RESSIVE ARCHITECTURE

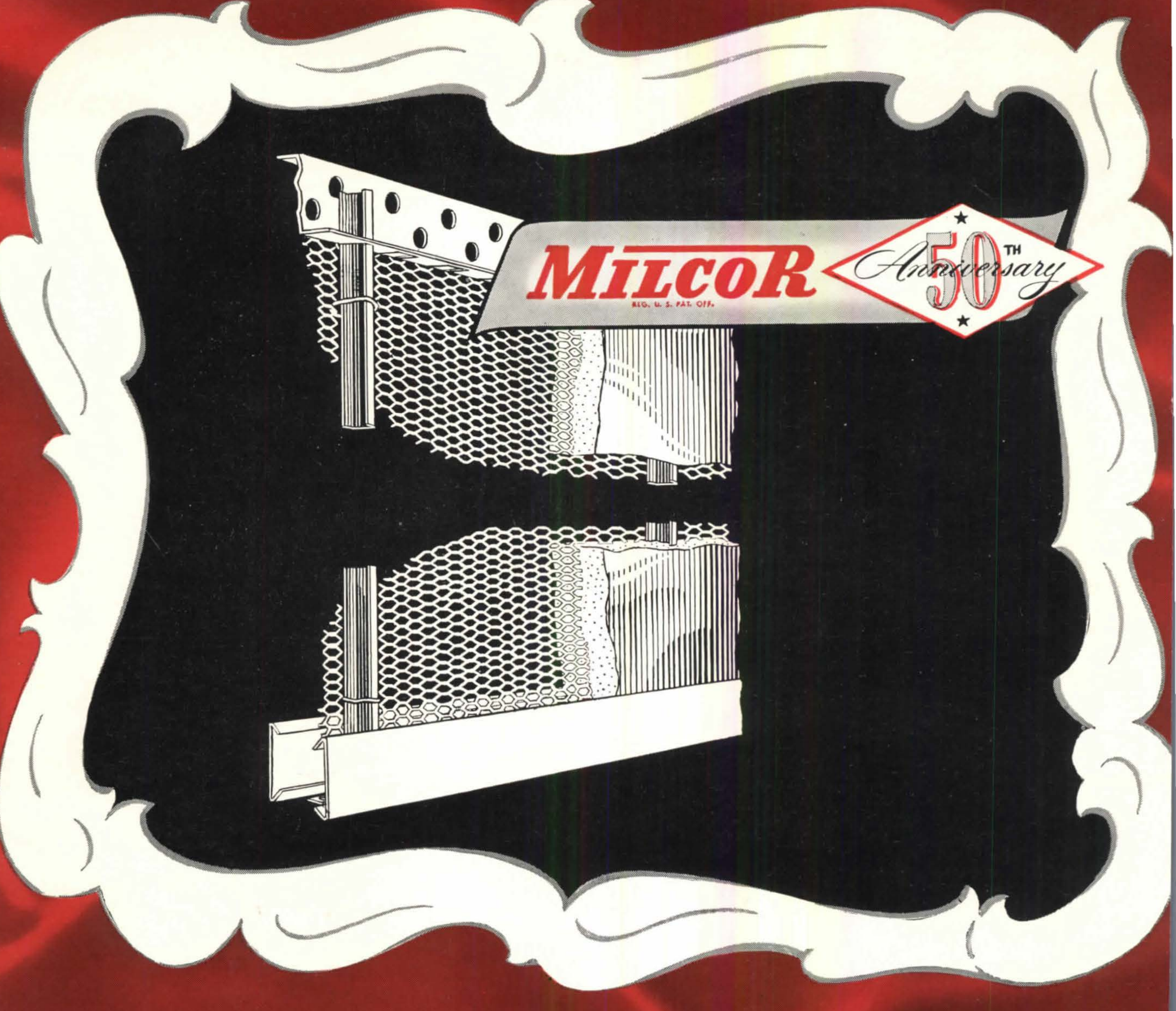
clients for housing

5

may 1952

interior design data

largest architectural circulation in the world



MILCOR* Solid Partition Systems

speed the erection of fire-resistant non-bearing wall

Reinforced monolithic slab construction — The Milcor Solid Partition is a steel-reinforced vertical slab of plaster, 2″ thick. Milcor Metal Lath serves as plaster base — reinforces the partition horizontally and diagonally.

Only 3 units needed to support the metal lath — Slotted ceiling runner, standard ¾″ cold-rolled channels and easy-to-use Milcor Housing Base or slotted floor runners.

Practical advantages — (1) Quick, simple erection; (2) Saving of floor space; (3) One-hour fire rating; (4) Reduced sound transmission; (5) Resistance to impact; (6) Reduced dead floor load; (7) Unexcelled sanitation; (8) Adaptable to metal or wood trim.

Check the branch nearest you regarding deliveries of components for Milcor Solid Partitions.

*Reg. U. S. Pat. Off.

INLAND STEEL PRODUCTS COMPANY

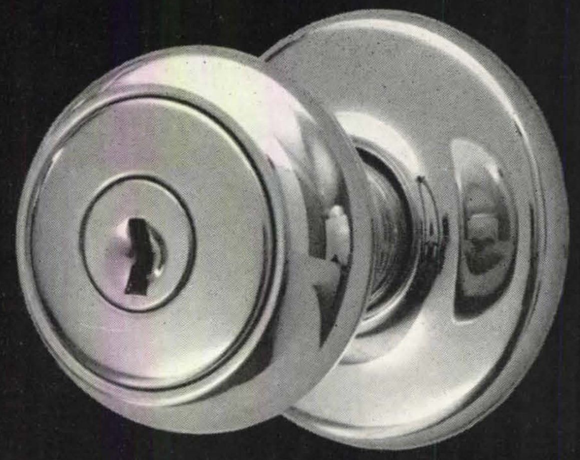
4109 WEST BURNHAM STREET • MILWAUKEE 1, WISCONSIN

BALTIMORE 24, MD. — 5300 Pulaski Highway • BUFFALO 11, N. Y. — 64 Rapin St. • CHICAGO 9, ILL.—4301 S. Western Blvd. • CINCINNATI 25, OHIO—3240 Spring Grove Ave. • CLEVELAND 14, OHIO — 1541 E. 38th St. • DETROIT 2, MICH.—690 Amsterdam Ave. • KANSAS CITY 41, MO. — P. O. Box 918 • LOS ANGELES 58, CALIF. — 4807 E. 49th St. • NEW YORK 17, N. Y. — 230 Park Ave. • ST. LOUIS 10, MO. — 4215 Clayton Ave.

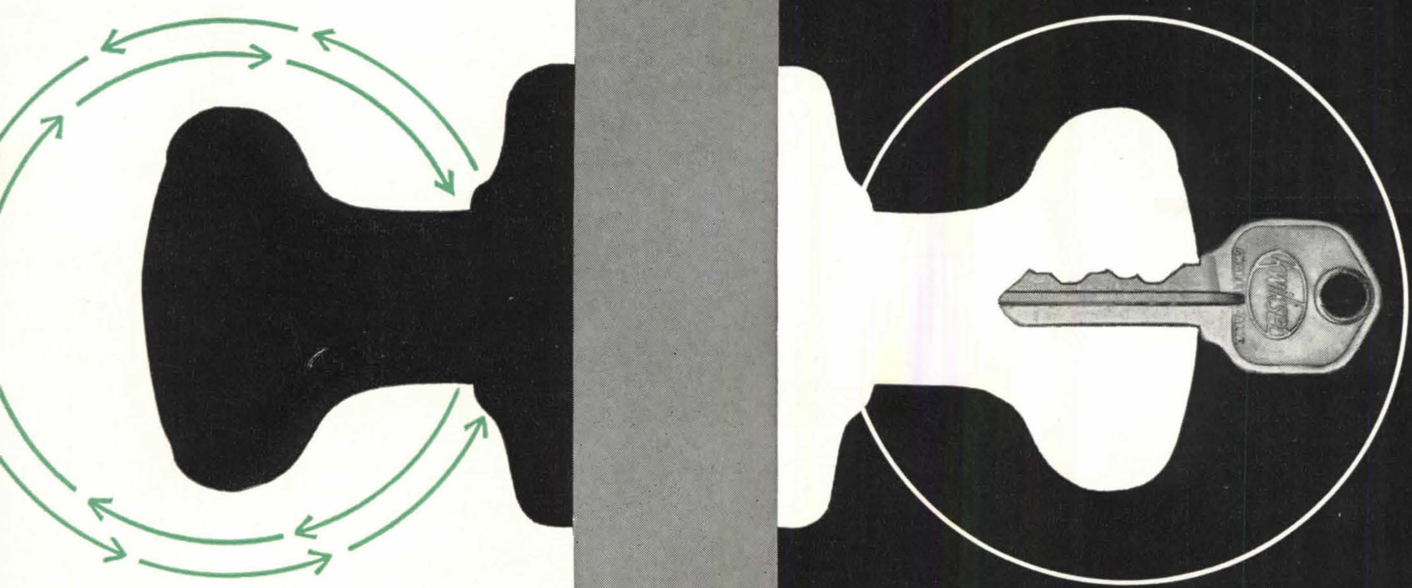
PROGRESSIVE ARCHITECTURE

May 1952

IKSET SALES AND SERVICE COMPANY
AHEIM, CALIFORNIA



new kwikset 450



inside: *always free turning*

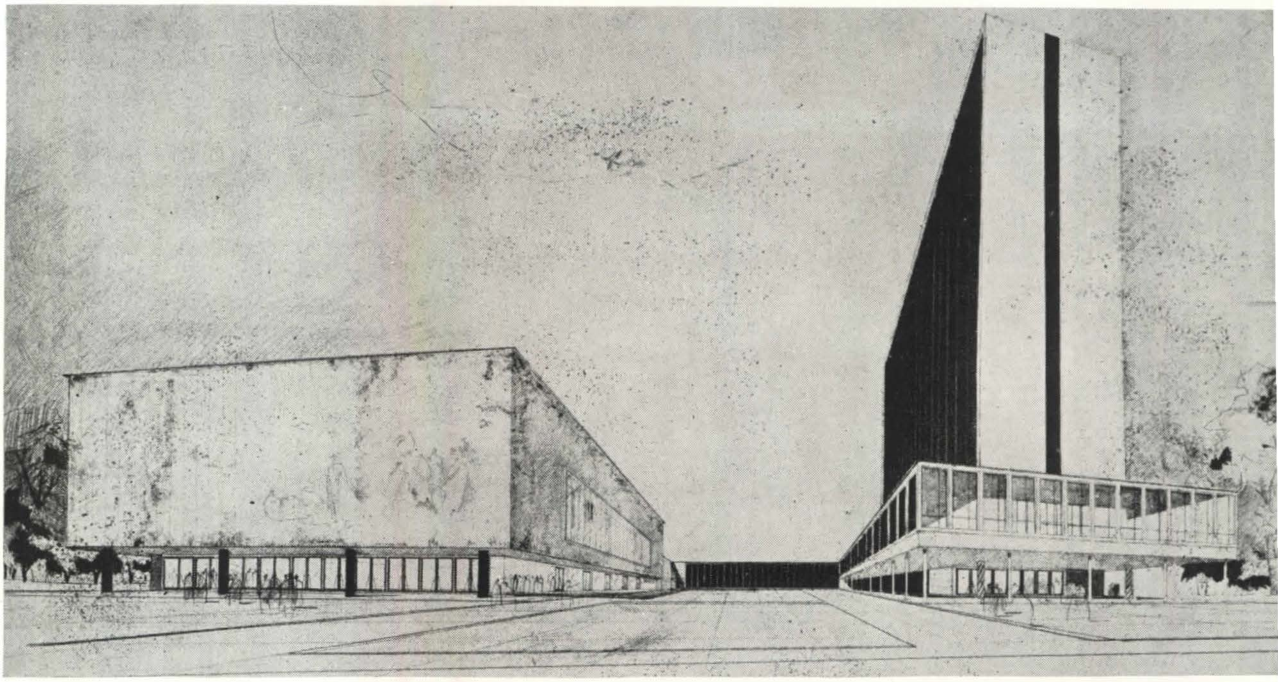
outside: *always locked*

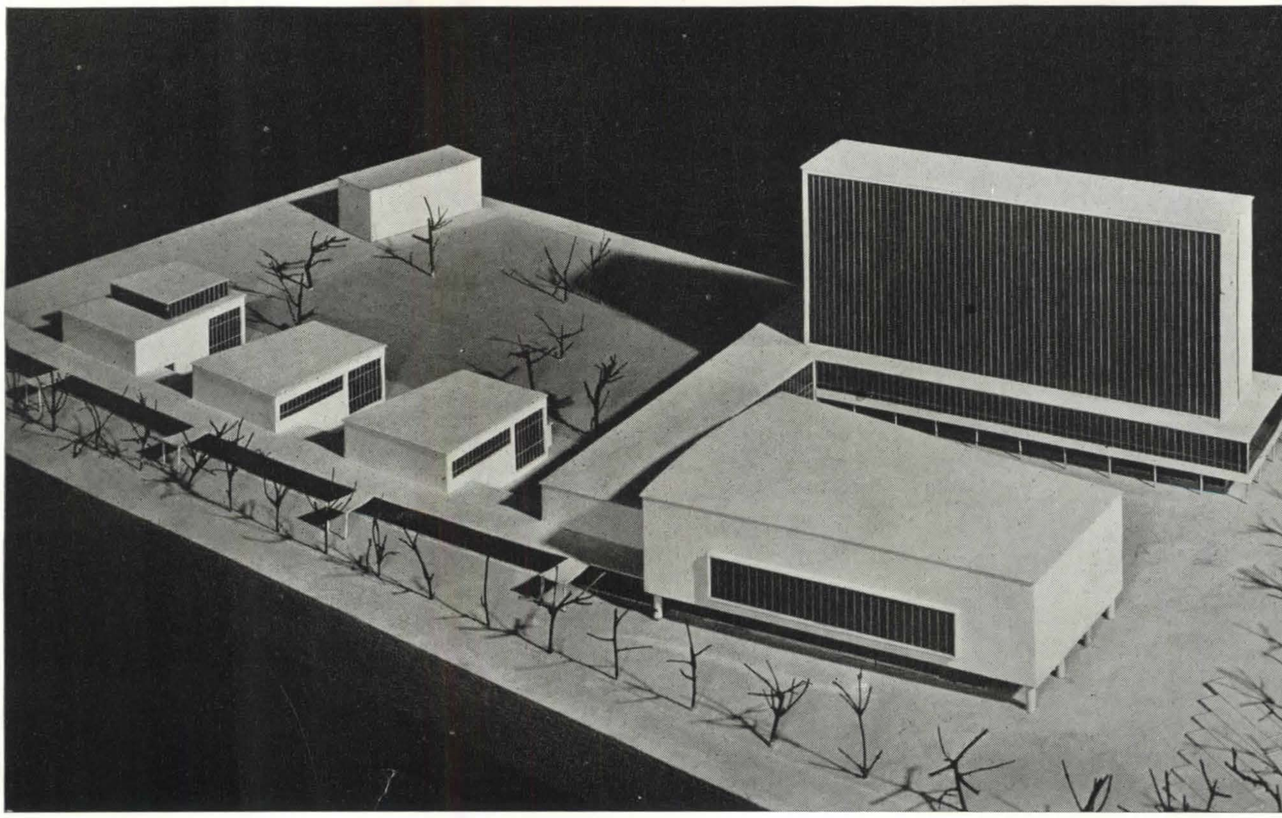
Vestibule lockset has a free turning inside knob and an "always locked" outside knob.

When opening the 450 with a key, the vestibule lockset will remain locked when the key is withdrawn.

kwikset
LOCKSETS

Architects for a group of new buildings for the Free University of Berlin, at Dahlem—a library, a lecture-hall building, and a series of classrooms—were recently selected through a design competition in Germany. In the prize-winning scheme by Sobotka and Muller (*overpage*) the jury found that "the balance is excellent, and the entire design is well integrated . . . The architecture would do justice to the character of a University." Of the second-prize project by Rudolf Ullrich (*below*), the Jury commented that "the clear and rhythmic placing of the lecture hall and auditorium, with the free-standing library and classroom wings, does justice to a progres-





free university of berlin competition

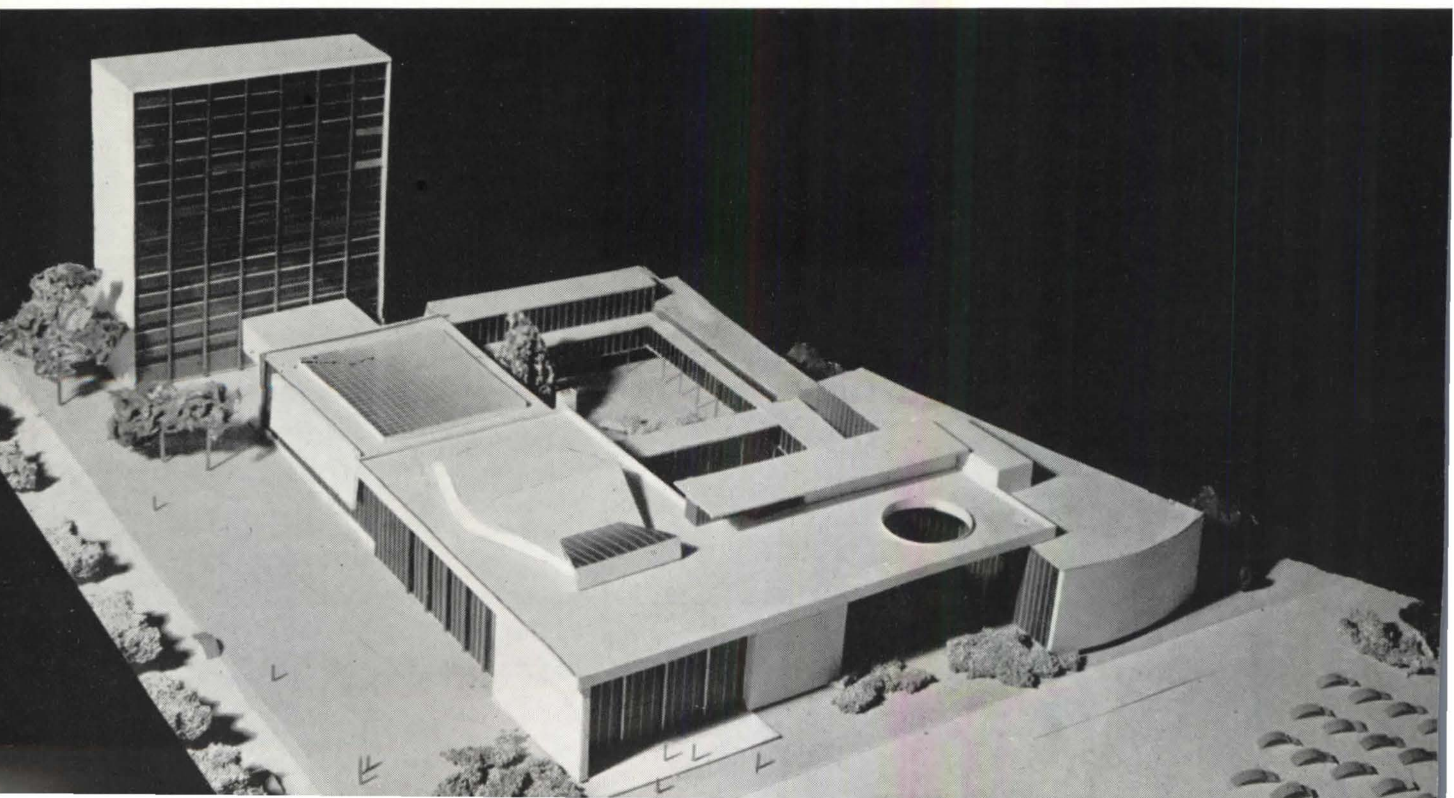
(Continued from page 15)

First-prize winners were Sobotka and Muller, whose project is shown above; at bottom of this page is the design by Herman Fehling that won third prize.
Photos: M. Krajewsky

sive city . . ." The third-prize scheme (*b low*) was considered "a well-balanc building plan." Funds for constructing t new buildings are a gift of the Ford Fou dation, in acknowledgment of the impo ance of the Free University's role strengthening democracy and responsib leadership.

The competition program called for library, planned initially to accommoda 200,000 volumes, but schemed for eventu enlargement to hold a maximum of 1,00 000; a lecture-hall building to include auditorium to seat 1200 and a large stag two lecture rooms with 500 seats eac and two rooms for groups of from 200 250. In addition, six smaller classroo were required. The University had alrea acquired the site.

Special restrictions limited buildi heights to 12 meters (approximately feet); required that the lecture buildi be located at the important street inters tion, and that daylight for lecture roo come from east and west. A suggest factor was that the group *not* be "an tremely modern design, as we feel that building of this type should be ageless, a this can only be achieved by simplicity design." An "attractive pavilion style" w advocated, "in consideration of the bui ings in the neighborhood."



clients for housing: the low-income tenant

does he want supertenements ?

by Catherine Bauer

the Curtis Publishing Company 1945 *rban Housing Survey*, only 4.8% of e respondents said that they "like ving in an apartment house." By 1952 me of the big builders like Metro- litan (which has two fancy new artment developments half empty on e West Coast despite the continuing vere shortage) are probably wonder- g if the proportion among upper- come families is even this high.

an FPHA survey of a thousand nants in 1945, only 1% said they uld like an apartment in a three- more story building.

en among New York public housing nants, a Women's City Club survey 1948 found that only 63% of the nilies in apartments were fairly well isfied, while 91% of those in row uses evinced quite complete satisfac- n. And managers report that it is ficult to persuade occupants of dilapi- ed war-time Quonset huts to move new, conveniently located elevator ldings.

ouncilwoman Fletcher asked the Di- tor: 'How satisfactory do you think ix-story unit would be for a large nily?'

e admitted that it would not be sfactory and also that the greatest nand for low-rent public housing in kland is among families with several ldren.

n other words, *this project is being* lt for those with children, yet it ld not be satisfactory to them,' she mented.

. (It was) contended that three out the eight acres in the project site be devoted to recreation. Council- nan Fletcher replied: 'Recreation as aren't worth anything to a mother ess she can keep track of her chil- n, and she can't from several stories ."

Oakland Tribune
Jan. 16, 1952

Preceded by a decade of study and political debate, and followed by almost three years of tedious preparation to make use of its powerful tools, the Housing Act of 1949 is now about to produce some tangible low-rent public housing. The mountain moves at last, and what does it bring forth? Not the proverbial mouse but a nation-wide crop of behemoths, vast structures that bear about as much resemblance to the ordinary American idea of a home as Lower Manhattan does to Concord. And the question is: *do* they represent progress, however strange the form, or a foolish way of skyscrapomania?

The facts. As of the turn of the year at least 53,000 dwellings in elevator structures, planned by local housing authorities in 23 different cities, had received general approval from the Public Housing Administration. This represents more than two-thirds of the current low-rent housing program in these cities (60% even if New York is excluded), and 25-30% of the entire PHA-aided postwar program that has reached a definitive design stage. Before the war there was only New York.

The reasons. What kind of dragon's teeth has produced this sudden phenomenon? The reasons are not hard to find, and are too real to be lightly disposed of. Most cities want to clear slums with low-rent housing projects, because clearance operations are dramatic, because public housing is more acceptable to conservative interests if it involves central clearance, and because there is sometimes bitter opposition to locating projects on outlying vacant sites. Race prejudice often adds to the difficulty of using cheap vacant land, and there is the added fact that some city housing authorities have little or no vacant area suitable for residential use within the narrow limits of their jurisdiction. Finally, only a few cities are using the redevelopment subsidies available under Title I, to cut down land cost for public housing projects.

Yet slum property is abnormally expensive today. So to keep site costs down, higher densities are accepted. Moreover, the exigencies of the housing shortage and the difficulty of relocating displaced families are such that once a site is available, there is ever pressure to crowd it with as many dwellings as possible.

The need for analysis. It's the over-all impact of these statistics that gives them their urgent national significance. If it were still only New York, one would say: What's the use of arguing? Moses is boss, more congestion is his consistent goal, and if his fellow-denizens don't like their Promised Land, they have only themselves to blame. Or if it were just Chicago, one would take heed to avoid elsewhere their dangerous impasse in race relations and admit that at least the Chicago Authority is making some useful experiments in the design of high-rise buildings. St. Louis, considered by itself, is a kind of curiosity, the most unlikely city to have suddenly gone on a Le Corbusier jag. Los Angeles is against the ropes *pro tem* on the whole public housing question. One would hardly choose this moment to attack them on design questions. And Philadelphia is approaching the problem with such thoughtful planning and responsible civic leadership that one can only wish her all success. But if this is a wave of the future, as the national figures suggest, then it is high time to ponder what we are doing and why.

I am grateful to my old friend, the eminent architectural editor, who recently stated: "It is silly to damn high-rise buildings, private or public, on the basis of preference votes by uneducated people whose only high-rise experience—if any—has been in idiotic 608's or the products of PHA Administrator Egan's bunglers."* It gives me a good starter for my own side of the argument: "Okay, but it is just as silly to damn low buildings, private or public, on the basis of preference votes by architects whose social, economic and civic education has been neglected, and who happen to have an emotional predilection for showy structures, complicated gadgetry, and slick technocratic 'solutions'."

the case against high-rise public housing

From the viewpoint of broad civic interest, both long-term and short-term, the case is very strong indeed. The push toward decentralization is more inexorable than ever, for a number of basic social, economic, and technological reasons. Our new kit of tools should be used, by and large, to *open up* crowded districts since this seems the only logical way to "save" our strangled, obsolete city-centers in their losing fight with the suburbs. But in almost every case, these high-rise projects will contribute to further congestion.

Defense policy merely underscores the need to decongest central areas. While no drastic dispersal program is contemplated, the general trend toward industrial decentralization is being speeded up by military considerations, and both civilian defense and productive efficiency under emergency conditions raise new questions about central congestion. But even if the only issue were the limited supply of steel for civilian purposes, it would seem advisable for local housing authorities and PHA, merely as a precaution against some sudden Federal ukase, to ponder more seriously the alternatives to high-rise construction. It is on social grounds, however, that the argument is most compelling.

How families live. The significance of attitude studies is limited: people only know what they have experienced, by and large, and often do not properly relate cause and effect. But when every survey ever made in the United States to my knowledge, from the crudest market study to the most refined piece of intensive field research, seems to indicate an overwhelming preference for ground-level living, this fact can hardly be tossed aside with contempt. And when the present and potential tenants of public housing projects show a preference still stronger, perhaps even the most romantic believers in technological determination should at least ask: Why? Are their reasons sound? Can their objections really be overcome by better design of high buildings?

What's the difference? In physical terms, the main points of difference between a row house (the typical prewar dwelling form in public housing) and a high-rise apartment, can be stated quite simply:

Ground level entry	vs	Entry via public corridor and elevator
Adjacent land readily available for private yard	vs	Public open space removed from dwelling, with the possibility of a balcony or deck if not too expensive
Party walls at sides	vs	Party walls, plus people above and below
Moderate population density	vs	Much higher density (ordinarily) than is usual in America, even in central slums
Relative independence and flexibility in living arrangements for the individual family	vs	Considerable restriction in family living arrangements, with relative dependence on collective equipment and services
Moderate accessibility for collective services, community facilities	vs	High accessibility for collective services, community facilities

How these differences affect people's lives is evidenced by a mass of claims and data.

What all the small points of difference add up to, in broad social terms, can perhaps be stated as follows: *the residential skyscraper tends to require a highly*

* *Douglas Haskell, "The Case for High Apartments" The Magazine of Building: Architectural Forum, Jan. 1952*

"That the vast majority of familie want enclosed, individual back yard is indicated by reports from both man agers and tenants. Families want en closed yards for the protection of chil dren, for laundry and some would lik a garden."
"The Livability Problems of 1,00 Families," Federal Public Hous ing Authority 1945.

"It is maintained that high rise apar ments do not offer the amenities fo low-income families with children th row houses do. There is no opportunit for the head of the family to engag in gardening. There are fewer oppo tunities for social contacts betwee neighbors. Mothers cannot keep clo supervision of their children while doin their household work. The use ar storage of children's toys such as cart velocipedes, and bicycles constitute problem, and the care of pets becom a nuisance. It is realized, of course, th apartment living has some advantages well as disadvantages, but it is b lieved that, on the whole, it does n conform with the aspiration and desir of the American people."
—from a PHA Field Economis report disapproving addition elevator projects in Mid-Weste city on the ground of uncerta market among eligible famili

"What about flats? I feel myself th existing technology cannot provide t blocks of flats which are suitable families with children unless at cessive cost."
Charles Madge, leading Brit social scientist, summing up evidence on "Private and Pub Spaces," in *Human Relations* V III, #2, 1950.

"Elevators create some special mana ment problems . . . people block doors when they run out for an erra and everybody complains . . . child urinate in them . . . after a brief pow stoppage the paraplegics and the people got so hysterical that most them had to be moved down to first floor . . . in general, the up floors are much less popular than lower floors despite the view .

organized, impersonal, and relatively inflexible mode of living for which most American families have little desire and less gift. Or it might be put the other way around. For better or worse, our habits and ideals tend toward a rather casual and independent cultural pattern whose potential virtues are likely to become weaknesses in a too-rigid environment.

ndow guards had to be made availa-e because people were afraid their ildren would fall out. . . ."
Notes from interviews with New York City Housing Authority managers.

These qualities of ours are not necessarily all "good" per se, and it is possible that they may be gradually modified in some respects. But this is the way most of us *are*, by and large. What's more, it's the way we want to be. And it is unlikely that putting us into elevator buildings will suddenly transform us into models of Dutch neatness, German discipline, Scandinavian co-operative genius, and Latin urbanity.

ne of the major conclusions of a tion-wide survey of wartime public using was "Failure to satisfy the ndamental desire of people to exert individual sense of responsibility for eir property. This is demonstrated ongly through the extreme dissatis-ction with community clothesline ace and community garbage collection tions, as well as through tenants' eference for individual yard space d fences outlining the property be-nging to them."
"Space Requirements of War Housing: A Survey of Family Behavior, Attitudes and Possessions," Robert L. Davison Associates for the National Housing Agency, 1944 (typescript).

Twenty years ago this was much less clear. At that time there was a widespread feeling among progressive housers and planners that social, economic, and technological forces would all push us inevitably in a single direction: toward a more collective mode of life. Maximum emphasis was put on "community facilities," on transferring household functions to more efficient group services. Hence the skyscraper Utopias of Le Corbusier and Gropius.

But what has been learned in the interim, from social science, from wide experience with large-scale housing, and even from technology, is by no means consistent with that brave but over-simplified hypothesis. Today the child psychologist (while still respecting the nursery school) puts *primary* emphasis on the emotional ties between the child and his immediate family. Mothers are no longer supposed to abdicate in favor of supervised playgrounds, and fathers are summoned home early to play with their offspring. It is now believed that the personal security which makes society possible—particularly democratic society—is a home-developed quality at base. Or look at food: science, instead of pushing us out into efficient restaurants, has given us prepared and frozen foods to consume at our ease in privacy. Even recreation, with radio, television, barbecue-pits and what-not, is more rather than less home-based.

n the housing estates common front lks, and to a greater degree common ches, are a source of annoyance and ch offend people's sense of privacy."
"People's Homes," *Mass Observation*, London 1943.

It's not that the problem of creating and strengthening the "community" has been abandoned: it's still there and it still has to be solved. But the more we look into it, the more we seem to find that to achieve a real community in our kind of world, people must first have privacy and some degree of personal freedom and responsibility. People just aren't more friendly and co-operative, the closer they are herded together. All kinds of studies show that beyond a certain point, they tend to become defensive, withdrawn, and asocial. We need parks, playgrounds, more and better community centers and services of all kinds, but they are not effective *substitutes* for private space and relative independence in the home environment, as they must be in most apartment developments.

owhere is it quite so difficult to ate a community as in a block of s. With neighbors above, below, and both sides, the natural tendency is erect barriers against friendship . . . ellers in large blocks of flats do not m to belong to the place."
L. E. White, *"Community or Chaos: Housing Estates and Their Social Problems,"* London, National Council of Social Service, 1950.

The elevator building is particularly unsuitable for public housing. If there is any general validity in all this, it is doubly true for public housing policy. People with servants, cars, and summer homes can overcome some of the disadvantages of skyscraper living while fully utilizing its expensive advantages. Old people, single people, some adult households in all income groups, might often find it comfortable and convenient. Families with special zeal and capacity for co-operative living, and the means to support good community equipment and services, might make a real success out of co-op apartments. There is ample room for occasional high-rise structures, to meet varied needs and provide variety in the urban scene.

axim Duplex," an architect, summed 20 years of housing experience in eries of articles in the *Journal of using* (June, July, September, 1950; gust, December, 1951). He deplores ing environments that are too pa-nalistic from a social point of view too highly staffed from the stand-nt of economical rental manage-nt."

But the people for whom the pattern is least suitable are those on whom we are now foisting it wholesale: families with very low incomes, from slums, mostly with children, and whose inevitably minimum-standard dwellings will be under public landlordship.

Public housing on vacant sites: the obstacles must be overcome. Due to the housing shortage, boom prices for slum property, and the limitations on new construction, there was never a more difficult or illogical time in history to engage in wholesale clearance operations. Most public housing should go on vacant land under such conditions. It's true that there are serious obstacles in many communities, but they all have to be overcome sooner or later anyway: why not now?

If only slum clearance here and now is "popular," then it is high time we broadened the public understanding of how central areas can best be rehabilitated in the long run.

If suburbs object to being swamped by vast, monotonously standardized "projects," this only strengthens the argument for much smaller, more varied public housing developments, with bona fide domestic character.

As far as the race question is concerned, less than nothing is solved by merely increasing the densities in areas where non-whites are already dangerously overcrowded. Some means *must* be found for opening up new areas to such families; in a great many cities this is the most urgent issue on the entire civic agenda. And this is the time to do it, with the growing national concern about race relations, and the increasing push against segregation in most Northern communities.

The toughest problem is faced by cities with no suitable vacant land within the jurisdiction of their housing authorities. But even here the problem must be solved sooner or later, whether by county or metropolitan authorities, or by other steps toward unified metropolitan planning and development.

Don't jump to elevator buildings too quickly, even on an expensive site. In some cities the use of costly slum sites for a substantial part of the public housing program may be unavoidable. But this doesn't mean that high densities are likewise inevitable, or that everyone must automatically live in an elevator building.

In the first place, Title I of the 1949 Housing Act should be used much more frequently than at present to reduce the cost of land for Title III public housing projects. Its *purpose* was to relieve congestion.

In the second place, there is all the difference in the world between a big project that is *all* high structures, and one that includes a modest proportion of high units with a number of low ones. Philadelphia plans provide some good examples of the latter, in conformity with their effort to create balanced neighborhoods instead of socially and physically standardized barracks.

Finally, if half as much loving ingenuity had been devoted to the design of the row house in this country as has been bestowed on fancy skyscrapers, we wouldn't automatically jump to apartments as soon as a density of 25, 30, or even 40 families per net acre is called for. Half a glance at the Dutch and Danish architectural magazines, along with the *British Housing Manual*, would suggest a range of possibility in the row house that neither PHA nor local architects have even begun to explore. Some interesting ideas and experiments have been developed for low-density row house projects by DeMars, Kennedy, Stubbins, Kahn and a few others, but little systematic fresh analysis of this dwelling type has been made in America since the still-significant early studies of Henry Wright and Clarence Stein.

In Baltimore and Philadelphia, however, traditional row houses run up to 40 per acre. And even with bad design and a wasteful sea of pavement, they usually manage to provide small private yards. Surely with imaginative design and layout, a fairly good row house could be constructed at the same density. The two-story house combined with a flat also needs more thought and experiment, as well as the three-story walk-up.

Such types might lend themselves more effectively to real "urbanity" in civic design than our belated wave of Le Corbusierism. In their search for more positive urban form, architects might derive sounder and more enduring esthetic inspiration from the 18th century squares than from the skyscrapomania of the 1920's.

"It is because I have seen families wh live in row-house developments enjo a greater fulfillment of their personali needs without so much dependence c community resources that I find myse so ardent an advocate of this kind dwelling."

Elizabeth Wood, Executive Secr tary, Chicago Housing Authori in *Magazine of Building: Arch tectural Forum*, January, 1952.

"As population density increases, soci and psychological stresses increas owing to the increased frequency unavoidable social stimulation, and t progressive limitation of the individua ability to control his own environme both physical and social. . . ."

"Privately controlled outdoor spa vastly increases the living area co trolled by a family, and also permi an increase in the social responsibili and status of all members of t family, particularly the father, who position is relatively weak in low-inco groups. . . ."

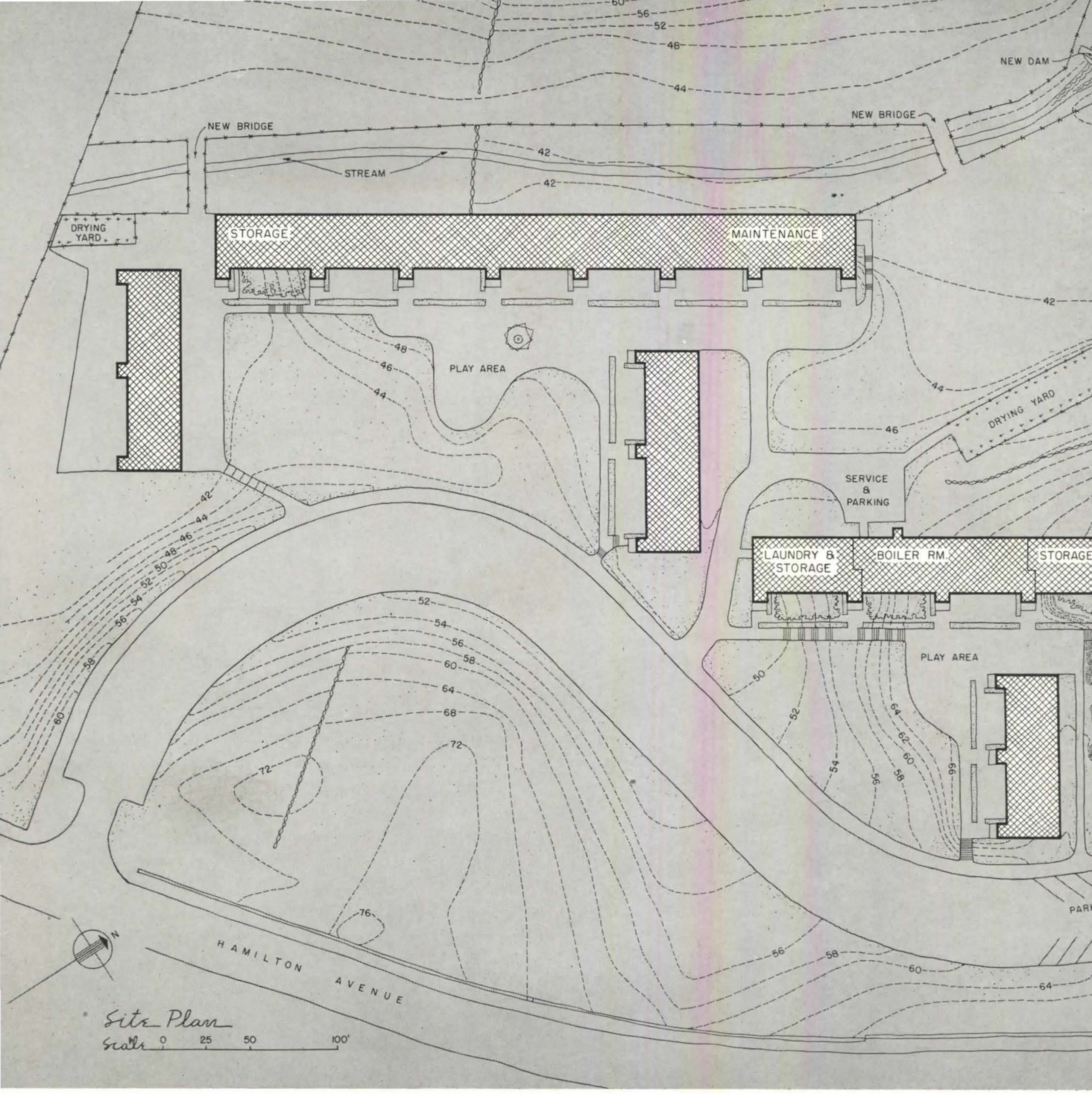
"Overextended, stereotyped, or pat nalistic management destroys the pos bility of developing strong commun and family organization."

From a report to the housi authority of a large Eastern c by a prominent anthropolog not yet published, but read the author in a confidential dr form. This study compared in a row-house project with t in a high-rise development a found that the weaknesses in former were largely remedial while they were "built-in" to apartment complex as di components of density and dw ing type.

". . . for families with children, low building, with garden and p space at hand, with the child under eye of the mother, is essential, unl the worst aspects of slum life, the *organization* of the family, are to perpetuated by the very Authority t is pretending to improve housing co tions." Lewis Mumf

clients for housing: the public authority

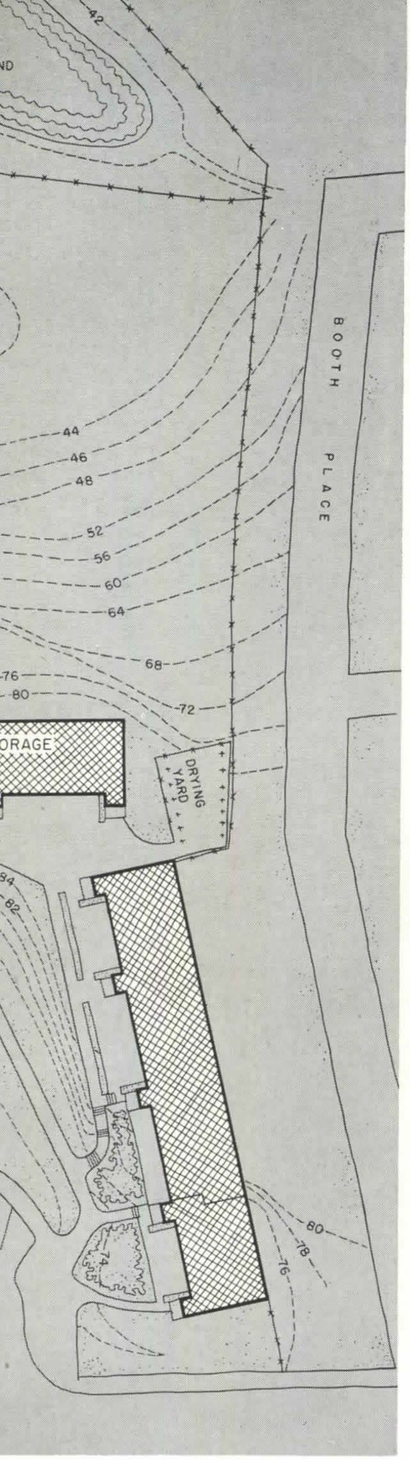
location	Greenwich, Connecticut
sponsoring agency	Housing Authority of the Town of Greenwich
architects	Holden, McLaughlin & Associates
associate architect	Joseph G. Weir
site engineers	S. E. Minor & Co., Inc.
mechanical engineer	Winfield S. Bondy
general contractor	Frouge Construction Co., Inc.



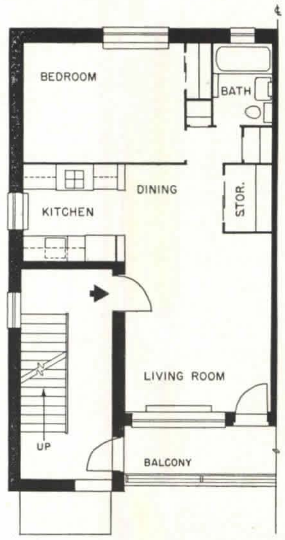
While the public authority, as a client for housing, has nowhere near the dollar volume to offer the profession that private investment has, it extends its funds in sizable lump sums and, for the architect who views architecture primarily as a social art, it has much to offer in addition. Furthermore, despite infinite rules and regulations, under the egis of a progressive local authority work of a high order is possible, as witness the project presented here.

The program called for 144 dwelling units for the Moderate Rental Connecticut State Housing Program. A troublesome initial problem was to find a site that wou offend no one's sensibilities, in the weal conscious Town of Greenwich.

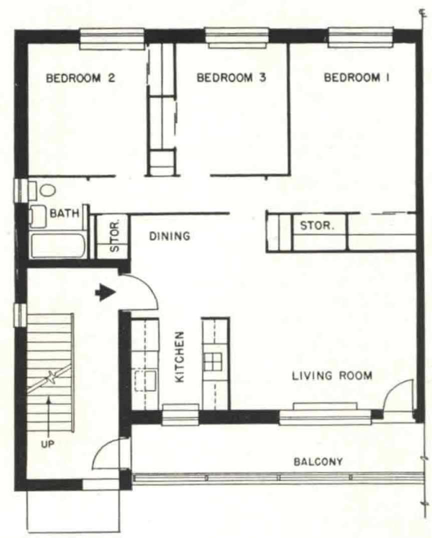
Eventually, the land on which the proj is built was found between the town inc erator and the New Haven railroad trac In spite of this relatively dreary locati the architects comment: "It is really a v good site, since we had more land than usually available." Geologically, it is tr the site *was* a tough one, with the up end of solid granite, and the lower end swamp. To cope with this, some blasti was required on the upper end; but t



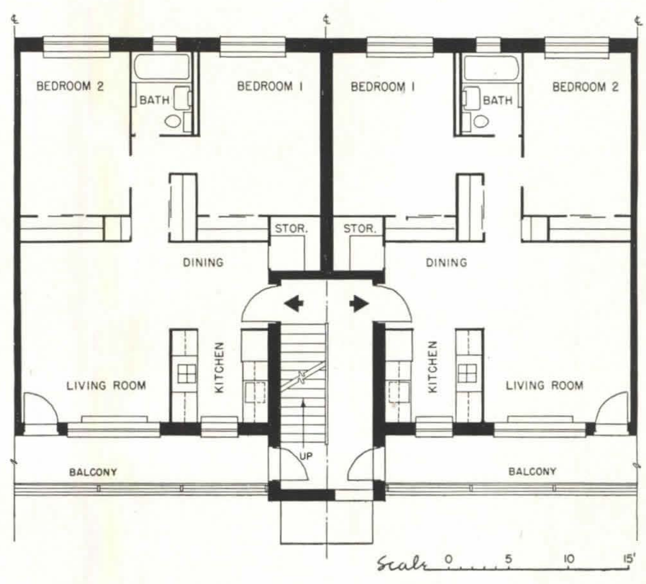
Greenwich, Connecticut



Typical one-bedroom end unit.



Typical three-bedroom end unit.



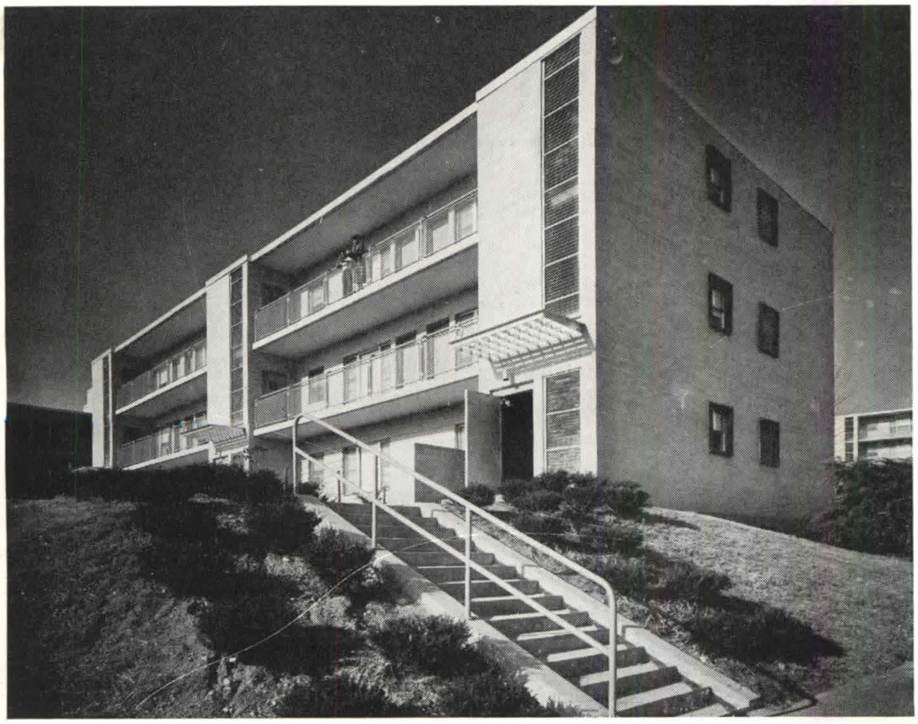
Typical intermediate two-bedroom units.

held to a minimum, since the buildings kept high and positioned along the urs. At the lower end (the southern- block), piling was required, and this was raised on stilts to obtain sewage age, keep the apartments above damp- and provide for gravity returns in the ng system. As for the site plan in al, "we did the landscape work our- s . . . The site is quite tricky, and we hat the U-shape road with diagonal ng would cut into play areas least. ecommend this sort of U-system highly roads with separate parking areas."

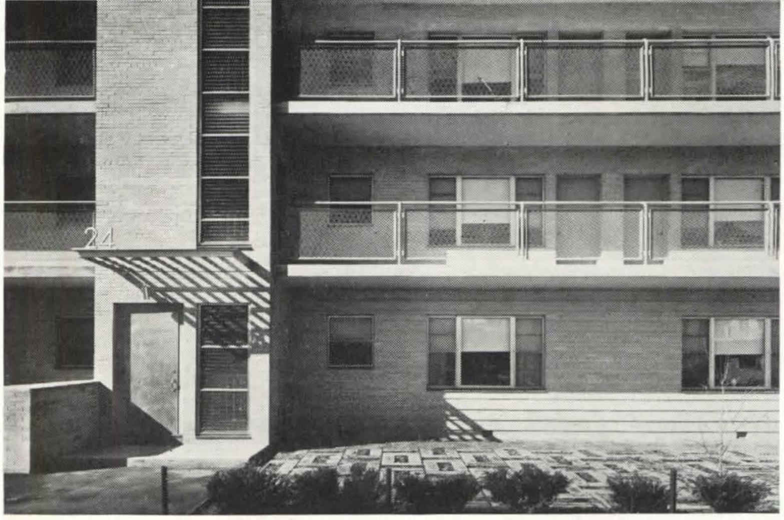
Outside balconies, the elimination of interior corridors, and a floor-through plan for every apartment are the most notable plan features. Standard plan units (*above*) are the pair of two-bedroom units on either side of a stair tower, with end apartments of either one- or three-bedroom units. The balconies, the architects emphasize, were not employed for an architectural effect but, rather, to comply with the Connecticut law requiring two means of egress.

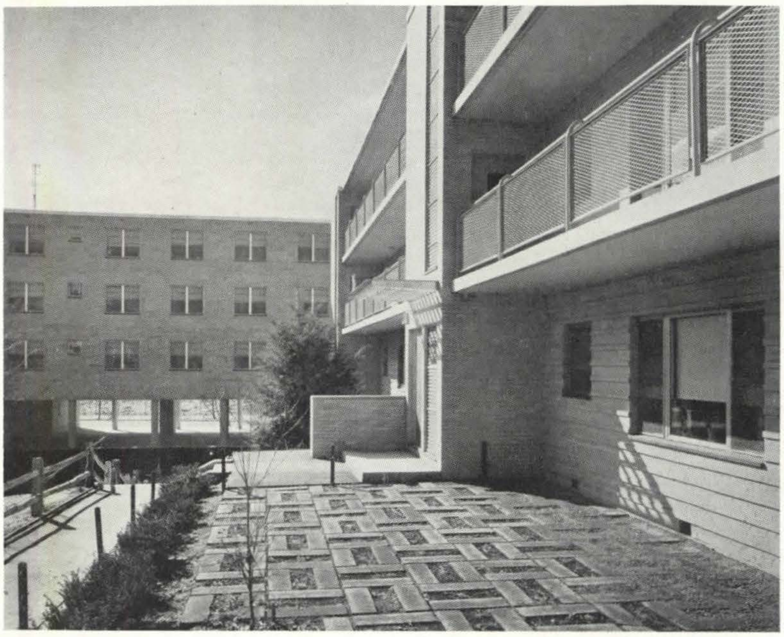
Structurally, the units consist of concrete foundations, walls of face brick, with block backup, 2″ concrete-slab floors over steel-mesh lath on bar joists (for fire resistance and low maintenance, without involving reinforced concrete construction), and inside walls finished in plaster. Floor surfaces are asphalt tile, and ceilings are plaster on wire lath; 4-ply built-up roofing. Insulation is aluminum-foil reflective type, and sash are aluminum, with double-thick "B" glazing. The heating system is a forced-circulation hot-water job, with a central boiler room having two oil-fired boilers.

