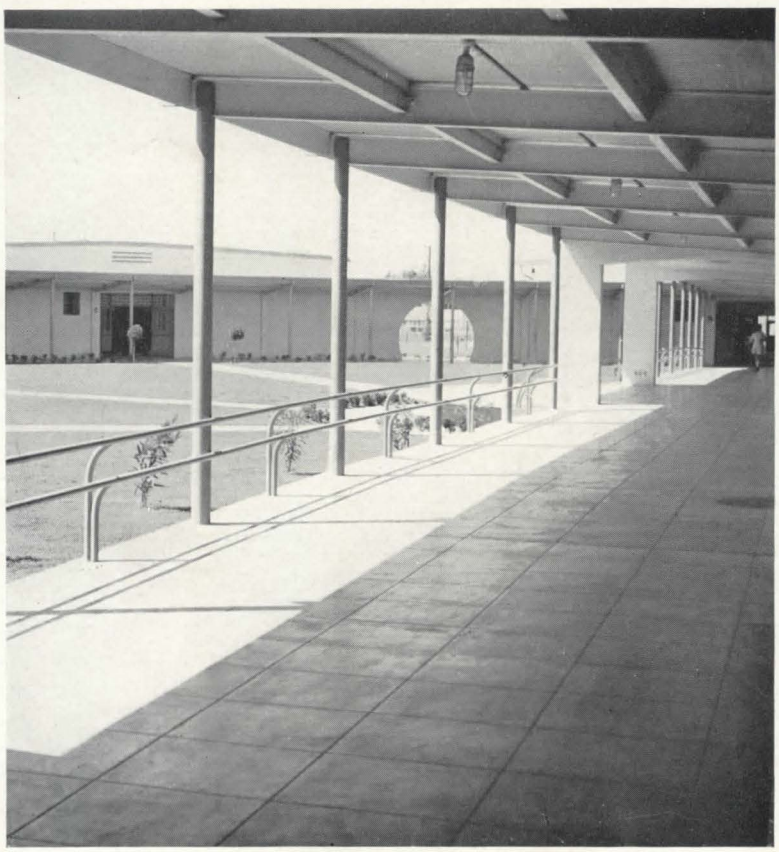
BUILDING NEWS



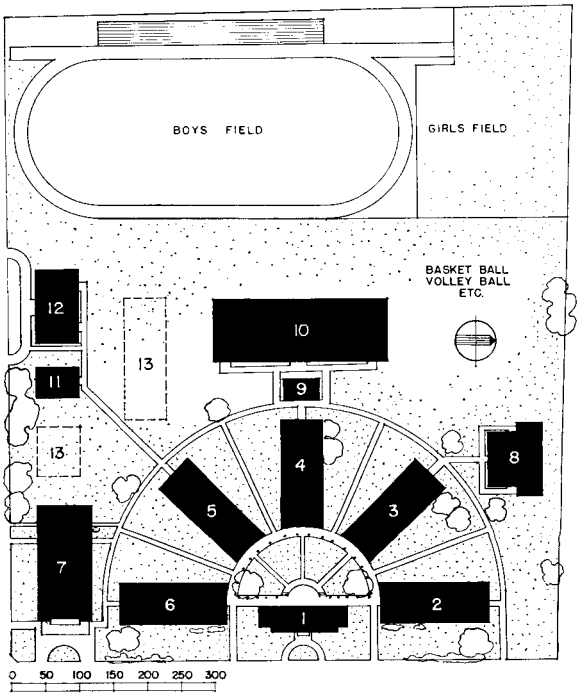
From natural disasters, new design principles . . .

ARCHITECTURAL RECORD
COMBINED WITH
AMERICAN ARCHITECT AND ARCHITECTURE

Snider-Triangle

The Administration building — only one on campus of normal structural con
crete design — contains school offices on first floor, library on second

H. L. GOGERTY and
C. E. NOERENBERG
Architects and Engineers



Plot Plan

1. Administration a
   Library
2. Typing, Bookke
   ing
3. Domestic Scienc
4. Art and Acade
5. Photography
6. Science
7. Auditorium a
   Music
8. Cafeteria
9. Heating Plant
10. Gymnasium
11. Industrial Arts
12. Printing and Dra
    ing
13. Future Buildings

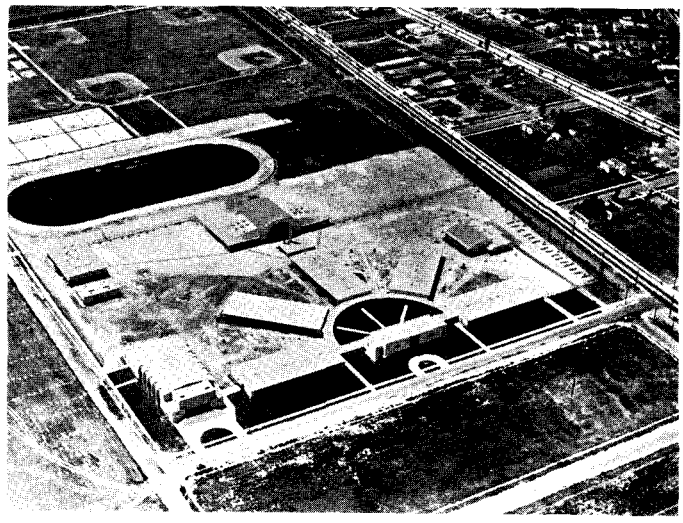
MANY PLAN AND STRUCTURAL INNOVATIONS IN DORSEY HIGH SCHOOL

ECAUSE OF A WHOLE COMPLEX of technical, eco-mic and social factors, resistance to change in e field of school building is high: only the im-ct of major events—earthquakes, fires, war—is mediately reflected in the design of new build-gs. Such an impulse was furnished Southern lifornia school design by the quakes of the early irties; and the new design principles employed Susan Dorsey High in Los Angeles stem rectly from these natural disasters. For, to be rthquake-resistant, lightness of construction (in s instance already dictated by the low load-aring foundation soil) is essential; and structural ments must be flexible to withstand lateral rces. The envelope must be reduced to its mini-m volume and divested of all extraneous or ojecting ornament. Finally essential is a low nter of gravity.

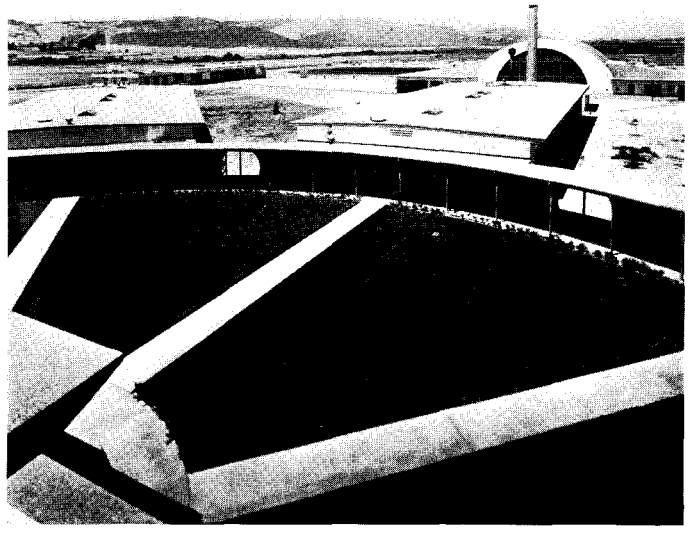
The plot plan of the buildings—spreading fan-aped about a central administration unit—lends elf admirably to the breaking up of a program requirements, each in its proper relation to the ucational scheme. Instead of a jumble of class-oms, the project emerges as a departmental rangement of units, each in its own building, mplete with toilet facilities, storage, lockers, etc. The immediate result of segregating classrooms o departmental groups is a decentralization of e school population. Even in event of a com-te change in the population of any unit between sses, circulation in the corridors could not ex-ed double the population of the unit. At the me time, the fan-shaped layout reduces travel stances between classrooms to a minimum, cre-ng numerous traffic routes. A semicircular cov-ed walkway, 15 ft. wide, joins the inner ends the 5 classroom units; an uncovered semicircu-walkway joins and encloses the outer ends of units; and uncovered walkways extend radially m the administration building to each classroom it.

The 100-ft. radius semicircular area behind the ministration building suggested an outdoor as-nbly space. This was developed by locating a all stage to the rear of the administration build-at the junction of the radial walkways, and by ntly sloping the ground as in a Greek theater. e amphitheater so created will accommodate 00 persons; 2,000 is the ultimate capacity of school.

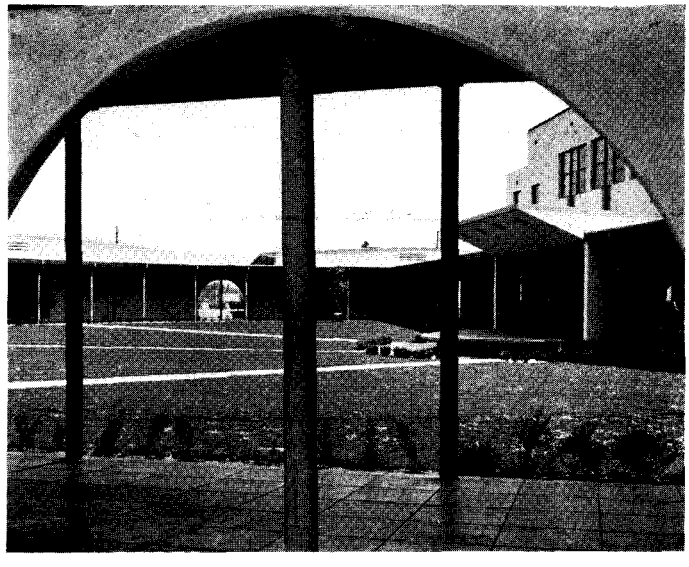
Beyond the central classroom group are located litorium, industrial arts building, gymnasium lding, cafeteria, and study hall building, and a ntral heating plant. Thus structures devoted to sical activity are removed from those devoted more sedentary activities, yet are sufficiently oximal to one another to avoid isolation.



Snider



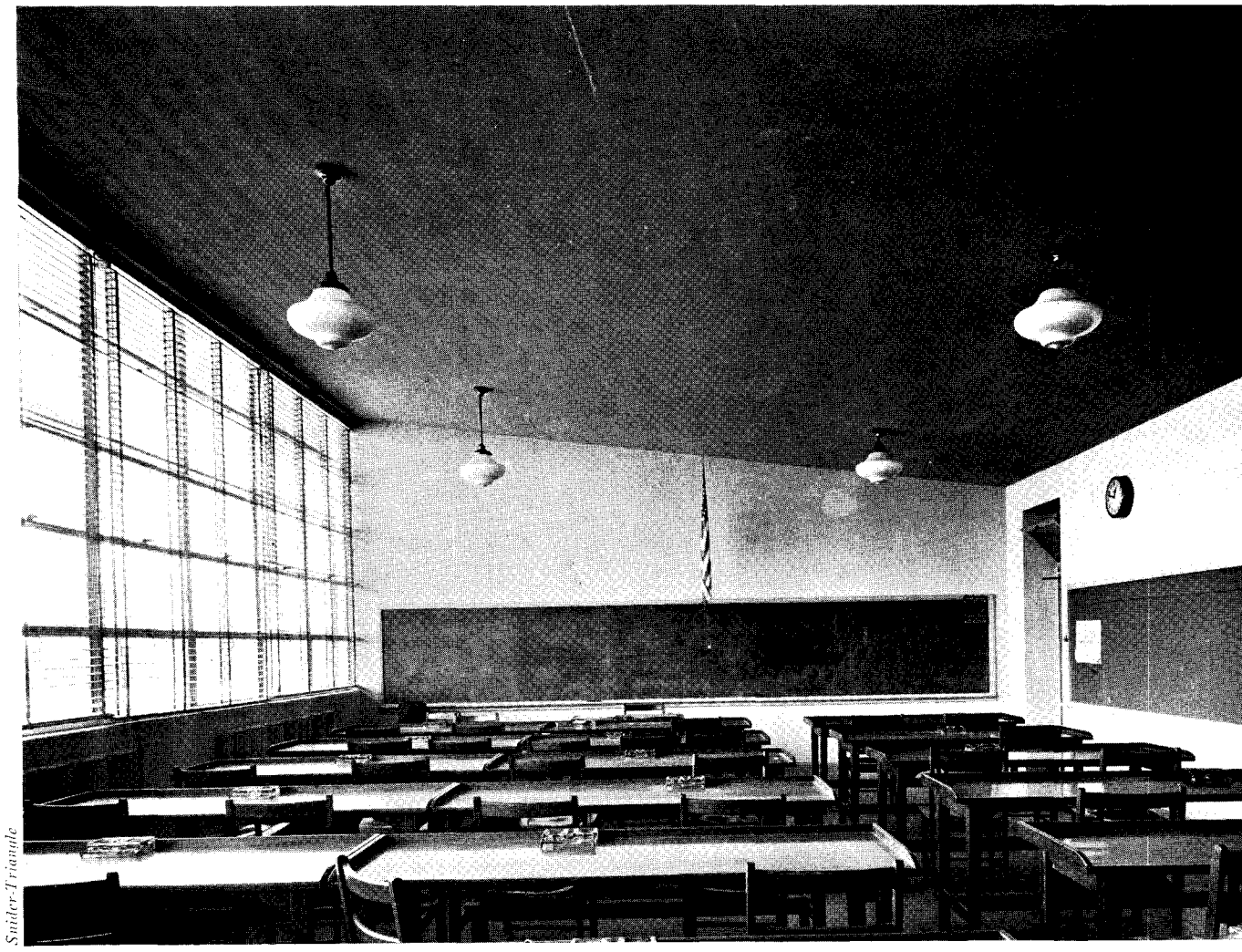
Snider-Triangle



Starrett

The basic organization of the school plant—and the care with which it has been executed—is apparent in the air view (top), views from Administration Building (center), and view across the amphitheater (bottom) with open-air stage.

CLASSROOM UNIT—DORSEY HIGH



Snider-Triangle

Classroom ceilings slope with lower chords of cantilever trusses; this elim inates waste space, aids daylighting, and prevents sound reverberations whic occur when ceiling and floor are parallel.

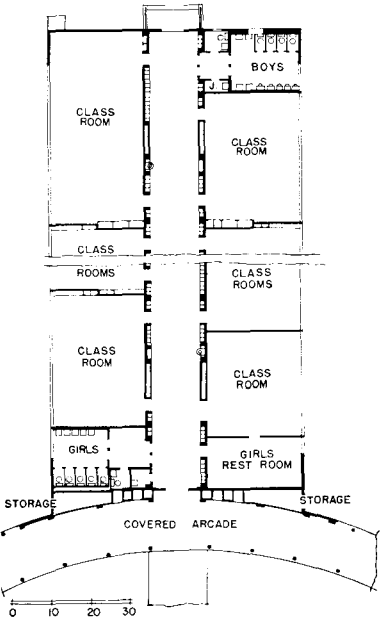
From an engineering standpoint, the most interesting feature of this project is the structural design of the classroom units. (Their weight per cubic foot of volume is about one-half the weight of the usual type of structure.) The roofs are supported on pairs of 8-in. H-columns located within the partitions forming the central corridors. These columns bear directly on Raymond concrete piles averaging 30 ft. deep, one column to a pile, the pairs spaced approximately 15 ft. center to center. The columns support and become integral parts of cantilever trusses extending from each side of the corridors to and beyond the outer walls of the buildings. Reinforced-concrete beams arranged in grid fashion tie the piles together at their tops and distribute at ground level all stresses other than direct vertical loads. One advantage of this construction is that it eliminates the necessity of supporting the weight of exterior walls on the foundation piles.

Exterior concrete walls extend only up to the window sills and are very thin; thus these walls are virtually all window. They assume no load other than their own weight, and are stayed by clips, 3 ft. on centers, to the cantilever trusses in a manner which (in event of an earthquake) permits 2-in. vertical movement o the truss at junction with the wall, but does not perm any horizontal motion caused by wind stress or earth quake. All wind stresses on the walls and possible hor zontal earthquake stresses are resisted by the trusse and supporting columns, and cross-bracing between th load-bearing columns above corridor ceilings is designe to withstand wind-pressure of 20 lbs. per sq. ft. on th walls. Partitions between classrooms assume no loa other than their own weight and can be removed, re placed, or relocated at will as other arrangements o classrooms may be desired.

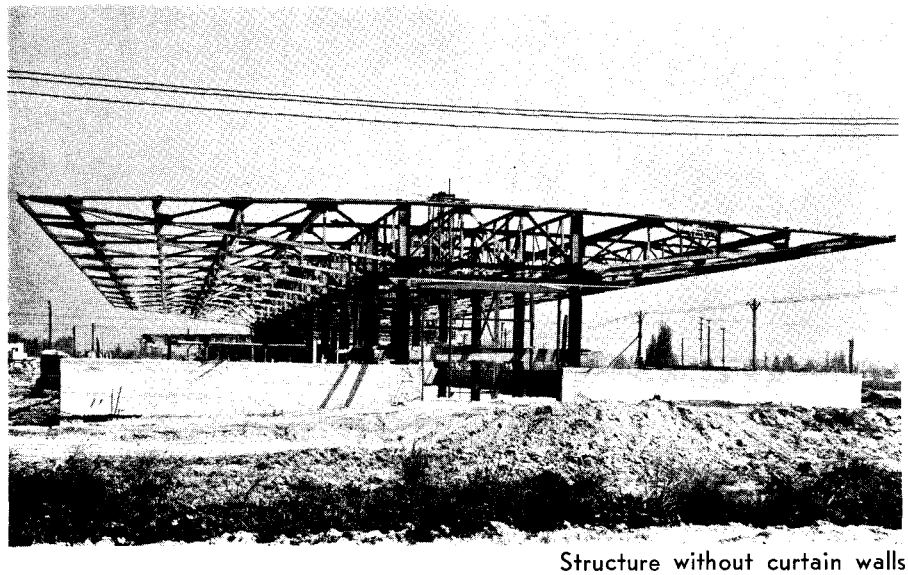
Steel construction throughout is of the lightest con mensurate with safety in order to keep soil-bearing loa at a minimum. (The cantilever truss as designed lighter than a normal span truss of equal load-bearin capacity.) Piling is relieved of the weight of the floor which are laid directly on the ground. Piping, wirin and all utilities are confined in shallow concrete-line trenches at the outer edges of the buildings. The co crete bottoms of these trenches are designed to act a footings for the lightweight exterior walls and are a integral part of these walls.

Snider-Triangle

Typical corridor

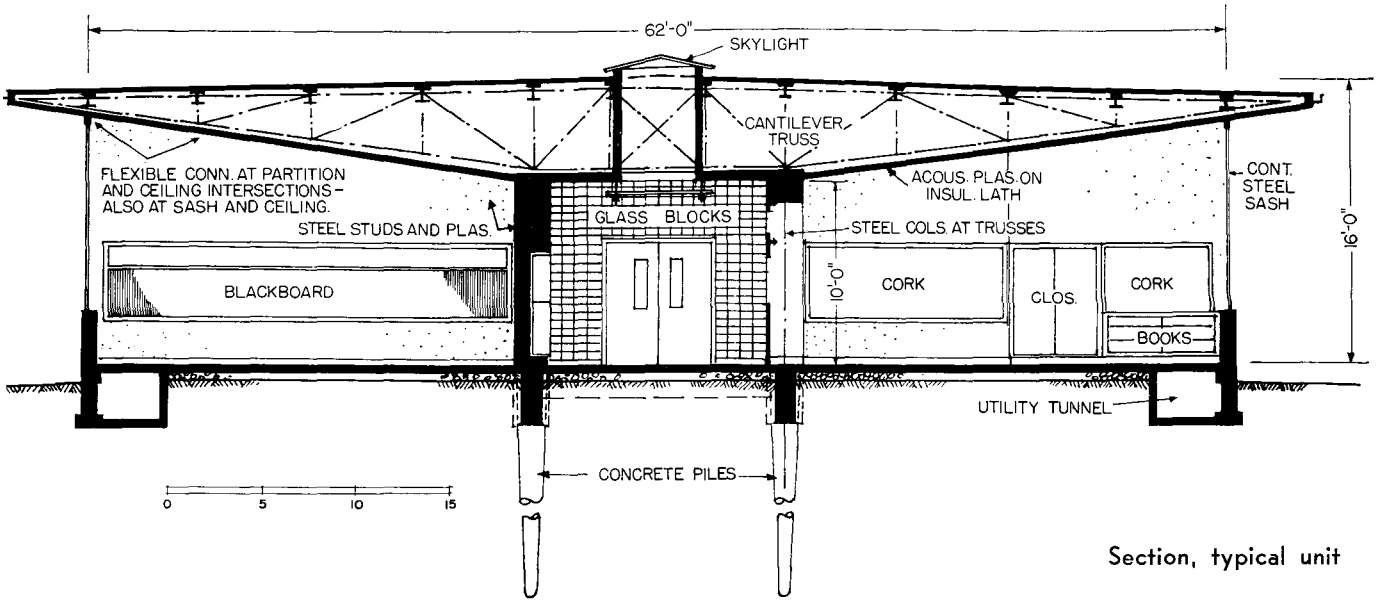


an, typical unit



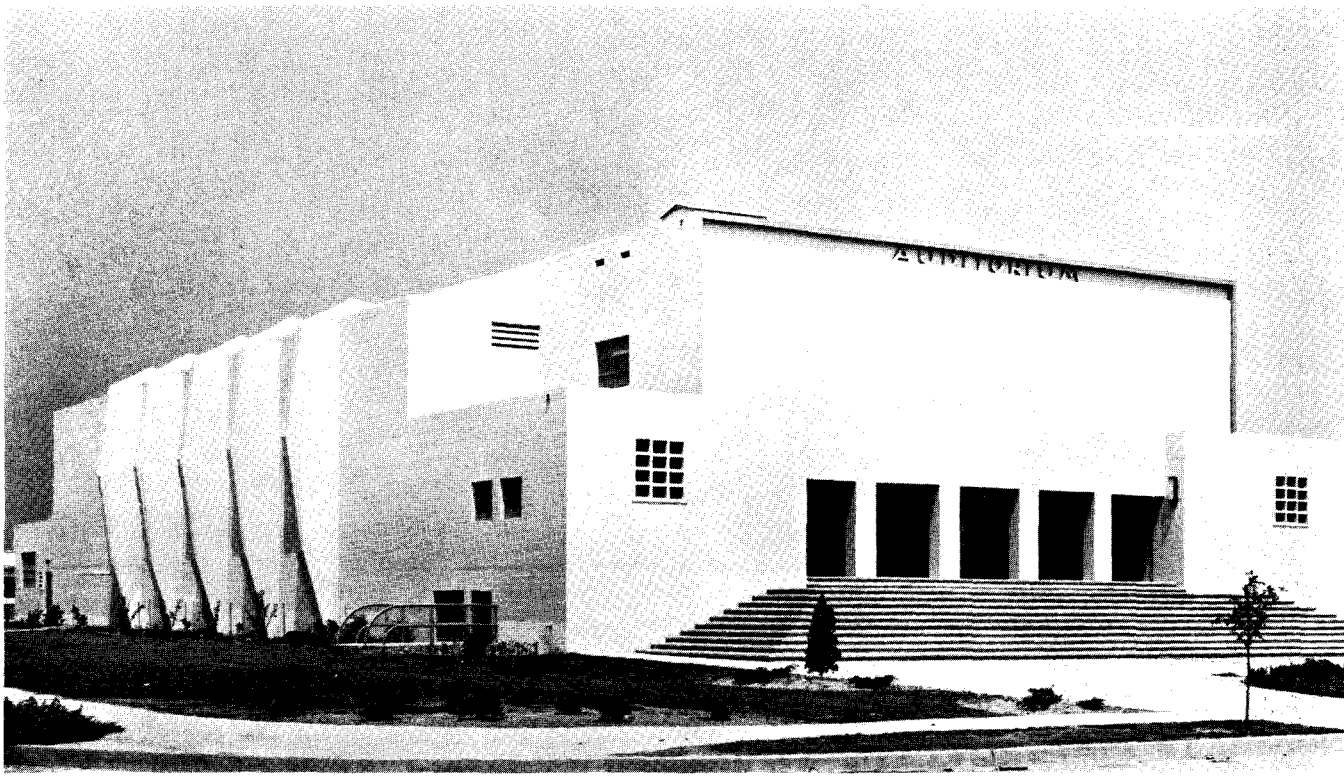
Stairet

Structure without curtain walls



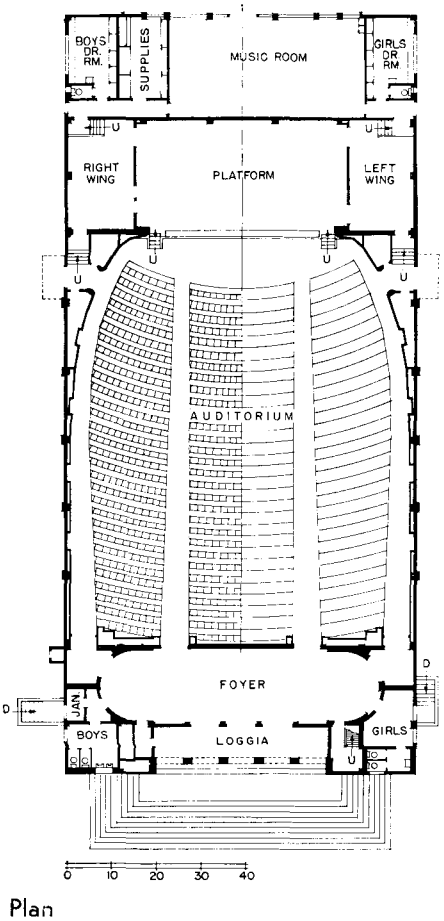
Section, typical unit

AUDITORIUM—DORSEY HIGH



Starrett

AUDITORIUM BUILDING: By throwing the mass of the arches outside th structure, the interior is freed of all exposed steelwork; externally, they a treated as an organic part of the structure.

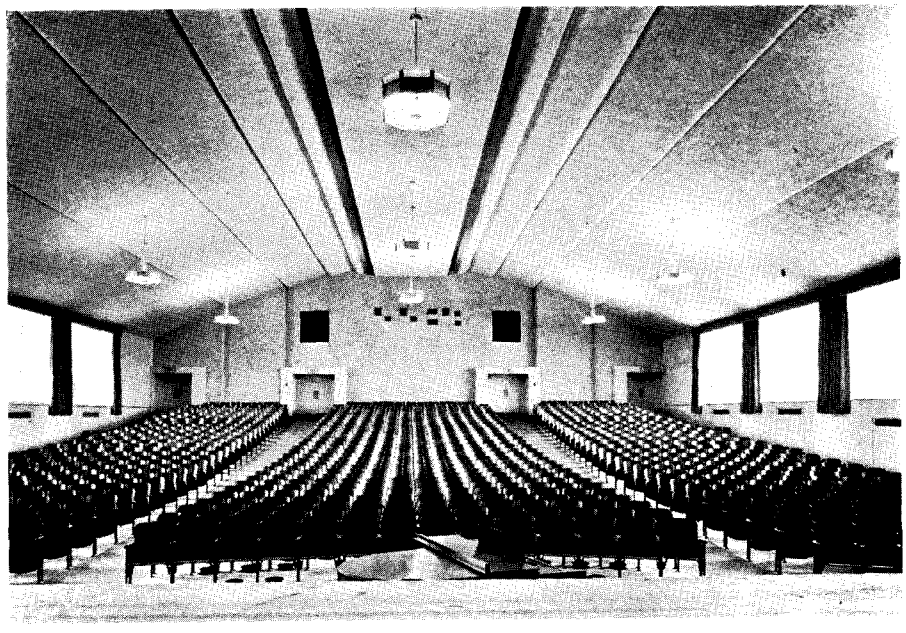


Plan

THE AUDITORIUM structure, of three-hinged arch construction, is inte esting from several standpoints. It was desirable to have vertical aud torium walls, with no exposed steelwork jutting into the room, but the same time it was recognized that a normal semicircular arch wou entail much wasted space if vertical walls were erected within the arc The problem of obtaining maximum clear interior space underne the arch was solved by designing what is, in effect, an exaggerate hinged, flat arch whose two segments are tilted outward to perm vertical walls within; the bases of the walls correspond with the ar footings. The mass of the arch is thus thrown outside the buildi and is treated as an integral part in the architectural form of t structure.

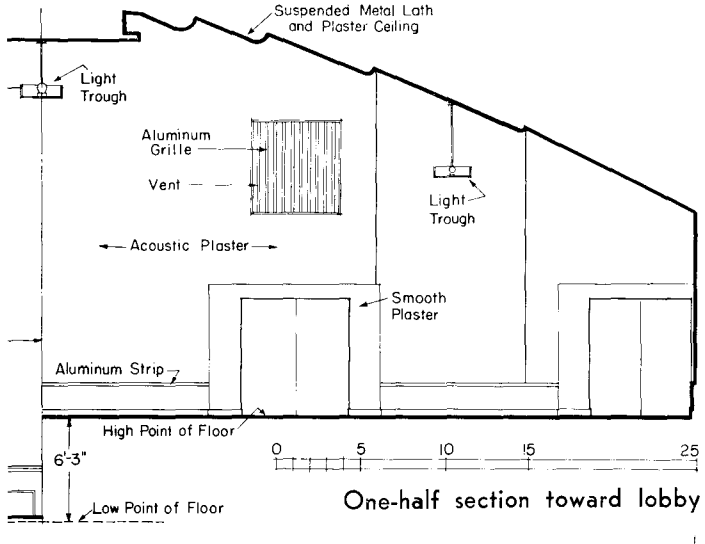
The barrel type of ceiling common to arched structures was su planted by a ceiling composed essentially of planes presenting a unifor angle to the horizontal. This was done because acoustical calculatio in barrel-type ceilings are difficult, complications arising because the continually changing angles of reverberation. With all reverbera ing surfaces in the ceiling at the same angle to the horizontal, calcu tion of acoustical properties was a relatively simple matter.

The same system of parallel planes was used in construction of t rear wall of the auditorium. Instead of having the wall follow t curve of the seats, or of having broken rows of seats tucked in square corners, the wall was designed as a series of planes parallel the stage and stepped to follow the contour of the rear row of sea

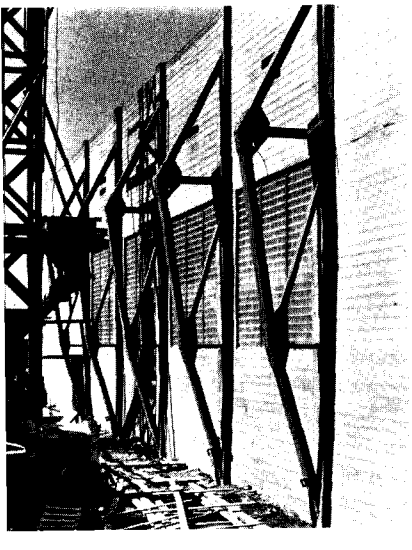


Snider-Triangle

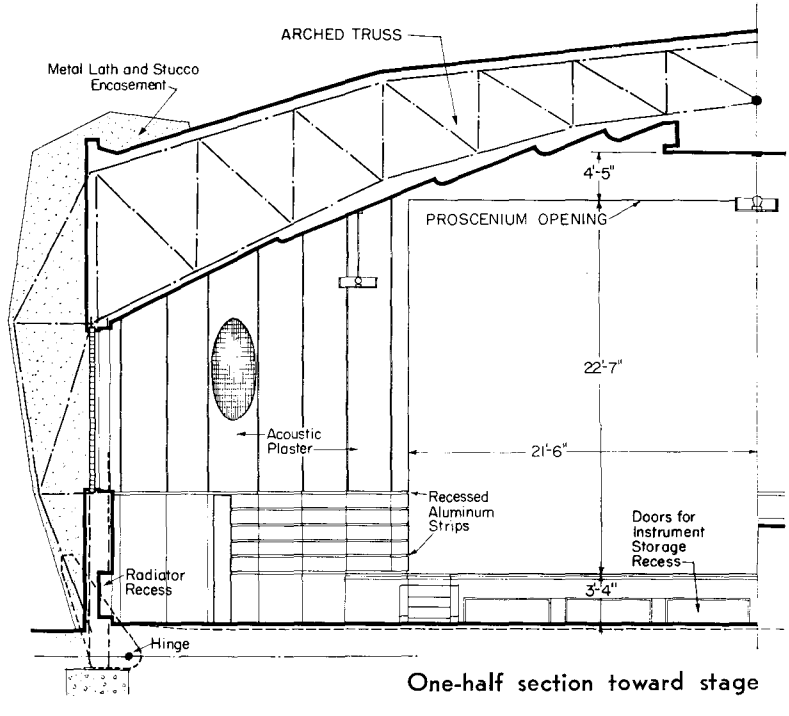
Auditorium, looking toward lobby



One-half section toward lobby

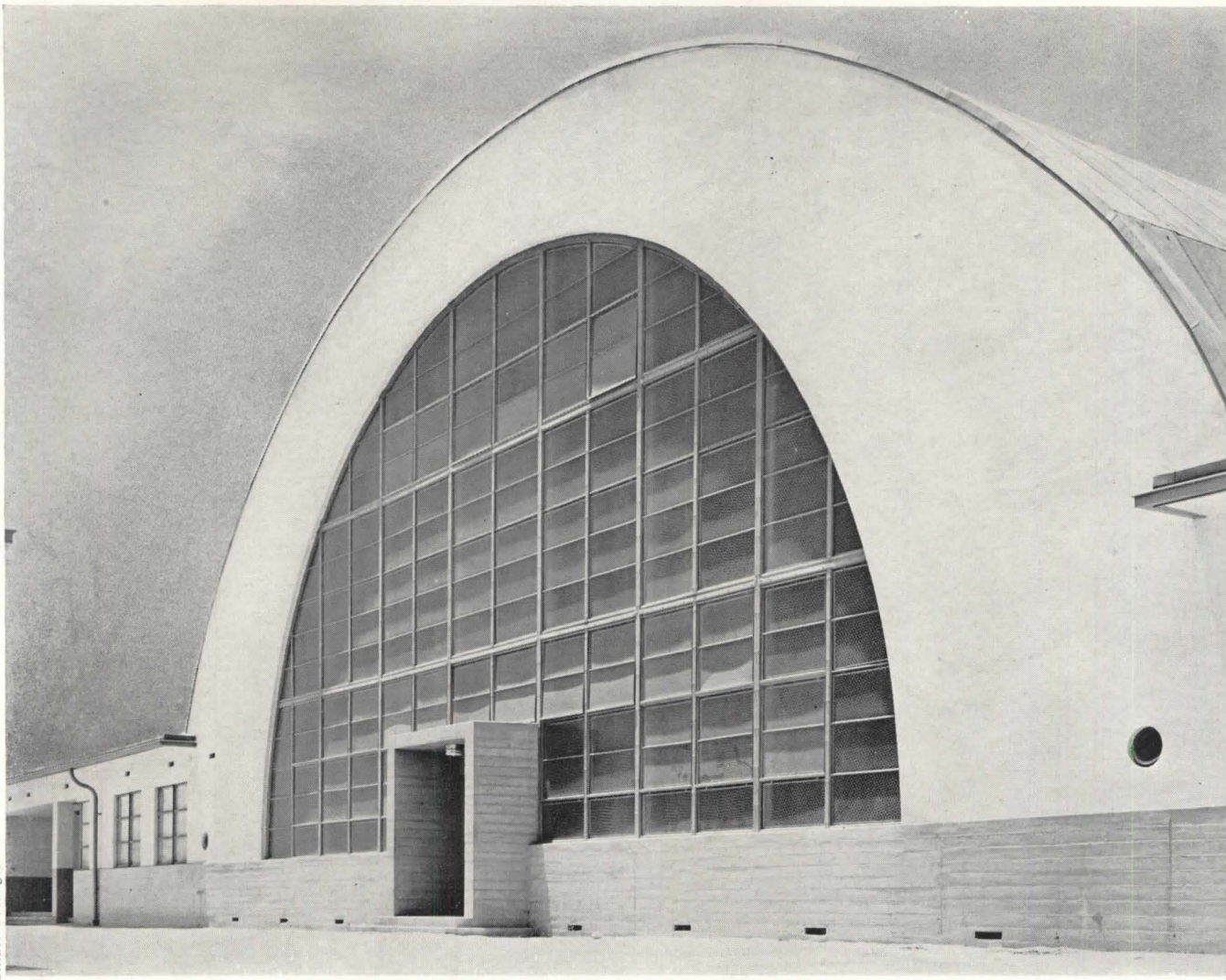


uditorium wall under construction, owing how the three-hinged arches e bowed outward from the struc- re to permit vertical walls within. ese protruding "ribs" were later eathed to become an integral part the architectural form of the ucture.



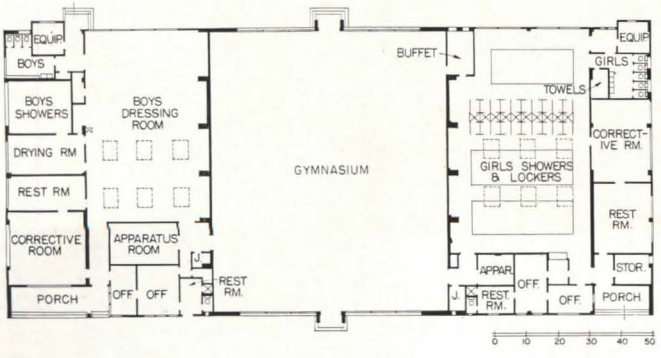
One-half section toward stage

GYMNASIUM—DORSEY HIGH



Snider-Triangle

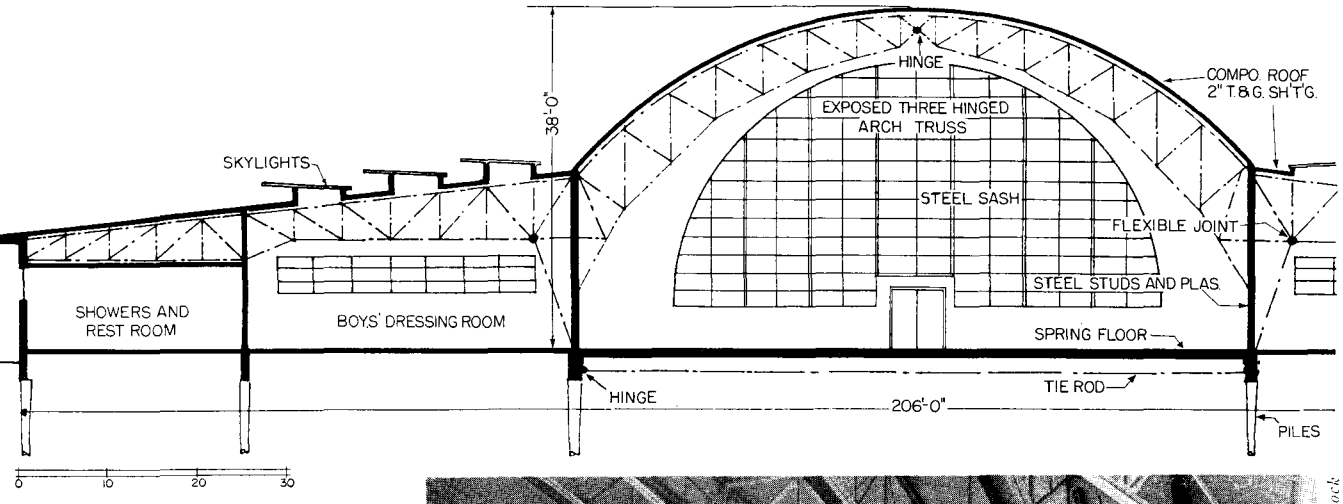
Front view



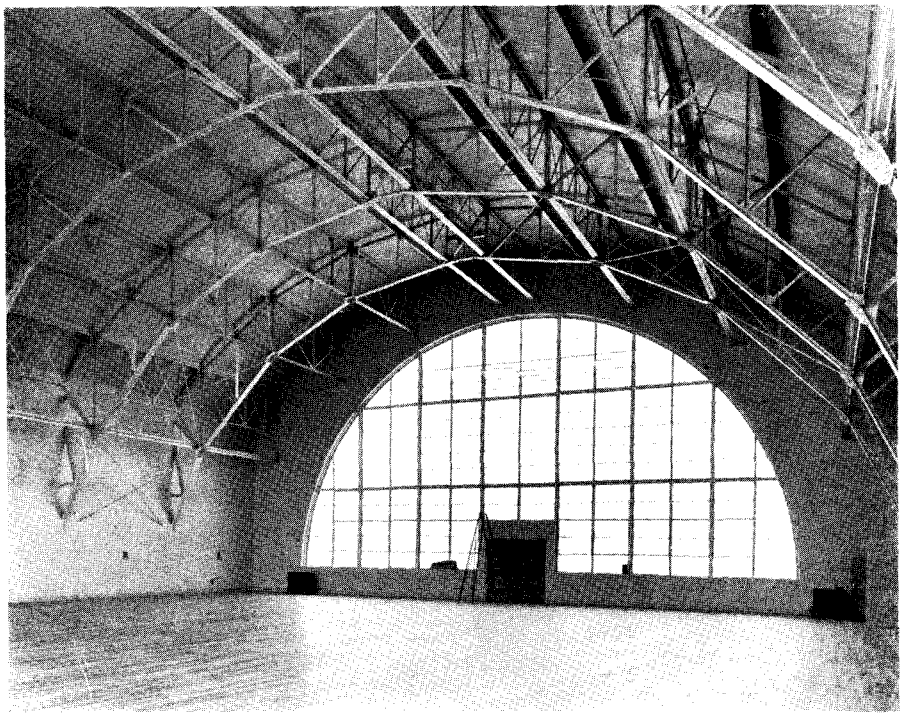
Plan

THE GYMNASIUM building is designed for flexibility event of earthquake. The gymnasium room pro incorporates a series of three-hinged steel arches 78-ft. span and 33-ft. clear height. Roof trusses sp ning the dressing rooms on either side are suppor at one end on projecting heels of the arches so t their loads tend to counterbalance the weight of e half of the arches. Although tie rods connect the a footings, load at the lower pins is almost wholly v tical because of this counterbalance effect. The count balancing also reduces stresses in the arches, with c sequent saving in weight. The roof trusses over dre ing rooms are supported at their junction with the a heel on roller bearings which permit lateral movem so that vertical load only is assumed by the arch.

