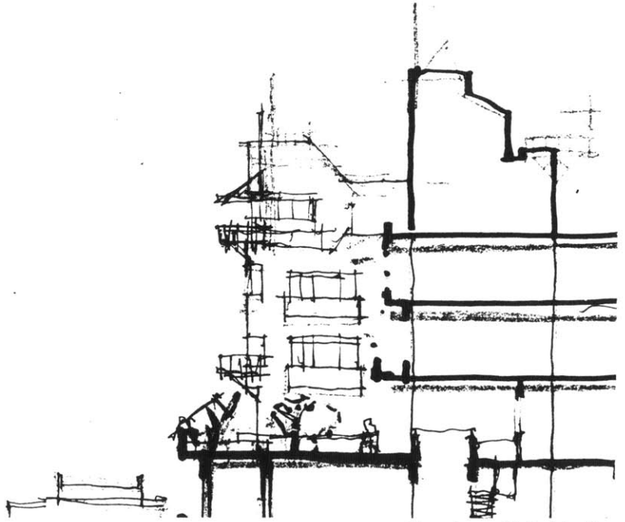
San Francisco's stepped topography and scenic views has already produced a tradition of active roofscapes and habitable roof terraces. These are exhilarating spaces where the city's ever-changing climate can be encountered or endured. Open air and expansive views provide one with a mental map of their immediate urban surroundings.

In a search for ground to sky continuity, territories in the air need to become habitable and public in some way in order to be actually connected to the ground via vertical access. Without being public space, they become privacies accessible only to their owners and discontinuous to the public movement.



