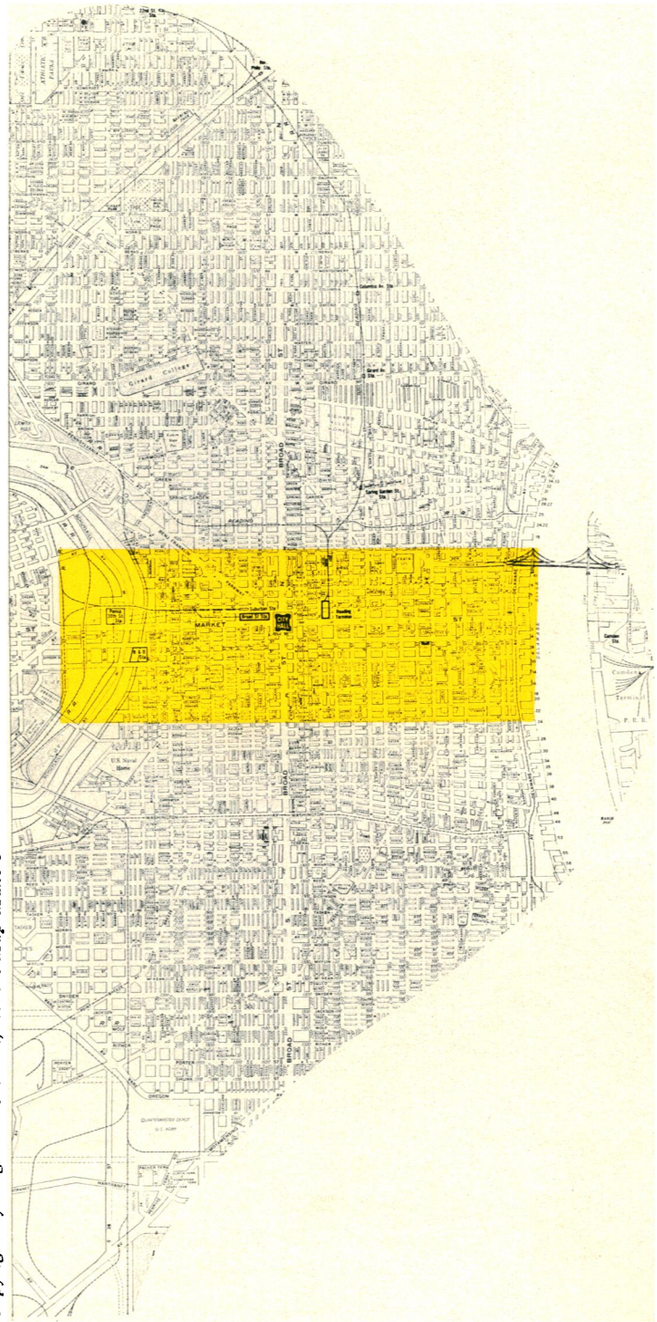
TOWARD A PLAN FOR MIDTOWN PHILADELPHIA



LOUIS I. KAHN

University of Pennsylvania 1924

Resident Architect American Academy in Rome 1950-51

Chief Critic Architectural Design Yale University

Fellow American Institute of Architects

Expressways are like **RIVERS**

These **RIVERS** *frame the area to be served*

RIVERS *have* **HARBORS**

HARBORS *are the municipal parking towers*

from the **HARBORS** *branch a system of* **CANALS** *that serve the interior*

the **CANALS** *are the go streets*

from the **CANALS** *branch cul-de-sac* **DOCKS**

the **DOCKS** *serve as entrance halls to the buildings*

Architecture is also the street. There is no order to the movement on streets. Streets look alike, reflecting little of the activities they serve—Carcassonne without walls, cities without entrances, indiscriminate movement without places to stop. The design of the street is design for movement.

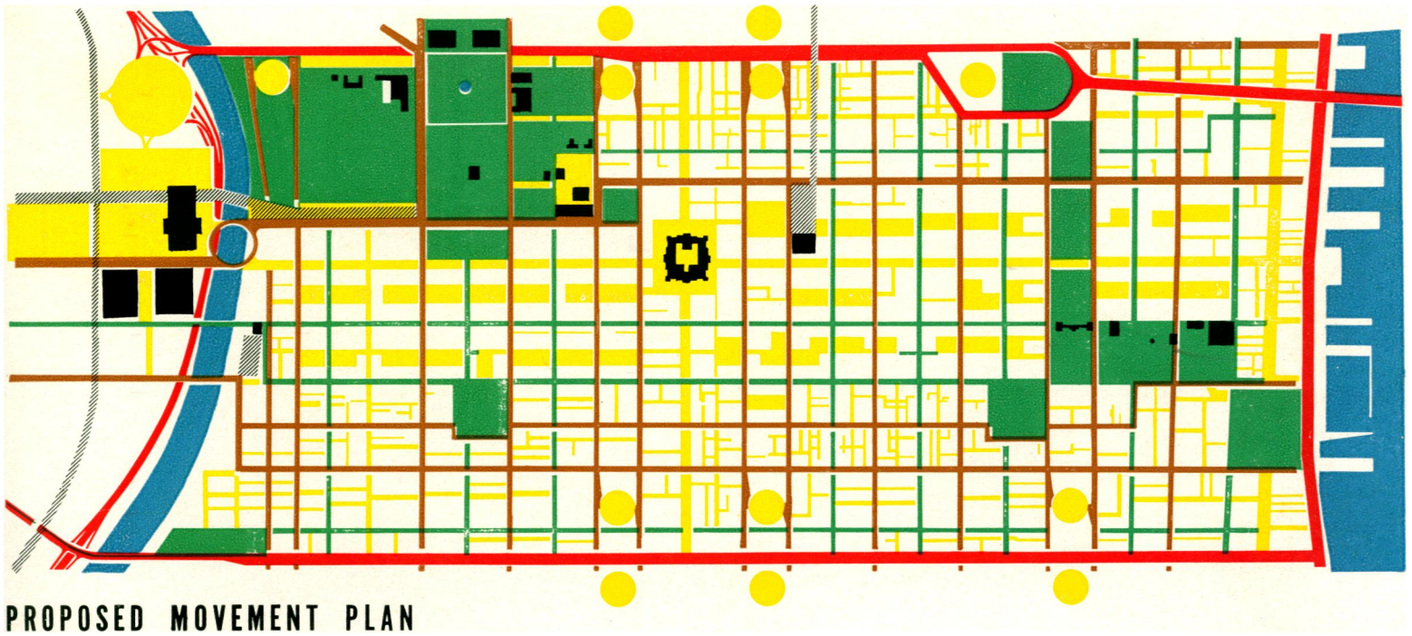
Fifty years ago before the automobile and the skyscraper, this map looked the same. The open space system is substantially the street system which occupies about 30% of the site. Except for the Vine Street Expressway the streets have retained their dimensions. Yard spaces have disappeared with the growing density and coverage of buildings. Recently with the greater increase in cars, parking lots have become the new open spaces. In general parking lots and garages take over other uses now on the secondary streets between the main shopping streets. Movement through the city is difficult. A parking ban is now being tried which has increased the flow of traffic and accentuated the value of off-street parking. Those streets cleared of parking still have the conflicting *staccato* movement of buses or trolleys and the *go* intentions of the car moving in the same lanes.

It is intended by the drawings which follow to *re-define* the *use of streets* and separate one type of movement from another so that cars, buses, trolleys, trucks and pedestrians will move and stop more freely, and not get in each other's way. This system utilizes the old streets, setting aside widening and other costly improvements as untimely before a more effective use of present street area is tested. However, the widening of Lombard Street as an expressway planned by the Philadelphia City Planning Commission is important. It would accomplish the demolition of decidedly bad slums and help frame the area known as CENTER CITY.

By designating specific streets for the staccato movement of buses and trolleys, specific streets for go traffic, and others as terminal streets for stopping, the efficiency of street movement would be increased considerably. Cars may enter the areas – and not be ruled out as many of today's planners propose. Zoning would grow naturally out of the type of movement on a street. Architecture would tend to be related to the type of movement.

This system of movement is not designed for speed but for order and convenience. The present mixture of staccato, through, stop and go traffic makes all the streets equally ineffectual. The orderly discrimination of traffic of varying intentions should tend to facilitate flow and thereby encourage rather than discourage entrance of private cars into the center of town.

It is further intended by this system to stimulate more imaginative development of our shopping areas along the lines of the new suburban shopping centers which already provide a pattern of movement sympathetic to the pedestrian and the motor. In town, this distinction of types of movement could also give rise to new building and merchandising ideas. Chestnut Street as a pedestrian way with a single trolley line becomes virtually a 60 foot promenade. Trees could be planted or shelters built for shade, and the free zig-zag lines of the movement of people from one side of the promenade to the other would tend to free the design of shops from their present linear limitations.



PROPOSED MOVEMENT PLAN

THROUGH STREETS—rivers or expressways (red) as a part of their design are provided with harbors in the form of free or low cost Municipal Garages for all day use of cars and within reasonable walking distance of offices and shops.

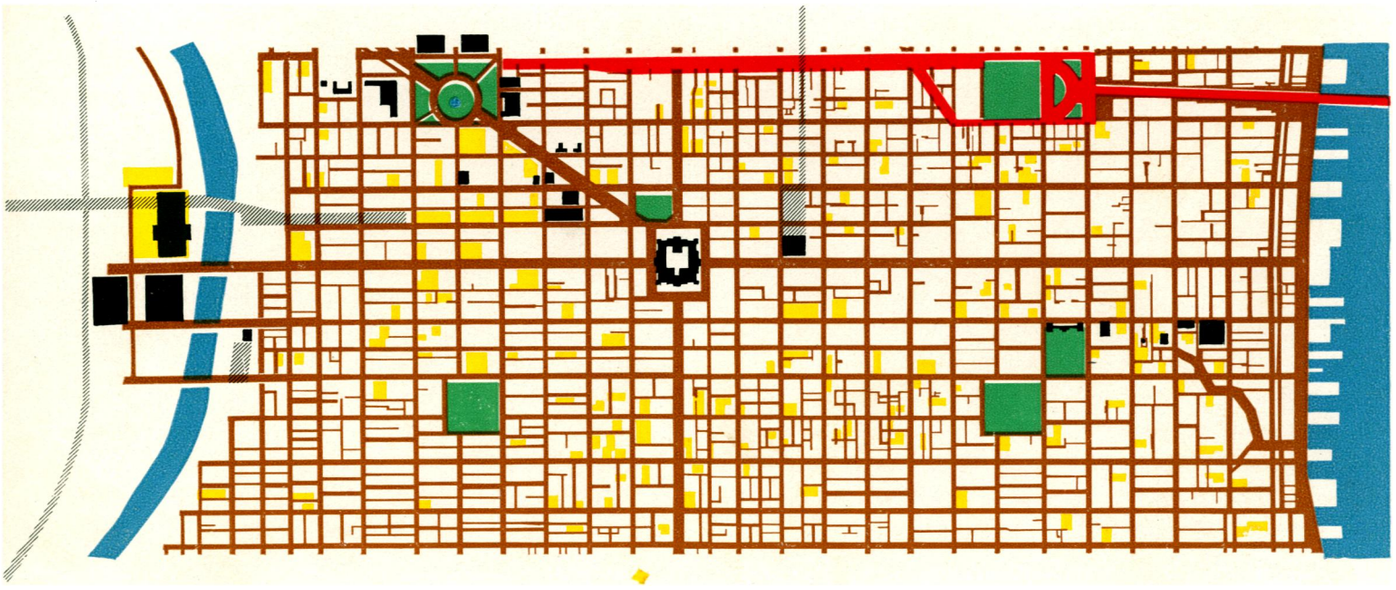
GO STREETS—or canals (brown) afford access to the center city, free of trolleys, local buses and parked vehicles and with a reduced number of intersections.