This flexible, lightweight construction is highly ear quake-resistant. Its weight is about one-half that the more conventional wall and span-truss constr tion, and overthrow effect is minimized and brought the surface of the ground. In addition, it provi unusually high ceiling clearance in the gymnasium a reduces the area of exterior wall surfaces to a minim

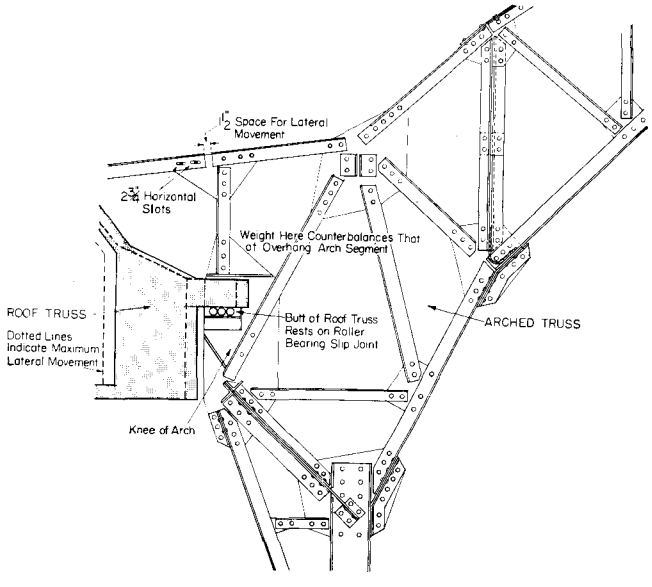


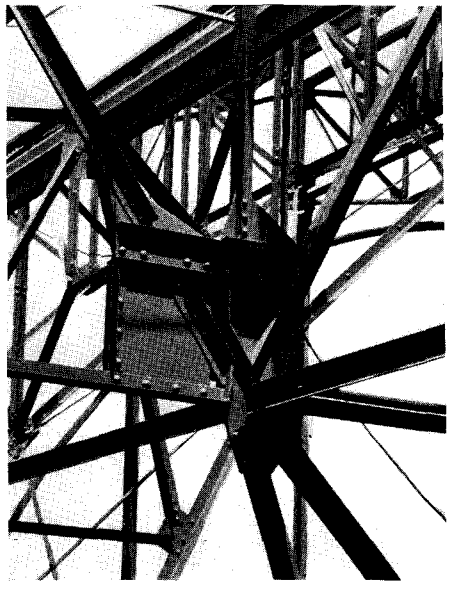
ngitudinal section (above);
ymnasium (right)



Woodrock

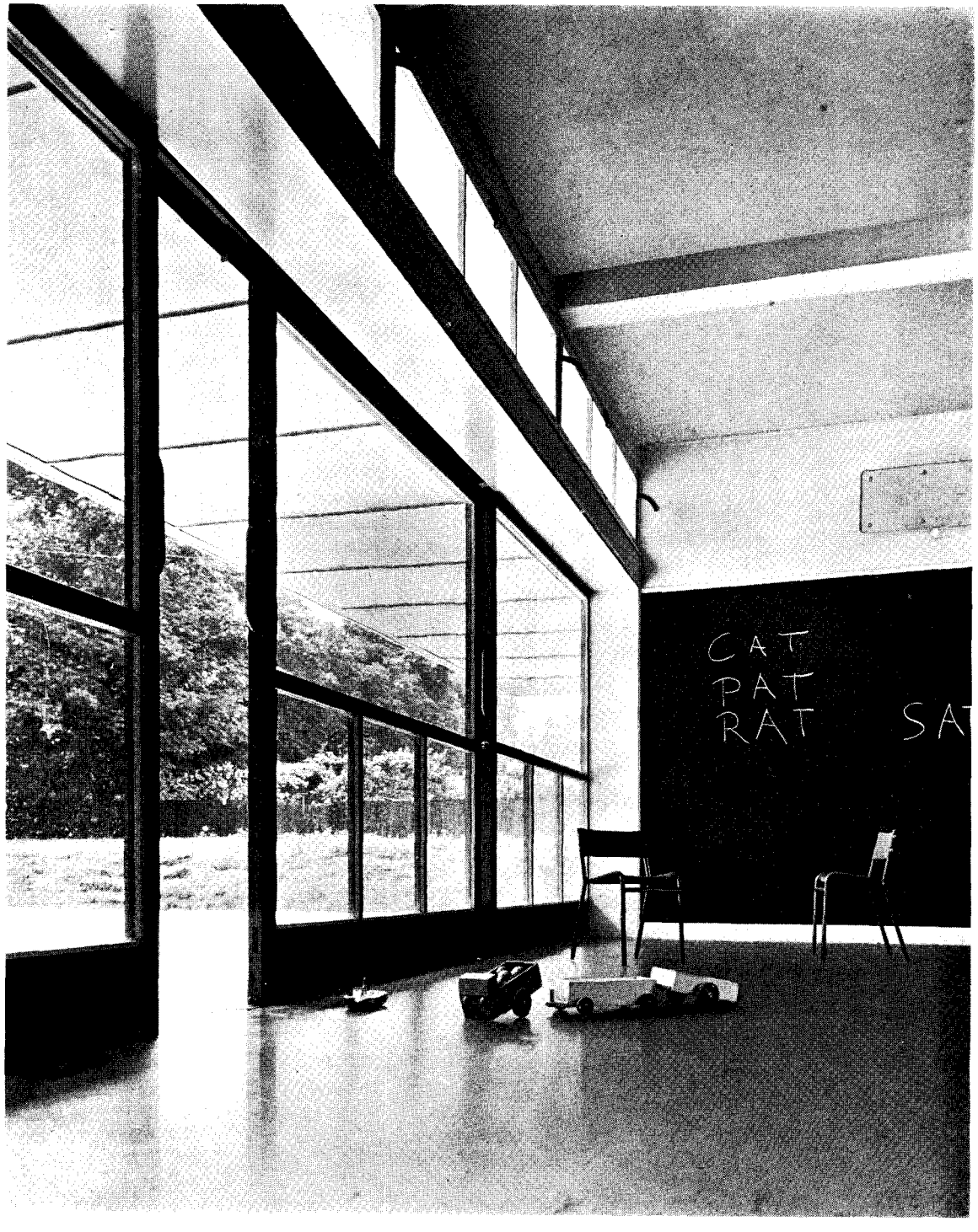
Photos courtesy "Southwest Builder & Contractor"





Starrett

Detail and photograph of Gogerty & Noerenberg's roller-bearing slip joint, with end of roof truss bearing on knee of hinged arches. This joint assumes vertical load only and permits lateral motion caused by earthquakes. Thus such horizontal strain is not transmitted to the arch. Roof-truss weight on the knee helps counterbalance weight of arch about pin at ground level.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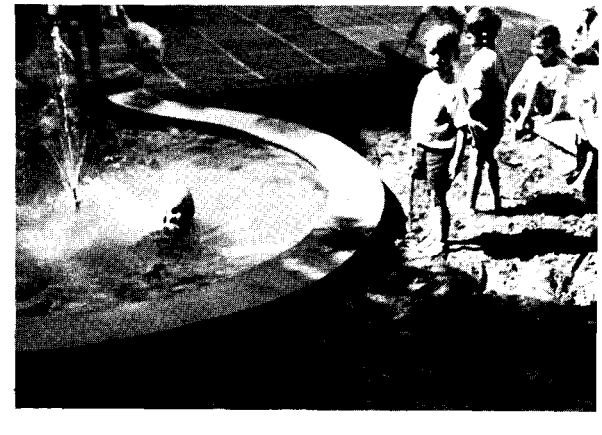
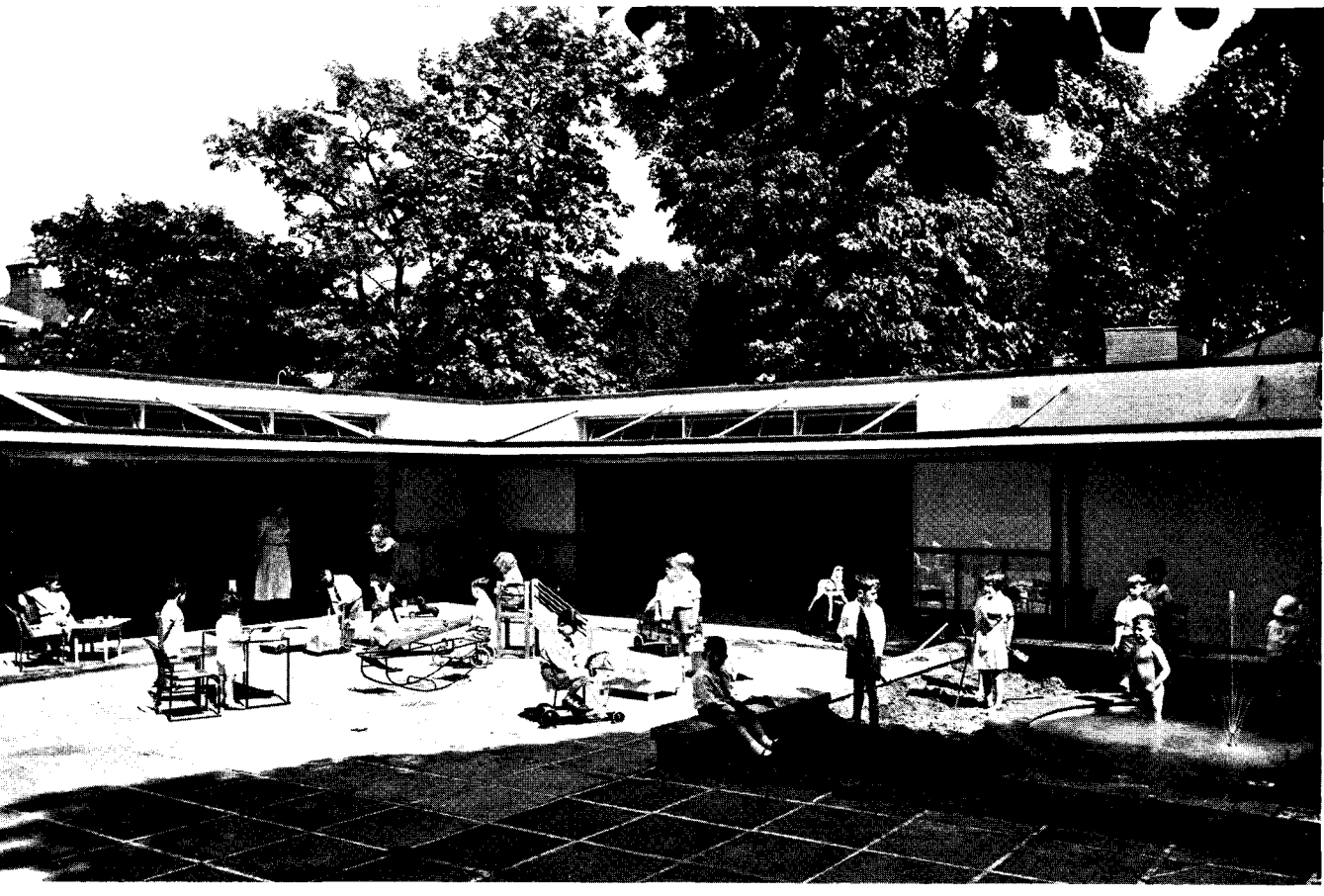
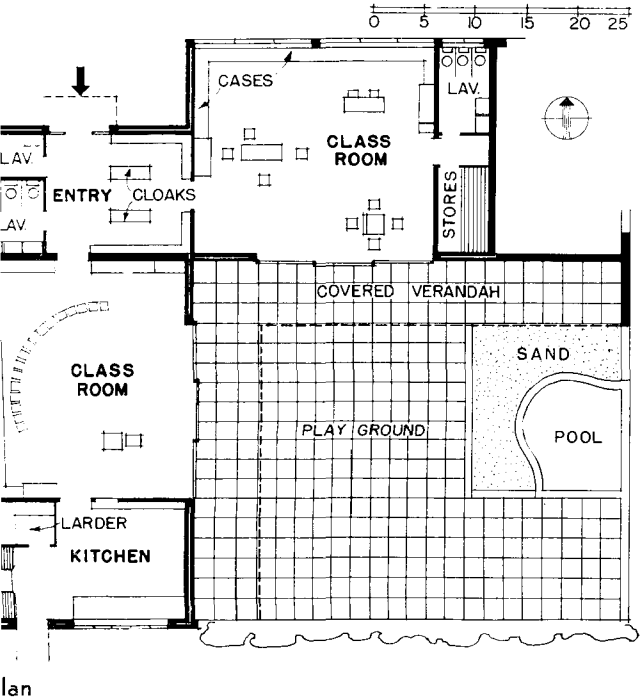


EW ENGLISH NURSERY GIVES CHILDREN LIGHT, AIR, AND PRIVACY



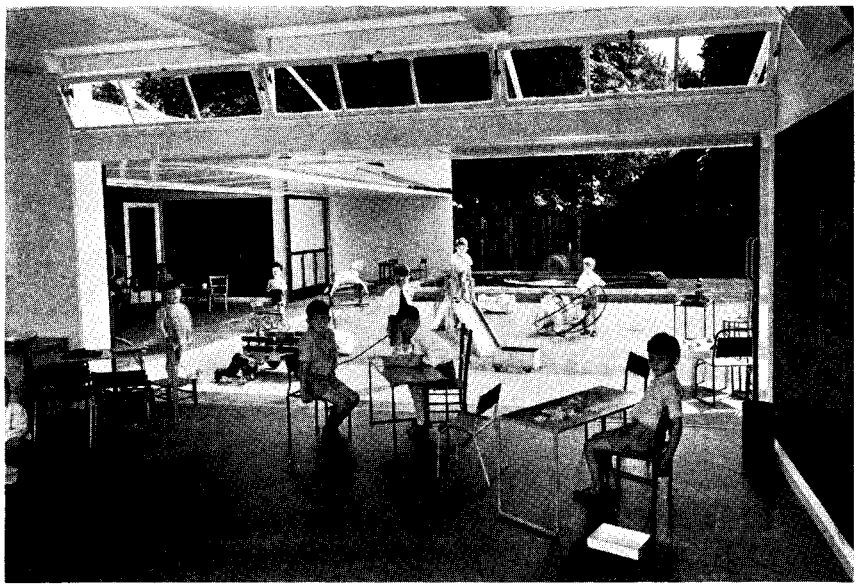
Walbridge

SAMUEL & HARDING
Architects



lan

DESPITE ITS RELATIVELY small size, the nursery school at Dulwich, England, adequately accommodates its 45 pupils in two classrooms, whose careful planning provides a maximum of light, air, and seclusion. Because the nursery was built in connection with an existing school, its level site was naturally restricted. The L-shaped plan was inevitable because of these existing buildings; but this limitation worked out to an advantage, for the playground, protected on two sides by the building itself, is easily supervised. The other two sides, surrounded by a low fence, open on a paddock in which are many large trees. The building consists of a single story with a flat roof; each wing contains a large classroom with lavatories. The entry, in the exterior angle, serves also as cloakroom. The exterior is red brick, in accordance with a requirement of the landlords that the building conform with the surrounding late Victorian-Gothic buildings. The brickwork of the walls facing the playground, however, has been painted white. Brick carrying walls are used throughout; all wide openings are spanned by steel joists. The roof is of timber and is carried on steel binders. Total cost, including all equipment except movable furniture, was approximately $9,500.



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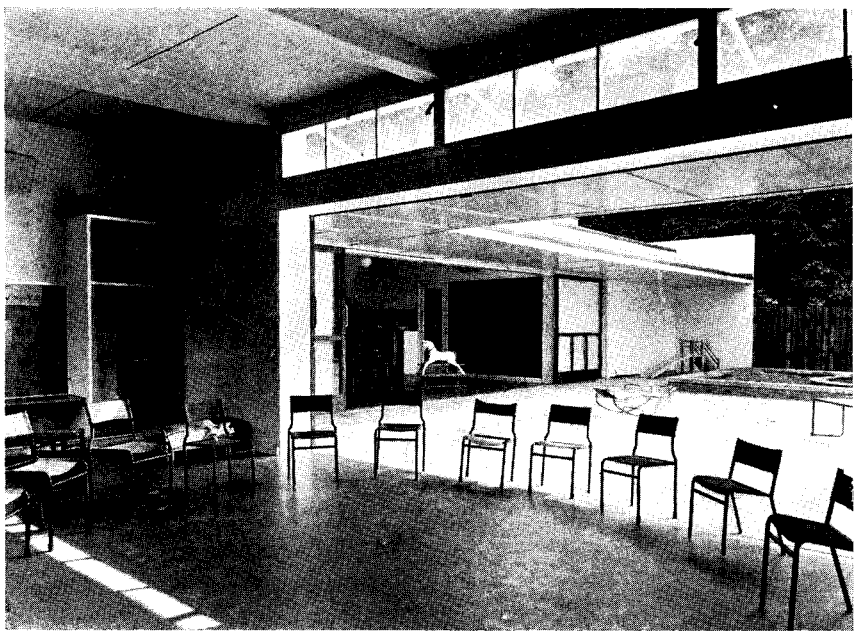

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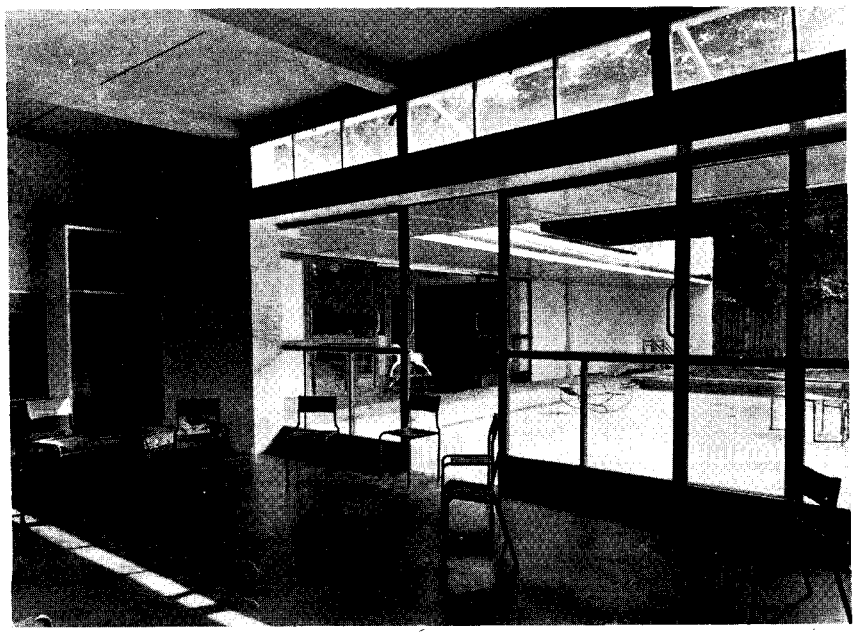
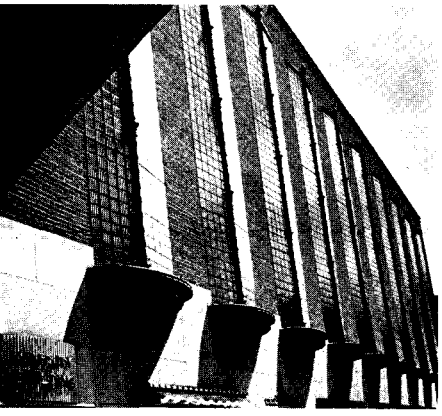


3

Clerestory windows above the proj
ing canopy give unshaded light
adjustable ventilation. The classro
can be completely open to the p
ground (1), or a lesser degree of o
ness can be obtained by closing
clerestories (2); when necessary, cle
tory and sliding windows may be
tirely closed (3). Sliding windows
of teak, and run on rubber tracks
flush with threshold; all other wind
are deal. Classroom walls are
cream-colored plaster; ceilings are
untreated fiberboard; floors are
leum; blackboards are green linol
in one room, brown in the ot
Heating is electrical, with rad
heaters overhead and tubular con
tors at floor level.

LWAUKEE: THREE-WAY AIR CONDITIONING IN TRIPLE-USE STRUCTURE

GRASSOLD & JOHNSON
Architects

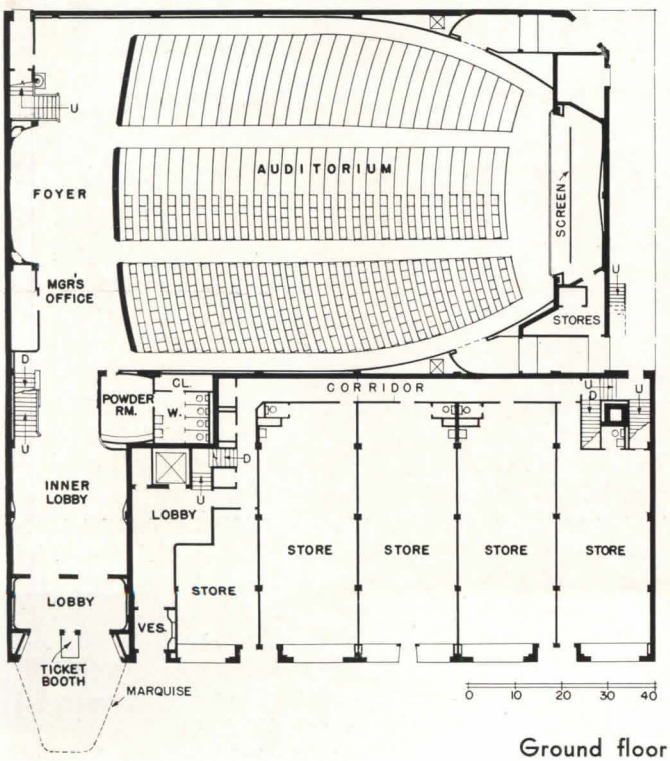


daylight for offices comes through these
-block oriel windows, which are con-
ous from second floor through fourth.

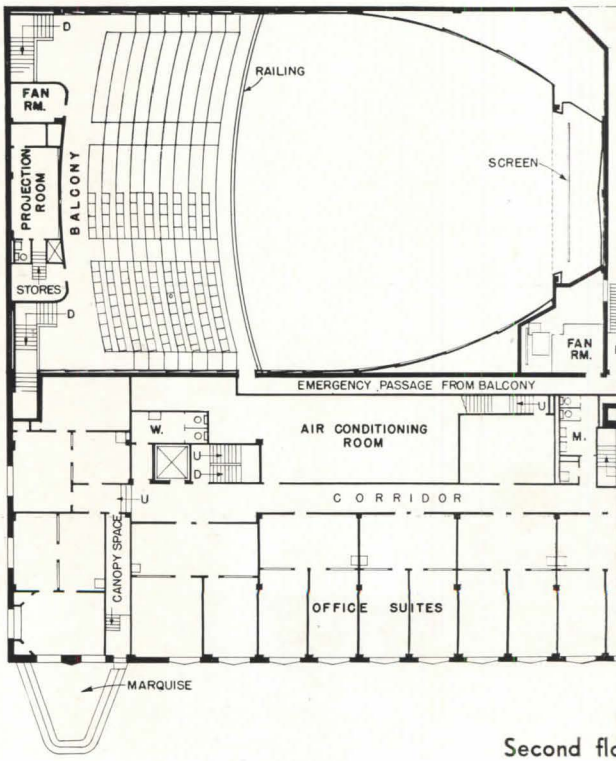
COMPLETE AIR CONDITIONING of the Varsity Theater Building in Milwaukee, Wis., makes windows unnecessary; thus the function of the vertical glass-block panels is simply to admit daylight. Housed in this windowless structure are 5 stores and a 1,400-seat theater on the ground floor, and offices on the 3 upper floors. Because of the diversity of uses for which the building was designed, the heating and air-conditioning systems are laid out on an individual basis, but distribution of conditioned air is from a central point on the second floor. Eight rows of coils are used in the theater's system and a continuous 3-in. grille in the ceiling cornice below the light troughs acts as a means of distribution. The stores are heated and cooled by individual units installed in the basement. The office portion of the building is divided into four zones and is supplied with conditioned air from the equipment room on the second floor. The building is steel-framed, with concrete floors and special ceiling arrangement in the office portion to accommodate duct work and piping. Exterior is of granite base construction with stone and face brick veneer.

Photos by Hedrich-Blessing

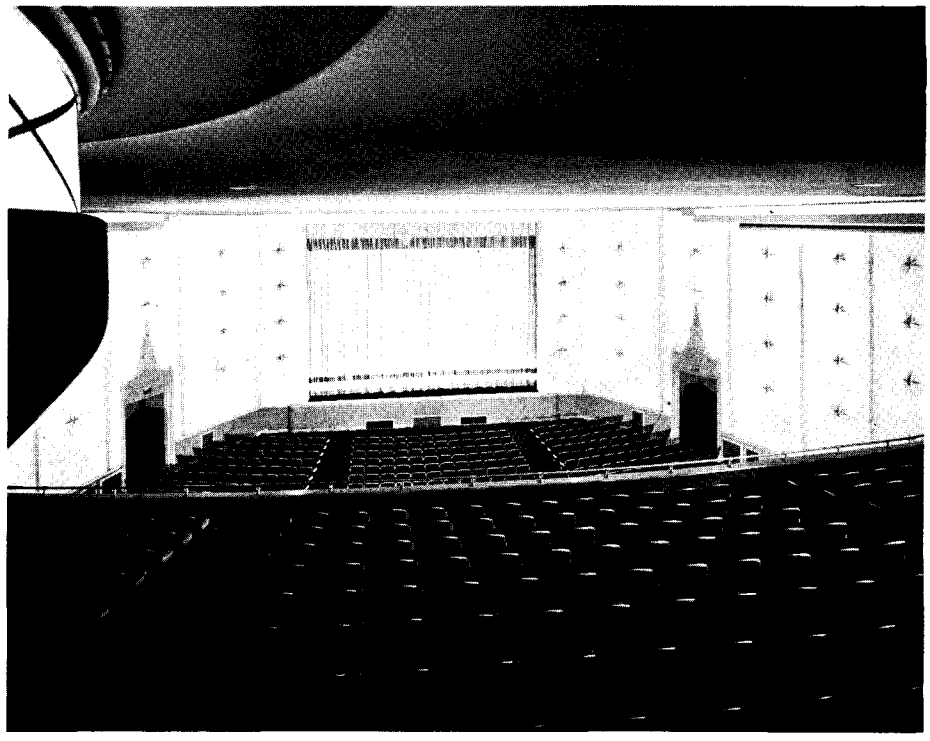
At night the building, lighted from within and from without, surprisingly assumes a horizontality which it lacks by day. Except for the brilliantly lighted theater marquise, floodlights concealed in the round corb at base of windows are the only external sou of light.

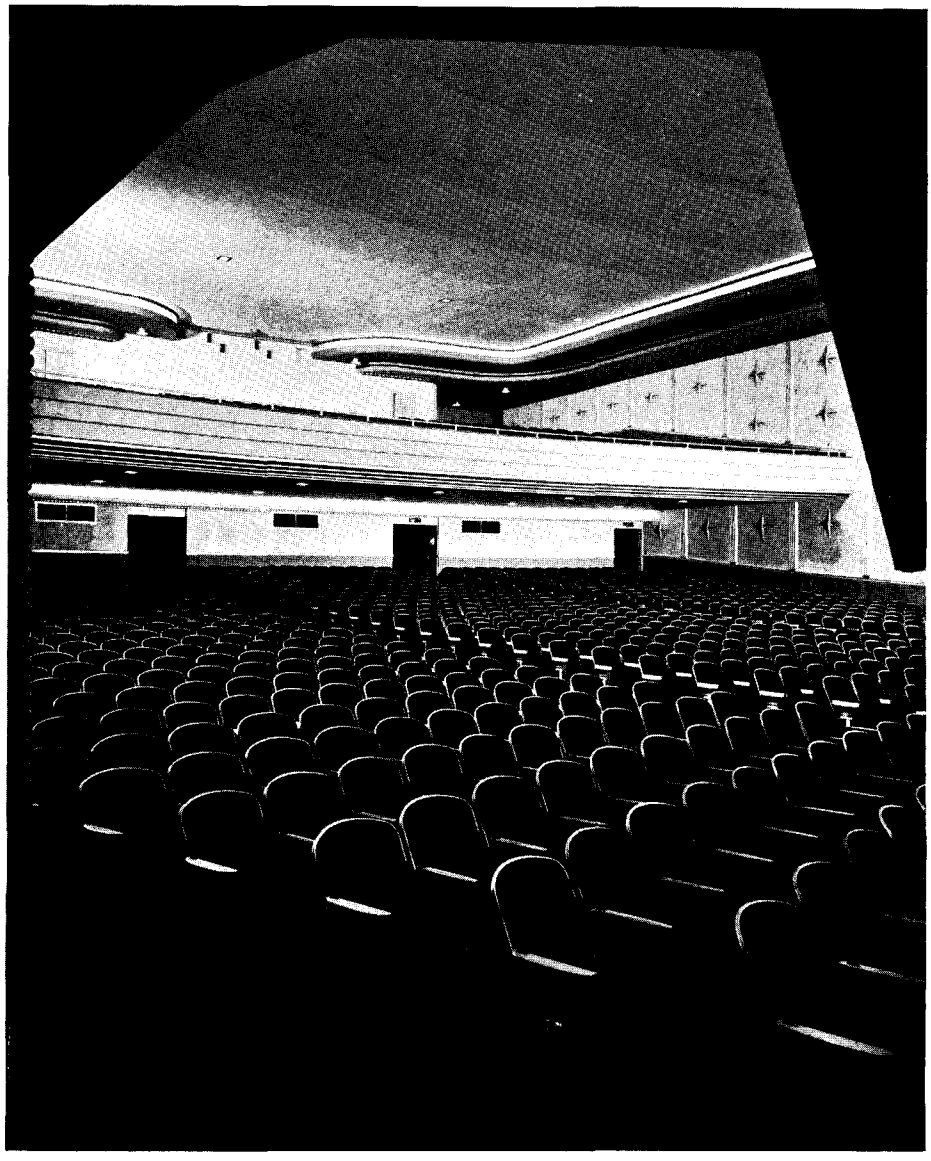


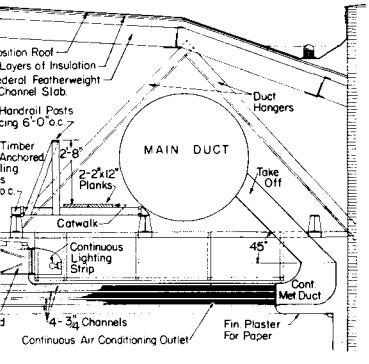
Ground floor



Second flo







heater, which seats 1,400 on floor and balcony, has its blast system of heating and ating. The main duct (above) ing from the theater roof ruction and forces air through h ducts to the continuous running along the cornice, distribute it to the theater. parate exhaust fan for the ny, connected to the plenum ber with numerous holes in risers of the balcony, pre- cigarette smoke from drift- nto other parts of the audi- n.

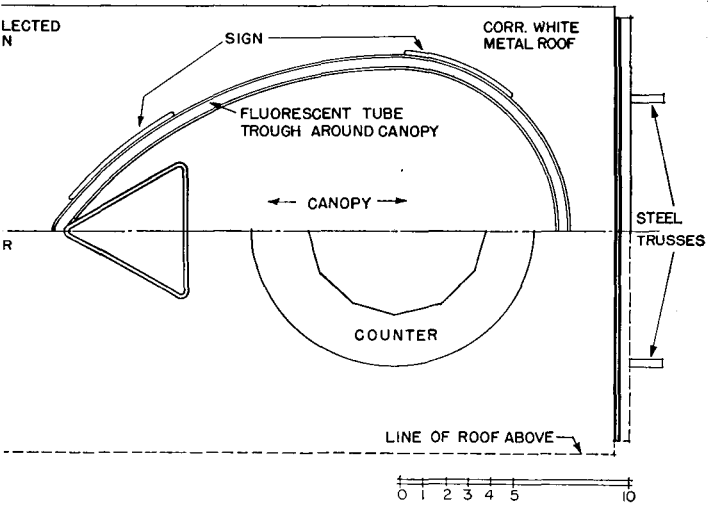
Photos by Hedrich-Blessing

LOBBY of the office portion of
building. Although small in area
contains, besides elevator and st
way, a janitor's closet (left) and
trance to corridor at rear of sto
OFFICE, furnished as a direct
room, is typical in treatment of
other suites. In outer offices, ceil
are 10 ft. high; in middle offi
9 ft. 6 in.; in inside offices, 9
and corridors, 8 ft. 6 in. The s
gered heights permit branch d
to enter each tier of offices
supply air through grilles on side w

St. Thomas

Y. WORLD'S FAIR OPENS GAY AND WEATHERPROOF BOOTH

ARD OF DESIGN
)NSTRUCTION DEPARTMENT, Designers



WITH NONE OF THE FANFARE usually attendant upon the opening of fair buildings, the Board of Design recently completed this information booth. One of the many smaller structures now under way, its interest lies not only in its use of materials but in its form. Actually, the only new material used is Zeon, a fluorescent neon light developed especially for outdoor use. The roof is of corrugated polished aluminum bent to specification at the factory, shipped in several sections, and assembled on the job. Since free circulation at an information booth is an essential, the complete openness of this design is an admirable solution to the problem. The tower, with its tubes of fluorescent light, is an easily recognizable landmark by day and by night.

INFORMATIO
BOOTH

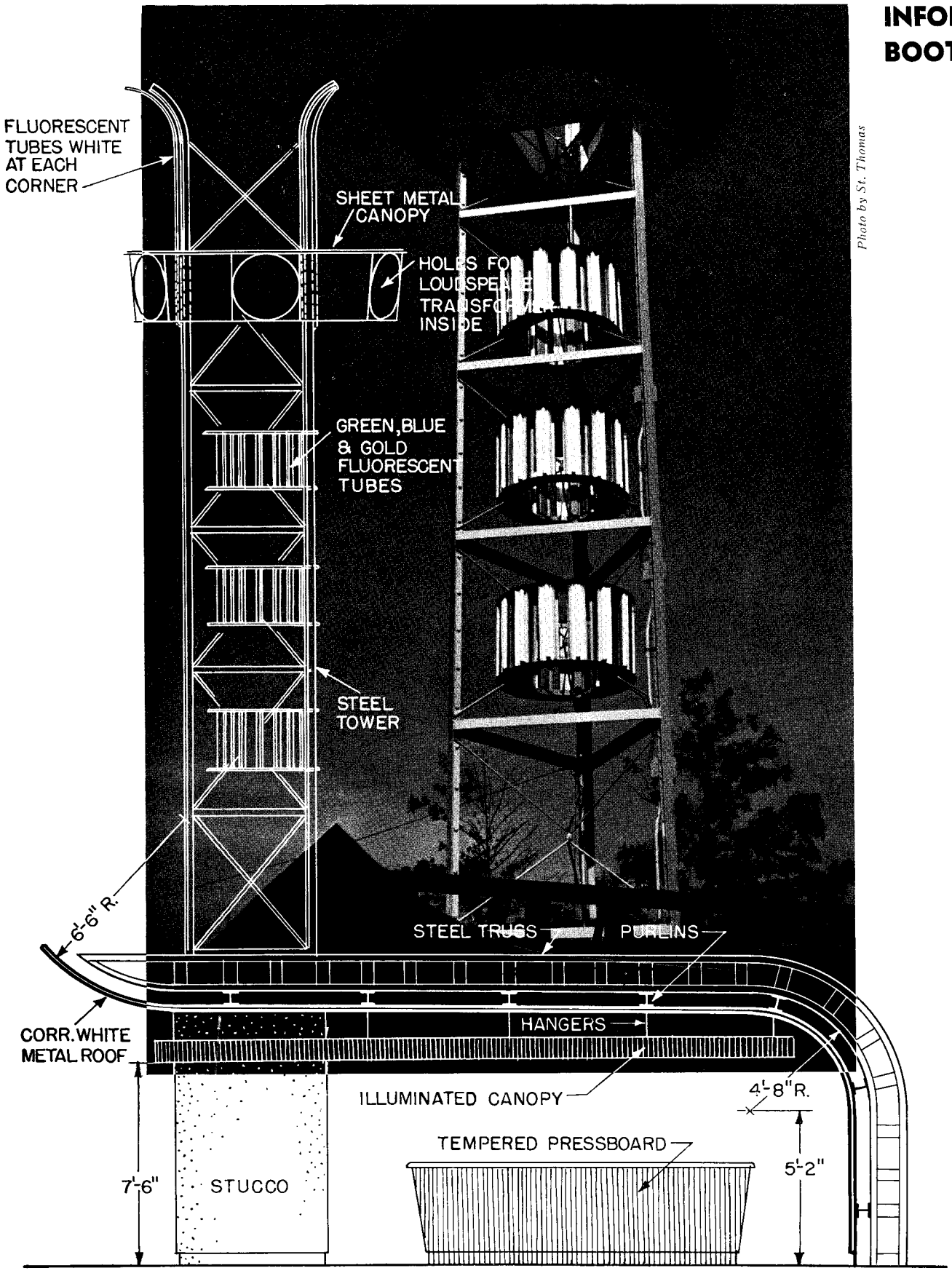
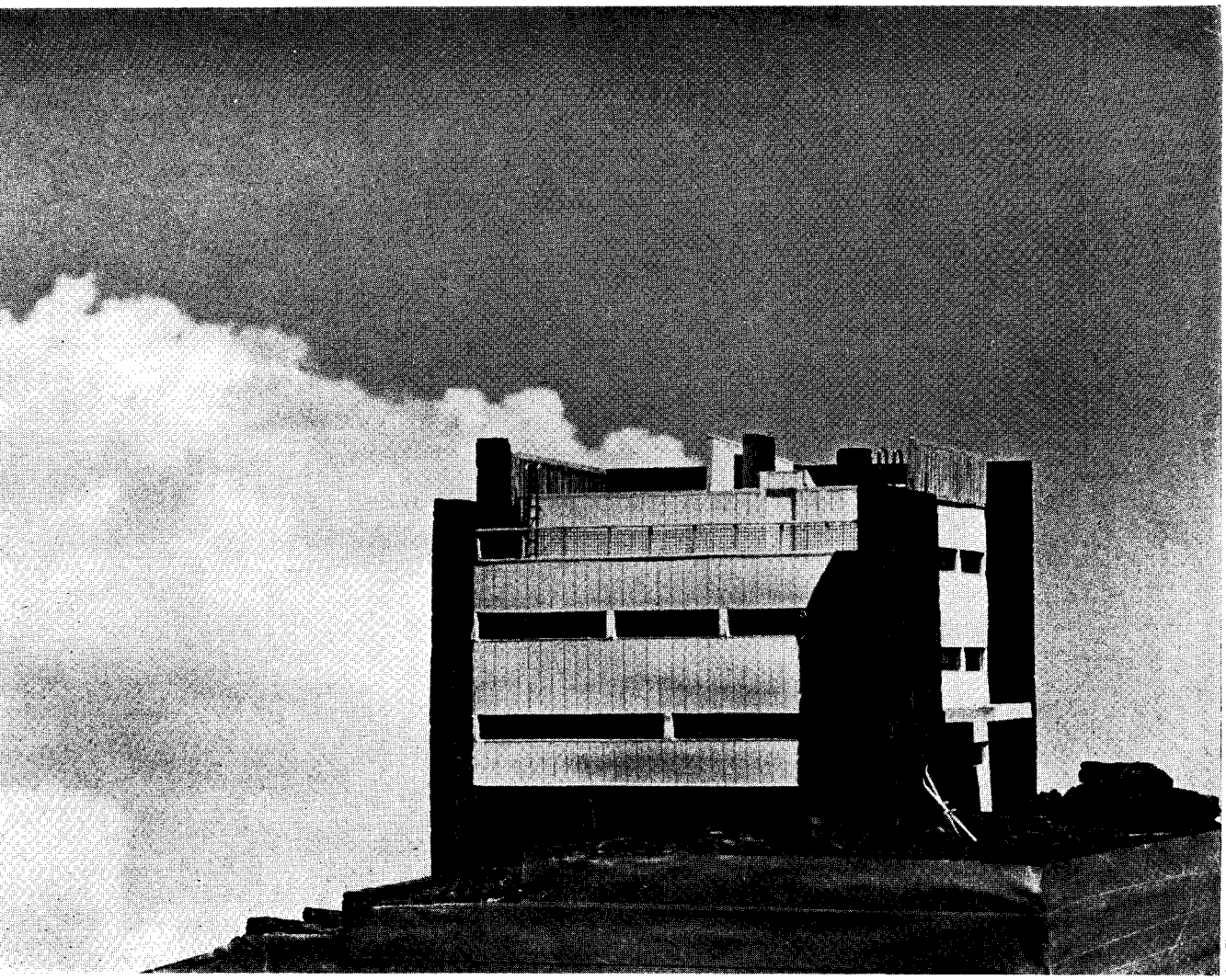


Photo by St. Thomas

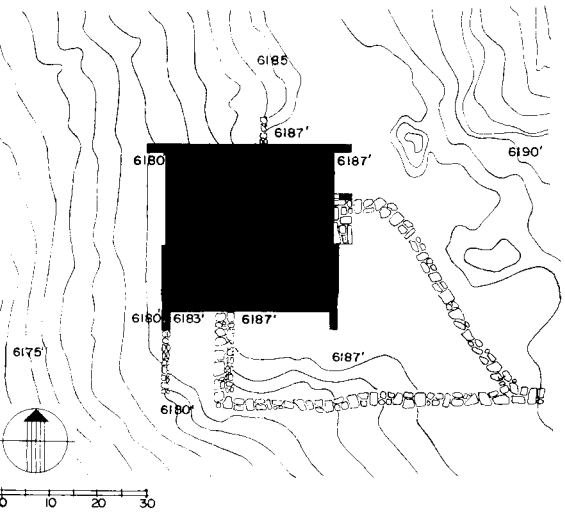
Most striking feature of the booth, the corrugated aluminum roof is hung by purlins from a steel truss of the same shape as the roof. An illuminated canopy hangs from the metal roof and supplies light by night and protection by day from the inevitable heat radiation from metal. The tower is of steel and contains, in the circular band near the top, a transformer and several loudspeakers for broadcasting announcements.



St. Thomas

REUER DESIGNS, STUDENTS BUILD, HYPOTHETIC SKI CLUB IN AUSTRIA

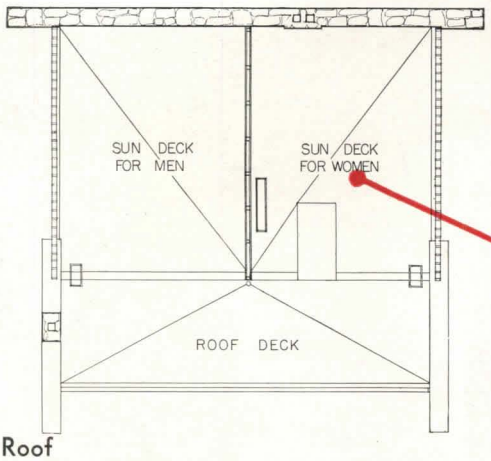
ARCEL BREUER, Architect
ARVARD GRADUATE SCHOOL
F DESIGN, Fabricators



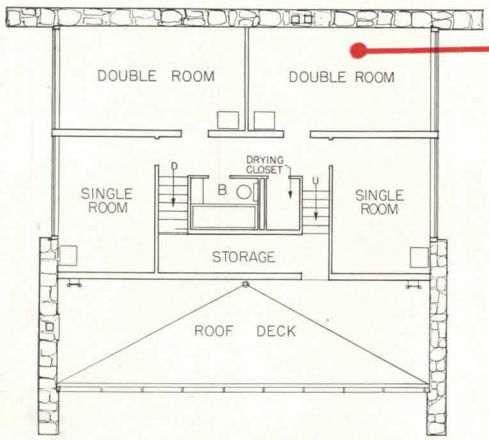
t plan

THIS SMALL SKI HOTEL, whose form is modern although it makes no use of such modern materials as concrete and steel, was designed for construction at Ober-gurgl in the Austrian Tyrol, 6,300 ft. above sea level. This winter sports resort—the highest in the Alps—is accessible only by sleigh; building in this location is thus complicated by the high cost of transportation of materials and equipment. This limitation presented to the architect the desired opportunity "to prove that modern forms are not dependent on steel, glass, concrete, or cantilevered balconies, and that modern architecture is based on a mentality, an approach to planning, and not on a certain technique." Accordingly a system of construction which differentiates sharply between supporting and window walls was devised. All load-bearing walls and partitions are of stone, built solid from foundation to roof, except for a few minor openings which involve no lintel. Window walls are of wood, carry no weight but their own and are light enough to need no steel or concrete lintels even over continuous openings. The settlement of masonry and movement of the wood does not harm the structure, as the connection between the two materials allows for vertical play.

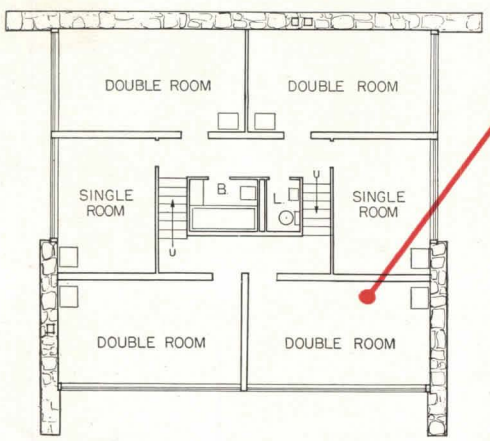
At the request of the RECORD, this model was made by students in the Graduate School of Design of Harvard University, under the direction and supervision of Mr. Breuer, now professor of design in Harvard's Department of Architecture. The recent unsettled political situation in Austria prevented construction of the hotel.



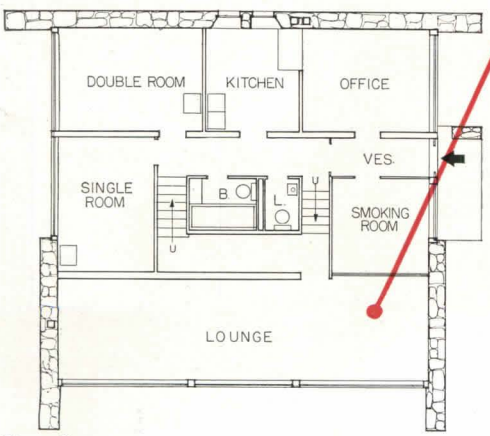
Roof



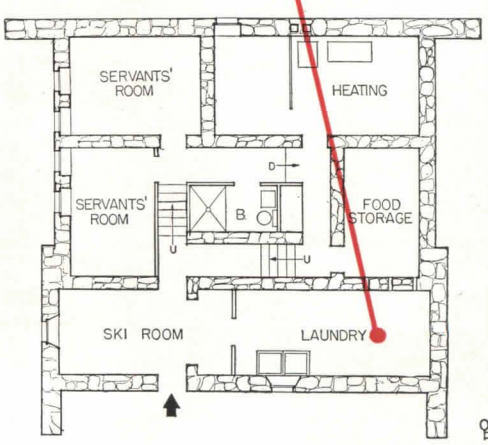
Third floor



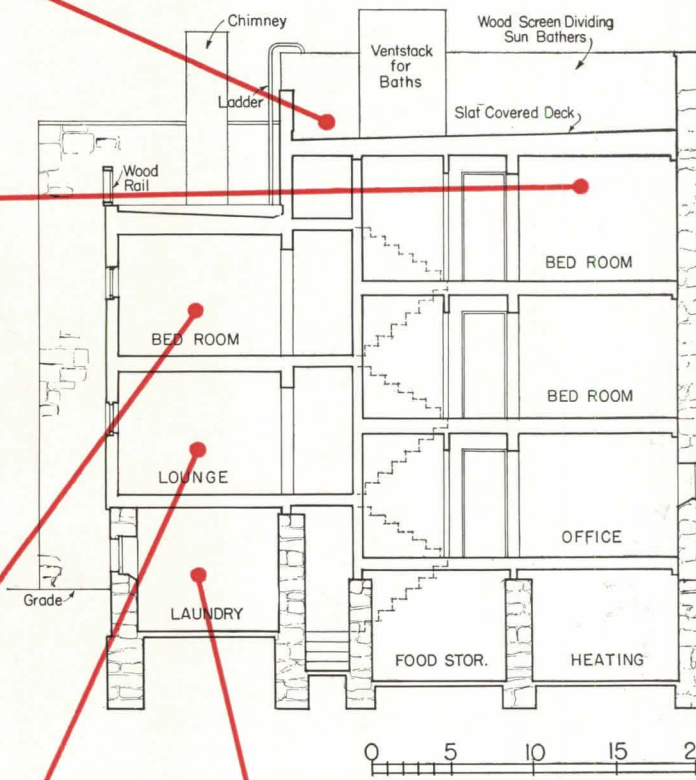
Second floor



First floor

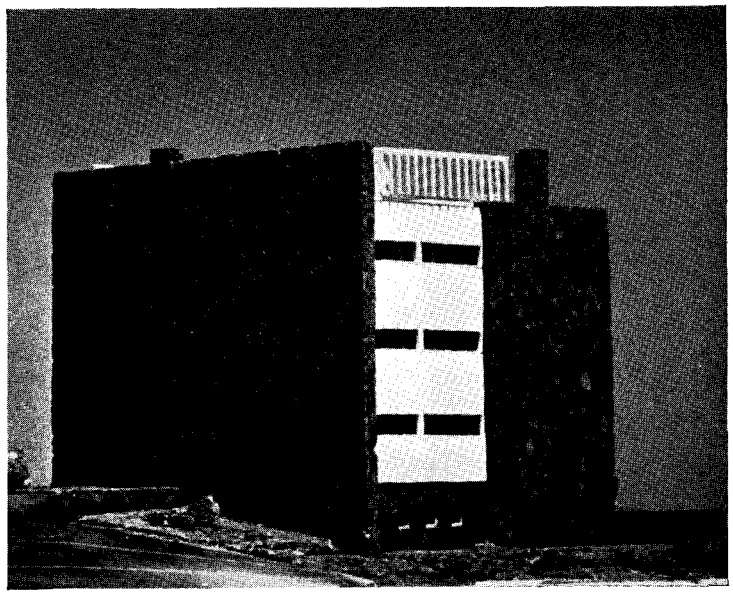


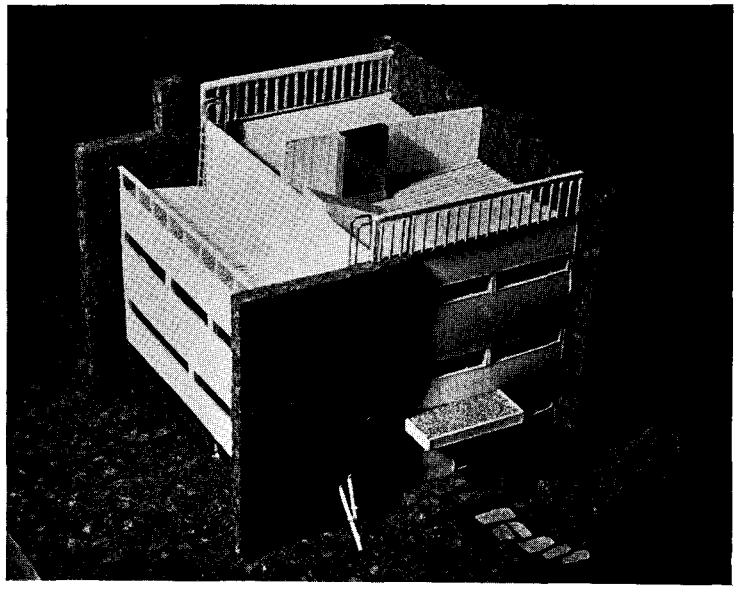
Ground floor

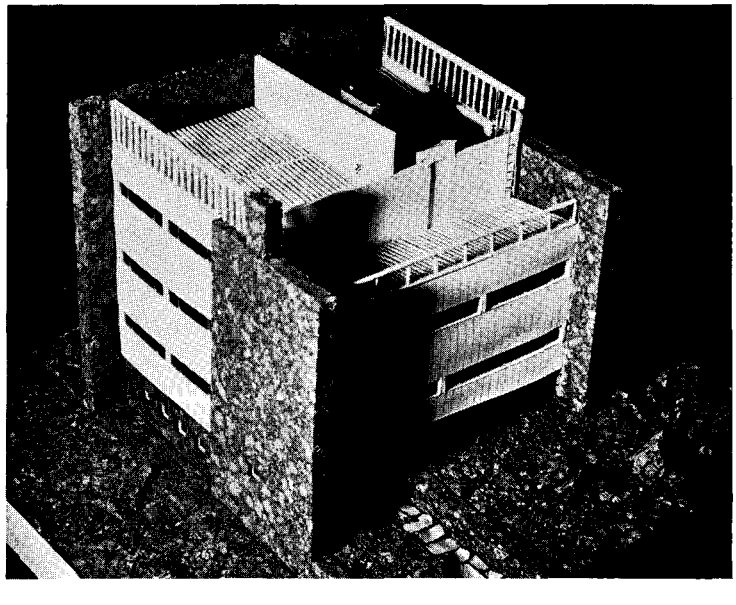


Economy of construction dictated the internal arrangeme
landings between stories give access to all rooms; bat
toilets, clothes-drying rooms are grouped in the center of t
building and are ventilated by a common internal shaft. T
flat roofs are used as sun decks and are protected from wi
and curious eyes by light screens of obscure glass and woo
Designed for sportsmen, not for the fashionable, the ho
has a capacity of 20 beds; the four baths—none private—
amply sufficient for the simple life of an Austrian ski reso

KI CLUB IN AUSTRIA





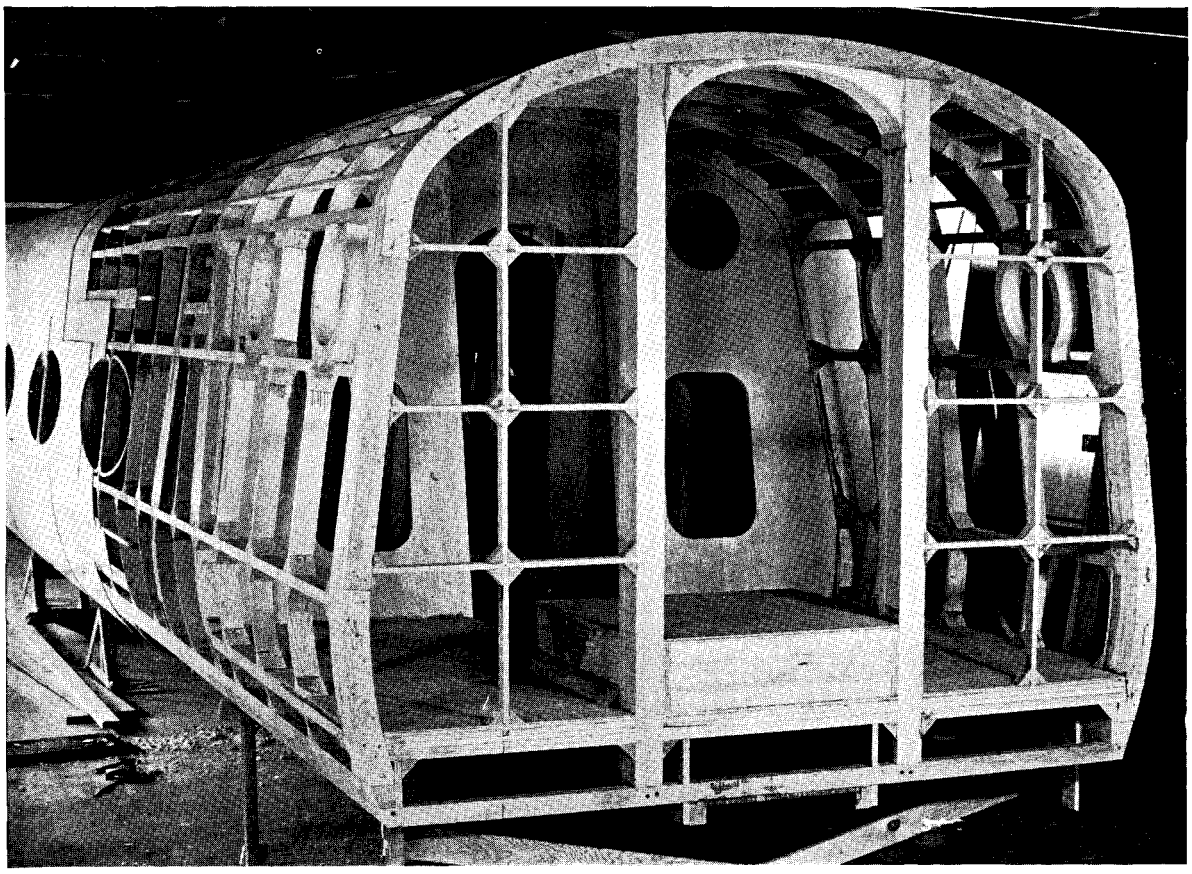


Photos by St. Thomas

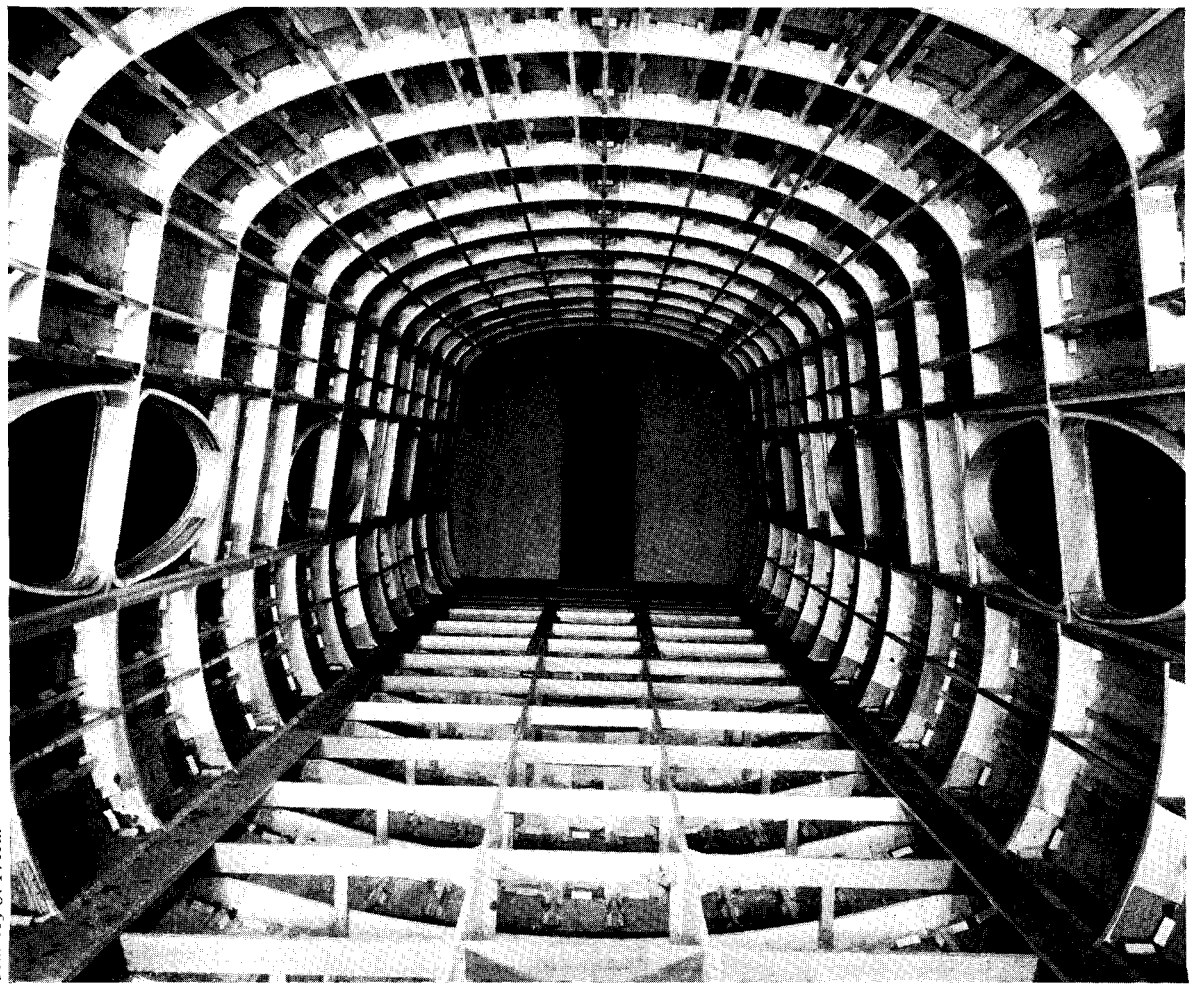
Three views of the model: elevation from northwest (above), from southeast (center), and from southwest (below).

