THE ARCHITECTURAL FORUM

DECEMBER 1940

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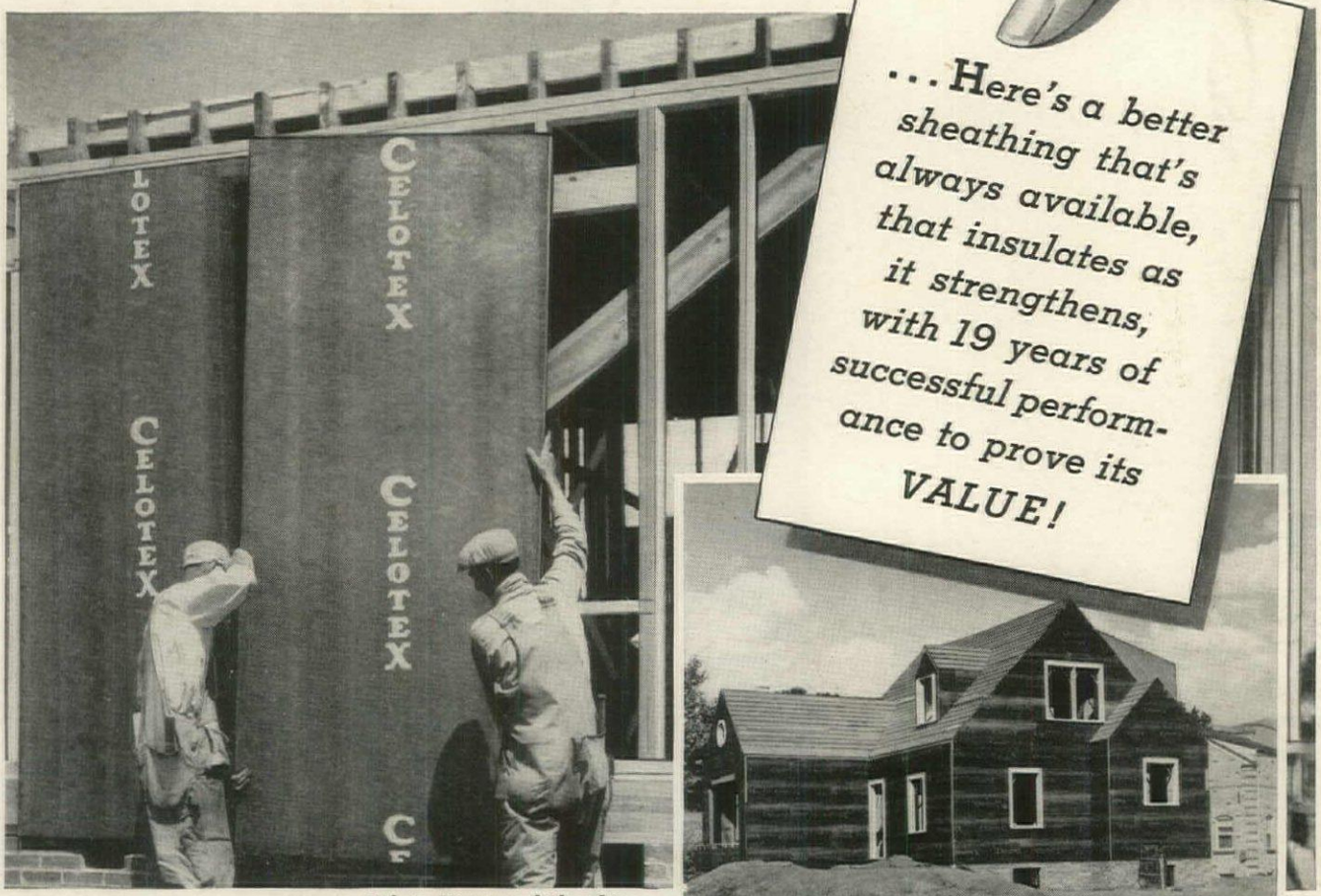

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ARCHITECTURAL FORUM

DECEMBER 1940

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VOLUME 73—NUMBER SIX

THE MONTH IN BUILDING

ANOTHER BILLION. During 1940's first ten months, FHA insured $753 million worth of mortgages on new and existing houses, a whopping 21 per cent increase over last year's record. Today the cumulative amount of FHA insurance amounts to $2.7 billion—within $300 million of the authorized ceiling.

Pleased with FHA's record as one of the New Deal's few money-making children and alarmed lest it should bump its head on the insurance ceiling and thus hurt the current home building boom, President Roosevelt last month handed FHAdministrator Stewart McDonald a present and a thank-you note. The present: a $1 billion boost in FHA's insurance capacity to the $4 billion maximum allowed by the National Housing Act. The note: "You have demonstrated that comfortable homes for people of moderate means can be provided at low cost and without loss to the Government."

ROYAL BUILDING BOSS. Close on the heels of an editorial in THE FORUM'S *Building Reporter* urging the creation of a U. S. cabinet post to represent Construction in the interests of national defense, there comes news from overseas that a parallel development, long advocated in England, has finally matured. The British Government has established a new Ministry of Works and Public Buildings. Stepping out of the Ministry of Transport into the new job goes hard-bitten, hard hitting 51-year-old Sir John Charles Walsham Reith, one time head of British Broadcasting Corp. and more recently in charge of England's war censors.

For Britain the step comes belatedly; for the U. S. it comes in time to serve as a valuable object lesson. A tough task confronts dour, resourceful Sir John. Much more has to be done than simply patch up bombed areas or, as some English dailies have facetiously supposed, merely sit in the House of Lords and ponder the rebuilding of a better London. The muddle of British building interests has to be swept clean, time-wasting red tape snipped short, production-hampering plugs pulled out of the bottlenecks in labor and materials. In short, to meet the all-out tactics of total war, Building has to be made the front line of defense: to become important in this military sense, the industry has first of all to be efficiently organized.

When no bombs fell

The need for a single powerful authority to head Building—to survey existing resources, forecast future demands, point out potential shortages, establish priorities, promote simplification and standardization, otherwise prepare to cope with wartime emergencies—has been expressed repeatedly by the British construction industry itself. Soon after the war started, to their great credit, the professional organizations began pressing this contention, but their appeals, even though restated with increasing insistence, fell on deaf ears. As the *Architects' Journal* (London) observes: "No bombs were falling then."

What happened instead, before Nazi Stukas began winging their way over the Channel in mass raids, makes pertinent reading for U. S. Building, still in the early stages of girding itself for national preparedness. At war's start each Service Department of the British Government handled its own building program, bureaucratically argued that there was no need for a central Ministry of Building. Main argument: private construction would slump and then each department could share the released resources without overtaxing the industry or running at sixes and sevens with one another's expansion programs.

Smooth in theory, this reasoning collapsed in actual application. Projects twenty times peacetime size could not be handled at four times peacetime speed with peacetime building methods. The industry bottlenecked: work jammed and slackened perforce. Serious unemployment followed when contractors began to put on skeleton crews and manufacturers closed down. As long as the Government departments insisted on hogging the industry's resources for purposes of expansion, there was nothing left for ordinary maintenance by private enterprise.

Blasting, pitting and interrupting

To make matters worse, the supply of soft wood from Scandinavia was cut off and the cry to fortify England against invasion led to a heavy run on all available basic materials. Next came the German planes to blast down houses and factories, pit roads, interrupt transportation and other services essential to construction. Steadily, as building demands increased at an unprecedented pace, the industry has become less able to act.

The breaking point was reached. A most dangerous situation would arise, it was felt, if the industry's dwindling resources were to continue to be raided by the various Government departments, each of which was solely interested in satisfying its own demands. It was to protect and properly allocate available supplies that the industry asked repeatedly for a Ministry of Building, and it is for this duty that it now hopes Sir John has been appointed.

Precisely what will be the full scope and direction of the new Ministry's functions is still a big question mark, however. Complicating matters considerably are the political overtones of an England tense under continuous military attack from without and vibrating with frequent cabinet upheavals from within. As a tactless, high-minded Conservative, Sir John would not fit into a thorough-going Labor Government. Add to this the fact that Sir John has a hostile press, a dislike for newshawks which is heartily reciprocated, and it becomes clear that the new job cannot be considered separate from the man. Building's future in Britain depends largely on its new boss and how long he stays in office.

Porridge, proverbs and push

Significantly, Sir John's career as an expert in putting new organizations into crack running order is marked so far by a notable series of accomplishments, all made while coming up the hard way. Son of a Scotch minister, reared on porridge and proverbs (which he sanctimoniously quotes whenever occasion offers), Reith got his early training in Glasgow's technical schools. A full fledged engineer, he served as a major in World War I, sports a fearsome scar across his left cheek where he was wounded by a German bullet. Two war years were spent in America in charge of British munitions buying.

Then followed a succession of Government and private jobs until one day in 1922, while out of work, Reith chanced on an advertisement inviting applications for the position of general manager of the newly formed British Broadcasting Co. Knowing little about radio, still less about broadcasting, he nevertheless got the job. A year later he was managing director, in another four years director-general and soon knighted for his efforts.

B.B.C. to Building

Reith built B.B.C. to heroic proportions, and conversely B.B.C. made Sir John one of the most powerful, most criticized, most inaccessible men in England. Stern, ruthless, his towering 6 ft. 6 in. and beetling scowl terrified employes and interviewers alike, won him the unenviable reputation of a martinet. Policies unquestionably were laid with a heavy puritanical and dictatorial thumb. Underlings who got drunk or into the divorce courts were promptly sacked. To complaints about the stuffy dullness of the Corporation's broadcasts, particularly the unpalatable Sunday night programs, Sir John's answer was: "The B.B.C. has never attempted to give the public what it wants. It gives the public what it ought to have."

While ruling Britannia's air waves, Sir John fought consistently to prevent any

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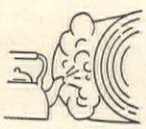

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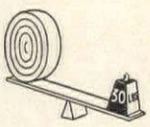

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VOLUME 73
Number 6

political influence over his Corporation, and equally strenuously against any radio advertising. His main function, however, turned out to be that of a target for mud-slinging critics. A measure of his ability to take it is seen in the fact that he once defeated a "Reith Must Go" campaign by addressing the House of Commons and successfully parrying his hecklers.

Restless for new fields to conquer, Sir John resigned from B.B.C. in 1938 to bring Britain's far-flung, slow-moving Imperial Airways, Inc., up to scratch. Early this year he took over as Britain's wartime Minister of Information, continued his magnificent feud with newspaper men by ordering reporters to be thrown out of his office as his first official act. Then, by another of those quirks peculiarly characteristic of the only government in the world that would think of putting wartime control of the press in the hands of a man who hates journalists (once he declared flatly that he never looked at a newspaper), he was transferred to the Ministry of Transport where he did little except look sour and unapproachable. Two months ago he was tossed a baronetage. Now comes the job of bossing the construction industry back into working order.

How far frosty, stiff-laced Sir John can go remains to be seen. But, for U. S. Building, the British industry's predicament points a timely moral: if gears are not to be stripped going into high speed production on its defense, the U. S. should promptly consider a Cabinet post for Construction and place in it a man who can plot a straight course through the increasing tangle of cross-purposes pursued by Government bureaus and private enterprise.

REALTY ROUNDUP. Since Depression came ten years ago, taxes have received top billing on the National Assn. of Real Estate Board's convention programs. Last Armistice Day, when the nation's realtors paraded to Philadelphia for their 33rd annual roundup, they found 1940 to be no exception. Taxes were talked at every turn—from the main rostrum of the swank Bellevue-Stratford Hotel, in smaller divisional meetings and over the bar. Even President Roosevelt's message to NAREB dealt with realty's heavy tax burden: "Although the field of real estate taxation is primarily of concern to the States, I recognize that the consideration of problems concerning such taxation would properly belong on the agenda of a national commission established to study the coordination of Federal, State and local taxes." Noting that the formation of such a commission had already been recommended to Congress, the President added: "If Congress acts upon this suggestion, I feel sure that the Treasury Department would be glad to assist such a commission in every way possible."

Of equal interest to the tax-beleaguered realtors were platform comments on the subject by many a lesser-wig:

▶ Myers Y. Cooper, one-time Ohio governor, now chairman of NAREB's tax committee: "Adoption by the various States of an over-all limit on the tax rate which could be levied on real estate, as has already been done by nine States [most recent addition: Washington, by a two-to-one vote at the November elections] and as is now under discussion in 20 additional States, would give homes and farms a guaranteed tax system—one that could not be abused."

▶ Lawrence G. Holmes, executive secretary of the National Conference of Real Estate Taxpayers, outlined the organization's half-dozen principles of action: 1) A real estate tax ceiling set by State legislation. 2) Relation of the taxable value of real estate to its productivity. 3) Continuous effort toward Government economy and efficiency. 4) The drawing of financial support for education from a broader tax base. 5) Amendment of Federal inheritance tax laws to permit not less than ten years for the liquidation of estate properties to avoid unnecessary losses through forced liquidations. Also, elimination of the capital gains tax as applied to real estate. 6) Creation of the commission discussed by the President to study, among other things, the overlapping of the 175,000 units having authority in Federal, State and local taxation.

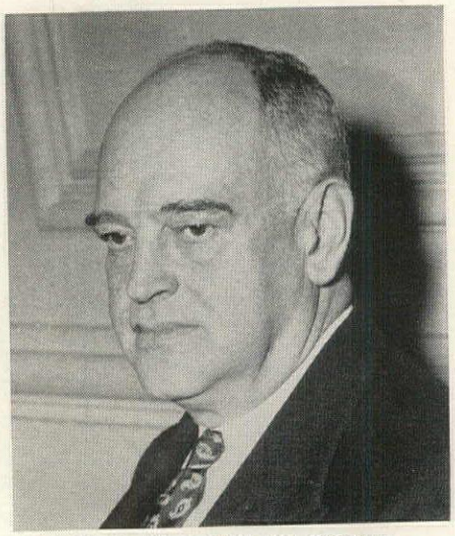
Conventioneers also paid attention when:

▶ Retiring NAREB President Newton C. Farr urged "that all Federal agencies concerned with housing be consolidated under one head, and that this head be directed to bring about a real coordination of the machinery and . . . policies . . . [and] to liquidate as rapidly as possible all Federally owned rental housing."

▶ Famed Remodeler Arthur W. Binns of Philadelphia followed up this left-handed blow at the U. S. Housing Authority with another: "Blighted or slum areas could successfully be rehabilitated by private redevelopment companies aided by local, State and Federal governments in the replanning and land acquisition necessary in such areas. . . . We propose that public utility housing companies be chartered for the creation of low rent housing by rehabilitating old buildings and constructing new ones."

▶ Property Manager Kendall Cady, secretary of Chicago's Downs, Mohl & Co. refuted the expressed opinion of many realtors that today's buildings would soon be obsolete by Building's advancement. His argument: "Majority of these so-called advances are in the gadget classification." His advice: "If we throw away the gingerbread and streamline our old properties, we will not need to take a back seat to the newest building on the market."

▶ Author Charles Abrams of "Revolution in Land," legal adviser to USHA, stated that, in the light of the Supreme Court's "expansion of the general welfare clause of the Constitution" (via the AAA and Social Security cases), . . . "under new social pressures there may evolve the greatest economic developments in realty history. . . . The future of land and of those dependent upon it will hang upon the direction of that development." He therefore recommended "a unified long-range national policy in respect to encouragement of sound home ownership, land ownership and land use." Adding weight to his argument for a re-examination of governmental activities in the real estate field and the establishment of a long-range Federal plan, he closed with a warning: "In the event that the current [building] boom is followed by a new depression, the trend is inevitable that the role of Government in land be one with land its dominant interest."



NAREB'S President Philip W. Kniskern

Before going home to contemplate the prospect of its No. 1 interest eventually becoming Government's also, NAREB took time to elect a new president—renowned real estate appraiser Philip Wheeler Kniskern. One of the most widely quoted men in his field, Realtor Kniskern began his career 28 years ago with the engineering Thompson-Starret Co., subsequently sold his appraising talents to such sizable companies as Chicago Trust Co., Metropolitan Life Insurance Co., Chicago's Reliance State Bank, New York City's National Surety Co. and Washington's Federal Home Loan Bank Board. Author of the much-thumbed "Real Estate Appraisal and Valuation," 51-year-old Kniskern today is president and director of Philadelphia's First Mortgage Corp. as well as chairman of two savings and loan associations. He was elevated to NAREB'S top from its vice presidency.

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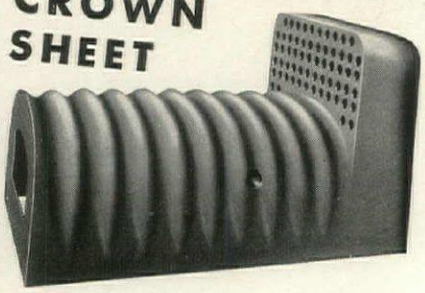

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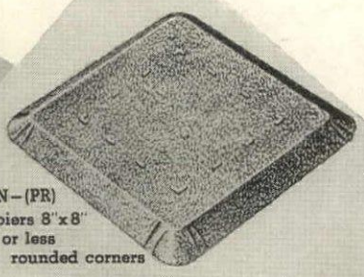

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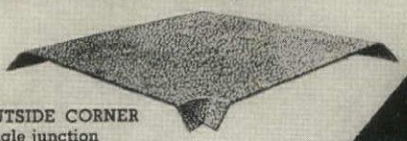
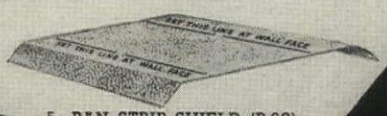
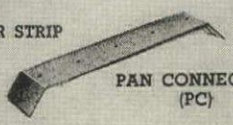


(PL)
PAN INSIDE-OUTSIDE CORNER
for right angle junction

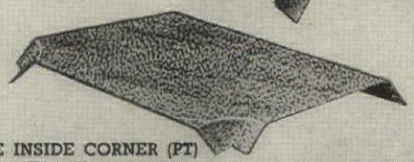


5 PAN STRIP SHIELD (P-60)
for walls 8" or less

(SI)
INSIDE CORNER STRIP



PAN CONNECTOR
(PC)



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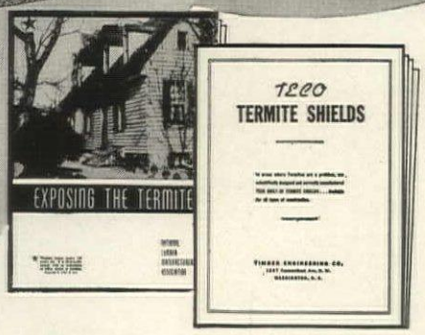
for "T" wall

5' STRIP
SHIELD (S-60)

(SO)
STRIP OUTSIDE CORNER
with rounded corner

STRIP CONNECTOR
(SC)



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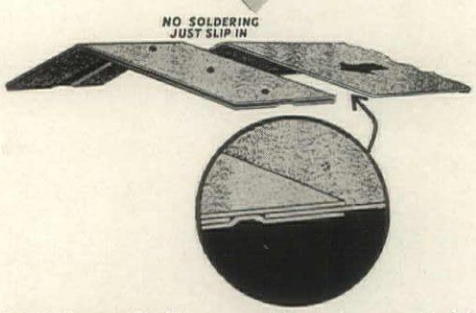

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FORUM OF EVENTS

L. to r. above, hotels and their architects: Raleigh, L. Murray Dixon; Grossinger, L. Murray Dixon; National, Roy F. France.

Hotel Versailles, Roy F. France.

Hotel National, Roy F. France.

Hotel Shelborne, Polevitzky & Russell.

Hotel Lord Tarleton, V. H. Nellengogen.

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BOOM OVER MIAMI BEACH

Chatter of riveting machines competes with the roll of the surf along Miami Beach. Looming just ahead is December 16, at which time the chatter must stop, night noises be quieted. Officially, according to a city ordinance, the tourist season opens, and the city's guests must be allowed to sleep in peace.

Meanwhile 41 new hotels are being rushed to completion, to provide their addition of 2,789 rooms to the city's guest space. New apartment buildings number 166, with another 1,683 dwelling units. Builders are using night and day shifts in the mad rush to be ready for the winter trade. Building hums along Miami Beach at its seasonal peak and also at its all-time peak.

For the first ten months of 1940, new construction of all types for Miami Beach will approximate $15 million, as compared with something less than $11.5 million for 1939. Boom year 1925 saw 21 new hotels go up; this year, 41; 101 apartment buildings that year, and 166 this year.

Most unusual fact about this year's building, aside from its record volume, is the way it is being financed. Shoestring operations, so often a characteristic of boom building anywhere, are not in this picture. Many of the new buildings know no mortgage at all, are being erected on an all-cash basis. Money has poured in from France, Belgium, Cuba, seeking safety in Florida's southernmost tip.

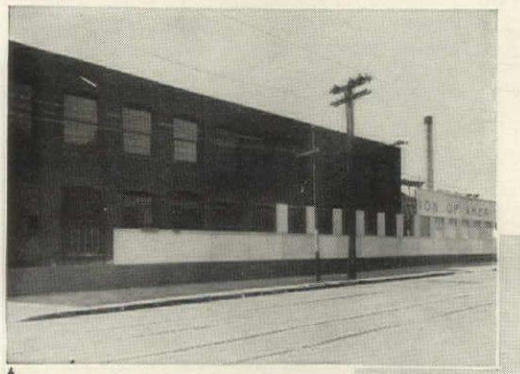
Good luck rather than municipal planning has spaced these hotels in fairly regular intervals along the Beach—falling into a pattern of which Le Corbusier would approve. Eleven to fifteen stories each, braced against hurricane, using steel and reenforced concrete, each holds aloft its distinctive bid for attention—name, tower, pinnacle or what have you.

(*Forum of Events continued on page 12*)

From old brick to . . .

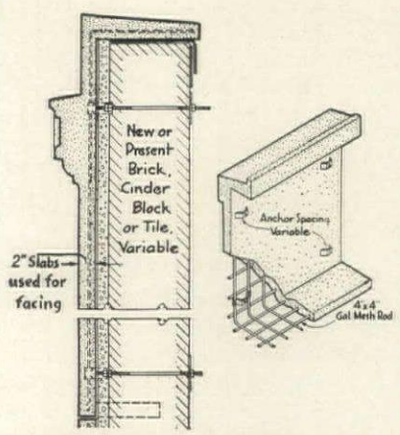
MODERN CONCRETE

with ARCHITECTURAL CONCRETE SLABS!



OLD BRICK WALL of the Wire Rope Corp. of America plant in New Haven, Conn., begins to disappear under new modern facing of Architectural Concrete Slabs. The slabs, *only two inches thick*, made it unnecessary to tear down the old wall.

EXTERIOR TRANSFORMATION COMPLETE. Architectural Concrete Slabs were easily and quickly lifted into position. Bolts through old masonry gave permanent anchorage. Appearance of whole building greatly improved. Architect, Leo F. Caproni, New Haven. Slabs made with crushed quartz and Atlas White portland cement by The Dextone Company, New Haven, Conn.



LEFT: This detail shows how parapet and coping are cast monolithically with the slab and how slabs are anchored to masonry walls by tie rods.

RIGHT: Typical spandrel unit with returns cast monolithically with the slab. Note anchors fastened to embedded reinforcing mesh for bolting to tie rods.

MANY modernization jobs are today simpler, faster and less expensive.

A new building material—Architectural Concrete Slabs—gives to old walls a modern facing that combines the strength of steel and concrete with the permanent beauty of exposed crushed stone. The Wire Rope Corporation transformation shown here, and similar jobs for chain stores, factories, theatres, office buildings—prove the practicability of these thin slabs for almost any modernization job. They offer a greater latitude in structural and decorative design.

What are Architectural Concrete Slabs? Factory-made units of reinforced concrete made with selected aggregates exposed in a matrix of Atlas White portland cement. Slabs are precast in sizes up to 100 square feet or more, and 20 feet or more in length, yet are only 2 inches thick. In selecting and arranging the aggregates, infinite new variations in colors, patterns and surface textures are available and give you remarkable freedom in design.

These slabs bring new economies to modernization. They are quickly and economically anchored in place to old masonry walls. Their large size and varied shapes—curves, angle, channels, spandrels that include window head and window sill—reduce flashing, danger of leakage, and erection costs. They improve property appearance and values.

It will pay to know more about these thin Architectural Concrete Slabs for interiors and exteriors of new and old buildings. For information on remarkable structural and decorative uses, on wide adaptability and unusual economies of these slabs made with Atlas White cement—see SWEET'S CATALOG, Section 4, or write to Universal Atlas Cement Co. (United States Steel Corp. Subsidiary), Dept. A4, Chrysler Building, N. Y. C.

AF-ACS-23

ARCHITECTURAL CONCRETE SLABS

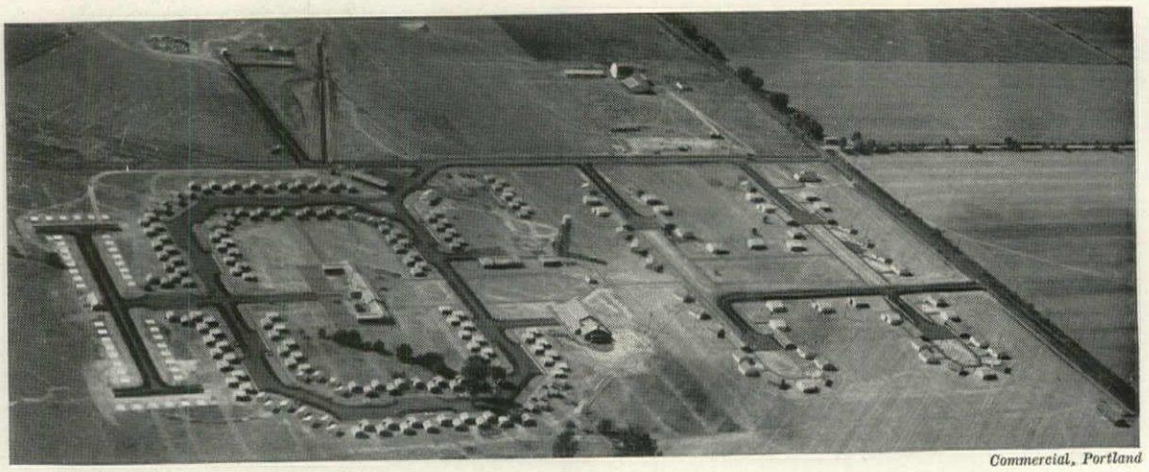
MADE WITH ATLAS WHITE CEMENT

(Continued from page 10)

FORUM OF EVENTS

Norwegian Travel Office

By the Oslo Fjord. As a result of a competition, won by Bjarne Toein, the Arctic exploration ship *Fram* is now—or was before the invasion of Norway—a museum under its own roof.

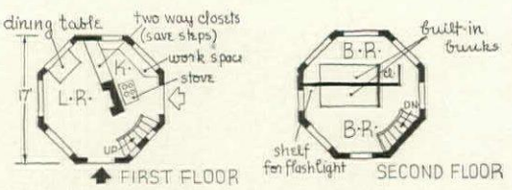


Commercial, Portland

Migratory Labor Camp. Oregon has built at McMinnville this fluid community for 1,000 people. Family rents a cottage for $8 monthly, and if found worthy can reestablish independence through FSA. Designed by H. H. Hallsteen, district engineer.

Wide World

Unique Designs were recorded by New York's Architectural League members in compliance with their Mayor's request that all citizens be fingerprinted. President Edgar I. Williams makes his mark.



Improvised on the Maine Coast. The Mott family used old barn boards and various other jetsam in building their "eight-sided round house" at Corea. As yet there is no plumbing, but the kitchen is sprouting an addition at right. Plans above show new degree of concentration.

(Forum of Events continued on page 14)

MAKE THIS TEST – *Prove* BRIXMENT is BEST!

Mix a batch of 1-3 Brixment mortar (left) and a batch of 50-50 cement-lime mortar made with the same proportion of sand (right). Get any competent bricklayer to test them

on the board—to spread them on the wall—to lay up a few brick with each of the two mortars. Then ask him *which* has the best workability!

BRIXMENT *Assures More Economical Brickwork*

Aside from the cost of the brick itself, the most expensive item in masonry construction is the bricklayer's time.

Therefore the most economical mortar you can buy is the one that enables the bricklayer to lay the most brick per day. You cannot afford to give your bricklayer any mortar which causes unnecessary work, such as constant retempering, stooping to the board to replace mortar that failed to stick when he threw up the head-joint, etc. . . To secure economical brickwork, the mortar must have excellent workability.

The plasticity of Brixment mortar is *ideal.* It approaches that of straight lime putty. It enables the bricklayer to do faster, neater brickwork, with the brick well bedded and the joints well filled.

This is the principal reason why Brixment reduces the cost of brickwork. But in addition, less labor and supervision are required in mixing. It can be mixed as needed, to come out even at the end of the day—no mortar is wasted. And it makes a neater job that costs less to clean down.

Louisville Cement Co., *Incorporated*
Louisville, Kentucky

BRIXMENT

For Mortar and Stucco

(*Continued from page 12*)

NEW YORK STATE ARCHITECTS CONVENE IN ROCHESTER

After two half-hearted annual conventions in New York City, the New York State Association of Architects rang the bell in Rochester with a registration of nearly 400, a three-day program packed with round-table discussion, and a newly found sense of power and unity. Sixteen architectural organizations, including six chapters of the A.I.A., constitute the Association. Publication of a monthly bulletin was authorized. Affiliation with the A.I.A. as a State Member was temporarily tabled.

All photos, Henry Seylor

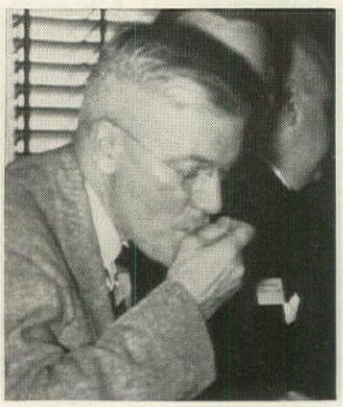
James W. Kideney, of Buffalo, president of the New York State Association of Architects, who has guided this loosely tied group of constituent organizations through its swaddling clothes stage and into a coherent unity.

"In the creation of a monument or a structure for purely personal gratification, the owner will overlook much in the temperamental artist, but not in the planning of his factory building." — Albert Kahn in his address on industrial practice. (See also p. 501.)

Warning the architects against bureaucratic encroachment, New York attorney Harry N. French of Eidlitz, French & Sullivan: "The argument that public works should be done by government is supported by over 3,000,000 Civil Service employes."

Chairman of the Convention Committee, and as such the man upon whom fell most of the actual work in arranging the multitudinous details of an unusually successful three-day program, was Leonard A. Waasdorp of Rochester.

"I hope you fellows won't get the idea that we are too bureaucratic or too autocratic. We are trying to exercise the control that the Department expects."— Gilbert Van Auken, architect in the State Educational Department.



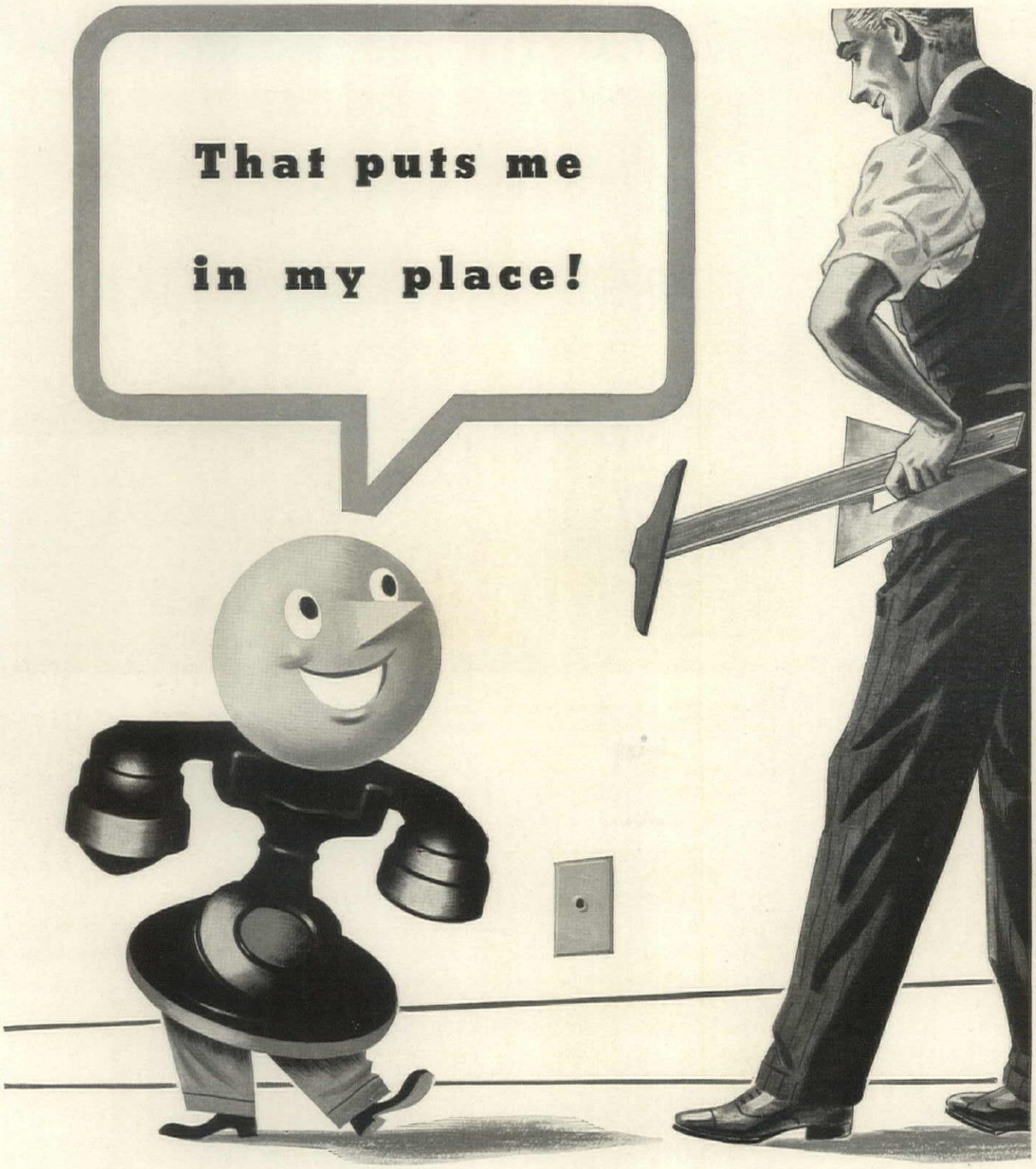
William G. Kaelber, F. A. I. A., formerly of Gordon & Kaelber, now succeeded by "Wm. G. Kaelber and L. A. Waasdorp," had little to say, having been busy designing most of Rochester's important buildings.

"In the average general hospital the area available for patients is less than 35 per cent of the total floor area. New developments in therapy will make this area less." —William A. Riley of Stevens, Curtin, Mason & Riley, Boston.

"People now come into our office up here to build the sort of houses they stopped building back in 1928. We have a job of bringing them up to date over the depression lapse."—Residential round table chairman Henry A. Martin of Rochester.

"There are very large areas within our urban centers where decay and obsolescence have run their full course. . . . Replacement is overdue by several decades."— Frederick L. Ackerman, F. A. I. A., at the Large Scale Housing round table.

"A pamphlet entitled 'How to Select an Architect' should be distributed among boards of education and school superintendents to prevent the setting up of another bureau."—Wesley S. Bessell, Schools round table chairman.



WHEN you include telephone outlets in your plans, you make the telephone system an integral part of the home. This is an advantage both to you and to your clients.

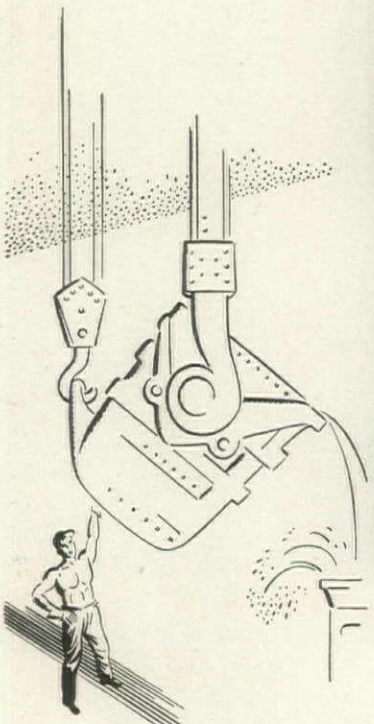
Telephone outlets, connected to inexpensive pipe, conduit, or other built-in facilities installed in the walls at the time the home is constructed, reflect good workmanship and careful planning and thus are strong sales aids.

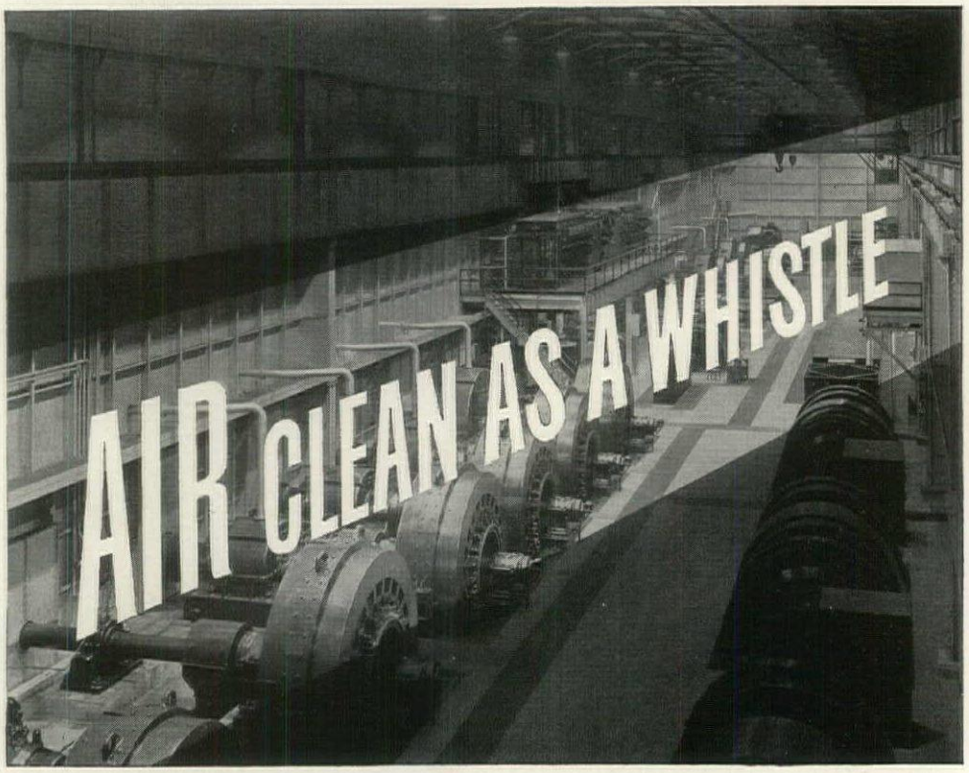
Modern buyers appreciate evidence of care and consideration for the appearance of their new homes. And by affording a clear path through concrete, insulation, fire-stops and around duct-work you insure against exposed wiring that might seriously mar the beauty of the walls and woodwork you design.

Every home, regardless of size, should have one telephone outlet on each floor and additional outlets in logical places for extension telephones.

Your telephone company offers its co-operation in planning efficient telephone arrangements. Just call the nearest Bell Telephone Business Office and ask for "Architects' and Builders' Service."

EVEN IN STEEL MILL MOTOR ROOMS

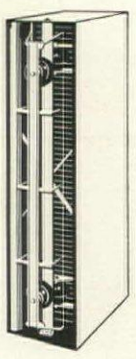




PRECIPITRON* Removes Destructive Dirt

Steel Mills, too, suffer from air-borne Dirt, Dust and Smoke—just as do Office Buildings, Laboratories and other Commercial Buildings. Yet the threat of main drive motor failure and resultant costly shutdowns, due to air-borne dirt and oxide deposits on vital motor parts, is banished by PRECIPITRON—new electrostatic air cleaner.

The Precipitron is not a filter. It is a simple electrostatic device that collects all solid particles from the air stream—including smoke particles. Its cleaning ability prevents fine destructive dirt and foreign matter from reaching motor armature, insulation, brushes and the sensitive contacts on control board switches and relays. Elimination of this dust and dirt prolongs operating life, minimizes maintenance, and eliminates the greasy dirt film that constitutes a fire hazard.



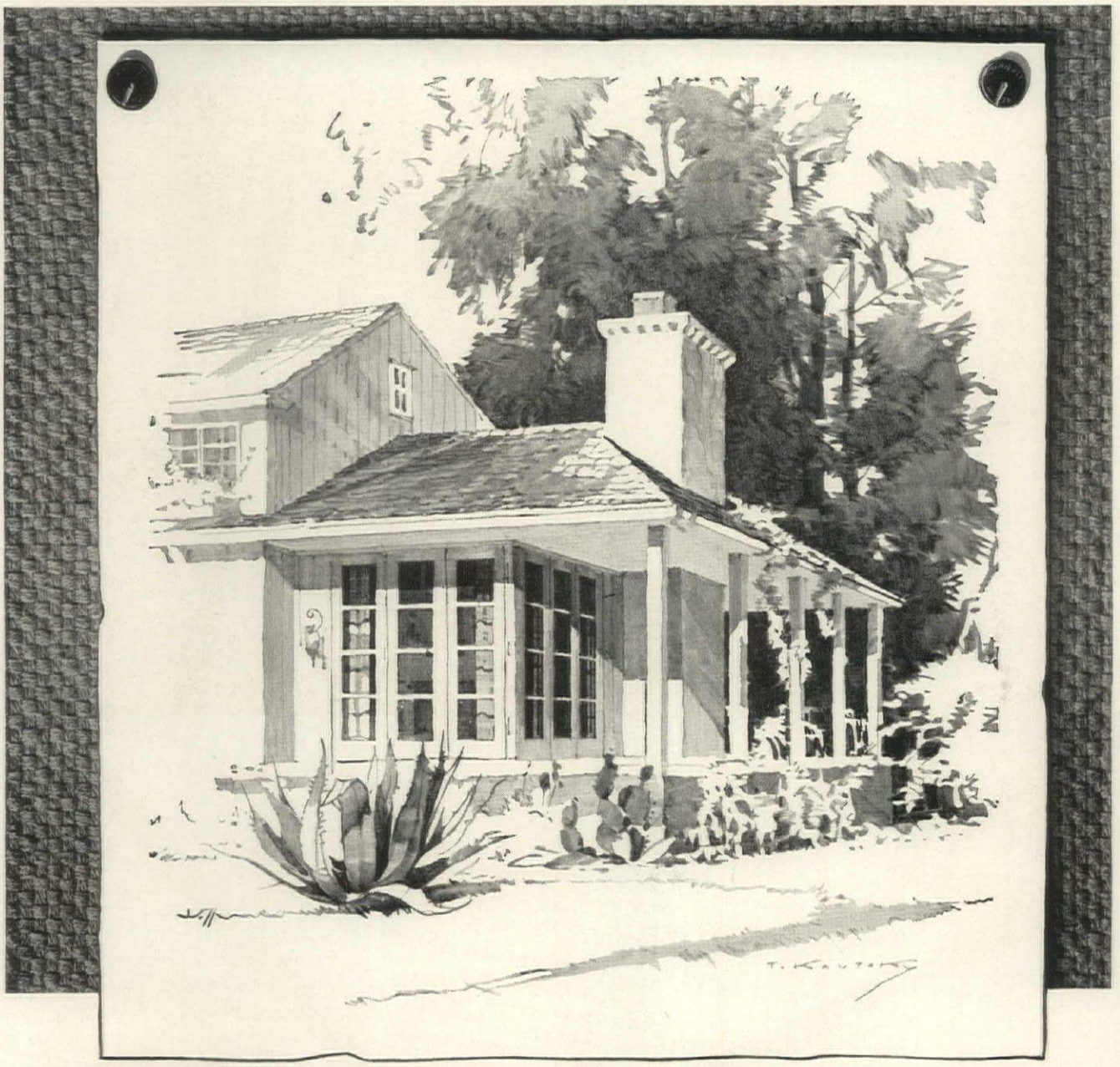
In Stores, Restaurants, Office Buildings, Laboratories, Hospitals, Telephone Exchanges, Tool and Die works and countless other applications the Precipitron is eliminating the Dirt and Dust hazard. Its efficiency as part of heating and ventilating systems indicates that all architects and engineers should be familiar with its construction and operation.

Ask your Westinghouse contact representative for details or write the Precipitron Department, Westinghouse Electric & Manufacturing Company, Edgewater Park, Cleveland, O.

*Trade Mark Registered in U. S. A.

TUNE IN "MUSICAL AMERICANA," N. B. C. RED NETWORK, COAST-TO-COAST, EVERY THURSDAY EVENING.

Westinghouse Precipitron



SPECIFY "PENNVERNON" . . . NOT JUST "WINDOW GLASS"

ALL window glasses are not alike. That is why it is wise to select a brand of proven quality like Pennvernon. Pennvernon Window Glass can be depended upon to contribute its share towards good windows. Windows that are clear and good looking. Windows distinguished by satisfactory visional properties and attractive reflectivity of surface. For a sheet glass, Pennvernon is surprisingly free from distortion. So make the Pennvernon label your guide to quality window glass. Pittsburgh Plate Glass Co., Grant Building, Pittsburgh, Pa.

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"PITTSBURGH" stands for Quality Glass

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But that is only part of the story . . . Ever since 1854 Barrett Pitch and Felt have stood out as the world's most dependable built-up roofing materials. Beneath a fire-safe gravel or slag wearing surface, they have proved themselves practically impervious to the worst that sun, wind, rain, snow, sleet and hail can do.

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*Barrett Specification Roofs**

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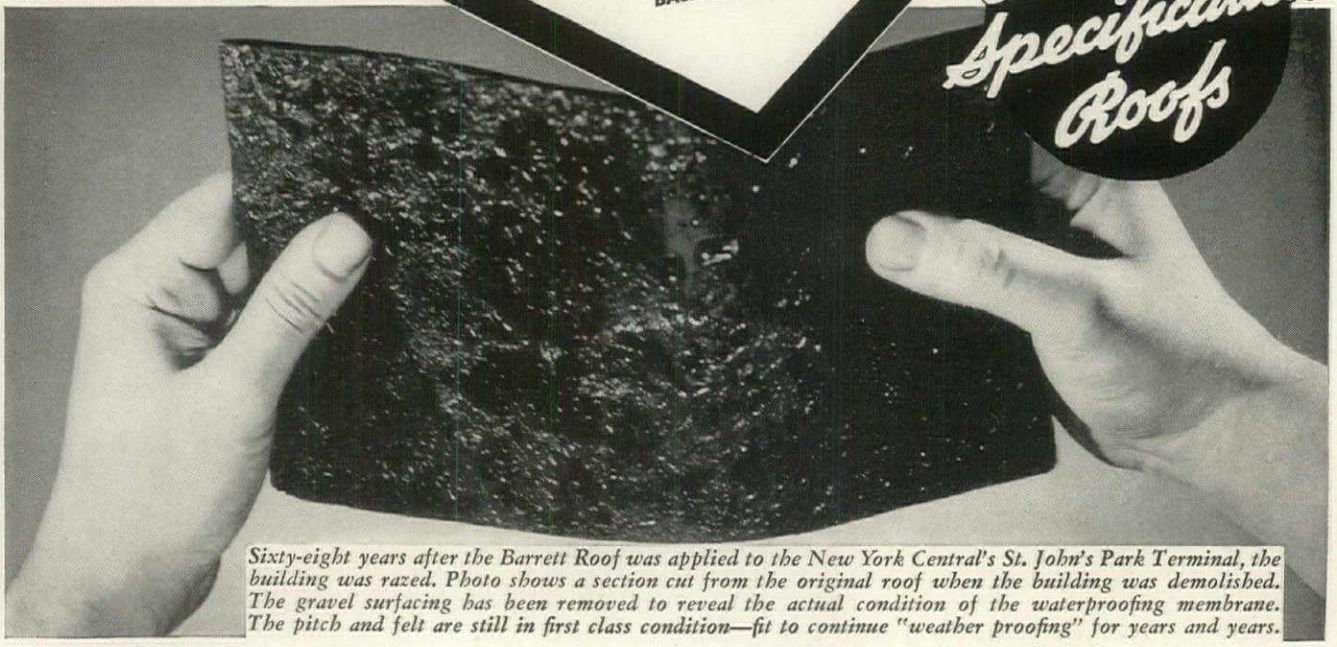
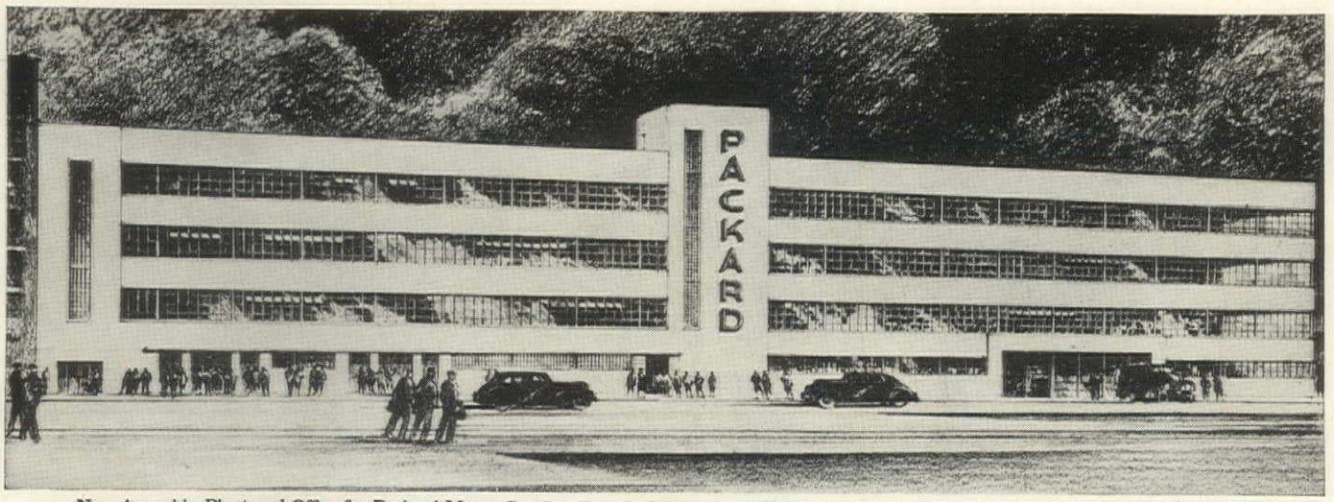
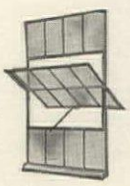


Sixty-eight years after the Barrett Roof was applied to the New York Central's St. John's Park Terminal, the building was razed. Photo shows a section cut from the original roof when the building was demolished. The gravel surfacing has been removed to reveal the actual condition of the waterproofing membrane. The pitch and felt are still in first class condition—fit to continue "weather proofing" for years and years.

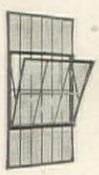


New Assembly Plant and Office for Packard Motor Car Co., Detroit, Mich.; C. A. Handeyside Co., Architects; O. W. Burke Co., Contractors.

READY-MADE FOR YOUR DEFENSE BUILDINGS

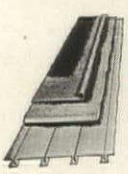


PIVOTED WINDOW for all types of industrial and commercial buildings. Provides maximum daylight and fresh air; improves working conditions; helps increase output. Quickly joined by mullions to form Window-Walls.



SECURITY WINDOW gives break-in protection without sacrificing daylight and fresh air . . . a fixed steel grille, with an open-in steel ventilator superimposed on the inside.

INDUSTRIAL DOOR for industrial, commercial buildings, apartments, hotels, public buildings; for employees' entrances, storerooms, furnace and boiler rooms, fire exits, etc. Swing or slide, single or double.



HOLORIB ROOF DECK, a rigid, extremely lightweight steel deck, self reinforced by triangular ribs. Combined with insulation and waterproofing, it forms an unusually durable, fire-resisting, leak-proof roof.

RESIDENCE CASEMENT for various housing needs. Provides more daylight, better ventilation, easy opening, safe washing, extraordinary weather-tightness, better screens, fire-safety. Quickly, easily installed.

FENESTRA is prepared to help speed up the construction of your defense buildings. Quick shipments can be made of the *Standard Prefabricated Products* shown opposite — for use in military and naval buildings, in industrial, transportation and utility buildings and in housing. Here's the way Fenestra can serve you *faster and better:*

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LETTERS

Good Bet

Forum:

In your October issue you publish a letter from Elbert S. Brigham and your remarks relative to it beneath it. If I may have a word, it seems to me that if you look at the matter in a little different light you will get the point of President Brigham's letter. Since National Life can sell these debentures at a substantial premium, they can make money on the whole transaction—if they can sell at 108 per cent, they will have made a good rate of interest during the period the mortgage was in their hands and a very nice profit for their efforts.

I would agree with Mr. Brigham that his company is not taking it on the chin—not even a dimple. True that if the white elephants had paid out, which few promoters expected, National Life would have made a higher rate of interest over a longer period, but would not have had as liquid an investment that can be turned for a nice profit at any time.

The whole experiment indicates, it seems to me, that the automobile has outmoded expensive apartment buildings — USHA and FHA Rental Section to the contrary. *And* that National Life Insurance Co. knows a good bet when it sees one.

FRANK M. ROBERTS

Houston, Texas

Since Wall Street was bidding only 101¼ for 2¾ per cent FHA debentures on November 20, National Life's President Brigham would probably jump at Reader Roberts' 108 bid.—ED.

Pardonable . . .

Forum:

In your Building Money section of the September issue of THE FORUM, you analyze the Canadian building boom in comparison with the trend in the U. S. . . .

My compliments to you on the survey, but I cannot resist drawing your attention to a perhaps pardonable slip in one section of the article . . . "Equally comforting is the performance of another dark horse—business construction. Efforts to catch up with the *shortage in stores and offices* have spurred this type of building activity to new recent highs: the half year total was 45 per cent ahead of 1939."

. . . The upturn under the head of "business building" is more than accounted for by the jump in the sub-total for "public building." This in turn was not due to "public building" in the ordinary sense, or even to erection of office buildings for war administration purposes, but to construction of barracks for the mobilization and training of troops, war stores depots and similar defense projects, and above all, to building of hangars, barracks, school units and other structures for the Empire Air Training Plan. Building for Air Training, regular Air Force and other military purposes has been accelerated in the past few months, and this factor is even more dominant now in the rise in "business building."

GUY S. CUNLIFFE

The Financial Post
Toronto, Canada

Manhassett Progress

Forum:

As Management Agents for Manhassett Village, we read with interest your article in the September issue of Architectural Forum pertaining to the eight foreclosed projects financed through the FHA.

Your article was correct as to the occupancy as of the early part of August, but we thought that you might be interested in knowing of the progress that there has been made at Manhassett Village since that time.

As of today, there are 181 apartments leased which gives a percentage of 51 per cent occupancy. For the past 30 days we have been averaging new tenants at a rate of slightly better than one per day and expect this percentage to be maintained until about the 15th of November.

Allowing for a few removals we should have about 225 tenants in the Village as of November 15. . . .

H. GRANT BARNGROVE

Barngrove Realty Co.
St. Louis, Mo.

Design for Daylight

Forum:

You are to be commended for your article on the prediction of illumination from windows (July, p. 43). It is about time that this country followed the lead of other countries in adopting a scientific approach to the problem of window design.

At present I am working on the problem of the theoretical calculation of illumination from windows, and I therefore read your paper more critically than the average reader might. As a result of this study I have listed a few changes which might be incorporated into a new report.

1. There is only one source of light, the sun; light from the sky is due to the scattering of the sun's rays in the atmosphere.
2. Because of the large variations in sky brightness it is best for design purposes to consider the sky brightness as a constant (500 lumens per sq. ft.).
3. It is advisable to express the sky brightness in lumens per square foot, since the illumination on a horizontal plane in foot-candles from an unobstructed sky would be directly equal to the sky brightness.

It seems that the more we publish and simplify these data the greater the case for scientific window design.

BERNARD F. GREENBERG

Albert Farwell Bemis Foundation
Cambridge, Mass.

Design Decade

Forum:

Your Design Decade number has moved me to put in my oar. The slightly depressing effect it had on me is not your fault, but that of the decade. In spite of much that is excellent my first reaction was to the superficial styling you yourselves criticized and the trick photographs.

These criticisms are general, but I have one that is specific. The choice of Q.E.D. as the example of "the first attempt at modern" naval architecture shows a lamentable ignorance of one of the few really healthy fields of design. Structurally she was of some interest but esthetically she was only different. You seem to have overlooked the fact that with unimportant exceptions naval architecture has always been contemporary. In the past twelve years of yacht design the outstanding developments have been in the ocean racers, and the motor sailors. Starting with little Kalmia and famous Dorade about 1929, such men as Olin Stevens and Phil Rhodes have developed a type that is both abler and faster than the typical yacht of the Twenties.

Also why not one of William Hand's Motor Sailors? Their interior furnishings and fittings are ingenious and have far more meaning on a boat than tubular furniture. Their exteriors are straight-forward, and avoid the applied "modernism" which is at least as bad as applied tradition.

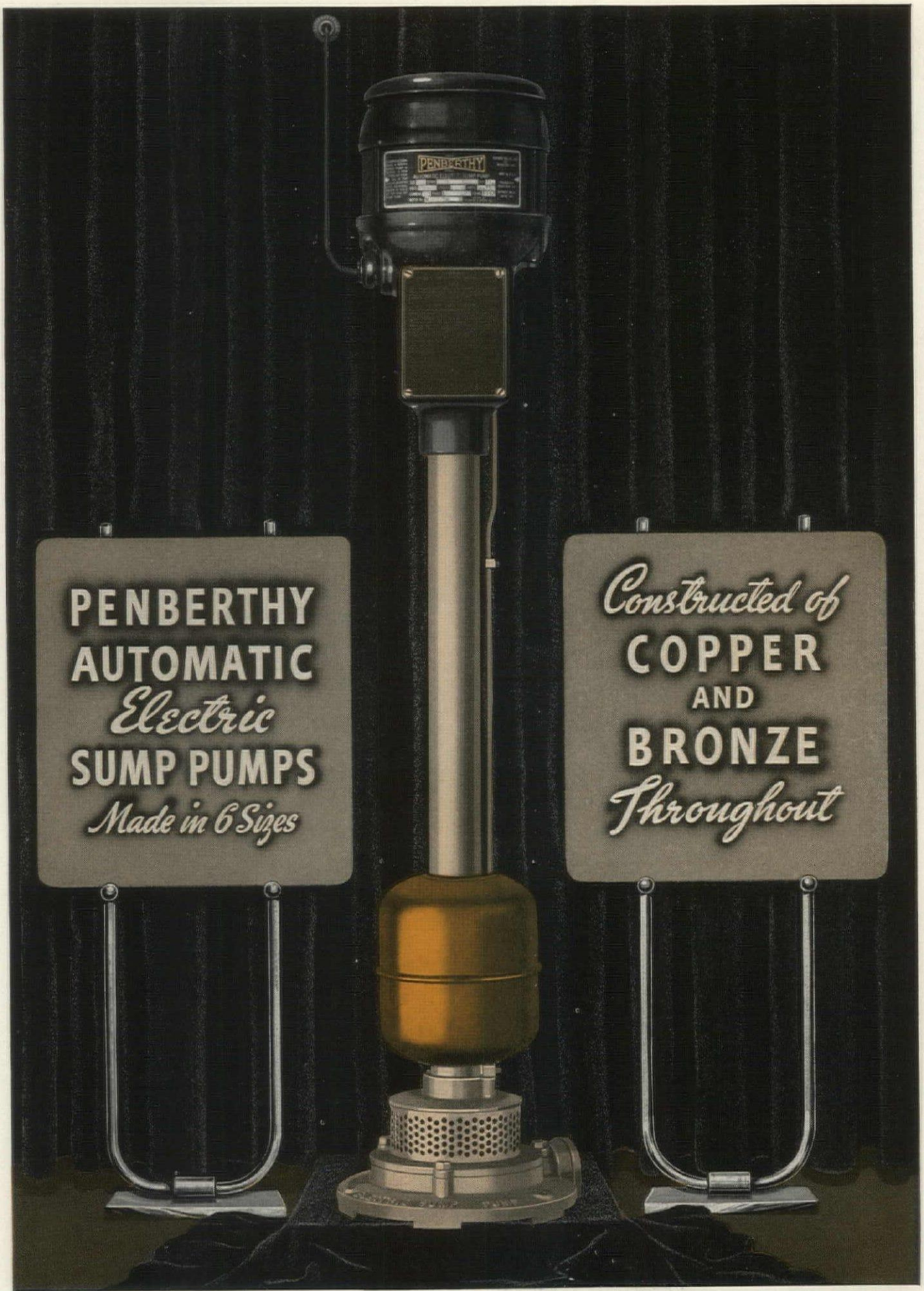
Very few motor yachts were built in the Thirties but if you want something more comparable to Q.E.D. I suggest the fast torpedo and patrol boats the yacht designers have done for the government.

JAMES I. RAYMOND, Architect

New York, N .Y.

Erratum

Credit should have been given in the publication of the Lake County Tuberculosis Sanatorium to the office of Robert Bruce Harris of Chicago. All work outside of the buildings, including planting, parking, water supply, lighting, etc., was planned and supervised by Mr. Harris' office.—ED.