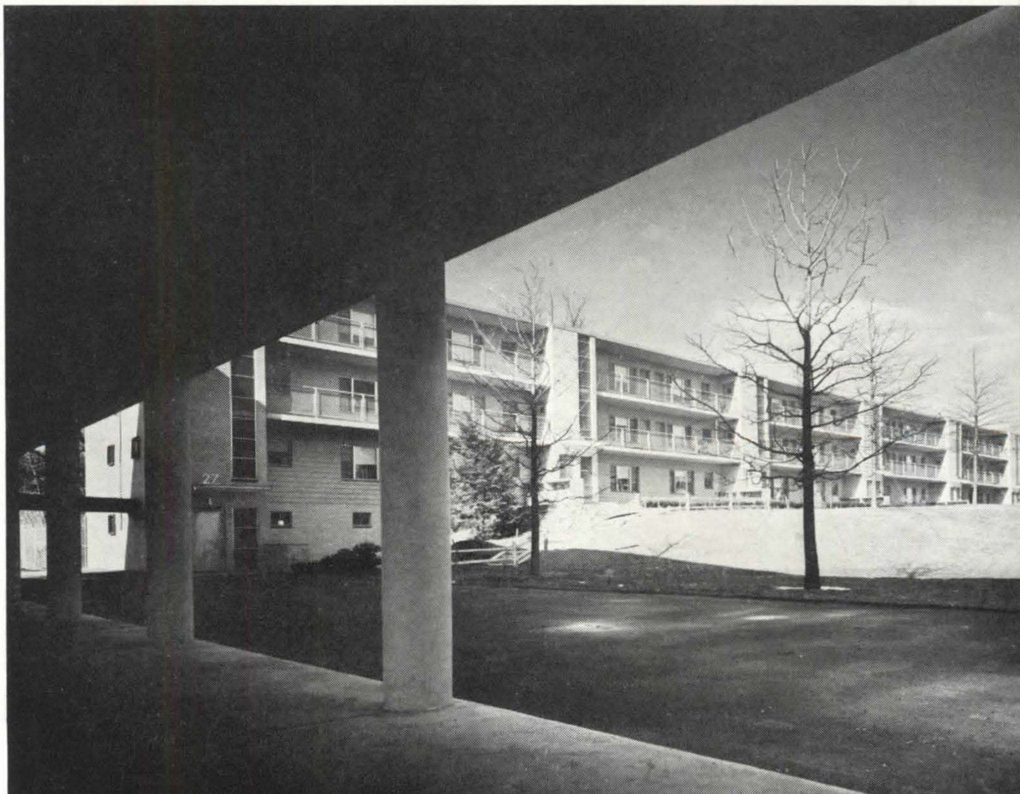
Detailed cost analysis of the project appears on page 70.



A general view from the south (top) *clearly indicates the architects' respect for the contour lines of the site. Short blocks at right angles to the long buildings* (left) *are oriented with balconies facing south.* Photos: Lionel Freedman





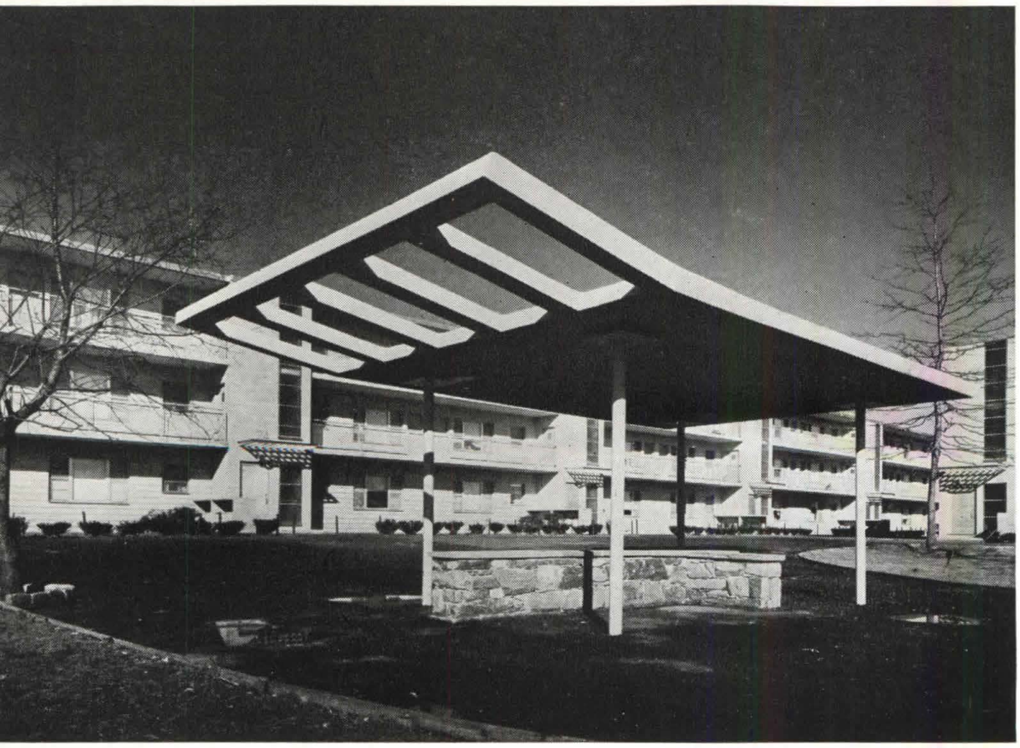


A close-up of a typical building (right, top) *emphasizes the pattern of gray-buff brick, aluminum sash, and pebble stainless-steel entrance doors, all of which (as with all materials used) were selected to "take the beating" that a project of this type receives. Corrugated wire-glass is used in the aluminum sash of the stair towers; the balcony railing is of expanded metal panels attached by welding to wrought-iron pipe frame. The architects comment that they set the southern building* (background, center photo) *up on stilts for practical reasons, "not because we had seen some nice stilts in the last issue of your good magazine." Seen from the stilt-loggia* (bottom photo), *is the long, east-facing block in the southern half of the project.*

Greenwich, Connecticut

cost analysis

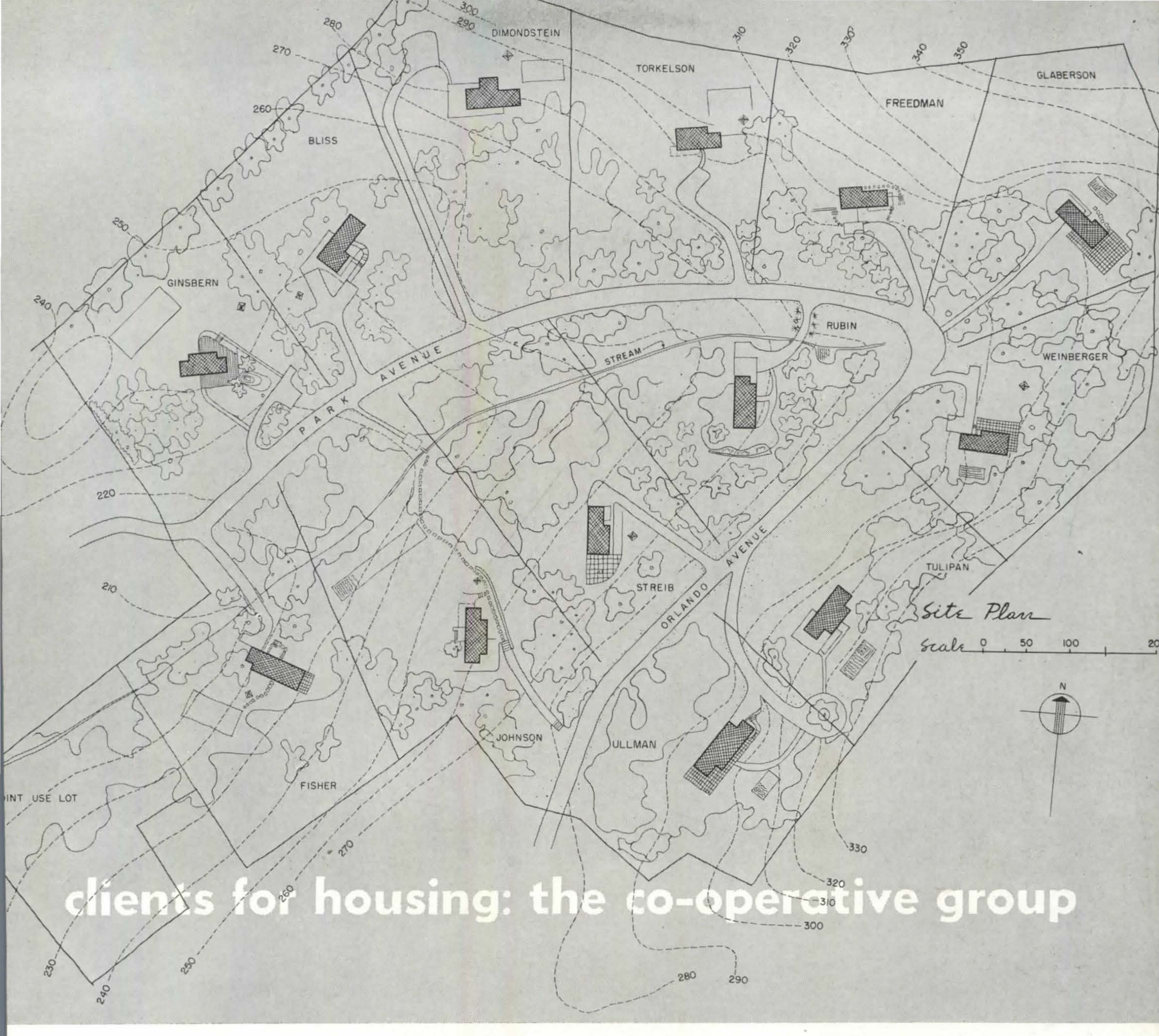
Land, sewer-connection assessments, and building permits	*$ 36,330.12*
Construction cost—buildings	*1,209,150.79*
Site-improvement cost, including rock excavation, piling, pond, park, and planting	*261,160.75*
Miscellaneous equipment, including ranges, refrigerators, garbage cans, laundry equipment, jeep, etc.	*19,761.34*
Fees, surveys, and administrative overhead	*97,827.68*
Interest, insurance, and state service charge	*27,149.66*
Total development cost—including everything	*1,651,380.34*
Allotment	*$1,664,000.00*



The total development cost, inclu everything, came to $11,467.62 per dwel unit. Total building construction and improvement cost, per dwelling unit, $10,210.49. Of the 144 apartments, t are 12 with 3½ rooms; 108 with rooms, and 24 with 5½ rooms—makir total of 660 rooms (construction cost room: $1,832.04). The tentative rent s dule, including heat, gas, hot and water, and garbage collection (electrici extra) is: $47 a month for the 3½-r units; $60 for the 4½'s, and $67 for 5½'s—or an average rent per room month of $13.11. There was no direct sidy on this job. The Greenwich Autho is given the advantage of low State inte rates, and 10 percent of shelter rent is to Greenwich Township, in lieu of taxes

The project is a notable example of three-story walkup as a housing solu While it does not offer the privacy of row house, for which Catherine B argues so eloquently (pages 61-64) does offer considerably more living ame than a skyscraper.

It is instructive to contrast the de excellence of this State project with dreary product that has become all familiar under auspices of PHA, with rigid standards, maxima and minima. L wonder that the PHA Architectural visory Board recently resigned in a bod protest. During construction of the Gr wich project, the chairman of the hou authority was himself a well-known ar tect—Ralph Pomerance of Pomeranc Breines, New York.



clients for housing: the co-operative group

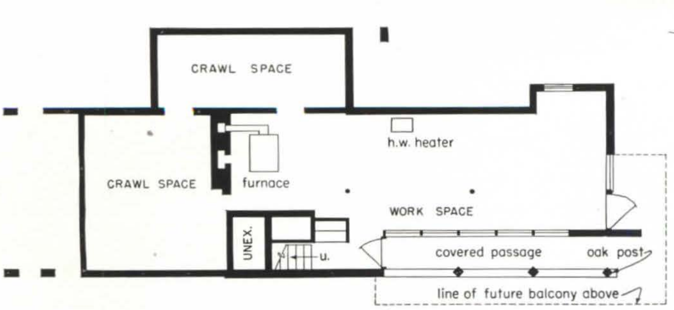
location	Ardsley, New York
architects and designers	Charles Bliss, Engineer
	Lionel Freedman, Photographer-Designer
	Fred M. Ginsbern, Architect
	Martin Glaberson, Industrial Designer
	Roy S. Johnson, Architect
	Irving Rubin, Designer
	Stanley Torkelson, Architect

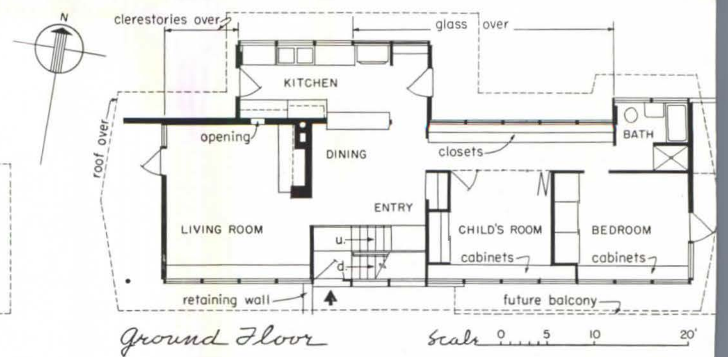
co-operative group, determined to a small community for itself, is in ways the best client the architect in-ed in housing can have. The social s high; the interest in good design ually prominent; and economies are ly sought through a measure of stand-ation and co-operative purchasing, r than shoddy construction. At the time, the co-operative group can be a tough client. Many well-intentioned enterprises have failed because of over-idealized approaches, insufficient capitalization, or for some other reason. And it is well for the architect to realize these dangers from the beginning.

In the case of the project studied here, the "architect" was a board composed of the design-trained members of the co-operative group, and the client peculiarities were, therefore, largely controllable.

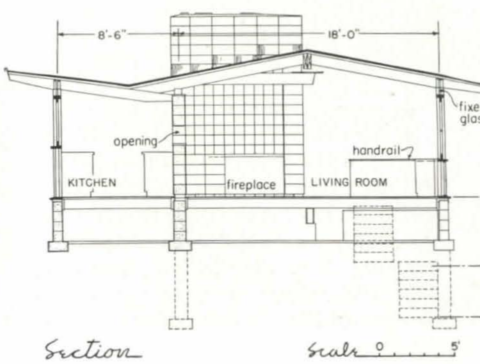
Starting in the spring of 1948 with a group of families, who happened to be looking for suitable property outside New York City on which to build homes and who decided that they would make reasonably congenial neighbors, this co-operative development—Twenty-One Acres—is made up of 13 houses, each on a lot of approximately one and a half acres, with a remain-

Ardsley, New York





The home of Lionel Freedman, architectural photographer who took all of the pictures of the project, was designed for parents and a young daughter. In addition to immediate family needs, expansion space was wanted for a dark room, a work room, and possible future living quarters for an older relative. The family rooms are on the upper level; the entrance door at an intermediate level; and space on the lower floor is partially enclosed, now, with rough plumbing for future bathroom and darkrooms. Temporarily, this space is used as a storeroom for building materials, while the house is being finished as time and the budget permit. On this page are construction photos of typical houses, showing the 4-foot module pattern, the use of select lumber, which also serves as finish, and (immediately below) *a typical house section—18' main span; 8'-6" "butterfly."*



lot set aside to be developed in the re for joint use.

fter informal intial discussions, it was ded to launch the co-operative venture purchase the property. A corporation formed—Twenty-One Acres, Inc.— all required officers and committees. S. Johnson, architect, was elected pres- t. In intervening years there have been ral changes in the membership, and the p finally found itself composed of e psychiatrists, one book distributor, a dental technician, an art director, one engineer, one industrial designer, an architectural photographer, a designer, and three registered architects. The latter seven constituted a Design Committee, which prepared plans for the entire project.

Guided by the engineer's recommendations, the members surveyed the entire property and laid out the site plan, road, utilities, and subdivisions. The engineer also prepared an analysis of the utilities, so that each member was able to estimate installation costs almost exactly.

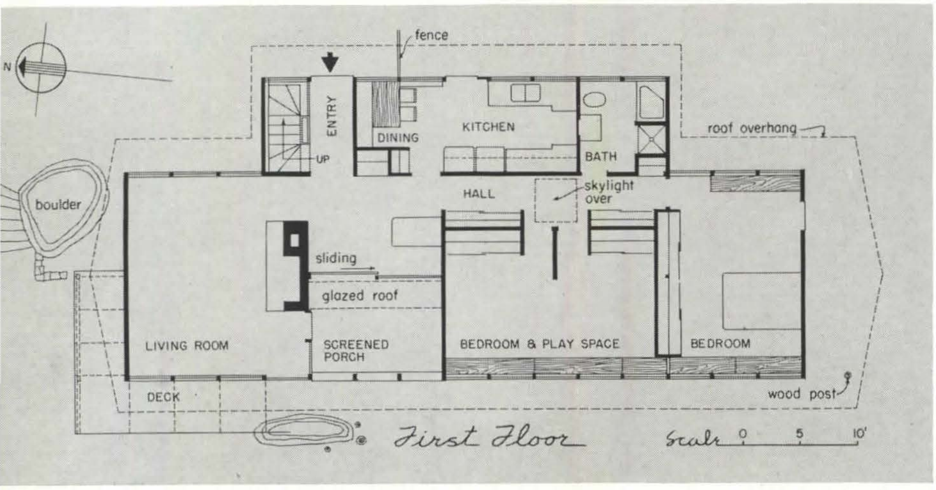
As a spokesman tells us, "this project would have been impossible under conditions other than those we experienced." Among the particular factors involved were self-imposed restrictions on the structural system used, the planning, selection of materials, financing, and operation of the project as a whole. "The entire project cost approximately a quarter of a million dollars," Fred Ginsbern, current presi-

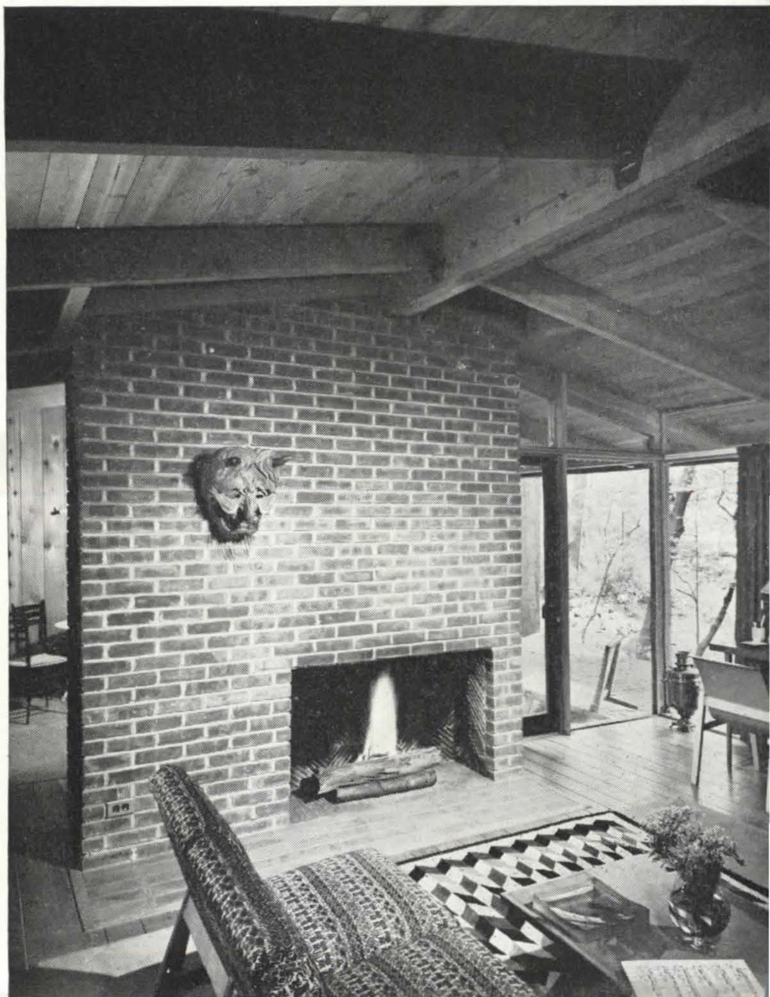
Ardsley, New York

Happily sited on a wooded slope, this is the home of Roy S. Johnson (architect), his wife, and two small children. The children's room is so planned that it can be readily subdivided when the youngsters are older. Planned is a future carport and storage room, in a separate structure. View from the dining space (acrosspage, left) *out to the porch and beyond. At right of the living-room fireplace* (acrosspage, right) *is another door to the porch. Note the waxed-plank flooring and exposed structural frame.*

t of the corporation, reports, "including development of the land. With a low ital investment on the part of each of members of the corporation, plus the k loans, it was possible to finance it." 'he basic structural system that applies th minor variations) to all of the houses sists of a modular frame of select strucıl lumber (since frame and finish are and the same in most areas): 3″ x 6″ fir posts placed 4′ on centers; floor frame of 3″ x 8″ beams; 3″ x 8″ rafters (in some cases, 3″ x 10″) leading up to a double 3″ x 12″ ridge girder. Flooring is of 2″ x 6″ t & g planking, as is also the roof boarding. Built-up roofing and 1″ glassfiber insulation-board complete the roof construction. Standard wall panels, between the posts, consist of doors; windows; self-supporting, wood-chip-cement insulating panels; or red cedar boarding.

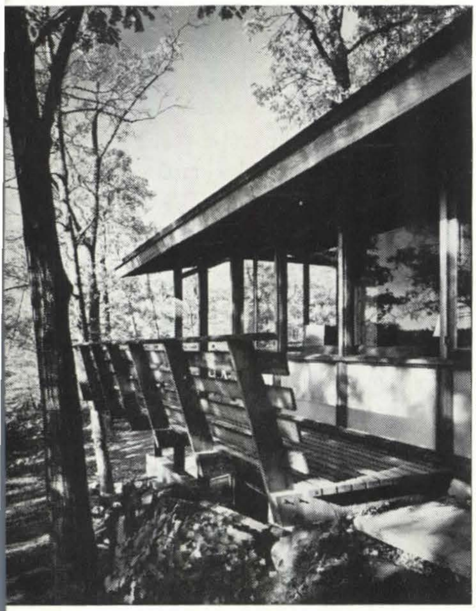
Forced hot air was selected for heating as being the most economical—a type of system that has an integral water-heating element that saved the cost of both a separate water heater and its installation. Oil fuel was selected rather than gas, because of its lower operating cost in that area, although initial installation cost for the latter would have been cheaper. Distribu-

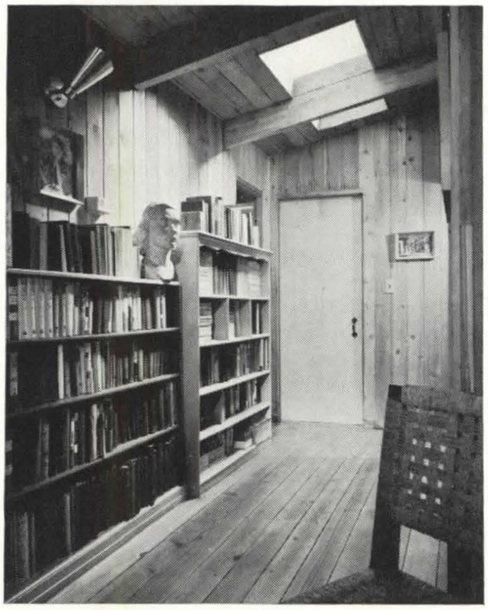




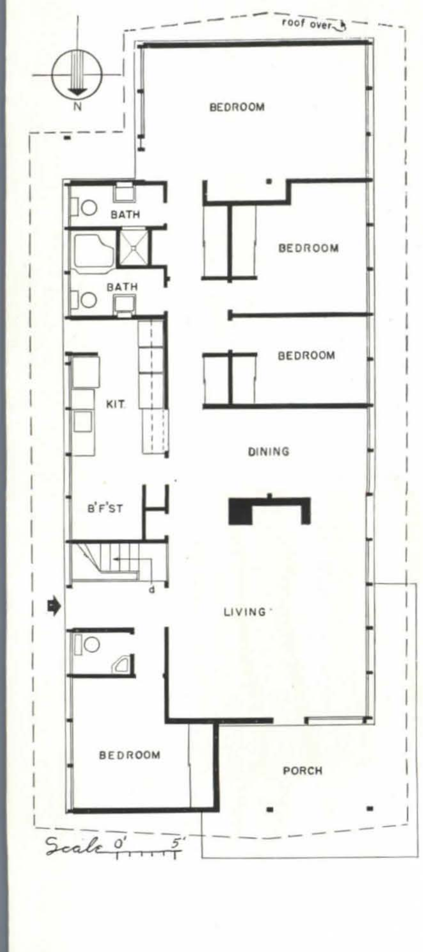
on of the hot air through metal ducts ould, the group felt, constitute an impor- ınt cost factor in this system. Wherever racticable, the solution was a scheme to se the crawl space under the house (which as floored with 2″ of concrete) as a lenum chamber, into which hot air is lown, creating a warmed floor and per- ıitting a direct flow of air at desired loca- ons in each room by means of grilled openings in the floor. Exterior walls of the crawl space were insulated with $1\frac{1}{2}''$ rigid glass-fiber panels. This device worked fine in houses which had excavated basements centrally located and/or crawl space not exceeding 3′-6″ in height. In houses with large crawl spaces, conventional duct systems were employed.

The corporation's Finance Committee kept the records, dividing cost of construction for each house. "We estimate that the houses cost less to build by sub-contracting —as we did—than would have been the case by general contracting, because of the nature of our financing. For one thing, when money ran short, construction could stop altogether; and, a number of the houses were stopped at various stages of construction and later completed by the owners with their own labor."





The home of Dr. Ullman, his wife, their two children, and a father-in-law. This house perches on a rocky hillside sloping away to the west and well wooded with dogwood, oak, and beech trees. Because of the rock condition, only a partial basement level at the north end of the house. (small cellar, boiler room, and carport) was economically feasible. Quarters for the father-in-law are at the opposite end of the main floor from the family bedrooms; to economize on the rather extensive plumbing installation, all piping is kept within the 8′-6″ "butterfly" side of the house (see typical section, page 73), *while the 18′ span is used for living and sleeping areas.*



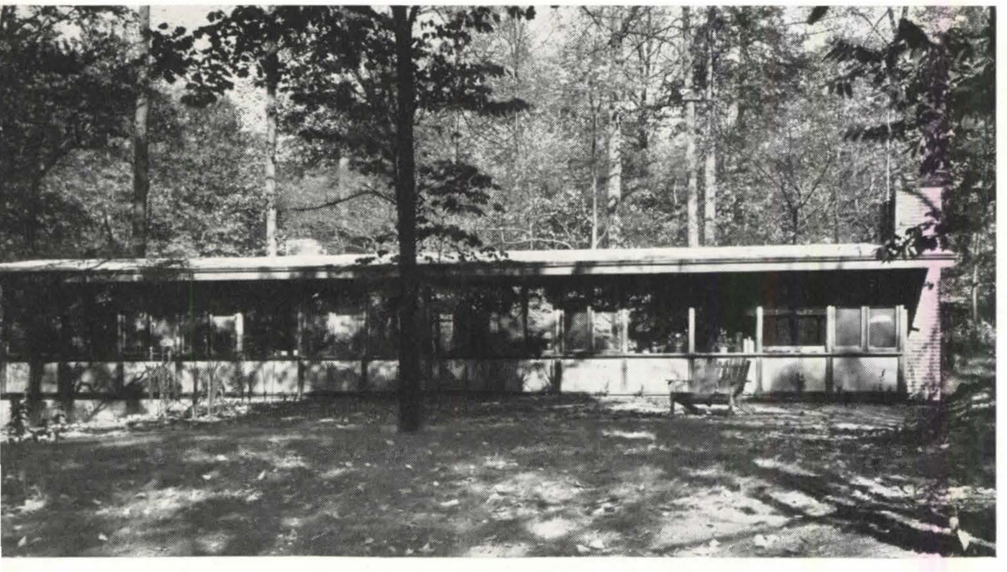
From the outset, the group had happy relations with local authorities, the Village Board waiving restrictions on the use of low-pitched roofs (for example)—"very important, as the cubical content of the building, as well as the general design, would have been seriously affected."

In the selection of materials and use of the plank-and-beam system of construction, economy was always the watchword. Plank flooring was considered a suitable finish, that would allow later installation of finish flooring, or covering with carpet or tile. The wood-chip-cement panel chosen for exterior walls was selected for its thermal characteristic, ease of installation, and color. Dry construction maintains throughout the houses, and copper gutters were avoided by detailing a deep gravel-stop along the eaves.

The project was supervised almost daily by members of the Design Committee. The group hired a superintendent of construction and carpenters, purchased lumber, and subcontracted for masonry, plumbing, heating, electrical work, and roofing. Such materials as steel, hardware, sash, doors, etc., were also purchased in quantity through the corporation. One opportunity for reducing costs that they overlooked was the savings that would have resulted "had all the house plans been completed before beginning construction. Since they were not, we had to sub-contract the work based on unit prices."

For any group that might contemplate embarking on any similar type of venture, the Twenty-One Acres group makes several suggestions. Above all, they say—an architect should play an important, if not *the* leading role in policy and direction.

"In the event a group wishes to finance a project, it is my opinion," says Fred Ginsbern, "that all the monies needed to run such a project be deposited in advance. A general contractor should be employed; a lawyer should be employed, and a certified accountant should be employed. . . ."



The house built for the Rubins (top photo) *is currently owned by a family named Kamen. Planned for parents, two children, and two grandparents, it is built on the most favored site in the development, from the point of view of costs, since it is level, has no rock, is surrounded on three sides by a road, and has a near-by stream.*

The living-room photo is in the Glaberson house, which has an exceptionally open plan, with living room, dining area, entry, and kitchen separated only by partial-height casework and the mass of the fireplace.

clients for housing: the speculator

1

2

3

ank Lloyd Wright has slyly said "pity
e poor client." On the other hand, clients
r housing built for personal profit, it
ems to us, are rather to be won over to
e advantages of good design than to be
tied. That architects *can* succeed in this
sk is illustrated in the three apartment
uses and one builder development shown
re.

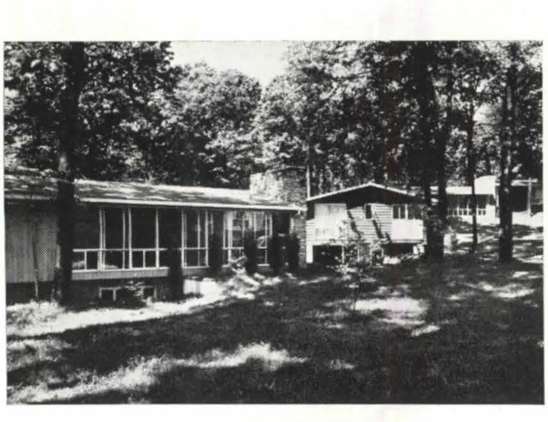
True, a highly specialized set of pecu-
rities surrounds such a client. Since he
ll not occupy the buildings himself, he
s a strong tendency to ask that nothing
into them except what will result in the
stest possible sale or rental, so that he
n move on to the next enterprise.

Most investment projects involve the borrowing of funds. So, while this client must meet the *requirements* of mortgage agencies, whether private banks or the mortgage-insuring government agencies FHA and VA, he will often—and unprotestingly—meet their prejudices as well. FHA's 608's are notorious for mediocre design, due primarily to rigid, unrealistic standards rigidly interpreted by local offices; in general, 207's have fared hardly better.

One answer, so far as the architect can help find it, is in the area of helping the entrepreneur understand better design and by encouraging him to fight FHA and lending-agency prejudices. An increasing number of builders are proud to be known for building the *best* houses or apartments in town (The Southwest Research Institute's awards have been a real help here). And some have become convinced that providing the best is also the soundest business (see pages 80-92).

Another possible, but untypical, answer turns up in two of the three apartment houses shown here. The architects were themselves the entrepreneurs, and there is no question but that the over-all design results are excellent and that most, if not all, of the usual difficulties in doing a good investment job have been overcome.

4



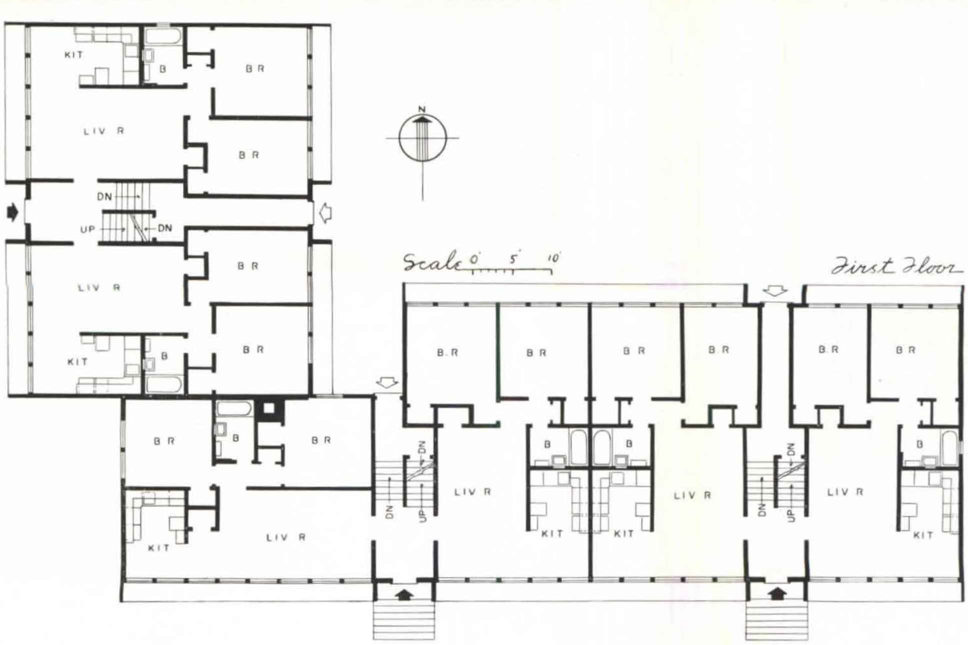
1 *apartments: Burlington, Vermont*

2 *apartments: Los Angeles, California*

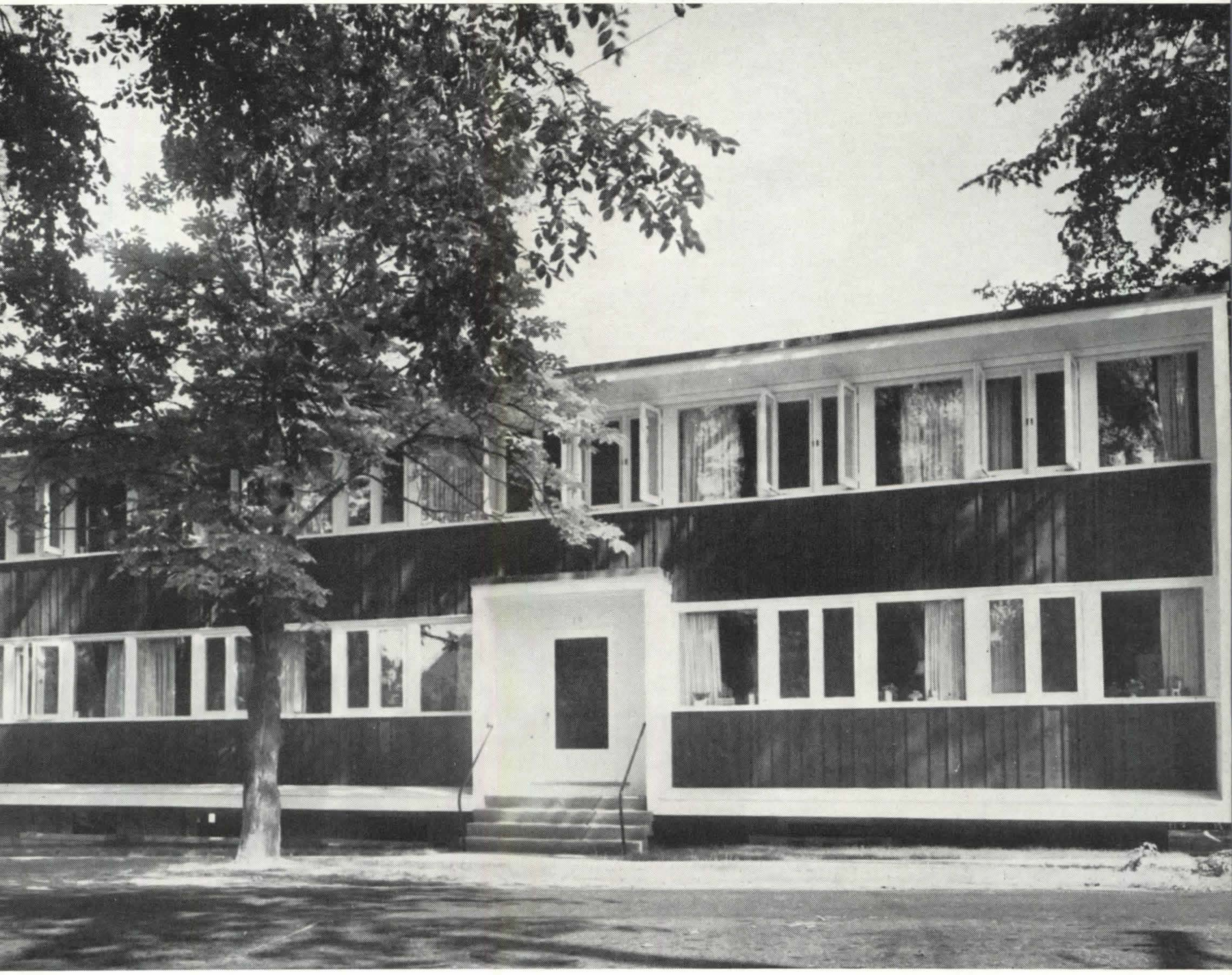
3 *apartments: Seattle, Washington*

4 *builder housing: Wheaton, Maryland*

apartments: Burlington, Vermont



architects	Whittier & Goodrich
engineer	N. E. Jennison
general contractor	Stephen Fascitelli



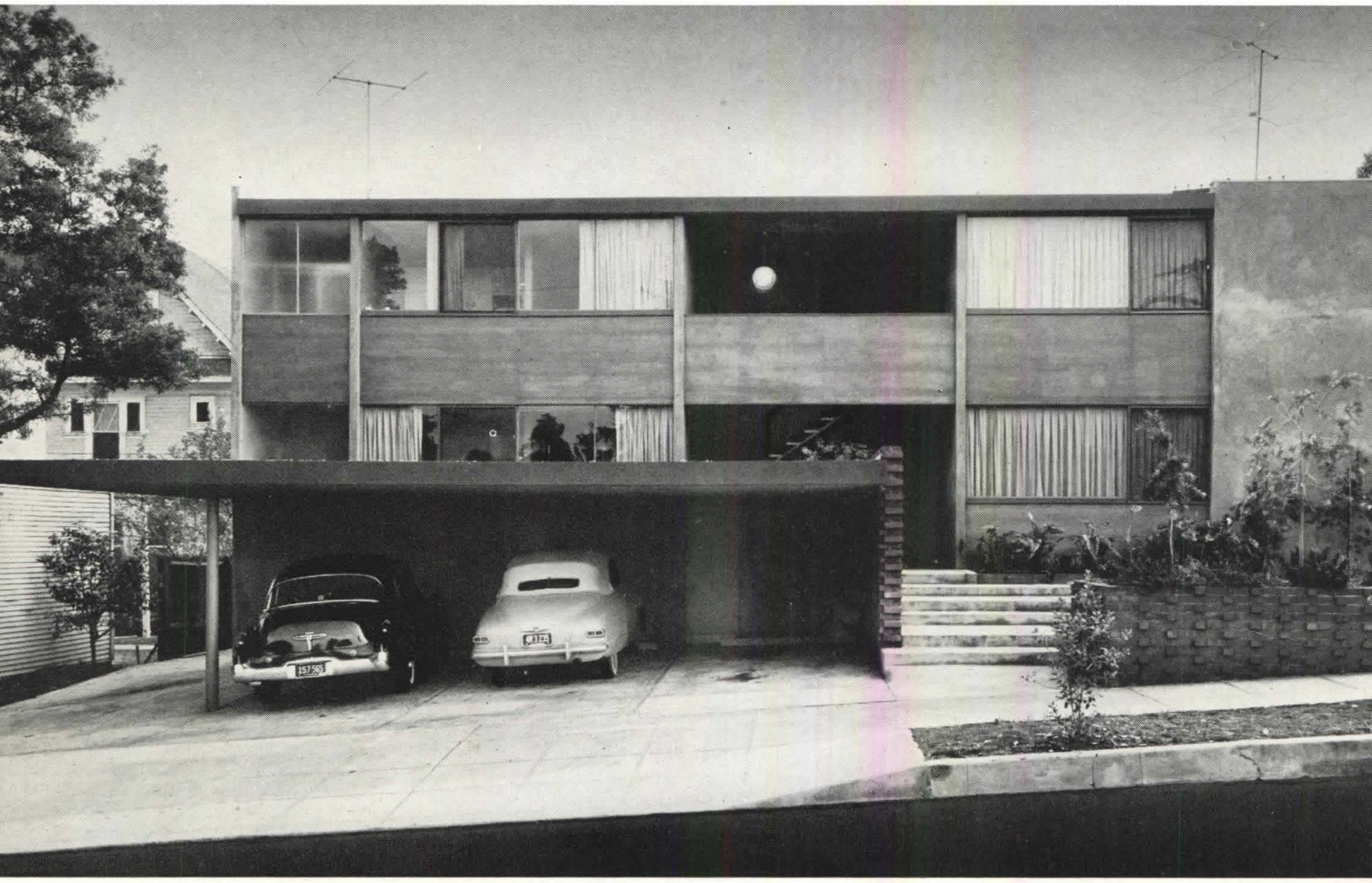
The client wanted a building with 12 two-bedroom apartments, to be built under FHA-207 requirements. The site is an 88′ x 167′ corner lot, with a contour drop of 9 feet, from southeast to northwest. Soil conditions dictated the use of recessed foundation walls.

Storage rooms, a laundry, and the boiler room are in the basement; the first floor (*plan acrosspage*) is duplicated on the second, except that windows occur at hallway ends, and the space occupied by rear-exit passages on the first floor is used upstairs for larger bedrooms.

The exterior design derives from the recessed-foundation requirement, plus the architects' wish to use large expanses of glass; the hooded entrances were designed to provide greater sense of separation.

Foundations are concrete block; the frame walls are surfaced with vertical siding outside and board-lath and plaster within. Double-stud insulated walls between apartments are designed for 45-decibel reduction. The building is heated by a continuous forced-circulation hot-water system. *Photos: Richard Garrison*

apartments: Los Angeles, California

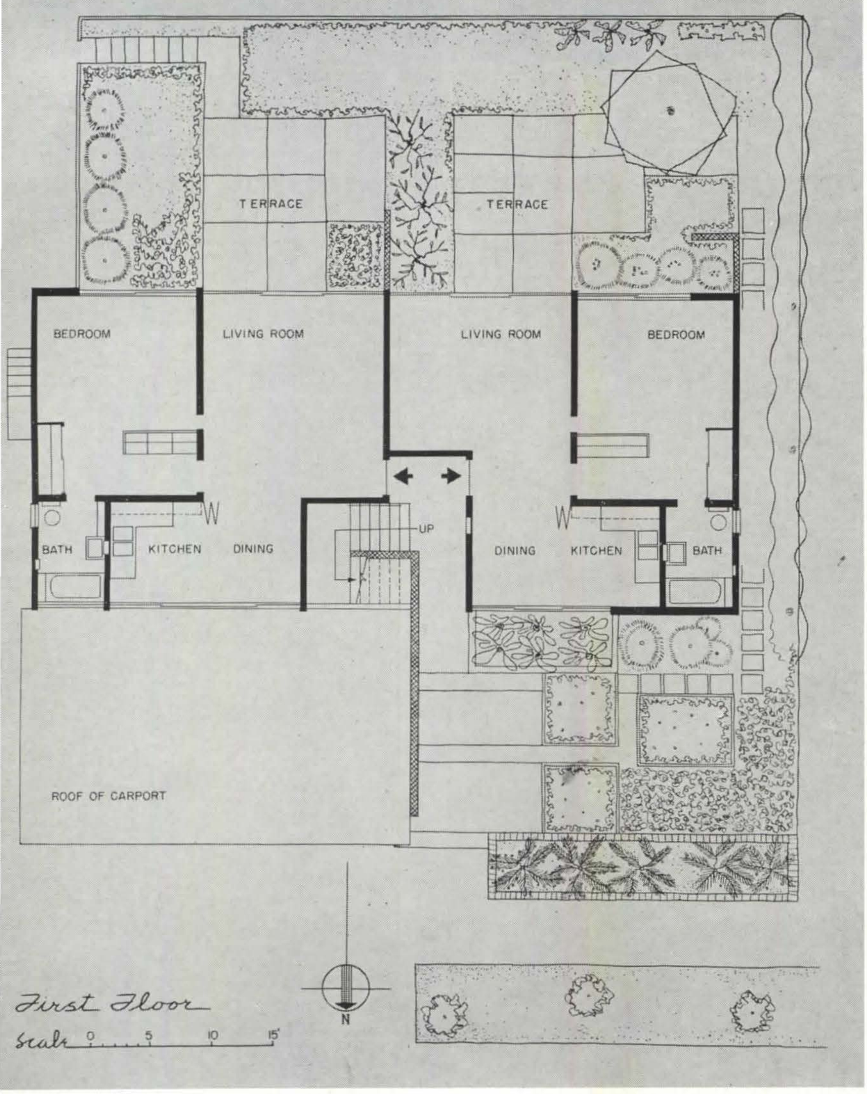


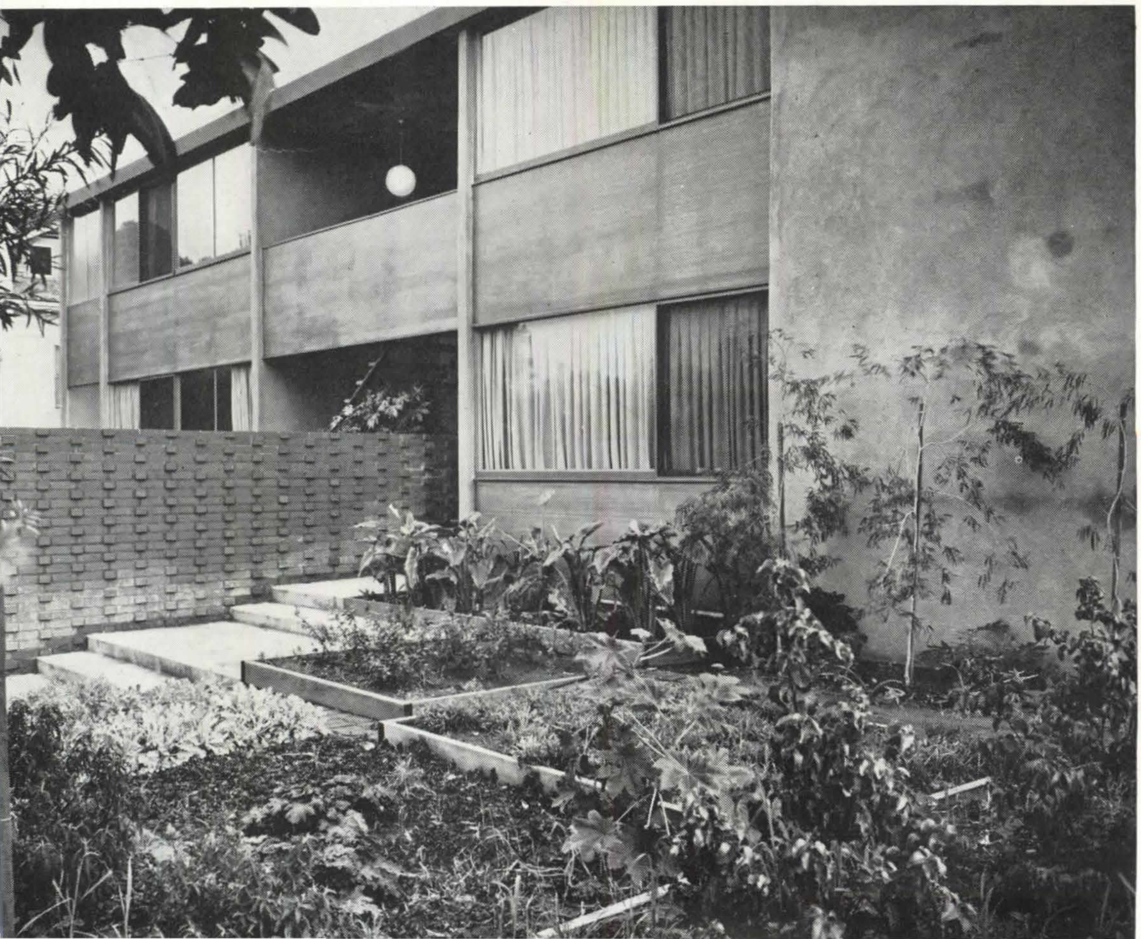
architect	Carl Louis Maston
landscape architects	Eckbo, Royston & Williams

In this case, the architect was his own client. Having recently built an apartment building near by for an outside client, he tells us: "I was so impressed with the success of this type of building for the needs of this area that I became intrigued with the idea of doing the same thing for myself." In this connection, he emphasizes that "greater latitude is possible when building with your own money—or, as in this case, private financing." The site is a small lot in a close-to-town section.

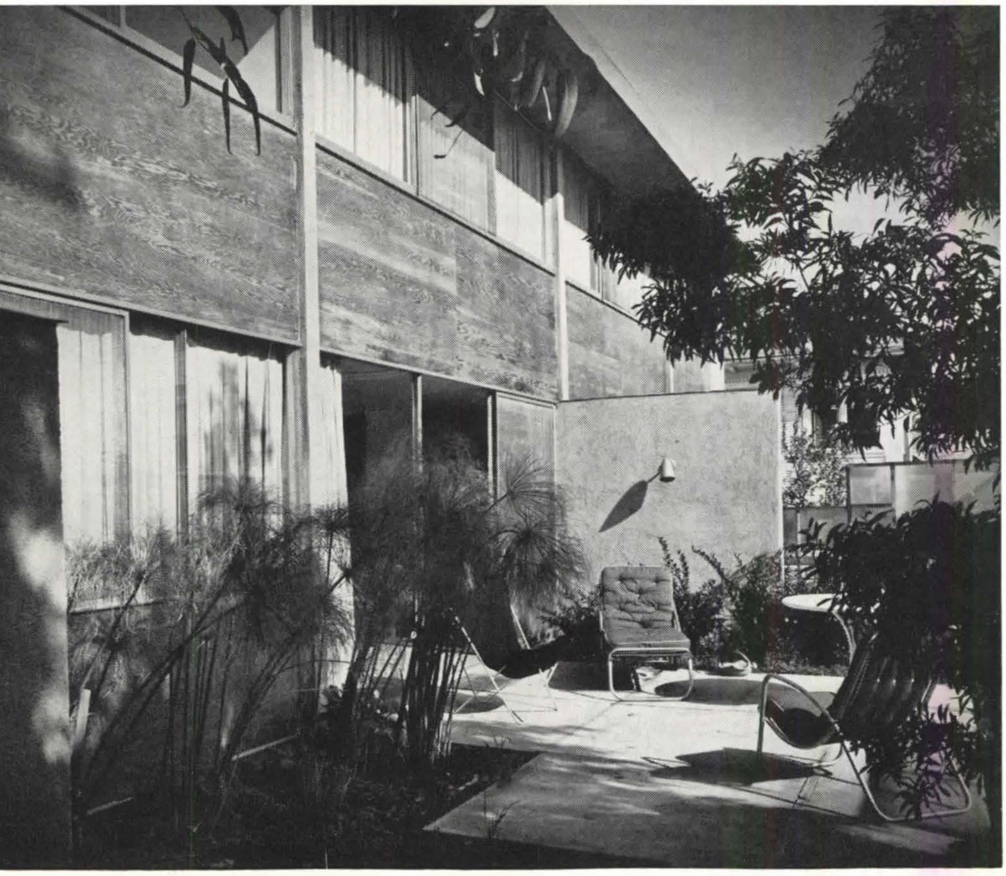
The planning goal—"to design the number of apartments that could be provided with no sense of crowding or lack of privacy"—resulted in four one-bedroom u (the upper floor, except for the car is identical with the first). Downst apartments have private gardens.

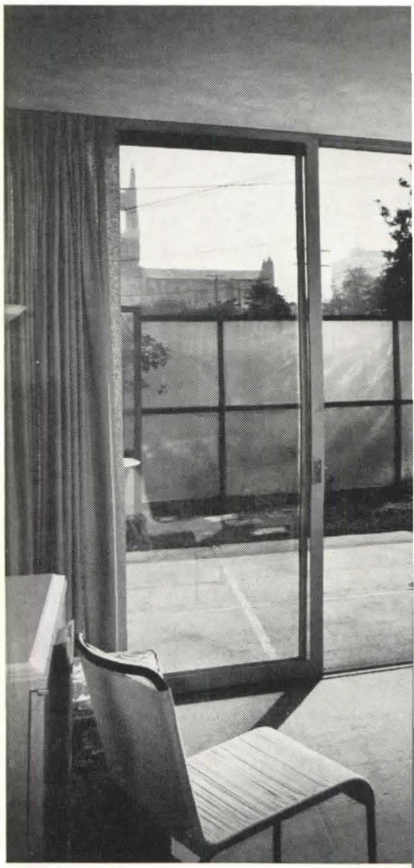
Structure, for economy's sake, is frame; exterior spandrels are surf with plywood; interior walls have pla finishes. All living and bedroom floors carpeted, for sound reduction and cause people prefer them." Kitchens bathrooms have asphalt-tile floors. Sli steel sash were used; the apartments heated by gas wall furnaces, and so control is assisted by resilient clips in ceiling construction.