GENIOUSLY constructed, this model is a visual presentation of Mr. Breuer's constructive use stone and wood. Materials used in making e model were chosen for their resemblance to e materials which would actually have been ed had the hotel been built. The stone walls e represented by dark-brown cork sheets of e proper thickness for the scale of the model. ıe window walls are plywood-backed, faced th heavy drawing paper; plank widths are licated by pencil lines. Continuous windows e of Cellophane, with mullions of the same ıwing paper as the window walls. The roof of rough sandpaper over which are laid ıoden sticks to simulate slats. Separating the o sun decks is a plywood wall faced with ıwing paper. Wind screens are of actual ss, with a wood railing. The ventstack is ıricated of light gauge chromium and ladders ınecting sun decks and roof deck are of bent omium tubing. Leading up to the entrance stepping stones of Scotch tape. The model ts on a plywood base covered with dark-brown k.

NEW STRUCTURAL SYSTEMS



Courtesy Engineering News-Record



Courtesy C. T. Hill

Courtesy C. T. Hill

Interior of ATSF's trial car

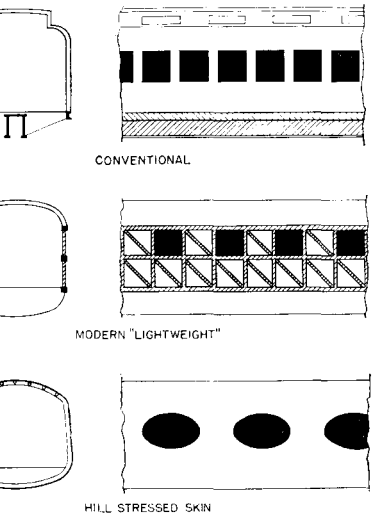
"Stressed Skin" System Makes Possible Plywood Railroad Car

TO THE BUILDING DESIGNER in search of new construction ideas, use of the semi-monocoque or stressed-skin principle presents an almost virgin field, since it has heretofore been identified exclusively with airplane manufacture. The particular advantage of this system is that the resulting structure is light in weight but high in strength and economical of construction. The outstanding characteristic of this type of structure is that the outer covering or "skin", suitably stiffened and supported, is the principal load-bearing element, thus eliminating usual framing and trusswork.

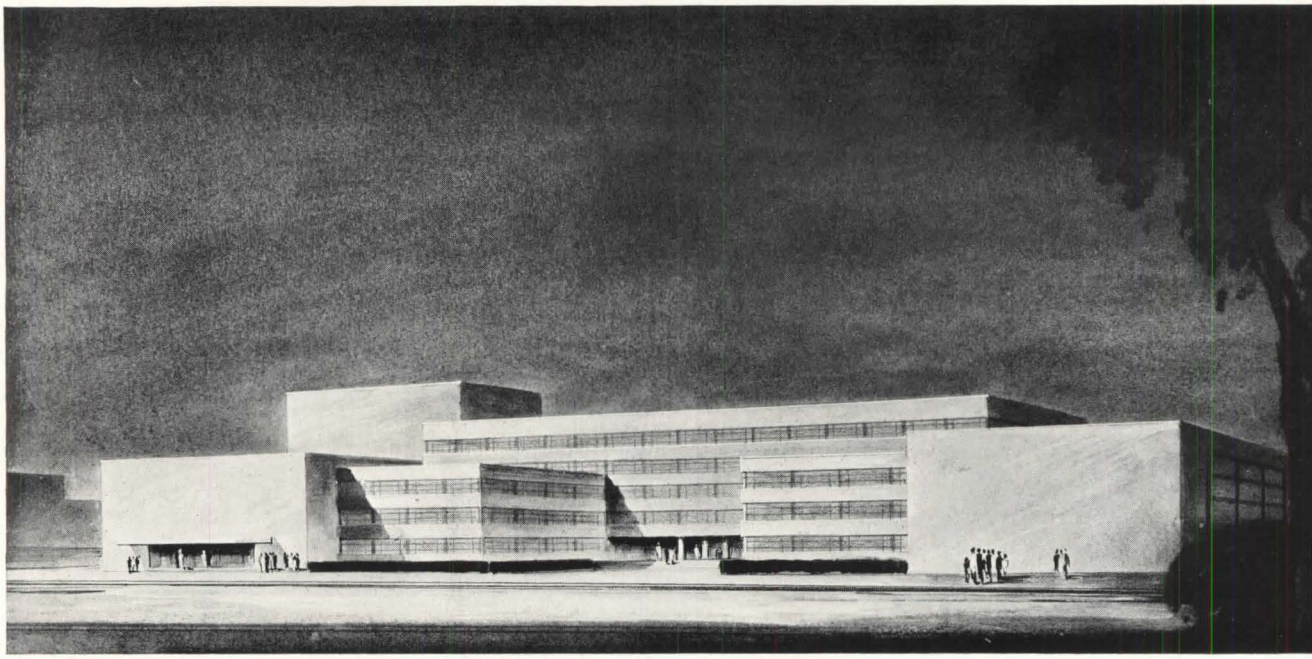
As applied in the construction of airplanes, and, more recently, railroad cars, the stressed-skin body is a huge tubular beam which extends the full depth of the fuselage or car. With certain allowances, it acts elastically as any other beam. Under normal loads the roof acts as the compression flange, the bottom as the tension flange, and the two sides as the shear webs. Theoretically, the skin, if heavy enough to retain its shape, would constitute a complete structural system in itself. Actually, the effectiveness of this deep "beam" is such that only a thin skin (approximately 16 gauge) is needed; hence, the use of internal transverse ribs to hold the skin in shape, and of longitudinal stiffeners to reinforce the compression (roof) side. The longitudinal stiffeners, supported laterally at intervals by the transverse ribs, act as columns and, together with the adjacent portion of skin, carry increased loads under which unstiffened skin would buckle. The column properties of the skin-stiffened combination are determined by the rib spacing; usually this spacing is such that these parts are in the short-column range. The effective width of skin acting with each stiffener is a function of the stiffener stress, the thickness of the sheet, the stiffener spacing, and the modulus of elasticity of the material.

Analytical procedure simplifies considerably the calculation of stresses and makes possible use of standard beam formulas. In calculating the section properties, the full area of the skin on the tension side may be used, but on the compression side only that portion can be included which is considered to be acting with the stiffeners at their full stress.

The effectiveness of the semi-monocoque type of structure was recently demonstrated in the experimental cars for the Atchison, Topeka & Santa Fe Railway, photographs of which are here presented. These cars, because of their temporary character, are built of Douglas fir plywood; the final product will be all metal. Stressed-skin construction is suitable for use with a variety of materials — notably the recently developed high-tensile steels — but this is one of the first applications of the design principle in wood. (For earlier proposal see AR, 2/37, p. 47.) A static load test to twice the normal gross load was made to demonstrate the strength and rigidity of the car bodies and it was found that the creaks and groans usual with wood-framed cars were entirely lacking.

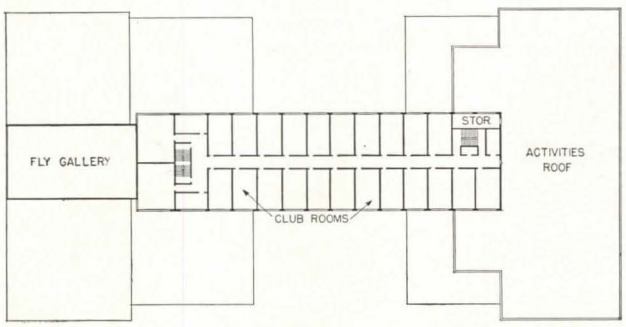


ohology of load-bearing elements
he railroad car: first a simple
n (top); then parallel trusses along
sides (center); finally a tubular
n enclosing the car.

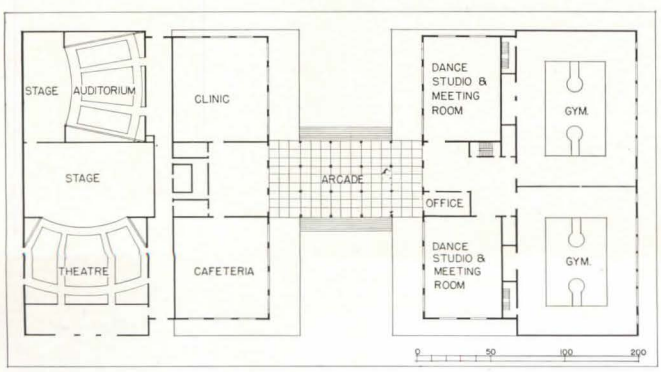


Projected Youth Center Will Provide Recreation Facilities for New York's East Si

POMERANCE & BREINES
Architects



Plan at third and fourth floors



Ground floor

THAT ADEQUATE RECREATIONAL FACILITIES for yo people in crowded metropolitan districts are a neces is evidenced by the increasing interest in provi such facilities on the part of various governme agencies. Once the concern of private individuals, problem, complicated by unemployment among the y of this country, is now too large to be handled vately. In New York City, where the acuteness of problem on the lower East Side has reached "virtu a state of emergency", plans for a large centrally loc recreation building were recently laid before city ernment officials as the first step toward obtai funds in the city's capital outlay budget.

Suggested as a solution to the needs of the crow conditions of the lower East Side is this Youth Ce which, if built according to present plans, would acc modate between 6,000 and 10,000 young people d The purpose of the building is to provide for both tural and physical activities; in order that these function independently of each other, each is house a separate wing, connected on the ground floor an open arcade and on the second floor by a lou Entrance to each wing is through the arcade; in a tion, the theater has an entrance from the street. the "cultural" side of the building are a clinic, neighborhood use, and a cafeteria, for use in con tion with the Center's activities. Below ground l on this side are vocational training and crafts facili The lounge level contains provision for a branch pu library, domestic science laboratories, and vocati guidance facilities. For the various club activities w are a feature of settlement house programs there 50 club and meeting rooms on the upper floors.

Estimated cost of the building, designed to oc a full block, 200 x 400 ft., is $1,500,000.

DESIGN TRENDS

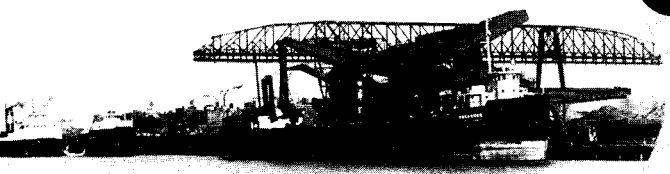
"While I was in *New Connecticut*
I laid out a town
on the banks of Lake Erie,
which was called by my name,
and I believe the child is now
born that may live to see that
place as large as *Old Windham*."

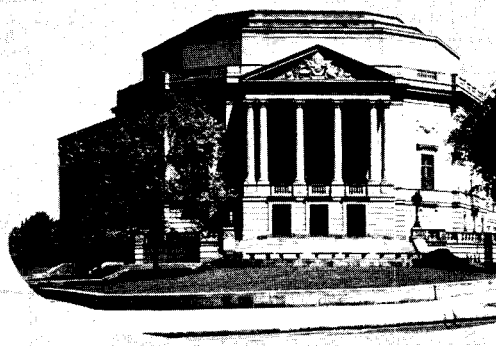
Thus did MOSES CLEAVELAND,
surveyor for the Connecticut Land Company, modestly report in 1796 upon his return from the savage wilderness known as The Western Reserve.

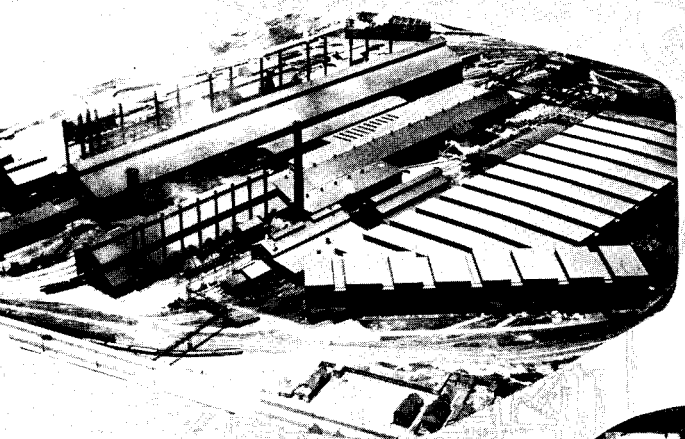
CLEVELAND
METROPOLIS OF THE WESTERN RESERVE

ARCHITECTURAL
RECORD
COMBINED WITH
AMERICAN ARCHITECT AND ARCHITECTURE

CLEVELAND . .







METROPOLIS OF THE WESTERN RESERVE

This report on the background and present development of the country's sixth largest city was compiled entirely by Cleveland architects—members of the Cleveland Chapter of the AIA. Included were Leo J. Barrett, Chief Editor, and Edward G. Conrad, George B. Coombe, Robert W. Dickerson, I. T. Frary, Howard F. Horn, Bascom Little, Alexander C. Robinson, III, Harry L. Shupe, Walter Harrison Smith, Travis G. Walsh, and Joseph L. Weinberg.

Historical Background

by I. T. FRARY

WHEN MOSES CLEAVELAND, in a moment of expansive optimism, prophesied that the new settlement on Lake Erie, to which he had given his name, might some day equal Birmingham, Connecticut, in population, he probably felt that his imagination was being freely indulged.

Today the City of Cleveland is the industrial and financial center of the Western Reserve—that rich section of northern Ohio that is "bounded on the north by Lake Erie, on the east by Pennsylvania" and reaches west 120 miles, embracing an area of 3,000,000 acres. This was originally part of Connecticut's holdings in the wilderness that stretched indefinitely westward the "Western Ocean."

When the other states ceded their western holdings to the United States government at the close of the Revolutionary War, Connecticut showed characteristic Yankee thrift by reserving this great area and selling it to the Connecticut Land Company for $1,250,000, holding the proceeds as an endowment for the support of public schools.

A party of surveyors was sent west by the Company in the spring of 1796 to run the lines of purchase, Moses Cleaveland being in command of the expedition. He came with orders to establish the first settlement where the Cuyahoga River flows into Lake Erie and gave to it the name of *Cleaveland*—which was later changed to Cleveland.

The Connecticut Land Company inaugurated our first land boom, in accordance with a carefully developed plan. The land was laid out in townships five miles square; shareholders in the Company were assigned their choice of land by lot; and those subscribing approximately $13,000 were entitled to an entire township.

The first drawing was held in January, 1798; and after that the shareholders pursued their own methods in subdividing and selling their holdings to prospective settlers.

This undertaking was conducted largely by Connecticut businessmen. Thus it was obvious that the Western Reserve would be settled mostly by people from New England.

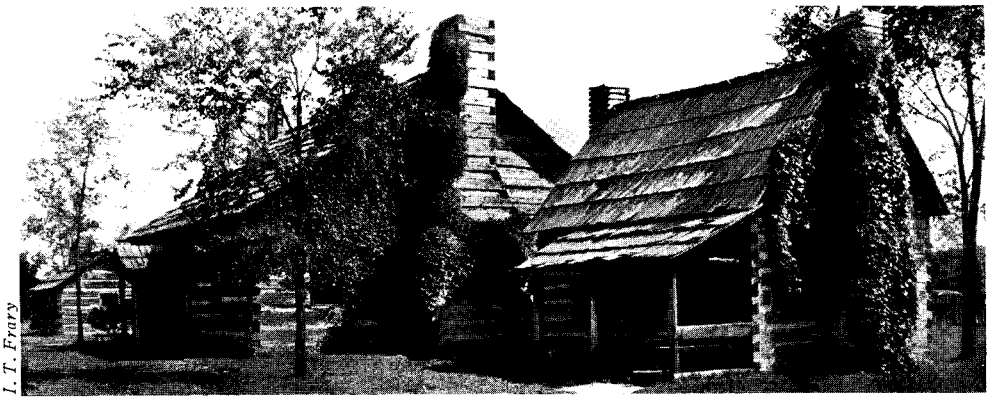
Like pioneers in any portion of the world, these New Englanders would naturally establish themselves in the far western Ohio country with surroundings as similar as possible to those to which they had been accustomed. It was the natural, simple, easy way. So the carpenters who came with the tide of immigration brought their few textbooks of design by Asher Benjamin, Minard Lafever, Edward Shaw, and perhaps a few others. They carried in their tool boxes molding planes with knives ground to the forms which they had used on work in the East; and they had stored in their minds details, plans, and methods of construction which they had learned during the period of apprenticeship.

So Cleveland and other communities of the Western Reserve grew up as architectural and cultural offspring of the New England towns from which the early settlers came. Their most vigorous growth took place during a period of change in architectural traditions. The fashion set by the Brothers Adam of England—fostered on this side of the Atlantic by Charles Bulfinch, Samuel McIntire, and their school—was beginning to wane. The new classicism that was being fostered by Thomas Jefferson, Benjamin Henry Latrobe, and Robert Mills, was sweeping the country.

Wealth sufficient to make possible fine architecture such as that of Salem, Boston, Annapolis, Tidewater Virginia, and Charleston was not common; and as a rule the pioneers did not begin to spend liberally on building until the Classic Revival had outmoded its predecessors of the eighteenth century.

These tendencies and influences are plainly evident in the early architecture of the Western Reserve and were evident in Cleveland until progress swept away the early records. The conservatives were quite content to build their houses as their fathers had built before them, while the progressives insisted on following in the footsteps of the Greeks.

Consequently, we find various types represented. Some houses show eighteenth-century ancestry. Beside these are adaptations of

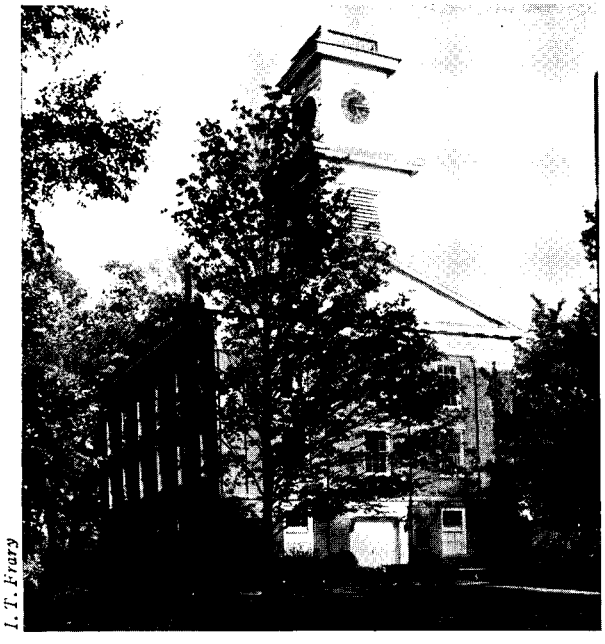


I. T. Frary

1

I. T. Frary

2



I. T. Frary

3

NEW ENGLAND TRADITION IN THE WESTERN RESERVE

Early structures of Cleveland and its hinterland were built by men trained to the architectural characteristics of New England. Pioneer homes were of logs, like 1 at Schoenbrunn. Later farmhouses were similar to 2, located near Ashtabula, a few miles out of Cleveland. 3, the Chapel of Western Reserve College at Hudson was derived from buildings of Yale University at New Haven, Conn. As wealth came to Cleveland, mansions were built in the eastern part of the city. 4 is a view of Euclid Avenue at the peak of its grandeur.

4

Greek and Roman temples that hav
been made to do duty as churche
courthouses, schools, and residence
Others show mixed parentage; an
still others are carpenter-made boxe
on which have been grafted cornice
and doorways of classic types.

The men who designed and pu
together these old buildings wer
craftsmen, untutored in classic
learning, but endowed with th
pioneer's ability and facility in ove
coming difficulties. They wrough
most original interpretations of class
forms and details; theirs was a co
loquial language, based on estab
lished forms but usually restrained b
limited means. The old farmhouse
may sometimes be crude, but the
seldom miss being dignified and ar
rarely ugly.

Ugliness was reserved for th
period that followed the Civil Wa
the period in which natural leade
deserted the arts for the more allu
ing and lucrative fields of inventio
promotion, and finance. Men
mediocre ability took over buildin
operations of the time and, with an
ple energy but little taste, met th
ever-present demand for somethin
new with the creations of lathe an
jigsaw.

The vast wealth and growth
Cleveland were of this period. The
were built the homes of men wh
founded and promoted The Standar
Oil Company and The Weste
Union Telegraph Company, wh
made fortunes from iron and coal,
by building ships and railroads
transport these commodities. Thes
mansions were in the current mod
of Eastlake or of Richardson.

As wealth grew, so did the cit
And as its property values climbe
the city's early architecture wa
erased to make way for structur
dedicated to the production of div
dends. The mansions of the '70s an
'80s followed suit—deserted becau
of city grime, change in fashion, an
the lure of a new suburban life.

Today, if we seek the story
Cleveland's architecture, we must d
pend on old photographs for illustr
tions of its earlier types, or go to th
smaller towns in its vicinity. C
Euclid Avenue may still be foun
pathetic monuments to its form
grandeur now utilized largely as clu
and boarding houses. A very fe
still shelter descendants of the origin
builders. All await the inevita
coming of the wrecking gang.

Courtesy Chamber of Commerce

rowth of Regional Planning

ABRAM GARFIELD, *FAIA*
irman, Cleveland City Planning Commission

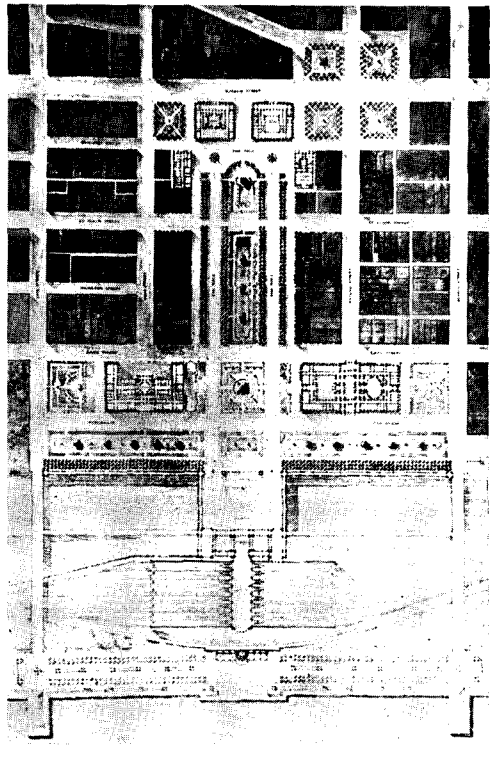
ORE THE DAYS of rapid transit eland was a pleasant, prosperous with deep lawns and shaded ets that had earned for it the name The Forest City." Its limits had naturally established by the dis- e one could travel in a horse-and- gy in about an hour's time. The ern of the town had developed e as naturally. Roads came in ird the mouth of the Cuyahoga r from the east, west, and south. roads came down the river valley along the lake shore. Here were ed the industrial areas; and t them, fan-wise, spread the resi- ial neighborhoods. Downtown, e the roads converged, was the ic Square — the heart of the tern Reserve's fast-growing me- olis.

o problems of city planning ex- . Cleveland's growth was rapid; during the three decades preced- 1900 the city grew upon the ework of existing roads. The rn had been set; no complica- existed, apparently, to prevent nsion upon the already solidly lished basis.

Then came rapid transit. With it came a new way of living which uprooted old habits almost overnight. Adjustment to the change created in Cleveland—as in many another city —a planning problem with which no one was prepared to cope.

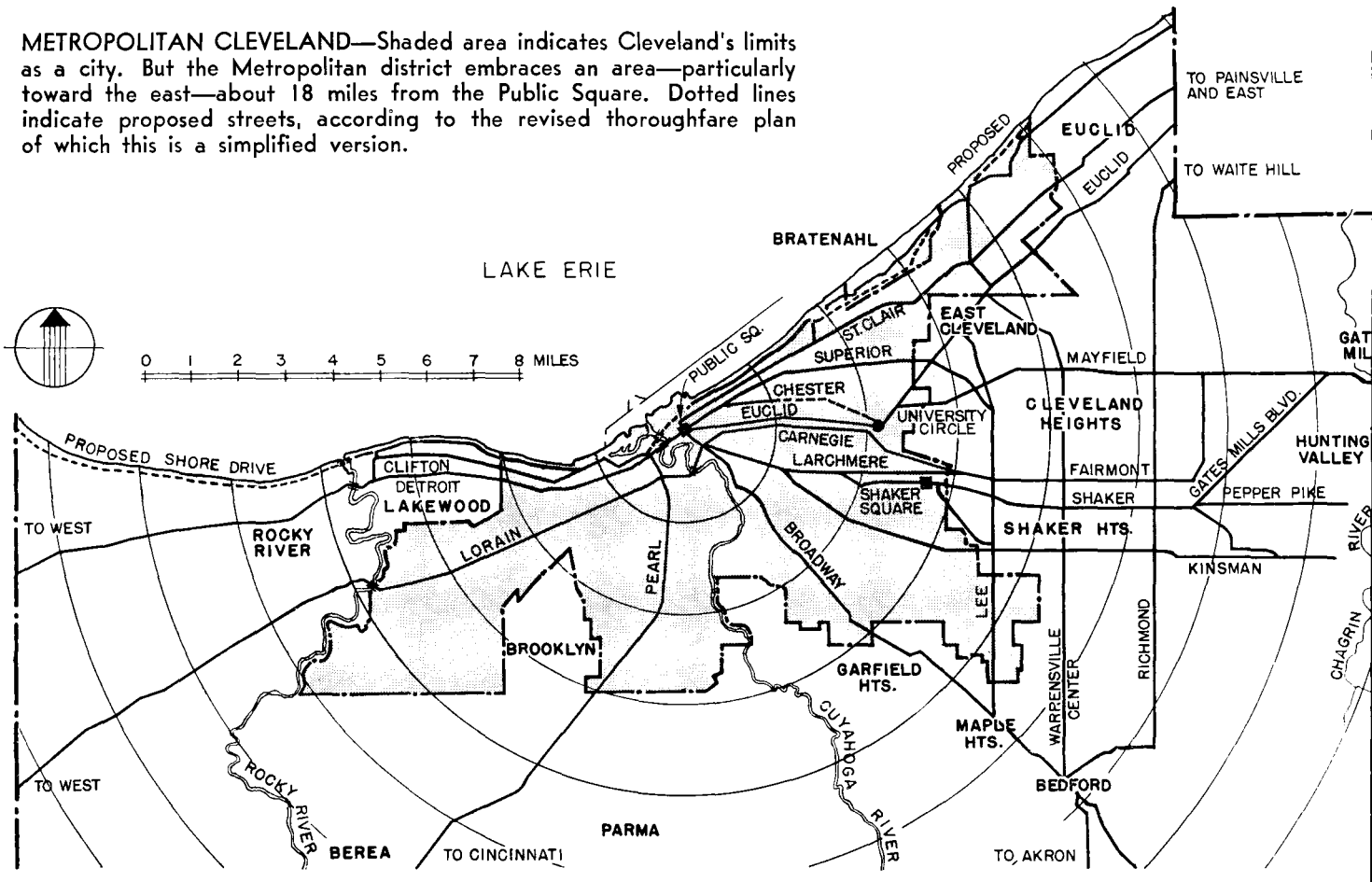
As in any city, rapid transit in Cleveland implied tremendous expansion. And yet the factors involved were so numerous and sometimes so obscure that only in the past few years has there been a realization of their importance. Knowledge of how best to relate them to the established city pattern is still incomplete. But in Cleveland a start has been made toward correlating the complicated factors of modern life with the physical characteristics which have developed as a result of the city's rapid growth. An example is the plan made in 1903 for grouping the City and County buildings around a central open space near the Public Square.

The old Public Square is the natural center of the city. The connection between the Group Plan and the Public Square is not yet satisfactory, but nothing has been done to forbid



CIVIC CENTER, 1903 and 1936—Above is the plan made in 1903 for grouping City and County buildings about a Mall leading from the Public Square toward the Lakefront. In the air view—taken during the Great Lakes Exposition in 1936—the Mall is evident, as are some public buildings (Auditorium, City Hall, and Courthouse). The horseshoe structure is the Stadium. The new Lake Shore Drive (see page 69) leads off the picture at the top, right.

METROPOLITAN CLEVELAND—Shaded area indicates Cleveland's limits as a city. But the Metropolitan district embraces an area—particularly toward the east—about 18 miles from the Public Square. Dotted lines indicate proposed streets, according to the revised thoroughfare plan of which this is a simplified version.



Air view of downtown Cleveland, looking east. The Public Square occupies an important place as the focal point of Cleveland's rapid-transit system and also is the center from which main streets—developed as the most direct routes from old Indian trails—radiate to the east and west along the Lakefront and south through the Cuyahoga River valley. Buildings in the foreground are those developed as a terminal group by the Van Swerigen brothers. They include the Hotel Cleveland and are used by the New York Central, Baltimore & Ohio, Nickel Plate, and the Big Four.

a proper solution. During the past two or three years the development of a lakefront highway running directly by the foot of the Central Mall of the Group Plan has brought these public buildings into a new and reasonable relation to the east and west action of traffic. For years the railroads had pre-empted all of the city lakefront; and an outside boulevard or parkway had seemed unattainable. In 1936, however, came the Great Lakes Exposition, on the Lakefront. The idea of a boulevard grew as a means of giving the lakefront back to the citizens of the city. Four or five miles of it have been built; more is to come.

Although Cleveland was one of the first American cities to develop a "Group Plan", no formal "City Plan" has yet been made. It is true that a thoroughfare plan exists. Indeed, it was so well worked out 15 or more years ago that almost every street opening and street widening which has taken place was indicated on this plan. It has stood the test of time and is an invaluable record. But this is not a city plan in the ordinary sense of the term—a comprehensive picture of present and future tr ways, parks, zoned areas for bu ings, etc., extending far beyond limits of the city itself.

Because of the complexities of t problems, it is doubtful if any made 20 or even 15 years ago c have indicated, with wisdom, al needed so that each family could quietly and securely according t income. That is an objective c discussed but rarely achieved. Sp did plans have been made in m cities. But too often they accom only an arrangement of traffic art leading to a central park or plaz project a connecting highway tween two focal points. These p have value; they add to the be of cities and help to simplify tr problems. But how much do promise as to comfort and secu of living? Cleveland's Group Pla an accomplishment of this kind. good—even in its incompleted s But it is not a city plan.

Traffic, though important in Cl land, is not a compelling factor is on Manhattan Island and in P burgh. It is therefore possible to Cleveland's planning problem nc

h upon traffic necessities, as upon
ıstrial and residential needs. When
d transit came, people moved to
e distant areas chiefly along the
routes. New roads were opened
old ones improved and widened;
almost no new principles had to
established corresponding, for in-
ıce, to the great Hudson River
es which bypass the city streets
so many miles. The old layout
, in general, satisfactory.
t is true that Cleveland has been
in improving some of the con-
ions between the city and sur-
nding regions. The important
dential areas that have grown up
side of the city itself have re-
ed special consideration. Devel-
ents south and east of the city
per have come into existence dur-
the past 30 years as Cleveland
ghts, Shaker Heights, and other
arate municipalities. This whole
residential area has been planned
ı care, but the connections between
e districts and the city have taken
pe only gradually. University
cle, the educational and cultural
ter of the city, and Shaker Square,
ıccessful business center, are good
ıtions of individual problems. But
have thrown the backbone of
city, east of the river, a little out
oint. University Circle and East
veland drag towards the old main
s, Euclid Avenue. The Heights
e pulled things a little to the south,
have not been able fully to estab-
Carnegie Avenue as the new
xbone of the city. When Chester
enue, to the north of Euclid
enue, has been opened through its
le proposed length, the drag in
direction will apparently bring
center back to Euclid Avenue.
hese three streets, Chester, Eu-
and Carnegie Avenues, lie upon
natural approach to the city from
east—the most direct route since
days of Indian Trails.
robably no other approach from
direction will become of such im-
ance that this system of streets
deteriorate as highways. Within
city limits, the area adjacent to
ı has deteriorated. But so far as
ıways are concerned, connections
hese particular streets from out-
g districts are solved.
ther difficult connections are yet
e made. Splendid roads from the
h indicate that probably the best
e into the city has been finally
nged for and designed. But the
last five or six miles involve a net-
work of streets which are difficult to
travel for the uninitiated.

The new lakefront boulevard is in the making, but east and west connections to outlying highways have not been fully solved. Precisely what this boulevard will do to the city when completed is difficult to anticipate. It is now a busy thoroughfare, but its effect upon its immediate neighborhoods is problematical. In time a parkway will probably adjoin it as it runs along the lake, similar to that in Chicago. But an old industrial district still borders it on the city side.

The highway runs through four or five incorporated towns and cities, all within the area of Metropolitan Cleveland. And the difficulties of properly connecting them with the highway have caused an increasing demand for some master plan to offer solutions to the manifold problems involved. It is realized as well that a central agency is necessary to administer it.

To answer this demand the Regional Association was formed two years ago. This organization will develop a regional plan bringing together all appropriate material from various municipal planning boards and other related agencies. One agency seems particularly important —the Real Property Inventory. Formed about five or six years ago, this organization has brought its reports up to date each year as changes have occurred. It covers the activities, movements, and character of the inhabitants of every precinct within the city and the districts outside of the city. It also covers all industry and commercial activities and thus offers a broad basis upon which the future use of city and outlying areas can be projected as a regional plan.

The Regional Association with the aid of the Inventory organization is making a complete restudy of existing zoning ordinances—not only for the city but for the region. Through this study may be determined the best locations for stores and factories and homes. Today, on the basis of the city's old plan no one could tell where and how Cleveland people might live comfortably with any assurance of permanence. Existing zoning laws are too wide open; and a new zoning ordinance is an absolute necessity before any broad city or regional plan can have practical value.

Galloway

1

McLaughlin Aerial Surveys

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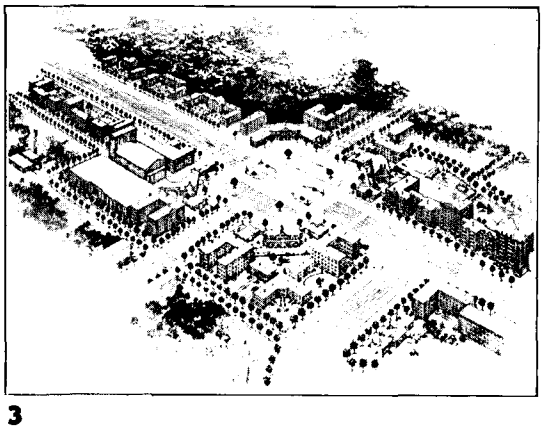


Ernst Studio

3

THREE "COMMUNITY CENTERS"

Solutions to individual planning problems have been generally good in Cleveland. Much, however, remains to be accomplished before connections between isolated centers and the rest of the city are satisfactory. And until this has taken place, future developments cannot be controlled or properly administered upon an integrated regional basis. Above, 1 is the Public Square, the natural center of downtown Cleveland and the terminus for suburban rapid-transit lines. Wade Park, 2, near University Circle (see map, opposite), is part of Cleveland's cultural center and includes the Museum of Fine Arts and Severance Hall. 3 is a sketch of Shaker Square, a well-planned and successful business center in Shaker Village, east of Cleveland proper.

Courtesy USHA

LAKEVIEW TERRACE: West-
housing of apartments and row hou
contains 620 living units, 2,311 roo
average monthly rent without serv
$6.19 per room.

USHA

CEDAR CENTRAL APARTMEN
East-side slum, clearance housing
velopment; contains 650 living u
2,329 rooms; average monthly
without service, $6.01 per room.

USHA

OUTHWAITE HOMES: East-
project of apartments, row hou
and flats; contains 579 living u
2,201½ rooms; average monthly
without service, $5.07 per room.

leveland's Slum-Clearance Housing nd Cultural Buildings

WALTER McCORNACK

IREE LOW-RENT housing projects ve been completed in Cleveland—keview Terrace on the west side, dar Central Apartments and Outhite Homes on the east side. As eloped with the aid of the Public orks Administration, each involves area of about 20 acres and proes approximately 600 dwelling ts for Cleveland's low-income ilies.

These projects are considered large ugh to prevent neighborhood deioration during the life of the ldings. But whether or not this is case remains to be seen. Much ends upon future improvements areas which surround them.

Each of these Government housdevelopments has had slum elimtion and the housing of slum initants as an objective. In Clevend—as in every other large Ameri city—eradication of slum areas l the consequent reduction in crime l disease involves much more than erection of new, adequate housing place of old, inadequate housing hin blighted districts. Park and reation areas adjacent to large using projects are almost as nec ary as the housing projects themves, for these offer one of the sur means for eliminating slum-bred nes. The cost of such crime is ggering. It can be reduced by minating the conditions which proe crime; and the savings will pay the play areas and housing which e replaced the crowded streets and els of the slum districts.

n Cleveland only a small start has n made toward this objective. It rue that the city's three Governnt housing projects are, in some s, models of their kind. In each low land coverage—25%—is one the surest known safeguards inst neighborhood blight in the ire. Unfortunately, however, these jects are not within economic h of the lower third of our popuon.

Clearing the slums" has generally entailed razing the buildings on costly land, allowing the owners good prices, and subsequently rebuilding with improved, fireproof construction. The method has been economically unbalanced and actually disastrous to the slum dwellers. Costs have been enormous; rents—even with subsidies of various sorts—have been too high; and the slum dwellers, driven from their old haunts, have sought new hovels—a fact that inevitably means new slums. Thus the objective has been lost because of the very means selected to reach it.

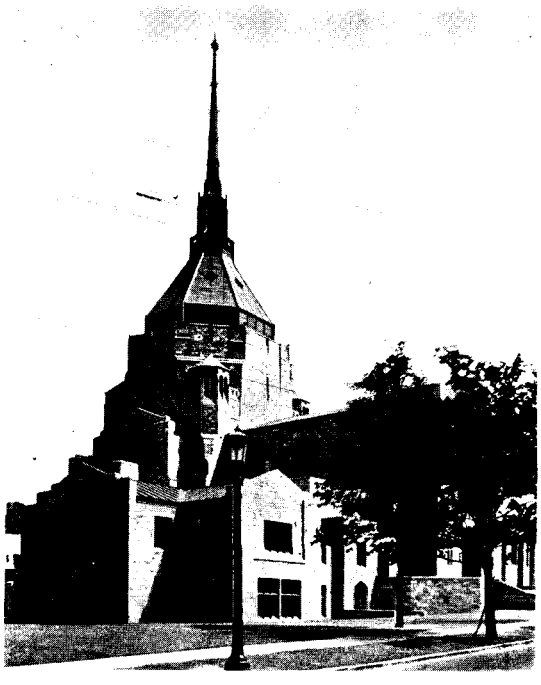
The situation is particularly serious in Cleveland. The city's industrial character, its physical pattern, and the absence—until very recently—of any centralized authority for regional zoning and co-ordinated project planning have combined to make Cleveland's attempts at slum clearance and housing for low income groups merely individualistic enterprises that bear little relation to the city as a whole. As a result they offer no far-reaching solution to the real problem of public housing and slum rehabilitation as it exists today.

This is a problem that is closely linked to city and regional planning. A broad-visioned, public-spirited planning and zoning board, free from politics and supported with adequate funds, might see the advantages of removing slum dwellers to the city's edge where land is plentiful and inexpensive and where housing costs are such that governmental subsidies can help produce rents that are within reach of the city's lower third.

Cleveland's three mid-town housing projects cost about $5,000 per family. If the really needy are to use them, most—if not all—of this cost must be subsidy. Out of the city these people could be housed for a quarter to a third of this cost—and the money saved could help house more needy families or serve, perhaps, as a basis for a solution to employment problems.

But this cannot be accomplished

Air view, looking east, of the Cleveland Stadium and Lake Shore Boulevard. The City Hall at the end of the Mall is just above the Stadium at the right.



Galloway

The Epworth-Euclid Methodist Episcopal Church. It is located at Wade Park, opposite Severance Hall and flanking the Museum of Fine Arts (see cuts on pages 69 and 70).

Photos by Ewing Galloway

Severance Hall, home of the Cleveland Symphony Orchestra and one of the Wade Park group of cultural buildings

Courtesy Cleveland Museum of Art

Museum of Fine Arts, the dominating building of the Wade Park development, of which all Cleveland is proud

Cleveland's Civic Auditorium, one of the Mall buildings and scene of many convention meetings

until a city planning and zoning bo accords recognition to housing as element of major importance in broad scheme for regional devel ment. Basic principles that re housing to other necessary parts Cleveland's *metropolitan* comp *must not* be compromised for te porary gains. Cleveland needs *ho ing*—which takes into account social and economic factors involv —not merely *houses,* however ex lent these may be as isolated examp of individual groups of buildings.

This necessity for city and regio planning has been treated elsewh in this issue. But it is impossible mention either Cleveland's hous projects or public and cultural bu ings without emphasizing the pres lack of city and regional integrati

A disheartening example of hit- miss planning is found in Clevela cultural center. Within a dec approximately $20,000,000 has b spent in developing monume structures and a beautifully la scaped setting. Many more milli will be spent within the area that cludes the Museum of Fine A Severance Hall (home of the Cle land Symphony Orchestra), West Reserve University, and many ot institutions.