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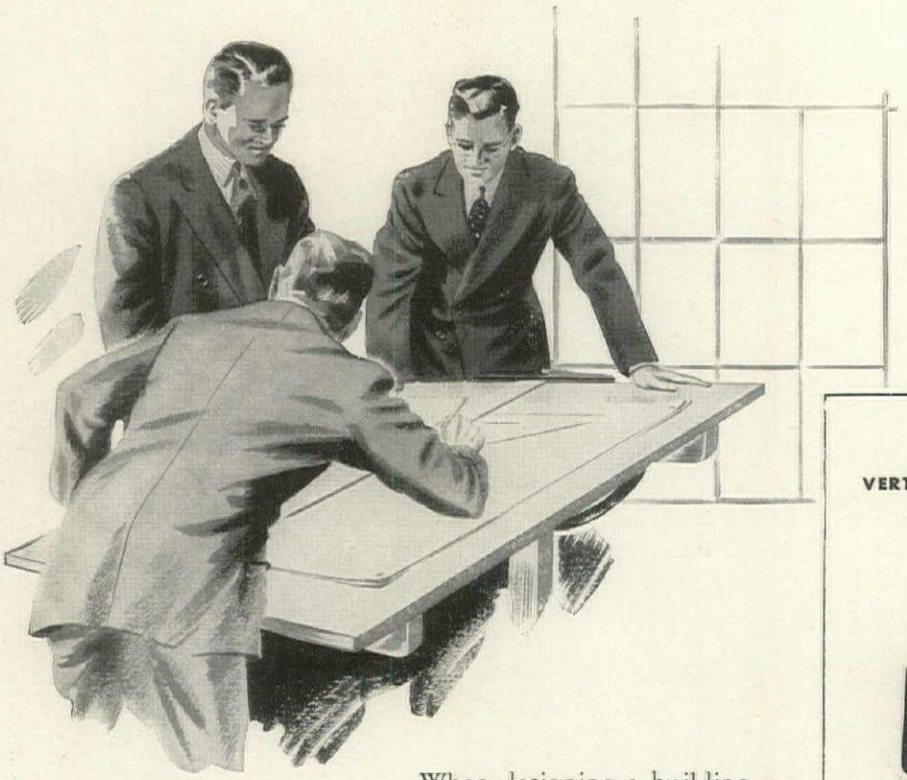


When designing a building, the Architect must satisfy the needs of his client as economically as possible. It may not always be necessary to use first grade materials or equipment to meet these requirements.

Many Architects, however, have found that they cannot afford to specify anything but the best heating, ventilating and air conditioning products. For more than 30 years, they have specified Herman Nelson Products with the assurance that this equipment would produce the results desired by their clients.

Today's trend toward Herman Nelson Products is proof that these Architects are not willing to relinquish this assurance because of the slight additional cost of this equipment.

THE HERMAN NELSON VERTICAL SHAFT PROPELLER-FAN TYPE hiJet HEATER

The Herman Nelson Vertical Shaft Propeller-Fan Type hiJet Heater is one of the many Herman Nelson Products specified by Architects throughout the country. It is used for the efficient and economical heating of many types of commercial and industrial buildings. This unit incorporates many exclusive features of design and construction.

Complete information regarding this and other products can be obtained from Herman Nelson Sales Representatives located in principal cities or from the Home Office at Moline, Illinois.

THE HERMAN NELSON CORPORATION MOLINE ILLINOIS

Manufacturers of Quality Heating, Ventilating and Air Conditioning Products

Model of New York City's new Criminal Courts and Prison Building.
Harvey Wiley Corbett and Charles B. Meyers, Architects.

"The true Administration of Justice is the firmest pillar of good Government"

. . George Washington

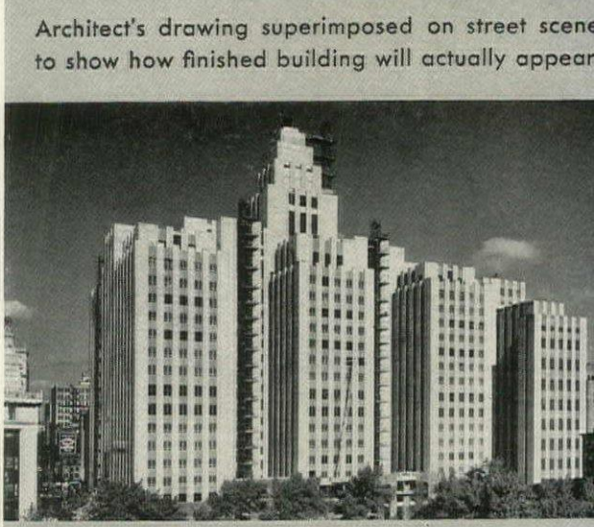
RAPIDLY nearing completion, New York City's Criminal Courts and Prison Building (designed and constructed under the supervision of the Dept. of Public Works, Irving V. A. Huie, Commissioner) promises to be one of the city's most interesting and impressive structures. Designed to give the utmost in utility, its beauty is noteworthy in every detail.

Typical of the materials employed here are the 3,200 Aluminum windows in the Criminal Courts Building. There for a lifetime of service, they are unexcelled in appearance, provide a maximum of glass area, remarkably easy to open and close, permanently weather-tight.

And, in this and the adjoining Prison Building, Aluminum window subframes, mullions and louvres are used. 2,115 cast Aluminum spandrels grace the exterior. Aluminum handrails, stair treads and nosings, ornamental trim, lighting fixtures and many Aluminum doors dress up the interior.

ALUMINUM COMPANY OF AMERICA,
2166 Gulf Building, Pittsburgh, Pennsylvania.

Architect's drawing superimposed on street scene to show how finished building will actually appear



Showing how construction had progressed on September 13, 1940.

ALCOA ALUMINUM

BOOKS

MEETING OF THE WATERS FOUNDATION, ST. LOUIS.

DETAIL FROM GROUP FOR ROCKEFELLER CENTER

CARL MILLES, by Meyric R. Rogers. Yale University Press. 73 text pp., 163 plates. 10½ x 14¼. $15.00.

Eight years ago Carl Milles left Sweden to make his permanent home in America, arriving with an international reputation solidly based on a prodigious amount of outstanding work. Although his stay to date has been brief, and though he is now getting on towards seventy, Milles has already executed enough new commissions to make up the life work of a lesser man. In quality his American sculptures represent the culmination of a career of steady development. There are the great Peace Monument in St. Paul, the Swedish Tercentenary Monument at Wilmington, the fountain in St. Louis (illustrated above), the carved wood group for Rockefeller Center in New York, and others no less important.

Though Milles may be claimed today with complete propriety as one of the great American sculptors, his background belongs to Europe and primarily to Sweden. Born in 1875, near the ancient university town of Upsala, he studied and worked as a cabinet maker in Sweden until, at the age of 22, he was offered a job in South America in a school of Swedish gymnastics. A stopover in Paris, on the way to catch his boat, turned into a stay of seven years during which he studied sculpture under conditions of considerable hardship. It was not until 1907 that he returned to Stockholm. By 1917 he was well established, apparently destined for a well-upholstered, respectable existence, when he again kicked over the traces, destroyed his earlier work, and began a period of furious development culminating in the great fountains of Halmstad, Linköping and Gothenburg. Opposition to this later trend was by no means lacking in Sweden, and among other lost commissions he was denied the opportunity to do any work on the Stockholm Town Hall. In 1929 he made his first visit to this country and three years later he settled down permanently at Cranbrook Academy.

Milles is virtually unique among the outstanding modern sculptors in that his work combines a direct popular appeal with a complete mastery of form and technique, profound emotional quality and highly original ideas. In his sculpture the layman finds a refreshing change from the forbidding pomposity of the academicians; the ideas are comprehensible and there is a warm humanity, an overflowing joy in life and a healthy playfulness instantly appreciated by a public too long restricted to a diet of stale togas and sentimental garden figures. Milles' fountains are also unique. There has been nothing like them since the days of the Italian Renaissance, when sculptors also understood the simple idea that in a fountain, water should form an integral part of the design.

In bringing out this new book on Milles' work, Meyric Rogers has performed an immensely valuable service. The earlier European monographs are virtually unobtainable, and they do not include the important sculptures of the past ten years. This is a comprehensive record, even showing work done between 1903 and 1914. The book is a large one, and the illustrations are generous; details of many of the fountains and monuments are displayed in profusion, giving an impression of the work that could be improved only by seeing the sculpture itself. Mr. Rogers has written a number of excellent critical and biographical essays which provide a completely satisfying introduction to the plates. There are also a bibliography, chronology, a check list of the principal works, and an index. The book is expensive, but in view of its superlative quality it is surprising that the price is not higher.

Clients kiss furnace troubles good-bye...

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To you, the name General Electric stands for research, precision manufacture, products of highest quality. It does to your clients, too.

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Some units are described below. For full details see Sweet's 26/10 or write General Electric Co., Division 199-1213, Bloomfield, New Jersey.

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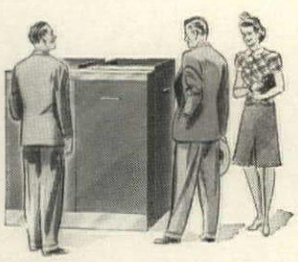

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G-E Gas Furnaces free your clients from all furnace drudgery . . . They don't even have to order fuel! The G-E way of burning gas is amazingly economical.

G-E Oil Burners offer low cost, automatic heat when modernizing. Use existing furnaces, cost as little as $268 plus local permit. Clean, quiet and odorless.

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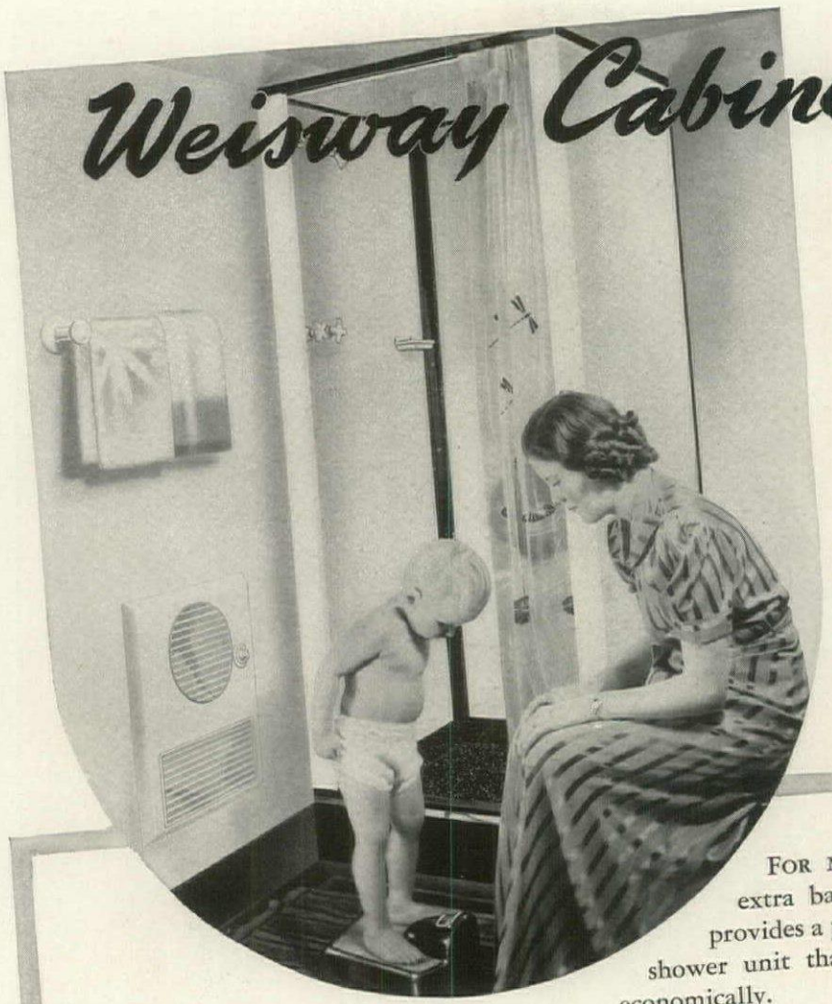
HAVE 4 WAY PROTECTION

- GALVANIZING
- BONDERIZING
- BAKED PRIMER
- BAKED ENAMEL



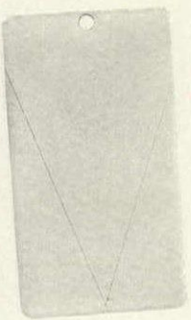
FOR MODERNIZING the home, or the extra bath in the new house, Weisway provides a practical, complete, self-contained shower unit that can be installed quickly and economically.

Completely fabricated, ready to assemble, they are ideal for homes, hospitals, schools, hotels, or industrial plants. Made of select steel, the popular models are given "four way" protection—four protective treatments—that assure finish permanence and freedom from rust.

The extra smooth, cold rolled, select steel is first galvanized then Bonderized to provide positive adhesion for the baked primer and synthetic enamel. This assures corrosion resistance and finish service far beyond all former experience for baked enamel on steel surfaces. Bonderizing on the galvanizing provides immediate paintability and an absorbent surface that holds final finishes.

HOW BONDERIZING HOLDS PAINT AND PREVENTS CORROSION

A galvanized section finished with two coats of paint. Exposed in Florida 18 months. Paint peeled from most of the surface.



A galvanized and Bonderized section. Finished same as section at left. Exposed in Florida 18 months. Surface O. K. Adhesion good.

PARKER RUST PROOF COMPANY
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PARKER *Processes* **CONQUER RUST**
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Variety

IN ROOF TEXTURE MADE POSSIBLE WITH Red Cedar Shingles

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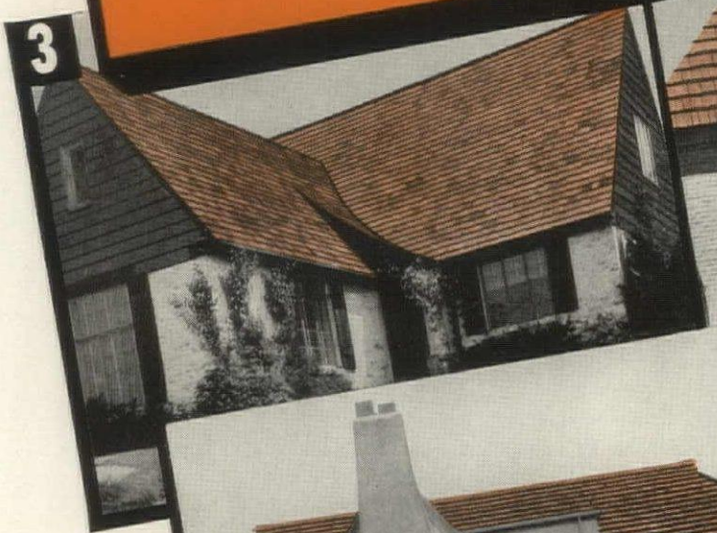
(1) *24-inch Royals, laid with very wide exposure, give the appearance of the more expensive tile.*

(2) *These are laid double-coursed, the under course slightly exposed and irregularly laid.*

(3) *Random width shingles laid with irregular butts.*

(4) *Double-coursed with straight butts, providing very deep shadow lines.*



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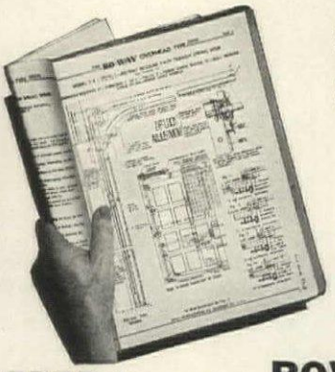

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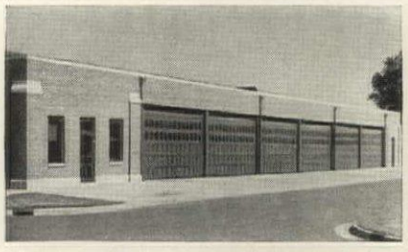

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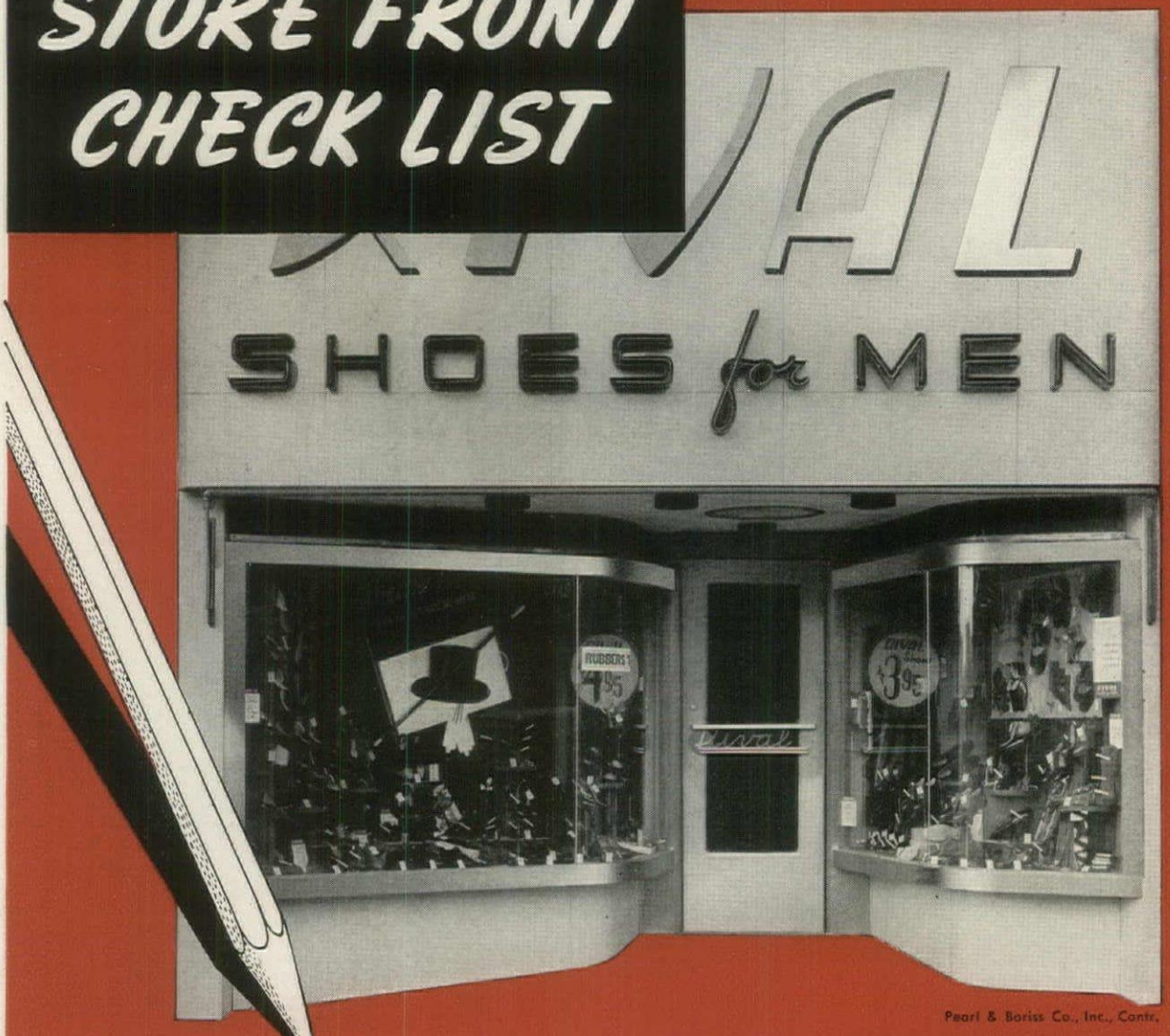

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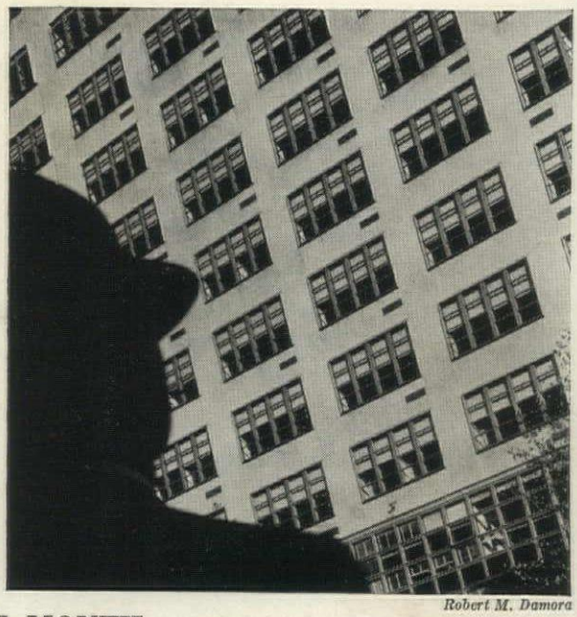
ZOURI STORE FRONTS

THE ARCHITECTURAL FORUM DECEMBER 1940

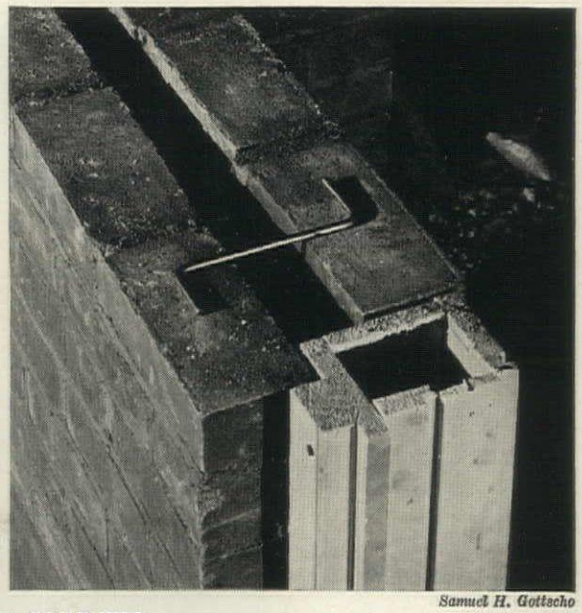
Associated Press of Great Britain

MAN OF THE MONTH . . . he towers over Britain's Building (page 2)



Robert M. Damora

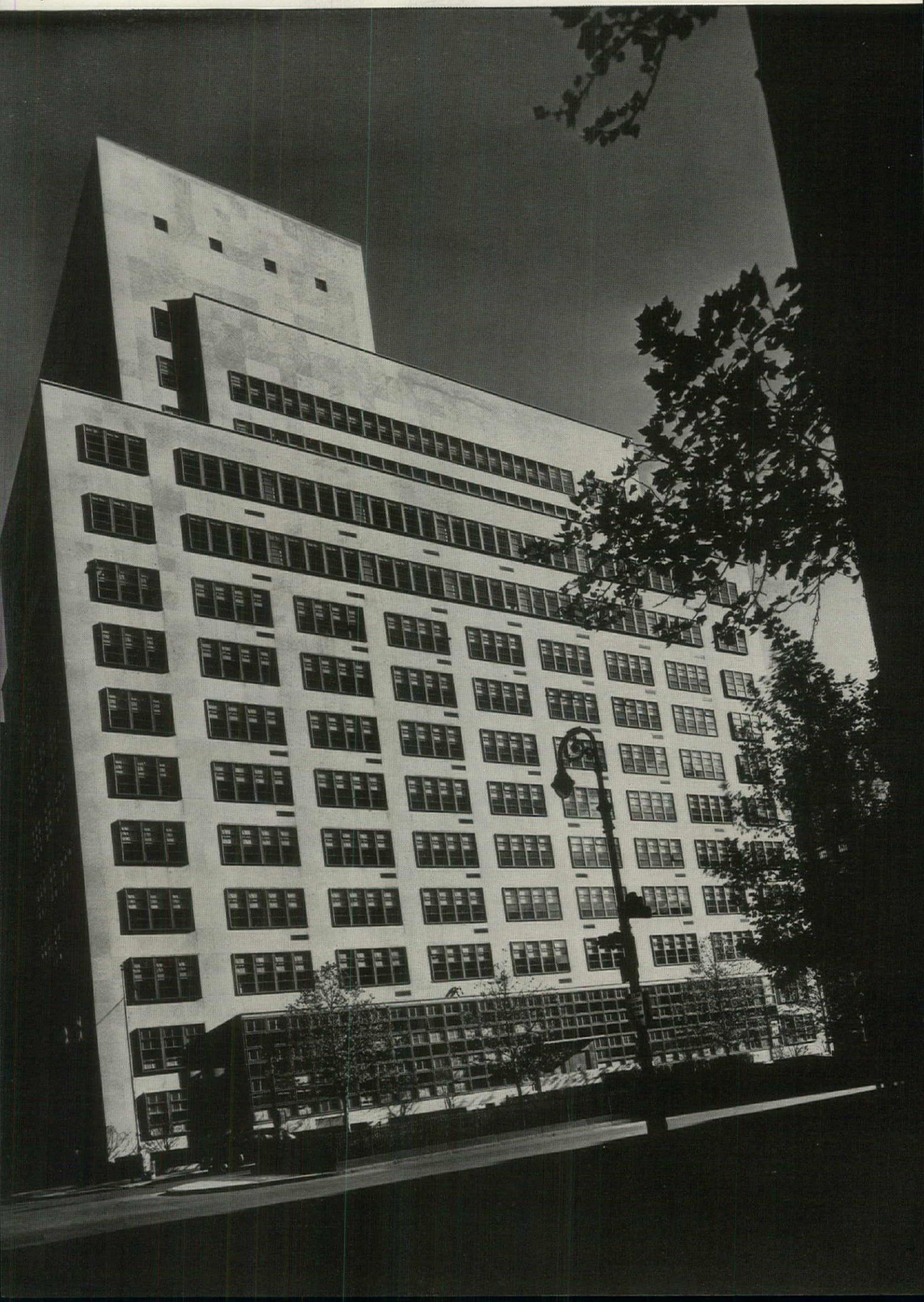
BUILDING OF THE MONTH . . . 5,000 girls on land for 500 (page 470)



Samuel H. Gottscho

PRODUCT OF THE MONTH . . . Water stops at the wall of air (page 527)

HUNTER COLLEGE NEW YORK CITY



SHREVE, LAMB & HARMON HARRISON & FOUILHOUX, ASSOCIATED ARCHITECTS

This new building for Hunter College exemplifies, in particularly pertinent fashion, some of the possibilities and limitations surrounding the work of the contemporary architect. As shown on the facing page, the effect of the building is one of massive simplicity, and the impression is accentuated when the surrounding Park Avenue apartment houses are seen. Already some degree of controversy has been stirred up by the building, the more sentimental section of the public and profession decrying the omission of the customary collegiate trimmings. Actually the problem of obtaining adequate daylight is serious in New York and in the circumstances the fenestration seems precisely what it should be. It is also difficult to see how this nineteen-story structure could possibly have been disguised as a cathedral or medieval fortress, or what good it would have done to try. More serious was the program, which demanded accommodations for 5,650 day students and an equal number at night in a structure covering less than a city block. For this fundamental defect there could be no solution in architecture or engineering, and it was within these limitations that the architects worked and their admirably competent design must be studied. If this first large scale modern college building still leaves something to be desired, the responsibility belongs to those, who in a city overflowing with decayed tenements and vacant lots, could provide no better site. For their treatment of this complex problem, the architects deserve a hand, in which we are doubtless joined by the faculty and students of Hunter.

All photos, Robert M. Damora

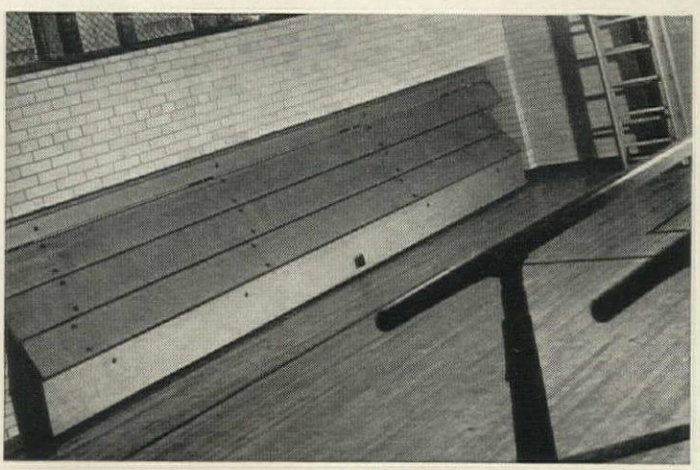
HUNTER COLLEGE, NEW YORK CITY

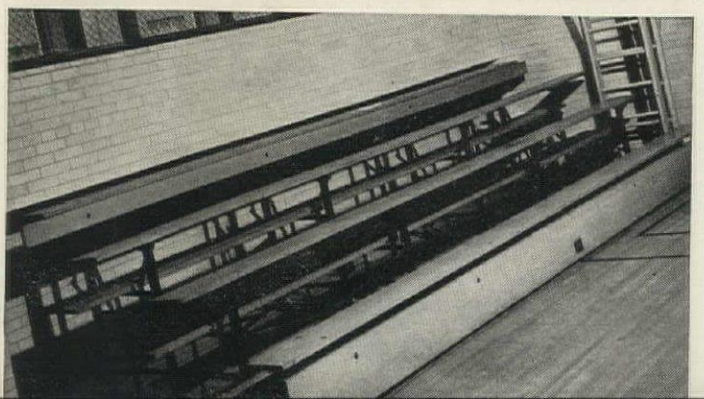
CAFETERIA

SWIMMING POOL

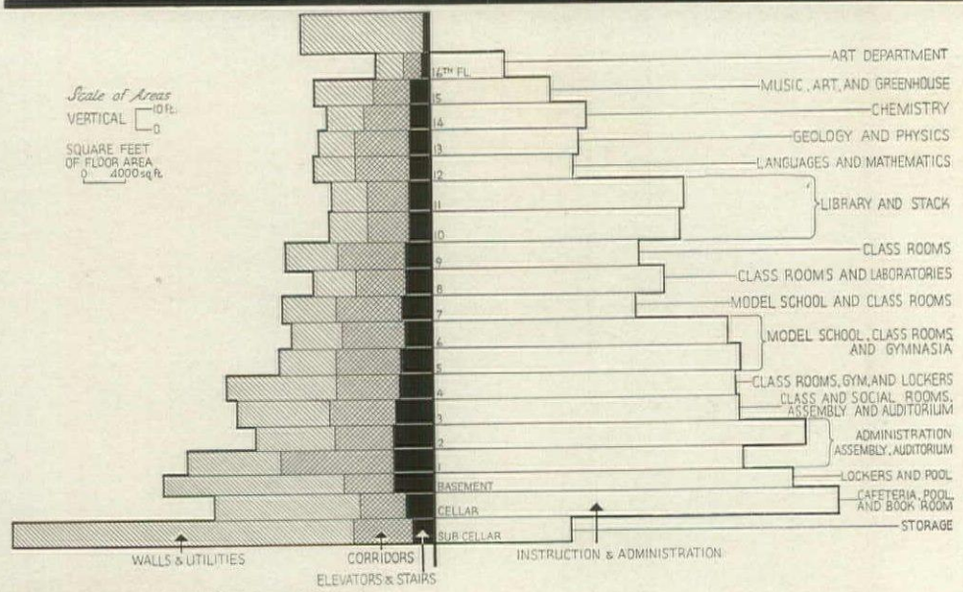
GYMNASIUM

FOLDING BLEACHERS

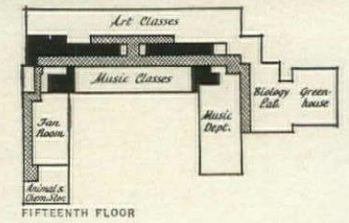




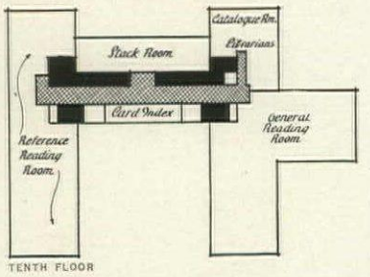
The building contains a number of very large, well designed interiors, notably the auditorium shown on page 471 and the rooms illustrated here. The cafeteria, located in the basement, seats about 1,200 students; walls and columns are covered with light-colored tiles and the ceiling has been acoustically treated. Also in the basement is the swimming pool, a handsome, well-lighted room. There are four gymnasia, one of which is shown above; illustrated at the right are two views of the folding benches at the side of the room. While athletic facilities are commonly grouped in most educational institutions, it was not possible to follow this practice here due to the limited area of the site.



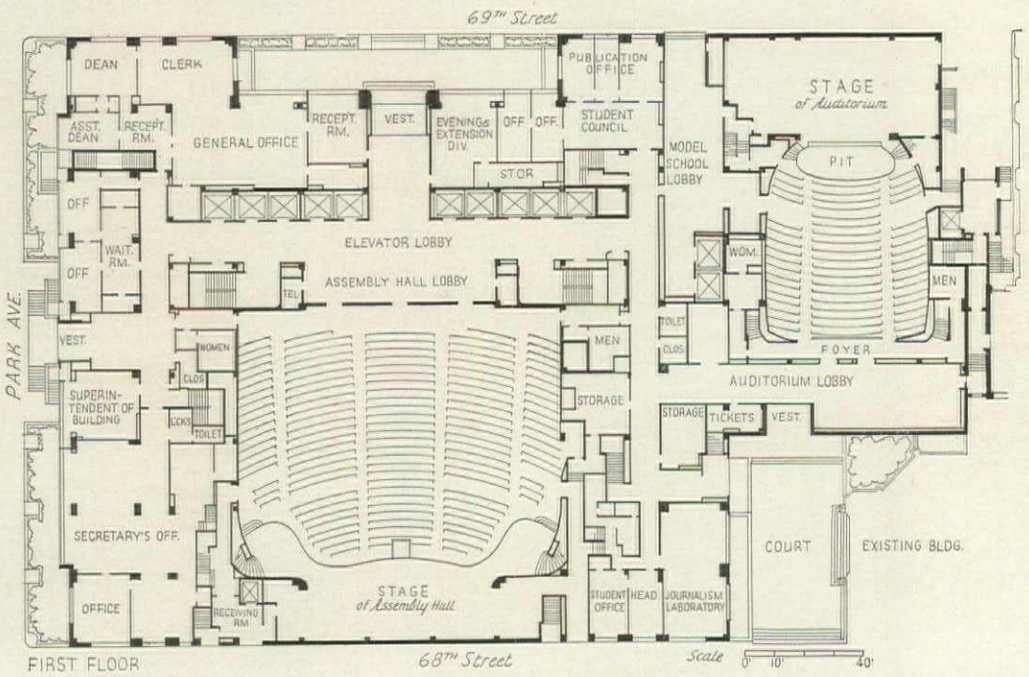
SCHEMATIC SECTION giving floor areas



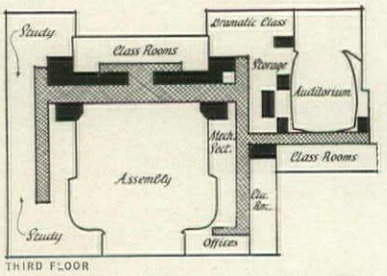
FIFTEENTH FLOOR



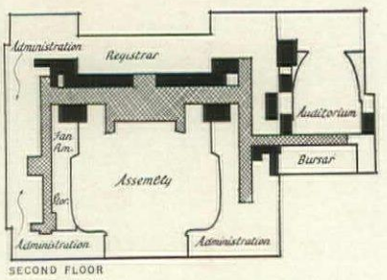
TENTH FLOOR



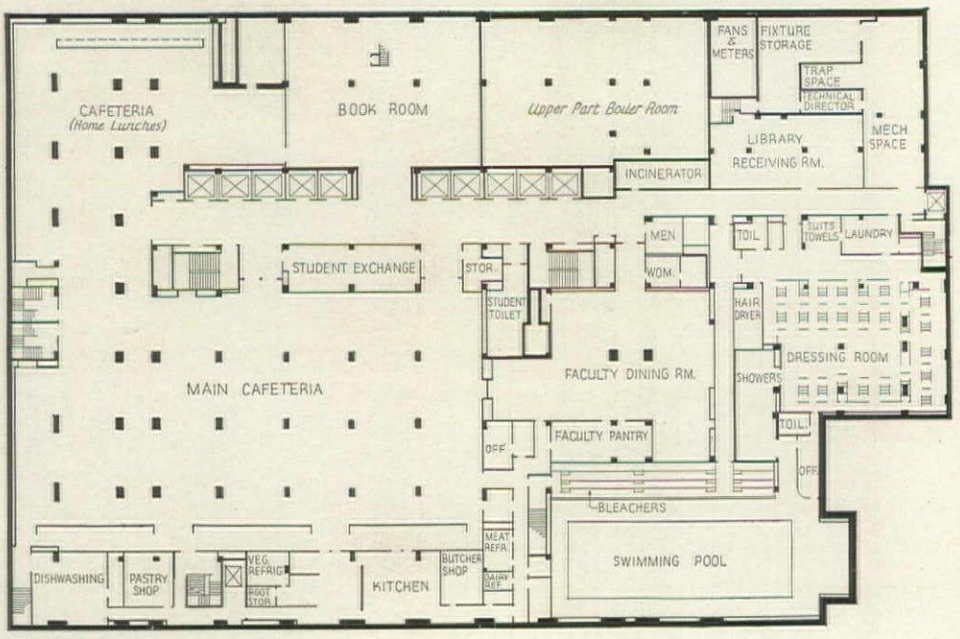
FIRST FLOOR



THIRD FLOOR



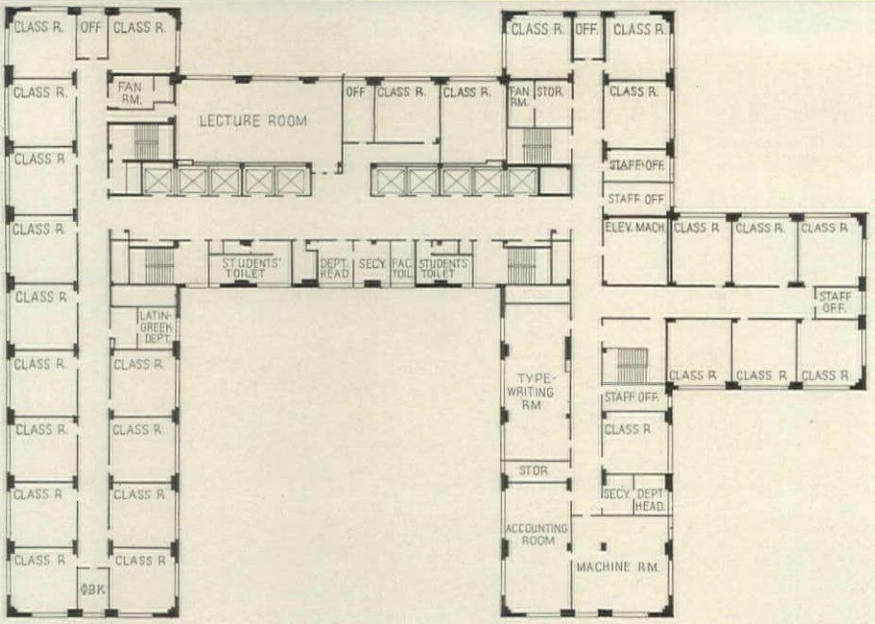
SECOND FLOOR



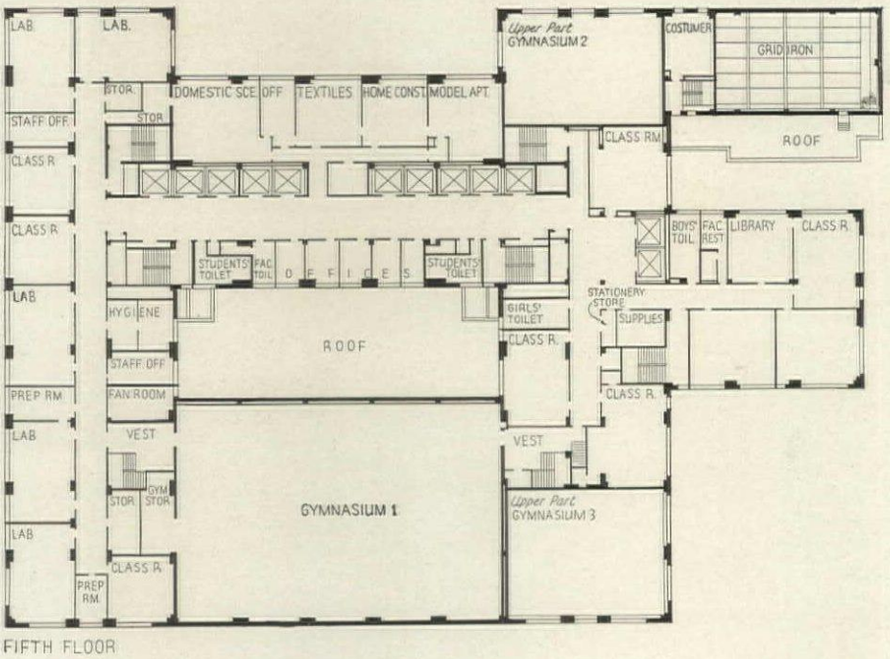
CELLAR

CONSTRUCTION OUTLINE

FOUNDATION: Concrete piers to rock. Waterproofing—cement coat.
STRUCTURE: Exterior walls: Base—granite, John Swenson Granite Co.; above grade—limestone, Indiana Limestone Co., brick backing, National Brick Corp., asphalt mastic dampproofing, National Brick Corp. cinder concrete block furring, U. S. Gypsum Co. plaster. Interior partitions—cinder concrete block, plaster; dado in corridors—structural glazed tile, Atlantic Terra Cotta Corp. Structural steel—Bethlehem Steel Corp. Floor construction (1st.)—reenforced concrete arches with Gritcrete, Aerocrete Co.; balance—reenforced stone concrete, structural clay tile soffit and filler blocks, N. J. Hollow Tile Corp.
ROOF: Coal tar saturated 15 lb. felt, coal tar pitch, 20-year bond, Kopper Co., Celotex 1 in. insulation, The Celotex Co.; terraces—promenade tile, Ludowici-Celadon Corp.
WINDOWS: Sash—steel, projected, Campbell Metal Window Div., Truscon Steel Co. Exterior trim—stainless steel, Flour City Ornamental Iron Works. Glass: Plate—Libbey-Owens-Ford Glass Co. Black glass—The Vitrolite Co. Wire glass—Blue Ridge Glass Co.



NINTH FLOOR



FIFTH FLOOR

Obscure plate—Pittsburgh Plate Glass Co. Glass blocks—Owens-Illinois Glass Co.

ELEVATORS: Ten cars full automatic signal control; speed 700 ft. per min., capacity 7,000 lbs.; two cars switch control; speed 500 ft. per min., capacity 7,000 lbs.; one library stack elevator, two service elevators. All by Westinghouse Electric Elevator Co. Doors to service elevators—Peele Co.

FLOOR COVERINGS: Practically all flooring—asphalt tile, David E. Kennedy, Inc. Library stack floors—Leitch Mfg. Co. Linoleum—Congoleum-Nairn, Inc. Carpets—Mohawk Carpet Co. and Bigelow-Sanford Carpet Co., Inc.

WALL COVERINGS: Assembly hall and auditorium (part)—rubber, Goodyear Tire & Rubber Co.; remainder of auditorium—Fab-Rik-O-Na, H. B. Wiggin's Sons Co. Corridors (1st floor)—marble. Tiles: Cafeteria—U. S. Quarry Tile Co. and American Encaustic Tiling Co. Kitchen—Mosaic Tile Co. Swimming pool room—Franklin Tile Co. Swimming pool—Crescent Tile Co. Exhibition room—"Flexwood," U. S. Plywood Corp.

FURNISHINGS: Assembly hall auditorium and lecture room seats—American Seating Co. Library tables—Thonet Bros., Inc.; Linoleum tops, Armstrong Cork Products Co. Chairs—Johnson Chair Co. Office and studio tables—Thonet Bros., Inc. Desks—Herman Miller, Dunbar Furniture and Stow-Davis. Metal Office furniture—Yawman & Erbe Mfg. Co. Cafeteria tables, faculty dining room tables and chairs—Brower Furniture Co. Folding bleachers—Universal Bleacher Co.

WOOD AND METAL TRIM: Interior: Door bucks and hollow metal flush doors—Niedringhaus, Inc. Base, window stools, radiator enclosures, steel blackboard trim—Superior Steel Door & Trim Co. Rolling steel fire shutters—J. G. Wilson Corp. Steel partitions—E. F. Hauserman Co. Exterior: Doors—stainless steel, Flour City Ornamental Iron Works. Fire doors—Richmond Fireproof Door Co.

HARDWARE: Bronze—Yale & Towne Mfg. Co. Floor checking hinges—Oscar C. Rixson Co. Steel butts—McKinney Mfg. Co. Door holders—Glynn Johnson Corp. Door closers—Norton Door Closer Co. Exterior: Panic bolts—Vonnegut Hardware Co.

PAINTS: By Central Paint & Varnish Works and National Gypsum Co. Metal trim—Berry Bros. Ceilings—Casein "Sunflex," National Gypsum Co.

ELECTRICAL INSTALLATION: Conduit—Triangle Conduit & Cable Co. Wire—Habirshaw Cable Wire Corp. Switches and receptacles—Hart & Hegeman Electric Co. Panel boards—Cole Electric Products Co. Underfloor duct system—General Electric Co. Flush lights, exit lights and reflectors—Frink Corp. Down lights and footlights—Kliegl Bros. Electric clock system—Warren Telechron Co. Watchman's clock system—Detex Watchclock Corp. Fire alarm system, program chimes, inter-communicating telephone—Stanley & Patterson.

PLUMBING: Soil pipes and fittings—cast iron, Central Foundry Co. Black and galvanized steel pipe—Bethlehem Steel Co. Brass pipe (67%)—American Brass Co. Fittings—Grinnell Co., Walworth Co. Valves—Kennedy Valve Mfg. Co. Acid stoneware pipe and fittings—General Ceramics Co. Heaters—Patterson-Kelley Co. Ejector equipment—Yeoman Bros. Co. Swimming pool—Everson Mfg. Co. Water conditioning—Permutit Co. Vacuum cleaning system—Spencer Turbine Co. Toilet fixtures—Crane Co. Kitchen equipment—Polhemus & Co. Ranges—Detroit Michigan Stove Co. Refrigerators—Jewett Refrigerator Co. Fire line equipment—U. S. Rubber Co. Electric motors—Westinghouse Electric & Mfg. Co.

HEATING AND VENTILATING: Two pipe, low pressure steam, vacuum return, thermostatically controlled. Water heater regulators—Powers Regulator Co. Pressure alarm—Minneapolis-Honeywell Regulator Co. Wrought iron pipes—A. M. Byers Co. Brass pipe—American Brass Co. Thermostatic traps—Trane Co. Exhaust head—Swartwout Co. Expansion joints—American District Steam Co. Pumps—Nash Engineering Co. and Worthington Pump & Machinery Co. Radiation—Pierce Butler Radiator Co. Automatic heat control system—Johnson Service Co. Unit ventilators—Peerless Unit Ventilator Co. Air conditioning equipment—Carrier Corp. Foundation cork—Korfund Co. Boilers—Babcock & Wilcox Co. Oil burning equipment—Todd Combustion Equipment, Inc. Fuel oil pumps—DeLavalle Turbine Equipment Co. Fuel oil strainers—Todd Combustion Equipment, Inc. Forced draft fans (boilers)—L. J. Wing Co. Tempering stacks (cast iron)—American Radiator Co. Air filters—American Air Filter Co. Registers and screens—Register & Grille Mfg. Co.

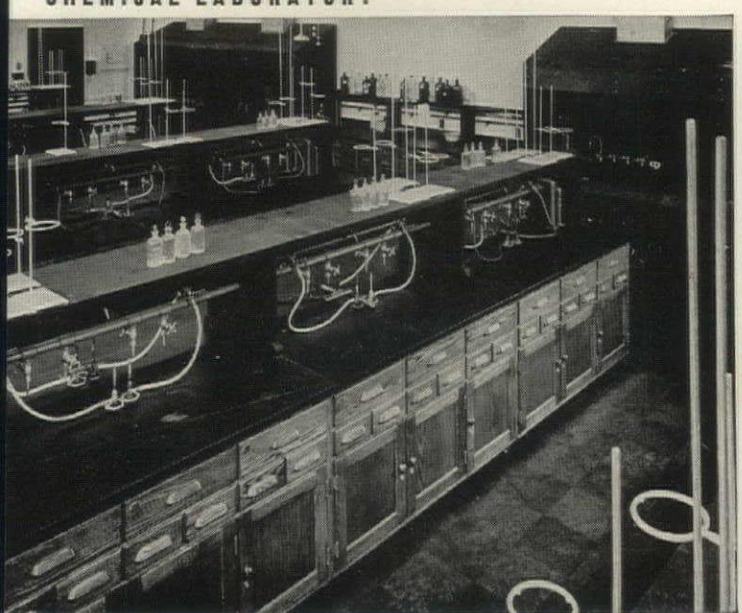
SPECIAL EQUIPMENT: Incinerator—Morse Boulger Destructor Co. Greenhouse and equipment—Lord & Burnham Co. Stone sinks, etc.—Alberene Stone Co. Lights (stage)—Century Lighting Co. Radio and sound equipment—RCA Mfg. Co. Gymnasium equipment—Narragansett Machine Co. Pneumatic tubes—The Lamson Co., Inc. Lighting fixtures—Edward F. Caldwell & Co., Gleason-Tiebout Glass, Westinghouse Magnalux unit, Westinghouse Electric & Mfg. Co., Kurt Versen, Inc. Toilet equipment—Hospital Specialty Co., United Metal Box Co., Willette Corp., Bobrick Mfg. Co.

DIRECTORS' ROOM

SHREVE, LAMB & HARMON; HARRISON & FOUILHOUX, ASSOCIATED ARCHITECTS

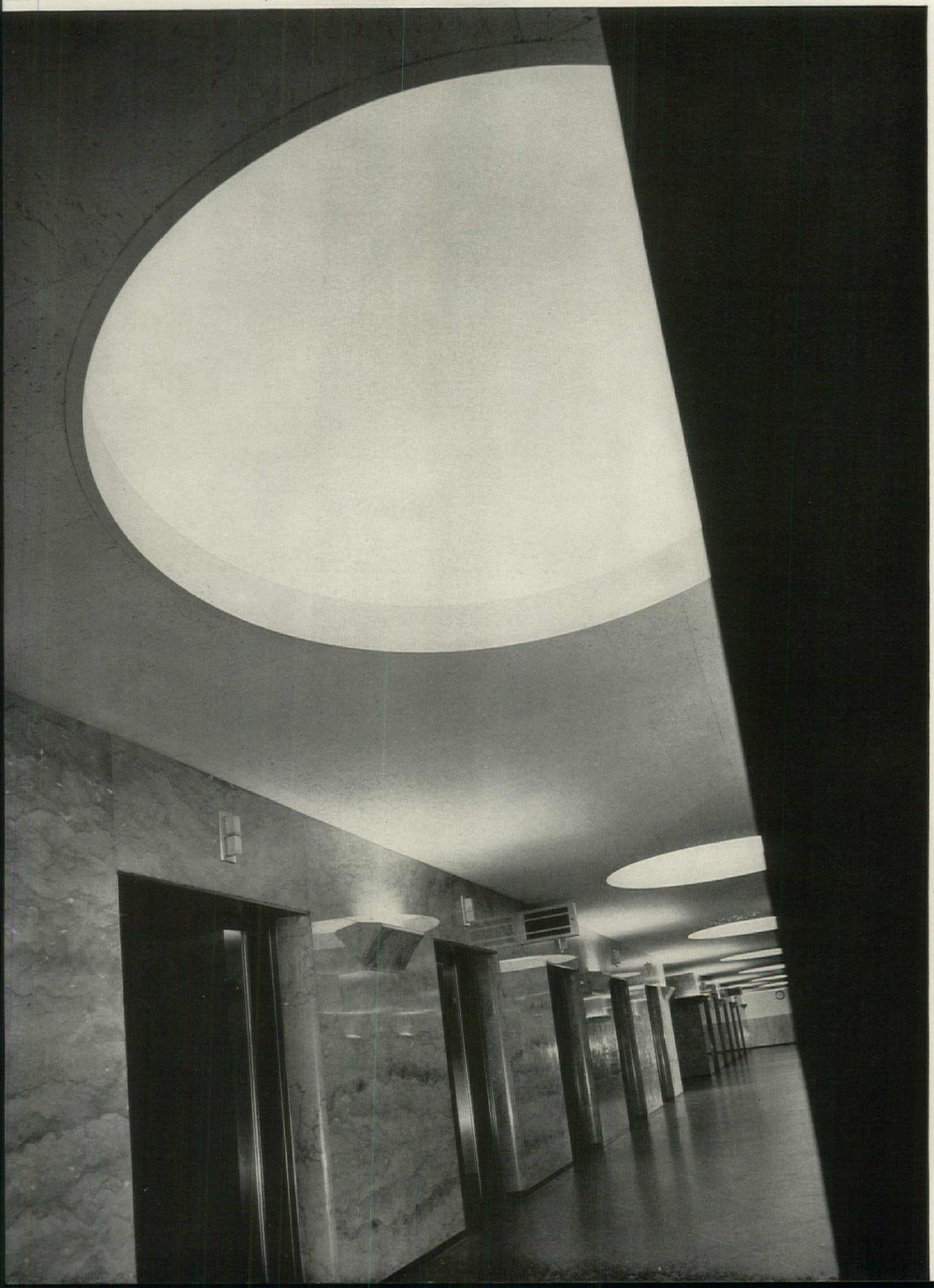
SOCIAL ROOM

CHEMICAL LABORATORY



MODEL SCHOOL ROOM

HUNTER COLLEGE SHREVE, LAMB & HARMON; HARRISON & FOUILHOUX, ASSOCIATED ARCHITECTS



HOUSES BY HERVEY PARKE CLARK

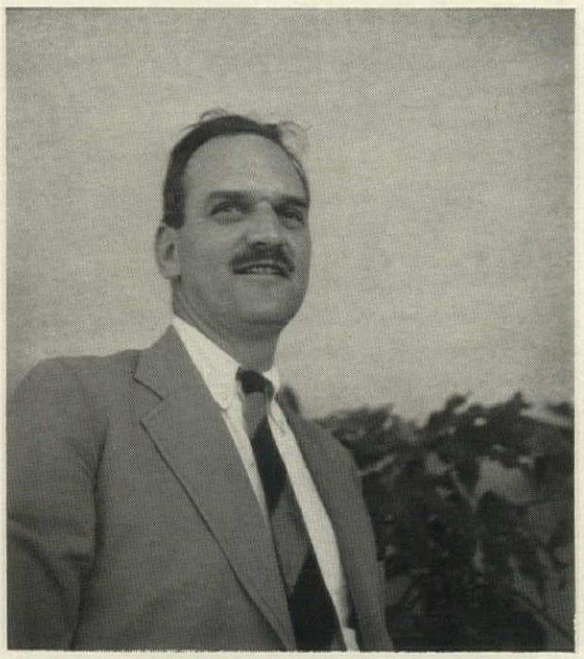
"One glimpse of London changed my boyhood plans of becoming an engineer. I came home with a notebook full of sketches of buildings and a year later enrolled at Pennsylvania as an architectural student.

"After working for some time in New York, I returned to California, eventually to open an office in San Francisco. After a few months of salutary waiting, a job finally came in, for a client of unusual intelligence and one willing to experiment with native materials. For over a year I thought of little else and this one job really became my life. It was a sort of proving ground for ideas, which, never before nor since, have I had the time and opportunity to work out in such detail. Finished, the house was gratifying to my client. Unfortunately, no one could be taken to see the house, nor was it to be photographed or published in any form. While this was surely the owner's privilege, it was bitterly disappointing at the time.

"In the office a long quiet lull set in. People used to say, "We'd like to come to you for a house—can't you show us something you've done?" I couldn't. Finally I decided to build myself a house. Apparently it was a good idea, for I have been busy ever since.

"I am not one to expound theories of architecture. However, there are a few cardinal principles of good design which the client has a right to expect in his architect's work. We try not to lose sight of them in our office. They are:

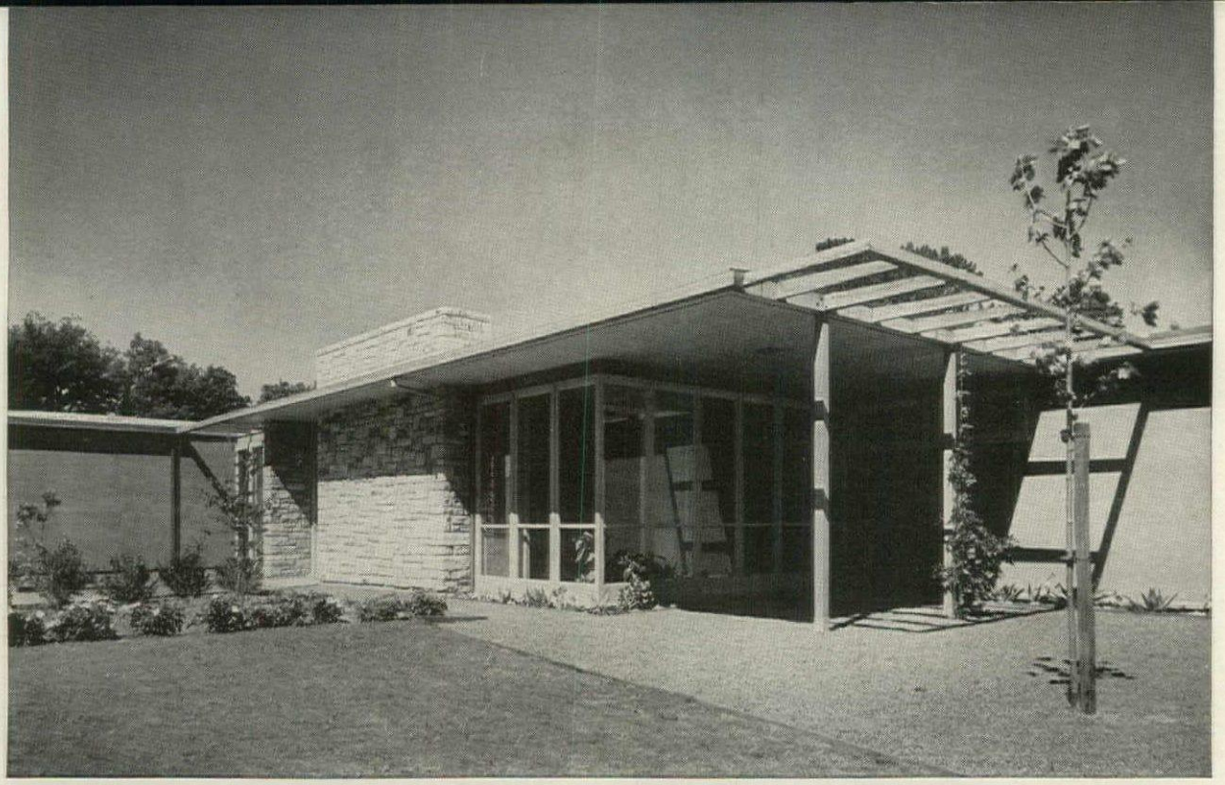
"Simplicity in thought and line. Suitability to the owner's likes and needs, to the site, materials, furniture, and to the skills of the men who will build the house. Privacy from outsiders, and from members of the family too. House capable of contraction as well as expansion. Economy of expenditure, and economy of effort for those who work and live in my houses."

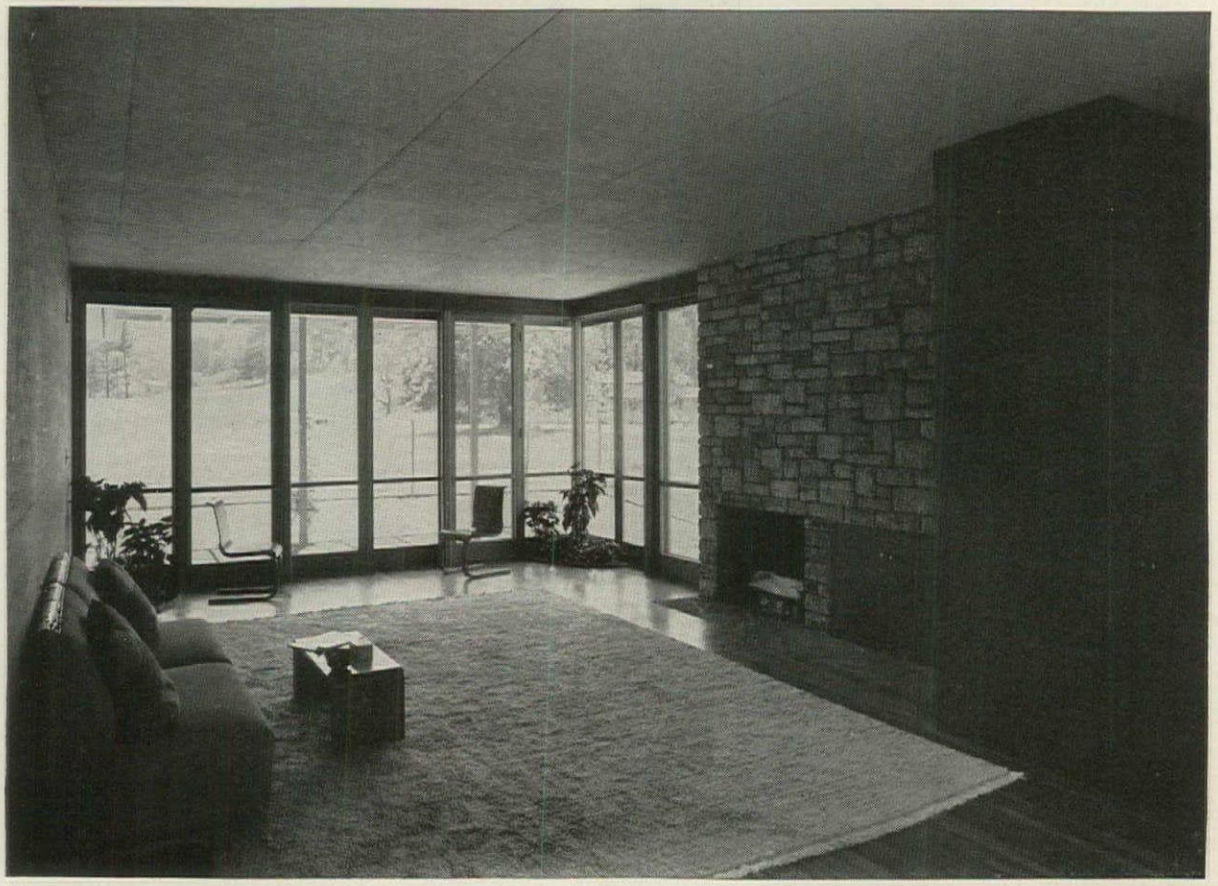


Esther Born Photos

KENT HOUSE

MARIN CO., CALIF.