TERRACE
TERRACE
BEDROOM
LIVING ROOM
LIVING ROOM
BEDROOM
W
W
UP
BATH
KITCHEN
DINING
DINING
KITCHEN
BATH
ROOF OF CARPORT
N
First Floor
Scale 0 5 10 15'

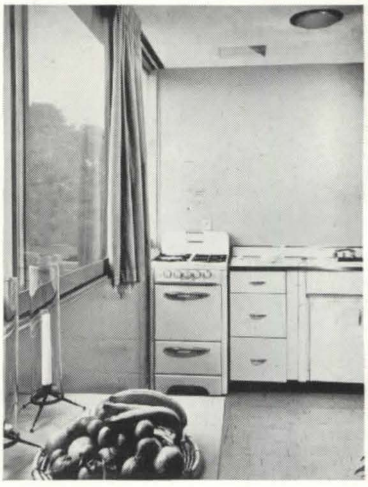


apartments: Los Angeles, California



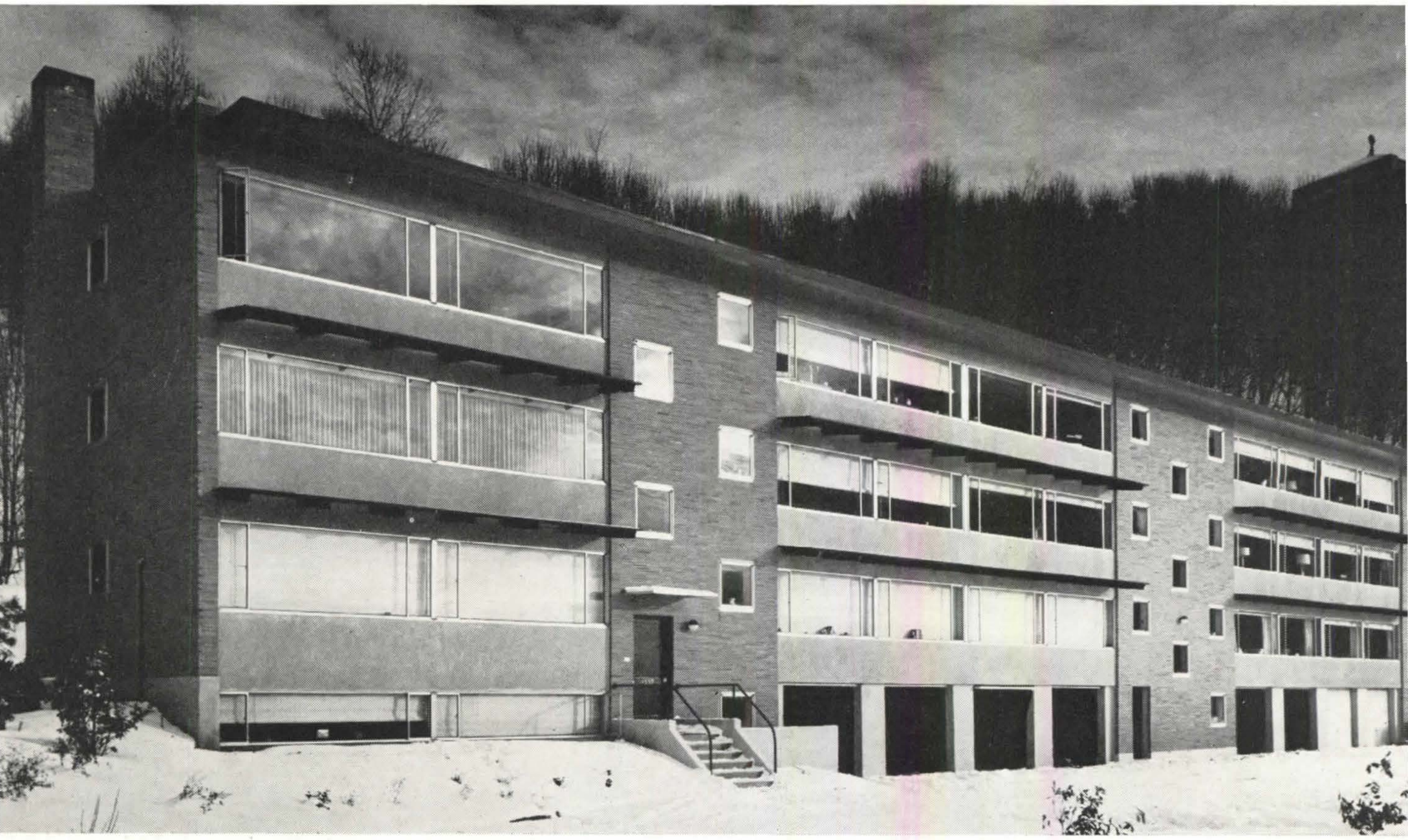


On the south, the two ground-floor apartments have private, landscaped gardens (two photos, left), *separated by a projecting dividing wall. In bedrooms* (below, left), *storage space includes a ceiling-height wardrobe with sliding doors and (left of photo) a 6-foot-high unit to take care of coats, linen, and general storage. Kitchen-dining rooms all face north.*
Photos: Julius Shulman



The living-dining space (two photos, left) *constitutes a floor-through unit, with windows (sliding steel sash) on both north and south walls. The architect provided draperies at all windows "to avoid the confusion caused by tenants putting in miscellaneous hangings." Living-dining areas have wall-to-wall carpeting; some walls are finished with Philippine mahogany paneling.*

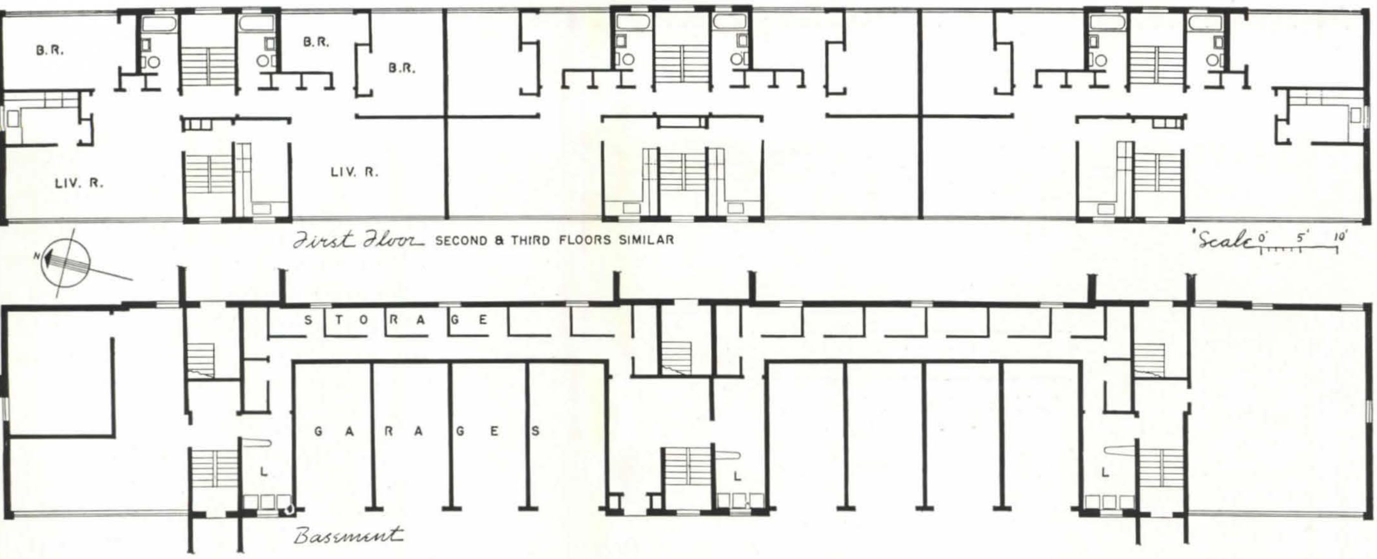
apartments: Seattle, Washington

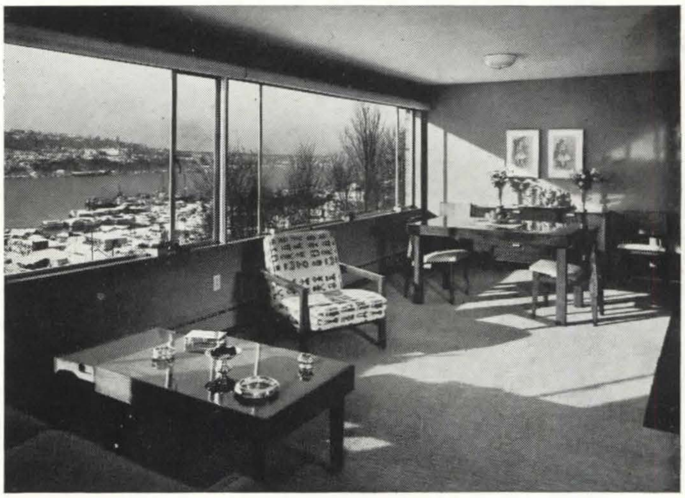


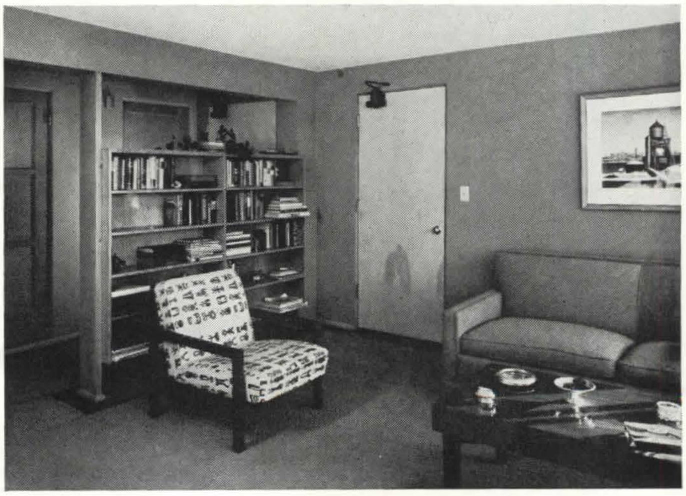
architects	Chiarelli & Kirk
mechanical engineer	Richard Stern
contractor	Nestor Construction Co.

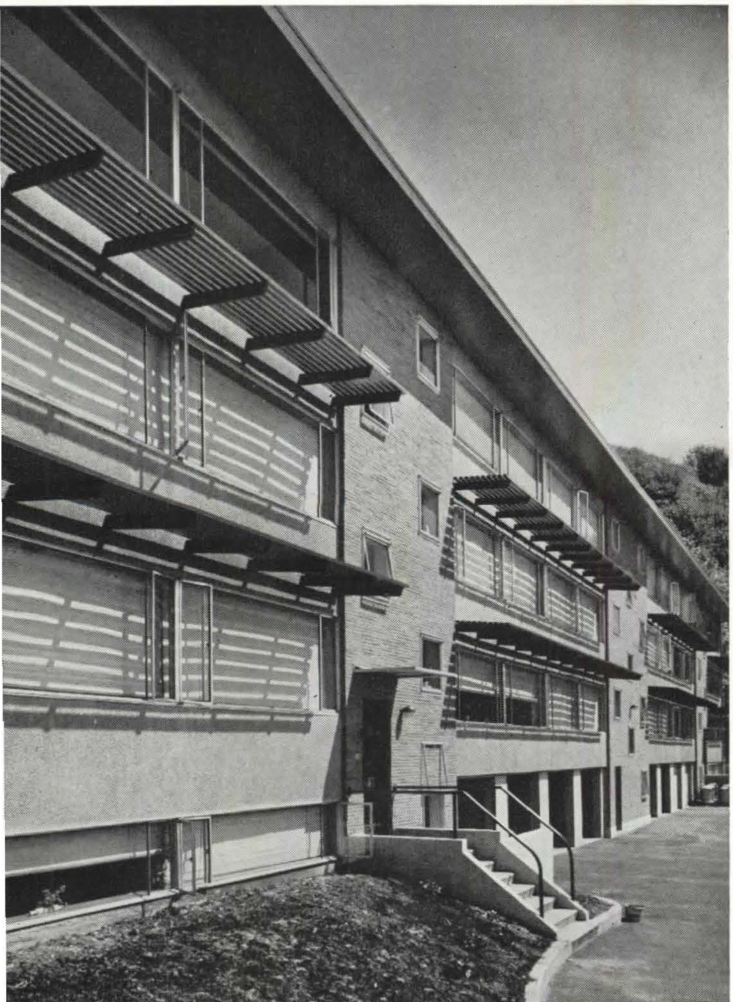
Financed under the FHA-608 program, this apartment house, like the one immediately preceding, is owned by the architects who designed it. The western slope of the site commands a view across Lake Union to the Olympic Mountains beyond. An early decision, therefore, was to place all main living rooms on the west; other major program requirements were that there be as many 2-bedroom units as possible, and that all apartments have both east and west exposures.

The solution is a three-story-and-basement building, with four 2-bedroom units and two 1-bedroom units on each of the three upper floors. Slatted sunshades above the big western windows (aluminum sas assist sun control and serve as catwal for window-washing. Each rear stair-tow leads down to its own basement laund Structure is frame, with brick veneer a —a code requirement—reinforced concr garages. Spandrels between window stri are stuccoed. Insulated, staggered-stud p titions occur between all apartments, a sound control is further abetted by ceili and floor construction that includes a la of insulation board and an air spa formed by sleepers on which the oak flo ing was laid. The building is heated an oil-fired furnace serving both radia panels in certain wall areas and baseboa convectors. *Photos: Dearborn-Mas*









Selected Details of a typical front entrance and an apartment kitchen, on pages 129 and 131.

builder housing: Wheaton, Maryland

architect	Charles M. Goodman Associates
developers	Paul I. Burman & Paul Hammond
builders	Hammond Homes, Inc.

This development—Hammond Wood—a joins an earlier project worked out the same architect-builder team—a te that was established after Hammond Burman had not only admired houses p viously done by Goodman but had se how fast they sold.

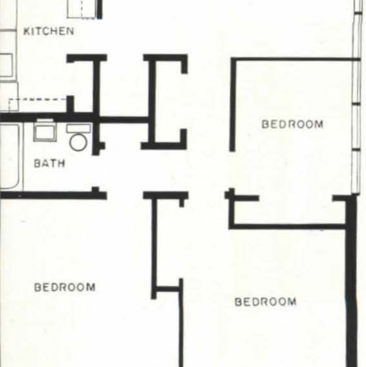
The site is a 15-acre tract of heav wooded, rolling land. A former plan the property, with a street bisecting longitudinally in a straight line, was ab doned after the developers purchased property, as it would have involved exc sive cut and fill, removal of many ha some old beech and oak trees, and wo

resulted in uneconomically deep lots. ing of this road (Pendleton Drive) introducing an intermediate cul-de-sac ;hview Court) made the scheme con- more closely to the topography and made much better economic use of land. The narrow block on the south- side of Highview Avenue had been into a series of very narrow and deep ; redesign produced the series of squat le-sacs seen in the plot plan—a good ce, the architect tells us, since "the ng public all scrambled to get into e cul-de-sacs." High initial cost of land ıted reduction of individual lots to as small as one-sixth of an acre; but to compensate for this to some degree, it was determined to retain as much of the natural condition — slopes, trees, etc., — as possible. Basic house types were developed to fit the various site conditions. Exact locations of the houses were decided after a most painstaking study, both in the field—walking about each lot, noting locations of specimen trees— and on paper, in the office, adjusting units so that every house would have an unobstructed view.

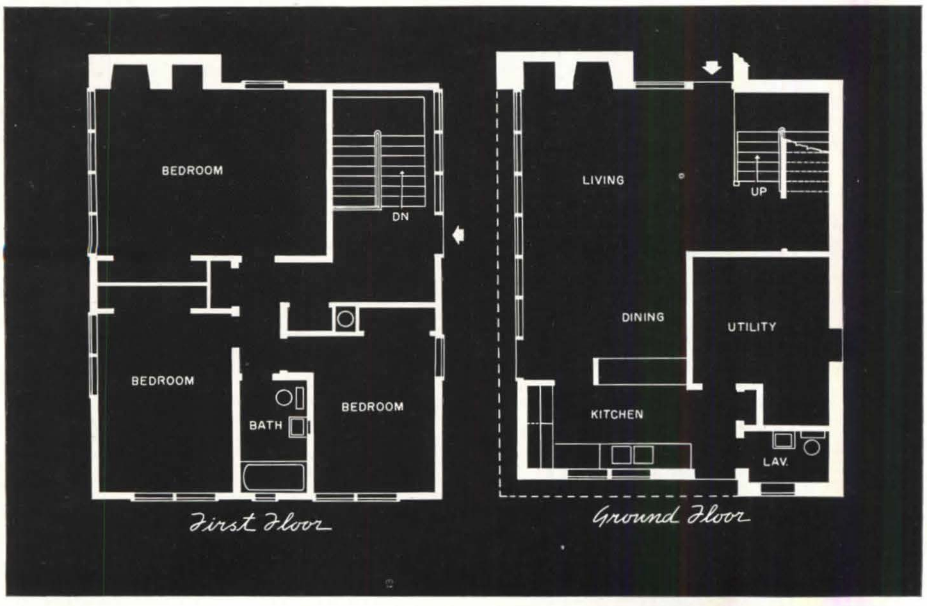
House planning had as its base the need of the average family for a 3-bedroom house, with 1000 square feet as a minimum. "Our object," the architect says, "was to provide as much living space as could be squeezed out of the budget and to make that space look even larger by every possible means." Among such means are: the ceiling that follows the roof slope; placing the hall, leading to bedrooms, so that one can stand in the living room and look down the hall and on through the bedroom to outdoors; and the use of glass "view walls." Of particular interest are the two-level houses (pages 91-92) that give the purchasers an ingenious expanding-plan potential.

e house on this page is the typical, gle-level, three-bedroom house (1100 uare feet), that sold for $12,400, plus 500 for the land. As with all houses Hammond Hill, construction consists two major parts—(1) masonry block, punctured, that serves as the diagonal acing of the frame and (2) view lls, consisting of exposed, structural x 6"'s spaced to take the standard 1" sash. Exterior walls are of cypress used brick.

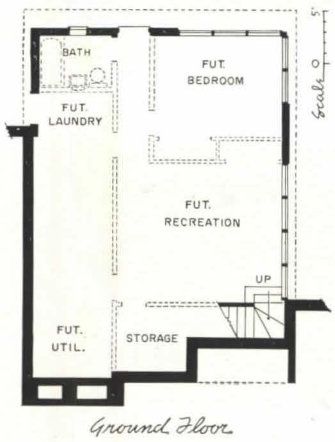
Photos: Robert C. Lautman

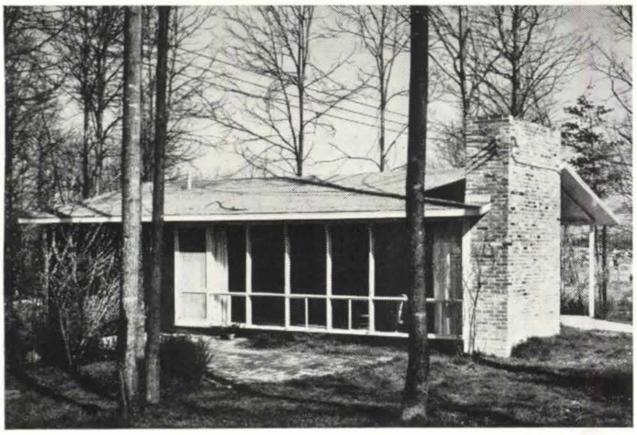


Wheaton, Marylan



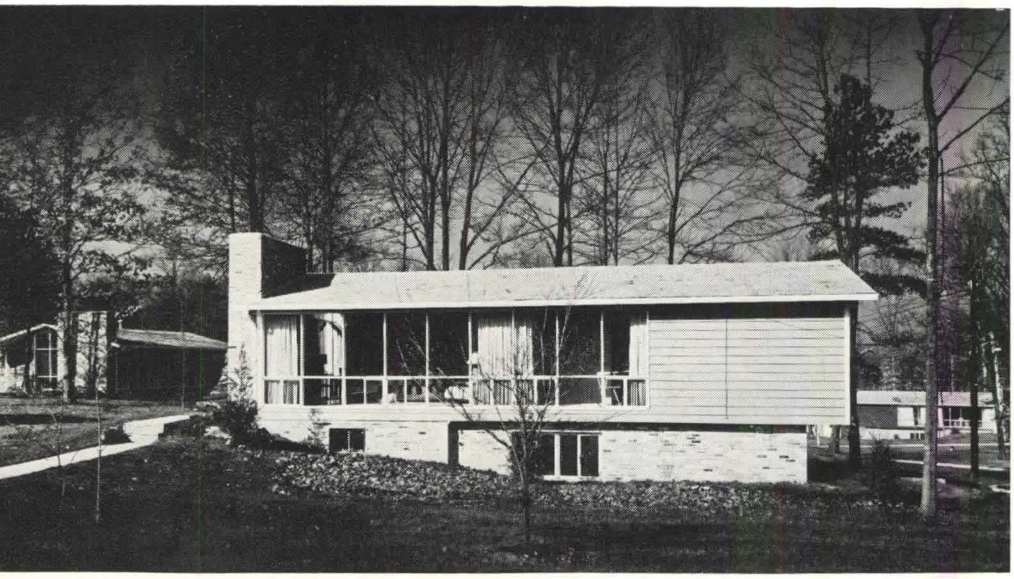
For the buyer who wanted a finished, two-level house with three bedrooms, the type house shown here was developed. Note that the plans are the exact reverse of the house in the photograph, illustrating that plans for all of the house types were "flopped" where site conditions or orientation required it. This house is so placed on a slope that it has exits at grade on both levels. Total floor area is 1620 square feet. The most costly of the houses in the group, it sold for $16,700, plus $1500 for land.





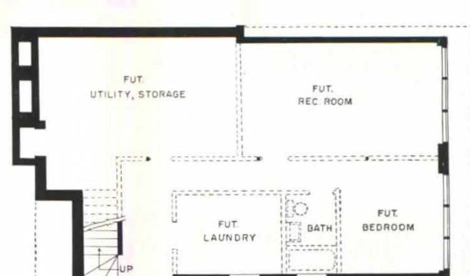
The most provocative house types that the architect developed for the project are the two-level units shown on this and the following page. The idea behind them was "to utilize the terrain to gain added living area, but keep the sales price as low as possible." Hence, on construction, only the upper level is finished; the ground floor is left unfinished and unsubdivided but includes plumbing roughed for a future bath and space for another bedroom, recreation room, and laundry-utility room. The two-bedroom house has 900 square feet upstairs; 850 downstairs. Sales price: $13,400, plus $1500 for the land.

Wheaton, Maryland



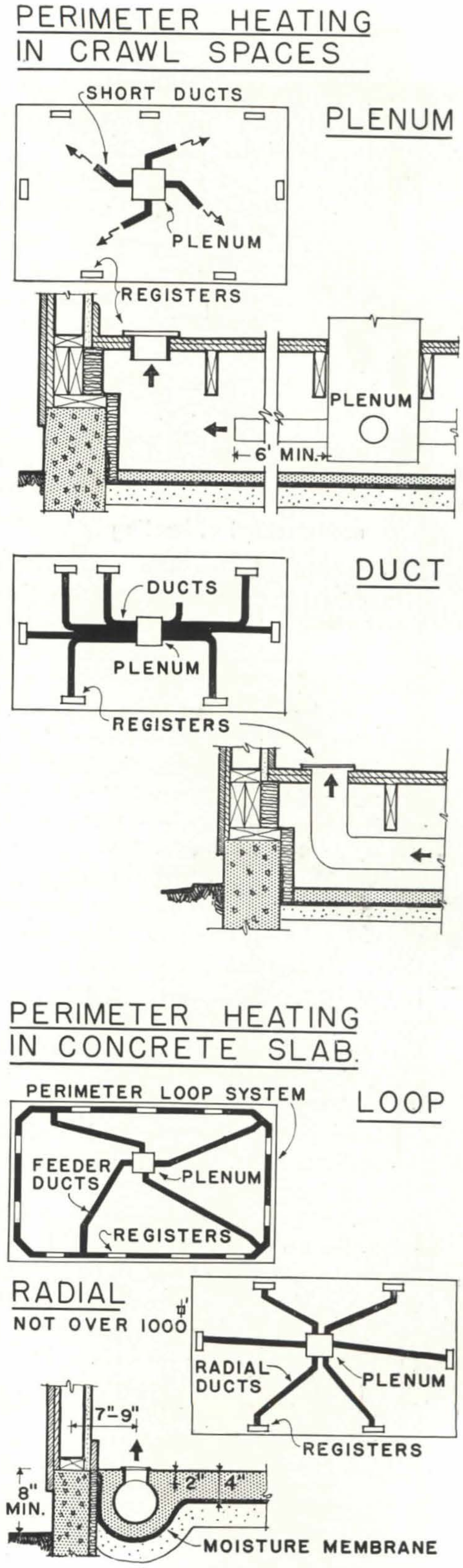
Similar in design approach to the ho on the preceding page, this is a th bedroom model that came on purch ($15,400, plus $1500 for land) with finished first floor and unfinished gro floor. The single-level 3-bedroom ho (page 89) sold for $12,400. Thus purchaser of the two-level house tained the additional 900 square f of the ground floor for $3000—or ab $3.34 a square foot. Heating of all houses is by gas-fueled forced wa air with supply registers in the fl at all glass areas.

First Floor



Ground Floor

Figure 1—variations of perimeter systems in crawl spaces and slabs.
All drawings: Raniero Corbelletti



ıwl space: perimeter heating

William J. McGuinness*

problem of heating a basementless ɜe built over a crawl space or on a slab now been most satisfactorily solved by warm-air heating industry. The solu- provides for several systems, each of ɔh assures uniform temperatures ugh the house, warm floors and walls, response, and a minimum of fluctua- . In spite of insulation, neither conven- al radiator heating nor the usual forced m-air system has been entirely satis- ory in producing uniform comfort in ɜmentless houses. Baseboard, hot water, warm-air radiant heating have solved problem at somewhat greater expense. new warm-air perimeter systems have ved their effectiveness and economy in phase of heating. The customer has a nber of variations to choose from; sev- of them have become extremely ular.

he National Warm Air Heating and Air ditioning Association has been develop- and cataloguing the best practices ugh its intensive research program and testing laboratory. As recently as ıary 1952, its first complete manual of *m Air Perimeter Heating* appeared. r to this, however, thousands of instal- ɔns had been successfully completed operated with benefit of field advice. V. Nessell, who is in charge of the field ratory, describes the performance of new crawl-space plenum system as te spectacular." The perimeter-loop em for slab use was the first of these ıods to be developed. It has wide ac- ance and, according to the Federal sing Administration, has taken its place qual popularity with all of the older, entional systems.

the perimeter group

vl-space plenum. A central down-flow ace supplies warm air to a short-duct system below the floor, the ducts being only long enough to distribute the air well within the crawl space. Warm air then enters the rooms above through adjustable registers placed below the windows. Return air in this and all perimeter systems is collected at a grille in an interior wall and returned through a short duct to the furnace.

Crawl-space duct. Instead of using the crawl space as a plenum, ducts connect the down-flow furnace with the registers at the building perimeter. In small houses radial ducts can be used for this purpose, and in large houses an extended plenum or conventional trunk and branch system is suitable. One warm-air outlet in the crawl space warms it to at least the temperature of the rooms above.

Slab radial. This is the simplest method of connecting the furnace to the perimeter registers. The radial pipes are not quite as effective in warming the perimeter as the loop system and should not be used in houses exceeding 1000 square feet in area.

Slab loop. A perimeter loop is supplied by radial feeder ducts or pipes. Registers are fed from the perimeter loop. The pipe system creates a radiant floor which is particularly effective along the outside wall where the heat loss is greatest. (*Figure 1 illustrates the variations of perimeter heating.*)

Slab lateral. This method (*not illustrated*) consists of a down-flow furnace which supplies an underfloor distribution channel along the center of the house. Lateral pipes extending from the channel feed a perimeter air passage, all contained within the slab. From the perimeter pipe, a continuous baseboard slot or individual floor registers may be served. This approaches the principle of warm-air radiant heating and should have competent engineering design to be successful.

ssor of Architecture, Pratt Institute, Brooklyn, N.Y.

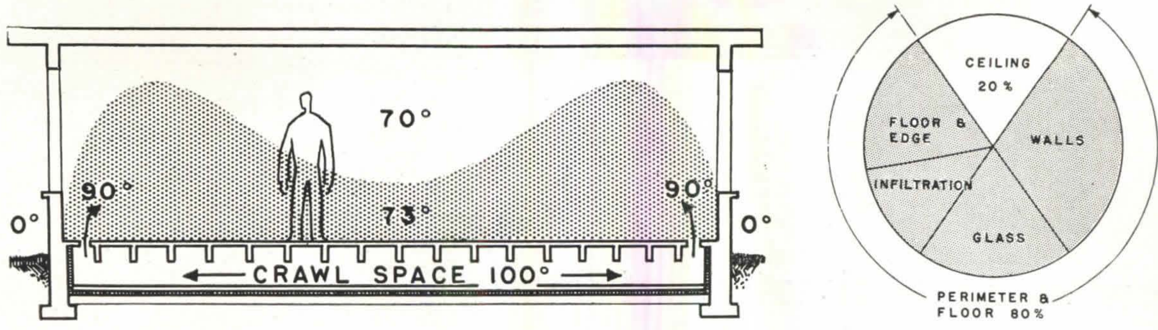


Figure 2—distribution of hourly heat loss from a small house on a concrete slab (right). *In perimeter systems, heat is applied at source of greatest heat loss* (left).

new concept of heating

Radiant heating has made us very conscious of the fact that the rate of radiant heat loss from the body to surrounding surfaces has a great influence on our comfort. In most heating systems developed recently, there has been an effort to have the occupant live within warmed surfaces of reasonably uniform temperature. Very cold surfaces must be eliminated if uniformly comfortable conditions are to be established. At the higher end of the scale, the source of heat in the form of warm air or radiators must operate at lower temperatures if we are to approach ideal conditions. It is now well known that the greater loss of heat through a slab or in a crawl-space house is along the perimeter rather than generally downward through the floor. Thus, the perimeter, walls, and glass are the coldest surfaces (*Figure 2*). The ceiling is somewhat warmed by the heated air that collects there. Now, if it is possible to warm these cool surfaces first and, in doing so, cool off the supply air so that it enters the room at a more agreeably low temperature, much of the above can be achieved. The method of doing this, obviously, is to pass warm air below the floor and then bathe the exterior walls and glass with the air from the registers. At the same time, the effect of infiltration which occurs at the outside walls is mitigated (*Figure 2*).

This is a new departure for the warm-air industry. For many years, inside walls have been used for supply ducts and registers and the cooled air collected at cold spots near the outside walls. Economy in the use of shorter ducts was one reason for this type of design. Another reason was the feeling that the warm air would be cooled unnecessarily in the outside walls without creating any warmer surfaces. As a result of this pactice, which still persists, the cold spots remained very cold. In many modern houses, the cool air is taken in a return grille or slot at the floor in front of large glass areas. This is intended to prevent the cool air from flowing back along the floor, but it is not always effective and the scheme usually results in a cold wall and window. Besides discomfort, much condensation results. The most recent trend even in conventional ducted systems, is to supply the air at the base of glass areas and this, of course, is the method used in all perimeter systems. Since there is no "cold" air but merely displaced air, it can be collected at any point remote from the supply registers. In perimeter systems, this is usually at a point or several points in the wall near the furnace.

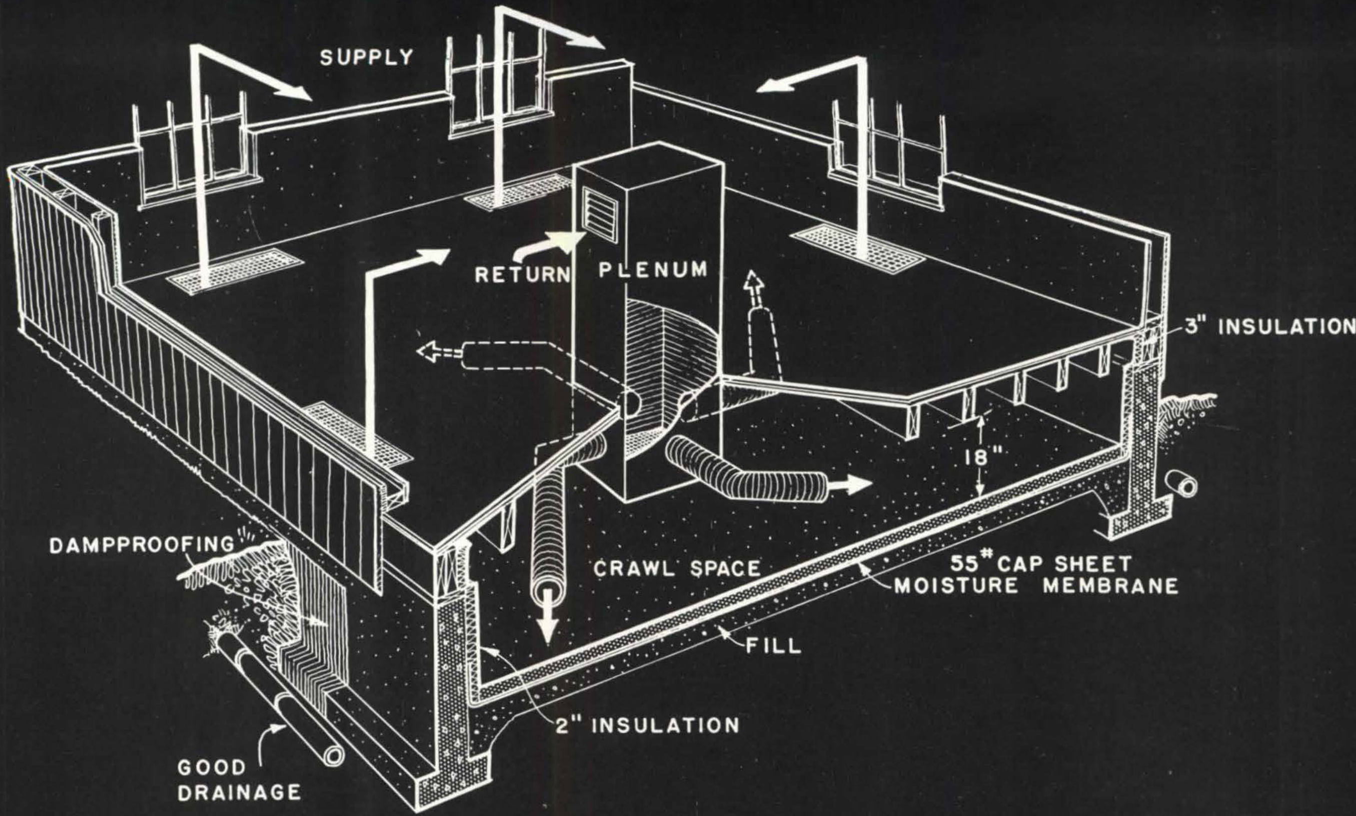
crawl-space plenum

Prior to the introduction of perimeter heating, it was customary to supply heat within a room above a crawl space. Among the heat losses was the loss to the cold, drafty space below the room. Seldom was the insulation in the floor as effective as that in the walls or ceiling. Frequently, the crawl-space ventilators or windows were ill fitted or left open during the heating season. Result—cold floors and fuel waste. The crawl-space plenum system makes a room of this space and heats it with air at an average temperature of about 100F. A floor temperature of about 80F, and quite uniform, is thereby provided. This is within the range of usual floor temperatures in radiant heating and so the floor can be considered a truly radiant surface. The convection air entering the room is not much over 90F and far more moderate than the common 165F of conventional ducted systems. Temperature differentials between floor and ceiling in this and other perimeter systems can be kept within 4 to 7 degrees and, with careful balancing, the va
rooms can be maintained at tempera
within 2 or 3 degrees.

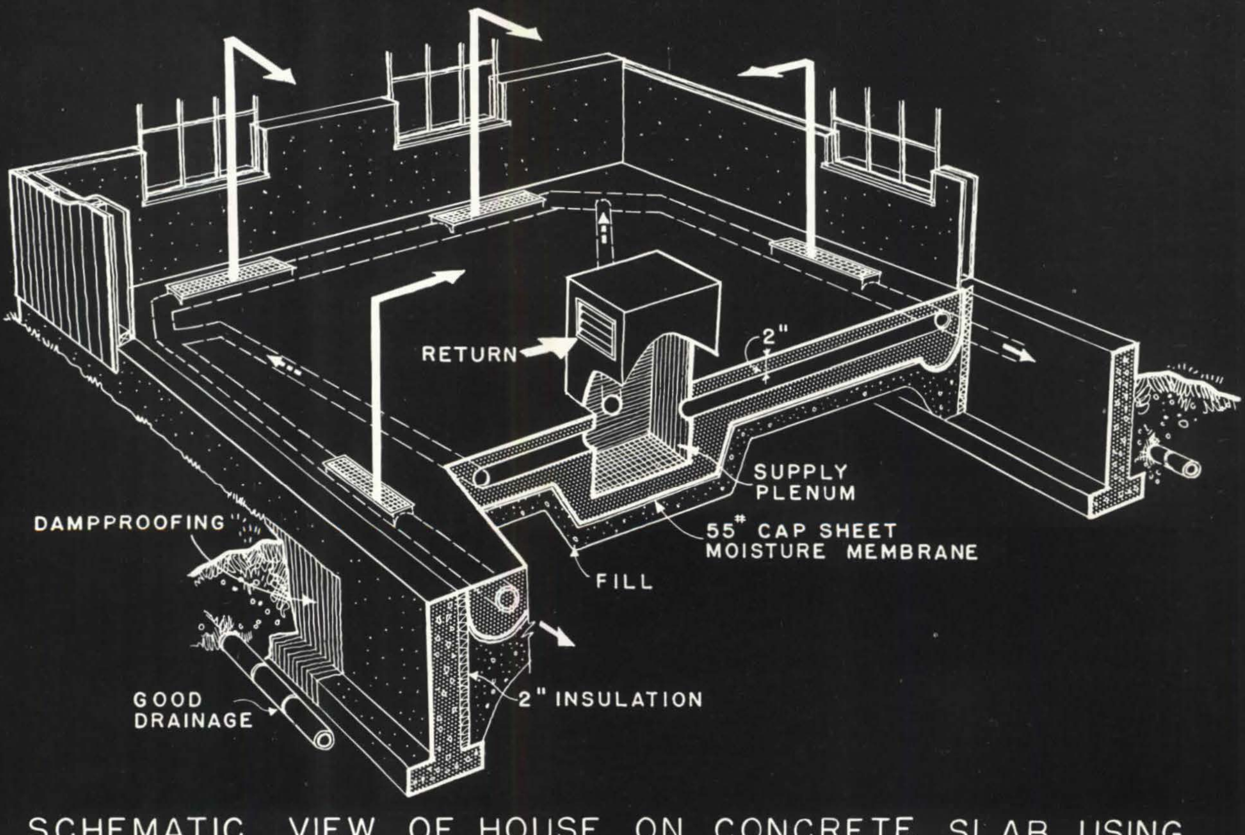
The stub-duct system must have at
four ducts, each not less than six feet
(*Figure 3*). They must point to the co
of the house in order to reach the
spots. The crawl space should not be
than about 18 inches deep below the jo
where a girder might block the flow o
emerging from a duct, the duct shoul
extended to a point past the girder. L
shaped or other irregularly-shaped ho
the ducts will similarly have to be exte
It will be understood, however, that
system is not adaptable to large, ram
houses and is limited to houses havin
hourly heat loss of not more than 10
Btu. Rapid shrinkage of floor joists
be expected and should be allowed f
the planning of moldings which can b
set. It is not unnatural and is merel
acceleration of the shrinkage that w
take place in any case.

perimeter loop

This arrangement is ideal for houses
concrete slab, and having an hourly
loss not exceeding 100,000. Houses w
loss of less than 60,000 may use the r
system in the slab. This kind of heati
a precise answer to the findings of th
tional Bureau of Standards in its
research on heat losses from slabs o
ground. Summarized in BMS 103, the
eau's study showed the edge loss to
greatest importance and dispelled
former theory that ground losses shou
based upon the area between the hous
the ground. In the case of a house
a crawl space, this edge loss does not
the even distribution of floor tempera
which are quite uniform because of
vection currents. In the case of a
built on a concrete slab, the edge tem



G. 3 SCHEMATIC VIEW OF HOUSE USING CRAWL SPACE
LENUM SYSTEM



G.4 SCHEMATIC VIEW OF HOUSE ON CONCRETE SLAB USING
ERIMETER LOOP SYSTEM

tures are distinctly lower, even with good edge insulation. By warming the perimeter, these heat losses are offset. The combined system of radial feeders and perimeter loop forms a radiant slab which, while not quite as uniform in its action as the floor above a crawl space, produces uniform comfort at all points.

The ducts may be of galvanized sheet iron or of vitrified clay tile. They must be well fitted to prevent concrete from leaking into them during pouring. The light-metal ducts must be wired down to prevent them from floating while the concrete is cast. The clay tile will stay in place, but must be carefully grouted and calked to prevent leakage. Feeder ducts start at a level 5″ to 6″ below the floor surface and terminate about 2″ below, so that as the air cools it will heat the slab surface more efficiently. Conversely, the hotter air will not overheat the interior portions of the house where 6″ of concrete prevents speedy heat conduction from pipe to surface. The feeder ducts must terminate at the coldest locations, usually the corners of the house. Feeders should not supply more than about 15,000 Btu per hour, and registers not more than 8000. With these figures the preliminary arrangement can be sketched out at once. There should not be more than three registers between feeders, the distance between feeders should not exceed 35′, and no register should be more than 15′ from a feeder. Feeders must connect to perimeter ducts at right angles.

insulation and dampproofing

Under design conditions it is evident that a temperature of about 100F in the crawl space and 100F or more in the perimeter duct will cause a greater heat flow to the outside air than from a normal room temperature of 70F. By placing warm air close to the points of greatest exposure, the loss is accelerated. The usual edge factors cannot be used. In the case of a concrete slab, 1″ insulation passes 47 percent more heat than 2″ insulation. While 1″ is acceptable for performance, consideration of 2″ is recommended. The loss through 2″ may be computed on the basis of 65 Btu per hour for each foot of perimeter. Similar factors govern the selection of insulation for the walls of crawl spaces.

None of these systems must be used in damp ground. The greater density of moist earth increases the heat conduction and fuel bills will be excessive. This point cannot be emphasized too strongly. Drainage and the dampproofing of foundation walls are suggested and moisture barriers below slabs and crawl spaces are imperative. The material usually chosen is 55-lb. cap sheet, plastic-cemented together on 4″ laps. Under slabs, it must enclose the entire heating system and extend up to the floor surface (*Figure 4*). Crawl spaces are protected by a layer which turns up 6″ behind the insulation. In this case, the moisture barrier serves a double purpose. Its second use prevents the air from picking up ground moisture to subject the house to a humidity far in excess of proper limits. Crawl spaces must be airtight. Insulation must be of the waterproof type. Joists against the exterior sheathing must be insulated with 2″ or 3″ of batt-type insulation. The 2″ gravel cover over the barrier in the crawl space is optional, but the gravel base below barriers in all systems is necessary.

design and controls

The National Warm Air Heating and Air Conditioning Association provides design work sheets for all these systems, each of which differs slightly. Slab feeder and loop ducts range from 6″ diameters carrying 6000 Btu per hour to 8″ diameters carrying 15,000 Btu per hour. Hourly losses from rooms are computed in usual way except that, in the case of c spaces, the area is computed as a r losing heat at a faster rate because o high temperature.

Return air can be exhausted from cl rooms by grilles over the door (*Fi 5A*). Floor registers are preferred to registers. They should discharge on room side of drapes and have a spread in both directions (*Figure 5B*). turn-air ducts must be sealed at the nace, otherwise the air may be drawn i combustion air by the furnace. Bec most installations have furnaces at inte and often closed, locations, it may be ne sary to admit air from a vented attic the sake of combustion (*Figure 5C*). I case may the furnace room be used return plenum. Continuous operation i vored because it prevents stratification might occur between widely separated riods of operation. The fan is turne when bonnet temperatures reach 110F off when the discharge temperature d to 80F. This assures practically con ous operation at outdoor temperature 45F and lower. Arrangements are so that the burner will operate at freq cycles. At mid-design temperature, it operate three minutes on and three off ing the hour, thus changing to more and less "off" as the outside temper drops.

performance and economy

The already widespread acceptance installation of these systems is sure of their value to satisfied owners, bo operation and in installation cost. The light on critical materials and do no for any unusual skills to design or in Their compactness and adaptability to ern design is unquestioned.

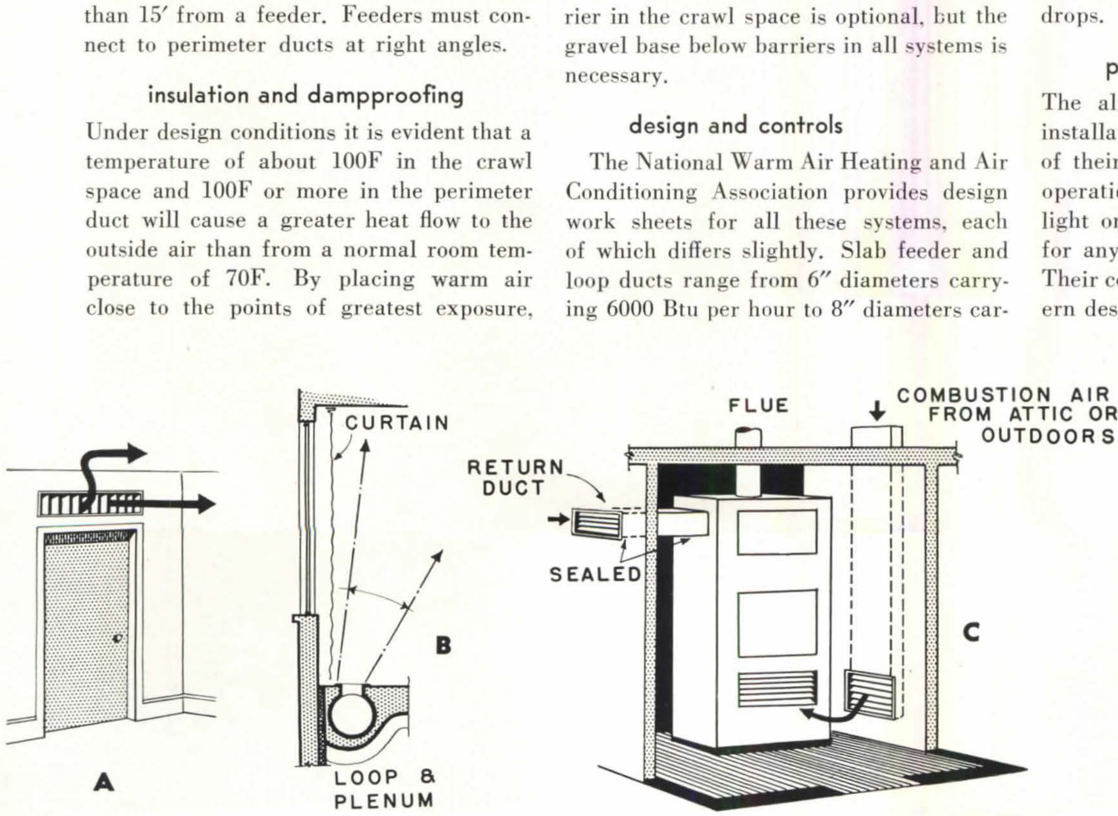


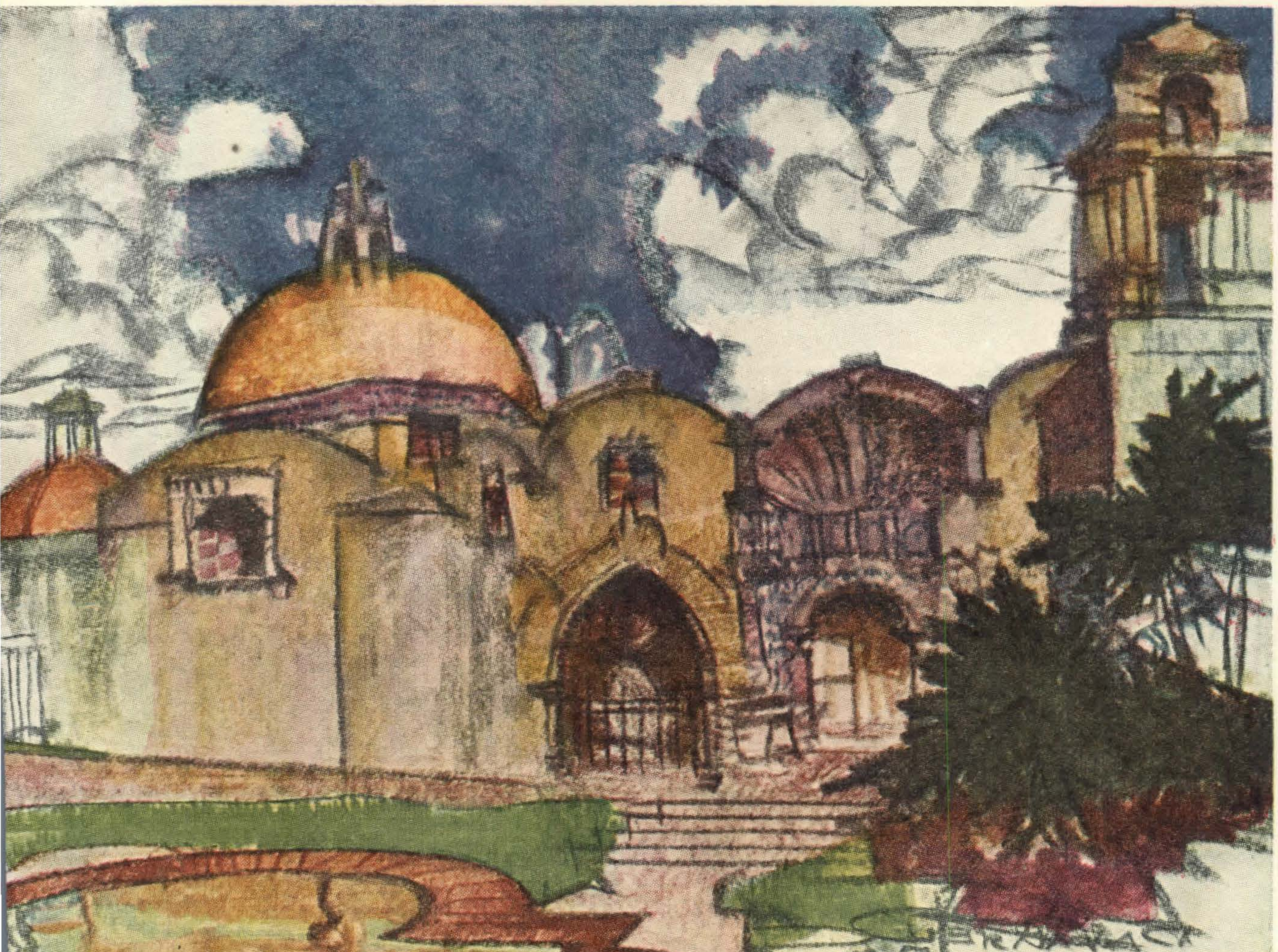
Figure 5—Various methods fo trol of air flow.