View of public access connection

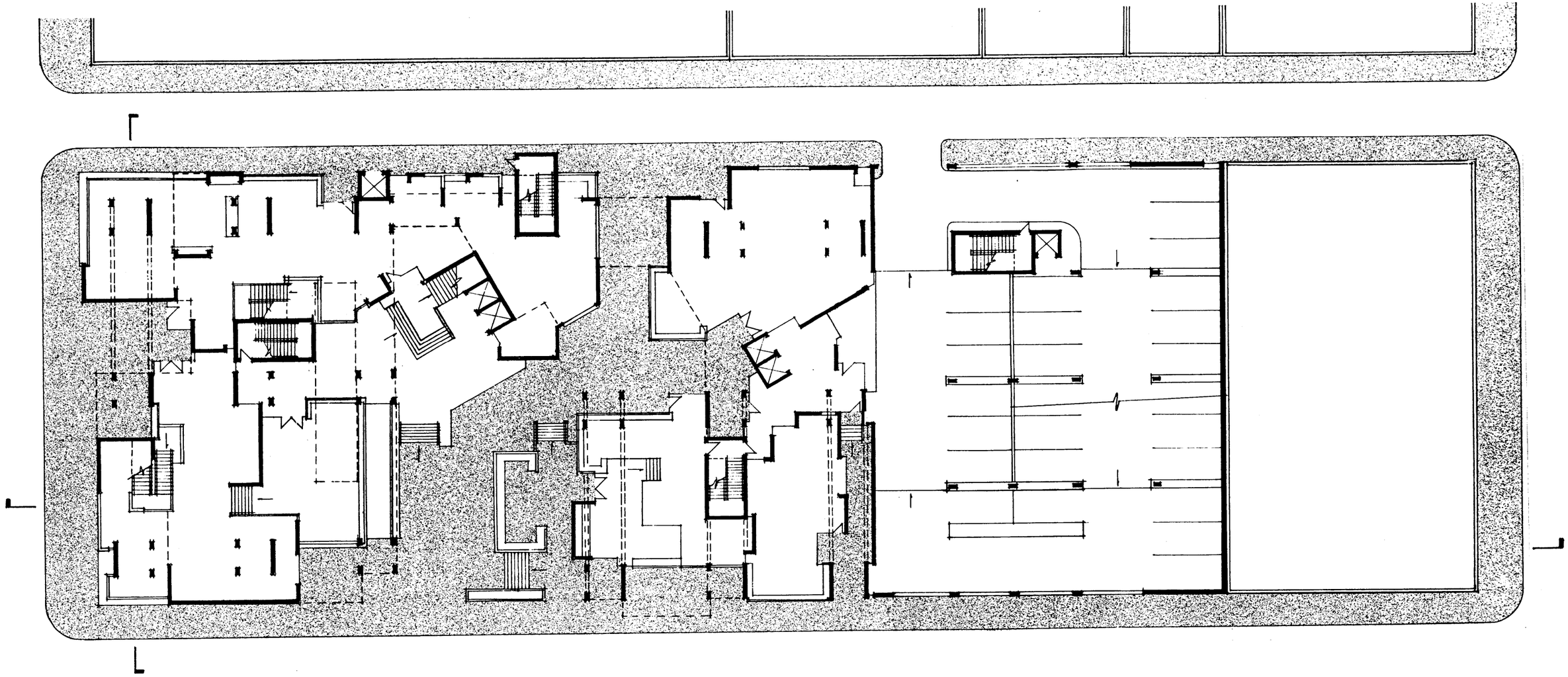




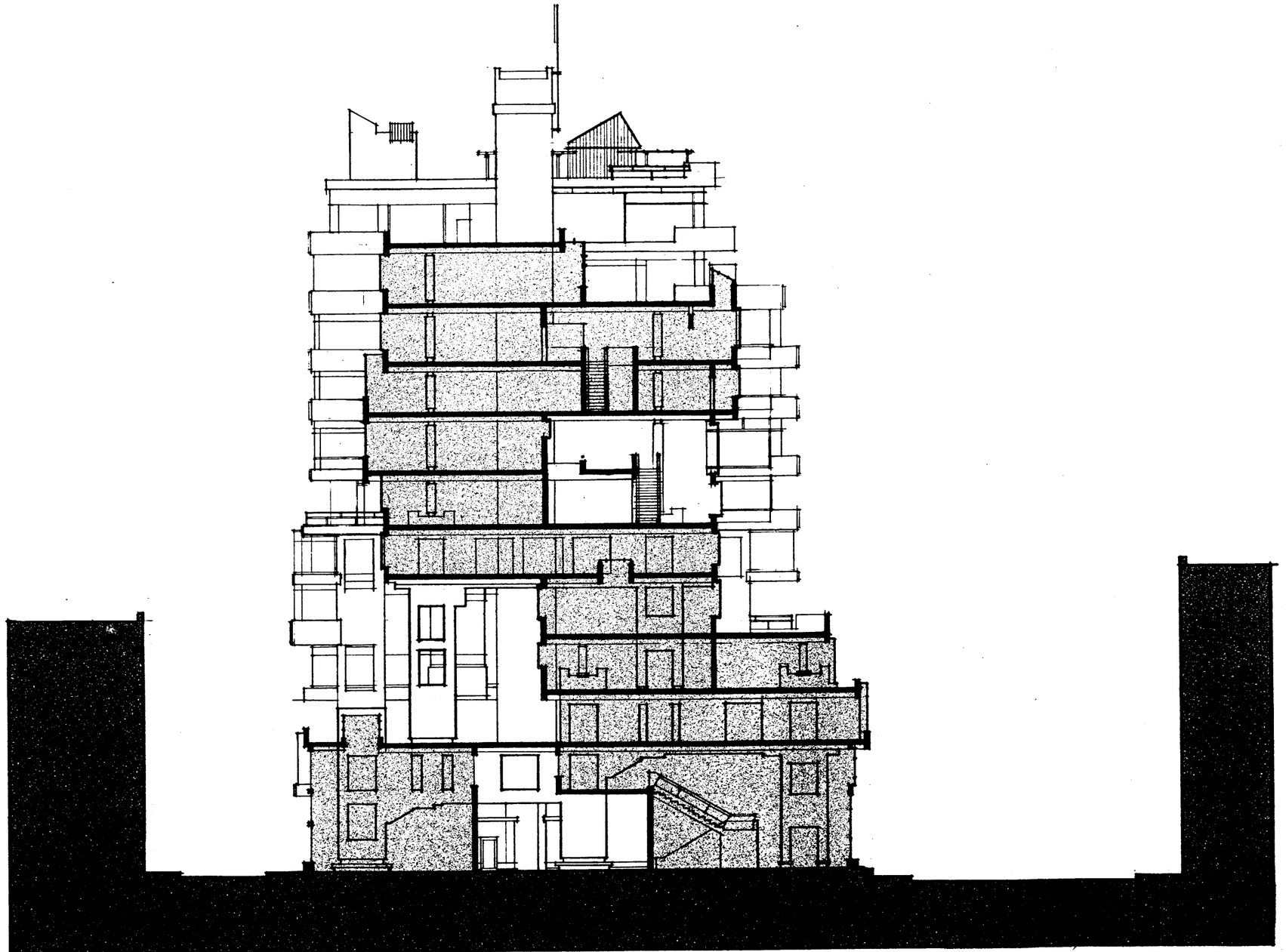
Sketch, roof inhabitation


Fern
Sutter
Hemlock
Polk
Van Ness
Post
Cedar
Geary
25 50 75 100