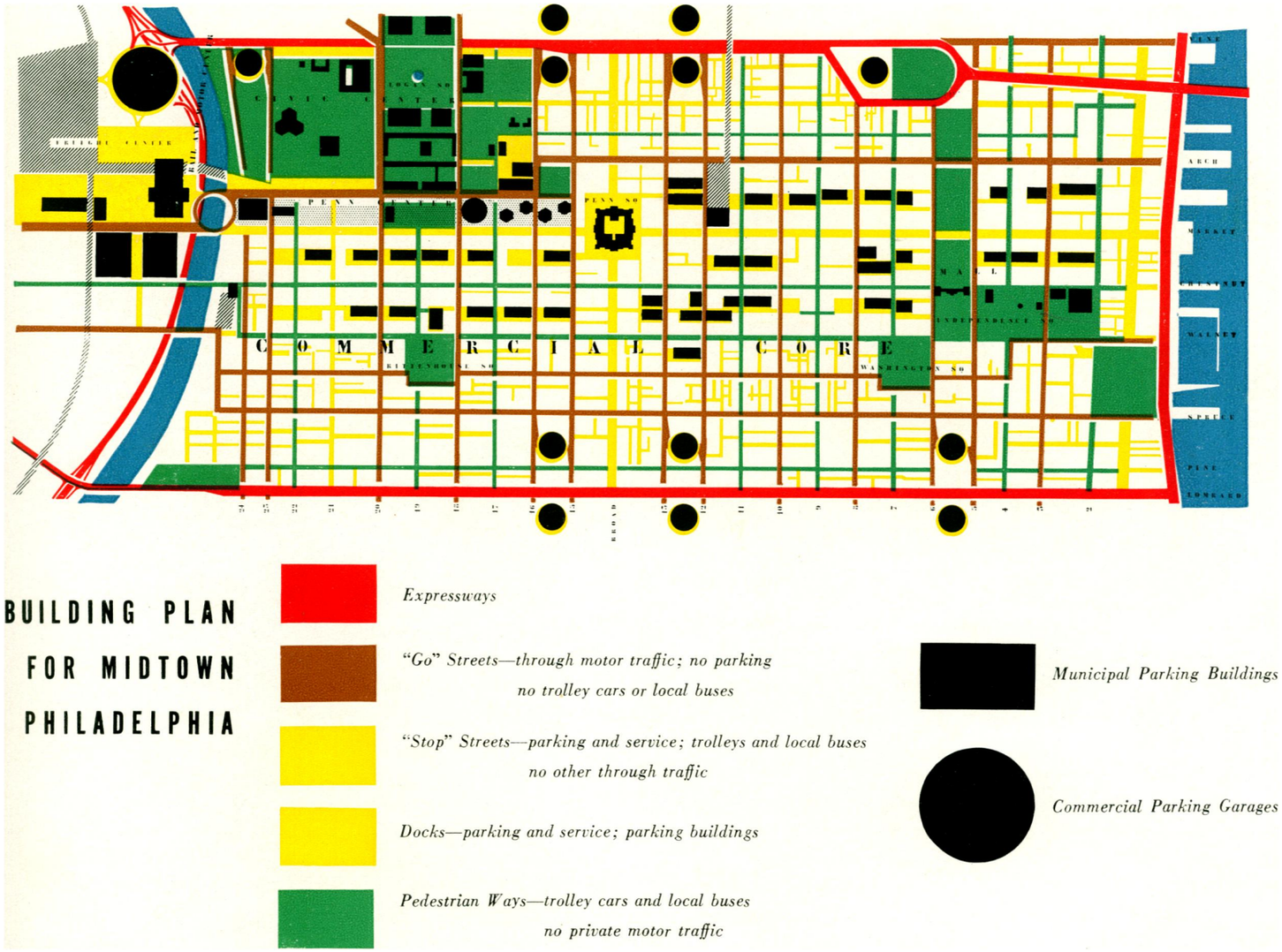
STOP STREETS—or dock streets (yellow), blocked from uninterested through traffic, for *staccato* movement of trolleys, local buses, parking and service.

DOCKS—(yellow) space for deliveries and loading, for parking, service stations and short time commercial parking garages. Existing minor streets, increased where needed, are zoned for these purposes and blocked to through traffic. Many parking garages now existing are located in suggested dock areas.

PEDESTRIAN WAYS—(green) are primarily shopping streets unharassed by cars and trucks, allowing the movement of trolleys or local buses for the convenience of shoppers and office workers.

EXISTING MOVEMENT PLAN



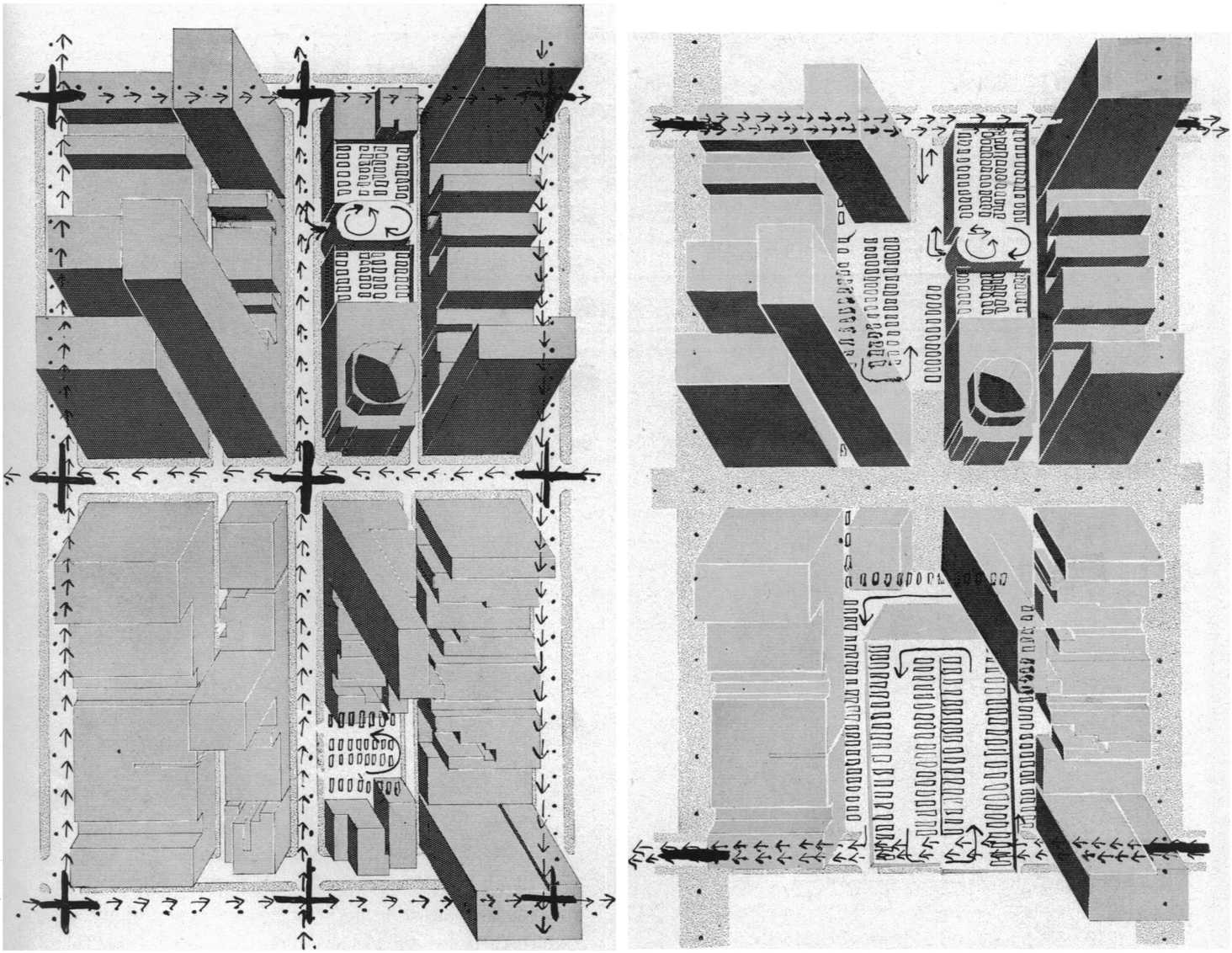


The harbor gateways are proposed as parking towers built at the same time as the expressway on Lombard Street and at the suggested points to be acquired by the Parking Authority on Vine Street. Each tower would house about 1500 cars. The garage buildings in the dock areas between Market and Chester, Chestnut and Walnut, are proposed as built by private enterprise aided in acquisition and standards by the Parking Authority.

The COMMERCIAL CORE is accentuated in this study for the purpose of suggesting that the contemplated development of the Chinese Wall – Pennsylvania Boulevard area (known as Penn Center) should not be isolated from the Core. The strength of the new development lies in tying it together with existing shopping and commercial patterns.

It is suggested that the address of Penn Center should be extended to include the area from 18th Street to the river, thereby tying in the Pennsylvania Station at 30th Street with its suburban station at 17th. Present Penn Center plans call for development from City Hall to 18th Street only. The bus station proposed at 18th Street by the City Planning Commission would serve both ends of the extended Penn Center. The NEW CITY HALL including the courts and technical buildings is located in the Triangle Area as part of our enlarged CIVIC AND CULTURAL CENTER at Logan Square. This move anticipates stimulation of developments westward and reclamation of the Schuylkill River for recreation. This relatively inexpensive area would allow for the continued development of the expanding functions of our city government and would eventually reveal itself as the new Philadelphia Landmark—an impressive entrance to the center city at its rail and motor gateway.

Over part of the railroad yards of the 30th Street Station, a TRANSPORTATION GATEWAY is proposed, tying together two levels of passenger tracks, the high level freight line, a trucking level and a helicopter air connection as a transportation interchange and a freight center. This would consolidate some of the services of the Pennsylvania Railroad now spread over a large area, and serve the needs of the Post Office and the new Bulletin building.



DETAIL OF EXISTING AND PROPOSED HARBORS

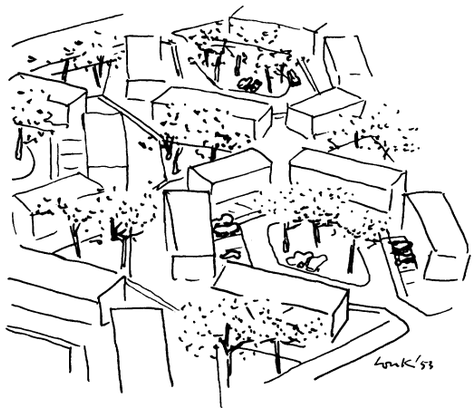
Detail of existing blocks in the center city shows present trend in the appearance of parking lots and garages on minor streets between main shopping streets, present movement mixture and frequent intersections.

Proposed changes separate the mixture of movement, creating streets for staccato movement only and for go movement only. Terminal areas for docking, free of through movement, provide delivery, loading and parking for buildings now fronting on the main shopping streets, enlarging on the present location of parking on the minor streets. Shopping streets without go traffic become freer for people to walk and shop. Only the trolley remains to tie together the linear shopping area stretching for about 3 miles.

Louis I. Kahn, Consultant Architect.

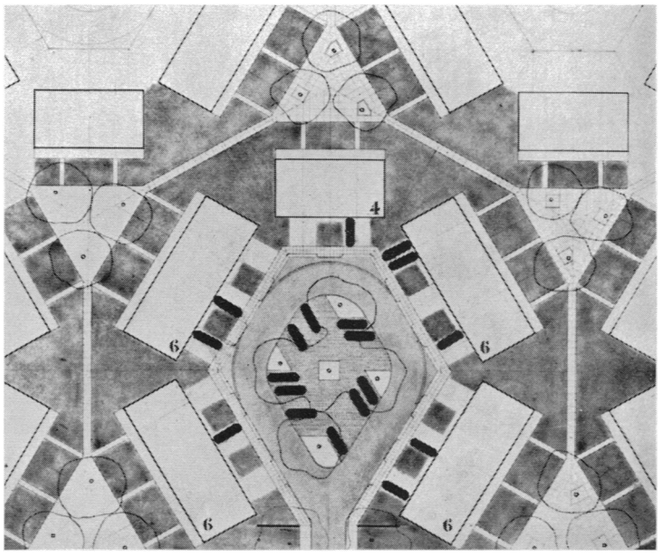
Louis E. McAllister, Kenneth Day, Anne G. Tyng, Associated Consultant Architects.