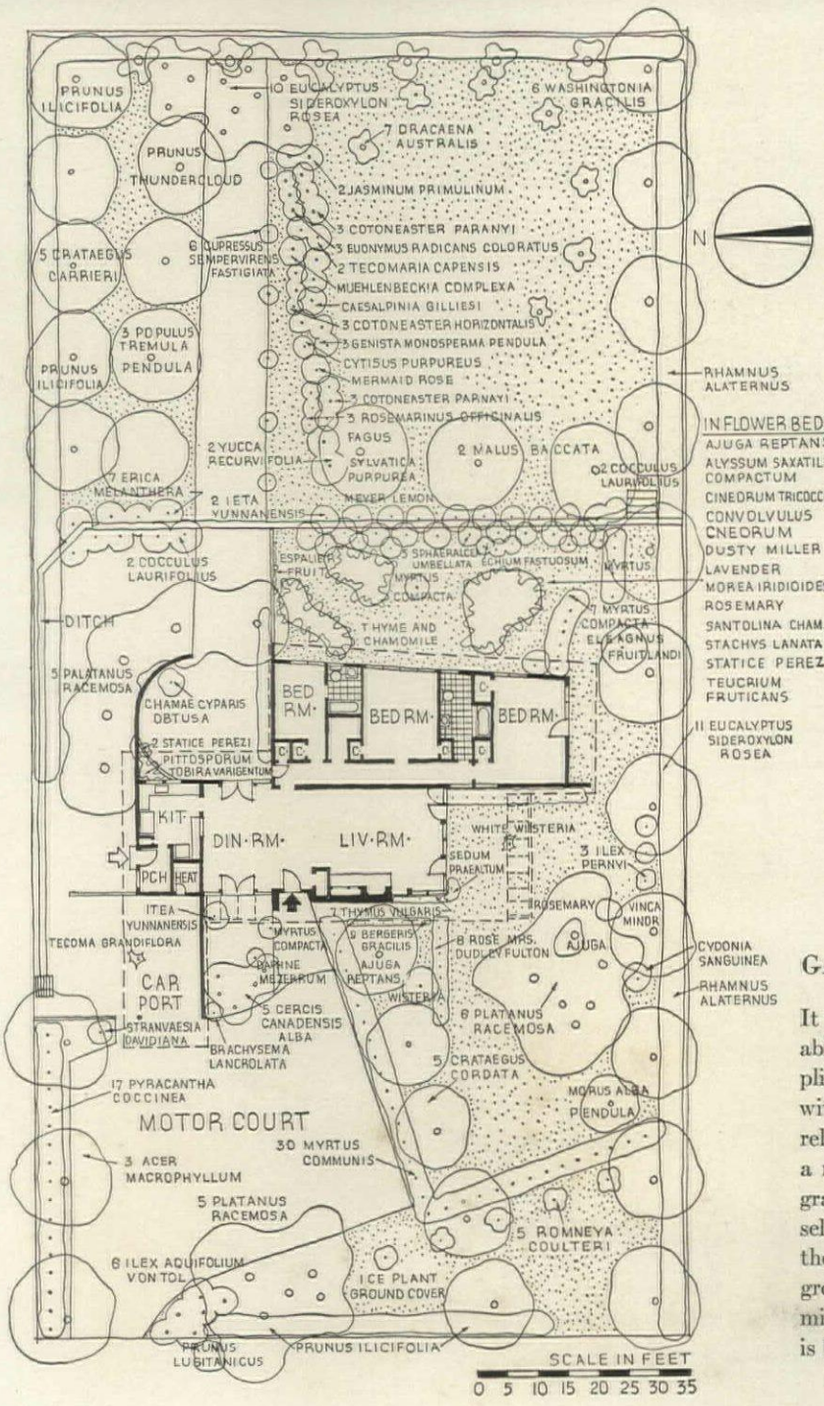


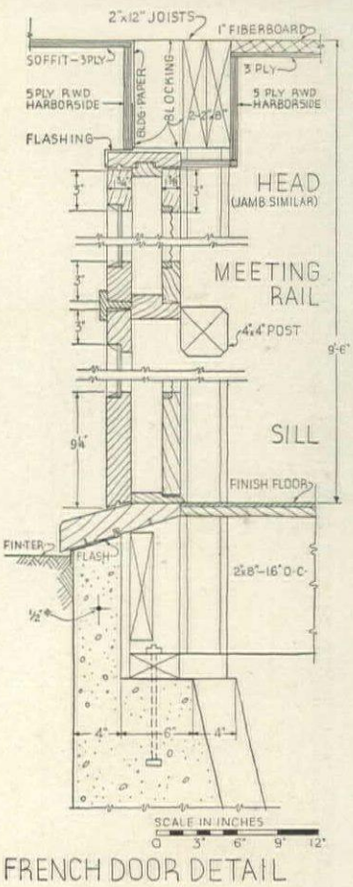


All photos, Esther Born

It is uncommon to find a small house, especially one built for sale, landscaped with the completeness and imagination displayed here, and particularly rare to see so close an integration of garden and house. Living and dining spaces can be separated by a curtain, and provision was made for a similar arrangement in one of the bedrooms so that it could be used by two children. Kitchen windows overlook a sheltered play space. The chief material is redwood plywood stained a driftwood color, used both inside and out. The present carport can be converted into a maid's room when desired, and a new carport added on the west.

HOUSE FOR ROGER KENT KENT WOODLANDS, MARIN CO., CALIF.





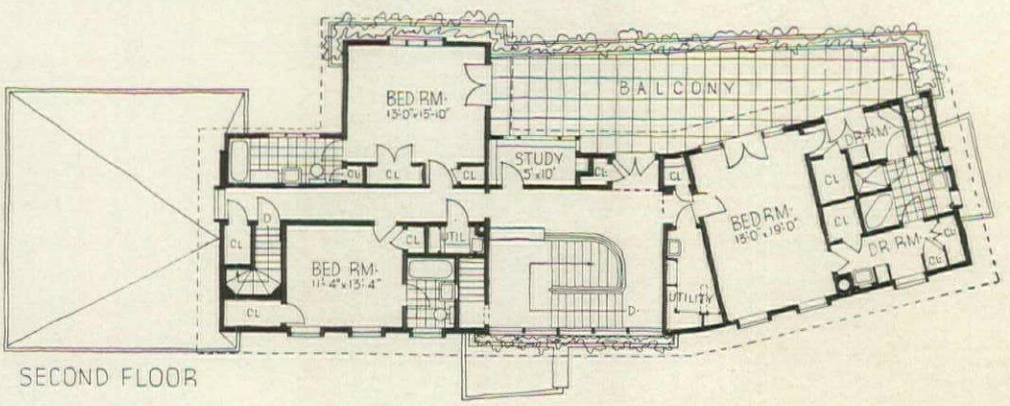
FRENCH DOOR DETAIL

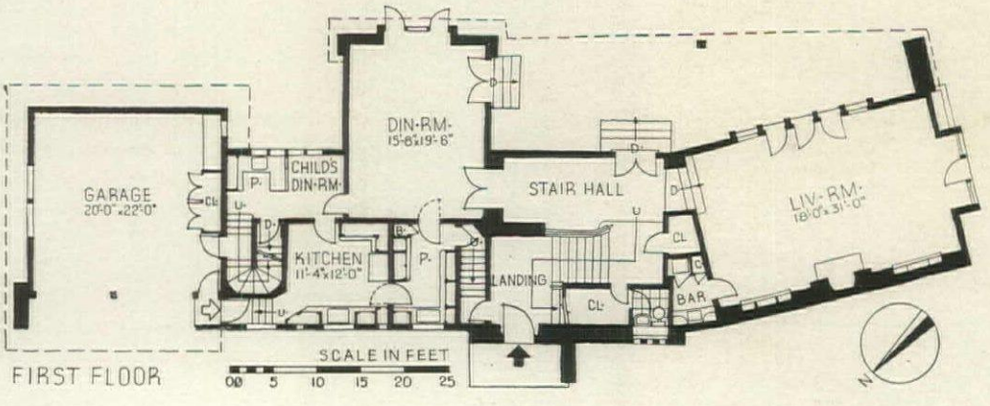
GARRETT ECKBO, LANDSCAPE ARCHITECT

It was desired to produce a garden that would extend the livability of the house space over the entire lot. This was accomplished by a three-dimensional organization of the lot space with fences, trees and untrimmed hedges, their forms specifically related to the house wherever possible. Maintenance is kept to a minimum by an extension of paved areas, a reduction in cut grass areas, and the use throughout of plants which tend to be self-sufficient even in California summers. The small garden to the rear of the bedroom wing has freeform beds of herb and ground cover plants, and a lawn of thyme, which needs a minimum of cutting and watering. The large space in the rear is left free for play or gardening activities.

HOUSE FOR JOHN L. BRADLEY HILLSBOROUGH, CALIF.

Esther Born Photos

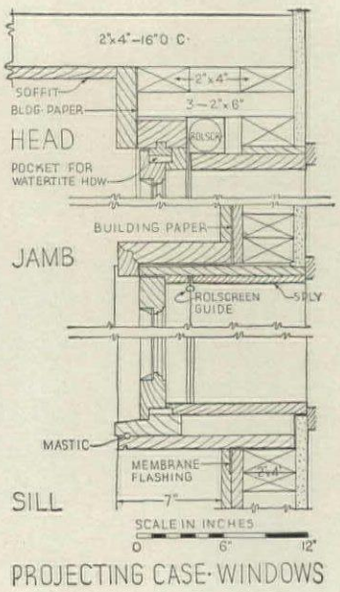




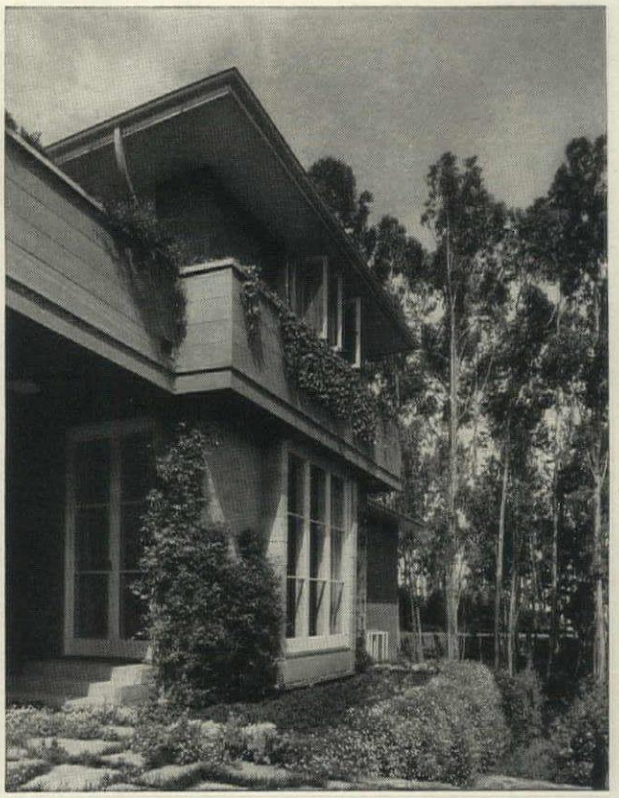
HERVEY PARKE CLARK, ARCHITECT

BUTLER STURTEVANT, LANDSCAPE ARCHITECT

MRS. FRANCES MURPHY, DECORATOR



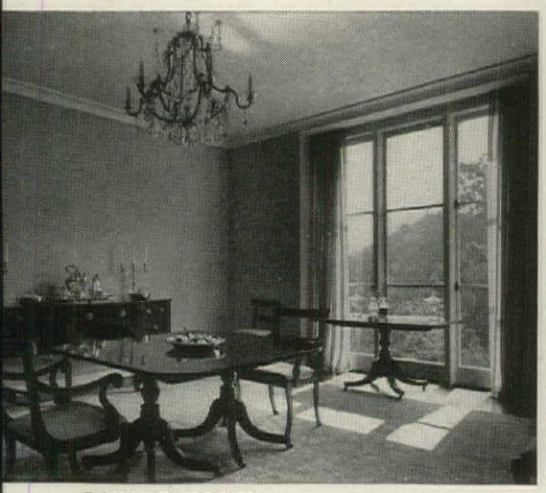
PROJECTING CASE-WINDOWS



The site for this house is a rather steeply sloping lot with an unusual view of San Francisco Bay; both characteristics were decisive in shaping the plan. To obtain a living floor on a level with the garden terrace, the entrance was located half way between the two floors, an arrangement almost invariably satisfactory since it reduces stair climbing and also serves to fit the house more closely into the hillside. The plan, admirably organized with regard to both use and topography, curves with the contours so that the living room faces the view while shielding the terrace from the prevailing westerly winds. The large balcony on the second floor is similarly protected, making possible its use on sunny days in winter. There is room on this deck for a child's sandbox and swing; flowerboxes, watered through perforated copper tubes, serve to merge the garden with the upstairs as well as the ground floor level. Two exterior materials are used, plain redwood stained silver gray, and concrete blocks with a fairly rough texture. The trim is light yellow.

Cost: $38,817, at 55 cents per cubic foot.

HERVEY PARKE CLARK, ARCHITECT



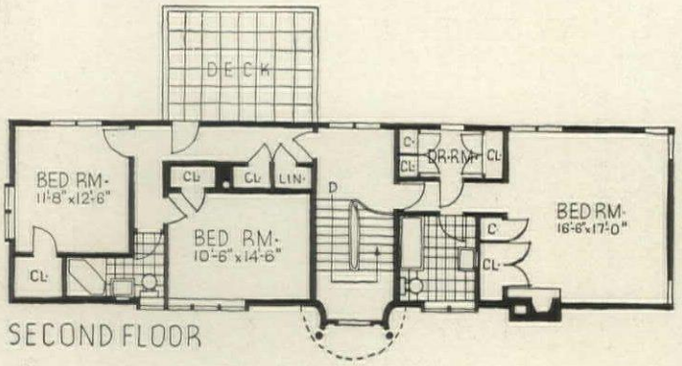
DINING ROOM

LIVING ROOM

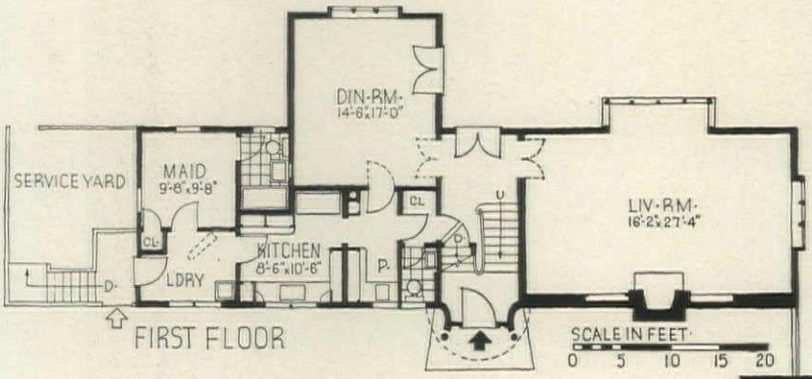
TERRACE

The interiors are for the most part plain backgrounds for the many fine pieces of old furniture. The living room has Canadian spruce on the fireplace wall, stained to match an antique carved mantel. Trim and doors in this room and the dining room are of the same material. The illustration at the right shows a pleasant terrace treatment, with a ceiling of redwood laid in a herring-bone pattern.

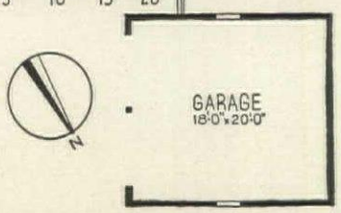
HOUSE FOR HARRISON DIBBLEE, JR. DEL MESA TRACT, MARIN CO., CALIF.

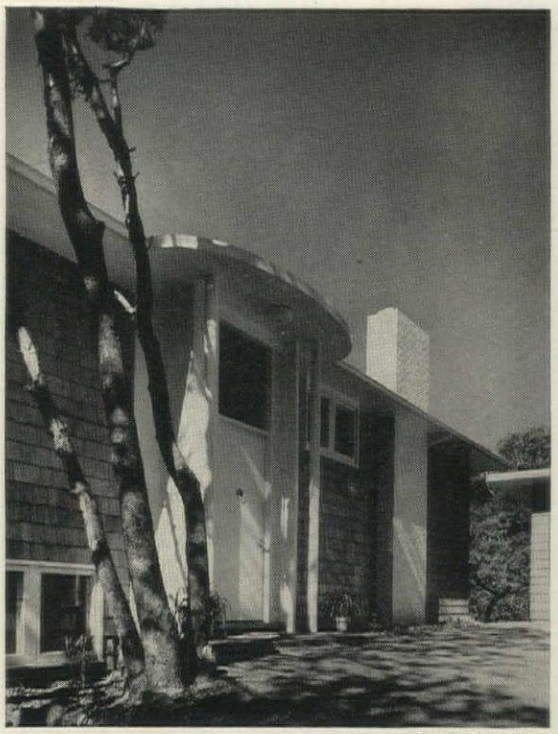


SECOND FLOOR



FIRST FLOOR





Esther Born Photos

HERVEY PARKE CLARK, ARCHITECT

An interesting house whose modest front gives no indication of its actual size. The plan is arranged on a full two stories with the main entrance on a mezzanine level, a solution similar to that of the Bradley house. All of the main rooms are oriented to the south, and those facing the street have blank walls, as in the living room and bedroom, or small, high windows which give the needed privacy. The exterior is finished with shingles, accented by the unusual entrance, the painted brick chimney and the window trim.

HOUSE FOR JOHN G. BALDWIN, WOODSIDE, CALIF.

All photos, Esther Born

HERVEY PARKE CLARK, ARCHITECT THOMAS D. CHURCH, LANDSCAPE ARCHITECT

This house is built on a gentle knoll, situated in a seventeen-acre property. The owner required a dwelling enclosing a considerable cubage, but desired a long and low structure closely fitting the slope. One of the devices used to accentuate the effect of horizontality is the entrance court, sunk a few steps below the road level. Some of the plan requirements were a dark room, flower room, closets for raincoats and muddy shoes, a garage and heater room accessible from the service quarters, the latter being used to dry laundry in the rainy season, and an outdoor area facing due south, with shelter from prevailing northwest winds.

The loggia is the result of the last-mentioned requirement; buried within the main block of the house it has ample protection, while its relationship with the gallery (illustrated in the plan and photograph on the following page) is exceedingly pleasing. The plan as a whole merits close study as a practical and imaginative solution.

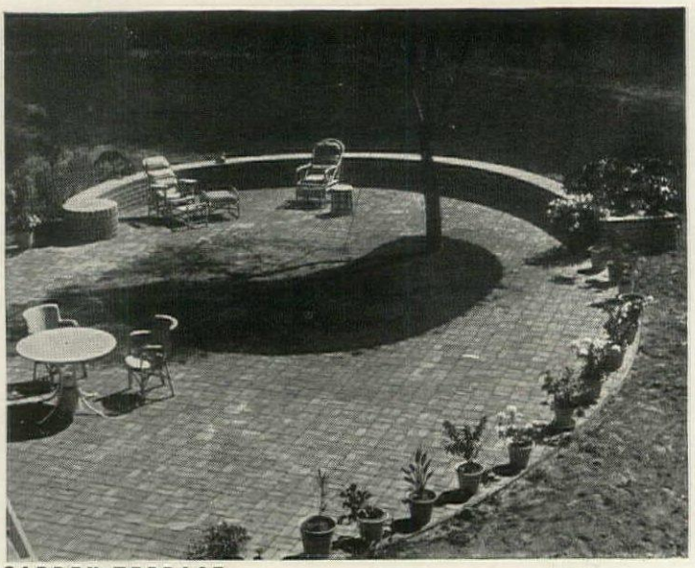
Cost: $25,179, at about 41 cents per cubic foot.

BALDWIN HOUSE

LIVING ROOM

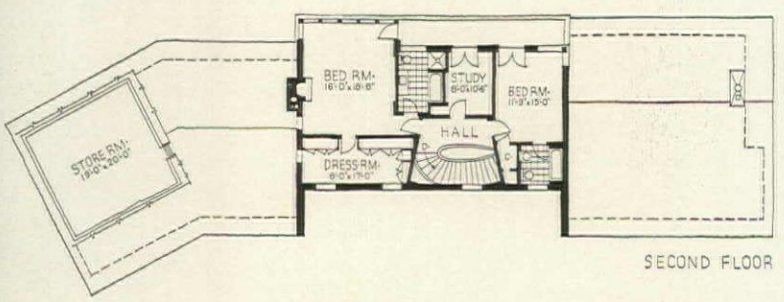
JAMES KEMBLE MILLS, DECORATOR

THOMAS D. CHURCH, LANDSCAPE ARCHITECT

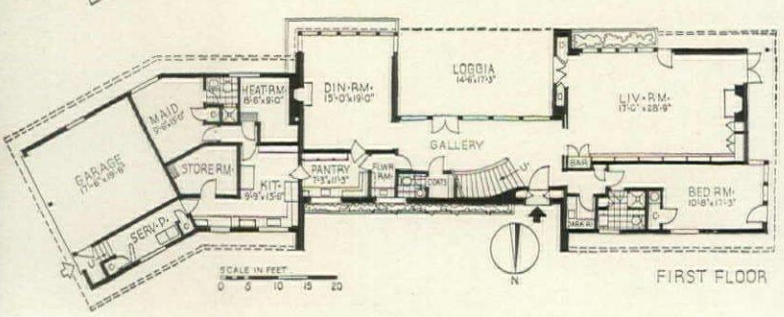


GARDEN TERRACE

GALLERY



SECOND FLOOR



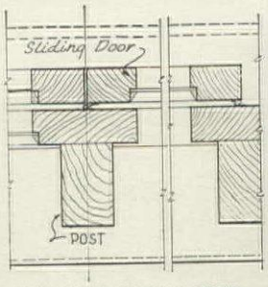
FIRST FLOOR

HOUSE FOR MRS. FREDERIC H. BEAVER ROSS, MARIN CO., CALIF.

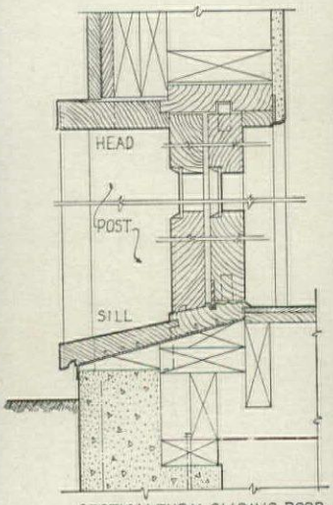
HERVEY PARKE CLARK, ARCHITECT BUTLER STURTEVANT, LANDSCAPE ARCHITECT

All photos, Esther Born

BEAVER HOUSE

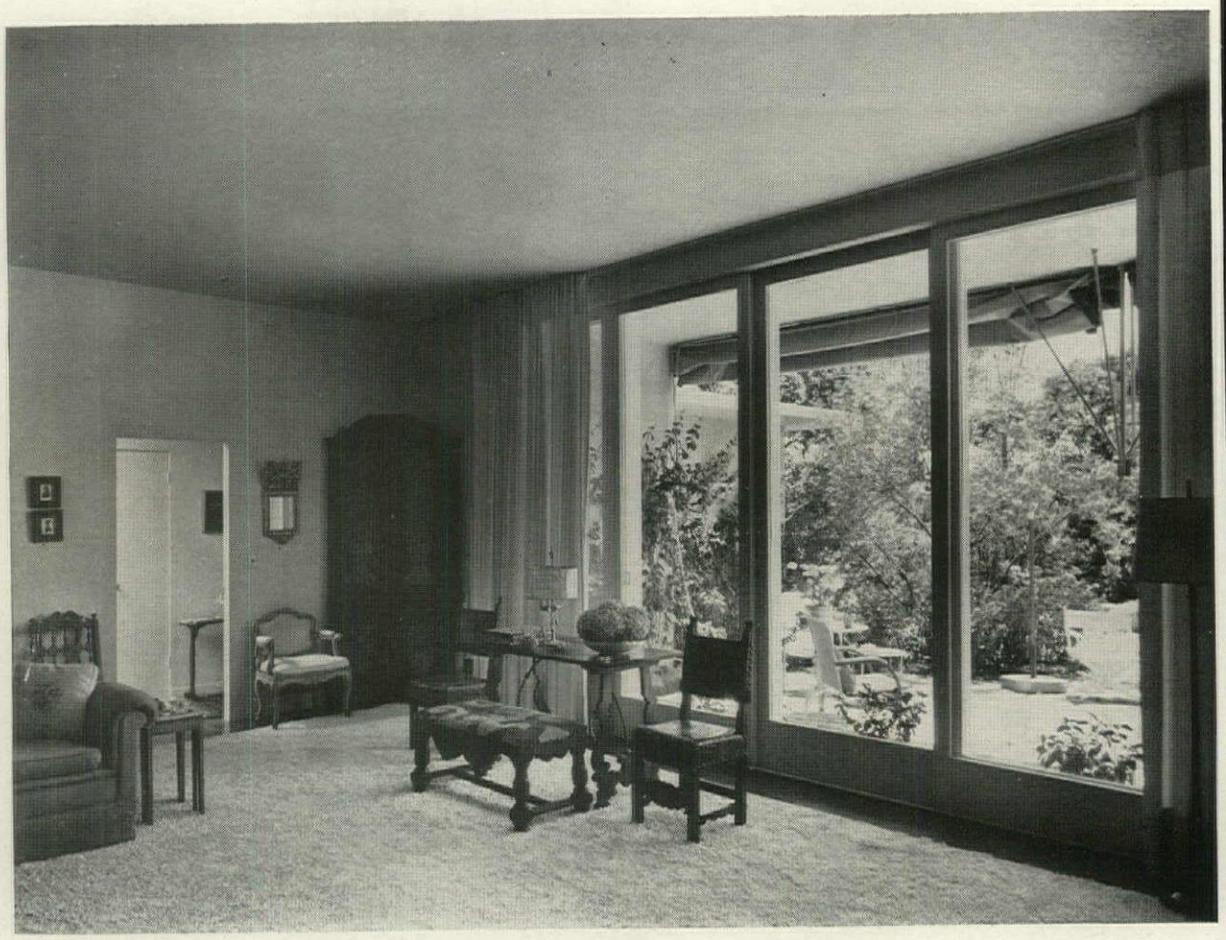


PLAN OF SLIDING DOOR

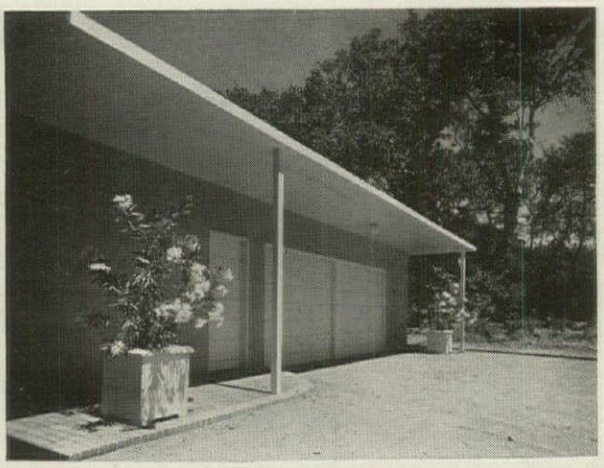


SECTION THRU SLIDING DOOR

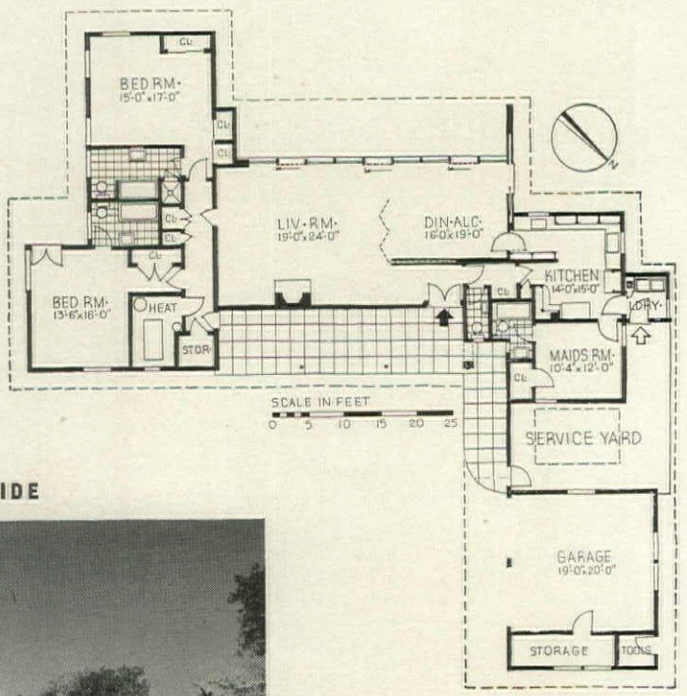
Scale in Inches
0 4 8 12

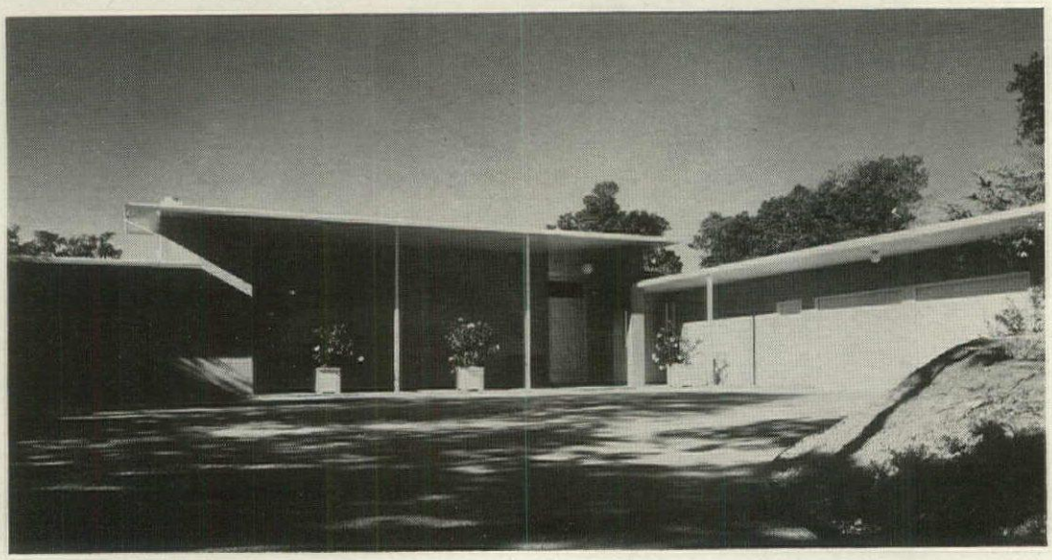


LIVING ROOM



ENTRANCE SIDE





HERVEY PARKE CLARK, ARCHITECT BUTLER STURTEVANT, LANDSCAPE ARCHITECT

JAMES KEMBLE MILLS, DECORATOR

Esther Born Photos

DINING ROOM

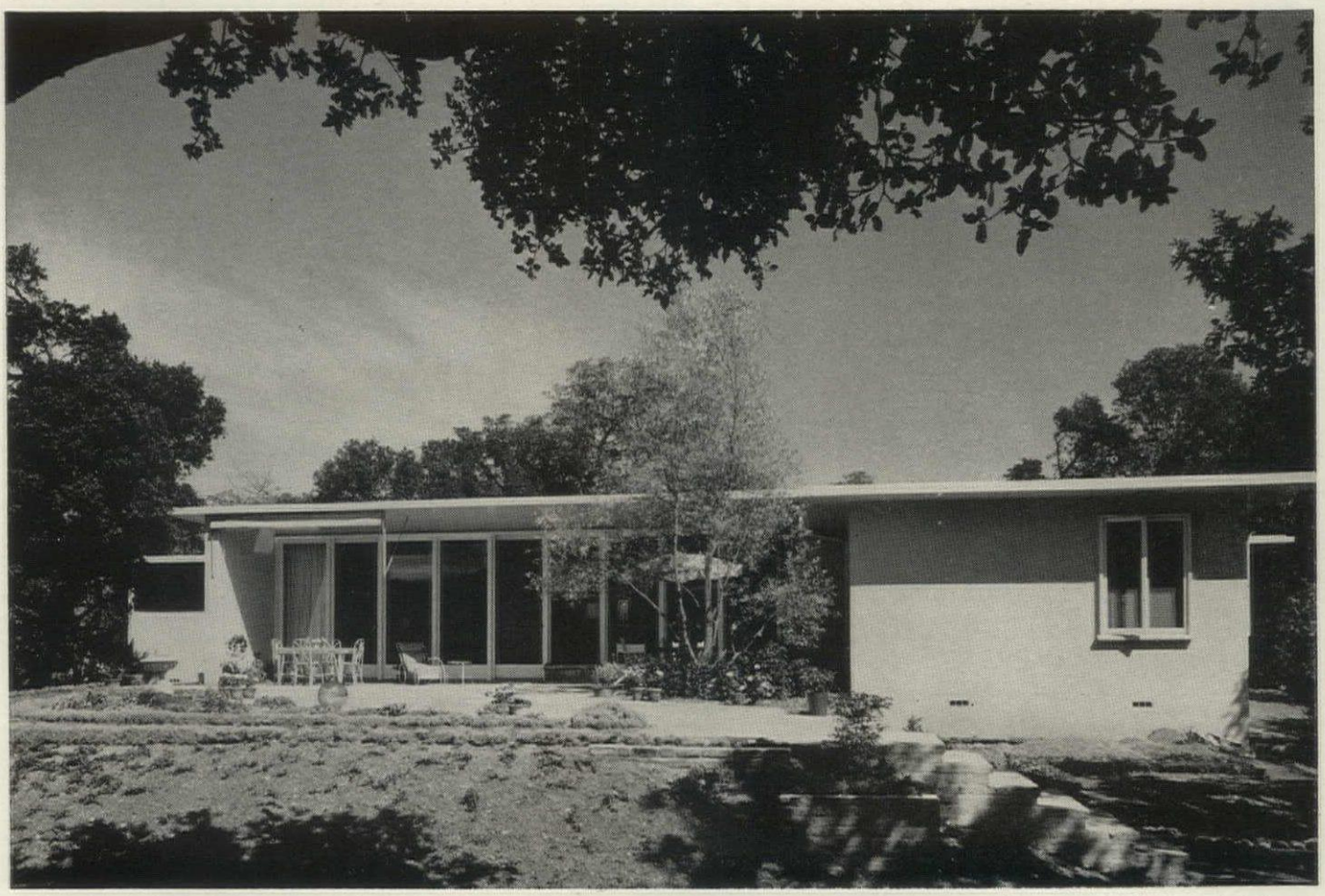
"If a monk's locks," says the architect, "were live oak trees, and his bald pate had a fine view of Mount Tamalpais, it would closely resemble the house site. Approached by a driveway of seventeen per cent gradient, considered gentle in Marin County, the sudden, first view of the house is surprising. The impression is one of large simple surfaces standing out boldly against green oaks. The entrance porch walls are terra cotta red stucco, and the walls of the house are warm gray, all picked up by bone-white door and soffits.

"The living-dining area is interrupted only by a screen wall, part solid and part folding, which also forms one side of the entry hall. The pattern of gray green and putty-colored wall paper is the only decorative element in this area. The other walls and the ceiling of putty-colored plaster, and the white string rug set off the handsome wood of the old English and Italian furniture. Sliding sash extends the entire length and height of the southern wall.

"The house was built for an elderly lady living alone. The premise on which the house was planned was her statement that she wanted designers who were thinking in terms of the present and future rather than the past."

Cost: $16,549, at 43 cents per cubic foot.

SOUTH SIDE



	KENT	BRADLEY	BALDWIN	BEAVER
STRUCTURE	Exterior walls — redwood plate, Douglas fir studs, building paper, 5-ply redwood Harboard plywood, Harbor Plywood Corp.; inside—Douglas fir or redwood plywood. Ceiling — Celotex, Celotex Corp.	Exterior walls—redwood plate, Douglas fir studs and sheathing, Angier Corp.'s Brownskin paper, redwood shiplap; some concrete block, inside—plaster. Floor construction (all houses)—Douglas fir sub-floor, oak finish flooring.	Exterior walls—brick veneer, cement stucco, redwood plate, Douglas fir studs and sheathing, Brownskin paper; inside—wood lath and plaster.	Exterior walls — redwood plate, fir studs steel wire nailed 8 in. o.c. horizontally, Brownskin paper and 1 in. wire mesh and stucco; inside —wood lath and plaster.
ROOF	Covered with Johns-Manville Co. 4-ply composition roofing.	Covered with Royal cedar shingles. Deck—covered with 4-ply composition and gravel roofing.	Covered with Lincoln interlocking shingle tile, Gladding, McBean & Co. Balcony —covered with Johns-Manville Co. 4-ply composition roofing over 6 lb. resin sheet.	Covered with Johns-Manville Co. 4-ply composition roofing.
FIREPLACE	(For all houses) Dampers—Richardson Mfg. Co.			
SHEET METAL WORK	Flashing and leaders (all houses) Armco copper bearing galvanized iron, American Rolling Mill Co. Gutters (Bradley and Baldwin houses) Armco iron; remainder—redwood with lead tacked over joints.			
INSULATION	Roofs (Kent) Celotex, Celotex Corp.; remainder—Fir-Tex, Fir-Tex Insulating Board Co. Sound insulation (all houses except Kent)—Fir-Tex and Cabot's Quilt, Samuel Cabot, Inc. Weatherstripping—Chamberlin Metal Weather Strip Co. and Monarch Metal Weather Strip Co.			
WINDOWS	Sash—casement, sugar pine. Glass — Pennvernon quality A, double strength and heavy crystal sheet, Pittsburgh Plate Glass Co.	Sash—Casement, sugar pine. Glass—double strength, quality A, Libbey-Owens-Ford Glass Co.	Sash—casement, sugar pine. Glass — Pennvernon, double strength, quality A, Pittsburgh Plate Glass Co.	Sash—casement, sugar pine. Glass—double strength, quality A, plate and wire glass, Libbey-Owens-Ford Glass Co.
STAIRS		Treads and risers—oak. Stringers—Canadian spruce.	Treads and risers—oak. Stringers—Douglas fir.	
FLOORS	Main rooms (all houses) oak. Kitchen and bathrooms—linoleum covered, Armstrong Cork Co. and Congoleum-Nairn, Inc.			
WALL COVERINGS	Living rooms—3-ply Harboard redwood plywood, Harbor Plywood Corp., remainder of rooms—Douglas fir plywood.	Living rooms — one wall Canadian spruce; remainder —plaster. Bedrooms—wallpaper. Kitchen and bathrooms—plaster.	Living rooms — two walls redwood; remainder — plaster. Dining room and bedrooms—wallpaper. One bedroom—Douglas fir plywood.	All rooms—plaster.
WOODWORK	Trim and cabinets—Douglas fir. Exterior doors—sugar pine.	Douglas fir and Canadian spruce. Doors—Douglas fir, spruce and redwood.	Trim—flush metal, Knapp Bros. Cabinets and interior doors—Douglas fir. Exterior doors—sugar pine.	Trim—metal, Forderer Cornice Co. Cabinet and interior doors—Douglas fir. Exterior doors—sugar pine.
HARDWARE	Sargent & Co.	Sargent & Co.	Russell & Erwin Mfg. Co.	Sargent & Co.
PAINTS	(For all houses) National Lead Co.			
ELECTRICAL INSTALLATION	Wiring—knob and tube. Switches — General Electric Co. Fixtures—Pryne Co.	Wiring—steel tube conduit. Switches — General Electric Co.	Wiring—knob and tube. Switches — General Electric Co. Fixtures—Knapp Bros.	Wiring—knob and tube. Switches — General Electric Co.
KITCHEN EQUIPMENT	Sink—Crane Co.	Range—Wedgewood, James Graham Mfg. Co. Refrigerator—General Electric Co.	Range—Western Electric & Mfg. Co. Refrigerator—General Electric Co.	Range — Spark, Hammer Bray Co., Inc. Refrigerator —General Electric Co.
BATHROOM EQUIPMENT	All fixtures by Crane Co.	Tub—American Radiator-Standard Sanitary Corp.; remainder—Crane Co. Cabinets (all houses)—Hallensheid & McDonald.		All fixtures Crane Co.
PLUMBING	Soil pipes—cast iron and galvanized steel. Cold and hot water pipes—galvanized steel.	Soil pipes—cast iron and galvanized steel. Cold water pipes—galvanized steel. Hot water pipes—copper.	Soil pipes cast iron and galvanized steel. Hot and cold water pipes—galvanized steel.	
HEATING	Fraser gas warm air system, including filtering, Fraser Furnace Co., Inc. Grilles—U. S. Register Co. Water heater—Hoyt Heater Co.	Sunbeam warm air system, filtering, Fox Furnace Div., American Radiator-Standard Sanitary Corp. Grilles—Tuttle & Bailey Mfg. Co. Thermostat—General Electric Co. Water heater—Crane Co.	Sunbeam warm air system, filtering, Fox Furnace Div., American Radiator-Standard Sanitary Corp. Thermostat—Sangamo Time Regulator. Water heater—Wesix Electric Heater Co.	Fraser gas warm air system, filtering, Fraser Furnace Co., Inc. Grilles—U. S. Register Co. Water heater — Hoyt Heater Co.

Charles E. Steinheimer

WARTIME HOUSING IN CANADA

F. W. NICOLLS, M.R.A.I.C.
Director of Housing
Technical Adviser for Rent Control

Fifteen months ago Canada was a nation at peace. Today, as a nation at war the necessities of wartime economy have forced upon the Dominion the restriction of many of its peacetime activities. One of those policies which has been considerably affected is housing.

For the purpose of convenience we may divide the present housing problem in Canada into two parts: (1) the general housing problem arising out of the lack of adequate residential building during the past decade; and (2) the special housing problem now arising out of the greatly expanded industrial activity and military concentrations in particular localities.

The general shortage of housing accommodation in Canada is the result of very much the same circumstances which have occasioned housing shortages in the United States and other countries. After a comparatively active period of new residential building during the 1920's when the volume of contracts awarded reached $139 million in 1928 and averaged $104 million for the eleven-year period, 1921-1931, this volume dropped rapidly to a low point of $24 million in 1933. Since 1933, while improving economic conditions generally and a number of special encouragements and measures enacted by the Dominion have resulted in a considerable expansion in the volume of home building (contracts awarded in 1939, $67 million), this expansion has not been sufficiently large to reduce the accumulated backlog, or in fact to meet even the normal yearly requirements. With the additional demand by many families previously "doubled-up," but now able to enter the market for separate housing accommodation because of rapidly increased business activity and employment, the percentage of vacancies in most centers has dropped to between 1 per cent and 2 per cent, is, in many communities, below 1 per cent, and in a not inconsiderable number, zero.

BACKGROUND

While the housing measures adopted by the Dominion during the past few years differ in detail from those adopted in the United States they have, in principle, involved the same purposes. Aside from the specific purpose of improving housing conditions, these measures had as their prime objective the provision of employment in the construction industry which was severely depressed and remained amongst the slowest in the recovery movement. With the shift from unemployment to a relative shortage of skilled labor in the building trades occasioned by the extensive construction program for war purposes, a number of adjustments, changes, and terminations in the general housing policy have been found necessary.

Corresponding roughly to Title I of the U. S. National Housing Act, the Home Improvement Loans Guarantee Act, 1937, provided in Canada financial assistance to home owners desiring to improve their residential property or properties. Under this Act the Dominion was authorized to guarantee the chartered banks and certain other approved lending institutions against loss on loans made by them within the meaning of the Act up to a maximum of $50 million. The guarantee to be provided by the Dominion was limited to 15 per cent of the amount of loans made by each, or a total guarantee not exceeding $7 million. As at September 30, 1940, the total amount so advanced by the lending institutions stood at $48 million. On October 23, 1940, the Minister of Finance announced that the amount eligible for guarantee would not be increased, and that only those loans made on or before the 31st of October, 1940 would be considered as coming within the Dominion guarantee. In announcing this decision the official statement notes the aid which was given to employment by the measure, the small amount of loss paid by the Dominion (less than ¼ of 1 per cent of total loans to September 30, 1940) with over 62 per cent of the total volume of loans already repaid. The statement also re-confirms the general policy of the Government to restrict, where possible, its obligations and commitments to those services and programs essential to the War effort.

The Dominion Housing Act, 1935, and more recently Part I of the National Housing Act, 1938, were designed to make available in Canada home financing facilities loosely comparable with those available in the United States under the Insured Mortgage System. Part II of the National Housing Act also provided for loans to assist local housing authorities including limited dividend corporations to finance low rental units for lease to families of low income at less than economic rentals. Part III, which has no counterpart in the United States legislation, provided for the encouragement of low cost home building through the payment by the Dominion of a substantial portion of the municipal taxes on the new house for a period of three years. While under the original terms of Part III these tax payment provisions were made to apply to certain classes of houses commenced on or before December 31, 1940, they were restricted in December, 1939, as a measure to conserve resources, to apply only where construction was commenced on or before May 30, 1940. Similarly, when the authority to make project loans under Part II lapsed in March, 1940, this authority was not extended.

Aside from the Home Improvement Plan, however, the basis of most of the Dominion's Housing program has been Part I

of the National Housing Act. In contrast to the American legislation the Dominion's National Housing Act provides only for loans to finance new houses and the funds advanced to borrowers are provided in part (25 per cent) by the Government. The changes to this Part announced in December, 1939, involved primarily loans to finance higher cost dwellings and apartment and duplex houses. Under these restrictions loans were limited to a maximum of $4,000 and were limited also to the financing of single family houses. Up to October 31, 1940, the gross amount of loans approved under this Part was $64 million and the number of new dwelling units provided was 18,900. Despite the restrictions applicable to the 1940 period approvals in the first ten months have aggregated $15,800,000 against $17,400,000 in the same period in 1939. In comparing these figures with operations in the United States it must be remembered that the population of the Dominion is only about one-eleventh of that in the United States.

HOUSE TYPES

The illustrations show plans and photographs of three typical houses built in Canada since the outbreak of the War. These houses are now being built at a cost of $2,500 to $3,750 complete, including the lot.

The brick house (**1**) was designed for use on a narrow lot (minimum frontage 30 ft.), is 20 ft. 6 in. wide by 39 ft. deep, and contains minimum housing accommodation suitable for the average working man. The construction is in accordance with the standard practice. Basement walls are 10 in. solid concrete, exterior walls are 9 in. brick, interior finish is plaster on insulated plaster base. Hardwood floors, pine and fir trim, complete plumbing, including hot water piping in copper, built-in bath and electric domestic hot water heater. Heating system is hot air, and roofing is asphalt shingles. The cost of this house, exclusive of lot, located in the suburbs of Toronto was $3,200 or approximately 21 cents per cu. ft.

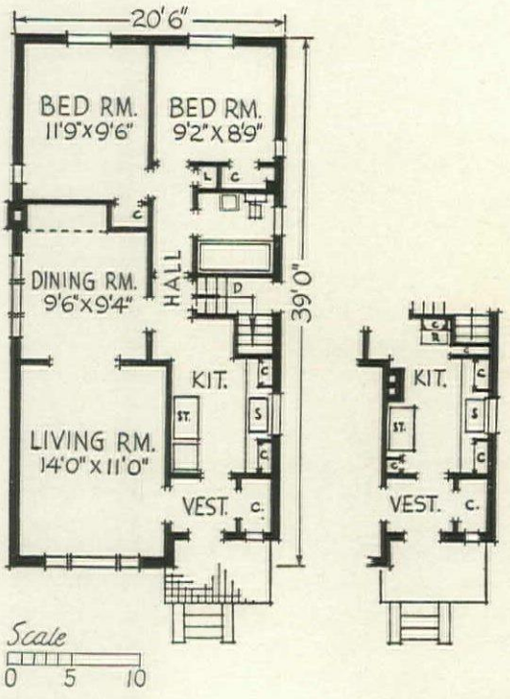
The frame house (**2**) is a design which is very popular, a number of dwellings of this plan having been built across the Dominion. This house is 24 x 24 ft. and may be located on a lot with a minimum width of 33 ft. The particular house illustrated was constructed of 2 x 4 in. stud walls with exterior covering of masonite backed with tentest with battens covering the joints. Exterior finished in paint, interior finish fiberboard and masonite. Floors are of masonite and heating system is hot water. Except as noted, the general specifications of this house are similar to those for the brick house illustrated in figure 1. The cost of the particular house illustrated, exclusive of lot, was $2,800 or approximately 22 cents per cu. ft.

The stuccoed house (**3**) illustrates what we call our minimum house plan. This plan is similar to that of the frame house except that the ground floor only is complete. It is typical of many which have been built in Canada at a cost of $2,500, including the lot. In this particular case, the lot cost was $150 and the house, including fixtures, etc., also legal and financing charges, was $2,350. The owner financed this house with a $250 equity and will retire the $2,250 National Housing Act mortgage over 20 years with a monthly payment of $14.71 which includes interest and principal. The construction of the house is in accordance with the standard practice. Basement walls are 10 in. solid concrete, exterior walls are 9 in. brick, interior finish is plaster on insulated plaster base. The attic is unfinished, but may be finished by the owner at a later date, as desired. Heating is by hot air.

DEFENSE PROBLEMS

As a whole there has, to date, been no radical increase in building costs. Except in some particular communities where labor cost may have risen as much as 10 per cent or 12 per cent

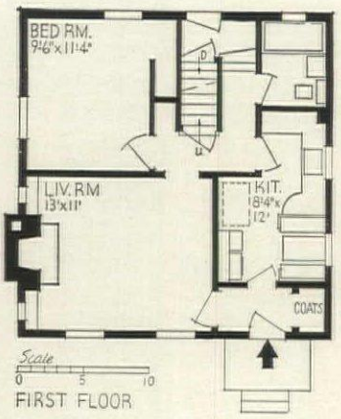
1.



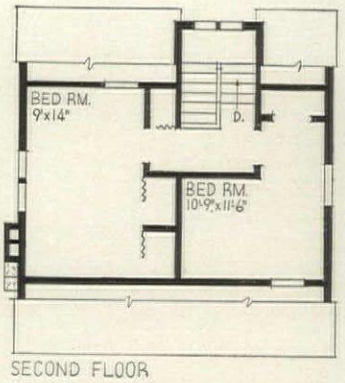
building labor rates have remained fairly steady. The latest index figure available with regard to material prices shows an increase of approximately 8.4 per cent in September, 1940, as compared with August, 1939, the month immediately preceding the outbreak of the War. Based on the 1926 price equalling 100 the index for each of these months was 97.9 in September, 1940 and 90.2 in August, 1939.

The second housing problem which we in Canada are now having to face is the provision of additional housing accommodation in the special war areas. This problem is, essentially, the same as that which the United States is now facing in connection with its national defense program. In making any comparison with the United States activities here again allowance must be made for the difference in population of the two countries. Up to October 31, commitments for construction projects in connection with the Royal Canadian Air Force, Air Training Scheme and the Army totalled $62 million. Naturally, these projects in most instances occasion an influx of population into the localities in which they are located. Added to this

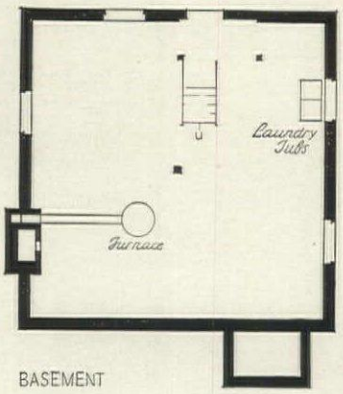
2.



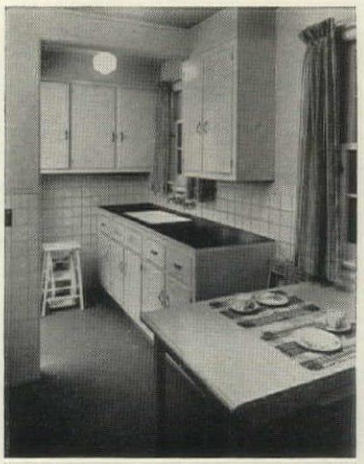
FIRST FLOOR



SECOND FLOOR

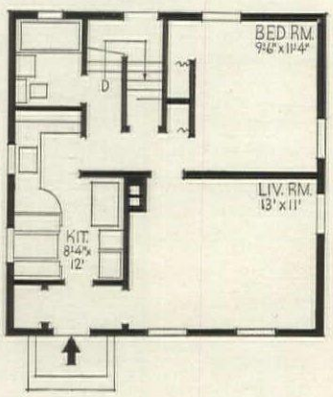


BASEMENT



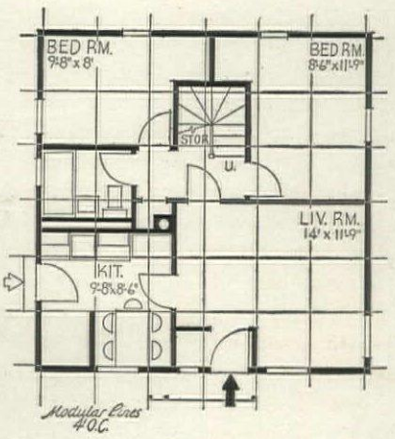
KITCHEN

3.



ALTERNATE KIT PLAN

WARTIME CANADIAN HOUSES. **1.** Narrow lot type built in Toronto for **$3,200** exclusive of lot. **2.** Square, frame house with one bedroom and bath on first floor, two additional bedrooms upstairs; at **$2,800** plus land, a mark for U. S. builders to shoot at. **3.** Same arrangement in stuccoed brick but with fireplace omitted and upstairs rooms to be finished later by owner; this type is often sold with land for less than **$2,500**. **4.** Plan for factory-fabricated unit which may be built and rented by the government, designed for high salvage value at the end of the emergency.



4.

are commitments by the British and Canadian Governments for factories and plant extensions to the value of some $250 million. While no accurate estimate of the eventual annual output of these plants is yet available, estimates range from $800 million to over $1 billion. These new plants and extensions are, of course, direct Government commitments, and to the increase in labor required in connection with this production, we must add the additional labor demand in many of these communities of private industry now employed at full production on war contracts. Considering that the total value of goods manufactured in Canada during the past few years has ranged between $3 billion and $4 billion the magnitude of this undertaking and the shifts in population which it is likely to entail will be apparent.

Since no announcement has yet been made by the Government itself it is impossible to state specifically what program may be undertaken by the Dominion in these special areas. One aspect of the problem now under study is the possibility of utilizing prefabricated houses in those centers likely to be heavily depopulated at the end of the War. Plan (**4.**) on the preceding page is being developed on the 4 in. modular basis, all exterior walls to be built of 4 x 8 ft. panels, erected on 8 x 12 ft. floor panels. The entire structure would be so constructed that it might be dismantled and the separate units utilized in the construction of different designs if necessary in other localities. Other considerations being taken into account are probable types of labor to be housed (married or single), possibility of utilizing existing accommodation, where available, in surrounding areas (coupled with transportation), and the whole question of rental policy and amortization policy which should be followed.

RENT RESTRICTION

The first positive Government control of housing in Canada was brought into effect with the introduction of rent control. Early in the War it became apparent that if prices were to be controlled and inflation avoided some type of Board with authority over prices would be required. To assume this function the War-time Prices and Trade Board was set up with the duty of safeguarding against the undue enhancement in prices of the necessities of life, as fuel, food and clothing. In September, 1940, owing to the serious shortage of housing in Canada, coupled with the requirements of our War program, control of rentals was also vested in this Board.

The first step to be taken by the Board in respect to housing was to peg rentals in a number of communities where the shortage of accommodation was most acute. By this order rentals were fixed at those in effect on January 2, 1940. In addition to the pegging of rentals in particular communities the Board also assumed authority over all rentals in any community under its general powers to investigate prices, to prevent and to proceed against profiteering.

Housing accommodation to which rent control is applicable is defined to include practically all types of dwelling units, including any furnished or unfurnished house, apartment, flat, room, or dwelling, together with any of the services normally supplied by the landlord. "Landlord" includes any person who lets, or sublets, housing accommodation. "Lease" is interpreted as any enforceable contract for the letting of housing accommodation whether the contract is made orally, in writing or by deed; and "rent" as any payment or consideration for the use of housing accommodation.

The maximum rental at which housing accommodation may be rented or offered for rent in any of the areas where rents are pegged is provided as follows; (1) If there was a lease in effect on January 2, 1940, the rental to be charged is not to exceed that in effect on that date; (2) If there was no lease in effect on January 2, 1940, the rental to be charged is taken as that in effect under the last lease in 1939; and (3) For any other housing accommodation the rental is not to exceed a reasonable and just return on the value of the property. In the case of dispute in this last instance the Rentals Administrator "on his own motion" or on application by either landlord or tenants, may determine the maximum rentals.

Extensive powers are granted to the Rentals Administrator to vary the maximum rentals as determined by the lease in effect January 2, 1940, or in 1939, under special circumstances. As a general rule, "special circumstances" is interpreted to include increased cost of heating apartments, extensive alterations or improvements to the property or an increase in municipal taxation, but improvements and repairs made in the ordinary course of maintenance of the property are not considered justification for an increase. Either landlord or tenant is empowered to make application on prescribed forms for a determination of the proper rental or the Rentals Administrator, "on his own motion" may determine the proper rentals.

As a necessary complement to the pegging of rentals, no notice to vacate may be given to a tenant for refusal to pay a rental in excess of the maximum fixed by the Order or determined by the Rentals Administrator. In case of dispute as to the maximum rental applicable, and provided that the tenant makes application to the Rentals Administrator within five days from the receipt of such notice, no notice to vacate may be enforced pending the determination of the proper rental.

As a further complement to the enforcement of the Board's Order any rental paid for the use of housing accommodation in excess of that fixed by the Order or determined by the Administrator is made recoverable by the tenant in an action for debt in a court of competent jurisdiction.

Leases in so far as necessary to give effect to the provisions of this Order are deemed to have been amended.

Under the most recent regulations local Boards to deal with applications from landlords and tenants have been set up. All findings of these local boards are subject to approval by the Rentals Administrator and then become final.

For the purposes of administration therefore we may consider all areas in the Dominion as falling into one of two zones. The first zone includes those municipalities and areas where rentals are pegged by Board Order. This zone is, of course, not fixed, but may be altered or increased in scope by additional Board Orders. The only manner in which rentals may be increased in this area is through approval by the Administrator to such an increase, based on application by the landlord who is required to submit such complete information, as required. The second zone includes the balance of the Dominion where rentals are not pegged. In this zone any tenant has the right to protest against an increase or proposed increase in rent, and upon investigation the Board may require the landlord to accept the rent in effect prior to the proposed increase, may allow the increase, or part of it.

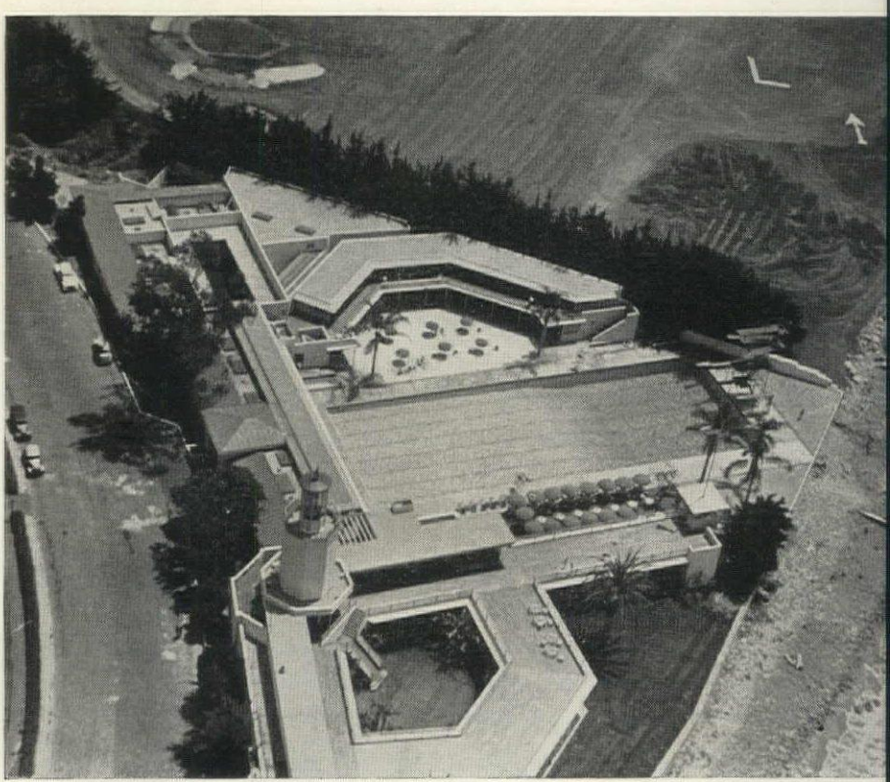
Under this system of protests the first question which had to be settled was the criterion to be adopted in deciding upon allowance, partial allowance, or disallowance of proposed increases. The criterion adopted was a reasonable return on the present value of the landlord's investment. While a comparative basis might in some respects be considered more equitable it must be remembered that the prime function of the Wartime Prices and Trades Board is the prevention of profiteering. Also particular attention is given to all data submitted with landlords' protests in relation to past operations to assure that unwarranted valuations are not made the basis for elevating poor or unwise investments into profitable investments with the assistance of awards under the Rental Control legislation.