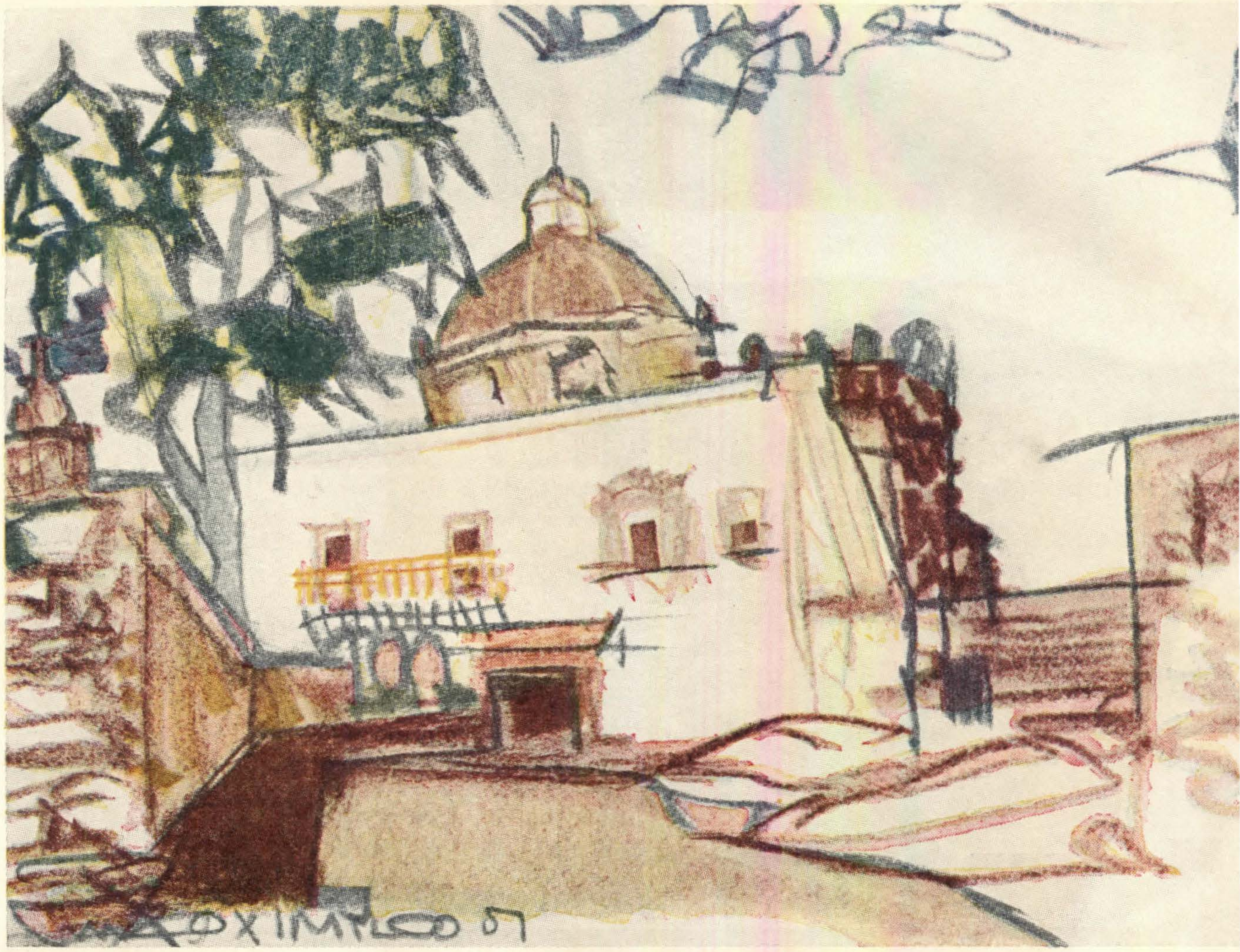
Mexican Sketches

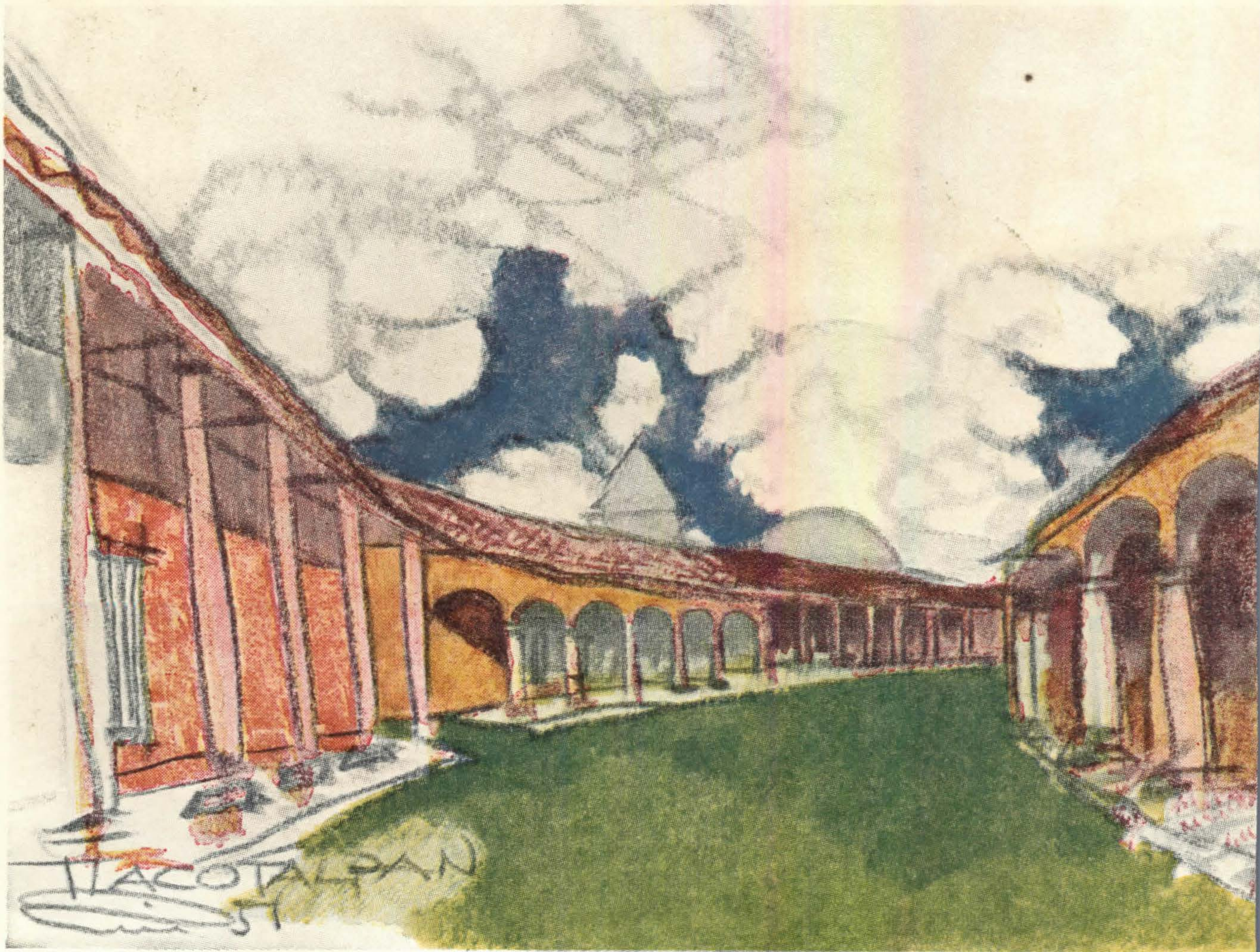
Mention of the name of Richard J. Neutra brings to mind the brilliant architectural accomplishment over the years of a man who, on arrival in this country, went to the West Coast to pioneer in progressive design and persevered against considerable odds, not only to become accepted in his chosen locality but also to win recognition as one of the world's most distinguished architects.

A less well known Neutra accomplishment is his hobby and regular practice of making extraordinarily deft pastel sketches—"five-minute sketches" he insists—wherever he finds himself in the world. In May 1946 P/A were reproduced a few of these engaging sketch notes, made by Neutra during travel in South America. Herewith are some of the colorful pastels—a mere fragment selected from a bulging sheaf of them that he showed us—made last year in Mexico. Invited by Carlos Lazo, Co-ordinator of the Ciudad Universitaria, to be one of the honorary delegates at the Scientific Congress and the Quatro Centennial Celebration of the University of Mexico, Neutra was inspecting the tropical and subtropical rural resettlement projects in the Papaloapan and Tepalcatepec Basins when these graphic notations were made.

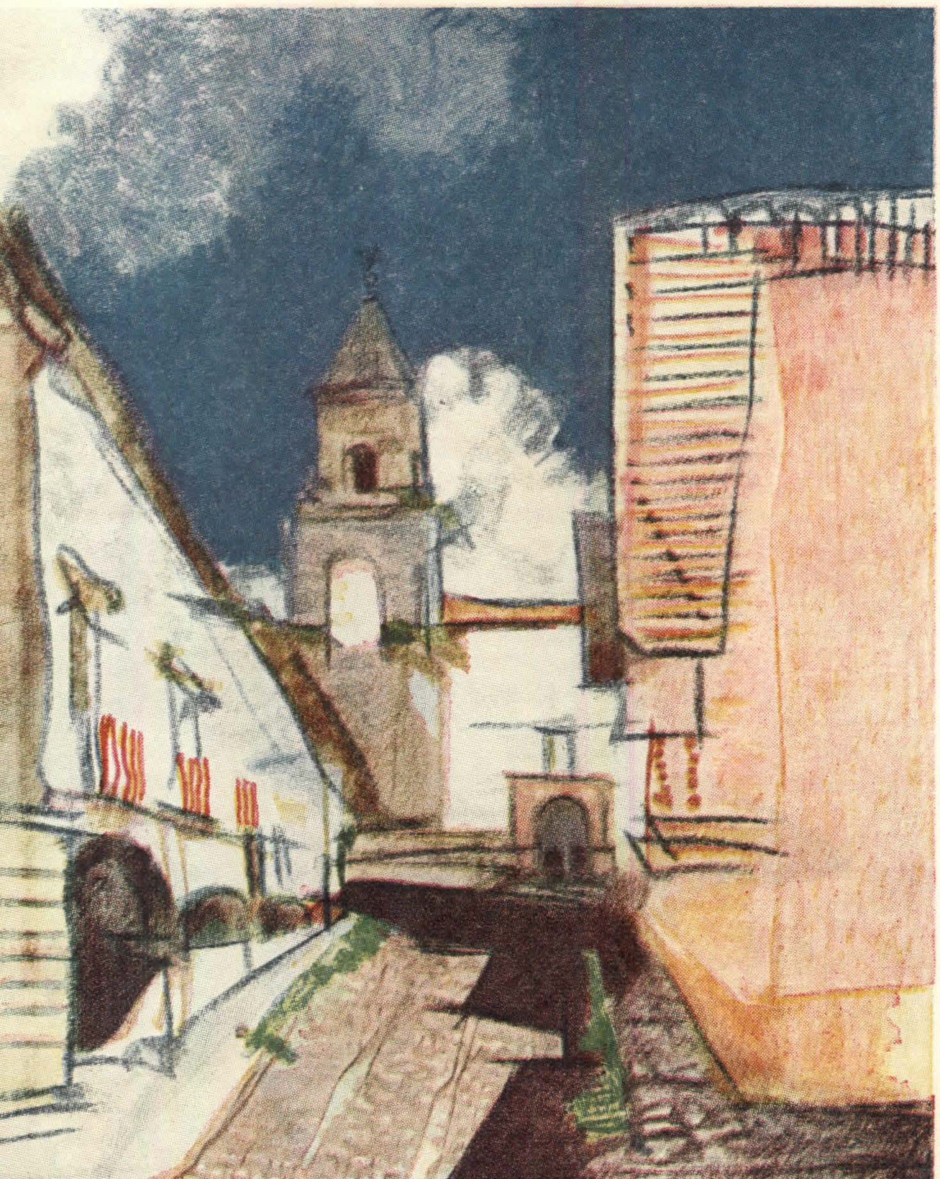
At left, Neutra is seen during a five-minute interlude, considering which crayons to select.





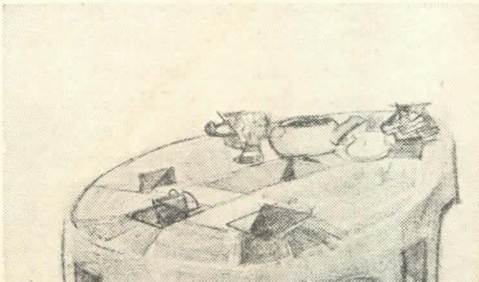

TLACOTALPAN

urch in Xochimilco



Pazquaro

Cosamaloapan, a town by the river



Old stove with seven charcoal pits

en streets, without traffic, tropical Tlacotalpan

new directions in thermal insulation

by Groff Conklin

PART I: THE PROBLEM OF NONRESIDENTIAL STRUCT

Time was when all an architect had to do was to enclose space esthetically or cheaply. Sometimes he did both and was called a genius. But that was just about all he did. People were used to spending lots of money for coal in the winter and being hot indoors in the summer.

Today, however, the architect has to be more than esthetic, economical, and aware of a few important engineering stresses. He has to know a little about heat engineering, and acoustics, and insulation materials. He has to know something about natural and artificial ventilation, and sun control devices, and microclimatology, and dozens of other things. The days are past when a man who carried a rafter table in his head was a leader in his profession. Today the man who counts is the bulbous-browed type who can remember the conductivity of dried algae and the perm rate of peanut-oil-base paint (if any).

In other words, the architect has to think of buildings dynamically today. They are no longer tiers of brick or slabs of wood with holes in them to see through. They must *perform*, thermally speaking. They must be efficiently operating cost-savers and comfort-givers, not just inanimate shapes providing shelter from the elements.

In the modern residence it is taken for granted that thermal insulation is the means which most economically and efficiently enhances interior comfort and livability the year round—insulation and, in some parts of the country, double glazing. But in larger buildings of different function, the answer to the question of operational economy and human comfort and efficiency is considerably less clear. Indeed, it can be said to be murky.

For example, the average up-to-date multi-family apartment house and hotel, and most hospitals, office buildings, factories, public buildings, and lofts being built today, omit insulation in the outer shell, especially if the glass area in the wall is large. Naturally, there is a sizable increase in annual operating costs to pay for the unnecessary heat loss in the winter, and also for the equally unnecessary heat gain in the summer for those buildings that have air-cooling systems.

Roofs generally are insulated, though in the 20-story building not so much for economy's sake as for the sake of making the top floor more comfortable in hot weather. Heat loss in winter is reduced, of course, but the proportionate size of the roof area to the areas of the walls in a multi-story building is often so small as to make the fuel saving a vanishing factor.

Why, one cannot help wondering, is this seemingly wasteful difference in common practice between the completely insulated residence and the nonresidential building with no insulation in its walls and no double glazing, permitted to exist? The reasons are difficult to state logically, perhaps because they are not logical in themselves.

Certainly no sound reason can be given for the omission of thermal insulation from the walls of buildings which are not all glass. The cost of materials and installation can be absorbed by savings in the heating plant and in fuel, as will be shown later. When the nonresidential structure is largely a curtain of glass, as certain types of buildings are today, the question of the advisability of using the much more costly double glazing arises, bringing with it the serious problem of an inordinately increased original investment—or so, at least, most investors in new buildings undoubtedly tend to think.

But are they right? The question is simple. Will the savings resulting from smaller heating plants and radiator areas, plus the savings in fuel consumption over a reasonably short period of years, warrant the extra initial expenditure for the double glazing?

The answer depends on whom you talk to. In general, it is believed that double glazing is too expensive and that the savings would not balance the cost within a reasonably short number of years. The same reasoning must apply to wall insulation as well, too, since so many n dential structures are built without such materials.

But is this thinking sound? Let' a look at a few plain, physical facts

Glazing. The heat loss coefficient factor, for a piece of ordinary v glass is 1.13. This means that 1.1 of heat will pass through one squa of glass every hour for each deg temperature differential on the two of the glass. On the other hand, the the thinnest double-glazing unit, whi about 1/4" air space between the sh glass, is given as 0.61 Btu. The 1/4" glazing thus saves almost one half heat normally lost through glass—e 0.52 Btu per square foot per hour gree difference in temperature.

Of course, should an ingenious ar design double windows—not airtig normally snug—to be built so tha are at least 3/4" apart, he could ach heat loss of only 0.54 Btu, the a loss for a double window that tak advantage of the insulating value of space. According to National Bur Standards tests, that space should less than 3/4" wide for maximum i ing efficiency—not the 1/4" or 1/2 commercial double-glazed window are made in.

Walls. Here the situation is e startling. Take the popular (and sive) cavity wall, which is being u so many institutional structures tod place of" insulation. This wall doe advantage of the full insulating va an air space; the only thing wrong is that the air space, unlike glass, c filled with an insulating material much higher heat-saving efficiency. did this with a double-glazed windo would have a considerably better i ing efficiency, but you would not h window.

Actually, the air space in a cavit is not an efficient insulator. An en air space 3/4" or more in width has loss of 1.10 Btu when it is vertica

1.31 when it is horizontal, as in The heat loss factor of an inch of insulation is between 0.24 and 0.33, ding on the material. The conduct- of two air spaces in a rafter or stud (one reflective aluminum surface each space) is between 0.09 and depending on the position of the in- on and the season of the year. Two s of mass insulation and three reflec- ir spaces are even more efficient.

d yet some very large and very im- nt buildings—hospitals, factories, of- uildings, apartments—are being built with cavity walls using the air space sulation. A 4″ common brick has the same heat-insulating quality as space—its heat loss factor is around which is only 0.15 Btu higher than eat loss of a vertical air space.

over-all heat loss of a typical brick- avity wall construction ranges be- 0.27 and 0.30, depending on the size openings provided for cavity ven- n, according to the latest tests by ational Bureau of Standards. On the hand, the heat loss factor of the SCR ted cavity wall now being promoted Structural Clay Products Research dation, with its 2″ of mineral wool tion in the cavity, is claimed to be when plastered, and only slightly less nt when the plaster is omitted.

ewise, a solid 8″ common-brick wall red over gyplath on 1″ furring strips, U of 0.27. The same wall with 1⅝″ g and the space filled with flexible insulation has a U of 0.11. A 4″ —8″ cinder block wall, plastered over th on ⅜″ furring strips, has a U of with 1⅝″ furring strips and flexible tion, the U is 0.10.

all these cases, the solid part of the of any building becomes over 50 per- more efficient as a preventer of heat when it is insulated than when it is Together with double glazing, which aches the insulated wall in heat-sav- fficiency, the wall-and-window com- can be considered to be an enormous heat trap in winter and a heat barrier in summer—a much more economical ele- ment in the operation of a building, and much more comfortable for its human oc- cupants into the bargain.

But these are suggestions for tomorrow. Today the enormous majority of nonresi- dential buildings use no thermal insulation or double glazing of any sort, whether they are half a century old or still under con- struction. Is there any experience on the record to indicate whether or not this curi-

Table I: Comparison of Radiation in Various Buildings With and Without Insulation

HOSPITALS COMPLETED	C.F. of Building	S.F. of Radiation	No. of C.F. to Ea. S.F. of Radiation	Insulation Walls	Insulation Windows
Prince Edward Island, Canada...	550,000	5,100	107	Yes	Yes
Bethlehem, Pa.	750,000	3,750	200	Yes	Yes
Hagerstown, Md.	560,000	3,590	156	Yes	Yes
New Haven, Conn.	1,605,000	13,248	121	Yes	Yes
Toronto, Ont.	1,880,000	16,600	113	Yes	Yes
HOSPITALS BEING PLANNED					
Scranton, Pa.	333,000	3,343	99	Yes	No
Long Island	514,000	7,320	70	Yes	No
New Jersey	425,000	6,600	65	No	No
Glens Falls, N. Y.	605,000	7,400	85	Yes	No
Virginia	1,137,521	23,813	47	Yes	No

In the first group all except Prince Edward Island are wings added to existing structures.

Table II: Hospitals With All or a Portion of the Buildings Insulated

No.	Location	No. Beds	Days Care	Total Cost	Power, Light and Heat Cost Per Bed Per Yr.	Patient Per Diem	Proportion Insulated
	Toronto, Ont.	547	175,488	$ 40,622	$ 74	$0.23	1/2
	Prince Edward Island, Canada	200	54,037	19,373	97	.36	All
	Hagerstown, Md.	170	57,783	27,718	163	.48	1/2
	Glens Falls, N. Y.	162	59,208	19,048	117	.32	1/2
	Bethlehem, Pa.	307	89,001	58,153	188	.65	1/4
	Hospitals Which Are Uninsulated						
2	New York City	520	152,686	$163,129	$314	$1.07	
3	Brooklyn	341	96,966	117,897	346	1.22	
8	New Jersey	284	71,856	71,367	251	.99	
10	Long Island	236	69,040	77,023	326	1.12	
13	Central New York State	218	66,323	43,509	200	.66	
14	New Jersey	207	56,588	65,317	316	1.16	
19	Northern New York State	150	41,959	27,828	186	.66	
20	New York City	131	29,741	58,541	447	1.97	
22	Connecticut	134	36,157	43,130	322	1.19	
25	Long Island	110	32,843	36,775	334	1.12	
29	Westchester County, N. Y.	100	28,261	33,975	340	1.20	
35	Brooklyn	143	30,288	43,875	307	1.45	

The local figures are from a group of hospitals with uniform accounting.

ous sticking to obsolete methods has any rhyme or reason? There is—and it is all in favor of the use of modern insulating materials in nonresidential structures.

A pioneer in this still extremely limited field is a man named Charles Neergaard. It was through his efforts that what was probably the first insulated nonresidential building in the United States, and certainly the first insulated hospital, was built about 15 years ago.

Neergaard is a hospital consultant, an enthusiast grown old in the service of efficient and economical design for the nation's hospitals. He has been laboring in the vineyard for more than 30 years, and has innovated a large number of important elements in hospital design. Probably the innovation of greatest long-term importance and most general application is the insulation of walls and windows in nonresidential structures.

Neergaard's first insulated hospital was built in Hagerstown, Maryland, in 1936. As he himself puts it, this was "*the first, and for a long time the only, multi-storied steel frame building in the East with completely insulated walls and windows.*"

The resultant savings in the Hagerstown hospital are on the record. Permanent double glazing in roughly 28 percent of the wall area cost about $2.25 more per square foot installed than the double-strength glass it replaced. Three-inch insulating blocks that could be plastered cost about $0.20 a square foot more than the furring tiles and lath they replaced in 72 percent of the wall. And the pragmatic realities of this installation, as Neergaard tells them in the March and April 1950 issues of *The Modern Hospital*, were that the actual reduction in necessary investment for heating plant and radiation surfaces in the new building was essentially the same amount as the added cost of the insulation and the double glazing. The very sizable savings in operating costs resulting from lowered fuel consumption have been added to the net income column every year since.

That this rather startling economic fact is not completely out of line with reality is indicated by other savings figures from other hospitals built since, as shown in Tables I and II, reproduced from Neergaard's *Modern Hospital* article, with some slight modifications.

These savings are not, of course, the only benefits insulation has brought the hospitals. Convection currents from uninsulated windows and walls, an unpleasant and, in a hospital, often dangerous, winter problem (they usually mean a rise in respiratory illnesses) are practically eliminated in the well-insulated building.

In addition, actual tests conducted in the Hagerstown hospital showed that the insulated building was on an average eight degrees cooler indoors than the older uninsulated structures which were a part of the same hospital. The summer comfort factor is, of course, important not only in hospitals, where it is of the utmost importance, but also in any other structure in which human beings live or work during the dog days.

There is another point about wall insulation and double glazing that Charles Neergaard believes should be taken into account. This is the increase in acoustical insulating value that a wall of that nature gains over the uninsulated wall. The available figures are obscure in this respect, but there can be no doubt that there is considerable improvement in the acoustical insulating qualities and the barring of outside noises in such buildings. In cities as noisy and as distracting as our modern megalopolises, sound reduction is an important factor, especially on the lower floors of large buildings.

Neergaard likes to remark on the fact that nonprofit buildings like hospitals were the first to take up this sort of modern, efficient, economy-producing construction. He finds it difficult to understand why the supposedly hardboiled and profit-conscious owners of modern multi-storied office buildings, apartment houses, or what have you, simply let all that heat go to waste and uncomplainingly foot the bill for it. The cynic will say—oh, well, they take it out of the tenants' hides. But the answer is that they could still charge exactly the same rents as they do today and could actually add all those dollars' worth of fuel saved to their profit account.

But they don't—perhaps because, like any other client, they don't know what to ask for. They don't realize that these savings can be made, never having been told.

On the other hand, there are trends leading toward a more rational approach to the nonresidential wall. For example, Skidmore, Owings & Merrill's design for Lever House, recently completed in New York, called for cellular-glass block insulation in the spandrels. Then there is the insulation-filled cavity wall promoted by the Structural Clay Products Research Foundation, previously described — a really efficient heat-saver. There are wood-fiber-cement, wall insulating slabs that are nonstructural but self-supporting. Unlike most other insulations currently on the market, these can be plastered directly, something which is not true of cellular-glass
Insulating lath can be plastered, of
but it is not self-supporting, nor i
combustible.

John D. Maultsby & Company,
tects for the $3 million, nine-story B
hood Building in Kansas City, Kans
reported to have cut the initial cost
heating equipment 20 percent and
refrigration capacity from 750 tons
tons by using double glazing (outer
are of heat-absorbing plate); they a
ticipate comparable savings in ope

In general, however, architects a
doing little about double glazing
original cost automatically scares th
before they have taken a good secon
at the possible savings in heating
and in fuel. One of the largest ve
hospitals in the East is being bui
standard, old-fashioned single glazi
with cavity wall construction. Undou
the heating plant is far larger than
be, if previous experience is any
The annual loss in heating dollars
would make angels weep, if they ca
all about human waste and human
ciency.

Of course, as L. V. Teesdale of th
est Products Laboratory, U.S. Depa
of Agriculture, has pointed out,
hardly practical to add insulati
double glazing to most large stru
after the buildings have been com
Such features should be incorpora
the plans as part of the design."
quently, all existing buildings that a
insulated must remain so, and their
ers take their annual loss in waste
with a smile.

But in new buildings double glaz
likely to prove a sound investment.
dale writes, in connection with th
Forest Products Laboratory buildi
Wisconsin: "Double glazing . . . in
son, where we have about 7400
days, could bring about a fuel sav
as much as 88,800 Btu per square
With coal costing $10 per ton, and
ing eight pounds of steam per pou
coal, the fuel saving would be abou
cents per square foot of glass surfa
our buildings we have about 20,000 s
feet of glass. If double glazed, the
mated reduction in fuel would be 11
of coal per year. Double glazing now
not be justified on the basis of fue
ings but double glazing would have
justified at the time the building wa
der construction."

These are persuasive figures i
particularly since they do not tak
account either the further savings

nvestment resulting from a smaller g plant, or the somewhat smaller s caused by insulating the nonglass of the walls. If these figures were , the savings would in all probability tremely handsome. (*See Chart 1 for oretical example.*)

s not possible to make an entirely and pragmatic judgment of the value ulation in nonresidential walls at this of course. For one thing, it has not actually been proved that insulation and double glazing in the typical nonresidential structure can be made economical. All that has been shown is that such construction has proved economical in certain hospitals. Practical proof must be forthcoming from practical men who can bring their experience and knowledge to the problem and analyze the various costs versus savings so as to come out with an answer that is essentially right. At present the indication is that their calculations will show that insulation and double glazing in many types of nonresidential—and apartment house—structures are good investments.

For example, nearly four years ago James Govan, a Toronto architect who has built many insulated buildings, particularly hospitals, in the Canadian provinces, published the following unqualified statement in *Canadian Hospital* (June 1948):

CHART 1: EXAMPLE OF POSSIBLE ECONOMIES RESULTING FROM INSULATING WALLS IN NONRESIDENTIAL STRUCTURES[1]

situation

ne a test building 100 feet square and 25 feet high, or one ning 10,000 square feet of wall area. Fifty percent of this area estrated and the remainder consists of brick and cinder-block uction. Location: New York City vicinity. As the roof and door gs are identical in buildings with insulated or uninsulated walls, nay be considered as cancellable and therefore ignored; floors ot to be considered.

analysis of heat loss

SULATED WALLS

. 50% of wall single glazing. 5000 sq. ft. x 1.13 (U) .. 5650

. 50% of wall 4" common brick, 8" cinder block, ½" plaster on block. 5000 sq. ft. x 0.33 (U) 1650

OTAL HEAT LOSS, Btu/hr./deg. diff. 7300

LATED WALLS

. 50% of wall double glazing, ¾" air space[2] 5000 sq. ft. x 0.54 (U) 2700

. 50% like 1-B (*above*) plus insulation with heat transmission coefficient of 0.15. 5000 sq. ft. x 0.10 (U) ... 500

OTAL HEAT LOSS, Btu/hr./deg. diff. 3200

SAVINGS IN REDUCED HEAT LOSS

00-3200 4100

savings in fuel costs per year

nnual degree days of heating in the New York City area 5300

alculated efficiency of oil burner for steam heat......... 75%

uel consumed, if U is 1.00/sq. ft./yr. in N.Y.C.[3] .... 1.5 gal.

L GALLONS TO REPLACE HEAT LOSS IN UNINSULATED LLS

. Fuel for 5000 sq. ft. of glass
5000 x 1.5 = 7500 x 1.13.................... 8475 g.p.y.

Fuel for 5000 sq. ft. of wall
5000 x 1.5 = 7500 x 0.33.................... 2500 g.p.y.

TOTAL .... 10,975 g.p.y.

TOTAL GALLONS TO REPLACE HEAT LOSS IN INSULATED WALLS

C. Fuel for 5000 sq. ft. of double glazing
5000 x 1.5 = 7500 x 0.54.................... 4050 g.p.y.

D. Fuel for 5000 sq. ft. of wall
5000 x 1.5 = 7500 x 0.10.................... 750 g.p.y.

TOTAL .... 4800 g.p.y.

NET SAVINGS OF INSULATED OVER UNINSULATED WALL IN G.P.Y.

10,975 — 4800 = 6175 gallons. At 0.125¢ per gallon, this means a cash saving in fuel costs per year of $775.

estimated savings in reduced size of heating plant and radiation area[4]

Heat loss for OF — 70F temperature differential, uninsulated building:
7300 x 70 = 511,000 Btu/hr. At 75% burner efficiency .... 640,000 Btu/hr.

Heat loss for OF—70F temperature differential, insulated building:
3200 x 70 = 224,000 Btu/hr. At 75% burner efficiency .... 280,000 Btu/hr.

DIFFERENCE .... 360,000 Btu/hr.

NET SAVINGS IN DOLLARS IF PLANT COST IS $8 PER POUND PER HOUR CAPACITY[5]

$$\frac{\$8 \times (360{,}000)}{1000} = \$2900 \text{ (approximate)}$$

estimated cost of insulating and double glazing[6]

Double glazing: At $2.25 extra per sq. ft.
5000 x 2.25 .... $11,250

Wall insulation: At $0.20 extra per sq. ft.
5000 x 0.20 1,000

TOTAL EXTRA COST $12,250

summary

Total Extra Cost $12,250

Savings on Steam Plant and Radiation.................... 2,900

DIFFERENCE $9,350

NECESSARY PERIOD TO AMORTIZE EXTRA COST OF WALL INSULATION, DOUBLE GLAZING

$$\frac{\$9{,}350}{\$775 \text{ (Fuel savings per year)}} = 12 \text{ yrs.}$$

example does not take into account the further savings which would result uilding were also air-cooled.

ould be noted that at the present time there is no standard double-glazed unit with a ¾" air space between the sheets of glass. The maximum width pace commercially available is ½".

l on data in "Insulation: Where and How Much" (Housing and Home Fi- gency, 1950).

not take into account necessary added plant to take care of heat loss through ors, floor, etc.

mical Engineer's Handbook," John H. Perry (McGraw-Hill Book Co., Inc.,

l on data developed by Charles Neergaard ("The Modern Hospital," March il. 1950).

"Canadian owners and architects should know that there is absolutely no need for increased capital expenditure to provide increased thermal capacity because its cost can and should come out of the reduction in expenditure of the heating plant provided."

Since some of the most successful insulated hospitals are in Canada and have been a part of Govan's experience, it should be taken for granted that there is a wealth of supporting facts behind this quotation. And further support is brought to his position by the opinion of Engineer C. E. Daniel, who was consulting engineer to Hoge and Shaffer in the preparation of the U.S. Public Health Service's report, "Functional Basis of Hospital Planning." According to Charles Neergaard, Daniel was personally responsible for the following quotation from that report.

The statement is preceded by an engineering generalization that one square foot of radiation is required for every 80 cubic feet of the building when it is uninsulated. It then goes on:

"When the walls are well insulated, the size of the heating boilers and radiators can be reduced approximately 25 percent; if, in addition, the windows are effectively double glazed, 50 percent, or approximately one square foot of radiation to 160 cubic feet of space."

Without question, such a reduction in heating plant size will, in many if not all instances, essentially cover the costs of the insulation.

Now no generalization ever proves true in a specific case. That is probably why it is called a generalization. Nevertheless, the above quotations should indicate to architects, to engineers, and to clients of both, that there is literally no logic or sense in continuing to assume *automatically* that the insulation of nonresidential buildings (including double glazing) is uneconomical, will add seriously to the capital investment, and will not drastically reduce operating costs. On the evidence, such insulation should long have been one of the standard and basic elements in the planning of modern nonresidential buildings.

Meanwhile, there are other aspects of the problem that deserve study. For example, what are the basic elements that make insulation in the home a good investment? Can they not apply to the nonresidential structure as well?

Ideally, housing construction economics in the case of individual homes with four sides exposed to the weather, or with two, in the row house, or three, in the semi-detached, are based on a combination of a program of low first cost, high operating efficiencies, and minimal maintenance costs. Large glass areas in private homes are, when well planned, designed to take fullest advantage of solar heat during the cold winter days. They can be effectively curtained against cold night air or during sunless days, if desirable. Removable storm windows for residences, too, are generally inexpensive, and provide excellent insulating efficiency at the window openings for very little money. Insulating materials for walls, attics, and floors that need them are cheap in general and very efficient. It is far from uncommon to find that the cost of insulation and storm windows in residences are paid for by the savings in the cost of a smaller heating plant and decreased radiating area or smaller warm-air ducts. If any part of the insulating bill is still outstanding, it is in most cases amortized in a very few years by the savings in fuel costs resulting from using a smaller furnace. This is the usual experience in the modern residential field, as any architect practicing in it knows. Problems in moisture condensation and humidity control are being handled with increasing ease by means of efficient vapor barriers and simply designed ventilating systems, often natural rather than powered.

In other words, insulation has arrived for the residence. True, storm windows are often used instead of prefabricated double glazing, but the result is the same, and is achieved at considerably lower cost.

The situation in commercial, industrial, and institutional structures, on the other hand, is seemingly of a very different nature. In the first place, it is true that one generally cannot pay the kind of attention to the solar orientation of a nonresidential structure as you can to the private home. A city block is an immovable object. Non-urban structures in this general class, whether resort hotels, decentralized factories and hospitals, or some other type of free structure, can be designed to take the fullest advantage of site and sun. In the city, however, this is practically impossible. A favorable location sun-wise is fortuitous, not planned.

But that is just about the only important limitation to the control of internal climate that the urban building suffers from. Otherwise insulation, combined with modern heating and air-conditioning techniques, should be able to provide a highly efficient and comfortable structure that will please its owner by the low costs of operation and its tenants by the unusual elements of comfort, winter and summer, that it provides.

And yet most of these building are not insulated. Some of the reasons given for not insulating the walls of buildings in the nonresidential categories are novel in the extreme. During the researches on this s ject, the following were mentioned:

1. It doesn't make any difference; tenants pay for the heat anyhow. (This was mentioned before, but it deserves r tition.)

2. It would be too difficult to exp the higher cost for double glazing, etc. the client. (In this case the possible ings in the heating plant were not admit even though they were mentioned sev times.)

3. The office building (and others similar categories) *is occupied only e hours a day, so why insulate for nightti The sun will take care of the heat loss ing the day.* (On the north side, too? And also, one cannot design any buildin be occupied by paying tenants on the sumption that the temperature can be mitted to fall below the comfort level ing the night. If the owner can control occupants and knows they will not b the building after dark, the point may h some validity—except that it still is answer to the problem of heat loss!)

4. (From an engineer's letter)—*"I not recall a single instance in 30 year engineering that placed the decision fo against insulating a building into my l* (In other words, "The client never gested it."

5. Rooms in office buildings and m other kinds of nonresidential structures occupied by large numbers of people ing the day. Their bodies throw off eno heat to compensate for the heat through the glass and wall areas. (theory that nonresidential structures do need insulation in the walls or double g ing in the windows because they are ful people, was the most novel one encount during the researches. On this theor there were enough people in the build you could pipe off the surplus Btu radi from their bodies and operate the ele light system with them.)

6. Any heat saved by double glazing be dribbled away by tenant wastefulr They will leave windows open and fo to shut outside doors. (If there is logic to this, it is not visible on the surf In many buildings using double glazing windows are fixed and cannot be open one way of eliminating the problem waste. In others they can be opened, will be so only when the rooms are *warm* because there are too many pe in them or for some other reason. In event, there is not likely to be a notice effect on fuel consumption.)

So—why no insulation or double gla in the walls of most nonresidential b ings? The only reason that makes sense today is the unfortunately uncon mentary one of—technological lag.

Among the 23 Gold Seal Winners were:

GHTING COMPETITION

isored by the 4th International Lighting Exposition and Conference, the 1952 t Award Competition had as its objective: to help mobilize lighting knowl- to advance America's welfare. The competition was open to architects consulting engineers, electrical contractors, utility lighting and power repre- itives, electrical distributor's specialists and salesmen, and owners and users idustrial and commercial lighting. To be eligible for an Award, the lighting pment used in an installation had to be the product of one or more members ie National Electrical Manufacturers Association, sponsors of the confer- . All installations were made between July 1, 1950 and December 31, 1951. n the 387 solutions submitted, Gold Seal Merit Awards and Merit Award ficates were announced at the exposition which was staged in Cleveland month.

Among the Merit Award Certificate winners was an OFFICE BUILDING LOBBY iitted by Leonard H. Gussow, of Harley, Ellington & Day, Detroit architects engineers *(illustrations this page)*. A deep beam crossing the lobby directly ont of the elevators created a special problem by limiting the ceiling height ie entire area. It was decided that a luminous ceiling with a pattern deter- d in part by the low beams would offer an acceptable solution. The re- ing areas were illuminated by a cove facing the entrance and by downlights. The lighting solution for a MEN'S CLOTHING SHOP, submitted by S. J. Broch- , of Brochsteins, Inc., Houston architects and engineers, was also a Merit

architects and consulting engineers

John D. Perry—Art Gallery
Delbert K. Perry, Architect
New Britain, Conn.

Charles S. Telchin—Jewelry and Silver Shop
Telchin & Campanella
New York, N. Y.

Herbert A. Delius—Bank Lighting
Delius & Thomas, Engineers
San Francisco, Calif.

L. Ralph Bush—Public Library
Atlanta, Ga.

electrical distributors' lighting specialists

Harry F. Gill—Field House Lighting
Graybar Electric Co.
Newark, N. J.

W. E. Watson—Furniture Store
Graybar Electric Co.
Detroit, Mich.

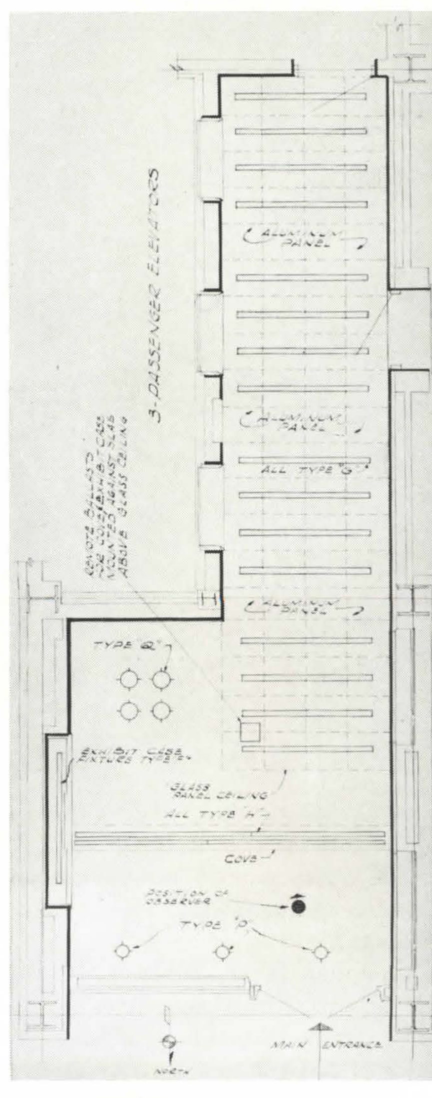
George E. Pieper—Machine Shop
with Donald W. Somes, William J. Metters
Metals and Controls Corp.
Attleboro, Mass.

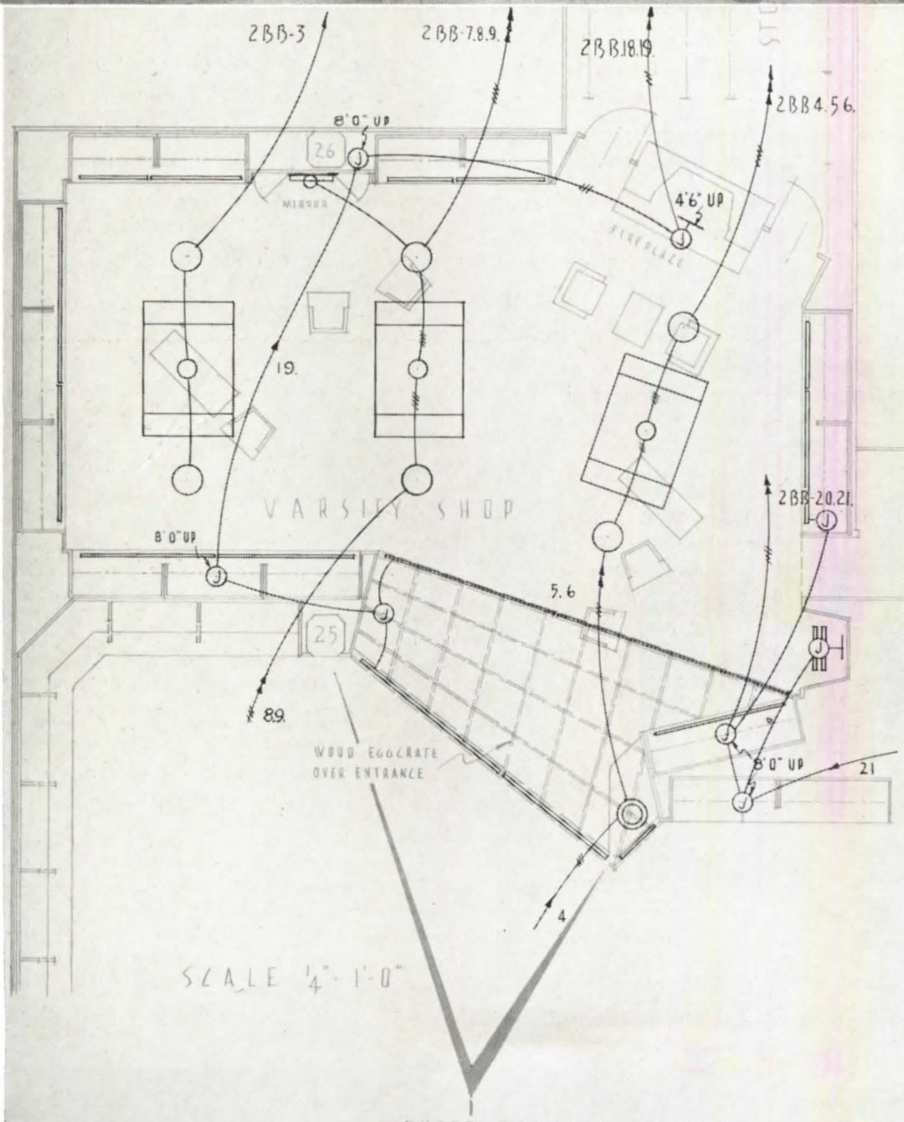
Thomas J. Fifer—Street Lighting
Westinghouse Electric Supply Co.
Omaha, Neb.

J. E. Donaldson—Office Lighting
General Electric Supply Corp.
Pittsburgh, Pa.

Illumination in footcandles for OFFICE BUILDING LOBBY: front lobby, 36″ above floor, 12; directly under Type "Q" fixture, 36″ above floor, 120; under luminous ceiling, 40.

Brightness in footlamberts: ceiling, under cove, 3.3—4.7; Type "Q" fixture, 155; luminous ceiling, front, 80; luminous ceiling, rear, 25; wall directly above chair, 11; floor, general, 11. *(Readings taken from position marked on floor plan.)*





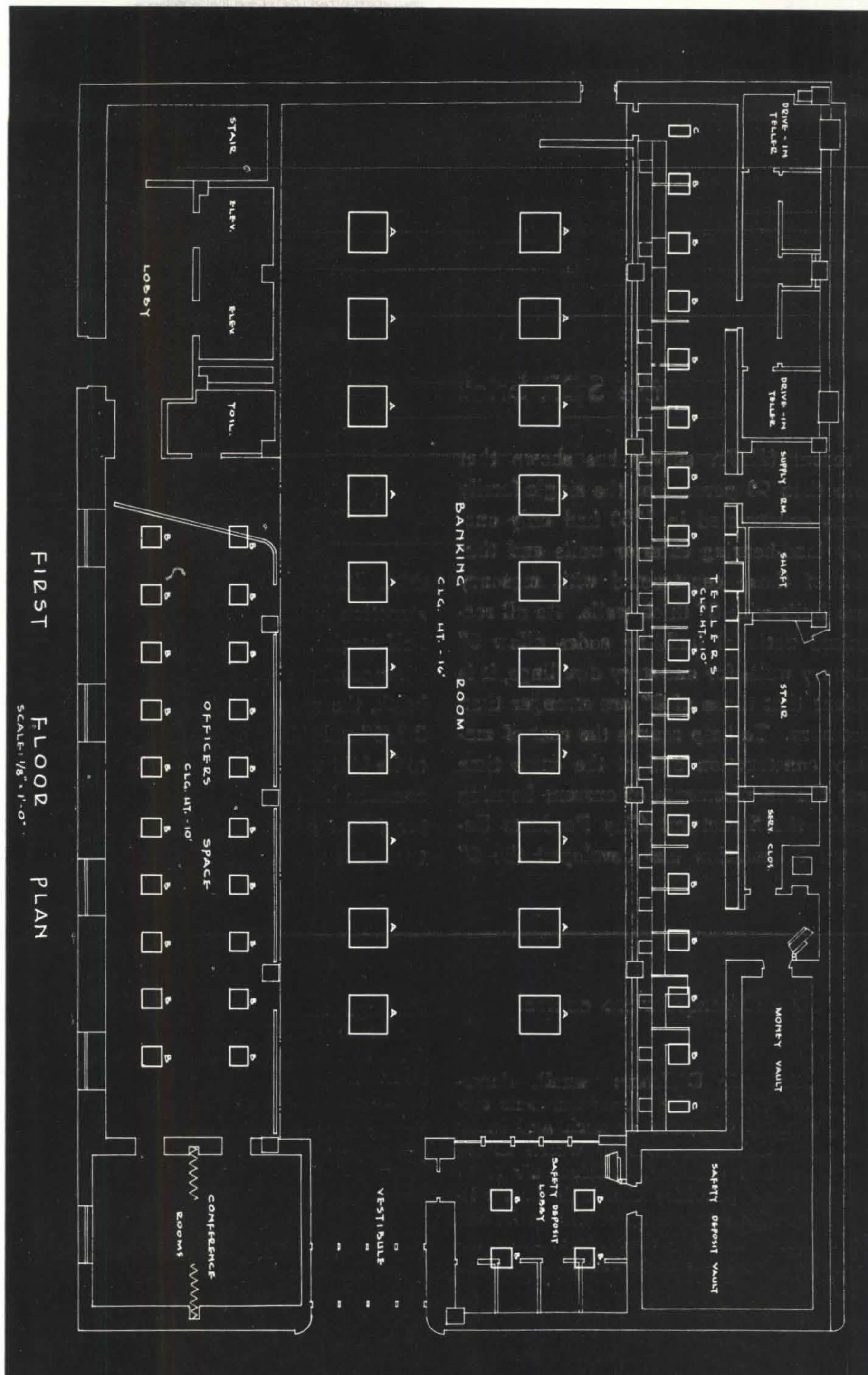
Illumination in footcandles for MEN'S CLO
ING SHOP; general lighting, 33; wall c
84; mirror alcove, 51; manikin, 110.

Brightness in footlamberts: skylight
ture, viewed at 78°, 150; recessed incan
cent, viewed at 78°, 147; ceiling, max.
min. 5; walls, 4.5; manikin at shoulder,

Award Certificate winner *(illustrations this page)*. The approximate area of this shop is 700 sq. ft.; the main ceiling height is 12′ and the height under the eggcrate is reduced to 8′. Fluorescent-skylight fixtures, incandescent-recessed units, adjustable spots, and fluorescent lamps over the entrance were all integrated in the design.

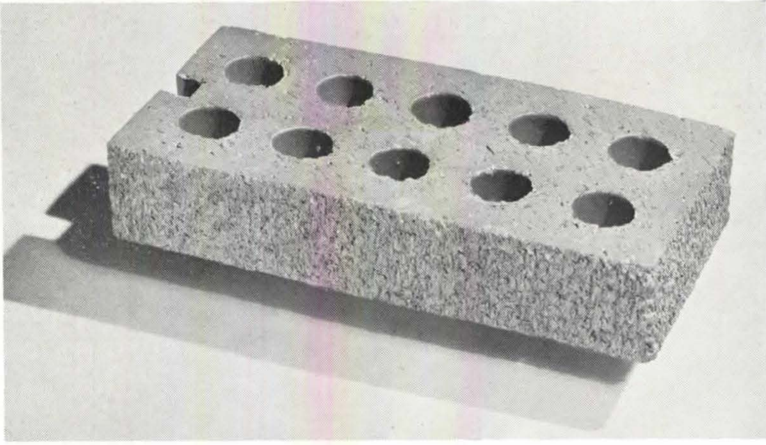
A solution for a BANKING ROOM, submitted by Thomas E. Blakely, of Newcomb & Boyd, Atlanta architects and engineers, also won a Merit Award Certificate *(acrosspage)*. All fixtures have a hinged-eggcrate louver providing 45° x 45° shielding. Each fixture contains T-12 lamps of "standard warm-white" color.

petition



nination in footcandles for BANKING м: floor, 38; officer's desk, 46; teller's ter, 42; check desk tops, 46; on mural,

rightness in footlamberts: fixture, 285; ng, 6.6; wall, 7.3; floor, 9.7; mural, 4.6.



the SCR brick

A recent HHFA survey has shown that more than 90 percent of the single-family homes constructed in 1950 had only one-story load-bearing exterior walls and that most of those constructed with masonry were built with 8″ thick walls. As all recognized national building codes allow 6″ masonry walls for one-story dwellings, it is evident that those of 8″ are stronger than necessary. To help reduce the cost of masonry construction and at the same time meet the requirements of current housing trends, the Structural Clay Products Research Foundation has developed the 6″ thick SCR brick to replace 8″ wall construction in homes of one and one-and-one-half stories.

Appearing the same as standard Norman brick, the new unit's basic dimensions are 2 1/6″ x 11½″ x 5½″ (*above*). Designed to be laid without backup materials and in common bond with full bed and head mortar joints of ½″ thickness, the unit will turn corners efficiently and will build jambs and openings without special a tional units (*acrosspage*). Modularly laid up three courses to 8″ of wall he Vertically cored to lighten its weight to facilitate proper laying and handling brick weighs only 8 lbs. when mad usual clays and shales. The 1⅜″ hole and arrangement were designed to d cate the grip and finger spread now by a mason in laying standard brick

air and temperature control

Residential Air Diffuser: small, dome-shaped air diffuser for forced warm-air systems; consists of collar or neck and inner and outer deflector, both of which divert downward and outward, draftless air from ceiling. Unit provides thorough heat distribution, with room temperature variations of no more than 1½ degrees; shallow silhouette makes it no more conspicuous than light fixture. W. B. Connor Engineering Corp., Shelton Rock Lane, Danbury, Conn.

Down Discharge Coolers: five new evaporative air coolers added to 1952 line, ranging from 3700 cfm to 6600 cfm capacity. Especially constructed to allow cool air discharge through bottom of coolers, permitting simpler roof installations. Units may be installed without exterior ductwork, thus eliminating at least one elbow and one duct joint in each installation. Essick Mfg. Co., 1950 Santa Fe Ave., Los Angeles 21, Calif.

PAC Gas Unit Central Heater: compact, all-purpose automatic heater, with 100,000 Btu rating, approved by A.G.A. as central heating gas appliance or as unit heater, in either case with or without use of ducts. Flanges on both ends of cabinet can be fitted with louver panels or used to connect ducts; four sockets on both top and bottom provide for suspended or base mounting. All controls enclosed within cabinet. Reznor Mfg. Co., Mercer, Pa.

Package Attic Fan: vertical discharge unit for home ventilation and cooling, measures 3 sq. ft. and projects only 17½″ above attic floor. Improved ceiling shutter opens and closes automatically as fan is turned on or off. Trim and shutters finished in light ivory, baked enamel. Available in 4750 and 5800 cfm capacities. Robbins & Meyer, Inc., 387 S. Front St., Memphis, Tenn.

Posit-Aire Industrial Ventilator: low silhouette, roof-type ventilator moves maximum volume of air in range of 5000 to 45,000 cfm. Automatic closing of louvers when unit is not operating prevents back-draft, entrance of outside air, rain, or snow. Interiors and mechanism can be supplied with protective coatings for moisture and corrosion protection. Tripar Products, Inc., 14641 W. Eleven Mile Rd., Royal Oak, Mich.

doors and windows

Riviera: overhead wood door for residential garage, constructed with five narrow, horizontal sections, instead of the customary four, to produce effect of length and lowness, in keeping with general trend toward long, low structural lines of contemporary residential architecture. Complete range of sizes for single and double openings. Preservative treatment protects wood against termites, fungus, dry-rot, and moisture. Crawford Door Co., 401 St. Jean, Detroit 14, Mich.

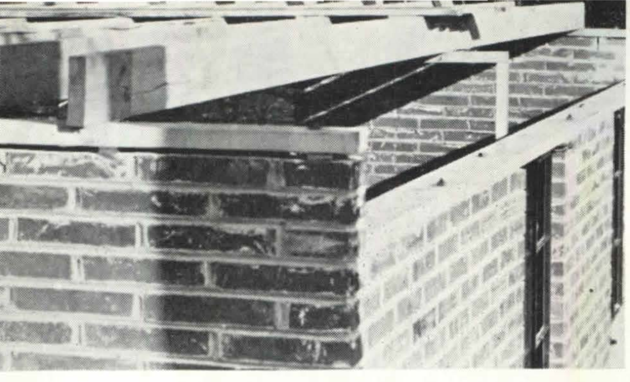
Marmet Louvre Block: small, sq aluminum ventilating unit, designed t place 8″ x 8″ glass block in wall pan kitchen, bathroom, or any small space requiring full ventilation. Self-conta unit is glazed and screened, with louve outer side. Marmet Corp., Wausau, Wis

Hurlinge Hinge: newly designed hing quires no recess in door; outer leaf of l screws directly to frame, while inner smaller leaf is screwed to door; when is closed, smaller leaf fits into larger Unit is self-aligning and self-gapping. A able in standard sizes of 2″, 3″, and 4 variety of metals—steel, brass plate, br plate, etc. No-Mortise Hinge Corp., B Brook, N. J.

electrical equipment, lighting

AA-51 Series Explosion-Proof Ligl Fixture: new design features allow greater safety and lighting efficiency; u entire lower edge of hood as contin louver, plus porous metal interiors, pro even heat distribution and cooler opera Wire-free canopy construction permit stant removal of entire fixture. Availab sizes ranging from 60w to 500w. App Electric Co., 1701-59 Wellington Ave., cago 13, Ill.

2450 Downlight: inexpensive recesse candescent unit, requiring only 5½″



Detail of roof framing on pilot house built with SCR brick (*above*) shows method of staggering anchor bolts on the plate.

lot at one end assists the installation tal windows.

o-inch square wood furring is recomed to provide a barrier against moisenetration, permit easy installation of ical facilities, and to permit the use nket insulation as desired. With this g, the interior side can be finished to le any desired U-factor. When 1" nsulation, ½" insulating board, and ½" vermiculite plaster are specified, a U of 0.12 obtains. To simplify and further reduce furring costs, improved, galvanized clips can be secured through manufacturers of the SCR brick.

Time and motion studies and actual mason trials have shown that under normal conditions a mason could build 60 to 100 percent more wall area per day with this brick (*above*). It has also been demonstrated that he can easily lay 450 units per day—the equivalent of 100 sq. ft. of wall per day per mason. As the SCR brick will undoubtedly stimulate masonry house construction, the product has bricklayer union approval and is now available in every major building market. Structural details can be obtained from the Structural Clay Products Institute, 1520 18 St. N.W., Washington 6, D. C.