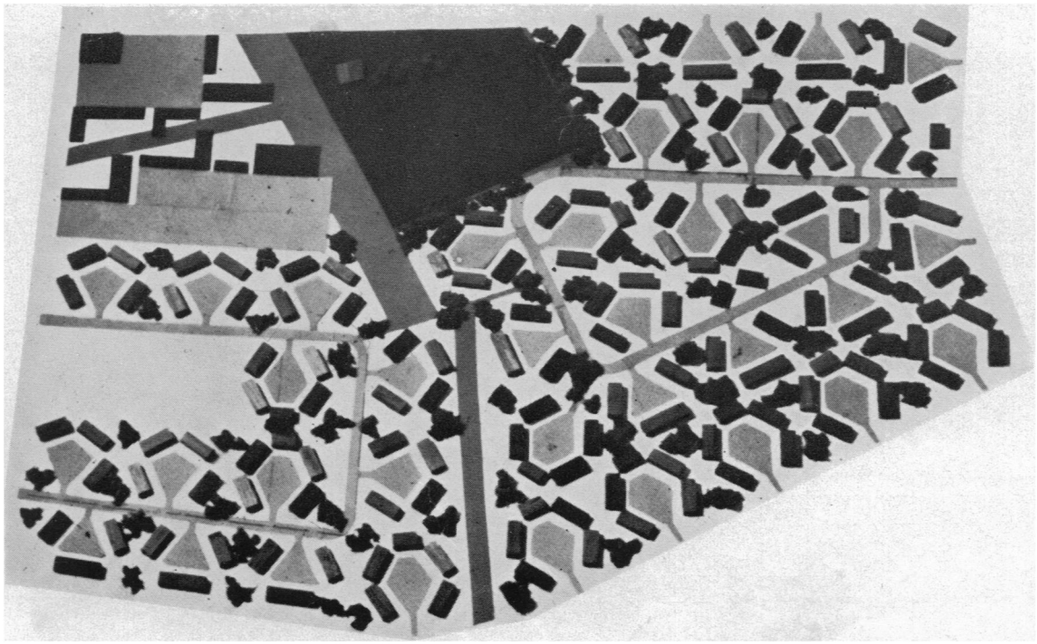
HOUSE AND HARBOR

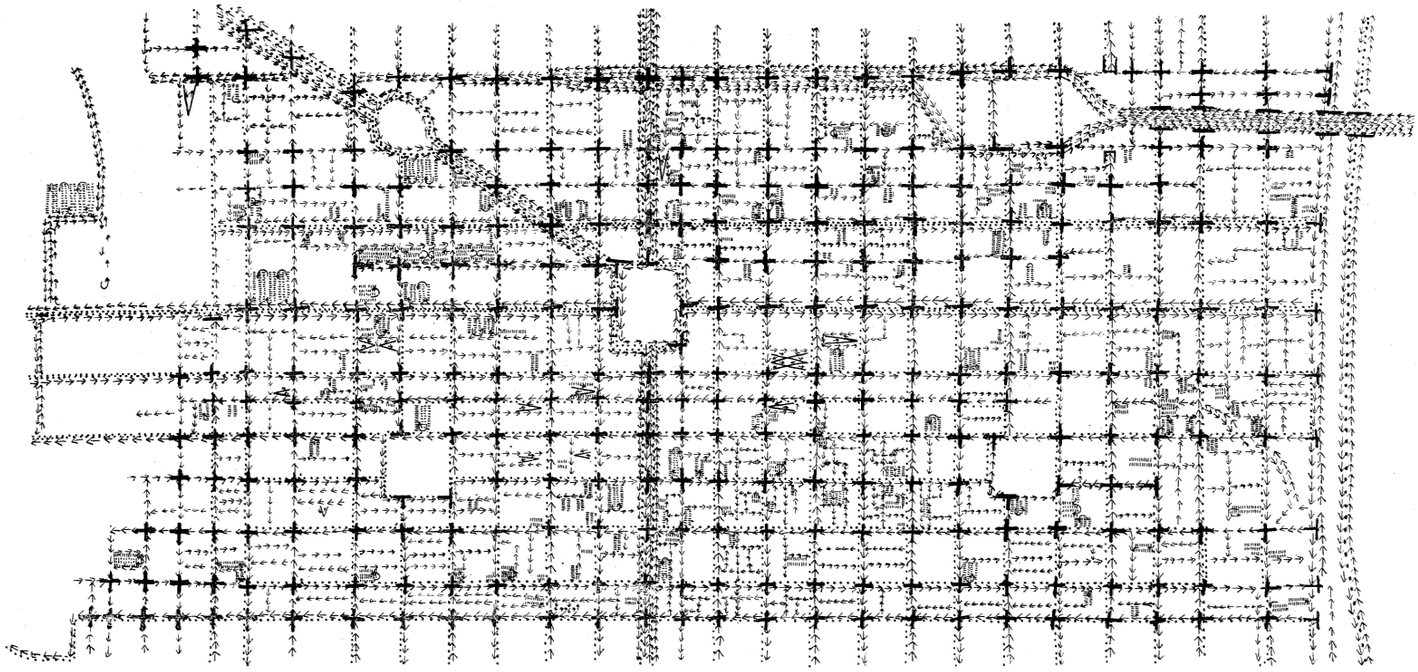


The row house studies shown here were made for the Philadelphia City Planning Commission to suggest, on an equal economic basis, improvements over the present row house system used by the operative builders in the northeast Philadelphia area. The principle of harbor entrances applied to the street system offered decided advantages of adaptability to terrain and drainage, preservation of trees, safety and off-street parking, and resulted in a grouping of buildings with more distant outlook and privacy. The garage and front door entrance on the harbor opens up the entire rear of the house as the garden and outdoor living area.

Row house construction on the gridiron street system with rear drive completely obliterates the original site characteristics of trees, streams and contours. The front faces a through street with parking, the rear alley connects with the cross streets and is the garage entrance of the house. Practically the only green area is the terraced lawn in front of the house. The various cul-de-sac or harbor types shown in the site plan adjust to closer interlocking of land and to the varying conditions of contours. The interlocking discipline was devised again to satisfy densities comparable to the economics of the present row house.





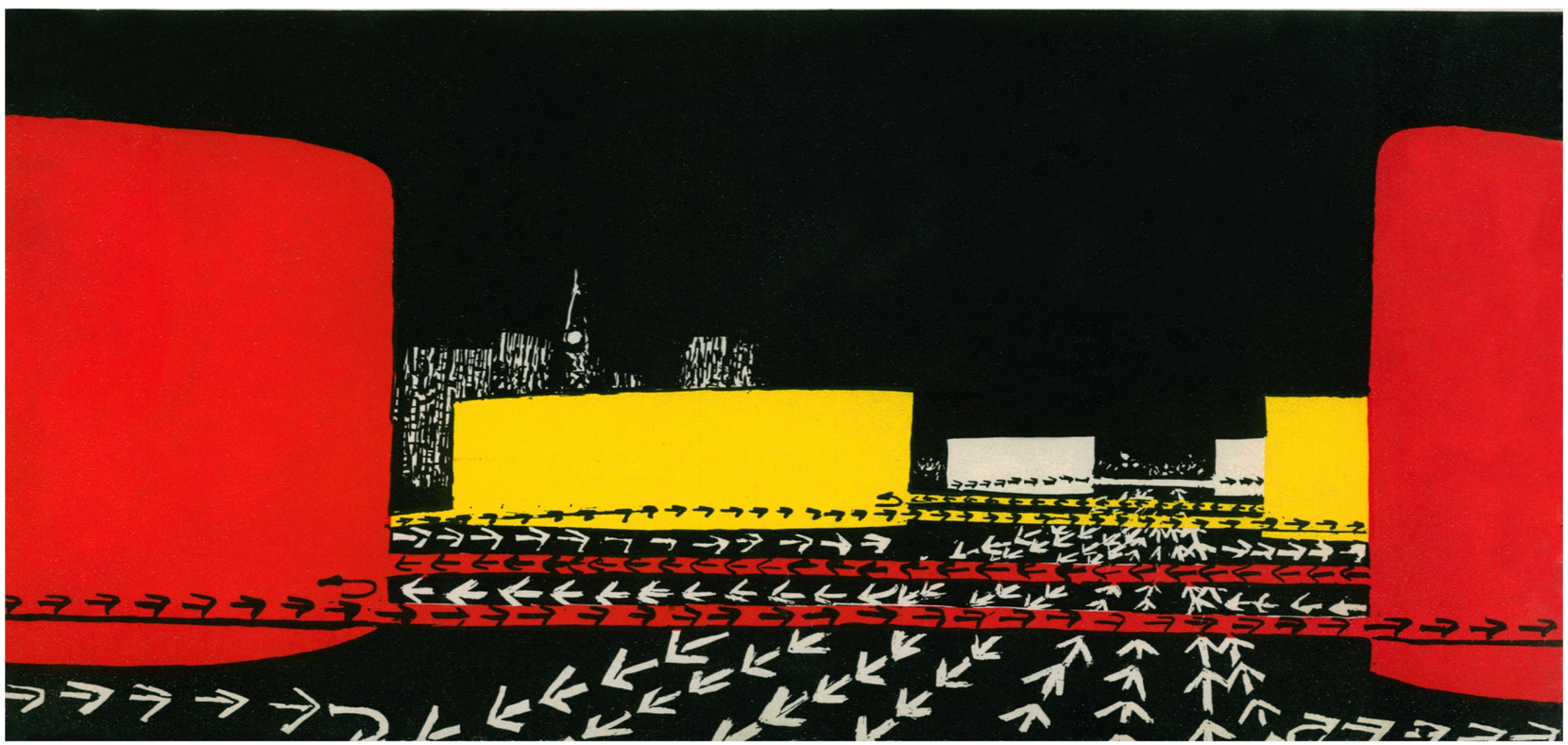


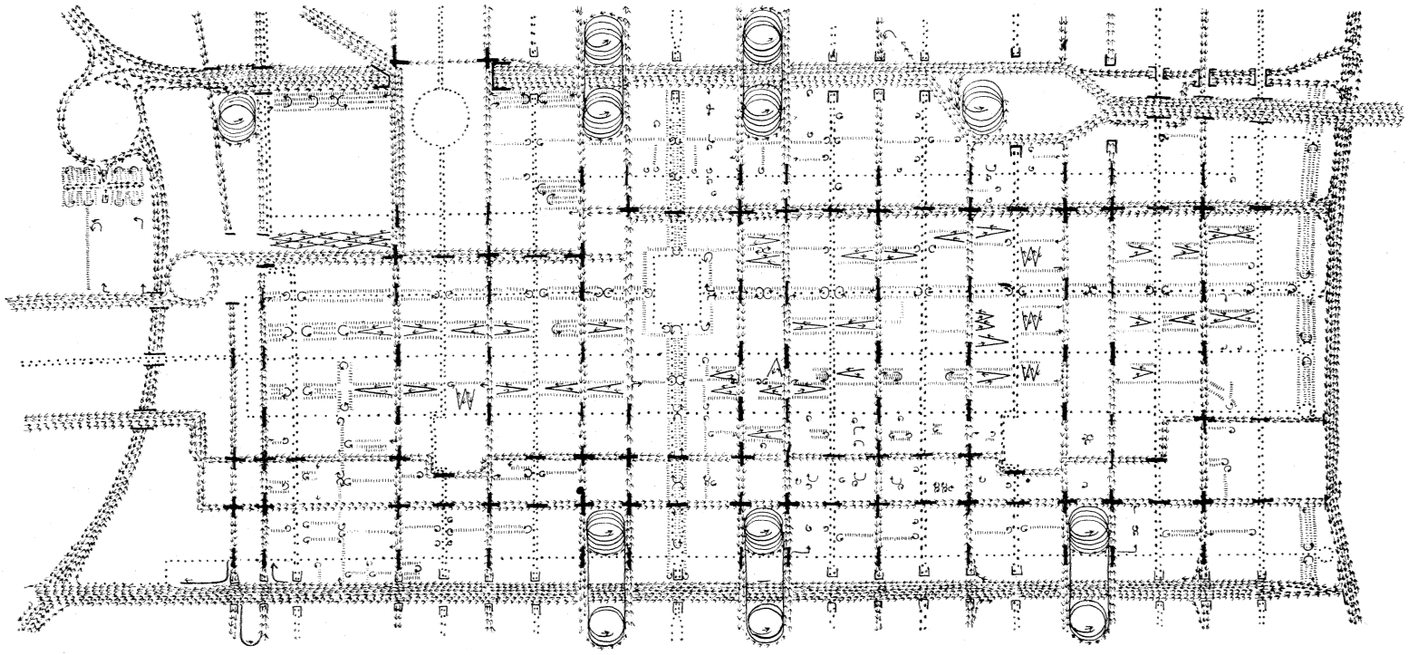
EXISTING MOVEMENT PATTERN

This type of drawing made fifty years ago would show dots in all the streets—no arrow, no crosses. The symbol of staccato movement would well have applied to the delivery wagon, carriage and horse-drawn trolley. Now on the same streets trolleys, buses, trucks and cars with varying speeds, purposes and destinations travel together. Uninterested traffic destined to places outside the center may choose streets at will. Motion is further restrained by loading, deliveries and parking. Frequent intersections frustrate movement.