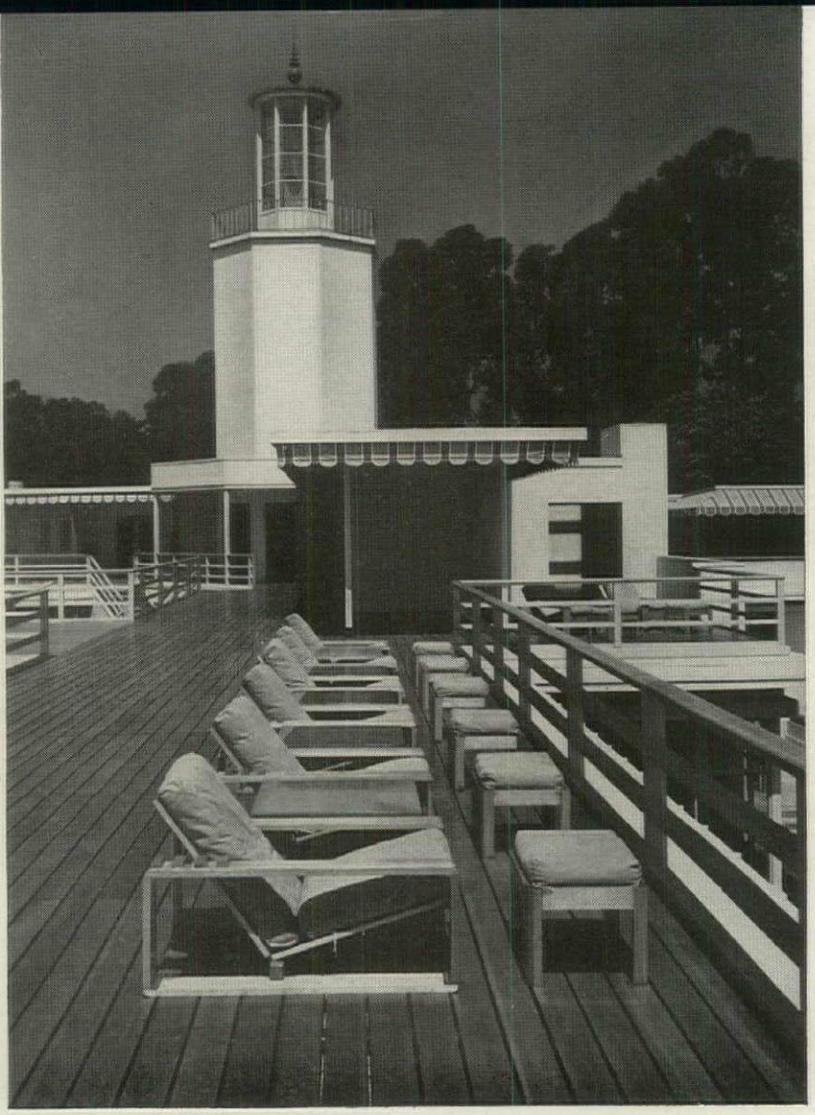
BEACH CLUB, SANTA BARBARA, CALIF.

GARDNER A. DAILEY, ARCHITECT

ENTRANCE

A steam-heated beach adds a feature to this luxurious club which probably puts it in a class by itself. Aside from this Hollywoodesque innovation, which consists of two feet of "Fan Shell" sand laid over two-inch copper pipes, it is a perfectly normal piece of architecture, well designed to satisfy the requirements of its patrons. The chief feature of the plan is a very large pool, with cabanas on one side and a bathers' terrace and bar on the other. Another court, reached through the long gallery, has the dining facilities, the main dining room being a light structure entirely glazed on both the ocean and court walls. In general, despite the size of the building, its treatment has been kept pleasantly informal, suggesting the intimacy and easy livability of the better California houses.

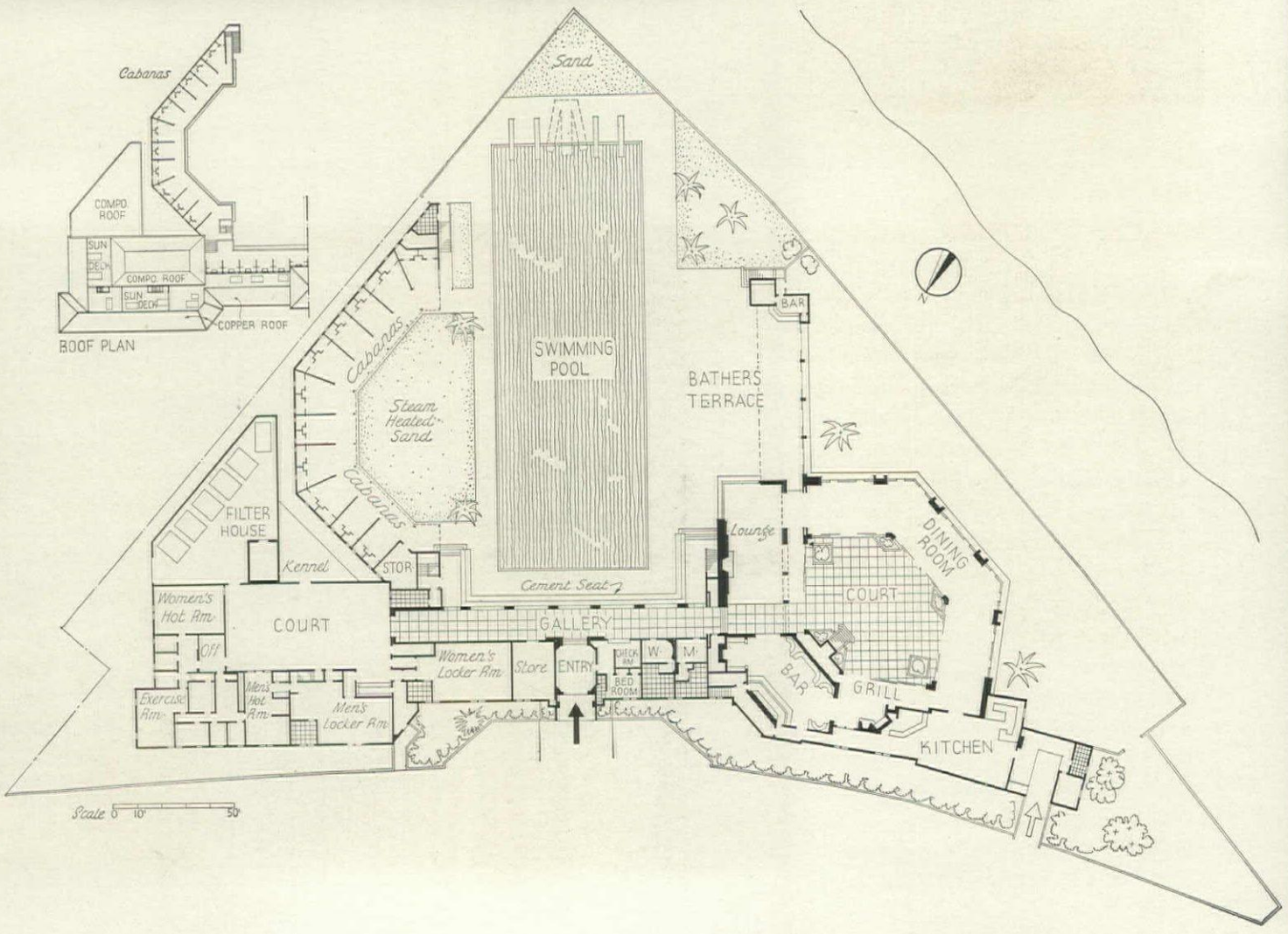


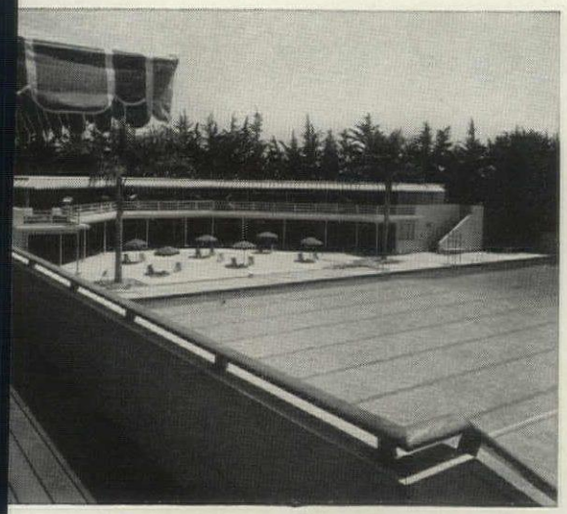


BEACH CLUB, SANTA BARBARA, CALIF.

A controlling factor in the design was the time limit of four months for construction which was set by the owners. Since accommodations for 500 members were to be provided, and since an Olympic-size pool had also to be built within this period, all possible time-savers were used. Among these devices was the dry-wall construction which was employed throughout. The pool had to be fourteen feet in depth, extending it to four feet below sea level; to protect the pool and the other structures a sea wall, 400 feet in length, was built.

The plan below reflects the possibilities afforded by the mild climate. Courts provide all needed protection from the weather during the better part of the year, and where units must be more completely enclosed, large and light sliding walls of glass are adequate. The simple, comfortable outdoor furniture illustrated at the left is in excellent character with the architecture. Somewhat less than fortunate is the mural painting in the lounge, which mars an otherwise agreeable interior.





GALLERIES second floor

GRILL

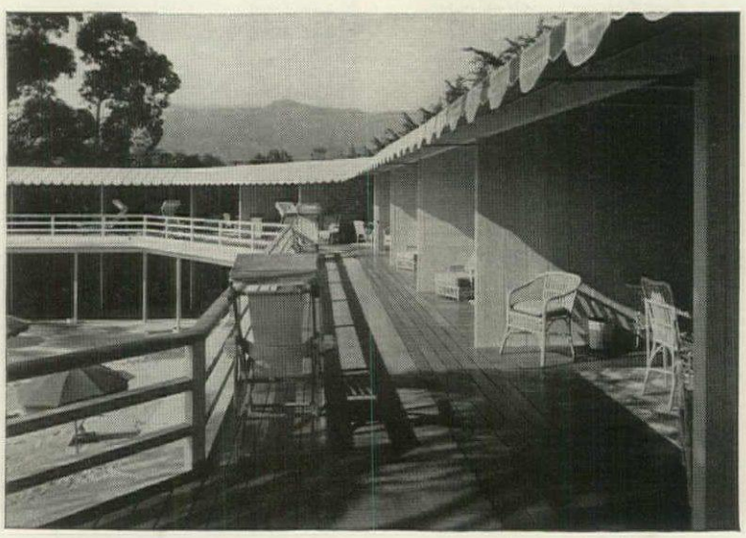
LOUNGE

BEACH CLUB, SANTA BARBARA, CALIF.

GARDNER A. DAILEY, ARCHITECT

DINING ROOM

GALLERY



CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—redwood. Interior—Douglas fir. Floors (main)—terrazzo tile and cement. Ceilings—Insulite, The Insulite Co.
ROOFS: Flat—covered with composition roofing, Johns-Manville Co. Pitched—copper.
SHEET METAL WORK: All 16 oz. copper.
INSULATION: Walls—Cabot's Quilt, Samuel Cabot, Inc. Roofs and sound insulation—Insulite, The Insulite Co.
WINDOWS: Sash—sugar pine. Glass—plate, double strength, quality A, Pennvernon, Pittsburgh Plate Glass Co.
FLOOR COVERINGS: Dining room and lounge—oak; remainder—terrazzo tile.
WALL COVERINGS: Main rooms—Douglas fir. Bath house section—white pine plywood.
HARDWARE: By Sargent & Co. and Richards-Wilcox Mfg. Co.
PAINTS: Paraffine Co., Inc., and W. P. Fuller Co.
ELECTRICAL INSTALLATION: Wiring system—rigid steel conduit. Fixtures—Curtis Lighting Co. Floodlighting—General Electric Co. and Westinghouse Electric & Mfg. Co.
PLUMBING: Cold water pipes—wrought iron. Hot water pipes—Chase Brass & Copper Co. Toilet fixtures—Crane Co. and American Radiator-Standard Sanitary Co. Kitchen equipment—Barker Bros.
HEATING: Warm air, gas fired, Sunbeam, Fox Furnace Co. Gas fired steam boiler for pool heating. Thermostat—Minneapolis-Honeywell Regulator Co.

INDUSTRIAL ARCHITECTURE—AN OPPORTUNITY AND A CHALLENGE

By Albert Kahn

Excerpts from an address before the New York State Association of Architects, convened at Rochester, N. Y., September 27, 1940.

. . . The immediate program ahead is staggering. With the Federal Government asking for the trebling of existing facilities, there is bound to be an enormous expansion in industrial building which will tax the capacity of builders and manufacturers of building materials. Structural steel, which has suffered these many years for want of orders, is already a scarcity and held at a premium. It is not at all unlikely that governmental priority will soon prevail. With other building materials, the same condition will no doubt obtain. Quite naturally, the architectural profession has taken note of the situation and the number of firms engaging in industrial work is increasing.

How to go after such work and just how to handle it has been a question asked me by many, and such information as I have on the subject I am glad to give. What the manufacturer wants first and last of the architect he employs for his factory is a sane, common sense attack of the problem. He wants a plant which functions properly, one which permits his producing economically and efficiently, one which is simple to construct, easy of maintenance, one in which the raw material may enter at one point, find its proper place without unnecessary rehandling, pass in orderly manner through the manufacturing process and arrive at the finished stock room ready to crate and ship. In addition, there must be provision for enlarging the various departments—the entire plant if necessary—with the least difficulty.

There must be care in the placing of auxiliaries—such as the power plant, foundries, forge shop and the like, if there be such—so that none of these may interfere with the growth of the plant proper or the enlargement of the departments themselves. Then there must be—and this is particularly important—the closest attention on the part of the architect to meeting the owner's wishes. This does not imply slavish following of instructions, but rather getting at the real wants and needs of the owner. His analysis of the problem must be the first move toward its solution. It is his wants which must be translated into a workable, practical whole. . . .

The external appearance is important, but only secondary in the solution of the problem. Owners are indeed glad to possess an attractive plant, for they realize its value in prestige, advertising, the psychologic effect upon workers, the good will created among neighbors, but it is much more important that the plant help them produce profitably. Many factors must contribute to this end. There must be ample light, good ventilation; there must be no waste space; column spacing must be as far apart as possible, for every extra column loses not less than 8 or 9 sq. ft. of floor space. There must be sufficient clearance for easy installation of conveyor systems and the like, proper accommodations for workers' clothing, adequate toilet facilities conveniently placed, the right heating system, power and lighting wiring, proper location of transformers, sprinkler systems where necessary, cooling and air conditioning where needed. Furthermore, there must be a constant aim to provide all at minimum cost, every effort being made to effect economies, and incidentally to keep the owner informed thereof. Above all, there must be continuous striving to gain and retain the owner's confidence. To that end, nothing is more important than getting at facts with the least loss of the owner's time, carrying on the work in a business-like manner, keeping appointments and promises, promptly answering correspondence, saving the owner from annoyance, advising him on the selection of contractors and the best methods of placing contracts. Once these are let, the architect must see to it that the owner obtains what he is paying for, and above all that the work goes on expeditiously with a minimum of friction and annoyance, and that dates of completion contracted for are kept. . . .

★

What an owner fears more than anything else is the selecting of the right architect or engineer, the difficulties he may experience in having his ideas worked out to his satisfaction, too often finding the architect concerned with the artistic exterior rather than interior efficiency. He often meets a lack of business capacity and plain common sense on the part of the architect. . . .

With the owner's pocketbook properly guarded, it is gratifying to see how often one is permitted to indulge reasonably in the more esthetic expression. It should not be difficult to prove to the owner that it need cost no more to build attractively than otherwise, and that no building need be ugly no matter how simple or inexpensive. Incidentally, the simpler the exterior the better it is, as a rule, for are we not quite agreed that a straightforward and direct expression of the function of the structure is an important element in all architecture, even the purely monumental; that proper proportions, effective grouping and good outline may be produced at no increase in cost; that these are infinitely more desirable than elaborate ornamentation no matter how well executed?

Naturally, experience is very helpful. To be able to refer to this or that successful plant is of great assistance. Every plant and every owner teaches something new. Proper advantage taken of this proves invaluable in meeting the new problem—but all that is being accomplished is available to those wishing to be informed. The various trade papers, to say nothing of the architectural magazines, publish many of the new plants in considerable detail; wherefore a grasp of the industrial problem should not prove too difficult for anyone anxious to enter the field.

How to get the first commission is always a problem. But new firms starting every day, some of them very successful, prove that the field is still open to anyone equal to the task. My advice to those who have asked for information on this point has been mainly this: The average architect, without the assistance of men who can deal with the structural problem, the sanitary, power, sprinkler, heating and ventilating, and cooling problems, is apt to fail. It is imperative that groups of men conversant with these fields join in the handling of an industrial plant. Nor is it sufficient that the architect tell the owner that he expects to call in specialists to help at the proper time. The main subjects must have consideration from the very outset, the very first conference. All must work in close touch with each other to gain the desired results expeditiously; wherefore the combination must exist at

the outset. Most manufacturers about to build wait until the last moment and then must have their plans yesterday. . . .

As an example, I might cite the case of the Glenn L. Martin Co. of Baltimore, airplane manufacturers. With a large foreign order and the need for greatest possible speed, an addition of some 440,000 sq. ft. in two floors, the lower floor of reenforced concrete, the upper floor of structural steel for 100-ft. spans, had to be complete ready for occupancy in eleven weeks. I assured Mr. Martin it could be done, and thanks to the efficiency of the contractor selected, the Turner Construction Co. of New York, we had them in the plant in eleven weeks to the day. Now that meant organization in the planning as well as construction.

The morning after Mr. Martin's telephone call, I was in Baltimore with an architectural assistant, a structural designer and an estimator. That day, we prepared a number of schemes of plan and construction, showing the comparative steel tonnage per square foot. In the afternoon, we had the owner's decision on which scheme he preferred. The next day we called in steel contractors to give us pound prices on the steel, some 1,800 tons; the next day we placed the contract which called for delivery in six weeks, which we bettered to five, with three weeks for erection.

To save time in building, we planned to make the construction below the first floor level of reenforced concrete with approximately 25-ft. column spacings, which incidentally was entirely in place ready to receive the structural steel the day this was delivered. We placed contracts for the ground floor construction within eleven days from the day we were called in. . . . Without a complete organization, all starting at the same time, this record could not have been achieved. Group practice is essential for such a result, and while it would be impossible for anyone to form a full fledged organization from the start, an association of architects, structural and mechanical engineers must be the first step to successfully enter the industrial field.

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And now for another all-important point: the business organization and the methods employed for expeditiously carrying on. There must be at hand estimators qualified to prepare a close and accurate estimate of the probable cost, with alternates for the use of more or less costly materials or differing schemes, so that the owner may promptly decide which to use. Nothing is of greater value to the reputation of the industrial architect than that his estimates of cost be reliable. We carefully take off quantities and check ourselves by cubic or square foot costs of other plants. We aim to be just a little higher than actual bids received, say 5 per cent or 10 per cent. Nor is this an easy matter with constantly changing prices and the great variation in the bids received, in spite of accurate and complete plans and specifications.

The accounting division is another upon which much depends in the success of the industrial architect. With millions of dollars entrusted to him for expenditure, it is imperative that accurate accounts be kept, that certificates for payment be promptly issued, that orders for additional work be given when authorized, that bills for such additional work be carefully audited, and that at the end there be no recriminations, no complaints from either owner or contractor, and that all be cleared in the shortest possible time after completion of the work.

As to other points to be observed in doing industrial work: I have dwelt upon the speed necessary in preparing plans and specifications. I need hardly mention the importance of having them clear and accurate. Where they are ambiguous, the bids received will invariably indicate this. Simplification in the preparation of plans so that they are easily read and so that accurate quantities may be readily taken off, make for lower bids. Incomplete plans and specifications incur extras, and therein lies a serious source of dissatisfaction to the owner. Nothing is more gratifying to him than to find that he has obtained what he expected, that little was overlooked or omitted, and that extras do not occur save for changes he desired made during construction.

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The next point I would emphasize is the importance of the contractor's good will toward the architect. His respect for the architect's ability and fairness are invaluable. His opinion is frequently asked by the prospective builder. A derogatory word may prove very harmful, while a favorable word, of much help. The day is past when the architect may lord it over the contractor. The closest cooperation between architect and contractor is imperative for the success of the work in hand, and confidence between them must exist to the fullest. . . . Contractors, as a rule, fear to make suggestions because they are frowned upon by the architect. We make it plain that we welcome them at all times. We do not always accept them, but at least we aim to have the contractor's collaboration. And when we do accept their suggestions, we are glad to give credit to the contractor, with the owner—something the contractor greatly appreciates. . . .

It is hardly necessary to dwell upon the importance of proper supervision of the work, not only in seeing to the carrying out of the plans and specifications, but equally to living up to building schedules. In nine cases out of ten, the owner needs his building badly and counts on occupying it at a certain time. Every day's delay is serious, and while expediting the work is really part of the contractor's duty, it behooves the architect himself to do a goodly share of this. We employ a number of assistants to follow the progress of the work, to see to the delivery of the necessary materials at the proper time, and that the various trades follow one another in order. With some contracting firms, there is less need for this, but even with the most efficient, this service by the architect is usually much appreciated. We aim in every possible way to assist the contractor by giving prompt attention to questions that arise, by placing men in charge of the field work who may anticipate their wants, by sending structural engineers to the fabricating shops to interpret drawings and check shop drawings, and making contractors feel at ease about asking for help. All this makes for better results and the acclaim of our clients. When we send out field men, it is always with the instructions that they are not to be fault-finders but assistants in the best sense of the word.

So far, I have said nothing of the process layouts of the industrial plant, something that greatly worries those about to start in industrial work. . . . We plainly tell our clients that we can advise as to the type of building that will best suit their requirements, but we are not process engineers. We, of course, are glad to help with suggestions and can explain how others in the same work carry on, but we do not pretend to make layouts for machinery or other equipment. This frank attitude on our part has proved helpful rather than otherwise. Owners respect an honest statement of facts, therefore no one need fear unfamiliarity with special processes.

The industrial architect will, of course, be asked for advice as to sites with reference to cost, rail connections, soil conditions, transportation facilities, determination of the type best suited for the product, whether one, two or multi-storied buildings will serve best, whether power is preferably bought or privately manufactured, whether union or open shop labor is to be employed in the construction, whether contracts are best let in one general contract, on a competitive percentage or cost-plus basis. On these various subjects, the architect's opinion must be based on careful consideration, proper weighing of facts and good judgment. . . .

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And now what of the challenge? As already stated, fear exists among manufacturers about dealing with architects not attuned to their program, of dealing with men unwilling to see the problem eye to eye, unequipped to meet or cope with the situation. This has induced numerous concerns—not architects at all—to undertake both the design and construction of the industrial plant, the process layouts, installation of machinery and even the financing of the work. Such companies have made heavy inroads upon the archi-

tectural profession. They are the so-called contracting engineers capitalizing on their claim that the owner deals with only one concern in place of many. Some of these companies are cleverly managed and succeed in making owners believe that not only are they saved annoyance, but that the results obtained are more economical and, because of their experience, more efficient than those possible by the employment of the competent architect and the competent contracting firm. By seductive advertising, high pressure salesmanship and many unfounded claims, they have succeeded in interesting many owners in their particular methods. . . .

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These companies operate with success, especially in districts lacking architects familiar with industrial work. But even elsewhere there are many who fear the employment of an architect, therefore favor the contracting engineering plan. Little do they appreciate the fact that by so doing they lose many benefits. First of all, with branch offices hiring and firing assistants, many picked at random, it would be a miracle indeed if the best architectural work were possible. We have found it difficult to organize just one office in which all operates smoothly, in which all is properly correlated, all working to one end. To establish a number of them is a practical impossibility. . . . But saving the owners the architect's profit is one of their strong arguments, the owner paying only the actual cost of producing the necessary plans and specifications. Now what does this saving actually amount to? We know that our net profit rarely exceeds 1½ per cent of the cost of the building. On a million dollar plant this amounts to $15,000—but say it is $20,000; what is this as compared to savings possible through competitive bidding among responsible concerns? Their bids generally vary from 5 per cent to 10 per cent, often much more, with plans and specifications complete and clear. Thus a saving of from $50,000 to $100,000 is likely, for it is hardly to be expected that the contracting engineer will do the work at anything like the lowest competitive bid. . . .

How owners can be enticed into placing themselves in the hands of one concern which designs, constructs, renders and checks bills, also determines what is acceptable in materials as well as workmanship, and what meets the specifications, thus acting as counsel and judge at the same time, is difficult to understand. The combination of architect, builder, contractor, supervisor and cost accountant is not unlike the combination of doctor, druggist and undertaker. . . .

I realize that this paper is definitely materialistic and anything but academic. I have expressed what I feel to be the need of the times and what must be done to meet today's architectural problem. Through accident largely, my firm has done much industrial work. That which experience has taught us, I have attempted to present to you for what it may be worth. I well know that to some of you there is too much of the commercial and too little of the idealistic in my presentation. I have purposely refrained from dwelling on the artistic potentialities of industrial architecture—for the particular reason that I wanted to stress the purely practical for those desiring to hear my views on what I believe the owner looks for in the industrial architect. This does not in any way lessen the importance I attach to architectural design. No one has a higher regard for good architecture than I. Nor has anyone greater admiration for the master works of the past. I firmly believe that the principles governing them still govern and will continue to govern. I do not agree with those who feel that the new or contemporary must have nothing to do with the past. I feel the same way about music and painting. . . . I earnestly hope that industrial architecture will remain sane, that common sense will prevail, and that this era, which will no doubt see an enormous development, may make for a type which will prove a valuable contribution to architecture.

CONTEMPORARY ARTS

By Ralph Walker

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As I went, day by day, through the galleries of the Museum of Gallery D6, where the Contemporary American Industrial Art Exhibition (June FORUM, p. 9) was being prepared, I passed through the artifacts of a more suave people than our own—the Chinese. Somehow or other these do not seem, although they represent many centuries and many periods in the different empires and dynasties, as undefined or as chaotic as does the small and momentary gathering together of our own effort. And yet in their several times, new ways and new combinations have been developed. Perhaps it is the long swing of time, as we now see it, that gives the works of China their unity, or perhaps it is only the degree of sophistication of the creators themselves, who may have been more humble and more intimate in the simple pleasures to be derived from useful beauty.

All too often in the things for our daily use a grandiose "hour of destiny would seem to be ticking." Each new material, each new and strange form, has been hailed as almost prophetic, merely because heretofore man with older materials and his own hands has not created their duplicates.

How much smart fashion, in the sense of the momentarily strange, has been the basis of progress in design or life, is an open question. There are many human needs; some are humble, some are crass, some again are sensitive, and some are elegant. Regardless of social philosophies, of improved mechanized ways and means, there are fundamental differences in individuals within the race. While it is true that some are content with little beyond the material present, others will always demand a deeper meaning, a feeling for continuance rather than a belief in justification through newness alone.

Such indeed are the lessons the young must ever learn: that rationalism, impersonal standards, will give way before "the fine clear peaceful light in healthfully sensuous wisdom," and again that progress in design is made slowly by the individual and is not obtainable in the rapid compromise attendant upon mass production.

The quality of fine design does not lie, necessarily, within any one meaning of the word "democratic," nor does it need to be limited by anyone's immediate knowledge of what the machine is capable of doing. Only an abnormal mysticism finds its design solutions in other than human needs. The mastery of the tool of execution is always easier than the solution of the human problem. This is so largely because traditions are wilfully upset rather than scientifically understood.

Chairs and human beings are both instruments of conformance, but it would seem obvious that the greater compliance might be expected from the chair.

Perhaps today's uncertainty is wholly and intellectually due to untenable premises: that the number and the cost of articles are integral parts of the design; that new materials, such as stainless steel and plastics, are necessarily more desirable than iron, wood, or brick; that a glass fabric is more to be sought after than the most common, everyday straw matting. Each of these materials has its place, a place not easily forced by self-consciousness. Some things will be hard and shiny, other things will continue to express the love of a craftsman for his own work. It is the intelligent use of both that gives urbanity to life.

The three exhibitions in which design groups have cooperated with the Museum have reflected with increasing accuracy the great confusion of modern times—the great, almost despairing hope that through the development of useful knowledge a new way of social justice, a new life, will

be brought into being. The machine, philosophically, has seemed an easy way. But the difficult way, and the one yet to be found, is for the individual designer to attain proportion, restraint, and tact.

*The most delightful space in the 1940 show is that of Edward Stone. Here everything is quiet and of materials as ancient as Confucius. The unusual freshness and delight are the products of Mr. Stone's own mind. The appeal is, in paradox, in the rare usualness of a tradition thoroughly understood.

The value of these Museum exhibits is in the critical progress gained from the acknowledged uncertainty; that value, in fact, is greater than if we were wholly complacent.

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*This paragraph from the original manuscript did not appear in the Museum Bulletin.—Ed.

TRENDS IN AMERICAN CHURCH DESIGN

By E. Donald Robb

OF FROHMAN, ROBB & LITTLE

Excerpts from a paper read before the North American Conference on Church Architecture, New York City, June 21, 1940

With events in Europe, Asia and Africa shaking the world to its very foundations, and threatening the existence of the Christian Church itself, it may be difficult to arouse any interest in a discussion of the subject of this paper. Before these words are read the German *blitzkrieg* may change the whole course of its argument and point the way to the extinction, for a time, of church architecture altogether; or, let us hope, to the dawn of far better times than we are at the present moment in a mood to expect. . . .

The changes taking place in architecture are easy to understand, and are a sign of renewed vitality and health in that ancient mother of the arts. If the proponents of the modern school can show us buildings which will serve our needs better, resist the elements better, satisfy our eyes and minds and souls as well as or better than those erected by the eclectic school of the past century, then they have won the fight; and I, as one of the eclectics, will be among the first to distribute the laurels. . . .

Can anyone imagine Ictinus and Pericles going into conference, perhaps with Phidias as a consultant, to decide upon the style for the Parthenon? Do you suppose the Abbot Suger, or William of Wykeham or Alan Walsingham ever gave this question a moment's thought? Or could there have been any doubt in the mind of our own Charles Bulfinch as to the style for his State House in Boston? And yet, before an architect was selected for Washington Cathedral, a momentous meeting was held in Washington to decide upon the style for that building.

Against this outmoded method the moderns are directing their gunfire, and some of their shots have been well placed. Let us attempt to analyze the battle, especially as to its effect on church architecture. Important and lasting changes in architectural style usually come about slowly, as a result of changing social conditions which affect requirements of plan, through discoveries of new principles in building construction, and through the invention of new building materials. In some deeply subtle way, style is a spontaneous expression of, or emanation from, the underlying spirit of the age. In this sense it is well out of reach of any one architect or group of architects.

During the past generation all of the external conditions just mentioned have crowded in upon the architect with unprecedented force, and—other conditions being favorable—a contemporary style *should* be in the making *now* if ever.

We have seen Christian architecture develop from the Roman basilica into the Romanesque Style; and then into that great period when cathedrals and churches blossomed all over Europe in the full beauty of Gothic art. In the Renaissance this was brushed aside, and architects began digging in the past in somewhat the same manner as they do today, except that the movement was universal and the results full of real beauty; and, considered chronologically and geographically, the results were uniform in character—not widely diversified as they are today. And so until the chaos of the nineteenth century.

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Then, among many revivals, came the Gothic Revival, and this one may be said to be with us still. Mr. Cram is its chief living advocate, and with him it is—and he believes should be for the rest of us—an expression of a certain way of life, not merely an architectural style for church buildings.

But when, or if, that way of life, which I presume Mr. Cram pictures as the practice of Christianity, is ever firmly and universally established in this world, I am inclined to the belief that its expression in church building, if allowed to operate naturally, will be rather different from that with which the Christian Church of the Middle Ages clothed itself. "Time marches on," and Gothic art is hard to reproduce in its real spirit today, with modern machine methods, modern union rules and with modern wage scales. . . .

What about the social conditions? They are different—there can be no question about that; but in what way have they influenced church design, and to what extent have they rendered Gothic architecture anachronistic? . . .

Today we have edifices of all types from the Quaker meeting-house to the complex Roman Church; and the architect has the problem of wrestling with widely dissimilar conditions, theories, tastes and prejudices existing today in all persuasions from one to the other. In some the changed social conditions have greatly modified church planning; in others, hardly at all.

There is more demand for comfort in the twentieth century than there was in the fourteenth. How has this affected the plan requirements of the Church? We now have heating plants, lighting systems and acoustical treatment of walls and ceilings. We demand comfortable pews with form-fitting backs and seats—and cushions if we can afford them—while the early Gothic churches had no pews whatever.

We must have fine organs with all the stops and combinations that money will buy. . . . We have tried to get rid of columns, to clear the vision from a minimum number of seats; and the Gothic style has been found to be elastic enough to allow it within certain limits. But this was a problem in the Middle Ages, and the search for its solution led to the crossing and lantern at Ely, and the exceptionally wide Cathedral of Gerona.

The problem of the heating plant has been easily absorbed into the Gothic plan without damage, although the chimney and the radiators are seldom things of great beauty. Likewise the lighting systems; electric fixtures in no way do violence to a Gothic interior, even though they are a complete innovation.

The rapid growth of the parish house in Protestant circles has had a marked influence on the general composition of church groups, although there is no argument here for the abandonment of Gothic architecture for a style more modern. The parish house has grown out of all proportion to the church. . . .

It may be a healthy sign of the times to have the Church embrace all these activities, or it may not—that I am not qualified to say; but this I do know—it results in a church building dwarfed by its surroundings, like Trinity by the Wall Street skyscrapers.

This is a modern condition against which the architect has no right to protest. He must meet the challenge in some way by ingenious grouping of parts. The Catholic Church architect can build high airy basements, and make the worshippers climb long flights of steps to their places in church, but Protestants balk at steps. . . .

It is argued that the development of the use of reenforced concrete has brought about, or should bring about, drastic modifications in architectural style; and that the production of countless new building materials—glass blocks, plastics, wall boards and veneers, waterproofing compounds and so forth—have placed in the hands of architects an exceptional opportunity, if not an obligation to bring forth something new in architectural form. This I hold to be a sound argument, the only one the modernists have advanced which applies to the liturgical Church.

But while it is admitted that we have new methods of building construction, and many new and attractive materials with which to build, the fact is often overlooked that we still have the old forms and the old materials, and they have been tried and tested by centuries of use, and found satisfactory. . . . If the new methods and materials are found to be cheaper, in the long run as well as the short, then—particularly in these days of enforced economy—clients who *must* build *somehow* will build with the cheaper systems; and the increase of these new types and shapes may carry popular taste over into the modernist camp.

To build in the Gothic manner, with all parts functioning as nature intended them to function, and as they always *did* function in Gothic times, is expensive. New York and Washington have found it so in their cathedrals; but if the money can be found—it pays; and any other way is but a gross imitation and will not deceive many for long. . . . When Gothic structural forms in solid looking masonry are hung on a steel skeleton, when huge stone buttresses are built hollow to provide rooms for Sunday school classes, then assuredly the good old Gothic style should retire into the pages of the history books and stay there, and we should begin again with first principles.

To quote once again from Professor Hudnut's article: "Everywhere there is blowing a cold regenerating wind that is stripping ecclesiastical, no less than secular, architecture of its stylistic accretions, blowing from the sides of churches all of that histrionic increment of tracery, pinnacle, buttress, arcading and crocketed gable, with which the nineteenth century covered them; setting free, broad evocative patterns of mass and space, and the clear dynamic lines of structure. . . ."

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This regenerating influence has made marked progress in central Europe and Holland, less in France, still less in England and almost none in America. Its failure to take root in the soil of America I hold to be due, for one thing, to the deeply sentimental and incurably romantic nature of the American people. Much of our acquaintance with Gothic art and architecture has been associated with pleasant trips to Europe. Many of us, especially clergy and architects, have been deeply moved by solemn services in ancient cathedrals and churches in settings dating back hundreds of years, in buildings mellowed by time and hallowed by the prayers of countless Christians long since gone to their reward. These experiences, coming at all too infrequent intervals, and at times when the spirit is especially responsive, make impressions deeper and more lasting on American visitors than on those Europeans to whom they are everyday commonplace affairs. The one desire of the visitor from the New World is to reproduce these experiences, if possible, after his return home.

Now, is it not natural for the church architect of the eclectic school, his memory aglow with recollections of inspiring hours in those holy places of the Old World, to welcome to his office the client whose desire is also to reproduce, as nearly as may be, those moments when in settings centuries old, heaven seemed somewhere near the earth? To this client and no less to his architect, Gothic architecture is *not* an anachronism. . . .

If the days are chaotic, and we know that they are without any unifying force, then let architecture show it. Why try to unify architectural style if architecture is an expression of social conditions. Not until social conditions are stable can architecture become unified. In the meantime why not hold to that which we know to be good?

We still have the Colonial meeting-house and I ask both the moderns and the Gothic Revivalists, why not? Many of these are as good as their early prototypes. They are in good American taste, they fit well into their surroundings as a rule, they build easily of materials readily obtainable, they serve their congregations well. . . .

Of the weird and wonderful examples of original church design in the Middle West, from Wisconsin to Oklahoma, there is little to be said. Without having seen any of them it is hardly in order to criticize; but it is safe to say that the type does not constitute a trend—at least we can hope so. . . .

THE HUMANIZING OF ARCHITECTURE

By Alvar Aalto

Excerpts from an article in *The Technology Review*, November 1940.

. . . Architecture is a synthetic phenomenon covering practically all fields of human activity. An object in the architectural field may be functional from one point of view and unfunctional from another. During the past decade, Modern architecture has been functional chiefly from the technical point of view, with its emphasis mainly on the economic side of the building activity. Such emphasis is desirable, of course, for production of good shelters for the human being has been a very expensive process as compared with the fulfillment of some other human needs. Indeed, if architecture is to have a larger human value, the first step is to organize its economic side. But, since architecture covers the entire field of human life, real functional architecture must be functional mainly from the human point of view. If we look deeper into the processes of human life, we shall discover that technic is only an aid, not a definite and independent phenomenon therein. Technical functionalism cannot create definite architecture.

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If there were a way to develop architecture step by step, beginning with the economic and technical aspect and later covering the other more complicated human functions, then the purely technical functionalism would be acceptable; but no such possibility exists. Architecture not only covers all fields of human activity; it must even be developed in all these fields at the same time. If not, we shall have only one-sided, superficial results.

The term "rationalism" appears in connection with Modern architecture about as often as does "functionalism." Modern architecture has been rationalized mainly from the technical point of view, in the same way as the technical functions have been emphasized. Although the purely rational period of Modern architecture has created constructions where rationalized technique has been exaggerated and the human functions have not been empha-

sized enough, this is not a reason to fight rationalization in architecture. It is not the rationalization itself which was wrong in the first and now past period of Modern architecture. The wrongness lies in the fact that the rationalization has not gone deep enough. Instead of fighting rational mentality, the newest phase of Modern architecture tries to project rational methods from the technical field out to human and psychological fields.

It might be well to have an example: One of the typical activities in Modern architecture has been the construction of chairs and the adoption of new materials and new methods for them. The tubular steel chair is surely rational from technical and constructive points of view: It is light, suitable for mass production, and so on. But steel and chromium surfaces are not satisfactory from the human point of view. Steel is too good a conductor of heat. The chromium surface gives too bright reflections of light, and even acoustically is not suitable for a room. The rational methods of creating this furniture style have been on the right track, but the result will be good only if rationalization is exercised in the selection of materials which are most suitable for human use.

The present phase of Modern architecture is doubtless a new one, with the special aim of solving problems in the humanitarian and psychological fields. This new period, however, is not in contradiction to the first period of technical rationalization. Rather, it is to be understood as an enlargement of rational methods to encompass related fields.

During the past decades architecture has often been compared with science, and there have been efforts to make its methods more scientific, even efforts to make it a pure science. But architecture is not a science. It is still the same great synthetic process of combining thousands of definite human functions, and remains *architecture*. Its purpose is still to bring the material world into harmony with life. To make architecture more human means better architecture, and it means a functionalism much larger than the merely technical one. This goal can be accomplished only by architectural methods—by the creation and combination of different technical things in such a way that they will provide for the human being the most harmonious life.

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Architectural methods sometimes resemble scientific ones, and a process of research, such as science employs, can be adopted also in architecture. Architectural research can be more and more methodical, but the substance of it can never be solely analytical. Always there will be more of instinct and art in architectural research.

Scientists very often use exaggerated forms in analyses in order to obtain clearer, more visible results—bacteria are stained, and so on. The same methods can be adopted in architecture, also. I have had personal experience with hospital buildings where I was able to discover that especial physical and psychological reactions by patients provided good pointers for ordinary housing. If we proceed from technical functionalism, we shall discover that a great many things in our present architecture are unfunctional from the point of view of psychology or a combination of psychology and physiology. To examine how human beings react to forms and construction, it is useful to use for experimentation especially sensitive persons, such as patients in a sanatorium.

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Experiments of this kind were performed in connection with the Paimio Tuberculosis Sanatorium building in Finland and were carried on mainly in two special fields: 1) the relation between the single human being and his living room; 2) the protection of the single human being against large groups of people and the pressure from collectivity. Study of the relation between the individual and his quarters involved the use of experimental rooms and covered the questions of room form, colors, natural and artificial light, heating system, noise, and so on. This first experiment dealt with a person in the weakest possible condition, a bed patient. One of the special results discovered was the necessity for changing the colors in the room. In many other ways, the experiment showed, the room must be different from the ordinary room. This difference can be explained thus: The ordinary room is a room for a vertical person; a patient's room is a room for a horizontal human being, and colors, lighting, heating, and so on must be designed with that in mind.

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Practically, this fact means that the ceiling should be darker, with an especially selected color suitable to be the only view of the reclining patient for weeks and weeks. The artificial light cannot come from an ordinary ceiling fixture, but the principal center of light should be beyond the angle of vision of the patient. For the heating system in the experimental room, ceiling radiators were used but in a way which threw the heat mainly at the foot of the bed so that the head of the patient was outside the direct heat rays. The location of the windows and doors likewise took into account the patient's position. To avoid noise, one wall in the room was sound absorbing, and wash basins (each patient in the two-patient rooms had his own) were especially designed so that the flow of water from the faucet hit the porcelain basin always at a very small angle and worked noiselessly.

These are only a few illustrations from an experimental room at the sanatorium, and they are here mentioned merely as examples of architectural methods, which always are a combination of technical, physical, and psychological phenomena, never any one of them alone. Technical functionalism is correct only if enlarged to cover even the psychophysical field. That is the only way to humanize architecture. . . .

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A library can be well constructed and can be functional in a technical way even without the solving of this problem, but it is not humanly and architecturally complete unless it deals satisfactorily with the main human function in the building, that of reading a book. The eye is only a tiny part of the human body, but it is the most sensitive and perhaps the most important part. To provide a natural or an artificial light which destroys the human eye or which is unsuitable for its use, means reactionary architecture even if the building should otherwise be of high constructive value.

Daylight through ordinary windows, even if they are very large, covers only a part of a big room. Even if the room is lighted sufficiently, the light will be uneven and will vary on different points of the floor. That is why skylights have mainly been used in libraries, museums, and so on. But skylight, which covers the entire floor area, gives an exaggerated light, if extensive additional arrangements are not made. In the Viipuri Municipal Library the problem was solved with the aid of numerous round skylights so constructed that the light could be termed indirect daylight. The round skylights are technically rational because of the monopiece glass system employed. (Every skylight consists of a conical concrete basement six feet in diameter, and a thick jointless round piece of glass on top of it without any frame construction.) This system is humanly rational because it provides a kind of light suitable for reading, blended and softened by being reflected from the conical surfaces of the skylights. In Finland the largest angle of sunlight is almost 52 degrees. The concrete cones are so constructed that the sunlight always remains indirect. The surfaces of the cones spread the light in millions of directions. Theoretically, for instance, the light reaches an open book from all these different directions and thus avoids a reflection to the human eye from the white pages of the book. . . . The problem of reading a book is more than a problem of the eye; a good reading light permits the use of many positions of the human body and every suitable relation between book and eye. Reading a book involves both culturally and physically a strange kind of concentration; the duty of architecture is to eliminate all disturbing elements. . . .

THE DIARY

Henry S. Saylor

Wednesday, October 16.—I wish Henry Bacon could come back to earth to see the place his Lincoln Memorial has taken in the hearts of the American people. More persons have visited the Memorial in the past eight months than in any preceding twelve months. From January first to September first last, 1,218,859 persons have walked up the steps to uncover before Daniel Chester French's marble figure of the brooding Lincoln, and to read again from Jules Guerin's murals some of the Emancipator's deathless words. One rather hard-boiled Washington architect of my acquaintance tells me that he detours at least once or twice a week to drive past the Memorial on his way to or from the office; in some seven or eight years of this, he has never failed to get a jiggle up his spine when he glances up at that East front. When one architect gets that sort of thrill from the work of another architect, that is news.

Some day, perhaps, the Metropolitan Museum will rediscover on an upper balcony its bronze head of Henry Bacon by Evelyn Longman and will add below his name the words "Architect of the Lincoln Memorial in Washington."

Friday, October 18.—The engineer is supposed to be more dexterous with his slide rule than with his sketching pencil. Cooper Union disputes this tradition. In its second year of the civil engineering course the school put in freehand drawing as a required subject, thinking to develop the student's powers of observation in recording site and structural data. To nearly everyone's surprise the engineering students pick up the technique of drawing what they see even more rapidly than do the students in the art courses. To counteract the common tendency to attempt etching technique, Instructor Howard Willard drills the students in a grammar of clean straight lines, half circles, ellipses and ovals. They quickly learn to determine a frame, establish an eye level, place the dominant verticals, and lay down the perspective vanishing lines.

Saturday, October 19.—This department does not often concern itself with society news, but the recent marriage of Catherine Bauer, houser extraordinary, to William Wilson Wurster, architect plenipotentiary, cannot be blithely ignored.

Monday, October 21.—Only about 10 per cent of this country's 650 municipal airports pay their way, according to a survey made by the Public Administration Clearing House of Chicago. The other 90 per cent depend upon tax funds to meet operating deficits, and the cities are drawing their purse strings tighter and tighter against subsidizing what has become a routine municipal service. Seems to be a job here for the Civil Aeronautics Board, in establishing a proper scale of airport charges, including rent for Governmental agencies such as weather bureau and post office.

Wednesday, October 23.—Anyone who has not yet had the privilege of seeing Progress Report A62 has a treat ahead. This cryptic designation titles the findings to date of the Committee for the Coordination of Dimensions of Building Materials and Equipment, American Standards Association. It develops in precise detail a logical area of agreement by which the products of various branches of the building industry can be standardized in size so as to fit together without the present wasteful and expensive field cutting. Brick, concrete blocks, cast stone, tile, wood frames, metal windows and the like have to *live* together in the building; making them so that they *fit* together seems just another one of those perfectly obvious steps toward building integration—as clearly a necessity as the standardized screw thread in the machine industry. The scheme is now up for criticism by the various branch industries, the architect, the contractor, the field superintendent. It should be easy to effect what minor adjustments in manufacturing are needed to bring the group into harmonious collaboration.

★

Friday, October 25.—From a real estate agent's advertisement in the London *Times:* "A beautiful Lutyens house—just recently been modernized at great cost." There are perils, evidently, even in the long-continued and internationally famous practice.

Saturday, October 26.—Public housing has been getting a lot of credit for the betterment of the crime rate of cities—a credit it apparently will have to share with the two-way police radio system. Cleveland's experience with the latter in connection with its zone patrol system shows a 17 per cent drop in the city's major crime rate in 1939.

Monday, October 28.—Contemporary experience in England seems to have proved beyond all question that the diamond-paned leaded casements have a resistance of the highest order in A. R. P. Now that the modern architect has been busily engaged in converting his client away from such trite sentimentality he is apparently going to have to make an about-face, at least where and when bombs may be expected.

Wednesday, October 30.—Statistics: 20,000 persons paid 75 cents or more to see Billy Rose's Aquacade while less than 1,000 paid 50 cents to see the $30 million show of old Masters at New York's World Fair. So what?

Friday, November 1.—By far the larger part of contemporary painting fails to excite me. I keep looking hopefully for something that will open my eyes and understanding to a new conception of art expression. And I found it the other day in Washington, on the third floor of the Department of Justice. The painter's name, Symeon Shimin, meant nothing to me, but unless I am hopelessly sunk in the swirling sea of art appreciation, that name will mean something in the long history of painting. The subject is "Contemporary Justice and the Child;" the medium, tempera on canvas. Any attempt of mine to describe it in words would be as futile as a Baedeker description of Mona Lisa. It is good.

Tuesday, November 5.—The British, in spite of current distractions, have the right idea as to how the public may be made conscious of the architect's role in society. They are preparing a documentary film showing Britain's contribution to architecture. Its purpose is to give a comprehensive survey of architecture from Saxon times up to the present with particular emphasis on the influence of local materials and local needs in the development of styles. A rather better idea, I should think, than trying more directly to tell what the architect is and does.

Thursday, November 7.—The Architectural League has hit upon the makings of a successful winter program. Its long dining room affords seven natural divisions of wall space, and each month seven members are invited to make thereon an individual exhibition of professional achievement. Sculptors, painters, landscapers are interspersed among the architects, and

each is entirely free to show what he pleases. At the opening of each month's showing, a dinner is held, and tonight sees the second of these. Clay & Corrigill; William H. Gompert; Ely Jacques Kahn and his young partner, Robert Allan Jacobs; Voorhees, Walker, Foley & Smith are the architects showing this month, with Leo Friedlander's sculpture, Ernest Peixiotto's mural painting, and Chester B. Price's drawings and charcoal studies. Each of the exhibitors was called upon to explain or defend his show and answer any questions the members and guests might put to him. The scheme offers a real opportunity for bringing into the open some philosophies, doubts and convictions as to the current progress, if any, of architecture and the allied arts. Thus far, everyone has been most polite and appreciative, but I shall be surprised if we fail to touch off some fireworks before the series progresses much farther.

Friday, November 8.—Can't something be done about the interior decorators? Here is a paragraph lifted out of a metropolitan newspaper story of an exhibition opening:

"A three-tiered Regency serving board is skirted in cherry-and-white striped taffeta curtains. Chairs are cerulean blue satin, and an old cast iron stove shaped like a castle is elevated on a marbleized pedestal. Centered in the room is a black papiermache table with mother-of-pearl inlay."

If you're still conscious, a subhead just beyond reads "Keeps You Gaping." Why not "Keeps You Gagging?"

★

Saturday, November 9.—New York State's Board of Examiners of Architects is exhibiting throughout the State a collection of twenty drawings—solutions to the design problems that recent applicants for license developed in the examinations. Half are of a department store, half of a community building. Heretofore, aspirants for registration heard much of these design problems from those who had faced them, and their difficulties took on a reputation that grew steadily more mysterious and formidable because the actual drawings immediately disappeared in the Albany archives. Now that these can be seen, reputations formerly gained by successful applicants may recede to their proper level. The design problem in the New York examination calls for a twelve-hour session *en loge* to produce plans, a section and one elevation.

Monday, November 11.—News of the destruction of architectural landmarks come slowly and piecemeal from behind the curtains of censorship. In France, it is authoritatively reported that the cathedrals of Rouen, Evreux, Arras and Cambrai are in ruins. Rouen's Church of St. Maclou, the thirteenth century church in Gisors and the Renaissance masterpiece at Adelys are seriously damaged, as are the churches of St. Paul and of Notre Dame de Recouvrance in Orleans, of Chanaz in Chamberry, of St. Genix, of Pont de Beauvoisin and of Domessin. The little Seminary of St. Croix in Orleans was demolished, also the home of Joan d'Arc in the same city. Rouen seems to have been particularly hard hit; its Seminary and the archbishop's residence also suffered severe damage. All of which bad news deals, it will be noted, with ecclesiastical structures only—a fact explained by the source, the Vatican.

Our good friend Eric Arthur, Editor of the *Journal* of the Royal Architectural Institute of Canada, sees a silver lining in London's losses. Suggesting that it might be a good idea for the Ministry of Public Information to be less secretive about the city's architectural losses, he goes on to say:

"For instance, there is obviously no sense in remorse for the loss of Regent Street between Piccadilly and Oxford Circus either in whole or in part, either on the right hand or the left, and it would be both galling to the Germans, as well as puzzling, if celebrations were held in London to mark the end of the departmental store monstrosities that had their birth shortly after the last war. We would gladly join with thousands and light a cracker and wave a flag over the ruins of the pseudo-Elizabethan section of Liberty's. We see no point in weeping over the ruins of the Albert Hall or the Albert Memorial (as yet unhappily spared). Rather would we see the people of London come out of their burrows and their A.R.P. shelters and give a whoop of joy that such blots on a great city had been removed. . . . The real tragedy is in the destruction of irreplacable things and in that an enlightened ministry could arouse the public to real and justifiable rage. Damage of St. Paul's calls for rage of a kind, but anything Sir Christopher Wren did can be reproduced to such a degree of perfection that even his greatest admirers, of whom we are one, would not distinguish the new from the old. Let the people rise in their just wrath over the loss or partial damage to Henry VII's Chapel. There is something unique in the world, unique in its history as in its architecture, which is of a kind that no workman today could copy. The tomb of Henry is the very cradle of the Renaissance in England, and the fan vaulting of the chapel is of a fairy beauty that the hand of man will never again capture. Let us not waste our grief on the tons of departmental stores now in ruins which will provide a building boom for the post-war years—let us not worry about the shattered rows of stuffy Victorian houses with the ghosts of generations of landladies and an odour of prunes and rice puddings. 'Nothing is here for tears, nothing to wail or beat the breast,' but Henry VII is a national loss comparable only to the loss of a city, and for that there should be an awful reckoning."

Tuesday, November 12.—Two great showmen head the bill of current offerings by New York's Museum of Modern Art—Frank Lloyd Wright and David Wark Griffith. Installation was not fully completed tonight for the private view, but the multitude of drawings, photographs and models set forth chronologically and by structural classifications the achievements of F.Ll.W., beginning with the 1908 Robie house in Chicago. Many of the drawings—all so unmistakably stamped with the architect's charming but often cryptic technique—are yellowing with age or perhaps as a result of disastrous fires. A surprisingly large number are new, to me at least, and indicate the real measure of a clientele that has swelled rapidly in these recent years. Here are the familiar St. Mark's-in-the-Bouwerie skyscraper of copper and glass, the S. C. Johnson Company's administration building with its dendriform columns, Herbert Johnson's cottage (1938), the decentralized city "Broadacre" restored and repaired since its former New York showing. One of the newest among the many models is that of the Gregor Affleck house now building at Bloomfield Hills, Mich.; another the Ardmore experiment for Otto Mallery, in which sun bathing is glorified. The size of the showing is indicated by its spread over most of the Museum's first two floors. It can hardly be tasted in half a day.

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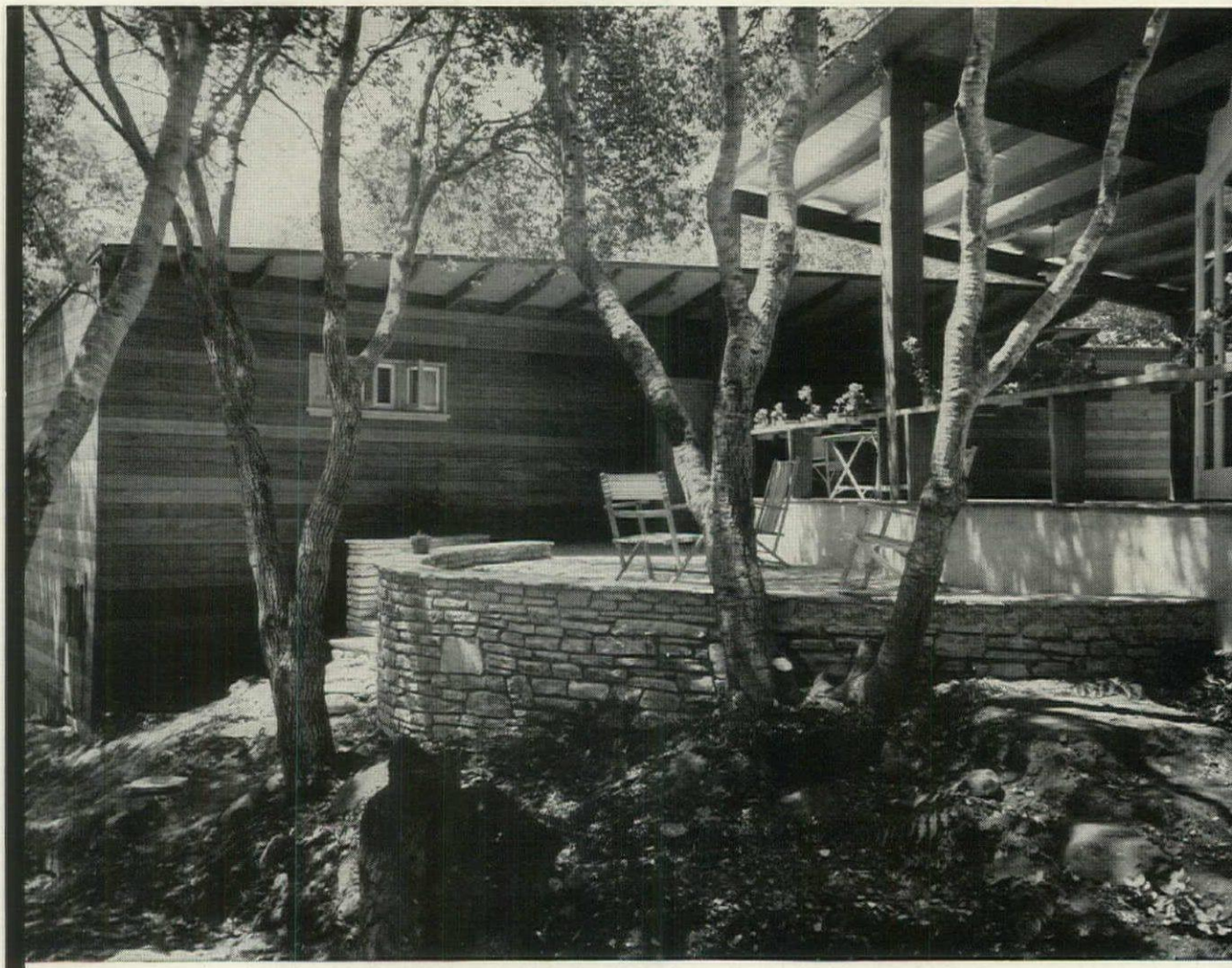
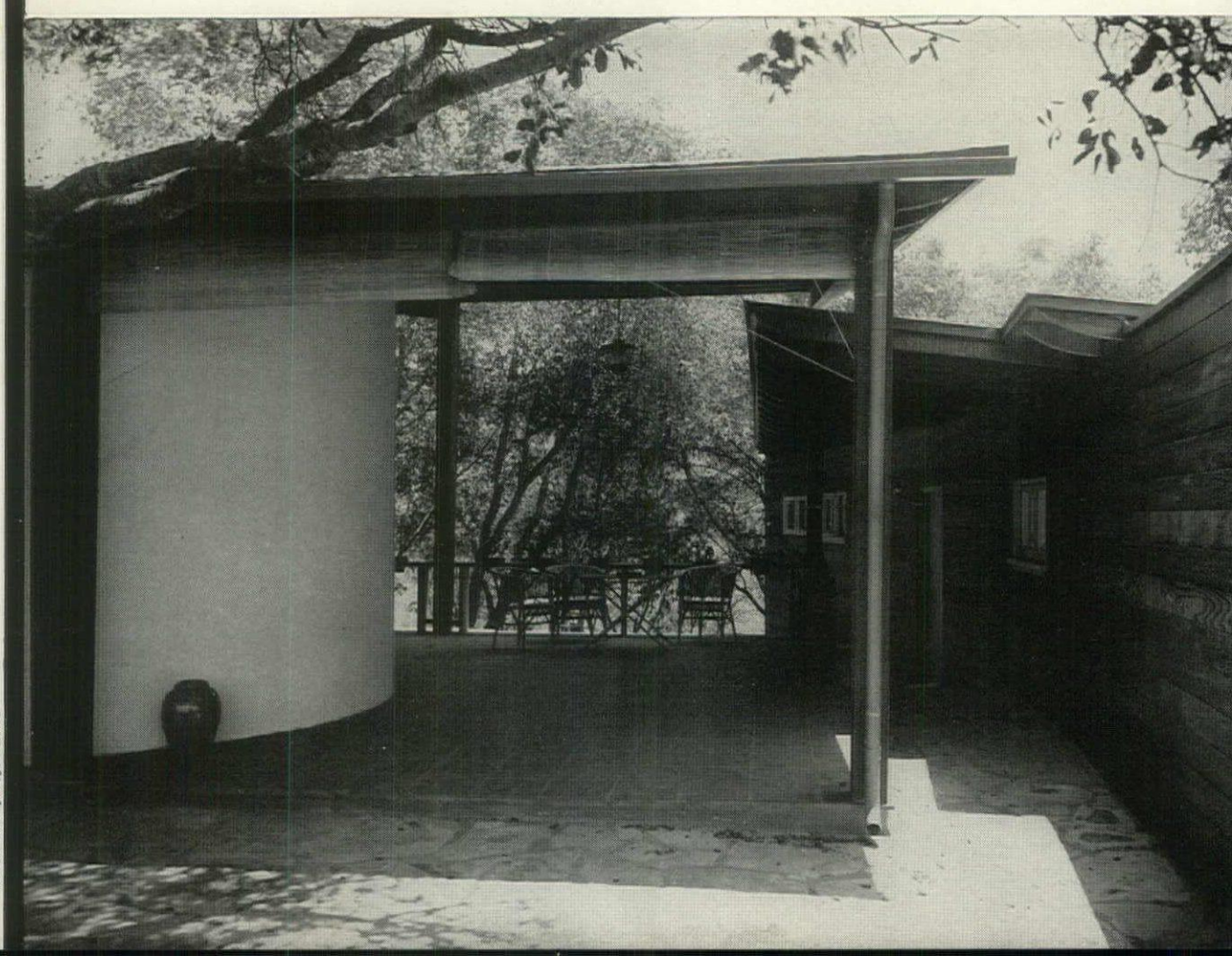
Wednesday, November 13.—The legend of Mr. Hearst as a collector of art objects was brought into sharp focus for me today when I examined some of the 110 volumes recording his purchases. The pages of these scrapbooks are pasted full of records—auction lists in large part, with the acquired items checked, frequently accompanied by photographs and notes of the prices paid and the agents involved. My interest was largely in the architectural loot, which, except for pieces in use, fills one of New York City's largest warehouses. This collection runs the whole scale from a tiny piece of sixteenth century French hardware, or an old Dutch tile, to a complete castle from Spain. The number of mantels alone would put most of the public museums to shame. Mr. Hearst started buying during the last decade of the last century, and, unlike most collectors, he bought in no one field exclusively, but rather anything that pleased his eye. Some of his choices would undoubtedly bring eyebrow lifting among the architects, but in most such cases there is to be found some historical or personality connection that added another sort of interest. The collection is in process of dispersal, much of it having never again been seen by its owner after it was bought, packed and stored. It will probably be years before all of it finds its way into the hand of less extensive collectors or the museums of the world.