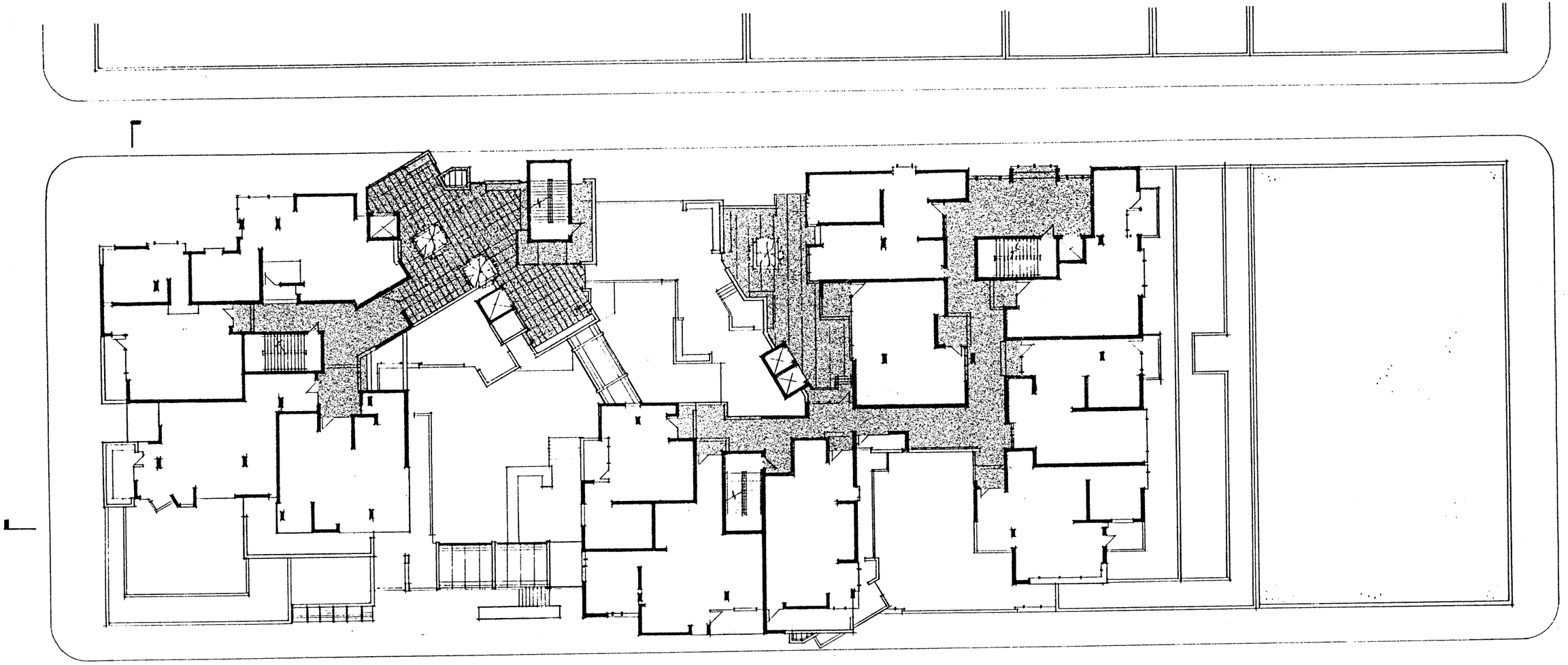
Site Plan



Ground Level Plan

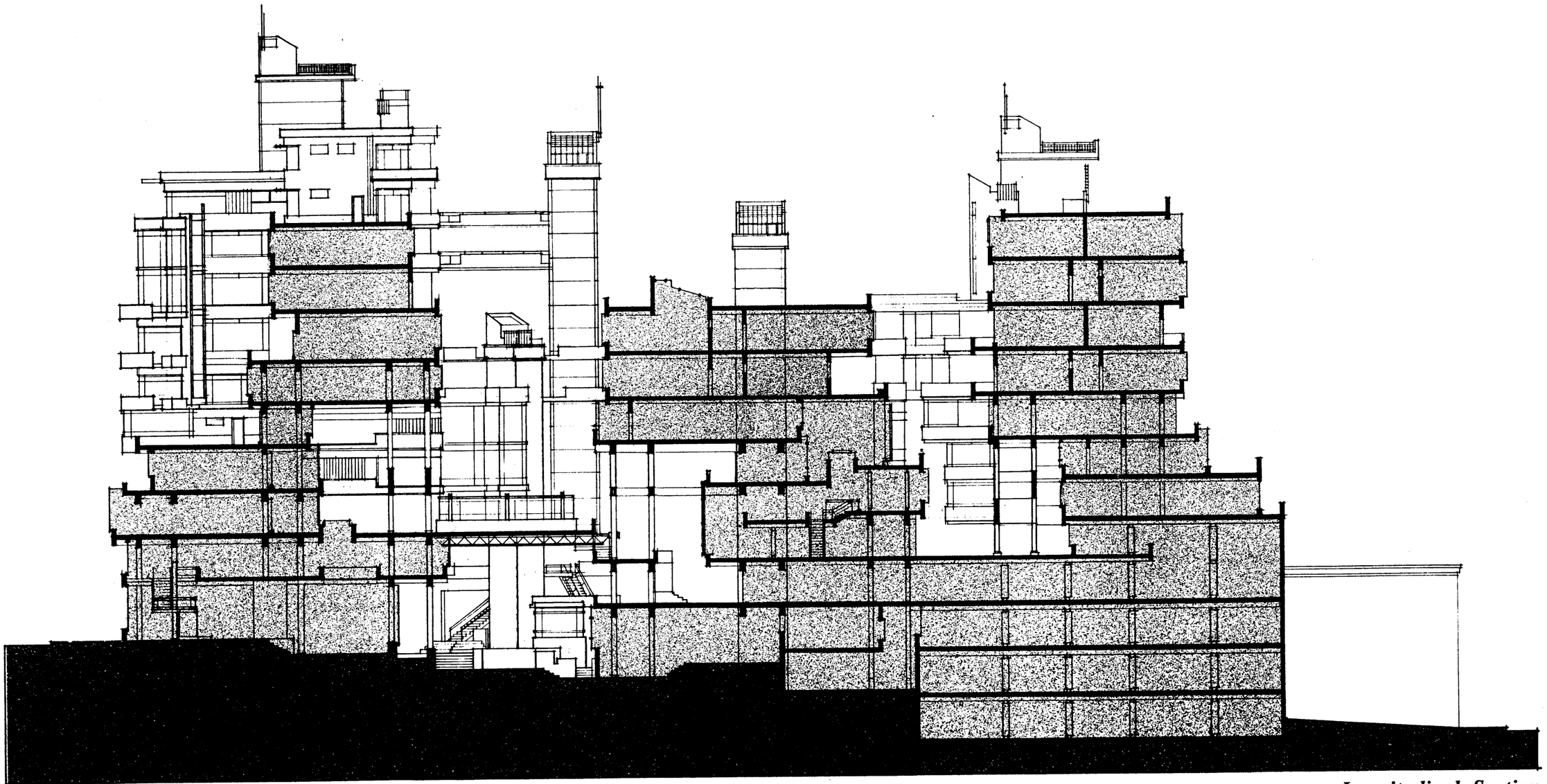


Cross-Section

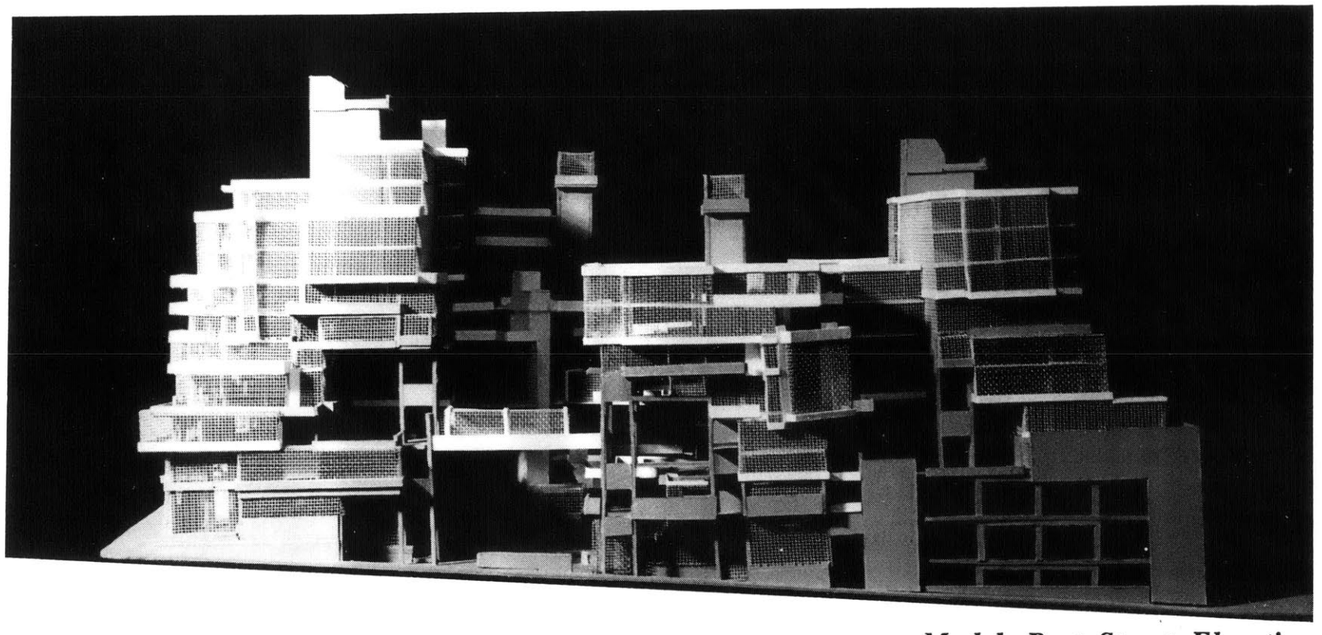


0 5 10 25 50