; and 10"-sq. opening, provides low ness, diffused illumination; suitable rridors, lobbies, and similar locations spitals, schools, hotels, and private ngs. Glass-lens panel is mounted in frame that hinges open for easy mainte. Maximum lamp size is 150 w. urgh Reflector Co., 421 Oliver Bldg., urgh 22, Pa.

ed-Action Electric Light Switch: ped with spring-loaded diaphragm that gs light for full minute after pressing switch; particularly useful for porch enabling person to walk to garage, ample, or in bedrooms for children d persons. Housed in standard size case, is easily installed in existing utlet or in new construction. Capacity amp. at 125v; 5 amp. at 250v. Electric rizer Corp., 9993 Broadstreet, Detroit h.

finishers and protectors

olite Wax: anti-slip wax, containing carnauba wax with colloidal silica as ip ingredient, said to have long-wearnd scuff-resistant qualities. Does not frequent buffing, is also water re-; recommended for hospital floors and public areas. Huntington Laboratories, untington, Ind.

)T: reinforcing fabric, composed of fireproof Fiberglas threads, for use with roof coating in repairing roofs, stopping roof leaks, and waterproofing areas around flashings, fire walls, chimneys, and skylights. Fabric is extremely light in weight, with great tensile strength to withstand stress and strain, and is reputed to last life of roof itself. Monroe Co., Inc., 10703 Quebec Ave., Cleveland 6, Ohio.

insulation (thermal, acoustic)

Minatone: incombustible, perforated, acoustical tile, made from mineral wool and binding agents; may be installed by cement application to plaster, gypsum lath or board, or it can be suspended from ceiling by usual methods. Tile comes in 12" x 12" x ⅝" size, factory painted with two coats of white latex paint; can be repainted without noticeable loss of sound efficiency. Armstrong Cork Co., Lancaster, Pa.

sanitation, water supply, drainage

Booster Pumps: new line of smaller units, specifically designed to meet need for more compact, space-saving units in residential and industrial hot water systems. Despite reduced size, lighter units are claimed to deliver greater number of gal. per min. at lower cost in electric power than their predecessors. Boosters are powered by 1/12-h.p. motors. Bell & Gossett Co., Morton Grove, Ill.

specialized equipment

MI-6441 Speaker: small speaker, serving as re-entrant speaker in low-powered voice-paging system or as high-efficiency microphone in talk-back system, designed to replace cone-type speakers in intercom systems where maximum acoustical output is required from nominally powered amplifiers. Ruggedly constructed, completely weatherproofed; suitable for use in bus terminals, warehouses, garages, coal yards, and other industrial areas. Radio Corp. of America, Camden, N. J.

surfacing materials

Ceratile: line of decorative wall clay tile treated by frostproofing process, allowing tile to be used for exterior, as well as interior, application in freezing climates. Available in 34 stock patterns; unlimited custom designs can also be made to order. Cambridge Tile Mfg. Co., P. O. Box 71, Cincinnatti 15, Ohio.

Thriftwood: low-priced, light density, ¼" hardboard panel made of processed fir fiber, designed for general interior use such as wallboard, underlayment, built-ins, and cabinet work. Easily sawed, nailed, and planed. Available in panel sizes of 4' x 4', 4' x 6', and 4' x 8'. Forest Fiber Products Co., 316-4 Pacific Bldg., Portland 4, Ore.

MANUFACTURERS' LITERATURE

★ *Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

air and temperature control

★ **1-168. Unit Ventilator Catalog** (3500), 24-p. bulletin describing draft-free system of heating and ventilating classrooms that meets all basic optimum requirements. Problem and solution, operating data, system components, specifications, application, typical installations, photos, drawings. American Air Filter Co., Inc., Herman Nelson Div., Moline, Ill.

1-169. Remotaire, AIA 30-F-1 (257), 24-p. engineering manual on remote-type room air conditioner for multiple installation, providing both winter heating and summer cooling; designed for office buildings, apartment houses, hotels, hospitals, residences. Unit connects to centrally located water heating and cooling plants, and offers individual temperature control in every room. Advantages, types, features, cooling and heating selection charts, specifications. American Radiator & Standard Sanitary Corp., Bessemer Bldg., Pittsburgh 30, Pa.

1-170. Hev-E-Oil Burners (AD-102), 8-p. bulletin. Full line of oil burners for commercial and industrial use, utilizing heavier grades of fuel oil, up to low-cost No. 5, as well as light oils. Sizes and capacities, advantages, components, specifications. Cleaver-Brooks Co., Hev-E-Oil Burner Div., 326 E. Keefe Ave., Milwaukee 12, Wis.

1-171. Kno-Draft Adjustable Air Diffusers (K-20-A), revised, 32-p. catalog displaying line of air diffusers and accessories. Application, performance charts, technical and installation data, general duct design, balancing procedures, photos. W. B. Connor Engineering Corp., Shelter Rock Lane, Danbury, Conn.

1-172. Invisible Warmth, AIA 30-C-14 (594), 28-p. booklet describing 6 types of convectors for homes, stores, offices, schools, and institutions. Dimensions and connection data, ratings for steam and hot water use, typical installation photos. National Radiator Co., 221 Central Ave., Johnstown, Pa.

construction

3-143. How and Where to Specify Stainless Steel in Architecture, AIA 15-H-1, 20-p. booklet listing almost 300 different construction applications of stainless steel, ranging from air-conditioning ducts to windows. Available forms and finishes, specification guide, contents table. American Iron and Steel Institute, 350 Fifth Ave., New York, N.Y.

3-144. Movable Metal Walls (52), 48-p. catalog. Solution of space problems in commercial, industrial, and institutional buildings by use of all-steel, or combined steel and glass, panel partitions. Types, construction features, details, hardware, glazing, and wiring data, photos. Mills Co., 965 Wayside Rd., Cleveland 10, Ohio.

doors and windows

4-169. Quality Aluminum Windows and Screens, 12-p. bulletin illustrating residential, stock casements and stock projected windows, available with screen mesh and frames. Sizes, full-size details, specifications, advantages. A.B.C. Steel Equipment Co., Inc., 215 E. 22 St., New York 10, N. Y.

4-170. Modern Window Shading, AIA 35-P-5 (A-1429), 28-p. booklet. Advantages of completely washable window shade made of fine cotton fabric impregnated and coated with vinyl plastic. Types, uses, methods of hanging, specifications, actual sample, color selection, photos, drawings. E. I. du Pont de Nemours & Co., Inc., Fabrics Div., Newburgh, N.Y.

4-171. The Smartest Thing in Doors, AIA 16M (5098), 8-p. booklet on accordion-type folding doors with rustproof metal frames covered by plastic-coated fabric; may also be used as movable wall to form smaller rooms in large area. Uses, construction, details, sizes. Holcomb & Hoke Mfg. Co., Inc., 1545 Van Buren St., Indianapolis, Ind.

4-172. Hager Hinges, 8-p. booklet showing representative group of complete line of hinges for any door and any jamb, in all standard sizes and finishes. Types, uses, sizes, weights, details. C. Hager & Sons Hinge Mfg. Co., 2457 DeKalb St., St. Louis, Mo.

★ **4-173. How to Make the Most of Daylighting,** AIA 10-F. Spiral-binder contains folders and reprints of articles on fenestration of classrooms with light-directing prisms and light-diffusing glass block. Computation of illumination distribution, simple daylighting survey technique, glass block job data, application data, charts, drawings, typical installation photos, performance data. Pittsburgh Corning Corp., 307 Fourth Ave., Pittsburgh 22, Pa.

4-174. Steel Windows and Doors (D-140), 28-p. catalog. Double-hung and casement windows; swing and sliding closet doors for residential installations. Stock sizes, details, types of surrounds and casings, specifications, hardware information; also brief data on basement and utility windows. Truscon Steel Co., 1315 Albert St., Youngstown, Ohio.

4-175. Weldwood Doors and Partition Panels, AIA 19-e-1, 12-p. catalog offering various types of flush doors (including Kaylo-cored fire doors) and partition pa available in choice of fine hardwood ve finishes. Sizes, thicknesses, weights, I ware and installation specifications, ph drawings. U.S. Plywood Corp., 55 W St., New York 18, N.Y.

electrical equipment, lighting

5-109. Bulldog Vacu-Break Master Sa Switch, AIA 31-D-4 (514), 4-p. folder. scription of safety switch line, reduced several hundred switches to only 37 t which fill all Type A, C, or D requirem Operation features, new catalog numbers old numbers they replace, cross refer Bulldog Electric Products Co., 7610 Can St., Detroit, Mich.

Two bulletins, covering "LS" series of oratory and switchboard connectors, "GB" series of battery connectors, re tively. General information, applicat photos, drawings. Cannon Electric Co., Humboldt St., Los Angeles 31, Calif.:

5-110. Laboratory and Switchboard nector Series (LS5)

5-111. Battery Connector Series (G

★ **5-112. Stage Lighting Artistry,** 31-F-25, 36-p. booklet. Detailed i mation on flexible, stage-lighting trol boards designed especially for sch churches, and drama groups. Basic req ments, equipment features, specificat circuit layout, diagrams, photos, draw Ariel Davis Mfg. Co., Provo, Utah.

★ **5-113. Highest Holophane Ach ment in Controlens In-Bilt Ligh** AIA 31F23 (F-1570), 4-p. folde scribing recessed incandescent lighting with concave, prismatic glass lens and tal glass reflector optically designed t operate with lens; unit provides unif low-brightness illumination, is suitabl use in stores, offices, display rooms, sch hospitals, etc. Engineering data, applica installation, coefficients of utilization, ph diagrams. Holophane Co., 342 Madison New York 17, N.Y.

5-114. "Plug-In" Strip, AIA 31-C-71, bulletin covering three types of prew multi-outlet assemblies for constant se grounding equipment, and for wall s control; each assembly is provided outlets spaced every 6" or 18", excep wall switch control, which is available outlets every 18" only. Illustrations, descriptions of fittings. National El Products Corp., 411 Seventh Ave., Pittsb Pa.

Two bulletins containing descrip photos, and illustrations of light dir equipment; also, folder on compact, va a-c voltage control for low-wattage ap tions. Advantages. Superior Electric Bristol, Conn.:

5-115. Non-Interlocking Light Dim Equipment (D851N)

5. **Packaged Light Dimming Equip-** (D651P)

7. **Type 10 Powerstat** (P252)

3. **Industrial Fixtures** (FC-412), 8-p. let. Full line of continuous-row, in- ial fluorescent fixtures, available in 24 ent models. Selection chart, mounting ods, illustrations. Sylvania Electric ucts, Inc., 1740 Broadway, New York .Y.

finishers and protectors

Corrosite, 8-p. bulletin on uses of , corrosion-resistant plastic paint for ction of metals, concrete, brick, stone, er, and asbestos board. Characteristics, cation methods, ordering directions. osite Corp., 405 Lexington Ave., New , N.Y.

booklets, one describing paints for ex- s and interiors of commercial and ential buildings; the other contains ing specification and information on ing of all types of surfaces in resi- al, institutional, commercial, and in- ial fields. Devoe & Raynolds Co., Inc., First Ave., New York 17, N.Y.:

There is a Devoe Paint for Every ace

Painting Specifications, AIA 25)

Flexseal, AIA 7-B-2, 4-p. folder. ntages of silicone-based water repellent application on all masonry surfaces, nt-based paints and similar composi- is said to eliminate efflorescence and water-soluble or water-carried stains. nical data, method of application. Flex- Co., 3609 Filbert, Philadelphia 4, Pa.

Seal-Kote (L-5201), 4-p. bulletin sphalt and asbestos roof coating that rates and seals surfaces to prevent roof- rom drying out, cracking, and leaking; description of plastic roof cement for n repairing cracks, blisters, and holes. ntages, photos. Paramount Industrial ucts Co., University Center Station, land 6, Ohio.

r describing method of controlling ration of water through masonry walls eatment of surfaces with three com- l materials, used individually or col- ely, to stop leaks, seal walls, and pro- decorative finish. Also, folder contain- ndex of products for protection and enance of masonry. Standard Dry Products, Inc., New Eagle, Pa.:

The Thoro System (37)

The Thoro System

Masonry Painting Handbook, AIA (1107). Paints for every type of and masonry surface. Uses, specifica- index. Wesco Waterpaints, Inc., 343 arborn St., Chicago, Ill.

sanitation, water supply, drainage

19-235. Hot Water Boosters, 4-p. folder describing electric booster heaters, consisting essentially of brass or copper storage tank, group of copper-sheathed immersion heaters, and automatic temperature control device; designed especially to provide hot rinse water for commercial or industrial dish-washing machines. Installation data, size selection chart. Waage Electric, Inc., Kenilworth, N.J.

Three folders on automatic gas and electric water heaters with glass-surfaced steel tanks to provide against rust and corrosion. Dimensions and capacities, advantages, cutaway views, photos. A. O. Smith Corp., 3536 N. 27 St., Milwaukee 1, Wis.:

19-236. Automatic Gas Water Heaters (H-642-C)

19-237. Automatic Gas Water Heaters (H-463-E)

19-238. Automatic Electric Water Heaters (H-467-D)

specialized equipment

19-239. The Copyflex Process (A-2008), 4-p. booklet. General information on copying machine that quickly reproduces low-cost copies of practically anything drawn, written, typed, or printed; no masters, negatives, or stencils are required. Descriptions of various models, exposure and developing diagram, advantages, photos. Charles Bruning Co., Inc., 100 Reade St., New York 13, N.Y.

19-240. Mosler Burglary Resistive Chests, AIA 18-D (1703-H), 4-p. brochure. Description of all-steel chests, any size of which is available in steel-covered, reinforced concrete block; equipped with combination lock capable of 100 million changes, and relocking device for added protection against mechanical and explosive attack. Construction, photos, cutaway view. Mosler Safe Co., Hamilton, Ohio.

19-241. Library Bookstack Equipment, AIA 35-B-2, 8-p. booklet illustrating metal bookstack equipment—stacks and stack accessories, shelves, carrels, filing systems, etc. Dimensions, weights, typical stack construction, photos. Virginia Metal Products Corp., Orange, Va.

surfacing materials

19-242. Modern Industrial Washrooms (300), 20-p. booklet showing full-color applications of clay tile in industrial washrooms. Data on washroom planning and traffic flow, specifications for most practical wall and floor tile combinations. Photos. American-Olean Tile Co., Lansdale, Pa.

19-243. Textolite Monotop (CDL-50), 4-p. pamphlet displaying one-piece, seamless countertop for kitchen cabinets and sinks, made of high-pressure, decorated laminated plastic with integral curved backsplash, requiring no customary metal moldings. Construction data, photos. General Electric Co., Chemical Div., Pittsfield, Mass.

(To obtain literature, coupon must be used by 7/1/52)
(We request students to send their inquiries directly to the manufacturers.)

PROGRESSIVE ARCHITECTURE, 330 West 42nd Street, New York 36, N. Y.
I should like a copy of each piece of Manufacturers' Literature circled below.

1-168	1-169	1-170	1-171	1-172	3-143	3-144	4-169
4-170	4-171	4-172	4-173	4-174	4-175	5-109	5-110
5-111	5-112	5-113	5-114	5-115	5-116	5-117	5-118
6-58	6-59	6-60	6-61	6-62	6-63	6-64	6-65
19-235	19-236	19-237	19-238	19-239	19-240	19-241	19-242
19-243							

Name ____________________

Position ____________________

Firm ____________________

Mailing Address ____________________ ☐ *Home* ☐ *Business*

City ____________________ *State* ____________________

please print **5/52**

My Morgan Kitchen  Suits Me to a "D"

"D" is for Door . . . and for Depth . . for Detailing . . . for Design. Morgan TRI-PANEL has all 3! Here is the "Picture" door with sculptured beauty, creating ever-changing proportioned patterns of clean, sharp hi-lites and deep, soft shadows. Here is the modern touch to break the monotony of flat, plain, uninteresting surfaces. Grace the openings, make the rooms *"sing"* with Morgan TRI-PANELS.

Above: M-1073 Tri-Panel and Assembly of Morgan Kitchen Cabinets

Companion to M-1073 Interior Door is Morgan M-117 Exterior Door, 1¾" thick with 1⅛" hip-raised panels, 2 sides. Both available in standard sizes. Keep your Woodwork File up to date. Write for Morgan Catalogs.

MORGAN WOODWORK

MORGAN COMPANY • Oshkosh, Wisconsin

A Great Name in Woodwork for 97 Years • Doors • Entrances • Stairwork Mantels • Corner Cases • Kitchen Cabinets • Morganwalls • Sash • Trim

"Let's stick to making money, Joe. Nobody can counterfeit a Heatilator Fireplace!"

Architects!

DESIGN YOUR FIREPLACE AROUND THE HEATILATOR* FIREPLACE UNIT BECAUSE:

1. Construction is simplified. Each unit comes complete with firebox, throat, down-draft shelf, damper and smoke dome . . . fully assembled. Only the decorative masonry is needed to complete the installation.

2. You know in advance your fireplace will work properly. The scientific design protects you against rule-of-thumb building methods . . . assures smokeless, trouble-free operation . . . reduces the need for constant on-the-job supervision.

3. It is truly "functional". It circulates heat throughout the room instead of wasting most of it up the chimney.

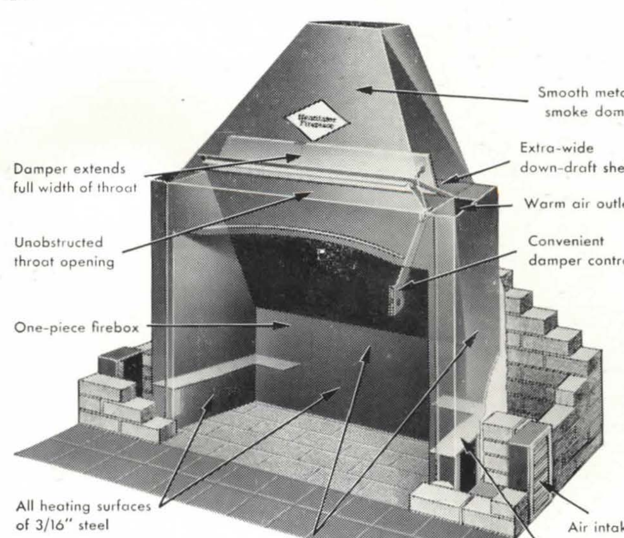
The Heatilator Fireplace puts no limit on mantel design or use of materials . . . gives you complete freedom of architectural expression. It's ideal for basement rooms too . . . and as a supplemental source of comfort during service interruptions or emergencies. The leader since 1927, Heatilator Fireplaces have been proved in actual use by hundreds of thousands of satisfied home owners. Specify "Heatilator" in your next home or group of homes. Heatilator, Inc., 395 E. Brighton Ave., Syracuse 5, N. Y.

*Heatilator is the reg. trademark of Heatilator, Inc.

NO SMOKING - NO GRIEF - NO LIMIT TO MANTEL DESIGN!

with the HEATILATOR FIREPLACE

T. M. REG. U. S. PAT. OFF.



Executive Office—Philip Morris and Co., Ltd., N. Y. Architect: Kahn & Jacobs. Designe Egmont Arons. Figured Ribbon Mahogany Flexwood on walls, in checkerboard design.*

The magnificent beauty of GENUINE WOOD *with* NO STRUCTURAL CHANGES...

No need to place studs or rout nailing strip channels when covering surfaces with genuine wood. In specifying Flexwood, you choose luxurious natural wood in flexible sheets that can be installed *directly* over any *existing* smooth, hard, dry surface either *flat or curved*. These *direct* installations save the client from inconvenience and mean substantial economies both in time and labor costs.

SEND COUPON for Flexwood sample and booklet showing how Flexwood helped solve 17 architectural problems. Learn more about Flexwood's superb beauty, fire safety† and great versatility.

†FLEXWOOD IS FIRE-SAFE. *When applied to plaster walls, Flexwood meets all requirements of Federal Specification SS-A-118a as an incombustible wall-covering.*

flexwood

CHOICE WOOD IN FLEXIBLE SHEETS

United States Plywood Corporation
55 West 44th Street, N. Y. 18, N. Y.
In Canada: Paul Collet & Co., Ltd., Montreal

Flexwood is manufactured and marketed jointly by United States Plywood Corporation and The Mengel Company.

* Reg. U. S. Pat. Off.

United States Plywood Corporation, Dept. W-14
55 West 44th Street, New York 18, N. Y.

Please send me, without obligation, Flexwood's Case-History Book; shows how Flexwood helped solve 17 actual architectural problems.

NAME____________________

ADDRESS____________________

←Flat-Cut Walnut Flexwood

kitchen-dining areas

It's been several years now since the idea of *dining-living* has been exactly
ysy but every so often it is unearthed for re-examination. Recently, an article
the women's page of a daily newspaper, severely scolded the combination of
se functions and attributed bad manners among children to the loss of the sepa-
e dining room. The children who live in the houses that follow must be really
orrigible. Not only is there integration between dining and living but the di-
on between *kitchen-dining* is sometimes minimal. Only a counter, or a counter
h cabinets above divides, and in the one instance where there is a full storage
l, this too can open in part by sliding glass doors.

What does this complete openness—the throwing together of kitchen-dining
ces as well as living-dining spaces—mean in the way of interior finished archi-
ture? It is fine in plan, it makes the daily menial tasks easier to accomplish,
ncreases the sense of largeness in a small house; but does it at the same time
e a difficult problem in the selection and specification of wall-surfacing ma-
als, of floorings, and of ceiling finishes? Judging from the examples the Editors
mined in preparing the following pages, the problems may be difficult, but are
tainly not unsolvable. There are many ways of solving them as there are per-
al attitudes toward design on the part of the architect, and personal desires to
satisfied on the part of the client.

n general, there seem to be two poles-apart design approaches to the problem.
e involves a distinct, visual separation brought about by using "kitchen" ma-
als in the cooking space and "living" materials in the dining space. Tile floors
he kitchen, perhaps, with a carpeting in the dining space. More difficult main-
ance, more carpet-sweeping necessary, but a carefully denoted and conscious
nge of atmosphere, even within a unified space, by the choice of materials. The
er attitude would be a complete integration brought about by letting the same
terials run through, on walls, ceilings, floors, or perhaps on just one of those
nes. If tile seems suitable in the kitchen, why isn't it—in some of the colorful
amic blends available—equally suitable in the dining area? The resilient floor-
s—linoleum, rubber, plastic—are certainly appropriate for both spaces, and
be used to maintain a visual unity. Wood surfaces, properly treated and fin-
ed, can be sanitary in the kitchen and warm enough for dining-space relaxation
nd again can tie the two areas closer together visually. If plaster is the wall
e, the architect can gain either unity or contrast, depending on which result he
decided is desirable, by his use of color, or by one of the many sanitary wall
facing materials—from paper to plastic—now available.

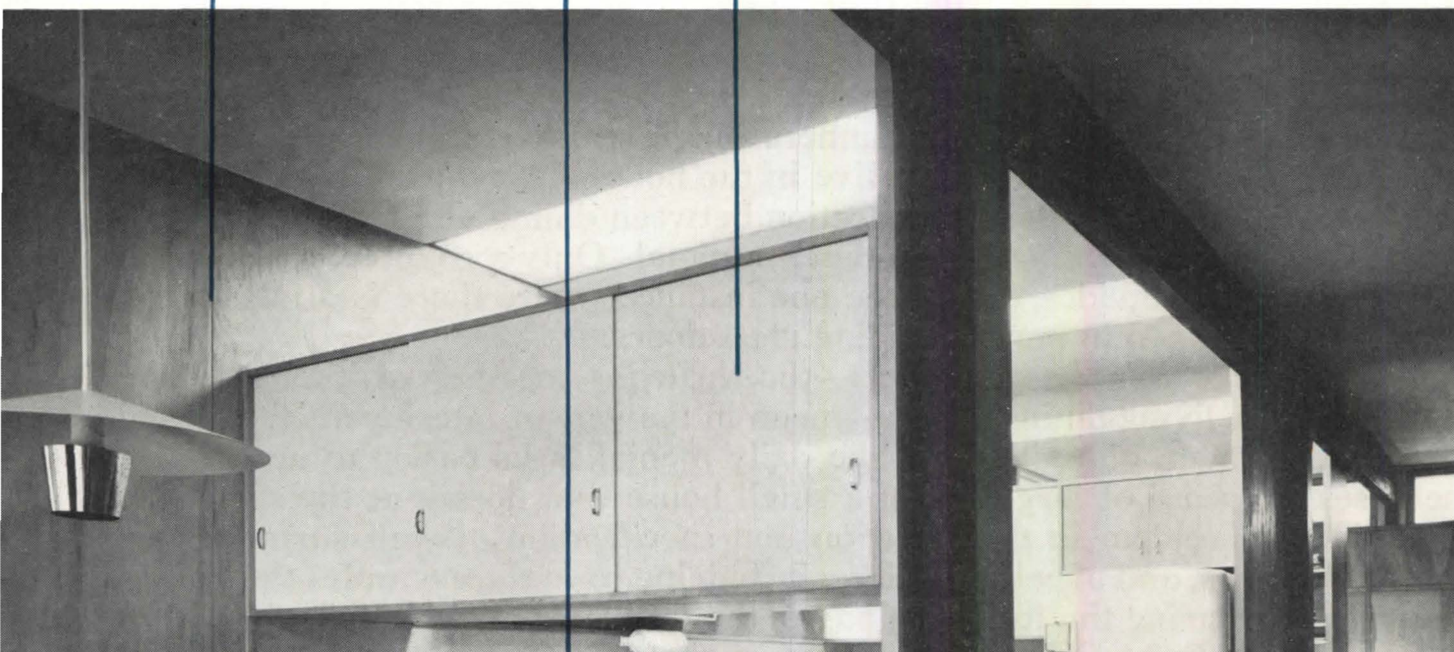
One implication in these wide open kitchen-dining areas is that privacy is not
vital need. The stew is no secret and no one seems to mind if others enter into
preparation. What seems to be important is a fluid relationship of space. Un-
the four-walled chambers that dictate one formal style, one routine, these in-
rated interiors solve other needs. As expressed in the kitchen-dining areas that
ow, the stress is on convenience and for a pattern of life that is informal and
ied.

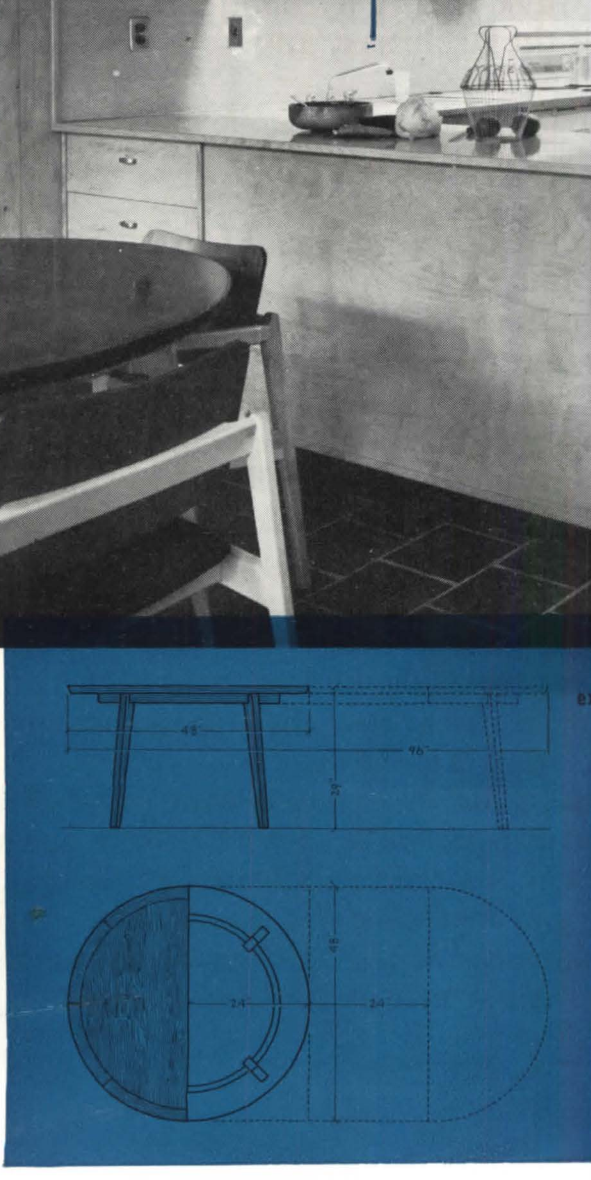
kitchen-dining areas

birch cabinet, white-enameled sliding doors

maple plywood

plastic splash-panel, cork tackboard above

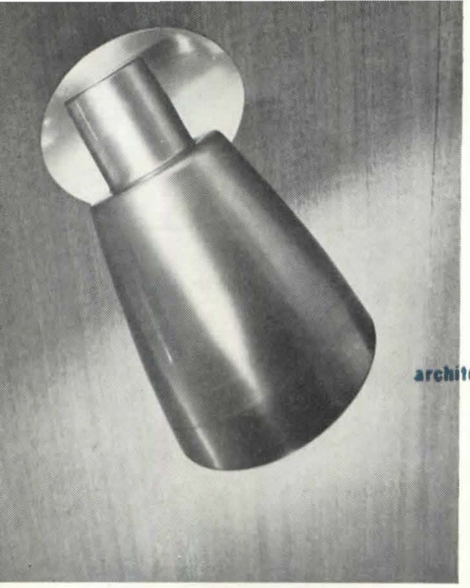




extension dining table, birch frame and walnut top

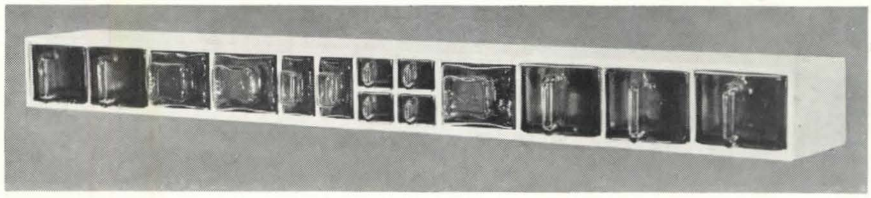
red quarr

laminated-w
and solid-b
dining chai

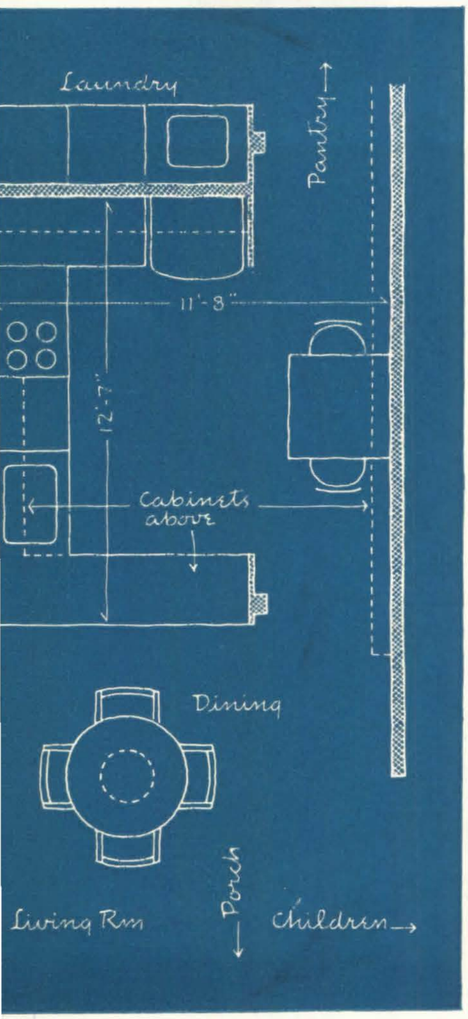


location	Englewood, New Jersey
architects	George Nemeny & Abraham W. Geller

architect-designed wall bracket



grocery cabinet



data

Dining Chair: #C-150/ birch frame/ laminated-walnut back and seat/ natural finish/ list: $58.50/ Jens Risom Design Inc., 668 Fifth Ave., New York 19, N. Y.

Dining Table: special/ birch frame/ walnut extension top/ natural finish/ price on request/Risom.

Kitchen Chair: #FS-3/ Chrome frame/ white-enameled aluminum seat and back/ casters/ adjustable height/ 17½" to 21": list price $28.90/ 17½" to 24": list price $30.80/ Cramer Posture Chair Co., 1205 Charlotte St., Kansas City, Mo.

Kitchen Table and Cabinets: architect-designed/ Gene's Cabinet Shop, 326 Market St., Rochelle Park, N. J.

Plywood: natural finish birch/ U. S. Plywood Co., 55 West 44 St., New York, N. Y.

Sliding Doors: "Masonite" enameled white/ Masonite Corp., 630 Fifth Ave., New York 10, N. Y.

Counter Tops and Splash Panel: "Micarta" #20706/ gray linen/ U. S. Plywood Co.

Grocery Cabinet: "Tidy" #7/ Swedish design/ natural unfinished-wood frame/ glass drawers and jars/ available in variety of shapes and sizes/ list: $18.50 to $33.50/ Seabon, 132 East 58 St., New York 22, N. Y.

Drawer Pulls: CH 01251/ Payson Mfg. Co., 2916 West Jackson Blvd., Chicago, Ill.

Lighting Fixture: special/ architect designed/ baked white-enamel reflector/ perforated, polished-brass shield/ Ledlin Lighting Co., 154 Nassau St., New York, N. Y.

Wall Bracket: special/ architect designed/ baked white enamel/ Ledlin Lighting.

Recessed Lighting: above skylights/ #2101 fluorescent strips/ Gotham Lighting Corp., 37-01 31st St., L. I. C., N. Y.

Walls: ¼" maple plywood/ natural finish/ U. S. Plywood Co.

Ceiling: plaster painted white.

Floor: quarry tile/ 9" square/ red/ Ludowici-Celadon Co., 565 Fifth Ave., New York 17, N. Y.

Dishwasher: #DWA-10/ style #Q 4561/under counter/ Westinghouse, P. O. Box 868, Pittsburgh, Pa.

Garbage Disposal: #G-4/ Westinghouse.

Range and Oven: #RD-7/ Hotpoint, Inc., 5600 West Taylor St., Chicago 44, Ill.

Sink: #5-155/ Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.

Refrigerator: E G—106-4/ Hotpoint, Inc.

Finishes: Breinig Bros., 95 Harrison St., Hoboken, N. J., and Samuel Cabot Inc., 101 Park Ave., New York, N. Y.

Paints: Pratt & Lambert, Inc., 79 Tonawanda St., Buffalo 7, N. Y.

This kitchen-dining area is in a service core, between the children's wing on one side and adult quarters on the other. From this station, children are in close touch and the living room in convenient relation. When occasion requires, the dining area can be an extension to either living room or playroom.

The open, generously daylighted kitchen is designed as a U. The sequence is from storage to cooking to serving—either to dining area, breakfast table, or a screened porch directly forward. Lighting is designed to suit each function; in the porch, kitchen, adjacent pantry, and laundry, fluorescent fixtures are recessed above the skylights for general diffused lighting; and the special architect-designed lamps are handsomely right for each dining table. Walls are maple, ceiling is white plaster, wood beams and columns are stained brown-black, and the floor is red quarry tile. *Photo: Ezra Stoller*

p/a interior design data

kitchen-dining areas

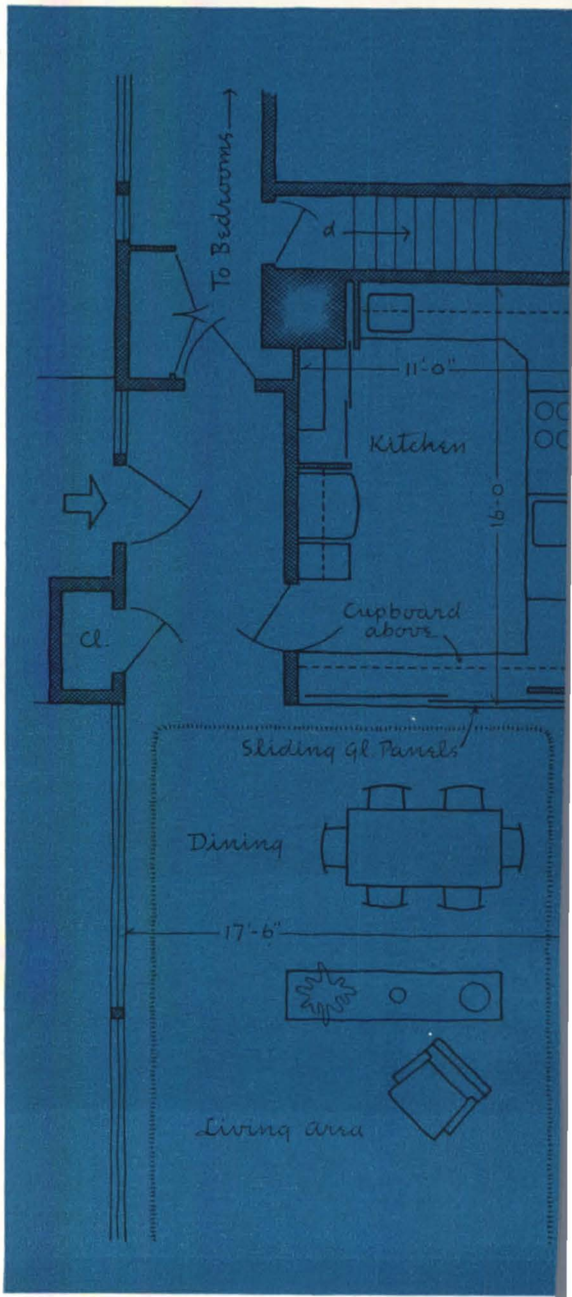
location | North Kingston, Rhode Island

architect | Conrad E. Green

gray rubber tile

Varied styles of service are made possible by the versatile storage wall between this kitchen an ddining area. For formal dining, it shuts out the kitchen entirely; when the wide counter is used as breakfast table, the sliding-glass doors open for self-service and for the view. Storage wall and the cabinet between dining and living room, are both carefully compartmented for china, glassware, linen, and silver. A continuous expanse of glass on two sides floods the dining area with daylight. For evening, candlelight is favored. Kitchen and dining area have an integrated color scheme of white, gray, black, gray-green, and orange-red.

Photos: Laurence E. Tilley



data

Stool: #75/ Florence Knoll design/ birch top/ white-enameled metal legs/ stacking/ list: $18.00/ Knoll Associates, 575 Madison Ave., New York 22, N. Y.

Dining Chair: designed by Lambert Hitchcock, 1826.

Dining Table: architect-designed/ teak top/ L. Vaughn Co., 1153 Westminster St., Providence, R. I.

Armchair: #35/ list: $168.00/ Knoll.

Buffet: architect designed/ teak top/ white with orange-red drawer and door fronts and black ends/ L. Vaughn Co.

Storage Wall: architect-designed/ plywood painted gray-green/ teak counter/ built on site by contractor.

Sliding Glass Doors: "Tapestry"/ Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh 22, Pa.

Kitchen Counter: #41 orange linoleum/ Armstrong Cork Co., Lancaster, Pa.

Drawer and Door Pulls: #420 & #435/ dull-chrome finish/ Colonial Bronze Co., Torrington, Conn.

Magnetic Catches: Laboratory Equipment Corp., St. Joseph, Mich.

Hinges: #820/ Stanley Hardware Co., New Britain, Conn.

Curtain: "Osnaburg"/ cotton bagging/ natural off-white/ 36" and 40" wide/ list: from $1.76 to $4.05 per yard/ Bemis Bros. Bag Co., 5112 Second Ave., Brooklyn, N. Y.

Kitchen Curtain: "Stratoplaid"/ designed by Don Smith/ cotton print/ 48" wide/ list: $2.25 per yard/ D. N. & E. Walter & Co., 562 Mission St., San Francisco, Calif.

Curtain Hardware: I-beam, carriers, and brackets/ aluminum/ Gould-Mersereau Co., Inc., 35 West 44 St., New York 18, N. Y.

Wall Bracket: #1701/ "coral red"/ list: $12.00/ General Lighting Corp., 1527 Charlotte St., New York 60, N. Y.

Table Lamp: #240-R/ handwoven reed shade/ plastic lining/ 15" high/ list: $21.90/ Paul Mayen, 49 West 19 St., New York, N. Y.

Asphalt Tile: #C-269/ gray-orange/ Kentile, 58 Second Ave., Brooklyn 15, N. Y.

Rubber Tile in Kitchen: #29/ gray/ Kleistone Rubber Co., Warren, R. I.

Rug: "Skyline"/ gray/ James Lees & Sons, Bridgeport, Pa.

Ceiling: Douglas fir splined/ painted white.

Windows: "Twindow"/ Pittsburgh Plate Glass Co.

Stove: "Liberator"/ General Electric Corp., Bridgeport 2, Conn.

Sink: #MC 16/ Hotpoint, Inc., 5600 Taylor St., Chicago 44, Ill.

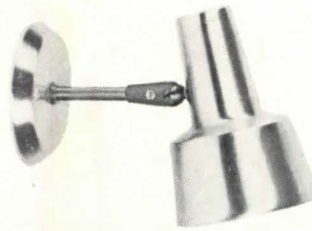
Dishwasher: Hotpoint, Inc.

Refrigerator: #DA 84/ Westinghouse Electric Corp., P. O. Box 868, Pittsburgh, Pa.

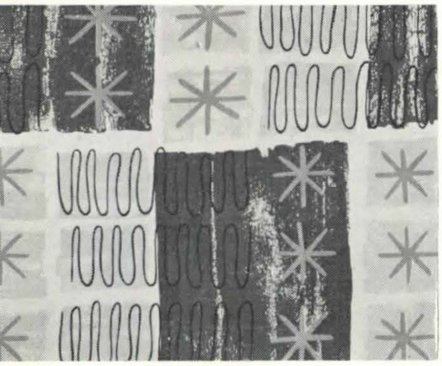
Fan: #210 "Blo-Fan"/ Pryne & Co., Inc., Newark, N. J.

Paints: Barreled Sunlight Paint Co. and Benjamin Moore Paint Co.

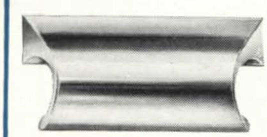
wall bracket



kitchen curtain—brown, gray, black, orange

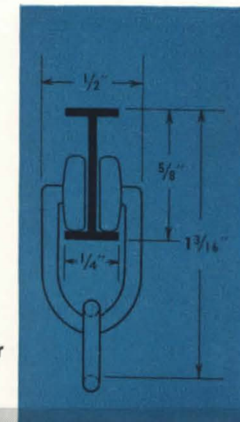


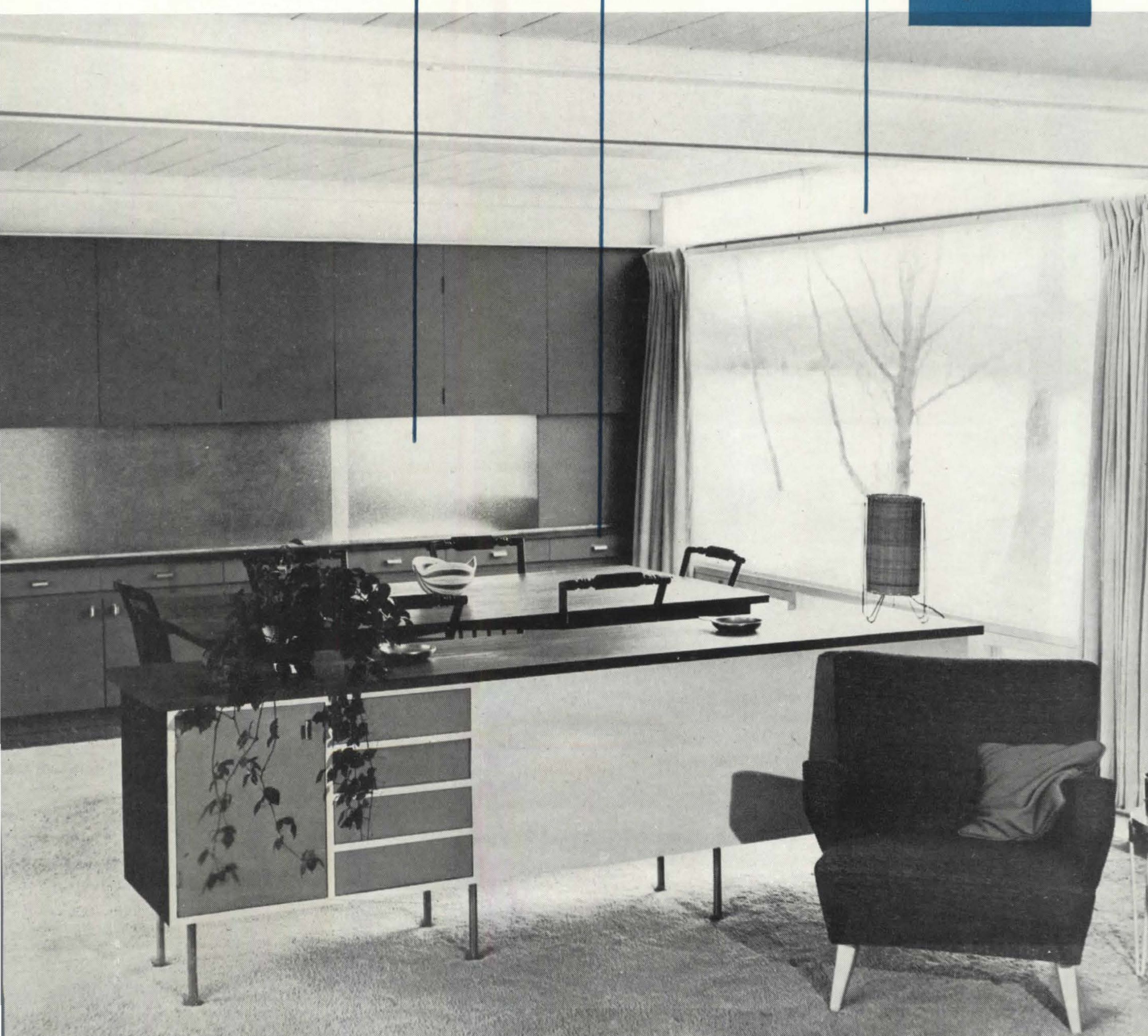
chrome pulls



glass sliding doors

I-beam and carrier



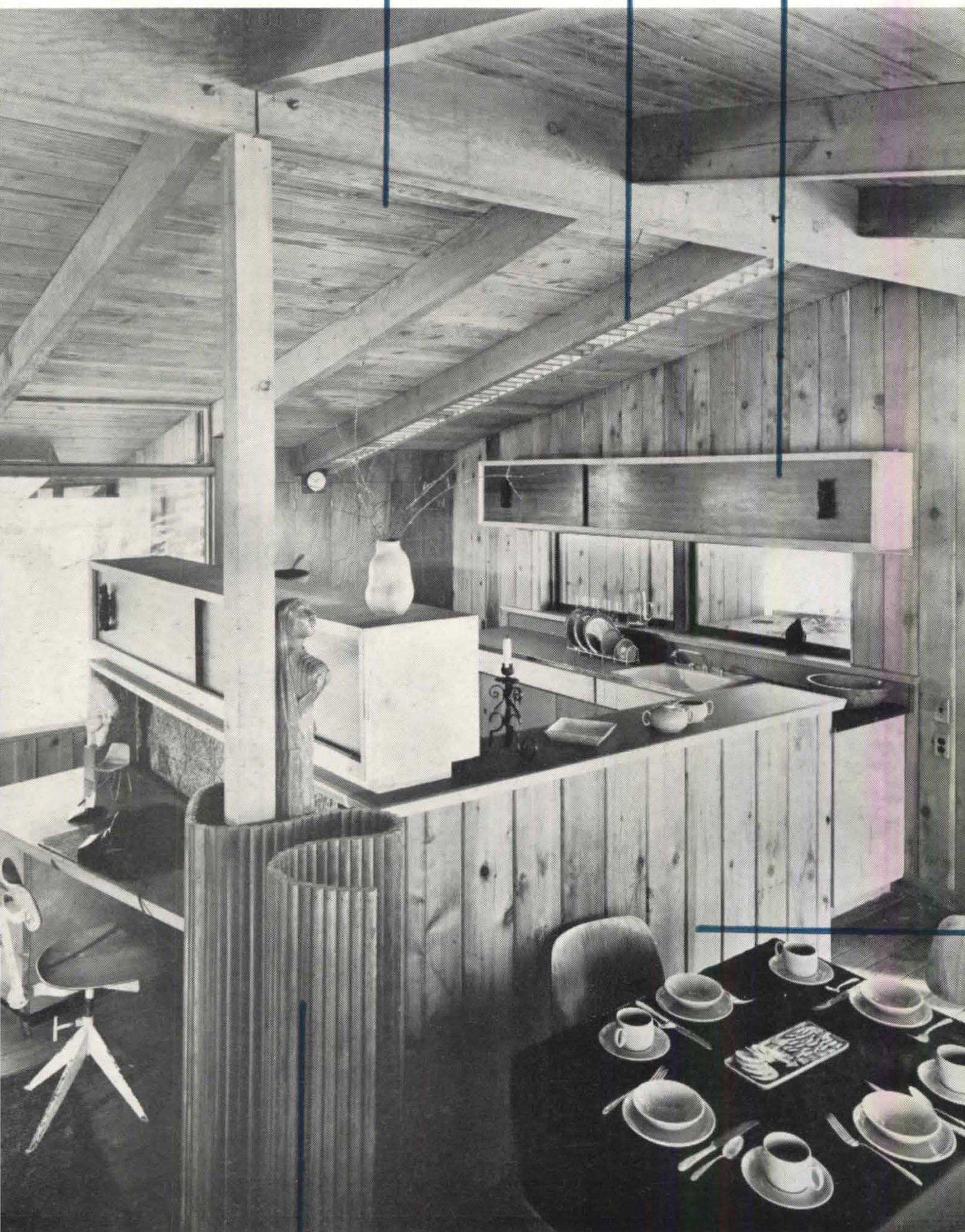


kitchen-dining areas

fluorescent strips under redwood louvers

2" x 6" fir t & g

birch cabinet with walnut sliding doors



red cedar siding

screen—half-rounds on canvas

location	21 acres—Ardsley, N
designer	Martin Glaberson

d

Dining Chair: D C M / Eame sign/ list: $29.50/ Herman Furniture Co., Zeeland, Mich.

Table, Screen, Desk, and Cab designed and built by owner.

Walls and Counter: red cedar si 1" x 8"/ V joint.

Floor and Ceiling: 2" x 6" fir t

Lighting Fixture: fluorescent with ¾" redwood louvers 3" o

Refrigerator: General Electric C Bridgeport 2, Conn.

Stove: General Electric.

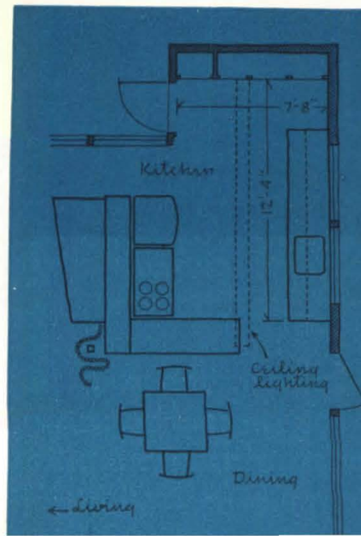
Sink: Crane Co., 836 S. Michigan Chicago 5, Ill.

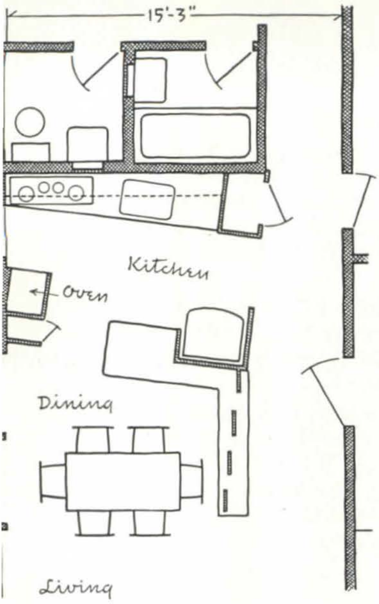
Dishwasher: Hotpoint, Inc., 5600 Taylor St., Chicago 44, Ill.

Kitchen Counter: green lino Armstrong Cork Co., Lancaster

China: "Cloudburst"/ W. S. G Pottery Co., 225 Fifth Ave., New 16, N. Y.

This kitchen-dining area belongs to the house shown on page 78, I.D.D., which likes to point at products that are mass-produced and available, has had trouble with its ingenious designer-owner. See that screen? It is made at home with half-rounds on canvas. That lighting fixture is made by spacing a required double rafter to hold fluorescent fixtures and redwood louvers. The table under the voluminous tablecloth is also homemade, as is all the cabinetwork. We like the individual touches and the practical placement of counters and cabinets to make easy separations between kitchen-dining and in this case, a study area too. *Photos: Lionel Freedman*





location	Sausalito, California
architects	Bolton White & Jack Hermann

a

Table: 3' x 6'/ Conover de- Philippine mahogany and black list: $80.00 approx./ Luther r, 801 Bridgeway, Sausalito,

Chair: designer and material ve/ list: $25.00/ Conover.

Bracket: #628 B/ satin-finish m/ list: $13.44/ Gotham Light- ., 37-01 31st St., L. I. C., N. Y.