As a cultural center, Cleveland be proud of this fine group. But an example of orderly planning, lated properly to the rest of the c it is costly and shortsighted. penditures have been made with relation to housing needs or to so tion of traffic problems within area. As a result, the business residential territory surrounding great cultural center is develop the characteristics of a serio blighted area.

Such conditions can only be ov come in Cleveland—as in any ot city—by co-ordinated action on part of all its citizens. Blight of la areas is a city-wide problem. Ca of blight in one section generally a first outside the affected area. vention of such blight—which me prevention of eventual slum co tions—requires a comprehen scheme of city development in wh *all elements* of urban life—indus commerce, transportation, recreat education, and housing—are inte ted to provide adequacy in all spects for the expanding needs c vigorously progressive community

McLaughlin Aerial Surveys

leveland's Industrial Areas

WILBUR J. WATSON

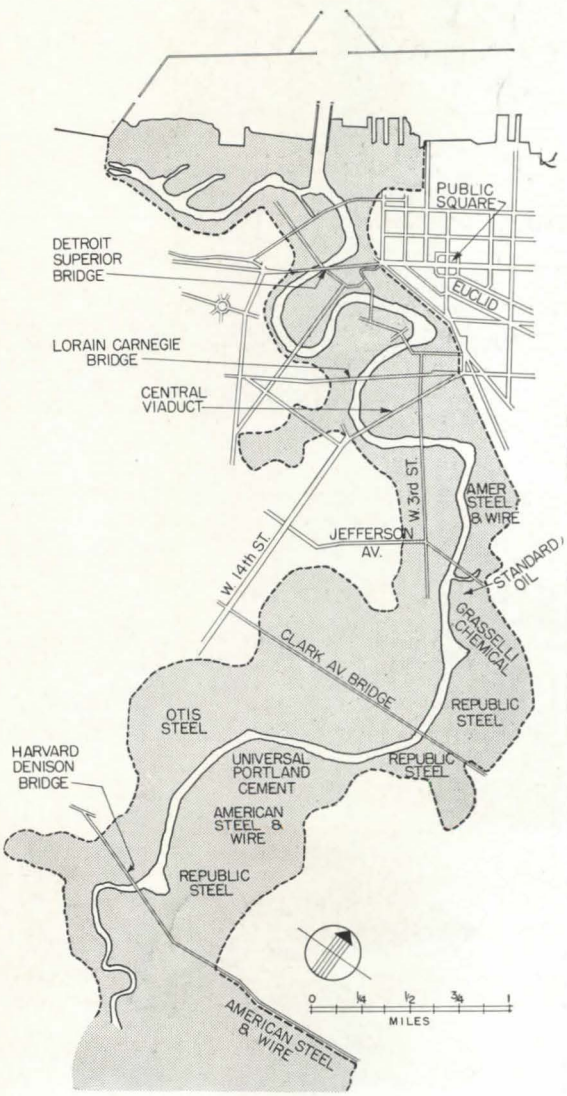
CVELAND is essentially a produc- city. The majority of its popu- on is identified with manufactur- ; and the extent of this activity developed the city into one of country's principal industrial ters. Among many reasons for are: first and most important, venient transportation; second, ximity to coal mines in the south to iron ore in the north; third, ample supply of water and finally most cogent reason—the fact that veland people seem to have been urally mechanically inclined.

heap iron and cheap coal furnish nomical bases for production of y and various metal products. sequently, it is for the manufac- of such things that Cleveland is d today. For instance, Pitts- gh—only about 140 miles to the heast—leads in production of and steel as such; but Cleveland s in the output of iron and steel lucts, as machine tools and heavy hinery of all kinds. Again, Detroit—about the same distance from Cleveland to the northwest—leads in automobile production, but Cleveland manufactures far more automobile parts.

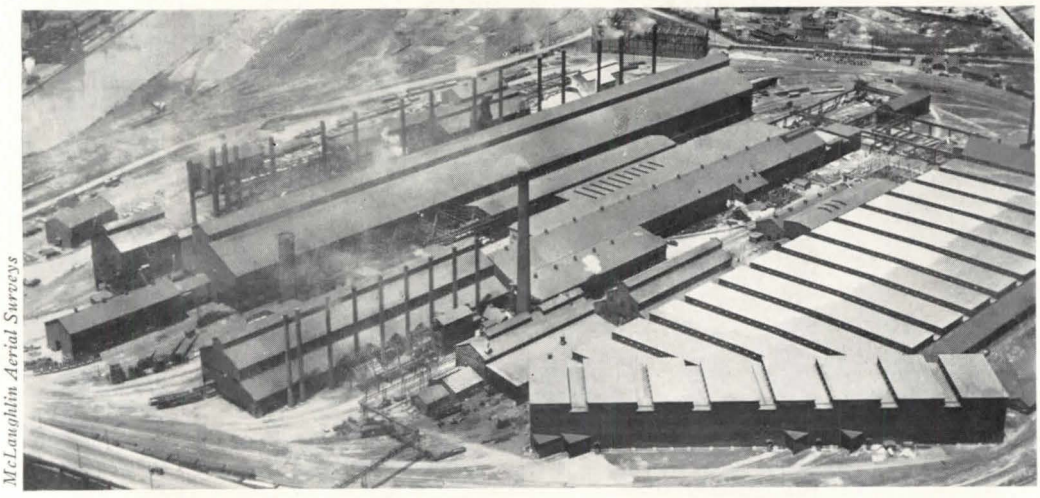
Industrial Cleveland may be roughly divided into four major districts—the Cuyahoga Valley, the Lakefront, the railroad frontages, and the suburban areas. The last named are related to the Lakefront, for many industries have moved beyond the city limits, although they remain on the lakefront.

The Cuyahoga Valley, which divides the city into two parts, contains a navigable river—the "kinky Cuyahoga"—that provides a large docking frontage for industrial plants. It is navigable for a distance of five and one-half miles along the crooked, winding course and is now being deepened to provide in the near future an additional one and one-half miles of navigable frontage.

The Cuyahoga's lower reaches are devoted largely to docks for the interchange of goods between water-borne



Carl McDow



McLaughlin Aerial Surveys

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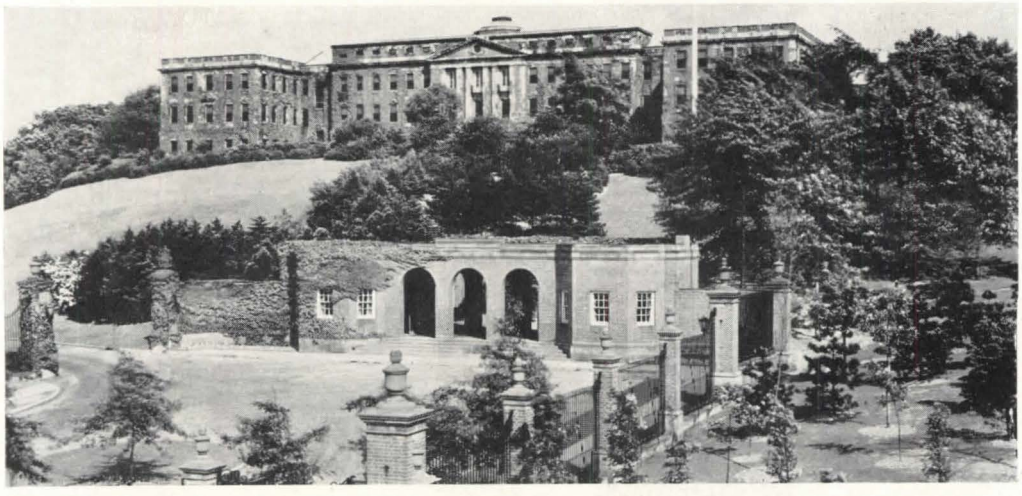

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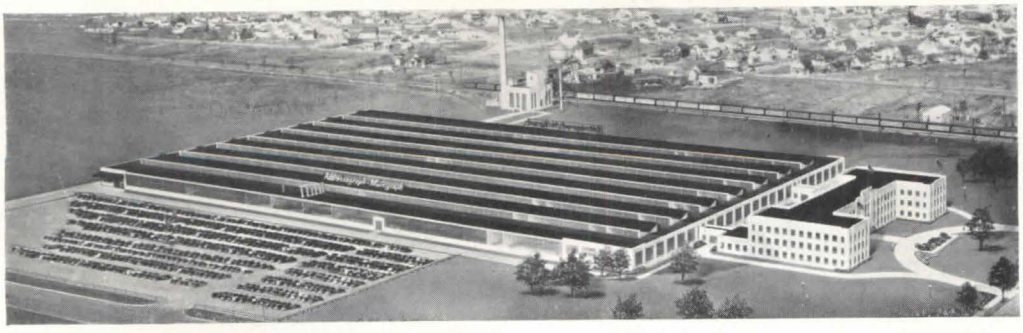
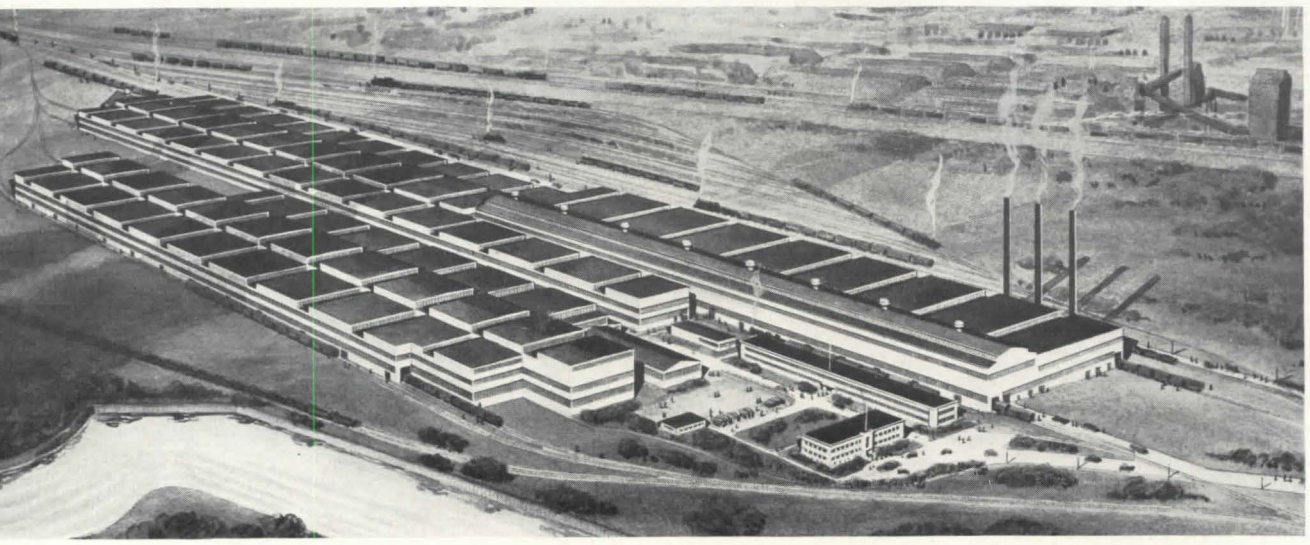


5

Among the most important of t
country's industrial centers, Cle
land contains a wide variety
manufacturing plants. Most
them use iron ore from the sou
coal from nearby mines to t
north; and above—1 is the ind
trial part of the lakefront whe
ore boats are unloaded. 2 is t
Bryant Heater Plant; and 3, t
furnaces and mills of the Otis St
Company in the upper portion
the Cuyahoga valley. In East Cle
land is Nela Park, containing l
oratories of the General Elec
Co. (4). Among new plants
farther east of Cleveland is t
of the Addressograph-Multigra
Company, shown in 5.



Rendering of the new strip mills of the Republic Steel Corporation recently erected in the upper reaches of the Cuyahoga River valley

fic and the railroads, storage and houses, huge yards for lumber, stone, and cement. Farther up river are the oil industries, in- ling the original refinery of the ndard Oil Company, and numer- storage plants for gasoline and In upper reaches of the river ey are the great steel plants—the ncipal furnaces and mills of the s Steel Company, the wire works coke ovens of the American Steel Wire division of the United tes Steel Corporation, the Cor- n and McKinney Plants and the e new strip mills of the Republic el Corporation.

rchitecturally speaking, these new s are the most interesting in the ey for the successful application nodern design to industrial needs. Republic Steel plant covers 18 s of ground, for all but the office laboratory are one story in ht.

Vith few exceptions, the buildings hese great industries contain lit- that is new or distinctive in ap- ance. The steel plants cover large s because they are generally one y high; and are of steel and brick heavy work and maximum utility. ndustrial areas of the Lakefront nd several miles eastward from mouth of the river, but only a t distance to the west. Industries ted here have rarely used water sportation; and lakefront dock- has been developed to a very ted extent. Plants are generally ed by the railroads whose tracks llel the lake frontage through area. Here is the original plant of the Otis Steel Company and many of the city's oldest industries. Buildings are mostly old and dingy—some are even dilapidated and empty. The district is a blighted one and eventually will probably be claimed and cleared for other purposes. What developments will take place in such obsolete industrial areas is one of the city's problems—a problem to be faced not only by Cleveland, but by most of our industrial cities.

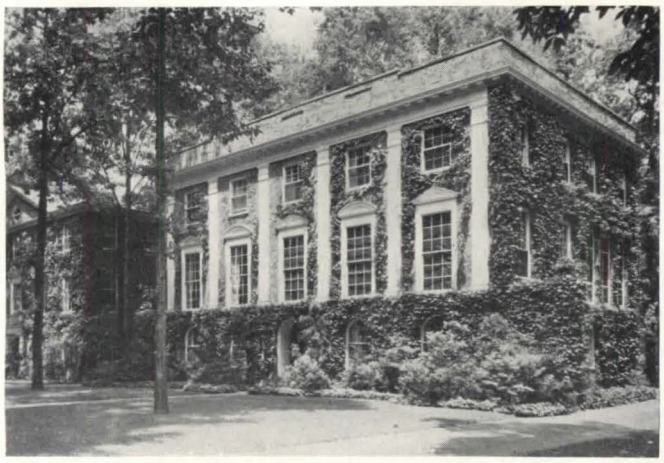
The newer plants are not on the lakefront at all, but are built near the railroads—the main lines—on industrial spurs east of Cleveland and six to nine miles from the center of the city. Here are excellent examples of modern industrial construction, among them plants of the Foote-Burt Manufacturing Company, the White Motor Company, the Cleveland plant of the Fisher Body Company, the Lincoln Electric Company, the National Acme Company, glass factories of the General Electric Company, the Harris Calorific Company, and many others.

Many industrial plants with excellent buildings are still located within a few miles of the Public Square. Included are such plants as the Warner and Swasey Company, famous for telescopes; the Wellman Engineering Company, makers of modern conveying machinery; the W. S. Tyler Company, noted for metal work.

Outstanding developments in the construction of industrial plants have taken place in the suburbs. In East Cleveland is Nela Park, built by the National Electric Lamp Association prior to its absorption by the General Electric Company. Situated in the midst of a well-planned and beautifully landscaped park on the top of a hill, it is an excellent example of architectural style consistently adopted on a large scale. Most of its buildings are devoted to scientific research and laboratory investigation, but some are factories and storehouses. With its red-brick colonial buildings covered with ivy, the group more nearly suggests a college campus than a center of commercial and industrial activity.

Farther east, about 11 miles out, are the Cleveland plant of the Chase Brass & Copper Company and the new buildings of the Addressograph-Multigraph Corporation, a good example of recent industrial architecture that covers about 8 acres of ground. Still farther—about 30 miles to the east, on the lakefront at Painesville, is the 16-acre plant of the Industrial Rayon Corporation, with new, modern and air-conditioned building—the *ne plus ultra* in the construction of rayon plants.

The Cleveland industrial area may be considered to extend this far and even into the city of Akron, some 35 miles to the south, which is the rubber center of the world. Most of the buildings devoted to the manufacture of tires are of the multi-story type. Probably the two outstanding examples of industrial architecture in Akron are the tire plants of the Firestone Tire & Rubber Company and the airship factory of the Goodyear Zeppelin Corporation, a subsidiary of the Goodyear Tire & Rubber Company.



Carl F. Waite

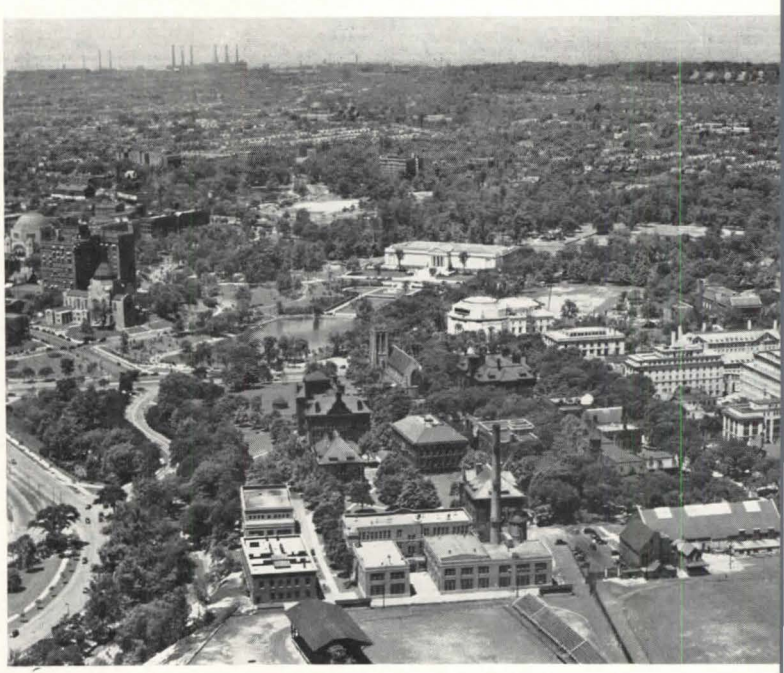
1

Carl F. Waite

2

WEST SIDE: Well-established residential communities border lakefront in the northwestern part of Metropolitan Cleveland. air view shows Rocky River and Lakewood, two of Cleveland's portant satellite towns—and the only residential communities n Cleveland (except Bratenahl) with Lake Erie frontage. 1, abo shows the type of London town house in the Lake Avenue sect of Cleveland; 2 is a house in the Clifton Park area of Lakewo

3



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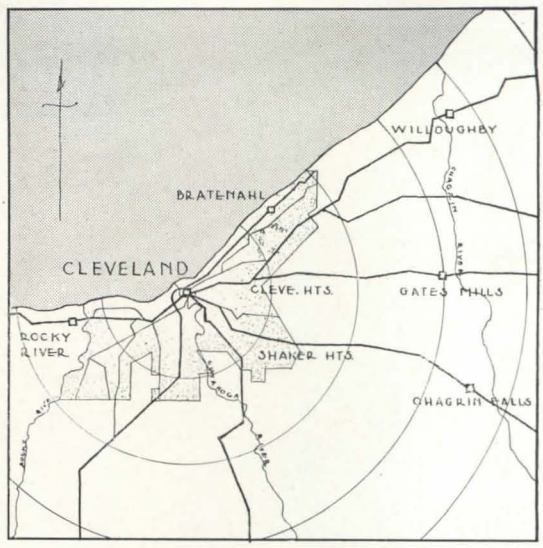
EAST SIDE: The Wade Park area lies along Euclid Avenue, close the city limits and adjacent to East Cleveland and Cleveland Heig and has developed around the cultural center of Cleveland t includes the Case School of Applied Science and Western Rese University. 3, above, suggests the character of the houses wh once lined Euclid Avenue; 4 is a house on Magnolia Drive in Wade Park district.

esidential Development

f the Western Reserve

y TRAVIS GOWER WALSH, AIA



Brown Bros.

View looking toward Lake Erie from the old Reservoir Walk, taken from a drawing made in 1872 when Cleveland was known as "The Forest City"

Carl F. Waite

. . . and a view along Fairmount Boulevard, near Cleveland Heights, that suggests the broad lawns and shaded streets which characterize many residential districts of modern Metropolitan Cleveland.

o CONSIDER the domestic architecre of Cleveland and its immediate virons as completely representative, ould be to miss much that is worthhile. A broader area has become entified with the pattern of Metrolitan Cleveland. It embraces a mber of communities and is rerred to as the Western Reserve.

Cleveland's growth has been fanaped, extending from Lake Erie the north and radiating from the yahoga River to the east, south, d west. The westerly growth has netrated far beyond Rocky River d includes the comparatively modn Lake Avenue Section of the city, City of Lakewood, Rocky River, d Bay Village.

These areas, in the process of their velopment, have followed the Lake ore and represent the only innces (with the exception of Brahl to the east) where fine resiitial neighborhoods have capitald the natural opportunities afded by the coast line of Lake Erie. This, on the face of it, represents ad commentary on the lack of foreht exercised by a large metropolis king to develop the acme of its idential possibilities. Be that as nay, any true picture of Cleveland st present this paradox as a comnity characteristic.

Due credit must be paid, however, the fine domestic architecture ich greets the motoring traveler o enters the city from the west. amples of the London town-house e (the only ones in the city, to knowledge) line the sides of treeded Lake Avenue.

Other creditable examples, reflect- the architect's intelligence and e, adorn the Clifton Park Secn of Lakewood.

Thus, the entire westerly portion the city has not only afforded the hitect a profitable area in which to rcise his skill, but presents, in ny of its aspects, an unusually pleasant solution to the inevitable American problem of marriage between the sordid daily grind and the art of gracious living.

Beyond the heart of downtown Cleveland, the journey east takes one along Euclid Avenue—one of the oldest residential portions of the city. It is a far cry to that day when Euclid Avenue was famed as one of the country's finest residential streets.

As commerce and industry pushed on, many fine homes appeared around what is now Wade Park and University Circle.

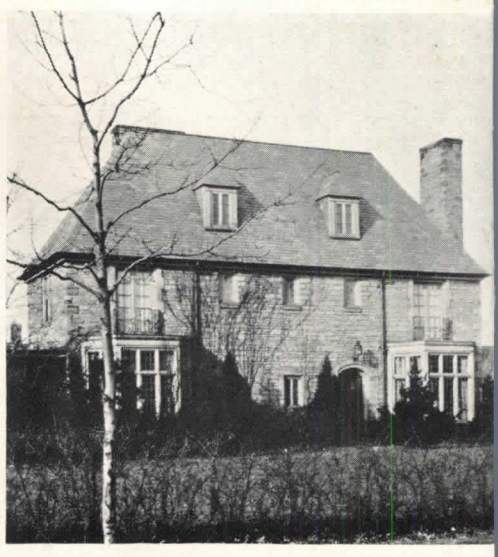
The presence of Western Reserve University and the Case School of Applied Science, with the Art Museum, gave pleasant impressions of a cultural neighborhood. Even to this day, the Wade Park area is conceded a place of residential importance and is a civic center of the first magnitude.

Of all satellite communities east of Cleveland, Bratenahl is the only fine residential neighborhood related to the Lake Shore. It is reminiscent of communities along the pleasant drives of Boston's North Shore, for most of the large estates have lakeshore frontage; and the winding Lake Shore Boulevard reveals flashes of blue Lake Erie as a background to well-groomed grounds and, in most cases, gracious architecture.

But Bratenahl lies in the path of Cleveland's growth. Already the city has encompassed the little community. Today it is a small civic entity. It is still an area of fine dwellings; but its character must inevitably change, for the trend of the city's enveloping growth is mainly industrial.

Some years ago, after the "discovery" of Bratenahl, the property of the Euclid Golf Club was placed on the market. There resulted an intense development of what is now the bustling community of Cleveland Heights. Residental work in this locality is generally excellent.

Courtesy Chamber of Commerce



Carl F. Waite

EAST OF CLEVELAND: For about 10 mile beyond the city's eastern limits and north east to Lake Erie are several comparatively new, rapidly growing residential communities. The air view shows Shaker Village widely regarded as a model development. Above is a typical Shaker Heights house. Left, a house on one of the great country estates in the Chagrin River valley

Relatively one of the city's oldest residential areas, Cleveland Heights is well developed with good schools, churches, and parks that help to make it one of the fine dwelling areas of Metropolitan Cleveland.

Chronologically, Shaker Heights followed the development of Cleveland Heights. It is a product of severe but successful standardization —one of the most outstanding in the country.

Developed as a byproduct of a great railway empire through the ambition of the late Van Swerigen brothers, it grew amazingly as a result of excellent merchandising combined with stringent deed and architectural restrictions.

Originally a few scattered ponds constituted the only physical advantages in the entire Shaker Heights area. But astute landscaping and strict adherence to development policies has helped create a community—Shaker Village—that is one of the most generally satisfactory residential areas of the country.

Few residential communities exist in which so many worth-while and varied examples of domestic work may be seen in such a compact area.

Even before Shaker Heights had reached its building peak, the trend of development in the Chagrin River Valley was apparent. This is a comparatively narrow area extending from the village of Chagrin Falls through Gates Mills and continuing to Willoughby near Lake Erie—a section that partially encircles Metropolitan Cleveland on the east.

With long graded roads and forest-covered ridges, it has become a close-knit community through the agency of polo, riding, hunting, country clubs, and other social amenities.

Architecturally, it is developed as an area of complete country estates that generally include stables, service buildings, swimming pools, and occasionally a private polo field—products of a "landed gentry" urge that more and more claims isolated areas beyond the Valley.

"Vive hodie et nosce te ipsum"—a city, like an individual, should live today and know itself. Cleveland, through the medium of the Real Property Inventory and numerous other means, has performed diagnoses and post mortems until the most begrudging concede that we know something about the town.

What will be done about it has n progressed from "precept" into th "practice" stage. To be sure there a the three large Federal slum-elimina tion projects, but they are intende only as a demonstration, not as complete remedy.

But large-scale housing is a thin apart. Cleveland's residential growt and progress seems to have been p culiar to itself. It is pointed out els where that the city has in no sens been obedient to its physical chara teristics. It has also had to conte with the added complication of larg ethnical tracts. These have tended impose further barriers, not alway logical, but almost always forceful.

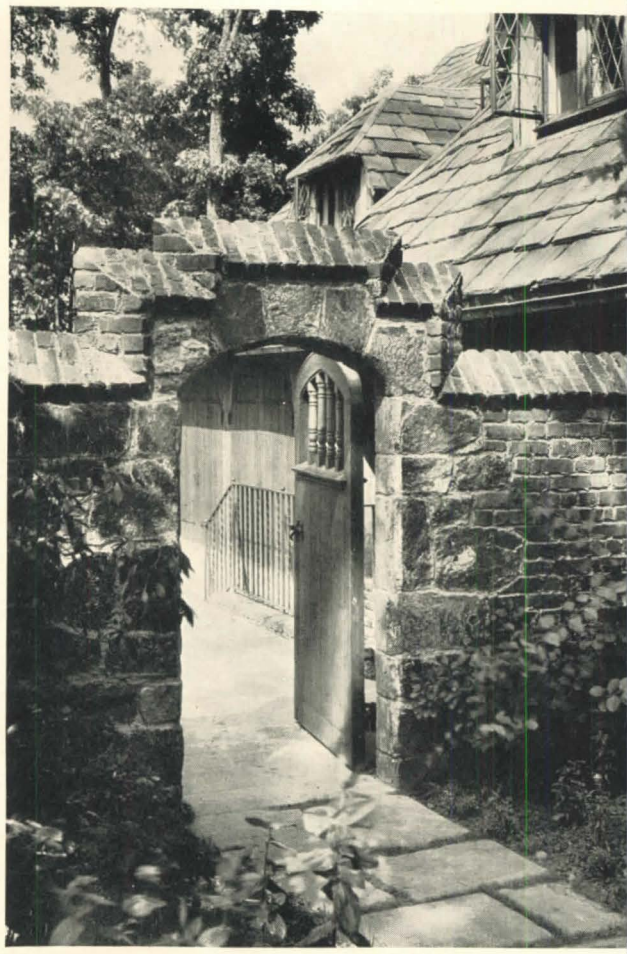
Hence, an honest summation c only present the actual physical fact These indicate a complete dece tralization of the better type of pr vate-dwelling neighborhoods whic in these days of motor transport tion, have hurdled natural barrie and defied distance. Like Mos Cleaveland, when comparing h pioneer settlement with old Win ham, Connecticut, one wonders wh the next page reveals. Will Clev landers someday be commuting Allegeheny mountain tops?

Galloway

rance to an old garden in Worcestershire, England

GARDEN STRUCTURES

John Wallace Gillies



1

John Wallace Gillies

2

Gottscho

5

Sigurd Fischer

6

Gottscho

7

RANCES, facing page: 1 is yosset, Long Island, N. Y., no and Aldrich, architects; 2, designed by Dwight James n, architect, is in a small city en at Brooklyn, N. Y. 3 is at mont, N. Y., and was de- d by the Office of John Rus- Pope, architect; and 4, from same architect's office, is on ountry estate at Wheatley Long Island, N. Y.

CACES, this page: 5, de- d by Delano and Aldrich, tects, is in Bronxville, N. Y.; Brookville, Long Island, N. Y., r Bullard, architect; and 7, which Dwight James Baum architect, in Scarsdale, N. Y.

Mott Studios

8

Gottscho

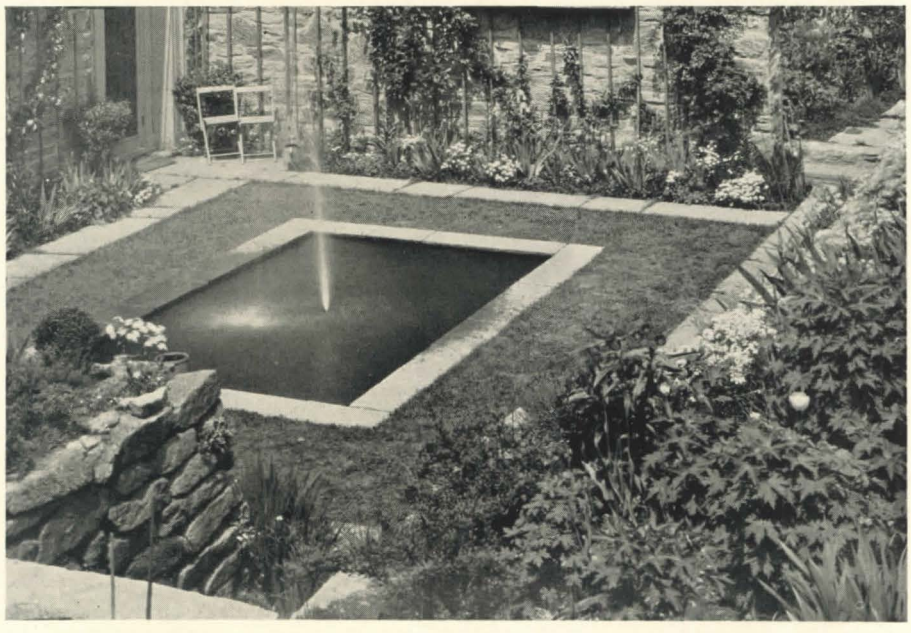
9

Amemiya

10

Mott Studios

11



12

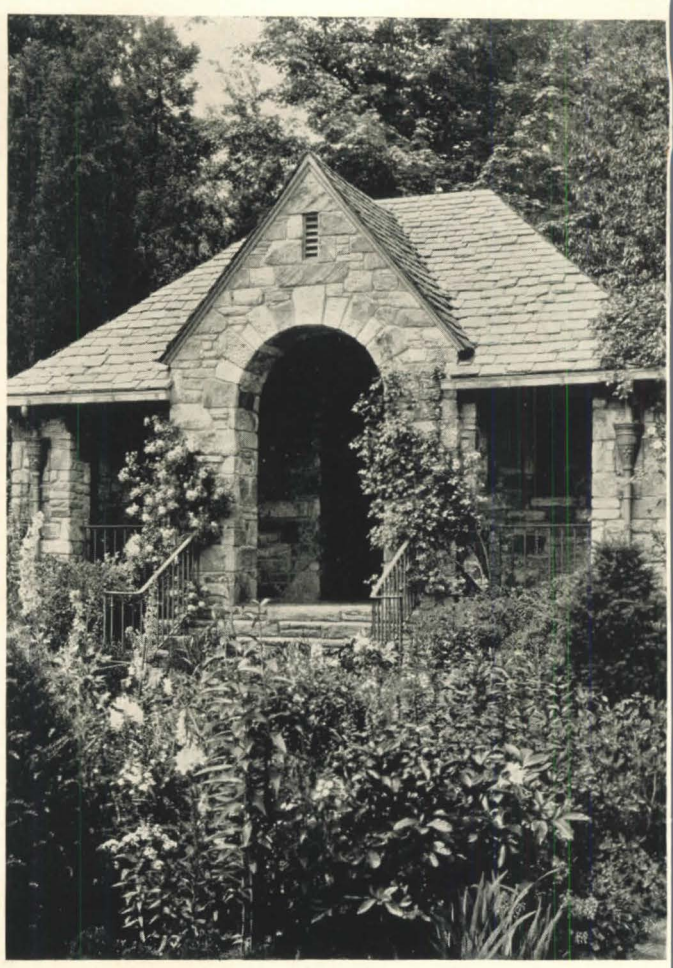
Amemiya

13

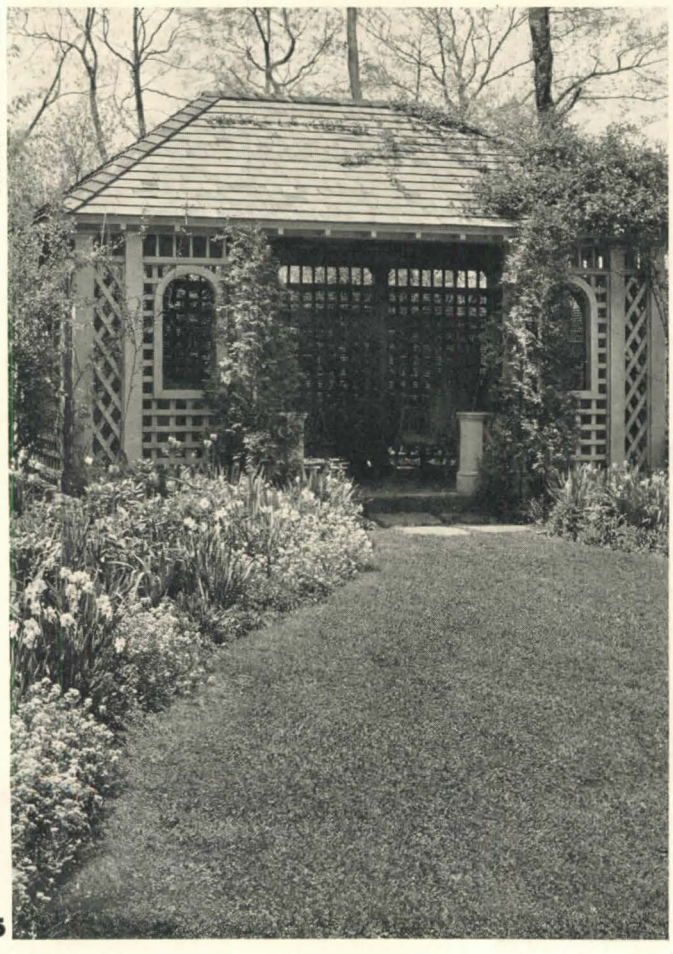
OOLS AND FOUNTAINS

n facing page: 8 is part of a rdened patio in Los Angeles, alif., designed by Morgan, Walls d Clements, architects; 9, a re- ning wall at Mill Neck, Long and, N. Y.; and 10, a garden proach in a suburban commu- y near New York, Foster and ssar, architects.

n this page: 11, pool and foun- n at Pasadena, Calif., for which allace Neff was architect. 12 is the front yard of a house at allingford, Pa., designed by vis, Dunlap and Barney, archi- cts; and 13 is a garden ap- oach from the terrace of a use in Woodlawn, N. Y.

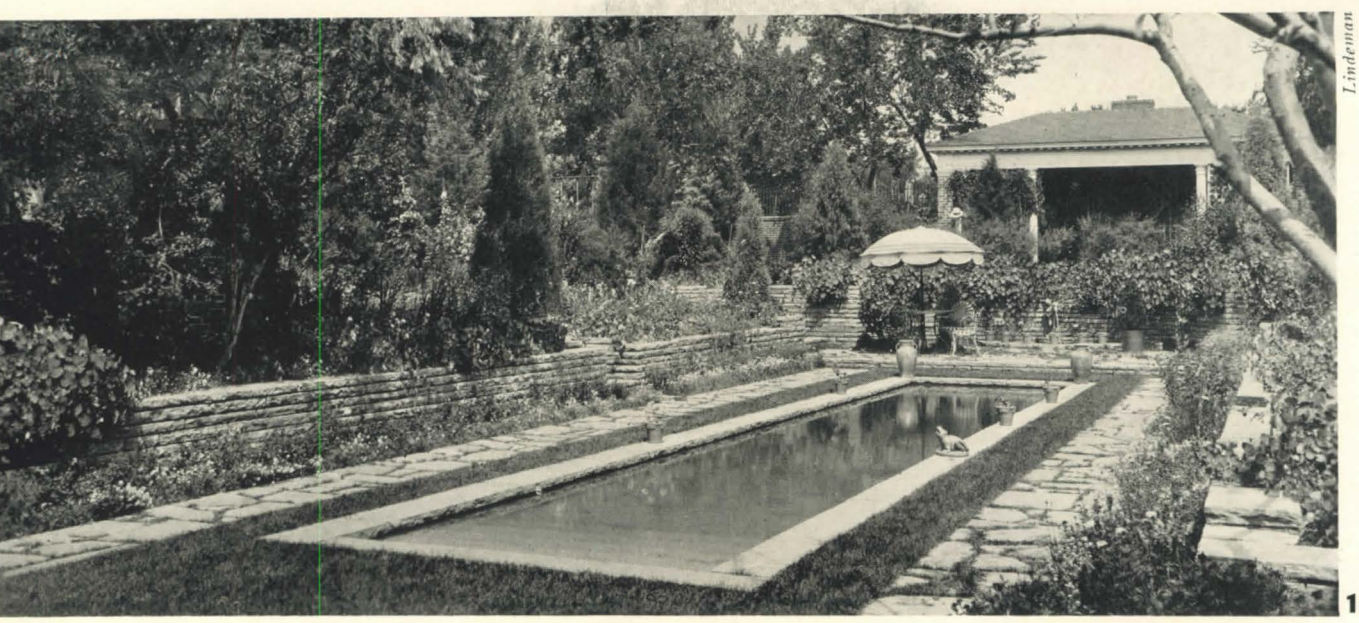


14



Richard Averill Smith

15

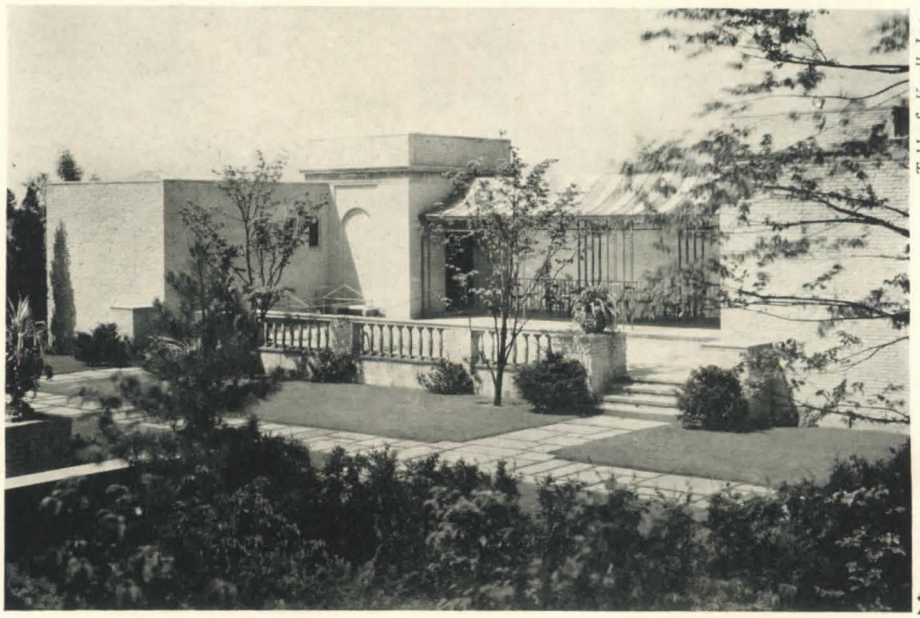


Lindeman

18

Mattie Edwards Hewitt

19



Tebbs & Knell, Inc.

20

HELTERS, facing page: 14 is part
: an old garden in Gloucester-
ire, England; 15 a tea-house at
reat Neck, Long Island, designed
/ Mrs. A. K. Billstein; and 16 a
ore elaborate garden house at
reenwich, Conn., designed by
/. F. Dominick, architect. 17 is
shelter in a small patio of a
ıuse in Los Angeles, Calif., de-
gned by Elmer Grey, architect.

AVILIONS, this page: 18, a re-
ecting pool and garden pavilion
Denver, Colo., designed by
R. De Boer, landscape archi-
ct. 19 is a similar type of struc-
re and 20 is a bathhouse and
rrace adjoining a swimming pool
ı an estate at Detroit, Mich.

Gottscho

21

Gottscho

22

Ph. B. Wallace

23

Above, 21, is a walled garden, New Rochelle, N. Y., that co bines most elements shown in fo going pages. 22 is a garden hou at Miami Beach, Fla., designed John N. Bullen, architect; and a greenhouse designed by Willi Sims and Talbott, architects, a garden at Chestnut Hill,

urrent Trends of Building Costs

oiled by Clyde Shute, Manager, Statistical and Research Division, F. W. Dodge oration, from data collected by E. H. Boeckh & Associates, Inc.

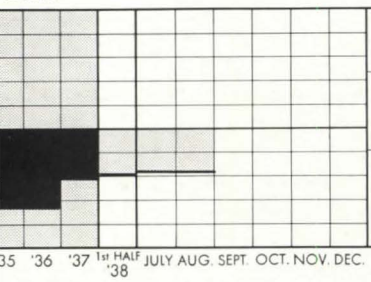
VES INDICATE control trends in combined material and labor costs he field of residential frame con- ction, the monthly curves being extension of the local cost aver- during the years 1935, 1936, and . The base line, 100, represents U. S. average for 1926-1929.

Tabular information gives cost index numbers relative to the 100 base for 9 common classes of construction, thus showing relative differences as to construction types for this year and last.

Cost comparisons or percentages involving two localities can easily be found by dividing one of the index numbers into the difference between the two. For example: if index A is 110 and index B, 95, (110-95)÷95 =.16. Thus costs in A are 16% higher than in B. Also costs in B are approximately 14% lower than in A: (110-95)÷110=.14.

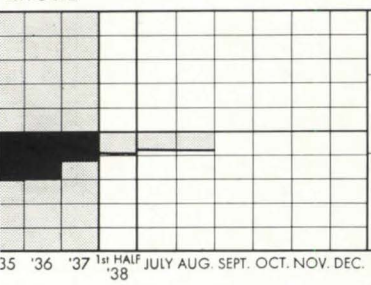
NSTRUCTION COST INDEX U. S. average, including materials and labor, for 1926 - 1929 equals 100.