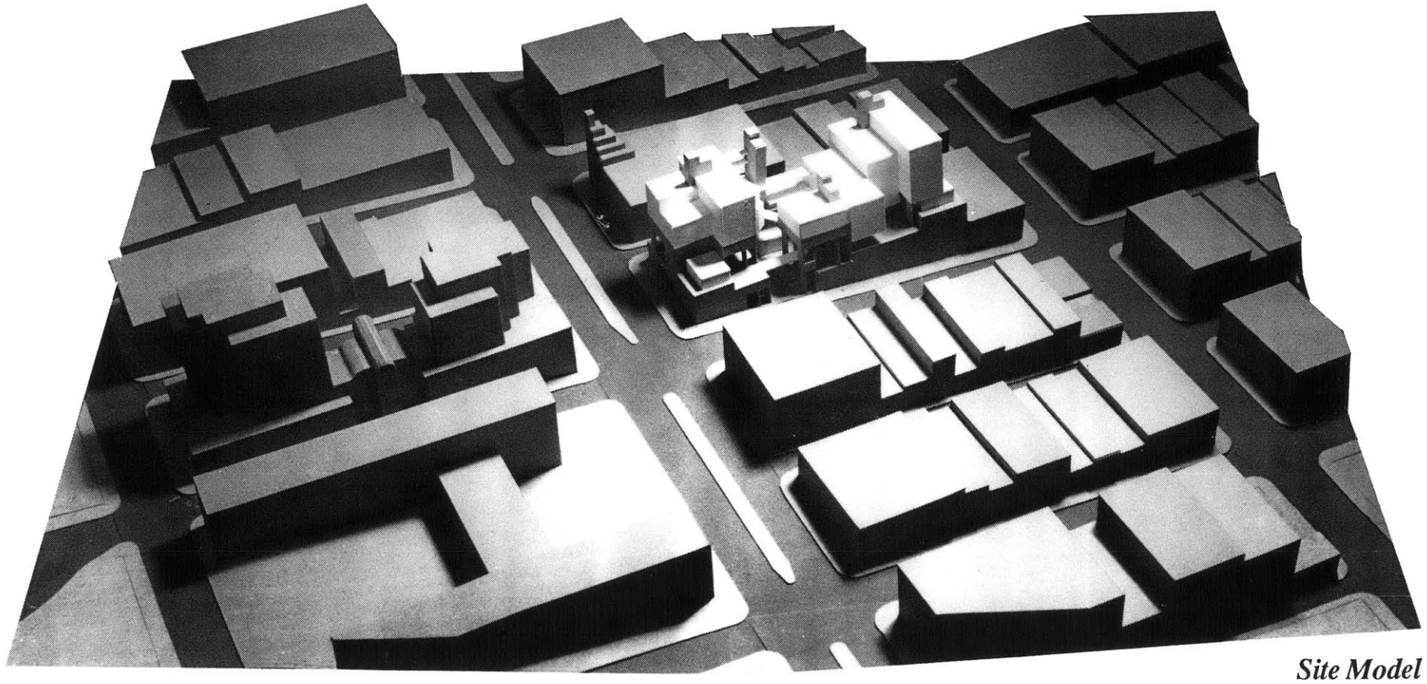
Housing Level Plan - 6th Floor



Longitudinal Section



Model, Post Street Elevation

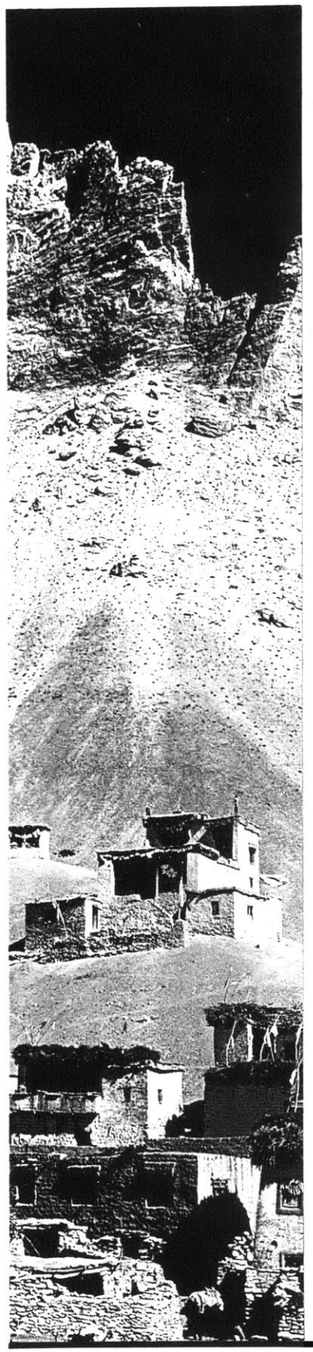


Site Model

Invisible Cities

"What is the aim of a city under construction unless it is a city? Where is the plan you are following, the blue print? 'We will show it to you as soon as the working day is over; we cannot interrupt our work now,' they answer. Work stops at sunset. Darkness falls over the building site. The sky is filled with stars. 'There is the blueprint,' they say."

Italo Calvino
-Invisible Cities



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