Siam teak strip flooring/ 2" Davis Hardwood, San Francisco,

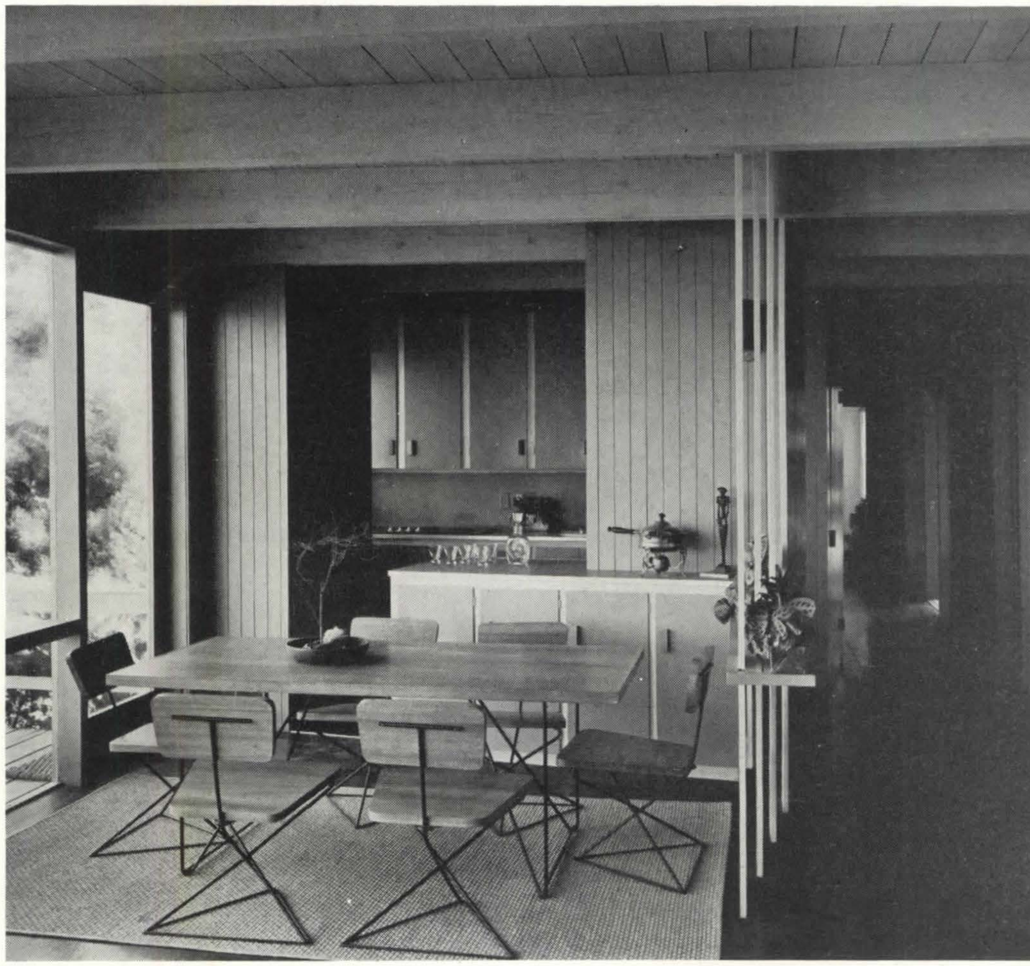
Floor: #25 plain linoleum/ otta/ Armstrong Cork Co., Lan- Pa.

Counter: #24 plain linoleum/ Armstrong.

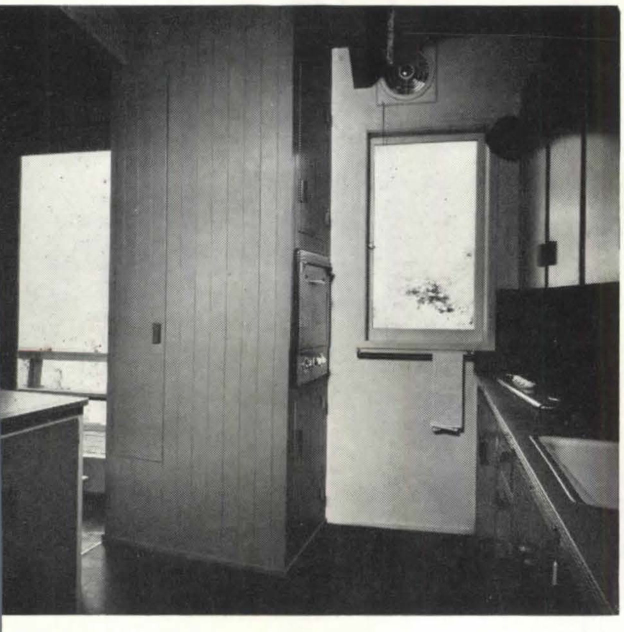
Chinese straw matting/ list: Lun On Co., 771 Sacramento, ancisco, Calif.

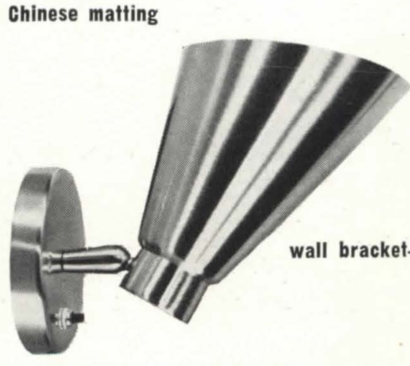
: 2" x 6" Douglas fir t & g.

2" x 6" Douglas fir t & g



Chinese matting **terra cotta linoleum**





wall bracket—satin-finish aluminum

#SU-4 220 V/ elec. 3 burners/ s steel/ built-in/ Thermador Mfg. Co., 5119 District Blvd., geles 22, Calif.

#WO-16 A/ stainless steel built-in/ Thermador.

ane Co., 836 S. Michigan Ave., 5, Ill.

Dishwasher: Hotpoint, Inc., 5600 West Taylor St., Chicago 44, Ill.

Fan: #135 G/ Pryne & Co., Inc., Pomona, Calif.

Refrigerator: L F 8/ General Electric Corp., Bridgeport 2, Conn.

The couple in this house, both professors, have little time to putter in the kitchen. Deliberately small and somewhat like the short-order department of a restaurant, this kitchen is efficient and easy to control. Design freedom is offered by the individual unit fixtures, which in this case aid a compact and convenient arrangement. Dining-living and kitchen are conceived as one space—the separating storage cabinet serving as counter, bar, and buffet. Siding is redwood, plaster wall is yellow, cabinet doors are gray-green, counter tops are gray, and kitchen floor is terra cotta. Ceiling, sash, and doors are Douglas fir and living-dining floor is Siam teak.

Photos: Rondal Partridge

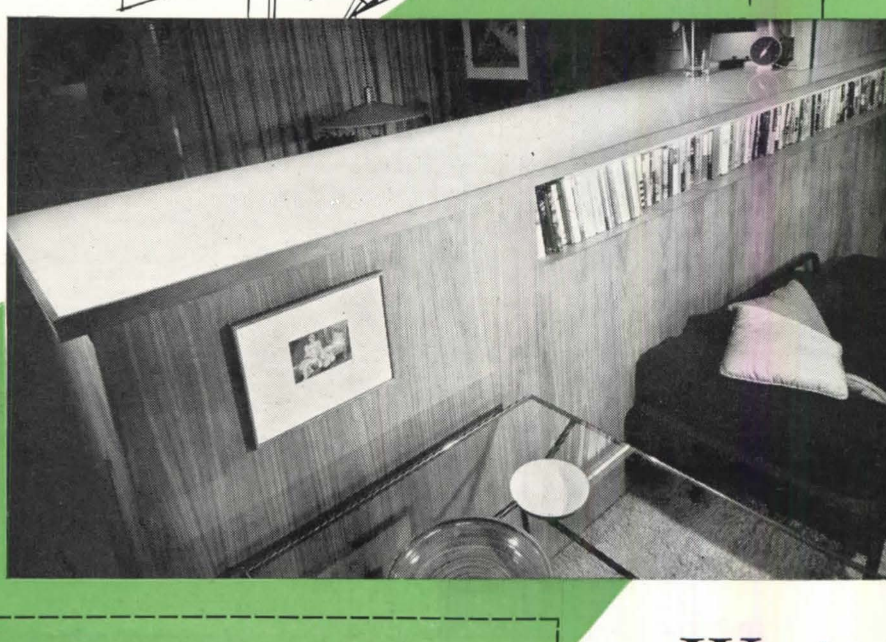
The versatility of MICARTA® laminated plastic surfaces helped inspire the dramatic interiors of the home exhibit in the Museum of Modern Art. The room divider and storage wall, shown below, has a light gray MICARTA top. This surface was chosen because it blends discreet beauty with the ability to withstand all the known hazards and inconvenience of household wear.

This top-quality, high-pressure laminate offers architects complete flexibility in interior planning . . . a material that won't scuff, scar, burn, stain or warp. A whole range of solid colors, pastels, patterns and wood grains for an infinite variety of applications.

MICARTA never needs refinishing, polishing, waxing or maintenance of any kind. It cleans to an inviting gleam with just a damp cloth.

You can see MICARTA at the permanent exhibit in the Architects Samples Corporation, New York City. For further information just call your nearest United States Plywood Office, fill out the coupon below, or consult your Sweet's Catalog. J-06471

micarta®
PLASTIC SURFACE
invites imagination



Gregory Ain, Architect

UNITED STATES PLYWOOD CORPORATION
55 West 44th Street, New York 36, N. Y.

Please send MICARTA application booklet, Form No. 1097.

NAME______________________

ADDRESS______________________

CITY______________ ZONE____ STATE______

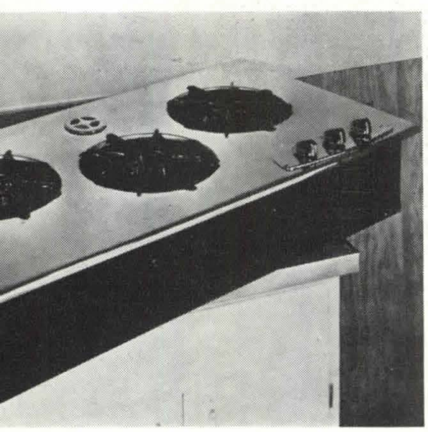
PA-5-52

Westinghouse
micarta®

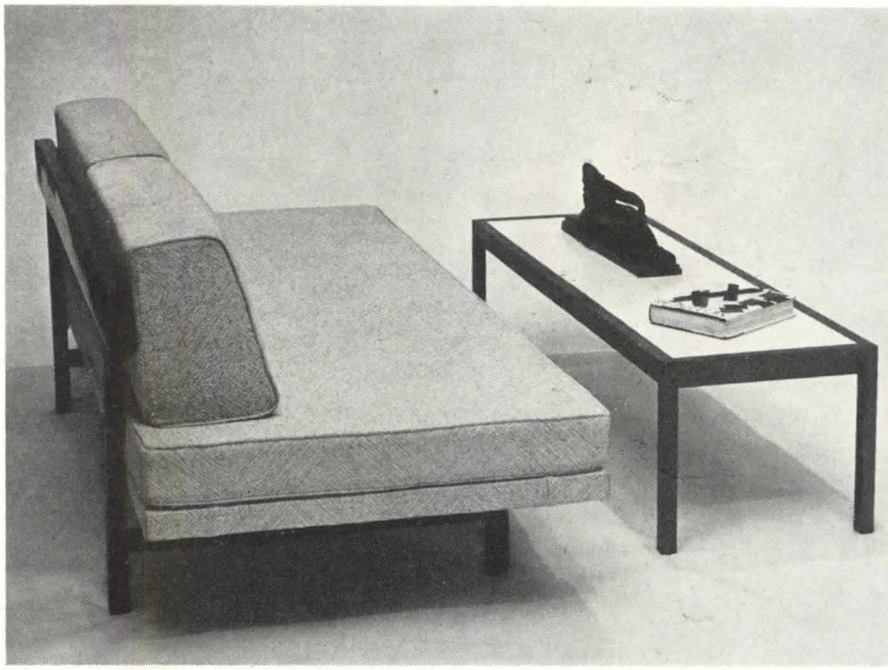
distributed by | UNITED STATES PLYWOOD CORPORATION
largest plywood organization in the world
and U.S.—MENGEL PLYWOODS · INC.

age Units: designed by Allen Gould in-
es a four-drawer chest 28" wide and an
t-drawer chest 54" wide/ all maple, all
ut, or either with top and sides covered
inyl-coated linen/ **shown: single chest:**
deep x 36" wide/ **approx. retail:** $149.00
aple and $159.00 in walnut/ **Allen Gould**
gns, Inc.

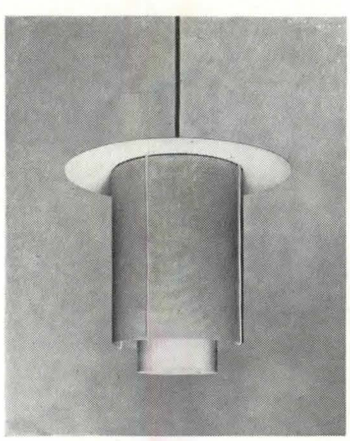
-in Gas Cooking Units: group includes
-wall" oven and four-burner range de-
ed for assembly with standard cabinets
pecial installation/ **shown: "drop-in" three-**
er requires 22" x 42" base/ stainless steel,
neled cast-iron burners, and porcelain-
nel sides/ choice of seven colors/ **retail:**
.50/ **Chambers Corporation, Shelbyville,**

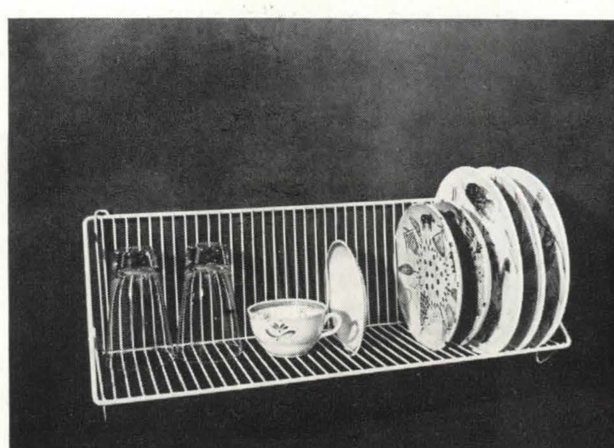


New Furniture: of refreshing serenity, designed by Allen Gould. All pieces work in harmony with each other and include high and low chairs, sofas, storage units, occasional and extension-dining tables/ **daybed:** 33" wide/ walnut frame/ foam-rubber mattress and removable bolsters/ requires 7½ yards of fabric/ **approx. retail:** $300.00/ **cocktail table:** 18" wide x 54" long x 16" high/ walnut frame with white "Micarta" top/ **approx. retail:** $87.00/ **Allen Gould Designs Inc., 166 Lexington Ave., New York, N.Y.**



Ceiling Fixture: 322-B/ designed by Paul Mayen/ baked white-enameled metal and laminated-fabric shade/ 14" diameter reflector disk/ **list:** $28.00/ **Paul Mayen-Design, 49 West 19 St., New York, N.Y.**





Elfa Universal Shelf: designed in Sweden for stacking dishes/ single or double baskets with brackets for wall mounting/ plasticized steel-wire in white or black/ can be used for books and records/ vertical shelf also available/ **lengths:** 17¾", 23¾", and 31½"/ **list:** $3.00, $3.50, and $4.00 for single basket; $5.95, $6.50, and $6.90 for double baskets/ **Seabon, 132 East 58 St., New York 2, N.Y.**

FLUTEX pattern of Blue Ridge Glass used effectively with Mills Metal Walls in remodeling. Photo courtesy of The Mills Co., Cleveland, O.

Light for all . . . privacy for each

When space must be divided for privacy and efficiency, there's no need to divide the light. Use partitions that pass light through from room to room—partitions of Blue Ridge *Patterned Glass.*

Smart looking—and easy to keep that way. The wipe of a damp cloth keeps this attractive glass sparkling new.

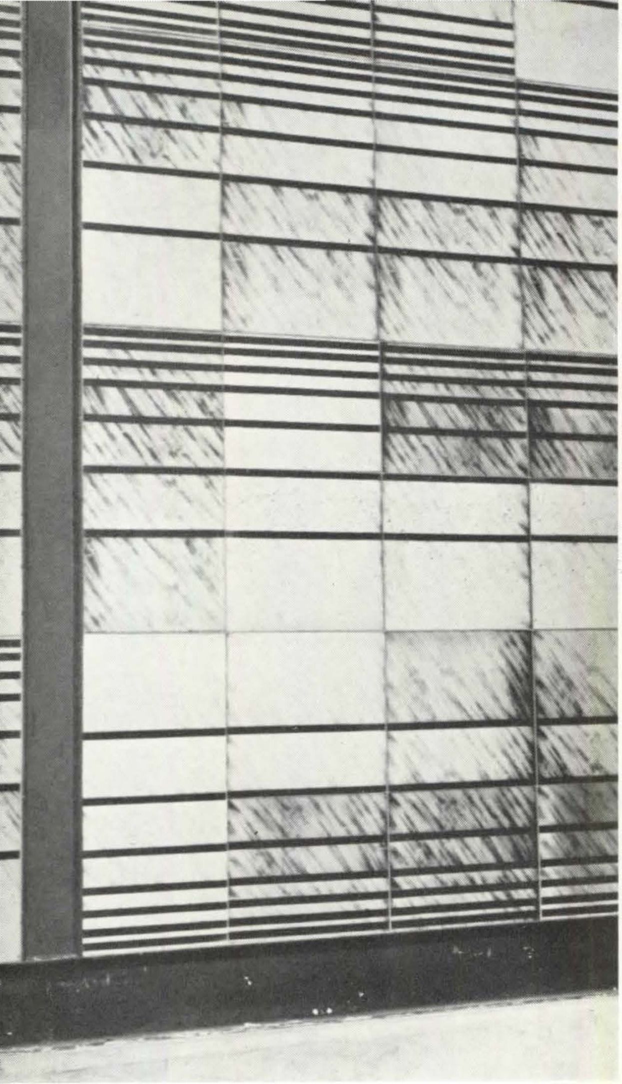
And it's smart money-wise. Blue Ridge *Patterned Glass* is not expensive. Patterns are rolled in a continuous process which brings you fine quality glass at prices which permit freedom in its use. That's one reason its popularity is growing for use in offices, store schools, hospitals, homes—all kinds of buildings.

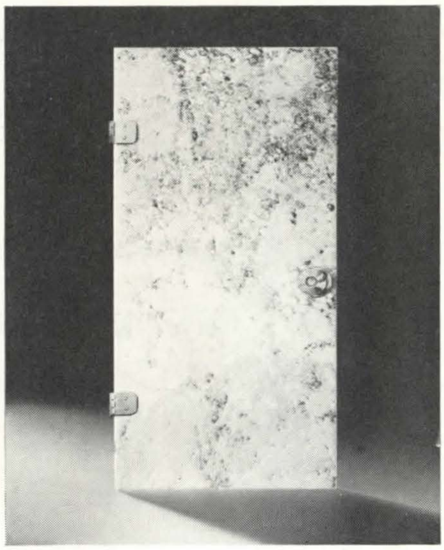
You can choose from more than 20 patterns o Blue Ridge Glass—linear, checkered or over-all design Select plain, Textured or *Satinol** finish. Your L·O· Glass Distributor can show them to you. He's listed i the phone directory of principal cities. Mail the coupon for our two helpful idea books which illustrate many uses of patterned glass.

*®

BLUE RIDGE
Patterned GLASS

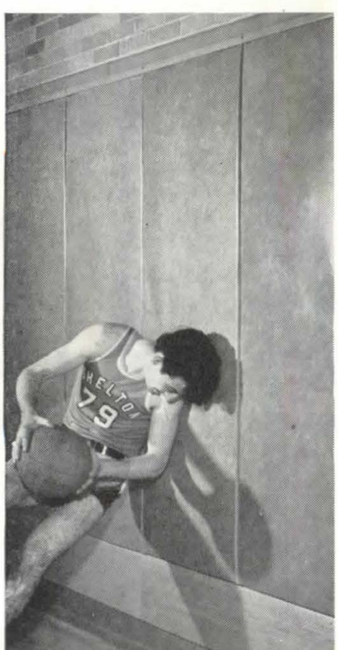
Libbey·Owens·Ford Glass Company
Patterned & Wire Glass Sales
B-952 Nicholas Building, Toledo 3, O.
Please send me your two idea books:
Patterned Glass for Modernization in commercial buildings;
New Adventures in Decorating for residences.
Name (please print) ____
Street ____
City ____ Zone ____ State ____



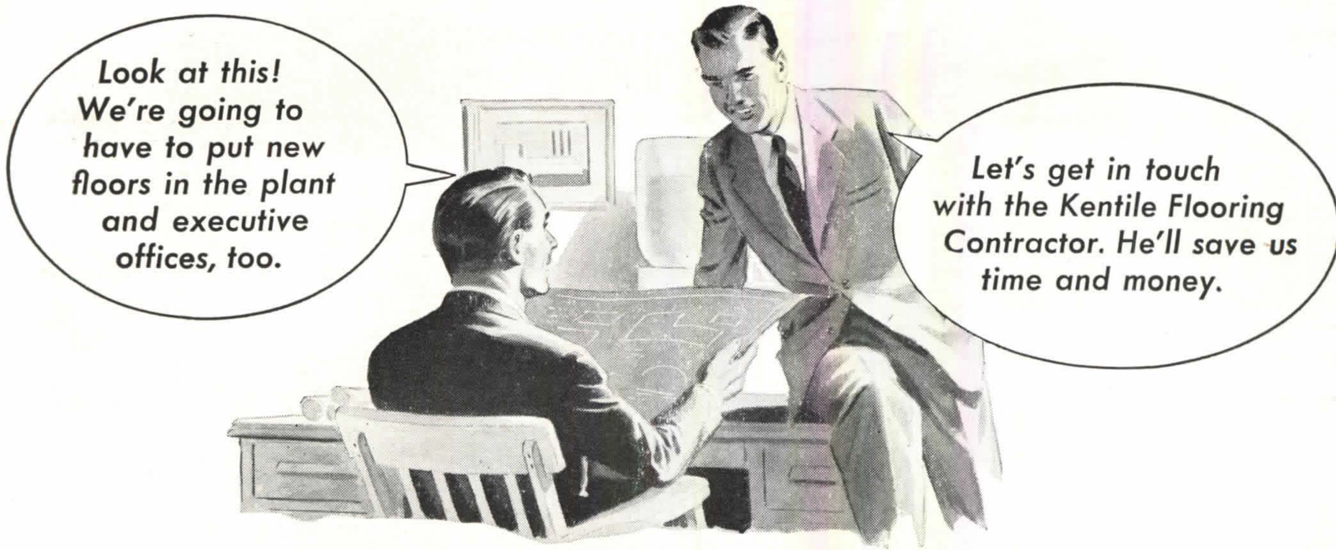


Photosensitive Glass: produced for architectural application has pattern integral with the glass. Patterns offered are subtle and new-nonimitative of existing materials. Major application to date has been facing on the north side of the new United Nations assembly building. A three-dimensional image in the several colors (opal, sepia, or red-blue) possible with photosensitive glass, is expected to find wide use in displays and murals. Properties are said to be permanence, transparency, grainless image, fidelity of reproduction, and a wide range of tonal contrast. Facing on Corning Glass Center (above) and photosensitive glass used for a door (above, right). **Corning Glass Works, Corning, N.Y.**

"Strata": wool and some "Celcos" for added resilience and dye affinity/ looped weave/ tulip yellow, chartreuse, or aquamarine on natural ground/ **approx. retail:** $27.00 per square yard/ **Manufacturer: Nye-Wait Co. Inc., Auburn, N.Y./ Distributor: Raymond Heller of New York, Los Angeles, Chicago, San Francisco, Dallas, Denver, Boston, and Atlanta.**



Spongex Safety—Cushion Wainscoting: 1 3/8" laminate of plywood, rubberized hair, and cellular rubber covered with supported vinyl sheeting/ 2' x 6' panels complete with metal clips for attachment to furring strips/ manufacturer supplies instructions for installation/ **The Sponge Rubber Products Co., Shelton, Conn.**

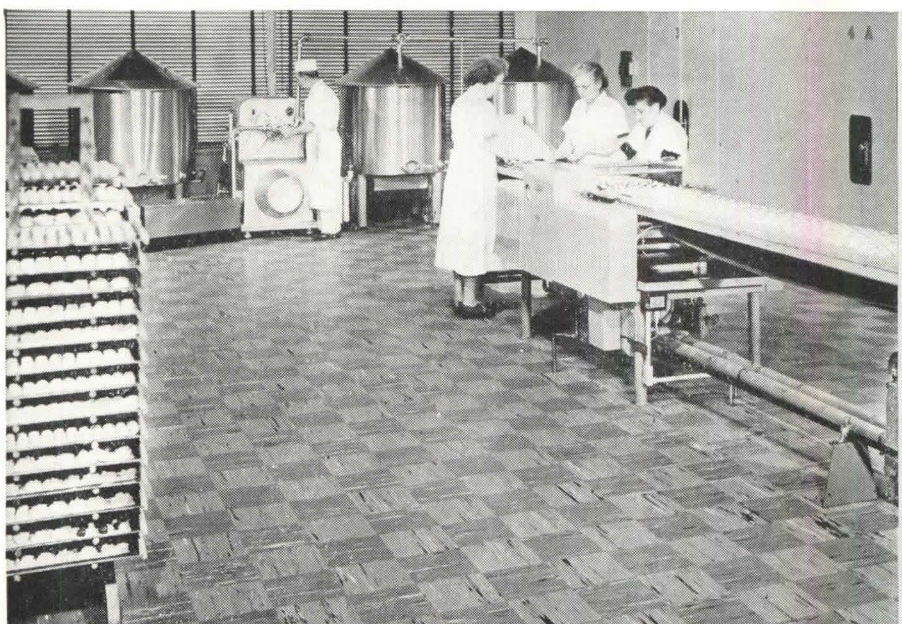


You and your client both profit when you call in the Kentile Flooring Contractor

THE MOST important differences between various types of flooring are those that don't appear on the surface... that's why it takes an expert to decide whether a certain floor belongs in a certain installation!

The Kentile Flooring Contractor is that expert... a technically trained and experienced man who is fully qualified to select just the right floor... the one floor that will provide the longest life at the lowest cost... as well as minimum maintenance expenses.

Whether your flooring problem is one room in a home or store... or thousands of square feet in a factory, warehouse or office, it will pay you to call in the Kentile Flooring Contractor. For his name, look under FLOORS in the classified pages of your phone book... or write Kentile, Inc., 58 Second Ave., Brooklyn 15, New York. In Canada, T. Eaton Co., Ltd.

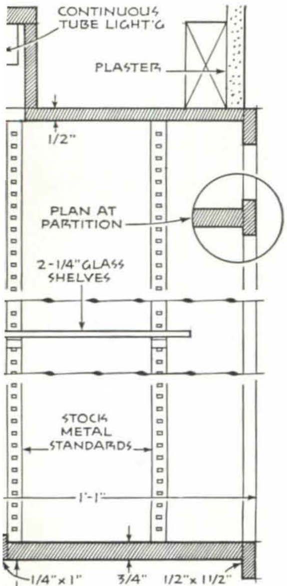


• Where rugged, extra-heavy duty flooring is required, the first choice is SPECIAL (greaseproof) KENTILE...its colorful beauty resists the wear of constant exposure to industrial and cooking greases and oils, alkali, alcohols and most acid solutions. It is of special value in providing long-range economies in installations like the one shown here; restaurants and cafeterias; light manufacturing areas; laboratories; and garages. SPECIAL (greaseproof) KENTILE can be installed over any smooth, firm interior surface...even below grade over concrete in direct contact with the earth.

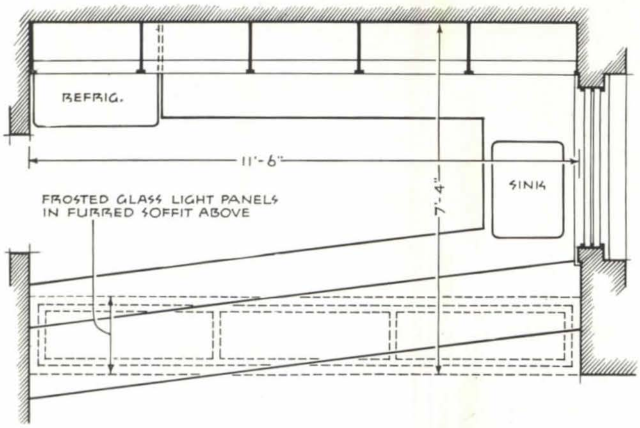
KENTILE • SPECIAL *(greaseproof)* KENTILE • KENRUBBER • KENCORK

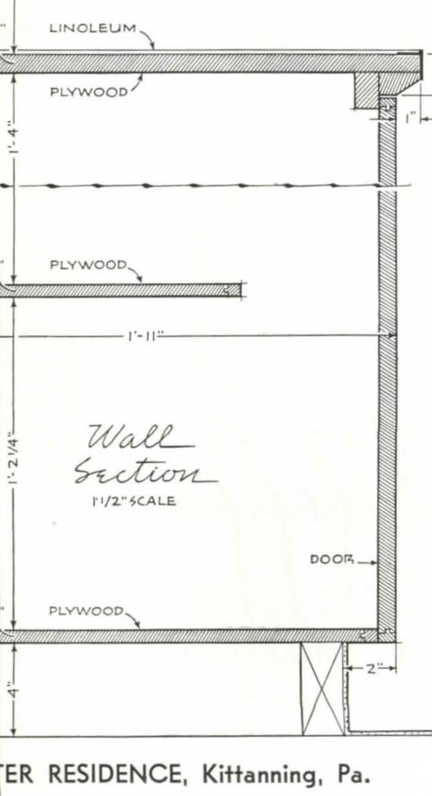
KENTILE INC. ®

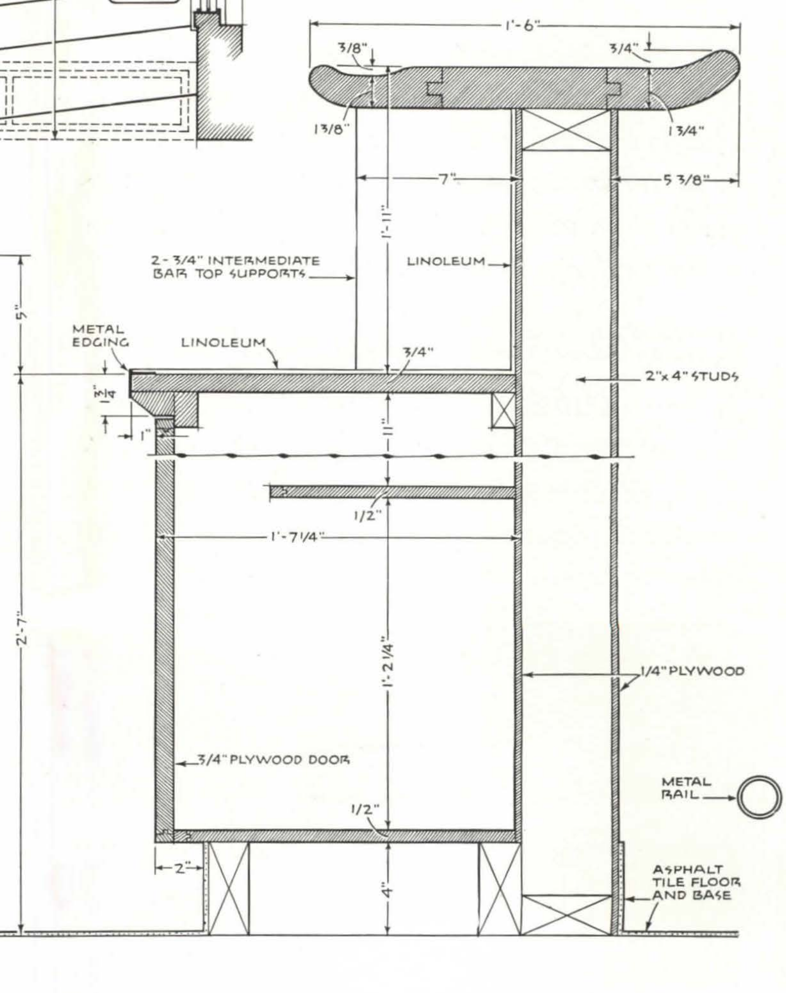
KENTILE, INC., 58 Second Avenue, Brooklyn 15, New York • 350 Fifth Avenue, New York 1, N. Y. • 705 Architects Building, 17th and Sansom Streets, Philadelphia 3, Pennsylvania • 1211 NBC Building, Cleveland 14, Ohio • 225 Moore Street, S.E., Atlanta 2, Georgia • 2020 Walnut Street, Kansas City 8, Missouri • 1440 11th Street, Denver 4, Colorado • 4532 South Kolin Avenue, Chicago 32, Illinois • 1113 Vine Street, Houston 1, Texas • 4501 Santa Fe Avenue, Los Angeles 58, California • 95 Market St., Oakland 4, Calif. • 452 Statler Building, Boston 16, Mass.



WM. F. HOWLAND







ER RESIDENCE, Kittanning, Pa.

Hornbostel, Architect

BUDGET LIMITATIONS NEED NOT BANISH BEAUTY FROM PUBLIC HOUSING PROJECTS!

When specified in combination with face brick or other materials, Enduro-Ashlar Architectural Terra Cotta enables you to meet budget limitations while providing needed relief for severely simple designs. You can specify one or more of an unlimited range of ceramic colors for entrances and trim to your housing project.

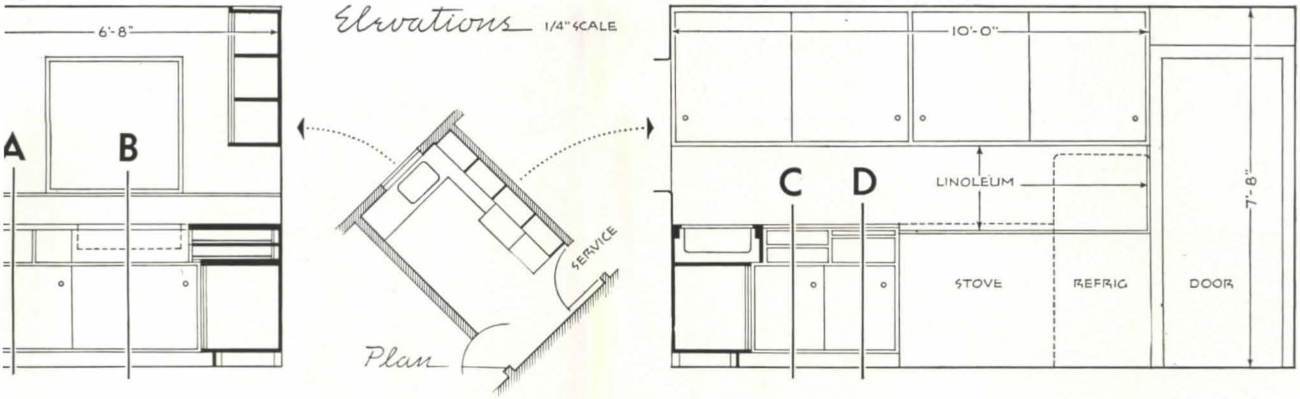
INVITATION TO ARCHITECTS!

If you would like all the facts on how Enduro-Ashlar Architectural Terra Cotta helps you solve unusual design problems, phone or write us today. The Federal Seaboard engineering department is available to you from the initial planning stages through drafting and construction. Advice on preliminary sketches, as well as construction detail, data, color samples and estimates, will be furnished promptly without charge.

F S T C

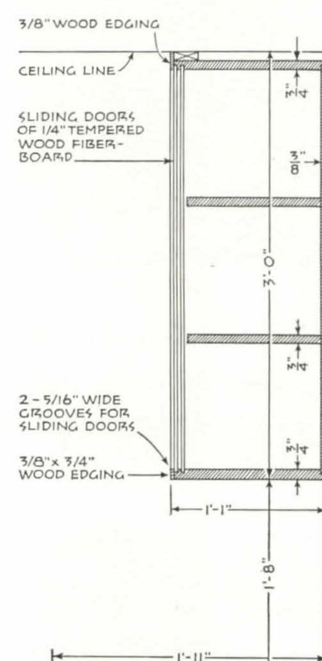
FEDERAL SEABOARD TERRA COTTA CORPORATION

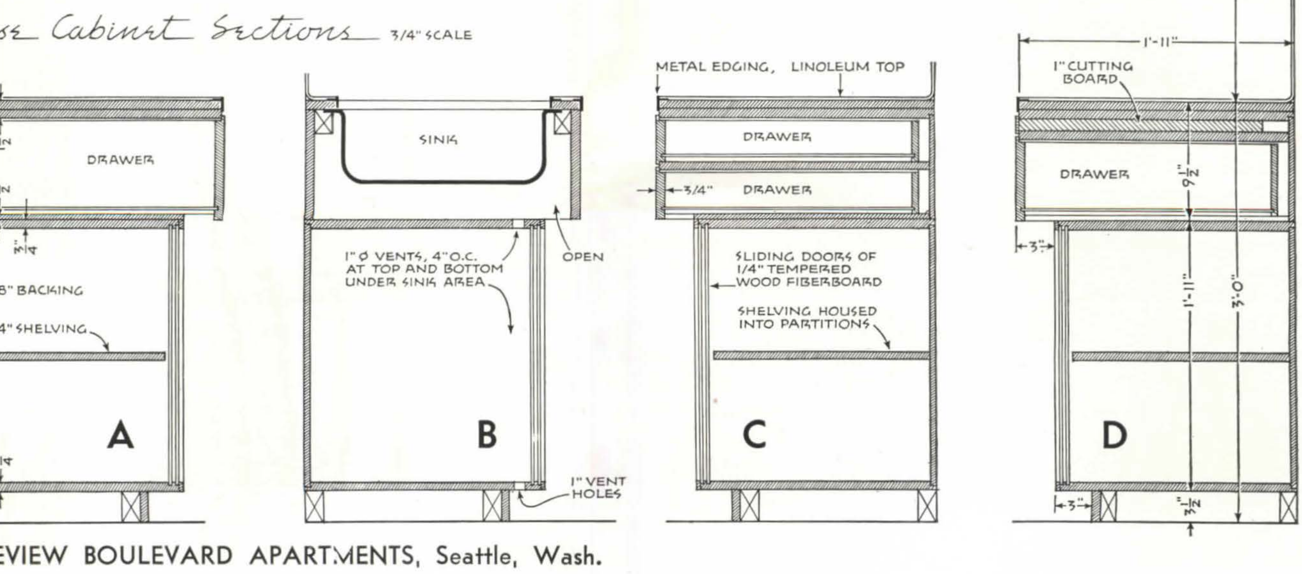
10 EAST 40th STREET, NEW YORK 16, N. Y.
Plants at Perth Amboy and South Amboy, N. J.



ORN - MASSAR

ALL CABINETS MADE OF PLYWOOD





EVIEW BOULEVARD APARTMENTS, Seattle, Wash.

elli & Kirk, Architects

A partial view of the Sloane Koroseal Tile Supreme installation in the busy Main Attended Public Telephone Station in Grand Central Terminal, New York City. Color is Hunter Green.

The floor for *LONG DISTANCE* service!

KOROSEAL* TILE SUPREME

stands up under the heaviest traffic in this busy public telephone station . . . provides beauty, comfort and quiet . . . gives dependable, lasting service

Day after day, the beautiful and rugged Sloane Koroseal Tile Supreme floor, above, is exposed to the pounding feet of thousands who use the N. Y. Telephone Co. facilities. Yet, this durable vinyl plastic tile floor is as colorful and serviceable as the day it was installed.

In addition to its greater wearing strength, Koroseal Tile Supreme is impervious to grease, oil, alkalies, strong soaps and other floor-destroying substances. Its beautiful colors can't wear out . . . they go through the thickness of the tile . . . won't fade or stain. You enjoy easy, economical maintenance because dirt can't grip its nonporous surface . . . simple soap-and-water mopping, and, if you prefer, an occasional thin waxing, keep it looking brand-new.

When you specify Sloane Koroseal Tile Supreme you specify the finest in floor covering service and comfort—*plus an outstanding selection of 18 beautiful colors in Marbletone or Crystaltone effects.*

For lighter traffic areas, Sloane Koroseal Tile Deluxe is recommended. Lighter in weight, it offers all the advantages of Koroseal Tile Supreme.

Send today for free samples and specifications. Write Sloane-Blabon Corporation, Dept. P5, 295 Fifth Ave., New York 16, N. Y.

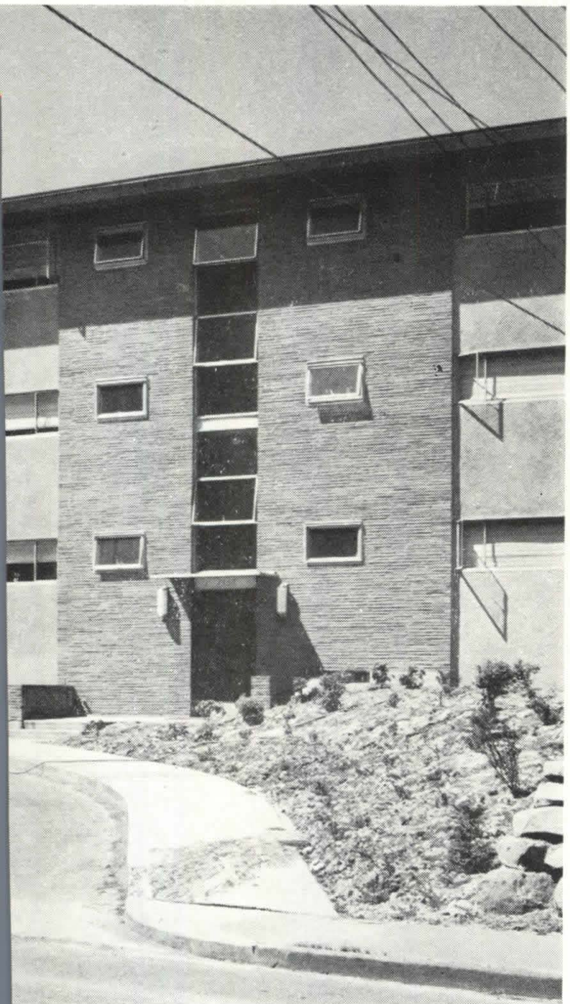
SLOANE Quality PRODUCTS

SLOANE *Koroseal** TILE SUPREME

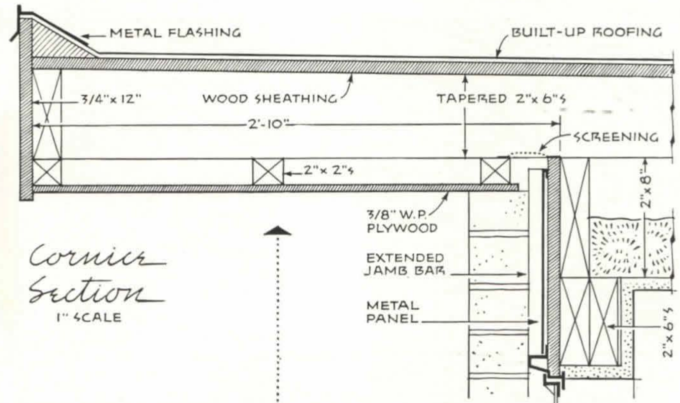
*Koroseal is a registered trade-mark of the B. F. Goodrich Company.

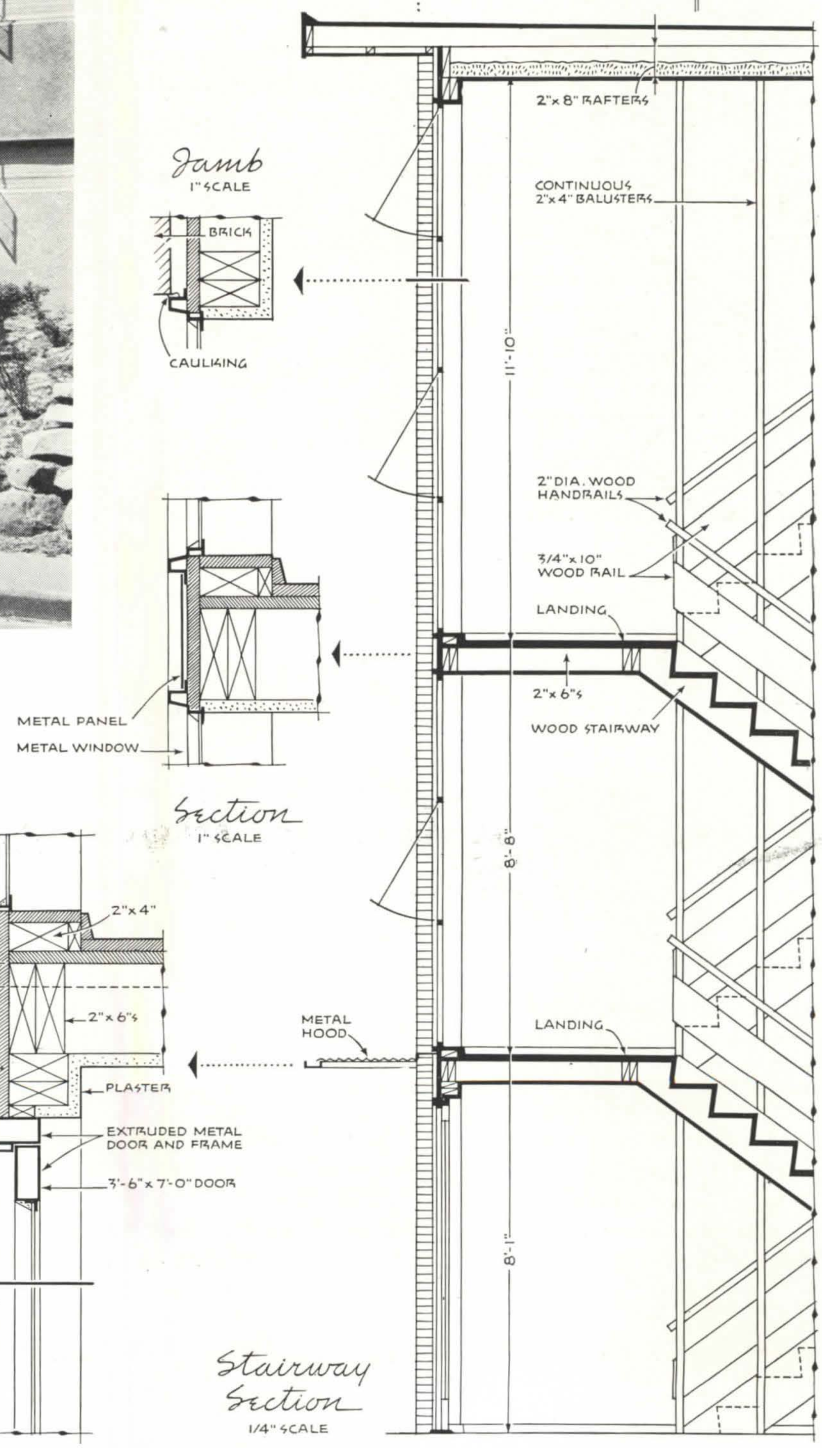
SLOANE-BLABON CORPORATION • A DIVISION OF ALEXANDER SMITH, INC.

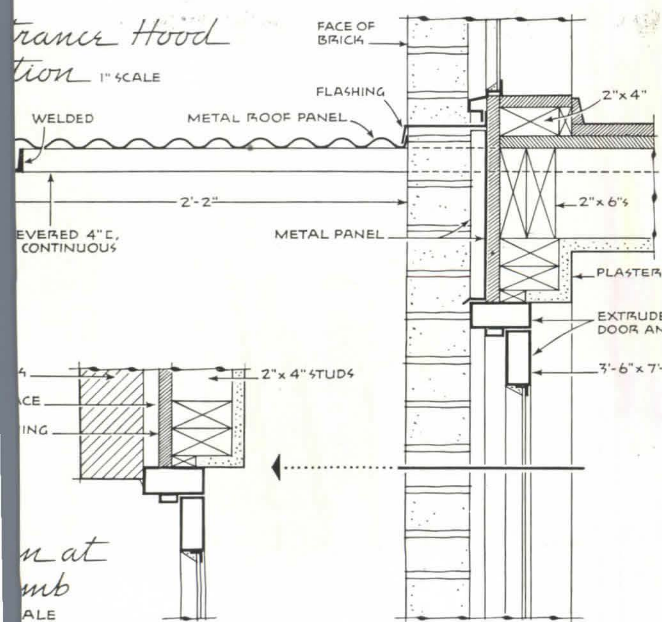
LINOLEUM • TRENWALL • KOROSEAL TILE • LINOLEUM TILE • RUBBER TILE • TREN-FLEX TILE • TRENTONE RUGS AND FLOOR COVERING



ORN - MASSAR







VIEW BOULEVARD APARTMENTS, Seattle, Wash.

elli & Kirk, Architects

The Pace-Setter . . .

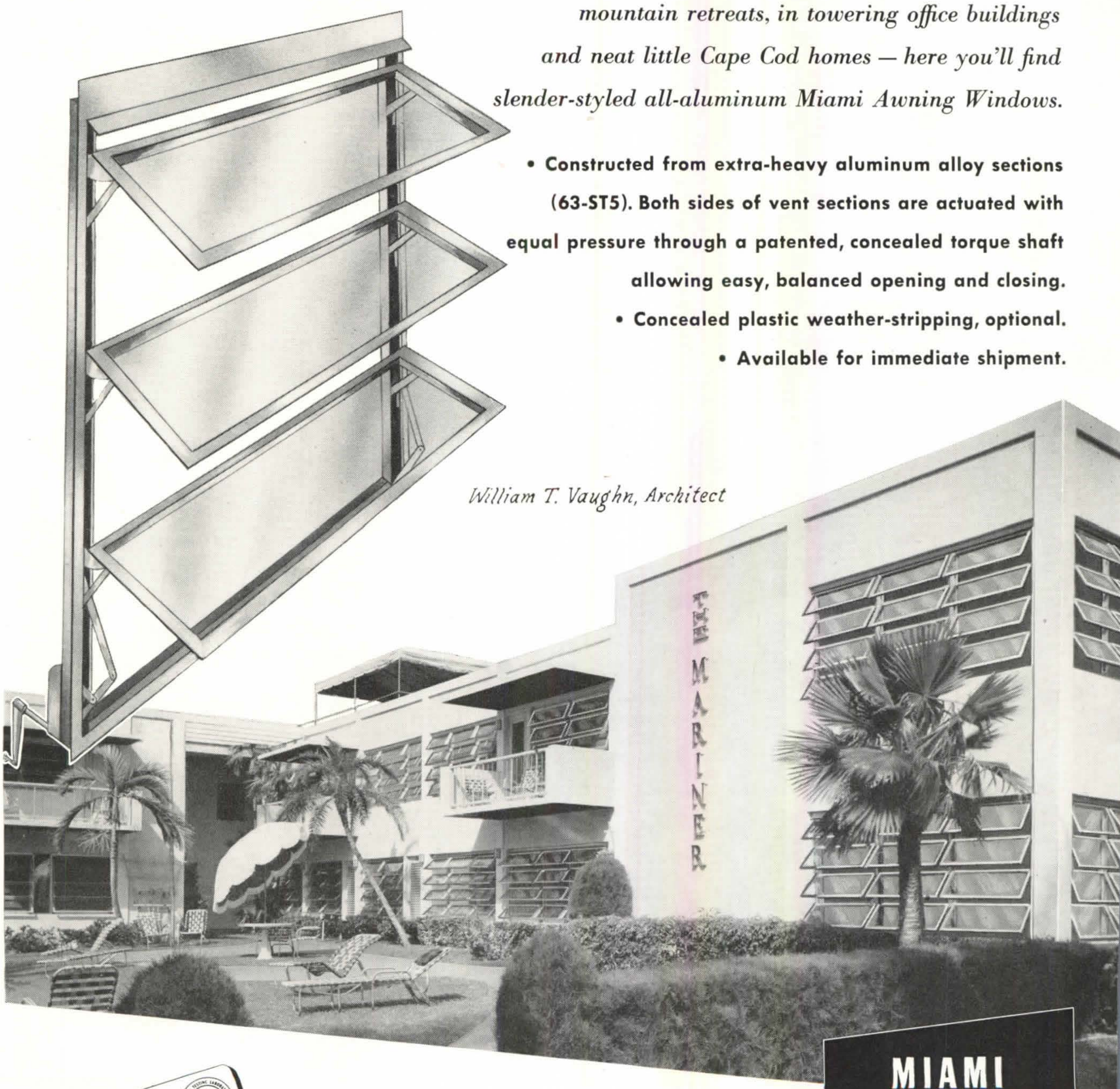
THE ALL-ALUMINUM MIAMI AWNING WINDOW

Along America's Southern Riviera and San Francisco's mountain retreats, in towering office buildings and neat little Cape Cod homes — here you'll find slender-styled all-aluminum Miami Awning Windows.

• Constructed from extra-heavy aluminum alloy sections (63-ST5). Both sides of vent sections are actuated with equal pressure through a patented, concealed torque shaft allowing easy, balanced opening and closing.

• Concealed plastic weather-stripping, optional.

• Available for immediate shipment.



William T. Vaughn, Architect

QUALITY APPROVED A-A1

Specify the all-aluminum Miami Awning Window for homes, hospitals, schools, and office buildings.

Air Infiltration Tests Taken by Pittsburgh Testing Laboratories

MIAMI *awning* WINDOW

For further information, see Sweet's Architectural File 17A/Mi or — write, wire or phone Miami Window Corp., Dept., BF-4.

MIAMI WINDOW CORPORATION 5200 N. W. 37th Ave., Miami, Fla.