ANTA



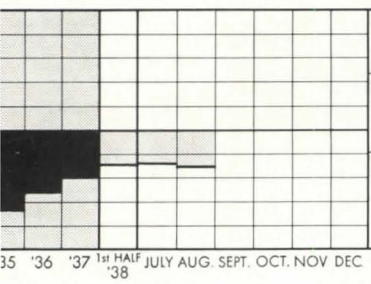
	Aug.'37	Aug.'38
Residences		
Frame	79.4	82.3
Brick	85.7	85.6
Apartments		
Br. & Wood	83.5	85.9
Br. & Conc.	94.1	96.1
Br. & Steel	93.7	96.3
Comm. & Fact.		
Frame	76.7	80.0
Br. & Wood	86.4	88.3
Br. & Conc.	96.6	98.2
Br. & Steel	94.9	96.7

TIMORE



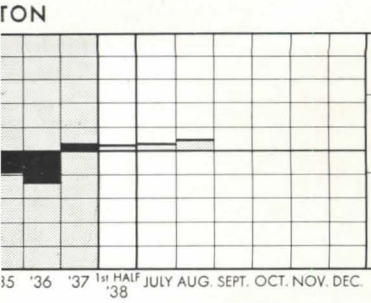
	Aug.'37	Aug.'38
Residences		
Frame	91.5	92.2
Brick	94.8	95.2
Apartments		
Br. & Wood	92.1	94.2
Br. & Conc.	94.1	98.4
Br. & Steel	95.5	98.0
Comm. & Fact.		
Frame	91.6	91.9
Br. & Wood	92.3	95.9
Br. & Conc.	92.1	99.1
Br. & Steel	97.2	98.6

INGHAM



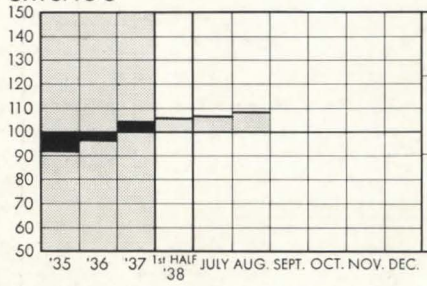
	Aug.'37	Aug.'38
Residences		
Frame	81.8	85.7
Brick	88.5	88.9
Apartments		
Br. & Wood	86.1	89.3
Br. & Conc.	92.0	95.1
Br. & Steel	91.2	92.0
Comm. & Fact.		
Frame	79.3	83.1
Br. & Wood	92.0	93.7
Br. & Conc.	95.0	96.1
Br. & Steel	92.6	94.5

TON



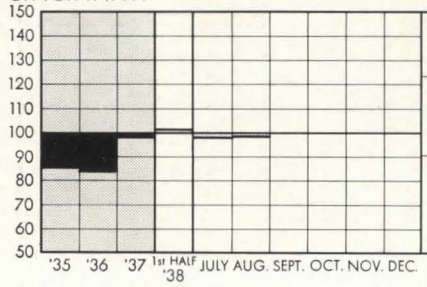
	Aug.'37	Aug.'38
Residences		
Frame	103.8	105.9
Brick	111.2	111.3
Apartments		
Br. & Wood	107.3	109.1
Br. & Conc.	112.8	115.8
Br. & Steel	110.2	112.8
Comm. & Fact.		
Frame	103.9	105.6
Br. & Wood	108.3	110.1
Br. & Conc.	114.4	118.2
Br. & Steel	115.8	116.9

CHICAGO



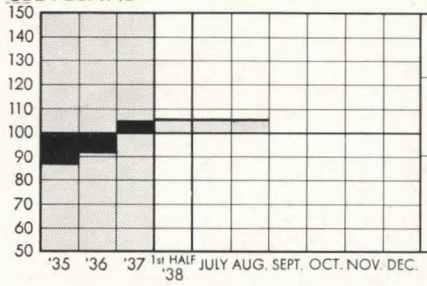
	Aug.'37	Aug.'38
Residences		
Frame	105.7	109.0
Brick	112.1	111.3
Apartments		
Br. & Wood	107.1	109.8
Br. & Conc.	120.8	122.7
Br. & Steel	115.6	117.7
Comm. & Fact.		
Frame	108.7	112.3
Br. & Wood	106.2	108.5
Br. & Conc.	124.8	126.8
Br. & Steel	121.3	121.3

CINCINNATI



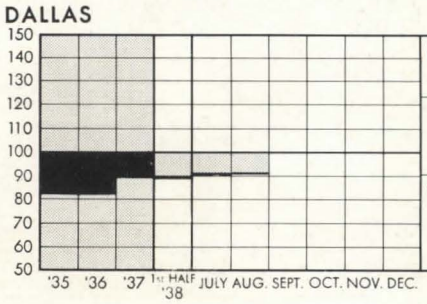
	Aug.'37	Aug.'38
Residences		
Frame	101.3	99.1
Brick	109.9	102.7
Apartments		
Br. & Wood	104.9	102.5
Br. & Conc.	111.3	112.1
Br. & Steel	108.7	108.6
Comm. & Fact.		
Frame	101.2	98.6
Br. & Wood	107.7	114.6
Br. & Conc.	115.1	114.3
Br. & Steel	113.5	112.6

CLEVELAND



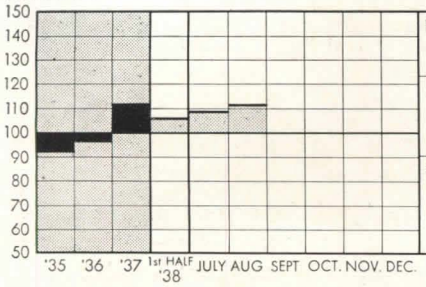
	Aug.'37	Aug.'38
Residences		
Frame	108.2	105.4
Brick	115.8	109.3
Apartments		
Br. & Wood	111.1	109.3
Br. & Conc.	115.8	115.3
Br. & Steel	112.4	112.8
Comm. & Fact.		
Frame	109.9	106.4
Br. & Wood	111.6	109.0
Br. & Conc.	119.9	117.6
Br. & Steel	118.6	118.2

DALLAS



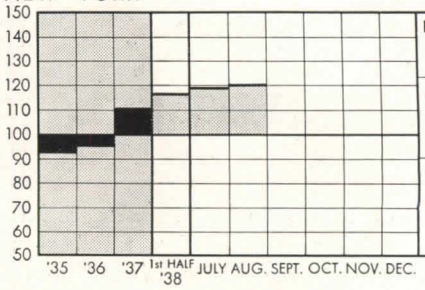
	Aug.'37	Aug.'38
Residences		
Frame	89.2	91.9
Brick	95.1	93.0
Apartments		
Br. & Wood	92.3	93.5
Br. & Conc.	93.6	98.5
Br. & Steel	94.7	98.5
Comm. & Fact.		
Frame	87.7	91.4
Br. & Wood	94.1	93.0
Br. & Conc.	94.3	98.2
Br. & Steel	96.8	100.3

DENVER



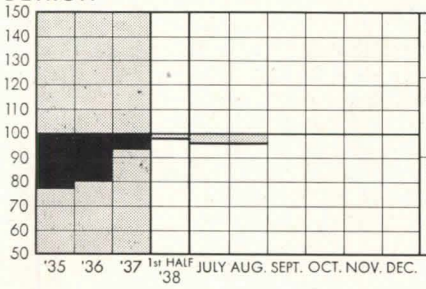
	Aug.'37	Aug.'38
Residences		
Frame	117.6	111.0
Brick	120.6	111.4
Apartments		
Br. & Wood	115.2	106.3
Br. & Conc.	116.0	114.7
Br. & Steel	115.2	113.1
Comm. & Fact.		
Frame	121.2	113.4
Br. & Wood	111.8	107.9
Br. & Conc.	117.6	116.0
Br. & Steel	119.0	115.7

NEW YORK



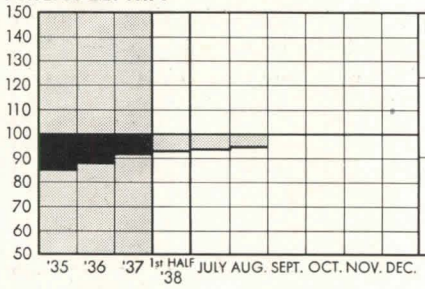
	Aug.'37	Aug.
Residences		
Frame	116.4	120
Brick	121.8	122
Apartments		
Br. & Wood	116.9	120
Br. & Conc.	126.5	129
Br. & Steel	122.5	124
Comm. & Fact.		
Frame	119.3	123
Br. & Wood	114.1	117
Br. & Conc.	127.8	132
Br. & Steel	126.6	128

DETROIT



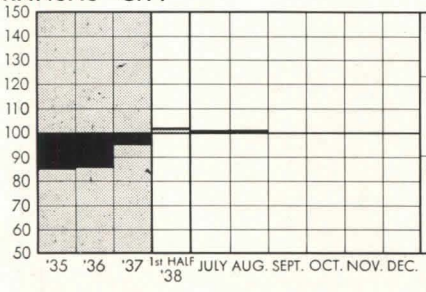
	Aug.'37	Aug.'38
Residences		
Frame	98.2	96.4
Brick	105.3	101.0
Apartments		
Br. & Wood	102.1	101.3
Br. & Conc.	108.6	108.5
Br. & Steel	107.0	107.3
Comm. & Fact.		
Frame	98.3	96.0
Br. & Wood	102.6	103.2
Br. & Conc.	111.0	110.2
Br. & Steel	112.3	112.1

PHILADELPHIA



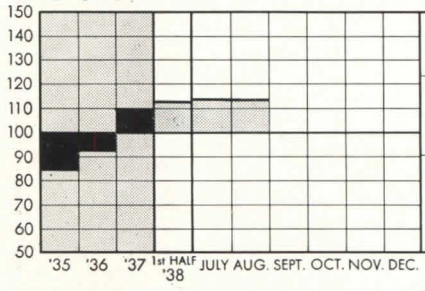
	Aug.'37	Aug.
Residences		
Frame	89.4	9
Brick	96.4	10
Apartments		
Br. & Wood	94.0	10
Br. & Conc.	98.2	10
Br. & Steel	98.3	10
Comm. & Fact.		
Frame	87.0	9
Br. & Wood	96.5	10
Br. & Conc.	100.5	10
Br. & Steel	100.9	10

KANSAS CITY



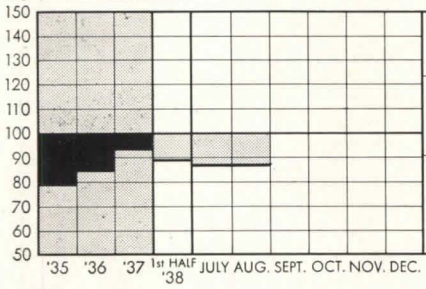
	Aug.'37	Aug.'38
Residences		
Frame	94.0	101.2
Brick	102.9	107.2
Apartments		
Br. & Wood	99.8	107.2
Br. & Conc.	109.1	117.8
Br. & Steel	106.7	114.8
Comm. & Fact.		
Frame	92.2	100.5
Br. & Wood	103.5	110.4
Br. & Conc.	112.0	121.2
Br. & Steel	113.0	119.0

PITTSBURGH



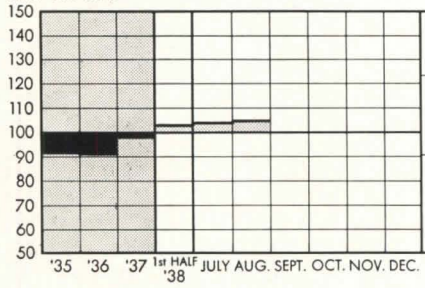
	Aug.'37	Aug.
Residences		
Frame	115.3	11
Brick	123.1	11
Apartments		
Br. & Wood	118.3	11
Br. & Conc.	118.1	11
Br. & Steel	114.6	11
Comm. & Fact.		
Frame	114.9	11
Br. & Wood	120.4	11
Br. & Conc.	120.0	11
Br. & Steel	117.4	11

LOS ANGELES



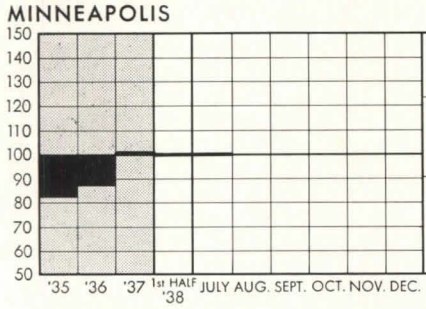
	Aug.'37	Aug.'38
Residences		
Frame	94.3	88.4
Brick	98.4	94.8
Apartments		
Br. & Wood	95.1	94.7
Br. & Conc.	98.5	102.7
Br. & Steel	100.7	103.3
Comm. & Fact.		
Frame	95.5	92.4
Br. & Wood	93.2	94.1
Br. & Conc.	98.4	103.9
Br. & Steel	104.0	102.7

ST. LOUIS



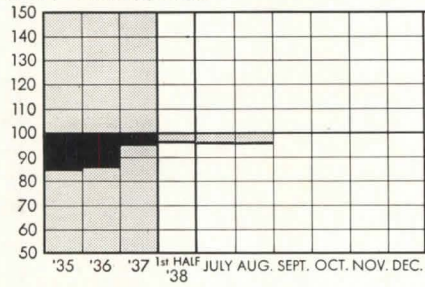
	Aug.'37	Aug.
Residences		
Frame	97.6	10
Brick	106.4	10
Apartments		
Br. & Wood	103.5	10
Br. & Conc.	114.5	11
Br. & Steel	112.5	11
Comm. & Fact.		
Frame	97.3	10
Br. & Wood	105.5	10
Br. & Conc.	118.8	11
Br. & Steel	118.6	11

MINNEAPOLIS



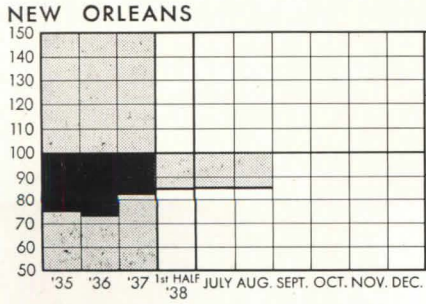
	Aug.'37	Aug.'38
Residences		
Frame	104.9	100.4
Brick	111.0	106.4
Apartments		
Br. & Wood	106.7	103.2
Br. & Conc.	112.8	112.7
Br. & Steel	111.0	110.5
Comm. & Fact.		
Frame	106.6	101.2
Br. & Wood	104.8	102.8
Br. & Conc.	116.0	116.3
Br. & Steel	115.8	114.3

SAN FRANCISCO



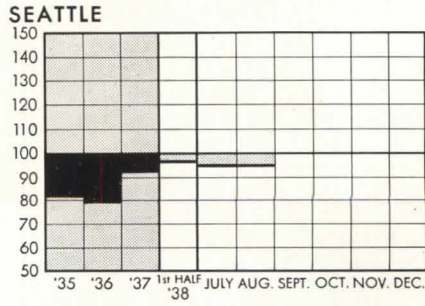
	Aug.'37	Aug.
Residences		
Frame	111.2	9
Brick	104.9	10
Apartments		
Br. & Wood	107.2	10
Br. & Conc.	117.4	11
Br. & Steel	114.2	11
Comm. & Fact.		
Frame	103.8	9
Br. & Wood	110.2	10
Br. & Conc.	120.4	12
Br. & Steel	117.5	11

NEW ORLEANS



	Aug.'37	Aug.'38
Residences		
Frame	85.1	86.8
Brick	88.4	87.9
Apartments		
Br. & Wood	86.2	89.1
Br. & Conc.	88.0	92.9
Br. & Steel	91.7	96.2
Comm. & Fact.		
Frame	84.8	85.5
Br. & Wood	86.0	89.6
Br. & Conc.	86.2	92.0
Br. & Steel	93.7	96.6

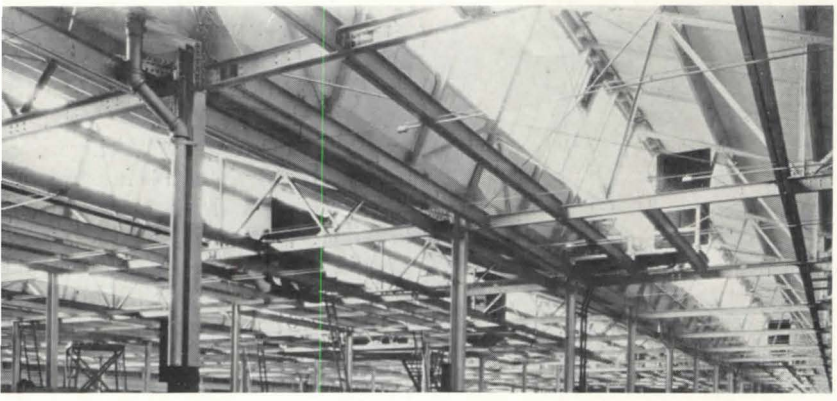
SEATTLE



	Aug.'37	Aug.
Residences		
Frame	98.0	9
Brick	108.7	10
Apartments		
Br. & Wood	105.2	10
Br. & Conc.	120.8	11
Br. & Steel	116.4	11
Comm. & Fact.		
Frame	95.7	9
Br. & Wood	109.6	10
Br. & Conc.	127.2	12
Br. & Steel	122.1	12

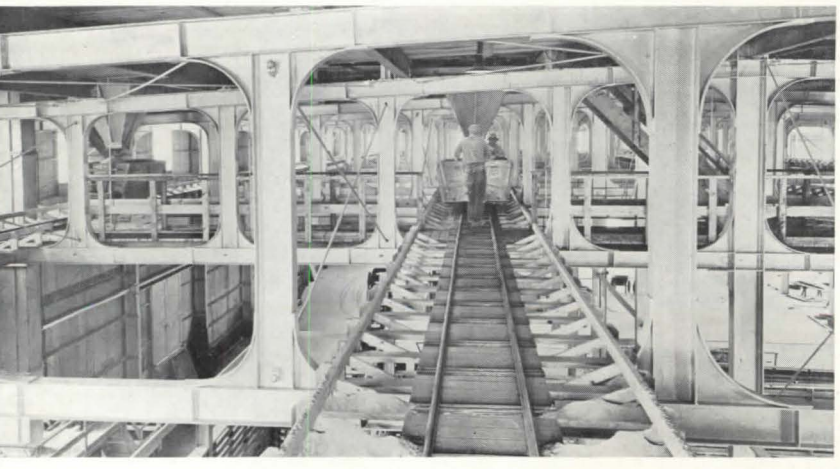
rend Notes on a Building World

Each month these pages record significant developments in the realm of design and in the fields of materials, equipments, and services.



-Sawtooth roof design and riveted construction common to many industrial ctures

-Simplified assembly using welded "Columbeam Construction" bolted to nning members



All-welded "Portal Truss" designed without diagonals to permit use of over- d conveyor systems.

DESIGNS IN WELDED STEEL

ENGINEERS ARE, apparently, searching constantly for new ways to "do the most with the least." Illustrated in 2 and 3 are two recent designs—welded steel structures for industrial use that are unique in comparison with the type of riveted construction shown in 1.

"Columbeam Construction" (2), for which a patent application has been made by Battey and Childs, Chicago engineers, is an example of "rigid frame" design. By welding elements of beam and column into a single unit—strength is increased, dead load reduced. This type of construction makes practical the use of shallower beams and lighter sections for long spans (see AR, May 1938, pp. 100—103).

The "Portal Truss" (3) was designed by engineers of the Austin Co., East Cleveland, Ohio, building firm, for a new fertilizer plant of the International Agricultural Corp., at Chicago Heights, Illinois. By eliminating diagonals from the trusses of this all-welded structure, 12 seven-foot passageways were made available. In the passages are tracks on which cars convey raw materials to various parts of the factory. Cars are loaded from a conveyor belt above the trusses, fed from a bucket elevator near a railroad siding. Tracks through trusses are intercommunicating and give access to all portions of the plant's floor area.

According to Austin Company engineers, the portal truss makes available three new conveyor levels, all of which can be utilized in the bulk handling of materials for chemical, paint, rubber, food industries, and metal-working plants. Tram rails can be suspended from the upper chord of a truss and stretched between trusses to carry materials through the upper part of the portals, while tram cars operate below, in the portal. Also, monorails can be installed directly on the bottom chord to operate below the truss, the lower flange of which can serve as a rail.

Method of testing soil with "Drop-Penetration Rod". Load-bearing values are determined by noting the number of times a sliding weight must be successively dropped against the collar to drive rod each foot.

TESTING SOILS WITH A STEEL ROD

ONE FACTOR of building design which has been difficult to calculate accurately is the safe load-bearing capacities of various soils. Larger building operations have utilized load tests, soundings, and borings to determine soil-bearing capacities. Smaller operations, limited by cost, have too often been constructed with only meager estimates of subsoil conditions. Foundation beds of average soils vary in compactness and bearing value at different parts of the same site. Variations may occur within limits of a single footing; hence a load test made on one part of a site often does not represent bearing values for other parts.

As a simple, convenient and inexpensive method for gaining complete information of this kind, Frank H. Kneas, consulting engineer of Philadelphia, Pa., has developed the "Drop-Penetration Rod Test". This soil-testing method has proved helpful under widely varied conditions in showing both the character and bearing value of soils. It has been used prior to the construction of some 300 buildings and can be run in from 3 to 10 minutes by 2 unskilled laborers and a recording observer.

The test involves use of a steel rod, of 1 in. diameter, 8 ft. long, with a ring welded at the middle. A 25-lb. weight drops 3 feet down the top half, hits the ring and drives the bottom of the rod into the soil. The bearing capacity of the soil is determined by the number of blows necessary to drive the rod each successive foot.

Variations in cohesiveness of soils make it impossible to establish absolute bearing values related to the number of blows per foot. However, Mr. Kneas maintains that "direct comparisons can be made between the relative penetrations at different parts of the same sites and also between tests on the same type of soil at different sites."

Hundreds of such drop-penetration tests have been made. Results have been charted and compiled in a report on "Bearing Value of Soils," published in the Journal of the Franklin Institute for April, 1937.

In average soils, "the maximum settlement occurs within the first few feet of soil beneath the footing and most of that in the first foot of depth". The drop-penetration rod explores these few feet under footing excavations; or when test pits are dug, the soil may be tested at different levels. After the general excavation is completed, tests with the rod may show variations in resistance at different parts of the site or footings. As a result of the tests the footing can be redesigned to suit actual conditions.

NEW UNITS FOR HEATING AND AIR CONDITIONING

ACCORDING TO A RECENT REPORT issued by the Department of Commerce —No. 17 of the Market Research series—the number of air-conditioning installations in this country increased about 1,400% from 1933 through 1936. Rapid acceptance of air conditioning has caused a widespread fear that use of water as one conditioning medium would overtax water or sewer systems of many localities.

However, a survey made by the New York Trust Company and p lished in the current issue of its p lication, *The Index,* states there ists no cause for alarm. During past year a growing trend has b observed among buyers of air-c ditioning equipment to use wat conserving types which waste onl to 10% of the water utilized.

TWO NEW UNITS have recently b perfected to make air conditioni available to small houses. One, m ufactured by the Round Oak Co pany of Dowagiac, Michigan, co bines a complete oil furnace and winter air conditioner within a sin cabinet. Delivering up to 80,(Btu's per hr., the "X-80 Air Con tioner" is said to make automatic heat practical in houses costing little as $4,000.

The other is a direct-fired u made by the Carrier Corporation Syracuse, New York. Ocupying l 11 sq. ft. of floor space, the u burns either gas, oil, or coal, the l ter fed by the Carrier automa stoker. It includes complete facilit for winter air conditioning; and su mer air conditioning can be ma available by adding a matched C rier cooling unit.

A UNIT COOLER of the blower type announced as a new product by t Modine Manufacturing Company Racine, Wisconsin. Designed for stallation in stores, offices, and r taurants, it is available in two siz both of which may be equipped w either cold water or Freon cooli coils.

FROM THE MAJESTIC COMPANY, Huntington, Indiana, comes an a nouncement of a new convertible or gas winter air-conditioning u Two sizes are available with BT capacities ranging from 90,000 175,000. Both are adaptable to a standard make of burner and c version from gas or oil is acco plished by a removable fire chamb front.

"SILENTAIRE"—made by the Berg Manufacturing Division Repub Steel Corporation, Canton, Ohio— a new window ventilator unit. It portable and is said to operate sile ly "with a completely soundproo mechanism".

YORK ICE MACHINERY CORPORATIO of York, Pennsylvania, has added new, automatically operating conv

(*Continued on page 138*)

eviews of New Books

ORE LIVES THAN ONE. By Claude gdon. Alfred A. Knopf, New York, 38. 6¾ x 9½ in. 368 pages. Price, 75.

AUDE BRAGDON—architect, author, signer of ornament and stage sets, l occulist—has written his autography. This appropriately titled ume is intensely readable and, as a relation of a complex artistic perality, has the rare value of comte sincerity. Mr. Bragdon eschews chronological arrangement of his terial, and groups it according to various activities in which he has gaged, since as he says, "in retroct the time-element disappears; l memory passes easily from year year—the sequence having become imultaneity." As Mr. Bragdon has w passed his seventieth year, this count of his life may be reasonably nsidered to be definitive.

To the architect the most interest parts of the book will be those ich deal with Mr. Bragdon's ivities in architecture, projective ament, and stage design. Although his latter years, architecture has cupied a lesser place in his interests n stage design and that philosophy life which he says is "the Pole-ar of my age and of my agelessss", it was as an architect that Mr. agdon first attained prominence. ith no formal architectural educan the young man obtained a job a draftsman in the office of a "great at-like man with grandiose ideas", P. Rogers of Rochester, N. Y., a salary of nothing a year. After ne time here, he felt that he was rning nothing and was progressing slowly in his chosen profession. cordingly he moved on, and in due e went to New York City, and—st as his money was about to give t—found work in the office of uce Price. Here he remained until return to Rochester, where he med a firm of his own. From 1886 1919 he was engaged in the prace of architecture.

In 1919 Walter Hampden asked n to design the sets for a production of *"Hamlet"*; and Mr. Bragdon gan his career as stage designer. om this time until his retirement 1934 he was pre-eminent in this field. It must not be supposed, however, that so versatile a person as Mr. Bragdon would devote himself to attaining eminence in one field to the exclusion of all others. In addition to, and simultaneous with, his achievements in the architectural and theatrical worlds, he experimented with light and color-music; derived a new ornamental mode from numbers and geometry which he call "projective ornament"; established and managed a small publishing business, the *Manas Press;* wrote prolifically on such varied subjects as philosophy, art, occultism, love, and sex; and translated in collaboration with Nicholas Bessarahoff, Ouspensky's "Tertium Organum."

Of his experiments with projective ornament—that specialized form of geometric design of which Mr. Bragdon is commonly known as the father—the author says little, preferring only to refer to his other works on the subject. This is true also of his theories on the Fourth Dimension, although the appendix of *More Lives Than One* contains an essay which sums up his opinions on fourth dimensional space, in addition to "The Immortal Beloved", a pantomime illustrative of his experiments with color music.

CHANGING THE SKYLINE. By Paul Starrett. Whittlesey House, McGraw-Hill Book Company, Inc., New York, 1938. Illustrations from photographs. 6½ x 9½ in. 319 pages. Price, $3.

AS AN AUTOBIOGRAPHY of one of the five Starrett brothers—all of whom were prominently identified with the construction industry—this book will undoubtedly interest every architect who reads it. It is an informal, conversational account of Paul Starrett's contact with the great era of expansion which created frenzied activity in almost every branch of American life in the 50 years between 1880 and 1930. Names—great names in finance, railroading, architecture, merchandising, and industry—appear constantly throughout the book. The author treats them casually—almost too casually in some instances, for almost invariably they touch situations which would be more interesting—and informative—if recounted in greater detail.

Paul Starrett's career began in 1888 in the office of D. H. Burnham, whom he remembers as one of the ablest men he knew. Building design was on the threshold of great change: cast-iron columns were being introduced to carry floor loads; later with the development of the Bessemer process, steel was used for the floor beams as well; hollow-tile floor arches came into use for filling; the elevator was being perfected. Here were the inventions which made the skyscraper a practical possibility.

Starrett soon found that his abilities were not those of the designer, but those of the builder, of the organizer of the construction work itself—a task which grew increasingly complex. He became a superintendent for Burnham. Later he joined the George A. Fuller Company, an organization with which he remained for 25 years. The climax to his career was the erection by his own company, Starrett Brothers & Eken, at a speed of one story a day, of the Empire State Building.

THE STONES OF SCOTLAND. Edited by George Scott Moncrieff, with contributions by W. Douglas Simpson, G. P. H. Watson, W. Mackey MacKenzie, Ian G. Lindsay, and Ian C. Hannah. Charles Scribners' Sons, New York, 1938. Illustrated from photographs and drawings. 6½ x 9 in. 132 pages. Price, $4.50.

BECAUSE relatively little has been published on Scottish architecture, designers will find much interesting material in this book. Text—which is simply and clearly written for the most part—deals with structures of prehistoric Scotland; the development of ecclesiastical architecture up to the Reformation; post-Reformation churches; Scottish castles and towers; and the nature and development of the Scottish "burgh."

Illustrations are largely from photographs—most of them well-taken and all of them excellently reproduced on coated paper. They are grouped according to the subjects of the text for convenient reference.

(*Continued on page* 140)

M-H CONTROL SYSTEM REDUCES FUEL COSTS FOR MERCHANDISE MART... 22%

■ When a Minneapolis-Honeywell Weatherstat control system combined with Brown Instruments was installed in the Merchandise Mart, the world's largest building, it was important news to the building, heating and temperature control industries. But when this installation provided a saving, based upon degree days, of more than 22% it became important news to every building owner and operator as well. The Merchandise Mart requires approximately 20,000 tons of coal annually to heat its 4,000,000 square feet of floor space and keep its 25,000 tenants comfortable. It is obvious that a 22% saving on such fuel consumption will quickly pay the cost of the control system. A similar result can be expected in your building – old or new, large or small . . . . Minneapolis-Honeywell Regulator Company, Minneapolis, Minnesota. Branches everywhere.

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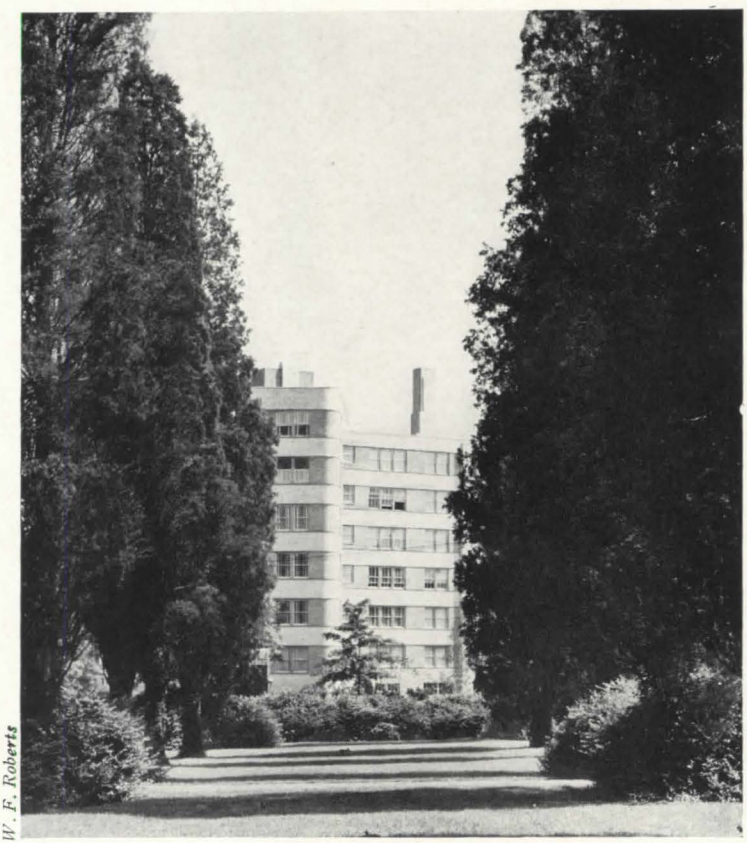


W. F. Roberts

APARTMENTS

FORTHCOMING 1938 STUDIES: Houses ($15,000–$25,000) — October; Houses ($25,000 and up) — November; Office Buildings — December. PRECEDING 1938 STUDIES: Hospitals — August; Theaters — July; Factories — June; Schools — May; Houses ($7,500–$15,000) — April; Houses ($7,500 and under) — March; Retail Stores — February; Hotels — January.

ARCHITECTURAL RECORD
COMBINED WITH
AMERICAN ARCHITECT AND ARCHITECTURE

F. S. Lincoln

Carl Mackley Apartments, Juniata Park, Philadelphia. W. Pope Barney, Architect; Kastner & Stonorov, Assc

The evolution of community apartment-house developments suggested emphasis in this issue be placed on such projects. Though general te and management needs are surveyed (see next page) and a few illustr case studies concern projects with which FHA had no connection, a n portion of the information presented was obtained with the cooper of FHA. Since its recommendations derive from experience gaine considering hundreds of proposals, we believe RECORD readers will this report a worthwhile contribution to their reference library.

nant and Management Needs*

Community

THERE IS a slight trend toward suburban living, caused partly by the possibility of better orientation, use of open space, cleanliness, and quiet; partly by desirable community facilities; partly by lower construction and maintenance costs.

Neighborhood

Present taxation generally discourages construction along main thoroughfares, forcing selection of sites in quieter neighborhoods. Restaurants, shops, and transportation system should be convenient.

Site

A site at the edge of a city or near a park is desirable, with buildings located to insure adequate light and air, and freedom from noise, odor, and smoke. Site landscaping is equally important.

Buildings

Tenants surveyed preferred low buildings and small units grouped around common recreation areas. Research undertaken by Downs, Mohl & Company of Chicago, indicates that developments containing less than 100 apartments are economically obsolete. In some cities developments containing as few as 20 units are economically justified. Building managers request planning and construction quality which reduces operating and maintenance costs.

Dwelling units

Location, size, and layout. Basements and first floors are not generally wanted by tenants. Three-room suites are most in demand; four-, two-, five- and six-room units follow in order. Dinettes are reported "unpopular" by managers and tenants, combination living-dining-rooms being preferred, or an additional sleeping room. Many tenants like two-floor arrangements of even small apartments. Managers state that efficient layout is more important than large room sizes. Size, equipment, and layout of kitchens and bathrooms are subject to critical inspection. Small, semiprivate entrances are preferred to large foyers.

Room sizes. Managers state minima are: living rooms, 12 x 18 ft.; bedrooms, 10 x 12 ft.; dining alcoves (if included), 8 x 8 ft. Tenants prefer: living rooms, 16 x 24 ft.; kitchens large enough to include counter space in addition to equipment surfaces.

Services

Mechanical services desired by tenants include: garbage disposal (incinerator or electric crusher); ventilation and deodorization of kitchens; mechanical refrigeration; numerous convenience and radio outlets; and self-operated elevators.

Social and recreational facilities. Roof gardens or balconies, playgrounds, and kindergartens are considered desirable by managers consulted as well as by tenants. Such areas as indoor social or athletic rooms and swimming pools, termed desirable by tenants, are regarded by managers as economically impractical.

Equipment

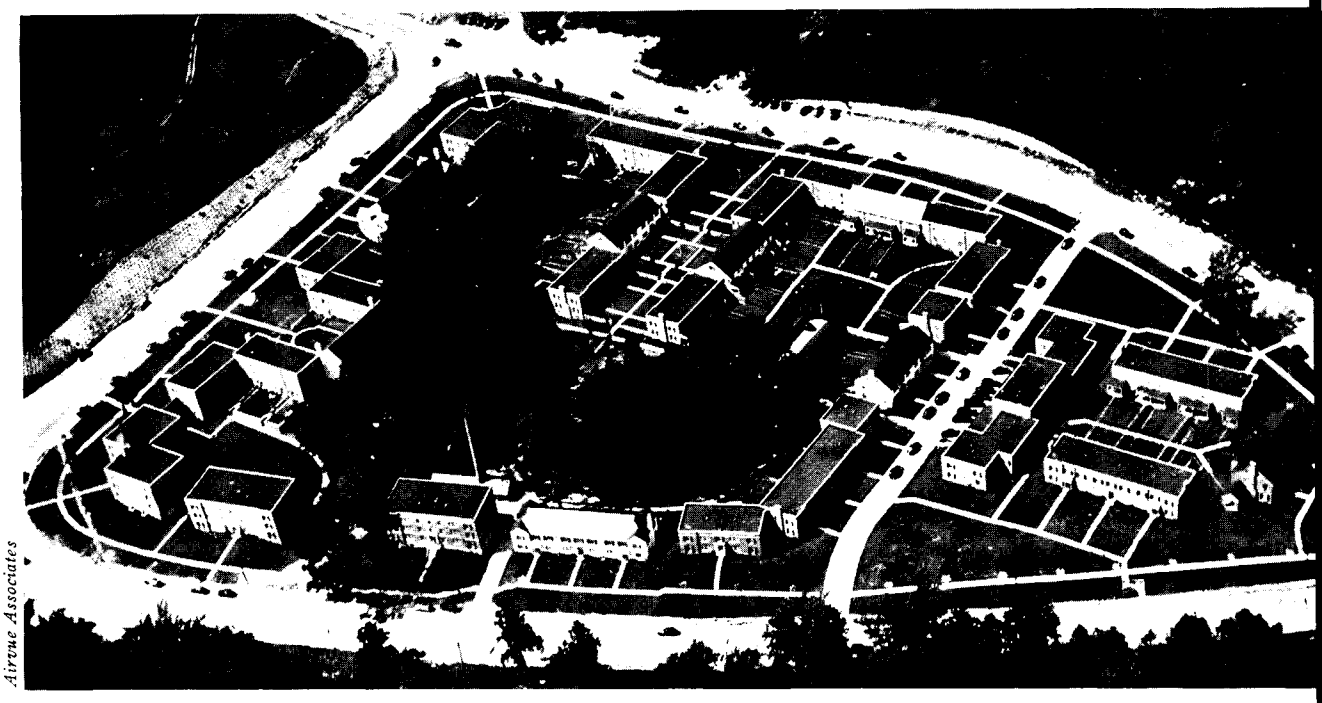
Tenants and managers both desire the following: for kitchens, table-top gas ranges, large sinks set high, ample cabinet space, laundry facilities, built-in ironing boards; for bathrooms, lavatory mirror with diffused lighting, separate medicine cabinets, shower stalls, footflush water closets, tubs with seats, and linen cabinets, in addition to the usual fixtures.

Elaborate systematized equipment, such as community laundries in cellars, is likely to be of little value unless tenants are accustomed to using it.

Cost

Managers state that improvements should cost from 6 to 10 times the land value and that first cost should be liberal enough to permit specification of good mechanical and other equipment as well as sound structure.

*Based on surveys of management organizations completed with the assistance of Stanlee T. Bates, Secretary, Carlton Schultz Management, Inc., Cleveland; William H. Brown, Secretary, Robert E. Hill, Inc., New York; James C. Downs, Jr., President, Downs, Mohl & Company, Chicago; Olin O. Ellis, President, Guilford Realty Company, Baltimore; Delbert S. Wenzlick, President, Wenzlick Sales & Management Organization, St. Louis; and on "What Tenants Want in Apartments," Thyrsa W. Amos (Architectural Record, August 1938) and "105 Tenants Suggest Improvements for Apartment Living," Thyrsa W. Amos (Real Estate Record, June 4, 1938).



Airvue Associates

Falkland Properties, Inc., Silver Spring, Maryland. Louis Justement, architect.

Multiple Housing Under FHA

By MILES L. COLEAN,
Deputy Administrator, Federal Housing Administration

More important than the renewed volume of multiple housing being constructed is the character of design and construction which this volume embodies.

The results of the thought and research which have been undertaken by architectural offices, lending institutions, government agencies, and independent workers in recent years can now be seen. We can begin to see a new expression of housing development in terms of comfort, amenity, and convenience, realistically related to considerations of cost and demand. We begin at last to find housing produced not as a luxury article or as a speculative commodity, but as honest merchandise designed to meet the needs of broad classes of the people in a manner to hold their occupancy and to resist obsolescence.

The rental projects financed under the insured mortgage system of the Federal Housing Administration which are shown in this issue illustrate these new standards. The contrast with multi-family structures typical of the Twenties is startling. The following characteristics common to the new developments stand out:

1. They are large, cohesive and efficiently organized groups, and provide a measure of community identity which has already proven a potent course of tenant appeal and which may be expected to provide resistance against neighborhood disintegration.

2. They provide a low density of families to the and allow open space ample to give a high degr privacy to the dwellings, to assure air and sunlight to offer areas for recreation. These features, too, tenants to the projects and keep them there.

3. The buildings are low in height, modest in scale domestic in character. They have fairly succes avoided an institutional atmosphere.

4. The dwellings are convenient and comfortable in interior arrangements as they are inviting in their ou aspect. They are designed to be operated efficientl are thus able to offer a bargain relationship betwee merchandise offered and the price charged for it. long waiting lists which so generally attend project ings testify to the lure which such qualities exert.

More noteworthy than the appeal to business ente which plainly exists in the new type of rental housin its broader social and economic implications. The sta which they lend to investment, to real estate values to municipal income cannot but have a wholesome upon the community. The openness of the planning sunshine, the park-like environment, combined with vision for competent and responsible managemen mean insurance against future slums. The comprehe manner of handling large groups of dwellings provid excellent unit in the larger concept of the city plan.

Government Housing Standards*

FHA • • • has insured mortgages for 51, and has outstanding commitments for 117, rental housing projects, accommodating 18,636 families

- **housing will accommodate approximately 1,419 families in single-family dwellings; 6,647 in 2-story buildings; 3,085 in 3-story buildings; 3,901 in elevator buildings; the remainder in combinations of types, 2-story buildings predominating**
- **construction costs range from $500 to $1,400 per room, most averaging $1,100**
- **insured mortgages average $1,004 per room; the largest project mortgage to date being $3,500,000**
- **rentals range from $4 to $22 per room, average approximately $14.50**
- **project sites average 10 acres each in area**

A STANDARDS are set up to pro- mortgage money; hence FHA sing is intended to accommodate financially stable, middle-income up. Rentals can range from as low $15 per month to as high as $80. e average need is for $50 per nth rentals. Projects must be self-taining.

The FHA realizes that it can not ose strict architectural standards. the interests of protecting its mort-ors, however, it must impose limits ow and above which designers y not go. In many cases limita-ns of local codes or customs are her than the corresponding FHA nima; in such instances, local codes ern. Where the reverse is true, A standards become the absolute nimum.

mmunity

FHA requires: that there exist a nber of diverse sources of income the families to be served; that re exist a need for the type of de-opment contemplated; that finances l administration of the community sound and the general and special burden permanently reasonable.

ghborhood

FHA requires: assurance of con-ued harmonious land uses; inte-tion of the neighborhood and ject; conformity to predominant al ethnic groups; convenience to al religious, business, education l recreation centers, and transpor-on systems.

Site

FHA requires: freedom from adverse adjacent topographic, industrial, psychological influences; acceptable present and future local land planning; freedom from flood or other dangers and from conditions causing excessive construction costs; conformity to site characteristics; land coverage per acre, for large-scale projects, is as a rule limited to 20-25%; urban elevator units should not ordinarily exceed 35% in coverage.

Buildings

FHA prefers: buildings not over 3 stories high; elevators required for higher structures, which are permitted only in exceptional cases; conformity to local zoning, sanitary and other regulations; building disposition to avoid narrow courts, assure minimum reasonable land coverage; densities in families per acre not ordinarily exceeding, in suburban areas, 20 to 25 for 2-story apartments, 30 for 3-story, and 50 for 6-story buildings; in urban areas, more than 100 families per acre will not ordinarily be approved; construction methods must be suitable to the site and to other local conditions, and must result in low maintenance and depreciation costs.

Dwelling units

FHA recommends: maximum number of dwelling units containing at least 3 habitable rooms and 1 bath with a few smaller units; economical layouts providing a maximum of cross ventilation, and privacy in sleeping quarters. Living rooms average over 220 sq. ft. in area and many are over 260 sq. ft. Major bedrooms average well over 145 sq. ft. and minor bedrooms over 120 sq. ft. Kitchens average between 60 and 70 sq. ft. when not used for dining, and over 90 sq. ft. when used for dining. Dining alcoves average between 50 and 60 sq. ft. Dining rooms average 110 sq. ft. Baths are usually 5 x 7 ft.

Services

FHA: provision for safe garbage and refuse disposal; laundry facilities in dwelling units or grouped for community use if local customs demand; electric service installed underground, with adequate outside lighting; garage service, or in some cases outdoor parking spaces; adequate, durable, economical heating systems; noncorrodible plumbing piping.

Cost

FHA requires: co-ordination of rental levels with existing community levels; land values comparable to other local developments; reasonable expectation of long-term occupancy; sufficient sponsors' equity in, and profit from, the project to insure satisfactory and continuing maintenance and management; experienced and reliable building contractor.

*FHA data contained in this and the following pages, including examples of FHA projects, have been obtained through the co-operation of Chloethiel Woodard, Assistant Chief, Architectural and Planning Section, Rental Housing Division, Federal Housing Administration.

Communities and Neighborhoods

THE COMMUNITY must have a satisfactory economic background in general, and specifically with reference to sources of employment for the proposed tenancy. Projects which depend on the continued existence and prosperity of a single industry are generally not as safe as those located in communities with a variety of industrial or business employment. Hence, only exceptional circumstances can warrant the insurance of mortgages on the former type.

Community needs

The need for dwellings meeting approved physical standards and available for rent at prices within the rent-paying capacity of the income group the project is to serve must be demonstrated. City-wide demands, vacancies, types of housing in which occupancies are highest, existence of competitive construction, housing supplies, income levels, and other pha in the determination of housing analyzed. Since the real need new dwellings in most communi lies below the $50 per month re level, particular study must be gi to projects which propose to furr accommodations at rentals higher t this.

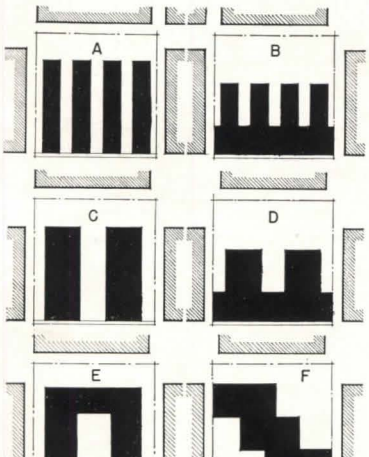
Financial condition

The financial condition and adm istration of the community must sound, particularly with reference tax rates. The probability of fut special assessments and the gene tendency of the community with spect to the placing of further lev must be studied in relation to the su available to meet added burdens. T involves careful analysis, since the dition of heavy tax burdens m jeopardize the otherwise safe inve ment in properties.

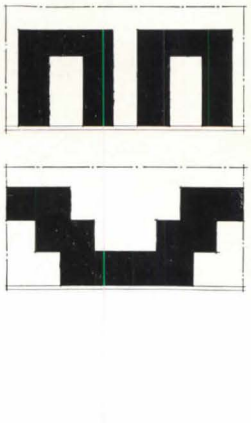
FHA Urban Developments for Small Lots

ONE OF THE most difficult problems is to prevent buildings on small pieces of property from depending on adjacent properties for their views, light, and air. The developer who has a piece of land surrounded by open residential development feels himself to be very fortunate. He believes he can crowd his land and borrow light and air from neighboring properties. He forgets that his intensive development may start a run of similar projects on these neighboring lots. This may not happen in the next year or two, but it will probably happen; and the l will usually allow a very ov crowded condition.

The old type of speculator w got "out from under" as soon as building was completed by pawni it off on some ignorant "investo could ignore this problem. The u suspecting investor took the loss rentals which was caused by the velopment of adjacent properties c ting off light, air, and views from property. This condition has chang and will probably not be repeated the same degree as in the past.



All 6 schemes have exactly the same coverage of a 100 x 100 ft. lot (approximately 45%). In schemes A and B, separate 25-ft. lots are considered, and in C and D, 50-ft. lots. Scheme E shows the entire 100-ft. property developed with the typical "U" court, with apartments dependent for all light, air, and views on the narrow entrance court or the narrow side and rear yards. In scheme F, a much improved condition is created by opening up two large side yards. In scheme D, there is the same amount of open land as in scheme F, but in F it is collected and made effective.

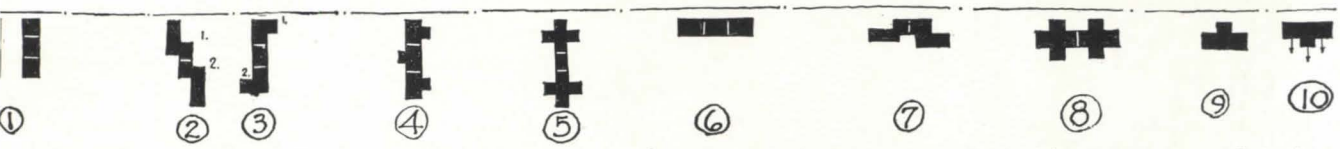


Repetition of "U" courts on a 200-ft. lot d not improve conditions, but repetition scheme F produces a development with large garden and good light and air in rooms. This scheme has a minimum depe ence on surrounding lots. The two-room-de wings adjacent to the lot lines do not requ windows in end walls, so that adjacent bu ings erected on the property lines do greatly affect the scheme.

nmunity and site relationship in a government housing project in Dallas, Texas

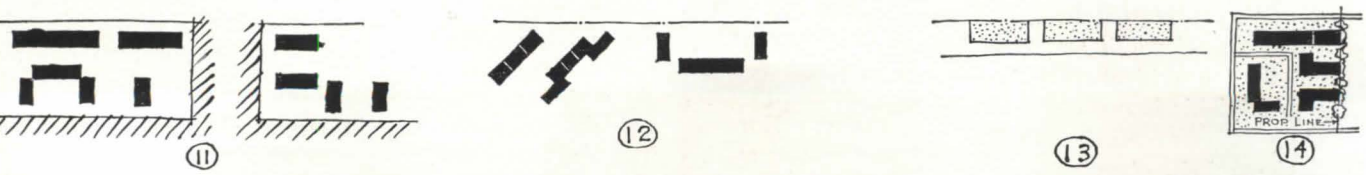
A RECOMMENDATIONS

LATION OF BUILDINGS TO ADJACENT PROPERTIES



ct of adverse adjacent influences on buildings within project: 1 to 5, buildings set with ends to property ; 2, 3, Ell and Zee buildings set similarly force a poor ook on dwelling units whose living rooms face the property line; 6 to 9, if buildings must parallel the property line, strip units with living rooms facing inward offer the best solution, some units in Ell, Cross and Tee units always facing poor views; 10, reversed Tee helps.

OPERTY ZONING, SIZE, AND SHAPE



ximum heights and uses of adjacent properties greatly ct the site plan. Present conditions are not usually best indication of future developments, except as y are studied in relation to legal and other restric- s or possibilities. In Figures 11 and 12, for instance, walls of project buildings face undesirable frontages.

Figures 13 and 14 illustrate the desirability of assembling property in as compact a unit as possible. In Figure 13, it is easily seen that the entire area of the project is subject to adverse influence from without; a plot such as Figure 14 can be developed into a self-contained unit, independent of exterior forces.

Sites

James H. Gnam

Children's play area, Brentwood Apartments, Washington, D. C.; Raymond Snow, architect. The inclusion of such areas within project sites, while not required by law, is an instance of advanced planning favored by FHA because it helps to defer obsolescence and hence aids in protecting mortgages.

IN GENERAL, for multiple housing, all land offered as security for an insured mortgage should be contiguous, forming a single plot. The land may be divided by public highways but should not be separated by property owned by others.

Access

Each project site or plot should have adequate and immediate access to a public street or way, or a private way protected by a permanent easement, of width and construction suitable to vehicular traffic requirements. This is not construed to include alleys or service ways.

General site-planning standards require that project plans shall not conflict with city or regional plans or with existing or probable future public works, transportation or industrial developments. Provision should be made for the possible extension or widening of important thoroughfares.

Internal Traffic

Minor residential streets within the plot should be designed to discourage through-traffic and create as few intersections with main thoroughfares as possible. Driveways where necessary within the plot should be of such width and location as to provide convenient access for delivery of goods and collection of refuse without annoyance, danger, or excessive walking. Streets and driveways should be surfaced consistently with local practice. Hard-surfaced sidewalks constructed at easy grades are required, in most cases, for each entrance door and for convenient circulation within developed areas. Where traffic hazards warrant, suitably constructed sidewalks should parallel streets or drives. Adequate landscape work is provided in the form of lawns, tre hedges, or other planting.