Vine Street, widened to expressway dimensions has the same number of intersections as before. The original plans for the expressway which were not realized by the Philadelphia City Planning Commission called for a depressed cartway with entrances by ramp to cross streets.

Parking lots and garages are developing to some extent where they are most needed. Demolition of unprofitable or unfit buildings usually result in a parking lot wherever it happens. These places to stop now exist in the stream of movement. The slowest vehicle sets the pace of movement.

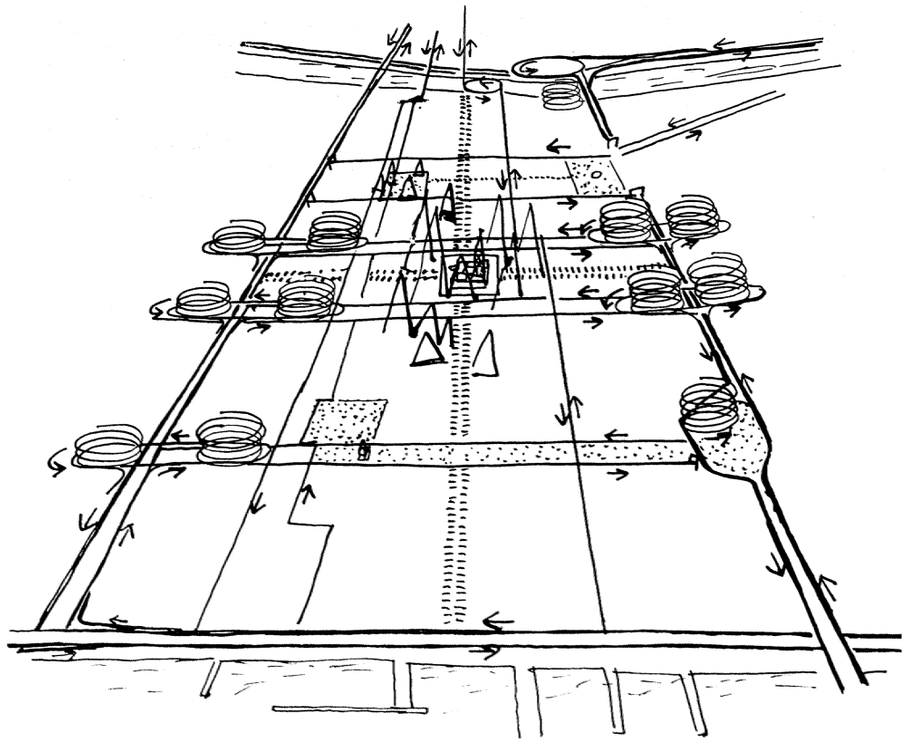




PROPOSED MOVEMENT PATTERN

The added movement symbol is the wound-up street or municipal garage at the strategic gateway interchanges off the Vine and Lombard expressways. These, with the expressways of the Delaware and Schuylkill frame Midtown Philadelphia. Though the number of intersections have been decreased, the gridiron pattern of the streets are intact. Staccato movement is on its system of streets separated from all go traffic. The main interior streets of Broad and Market intersecting at City Hall have been converted into linear docks. Skyscrapers, banks and department stores on these streets are thereby provided with an automobile entrance and a place for people to park. The trend indicated on the existing movement map of parking lots and garages on minor streets between main shopping streets is extended, and, these places are designed as terminals. Buses and trolleys are retained on the main shopping streets for public transportation and to keep the linear business area tied together. This plan will provide docking space for trucks on all streets except the go streets.

The tower entrances and interchanges, wound-up parking terminals, suggest a new stimulus to unity in urban architecture, one which would find expression from the order of movement. The location and design of these entrances are an integral part of the design of the expressway financed and constructed as a unit. It is not an isolated real estate venture which could lead to compromise and the distortion of the system. At night we know these towers by their illumination in color. These yellow, red, green, blue and white towers tell us the sector we are entering, and along the approach, light is used to see by and give us direction in ideas of lighting in rhythm with our speed. From these entrances a system of canals or interior streets feed the various activities of center city life.



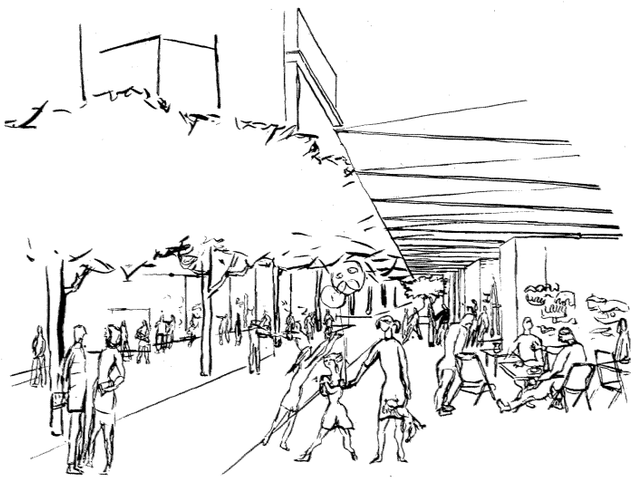
SHOPPING

Shopping streets would have no go traffic. People meet in shopping places. Promenades would induce new and revive old and even ancient merchandising ideas. Now the shopping areas are islands in a sea of traffic. They could be an interweaving of people, glass, escalators, trees, gardens and exhibits. We would walk through our Christmas decorations not only peer at them through windows.

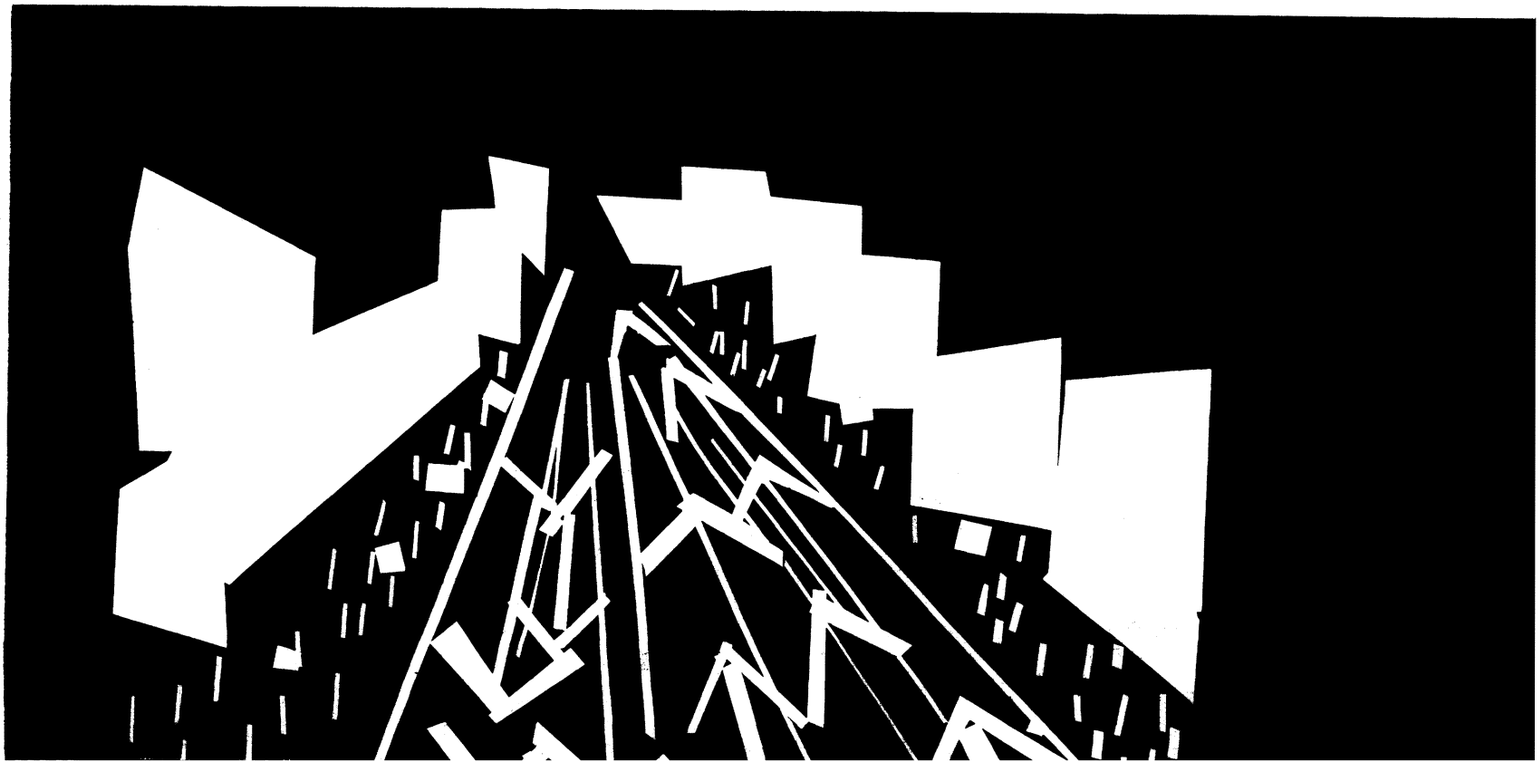
The wares, holiday symbols intermingled with the trees, patios, music and fashion shows remind one of the seasons. Gardens finger through the shops and the exhibits which show how things are made. The scale of the architecture is in sympathy with the "path of feet and the eye" (George Howe).