HOUSES

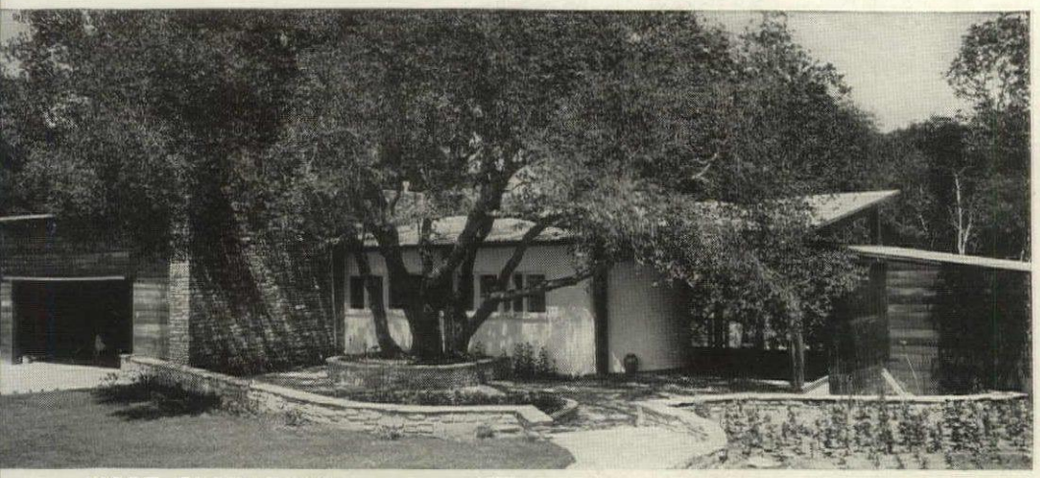
HOUSE IN OJAI, CALIF. EMRICH NICHOLSON AND DOUGLAS MAIER, DESIGNERS



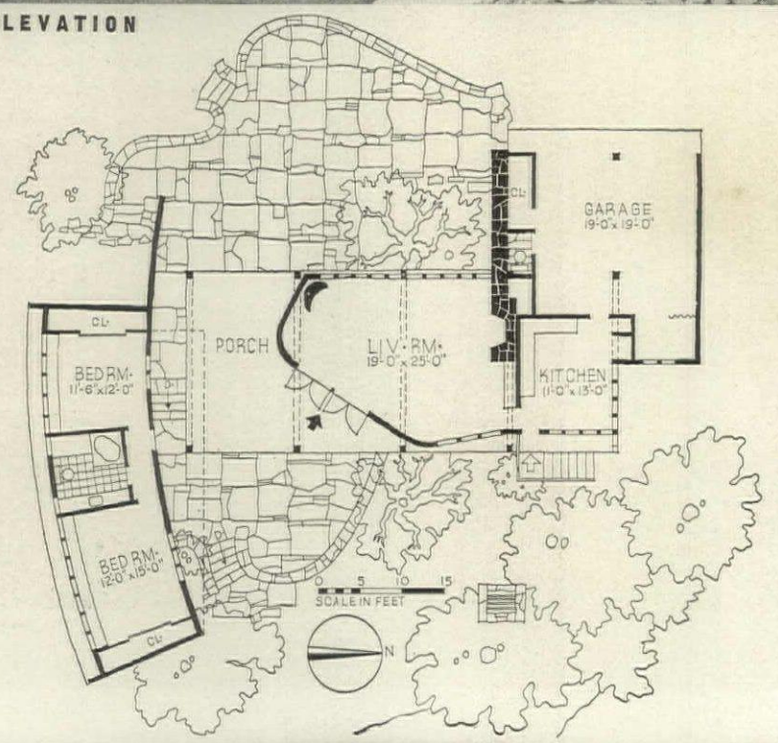


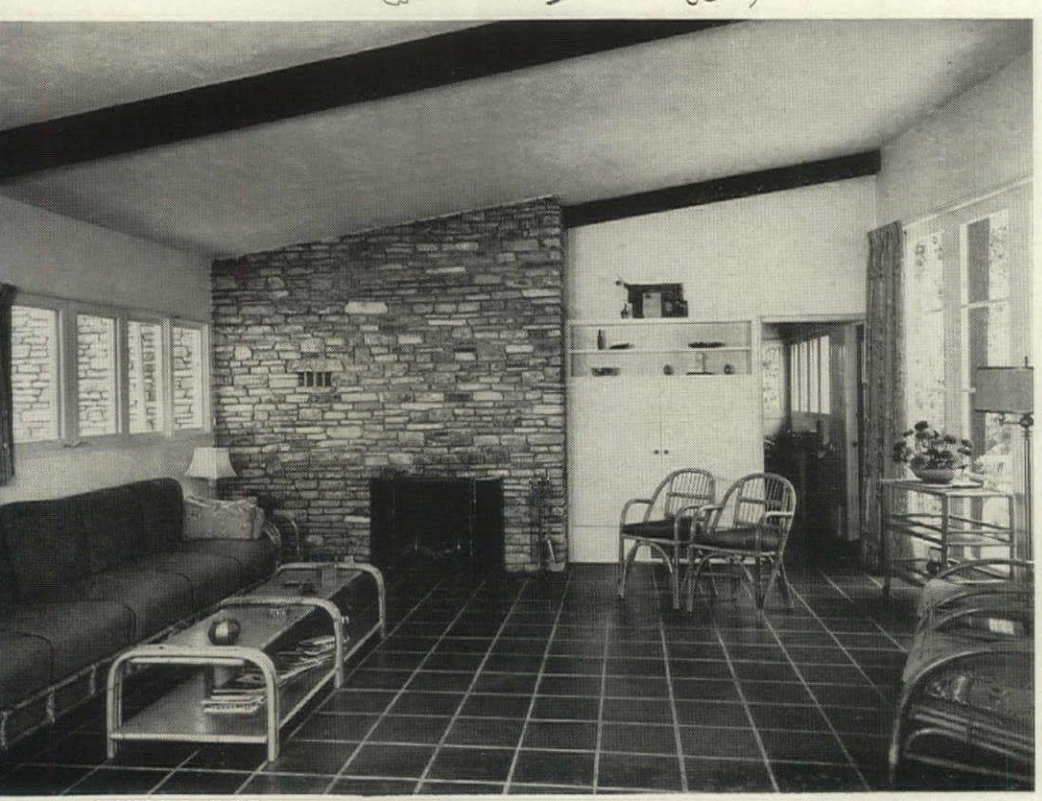
Robert Humphreys Photos

HOUSE IN OJAI, CALIF.



WEST ELEVATION





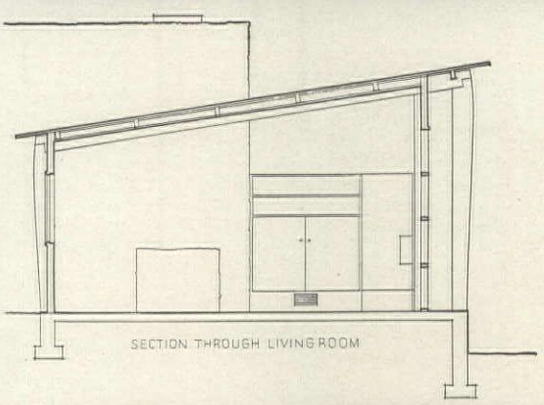
LIVING ROOM

Few small houses of recent years show a more fresh or personal approach to the problem than this. There are no other buildings around, and the windows on the east and west look out over magnificent views of great hills and valleys. The site is the edge of a steep hill, and both terraces and the structure itself have been planned to take advantage of the natural contours. Most interesting feature is the separation of the building into two structural units, with the porch between serving as a retreat from the summer sun and as a shelter for the entrances to the living and sleeping spaces. When desired, the living room can be conveniently used as a guest room. The structure is of stone and redwood. Typical of the interesting and inexpensive amenities developed is the porch railing, pierced to serve as a holder for flower pots. Cost: approximately $7,000.

CONSTRUCTION OUTLINE

FOUNDATION: 8 in. reenforced concrete.
STRUCTURE: Exterior walls—three coats stucco on metal lath, building paper, 2 x 4 in. studs; inside, metal lath and plaster. Bedroom unit: t. & g. 1 x 6 in. redwood.
ROOF: Two layers asphalt paper, tar-rock, sprayed aluminum for heat reflection.
FIREPLACE: Heatilator Corp.
SHEET METAL WORK: Flashing—copper. Gutters—26 gauge galvanized sheet metal.
WINDOWS: Sash—wood casements, special design. Glass—Quality B. Screens—copper on wood frame, hung inside.
FLOOR COVERINGS: Living room, porch and kitchen—12 x 12 x 1¼ in. tile on 2 in. cement. Bedrooms and halls—1 x 4 pine. Bathrooms—linoleum.
WOODWORK: Cabinets—¾ in. plywood. Bedroom cabinets—Philippine mahogany.
HARDWARE: Sargent & Co.
PAINTING: Interior walls and ceilings—bedrooms and kitchen, Sherwin-Williams Co. Exterior redwood—two coats of linseed oil.
KITCHEN EQUIPMENT: Range and refrigerator—General Electric Co. Sink—Crane Co. Kitchen fan—General Electric Co.
BATHROOM EQUIPMENT: Lavatory, tub and toilet—Briggs Mfg. Co. Seat—C. F. Church Mfg. Co. Shower—Crane Co.
Heating: Gas-fired warm air automatic system, Payne Furnace Supply Co. Radiators—American Radiator-Standard Sanitary Corp. Water heater—automatic gas.

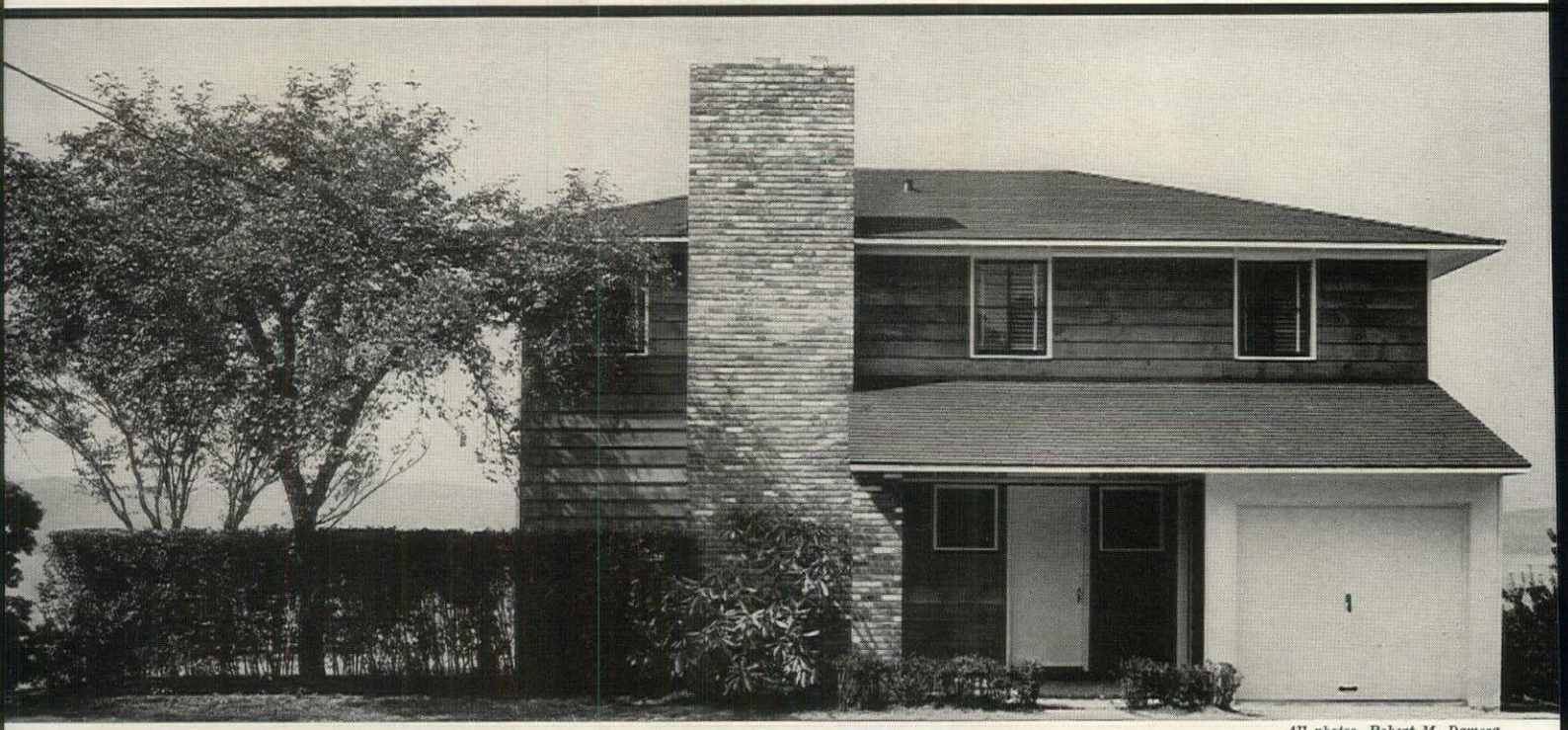
All photos, Robert Humphreys



TERRACE . . .

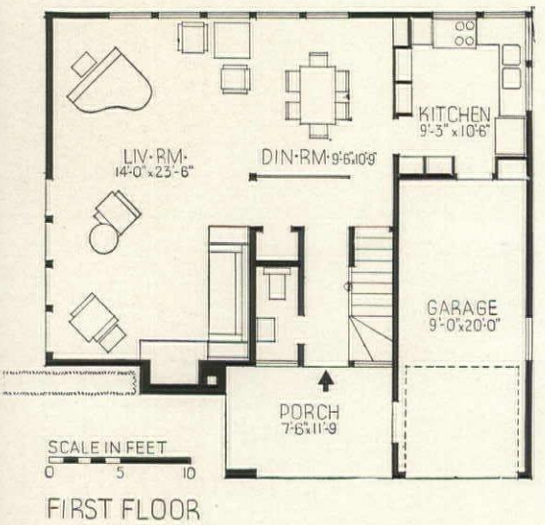
Looking toward Bedroom Wing

HOUSE AT TAPPAN LANDING, TARRYTOWN, N. Y.



All photos, Robert M. Damora

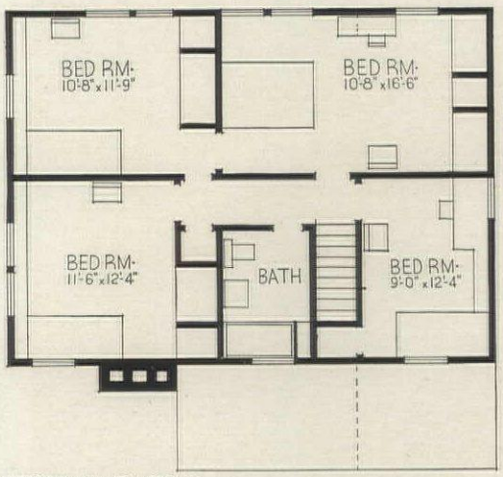
TERRACE



FIRST FLOOR

A thoroughly straightforward design, admirably planned for convenient use and economy. There is an open arrangement of living room, dining room and hall, with a light screen to give the dining space the needed privacy. Windows on this floor are ample for daylight and ventilation, and so placed that there is adequate wall space for furniture. Four bedrooms and a bath are located on the second floor, with ample closet space provided. The chief interior finish is plywood, used with excellent decorative effect on both walls and ceilings. Cost (including land and landscaping): $10,000.

ROBERT A. GREEN, ARCHITECT



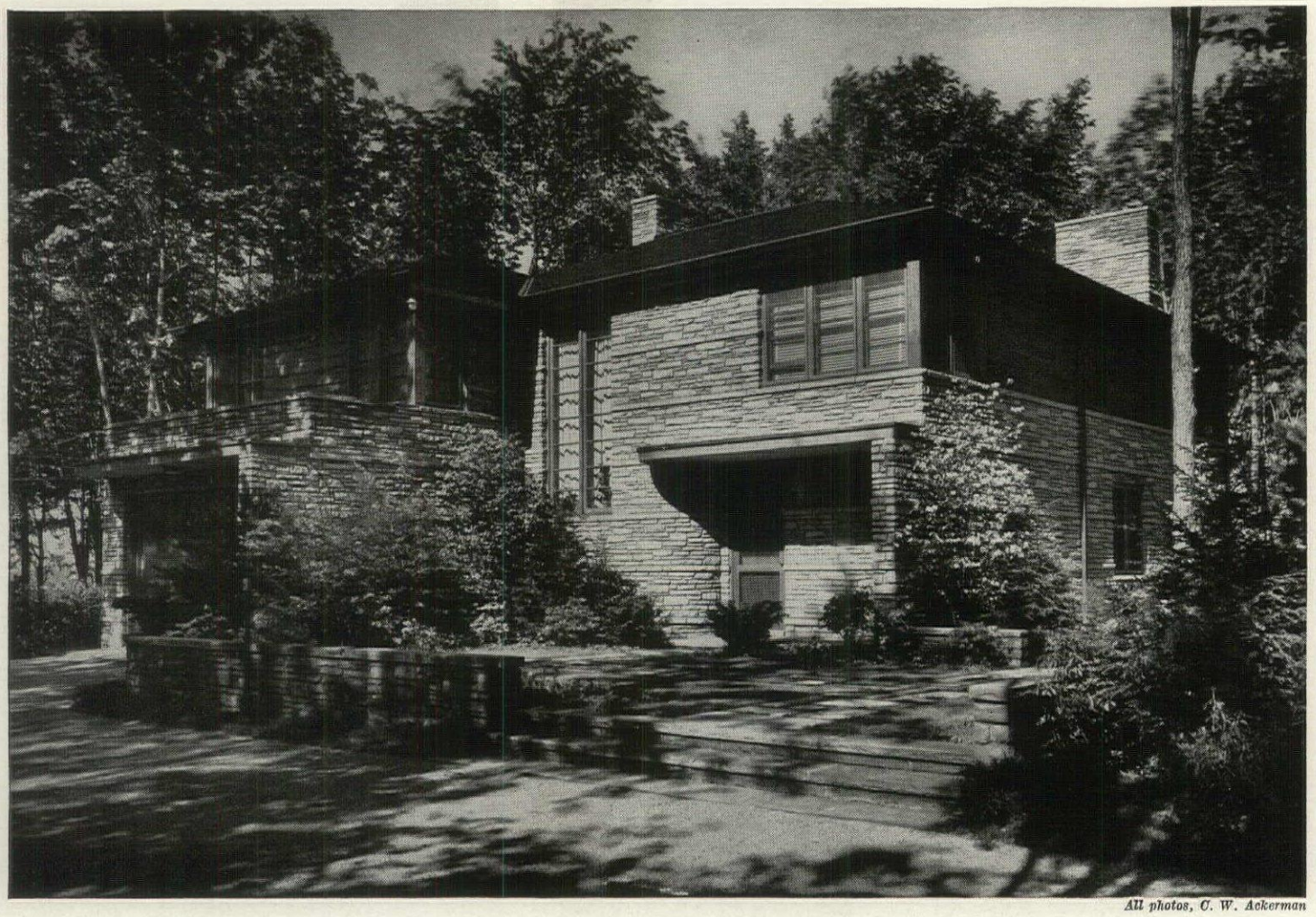
SECOND FLOOR

LIVING ROOM

CONSTRUCTION OUTLINE

FOUNDATION: Walls—concrete block, Clay Products Corp. Waterproofing—Medusa Portland Cement Co.
STRUCTURE: Exterior walls—cedar siding, building paper, sheathing, studs, Johns-Manville Co.'s rockwool; inside—Duali plywood and sheet rock, U. S. Gypsum Co. with Perfatape joint. Floors—red oak finish.
ROOF: Covered with U. S. Gypsum Co.'s Dubibutt asphalt shingles.
FIREPLACE: Damper—H. W. Covert Co.
INSULATION: Outside walls and attic floor—rockwool, Johns-Manville Co.
WINDOWS: Sash and screens—Detroit Steel Products Co. Glass—double strength, quality B. Glass screen—Mississippi Glass Co.
FLOOR COVERINGS: Kitchen and bathrooms—linoleum, Congoleum-Nairn, Inc.
HARDWARE: By Sargent & Co.
PAINTS: E. I. Du Pont de Nemours & Co.
ELECTRICAL INSTALLATION: Wiring, switches, fixtures—General Electric Co.
KITCHEN EQUIPMENT: Range—Chambers Mfg. Co. Refrigerator and cabinets—General Electric Co.
BATHROOM EQUIPMENT: All fixtures American Radiator-Standard Sanitary Corp., except lavatory—Crane Co. Cabinets—Charles Parker Co.
PLUMBING: Hot and cold water pipes—Anaconda copper, American Brass Co.
HEATING AND AIR CONDITIONING: Warm air, winter air conditioning, filtering, humidifying and summer cooling by forced draft, General Electric Co. Water heater—Crane Co. Grilles—Tuttle & Bailey.

HOUSE IN CLEVELAND HEIGHTS, OHIO



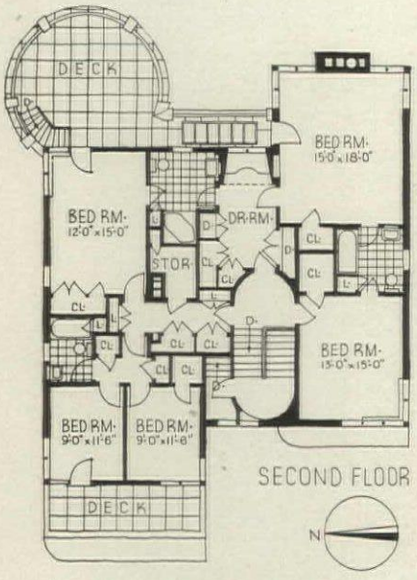
All photos, C. W. Ackerman

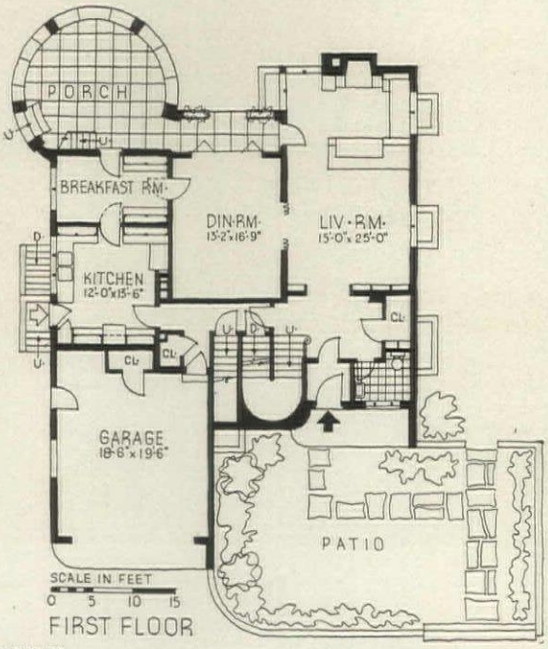
A house in which special attention was given to the question of wall and roof textures. Built in heavily wooded surroundings, the house was made as inconspicuous as possible by the use of masonry walls and a wood shingle roof. In a similar manner the window and door trim was "painted out" rather than accented.

The solution as presented shows a large number of rooms compactly arranged, with major emphasis on the view away from the street. The interiors make interesting use of indirect lighting, built-in furniture and varied wall finishes.

Cost: about 55 cents per cubic foot.

LIVING ROOM





CONSTRUCTION OUTLINE

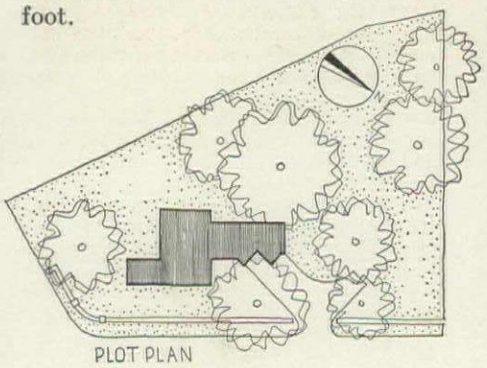
FOUNDATION: Concrete. Waterproofing—Master Builders iron type below grade.
STRUCTURE: Exterior walls—stone veneer construction; 4 in. local stone, 2 x 4 in. studs, ¾ in. wood sheathing, kraft paper, sheetrock, plaster. Floor construction—wood joists.
ROOF: Covered with wood shingles. Deck—built-up tar and felt roofing, covered with Celotex Corp. Promenade Tile.
FIREPLACE: Damper, throat—Donley Bros.
SHEET METAL WORK: Flashing, gutters and leaders—16 oz. copper.
INSULATION: Outside walls and attic floor—3½ in. asphalt paper backed rockwool batts. Weatherstripping—Protection Specialty Co.
WINDOWS: Sash—wood, double hung, wood storm sash. Glass—double strength, quality A. Screens—wood frame, copper bronze wire.
FLOOR COVERINGS: Living room, bedrooms, halls—oak flooring and carpet. Kitchen and bathrooms—Armstrong Cork Co.
WALL COVERINGS: Living room and kitchen—Sanitas, Standard Coated Products Corp. Bathrooms—Vitrolite, Libbey-Owens-Ford Glass Co. Maid's bath—Sealex, Congoleum-Nairn, Inc.
WOODWORK: Interior doors—"Sturdibilt," M & M Woodworking Co. Garage doors—Crawford Door Co.
HARDWARE: Russell and Erwin Mfg. Co.
PAINTING: Interior—Arco Co. enamel and undercoaters. Exterior—boiled linseed oil.
ELECTRICAL INSTALLATION: Wiring system—Knob and tube. Switches—Bryant Electric Co.
KITCHEN EQUIPMENT: Range—gas. Refrigerator—General Electric Co. Sink—Monel metal, International Nickel Co. Dishwasher—General Electric Co. Cabinets—Whitehead Metal Products Corp.
BATHROOM EQUIPMENT: Lavatory and tub—Crane Co. Toilet—T/N type, W. A. Case and Son Mfg. Co. Cabinets—Miami Cabinet Div. of The Philip Carey Co.
PLUMBING: Water pipes—copper tubing.
HEATING AND AIR CONDITIONING: Moncrief system with filtering and humidification, Henry Furnace and Foundry Co. Grilles—Auer Register Co. Thermostat—Minneapolis-Honeywell Regulator Co. Water heater—Hotstream Heater Co.
SPECIAL EQUIPMENT: Kitchen fan—Victor Electric Products Co. Incinerator—Kerner Incinerator Co.

DINING ROOM

BEDROOM

HOUSE IN HARRISON, N. Y. JOHN C. BREIBY, ARCHITECT

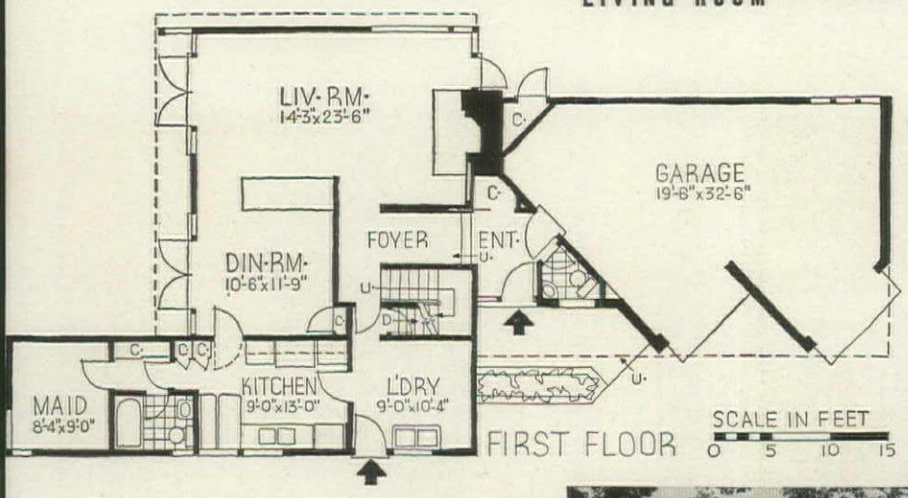
The existence of a number of fine trees on the property strongly influenced the placing and room arrangement of the house, which was built as close to the street as possible to increase rear garden space. The unusual garage plan was determined by street traffic, which is too heavy for a safe back-out driveway; the lighted corner of the garage is used as a workshop. The exterior demanded treatment which would fit into the wooded setting, harmonizing as well with the existing type of white colonial house characteristic of the neighborhood. It is planned to add a playroom, which would occupy part of the deck over the garage; access to this new room will be provided by the removal of the shower and closets on the second floor. Cost (including built-in equipment): $17,984, at about 53 cents per cubic foot.

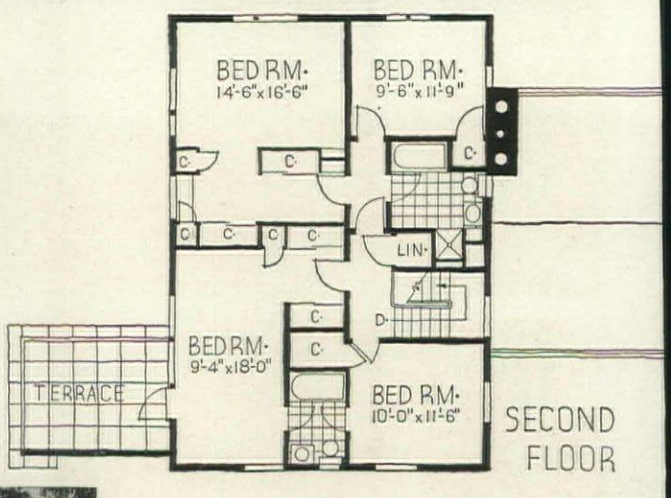


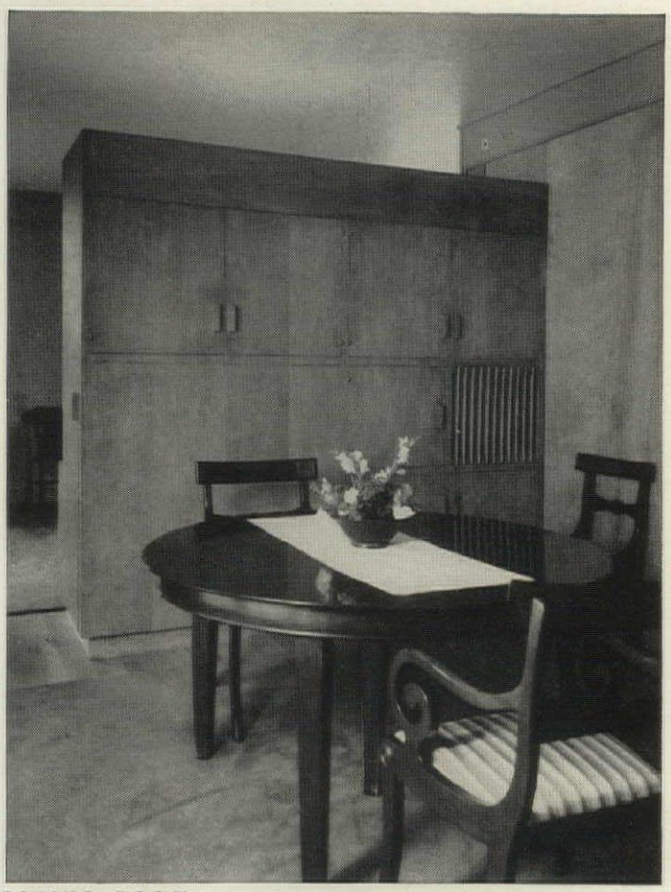
PLOT PLAN

LIVING ROOM

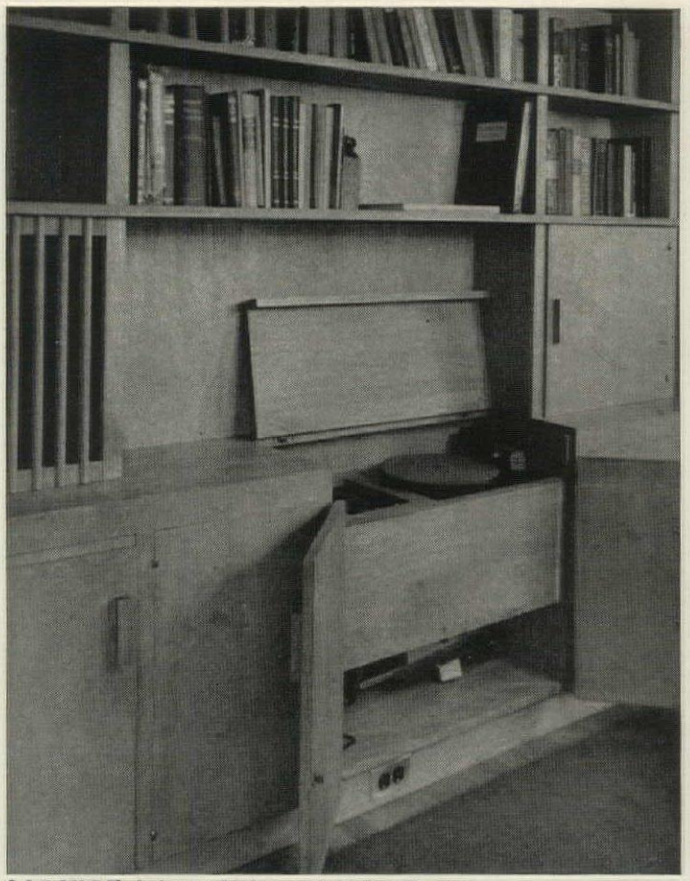
George H. Van Anda Photos







DINING ROOM



CABINET between Living and Dining Rooms

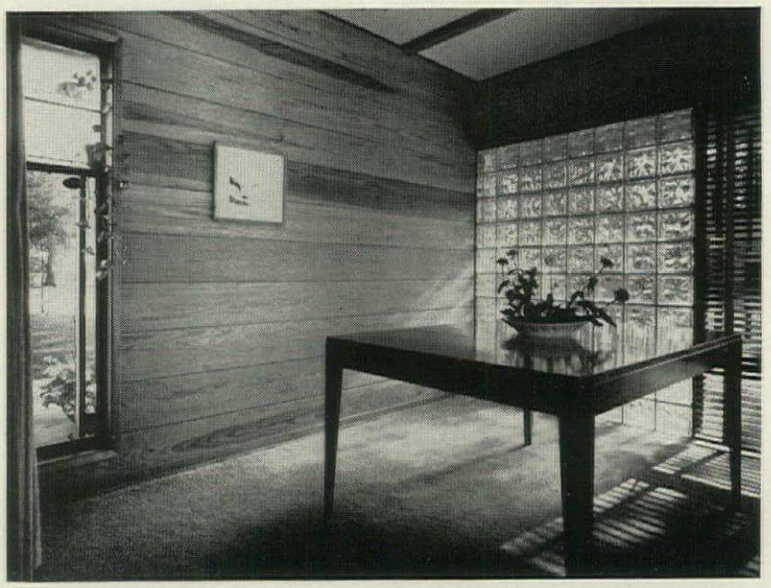
CONSTRUCTION OUTLINE

FOUNDATION: Concrete block, Mertz Bros. Cellar floor—gravel fill, stone, cement finish.
STRUCTURE: Exterior walls—red cedar clapboards, diagonal sheathing, paper, studs, metal lath and plaster. Garage and entry—brick. Floor construction—sub-floor and oak finish flooring.
ROOF: Covered with No. 1 Bangor slate. Deck—covered with canvas, Shroeder Co.
FIREPLACE: Damper—H. W. Covert Co.
SHEET METAL WORK: Flashing, gutters and leaders—copper. Ducts—galv. sheet metal.
INSULATION: Outside walls and attic floor—rock wool, Eagle Picher Lead Co. Weatherstripping—Chamberlin Metal Weather Strip Co.
WINDOWS: Sash—Idaho pine, casement, Webster Woodworking Co. Glass—double strength, plate and Flutex, Owens-Illinois Glass Co.
STAIRS: Treads—white oak. Risers—white pine. Stringers—Douglas fir. Attic stair—Frazier Stair Co.
FLOOR COVERINGS: Main rooms—oak. Kitchen and bathrooms—linoleum, Congoleum-Nairn, Inc.
WOODWORK: Trim—white pine. Cabinets—white pine, gum plywood and birch plywood, U. S. Plywood Co. Garage doors—Stanley Works.
HARDWARE: By Ostrander & Eshleman.
PAINTS: By Sherwin-Williams Co. and Minwax Co.
ELECTRICAL INSTALLATION: Wiring system—Western Electric Co. Fixtures—Kurt Versen Co.
KITCHEN EQUIPMENT: Range—Magic Chef, American Stove Co. Refrigerator—Frigidaire Sales Corp. Cabinets—Bradley Kitchen Cabinet Co.
BATHROOM EQUIPMENT: All fixtures by American Radiator-Standard Sanitary Corp. Shower—Fiat Metal Mfg. Co. Cabinets—Charles Parker Co., Philip Carey Co.
PLUMBING: Hot and cold water pipes—copper tubing.
HEATING AND AIR CONDITIONING: Winter air conditioning system, filtering, oil burner, Gar Wood Industries. Grilles—Independent Register Co. Thermostat — Minneapolis-Honeywell Regulator Co. Water heater—oil fired.

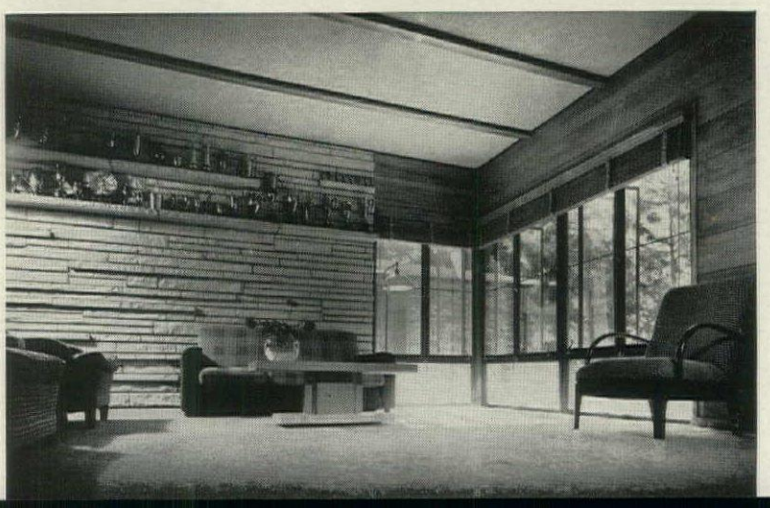
HOUSE FOR KARL KAMRATH, HOUSTON, TEXAS

Elwood M. Payne Photos

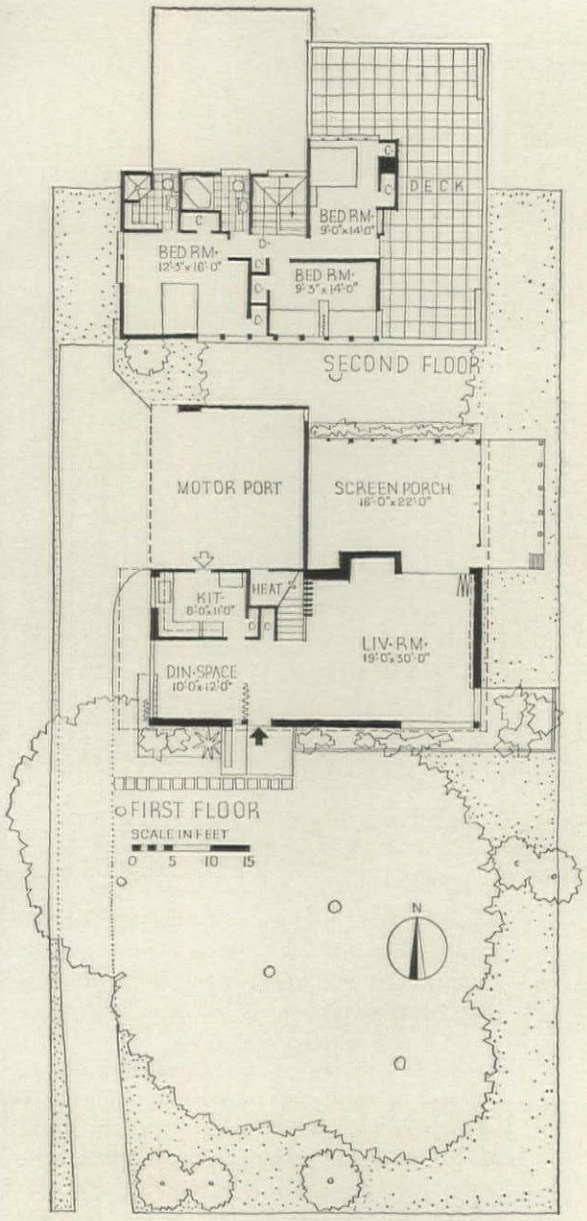
DINING SPACE

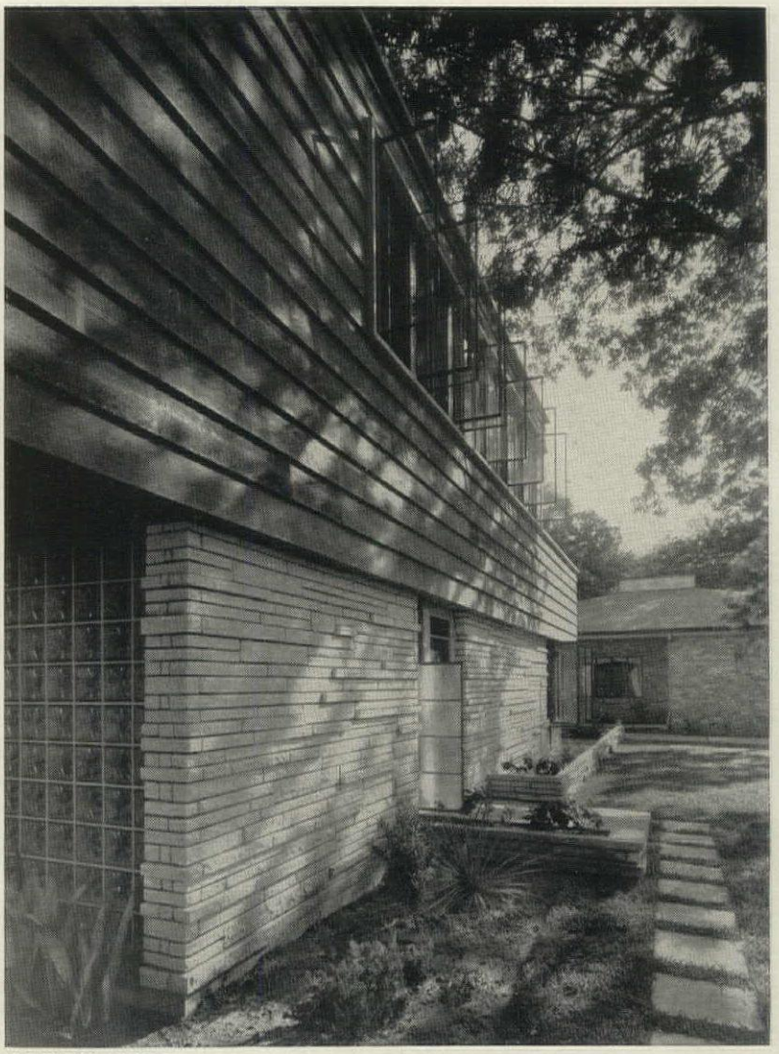


The problem here was essentially one of providing space for informal living at minimum cost. Proper orientation to prevailing summer winds and privacy were also important requirements. The large screened porch shown above was placed to catch the breeze, and its open relationship to the living room is a further aid to ventilation. Bedrooms, in contrast to the rooms below, were made small, but adequate for dressing and sleeping. Materials for both interior and exterior were selected to eliminate maintenance, Texas limestone and pine being used for practically all walls. Space above the living room and porch has been used as a deck, well screened from the neighboring houses by a solid parapet. Cost: $9,800. Also shown in the above photograph is the corner of the adjoining dwelling, which was designed by the same architects. This house is illustrated more fully on page 520.



MacKIE AND KAMRATH, ARCHITECTS





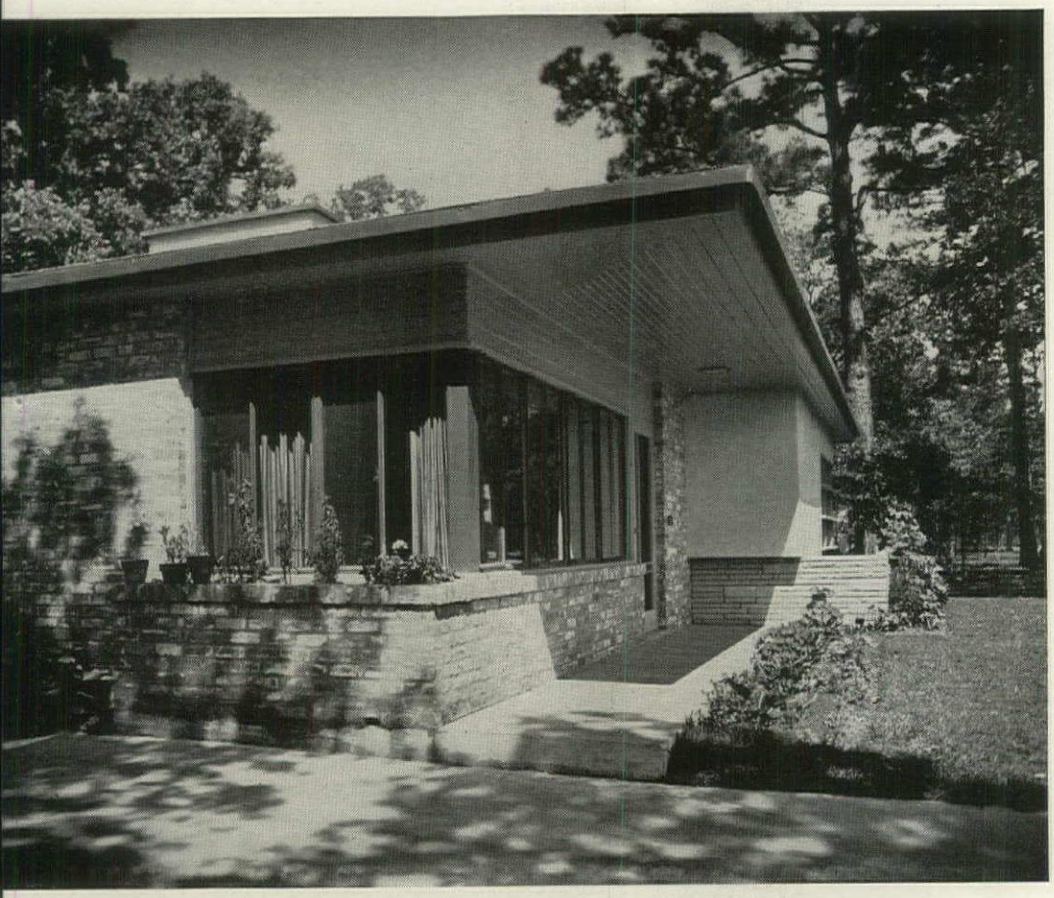
SOUTH SIDE

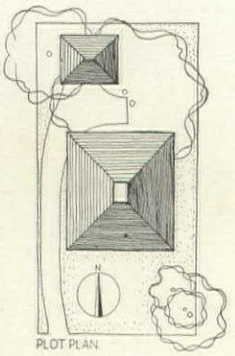
LIVING ROOM

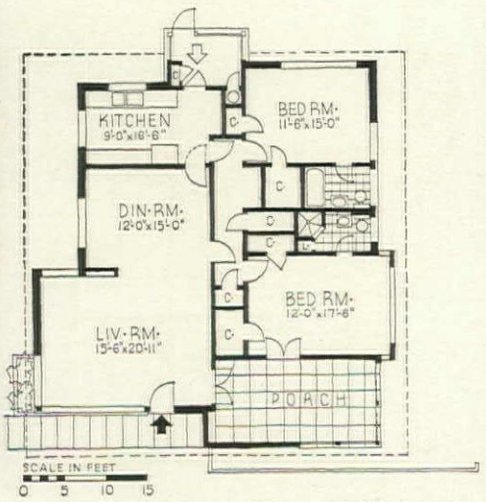
CONSTRUCTION OUTLINE

STRUCTURE: Exterior walls—limestone and rough-sawed yellow pine; brownskin paper; inside—wood studs, U. S. Gypsum Co. rock lath and plaster.
ROOF: Covered with 20-yr. bonded built-up tar and gravel, Barber Asphalt Co., Inc.
SHEET METAL WORK: Flashing, gutters and ducts—26 gauge galvanized iron, U. S. Steel Co.; air cell paper, Johns-Manville Corp.
INSULATION: Attic floor and roof (over living room)—rock wool, U. S. Gypsum Co.
WINDOWS: Sash—Fenestra steel casement, Detroit Steel Products Co.; Campbell heavy steel casements, Campbell Metal Window Div., Truscon Steel Co. Glass—plate, Pittsburgh Plate Glass Co. Glass blocks—Pittsburgh-Corning Corp.
FLOOR COVERINGS: Main rooms—Broadfelt carpet, Amhaco, American Hair Co., Kitchen—Sealex linoleum, Congoleum-Nairn, Inc. Bathrooms—Goodyear Tire & Rubber Co.
WOODWORK: Trim—white pine. Cabinets—plywood, Douglas Plywood Corp.
HARDWARE: By Schlage Lock Co.
ELECTRICAL INSTALLATION: Knob and tube. Switches—Bryant Electric Co.
KITCHEN EQUIPMENT: Range—Magic Chef, American Stove Co. Refrigerator—General Electric Co.
BATHROOM EQUIPMENT: Lavatory and toilet—W. A. Case & Son Mfg. Co. Tub—American Radiator-Standard Sanitary Corp. Shower—Kohler Co.
PLUMBING: Soil pipes—wrought iron, A. M. Byers Co. Water pipes—galvanized iron. Water heater—Day & Night Water Heater Co.
HEATING: Warm air, gas fired furnace, Bryant Heater Co. Grilles—Hart & Cooley. Thermostat—Minneapolis-Honeywell Regulator Co.

HOUSE FOR JESSE R. STONE, HOUSTON, TEXAS, MacKIE AND KAMRATH, ARCHITECTS







Maynard L. Parker

The architects comment: "It was decided to design a house reasonably small and compact, providing only necessary space for two people. The north bedroom is available for use as a guest room, serving as a studio the rest of the time. The design of the screened porch considered privacy and protection from the hot afternoon sun as well as ventilation. Further protection from the sun is given by the generous overhangs. There is a separate garage with maid's quarters at the rear of the property." Cost: $9,100.

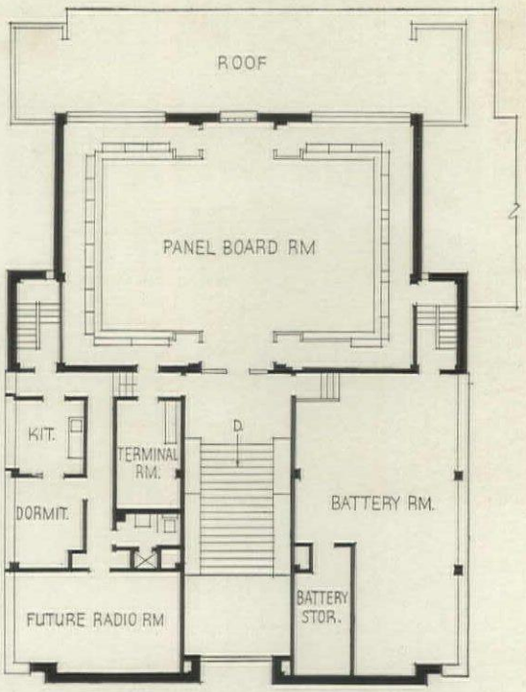
CONSTRUCTION OUTLINE

FOUNDATION: Walls—4 in. reenforced concrete slab poured on 4 in. bank sand. Waterproofing—Anti-Hydro Waterproofing Co.
STRUCTURE: Exterior walls—brick veneer, gypsum board sheathing, metallized, studs; inside—U. S. Gypsum Co. Sheetrock. Floor construction—E. L. Bruce Co. oak blocks over concrete slab.
ROOF: Covered with 20-yr. bonded built-up tar and gravel, Barber Asphalt Co.
SHEET METAL WORK: All 26 gauge galvanized iron, U. S. Steel Co.
INSULATION: Attic floor—rockwool, U. S. Gypsum Co. Weatherstripping—Chamberlin Metal Weather Strip Co.
WINDOWS: Sash—Fenestra steel casements, Detroit Steel Products Co.
FLOOR COVERINGS: Kitchen—Sealex linoleum, Congoleum-Nairn, Inc. Bathrooms—sheet rubber, Goodyear Tire & Rubber Co.
WOODWORK: Trim—white pine. Cabinets—plywood, Douglas Plywood Corp. Doors—gum slab.
HARDWARE: By Schlage Lock Co.
ELECTRICAL INSTALLATION: Wiring system—knob and tube. Switches—Bryant Electric Co.
KITCHEN EQUIPMENT: Range—Geo. D. Roper Corp. Refrigerator—Frigidaire Sales Corp.
BATHROOM EQUIPMENT: Lavatory and toilet—W. A. Case & Son Mfg. Co. Tub and shower—Kohler Co.
PLUMBING: Soil pipes—wrought iron, A. M. Byers Co. Hot and cold water pipes—galvanized iron.
HEATING: Warm air, gas fired, Bryant Heater Co. Grilles—Hart & Cooley. Thermostat—Minneapolis-Honeywell Regulator Co. Water heater—Day & Night Water Heater Co.

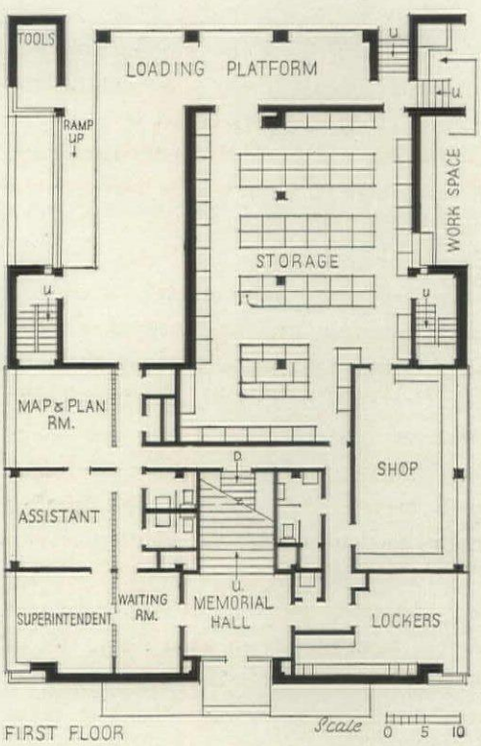
FIRE ALARM BUILDING

HOUSTON, TEXAS

MacKIE AND KAMRATH, ARCHITECTS

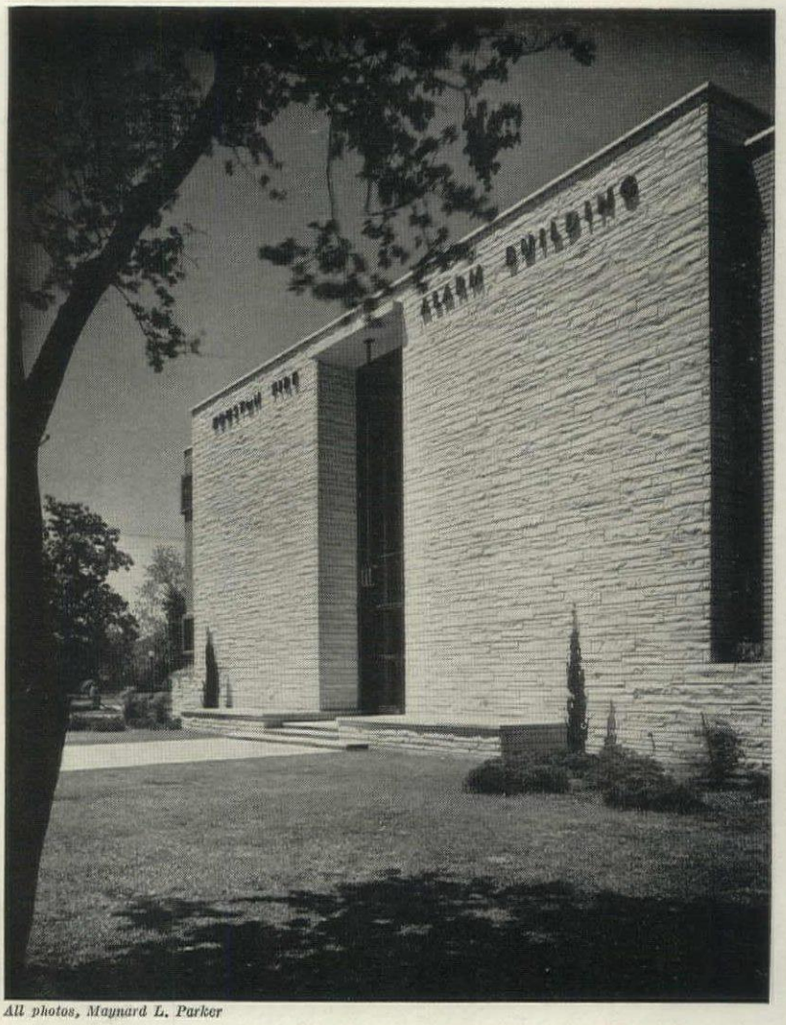


SECOND FLOOR

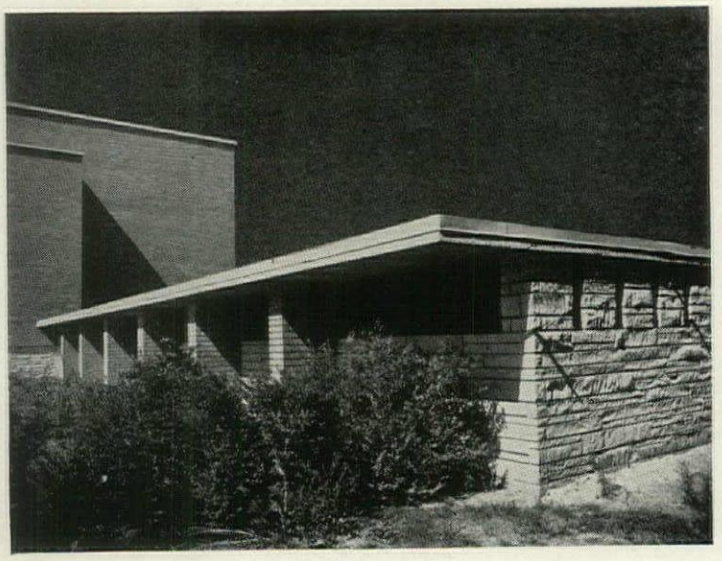


FIRST FLOOR

The architects' comment on this unusual and successfully executed design is as follows: "We and our engineers were commissioned to revamp the entire fire alarm system of the city, and to provide additional alarm systems to take care of a future population of 1,000,000. This building was to house the central fire alarm control space for present and future needs.



All photos, Maynard L. Parker



PANEL BOARD ROOM

Since the functions of the building are vital to the community, it was made completely fireproof, with a panel board level above any possible water limit of periodic floods. In this room terminate the wires from every box in the city.