Either drives or walks of suffici width and accessible from stre should be provided for fire-fighti equipment. Adequate water suppl for fire fighting must be reasonably cessible. As a rule, garages and pa ing areas shall be of such size and located as to provide space off pub streets for not less than one car p living unit. Parking areas or garag located off drives are preferred parking spaces at the curbs of stree

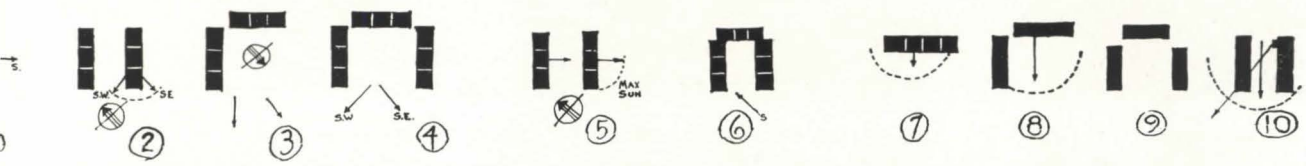
Play Areas

In large-scale projects play are for small children should be provide largely hard-surfaced and protect with fencing, walls, or heavy planti

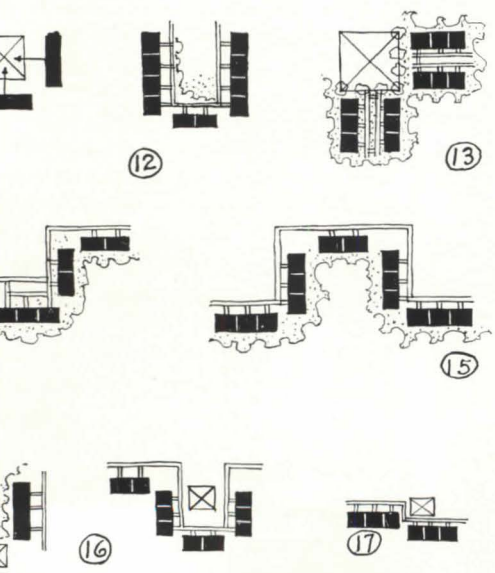
Adequate outside lighting should installed, particularly at intersectio of walks and drives and at steps. El tric service is installed undergrou

Site development, government housing in Austin, Texas

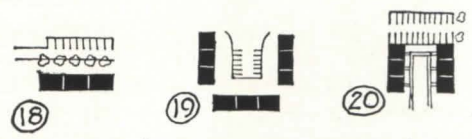
RECOMMENDATIONS



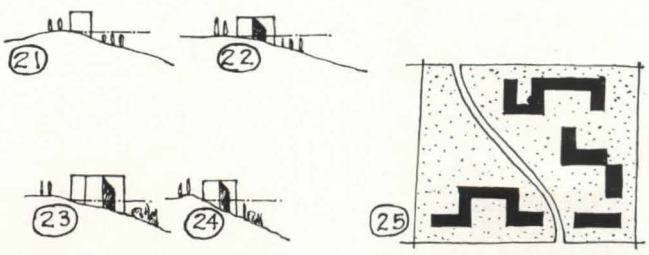
tation of building groups: Figure 1 shows orienta- ermitting a maximum of sunlight penetration into lf the rooms; Figure 2, orientation permitting some nt to enter all rooms; 3 and 4, conditions requiring tion of all space facing south for living areas, services and stairs being concentrated on the north. Figures 7, 8, 9, orientation for preferred views; 10, buildings set at 90° to best view offer a compromise which affords some desirable outlook from all apartments rather than limiting vistas to one group.



ns and recreation areas: 11 and 12, noisy, usually rable locations for recreation areas, but highly ctory for gardens; 13, better placement for recrea- rea; 14, 15, all living rooms face on garden areas; , segregation of recreation areas (squares in dia-) from gardens and living rooms.



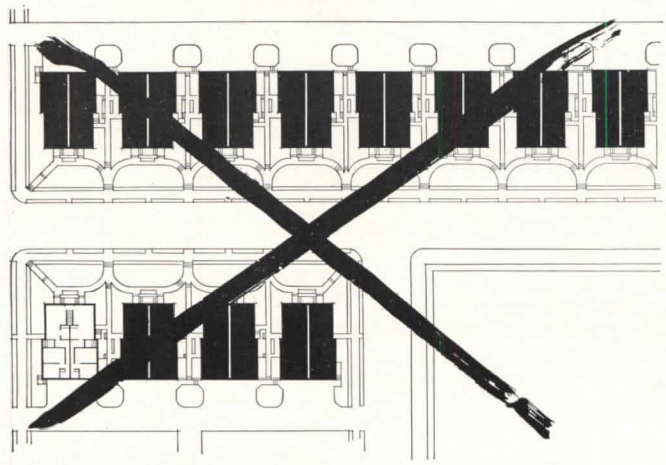
Placement of services, such as garage compounds: 18, location of garages will cause disturbing noise; 19, garage compound surrounded by a wall which may serve as a garden feature; 20, garage compound at ends of buildings, where windows are few and disturbance is minimized.



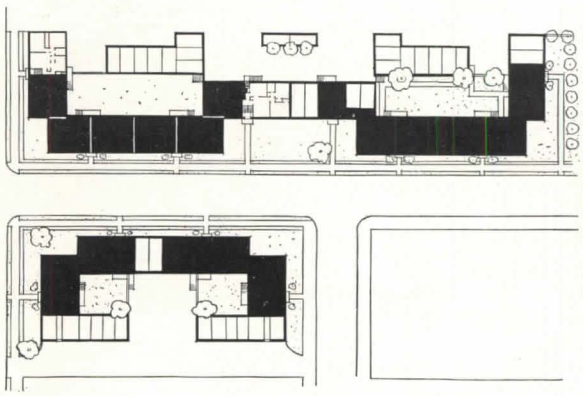
Topographic influences: 21, narrow strip running parallel to contours is most economical; 22, 23, 24, Ell, Tee, Zee, and Cross units require more foundation wall. Roadway layouts, Figure 25: curved, dead-end or offset streets through site are preferred to continuations of adjoining thoroughfares.

Comparative Site Plans

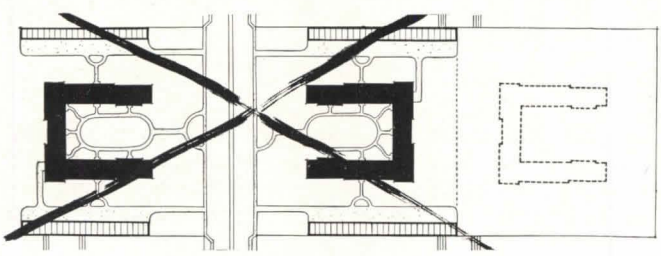
THE FOLLOWING schemes illustrate revisions of typical site plans to develop project possibilities as fully as possible. Unit plans are not indicated because all are based on one or more of the types shown on page 33.



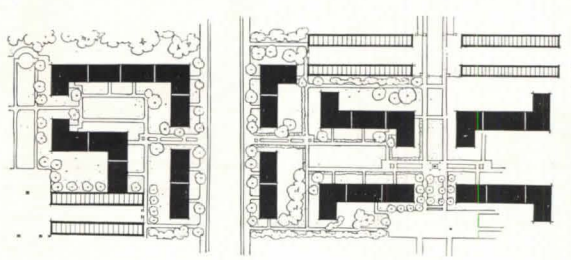
Four-family units on single lots—available open space is cut up and ineffective. Kitchens do not receive natural light; dining alcoves and bedrooms face adjacent units.



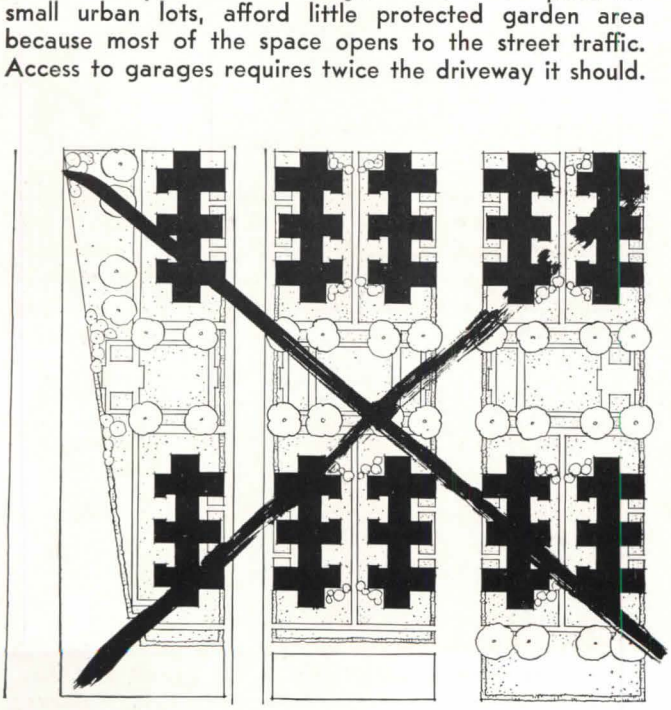
The same number of families are accommodated rooms having ample light and air. The group pla not only more attractive, but also cheaper to b



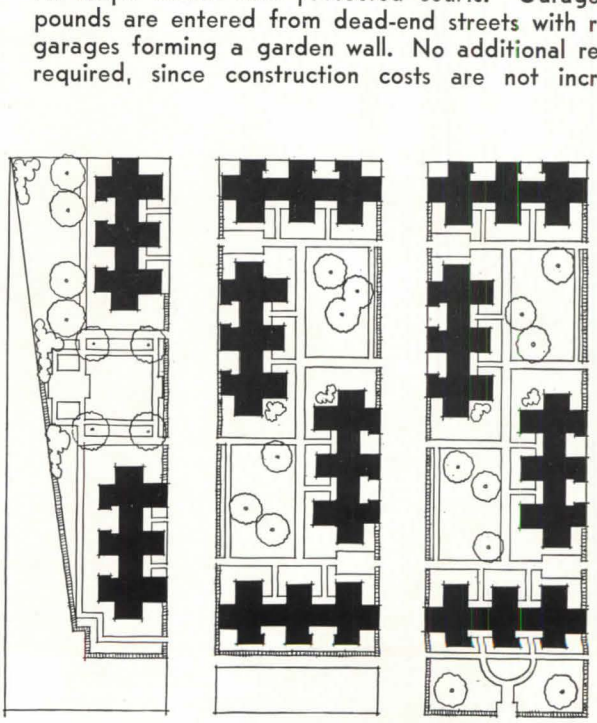
These 3-story U-court buildings, derived from plans for small urban lots, afford little protected garden area because most of the space opens to the street traffic. Access to garages requires twice the driveway it should.



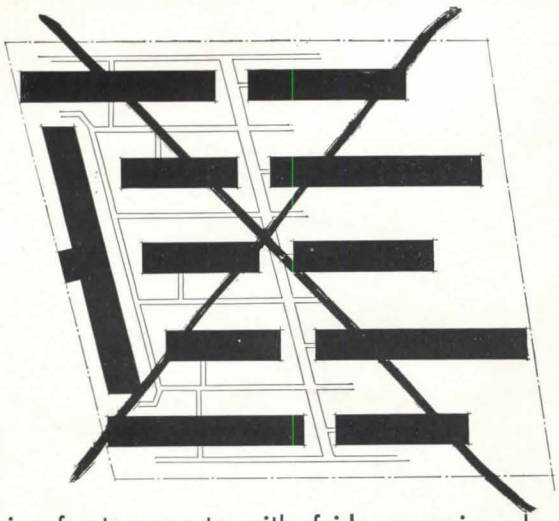
All major rooms face protected courts. Garage pounds are entered from dead-end streets with rea garages forming a garden wall. No additional rent required, since construction costs are not increa



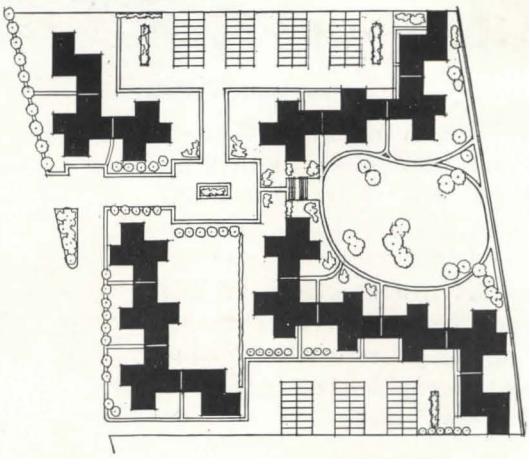
Elevator buildings with a central garden: this area can be seen from few apartments and crowds the buildings.



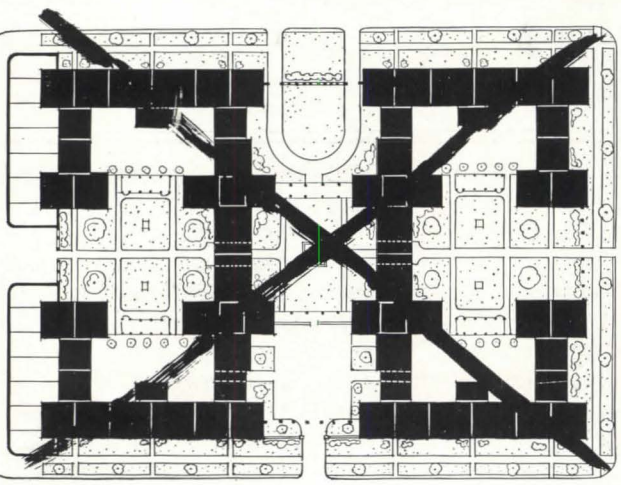
The same buildings rearranged with open space adequately disposed—eliminating narrow courts.



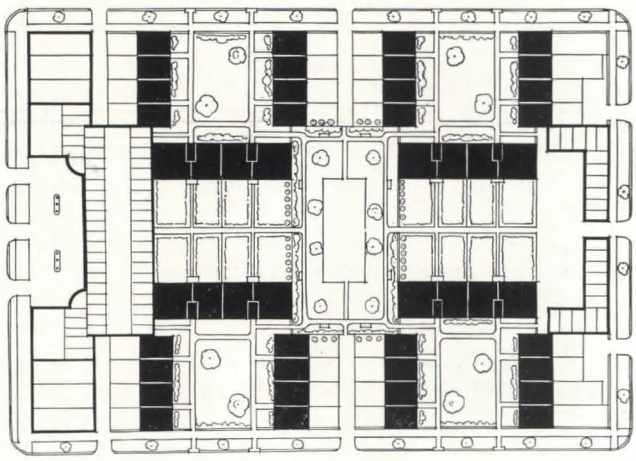
A river-front property with fairly expensive elevator apartments. Corridor type plans do not afford cross ventilation. Garages, though needed, are not included, and access to some of the buildings is not convenient.



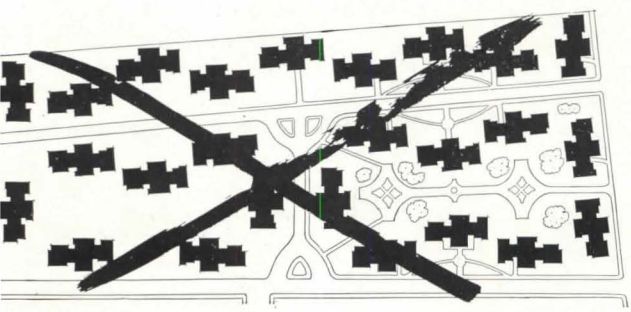
This revision accommodates the same number of family units, all having at least two exposures. The offset cross, as shown, opens the main group to the view. Garages and adequate parking space are added.



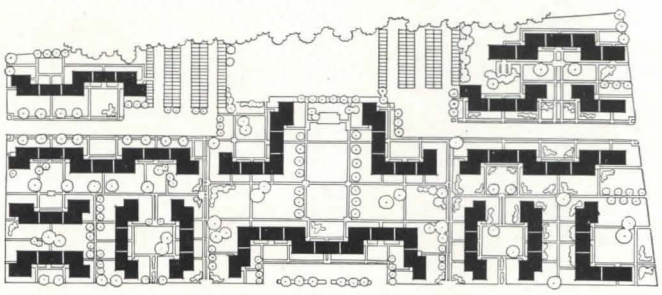
A large city block surrounded by tenements and small shops. Many major rooms suffer from street noises and bad views. Apartments above store roofs are difficult to rent and undesirable. Courts are unattractive, gravel play areas reduce rental values of apartments adjoining. Necessary garages are not provided.



In this scheme only end walls of two-room deep plans have views away from the property. Facilities provided include one central playground and garages; no rooms are placed over store roofs. Because of these factors and the resulting site isolation this plan creates its own environment independently of surrounding properties.



The complicated perimeter of the buildings is unnecessary and costly and does not appear to justify the increased costs. Site plan, utilizing repetitive building types which cannot be connected or grouped, lacks integration. The road which cuts the project in three parts is not desirable and an excessive amount of road is required. No garages are provided, although at least 200 are necessary. The only available space for playgrounds is adjacent to buildings. The buildings along the unprotected property line have many apartments viewing property not controlled by the project.



The revision utilizes 2-room-deep plans for the same number of families, adds over 200 garages and a large playground which is located between the garage compounds and arranged so that disturbing noises do not affect the occupants. Two cul-de-sacs serve as access to apartments which cannot be reached conveniently from surrounding public streets and as access to garages. All apartments have at least two exposures, are well arranged, and have views into quiet and protected garden areas. Open spaces and building units are grouped to form attractive courts.

Buildings

The standards herein presented, including the following unit plan types as well as the preceding information on communities, neighborhoods, and sites, are intended for use as guides to the development of suitable plans. Plans are in no sense to be construed as rigid standards, or "stock plans."

Country Club Apartments, Greensboro, N. C. Charles C. Hartmann, Architec

THE ADMINISTRATION interprets the word "Housing" to mean dwelling quarters offering complete facilities for family life, as a result of desirable planning and environment. A large variety of project types is possible: groups of single-family dwellings, row or group houses, row flats, walk-up apartments, and elevator apartments.

Characteristics

Preferred projects have the following characteristics:

1. A preponderance of units for complete family living, appealing to stable rather than impermanent tenancies.
2. Location in distinctly residential areas.
3. Income from dwellings adequate to assure success of the project, assumed income from accessory uses (garages, stores, etc.) being only a small fraction of total estimated income.
4. Tenants whose prospective ability to pay rental is not largely or solely dependent on a single industry.

Absence of these characteristics will ordinarily preclude the approval of housing in distinctly commercial areas; of hotels; of apartment hotels; of boarding houses or dormitories; of society buildings partly devoted to residential use.

Layouts

Apartments should include living, sleeping, cooking and dining accommodations, and sanitary and storage facilities. Layouts containing not less than three habitable rooms and one bathroom should predominate, but a small proportion of smaller units may be justified in some cases. All habitable rooms must ordinarily have a clear ceiling height of not less than 8 ft. Where dining rooms are not provided, kitchens or living rooms, whichever are used for dining, must be increased in area. At least one or more closets not less than 5 sq. ft. in area and 22 in. in depth must be provided for each bedroom, and near each living unit entrance door. A linen closet not less than 14 in. in depth must be provided.

Circulation

Each living unit must have a means of access without passing through any other living unit, cooking and sanitary facilities independent of any other living unit, doors to bedrooms, to bathrooms or toilet compartments, and between a living room and a "bedroom-bath hall" in most cases. Access from a bedroom to an only bathroom cannot be through another habitable room. Access from apartment entrance doors to kitchens must be directly from foyers or only through living or dining rooms.

Light and air

Habitable rooms must be provided with windows whose total glass area is not less than 10% of floor area and whose ventilating portion is not less than 5% of floor area, both computations including areas of alcoves opening from habitable rooms. There must be unob structed opening between the alcov and the main room of at least 90% of the common wall area unless th alcove is separately lighted and ven tilated. Bathrooms and water close compartments must have light an air from a window having not les than 10% of the floor area, not les than 3 sq. ft., and at least 50% o the required glass area openable; i must open directly on a yard, street court, or approved public space. Sky lights and exhaust ducts may be per mitted in special cases.

Public ways

Public stairways and halls may b ventilated or lighted in a number o ways. However, the majority of pro jects having building units with singl exit stairs will have these so locate that natural lighting and ventilatio are possible.

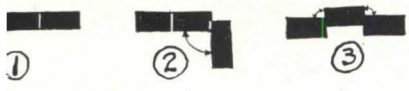
Basements

Heater or utility rooms, open base ments, or basement storage must b ventilated by windows or doors in ex terior walls or adequate ducts Garages for multiple storage locate underground or under dwellings mus have natural ventilation or approve mechanical ventilation.

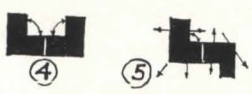
As a rule, living units located belov grade are not permitted; but wher permitted, the distance from the ad joining outside finished grade dow to the finished floor at each require window may not exceed 2 ft. 6 in.

A RECOMMENDATIONS

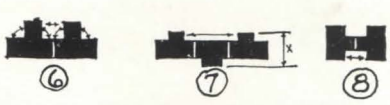
ECT OF UNIT TYPE ON SITE PLANNING FACTORS



ole strips, 1, are most adaptable units; ts and angles in 2 and 3 reduce acy.

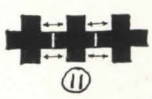


Angles formed by repeated Ells; note difficulty in orienting for view, sun, etc.

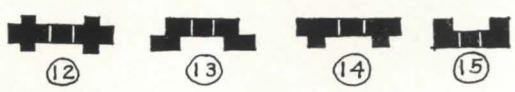


Reversing the center unit as in 7 increases the narrow courts formed in 6 and 8.

forms combined; note narrow t, 9; courts eliminated, 10.

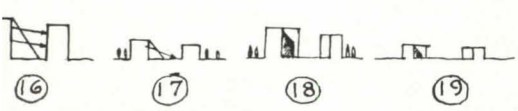


Multiple crosses again cause excessively narrow courts.



Insertion of strip units between other forms effectively widens courts.

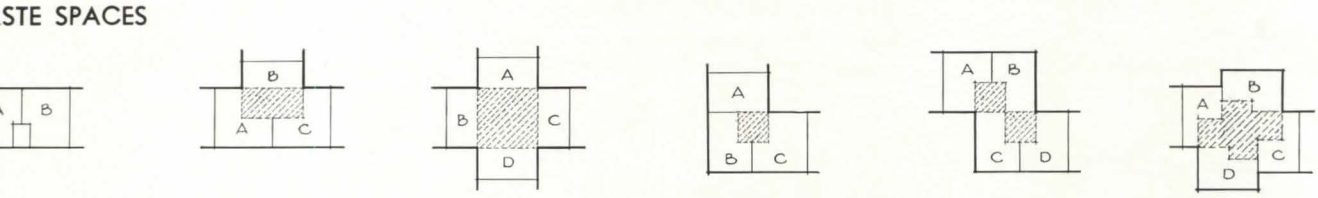
LDING HEIGHTS AND VENTILATION



though tall buildings may not overshadow each r, the eye tends to look out and only slightly down, e to ground being too sharp. Lower buildings ease privacy and usefulness of site landscaping.

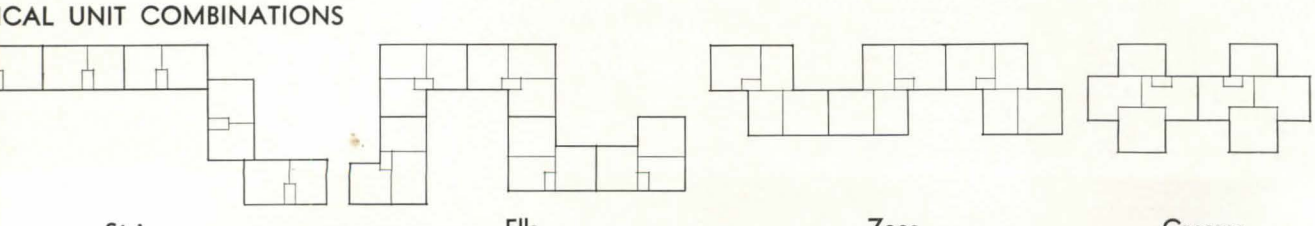
All two-room-deep units of FHA standard types ordinarily have good natural ventilation. However, center-corridor plans with units having only one exposure are usually difficult to ventilate, generally not approved.

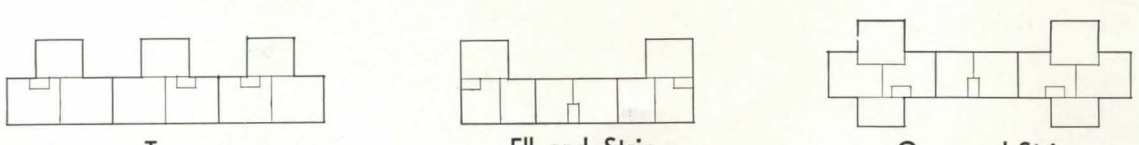
STE SPACES



Shaded areas indicate portions receiving little light and air, and principally useful for stairs, stacks, or similar services.

ICAL UNIT COMBINATIONS

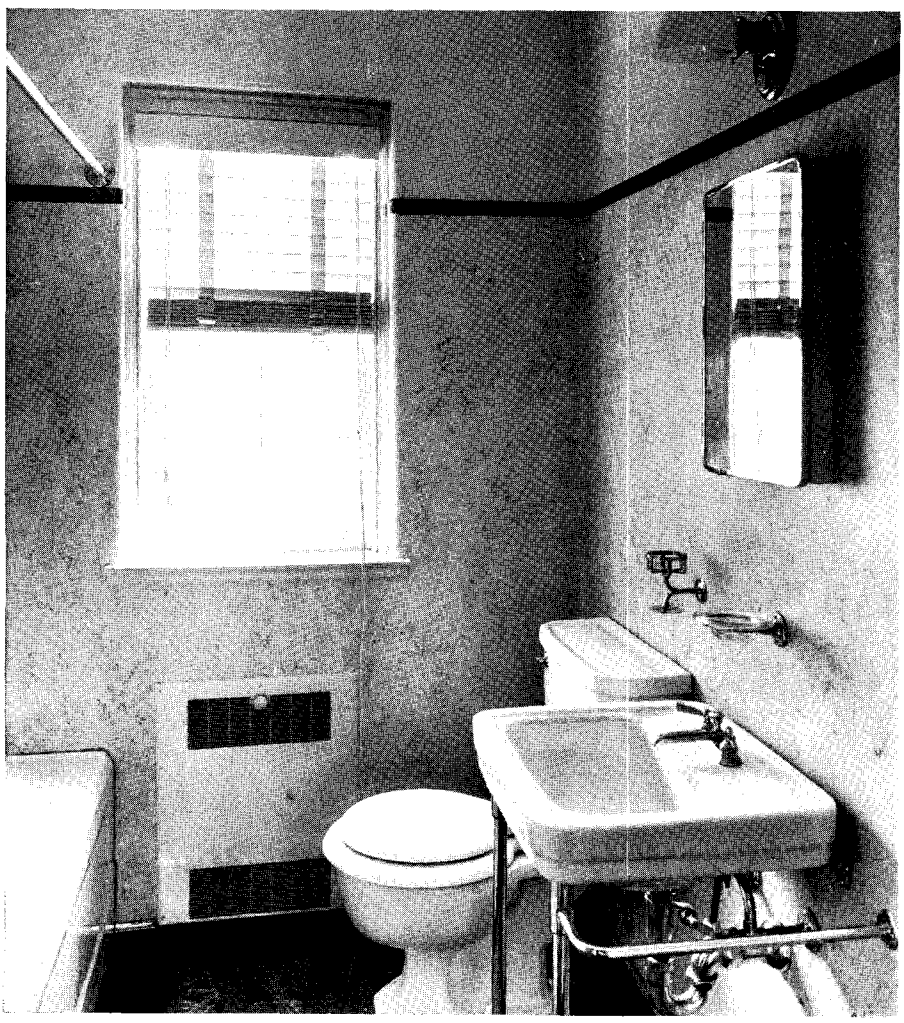




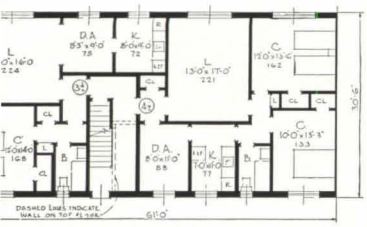
Dwelling Units

Photos by W. F. Roberts

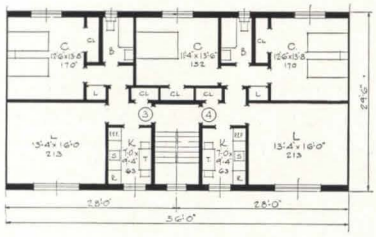
Typical interiors, Falkland Properties, Inc., an FHA-insured project in Silver Spring, Maryland, of which Louis Justement was architect. Above, living room; below, bath, showing type of finish and fixtures.



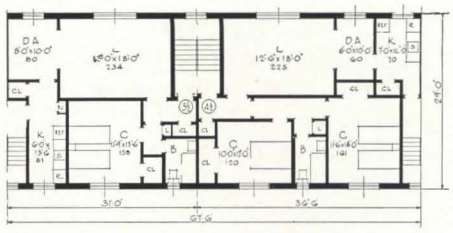
A UNITS (Scale, 1/32" = 1'-0")



"2S" — 3½, 4½ rooms

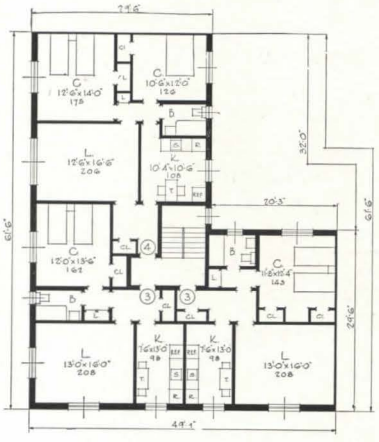


"2S" — 3, 4 rooms

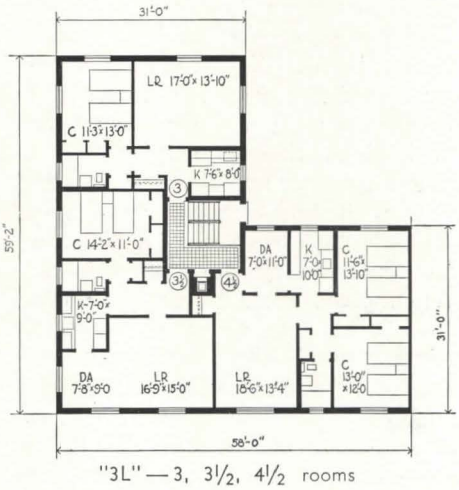


"2S" — 3½, 4½ rooms

ove, Strip (S) Units

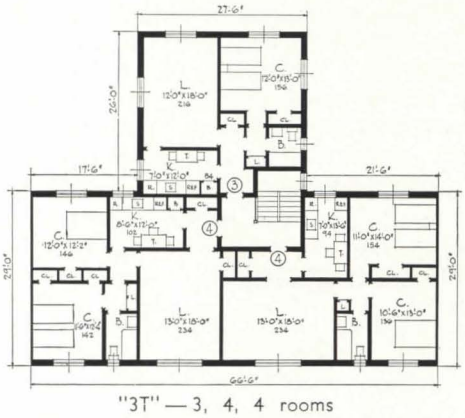


"3L" — 3, 3, 4 rooms

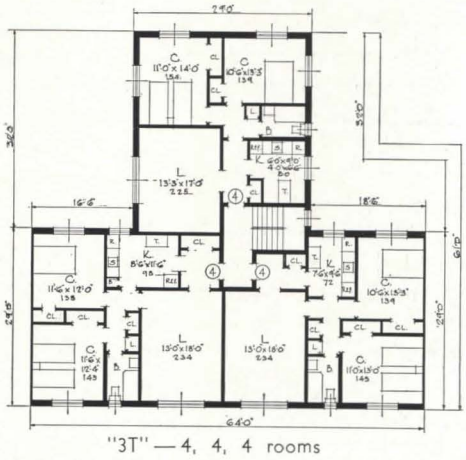


"3L" — 3, 3½, 4½ rooms

ht, Ell Units

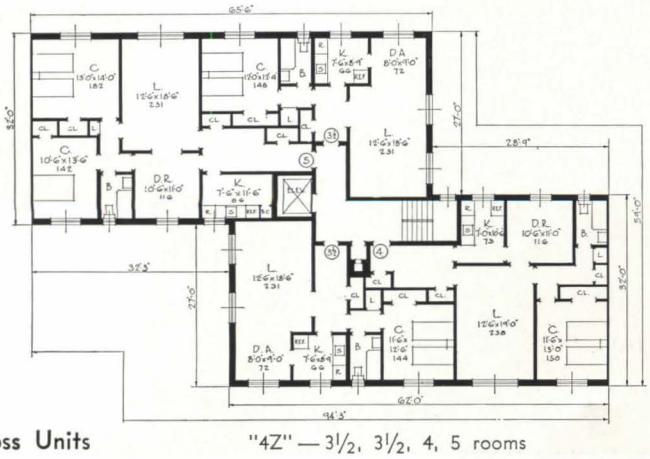


"3T" — 3, 4, 4 rooms

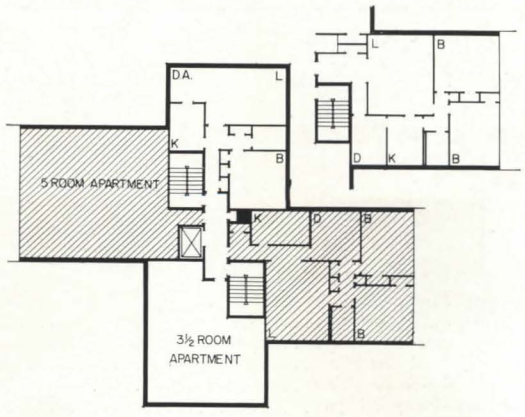


"3T" — 4, 4, 4 rooms

nt, Tee Units



"4Z" — 3½, 3½, 4, 5 rooms



"4X" — 5, 3½, 5, 3½ rooms

and Cross Units

FHA Comparison of Plan Types

IN THE OPINION of FHA, development of desirable apartment plan types has been retarded by the belief that the most economical buildings are those with a large number of apartments grouped around a common set of services (stairs, elevators, incinerators, public corridors, etc.). Studies by the Washington office indicate that the 2S, 3L, and 4Z plans are appropriate for walk-up apartments, the 3L, 4Z, and 4X for elevator apartments, and that more than 4 apartments per floor cannot be justified in the majority of cases. Slight cost savings shown for some plans with more than four apartments per floor must be balanced against the fact that accommodations are inferior. When plans are approved for long-term financing, compromises which might result in slight rent reductions must be considered in relation to possible rapid obsolescence and loss of attraction in a few years. In many cases, the most desirable plans are the most economical.

Plan types

The accompanying plans for 3-story walk-up apartments are to be regarded as diagrams rather than as examples of the best arrangements for any given plan types. They have been developed to be as closely comparable as possible; but it will be noted that in larger units, standards are more loosely interpreted than in smaller units. In comparing rental variations, it must be kept in mind that definite compromises have been made on X units. It is impossible to develop complicated plan shapes which contain as desirable apartments as those in the smaller buildings without increasing "waste" space.

Offsetting cost decreases arising from grouping many units around common services, are increases arising from additional area, public corridor, excessive private corridor, and other necessary "waste" space.

All plans have been designed to develop an average apartment size of 3½ rooms. Kitchen and bath equipment are identical in all plans. Average net area per room is 150 sq. ft. for all units except the 5X, 6X, 7X, and 8X, in which room sizes are slightly reduced.

Costs

Construction and operating costs are figured on the per-room quantity system noted in the tabulation below.

Rent per room

Construction costs are converted into rent per room by a factor which includes vacancies, debt service, taxes, and all other charges, except those attributable to land (this varies independently of structure). Rent per room arising from operating costs is added to that from construction costs. Resulting total rent is shown on each plan and is expressed in percentages of the lowest rent for any plan type, in this case the Z unit, which is taken as 100%.

Six-story elevator apartments ba
on the same type of plans result in
following rental range:

2S 116.14%	**3L** 105.83%	**3T** 109.
4Z 101.64%	**4X** 106.52%	**5X** 104.
6X 102.06%	**7X** 101.47%	**8X** 100

It will be seen that the 2S and
3T are quite expensive. The dif
ences in rent among the other u
do not justify the use of the la
units, particularly in view of the
in desirability. It is important to c
sider the fact that the 4Z unit
quires only 0.0164 more rent t
the 8X.

Other studies, based on the sa
plans with 2 stairs instead of
show that the 4Z 3-story walk-up
quires only 0.006% more rent and
4Z 6-story elevator requires
0.041% more rent than the 8X.
those localities with building co
which require 2 stairs for units v
more than a given number of ap
ments or rooms per floor, it is lik
that only the 5X, 6X, 7X, and
will require 2 stairs. This situa
results in higher rents for these bu
ings and, consequently, a less fa
able balance between them and
smaller buildings.

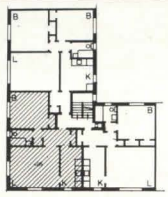
These and similar studies, w
not entirely conclusive, have provi
a method for the comparative anal
of plan types. Sufficient study
been made to satisfy the FHA o
that, in general, *the smaller build
units with from 2 to 4 apartm
per floor should form the basis
further studies.*

PER ROOM QUANTITIES USED FOR CONSTRUCTION AND OPERATING COST ANALYSIS

PLAN TYPES	2S	3L	3T	4Z	4X	5X	6X	7X	8X
APARTMENT CONSTANTS									
Kitchen, Bath, Miscellaneous	1/3.5	1/3.5	1/3.5	1/3.5	1/3.5	1/3.5	1/3.5	1/3.5	1/3.
BUILDING CONSTANTS									
Basement, Stair, Entrance, Incinerator, Party wall	1/7	1/10.5	1/10.5	1/14	1/14	1/17.5	1/21	1/24.5	1/2
BUILDING VARIABLES									
Apartment area	233.3	224.7	236.1	224.4	236.2	236.2	245.2	239.8	232.
Public area	0	1.8	2.6	4.0	5.2	10.6	9.0	12.9	15.
Exterior wall	16.1	15.9	17.0	15.9	17.9	17.1	16.1	16.2	16.
Stud partition	26.3	24.9	29.7	24.5	27.6	26.2	28.9	27.6	27.
Block partition	1.5	4.0	3.2	5.3	4.6	5.2	7.3	6.9	7.
Fire partition	4.8	4.2	4.4	4.0	4.1	5.0	3.8	5.0	4.

2-S Type: Rent 107.92%

Total Gross Area	1634+ Sq. Ft.
Average Net Area per Room	148.5 Sq. Ft.
Percent Efficiency	63.8 %
Public Space per Room	Sq. Ft.
Closet Space	O.K.
Foyer Space	100 %
Kitchen Dining Space	100 %
Separate Dining Space	0 %
Cross Ventilation	100 %
Corner Ventilation	%
Privacy of Exit	100 %
Similar Living Room Orientation	100 %
Pocketed Living Rooms	0 %
Interior Stairs	0 %
Furniture Lay-out	O.K.
Room Loss on First Floor	0



3-L Type: Rent 101.92%

Total Gross Area	2291 Sq. Ft.
Average Net Area per Room	151 Sq. Ft.
Percent Efficiency	66 %
Public Space per Room	Sq. Ft.
Closet Space	O.K.
Foyer Space	100 %
Kitchen Dining Space	100 %
Separate Dining Space	0 %
Cross Ventilation	66 %
Corner Ventilation	33 %
Privacy of Exit	66 %
Similar Living Room Orientation	66 %
Pocketed Living Rooms	0 %
Interior Stairs	0 %
Furniture Lay-out	O.K.
Room Loss on First Floor	0

3-T Type: Rent 106.20%

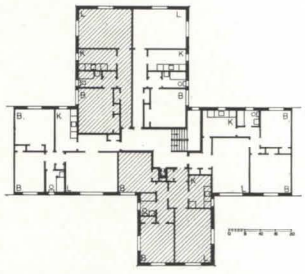
Total Gross Area	2440 Sq. Ft.
Average Net Area per Room	152 Sq. Ft.
Percent Efficiency	62.3 %
Public Space per Room	Sq. Ft.
Closet Space	O.K.
Foyer Space	100 %
Kitchen Dining Space	100 %
Separate Dining Space	0 %
Cross Ventilation	100 %
Corner Ventilation	%
Privacy of Exit	66 %
Similar Living Room Orientation	66 %
Pocketed Rooms	1L; 33 %
Interior Stairs	0 %
Furniture Lay-out	O.K.
Room Loss on First Floor	0

4-Z Type: Rent 100%

Total Gross Area	3208 Sq. Ft.
Average Net Area per Room	149+ Sq. Ft.
Percent Efficiency	65.2 %
Public Space per Room	Sq. Ft.
Closet Space	O.K.
Foyer Space	100 %
Kitchen Dining Space	100 %
Separate Dining Space	0 %
Cross Ventilation	50 %
Corner Ventilation	50 %
Privacy of Exit	50 %
Similar Living Room Orientation	50 %
Pocketed Rooms	K; 25 %
Interior Stairs	0 %
Furniture Lay-out	O.K.
Room Loss on First Floor	0

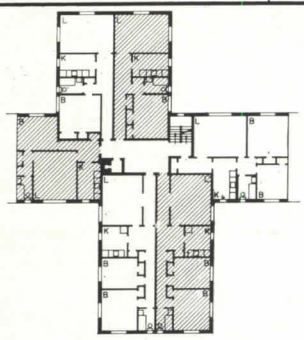
4-X Type: Rent 105.19%

Total Gross Area	3381 Sq. Ft.
Average Net Area per Room	149.7 Sq. Ft.
Percent Efficiency	62 %
Public Space per Room	Sq. Ft.
Closet Space	O.K.
Foyer Space	100 %
Kitchen Dining Space	100 %
Separate Dining Space	%
Cross Ventilation	100 %
Corner Ventilation	50 %
Privacy of Exit	50 %
Similar Living Room Orientation	75 %
Pocketed Rooms	2L; 50 %
Interior Stairs	0 %
Furniture Lay-out	O.K.
Room Loss on First Floor	0



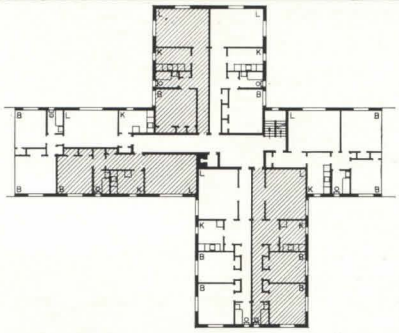
5-X Type: Rent 104.26%

Total Gross Area	4215 Sq. Ft.
Average Net Area per Room	144.5 Sq. Ft.
Percent Efficiency	58.2 %
Public Space per Room	Sq. Ft.
Closet Space	O.K.
Foyer Space	100 %
Kitchen Dining Space	100 %
Separate Dining Space	0 %
Cross Ventilation	60 %
Corner Ventilation	40 %
Privacy of Exit	60 %
Similar Living Room Orientation	60 %
Pocketed Rooms	3B; 43 %
Interior Stairs	0 %
Furniture Lay-out	O.K.
Room Loss on First Floor	0



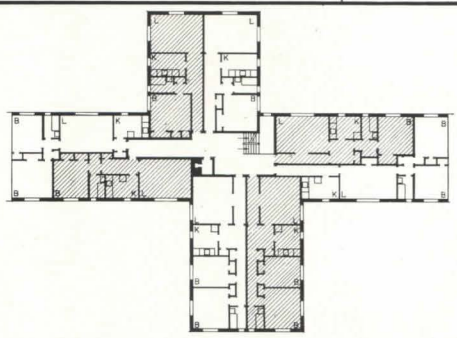
6-X Type: Rent 102.95%

Total Gross Area	5340 Sq. Ft.
Average Net Area per Room	149 Sq. Ft.
Percent Efficiency	59.2 %
Public Space per Room	Sq. Ft.
Closet Space	O.K.
Foyer Space	100 %
Kitchen Dining Space	100 %
Separate Dining Space	0 %
Cross Ventilation	33 %
Corner Ventilation	66 %
Privacy of Exit	66 %
Similar Living Room Orientation	50 %
Pocketed Rooms	2B; 2L %
Interior Stairs	0 %
Furniture Lay-out	O.K.
Room Loss on First Floor	0



7-X Type: Rent 103.10%

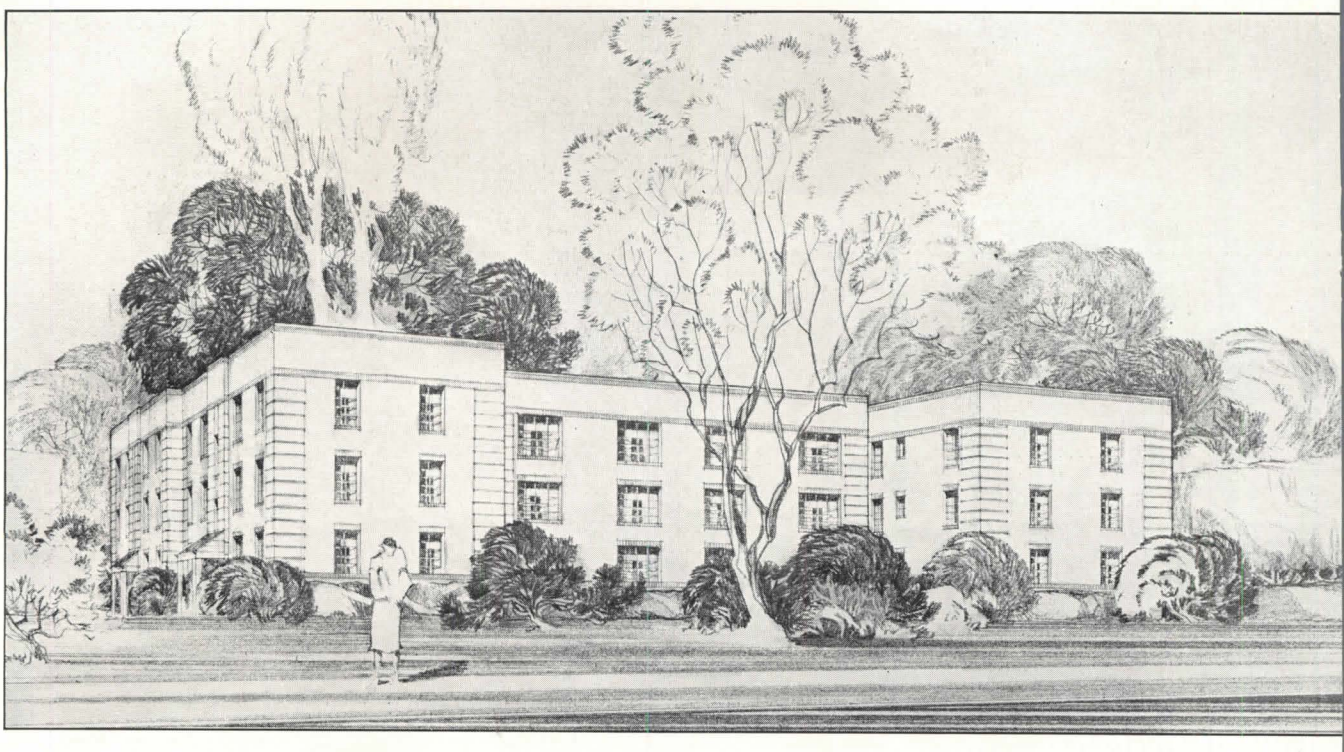
Total Gross Area	6270 Sq. Ft.
Average Net Area per Room	148 Sq. Ft.
Percent Efficiency	59.2 %
Public Space per Room	Sq. Ft.
Closet Space	O.K.
Foyer Space	100 %
Kitchen Dining Space	100 %
Separate Dining Space	0 %
Cross Ventilation	28.6 %
Corner Ventilation	57 %
Privacy of Exit	71 %
Similar Living Room Orientation	57 %
Pocketed Rooms	2B; 2L %
Interior Stairs	0 %
Furniture Lay-out	O.K.
Room Loss on First Floor	0



8-X Type: Rent 102.06%

Total Gross Area	6950 Sq. Ft.
Average Net Area per Room	144 Sq. Ft.
Percent Efficiency	58.2 %
Public Space per Room	Sq. Ft.
Closet Space	O.K.
Foyer Space	100 %
Kitchen Dining Space	100 %
Separate Dining Space	0 %
Cross Ventilation	25 %
Corner Ventilation	50 %
Privacy of Exit	75 %
Similar Living Room Orientation	50 %
Pocketed Rooms	2B; 2L %
Interior Stairs	0 %
Furniture Lay-out	O.K.
Room Loss on First Floor	0

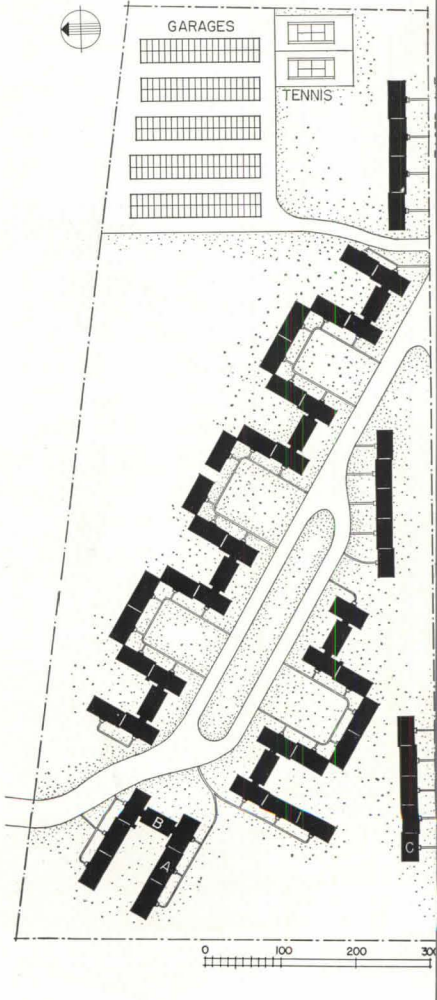
ote: With 3L, 3T, 5X and 7X types, another plan of each is averaged in to balance the room count and obtain comparable figures.