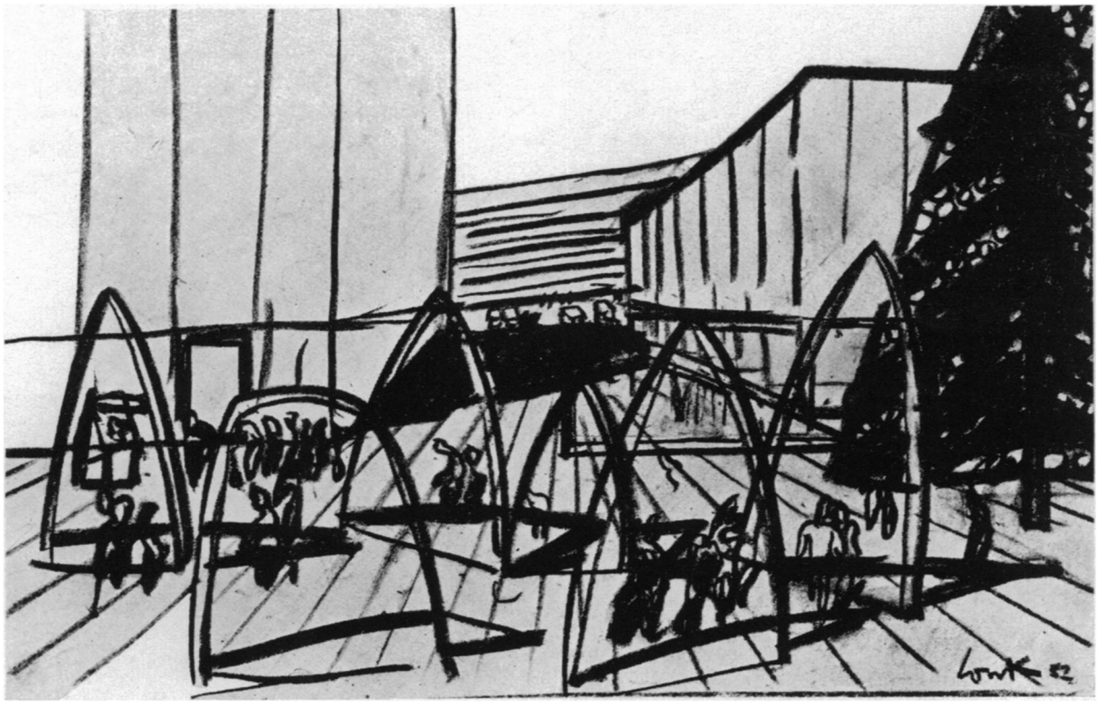
Shopping is walking. Walking is also resting—in shade, at the sidewalk café, looking at the sculptor's exhibit in the garden. Shopping promenades lead to a larger area—the site of the theaters, dance hall, bowling alleys, concert hall, places for food and refreshment, and places with such fun devices as the pin ball machine, juke box and shooting galleries. Diverse entertainment now found on cheap streets—classed as "honky tonk"—are actually healthy energies—part of our blue jean era, needing the more friendly environment of the planned fun center.

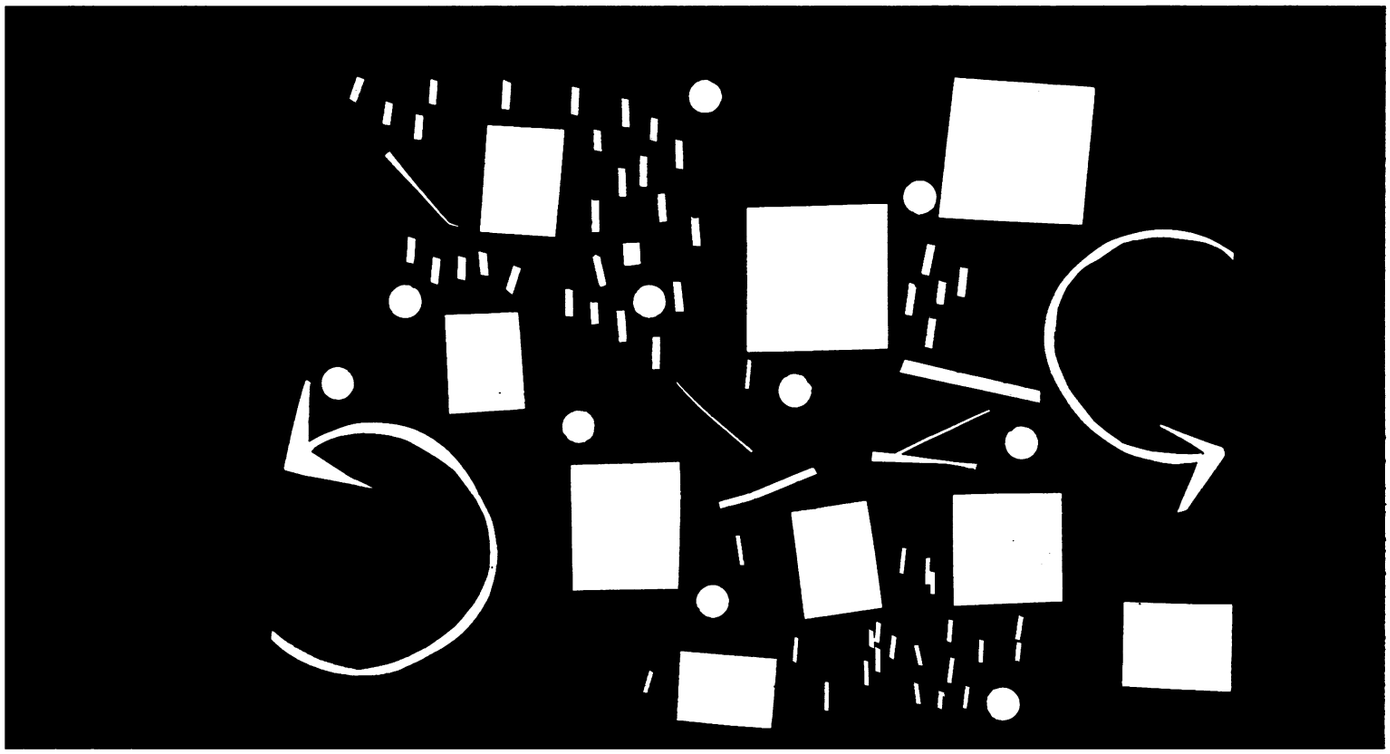
Market Street as a dock

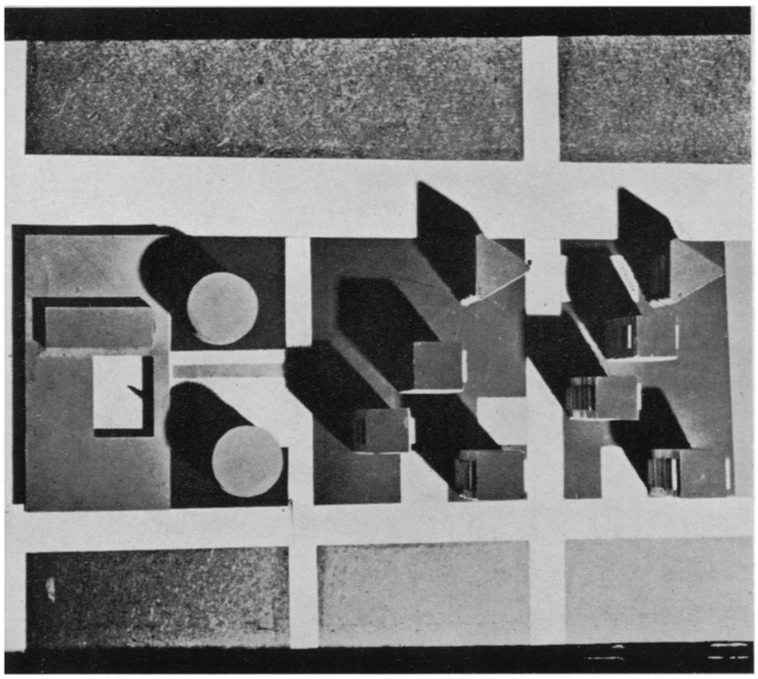


Chestnut Street as a pedestrian way





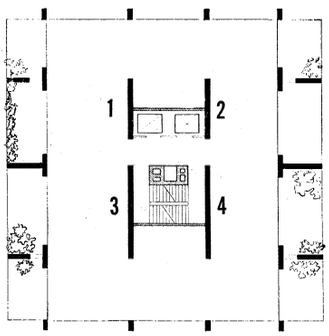




Louis I. Kahn Architect

REDEVELOPMENT PROJECT NEW HAVEN

The Apartment Redevelopment Project for New Haven provides off-street parking in line with the present streets, with the bulk of parking under the shopping building to the right. The apartment towers are similar to those proposed for Mill Creek. The circular tower is, in fact, a square building with encircling balconies.



Louis I. Kahn Consultant Architect

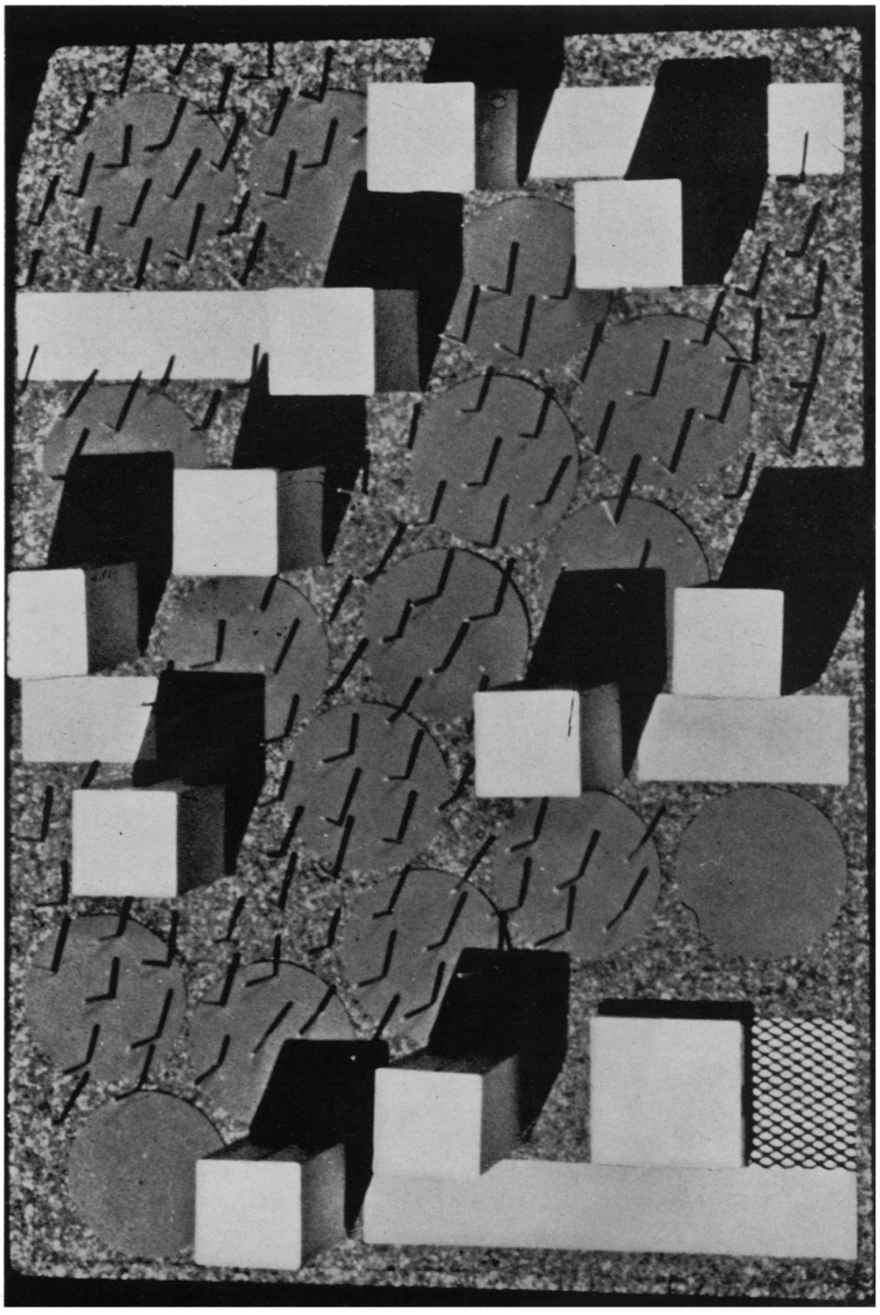
Louis E. McAllister, Kenneth Day, Anne G. Tyng