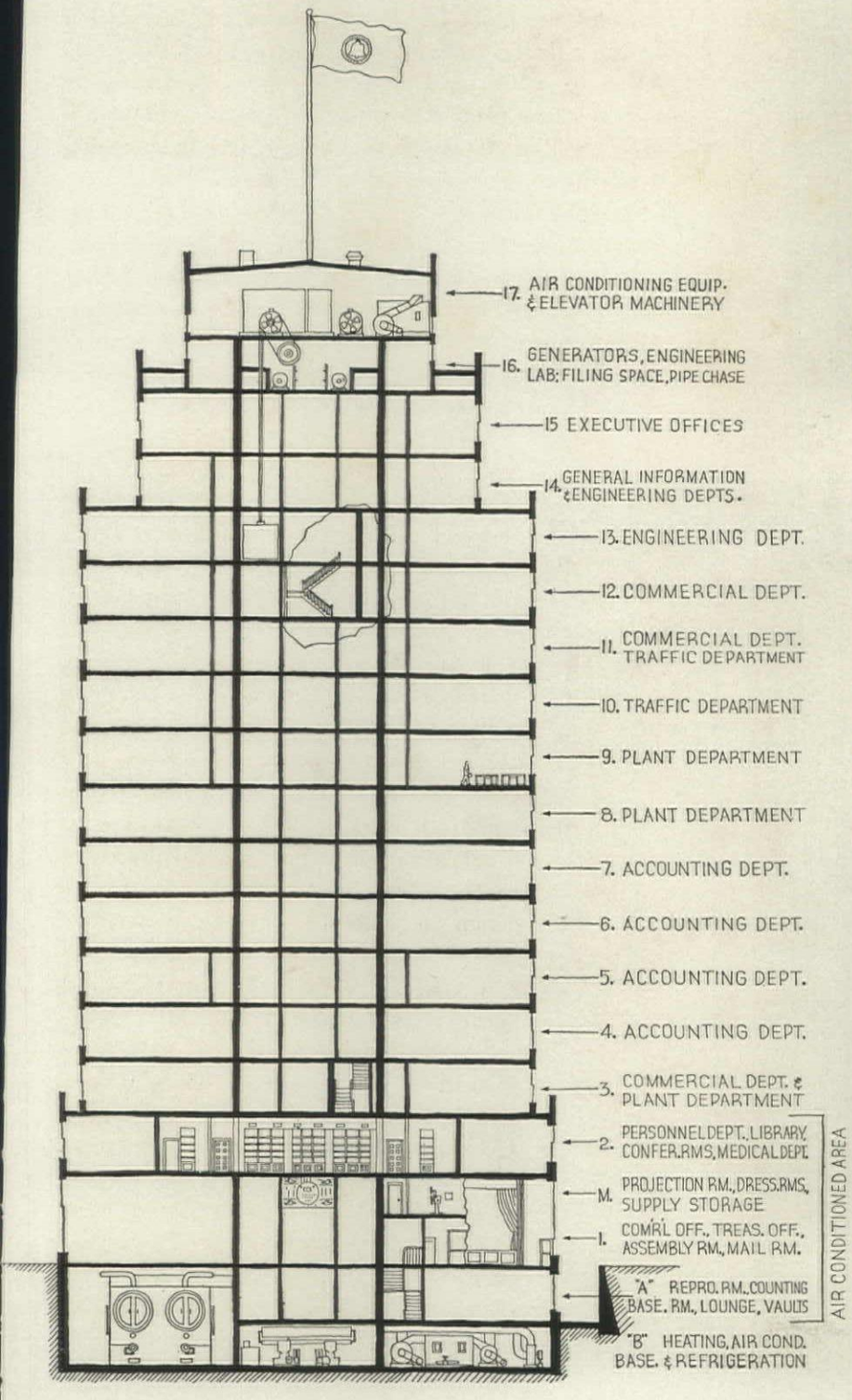
"The architects felt that the exterior should have a monumental character, partly because of its importance, and partly because it forms part of the new Civic Center. To this end split face Texas limestone, brick and concrete were combined. Inasmuch as no particular precedent has been set, the architects felt free to design the structure to best fit its function.

"The Memorial Hall is paneled in Philippine mahogany and dedicated to firemen killed in performance of their duty. Offices and drafting rooms for the city's electrical department are located on the first floor, along with locker, work and storage space. The second floor contains eating and sleeping quarters for engineers and maintenance men, and the radio control room. The north side of this floor contains the battery room, which supplies current for signal operation independently of public service. Air conditioning and heating equipment is located in the basement."

HEADQUARTERS BUILDING

SOUTHERN NEW ENGLAND TELEPHONE CO.
NEW HAVEN, CONN.
DOUGLAS ORR, ARCHITECT in collaboration with
R. W. FOOTE, ARCHITECT

HUBBARD, RICKERD & BLAKELEY, CONSULTING ENGINEERS



Samuel H. Gottscho Photos

TELEPHONE CO. HEADQUARTERS BUILDING

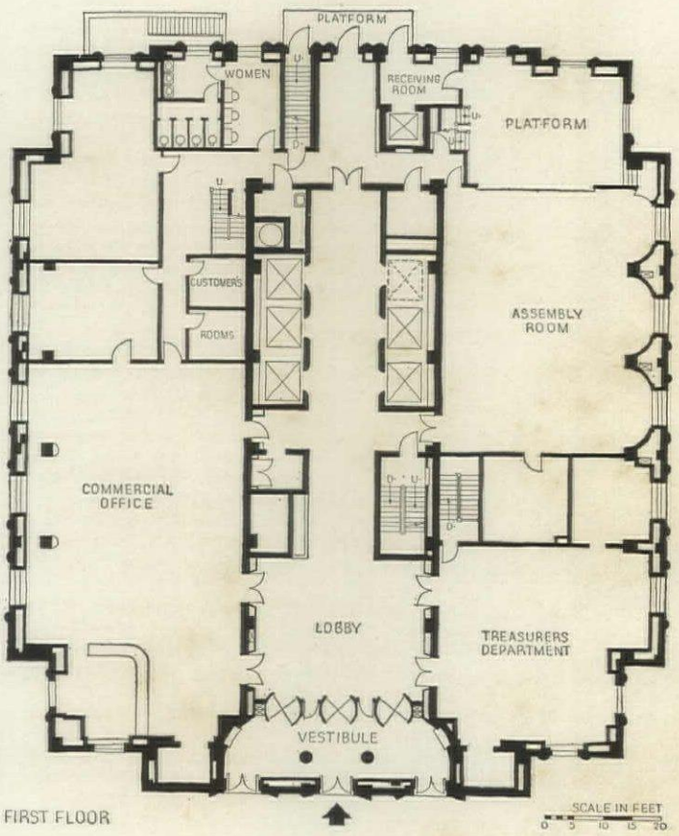
Although designed for the special requirements of the Telephone Company, this skyscraper follows the established pattern of the vertical office building, again indicating the superiority of vertical communication where the complex needs of a large organization are to be satisfactorily met. As in other structures built by this company, a more lavish use of costly materials is to be noted in both interiors and exteriors than is usually the case in office buildings. This is particularly in evidence on the external walls, whose richly molded stonework affords a striking contrast to the more common repetition of plain piers and windows. Another contrast is visible within the building, between the machine-like simplicity of the clerical offices and the traditional backgrounds of the rooms for executives, the library and the board of directors. These last were apparently a concession to the locality, for New Haven contains a great number of superlative examples of Colonial architecture which have exercised considerable influence on many of the newer structures.

LOBBY

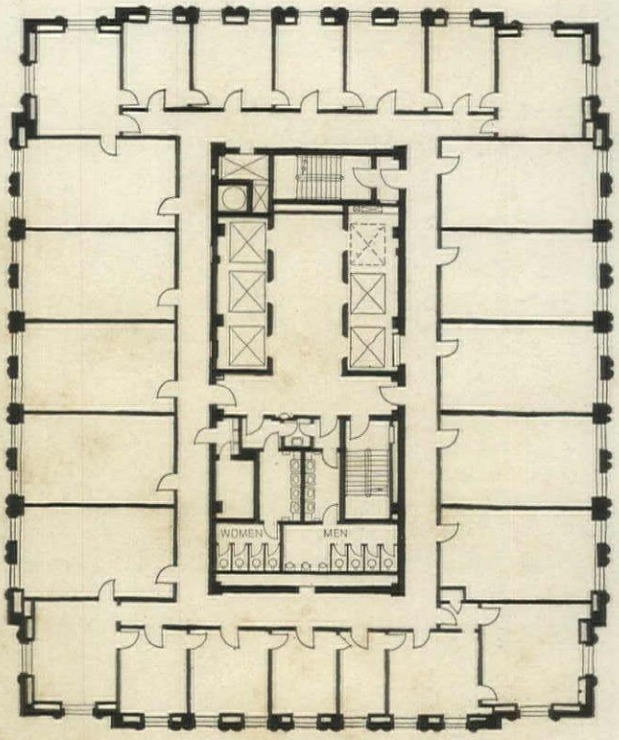
DOUGLAS ORR, Architect, in collaboration with R. W. FOOTE, Architect

HUBBARD, RICKERD & BLAKELEY, CONSULTING ENGINEERS

THE DWIGHT BUILDING CO., GENERAL CONTRACTORS

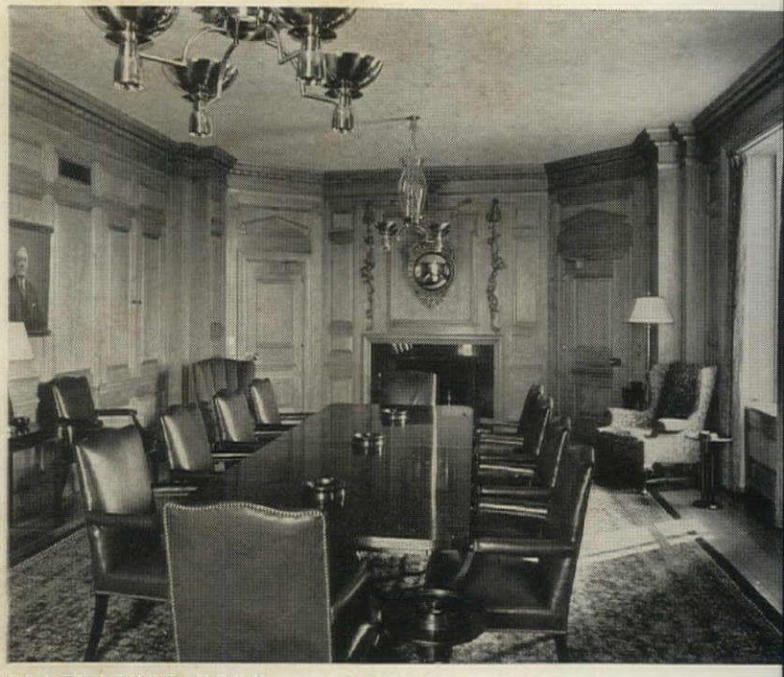


FIRST FLOOR



NINTH FLOOR

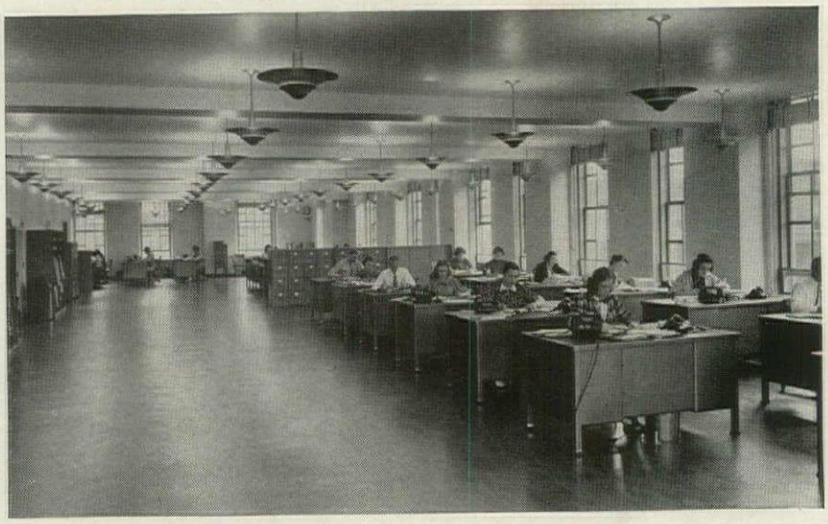
COMMERCIAL OFFICE



CONFERENCE ROOM

TELEPHONE CO. HEADQUARTERS BUILDING

DOUGLAS ORR, ARCHITECT
in collaboration with
R. W. FOOTE, ARCHITECT



LIBRARY

CONSTRUCTION OUTLINE

FOUNDATIONS: Reenforced concrete. Waterproofing by National Waterproofing Co.
STRUCTURE: Exterior walls—Indiana limestone, Indiana Limestone Co.; terra cotta, National Fireproofing Co.; cinder block furring, Atlantic Brick & Tile Co.; plaster, Conn. Adamant Plaster Co. Interior partitions—cinder blocks, Cinder Concrete Units, Inc.; plaster, Woodville Lime Products Co.; movable partitions, Johns-Manville Co. Structural steel, Bethlehem Steel Co. Floor construction—reenforced concrete slab, Kalman Floor Co.
ROOF: Covered with 5-ply asphalt roofing, Barber Asphalt Co.
SHEET METAL WORK: Flashing—copper, Wasco Flashing Co.; lead coated copper, J. E. Cobey & Co. Ducts—Libby & Blinn, Inc.
INSULATION: All insulation including sound insulation by Celotex Corp.
WINDOWS: Sash—steel, double hung, Truscon Steel Co. Jambs—steel, Jamestown Metal Corp. Steel spandrels and special steel jambs—J. E. Cobey & Co. Glass—Pittsburgh Plate Glass Co.
ELEVATORS: By Westinghouse Electric Elevator Co.
FLOOR COVERINGS: Lobbies—De Paoli Mosaic Co. Commercial and treasurer's offices and library—rubber tile, Royalite, Hood Rubber Co. General office areas—linoleum, Congoleum-Nairn, Inc.
WALL COVERINGS: Lobbies—Travertine, Vermont Marble Co. Library (2nd floor)—white pine, C. H. Dresser & Sons, Inc. Wash rooms—Markwa tile, Vermont Marble Co. Remainder—plywood, U. S. Plywood Co.
METAL TRIM: By Libby & Blinn, Inc., Dahlstrom Metallic Door Co., Jamestown Metal Corp., W. S. Tyler Co. and Ellison Bronze Co.
HARDWARE: By Sargent & Co. and Russell & Erwin Mfg. Co.
PAINTS: By U. S. Gutta Percha Paint Co., Calman and Billings-Chapin.
ELECTRICAL INSTALLATION: Materials by National Electrical Products Co., General Electric Co., Central Tube Co., Walker Bros., Bryant Electric Co., Trumbull Electric Co., The Miller Co., Bradley & Hubbard Mfg. Co., Cecil K. White, Inc., Western Electric Co., Kohler Co. and Warren-Telechron Co.
PLUMBING: Soil pipes—cast iron, Somerville Iron Works. Hot and cold water pipes—Anaconda, American Brass Co. Sewage ejectors—Nash Engineering Co. Sump pumps—Dayton-Dowd Co. House pumps—Worthington Pump & Machinery Corp. Drinking water tank—National Pipe Bending Co. Compressor—Frigidaire Sales Corp. Filters—Wm. B. Scaife & Sons Co. House tanks—Excelsior Boiler Works. Toilet fixtures—American Radiator-Standard Sanitary Corp.
HEATING AND AIR CONDITIONING: Two pipe orifice system, gravity return, cast iron convectors, low pressure steam, American Radiator Co. Temperature control system—Webster Tallmadge. Condensate pumps—Nash Engineering Co. Heating specialties—Hoffman Specialty Co. Air conditioning: Basement, first, mezzanine and 2nd floors—completely air conditioned; remainder treated with washed and humidified air or exhaust fans. Fans and washers—B. F. Sturtevant Co. Compressors—Carbondale N. Y. Co. and Automatic Refrigeration Co. Air filters—Libbey-Owens-Ford Glass Co. Temperature control—Johnson Service Co. Boilers—Bigelow and Kewanee Boiler Co. Burners and controls—Petroleum Heat & Power Co. Grilles—Tuttle & Bailey. Valves—Jenkins Bros. Incinerator—Morse Boulger Co.
SPECIAL EQUIPMENT: Mail boxes—Cutler Mail Chute Co. Venetian blinds—J. G. Wilson Co.

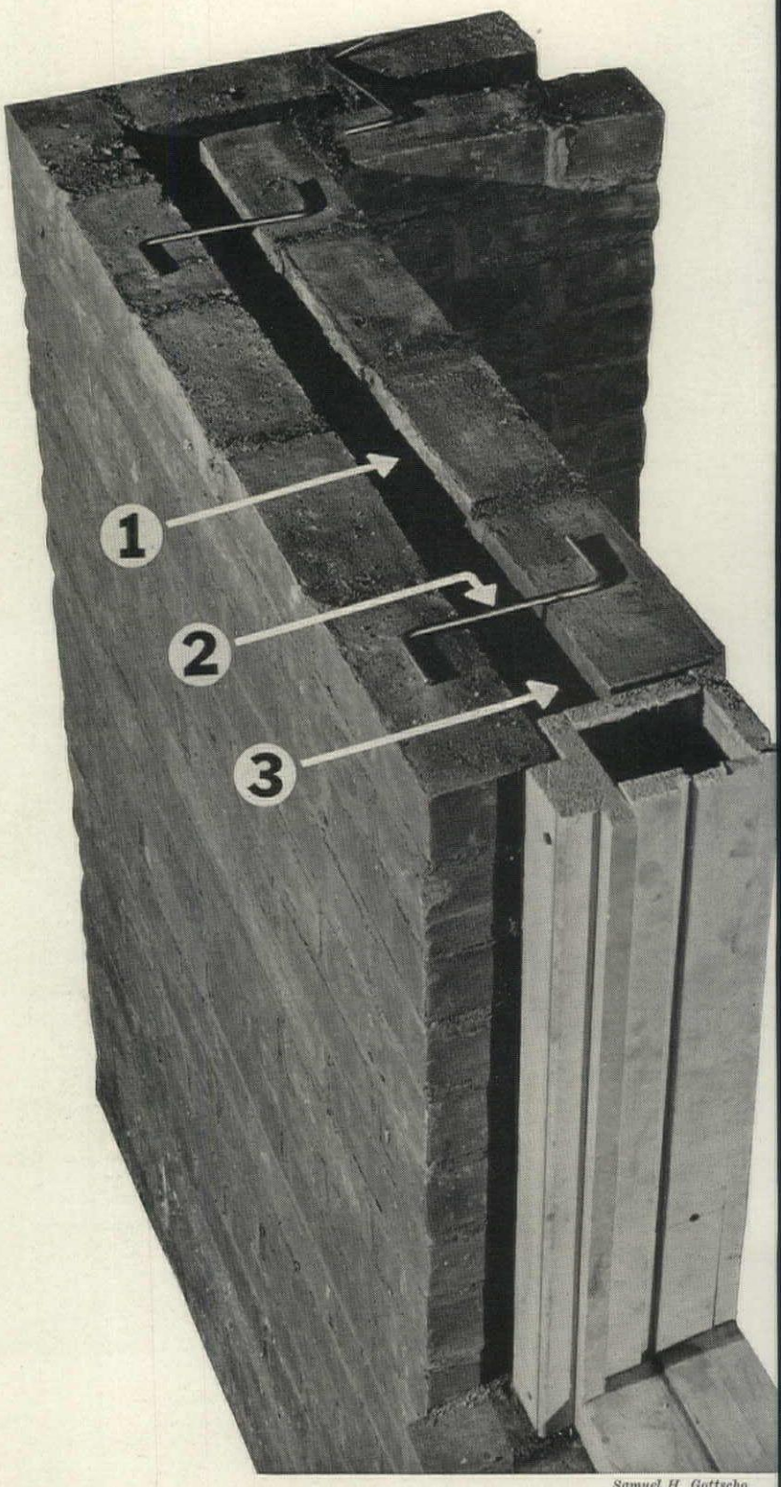
BRICK CAVITY WALLS

Brick masonry construction, after remaining unchanged in any fundamental for hundreds of years, has lately developed at a pace rivaling that of the most recently introduced materials and techniques. Nationally, the Brick Manufacturers Association has worked out sound principles of brick engineering, and shown how, by the addition of steel reenforcement, the lowly brick wall may be given the strength of a concrete beam, at practically no increase in cost.* In the New England States, brick manufacturers have taken the lead in the movement toward simplified, modular sizing of building materials to eliminate wasteful cutting and fitting on the job. In New York, associated manufacturers are aggressively pushing the modern cavity wall, have sponsored a series of tests by U.S. Bureau of Standards to establish authoritative data on its structural properties, and have recently succeeded in obtaining the approval of the F.H.A. and of the use of cavity construction under the notoriously stringent New York City Building Code.

New only to America, cavity walls have been used in England for years and with considerable success. Designed to produce a water-tight, load-bearing exterior wall which can be plastered direct without the use of furring, thus reducing overall cost, they have proved in practice to have several other important advantages. Among these are enhanced thermal and sound insulation, quick drying, freedom from efflorescence, tighter and more solid connections with door and window jambs, and the sleek, "clean" appearance of the finished wall resulting from the absence of the usual header courses.

Thus an effort primarily instituted as part of the general attempt to reduce costs has also resulted, as so often happens, in a considerable improvement in quality as well. The brick cavity wall, plastered direct, is not only cheaper than its solid-masonry-and-furring prototype, it is also in some respects better—while the cavity wall furred and plastered in the ordinary way represents a distinct improvement over regular solid construction at only a slight increase in cost. Neither form calls for special materials or more than a slight modification of the bricklayer's ordinary technique, while both are applicable wherever brick are normally used and assure permanent, trouble-free construction with minimum maintenance expense.

As in all forms of construction, new and old alike, the successful use of brick cavity walls depends upon careful attention to detail. In addition to a description of the physical properties of the cavity wall, the following pages devoted to details of cavity construction which have been proved in practice—details ranging all the way from bearing walls for the low cost house to non-structural panels for a concrete-frame apartment.

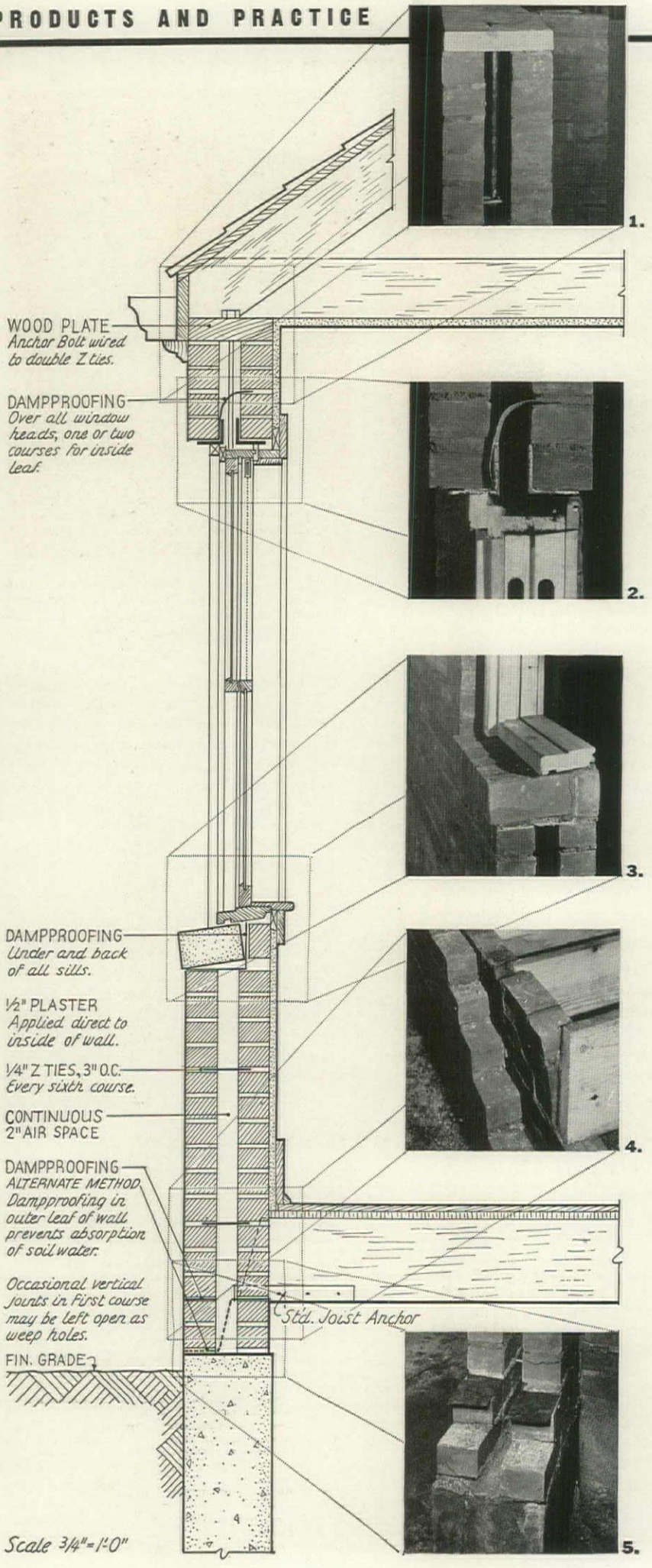


Samuel H. Gottscho

CUT-AWAY VIEW of wall corner and window frame showing three essentials of the true cavity wall: 1. continuous, vertical and horizontal air space, not bridged by masonry ties, 2. metal ties of minimum cross section area embedded in mortar joints, and 3. no masonry connection at door and window jambs.

* *Reenforced Brick Masonry*, ARCH. FORUM, Nov., 1939, pp. 367-70.

Photographs Courtesy Brick Manufacturers Association of New York



PURPOSE

True brick cavity walls, as the use of the term has been established abroad, are distinguished from all other forms of hollow masonry by a continuous, vertical and horizontal air space, bridged by no masonry ties. Prime purpose of this space is to provide an absolute barrier against the penetration of moisture to the inner side of the wall at any point, including heads and jambs of openings, joist bearing points, etc., thus assuring trouble-free masonry and permitting direct plastering without furring. It also increases resistance to heat-flow to about the same extent as the air space created by ordinary furring.

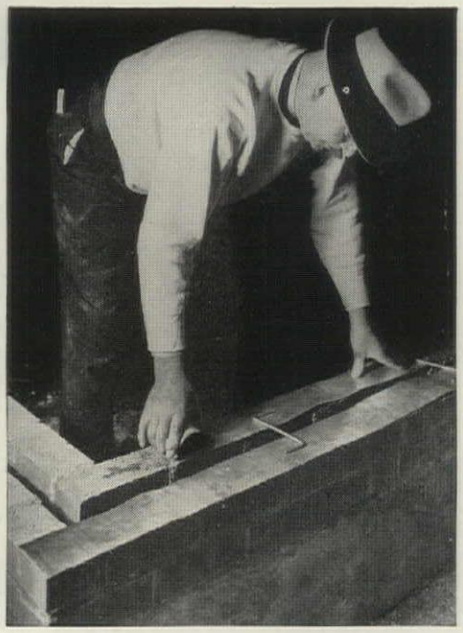
Since this construction affords no supporting material through which moisture penetrating the outer, 4 in. leaf of the wall can soak to the inner leaf, it guarantees that the inner leaf will remain perfectly dry, provided that adequate precautions are taken to intercept and deflect moisture running down the inner side of the outer leaf at the heads of all openings, and provided that the bottom of the wall is equipped with a suitable dampproof course to prevent absorption of soil water. In the damp climate of England, where brick is used in the walls of most houses and moisture problems are especially difficult, this advantage of cavity construction has been fully established in actual practice.

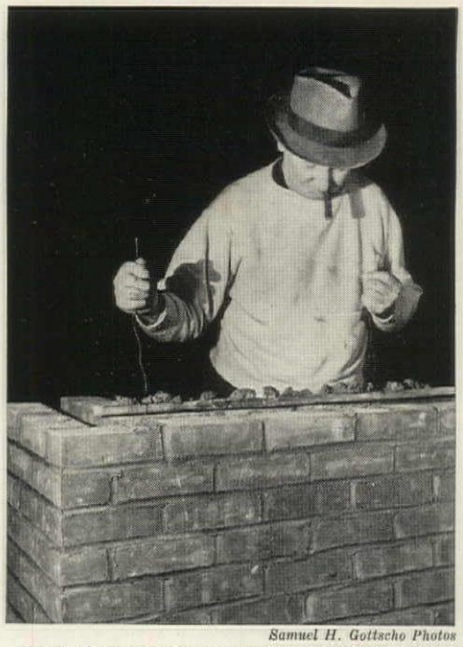
Besides acting as a moisture-barrier, the cavity assures quick drying masonry and less trouble from efflorescence, since the latter is due mostly to salts dissolving out of the mortar, and the cavity wall uses considerably less mortar than the solid type and each leaf of the wall drys on both sides. It also permits the use of interior exposed brickwork without loss of insulating effect and, when ventilated to the outside, affords an excellent means of arresting summer sun-heat.

TIES

In place of the usual header courses and other types of masonry bond employed in other forms of brickwork, the inner and outer leaves of the cavity wall are connected by metal ties—usually ¼ in. diameter, square-end, Z-bars—placed in every sixth mortar course and 3 ft. on center horizontally. These ties transfer lateral stresses from one half of the wall to the other, thus bracing both against bending, but have no effect on vertical compression loads, which, except when applied at the top of the wall, are carried wholly on one or the other leaf, since to continue structural members across the air space would defeat its purpose. Ties should be galvanized after forming, or, preferably, made from rust-resisting steel and cement coated. In England, a variety of special ties has been developed, most of which incorporate some form of drip to prevent the transfer of moisture from one side of the wall to the other, but so far in this country this has not been found necessary.

◀ **DETAILS OF RESIDENCE CONSTRUCTION** with cavity walls (left): **1.** Top plate and anchor bolts; bolts are wired to pairs of regular wall ties. **2.** Dampproofing at window head; note regular angle lintel and fashion in which dampproofing is arranged to force water to outer leaf of wall. **3.** Window sill; brick sills should be surrounded at bottom and back with dampproof material. **4.** Joist bearing on inner leaf of wall. **5.** Dampproofing to prevent absorption of soil water, below joists and 2 courses above bottom of cavity.





Samuel H. Gottscho Photos

GOOD WORKMANSHIP is as necessary in cavity wall construction as in other forms of masonry. Pictures show mason placing dampproofing at bottom of wall and successive stages in use of wood strip to catch mortar drippings. Strip rests on wire ties placed in every sixth mortar joint to hold the "leaves" of the wall together, is pulled up with its load of accumulated mortar drippings before placing the next row of ties. In right-hand picture, note absence of header courses in finished wall, no interruption of regular bond.

TYPES

Since in most applications the principal loads are carried by the inner leaf of the wall, the outer leaf is generally kept 4 in. thick and variations in thickness made only in the inner leaf. This gives rise to the two types of cavity construction recommended for load-bearing purposes: 10 in. and 14 in. walls. The former, which consists of two 4 in. leaves—brick laid flat—is used for all light construction up to three stories in height, or wherever an 8 in. solid wall would normally be sufficiently strong, and uses the same quantity of brick. The latter, which consists of an outer 4 in. leaf and an inner leaf 8 in. thick, with regular header ties, is used for heavier construction and bearing walls over three stories high, or wherever a 12 in. solid wall would ordinarily be needed, and also means no increase in the number of bricks used. For non-bearing walls, the inner leaf may be built of brick on edge, producing a wall 8 in. thick, provided it is not carried to too great a height. For panel walls in multi-story, steel- and concrete-frame structures, the 10 in. type is normally employed, with the outer leaf supported on shelf angles and suitable spandrel dampproofing at each point of support.

In both of the load-bearing types, overall dimensions are nominal, the actual thickness of the finished wall depending upon brick size and the width of the air space, which is usually kept an even two inches. With 3¾ in. brick, this gives the nominal 10 in. wall an actual thickness of 9½ in., the 14 in. type a thickness of 13¾ in. For Modular Brickwork, the width of the air space should be made 2 in. *plus the thickness* of one mortar joint (usually ½ in.), and the overall wall thickness indicated on the plans as 10 or 14 in.

STRENGTH

Recent tests sponsored by the Brick Manufacturer's Association of New York at the U. S. Bureau of Standards have shown that a 10 in. brick cavity wall 8 ft. high will support an average load of 62,100 lbs. per lineal foot (see table, below), which is slightly more than a solid wall employing the same quality of brickwork or about a sixth less if load is placed on inner leaf only. Since a combination of all of the floor load and half of the roof load for a typical 3-story building, measured at the inner leaf of a ground floor pier (assuming one-half of the wall area as open), is not likely to exceed 8 to 10 thousand pounds per lin. ft., it is evident that cavity construction affords more than enough of a factor of safety for all ordinary structures where these loads are not ordinarily computed. And, in the case of small piers and other conditions where loads are critical, the reduction in strength is so small as to make but little difference in the resulting design.

DAMPPROOFING

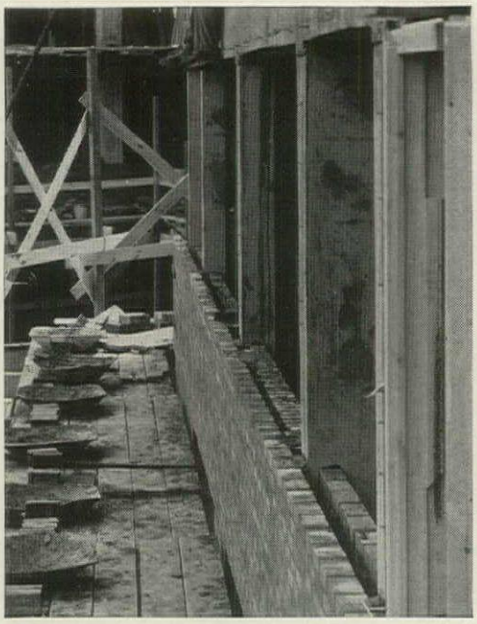
The basic idea which must be kept in mind in working out dampproofing details for cavity construction is that it is the air space, rather than the wall itself, which is relied upon to exclude moisture. According to the British Building Research Station, "in very wet weather there is every likelihood that water will reach the inner face of the outer leaf even in such quantity as to trickle down it, and

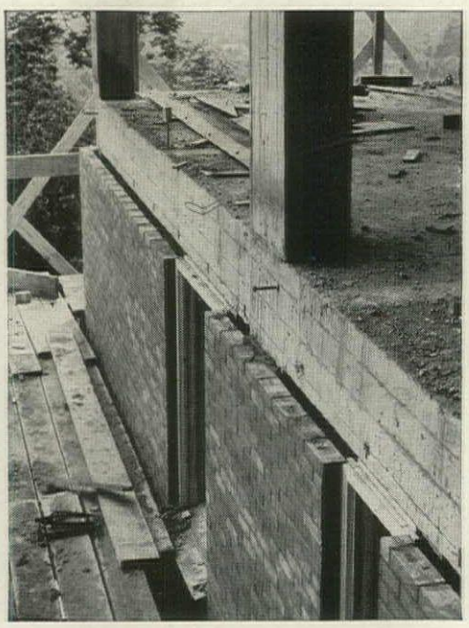
COMPARATIVE STRENGTH OF SOLID AND CAVITY WALLS—TEST DATA *

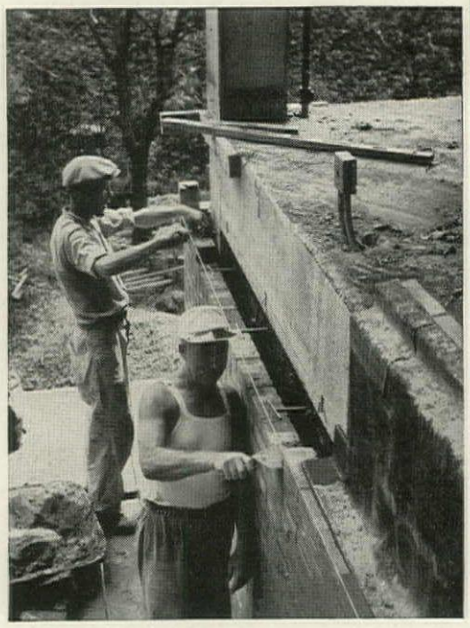
Compression loads on one leaf of cavity wall only.

WALL TYPE	COMPRESSIVE Test	COMPRESSIVE Max. load in pounds per lin. ft.	TRANSVERSE Test	TRANSVERSE Max. load in pounds per sq. ft.	IMPACT Test	IMPACT Feet of drop–60 lb. weight	RACKING Test	RACKING Max. load in pounds per lin. ft.
8 IN. SOLID BRICK (Wall AB from BMS Report No. 5)	C1	63,200	T1	53.3	I1	3.0	R1	6,250
	C2	52,500	T2	38.0	I2	3.0	R2	6,250
	C3	65,800	T3	53.2	I3	2.5	R3	6,250
	AVERAGE	**60,500**	AVERAGE	**47.9**	AVERAGE	**2.8**	AVERAGE	**6,250**
10 IN. BRICK CAVITY (Wall BD from BMS Report No. 23)	C1a	62,600	T1	22.0	I1	3.0	R1	4,950
	C2a	61,700	T2	30.0	I2	3.5	R2	6,030
	C3a	61,900	T3	24.0	I3	2.0	R3	6,000
	AVERAGE	**62,100**	AVERAGE	**25.3**	AVERAGE	**2.8**	AVERAGE	**5,660**

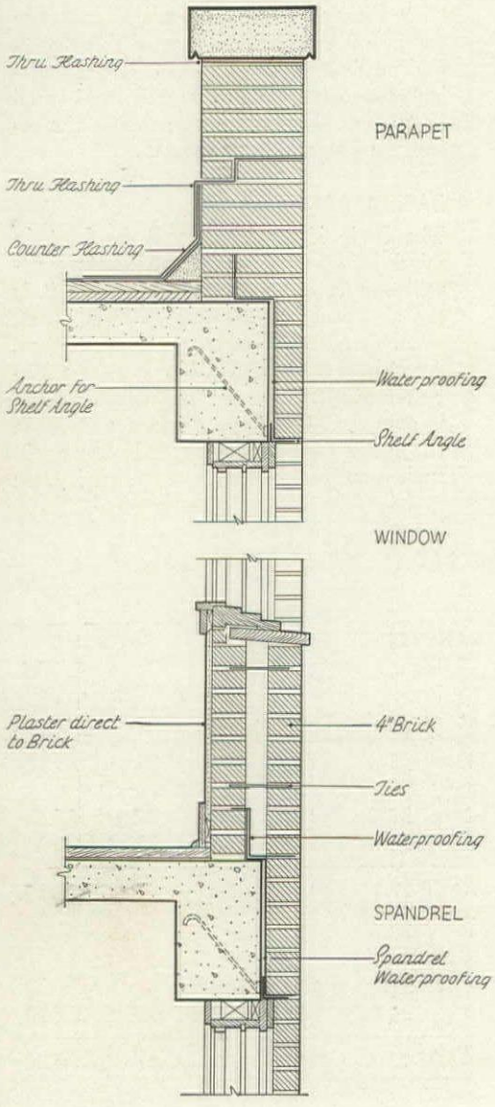
* National Bureau of Standards study of building Materials and structures; all wall specimens 8 x 8 ft.







PANEL WALLS for this huge, concrete-frame apartment house in Montclair, N.J., designed by Sugarman & Berger, Architects, were built by the brick-cavity method. Photos (above), and detail drawing (below), show relationship of wall to concrete frame, method of supporting outer leaf on steel shelf angles, and spandrel dampproofing which also acts as protection over heads of windows. Use of cavity wall saved money on this job by eliminating the need for separate furring or waterproofing before plastering.



adequate provision must be made to conduct this water to the outside of the wall." This means that dampproofing is essential *wherever, for any reason, it is necessary to bridge the cavity*, as at the heads of all openings in the wall, and that this dampproofing must be *arranged in such a way as to form a gutter at least one brick course high and open on its outer side*. If this rule is followed, it is probably unnecessary to provide weep holes at the bottom of the wall to let out the accumulated moisture, but if for ventilation or any other reason this is considered desirable, openings may easily be formed by omitting the mortar in occational vertical joints in the first course.

WORKMANSHIP

As in all forms of masonry construction, good workmanship is essential, although in the cavity type it is perhaps harder for a careless workman to spoil the result, at least without this fact being detected. Again, as in dampproofing, the critical factor is the cavity, which must be kept free from mortar drippings, especially on the wire ties. Best plan seems to be use of a wood strip, laid on top of the wire ties at the beginning of every six courses, and lifted out, with its accumulated load of drippings, just before laying out the ties for the next section of the wall. With this exception, the technique of laying brick for a cavity wall is exactly like that for a solid wall. And, since the mason has less mortar to place in cavity construction, the mason should, with a little practice, be able to lay brick as rapidly by this method as by any other.

COST

The only additional item of material required for cavity wall construction is a sufficient number of wire ties, and, since the cost of these is negligible and the labor requirement substantially the same as for solid walls, the cost of a 10 in. cavity wall is only slightly more than that of its 8 in. solid counterpart. Plastered direct, it represents a substantial saving over regular solid brickwork plus lath and furring.

COMPARATIVE HEAT TRANSMISSION OF SOLID AND CAVITY WALLS—COMPUTED *

Coefficient "U" (Btu. per sq. ft. per hour per degree difference in temperature).

WALL TYPE	No Finish	½ in. Plaster	Furring, metal lath, and ¾ in. plaster	Furring, ½ in. plaster on ⅜ in. plaster board
8 IN. SOLID BRICK	.420	.395	**.284**	.269
10 IN. BRICK & TILE	.317	**.303**	.233	.223
10 IN. BRICK CAVITY	.300	**.290**	.225	.216
12 IN. SOLID BRICK	.314	.300	**.231**	.222
14 IN. BRICK CAVITY	.244	**.236**	.191	.184

* For low density brick; Bureau of Standards test now in progress.

BUILDING MONEY

CONTENTS:

All photos, Charles E. Steinheimer

OLD NEWSPAPERS TO NEW HOUSES in three easy jumps: repulping in Homasote's Trenton plant, three days' prefabrication in 56 local shops, three days' field operation. Cost $2,116.

National defense may do for Prefabrication what World War I did for the aircraft industry—raise it from infancy to adolescence in no time. On the other hand, it may disprove Prefabrication's long and loudly voiced claim that it alone holds the answer to many a U. S. housing problem. With well padded, undocumented production figures, prefabricators have boasted their ability to beat conventional house builders in speed, volume, cost, quality and a host of other factors. A few leaders have actually fulfilled a few of these boasts in a few isolated projects*, but the unconvincing accomplishments of the industry as a whole have prompted many observers to rhyme prefabrication with prevarication.

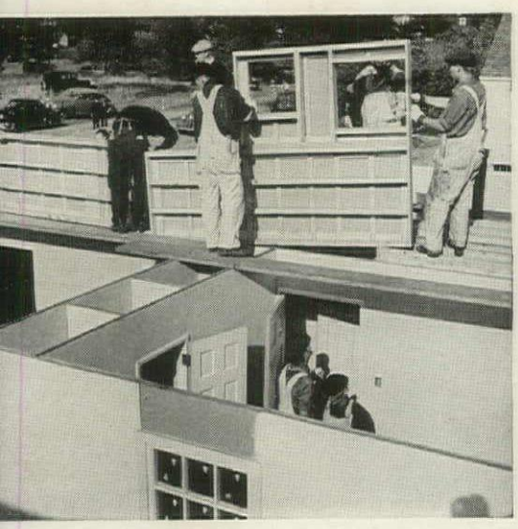
Today, Prefabrication is preparing for the acid test, for Government is about to call its bluff. Thus, defense housers in Washington spent last month weighing the many claims and the few accomplishments of the nation's prefabricators, prior to giving "educational orders" for 50 houses each to those who appear to be best able to deliver the goods. It is a sure bet that those who toe the mark in this experiment will receive orders for many of the 80,000 houses to be financed with the $250 million of Federal defense housing funds already appropriated (ARCH. FORUM, Nov. 1940, p. 441). At month's end, Government had whittled down its list of prefabricators to eight, and was talking about shaving it still further before the trials begin. Assured of top billing on this list is one prefabrication enterprise which, while it has been the least ballyhooed of the lot, has built up a decentralized production network which blankets the country and has probably accounted for more houses than all of its competitors combined. So far ahead of the field is this one enterprise that its "educational order" will probably dwarf the others in size, cover the production of perhaps 1,000 defense houses on the West Coast.

The company that can take such an order in its stride, while producing some 4,000 other houses a year through its local lumber dealer and builder outlets, is Homasote Co. of Trenton, N. J. Primarily a manufacturer of large insulating boards (also called Homasote), the company for six years has merchandised its product by encouraging the local prefabrication of locally designed houses using Homasote. This fall, however, with an eye to defense housing business, Homasote Co. uncorked its own design for a light-weight (2 x 2 in. studs) demountable house to be fabricated by its 56 franchised manufacturing plants. And, last month it transferred the working drawings into insulating board and lumber (see photographs, right and pp. 532 and 533), produced a handsome four-room house at $2,116, announced that FHA had approved its "junior" construction.

Homasote Co. was formed in 1909 as the Agasote Millboard Co. to manufacture

* Notably, American Houses, Inc. at Dundalk, Md. (ARCH. FORUM, July 1940, p. 69) and Gunnison Housing Corp. at New Albany, Ind. (ARCH. FORUM, Sept. 1938, p. 236).

At eight o'clock Homasote's "junior" house takes shape as floor sections are anchored to piers laid night before (top). Half the rear wall, complete with windows, goes up as one piece, is set in floor clips, screwed to the smaller wall section (above). Note thickness of partition (below).



By two o'clock all walls and partitions have been secured in place, fitted with doors, and easily handled ceiling sections are set atop the shell (left). Holes in large section held by carpenters are for attic access panel and flue. Two hours later roof panels are snubbed against a plate at the bottom, bolted together at the top (center). Meanwhile other workmen trim the interior. At five o'clock the two one-piece gable ends are fitted into their triangles with jig-saw puzzle accuracy, completing the enclosure of the house (right). First day's work also includes the laying of asphalt shingles and the completion of the chimney (see five-thirty o'clock photograph, p. 36).

high density wood fiber boards for use as the curved ceilings and sides of railroad passenger car and interior panels for ships. Later the boards went also into automobile sedan roofs, and for many years the company, whose products were sold by Pantasote Leather Co., along with the latter's imitation leathers, was a leading producer in each of these three fields. In 1916 Agasote developed a cheaper product by repulping waste newspapers, mixing them with waxes, oils and other weatherproofing elements and pressing them into large gray panels. Dubbed "Homasote," their size, strength, durability, flexibility and insulating qualities admirably suited them for use in the building industry. However, their application was limited, for the most part, to army huts and cantonments until the automobile industry in 1925 switched to fabric sedan roofs, dropped out of Agasote's market and, therefore, forced the company to push its building product.

With the death in 1932 of both companies' founder, E. H. Outerbridge, all connection between Agasote and Pantasote was cut, and Agasote set out on its own sales program, paid increasing attention to the building field. But, the going was tough; high density Homasote board was priced $10 to $15 per 1,000 sq. ft. higher than its lighter weight competitors. It became quickly obvious that, if the company were ever to enjoy a wide building industry market, it had first to find a vehicle by which the qualities of its board could be best utilized and by which the ultimate cost to the consumer could be brought down to or below the level of other types of construction.

Precision Building—a fancy synonym for prefabrication—was judged the best vehicle to solve the double barreled problem. But, its wheels turned slowly until the management in 1934 hired energetic young (then 35 years old) F. Vaux Wilson, Jr. away from Remington Rand to perfect the prefabrication program, to sell it and, via it, to sell Homasote insulating board.

Forthwith, Wilson developed the idea that the company's large insulating boards (three sizes: 6 x 12 ft., 8 x 12 ft., and 8 x 14 ft.) were "naturals" for sectional construction, that all the walls and partitions of most any house could easily be shop assembled in large sections with exterior and interior surfaces of Homasote. Wilson himself designed the first such house, a four-room unit with dimensions controlled by the standard lengths of Homasote boards whose joints were masked, for the most part, by abutting partitions. At the outset, the company thus dodged the public's most frequent complaint against most systems of prefabricated construction: that the panel joints are unsightly.

After Architect W. Henry Neubeck had been placed on the company payroll and had perfected Wilson's sketches, the trail-blazing house was prefabricated and erected in 1936. It was estimated to cost $2,600; it actually cost $5,100; and it was sold at the originally advertised price of $3,750. The loss, however, was more than offset by the practical experience gained. Most important, the guinea pig proved that the construction system, later trademarked "Precision-Built," would work. Forthwith, the company franchised reputable lumber dealers to fabricate the wall sections of houses in accordance with its pattern and approved contractors to handle their erection.

First Precision-Built house to go up on a commercial basis was fabricated in the fall of 1936 by Peoples Lumber and Supply Co. for erection in College Park, Md. Since then the business has grown like Topsy, and in 1937 the company's name was changed to correspond to its principal product. To date, Homasote* has assisted the establishment of 56 local fabricating plants from coast to coast, each serving a radius of from 30 to 300 miles depending upon their size. (A typical medium-size shop is that of Service Building Materials Corp. of Carlstadt, N. J. where nine workmen can turn out one house a day—see photograph, p. 534). Some of these prefabricators have more than doubled their business in their first year of Precision-Building. All told, they produced 3,094 houses last year on which Wilson was able to keep tabs plus innumerable others which have not been reported to the Trenton office. This year's production passed 1,800 at the half-way mark, will easily better the 1939 record. Result: Homasote's business has trebled since 1932, and Precision-Building now accounts for 26 per cent of the company's annual production.*

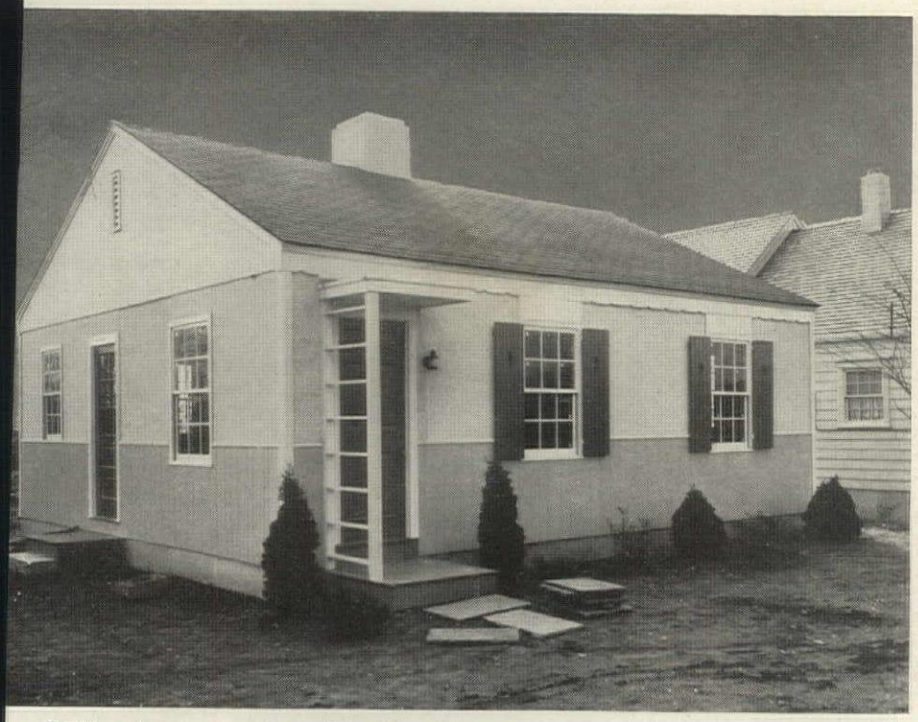
As important to the program's success as the Precision-Built system are the national and local advertising campaigns which have accompanied it. A firm believer in one of Building's least practiced theories—that manufacturers should merchandise houses as well as their sash, shingles and sinks—Homasote has nationally advertised the advantages of its dealers' construction system along with its own product. And, dealers have plugged both of them again and again in the local press—to the tune of some $50,000 last year.

Several significant developments in the early stages of the program have also helped it along. To facilitate the transition from conventional to Precision-Built construction, Homasote permitted the prefabrication of only the walls during the first year, later let local builders fabricate ceiling sections as well. Coincident with this development Bemis Industries, Inc.† convinced Wilson that it would be eco-

* With the aid of its seven technical experts: Joseph E. Blagden, Griffith S. Clark, John G. Germond, Frederick Lantz, Arthur Meyer, John Tanan and Martin S. Wing.

* The balance goes principally into conventionally built houses, industrial buildings, poultry houses (a field in which Homasote claims outright leadership) and into shoe platforms.

† Now the Modular Service Assn.



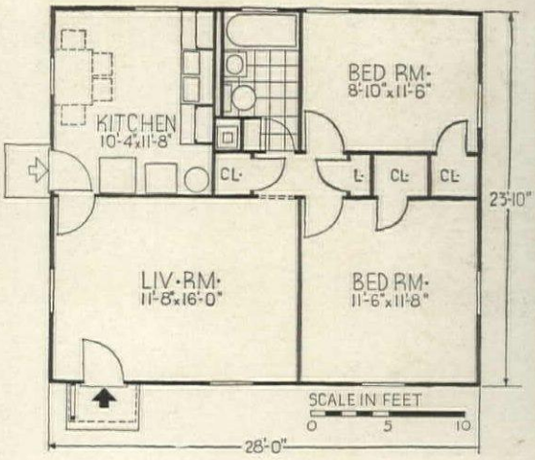
Next two days are spent completing the mechanical equipment installation, applying finishing touches to the interior, painting inside and out, adding shop assembled stoops and trellis and asbestos board skirting which conceals the pier foundation. Dado is an extra layer of Homasote board, tinted and grooved to create the effect of vertical siding. Balance of walls is finished with a sand oil finish applied directly to Homasote board in the shop.

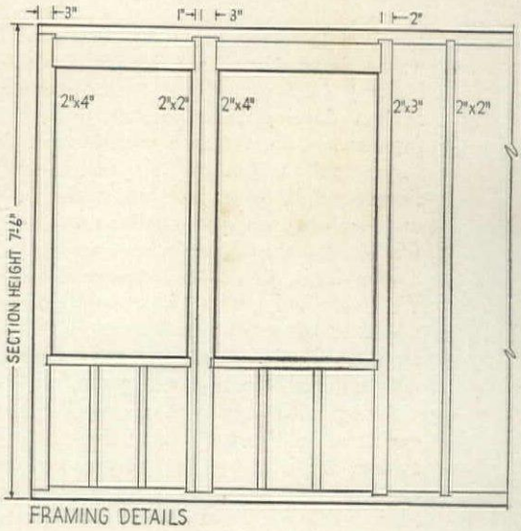
COST BREAKDOWN

Description	Material	Labor*	Total
Clearing site		$ 4	$ 4
Excavation and rough grading		15	15
Masonry and foundation enclosure	$ 57	28	85
2" Framing lumber (3939 @ 40)	157		157
Strapping (no bridging)	8		8
Homasote (5600 @ 41 per MSF)	230		230
Exterior sand finish	18	18	36
Asphalt roof shingles 3 in 1 strip	36		36
Finish floor (V.G. pine or fir)	54		54
Millwork (windows, doors, etc.)	155		155
Shop labor		200	200
Field carpentry		96	96
Dado in bath	10	4	14
Rough hardware	40		40
Finish hardware	30		30
Glue	10		10
Shutters	2	2	4
Screens	15	8	23
	$822	$375	$1197
Linoleum floor in bath			8
Sheet metal			21
Painting (sandfinish) includes finishing floors			250
Electrical wiring			40
Lighting fixtures			15
Heating (oil-fired floor furnace)			75
Plumbing (including septic tank or street connection)			325
Walks, drives, finish grading			75
Trucking			15
Scaffolding			5
Insurances, compensation			50
Shop overhead (super., clerk, rent, maint., power, etc.)			25
Field overhead (super., surveyor, clerk, equip., etc.)			15
			$ 919
TOTAL			**$2,116**

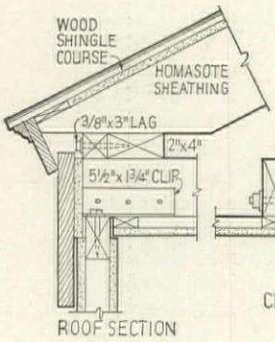
* Based on following labor rates: carpenters, $1; carpenters helpers, 65 cents; masons, $1.50; masons helpers, 85 cents; common, 50 cents.

DESIGN DETAILS

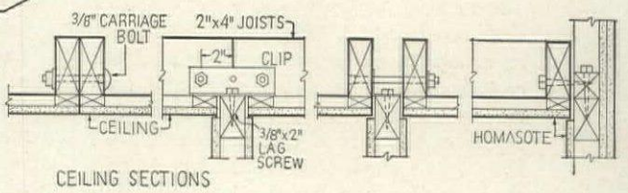




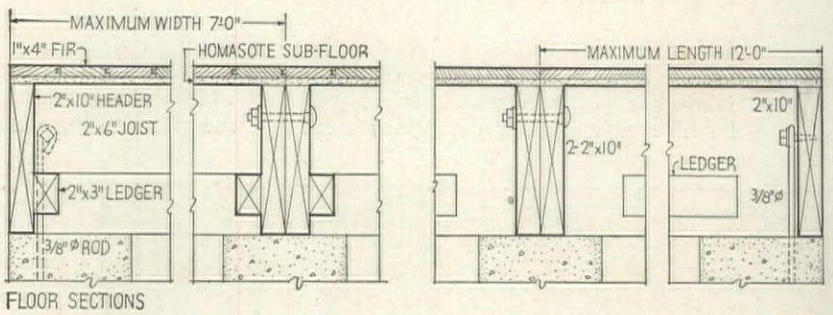
FRAMING DETAILS



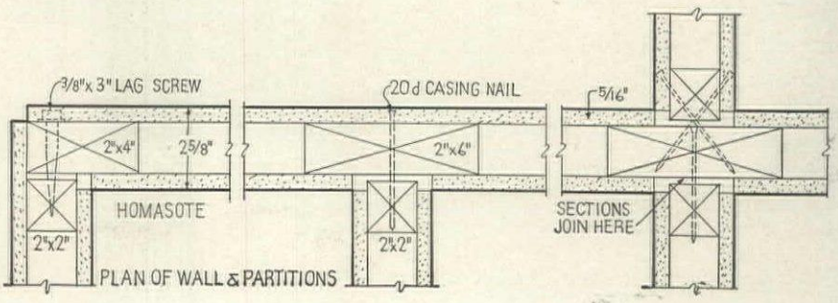
ROOF SECTION



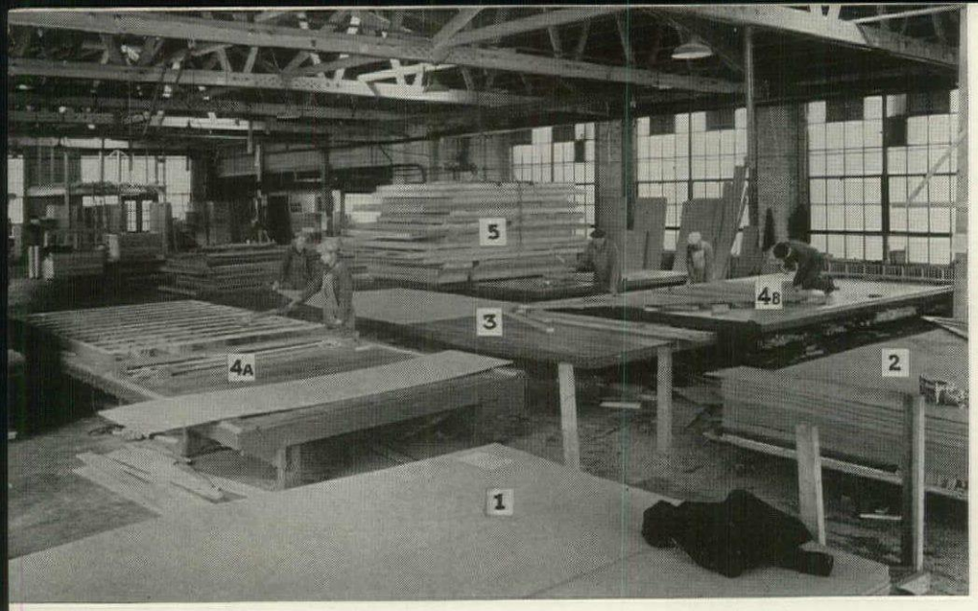
CEILING SECTIONS



FLOOR SECTIONS



PLAN OF WALL & PARTITIONS



Typical shop of medium size for the prefabrication of Precision-Built houses is that of Service Building Materials Corp. at Carlstadt, N. J. (left). Large Homasote insulating boards are stored on table No. 1, moved to table No. 2 where one side of each board is moistened with water (note gutters on table) the night before its use, causing it to expand about ¼ in. in length. Boards then go via table No. 3 to table No. 4A for fabrication into ceiling sections or to table No. 4B for fabrication into wall sections. Here they are glued and nailed to precut framing members. Table No. 5 is one of several used for storage of the completed sections.

A high density (25.5 lbs. per cu. ft.) insulating board comprised of repulped newsprint with integral weatherproofing elements, Homasote boasts a conductivity coefficient of 0.42 Btu. per hour per sq. ft. per degree per in. of thickness. Its air infiltration rate is 0.1 cu. ft. per sq. ft. per hr., at 20 mph.; its modulus of rupture, 1,100 lbs. per sq. in.; its tensile strength, 680 lbs. per sq. in.

nomical to discard his 4⅝ in. module (used in sectionalizing locally designed houses) in favor of the 4 in. modular system developed and patented by the famous housing research organization. At the same time, Homasote acquired the only license yet issued to operate in the U. S. and Canada under these patents, the benefits of 23 years of Bemis research and, on a loan basis, two Bemis engineers—John W. Germond, who was subsequently added to the payroll as Homasote's Chief Housing Engineer, and Prentis Bradley who rejoined the research group.

Along with Architect Neubeck, these engineers redetailed the Precision-Built system to fit the 4 in. module and assisted in the preparation of a 400-page book written on the subject by Wilson, who by this time had moved up to Homasote's vice presidency under President Basil Outerbridge. A technical encyclopedia representing $200,000 of Homasote research and covering every detail of Precision-Building, "Tomorrow's Homes," is loaned to interested architects at no cost, is sold to lumber dealers and contractors for $5. Last month, only 300 copies of the second edition remained on Homasote's shelf (total printing: 4,000). Both the Bemis endorsement and the Wilson book have contributed materially to the Precision-Building boom.