354 RENTAL UNITS (FHA)

MANHASSET VILLAGE
ST. LOUIS, MISSOURI

PRESTON J. BRADSHAW, INC
Architect



Site Plan

COMPARATIVE ANALYSIS

Site

PROJECT OCCUPIES a partly wooded tract totaling 21.44 acres, of which structure coverage totals 11.1%. A superhighway is located nearby; other highways, leading to the city's commercial center, abut the property.

Accommodations

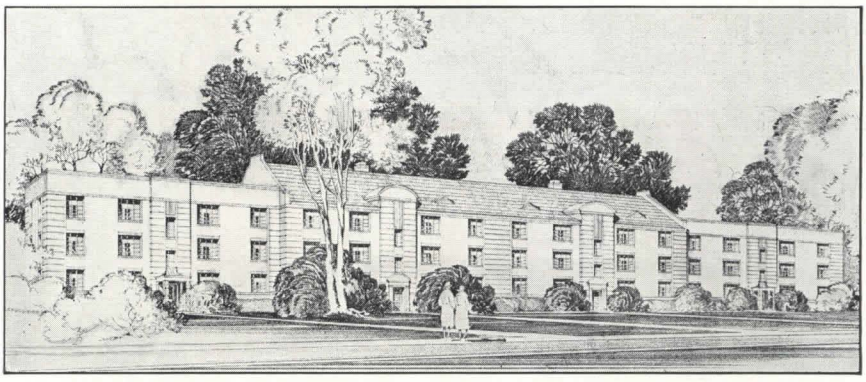
Seven buildings, each a three-story walk-up, include 60 three-room units, the remaining 294 units being four-room type, with two bedrooms. Dwelling rentals account for 94.5% of total income; average room rental is $15; average rental per family is $58.79.

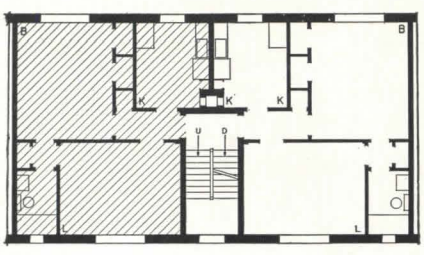
Supplementary facilities

Numerous indoor play areas as well as fully equipped outdoor playgrounds are provided for children. Garages are grouped on the eastern part of the site with access through a private road. Tennis courts adjoin these units.

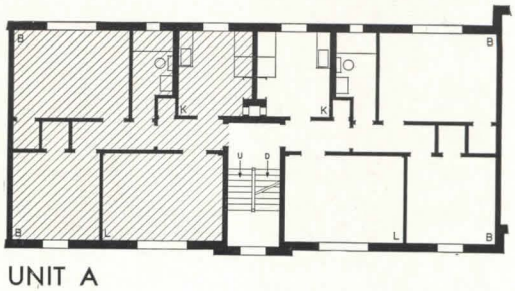
Cost

Total capitalization, $2,016,000; mortgage, $1,600,000; construction costs, approximately 33⅛¢ per cu. ft.; cost per room, $1,262; cost per unit, $4,836.

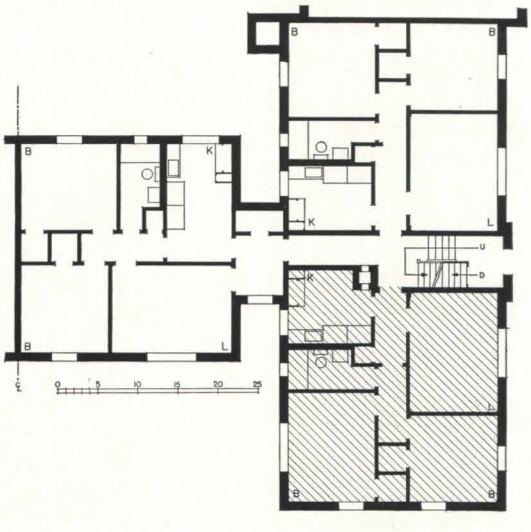




UNIT C



UNIT A



UNIT B

EDULE OF EQUIPMENT AND MATERIALS

DATION

gs, concrete; walls, brick; waterproof-IW, Toch Bros.

CTURE

r: Walls, 13 in. (4½-in. brick, 8½-in. damproofed with one coat of Toch RIW before plastering

r: Wood studs, steel columns and to support wood floors, roof and tile ons between apartments

Metal pan with terrazzo fill from entry floor and cement fill from first floor d

Wood rafters and ceiling joists on steel throughout; flat roofs to be 5-ply o pitch and gravel 20-year roof; d roofs to be covered with asbestos s

METALWORK

g, gutters, downspouts, and conductor-16-oz. copper

INSULATION

Gable roofs, 4-in. bat-type rock wool insulation; flat roofs, 1-in. thick Celotex

WINDOWS

Steel sash with screens, Detroit Steel Products Co.; glass, double strength labeled, Libbey-Owens-Ford Glass Co.

FLOORS

Basement, cement finish, wood floors on concrete, E. L. Bruce Co. block flooring laid in mastic; wood floors on wood joists strip flooring red oak, 13/16 in.; heavy-gauge linoleum in bathrooms and kitchens

WOODWORK

Trim and exterior doors, Clear Cypress; interior doors, single panel, birch; garage doors, Rol-Top, Kinnear Mfg. Co.

Hardware: Interior and exterior, brass

Painting: Interior, walls two coats of flat wall paint; trim, three coats of white paint; strip floors waxed. Exterior, woodwork, three coats of white paint, by Vane-Calvert Paint Co.

PLUMBING

Fixtures by Briggs Mfg. Co.; soil pipes, cast iron by Standard Sanitary Mfg. Co.; water, copper tubing, with soldered fittings; hot-water tank, submerged type with copper coils; laundry dryers

HEATING

Two-pipe vacuum system; boiler, four low-pressure Pacific Boilers; oil burner; hot-water temperature regulators, Minneapolis-Honeywell Regulator Co.; radiators, American Radiator Co.

ELECTRICAL

Fixtures, special design by Gross Chandelier Co.

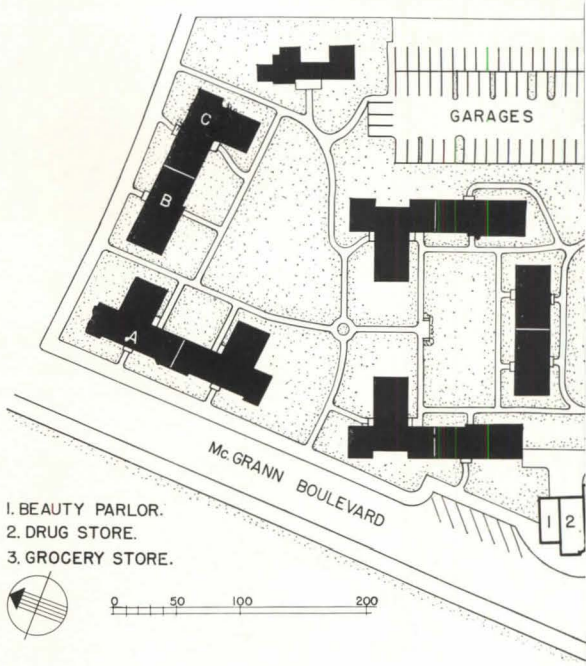
INCINERATORS

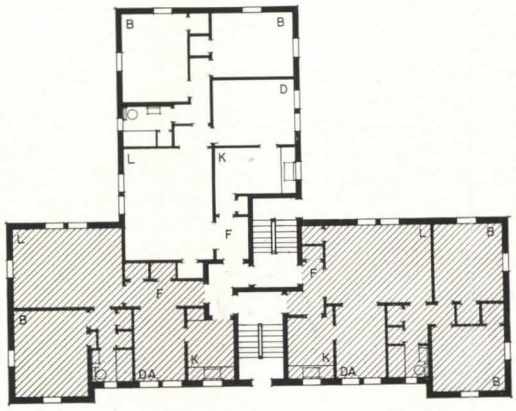
Sargent Building Specialties Co.

58 RENTAL UNITS (FHA)

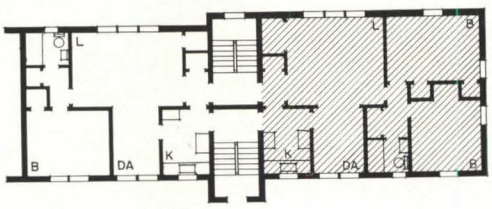
GRANDVIEW APARTMENTS
LANCASTER, PENNSYLVANIA

A. R. CLAS ASSOCIATES and FLOYD S. KLINE
Architects





UNIT A



UNIT B

UNIT C

COMPARATIVE ANALYSIS

Site

PROJECT OCCUPIES a tract of 3.40 acres, of which structure coverage totals 17%. It is located in a residential district.

Accommodations

The 6 apartment and 3 store buildings include 4 three-room units, 28 three-and-one-half-room units, 22 four-and-one-half-room units and 4 five-room units, with a total of 229 rooms. Average area per room is 112 sq. ft. Dwelling rentals account for of total income; average room rental is $12.40; age rental per family is $50.

Supplementary facilities

Garages and stores.

Costs

Estimated costs are: 28¢ per cu. ft.; $830 room; total contract cost not available; capita valuation, $316,000; mortgage, $250,000.

SCHEDULE OF EQUIPMENT AND MATERIALS

STRUCTURE

Frame: Masonry bearing

EXTERIOR

Walls: Solid brick, furred on inside

Roof: Wood frame; slate finish, with copper flashings, gutters, and downspouts

Windows: Wood, double-hung, full-length screened

Insulation: Rock wool between ceiling rafters

Calking: All exterior doors and windows calked

Waterproofing: All exterior basement walls below grade to be waterproofed

INTERIOR

Floors: Basement and garages, concrete; wood framing throughout, except for fireproof stair tower, which is metal or concrete; apartments, oak; kitchens, linoleum; store group, asphalt tile finish; bathrooms, ceramic tile, with tile wainscot 6 ft. high around tubs and 4 ft. high in other portions of the room

Walls: Gypsum plaster on wood lath or sound-deadening composition boards

Ceilings: Gypsum plaster on wood lath; under occupied areas, gypsum plaster on sound-deadening composition boards

Doors: Apartments and fireproof stairs, Kalamein

Interior trim: Combination steel buck trim

EQUIPMENT

Kitchen: Electric stoves and refrige cabinets, work tables and shelves, co tion sink and laundry tray

Venetian Blinds: For all apartment win

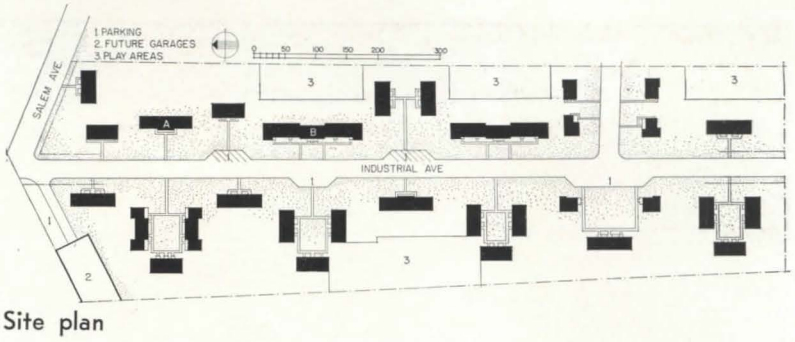
Heating: Apartments and store group pressure steam from a central heating located in the basement of apartment ing A; plant to be mechanically fired, either oil or coal

Plumbing: Fixtures, enameled iron, l trays in all basements

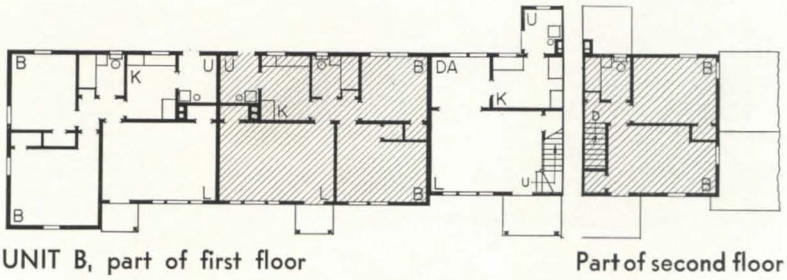
2 RENTAL UNITS (FHA)

ONT ROYAL GARDENS
ONT ROYAL, VIRGINIA

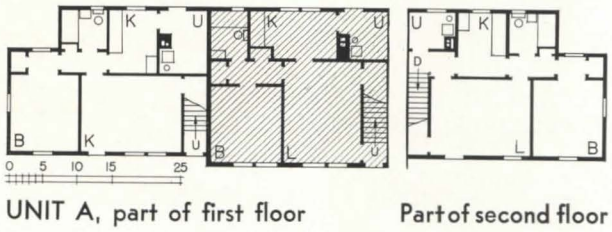
R. CLAS ASSOCIATES
hitects



Site plan


UNIT B, part of first floor

Part of second floor


UNIT A, part of first floor

Part of second floor

PARATIVE ANALYSIS

ECT OCCUPIES a tract of 12.04 acres, of which ture coverage totals 10%. It is located in an trial district.

modations

e 31 buildings include 68 three-room units, ur-room units, 26 four-and-one-half-room units, 2 five-room units, with a total of 395 rooms. age area per room is 116 sq. ft. Dwelling rentals account for 100% of total income; average room rental is $8.10; average rental per family is $28.75.

Supplementary facilities

Garden plots and playgrounds.

Costs

Estimated costs are: 24¢ per cubic foot; $530 per room; total contract cost not available. Capitalized valuation, $334,000; mortgage, $260,000.

EDULE OF MATERIALS AND EQUIPMENT

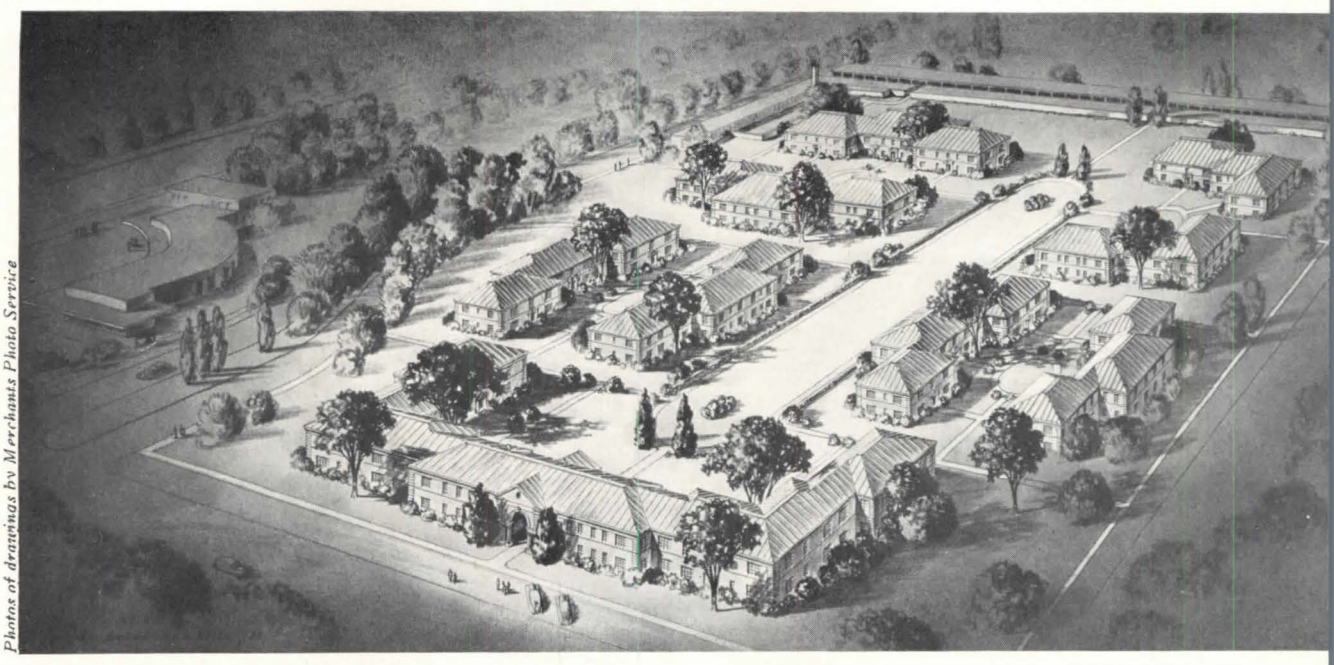
DATION
te

TURE

OR
Wood 2 x 4's covered with wood sub- paper and cedar grain asbestos siding s
Frame construction, asbestos cedar hingles or wood shingles, copper flash- utters, and downspouts
on: All spaces between ceiling rafters are insulated with 3⅝-in. rock wool, and all attic spaces are ventilated
Doors: Full-length screens; entrance doors weatherstripped
Windows: Full-length screens; glazed with single-strength "A" quality flat-drawn window glass

INTERIOR
Floors: Kitchens, linoleum; bathrooms, linoleum; utility rooms, cement; all other floors, asphalt tile; first floor over 4-in. cinder concrete fill
Walls: Sheet rock or other plasterboard painted; bathrooms, "Sanitas" wainscot 4 ft. high, with 2½-in. molded wood strip at the top

EQUIPMENT
Heating: Hot-air heating systems, either oil- or coal-fired; hot-water heater
Plumbing: Fixtures, enameled iron; combination sink and laundry trays; concrete septic tanks for each unit or group of units
Piping: Water piping, either copper tubing, genuine wrought iron, or red brass
Kitchens: Shelves, cabinets, and work tables



Photos of drawings by Merchants Photo Service

128 RENTAL UNITS (FHA)

RIVER OAKS GARDENS
HOUSTON, TEXAS

FOOSHEE & CH
Archit

COMPARATIVE ANALYSIS

Site

PROJECT OCCUPIES a tract of 8.72 acres adjacent to preferred residential zones and about 3 miles from the city center.

Accommodations

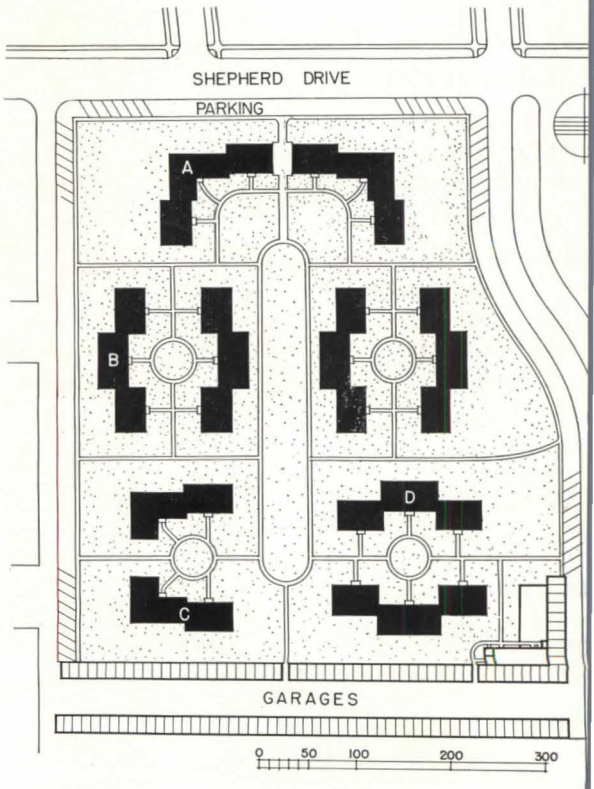
The 9 fireproof structures, each a 2-story walk-up, include 445 rooms, and units of from 2½ to 5 rooms. Dwelling rentals account for 92.7% of total income; average room rental is $17; average rental per family is $56.46.

Supplementary facilities

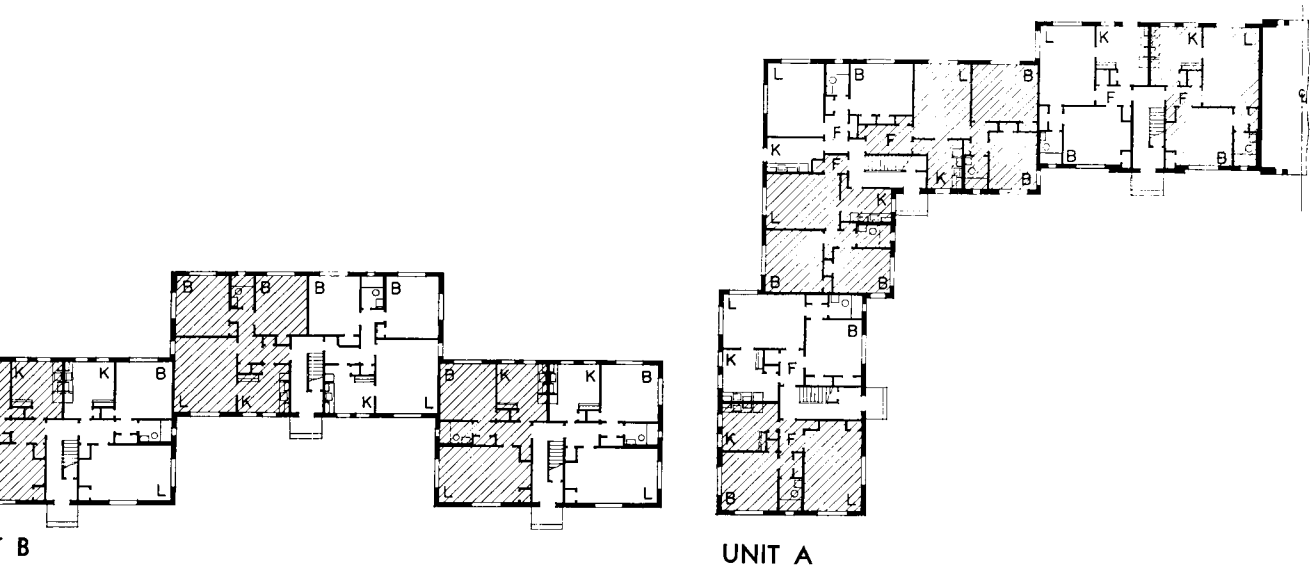
Transportation, recreational and school facilities are nearby. Laundry facilities are provided, including drying equipment for which the tenant pays a small fee. Garages as well as garage service is provided; in addition, there is a parking slab for daytime parking.

Costs

Total capitalization, $800,000; amount of mortgage, $585,000.

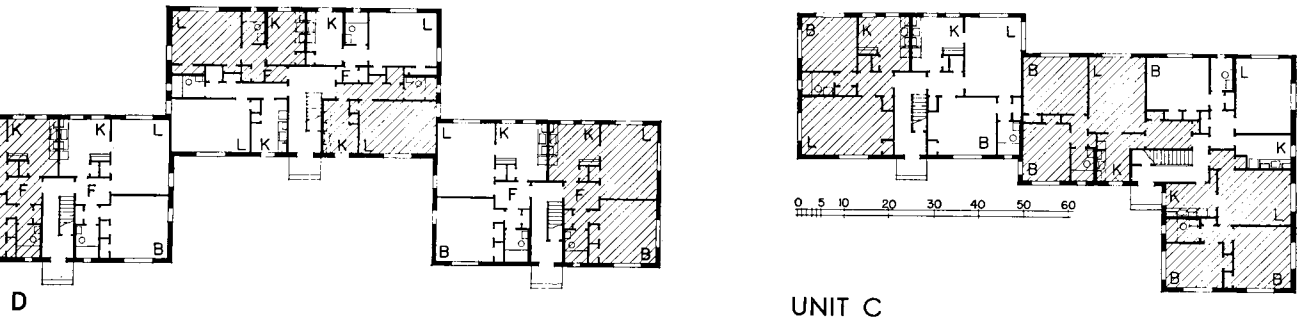


Site Plan



B

UNIT A



D

UNIT C

EDULE OF EQUIPMENT AND MATERIALS

DATION

te

CTURE

teel frame, Great Lakes Steel Corp.

OR

Brick veneer; Bar-Z studs; Bar-X metal

Galvanized metal, painted

Casement, Fenestra steel; bronze screens

Insulation: Rock wool insulation in attic, Johns-Manville

Trim: Metal

INTERIOR

Walls: Gypsum plaster; bathrooms, tile

Doors: Huffig

Floors: Beech, laid over concrete slabs and subfloor

Stairs: Steel with concrete treads, rubber tile covering

EQUIPMENT

Plumbing: Fixtures, Kohler Co.

Heating: Floor heaters and consoles, Payne; day and night water heaters

Ventilation: Attic ventilating fans; kitchen exhaust fans

Kitchens: Cabinets, metal, Briggs Beauty Ware; refrigerators, Frigidaire; cooking ranges, gas, Detroit Jewel

Shades: Venetian blinds

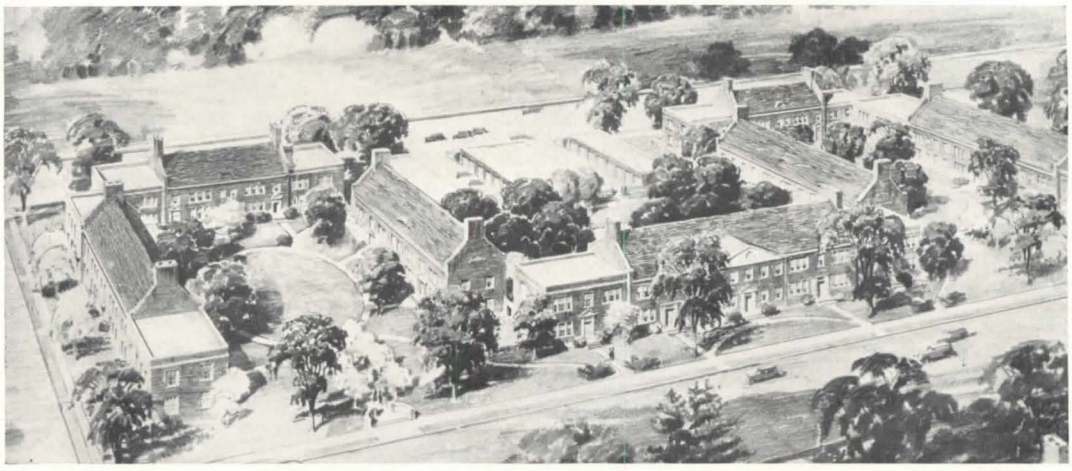


Photo by Wurts Bros. of rendering by J. Floyd Yewell

70 RENTAL UNITS (FHA)

WATERVIEW APARTMENTS
PORTSMOUTH, VIRGINIA

A. MITCHELL WOOTEN
Architect
JOHN J. ROWLAND, Associate

COMPARATIVE ANALYSIS

Site

2.98 acres, of which structure coverage is 19.8% of total; located in preferred residential zone near bus route to city center.

Accommodations

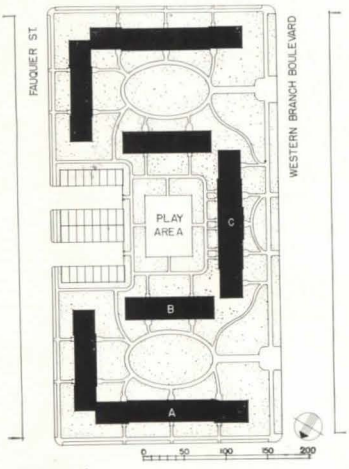
The seven 2-story walk-ups include 246 rooms, average rental unit being 3.5 rooms. The dwelling units represent 95.2% of property income; average room rental is $13.02; average unit rental is $45.75.

Supplementary facilities

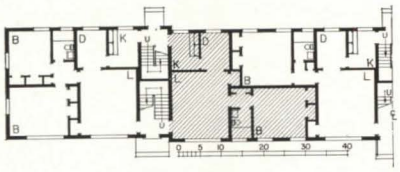
A reasonably inexpensive country club is nearby, a shopping center across the street. For autos there are 32 garages.

Cost

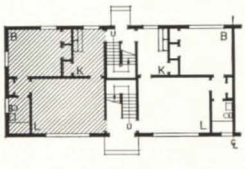
Construction cost, approximately 37¢ per cu. ft., including garages and landscaping; total cost, $300,000; mortgage, $240,000.



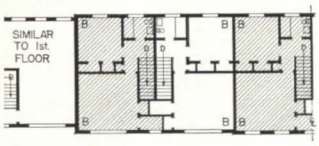
Site Plan



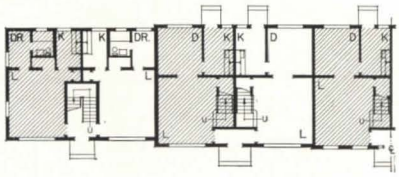
UNIT A



UNIT B



Second Floor
UNIT C



First Floor
UNIT C

SCHEDULE OF EQUIPMENT AND MATERIALS

FOUNDATION

Concrete basement and footings, brick foundations and piers

STRUCTURE

Brick bearing walls, wood joists and studs

EXTERIOR

Selected common brick; cast-stone coping and chimney caps

Entrance details, cornices, etc., of cypress painted white, "Dutch Boy" lead and oil

Windows: Double-hung wood, and steel basement sash, Detroit Steel Products Co.

Roof: Asbestos shingles, American method Johns-Manville; decks, built-up composition, Barrett Specification AA; flashing, counter-flashing and downspouts, 16-oz. copper

INTERIOR

Walls: Hard-finished plaster painted or papered, U. S. Gypsum Co. "Texolite"

Floors: Oak; kitchen and bathroom floors and walls, Sealex linoleum

Painting: Woodwork, Moore's Dulopake coats; one coat Moore's Persian high

EQUIPMENT

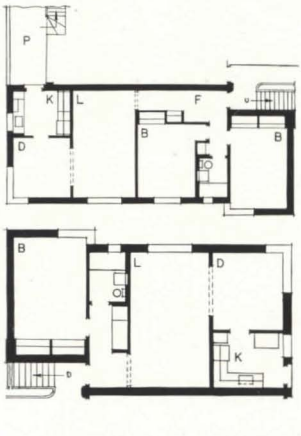
Plumbing: Fixtures, Crane Co.
Heating: Boilers, American Radiator C
Ventilating: Ventilators, Kernchen Siph type
Glazing: Libbey-Owens-Ford
Kitchen: Ranges, Magic-Chef; refrige Electrolux; cabinets, sinks, etc., Whit Metal Products Co.

6-UNIT URBAN DEVELOPMENT (FHA)

NVILLE GARDEN APARTMENTS
CAGO, ILLINOIS

RISSMAN & HIRSCHFELD
Architects

Plan



Buildings shown in the plot plan (left) cover 42% of the site's 137,808 sq. ft. of area. Each building contains 14 dwelling units, the total being divided into 6 three-room, 128 four-room, and 62 five-room apartments. Typical unit plans are also shown at left.

EDULE OF EQUIPMENT AND MATERIALS

DATION
12-in. concrete to grade; continuous
gs

CTURE
earing masonry

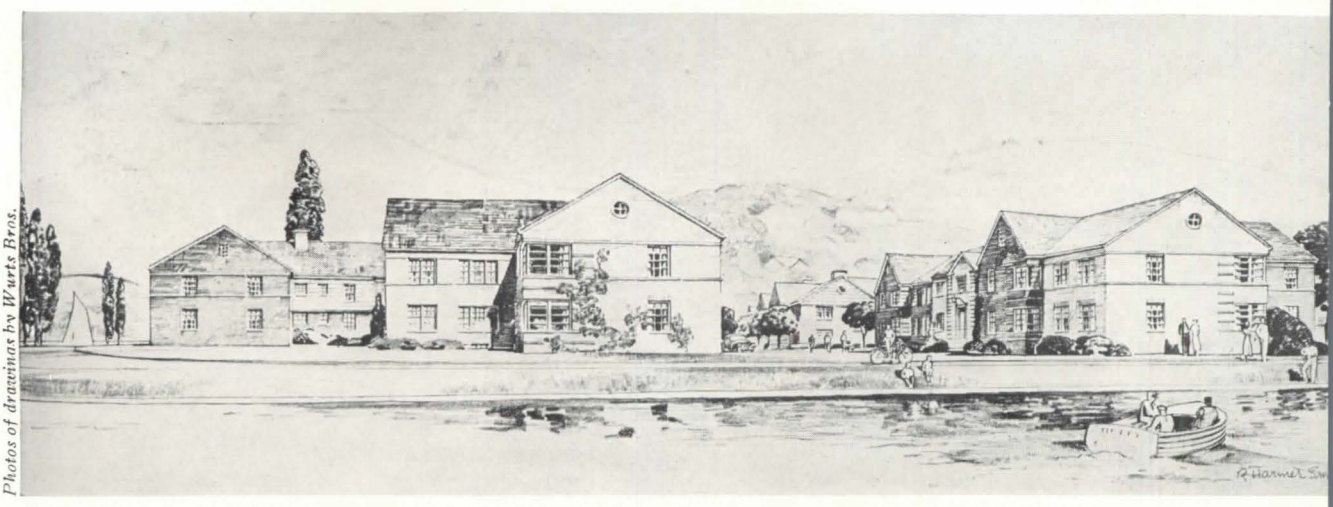
IOR
Grade to first floor, face brick, com-
rick backing; face brick, Howard Matz
Co.; first floor to roof, face brick veneer,
te block back-up, Haydite Co.
5-ply asphalt and gravel, Barrett Co.
Metal: Through-wall 16-oz. copper flash-
"Anaconda"; skylights, 24-gauge gal-
d iron, "Toncan"
ion: 4-in. mineral wool in ceiling joists,
ci-Celadon Co.
ws: Metal casements and screens, me-
al operators, Ceco Steel Products Corp.

Trim: Stone copings and entrances, Indiana limestone

INTERIOR
Walls: Wood studs, rock lath; Monarch gypsum lath plaster, Wasem Fibred and Tiger white rock finish
Floors: Wood joists, concrete slabs over vestibules and stairhall landings
Doors: Rezo, Paine Lumber Co., Ltd.
Frames: Coleman Fireproof Door Co.
Stairs: Metal-pan type, General Bronze Corp.; metal risers and stringers, terrazzo filled treads and landings for main stairs; cement for service stairs

HEATING
Central plant, force-flo hot-water type; boilers, Titusville Iron Works; fuel, coal; underfeed stokers, Link Belt Co.; radiators, concealed copper convectors, metal fronts, Trane Co.; coal conveyor, Chicago Tramrail Co.

EQUIPMENT
Hardware: Segal Lock Co. and Earle Hardware Mfg. Co.
Electrical: Thin wall conduit, "Electrunite" metallic tubing; outlet boxes, flush toggle-type switches and rubber insulated wire, Pass & Seymour, Inc.; fixtures, porcelain direct and enclosed direct, Metropolitan Electrical Supply Co.
Cabinets: Kitchen, steel, St. Charles Mfg. Co.; bathroom, metal, American Enameled Products Co.
Refrigerators: Gas, Servel Electrolux
Ranges: Gas, Eaton Universal
Sinks: Crane Co.
Fixtures: Bathroom, Crane Co.
Incinerator: Midwest Incinerator Co.
Plumbing: Cast-iron pipe, Alabama Pipe Co.; laundry trays, Crane Co.
Mail Boxes: S. H. Couch Co.
Tile Wainscoting: Architectural Tile Co.



Photos of drawings by Wurts Bros.

304 RENTAL UNITS (FHA)

MADISON PARK HOUSING CORP.
SEATTLE, WASHINGTON

GRAHAM & PAIN
Archit

COMPARATIVE ANALYSIS

Site

PROJECT OCCUPIES a lakefront of 11.68 acres of which structure coverage totals 24.67%. It is located in an established residential district approximately 20 minutes by street-car transportation from the city center.

Accommodations

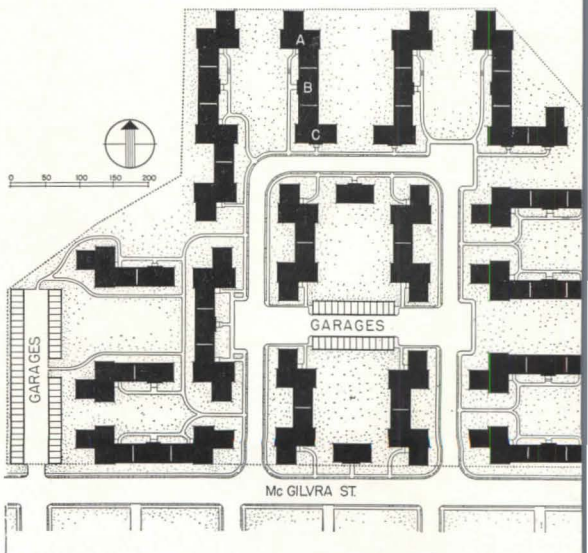
The 18 buildings, each a two-story walk-up, include 184 three-room units and 120 four-room units with a total of 1032 rooms. Average area per room is 249 sq. ft. Dwelling rentals account for 96.7% of total income; average room rental is $14.50; average rental per family is $49.22.

Supplementary facilities

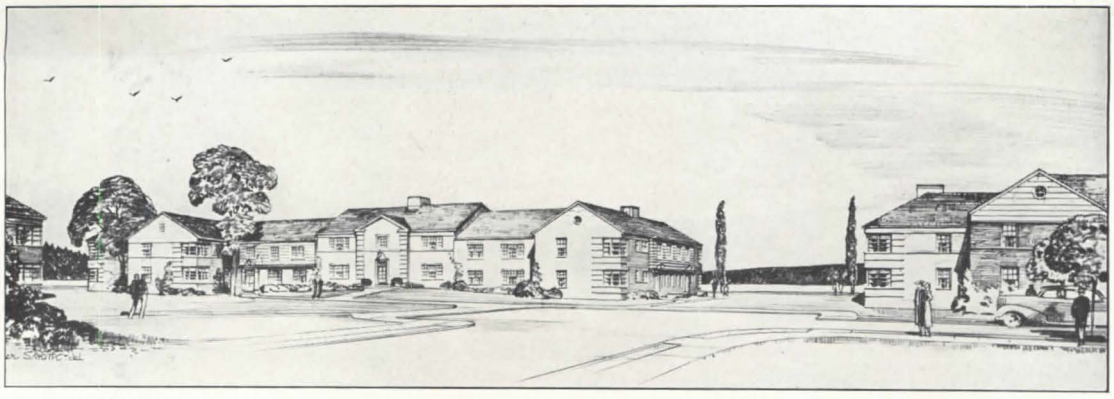
Swimming and boating are provided by the 1,200 ft. of shore line boundary. Gardens and outdoor recreation areas are liberally included and 75 garages are also available to tenants.

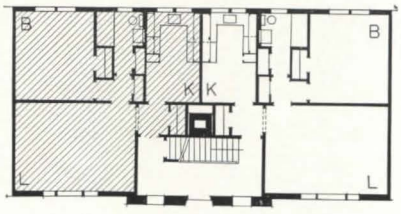
Costs

Contract costs are: 28½c per cubic foot; $970 per room; total contract cost, $1,050,000, including landscaping and utilities. Capitalized valuation $1,360,000, mortgage $1,080,000.

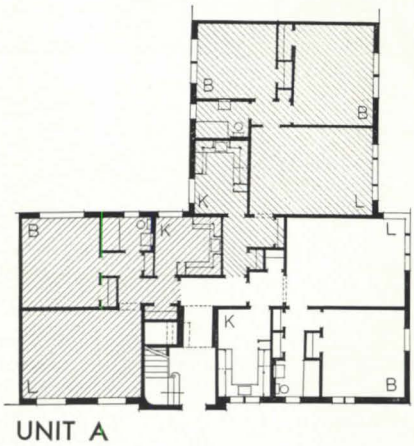


Site Plan

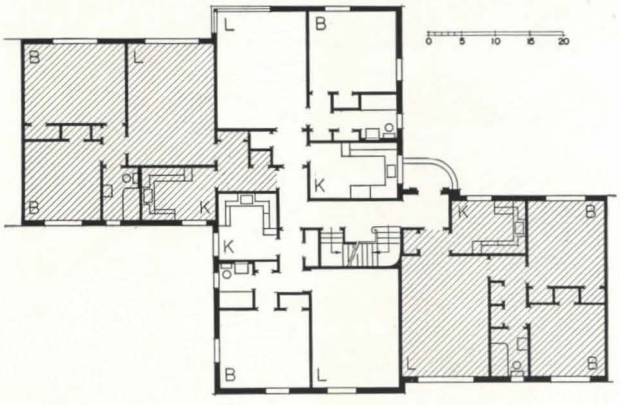




UNIT B



UNIT A



UNIT C

HEDULE OF EQUIPMENT AND MATERIALS

NDATION
: 9-in. concrete, continuous spread foot- floors, concrete slab on gravel fill; proofing, A. C. Horn Co.

CTURE
or walls, brick veneer on ¾-in. sheathing ed with waterproof building paper on in. studs; brick, Seattle Brick & Tile mortar, Galbraith & Co.; interior par-, frame; floor construction, shiplap laid nally over straight grained joists; all lumber, Weyerhaeuser Timber Co.

E
l rafters covered with ¾-in. sheathing, ed with pre-dipped cedar shingles; West Stained Shingle Co.

T METALWORK
ng, gutters, and downspouts, 16-gauge r, Chase Brass & Copper Co., Inc.

LATION
en apartments—Balsam Wool, Wood rsion Co.; over boiler rooms—rock wool **ows:** Sash—mill-made; glass, double-strength, Quality B; Libbey-Owens-Ford Glass Co.

FLOORS
First-floor stair halls, asphalt tile, Thomas Moulding Floor Manufacturing Co.; second-floor stair halls, living rooms, bedrooms, and halls—clear red oak, 13/16 in.; kitchens, fir covered with linoleum; oak floors, E. L. Bruce Co.; bathrooms, ceramic tile, Gladding McBean Co.

WALLS
Living rooms, bedrooms, kitchens, and apartment halls ½-in. gypsum wallboard, National Gypsum Co.; bathrooms, Keene's cement, Best Bros. Keene's Cement Co.; public halls and stairways, plaster, on plasterboard, U. S. Gypsum Co.
Woodwork: Trim, shelving, and doors—select fir
Hardware: Russwin, Russell & Erwin Mfg. Co.

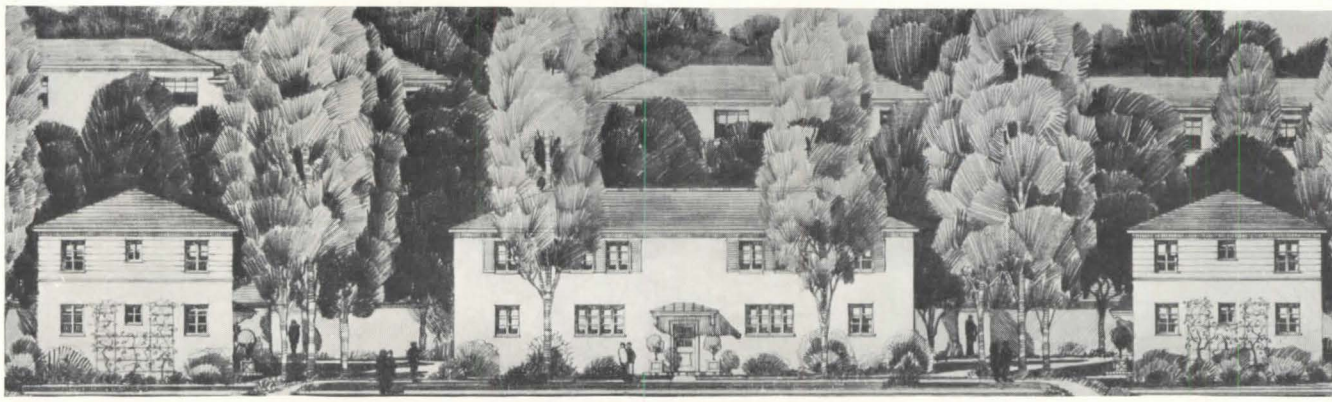
PAINTING
Exterior: Brickwork, brick paint; woodwork and trim—lead and oil paint
Interior (except kitchens and bathrooms): Walls, casein paint; lead and oil paint; interior trim, kitchens and bathrooms, enamel; walls, enamel

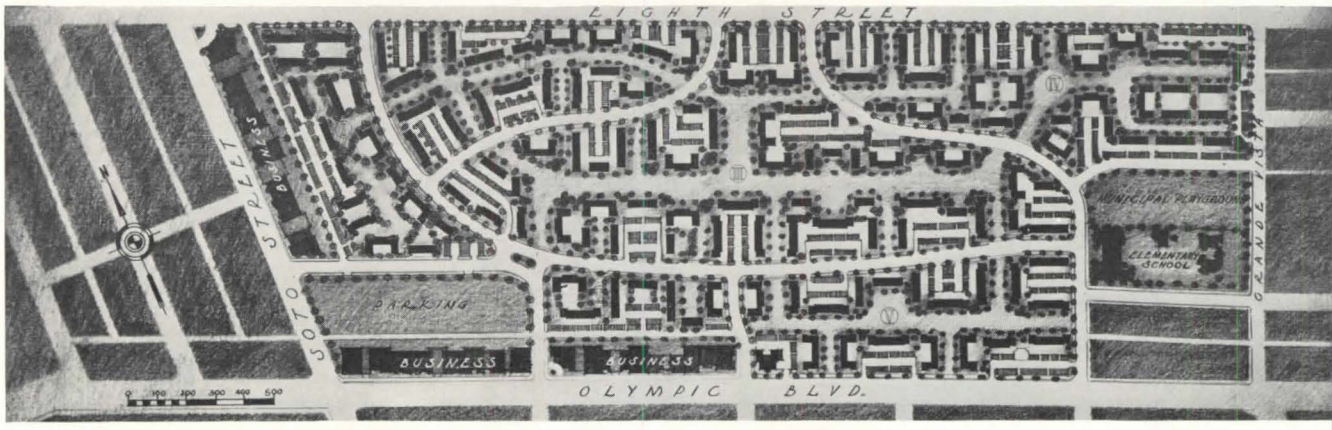
ELECTRICAL
Wiring system, knob and tube; wire, General Cable Co.; door bells, Edwards Co.

EQUIPMENT
Ranges, electric, Westinghouse Electric & Mfg. Co.; refrigerators, electric, Norge Division, Borg-Warner Corp.; medicine cabinets, Philip Carey Co.

PLUMBING
Pipes, cast iron, Walworth Co.; wrought iron and steel, Wheeling Steel Corp.; valves, Walworth Co.; fixtures by Kohler Co.