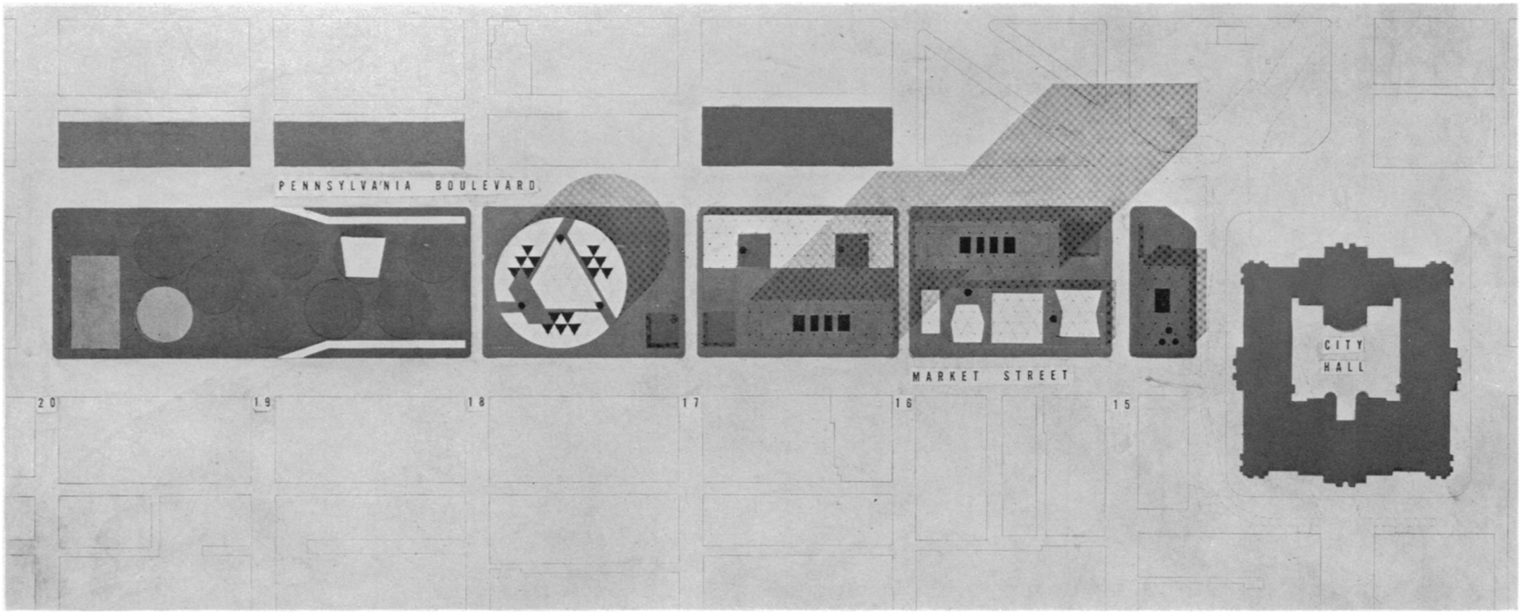
Associated Consultant Architects

MILLCREEK REDEVELOPMENT PROJECT

(Mill Creek Redevelopment Project for the Philadelphia City Planning Commission)

An arrangement of ten 15-story low rent square apartment towers to house 600 families on a 10½ acre plot. Off-street parking is combined with service entrances. Circular green areas evolved after a study of paths in the conventional manner. The pathways resulting from this system seem to flow more gracefully into one another and lead with considerable directness to desired points. Over the entire area, trees are planted for shade and rest. Each level of a tower is divided into 4 apartments. Each level is a lot. Ninety-one deep balconies stretching the full length on the east and west sides give a generous outdoor play and plant space for each apartment. The concrete structure is designed to free the apartment spaces of columns and shaped to brace the building, support the balconies and enclose the central core.

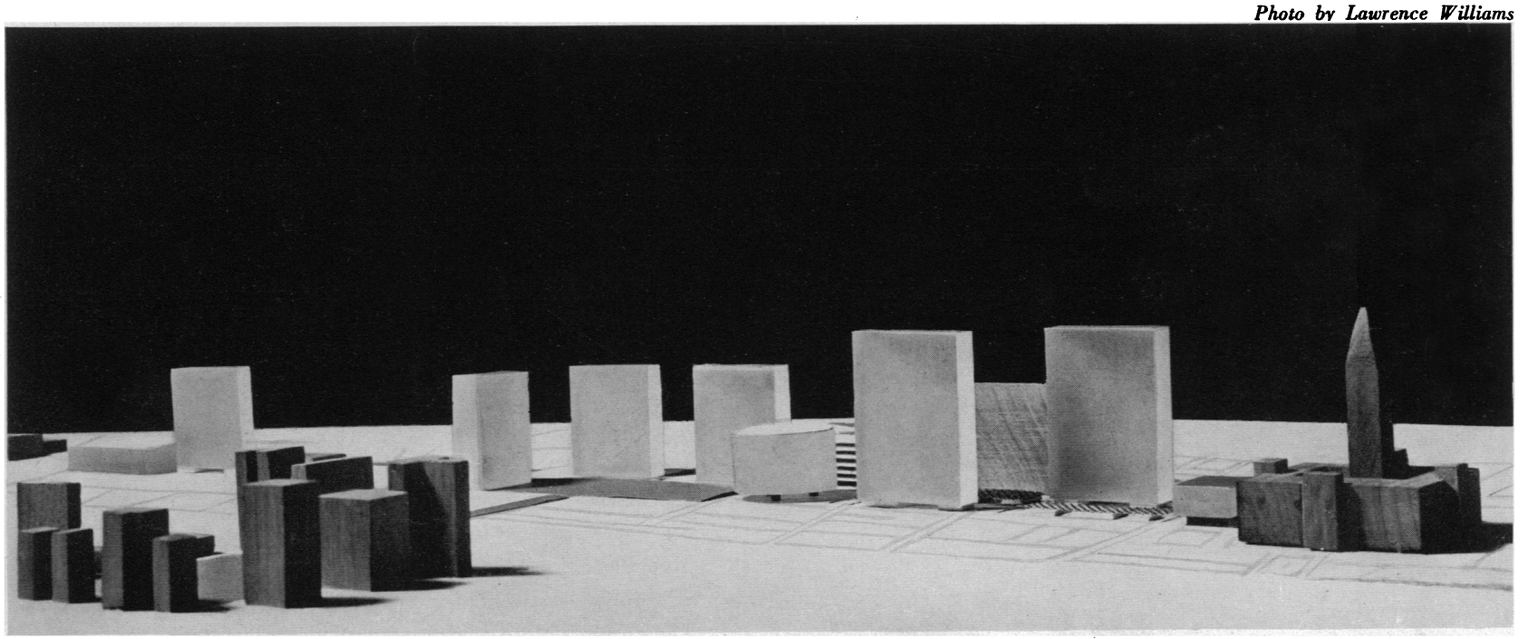




ESPLANADE PLAN

PENN CENTER

Photo by Lawrence Williams

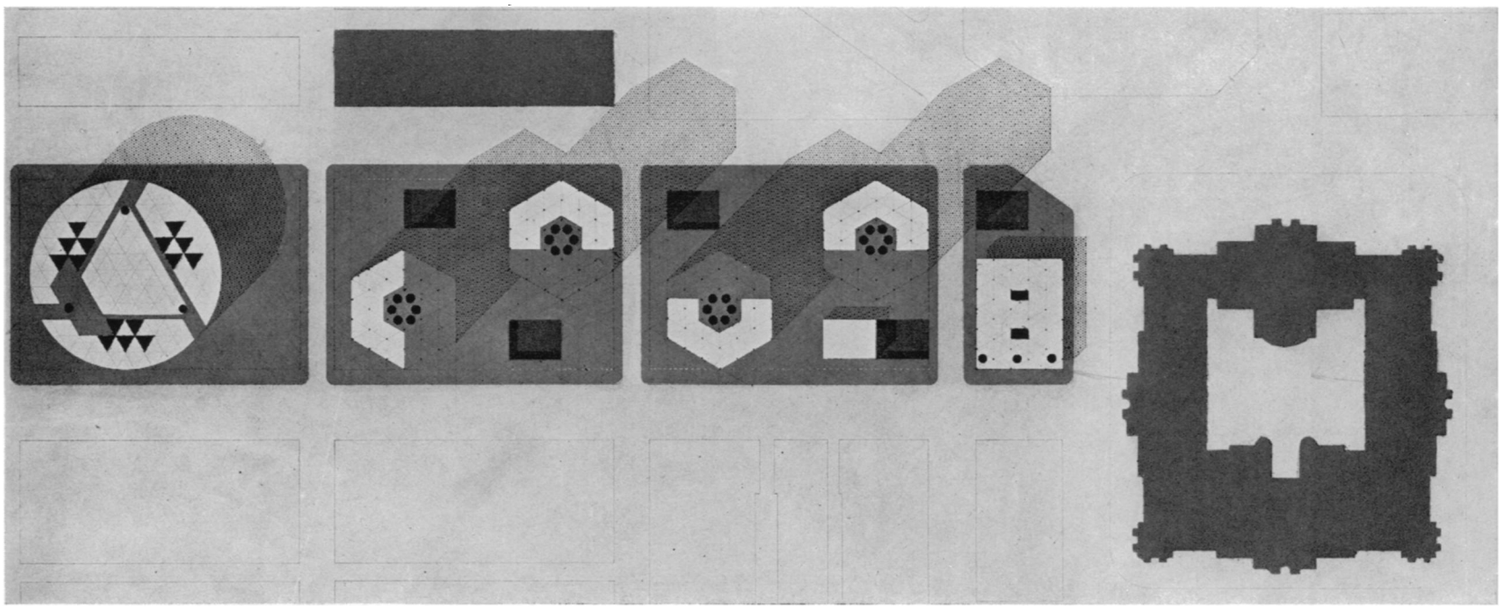


The Penn Center is an unusually large parcel of land in the middle of town opened for development after the demolition of the old Broad Street Station and of the elevated tracks referred to as the "Chinese Wall." The property is owned by the Pennsylvania Railroad, which company has been cooperating with the City Planning Commission in the overall plan for the area. A recently appointed board consisting of George Howe, Edmund Bacon of the Planning Commission and Robert Dowling, city developer, are the design consultants for the Railroad. The later suggestions illustrated here have been submitted to the design board and are proposals growing out of a continued interest in this vital area over a period of several years.

The plan of Penn Center as proposed by the Pennsylvania Railroad now extends from City Hall to 18th Street. It is recommended by the plan to develop the block from City Hall to 15th Street as a slab office tower running north and south, from 15th to 16th as two off-set parallel slab towers running east and west, from 16th to 17th to be developed in the same way as the block from 15th to 16th Street. A 5-story building covering the block from 17th to 18th Street is to be a bus terminal and communication center. This plan has changed slightly from time to time and still is undergoing modification, but it is substantially the plan known as the Dowling Plan.

The plan of Penn Center as illustrated is based on the following ideas.

That Penn Center be extended west from City Hall to the 30th Street Station across the Schuylkill River along the new Pennsylvania Boulevard to tie the Suburban Station area to



ALTERNATE ESPLANADE PLAN

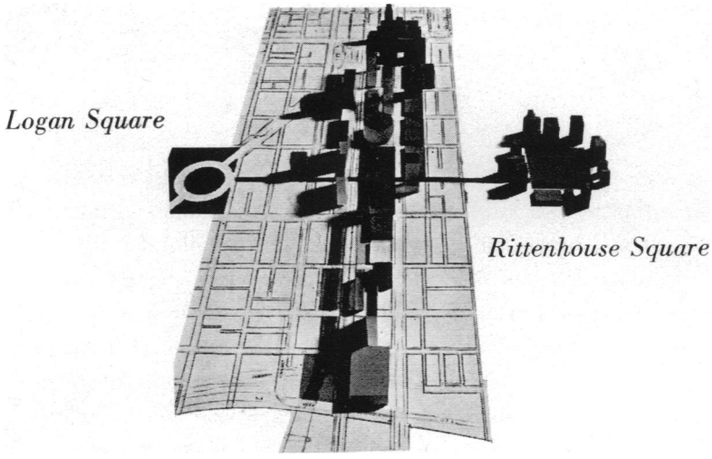


Photo by Lawrence Williams

the new developments at 30th Street Station. The extension of the address of Penn Center in this manner is intended to stimulate the real estate activities along the south side of Market Street, now not considered a part of the area.

That a park be created from 18th to 20th Street from Market Street to Pennsylvania Boulevard as an open space tying Logan Square to the north with Rittenhouse Square to the south along the axis of 19th Street. This would connect the in-town residential center of Rittenhouse Square and stimulate further developments of the civic and cultural center around Logan Square.

That the present receptiveness of the open space created by the demolishing of the "Chinese Wall" area be retained. The two proposals, showing in one case 2 towers and in the other case 4 towers from 15th to 17th Street, tend to meet the objectives of open space. In both cases, there is equivalent office space to that provided by the Pennsylvania Railroad plan.