EYE - OPENING IDEA

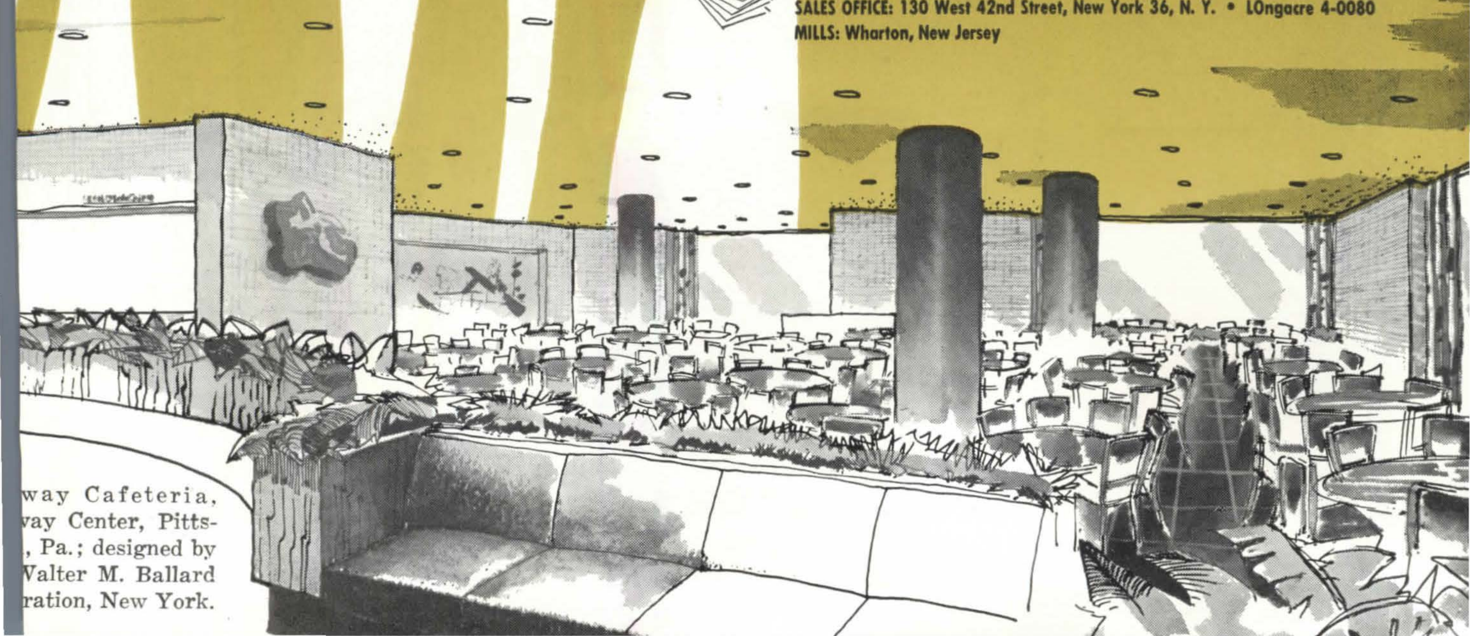
Ever eye four walls and wonder about covering them? Ever frown at a chair and worry about upholstery? The Walter M. Ballard Corporation covered dozens of walls, hundreds of chairs in decorating the spacious lower level food service for Pittsburgh's new Gateway Center . . . and *one* material solved *all* decor problems.

A variety of unusual molded Vicrtex textures in fascinating light and dark colors gave Ballard the "tools" to create a series of public dining rooms that are luxurious in appearance, yet wonderfully practical, too. Vicrtex combines the advantages of both plastic and fabric; can be cleaned with a damp cloth; resists soil and stains; won't crack, flake or peel; can be draped and folded; is practically indestructible.

For the best "SEEING" in town . . . Vicrtex PLASTIC FABRICS, new 3-dimensional textures for wall coverings and upholstery.

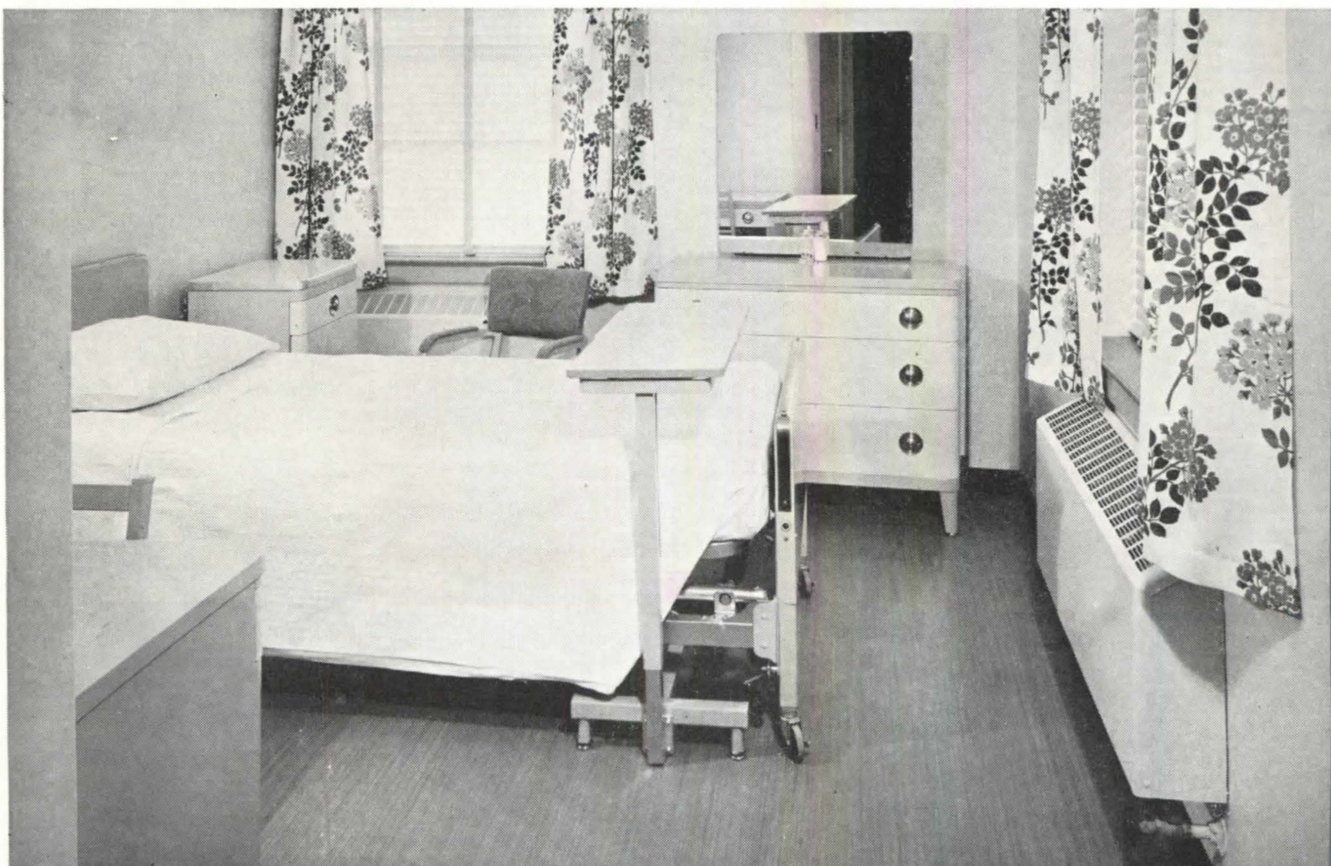
WRITE TODAY for samples of original Vicrtex patterns
• Bambu • Madagaska
• Algeria • Valencian • Dragon
• Tweed-Tone

L. E. CARPENTER & COMPANY, INC.
SALES OFFICE: 130 West 42nd Street, New York 36, N. Y. • LOngacre 4-0080
MILLS: Wharton, New Jersey



way Cafeteria,
vay Center, Pitts-
, Pa.; designed by
Valter M. Ballard
ration, New York.

These floors will STAY beautiful, bright, and quiet!



This smart, gleaming installation in the new Windham Community Memorial Hospital, Willimantic, Connecticut, will always be easy to walk on, easy to keep clean.

They're famous GOLD SEAL NAIRN LINOLEUM ...satisfaction guaranteed!

When floors *have* to take a daily beating and still come up smiling... year after year after year... then there's only one floor covering that *really* fills the bill. And that's Gold Seal Nairn Linoleum... backed by the strongest money-back guarantee in the business!

Gold Seal Nairn Linoleum gives you everything you could possibly ask for in a floor: *long life... enduring beauty... easy maintenance... true resilience.* All backed by the good-as-gold Gold Seal guarantee of *satisfaction or your money back!*

The Gold Seal is your money-back guarantee of satisfaction from the makers of the finest floor coverings in the world:

GOLD SEAL NAIRN LINOLEUM
GOLD SEAL ASPHALT TILE
GOLD SEAL VINYL INLAIDS

WITH ALUMINUM

THERE'LL BE plenty of aluminum available for tomorrow's building requirements as a result of today's industry-wide expansion.

Kaiser Aluminum alone is building new facilities which will increase its pre-Korea production of primary aluminum by 132 per cent!

So make your plans now to utilize the many advantages of light, strong, corrosion-resistant aluminum.

Check Before You Substitute

Most Kaiser Aluminum today goes to help meet the needs of the national security program. That's why it is not always readily available.

However, before you specify less-satisfactory substitute materials, ask for Kaiser Aluminum.

You may still be able to give your clients the best—Aluminum!

A Few of Today's Modern Aluminum Applications

Building materials made of Kaiser Aluminum offer exclusive advantages in design, beauty, and quality. Shown here are a few recent applications that prove aluminum is your best building material for tomorrow's plans.

Write for Information

Write for full information about any Kaiser Aluminum building product—and for AIA files. Kaiser Aluminum offices in principal cities. Kaiser Aluminum & Chemical Sales, Inc., Oakland 12, California.

Kaiser Aluminum

Building materials for home, farm and industry

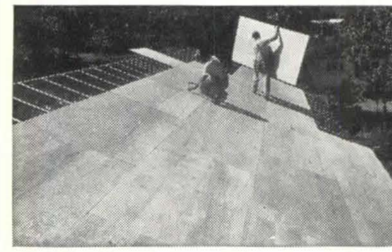
Kaiser Aluminum Siding, ideal for building or remodeling, gives sparkling modern look to Malley's Candy Shop, Cleveland. Weatherproof, rotproof, rustproof, aluminum siding lasts for generations. Baked-on enamel coat gives smooth surface that looks better, is easy to clean. Designed and erected by Lumi Land Distributing Co., Rocky River, Ohio.

Kaiser Aluminum Roofing on these Liggett & Myers tobacco warehouses is strong, *solid* corrugated aluminum. Bright surface reflects sun's rays—helps maintain uniform inside temperatures, often so important in warehousing goods. Specified by owner W. O. Crombie of Paris, Ky., because of aluminum's "complete lack of maintenance requirements."

Kaiser Aluminum Ductwork used in Los Angeles Times Building was fabricated *right on the job*, eliminating costly handling, trucking, storing of bulky pre-assembled sections. Easily fastened with rivets, by welding, or with sheet metal screws. Installed faster with less worker fatigue. And uninsulated aluminum delivers as much heat as insulated galvanized material at lower cost.

PANEL DISCUSSION

FHA Accepts 3/8" Plywood Over Rafters 24" O. C.



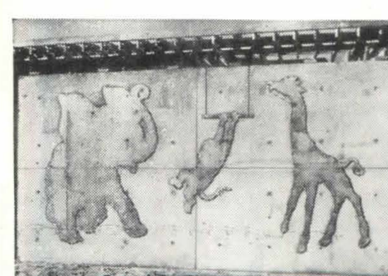
On the basis of recent tests and experience data, Federal Housing Administration now accepts plywood 3/8"-thick as roof decking over rafters spaced 24" on centers, according to a letter from Cur Mack, assistant commissioner of the FHA underwriting office, to Douglas Fir Plywood Association. A revision of FHA Minimum Property Requirements is planned; meanwhile, FHA at Washington (Underwriting Office) will advise any insuring office upon inquiry that 3/8" plywood over rafters 24" on centers will be accepted. Plywood roof deck thicknesses now accepted by FHA are shown below in tabular form.

Roofing Material	Max. Rafter Spacing	Min. Plywood Thickness
Wood, Asphalt Shingles	16"	5/16"*
	24"	3/8"*
	24"	1/2"
Slate, Tile, Asbestos-Cement	16"	1/2"
	20"	1/2"
	24"	5/8"
Flat Roofs	16"	3/8"
	20"	1/2"
	24"	5/8"

*Under wood shingles: If plywood is less than 1/2" thick, apply 1" x 2" nailing strips.

A folder giving detailed information regarding use and acceptance of Douglas fir plywood in homes built under FHA financing may be had free of charge from Douglas Fir Plywood Association, Tacoma 2, Washington.

Concrete Intaglio

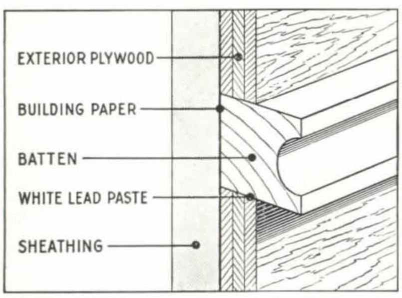


Plywood cut-outs, nailed to the plywood form face, were used to create these whimsical nursery figures on the exterior concrete wall of the kindergarten play yard at the Whitman School, Tacoma, Wash. Architect John G. Richards of Lea, Pearson and Richards developed the idea. Over 7' high, the figures were formed using 3/8" plywood cut-outs, secured to 5/8" form panels. On the soon to-be-completed project, plywood forms are being re-used as roof decking. Contractors: Standard Construction Co., Tacoma, Washington.

Speeds Siding Application

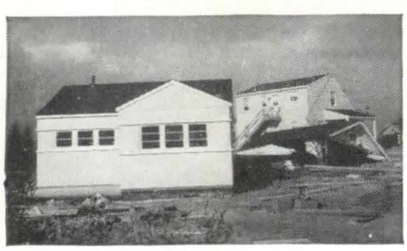
Builder-Owner H. J. Cox reports application time and labor costs were reduced by one-third with Douglas fir plywood siding in building this Eugene, Oregon, home. "Not only did the plywood help hold costs down," Builder Cox reports,

"but after over four years exposure to our rainy Northwest weather, the siding looks as good as the day it was finished." Architect Percy D. Bently specified the interesting batten detail shown. Exterior plywood panels were sawn to correspond with the bevel of the specially run molding and tightly fitted with a sealing of white lead paste. Corners were formed with ⅝″ quarter rounds. The siding—4′x8′ sheets, cut to 2′x8′—is painted beige, the molding tobacco brown.



Plywood Cottages Weather Hurricane

Dramatic proof of plywood's superior strength and rigidity was given last year when up-to-100 m.p.h. winds lashed the Jersey coast in one of the worst hurricanes to hit since 1938. Among the luckiest of those who took the full brunt of the screaming wind were owners of the 500 plywood cottages at Ocean Beach, N. J. All around the development, roofs were ripped away, church steeples toppled and conventional homes smashed beyond repair. According to A. C. Pearl, project sales manager, not one of the plywood houses suffered structural damage. "We attribute this to the outstanding bracing strength provided by plywood which was used as combined siding-sheathing."



(Adv.)

PlyScord® Sheathing-Best under <u>any</u> conditions

ANY CONDITIONS—including wind storms or earthquakes. U. S. Forest Laboratory tests prove plywood sheathing to be *twice* as strong, *twice* as rigid as any other material.

This superior bracing strength is particularly important in windy locations or earthquake areas. Plywood shear walls are also used to good advantage to compensate for loss of lateral rigidity in structures with walls containing large openings or areas of glass.

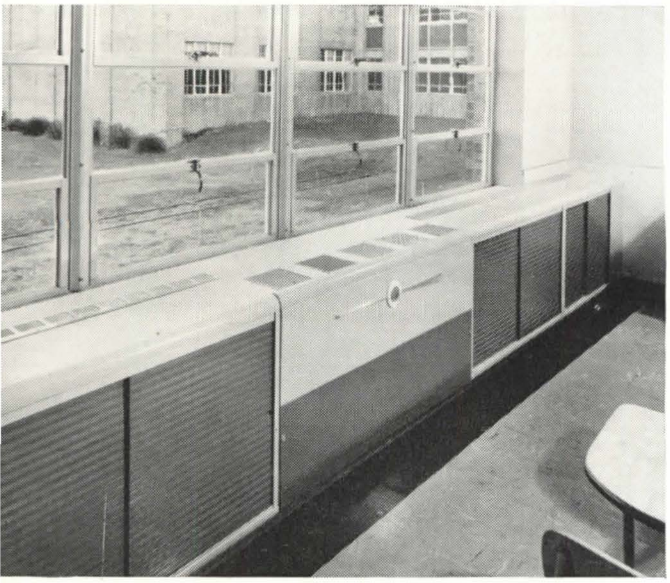
PlyScord, the sheathing grade plywood, offers many other advantages. It can be applied 25% faster, saving time and labor. PlyScord provides the perfect base for finish siding and roofing. It holds nails well . . . won't split, crumble or puncture. Big panels insulate, seal out drafts . . . make homes warm, snug, stable—now and five or fifteen years hence.

Douglas Fir Plywood

AMERICA'S BUSIEST BUILDING MATERIAL

® PlyScord is the unsanded construction grade of Interior-type plywood bonded with highly water resistant glues. For subflooring, sheathing, backing, one-use forms. PlyScord is a registered grade-trademark identifying quality plywood manufactured in accord with U. S. Commercial Standards and inspected by Douglas Fir Plywood Association (DFPA).

Johnny is more aler



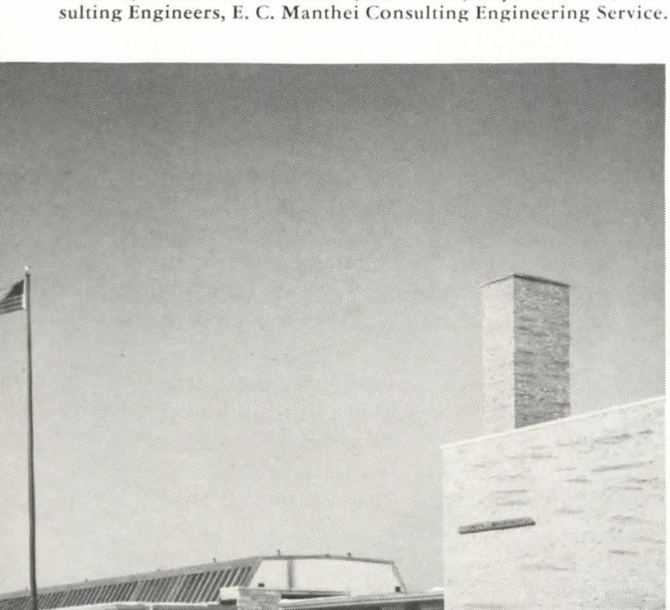
Bloom Township High School; Chicago Heights, Illinois, presents an interesting DRAFT|STOP installation with unit ventilators and cabinets level with the sill. All auxiliary cabinets are equipped with doors for neat appearance. Superintendent of Schools, Dr. Harold H. Metcalf; Architects, Royer & Davis; Consulting Engineers, E. C. Manthei Consulting Engineering Service.

No matter what we may think about "The Good Old Days' actual statistics show the typical schoolboy today is learning fas and better than his parents. Better teaching methods, better te books and better physical environment for learning all play i portant parts in making Johnny a more alert and healthier stude

The modern schoolroom has about as much resemblance the schoolroom you and I knew, as the modern automobile has the Model T. Seating, lighting, noise control and heating a ventilating have been dramatically improved.

Herman Nelson has played a key part in the development the modern schoolroom by providing automatic heating and v tilating equipment that sets the pace for other advances.

The Herman Nelson DRAFT|STOP system earns its name by o coming the drafts caused by the big windows of the modern sch room—and at the same time providing proper heating, cool and ventilation to keep the students healthy and alert. DRAFT|ST equipment is the approved solution for modern schools all c the country. If you are contemplating a new school building c modernization program you should have full information ab DRAFT|STOP. Write Dept. PA-5, Herman Nelson Divisi American Air Filter Company, Inc., Moline, Illinois.



George Washington School; Moline, Illinois, utilizes unusual treatment of clerestory lighting through means of corrugated glass for its deep classrooms. DRAFT|STOP unit ventilators were selected by Superintendent of Schools, Alex Jardine; Architect, M. R. Beckstrom.

Eastern Suburban Junior High School; Silver Springs, Maryland, has m classrooms with vision strip and wall-to-wall DRAFT|STOP installation. A piece completes the harmony of the unit ventilator and cabinet installation. Ca have adjustable shelves for ease of handling various size materials. Assistant Su tendent of Schools, Dr. Richard E. Carpenter; Architect, Ronald Senseman.

hese days...

V DRAFT|STOP STOPS DRAFTS

e exclusive DRAFT|STOP system, window
draft is completely controlled at all times.
sion for constantly trapping cold air down-
at the windows is offered only in the
an Nelson DRAFT|STOP system.

Write today for your free copy of the new Herman Nelson DRAFT|STOP Catalog and schoolroom heating-ventilating guide.

DRAFT STOP **HERMAN NELSON**

SYSTEM OF CLASSROOM VENTILATION

Bridge over Roosgraben, Bern—Maillart, 1932

Robert Maillart's Concrete Bridges

By Edgardo Contini

In our civilization, which has come to rely upon the techn achievements of engineering for almost all of its integra functions, the personality of the engineer, paradoxically eno has lost in significance. A clever technician, but no longe "creator," the engineer has failed to assert himself, in the generations, as a vital contributing factor to the search contemporary culture.

If, occasionally, his identity or his achievements acknowledged by the society of which he is part, magni of performance rather than quality is stressed—"the lon pipeline," "the tallest building," "the multimillion-dollar d —of these we hear. But "invention" as creativeness in Leonardian sense; "search" above and beyond formulas, se as a means of expression; these seem no longer associated the engineer's functions. He is expected to produce, not to much less, to fail.

When the Tacoma bridge collapsed in tragic and grote contortions, the dramatic and almost moving meaning o failure went generally unnoticed. The bridge, even if no "longest in the world," had been conceived in extreme da the very high ratio of span to width, the almost incre spidery lightness represented an excursion into the unk very rare in our cautiously experimental times. The fall o contemporary Icarus was mourned in terms of insurance pany's losses.

More than any other factor, the absurd scholastic s that took place at the second half of the last century ("de to the architect, "stress diagrams" to the engineer) is respo for the engineer's retreat from concern with creative expre Today's engineer, proud of his indispensability, contented the arbitrary division of duties, does not seem to be awar it used not to be so; that it ought not necessarily be so and that knowledge of techniques and skill with for alone, will not guarantee the validity of his contribution civilization of his time. In this light, the outstanding origi of the work of Robert Maillart acquires singular signifi

•

Maillart's bridges are light, easy, almost self-assured; th not impressive for extreme length of span, nor, at all tim glamour of setting: they straddle deep mountain gorg shallow peaceful rivers with the same competent poise and elegance. Truly an achievement of pure engineering, th entirely consistent with their function: not one detail is h for effect, yet the "effect" is, unmistakable, in their es The use of reinforced concrete is unconventional and ext daring; but neither novelty of design nor appreciation o ical skill represent the main factors of the enjoyment that they offer: it is rather the convincing harmony of the few and simple elements and the uncompromising sincerity and originality of the conception that provide such a rare expression of the esthetic potentialities of inventive engineering.

His bridges are indeed an unusual product of creative art: they affect with a subtle, long-lasting, almost disturbing impact; their thinness, their clarity, their implicit logic strike one's mind to unpredictable resonances and associations:

—Sassetta's landscapes of dream and fantasy made alive and real.

—Slabs, fins, ribs, playing in space as notes from a Mozart musical game.

—And (a strange rediscovery when viewing one of his three-hinged arches under a strong perspective angle) Brunelleschi's dome in Florence.

This last association will perhaps lead us into an attempt to clarify the ultimate relationships between forms and materials.

●

The ribbed-masonry dome (probably the most satisfying expression ever achieved with masonry construction) can be fancied as a stretched out, flatter, lower, thinner image of itself: and it will be transformed into the three-hinged ribbed shell of reinforced concrete.

It would not be easy to find even one example of a suspension bridge in which the basic scheme is brought to its ultimate expression—uncluttered by architectural decorum and entirely self-sufficient in its structural wholesomeness—with a measure of success comparable to that achieved by Maillart's concrete structures.

Having recognized and acknowledged the emotional impact brought by Maillart's completed works, it seems important to analyze the essence of his creativeness. If we can arrive at any findings, we will have in our hands a yardstick, absolute and unaffected by scholastic polemics, by which to measure and evaluate the validity of contemporary architectural trends.

One finding seems to stand out clearly: namely that the esthetic validity, the essence of Maillart's contribution, rests on the very fundamental of a creative builder's genius: "search for structure" (as differentiated from "search for form," as well as from "structural design"). The success of the search being asserted, now as in times past, by the growth of a form.

●

Historically, of course, the successful "search for structure" is recognized among the primary factors that establish the validity of an original architecture. The form of the Roman masonry arch, the form of the Gothic cathedral, the form of the Penn-

(Continued on page 145)

Bridge over Arbe, near Geneva—Maillart, 1936
Photos: Museum of Modern Art

"You save a lot more than space with this broom-closet furnace"

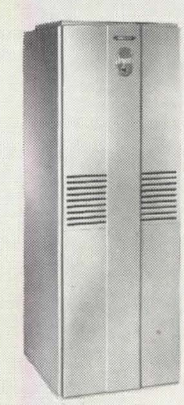
says Hess Swallow,

Bryant, Detroit Branch Manager

"Out of sight, out of mind" is by far the *safest* approach to concealed heating. Such equipment has to be *right*—or it's all wrong, and few can afford to have that happen. Making things *right* is an old Bryant custom, and it certainly has paid off in the way you've accepted our *Vertical Forced-Air* Furnace. It has paid off for *you*, too, in the way this compact, highly efficient gas furnace has performed—in thousands of single dwellings, more thousands of multiple-housing units, over the country.

Completely automatic and occupying as little as two square feet of floor space in the smaller sizes, the Bryant Vertical Gas Furnace can help you cut construction costs while providing more living space for homemakers.

Your Bryant Distributor will be glad to give you all the details and help you fit the Bryant Vertical into your plans. Or you may write Bryant Heater Division, Dept. 194, Affiliated Gas Equipment, Inc., 17825 St. Clair Avenue, Cleveland 10, Ohio.



Bryant Model 304
Winter Air Conditioner

Gas-fired, forced-air furnace. Six sizes, with inputs from 45,000 to 145,000 Btu per hour. Approved by A. G.A. for all gases. Features *Hevigage* Heat Exchanger and *Push-Button* Ignition (city gases only).

bryant *best buy*

IN HEATING,

AIR CONDITIONING,

WATER HEATING

obert Maillart's Concrete Bridges

ntinued from page 143)

vania frame barn, are understood as growth d integration of diverse factors: engineering uition experimentation, consistency with con- nporary social order, skill in the use of avail- e materials. However, it seems that in the luation of today's architecture the standard growth and consistency is being somehow regarded.

n part, this may be due to the fact that ilability of ever-new materials and tech- ques tends to tempt the designer (and the ic) into patterns of eclectic originality rather n into patient and self-disciplined experiment- and refining. In a larger part, probably, the se is to be found in the disappearance, in day, of the personality of the "master lder." A very disjointed trilogy—architect, gineer, contractor—has, by necessity of spe- lization, taken its place; but it has failed ubstitute for the consistency of single-minded gination a successful technique of creative aboration.

The consequences are apparent in the trends contemporary architecture. The Classic School, newhat hypnotized by the dogma of the steel ndbook, seems to have accepted without much estioning the "column-beam-90° angle" pat- n of vertical and horizontal play; and has own a tendency to substitute for over-all im- native creativeness the skillful handling of nes, volumes, and patterns within the ac- oted frame; in the process often forcing ma- ials into schemes alien to their structural racteristics. The Romantic School, more sensi- e to the qualities and potentialities of new d old materials, has boldly and often very autifully "invented"; yet, its concern being marily with form, its imagination being essen- lly emotional, it has tended to go beyond ic and function, to the extent of requiring help of hidden and unexpressed structures achieve static reality for its dreams.

●

illart's work belongs to no school and follows trend as such; nor can it start one of its n. Its contribution to the growth of a con- nporary architecture rests—*even more* than the brilliant achievements, which are limited a specialized field—in the assertion of an tude; an attitude of youthful response to illenge, of freedom from dogma, of joyous ativeness. Nowhere more than in the Schwad- ch River Bridge is this attitude apparent. The blem of designing a highway bridge along curved alignment has often occurred. It has en solved, in general, by forcibly running ng the curve a structure conceived for straight e; by avoiding long spans and, not infre- ently, by running the bridge straight (the e avoided, the challenge unanswered!) and by taking up the required change of direction in curves along the approach ramps. Maillart's solution is brilliant, daring almost beyond be- lief: the supporting arch is conceived as a thin, slender arched slab; the horizontal roadbed slab following the elliptical alignment of the road, anchors at the abutments and stiffens the arch that supports it, elegantly absorbing in hori- zontal bending the torsional moments introduced by the curvature.

The result is one of the most remarkable structures of our time; one in which we may well read, clearly expressed, the basic rule of engineering design: given a structural material, study its behavior, arrive at a complete under- standing, at a "feeling" for its physical and its esthetic potentialities; forget the handbook; and then (then only) let inventiveness run free. Work will develop as something organic, beautiful, and ageless.

BOOKS RECEIVED

As You Pass By. Kenneth Holcomb Dunshee. Hastings House, New York, N. Y., 1952. 278 pp., illus. $10

Forms and Functions of 20th Century Architecture. Volumes 1, 2, 3, and 4. Edited by Talbot Hamlin. Columbia University Press, New York, N. Y., 1952. Illus. $75 per set

Building in England—down to 1540. L. F. Salzman. Oxford University Press, 114 Fifth Ave., New York, N. Y., 1952. 595 pp., illus. $12.50.

Tool Steel Handbook. Allegheny Ludlum Steel Corp., Pittsburgh 22, Pa., 1951. 197 pp.

Wrought Iron Work. Paul Artaria. Wepf & Co. Verlag, Basel, Switzerland, 1950. Introduction in German and English. 107 pp. of drawings and photos.

enviable achievement

Early American Architecture. *Hugh Morrison. Oxford University Press, New York, N.Y. 1952. 619 pp., illus. $12.50*

Hugh Morrison has produced a volume which will constitute a milestone in the recording of American Architecture. Restating Isaac Ware in his foreword, his purpose is ". . . to instruct rather than to amuse; in which nothing will be omitted that is elegant or great; but the principal regard will be shown to what is necessary or useful." Unlike the local orator who "spoke from his subject rather than upon it," Morrison has hewn to the line and given us a book of high importance which for the first time provides us with a history of architecture in this country that covers our entire geographical area in a scholarly and highly dependable way.

With commendable thoroughness he analyzes the origin, and growth of the colonial style by divisions in the eastern states from New England to Florida, the Spanish Southwest, the Mississippi Valley, and Alta California. He proceeds in turn to the Georgian period, first providing us with a pertinent discussion of the European components which entered into the establishing of Georgian practice in this country. Shrewdly differentiating between stages of development within the broad style, he thoughtfully explores the regional characteristics in our principal centers of architectural influence up to Neoclassicism and the Age of Revivals.

Separate building types are discussed, plans, sections, and elevations are analyzed, building materials and methods are explored. He shows us the bibliographic sources available to our designers and explains the logical deviations made in interpreting them in actual practice. Old drawings are reproduced, historical documents, contemporary letters, and travelers' comments are included in a way that richly vitalizes his treatment. Restoration drawings of buildings long destroyed or seriously altered, lend an added dimension and value to his discussion.

With sound judgment he makes use of the findings of the most eminent contemporary scholars in the field such as Fiske Kimball, *Thomas Waterman*, J. F. Kelly, H. D. Eberlein, T. J. Wertenbaker, Carl Bridenbaugh, and Talbot Hamlin.

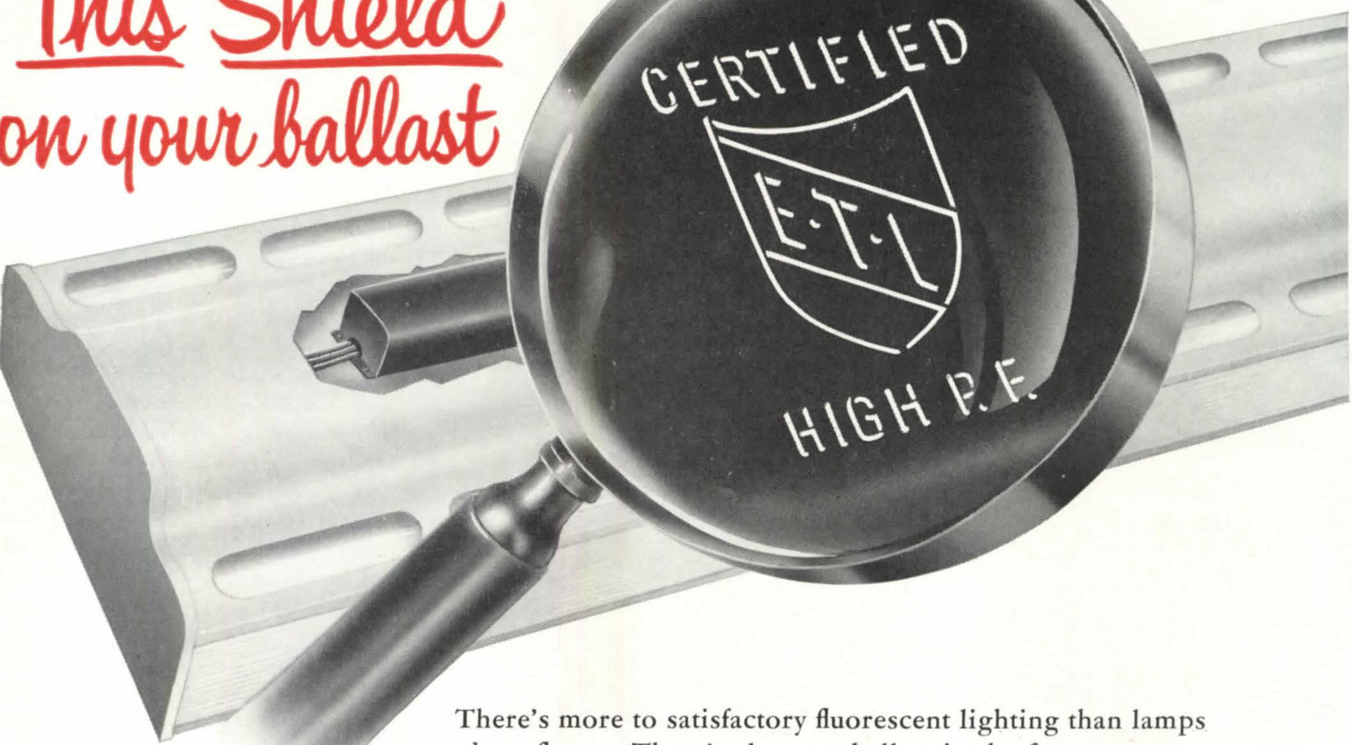
Opposed theories are presented and evaluations offered forthrightly or tentatively as the situation justifies. With the most commendable honesty he reveals the working of his mind and stimulates the reader to use his own critical judgment.

(Continued on page 14

To get efficient fluorescent lighting

...insist on

This Shield on your ballast



There's more to satisfactory fluorescent lighting than lamps and a reflector. There's always a ballast in the fixture . . . and the way it performs determines whether you'll get *full lamp life, rated light output* and *satisfactory performance.*

Only CERTIFIED BALLASTS carry the shield that assures best lighting. That's because CERTIFIED BALLASTS are made to precise specifications, then tested by Electrical Testing Laboratories, Inc., which certifies they conform to these high standards.

There's no excuse for inefficient, unsatisfactory fluorescent lighting when CERTIFIED BALLASTS are available.

Be sure every fixture you get has CERTIFIED BALLASTS . . . the ones with the shield.

● Complete information on the types of CERTIFIED BALLASTS available from each participating manufacturer may be obtained from Electrical Testing Laboratories, Inc., East End Ave. at 79th St., New York, N. Y. *Participation in the CERTIFIED BALLAST program is open to any manufacturer who complies with the requirements of CERTIFIED BALLAST MANUFACTURERS.*

CERTIFIED BALLAST MANUFACTURERS

Makers of Certified Ballasts for Fluorescent Lighting

2116 KEITH BLDG., CLEVELAND 15, OHIO

REVIEWS

(Continued from page 146)

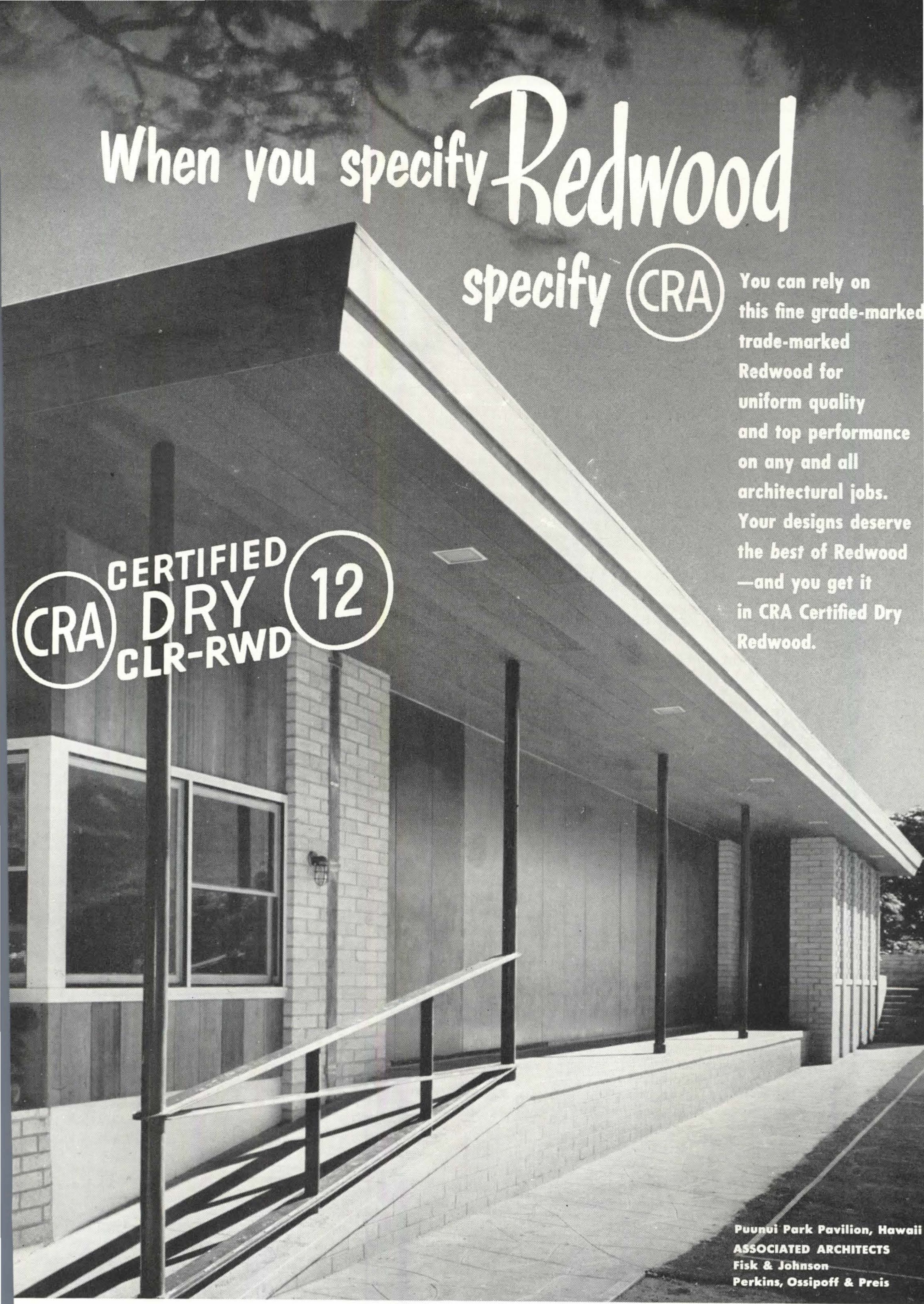
The whole work shows the results of sustaine and orderly thinking directed toward the assem blage of an encyclopedic mass of informatio which is digested, codified, and brought to concisely ordered pattern in which the larg design is always apparent. The author has wh amounts to a passion for the transmitting knowledge, but the book *teaches* rather tha *preaches,* carrying the reader willingly alo with him, aided by nearly 500 informative a often excellent photographs, used to illustra the 580 pages of meaty text.

The author shows no reluctance in includi footnotes with occasional definitions, fuller e planations, clarifying comments and diagra for the aid of the non-specialist, so that meaning becomes clear and there is an accum lative growth of understanding unmarred the need for constant reference to a score handbooks. But the volume is doubtless greatest value to the initiated scholar in t it draws together the most advanced resea of leading specialists in the architecture separate buildings, the regions and periods cussed. Voluminous reference notes are pended at the back of the book and a b analytical bibliography is incorporated w each chapter.

Aside from discussing, interpreting, and e uating a whole roster of the key buildings the periods discussed, Professor Morrison g into the problem of debated attributions specific architects and the dating of sepa parts of the construction by means of inte evidence, documentary or stylistic sources. question as to whether the portico at fa Whitehall in Maryland is a part of the origi building is settled and the dating of the e part of Philipse Manor Hall at Yonkers is s factorily deduced. The knotty problem of Foster-Hutchinson House in Boston—whethe is, by a half century, the *first Georgian build in America*—and the likelihood of its ha been designed by no less a master than I Jones are provocatively explored.

These are but a few of the significant is raised throughout the book. Professor M son's answers, whether direct or qualified, challenge the scholar's closest attention and to absorbing and continued reexamination is extremely gratifying to encounter a boo long needed and find it meets that need i commendable a way.

JAMES GROTE VAN DERP
Avery Lib
Columbia Unive
New York,



Puunui Park Pavilion, Hawaii
ASSOCIATED ARCHITECTS
Fisk & Johnson
Perkins, Ossipoff & Preis

ASSOCIATION CRA Members: Warm Springs Redwood Co. • Northern Redwood Lumber Co. • Arcata Redwood Co. • Coastal Plywood & Timber Co. • Hammond Lumber Co.

out of school

by Carl Feiss

The other day I received from Alec MacLaurin, a member of the staff of the Housing Authority of the City of Baltimore, a commentary on Prof. John Knox Shear's exposition of the Carnegie Plan, which was published in January 1952 P/A. MacLaurin has written such an interesting addendum to Professor Shear's article that I thought it was worth publishing in its entirety. Professor Shear's article has aroused a good deal of interest, and I am happy to see that this column is serving as a vehicle for discussions on modern curriculum building. At present, there is apparently no other place where students, faculty members, and practicing architects can express their pent-up ideas and emotions on architectural education—and I hope that more of my readers will feel welcome to use this column as a forum.

I am anxious to give every school in the country an opportunity to tell its story, if it so desires. MacLaurin's article, while including commentary on the Carnegie teaching system, has broader implications which concern all type of training programs. Here's what MacLauri has to say:

Dear Carl: As an old pupil of yours, and as former teacher of Architecture and City Pla ning, I have been reading your OUT C SCHOOL columns regularly, with the greate interest. They are very stimulating.

I have just read Professor Shear's account the Carnegie Plan of Professional Education Architecture, in the January issue. Like ma readers, I am sure, I read Professor Shea account with particular satisfaction, because, you will bear with us, "it is just what we ha been saying all along."

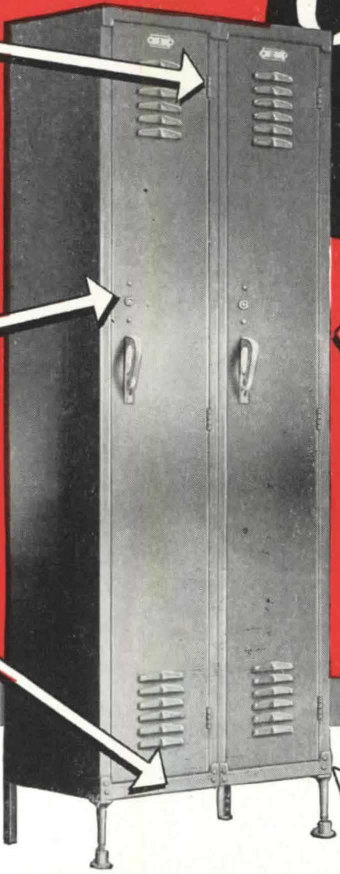
These ideas, in one form or another, taking root in the architectural schools all o America today, and have been doing so fo number of years. The "fountainhead," if can single out any one man, was proba Walter Gropius, in his writings on the teachi of design and in his work at the Bauhaus. N Carnegie is doing what so many of us, here America, have talked about—actually putt these ideas into practice.

I taught Architecture and City Planning four years at the University of Washington, Seattle. Ideas of this kind were not infreque discussed at staff meetings during my there, and some attempts were made, o limited scale, to put the ideas to practical plication. When I left the school, in 19 a group of young architects in Seattle, m of them contemporaries of mine, asked me talk to them on the subject of architect education. Among the group, as I remembe were Vic Steinbrueck, Paul Kirk, Jim Chia Larry Waldron, Fred Bassetti, John Morse, Savery, Bob Dietz, Ron Wilson, and a num of others, many of whom have had their w appear in P/A and elsewhere, much to credit of their Alma Mater.

In my talk on architectural education to group, I deplored the "blind corridor" org zation of the typical old-school curriculum piling on of unusable facts at the wrong t and so forth; and I projected the idea o one-course, problem-solving approach in teaching of architecture, in which the prese tion of *specifics* would be related directly t central design problem on the drafting bo It soon developed, even in this small gr that this was just about exactly what we *all* "been saying right along." My talk beca full-fledged bull session which lasted all ning and ended, if I recall, at the Rathsk It was a valuable evening. Together, we d oped a philosophy and a program for

(Continued on page

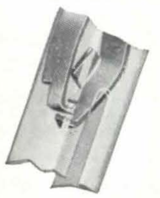
Compare Them for DURABILITY SECURITY TOP VALUE



SAG-PROOF HINGES

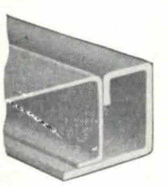
Rugged 5-knuckle hinges, with 3/16" semi-recessed pins, are made of 14-gauge steel, both welded and bolted into place.

GREATER SECURITY



Only Medart Lockers have this patented pick-proof "dual latch" mechanism concealed in the lock rod channel. It's pre-locking, positive in action whether door is slammed or gently closed.

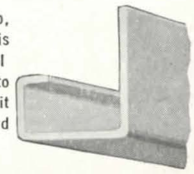
STURDY BOTTOMS



Built to take brutal punishment — won't break or sag. Full 1/4" flange of bottom is tied solidly to steel frame. Compare this feature with ordinary lockers!

STRONGER

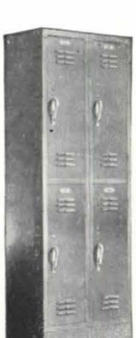
Entire frame — top, bottom and sides — is channel-shaped steel electrically welded into a single solid, rigid unit that stays square and true.



ADJUSTABLE LEGS

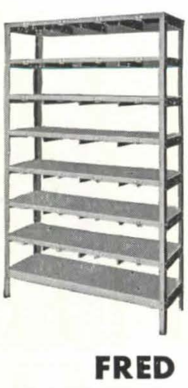
Heavy malleable iron. Front legs are adjustable up or down to compensate for unevenness of floor.

MEDART STEEL LOCKERS



MEDART LOCKERS are built in all standard types and sizes, both recessed and free-standing.

BASKET SHELVING sturdy and very rugged, both permanent and portable, in many sizes is built by Medart.



A better constructed, stronger, more serviceable locker can't be bought! More than that, because Medart originated virtually every practical feature used in modern steel lockers, Medart builds the locker that includes them *all* — not just those above, but many more!

By actual comparison you'll find the skillful engineering, best quality metals and precision manufacture in Medart Lockers are a better paying long-term investment in extra years of service, far less maintenance, appearance that stays new indefinitely, and thoroughly dependable tamper-proof protection.

Medart offers 80 years of engineering experience to help analyze and solve the most complicated locker problem. No matter how modest your budget, Medart Lockers give you more for the money!

Ask for Catalog

SEE OUR CATALOG IN SWEET'S

FRED MEDART PRODUCTS, INC. 3576 DE KALB STREET ST. LOUIS 18, MISSOURI

World's Only Complete Single Source For Gymnasium Equipment

Telescopic Gym Seats | Lockers & Wire Basket Shelving | Lockerobes & Grade-Robes | Basketball Backstops | Physical Fitness Apparatus | Basketball & Football Scoreboards | Physical Therapy Equipment

Medart ST. LOUIS MISSOURI

out of schoo

(Continued from page 150)

tectural education which corresponded, in ma essentials, to Professor Shear's plan at Ca negie.

I tell you all this, not with the intention minimizing the accomplishments at Carneg which are very real, but rather because I a sure my experience in this connection is t type of experience that has been shared many faculty members and students in schoo of architecture throughout the country, a might serve, therefore, as somewhat of a re resentative grass-roots sample of nationwi rumblings to the same general effect as Pr fessor Shear's.

I believe that Professor Shear's stateme despite space limitations, is a very able p sentation of the principles involved, and giv one every encouragement to believe that t principles are being effectively and creativ applied in the teaching of architecture at C negie. There are certain additional obser tions, however, which I feel should be ma It may be that Professor Shear would find hi self in complete agreement with me in wha have to say below, and if so, I offer these co ments simply as a little supplement to Profes Shear's excellent statement.

•

Let me begin by presenting quotations fr Professor Shear's description of the Carne Plan, and a quotation from your brief comm upon it:

Quoting Professor Shear:

"The ideal curriculum in architecture wo consist of one course in which the study man, even in the precise terms of such spec ized areas as psychology, literature, hist social economics, and philosophy, would be completely integrated with the study of ar tecture that the student could not pursue one without the other. In aiming at this id we have created teaching teams which w together to achieve in the teaching of the wh of the subject of man and architecture wha impossible of achievement for the individ teacher who is necessarily limited by phys capacity, range of interest, and ability. T in each year, for individual teachers teach separate subjects separately, we have in duced a team of teachers who, by plann together all subject matter and teaching m ods, can assure a unified course; and who, reason of their individual abilities, can as depth in the penetration of the several spec ized areas which make up the unified cou There is a separate teaching team for each the five years and to insure effective cohe between the years certain members of each t team belong also to the team of the follow year."

"We believe that there is one effective of what is fundamental knowledge; tha

(Continued on page

Diffused Lighting... with PLEXIGLAS

You may well think you are under a naturally-lighted skylight when you visit this gallery at the Museum of Fine Arts in Boston. The effect, however, is obtained by the use of translucent white diffusing panels of PLEXIGLAS acrylic plastic, mounted below fluorescent lamps.

PLEXIGLAS luminous ceilings provide high quality lighting in eight new exhibition rooms at the Museum. The totally *diffused* illumination is free of shadows and reflected glare. The effect of daylight, the most desirable condition for human vision, is achieved and the disadvantages of depending upon natural light, with its constantly shifting values, are eliminated.

The even spread of artificial light across the PLEXIGLAS surfaces and the absence of visible lighting fixtures make the luminous ceilings architecturally appealing. Higher light intensity and full color values for the paintings are supplied by directional louvers and recessed spotlights.

PLEXIGLAS luminous ceilings satisfy the requirements of architects and lighting engineers for low brightness ratios, high illumination levels, excellent diffusion, and fixture-free appearance. In addition, the lightweight yet strong diffusers are removed easily and safely for cleaning and for access to the lighting source, resulting in a sustained high level of lighting performance.

If *you* have a lighting problem, investigate "daylighting" with a PLEXIGLAS luminous ceiling. We will be glad to send you technical details about the installation shown above. Write for them.

The Rohm & Haas exhibit at the Fourth International Lighting Exposition and Conference, May 6-9, Public Auditorium, Cleveland, Ohio, will be in Booth 153.

Special Galleries, Museum of Fine Arts, Boston, Massachusetts. Architects: Leland and Larsen, Boston. Illuminating engineers: Thompson Engineering Company, Boston. Photograph courtesy of General Electric Company.

CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

PLEXIGLAS *is a trademark, Reg. U.S. Pat. Off. and other principal countries in the Western Hemisphere.*

Canadian Distributor: *Crystal Glass & Plastics, Ltd., 130 Queen's Quay at Jarvis Street, Toronto, Ontario, Canada.*

(Continued from page 152)

whether or not it is useful in later learnin In turn we believe that the best test of usefu ness of learning is use. Thus we have bee concerned on the one hand with teaching on those fundamentals useful in later learning ar on the other hand with insuring our studen repeated opportunities to use those fundame tals already learned in situations which poi up the need for learning still others. In carr ing this out we have taken great care that ea educational experience should do three thing (a) allow full examination of a new princip (b) afford an opportunity to use previous lear ing; (c) serve to prepare the student for subs quent learning."

Quoting Schoolmaster Feiss:

"I am very much encouraged, because wh is beginning to show up is a method of und graduate architectural training which may proved sufficiently sound as a method to s vive faculty changes and the impact of t prima donnas. In fact, with such systems it m be possible to successfully control the pri donnas and convert them into useful teach as well as drawing cards."

●

I am aware that these quotations, ripped of context, cannot be presented fairly as summary of Professor Shear's statement, nor a complete exposition of your views, Carl, the particular point involved. However, th may serve to refresh the reader's memory as the salient features of the Carnegie Plan, a also, in the case of the last quotation, demonstrate one person's reaction to Profes Shear's description of the plan, which I beli to be germane to the discussion which follo While the observations which I am making low are made more upon the general drift Professor Shear's complete statement, my servations are perhaps somewhat focused u the ideas expressed in these quotations.

On "Integrating" the Social Sciences and the Humanities

As I understand Professor Shear's statem he is suggesting that a team of teachers f various fields will be able to teach the stu of architecture ascending and architectur demonstrable lessons illustrating the "facts principles" of man and his needs in soci and that such lessons will build up (thro carefully chosen design problems on the bo if not to a complete understanding of man his needs in society, at least to an open osity and a correct orientation toward this Professor Shear rightly suggests this as an id rather than as a readily attainable end. what troubles me more is that Professor S

(Continued on page

Graduate to Tile-Tex Quality

...and get more economical floors!

Look into Tile-Tex*...the *quality* Asphalt Tile.