HEATING
Hot-water system, boiler, Birchfield Boiler Co.; fuel, oil, rotating cup burner; automatic combination control, Lawler Automatic Controls Inc.; radiators, convector-type, Trane Co.; radiator valves, Detroit Lubricator Co.





1,102 RENTAL UNITS (FHA)

WYVERNWOOD
LOS ANGELES, CALIFORNIA

DAVID J. WITMER, FA
LOYALL F. WATSON, A
Archite

COMPARATIVE ANALYSIS

Site

THE PROJECT occupies a rolling tract of approximately 72.7 acres, of which structure coverage, including garages, totals 20.4%. It is located in a residential district.

Accommodations

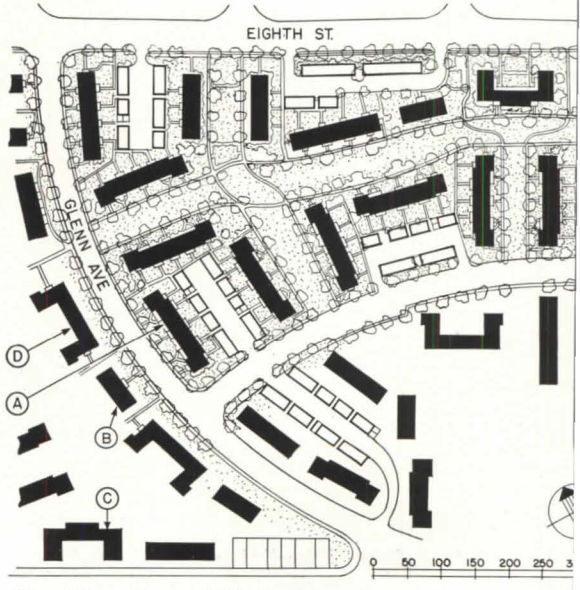
The 35 buildings include 420 three-room units; 512 four-and-a-half and five-room units in 6- and 8-family buildings; 96 four-and-a-half-room units in 4-family buildings; 74 six-room units in 6- and 8-family buildings; total of habitable rooms is 4,440. The average estimated room rental is: for three-room units, $9.83; for four- to five-room units, $7.79; for six-room units, $7.66; average family rental is $29.50, $37, or $46, depending on unit size.

Supplementary facilities

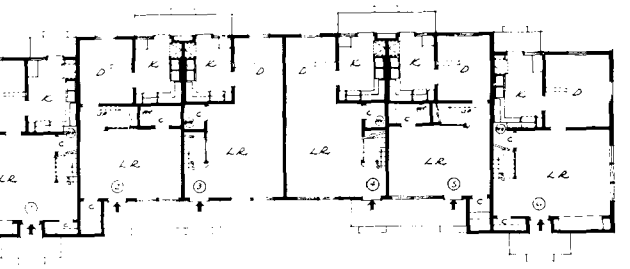
The development will contain shops and markets located on peripheral thoroughfares; play areas; and 114 garages so disposed in compounds that each car space is within 50 ft. of the dwelling unit it serves.

Cost

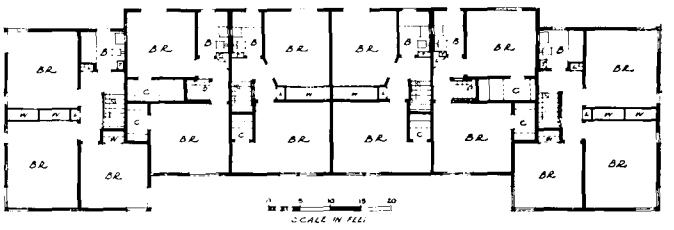
Estimated costs are: $620 per room; total contract cost, exclusive of land and adjoining commercial improvements, $2,960,500.



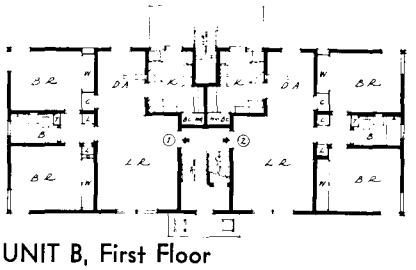
Site Plan: Part of Block II as shown above



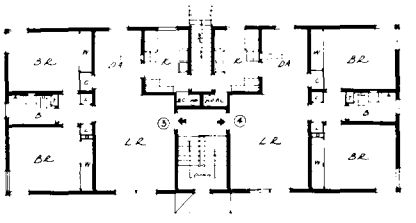
T A, First Floor



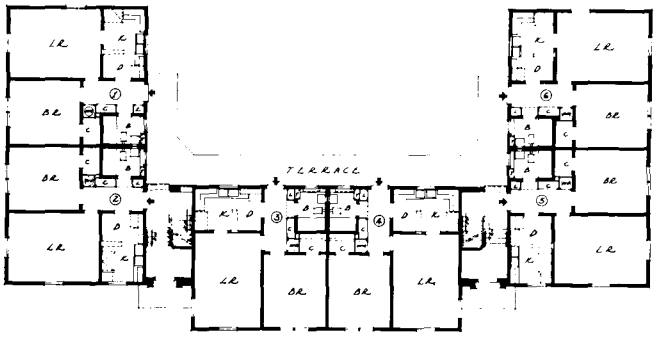
Second Floor



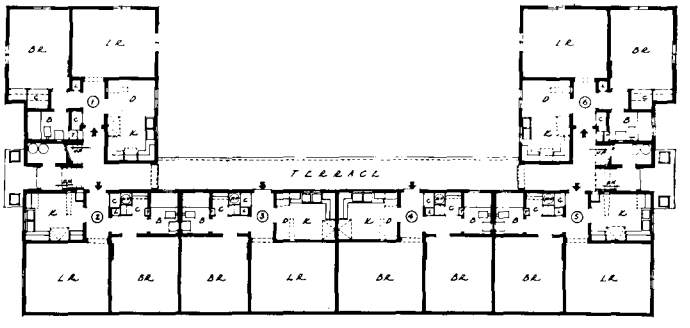
UNIT B, First Floor



Second Floor



UNIT C



UNIT D

EDULE OF EQUIPMENT AND MATERIALS

IDATION
ete

CTURE
, Douglas fir; sills, redwood and oak

IOR
Cement plaster, colored stucco finish Sisalkraft or Brownskin Hexmesh, hog- r Weldweave stucco netting; some red- siding
"Perfect" red cedar shingles or San shingle tile
work: Valleys, gutters, downspouts, flash- ılvanized iron, Armco or Toncan
: Sugar pine; frame, vertical grain as fir.
ows: Sash, sugar pine; frames, vertical Douglas fir
s and terraces: Cement

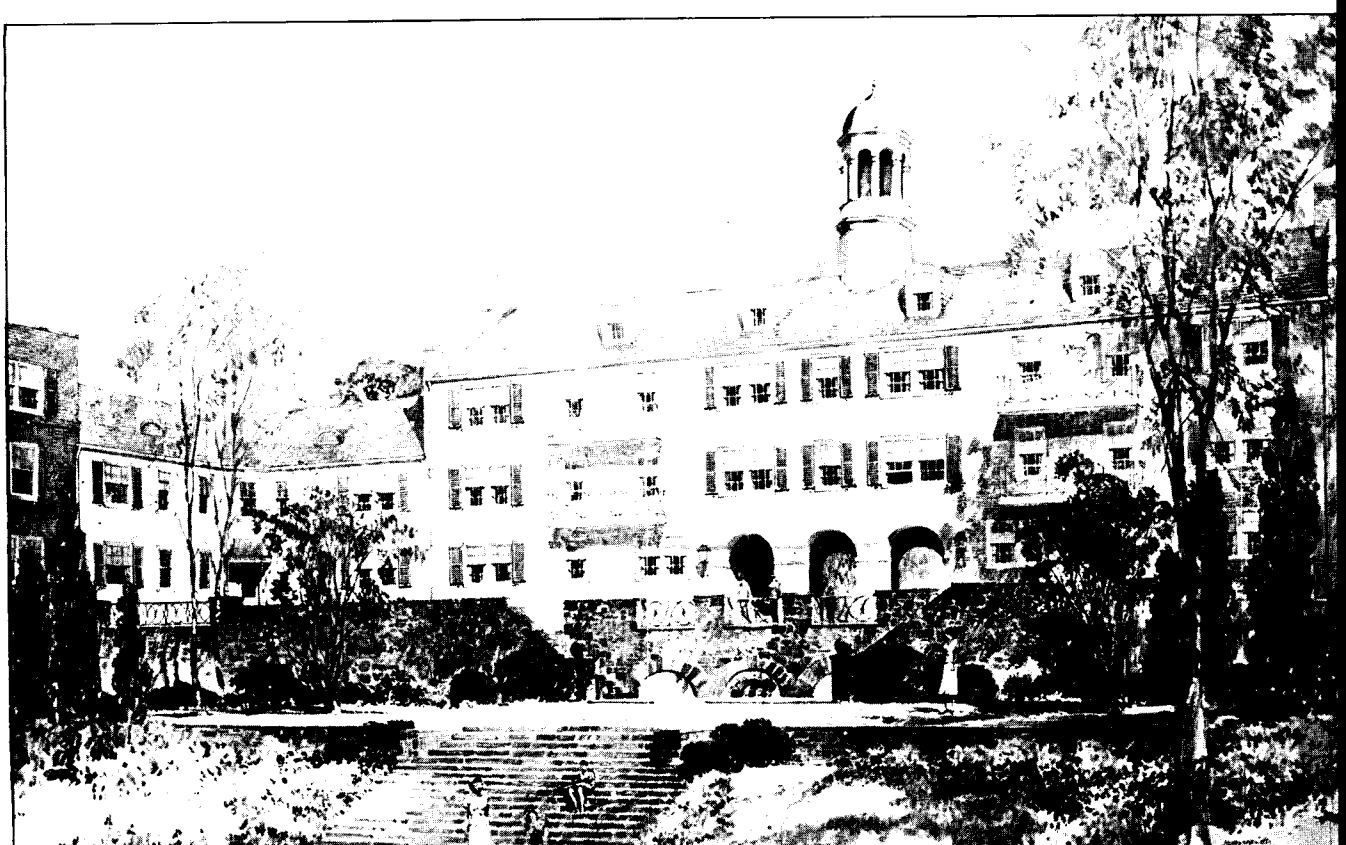
Insulation: Ceilings, Palcowool, Zonolite, or rock wool; floors, Celotex or Insulite; walls, Celotex or Insulite
Paint: Shingles, Cabot's or Creodipt; siding, trim and sash, lead, oil and zinc paint, or Cabot's double white

INTERIOR
Floors: No. 1 common oak; painted surfaces, vertical grain Douglas fir; bathroom and kitchen floors, Armstrong or Sealex linoleum
Walls: Plaster board lath, Arden or Empire plaster; finish, California Mission; bathrooms and kitchens, painted
Ceilings: Bathrooms and kitchens, painted
Trim: Doors, sash, enamel finish with Vitralite

EQUIPMENT
Glass: Libbey-Owens-Ford or Pittsburgh Plate Glass Co.

Electric wiring: "Steeltube" or galvanized flexible metal conduit
Switches: Westinghouse, Bryant, or H. & H.
Electric Fixtures: To be selected; lighting, direct
Plumbing: Crane or Standard fixtures; piping, cast-iron, steel, Duroline, Crane Co., National Tube Co.
Ranges and refrigerators: To be selected
Heating: Gas, vented floor furnaces or vented wall furnaces, Payne, Ward, or Pacific
Hot-water heater; Electric; to be selected
Hardware: Interior and exterior: Sargent, Corbin, Yale
Screens: Wood frames, galvanized wire mesh
Weatherstripping: Chamberlain, Majestic

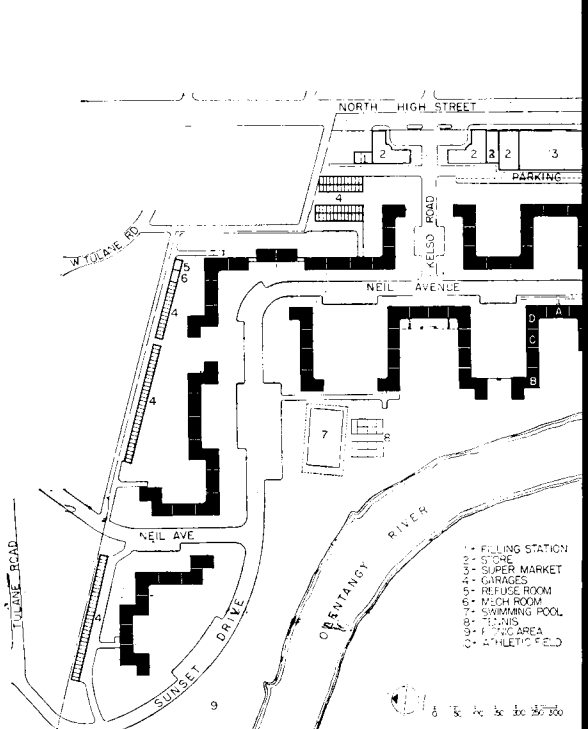
Note: Final contracts for selection of some equipment and materials not yet approved



380 RENTAL UNITS (FHA)

RAYMOND C. SNO
Archit

OLENTANGY VILLAGE
COLUMBUS, OHIO



Site Plan

COMPARATIVE ANALYSIS

Site

PROJECT OCCUPIES a riverfront tract of 28.7 acres, of which structure coverage is only 9.5% of the total area.

Accommodations

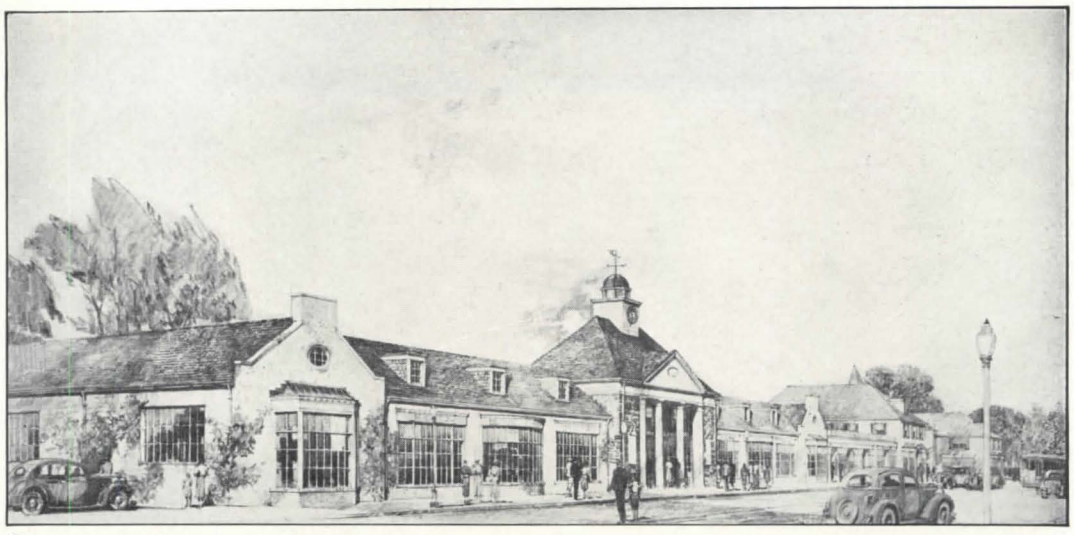
The 58 buildings, combinations of 2- and 3-story walk-ups, include a total of 1,374 rooms. Dwelling rentals account for 91.3% of total income; average room rental is $14.50; average rental per family unit is $50.98.

Supplementary facilities

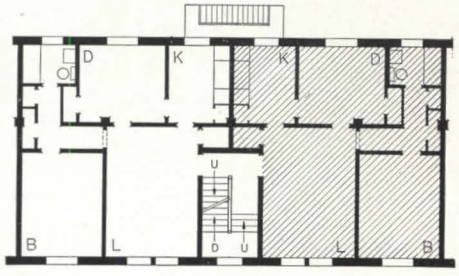
In addition to usual gardens and playgrounds, recreational areas include tennis courts, athletic field, and a pool. The river bank is developed for swimming and boating. Tenants have available 198 garages located conveniently to the various units and approaches. A portion of the plot is utilized for commercial occupancy. This area, of about 39,000 sq. ft., contains a gasoline and service station as well as a variety of shops and a supermarket.

Costs

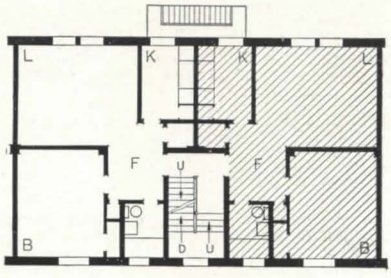
Total capitalization, $2,027,000; mortgage, $1,600,000.



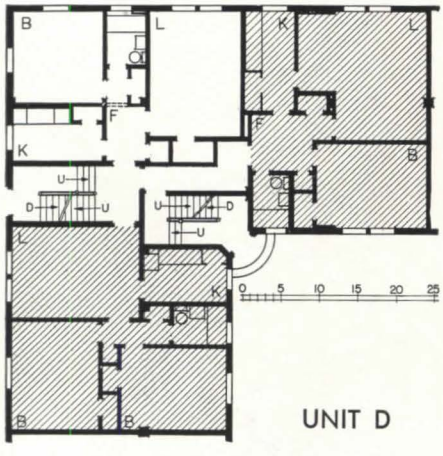
Community shopping center



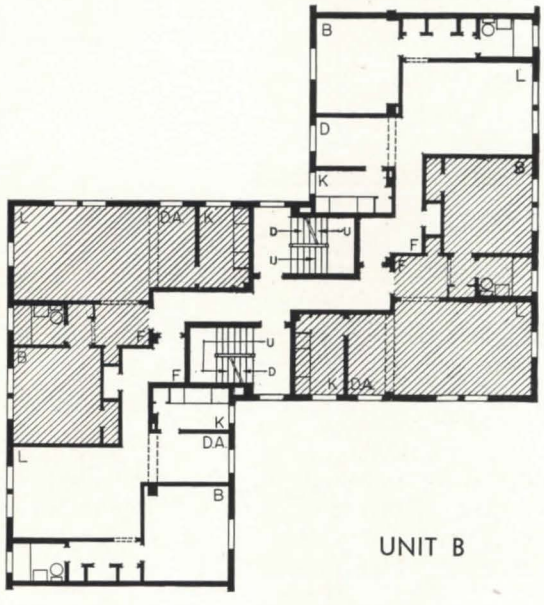
UNIT A



UNIT C



UNIT D



UNIT B

EDULE OF EQUIPMENT AND MATERIALS

DATION
brick walls

CTURE
rced concrete columns and floors

IOR
Brick face, soft red color in some por- white painted in others; Indiana lime- rim; brick back-up
Ludowici tile, Williamsburg pattern

Windows: Wood frames and sash, limestone sills

INTERIOR
Walls: 3-in. tile interior partitions, 6-in. tile around all stair enclosures, all plastered
Floors: Bruce oak flooring, 6 x 6 in., "Arabesque" pattern
Doors: 6-panel pine doors with Aetna steel bucks throughout
Ceilings: Rough slab, plastic oil paint

EQUIPMENT
Heating: 2-pipe steam; 5 separate boiler plants, Brownell Co. coal stokers; Trane convectors
Plumbing: Brass water lines; Jenkins valves; traps and heavy-duty pumps, Webster Co.; fixtures, Crane Co.; hose cabinets, Allen Mfg. Co.
Kitchens: Westinghouse refrigerator and electric stove; Whitehead Metal Products cabinets and monel sink; linoleum floors

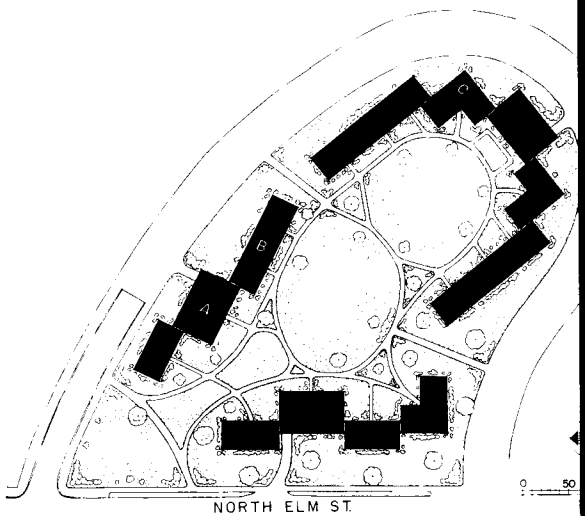
86 RENTAL UNITS (FHA)

COUNTRY CLUB APARTMENTS

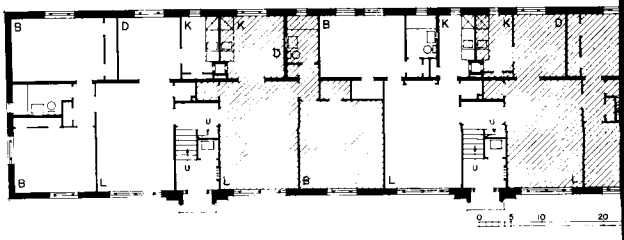
GREENSBORO, NORTH CAROLINA

CHARLES C. HARTMA

Archi



Site plan



UNIT B: First floor (second floor similar)

COMPARATIVE ANALYSIS

Site

PROJECT OCCUPIES 3.7 acres, of which structure coverage totals 22.6%. Center of city is about two miles distant on a direct bus line. Property retains slightly rolling contours and original trees and growth; walks conform to these.

Accommodations

The 3 buildings, each a 2-story walk-up, include 416 rooms; the average rental unit consists of 3.7 rooms. These dwelling units represent 100% of the property income. Average room rental is $16, units renting from $37.50 to $70.

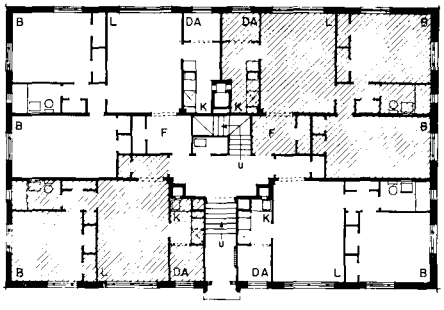
Supplementary facilities

A community center containing garages, shops, etc., is being considered for future addition, these facilities being non-existent now.

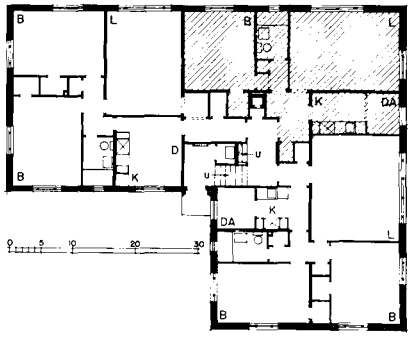
The drive circling the development permits parking for easy accessibility to units.

Cost

Total contract cost was $365,000 at approximately 40c per cu. ft. Cost per rental unit was $4,244.18, per room $877.40. Project capitalization $471,000, mortgage $365,000.



UNIT A



UNIT C

EDULE OF EQUIPMENT AND MATERIALS

DATION
and reinforced concrete

CTURE
earing, bar joists, 2-in. concrete slab

IOR
Brick, cinder concrete tile backing and ons; Laclede Steel Co. bar joists; Gray ete Co. cinder blocks; Greensboro oroofing Co., "Ironite" system of roofing
Cast-stone, limestone texture, manufac- by the Arnold Stone Co.
Flat roofs built of asphalt and gravel; roofs, shaded green asbestos shin- Philip Carey Co., laid by Brooks Roof-
Residence-type steel casement sash, bronze hardware and copper screens, Campbell Metal Window Corp.

INTERIOR
Floors: Bathrooms, tile, Atlantic Marble and Tile Co.
Walls: Plaster
Doors: Selected pine, painted doors, Colonial six-panel, Oettinger Lumber Co.; Steel molded bucks, Atlantic Metal Products Co.
Stairs: Steel strings, risers, and rails, J. D. Wilkins Co.; terrazzo treads and platforms, Atlantic Marble Co.
Stair Halls: Lined with "Superrock" Concrete Ashlar, Arnold Stone Co.; and painted a deep cream
Glass: Pittsburgh Plate Glass Co.

EQUIPMENT
Kitchens: Kitchen cabinet units, steel baked-enamel finish, Excel Metal Cabinet Co., Inc.
Refrigerators: Frigidaire—5 cu. ft. boxes.
Incinerators: All apartments, Kerner Incinerator Co.
Electric ranges: Three burners, two ovens, Norge Electric Co.
Electric wiring: All conduit work, apartments separately metered; radio outlets and telephones, Starr Electric Co.
Plumbing: Wrought iron, Reading Iron Works, Copper tubing water lines; Kohler fixtures
Heating: Vapor system, two-pipe; convector-type recessed radiators, Crane Co.
Hardware: Colonial brass, Sargent Co.
Painting: Exterior walls, white; metal work, dark green; interior, ivory for plaster and trim, Brewer Paint Co.

Brown Bros.

30 RENTAL UNITS

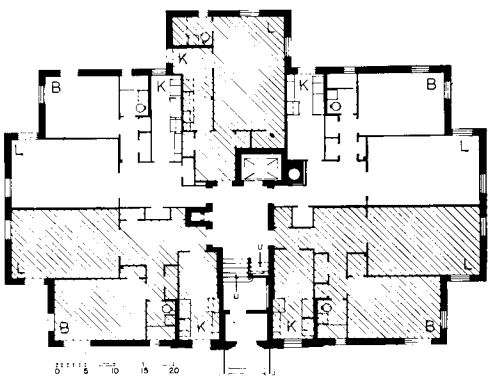
DONGAN TERRACE APARTMENTS

ELMHURST, L. I., N. Y.

T. H. ENGELHARDT

Architect

DIVIDED INTO 24 three-room and 6 two-room units, each apartment includes, additionally, a foyer, dinette, and bath. Each major room has cross ventilation and fair present exposure, lot coverage being less than 50%. Total cost, $85,000.



Typical Floor

SCHEDULE OF EQUIPMENT AND MATERIALS

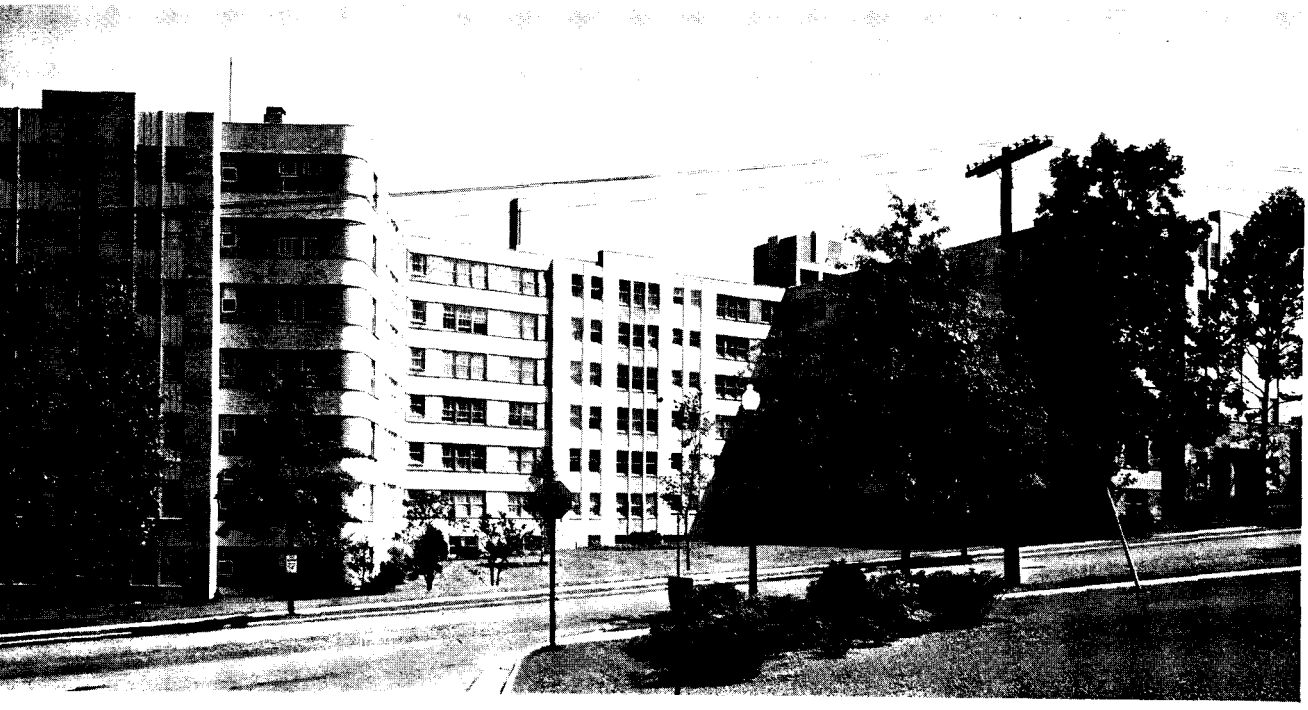
FOUNDATION
Concrete

STRUCTURE
Masonry-bearing, structural steel at first tier
Waterproofing: Asphaltic on exterior walls below grade, The Barrett Co.

EXTERIOR
Walls: Light-brown solid brick
Windows: Wood double-hung sash and steel casement with bronze screens and Venetian blinds
Roof: Five-ply built-up asphaltic, slag surface
Insulation: 4-in. rock wool mats in roof

INTERIOR
Walls: Plaster on metal lath with triple-ply rock wool quilt separating partitions, Samuel Cabot, Inc.
Floors: Oak strip, tile in bathrooms
Doors: Flush-type, Weisberg-Baer

EQUIPMENT
Heating: Steam, Titusville Scotch Marine boiler; Ray oil burner; Arco concealed copper convectors, American Radiator Co.
Plumbing: Crane Co. fixtures
Incinerator: Sarquet
Kitchen equipment: General Electric erators; American Stove Co. ranges
Hardware: Bronze finish, Lockwood Ma turing Co.
Electrical: Semi-indirect lighting in areas, direct in apartments; DeVeau phones
Painting: Enamel trim, walnut doors, st finish walls; Benjamin Moore & Co Barrett Co.'s Sunlight Enamel
Elevators: Push-button control, fully matic, Otis Elevator Co.



RENTAL UNITS

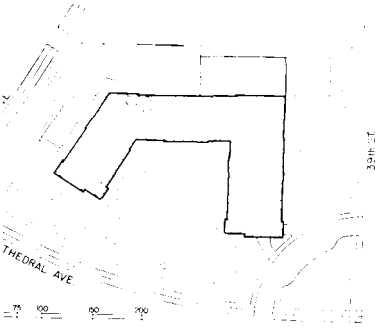
LYN APARTMENTS

HINGTON, D. C.

HARVEY WARWICK
Architect

YN APARTMENTS are noteworthy
e of the first apartment houses to
de complete year-round air condi-
g. System supplies outside air in
of 1 part to 4 parts of room air,
is recirculated by individual units
d in each room. Dehumidification
ooling are effected in the units,
eration being supplied from 3
l refrigerating machines of 50 tons
ty each. These cool water, which
mped to the room units, distribu-
eing effected from the top floor
ward. Moisture condensed in the
idifying process is piped back to
aporative condenser in the machine

ter heat is furnished by the same
, through pre-heated air and hot
supplied each unit.



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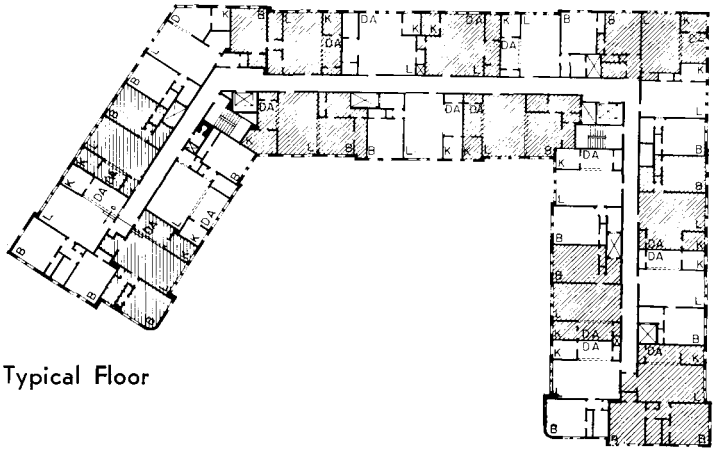
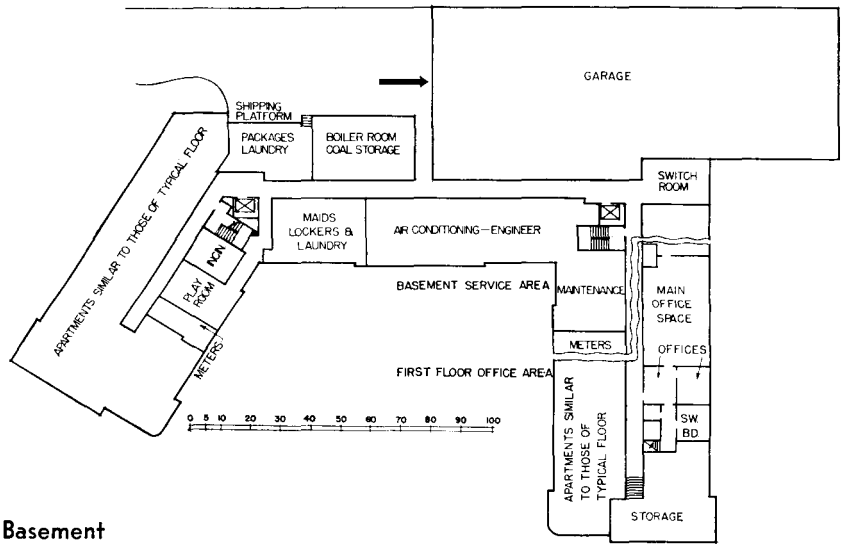
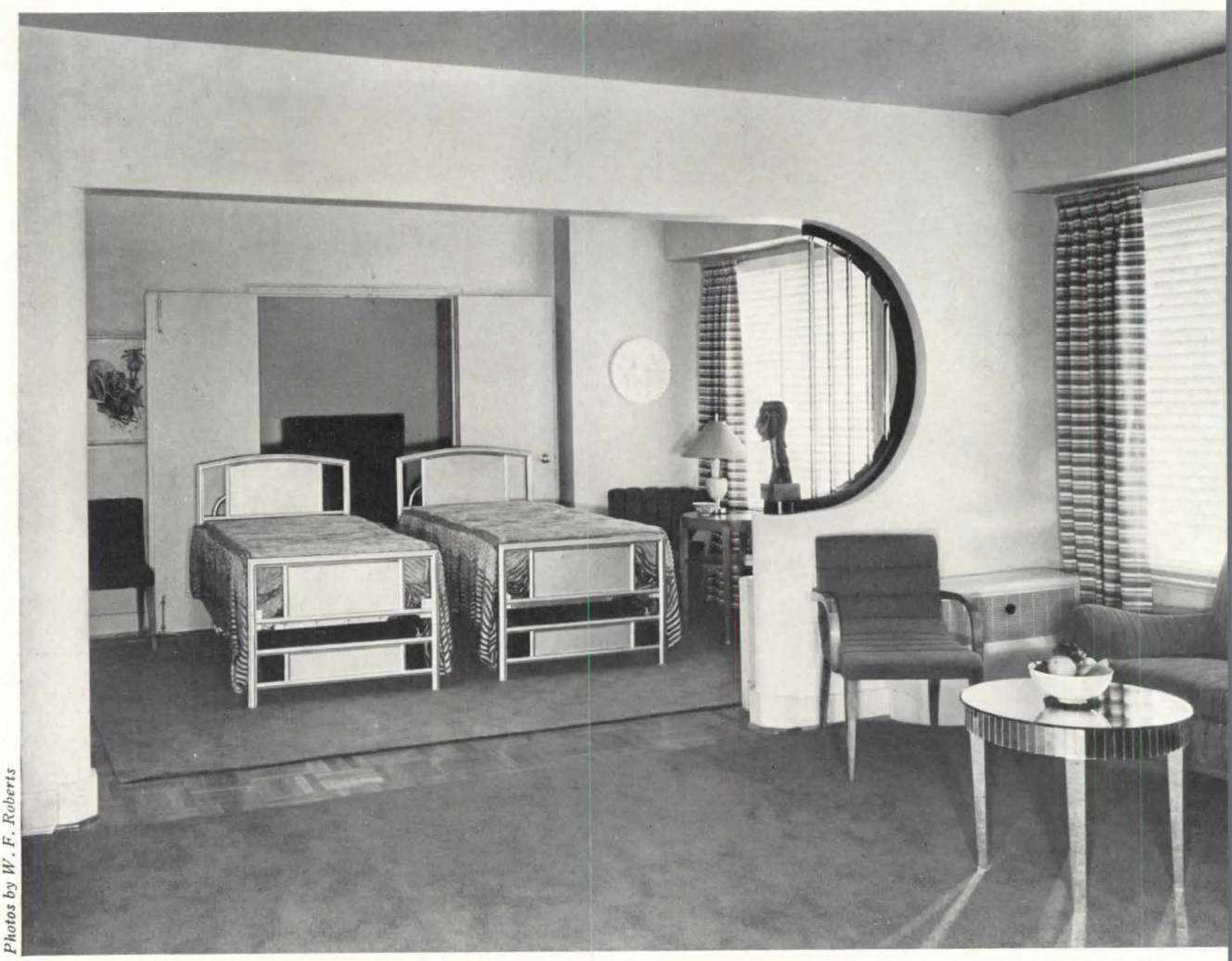


Typical Floor



Basement



Photos by W. F. Roberts

RENTAL UNITS

LYN APARTMENTS
SHINGTON, D. C.

t: exterior entrance and interior partments on ground level with t entry from street

psite: typical living room and ad- t area with in-a-door beds (air- itioning units on both sides of ing wall); bathroom and kitchen

EDULE OF EQUIPMENT AND MATERIALS

DATION
rced concrete

CTURE
rced concrete, tile and concrete-joist ystem

IOR
Face brick, buff to brown
Black structural slate; porcelain enamel els, Structural Porcelain Co.; precast e insets; limestone sills and coping

5-ply built-up asphaltic, gravel surface, rrett Co.; encaustic tile surface in ter- eas

ws: Double-hung wood sash; steel sash, Steel Products Co.

Richard Wilson sliding garage doors

ork: Copper flashing and downspouts

INTERIOR
Walls: Gypsum block partitions, U. S. Gypsum Co.; plastered and painted throughout except: bronze tile wainscot in baths, porcelain glazed tile block in service corridors; cement finish in garage and service rooms

Floors: Oak parquet in apartments, Bruce Co.; linoleum base and border in corridors and in kitchens, Armstrong Cork Products Co.; tile in baths and stair platforms, carpeted corridors, Bigelow-Sanford Carpet Co.
Doors: Flush-panel wood; metal bucks

Hardware: Brushed chromium finish, Schlage Lock Co.; Sargent door checks

AIR CONDITIONING
Complete year-round, Carrier Co.; Detroit stokers; Pacific boilers

PLUMBING
Colored fixtures, Standard Sanitary Mfg. Co.

ELECTRICAL
Westinghouse circuit breakers; secretarial switchboard telephone system

ELEVATORS
Push-button automatic control, dial position indicators, Otis Elevator Co.

EQUIPMENT
Frigidaire refrigerators; Oxford kitchen cabinets; Westinghouse electric stoves; Murphy In-A-Dor beds; Chicago dryers; Maytag washers and Standard Sanitary Mfg. Co. trays in laundry; Durabilt metal lockers in maid's room; Cutler mail chutes; Stearns incinerator

INSULATION
Thermax on walls and ceiling of air-conditioning machine room for sound control, Celotex Corp.; supply ducts lined with acoustic sheets near machine room, Johns-Manville

BUILDER
Ring Construction Co.

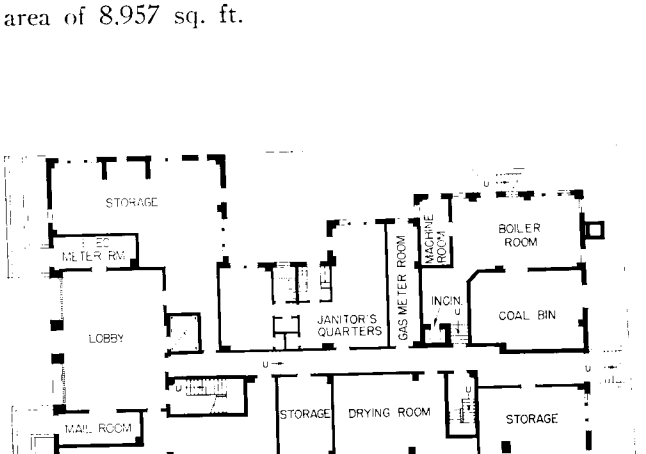
Photos by W. F. Roberts

95 RENTAL UNITS

2407 15TH STREET
WASHINGTON, D. C.

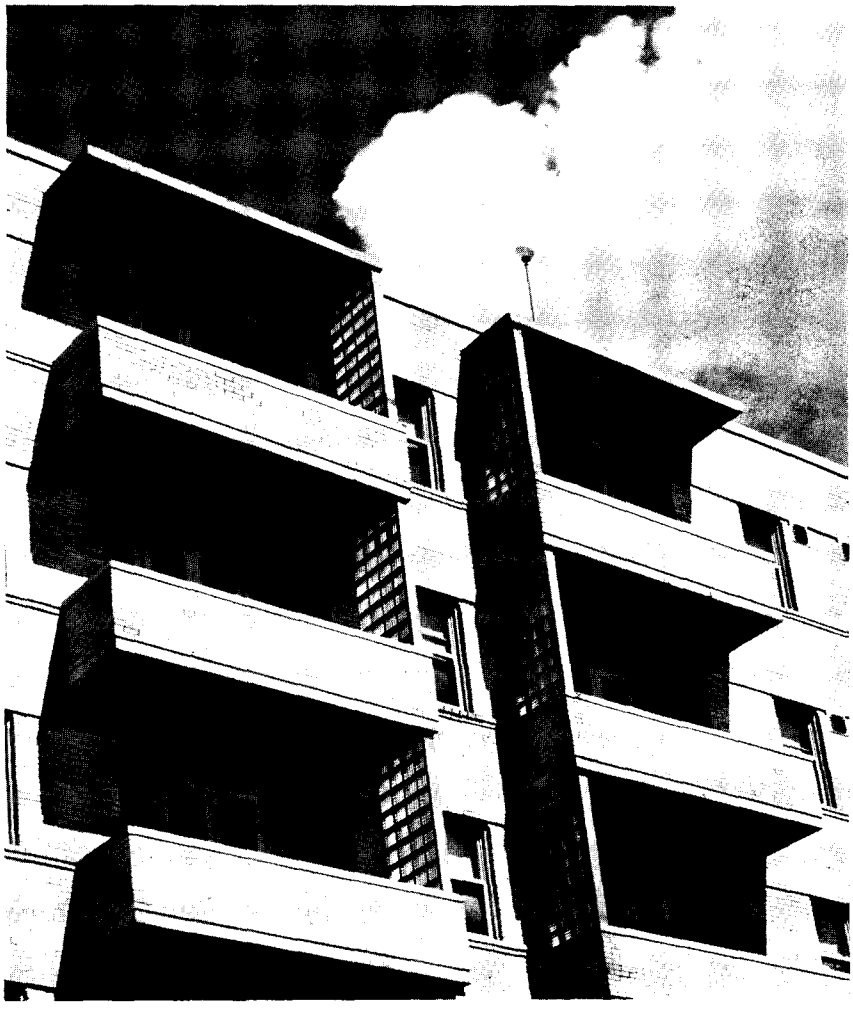
CHARLES E. DILL
JOSEPH H. ABEL
Archit

THIS SIX-STORY fireproof apartment house provides two types of dwelling units consisting of one room, kitchen, dinette, and bath, or two rooms with similar kitchen, dinette, and bath. The structure occupies an area of 8,957 sq. ft.



Basement

Typical Floor

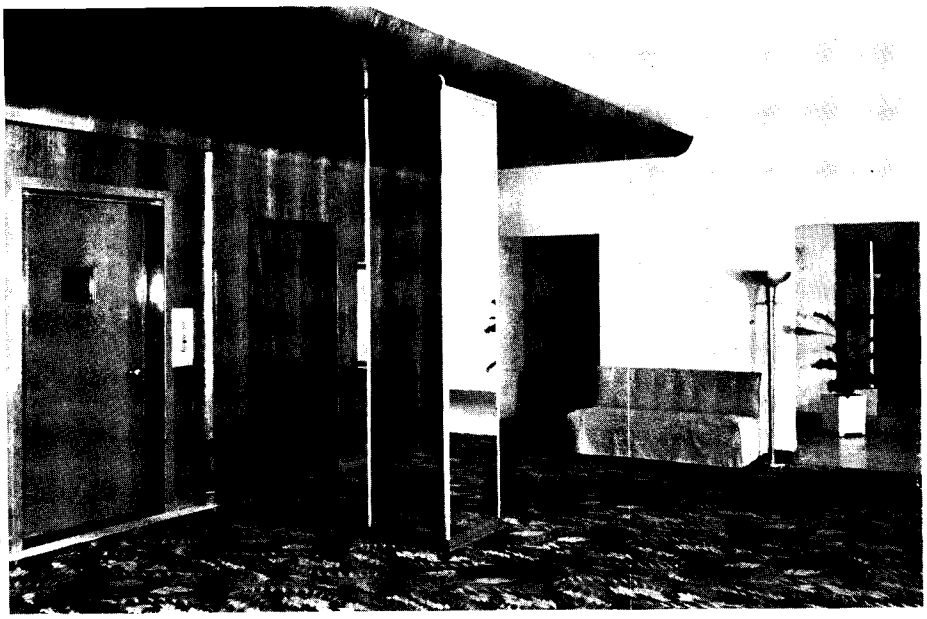


e: Roof recreation area; note se of wire frames for plants d exposed vent pipes.

: Glass-block screens give desir- privacy to balconies which open living rooms and overlook park.

95 RENTAL UNITS

2407 15TH STREET
WASHINGTON, D. C.



Photos by W. F. Roberts

Above: Lobby walls and ceiling
ishes combine Maca-wood and
white plaster. The columns are fa
with peach-colored mirrors and
carpet is burnt orange, buff,
black. Below: A typical inte

SCHEDULE OF EQUIPMENT AND MATERIALS

FOUNDATION
Plain and reinforced concrete

STRUCTURE
Reinforced concrete skeleton

EXTERIOR
Walls: Buff face brick, hollow tile back-up, United Clay Products Co.; trim, cement, cast in place; glass block, Owens-Illinois Glass Co.
Sash: Stock wood double-hung
Marquis: Stock aluminum shapes, Pittsburgh Plate Glass Co.
Roof: Built-up; roof garden floor, wood slats
Exterior Doors: Aluminum, William S. Graham

INTERIOR
Floors: Oak parquet, Bruce Flooring Co.; lobby and corridor carpets, A. & M. Karagheusian, Inc.; kitchen, linoleum; baths, tile
Walls: Gypsum block and hollow tile partitions; lobby, painted plaster and Bubinga Flexwood, U. S. Plywood; apartments, stippled plaster painted; elevator walls, Maca-Wood
Ceilings: Lobby, part Maca-Wood, part off-white, painted plaster; apartments, painted plaster
Interior Doors: Rezo flush doors, steel buck and trim

INSULATION
4" of Rockwool in roof

HEATING
Dunham differential vacuum-heating system; Dunham copper convectors; International Steel boilers; Petro-Nokol oil burners

VENTILATING
ILG fans with slat doors on all apartm
complete air change in entire building
five minutes

PLUMBING
Fixtures by Standard Sanitary Mfg.
copper hot- and cold-water supply lin

INCINERATOR
Kerner Incinerator Co.

EQUIPMENT
Electric refrigerators and ranges, Ge
Electric Co.; Napanee kitchen cab
ILG kitchen exhaust fans in each ki

ELEVATORS
Fully automatic push-button control,
Elevator Co.