The round glass building 270′ in diameter proposed in the block from 17th to 18th Street provides a bus station on the concourse level below grade connected to traffic by ramps from the new park. The first floor of the building is an entrance to a hotel which is planned around the perimeter of the building, and an entrance to a department store which occupies the central core of the building. The combination of the hotel with the department store offers an economy of air conditioning and an economy in the cost construction. The low building near City Hall allows for an unobstructed view of one of the most symbolic buildings of Philadelphia. Eighty foot square gardens on the concourse level below the street open to the sky and connect with the platform on which buildings stand.

Separated shop enclosures under a single low shelter are designed for the free movement of people from Market Street through to Pennsylvania Boulevard.

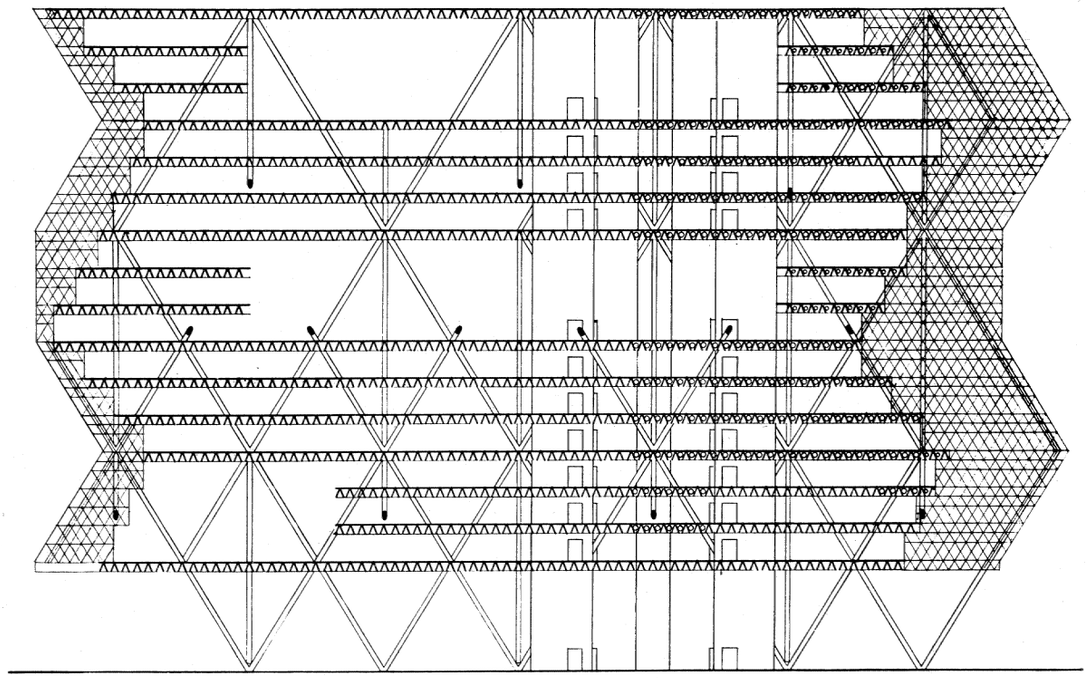
In Gothic times, architects built in solid stones. Now we can build with hollow stones. The spaces defined by the members of a structure are as important as the members. These spaces range in scale from the voids of an insulation panel, voids for air, lighting and heat to circulate, to spaces big enough to walk through or live in.

The desire to express voids positively in the design of structure is evidenced by the growing interest and work in the development of space frames. The forms being experimented with come from a closer knowledge of nature and the outgrowth of the constant search for order. Design habits leading to the concealment of structure have no place in this implied order. Such habits retard the development of an art. I believe that in architecture, as in all art, the artist instinctively keeps the marks which reveal how a thing was done. The feeling that our present day architecture needs embellishment stems in part from our tendency to fair joints out of sight, to conceal how parts are put together. Structures should be devised which can harbor the mechanical needs of rooms and spaces. Ceilings with structure furred in tend to erase scale. If we were to train ourselves to draw as we build, from the bottom up, when we do, stopping our pencil to make a mark at the joints of pouring or erecting, ornament would grow out of our love for the expression of method. It would follow that the pasting over the construction of lighting and acoustical material, the burying of tortured unwanted ducts, conduits and pipe lines, would become intolerable. The desire to express how it is done would filter through the entire society of building, to architect, engineer, builder and craftsman.