It's the tile that combines decorative beauty, better light reflection and extra durability with low initial cost, minimum maintenance and long, long service life. The tile that *school boards* like!

Take your pick of rich Tile-Tex colors from 28 plain or marbleized beauties.

Tile-at-a-time installation...plus a wide range of sizes and your choice of custom-made inserts...will enable you to create just about any designs you wish. These designs can be plain, decorative or functional. And you'll find it doesn't take long to install the floors either.

And talk about *wear-resistance!* It's common practice for Tile-Tex floors to stand up under the heaviest traffic for 20 years...without showing wear.

Tile-Tex Asphalt floors take the problem out of *cleaning*, too. All it takes is sweeping to remove loose dirt...periodic washing. Occasional water-waxing will help keep colors sharp.

Get in touch with your local Tile-Tex Flooring Contractor for samples and complete information on our design counsel and floor layout service.

You'll find him listed under "Floors" in the classified pages of your telephone directory. Or, write to: THE TILE-TEX DIVISION, *The Flintkote Company, 1234 McKinley Street, Chicago Heights, Illinois.*

The Flintkote Company of Canada, Ltd., 30th Street, Long Branch, Toronto, Canada.

Tile-Tex
ASPHALT
FLOORS AND WALLS

*Registered Trademark, The Flintkote Company

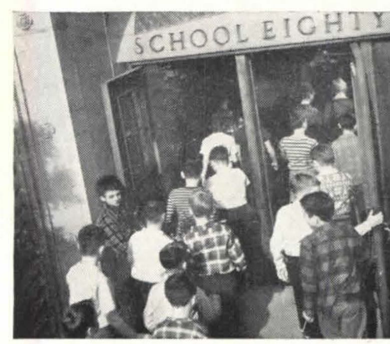
Swapping sentences for steel, epigrams for equipment, Shakespeare as an architect, would soon learn that names like Edwards do count. He'd find that while a rose under any name might smell sweet, equipment can go mighty sour unless its maker's name spells dependability. He'd know that for over 80 years Edwards equipment has been so reliable, trouble-free, efficient an architect can specify . . . and forget it. That's another reason why, when *you* choose signaling equipment, it pays to remember Edwards.

EDWARDS®

World's Most Reliable Time, Communication and Protection Products For Schools, Hospitals, Industry and Homes.

Specify Edwards and Be Sure

America's schools run more smoothly . . . America's school children are better protected thanks to Edwards.



Edwards Automatic Clock and Program Control Systems, models of precision engineering, regulate school traffic with split-second accuracy. This ingenious system requires no master clock, no mercury pendulums, rectifiers, condens-ers or radio tubes. Built around the fa-mous dual-motored Telechron movement Edwards Clocks are synchronized to eve accurate incoming alternating curren . . . one or a hundred timepieces kee perfect time together. Virtually erro free, they run for years without costl servicing.

• • •

Last word in safety, first in beauty ar Edwards Fire Alarms. Trim, smart, func tional they hug th wall with only 1⅞ projection . . . operat simply, easily with foo proof dependabilit No chance of huma failure . . . no chanc of non-alarm throug haste or panic.

For further information, write Dept. P-5, Edwards Company, Inc Norwalk, Connecticut

Arthur T. Vanderbilt Hall, new $5,000,000 law center for New York University, faces historic Washington Square in downtown New York City. Architect: Eggers and Higgins; General Contractor: John Lowry, Inc.; Roofer: Zenith Roofing and Sheet Metal Co., Brooklyn, New York.

Roofs that last—cost less

This handsome shelter for legal learning, at New York University, will meet the double test of time and minimum maintenance cost.

A time-tested material, needing little care, was specified for the roof. Natural choice was ANACONDA Sheet Copper—an ageless material unsurpassed for durability when correctly installed.

The roof of Vanderbilt Hall has an 8″ pitch and is constructed of poured concrete. The roof covering is copper of batten seam design. The copper pans were formed from 20-oz. weight sheets and the batten covers, ridges and gravel stops for the flat roof areas are all of 16-oz. copper. The built-in gutters are lined with 20-oz. cornice temper copper with expansion joints between downspouts.

When roofing must last, ANACONDA Sheet Copper costs less. Good design and proper application insure its enduring service. The use of copper in building construction is currently under regulations and restrictions issued by the National Production Authority, but there are no restrictions against planning for the future. We will be glad to help you in solving sheet metal problems. Don't hesitate to write The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

5202

…r better sheet metal work . . . . . . use ANACONDA® COPPER

out of school

(Continued from page 154)

also seems to be giving the impression that he is proposing to set his team of teachers to the task of reducing the huge, complicated, unmanageable problems of man and his needs in society to such a "school" set of facts and principles, suited to such a set of graded lessons, and that he sees no dangers in their attempting to do so. These impressions may be due to a failure on my part, or may arise simply as a result of the limitations of space imposed upon Professor Shear. A more complete statement would allow for elaborations and qualifications not possible within the confines of a few pages.

I feel that Professor Shear would agree with me that the world of ideas (and I am talking here for the moment only about those ideas coming from the social sciences and the humanities) with which the architect and the archi
tural student must deal in analyzing and s
ing an architectural problem, is not a sin
ordered system of known and accepted f
and principles, so composed that each l
drawer of learning could be opened and
contents displayed at the proper place (as
student's curiosity is appropriately arous
and then convincingly illustrated in the s
tion of graded problems on the drafting bo

There are biological, physiological, and
tomic facts, to be sure, about which the t
of specialists might be able to come to p
common agreement. I can see that these
from the natural sciences might lend themse
in a rather reassuring way to translation
architectural terms as to size, shape, arra
ment, color, etc. But the "facts" which
from our social sciences, alas, and from
humanities, are not as easy to handle.
in society—social man—is another and exc
ingly difficult type of problem. And yet
fessor Shear is right in saying that ma
society is at the very center of almost
architectural problem.

As a body of human knowledge, and
broad area of investigation, the social scie
and the humanities have very few clear, c
ent, uncontested answers to give to the
of questions that architects and planners sh
ask. In many places, the answers are in
plete, confused, and cryptic; in some
are clear, numerous, and sharply conflictin
other areas the answers are loud and si
minded but, unfortunately, incorrect; in
other important areas, there are no answe
all worth talking about.[1] In a few areas,
true, the answers may be middling to
or even excellent, but they are certainly no
final answers. To add to the difficulties f
the teaching team, the structural and func
relationships existing between the parts o
matrix of ideas are such that one's degr
understanding of a single part usually de
in large measure upon one's grasp of the w
Furthermore, the countless threads of a
and dependence running back and
throughout this whole area of human u
standing, render it exceedingly difficult t
tract nice little "Lessons of Life," little "L
of Man in Society," numbered 1, 2, 3,
are susceptible of demonstration on a dr
board to anyone (much less, with all d
spects, to a sophomore or junior, and wi
matter of weeks).

[1] *For a splendid list and discussion of many unan
questions see, for instance, "Social Research as
for Community Planning" by Catherine Bau
"Sociopsychological Problems in Housing Desi
Robert Woods Kennedy. These two papers co
chapters 10 and 11 in "Social Pressures in I
Groups" by Festinger, Schachter, and Back (Ha
Brothers, 1950).*
*For a superb analysis of the failure of the
sciences to address themselves to the probl
contemporary life, see "Knowledge for What
R. S. Lynd, Princeton University Press, 1946
book is much too little known and too little*

(Continued on pag

INFORCED CONCRETE FLOORS
THOUT FORMS

ls unbelievable... but Cofar did it. In one factured product, the costliest element of rced concrete construction—wood forms— ll of the conventional positive re-bars were nated. Cofar, the reinforcement that forms, product of extremely high strength flat steel which performs this dual function.

fits the building frame. Quickly placed, ovides an immediate working surface for s. Cofar weighs less than the conventional ve reinforcing it replaces, maintaining the eel saving advantages inherent in concrete ruction. Conventional reinforced concrete n procedures apply for simple or continu- pans. Cofar is equally suited to concrete el frame construction.

is hot-dip galvanized providing building ermanence. Extended fire protection be- any requirement is provided by suspended veight plaster ceilings. Exposed Cofar ut a suspended ceiling has important fire ant qualities.

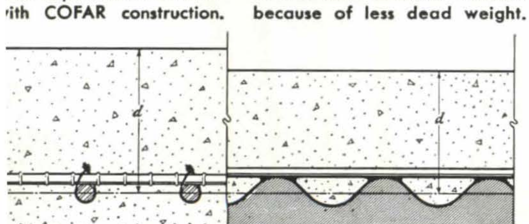
has lowered substantially the cost of con- floor construction, changing conventional ruction type selections and permitting mical electrical and utility services in ructural slab. Cofar residential floors, in- ngly used, give ample evidence to cost ntages compared to normal wood floor ruction.

is approved by the Building Officials rence of America, by the Pacific Coast ing Officials Conference and by many cities.

Corrigan Tower Building, Dallas, Texas
Wyatt C. Hedrick, Architect
J. W. Bateson, General Contractor
Tom L. Harpster, Steel Erectors

ntional Slab — nd temperature bars elim- ith COFAR construction.

Cofar Slab — COFAR slab thickness reduced because of less dead weight.



ninated with COFAR con-

Concrete below reinforcement eliminated.

ative Cross Sections of Conventional and COFAR e Slabs.

For complete technical or general information, advice on application and design, review of COFAR designs, estimates and costs for any COFAR project, write: Dept. 10-4

GRANCO STEEL PRODUCTS CO.
(Subsidiary of Granite City Steel Co.)
Granite City, Illinois

out of scho

(Continued from page 158)

Obviously, of course, I am not accusing fessor Shear of saying that little "Lessor Man in Society" can be dished up so ha in architectural problems for the undergrad I am quite sure that Professor Shear woulc no such thing. I am suggesting, however, the unwary reader might get some impres here and there throughout the statement Professor Shear is edging over to this vie that his remarks might be so construed encourage such a belief.

As Professor Shear points out, we arch and planners have to deal constantly with complex matters and the family, the church school, the neighborhood, the region, an on. In such matters as these it can hardl said, except upon little issues, that we are ing about schools of thought, theories, and cepts (balanced by other numerous and opposing concepts).

To put all of this in terms in which it be presented to the architectural student in type of problem, let us say that, on the m of the neighborhood, Professor A follows ence Arthur Perry, Professor B follows Rodwin, Professor C follows Homer Hoyt Walter Firey, Professor D is a human ecol Professor E likes Frank Lloyd Wright, Prof F is a Corbusier enthusiast, and Professor been reading the Goodman brothers (ju mention a few of the people that migh thought of as having something to say tha a bearing on the subject involved). And pose, also, that Professors A to G constit teaching team. Under these circumstance cumstances which are not at all unlikely) would like Professor Shear to describe in g detail just how, to what extent, and in sense, he would get the teaching team tog and one would also like to have him more closely to what extent and to what pose, at other points, we might wish to that the teaching team remain apart.

I am certain that Professor Shear would with me that although a one-philosophy and a one-philosophy teaching team work, and might possibly be able to pr the little "Lessons of Man in Society," su arrangement would be very bad from an cational standpoint. And yet it is an arr ment which, I am afraid, is all too lik result from hurried attempts at integrated ing programs. Professor A, the head department, gathers about him faculty me and specialists whose frame of referenc ideas fairly well conform to his. They out minor differences in staff meeting present a solid intellectual front during

(Continued on pa

out of scho

(Continued from page 160)

hours. The result is a "happy family" fac but a student body forced to wear intellec blinkers.

●

This is one problem we just didn't have ur the old Beaux Arts system, and, parenthetic it is not a problem which prevails in other versity departments organized along conv tional lines. Professors A, B, and C, under conventional arrangement, aren't under great a temptation to agree. They can con dict one another as much as they like, continue to do so in front of the students. T even stand to gain in prestige, to some ext by contradicting one another, since differe of opinion are usually honored as evidence independent thought. Each professor g ahead with his course, seeing things the he sees them, and saying what he thinks, m or less. At least there is nothing in the na of the organization of the curriculum or teaching staff which prevents him from do so. Old Professor X, bumbling along with history course, can come out with his little " rageous hypotheses," now and then, wit being talked into line by a majority staff o ion, or without having to forsake his hypoth for the practical advantages of joining to over an integrated subject matter in a lim time.

It is true, the problems of qualification, alysis, weighting, discounting, and synth (though all terrific problems), are left p much to the student under the conventional rangement. Nothing is predigested. Thos us who were brought up under the Beaux system, or at the time the Beaux Arts sy was falling apart, are very much aware of conflicts and confusion, the poor timing the unbalanced emphases, presented to u the name of education.

On the other hand, in attempting to c come these shortcomings of the conventi system, we cannot allow the impression t gathered by the student that all of the problems have been solved, that there is a Dawning and that we, the architectural fac are its prophets. We products of the B Arts system were perhaps somewhat conf and that was bad and should be avoide sofar as possible, but at least it can be that a large number of intellectual win were left open. It wasn't a closed syste ideas, with all questions answered, an authorities nodding their heads in unison.

This, after all, was one of the great v of the now-despised prima donnas of the

(Continued on pag


Holabird & Root & Burgee, Architects
MODERN DOOR CONTROL BY LCN · CLOSERS CONCEALED IN DOOR
THE NORTHERN TRUST COMPANY, CHICAGO, ILLINOIS
LCN CATALOG 11-E ON REQUEST OR SEE SWEET'S • LCN CLOSERS, INC., PRINCETON, ILLINOIS

out of scho

(Continued from page 162)

Arts world. Your comment, Carl, tends to b out my contention that Professor Shear gi some impressions that the kind of integrat he is talking about is a rather thorough-go integration. The prima donnas often w iconoclasts who just would not be "integrate and let us be thankful they wouldn't. Some them paved the way for contemporary ar tecture, and, perhaps more important, many them helped students to break through smooth surface of accepted explanations ab many things. Prima donnas have their v in any department, and I am grateful to th that helped me. Let's not be controlled the prima donnas, but let's not entirely con them, either.

Where, How, and in What Sense Shall We Integrate?

I think integration is very necessary in architectural curriculum, but I think that haps a closer definition is needed as to exactly at what places in the curriculum, how, and in what sense, this integration i be attempted, and equally important, in v ways and in what areas the student's inte tual life very definitely must not be integra

In my view, when setting up a teaching such as the Carnegie Plan, it must be clearly in mind that architectural work invo two rather distinct processes (however much two processes may overlap and run togethe the working situation, and however unconsc the architect may be that these two proce are involved):

1. The assembly of available data, the an sis, interpretation, weighting, and evaluatio the data, and finally, a verbal statement of problem, involving inevitably an implied tion broadly decided upon, *all in terms human needs.*

2. The *technical solution* of the proble the design on the drafting board, in term structure, materials, equipment, color, and so

The first of these processes, that of the ana and interpretation of the human needs invo —the study of man in society, as Prof Shear phrases it—draws for its data upon broad areas of knowledge covered by the tural sciences, the social sciences, and humanities. This first process carries the through to a verbal statement of the prob which actually amounts to a solution in ge terms. Once the problem is closely def certain basic philosophical and sociologica cisions have been made.

The second process involves really onl implementing and carrying out of this sol

(Continued on page

out of schoo

(Continued from page 164)

implied in the statement of the problem–
working out in concrete terms of the gene
decisions arrived at in the first process. T
second process—the technical solution of
problem—draws for its data more upon
exact sciences. This data comes to the stud
of architecture in such courses as those in m
terials, construction, heating and ventilati
sanitation, and so on.

●

Now, it is my thesis that in those courses
the curriculum which bear specifically upon
technical solution of the problem, a high
gree of integration of subject matter, and
high degree of co-ordination in its presentati
are both possible and highly desirable.
the other hand, it is my belief that in th
courses which bear more upon the analysis c
interpretation of the problem, especially cour
in the social sciences and the humanities
courses whose subject matter draws larg
from these fields, integration is possible c
desirable only to a very limited degree.

It may be possible to a certain extent
integrate courses such as those in the so
sciences, in the sense that the timing of
presentation of relevant though conflict
views, is integrated. Even this, however, se
highly doubtful. The relevant subject matte
so vast, so diverse, and so conflicting, and
time is so short. But such courses and s
subject matter *very definitely should not* be
tegrated in the sense that research and an
sis, on the part of the student, within a "facu
integrated" subject matter, will inevitably b
him up with the "school" solution, which
various agreeing specialists will then n
along to final perfection on the drafting bo

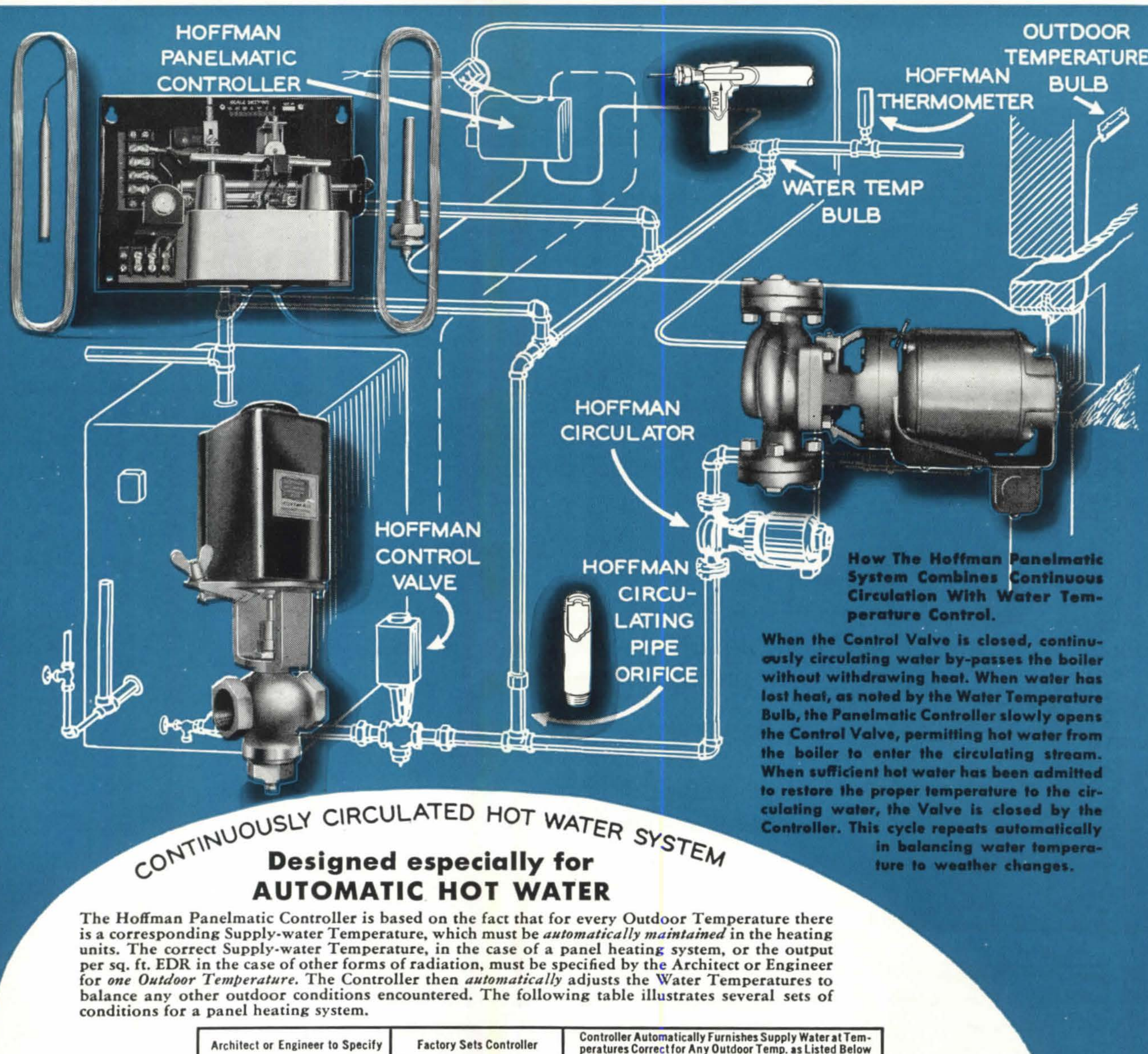
It is my view, on the contrary, that the
cialists from various departments whose sub
matter bears on the broad problem of ma
society, should make a very careful poin
not adhering to a single philosophy or v
of *not* being integrated in this sense, an
deliberately cultivating all of the alter
points of view all the way along the line, w
ever their personal inclinations. They sh
search out "outrageous hypotheses" as we
explain the orthodox hypotheses. They sh
be breeders of ideas. They should mak
point of agreeing openly that there is
"school" solution in these matters. In this
of investigation especially, the school sh
be an open forum.

Decisions and choices in matters perta
to social man—those generally within the

(Continued on page

HOFFMAN PANELMATIC *Hot Water System Controls*

AUTOMATICALLY BALANCES WATER TEMPERATURE WITH WEATHER



How The Hoffman Panelmatic System Combines Continuous Circulation With Water Temperature Control.

When the Control Valve is closed, continuously circulating water by-passes the boiler without withdrawing heat. When water has lost heat, as noted by the Water Temperature Bulb, the Panelmatic Controller slowly opens the Control Valve, permitting hot water from the boiler to enter the circulating stream. When sufficient hot water has been admitted to restore the proper temperature to the circulating water, the Valve is closed by the Controller. This cycle repeats automatically in balancing water temperature to weather changes.

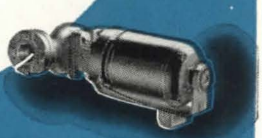
CONTINUOUSLY CIRCULATED HOT WATER SYSTEM

Designed especially for AUTOMATIC HOT WATER

The Hoffman Panelmatic Controller is based on the fact that for every Outdoor Temperature there is a corresponding Supply-water Temperature, which must be *automatically maintained* in the heating units. The correct Supply-water Temperature, in the case of a panel heating system, or the output per sq. ft. EDR in the case of other forms of radiation, must be specified by the Architect or Engineer for *one Outdoor Temperature.* The Controller then *automatically* adjusts the Water Temperatures to balance any other outdoor conditions encountered. The following table illustrates several sets of conditions for a panel heating system.

Architect or Engineer to Specify			Factory Sets Controller		Controller Automatically Furnishes Supply Water at Temperatures Correct for Any Outdoor Temp. as Listed Below				
					Outdoor Temperature °F.				
Design Temp. °F.	Supply Water °F.	Room Temp. °F.	Scale No.	Supply Water °F. at Outdoor 32 °F.	−10	0	+10	+30	+50
					SUPPLY WATER TEMPERATURE °F.				
−10	150	70	11	108	150	140	130	110	90
0	150	70	13½	114	—	150	139	116	94
+10	140	70	14	115	—	—	140	117	94
−10	140	70	9	104	140	132	123	106	88
−10	160	70	13	113	160	147	137	115	92

When the outdoor temperature reaches 65°F., the Circulator automatically stops. The 65° factory setting was chosen because it is the basis for calculating degree days. If a different cut-out temperature is desired, it can be easily adjusted to individual requirements. Occasionally the actual heat loss differs from the calculated loss due perhaps to changes in construction. The Panelmatic Controller can be easily re-adjusted after installation according to simple, definite instructions furnished by the factory. Technical literature describing the Panelmatic System and sample specifications, gladly furnished on request.



PIONEERED BY HOFFMAN

HOFFMAN SPECIALTY COMPANY, Dept. B-4, 1001 York St., Indianapolis 7, Ind.

out of scho

(Continued from page 166)

ince of the social sciences and the humaniti must be placed more within the hands o architectural student himself. He must no crowded along chosen directions by an confident faculty. What we must be sur is that the architectural student (and the a tect after him) is aware of the fact that im tant choices of this kind are being mad the architectural problem is being analyzed stated. Tacit sociological and philosophica sumptions, important hidden "of courses" be routed out and examined. We must be that in making his choice, the student is a of all of the alternatives and that his c is an informed choice. These objectives not be met, as I see *it, in what I have* c a one-philosophy, one-team, "happy fa school, where everything is so integrated no doubts and no conflicting theories ar lowed to creep in anywhere.

•

Here we may come back again to the matt the prima donnas, and do greater justice, haps, to your comment, Carl. The prima d must be controlled in a certain sense, of c and I am sure that you would agree tha way to control him is not to set up a philosophy school. A one-philosophy schoo either allow the prima donna to ride s or it will gag him completely. The way to trol the prima donna is to flood the situ with all of the relevant facts and ideas. voice then becomes one in many, and such circumstances, if his ideas win out many students, then perhaps his ideas good.

It is probable that much of this is in a with Professor Shear's views, and that, as I said, either I have failed to find these ings or else space limitations prevented from qualifying and *enlarging* upon many ments. I wish to repeat that these observ are in no sense presented in opposition t fessor Shear's statement. If the archite schools really can integrate their courses technical level, while presenting a well- sequence of, let us say, brief panoramic maries, on the level of the social science the *humanities,* and in addition, present quate summaries of statistics and facts these are available on specific points—i can reorganize and correlate the te courses and still preserve the school as ar forum of ideas so far as man in soci concerned—they will have done very mu deed, much more than most other depar on the campus have been able to do. all indications, Carnegie is on the way.

ALEC MACL

it's the law

by Bernard Tomson

This column supplements material in chapters 1 and 2 of Tomson's Architectural and Engineering Law (Reinhold 1951).

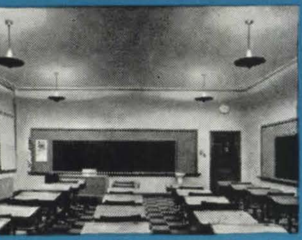
The universality of architects' problems, *vis-a-vis* the client, the public, and the registration law in each State, has increasingly been impressed upon me. Particularly with respect to the registration law problems facing architects throughout the country, there is a crying need for the development of an integrated approach to the pooling of information, for the exchange of ideas, and for the development of a "uniform" statute. This should be initiated as soon as it can be arranged by a conference cal to acquaint those struggling with the prob in each state that the difficulties are not lo in character, but national: that the problems California are the problems in Michigan; t the problems in Georgia are the problems Wyoming; that the problems in Colorado the problems in Oklahoma (*ad infinitum*).

In the past few months, I have spoken state conventions in California, in Georgia, Michigan, and at regional conferences in Ok homa and in Colorado. In California, we cussed the necessity for a change in the C fornia statute, the nature of the requi change, and the timing. In Georgia, we cussed the legislation then impending bef the legislature. In Michigan, we discussed legislation already passed by the House pending before the Senate—an amendm which would weaken the Michigan registrat law (although permitting architects to bec master builders). In Oklahoma, we discus the amendment to the Act, which in 1949 weakened a previously strong licensing act Colorado, we argued the merits, paragraph paragraph, of a proposed revision of the

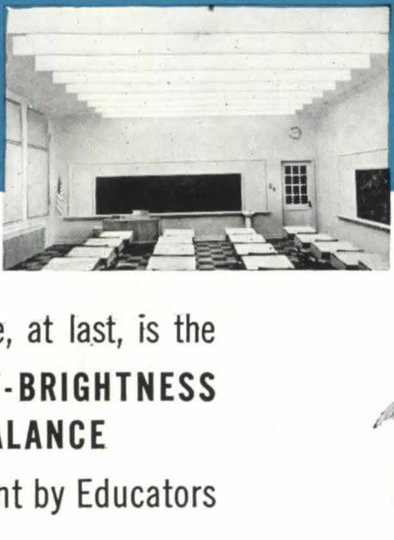
What was remarkable in each of th places, was the complete absence of kn edge of the problems current in other sta or even of problems in adjoining states. is axiomatic that at least the exchange pooling of information as to these probl currently pressing, in each of these st would have been and would be helpful. W I addressed the architects at each of t conventions I made this point. Looking now I feel it cannot be urged too strongly

What disturbs me most is that changes in registration laws do not necessarily show p ress. Indeed, they often show the rev Although Wyoming, for the first time, now a registration law, it is a "title" statute (l ing only the use of the title, "Archit Oklahoma's statute has been weakened; igan's statute is about to be weakened; rado's first draft of a new law has emas ing provisions and California is not anxio raise the issue *now*. The only bright sp Georgia, where a "title" statute has bee placed by a strong "practice" statute, pr iting the *practice* of architecture to ar other than registered architects, with no portant exceptions other than "one- or family residences regardless of cost"—a

(Continued on pag



Yesterday's Illumination Standards are now superceded by this shadow-dispelling ceiling of comfortable light.



W! Here, at last, is the
MFORT-BRIGHTNESS BALANCE
g sought by Educators

no forest of fixtures . . . no annoying glare . . . no disturbing brightness . . .

The dream of every educator . . . *more useable illumination with greatly improved comfort-brightness balance*—is now brought to realization through Benjamin's newest engineering advancement . . . the "Grid-Lite" Lighting System.

"Grid-Lite", through its translucent louvers, literally creates an entire ceiling of light . . . yet without involving excessive cost.

The translucent louver not only provides proper shielding . . . but imparts a unique quality to the light that makes for ease of seeing . . . a complete unawareness of high level lighting . . . a sense of comfort which promotes attention and concentration.

"Grid-Lite" triumphs over cost. It puts the entire system into a single package . . . ready to install. A descriptive bulletin is ready for your inquiry. Write Benjamin Electric Mfg. Co., Dept. PA, Des Plaines, Illinois.

Latest Engineering Achievement by **BENJAMIN** "Grid-Lite"

A COMPLETE LIGHTING SYSTEM IN A PACKAGE
READY FOR ECONOMICAL INSTALLATION

B5931

it's the law

(Continued from page 170)

promise no doubt dictated by compelling necessity and perhaps temporary.

The now superseded statute of Georgia, dealing with the registration of architects merely restricted the use of the title, "Architect," but did not ban the practice of architecture by unqualified persons. Section 84-321 read, in part, as follows:

". . . nor shall anything contained in this Chapter prevent persons, mechanics, or builders from making plans and specifications for, or supervising the erection, enlargement, or alteration of buildings or any appurtenances thereto to be constructed by themselves or their employees: Provided, that the working drawings for such construction are signed by the authors thereof with their true appellation, as 'Engineer,' or 'Contractor,' or 'Carpenter,' etc., without the use in any form of the title 'Architect'."

The courts, when confronted by statutes of this or similar import have held that the purpose of such law is the protection of the public from misrepresentation and deceit, and its prohibition is no greater than called for by this purpose. In these states this has had the fantastic result of permitting *anyone* to practice architecture, without regard to the public health, safety, and welfare. The practical effect of such laws upon the qualified and trained architect, is to compel him to compete against those who, but for the laxity of the registration laws, would merely execute his plans and specifications.

•

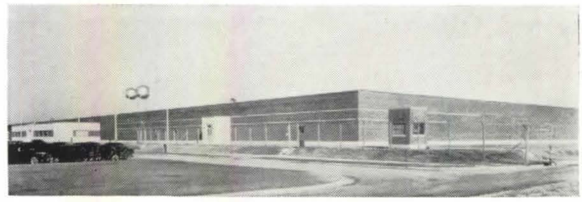
In contrast to the above weak and ineffectual former Georgia registration statute, the present Section 84-302, effective February 15, 1952, provides as follows:

"Certificate of Qualification to Practice Under Title of Architect: An architect within the meaning of this Act is an individual technically and legally qualified to practice architecture and who is authorized under this Act to practice architecture. Any person wishing to practice architecture who prior to the passage of this Act shall not already have been registered to practice architecture in the State shall before being entitled to be known as an architect secure from the Georgia State Board for the Examination, Qualification, and Registration of Architects a Certificate of Qualification to practice under the title of Architect as provided by this chapter and the amendments thereto. The renewal of Certificates of Registration issued to architects registered prior to the enactment of this amendment shall carry the obligations required by this amendment to the original Act under which their previous registrations have been granted. Except as otherwise provided in this Act, *no person shall practice architecture* in the State of Georgia or use the title 'architect' or 'registered architect' or any words, letters, figures, or any other device in-

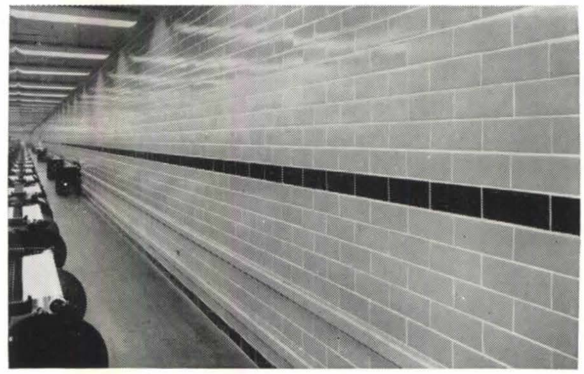
(Continued on page 176)

NATCO STRUCTURAL CLAY TILE

for Exterior and Interior Walls in the Modern Factory

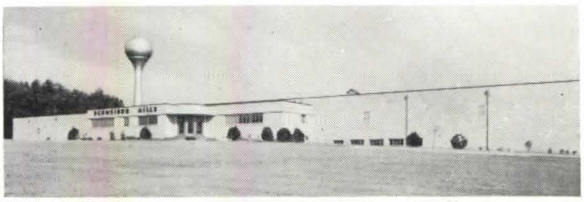


Exterior and interior views of Greenwood Textile Mills, Cothron, S. C. Engineers — McPherson Company, Greenville, S. C. Exterior walls of Natco Mingled Shades, Tex Dri-Wall Tile lined with Natco Ceramic Glazed Vitritile.

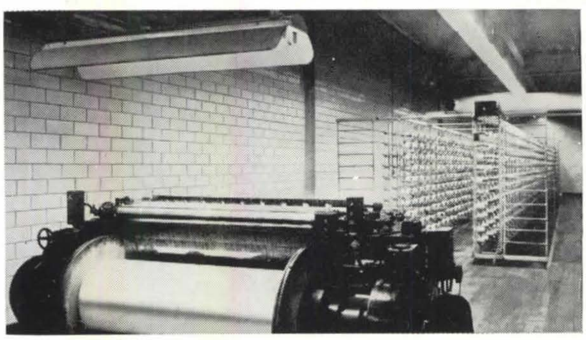


Such exterior walls, when lined with Natco-Ceramic Glazed Vitritile, **also non-critical,** represent the best in masonry construction. These interior walls and partitions of Natco Vitritile set up sturdy and strong are attractive and cheerful, and require little or no maintenance other than an occasional cleaning with soap and water. The finishes and colors available with Natco Ceramic Glazed Vitritile have been scientifically selected and developed to provide a **permanent** structural wall and a **permanent** attractive functional finish in one operation.

Immediately available, when you specify and use Natco Structural Clay Tile, you are free from costly, time-wasting delays. Send now for your copy of Faber Birren's Book entitled "The Scientific Approach to Color Specification." It is yours for the asking.



Exterior and interior views of Schneider Textile Mills, Taylorsville, North Carolina. Engineers — Biberstein & Bowles, Charlotte, N. C.; General Contractor — Luke Gwaltney, Taylorsville, N. C. Exterior walls of Natco Manganese Spot Dri-Speedwall Tile lined with Natco Ceramic Glazed Vitritile.



Exterior walls of non-critical Natco Manganese Spot Dri-Speedwall Tile or Natco Tex Dri-Wall Tile are strong and enduring, are load-bearing, architecturally attractive and resist moisture penetration. In addition, they are fire, termite and vermin proof, cannot rot or decay, are free from shrinking and cracking and require no painting or repairs.

NATCO
QUALITY CLAY PRODUCTS SINCE 1889

THE PRODUCERS COUNCIL INCORPORATED — AFFILIATED WITH THE AMERICAN INSTITUTE OF ARCHITECTS

QUALITY FACING TILE — FTI — Member of FACING TILE INSTITUTE

NATIONAL FIREPROOFING CORPORATION

GENERAL OFFICES: 327 FIFTH AVENUE • PITTSBURGH 22, PA.

Branches: New York • Syracuse • Detroit • North Birmingham, Alabama
Chicago • Philadelphia • Boston • Toronto 1, Canada

"The Quality Line Since 1889"

Raggle Blocks
Prevent Water Seepage
4" x 5⅓" x 12" Nom. Size

Speed-A-Backer Tile for
Backing Brick Faced Walls
12" long Varying Heights

Ceramic, Clear
Glazed Vitritile 5⅓" x 12"
Nom. Face Size

Ceramic Glazed Vitritile
8" x 16" Nom. Face Size

Non-Loadbearing Tile, Scored
and Unscored, 12" x 12" Face
In Standard Wall Thicknesses

Buff Unglazed, Manganese
Spot, Salt Glazed, Red
Textured Dri-Speedwall Tile,
5⅓" x 12" Nom. Face Size

FOR ABOVE...

Present government regulations still allow you to install copper water tube for hot and cold water lines.

Chase Copper Water Tube's resistance to corrosion makes it the number one choice for domestic water lines.

OR DOWN UNDER

Underground piping of Type K Chase Copper Water Tube resists the double corrosive action of earth on the outside and water inside.

The easy-to-install coiled lengths of 40, 60 and 100 feet require fewer fittings ... and its soft temper permits bending around obstructions.

...it's Chase Copper Water Tube

Since government regulations do not prohibit the use of copper for domestic hot and cold water lines, or underground service lines, it's wise to plan the use of Chase Copper Water Tube for these two important types of installation.

Chase Copper Water Tube is made in hard and soft tempers for use with both solder-joint and flared fittings.

Rustproof, corrosion resistant, easily worked, smooth interior for better flow—these are some of the reasons why Chase Copper Water Tube is ideal for long life, fine service.

Chase® BRASS & COPPER

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

• *The Nation's Headquarters for Brass & Copper*

Albany†	Cleveland	Kansas City, Mo.	New York	San Francisco
Atlanta	Dallas	Los Angeles	Philadelphia	Seattle
Baltimore	Denver†	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Providence	
Chicago	Houston†	Newark	Rochester†	(†sales office only)
Cincinnati	Indianapolis	New Orleans	St. Louis	

it's the law

(Continued from page 172)

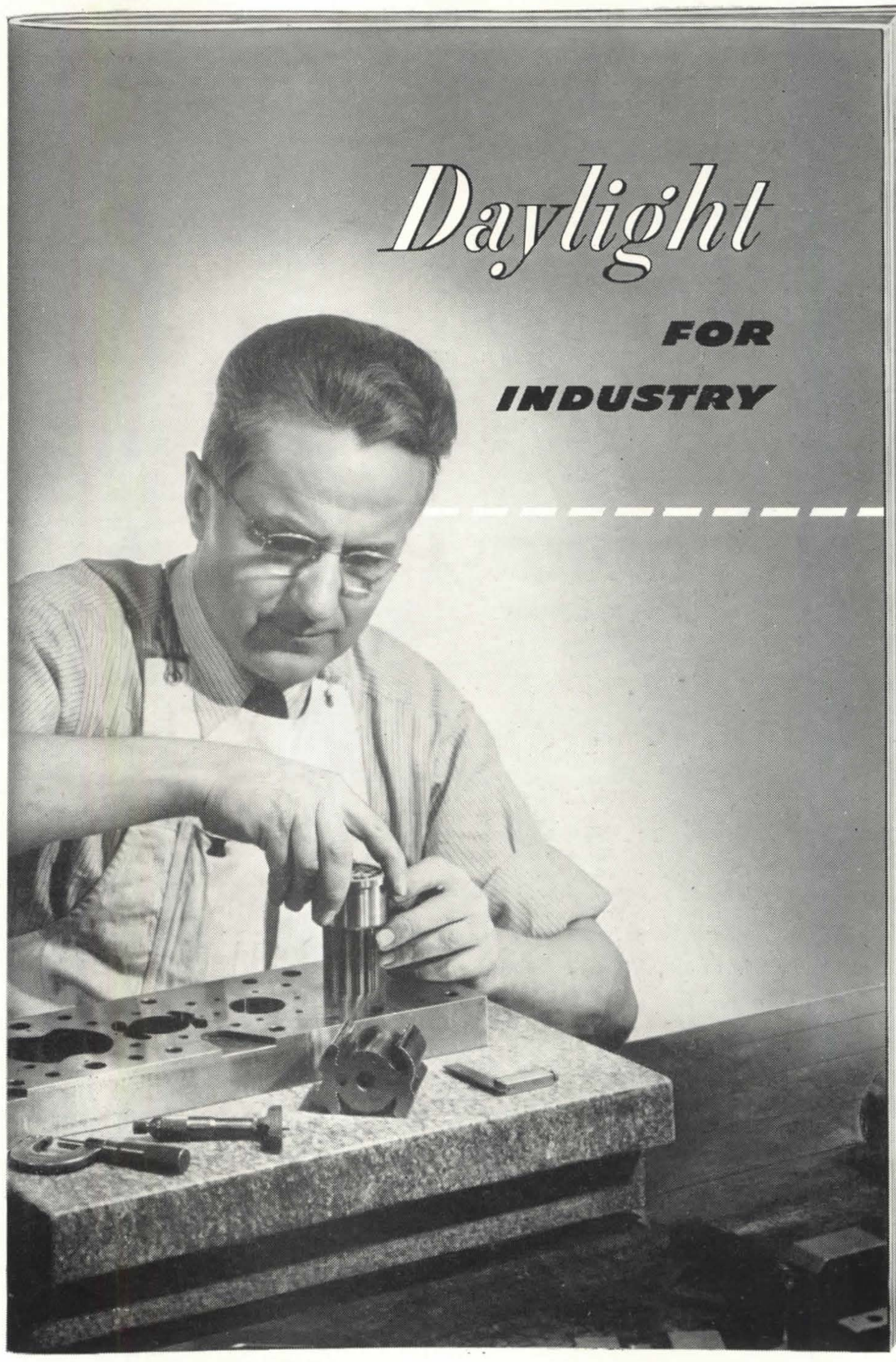
dicating or intending to imply that he or she is an architect without having qualified as required by this Act. No firm, company, partnership, association, corporation, or other similar organization shall be registered as an architect. Only individuals shall be registered as architects. Firms, companies, partnerships, associations and corporations may prepare plans, drawings, and specifications for buildings and structures as defined by this Act and perform the services heretofore enumerated common to the practice of architecture, provided that at least one of the chief executive officers of such firms, companies, partnerships, associations, corporations, or similar companies, are registered architects in the State of Georgia under this Act and provided further that the supervision of such buildings and structures shall be under the personal supervision of said registered architects and that such plans, drawings, and specifications shall be prepared under the personal direction and supervision of such registered architects and bear their individual signatures and seals."

●

The old law merely required as a prerequisite for registration (an examination being discretionary with the Board):

". . . satisfactory evidence of having completed the course in a high school or the equiv-

(Continued on page 178)



READY NOW

...a new 24-page booklet on daylight control

Here's a new booklet with the latest information on plant daylighting. If you're concerned with lighting, it should be "must reading." Nontechnically written, in easy-to-read form, "Daylight for Industry" brings you all of the important facts and fundamentals of daylight control.

Send for your copy now. See how you can make daylight do a maximum indoor lighting job . . . see how you can use an Insulux Fenestration System with Insulux Light-Directing Glass Block to assure better daylight for occupants and reduced operating cost for owners. *Insulux Division, American Structural Products Company, Toledo 1, Ohio. Subsidiary of Owens-Illinois Glass Company.*

INSULUX
GLASS BLOCK

—a product of the Owens-Illinois Glass Company

INSULUX
GLASS
BLOCK

IT'S FREE—WRITE TODAY

Insulux Division, American Structural Products Co.
Dept. PA5, Box 1035, Toledo 1, Ohio
Please send a copy of your new free booklet, "Daylight for Industry."

Name________________________

Company________________________

Address________________________

City____________ Zone______ State______

it's the law

(Continued from page 176)

alent thereof, and of having subsequently thereto completed such course in mathematics, history, and language as may be approved or prescribed by the said Board."

The new law provides:

"Any citizen of the United States, being at least 21 years of age and of good moral character, may apply through the Joint-Secretary, State Examining Boards, to the State Board for the Examination, Qualification, and Registration of Architects for a certificate of registration, or for such examination as shall be requisite for such certification under this Chapter; but before receiving such certificate the applicant shall submit satisfactory evidence of having completed the course in a high school or the equivalent thereof, *in addition to a minimum of seven years experience* in an office of a registered architect, as may be approved or prescribed by the said Board. The examination for the above academic requirements shall be held by the said Board. In lieu of such examination the said Board may accept satisfactory diplomas or certificates from institutions approved by the said Board covering the course or subject-matter prescribed for examination. Upon complying with the above requirements the applicant shall satisfactorily pass an examination in such technical and professional subjects as shall be prescribed by the said Board. The said Board may, in lieu of the examination in such technical and professional subjects, accept satisfactory evidence of any one of the qualifications set forth under subdivisions (a) and (b) of this section.

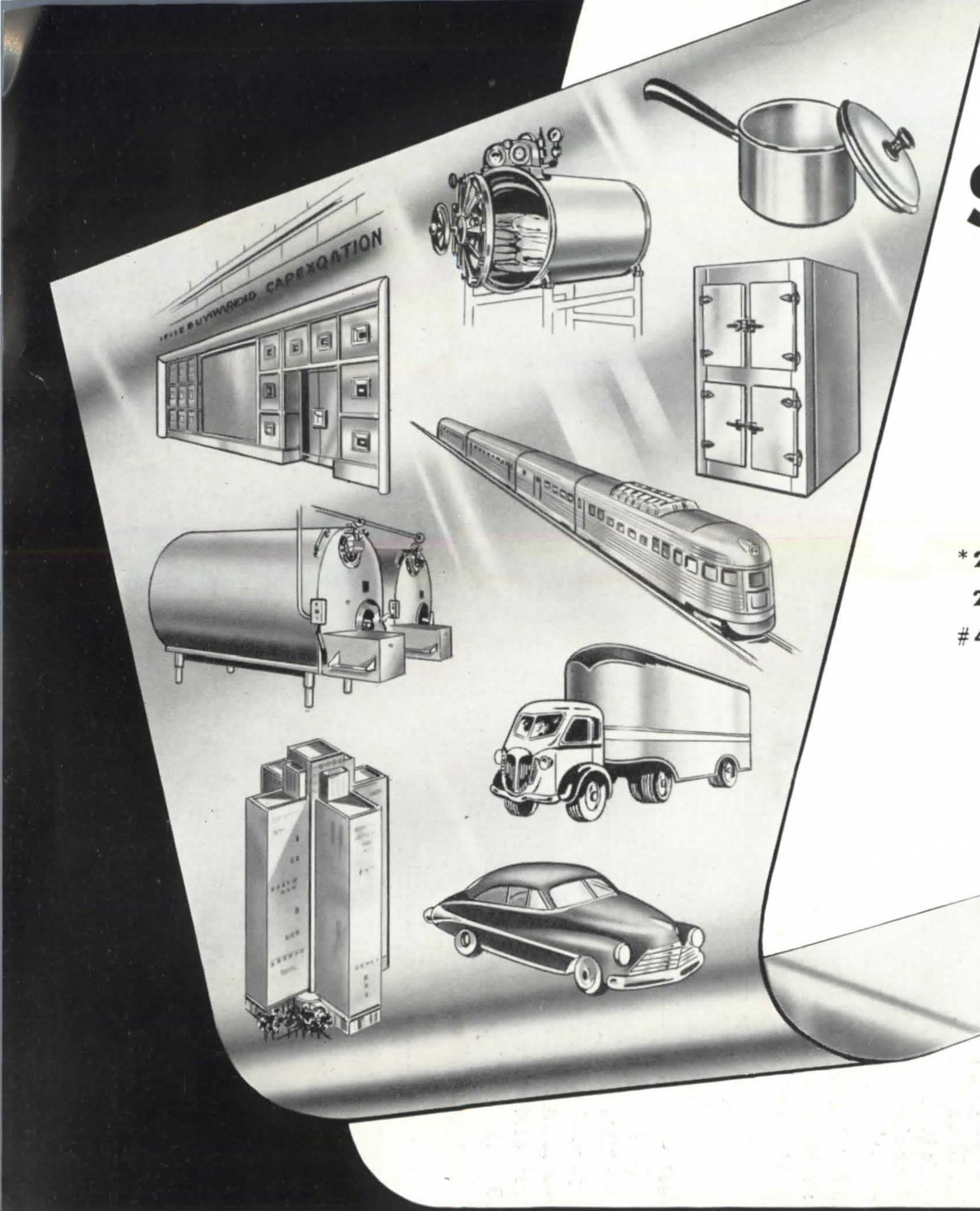
(a) A diploma of graduation or satisfactory certificate from an architectural college or school that he or she has completed a technical course approved by the American Institute of Architects, and subsequent thereto, at least three years' satisfactory experience in the office or offices of a reputable architect or architects.

(b) Registration or certification as an architect in another State or Territory where the qualifications prescribed at the time of such registration or certification were equal to those prescribed in this State at date of application.

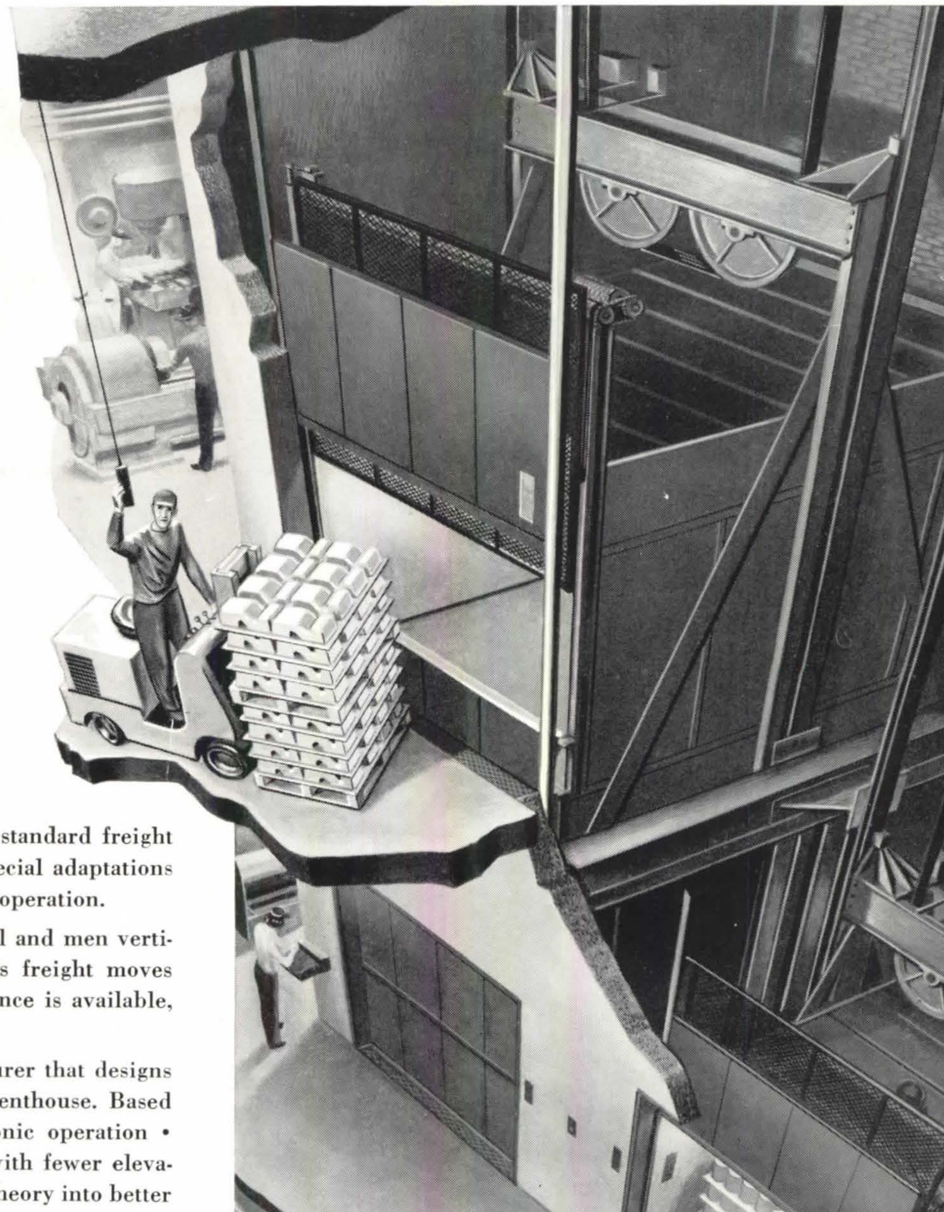
The said Board may require applicants under these subdivisions to furnish satisfactory evidence of knowledge or professional practice. (Acts 1919, p. 129; 1931, pp. 7, 36.)"

Although the above-quoted paragraphs are not ideal in their requirements, they are obviously a long step in the right direction, when compared with the old law.

The accomplishment of the Georgia Chapter can and must be duplicated elsewhere. This is required not for the protection of the architect, but for the protection of the public, as this column has previously emphasized (December 1951 P/A). Unless a *co-ordinated* movement is organized, progress probably will be slow, if made at all, and regressive changes in the registration laws may ensue. The danger is to the public, but the obligation is the architect's to lead in avoiding the danger.



We'll keep your material moving



. . . anything, from light-duty freight to power trucks for scheduled vertical-linkage in your materials handling system.

We can offer you the economy of standard freight elevators for regular service. And special adaptations for the unusual. Plus uninterrupted operation.

We deal in height. Moving material and men vertically. More than half of the world's freight moves on Otis elevators. Our broad experience is available, without charge, to everyone.

Otis is the only elevator manufacturer that designs and builds everything from pit to penthouse. Based on: ***Research*** that advances electronic operation • ***Planning*** that gives better service with fewer elevators • ***Engineering*** that turns tested theory into better elevatoring • ***Manufacturing*** that concentrates entirely on vertical transportation • ***Construction*** that brings elevator-trained men to your installation • ***Service*** that's available 24 hours a day in 263 cities.

This background of elevator experience—*unequalled anywhere*—delivers the promise that forms the basis of every Otis contract: The world's finest elevatoring. **Otis Elevator Company, 260 11th Ave., New York 1, N. Y.**

Better elevatoring is the business of

Otis

Passenger Elevators • *Freight Elevators* • *Electric Dumbwaiters* • *Escalators* • *Maintenance* • *Modernization*