Senior. Now that this form of construction has been accepted and is practiced in 56 fabricating plants, Homasote is ready to launch a radically new development. For four years Vice President Wilson has maintained that 2 x 4's are unnecessarily heavy for the wall construction of small, one-story houses. Their use between layers of Homasote board in the "standard" or "senior" Precision-Built houses has limited shop fabrication to the assembly of walls, partition sections and ceilings and to the precutting of rafters and joists, and has thus thrown the relationship between shop and field labor sadly out of balance. Shop fabrication on the average Precision-Built house requires only one day; field fabrication and assembly, from eight to twelve days. When compared with the construction time required for conventional houses, this period is short and has proved to be one of Precision-Building's potent selling points; but it is not short enough to suit Wilson.

With the exception of the shop fabrication, Homasote's "senior" construction is similar to conventional platform frame construction with the sheathing, siding, lath and plaster replaced by the company's large insulating boards. To permit a greater proportion of shop fabrication, considerably less field labor and a smaller materials bill (all of which would combine to effect lower costs), simplification of the construction system was demanded.

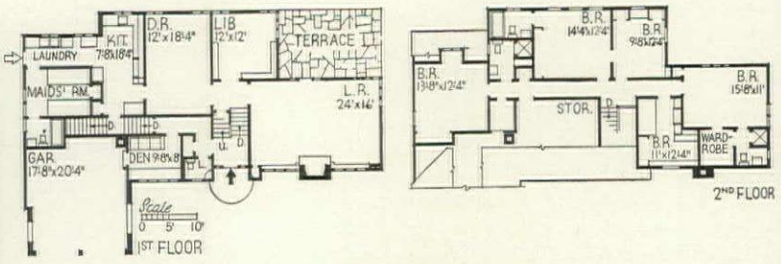
Junior construction was the answer. Principal basic change was substitution of 2 x 2 in. studs 12 in. on centers for the standard 2 x 4's 16 in. on centers.

Since double nailing the 2 x 3 in. sills and plates to these studs would probably have split them, the studs are housed into the horizontal members and secured with a daub of glue and one nail each. When large sheets of the moistened insulating board have been glued and nailed to either side of this frame and allowed to shrink, the resultant drum-tight wall panel is even stronger than its "senior" counterpart. The former will take 13,000 lbs. pressure before buckling; the latter, 9,600 lbs. Window units are installed in these wall sections at the shop; door units are shop assembled but are inserted in the prepared openings at the site.

For a 24 x 28 ft. house (maximum width for "junior" construction), the floor is comprised of eight 7 x 12 ft. sections consisting of 2 x 10 in. border members with 2 x 6 in. intermediate joists. Atop these frames go Homasote's insulating board as sub-flooring and fir or pine finish flooring—both applied in the shop.

Ceiling sections measure 8 x 12 ft., consist of 2 x 4 in. joists 12 in. on centers with 1 x 2 in. wood strips nailed perpendicularly 12 in. on centers to the under side. Insulating board is then glued and nailed to the strapping. Roof sections are comprised of 2 x 6 in. rafters similarly spaced and covered with insulating board which, in turn, is covered with asphalt shingles at the site. (Where the use of wood shingles is desired, the insulating board is replaced by the usual wood shingle strips.) To make them rigid and to facilitate their inter-connection in the field, ceiling sections are bordered at the

(Continued on page 34)



Not the biggest Precision-Built house, but big, is this one built by Homasote's Vice President F. Vaux Wilson, Jr. for himself in Yardley, Pa. Plans were completely sectionalized to permit the use of large Homasote insulating boards as the house's sheathing, ceilings and interior wall surfaces. Since its completion last February in 45 working days, the planting of shrubs has enhanced the clean architectural design, has partially shielded the strip windows which flank the living room fire place. Cost, excluding land: about $14,800.

SURVEY OF BUILDER IMPORTANCE drives home a marketing axiom:

6 per cent of the builders produce half the houses. Two out of three are small fry.

Home building has long been dubbed a sprawling, disorganized industry in which most of the many local producers operate on an uneconomically small scale. And, it has been claimed that, to tap the biggest part of the market with the least effort, building material manufacturers and dealers should concentrate their sales efforts on the few home builders who operate on a large scale.

Substantiating both claims is the U. S. Department of Labor's ponderously significant survey of one-family house builders in 72 U. S. cities. Thus, to claim No. 1 it adds this statistical proof: 64 per cent of all urban home builders erect only one house per year and account for only 19 per cent of the total annual production. Under claim No. 2 it shoves this somewhat startling but factual foundation: only 6 per cent of all home builders erect ten or more houses per year, but they account for almost half (49 per cent) of the total annual production.

Conducted as a nation-wide Federal Works project, the survey was launched in 1939, guided throughout and finally interpreted this fall by Chief Herman B. Byer of the Labor Department's increasingly useful Division of Construction and Public Employment. Year ago, Byer had received reports from 30 cities and tabulated the findings, but, to improve the cross section, he threw out seventeen of the original cities, added 59 others. The new survey, whose results are substantiated by the preliminary sampling, covers 72 cities in 38 States in every geographical section of the country. The cities range in population from 2,237 (University Heights, Ohio) to 6.9 million (New York), include a dozen others in the 500,000-and-up population brackets. All 72 were chosen to present "a reasonably representative picture by size of city, geographic location and influence (or lack of influence) of nearby metropolitan centers."

Basis for the survey's statistics is the number of permits filed during 1938 for the construction of one-family houses in the urban areas by builders located in these areas. These urban limitations might seem to result in an under-estimation of the size (number of houses per year) of certain builders, for many of them operate outside as well as inside the cities. However, the discrepancy is relatively unimportant, as was proved by a special survey of one-family house building operations in Cleveland and its suburbs.

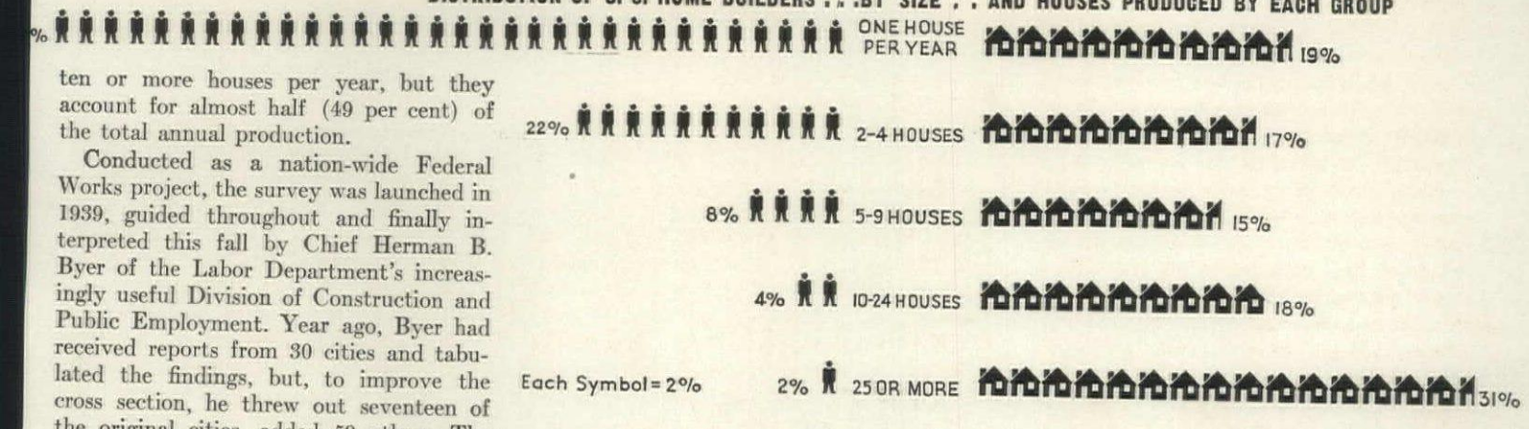
Within the 72 cities, a total of 13,934 builders erected a total of 47,156 one-family houses during 1938, an average of about three and a half houses per builder. But, as shown on the chart above, the average is insignificant. It is pulled down by the 8,890 builders (64 per cent) who build only one house a year. It holds good only for the 3,105 builders (22 per cent) who build only two to four houses. It is pulled sharply up by the remaining handful of builders—of which 1,095 (8 per cent) build five to nine houses a year, 602 (4 per cent) build ten to twenty-four and 242 (2 per cent) build 25 and more.

The large group of producers who account for only one house each per year cannot be called "builders" in the true sense of the word, for they are not in the business of building. To make even a half-way decent annual net profit, say $1,000, they would have to produce only houses valued at $10,000 or more—an absurd supposition in view of the record. Actually, most "builders" in this large group are sub-contractors and craftsmen each of whom builds, frequently on speculation, one house a year in his off hours or between jobs. Into this group also fall many owner-builders and general handy men who build on a commission or salary basis as agent for the owner. Many are active in other fields—apartment and non-residential construction—but step down periodically and temporarily to the single-family house market.

If, as it is reasonable to assume, the 72-city statistics hold true for the country as a whole, there were in 1938 about 75,000 one-family house builders of all sizes in the entire urban U. S. Today this figure is probably closer to 80,000 and the inclusion of rural one-family house builders would further swell the 1940 total. (This figure excludes, of course, a comparatively small number of builders whose

(Continued on page 38)

DISTRIBUTION OF U. S. HOME BUILDERS . . . BY SIZE . . AND HOUSES PRODUCED BY EACH GROUP



PERCENTAGE DISTRIBUTION OF HOUSES BY PERMIT VALUE AND SIZE OF BUILDER

PERMIT VALUE OF HOUSE*	ALL BUILDERS	BUILDERS WHOSE ANNUAL PRODUCTION IS					
		1 HOUSE	2–4 HOUSES	5–9 HOUSES	10–24 HOUSES	25+ HOUSES	TOTAL
ALL VALUES	**100%**	**19%**	**17%**	**15%**	**18%**	**31%**	**100%**
UNDER $1000 (UNDER $1400)	4	55	22	9	7	7	100
$1000–$2000 ($1400-$2800)	7	37	26	14	16	7	100
$2000–$3000 ($2800-$4200)	12	22	21	16	19	22	100
$3000–$4000 ($4200-$5600)	24	14	14	14	19	39	100
$4000–$5000 ($5600-$7000)	24	11	13	15	19	42	100
$5000–$6000 ($7000-$8400)	16	14	16	17	21	32	100
$6000–$7500 ($8400-$10500)	8	21	20	17	17	25	100
$7500–$10000 ($10500-$14000)	3	27	28	23	15	7	100
$10000–$15000 ($14000-$21000)	1	34	31	20	9	6	100
$15000 & OVER ($21000 & OVER)	1	38	39	14	8	1	100

* Values in parentheses are estimates of sales prices for permit values shown; on the average they run approximately 40 per cent higher than permit valuations.

$8,200 STOCK DESIGN

draws inquiries by thousands, is Better Homes & Gardens' best.

Professionally, most plan service designs are wont to be viewed with suspicion or disdain. But at "Bildcost Gardened House No. 1008" in the series developed by *Better Homes and Gardens* as an aid to prospective house builders in areas where individual architectural services are not available, the building industry may profitably pause for critical study, for this design is setting a popularity record.

Built originally in San Marino, Calif., for the C. R. Liljestroms by Architect Melvin N. Garlough, the house was first publicized in BH&G's August issue. Accompanying the presentation was the usual Bildcost advertisement offering readers, in exchange for two 3-cent stamps, a complete materials list for use in making local cost estimates. Such estimates permit the prospective owner to learn whether the dwelling is within his budget. Prospect may then purchase plans—$5 for the first set, $2.50 for each additional set.

Although accustomed to handling an average flow of about 3,800 inquiries for materials lists on each Bildcost model, BH&G's editors were taken by surprise when orders began rolling in on Plan No. 1008. Within a month the total reached 8,391; three months later, 11,346; and it continues to increase at a rate two to three times that recorded for other houses in this year's vintage. Last month these preliminary inquiries had already led to the purchase of 487 sets of blueprints, principally by persons living in Illinois (10 per cent), North Carolina, Pennsylvania, California (7 per cent), and Virginia (6 per cent).

Such phenomenal popularity is readily understood by examining the many practical features in Architect Garlough's plans:

▶ A combination porch and terrace, set in the recess formed by the living and dining rooms and sheltered by a second story overhang, permits outdoor living.

▶ Spacious living room looks out on the garden, has a fireplace that projects only a few inches and a big built-in woodbox that can be filled from the outside.

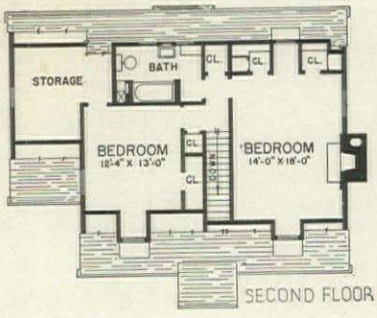
▶ Big double window in dining room likewise gives a view of the garden. Fitted with glass shelves, it requires no curtains.

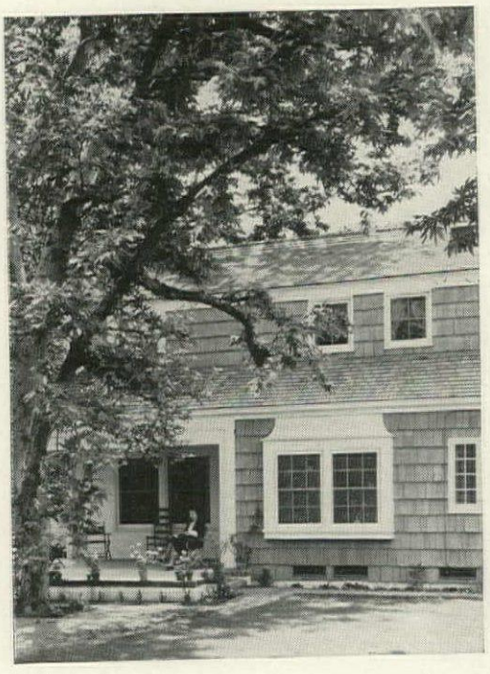
▶ The isolated downstairs all-purpose room, complete with bath, accommodates a variety of family wants. It can pinch-hit as a bedroom, nursery, maid's room, sickroom, or combination study and guest room.

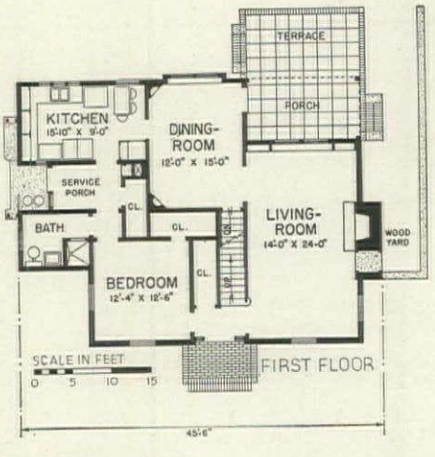
▶ Bedrooms are large. One has a fireplace, built directly above the living room fireplace and using the same chimney.

▶ Besides a large storage room on the second floor, numerous big closets, upstairs and down, insure convenience and order.

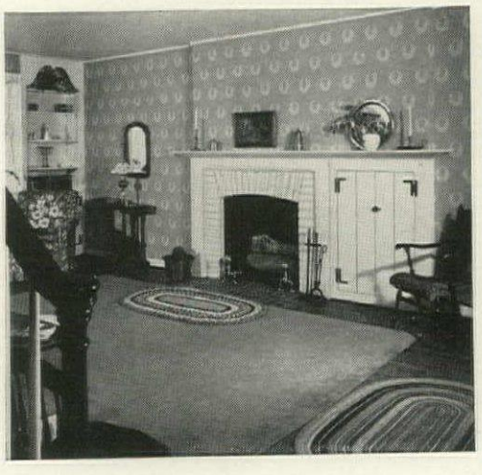
George D. Haight Photos







Compactly flexible as designed by Architect Garlough, this house can be fitted to any region, adapted to varied or changing family needs. Each room is a corner room with at least two exposures to insure summer ventilation. Exterior, although not startling, is sufficiently varied from routine design to attract favorable attention. Cost at San Marino: $8,200, including garage and walks, plus $2,000 for the lot.



$13,500 REMODELING

in glass and electricity boosts owners' business 35%.

To take an antiquated structure and revamp it into something that will serve as an up-to-date merchandising background for many years to come is no unusual modernization assignment. But, at the same time to transform the venerable crate into a luminous showcase that decoratively and functionally demonstrates every known type of lighting—as does Hudson-Morgan Electric Co.'s modernized sales building in Virginia's historic Lynchburg—makes the design job a signal achievement. Also testifying eloquently to the worth of the $13,500 remodeling by Architects J. Everette Fauber, Jr. and Harrison Trueheart Poston is fact that the store's business has thereby been stepped up 35 per cent.

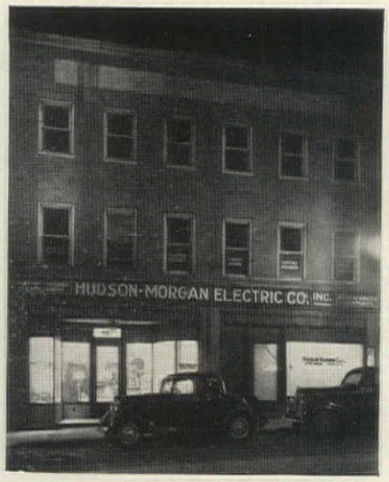
Erected back in 1810, the building has had a varied career. First it was operated as a tavern by the town's founder, John Lynch. Then in 1840 a group of lawyers took it over for offices. During the Civil War it served as a hospital. Next it became a grocery, later a restaurant and a succession of other store types. About 30 years ago, Hudson-Morgan moved in, utilizing half the ground floor for a sales room and the other half for a machine shop, with upper floors doing duty for fixture displays and general storage.

In revamping the structure to attract a larger clientele, it was decided that the street facade should be designed to catch easily, day or night, the attention of motorists as well as pedestrian passers-by. Unlike other buildings in the community which invariably stop their modernization at second floor window sills, this store front carries its new blue-gray structural glass finish, with deep red and black trim, through to the building's three-story top, thus presents a striking but harmoniously unified appearance.

In daytime the store's functions are quickly evident in the combination of window displays and aptly placed signs. Large square windows, with their glass corners sandblasted to form circular enframements for lighting fixture exhibits, help to articulate the second floor's main line of merchandise. On the third floor, used exclusively for storage, appear glass block panels. Designed to be a more subdued visual feature of the facade, they provide an effective means of natural illumination.

At night the store front becomes a rich profusion of lighting effects. Fluorescent tubes built into a light box directly behind the company's signature panel switch on, causing the transparent red letters flashed in white structural glass to gleam brightly. White glass panels in the window bulkheads are also illuminated from behind by red fluorescent tubes.

(Continued on page 40)



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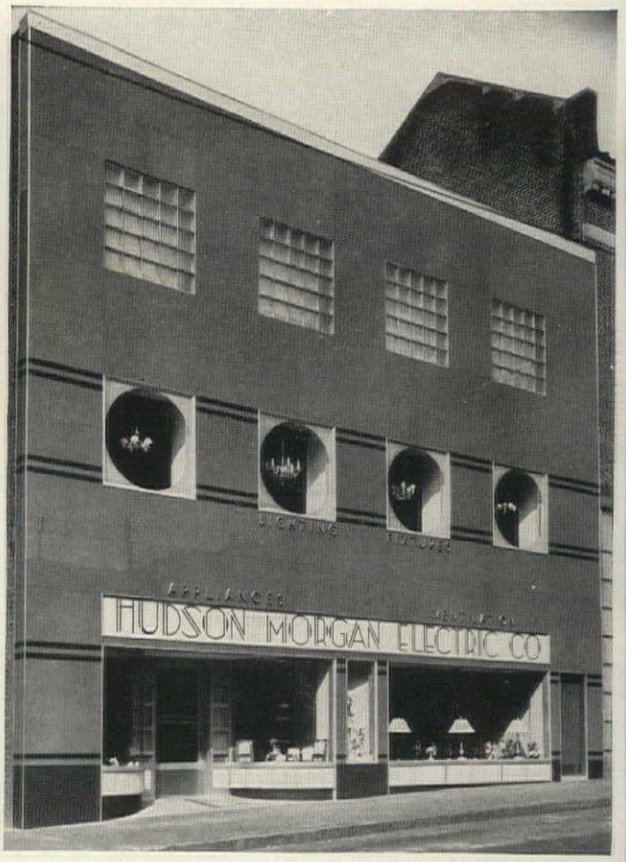

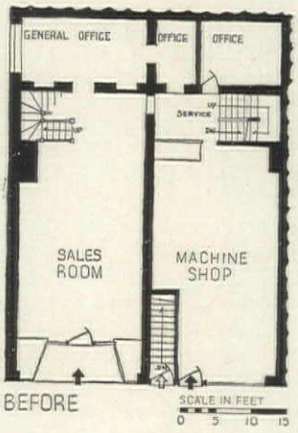

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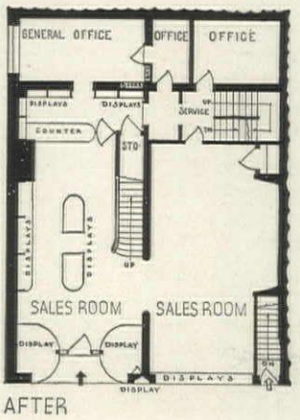


AFTER

NOVELTIES IN DESIGN, PRODUCTION AND HEATING

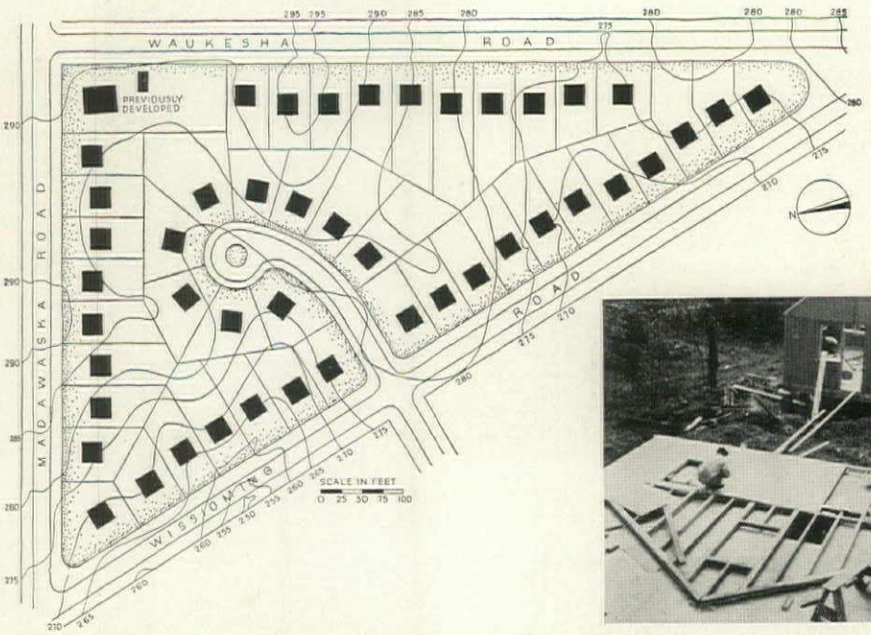
help sell 45 low cost houses one Sunday afternoon, repay Brothers Daniel for their contributions to the industry.

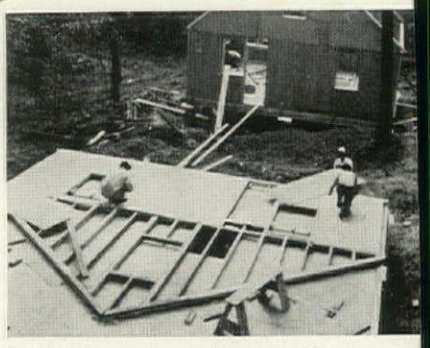
The smaller the house, the bigger the heating problem. Most builders are quick to admit it, but few are as quick to lick it. Three of the few are Brothers Daniel, a wide-awake trio of young subdividers, operating on the booming outskirts of the nation's capital. Designed specifically to solve the acute heating problem presented by low cost basementless houses, their gas-fired warm air units do the trick in only 4 cu. ft. of first floor volume and at an installed cost of only $170 per house including flue and flashing. But their 45 new houses comprise more than a successful heating experiment; they feature smart design, integrated construction and four rooms full of other newsworthy details which rank the $2,990 houses close to the top of their price class.

Three Daniels. Known first as Daniel, Daniel and Daniel, and more recently as Standard Properties ("We had to shorten the name up somehow!"), the three brothers banded together in 1937 to capitalize on the ever-increasing Washington housing demand, and have since launched three big subdivisions. Prior to this practical education, the subdividing trio had had about all the theoretical training that could be acquired. One brother, a registered architect, has a diploma from the Ecole in Paris; alma maters of the other two include both the Ecole des Beaux-Arts and the Academie Julian in Paris, the Beaux-Arts Institute of Design in New York and Catholic University (A.B. in Architecture) in Washington.

Together, they handle the complete subdividing operation from selecting, buying and planning the land to designing, engineering, constructing, advertising and selling the houses. Although their individual functions overlap, 32-year-old Cushing specializes in financing, "politics and red tape"; 30-year-old Clarke, in production and advertising; 27-year-old Raleigh, in land planning and design.

Sycamore Hill. Most recent product of this well-knit home building organization is Sycamore Hill, a seven-acre, 45-house subdivision completed at October's end. Situated in Montgomery County, Md., a mile and a half from the D. C. line on the Potomac River palisades, the well wooded, rolling site was selected by Brothers Daniel because: 1) It is convenient to the center of Washington—20 minutes by automobile, a little more by the trolley line only four blocks away. 2) It is fairly convenient to shopping facilities—groceries are four blocks distant; other staples, two miles away. 3) Its natural beauty was worth the price premium it entailed.



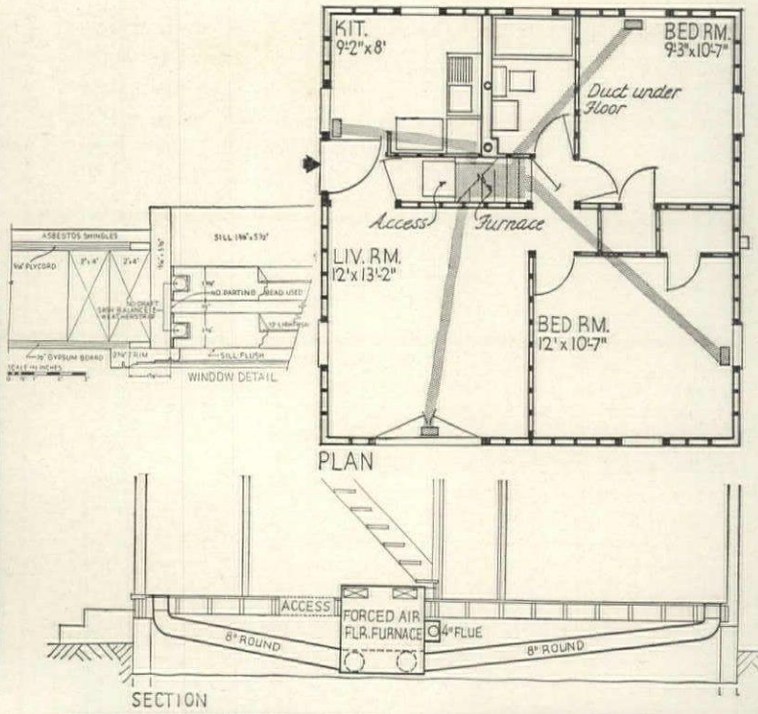


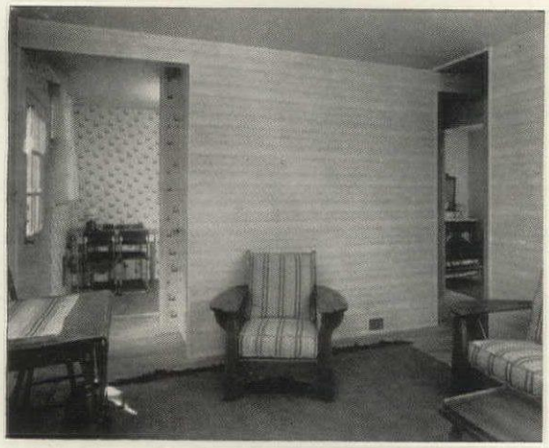
Except for one frame house, the triangular block was unimproved. Making better use of the land with the aid of a short cul-de-sac, the Daniels resubdivided the 21 remaining lots into 45 new ones having minimum dimensions of 50 x 100 ft. and averaging 5,960 sq. ft.—well above the norm for the subdivision's price class. Since cost of the lots, including utilities, exceeded the $250-$450 price ($371 average) established for them by FHA, the sub-dividers took a loss on the preliminary development, had to recoup it in the $2,540 price of each house.

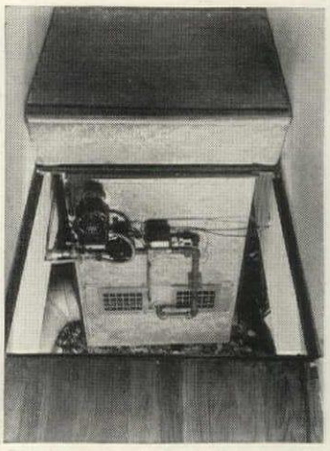
Integrated design. With so much architectural talent in the sponsoring firm, it is somewhat surprising that the design of the houses was studied more as a practical field production problem than one in architectural esthetics. Standardization was carried to an economical extreme; variation was limited to roof and shutter colors. Reasons Brother Cushing: "If $7,000 row houses can be made alike, why shouldn't $3,000 detached houses built in the woods be alike? It has been our experience in higher priced fields that superficial changes on a basic plan give an insincere and unconvincing appearance and only accentuate the similarity by apologizing for it."

The 25 x 25 ft. dimensions of Sycamore Hill's 45-times repeated floor plan were controlled by the width of a sheet of plywood (used for sheathing), the maximum span for the house's 2 x 8 in. joists and the central location required for the heating plant (see opposite). Noteworthy variations from the run-of-the-mill four-room house design include: 1) sideyard main entrances which eliminate the need for the usual service door, 2) large French windows in the living room, 3) an enclosed stairway to a well-lighted attic storeroom.

Ankers Photos







Clean design of the Daniels' standardized houses is complemented by the site's rolling, wooded character, its staggered building lines and the interesting solution to the platting problem offered by its triangular shape. Also shown to the left is the horizontal construction of exterior walls. Behind the living room wall (left, above) is the closet-staircase beneath which is located the new type of central heating plant—note the heat outlet grille in the baseboard. Inside the closet (right, above) is seen the small plenum chamber and, when the access floor panel is removed, the compact heating unit. Furnace is thermostatically controlled.

Construction economies were achieved through the careful detailing (at three inch scale) of many elements of the house, thus minimizing cutting (labor) and waste (materials). Example: in two hours' time per house, four carpenters assembled the complete frames for all four walls (horizontally on the floor), sheathed them and raised them into place. Other principal time and money savers: the flue comprised of long lengths of insulating material, the simplified window units designed by and assembled especially for the Daniels (see detail drawing, above) and the practice of laying the floors and applying the interior finish prior to the erection of partitions.

In an effort to develop the construction procedure as closely as possible to the pattern of a fixed assembly line, the workmen were taught to perform the two operations

(Continued on page 44)

COST BREAKDOWN

Preparing site	$ 24
Masonry (concrete & cinder block)	76
Steel (includ. flue stirrup)	16
Lumber (plywood, gypsum, shingles)	512
Millwork	90
Carpentry (includ. roofing & metal)	300
Plumbing	367
Heating (unit, flue, sheet metal)	170
Wiring	46
Hardware	64
Preparing walls & papering	80
Painting	67
Common labor	75
Landscaping	50
General administrative expenses	80
Insurance	36
Profit (less $50 loss on lot)	250
Financing & selling expenses	237
Lot (FHA allowance $400)	450
TOTAL	**$2,990**

CONSTRUCTION OUTLINE

FOUNDATION: Cinder block piers; Johns-Manville Co.'s Asbestosboard skirting used in full 4 ft. widths and backed with Celotex Corp.'s Vaporseal sheathing.
STRUCTURE: Exterior walls — asbestos shingles, Bird & Son; 30 lb. felt; Plyscord sheathing, U. S. Plywood Co.; pine studding; inside—Gold Bond gypsum board, National Gypsum Co., backed with aluminum foil, edges recessed and finished by Perfatape method. Floor construction—Plyscord subfloor; 30 lb. slaters felt; white oak finish.
ROOF: Covered with Celotex asphalt shingles, Celotex Corp.
CHIMNEY: Transite—Johns-Manville Co.
INSULATION: Outside walls — aluminum foil. Foundation walls—see above. Attic floor —Kimsul, Kimberly-Clark Corp. Weatherstripping—Master Metal Strip Service Co.
FLOOR COVERINGS: Main rooms—oak. Bathrooms—Chromalin, Bird & Sons.
WALL COVERINGS: Main rooms—wallpaper, Union Wall Paper Co. Kitchen and baths—Wall-Tex, Capital Wall Paper Co.
HARDWARE: By National Hardware Co.
KITCHEN EQUIPMENT: Range—The Majestic Co. Sink—American Radiator-Standard Sanitary Corp.
BATHROOM EQUIPMENT: All fixtures by American Radiator-Standard Sanitary Corp. Cabinets—The F. H. Lawson Co.
HEATING: Gas fired warm air system; Bryant fan floor furnace, Bryant Heater Co.

FORUM BUILDING COST INDEX spotlights upswing in 49 of 81 cities.

As shown in the tabulation below home building costs, expressed in per cent of the 1936 national average, are currently working upward in 49 of the 81 reporting cities, are higher than a year ago in 47 cities. Biggest recent cost jumps have taken place in Camden, N. J., Birmingham, Ala., and Portland, Ore.; biggest drops in Salisbury, N. C., Wheeling, W. Va., and Houston, Tex.

Reduced to one composite figure, the national index for September stood at 107.0 per cent of the 1936 average, as compared with 106.2 per cent for August and 105.7 per cent for September 1939. The rising cost of materials is largely responsible for the general cost advance. The cost of building labor has remained comparatively constant during the past two years.

STATE	CITY	LATEST REPORT	PRECEDING REPORT	YEAR AGO
ALA.[1]	Birmingham	96.4	91.7	93.1
ARIZ.[2]	Phoenix	112.1	112.1	110.8
ARK.[2]	Little Rock	92.9	93.4	94.4
CALIF.[2]	Los Angeles	95.0	94.9	94.6
	San Diego	96.2	96.0	101.3
	San Francisco	113.0	113.7	114.1
COLO.[1]	Denver	110.8	110.1	113.4
CONN.[1]	Hartford	106.3	108.9	105.5
	New Haven	106.1	106.1	102.5
DEL.[2]	Wilmington	94.3	94.6	97.9
D. C.[1]	Washington	106.5	103.7	103.7
FLA.[1]	Tampa	103.3	102.5	100.8
	West Palm Beach	111.3	109.4	103.1
GA.[1]	Atlanta	88.2	88.1	88.6
IDAHO[3]	Boise	116.3	113.3	111.4
ILL.[1]	Chicago	123.7	122.4	122.3
	Peoria	128.5	128.0	120.0
	Springfield	129.6	129.2	122.5
IND.[3]	Evansville	114.2	110.5	110.2
	Indianapolis	100.4	99.3	103.5
	South Bend	109.9	106.7	105.7
IOWA[3]	Des Moines	115.7	114.8	113.9
KAN.[1]	Wichita	....	105.5	108.5
KY.[2]	Lexington	100.8	103.3	100.4
	Louisville	98.0	98.5	94.5
LA.[2]	New Orleans	103.1	104.2	102.0
ME.[1]	Portland	95.4	95.0	94.9
MD.[1]	Baltimore	88.8	85.0	85.1
	Cumberland	....	....	99.0
MASS.[1]	Boston	117.3	117.2	114.5
	Worcester	....	....	102.6
MICH.[3]	Detroit	108.7	105.6	107.3
	Grand Rapids	106.4	102.3	102.5
MINN.[3]	Duluth	111.3	111.4	109.2
	St. Paul	117.6	117.2	118.4
MISS.[2]	Jackson	110.0	110.0	106.5
MO.[3]	Kansas City	104.8	106.3	107.7
	St. Louis	108.6	107.9	109.4
MONT.[3]	Great Falls	124.5	124.5	124.5
NEB.[1]	Omaha	106.9	110.7	107.4
NEV.[2]	Reno	122.5	122.5	118.8
N. H.[1]	Manchester	98.0	97.4	96.4
N. J.[3]	Atlantic City	111.6	108.2	113.4
	Camden	113.1	107.7	105.4
	Newark	103.6	103.3	102.2
N. M.[2]	Albuquerque	....	112.3	115.7
N. Y.[3]	Albany	102.3	101.8	101.3
	Buffalo	103.8	103.3	106.9
	Utica	114.1	113.1	105.6
	White Plains	101.2	98.2	100.1
N. C.[1]	Asheville	89.3	90.0	87.8
	Raleigh	93.9	90.6	87.7
	Salisbury	82.8	88.5	84.0
N. D.[3]	Fargo	104.8	104.0	105.8
OHIO[2]	Cincinnati	100.6	99.5	103.8
	Cleveland	124.5	121.0	117.3
	Columbus	104.0	104.8	101.6
OKLA.[1]	Oklahoma City	110.2	110.6	106.5
ORE.[3]	Portland	102.2	97.5	95.5
PENNA.[2]	Harrisburg	106.9	105.5	103.5
	Philadelphia	105.1	102.6	99.1
	Pittsburgh	111.3	110.9	116.4
R. I.[1]	Providence	110.7	109.6	107.5
S. C.[1]	Columbia	84.6	84.2	85.3
S. D.[3]	Sioux Falls	111.9	111.4	109.4
TENN.[2]	Memphis	96.7	97.5	95.2
	Nashville	88.3	89.4	89.6
TEXAS[2]	Dallas	97.9	97.8	98.2
	Houston	102.7	106.7	106.3
	San Antonio	99.0	99.4	106.1
UTAH[3]	Salt Lake City	110.0	108.6	108.4
VT.[1]	Rutland	98.1	96.3	96.8
VA.[1]	Richmond	89.5	87.1	90.1
	Roanoke	....	94.1	93.2
WASH.[3]	Seattle	116.7	114.6	114.1
	Spokane	....	114.1	113.6
W. VA.[2]	Charleston	105.0	105.8	105.1
	Wheeling	109.7	114.7	114.1
WIS.[1]	Milwaukee	113.2	109.8	107.4
	Oshkosh	105.7	105.4	106.7
WYO.[3]	Casper	108.9	108.9	119.2

FOOTNOTES.

1 Latest report—September; preceding report—June; year ago—September 1939.

2 Latest report—August; preceding report—May; year ago—August 1939.

3 Latest report—October; preceding report—July; year ago—October 1939.

Based on Federal Home Loan Bank Board statistics covering the cost of building the same typical house in each city. This typical or standard house has six rooms, a total volume of 24,000 cu. ft. On the first floor are living and dining rooms, kitchen and lavatory; on the second floor, three bedrooms and bath. Exterior finish is wide-board siding with brick and stucco as features of design. Included in the cost of the standard house are all fundamental structural elements, an attached one-car garage, unfinished cellar and attic, fireplace, insulation, and all essential plumbing, heating and wiring. Only cost variables are materials and labor; compensation insurance, overhead and profit are included as constants. Excluded from the cost of the standard house are all items of finish and equipment such as wallpaper, lighting fixtures, refrigerator, window shades, etc. Costs do not include land, landscaping, walks and driveways, architect's fee, building permit, financing charges, etc. For a more detailed explanation, see ARCH. FORUM, Dec. 1939, p. 474.

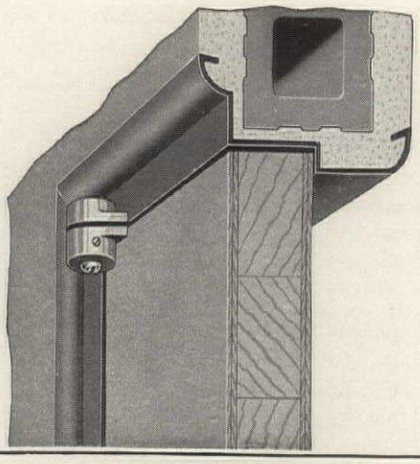
PURPOSE OF INDEX

1. To show the trend of residential building costs in each city by comparison of the first figure for that city (the "latest report") with the figures for the preceding month and the corresponding month of the preceding year.

2. To emphasize variations between cities in the cost of building the same house. Since all figures are percentages of the 1936 national average, they are directly comparable and indicate intercity cost differentials.

3. To provide a ready means of roughly estimating the cost of building a house in one city when the cost of building it in another is known. Thus, to estimate the cost in City B of a house built in City A for $5,000, multiply the "latest report" for City B (90.0) by the known cost of the house in City A. The result is 450,000. Then, divide 450,000 by the "latest report" for City A (110.0). The resultant $4,090 is the approximate cost of the house in City B.

Use of the index for this purpose is limited by the definition of the standard house upon which it is based (see left). The index applies to medium-to-small houses, not to large ones replete with expensive equipment. Neither does it apply to costs which include land; usually the value of a lot runs about 15 per cent of the value of the house and lot.



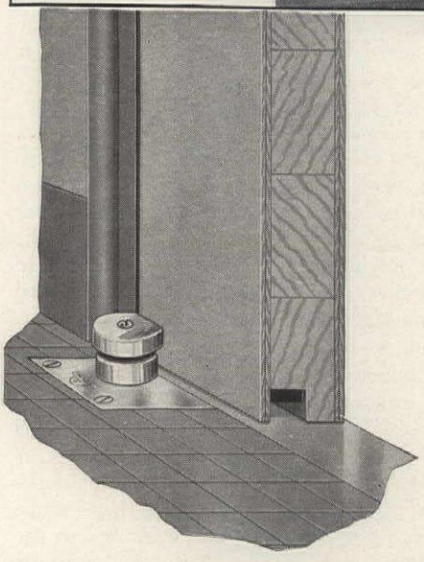
WHAT Well-Tailored Doors ARE WEARING THIS YEAR

● To give doors that "tailored," clean-cut appearance—not as a matter of fashion, but of clean-cut *functional design*—That's how architects are arriving at **RIXSON Uni-Check** as the standard closing mechanism for single-acting interior doors in schools.

HUNTER COLLEGE
SHREVE, LAMB & HARMON
HARRISON & FOUILHOUX
Associated Architects

PSATY & FUHRMAN INC.
Builders

RIXSON
FLOOR CHECKS
USED THROUGHOUT



The absence of protruding arms, hangers, housings—in fact, anything to break the clean sweep of walls and doors—is a relief to the eye. But, functionally, the **Uni-Check,** at a cost that competes with any other type of check, provides automatic quiet closing—eliminates hard-to-clean or dust catching surfaces—offers no obstruction to mops, dust cloths or paint brush . . . All good features for the school.

RIXSON Uni-Checks are ideal not only for school use but excellent wherever self-closing interior doors are a convenience or necessity. Full information available on request. Complete catalog information is on file with most architects. SPECIFY RIXSON UNI-CHECK FOR ALL INTERIOR SINGLE ACTING DOORS THAT HAVE TO BE SELF-CLOSING.

THE OSCAR C. RIXSON CO., 4444 Carroll Ave., Chicago, Ill.

RIXSON REPRESENTATIVES AT:

New York: 2034 Webster Avenue - Philadelphia: 211 Greenwood Avenue, Wyncote, Pa. - Atlanta: 152 Nassau Street - New Orleans: 2630 Jefferson Ave. - San Francisco: 116 New Montgomery Street - Seattle: 414 - 17th Avenue, North - Los Angeles: 909 Santa Fe Avenue - London, Ontario, Canada: Richards-Wilcox, Ltd.

RIXSON **Uni-Check**

NEWSPAPER HOUSES

(Continued from page 534)

ends with 1 x 6's, roof sections with 2 x 4's.

Balance of the shop fabrication includes the assembly of the gable ends as complete units similar in construction to the wall sections, the precutting of all interior and exterior trim and the application of at least one coat of paint to all elements of the house. Altogether, a four-room house requires three days' prefabrication in a shop employing 26 men: a shop foreman, a few skilled mill-workers and painters, and a crew of helpers (including gluers, loaders, sweepers, etc.) whose only qualifications are that they be strong enough to drive nails all day. Homasote figures that, to produce four houses a day (the economic and recommended maximum) a shop would have to be manned by 80 employes.

Field erection of the house sections is simpler than their prefabrication, requires one-half the man-hours. They are trucked to the site on 30 ft. trailers, each load of sections being stacked in the inverse order of their use to facilitate erection. First step: floor sections are placed on foundations (economy will usually dictate pier foundations), bolted together and anchored to the masonry. Second: exterior wall and partition sections are fastened in place with U-shaped metal clips screwed first to the floor, then to the vertical sections. Corner sections are fastened together with lag screws; intermediate sections, with nails. Third: ceiling sections are positioned, bolted together along their adjacent edges and fastened to the walls and partitions with more U-shaped metal clips. Fourth: roof sections for one side of the house are placed with their lower ends bearing against a 2 x 2 in. plate attached to the ceiling sections; the upper ends are temporarily supported by a "T" frame until the operation has been completed on the other side of the house. When the supports are knocked down, upper ends of the roof sections meet and are bolted together along the ridge as well as along their adjacent sides. Fifth: the one-piece gable ends are raised into position, secured to the roof rafters and wall sections with lag screws. Sixth: the roof is shingled.

Balance of the field operation includes 1) erection of a concrete block chimney which is carried above the ceiling level prior to the erection of the house; 2) installation of all mechanical equipment—wiring, plumbing and heating—which takes place during the erection of the house and is facilitated by the provision in the shop of the necessary holes at the proper places; 3) application of such finishing touches as porch roofs and floors,

(Continued on page 35)

NEWSPAPER HOUSES

(Continued from page 34)

lattice work, chimney housing, foundation skirting, shutters and screens, all of which are shop-fabricated as far as possible; and 4) the entire house is touched up and given its final coat of paint.

With a little pushing, the house may be completely enclosed and roofed in one day by a field foreman, two trim men, four painters and four unskilled laborers. And, with the aid thereafter of a much smaller force, the house may easily be made ready for occupancy at the end of the third day. Thus, the complete production of a small four-room house requires six working days (three in the shop, three outside), a reduction of one-third to one-half in the time required to produce the same house with "senior" specifications (one day in the shop, eight to twelve outside). And, the new construction system saves money as well as time. Without reducing the per-house amount of insulating board and, in turn, Homasote's profit, the "junior" construction system requires less lumber. The reduction: from 98 board ft. per 100 sq. ft. for the "senior" 2 x 4 in. construction to 62 board ft. per 100 sq. ft. for the "junior" 2 x 2 in. construction. Due to the concentration of work in the shop, the amount of skilled labor is reduced. Moreover, the abbreviated field erection time reduces the period during which the builder is at the mercy of the weather and at the same time cuts his carrying costs. All told, the economies of the "junior" construction system, as opposed to the "senior" system, effect a dollar saving of about 10 per cent per house.

Defense. In a strong bid for Federal defense housing contracts, Homasote last month invited Government housers to Trenton, completely erected during their one-day visit the first Precision-Built Jr. house*. By nightfall the untutored labor had laid the last shingle, had cemented the last concrete block atop the chimney (see photograph, p. 36). And, two days later, true to the predictions, the house was ready for occupancy. Construction cost—exclusive of shop overhead, etc.: $1,734. Total cost—everything but the lot: $2,137, a scant $20 more than the educated estimate (see breakdown, p. 333). However, with volume production, this estimate may even prove excessive.

As interesting to Government national defenders as the house's light, tight construction, its low cost and its trim appear-

(Continued on page 36)

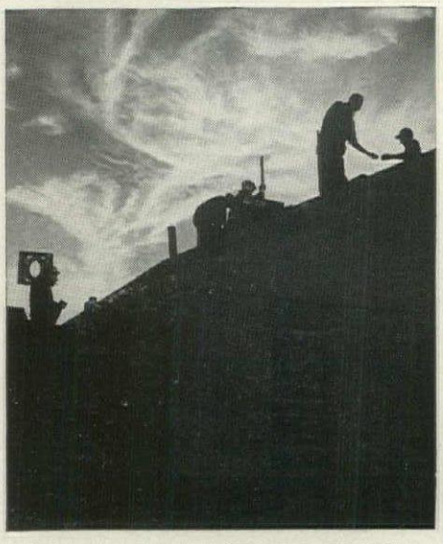
* Also at the debut: Canada's Housing Director F. W. Nicolls who has long shown more than a passing interest in Precision-Building and has intimated that many "junior" houses may soon be ordered for the Dominion's war housing program (see p. 493).

NEWSPAPER HOUSES

(Continued from page 35)

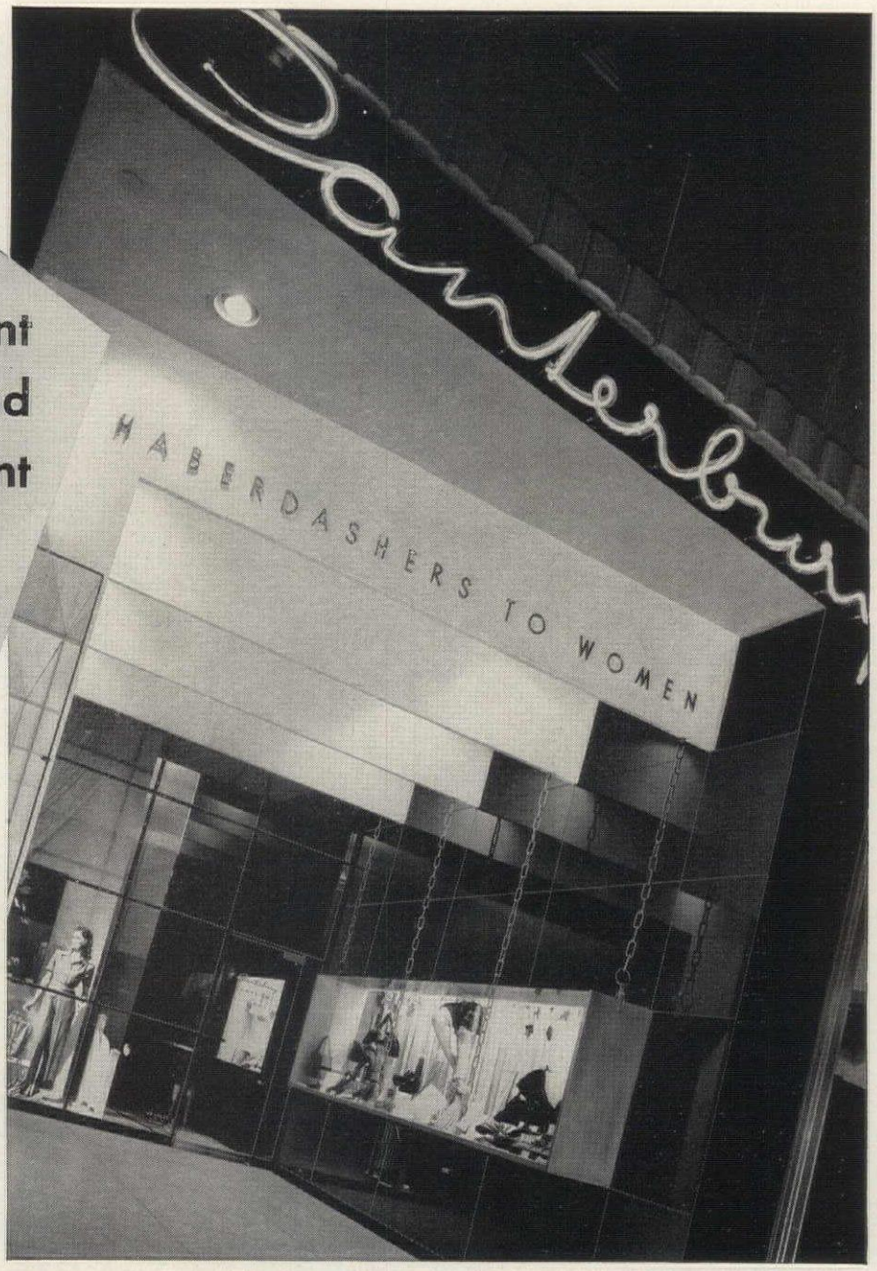
ance (see photograph, p. 333), were three other facts: 1) The bolt and screw assembly of its sections makes the house readily demountable, almost 100 per cent salvageable and, therefore, admirably suited to the solution of temporary defense housing problems. 2) Unlike the supply of plywood with which most prefabricators' houses are built, the supply of this house's principal ingredient is ample: Homasote draws on the waste newspaper markets of only a few large Eastern cities, and its Trenton plant with a board capacity of 60 million sq. ft. per year—enough for 10,000 houses—is now operating at only about 70 per cent of capacity. 3) The new house can be put into production immediately in 56 widely separated localities. That it will be—defense housing orders or no—was assured fortnight ago when FHA announced that it would approve Precision-Built Jr. construction for mortgage insurance provided that the local prefabricators' plants and workmanship meet with its approval.

Interestingly, the prefabricating organization which today appears to be the best equipped to build the most houses, in the least time and at close to minimum cost, is the only one which has not tried to violate one of Building's basic laws—that houses must be produced locally and, to a lesser extent, designed locally. Homasote attributes its undeniable success, first, to the acceptance of this industrial pattern and, secondly, to improvement of it via modular design, integrated construction and shop fabrication and assembly. Finally, but far from least important, Homasote has conducted an energetic merchandising program—an outgrowth of the firm belief expressed by Vice President Wilson in the preface to his book: "Neither technological improvement, nor lower cost solves the housing problem—proper merchandising will."



At 5:30—completing chimney and shingling.

Design a store front with Glass . . . and you design a front that *Sells!*



GLASS PLAYS A VITAL PART *in giving this smart store front in White Plains, N. Y. its undeniable sales appeal. Designed by* Gruenbaum and Krummeck, *New York. Mr. Victor Gruenbaum was also the Associate Designer of another outstanding Pittco Store Front recently featured in these pages—the Fifth Avenue Shop of Lederer de Paris.*

THE real test of a store front's success is whether or not it actually *works* for your client. If the new front draws business for him, widens his trading area, boosts his volume and his profits, you've done a job.

One of the most practical ways to design store fronts that you know will sell goods for your clients is to design them with glass. Store fronts designed with Pittco Store Front Products have *proved* their ability to sell. Thousands of Pittco Fronts throughout the country, and thousands of satisfied merchants, bear witness to this fact.

There's a Pittco Glass Product to meet almost every store front need. Polished and Suede-finish Carrara Structural Glass; Pittsburgh Plate Glass; PC Glass Blocks and Architectural Glass; Herculite Tempered Plate Glass and Herculite Doors; Tapestry Glass; and Pittsburgh Mirrors. And then there's Pittco Store Front Metal to round out the store front design properly. All of these products are of consistently high quality, meant to be used together, and certain to produce unified store fronts of distinctive individuality.

Call on glass to design store fronts that sell. And mail the coupon, now, for more detailed information about Pittco Store Front Products, together with many graphic examples of how Pittco Store Fronts actually draw business for merchants.

PITTCO STORE FRONTS

PITTSBURGH PLATE GLASS COMPANY

"PITTSBURGH" stands for Quality Glass and Paint

Pittsburgh Plate Glass Company
2272 Grant Bldg., Pittsburgh, Pa.

Please send me, without obligation, your new book entitled "How to Get More Business."

Name.....

Street.....

City.....State.....

BUILDER IMPORTANCE

(Continued from page 535)

production is limited solely to multi-family projects and residential remodeling and a number of others who concentrate solely on non-residential construction.) But as discussed above, only about 26,000, or one-third of this number, are actually in the business of building houses, and only about 5,000 of them are responsible for half of the 420,000 one-family houses to be built this year.

Besides offering a pointed market cue to manufacturers and dealers of building materials and equipment, the Department of Labor survey holds up a shiny mirror before the house building industry. Herewith a few of the reflections:

▶ About 65 per cent of all houses have a permit value between $3,000 and $6,000. Since permit values are always conservative estimates of construction costs, contract prices average about 20 per cent higher, and selling prices (which cover profit, overhead, lot, sales commission, etc., excluded from both permit and contract figures) average about 40 per cent higher. Thus, on the basis of selling prices, the same 65 per cent of the houses fall into the $4,200-$8,400 bracket. Note that only 11 per cent of the houses sell for less than $2,800, that only 5 per cent sell for more than $10,500. (See tabulation, p. 535.)

▶ As might be expected, the large builders operate for the most part in the large cities. Thus, in the thirteen surveyed cities having more than 500,000 population, 222 builders built more than 25 houses each in 1938, 95 built more than 50, 33 built more than 100, eleven built more than 150 and, five of them, at the head of the class, built more than 200 each. On the other hand, only thirteen builders in the fifteen cities in the 100,000-500,000 population group produced as many as 25 houses, and in all the 44 remaining smaller cities only seven builders achieved this production.

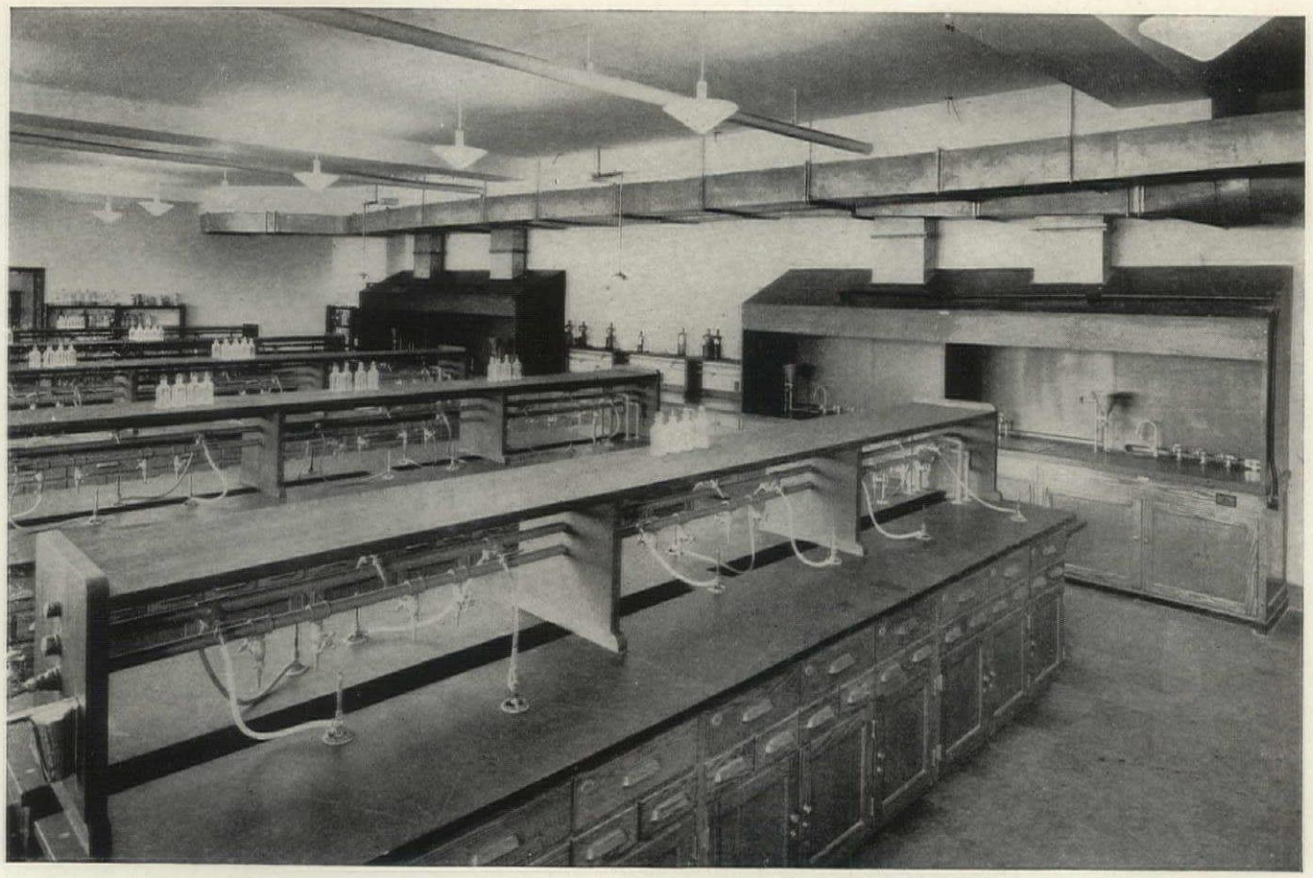
▶ Indication that there is a need for more large scale builders is the fact that, of the 28 cities surveyed in the 100,000-and-up population bracket, thirteen could not boast a single builder of 25 or more houses per year: Atlanta, Birmingham, Boston, Buffalo, Denver, Milwaukee, Pittsburgh, Rochester, Spokane and Bridgeport, Canton, Paterson and Syracuse. (The last mentioned four could not even boast one builder of ten or more houses per year.)

▶ On a dollar basis, the importance of the various classifications of builders (by size) is almost the same as on the unit production basis. Thus, the 6 per cent of the builders who produce ten or more houses a year and account for 49 per cent of the houses also account for about half the dollars spent on urban houses.