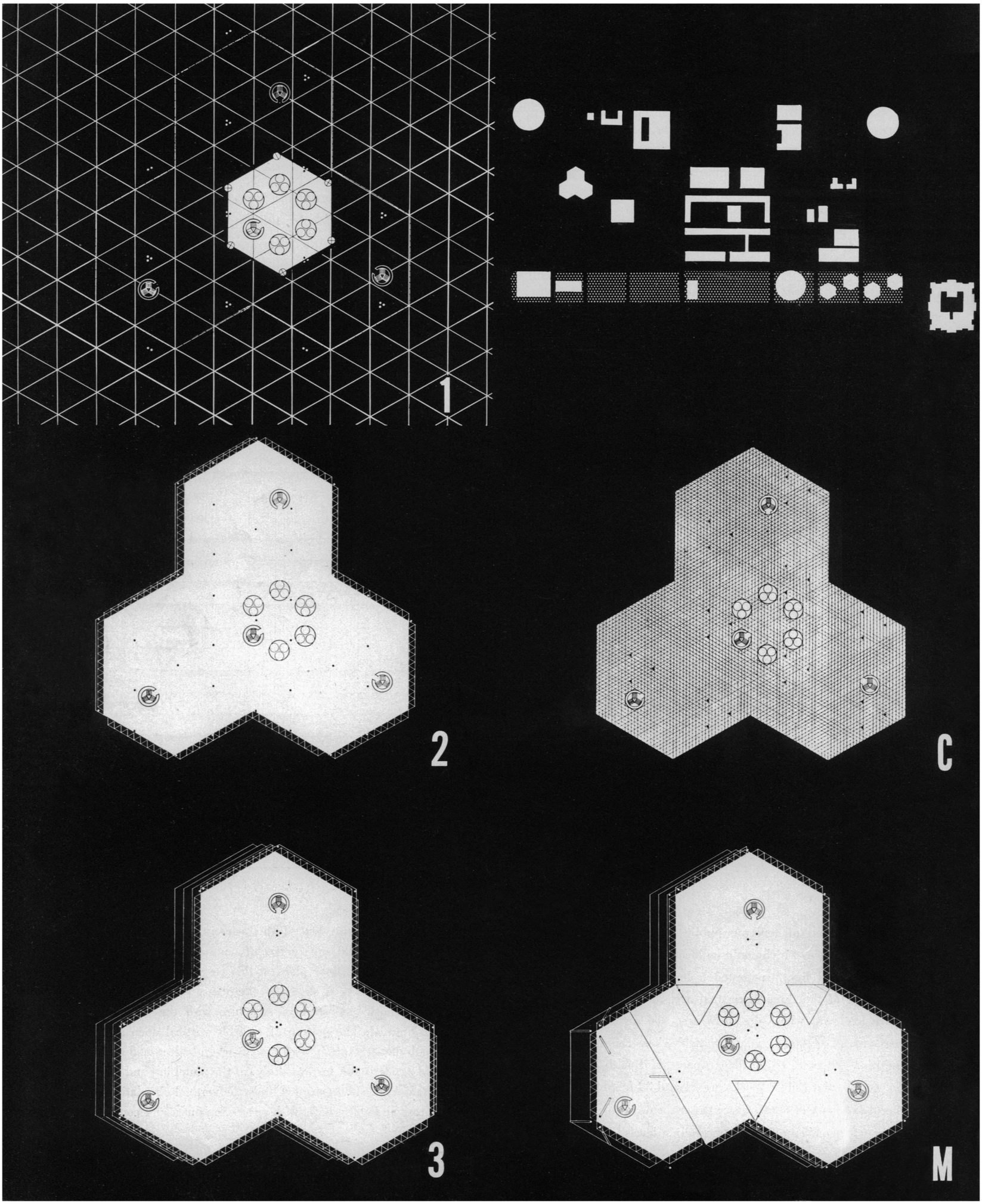
PROPOSED CITY HALL BUILDING

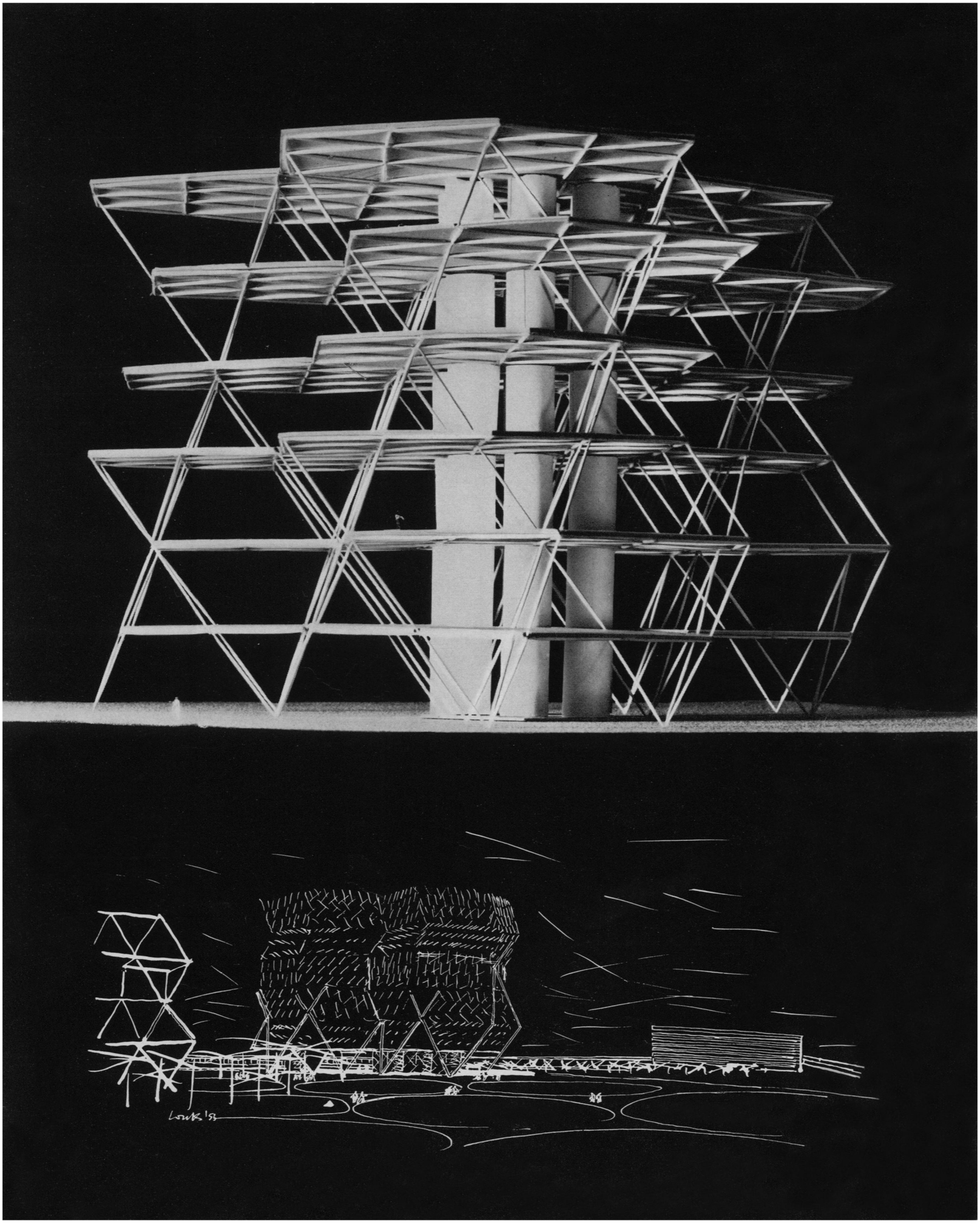
Louis I. Kahn, Architect

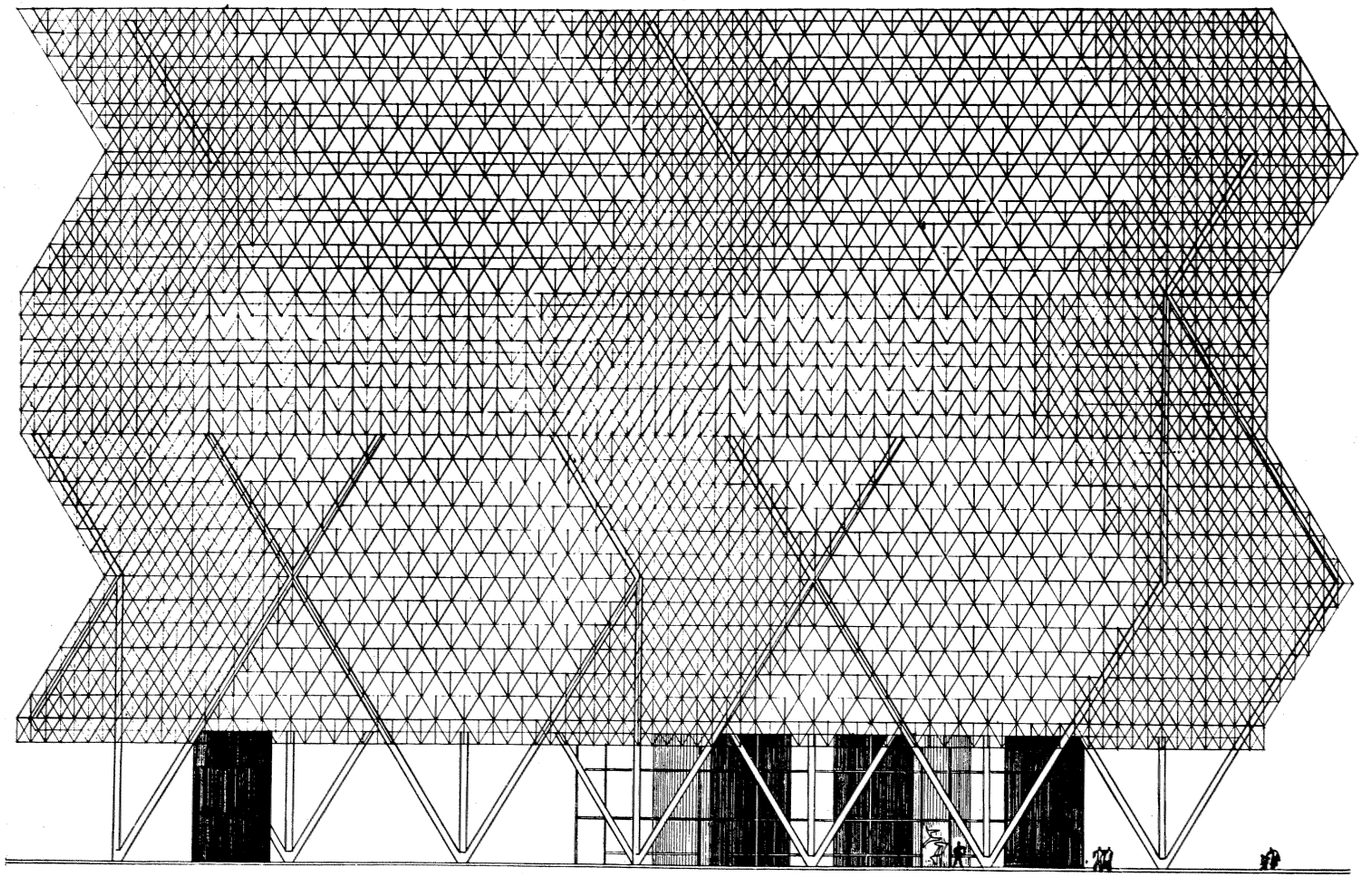
Anne G. Tyng, Associated Architect



The requirements of generous public areas, meeting rooms and exhibit spaces which could be located in an area not requiring natural light, suggested a building of large floor area. Each of the three hexagonal areas in plan is 20,000 square feet, and where the three are used on one level a gross area of 60,000 is made available. The ceiling of the exhibition entrances to the departments of Health, Recreation, Zoning and Public Works are 21 and 33 feet high. The general work spaces of the larger departments have a 21 foot ceiling with smaller offices on mezzanine levels. This structure rising the equivalent of 18 stories in height would contain about 500,000 square feet of net space, excluding the public areas. The floor plans at this stage of study are undivided loft spaces as shown on the plans. The model shows only the basic geometry of structure with the mezzanine floors omitted. The pattern of possible vertical open shafts through the structure is regular, and several additional shafts would appear upon further study of the plumbing and other mechanical needs. At present, only the vertical circulation of elevators and stair shafts with spaces for ducts and conduits is indicated.



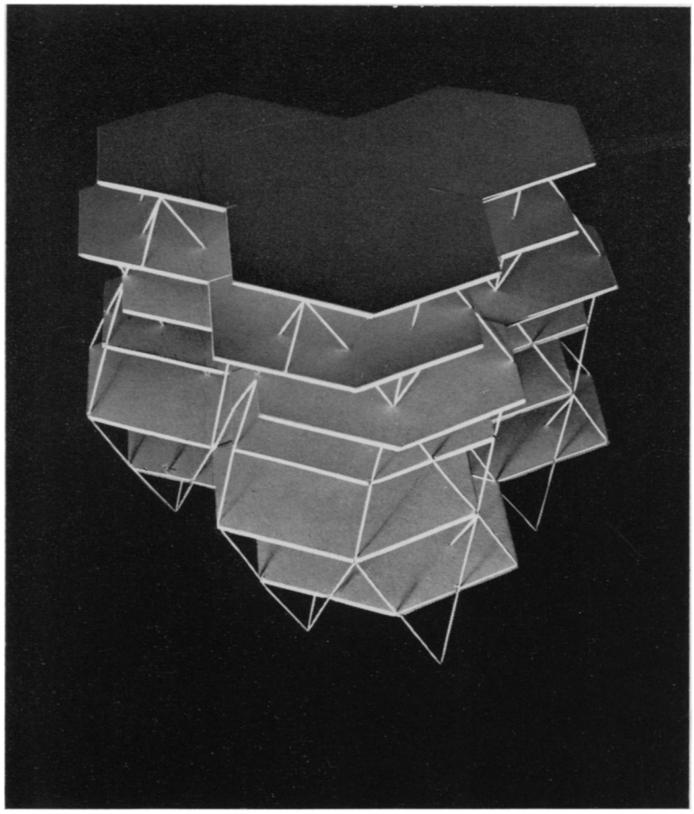




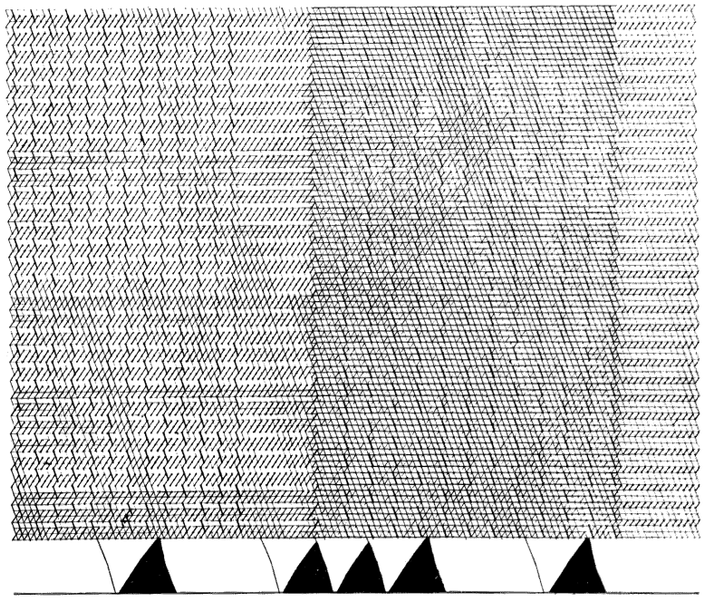
The space frame tower was developed to satisfy a desire to express one of the endless potentialities of three dimensional construction and to make such choices as would integrate structure with the programmed space needed for working and for the harboring of the mechanical requirements. It is an exploration of the resultant forms of extending a triangular space frame system in a vertical direction. The floor plans are not directly over each other, shifting in a triangular relationship with each other as a result of the geometry of the structure. The entire building is trussed by the cross framing and intersecting of the column system.

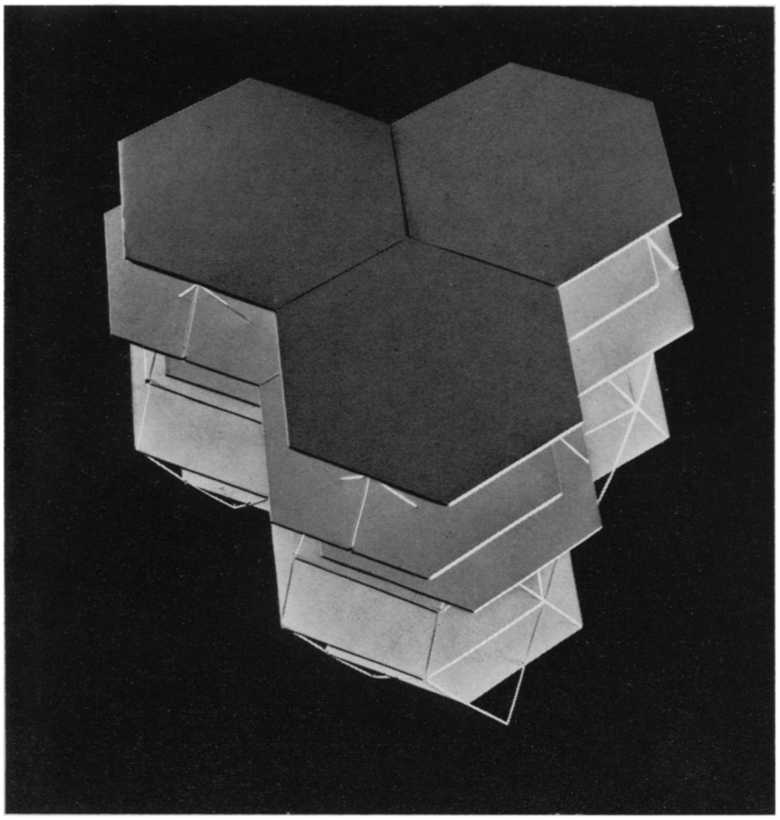
The precast, prestressed concrete struts forming the triangulated frame come to a point every 36′. These major levels shift to meet the angles of the struts. In the full building height of 216′ there are 6 major levels. Each of these levels may be divided into 3 floors of 12′ floor to floor. The two mezzanine levels between major levels stiffen the frame. Uninterrupted struts reaching the full height would be braced at a point about 20′ above the floor. The floor construction is 3′ deep, composed of precast light weight concrete tetrahedrons, the walls of which are just thick enough to cover the reinforcing.

In the octotedron spaces of the floor structure are exposed the conditioned air ducts and wiring conduits. The floor slab over the tetrahedrons is poured on insulation panels which absorb the sound. The ceiling pattern itself tends to break up sound. The air ducts are round pipes spaced 3′ apart and follow the structural module and are installed at the pouring of the ceiling structure. Their openings point upward to the ceiling, with the air filtering down after striking the slab. This continuous mechanical system provides a complete flexibility of space division. Such a system is now being used for the Art Gallery Building at Yale University.



Photos on this page and pages 24-25 by Gallob





FIRST STUDY OF THE CITY HALL BUILDING

The building is conceived as an alternating space frame system of trussed spaces 27′ in height and free spaces of equal height. The trussed space rests on membrane-connected triangulated frames clustered around the vertical circulation, leaving the remaining space free of supports. The trussed space would contain departmental offices and other work spaces. The central column-free space on the plan below would be the entrance rotunda for exhibits, auditorium spaces or meeting halls. The 27′ high space on either floor can be made into 2 stories.