Hunter College

(another unit in the Higher Education Program of New York City)

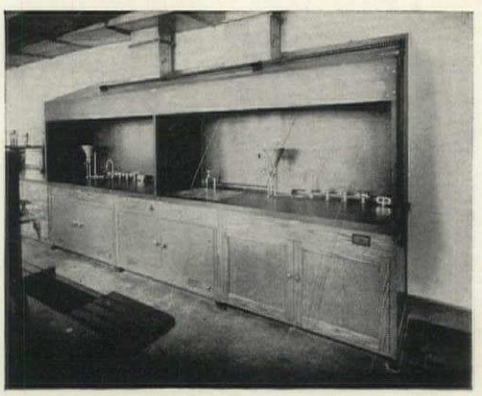
installs trouble-free laboratory equipment



Alberene Stone table-tops, fume hoods, sinks and gutters, Hunter College Laboratory, New York; Shreve, Lamb & Harmon, Architects.

HUNTER COLLEGE, MANHATTAN, is the latest addition to the imposing list of educational, industrial, and research institutions whose laboratories are equipped with lifetime Alberene Stone. Nothing man has been able to devise has been found to be a satisfactory substitute for this natural quarried soapstone. Nature made it homogeneous and finely granular in all directions, dense and non-stratified, free from cleavage lines, easy to clean and to keep clean. The surface goes all the way through *to the back*. There is no thin layer or surface treatment to wear away.

Its first cost is its only cost. For more than fifty years Alberene Stone has been *standard equipment* for working surfaces in fine laboratories throughout the country. Other units in the City of New York Program which are Alberene equipped are Brooklyn College, Brooklyn; City College, Manhattan; and Queens College, Flushing.



One of the Alberene Stone fume hoods in the Laboratory, Hunter College.

ALBERENE STONE
LABORATORY EQUIPMENT

ALBERENE STONE CORPORATION OF VIRGINIA, 419 FOURTH AVENUE, NEW YORK, N.Y.

Quarries and Mills at Schuyler, Virginia Sales Offices in Principal Cities

$13,500 REMODELING

(Continued from page 537)

High intensity lighting brings window displays and the store's interior into even greater visual prominence than by day. Above, glowing squares of light from the second and third floor windows punctuate the facade, form a mosaic that makes the store readily recognizable.

Incorporated throughout the building's design as a functional aid in merchandising lighting equipment are all the various lighting methods—direct and indirect, incandescent and fluorescent, spots and troffers, coved, recessed, paneled, and such. Wiring is arranged so that each type can be exhibited independently if so desired.

In rearranging and redecorating the store's interior, biggest technical problem confronted by Architects Fauber and Poston was to combine the two separate existing ground floor shops into a single sales space as economically as possible. Service entrance to the basement was moved from its central location to the building's extreme right, where it could be easily subordinated in the facade design. Next, without disturbing the structure any more than necessary, a wide arch opening was cut in the wall between the two sales rooms. Entrance to the old machine shop could now be eliminated and its entire street frontage used for window displays. To minimize the heavy masonry pier running down through the building's facade, a shallow display window was introduced between the main show windows. Inside, more easily seen and more invitingly wide stairs lead to the second floor lighting fixture exhibits. Space occupied by the old stairs is now used for a counter and wall displays.

Entire modernization program was privately financed by Hudson-Morgan as owners of the building. Included in the $13,500 total cost are: 1) the architects' fee; 2) $1,660 for chairs, tables and other store equipment; 3) $2,100 for lighting and wiring, all installed by the owners; 4) $1,050 for a new sprinkler system serving the whole building. General contract, covering all work on the store front, ran to approximately $8,530, including extras and incidentals.

Assessed at $4,000 before modernization and paying an annual tax bill of only $94, the building has yet to be revalued by Lynchburg's appraisers, but the owners are convinced that, in terms of increased business, the improvements have more than justified their cost and the increased assessment that will surely result. Particularly effective in attracting new customers are the second floor windows displaying residential lighting fixtures.

CONSTRUCTION OUTLINE
New materials and equipment

EXTERIOR WALL: Structural glass—cadet blue Vitrolite with deep red and black trim, Libbey-Owens-Ford Glass Co.

WINDOWS: Polished plate and bent plate glass and color fused tempered plate glass—Vitrolux. Glass blocks, Libbey-Owens-Ford Glass Co.

SIDELIGHTS: Blue Ridge double-glazed Louvrex glass, Mississippi Glass Co.

METAL TRIM: Show window sash—alumilited Extrudalite, Libbey-Owens-Ford Glass Co.

FLOOR COVERINGS: Entry—nonskid Textone tile. Interior—composition tile, Wright Rubber Products Co. Show windows—terra cotta linoleum, Armstrong Cork Co.

HARDWARE: Satin chrome finish, Sargent and Co.

PAINT: Wallhide, Plasco undercoating. Waterspar enamel, Pittsburgh Plate Glass Co.

VARNISH: Satin finish, Pratt & Lambert.

STORE FIXTURES: American Furniture & Fixture Co.

SPRINKLER SYSTEM: Starr Sprinkler Corp.

VENTILATION: Breeze Conditioning, Diehl Manufacturing Co.

FABRICS by CHASE

Illustration Courtesy of C. H. Page and Son, Austin, Texas

CHASE LEATHERWOVE

For wallcovering, barfronts, table tops, decorative screens, furniture modernization —or to upholster slip type or padded seats and benches, LEATHERWOVE is a high quality pyroxylin coated fabric with a wide range of truly decorative colors and grained effects. Available in a number of different qualities.

CHASE REDO UPHOLSTERY

A rubber-type coated fabric to withstand the constant flexing and folding of deep-spring construction without cracking or peeling. A quality coated fabric especially designed to withstand unusual wear. Like LEATHERWOVE, CHASE REDO has a wide selection of decorative colors and leatherlike grained effects from which to choose.

LEATHERWOVE and REDO are washable with warm water and non-alkaline soapsuds.

CHASE SEAMLOC CARPET

Permits easy, economical inlay of original designs. The design is simply cut from the carpet, the right color and texture laid in. The new section is locked into the carpet with additional webbing and a special cement, leaving no unsightly seams to show the wear. This same feature makes Seamloc economical in that it can be readily redesigned to fit new spaces and worn parts can be cut out and replaced with new sections of carpet. Available in many different qualities and textures.

CHASE VELMO and CHASE UPHOLSTERY

VELMO MOHAIR VELVET is tops in quality for furniture upholstery with a wide selection of different textures and fine, rich colors. There's a Velmo suitable for any period or style of furniture . . . the right color and texture for any room.

CHASE UPHOLSTERY designates a line of new fabrics priced below Velmo but woven in the Velmo tradition of expert textile craftsmanship.

CHASE UPHOLSTERY, like Velmo, is available in a wide range of textures and colors.

For modern fabrics designed to help create better interiors for better, more comfortable living, always specify: FABRICS BY CHASE.

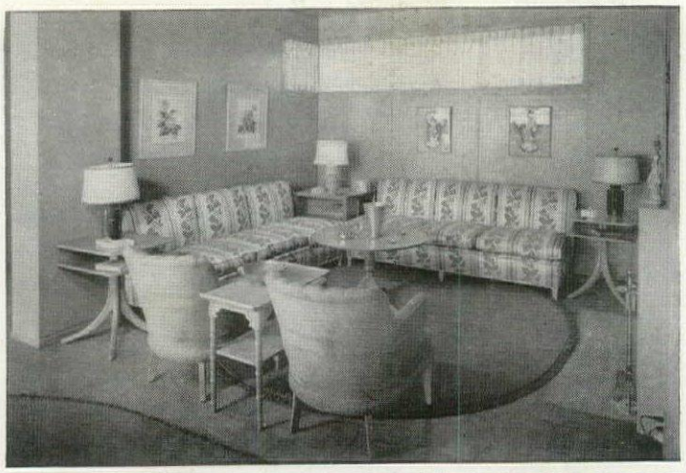
CHASE

L. C. CHASE AND COMPANY, 295 Fifth Avenue, New York City

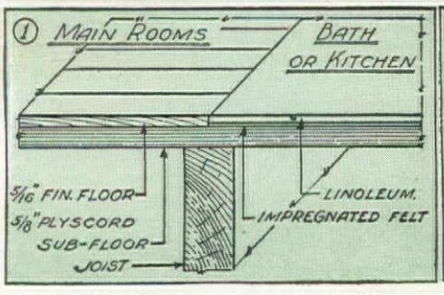
BRANCHES: Boston, Detroit, Chicago, Los Angeles. MILLS: Sanford, Me.; Reading, Mass.; Troy, N. H.

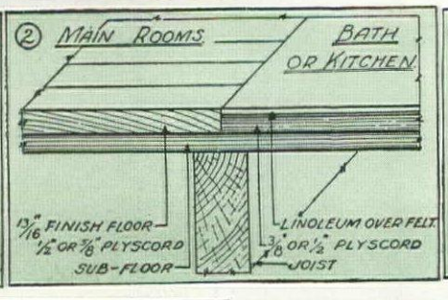
Finish floors look better, wear better when sub-floors are made of PLYSCORD

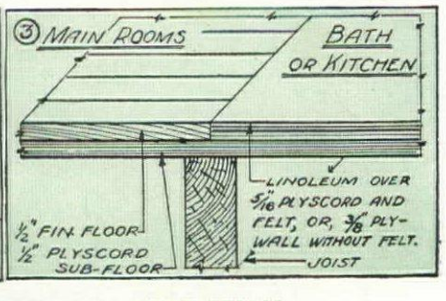
Douglas Fir Plywood Sheathing



WOOD FLOORS Plyscord is a perfect base for hard or softwood flooring. Its laminated construction keeps it from cupping, warping, shrinking or squeaking . . . holds nails more firmly. Its large size (it comes in big 4′ x 8′ panels) reduces the lineal footage of joints in the sub-floor . . . enables Plyscord to be laid in less than half the time of conventional board sub-floors. Guide lines on 16″ centers show where joists are . . . speed nailing of both Plyscord and finish floor. Photograph at left shows the living room in the beautiful "House in the Sun," North Hollywood, Calif. Parquet floor was laid over Plyscord. Sumner Spaulding, architect.

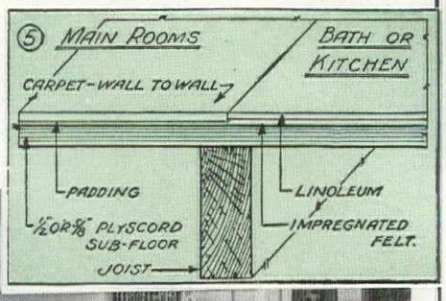


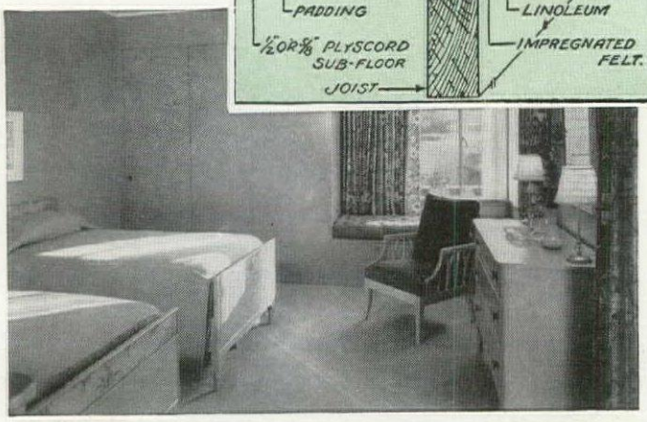


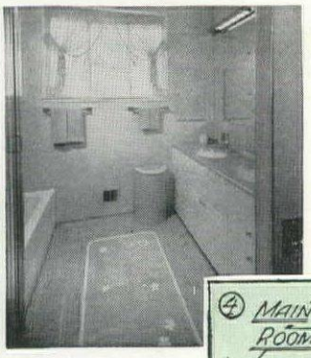


CARPET No board marks show through wall-to-wall carpet when it's laid over Douglas Fir Plywood sheathing. The big, smooth panels minimize joints . . . never cup or warp . . . keep clients satisfied. For better results always specify Plyscord sub-floors.

Below is the master bedroom in "The House in the Sun." The carpet will keep its good looks longer and wear better because of the Plyscord under it.



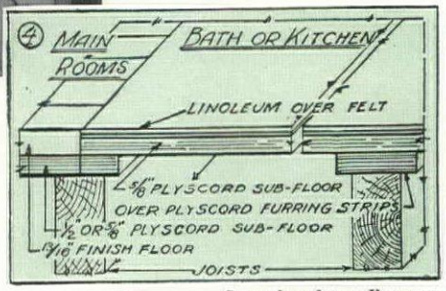




Above: One of the bathrooms in "The House in the Sun." Plyscord was specified under all linoleum. This attractive home was built by Kersey Kinsey and furnished by Bullock's Dept. Store.

LINOLEUM

Plyscord is a better base for linoleum and rubber tile. The smooth plywood surfaces assure permanently smooth linoleum. Plyscord builds a warmer and more rigid floor, too.



Save the above diagrams for future reference.

All progressive lumber dealers stock Plyscord in 4 convenient thicknesses. Inspect them today. Use them on your next job. For more information, consult Sweet's Catalog or write Douglas Fir Plywood Association, Tacoma Bldg., Tacoma, Wn.

SPECIFY DOUGLAS FIR PLYWOOD BY THESE "GRADE TRADE-MARKS"

GENUINE DOUGLAS FIR PLYFORM Concrete Form Panel D.F.P.A. INSPECTED

GENUINE PLYWALL Douglas Fir Plywood WALLBOARD D.F.P.A. INSPECTED

PLYPANEL D.F.P.A. TRADE MARK REG. U.S. PAT. OFF.

EXT.-D.F.P.A. TRADE MARK REG. U.S. PAT. OFF.

GENUINE PLYSCORD SHEATHING D.F.P.A. INSPECTED

DOUGLAS FIR PLYWOOD

Real Lumber

MADE LARGER, LIGHTER
SPLIT-PROOF
STRONGER

CORRECTED PROOF of an important page in the New SWEET'S CATALOG

A Manufacturer's Code of ~~Ethics~~ Relationship with Architects and Engineers

The advent and general use of the semi-prefabrication of parts of housing in the form of standard, completely engineered Packages is a forward step in the building industry.

As units covering heating, trim, wall surfaces, kitchens, et cetera, these packages represent many advantages. They invite a closer relationship between you and the manufacturer. As a means of developing this relationship on a strong, effective and equitable basis, we propose a Manufacturer's Code based on the following fundamentals:

1 The responsibility of contacting you and your office should be delegated to a *single* company representative.

2 To achieve good service, these contacts should be at regular intervals.

3 To increase efficiency in handling requests, a ~~service~~ should be established in principal cities.

4 To keep you posted, the manufacturer should assume the responsibility of distributing (in convenient forms for efficient use and filing) the latest data on new products, product changes and industry trends.

5 To maintain fair competition, all specifications submitted by any manufacturer should establish standards of quality and performance only.

6 To insure satisfactory field fabrications or installations of any product, close co-operation must exist between the architect, the manufacturer and the contractor from inception of a project to its completion.

★ WESTINGHOUSE INCORPORATES ALL THESE FUNDAMENTALS IN ITS CLEARING HOUSE SERVICE ★

Be sure to see the Westinghouse Sections in the 1941 Sweet's Catalog.

Westinghouse

CLEARING HOUSE SERVICE

FOR ARCHITECTS AND BUILDERS

A CASE IN POINT — Old Ford Mansion, Morristown, N. J., erected in 1772 — Washington's headquarters winter of 1779-80 — Preserved and protected for the future both inside and out by pure white lead paint, which made it easily possible to duplicate the original colors.

THERE is just one reason why so many architects specify pure white lead paint for exterior work — and for much interior decoration, too.

Pure white lead paint wears longer and more evenly — doesn't crack and scale — keeps its looks better!

As you know, white lead pigment is made from the metal lead. Lead is one of the toughest and most enduring of metals. And white lead is a great weather-resister, too. It armors paint against rain and sun, protects the construction beneath.

And when it comes to styling interiors, white lead paint is preferable, not only for its velvet-smooth finish and the many lovely colors obtainable by tinting, but also for the ease with which it is safely cleaned by washing.

This is strikingly illustrated by the beautiful interior decorative effects obtained with white lead paint in Washington's Morristown headquarters — just as the excellent preservation of the exterior of this 168-year-old building lends emphasis to the rule: *the higher the lead content, the better the paint.* You can't, for example, get a more durable paint than one containing a hundred per cent white lead. This is the kind good painters mix from lead-in-oil. In many places it is also being sold now in prepared ready-to-use form in white and colors.

• • •

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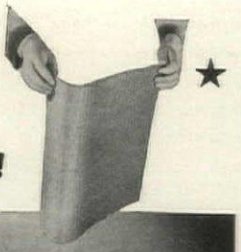
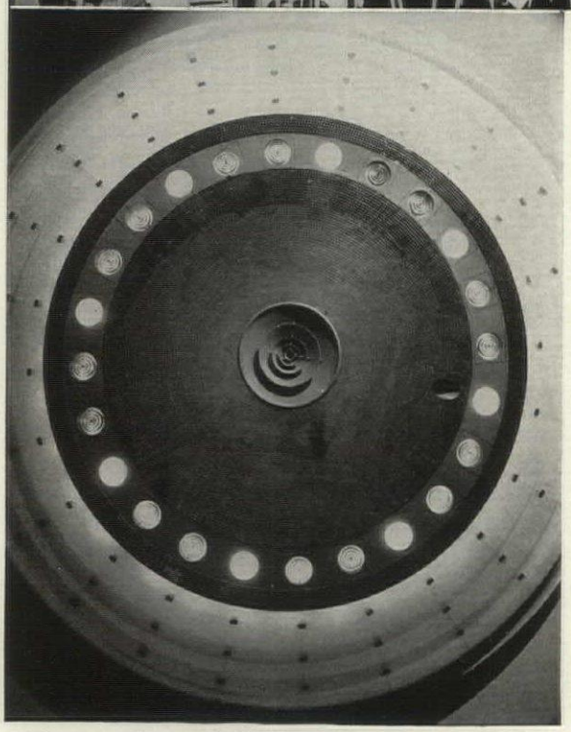


FOR THE SPEEDY TRANSFORMATION OF OUTMODED INTERIORS!

Persian Room, Plaza Hotel, New York, N. Y.; Peach Mirror Flexglass panels and lighting fixtures; Scott & Teegen, Architects.



Close-up of central lighting fixture in the Persian Room, showing Peach Mirror Flexglass applied in strips.

TRADITIONALLY elegant and gracious the Plaza's Persian Room now presents a modern decor to its patrons. Scott & Teegen, Architects, wrought the transformation through the use of Peach Mirror Flexglass in a color scheme combining soft blues, beige pink and warm off-white. Flexglass was used for the towering pilasters, for walls and partitions of the intimate cocktail niches, and for the distinctive central lighting fixture. Since no structural changes were required for the use of Flexglass, the transformation was accomplished quickly, with a minimum shut-down period for the renovation. Flexglass is real glass in 30 colors and patterns, available in four types . . . opaque, flat mirror, rolled mirror, and metallic . . . in sheets of gleaming facets remarkably pliable and easily handled. It will conform to curves, and it is cemented easily to any smooth, hard surface. A new and exciting design material, Flexglass lends itself to a thousand and one colorful applications and combinations.

Flexglass

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Manufacturers of Flexwood and Flexglass

Flexwood and Flexglass are manufactured and marketed jointly by The Mengel Co., Louisville, Ky., and the United States Plywood Corp., New York

SUBDIVISION NOVELTIES

(Continued from page 539)

again and again—one outside operation and, as insurance against inclement weather, one inside job.

Floor furnace. "We think it has high chances of solving the problem of heating the basementless house"—thus claims Architect Cushing Daniel of the gas-fired floor furnace which he and Brothers Clarke and Raleigh conceived as the focal point and central heating plant of the 45 Sycamore Hill houses. Manufactured first for them and now for the entire low cost housing industry, the compact unit measures only 2 ft. wide, 3 ft. 5 in. long, and its 3 ft. height permits its installation below floor level with little or no extra excavation and without requiring that the house be jacked up high above grade. In the Daniels' houses the 330 lb. unit is sunk below the central closet-staircase, requires only a small insulated plenum chamber in the closet (the top of which serves as the staircase's first step—see drawing, p. 539).

Claim is that location of the heat source below the floor is an improvement over floor insulation, for it warms the floor surface, eliminates cold drafts on the occupants' feet.* Motivated by a slow moving, propeller-type fan, cold air is drawn from the four rooms at its source (beneath the windows) via 8 in. diameter returns to the furnace where it passes through a tubular heating unit and is forced up into the plenum chamber and, thence, back into the rooms through baseboard registers at the maximum rate of 600 cu. ft. per minute. It is estimated that annual heating expenses per house will run close to $72. However, an attendant saving is effected in that gas for hot water, cooking and refrigeration may be purchased at the lower furnace rate.

* Experiments by TVA engineers prove that it costs less to heat a basementless house if the crawl space is also heated.

Prices and purchasers. Marketed at a complete price of $2,990 each (including such small bothersome items as title search, Federal and State stamps, recording fee, title insurance, notary fee, service charges, etc.), Sycamore Hill's houses were made additionally attractive by two easy purchase plans. Under FHA's Title I, the cash required was $150, the balance being covered by a $340 ground leasehold at 6 per cent and an insured fifteen-year mortgage which, combined, require total monthly payments (including interest, amortization, insurance and taxes) of $26.50. Under FHA's Title II, a 10 per cent cash outlay of $290 and a 25-year insured mortgage for the 90 per cent ($2,700) balance closed the deal and dictated total monthly payments of $19.75.

For obvious reasons, purchases of most (41) of the 45 houses were financed under the Title I plan. For less obvious reasons, all the houses were purchased, not by the low income group for which they were designed, but a group of $45-$60-a-month Washington apartment dwellers, most of whom are young and childless, a third of whom are Government employes. One explanation advanced by the Daniels is that the low incomers did not realize that they were financially able to buy the newer houses and that "their more fortunate brothers with higher incomes and faster cars" got there first and bought out the entire subdivision. And, they bought it out in a single day—June 8th, at the opening of Sycamore Hill's first house, a furnished model. One quarter-page Sunday newspaper advertisement (at a cost of $86) did the trick.

A positive contribution to the art of building low cost houses, the Daniels' development will soon be duplicated on additional land now being purchased in Maryland and Virginia. The subdividing trio has already made significant progress toward minimum costs, but still sees ample room for improvement. Brother Cushing claims: "We could and would cut $100 off the price of the house if the plumbing inspector, the septic tank inspector, the building inspector, the electric wiring inspector and the FHA inspector could be combined in one man . . . who would not (unwillingly, of course) hold us up and if half—only half—the blanks, forms, applications, certificates and affidavits were eliminated. Those required will paper the small bedroom."

MODERN FROM ROOF TO BASEMENT . . . SO COAL WAS THE NATURAL CHOICE!

The new Baker Public School, Richmond, Va., like thousands of other public buildings, specifies automatic COAL heat for economy and efficiency.

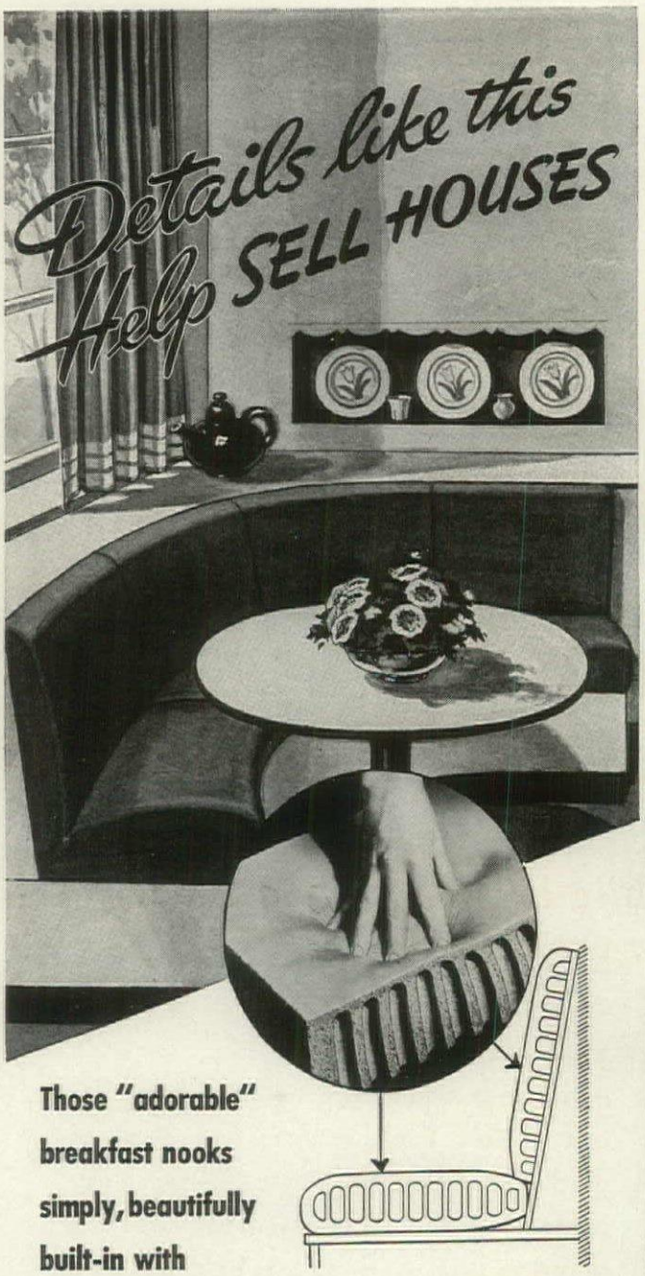
Have you noticed how *many* modern buildings are turning to COAL for heat? Schools, hotels, apartments, and other buildings—large and small—find that co*al*, prepared in up-to-date mines and burned by modern methods can't be equaled for heating efficiency, dependability, and economy. Baker School is a recent addition to the impressive list of modern structures whose builders chose co*al* heat—either as a matter of course or after studying comparative fuel and heating costs.

Can we help *you*?

If *you* have a heating problem, Chesapeake and Ohio's Fuel Service Engineers will gladly help you solve it . . . no charge, of course. And in securing the coal best suited to your needs we can help you again . . . for Chesapeake and Ohio serves the "Coal Bin of America". From this region come the country's finest high and low volatile bituminous coals . . . carefully prepared, cleaned and sized at modern mines.

For information or assistance with fuel problems, write GEORGE H. REINBRECHT, Coal Traffic Manager, Chesapeake and Ohio Lines, 2909 Terminal Tower, Cleveland, Ohio.

CHESAPEAKE AND OHIO LINES



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MOLDED CUSHIONING

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SMOOTH molded lines, perfectly amazing comfort — that's what intrigues the prospective owner. What should "get" you is the ABC simplicity of U. S. Royal Foam. Pre-formed in a wide variety of shapes—it is applied direct to any foundation. And there's your entire cushioning job!

U. S. Royal Foam is pure, odorless whipped-latex—honeycombed with buoyant air cushions that change sitting to effortless "floating." Keeps the friends it makes because its sag-proof resiliency is nearly indestructible.

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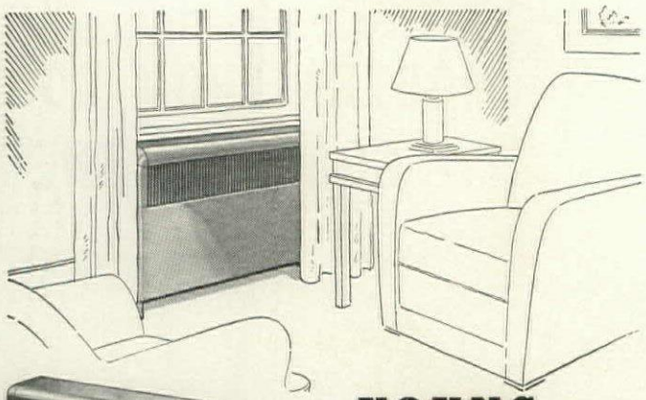

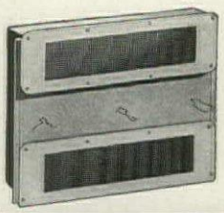

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Our free Manufacturer Reference Service will help you achieve the kind of installation you want. Write to The American Rolling Mill Co., 2851 Curtis St., Middletown, O.

ARMCO STEEL SHEETS

FORUM OF EVENTS

(Continued from page 14)

AWARDS

To Ralph Adams Cram, Boston architect, election to Chair 44 in the American Academy of Arts and Letters, succeeding Jonas Lie who died January 10, 1940.

To William Adams Delano, New York architect, citation by the Park Association of New York City for outstanding service to the parks by his use of landscaping as an important part of architectural design, particularly as evidenced at La Guardia Airport and in Gardens on Parade at the World's Fair.

To Ben Shahn, Hightstown, N. J., the commission to create the fresco murals for the main corridor in the Social Security Building, Washington, D. C., for a compensation of $19,980. Mr. Shahn's design won in a national competition entered by 375 painters.

The Jury further recommended that Philip Guston be invited to redesign and submit sketches for the decoration of the auditorium; that Seymour Fogel be invited to redesign and submit sketches for the decoration of the Independence Avenue lobby; that Honorable Mentions be given Joe Lasker, Brooklyn; Jean Charlot, New York; Michael Loew, New York; Arthur H. Lidov, Chicago; Nell Best, Lynwood, Calif.; Henry Simon, Chicago; Sante Graziana, Cleveland; Maxwell B. Starr, New York; Xavier Gonzales, New Orleans; Ralf E. Nickelsen, Wellesley, Mass.; Lew Keller, Los Angeles; and Saul Levine, Brooklyn.

To Kenneth M. Adams, New Mexico, first prize of $1,000 by the International Business Machines Corporation for paintings represented in the exhibition of Contemporary American Art throughout the 1940 New York World's Fair. Second prize, $750 to Lamar Dodd of Georgia; third prize, $500 to Paul Sample of New Hampshire; fourth prize, $350 to N. C. Wyeth of Delaware; fifth prize, $200 to Everett Warner of Pennsylvania; sixth prize, $100 to John R. Grabach of New Jersey; seventh prize $100 to William R. Hollingsworth, Jr. of Mississippi.

To Tourneur Beauty Products, Inc., one of three top awards in the classification Architecture, in the Fifth Modern Plastics Competition sponsored by *Modern Plastics Magazine*. Also to Farragut Theater, Brooklyn, for fluorescent laminated sheets, and to Keystone Brass & Rubber Co. for jewelite door knobs. A single special award was also given for Resnprest-Durez plywood, produced by the M & M Wood Working Company, Portland, Ore.

COMPETITIONS

McCall's Magazine is holding a Dream Kitchen Contest, with prizes totaling $1,250. Closing date, December 31, 1940. Full details and entry blanks obtainable by sending a three-cent stamp to The Modern Homemaker, McCall's Magazine, Dayton, O.

Second Competition of the Museum of Modern Art, open to residents of the Latin-American countries only, calls for the creation of useful and beautiful environments for contemporary living in terms of furniture, fabrics and lighting fixtures. Closing date, January 15, 1941. Rules and entrance blanks obtainable on application to Competition Director, Department of Industrial Design, Museum of Modern Art, 11 West 53rd St., New York.

Section of Fine Arts, Public Buildings Administration, Federal Works Agency, Washington, D. C., invites competition for models of two sculptured groups flanking

(Continued on page 50)

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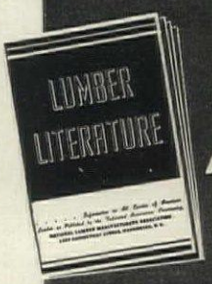

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FORUM OF EVENTS

(Continued from page 48)

the main entrance, and a large sculptured relief over the main entrance, on the East facade of the War Department Building, Washington. Amount to be paid for models for each of the two sculptured groups, $24,000. Closing date for models at the scale of one inch equals one foot, May 1, 1941. The Jury: William Zorach, Edgar Miller, Carl Milles, with Gilbert S. Underwood, and William Dewey Foster, architects of the building. Further details from the Section of Fine Arts.

SECTION OF FINE ARTS, Public Buildings Administration, Federal Works Agency, Washington, D. C., announces competition for a mural for the War Department Building—a space 50 ft. wide by 12 ft. high; medium, fresco, fresco secco or tempera. Amount to be paid, $12,000. Closing date for the submission of designs at scale of one inch equals one foot, April 1, 1941. The Jury: Boardman Robinson, Mitchell Siporin, Gifford Beal, with Gilbert S. Underwood, and William Dewey Foster, architects of the building. Further details may be had from the Section of Fine Arts.

EDUCATIONAL

PRATT INSTITUTE, School of Fine and Applied Arts, Brooklyn, has introduced a course in Defense Housing, which met for the first time November 6, last.

COLUMBIA UNIVERSITY, School of Architecture, New York, announces the establishment of a Master of Science degree in planning and housing. Students matriculating for this degree must have a degree in architecture, landscape architecture, or civil engineering. Candidates will be required to follow a one or two year graduate course in planning and housing, depending upon their previous training and experience.

CALENDAR

November 1-January 2, 1941. "Art Finds a Way," an exhibition in the Brooklyn Museum demonstrating the origin and development of production techniques in several fields.

November 11-December 31. Christmas Exhibition of American Designer-Craftsmen held by the Society of Designer-Craftsmen, 64 East 55th St., New York.

November 12-January 5, 1941. Exhibition of the work of Frank Lloyd Wright, architect, at the Museum of Modern Art, New York.

March 22-April 6, 1941. Tenth Annual Natchez Pilgrimage.

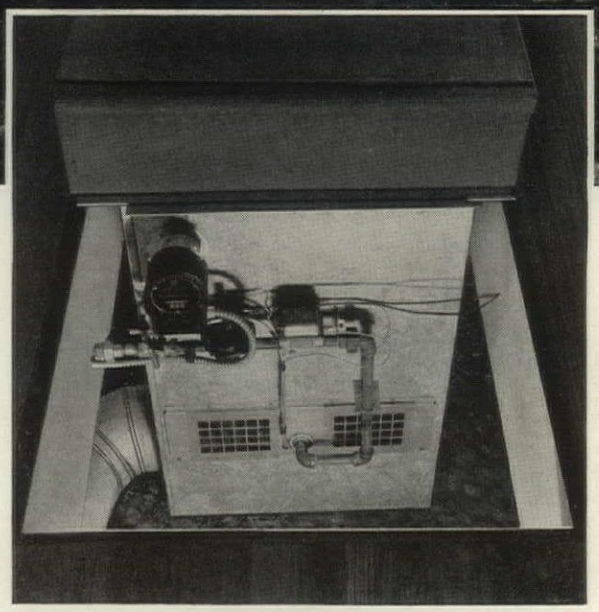
June 16-20, 1941. Pacific Heating and Air Conditioning Exposition in the Exposition Auditorium, Civic Center, San Francisco.

DIED

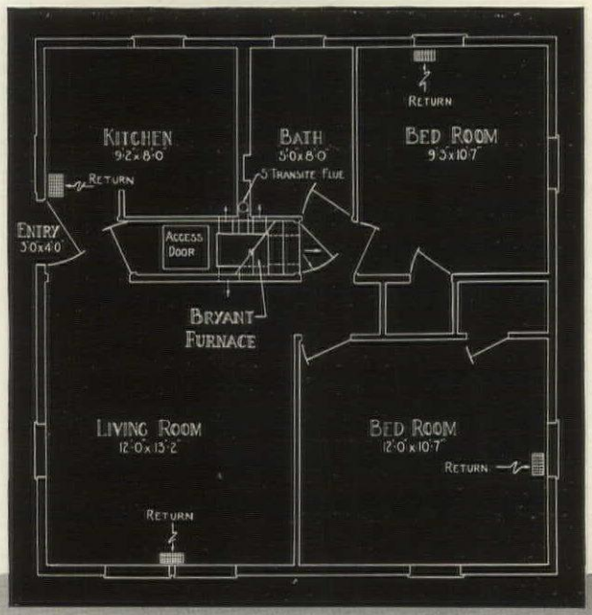
ALFRED S. ALSCHULER, architect, 64, in Chicago. Born in Chicago, Mr. Alschuler attended the Armour Institute of Technology and the Art Institute. He started his architectural career in the office of Dankmar Adler, and began his individual practice in 1907. Among the better known of his works are the London Guarantee and Accident Building, the Harvester Building, Chicago Garment Center, Mercantile Exchange Building, Sinai Congregation, and Temple Isaiah. He was a member of the American Institute of Architects.

ALBERT G. BERGER, architect, 61, in New York. Born in Hungary, Mr. Berger was graduated from the University of Budapest. He came to the U. S. in 1904, and even though arriving here as a graduate in engineering and in architecture, he

(Continued on page 54)



This view from above, through the trap door, shows how the Bryant gas furnace is suspended under the raised floor of the closet in the center of the house. Thus no usable space is sacrificed. A quiet fan provides adequate circulation, thus giving perfect heating comfort in every room.



A NEW GAS HEATER FOR HOMES LIKE THESE

Generous in comfort yet miserly in space requirements are the new Bryant Fan Floor Furnaces being installed in this Washington (D. C.) development by Daniel, Daniel and Daniel.

This gas furnace was developed especially for low-cost, basementless homes. It provides complete heating comfort in every room. It meets all the technical requirements of FHA, yet is priced so low that the heating equipment cost is well within the allowable FHA limits, even in these $3,000 homes. And the well-known Bryant efficiency insures real fuel economy.

We suggest that you obtain complete details on how this new Bryant 55-F Gas Furnace can be used in your small home projects. Write us for descriptive material—or better still—see your Bryant distributor.

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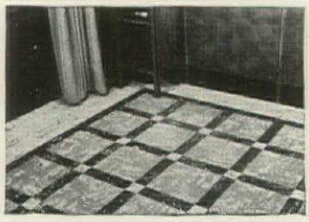
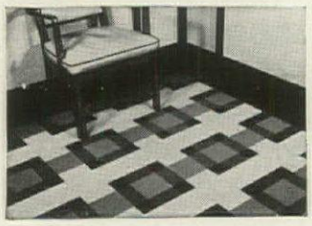
This stimulating *Idea Book* is packed with photographs of interesting floor designs. Many are reproduced in full color. It contains suggestions for smart, colorful floors in stores, display rooms, lobbies, etc.; interesting ideas for offices, schools, public buildings; restful designs for churches and hospitals. The book includes color plates of the 37 plain and marbleized colors of J-M Asphalt Tile which make it easy for you to select just the color combinations you need to carry out your ideas of interior treatments. It shows why J-M Asphalt Tile floors are quiet and resilient, give long years of service with little, if any, upkeep expense.



Two of the many distinctive J-M designs shown in full color in the J-M Asphalt Tile Flooring brochure.



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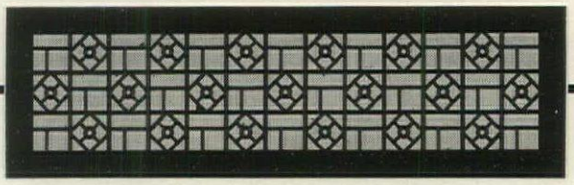
IN ANY MULTIPLE OF 2-7/16"



Here is a most practical grille—Arglin. It can be used in any multiple of 2-7/16". Simple in design, it is applicable for a wide range of installations. The open area is 63%.

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Towering 37 stories above Central Park The Sherry Netherland commands one of the finest views in New York. This house is known throughout the nation for its distinctive architecture, its cuisine, and its meticulous attention to all of the details of hospitality.

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If you specify elevator cable for any building, large or small, you can specify the New Bethlehem Cable with confidence. It is made of premium steel, built with watchmaker precision, and scientifically lubricated. It can be relied upon to do an outstanding job in any installation.

BETHLEHEM STEEL COMPANY

BETHLEHEM STEEL

FORUM OF EVENTS

(Continued from page 50)

started his career as a bricklayer. Later he served Schwartz & Gross as chief draftsman; subsequent employment with Starrett & Van Vleck terminated when Mr. Berger became the partner of M. Henry Sugarman. The firm of Sugarman & Berger is nationally, if not internationally, known for its apartment house work. These, with hotel and office buildings in New York and other cities, represent a total building construction of over $150 million. Among some of the better known buildings are the Hotel New Yorker, Roerich Museum, One Fifth Avenue, and the Navarre Garment Center Building. One of the last buildings on which Mr. Berger worked was the Rockcliffe Apartments, Montclair, N. J.

WILLIAM LEE STODDART, 71, architect, at New Rochelle, N. Y. Born in Tenafly, N. J., Mr. Stoddart was graduated from Columbia School of Architecture, entered the architectural firm of George B. Post & Son, and in 1894 took up independent practice, specializing in the design of hospitals and office buildings. Mr. Stoddart was a member of the American Institute of Architects.

SAMUEL YELLIN, 55, master craftsman in metal, in New York. Born in Poland, Samuel Yellin began studying art when he was eleven years old, studying and traveling in Belgium and England. He came to Philadelphia in 1906. In that year the School of Industrial Art, Pennsylvania Museum, began a course in metal work, and Yellin who had enrolled as a student was shortly made instructor. He taught for several years, and then established his own forge on which he wrought for himself a reputation as one of America's greatest craftsmen. Some of his better known works are in Memorial Chapel at Valley Forge; Harkness Memorial Quadrangle, Yale; Cathedral of St. John the Divine, New York; Bok Singing Tower, Lake Wales, Fla.; National Cathedral, Washington. Samuel Yellin was frequently honored: the Bok Civic Award as "outstanding citizen" of Philadelphia in 1925; Medals from the American Institute of Architects, Boston Society of Architects, Pennsylvania Museum School of Industrial Art. Mr. Yellin had gathered about his forge in Philadelphia a remarkably wide collection of metal working from all over the world. This private museum served well in the teaching and inspiration of his apprentices and visiting students. The section of decorative metal work in the fourteenth edition, Encyclopaedia Britannica, was Samuel Yellin's contribution.

ERRATA

On page 229 of the October Design Decade issue, illustration No. 2 shows a flush lighting unit on a ceiling, the lens of which was improperly credited; it is a Century, made by Century Lighting, Inc., New York, N. Y.

On page 319 of the same issue, the photograph of the Lincoln Tunnel interior, illustration No. 8, was improperly credited; it is the work of photographer Victor Keppler.

For each of these errors FORUM offers its sincere apology.

PERSONAL

Wilbur Henry Adams, industrial designer, has moved his office from Cleveland, Ohio, to R.D. No. 1, Erie, Pa.

Armand Bartos and Alden Thompson announce the formation of Bartos-Thompson Design, to engage in industrial and interior design, with offices at 400 Madison Ave., New York.

(Continued on page 58)

Here's How Public Acceptance For G-E Helped Builder A.P. Simons Sell $5995 Houses

A. P. SIMONS & COMPANY
Lakewood Estates
OWNERS & DEVELOPERS
DESIGNERS & BUILDERS

VICKERY BLVD. & ABRAMS ROAD
DALLAS, TEXAS

General Electric Supply Corp.
1811 N. Lamar St.
Dallas, Texas

Attention: Mr. Fred Staehle

Gentlemen:

We wish to express our appreciation for the manner in which you helped with our promotion of All-Electric Homes in LAKEWOOD ESTATES. It will interest you to know that all fifteen homes in the program were sold and four others were contracted for immediate consideration.

The interest shown by the thousands inspecting our homes bears out every statement made by the General Electric Company concerning the G-E equipment we are using exclusively in this development.

It is our intention to incorporate all of your electric features in each of the 200 homes in this addition -- because of its beauty and public acceptance.

Very truly yours,

A. P. Simons

A. P. Simons, President

The G-E Home Bureau Offers You The Same Promotion Plan That Helped A. P. Simons

1. *A Tested House Merchandising Plan* — an aid in selling which builders everywhere are using successfully.
2. *An Architectural Engineering Service* — The G-E Home Bureau does not furnish plans, but its staff of experts will check yours and make suggestions — wiring, heating, air conditioning, lighting, kitchens, and laundries.
3. *An Advertising Service* — Tested advertising campaigns, layouts, and copy adaptable to your use.

Mr. A. P. Simons, President of A. P. Simons & Co., finds that G-E equipment satisfies the public's demands for high-quality operating equipment, and that its national reputation for convenience and economy helps sell more houses.

WHY NOT GET THE FACTS? SEND IN THE COUPON TODAY.

General Electric Home Bureau, Dept. AF-4012
1285 Boston Avenue, Bridgeport, Connecticut
Please send information on your House Merchandising Plan.

☐ I am an architect
☐ I am building for resale
☐ I am building my own home

Name.....
Address.....
City.....State.....County.....

GENERAL ELECTRIC

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF MARCH 3, 1933, OF THE ARCHITECTURAL FORUM, published monthly at Philadelphia, Pa., for October 1, 1940.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Henry A. Richter, who having been duly sworn according to law, deposes and says that he is the Business Manager of THE ARCHITECTURAL FORUM and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Time Incorporated, Time & Life Building, Rockefeller Center, New York, N. Y.; Editor, Howard Myers, Time & Life Building, Rockefeller Center, New York, N. Y.; Managing Editor, Ruth Goodhue, Time & Life Building, Rockefeller Center, New York, N. Y.; Business Manager, Henry A. Richter, Time & Life Building, Rockefeller Center, New York, N. Y.

2. That the owner is: Time Incorporated, Time & Life Building, Rockefeller Center, New York, N. Y., that the names and addresses of stockholders owning or holding one per cent or more of total amount of stock are: Brown Brothers, Harriman & Co., 59 Wall St., New York, N. Y.; F. Du Sossoit Duke, Greens Farms, Conn.; Mrs. Mimi B. Durant, c/o The National City Bank, 167 East 72nd St., New York, N. Y.; William V. Griffin, 140 Cedar St., New York, N. Y.; Louise H. Ingalls, 1638 Union Commerce Building, Cleveland, Ohio; Irving Trust Company, as Trustee (Benefit of Elizabeth Busch Pool), 1 Wall Bldg., New York, N. Y.; John S. Martin, Time & Life Bldg., New York, N. Y.; Margaret Zerbe Larsen, Time & Life Bldg., New York, N. Y.; Roy E. Larsen, Time & Life Bldg., New York, N. Y.; Henry R. Luce, Time & Life Bldg., New York, N. Y.; John S. Martin, Time & Life Bldg., New York, N. Y.; Samuel W. Meek, Jr., c/o H. A. Schafuss, Chas. D. Barney & Co., 14 Wall St., New York, N. Y.; J. P. Morgan & Company, (Account of Henry P. Davison), P. O. Box 1266, New York, N. Y.; The New York Trust Company, (Account of Edith Hale Harkness), 100 Broadway, New York, N. Y.; The New York Trust Company, (Account of William Hale Harkness), 100 Broadway, New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

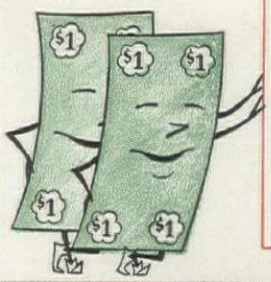
4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stock holders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders, who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) Henry A. Richter,
Business Manager.

Sworn to and subscribed before me this 24th day of September, 1940.

[SEAL] HERBERT H. BROWER,
Notary Public.

(My commission expires March 30, 1941)



How to make ONE budget dollar do the work of TWO

Read about the amazing economy of Armstrong's Asphalt Tile floors

EVERY client wants his building dollar to do double duty. And that's just what happens when you specify floors of Armstrong's Asphalt Tile. Low in first cost, this fine durable floor saves money year after year, too, because it is so easy to maintain (only daily sweeping, and occasional washing and waxing needed). And, being resilient, it's quiet and comfortable underfoot.

The 41 rich plain and marble patterns offer a wide scope of decorative treatment. They are handset, a block at a time, quickly—easily. Custom-cut insets can be added for very little extra. Furthermore, asphalt tile is the only resilient material which can be used over concrete subfloors in direct contact with the ground—either on or below grade.

See "Sweet's" or write for *Floor Beauty at Low Cost.* Address Armstrong Cork Co., Building Materials Div., 1204 State Street, Lancaster, Pa.

COST-CONSCIOUS CLIENTS *need not hamper either the beauty or the quality of the interiors you plan. Witness this fine, low-cost floor of Armstrong's Asphalt Tile in the Link-Belt Company office building, Indianapolis. Colors are Venetian red marble and Tennessee marble. Architect: D. A. Bohlen & Son; designer: A. C. Bohlen; flooring contractor: Smuck Floor Covering Co.; general contractor: Carl N. Geupel Construction Co. (Indianapolis).*

ARMSTRONG'S

Asphalt Tile

MADE BY THE MAKERS OF ARMSTRONG'S LINOLEUM

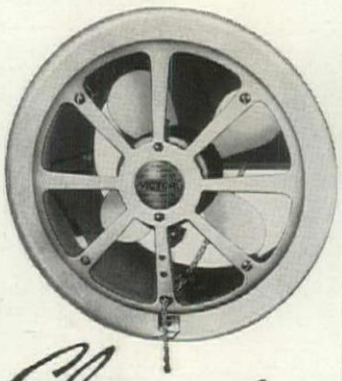
THE LOW-COST FLOOR WITH THE LUXURY LOOK!

LINOLEUM • LINOTILE (OIL-BONDED) • CORK TILE • RUBBER TILE

VICTOR VENTILATION for LOW COST HOMES!

now available...

The new popular priced Victor Challenger In-Bilt Ventilator is a Victor quality Ventilator, designed and priced for low cost homes. Like all Victor models, the Challenger is automatic in operation, powered by the famous Victor Motor, with ornamental grille finished in ivory — silchrome fan blades and weather-tight shutters.



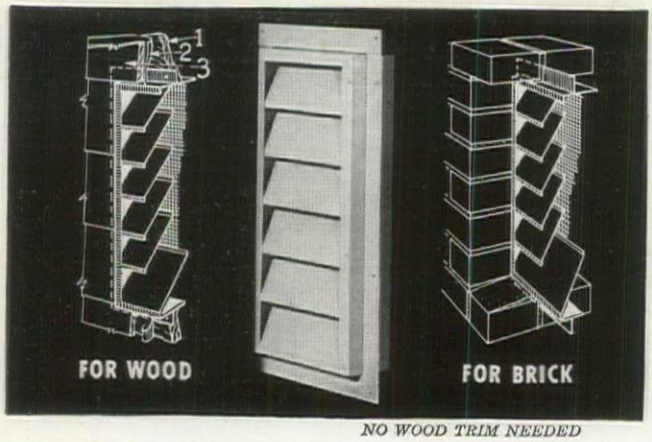
the NEW VICTOR *Champion*

VICTOR ELECTRIC PRODUCTS, Inc.—Dept. IB-16
2950 Robertson Road, Cincinnati, Ohio

FREE! Write for illustrated Victor In-Bilt Catalog giving full details of the new Challenger; also the complete line of VICTOR In-Bilt Ventilators.

VICTOR *In-Bilt* VENTILATORS

New ATTIC VENT EASIER TO INSTALL



NO WOOD TRIM NEEDED

• This new steel louver attic ventilator is substantial, well made, costs less than wood ventilators and is easier to install.

In frame construction the flange is nailed to the sheathing and siding or shingles butt against the ventilator frame which projects 1" beyond sheathing. In brick construction ventilator is recessed 3", the flange fitting between mortar joints. Drawings above show installation in frame and brick construction.

Donley attic ventilators are made of 20 ga. steel, electrically welded. They are finished with two coats of high grade paint and are complete with bronze flyscreen at back of louvers. Made in four sizes to fit most requirements. Free area is much greater than same sizes in wood.

Carried in stock by many building material dealers. See them or write direct for descriptive folder and prices.

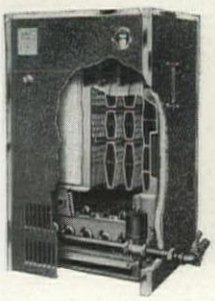
THE DONLEY BROTHERS CO.
13946 Miles Avenue • • Cleveland, Ohio

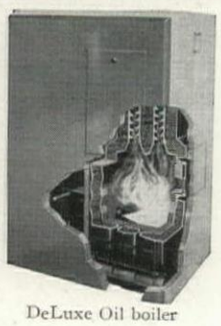
For Underground or Overhead Steam Lines

Armco Iron Conduit is the foundation supporting heavy asphalt shell of any desired thickness—a permanent housing, with ample structural strength, lightweight and watertight. Furnished in any lengths, with any kind of pipe or insulation, for underground or overhead steam lines. Welded couplings used if preferred. A complete, self-contained, streamlined system—MADE POSSIBLE ONLY BY MODERN ENGINEERING. Only one thing to buy! *Write for Bulletin No. 4013*

The RIC-WIL CO.
Union Commerce Bldg.
Cleveland, Ohio
Agents in Principal Cities

REG. U. S. PAT. OFF.
RIC-WIL
CONDUIT SYSTEMS FOR UNDERGROUND STEAM PIPES


Gas boiler


DeLuxe Oil boiler

You ask - -

Are Burnham Boilers Honestly Rated?

Frankly, no.
Take either our gas or the DeLuxe Unit oil boiler. Neither one are rated up to what the factory tests showed. As a result, both are doing a better on-the-job job than we rate them for.

Still we urge your going by our ratings.
It's always safer to have a little surplus that can be called on when needed.

See Sweet's. See for yourself.

BURNHAM BOILER CORPORATION

Irvington, N. Y. Dept. J
Zanesville, Ohio Dept. J

Burnham Boiler

Glass KEYS THE DESIGN OF 1941 HOMES . . .

Glass gives this room "breathing space"—makes it light and cheerful. The wide windows make the room seem like part of the outdoors and the fireplace mirror adds still more to the feeling of roominess.

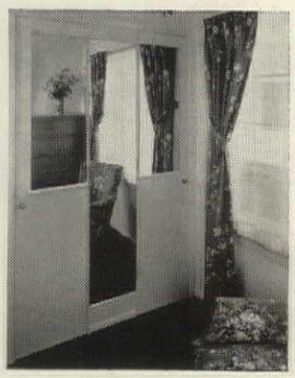
A brilliant panel of Satinol finished Reedex glass effectively screens this kitchen from the breakfast nook. Yet it lets light reach portions of the kitchen that would otherwise be dim.

•

Here's an arrangement of 3-panel plate glass mirrors that would delight any woman—and is modest in cost. The center panel between the closet doors is a full-length mirror. The partial-length mirrors on the doors afford ample angle views.

Tune in . . . Listen to "DESIGN FOR HAPPINESS"

over CBS stations coast to coast every Sunday afternoon at 5 P.M., E.S.T. It's family entertainment for the American family.



● Glass is no longer an afterthought of home building. It dominates design—is *built in* to the modern home for better and happier living.

With modern uses of glass you can plan a new kind of home...more spacious...more convenient...more valuable...more salable if your clients ever want to sell. The small house particularly, has a special need for ample uses of glass. Plate glass mirrors will make rooms seem larger, decorative glass partitions will make one room seem like two, and ample windows will open the walls to the spacious sweep of light.

Your L·O·F Glass Distributor has a fund of information on how architects are planning an entirely new type of house—one that's "designed for happiness" with glass—that people *like* to *live* in. Why not utilize his expert advice on glass and his willingness to cooperate? Call him *Today*. Libbey-Owens-Ford Glass Company, Toledo, Ohio.

•

→

When the little doors of this appealing breakfast bar or serving counter are closed they form a mirrored panel that brightens the dining room. Upper cabinet is protected with sliding panels of Louvrex decorative glass—lower cabinet with panels of polished plate glass.

LIBBEY·OWENS·FORD QUALITY GLASS

FORUM OF EVENTS

(*Continued from page 54*)

Alfons Bach, designer, has moved his studio and office to his new building, Haviland Road, Stamford, Conn., and will maintain a New York office at 101 Park Ave.

Braseth & Houkon, architects, announce the removal of their offices to Western Mutual Life Insurance Building, 716 South 7th St., Fargo, N. D.

Ernest N. Braucher, architect, has moved his office to 139 North Clark St., Chicago.

Buckley, Arango & Lyons, architects and engineers, who maintain offices in Panama and Colon, announce the opening of an office in the Barr Building, Washington, D. C. Rolland C. Buckley, architect, who for the past seven years has been connected with the Central Office of the Public Works Administration, will be in charge. Manufacturers' catalogues and file data are requested.

William Cain, architect, announces the removal of his office to 375 East Fordham Road, New York.

Consolidated Technical Survey, Chicago, announces that C. E. Oneal, landscape architect, has become a partner.

Lucian M. Dent and A. L. Aydelott announce the formation of their partnership as of October 1. The firm will practice under the name, Lucian Minor Dent—Architect, A. L. Aydelott—Associate, with offices in First National Bank Building, Memphis, Tenn.

William N. Denton, Jr., architect, announces the removal of his offices to 1719 Eye St., N. W., Washington, D. C.

Winston Elting, Theodore Lamb and Paul Schweikher announce the opening of new offices at 152 East Ontario St., Chicago, for the private and associated practice of architecture and industrial design.

Manoug Exerjian, architect, announces the removal of his New York offices from 148 East 33rd St. to 108-08 Queens Boulevard, Forest Hills, N. Y.

Alfred W. Grant, architect, announces that his office is now in The Fairfield Land & Title Co. Building, 1333 Post Road, Fairfield, Conn.

Nathan Leefov, consulting engineer, has moved his office to Magee Building, 334 Fourth Ave., Pittsburgh, Pa.

Jose V. Quintos, P. O. Box 297, Manila, Philippine Islands, will be glad to have for his files manufacturers' catalogues and building material data, and especially material relating to interior decoration.

Max W. Roth, architect, announces that his office is now located at 2320 Lincoln Ave., Montreal, Canada, and requests manufacturers' catalogues and file data.

Edward Silverstein, architect, announces the opening of an office at 329 Decatur St., New Orleans, La.

R. Harold Zook and D. Coder Taylor announce their association as Zook & Taylor, architects, with offices at 140 South Dearborn St., Chicago.

The art of modern wood treatment

English Oak Flexwood treatment Main Lounge, Coffman Memorial Union, University of Minnesota, Minneapolis, C. H. Johnston, Architect.

Close-up of curved end of streamlined balcony facade.

RARE AND EXOTIC WOOD INTERIORS CONTRIBUTE TO THE BEAUTY AND LUXURY OF COFFMAN MEMORIAL UNION

The interesting Flexwood treatment of the Main Lounge is typical of the effects created by C. H. Johnston, Architect, throughout the handsome Coffman Memorial Union. Ground floor lobby, offices, billiard room, and women's rooms are decorated with 18,000 sq. ft. of Brazilian Rosewood, Walnut, English Oak, and American Oak. TIME says: "To build them (students) a worthy social centre was an ambition of Minnesota's late great President, L. D. Coffman." The luxurious interiors, the latest mechanical equipment, and the unrivaled recreational facilities of this imposing building are the result. There is ample leeway in the *average* school budget for the finishing of rooms in exotic woods, and the completed installations belie their moderate cost. The ease and speed with which Flexwood is applied make it a logical choice when the luxury obtainable only with real wood is desired. Flexwood distributors are located in sixty principal cities.

Flexwood

[WOOD IN FACILE FORM]

UNITED STATES PLYWOOD CORPORATION, 103 PARK AVENUE, NEW YORK—*Manufacturers of Flexglass*

Flexwood is manufactured and marketed jointly by The Mengel Co., Louisville, Ky., and the United States Plywood Corp., New York

DARTMOUTH COLLEGE
HANOVER, N. H.

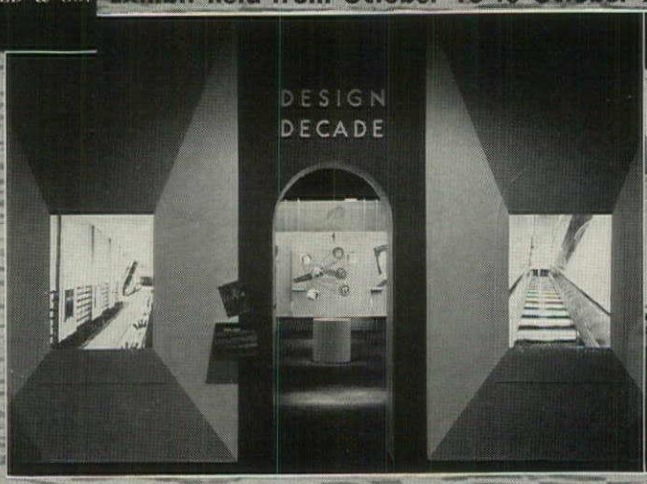
Exhibit held from October 1 to November 3

PORTLAND ART MUSEUM
PORTLAND, OREG.

Exhibit held from October 7 to November 17

MARSHALL FIELD & CO.
CHICAGO, ILL.

Exhibit held from October 16 to October 26



ANNOUNCING **design decade** exhibitions

IN AMERICAN MUSEUMS

Exhibit was held from Nov. 5 to Dec. 1 **Philbrook Art Museum Tulsa**	*Exhibit to run from Jan. 2 to Jan. 27* **University of Minnesota Gallery Minneapolis**	*Exhibit to run from Dec. 16 to Jan. 12* **(American Plastics, 1940)** **Institute of Modern Art Boston**
Exhibit to run from Jan. 20 to Feb. 20 **(American Plastics, 1940)** **Museum of Fine Arts Springfield, Mass.**	**Worcester Art Museum Worcester, Mass.** *Exhibit was held from Nov. 2 to Nov. 19* **Design for Working**	*Exhibits to run from Nov. 23 to Dec. 10* **Design for Living** *from Dec. 13 to Jan. 2* **Design for Playing**
Exhibit to run from Dec. 2 to Dec. 31 **Milwaukee Art Institute Milwaukee**	*Exhibit was held from Oct. 22 to Nov. 12* **Utah State Art Center 59 South State Street Salt Lake City**	*Exhibit was held from Oct. 18 to Nov. 10* **San Francisco Museum of Art San Francisco**
State-wide Art Project Works Projects Administration Nashville	*Exhibits to run Dec. 28 to Jan. 11—* **Nashville Gallery** *Latter part of January—* **University of the South**	*February*—**University of Chattanooga** *March*—**Gallery in Norris** *April*—**Gallery in Memphis**

SPECIFICATION AND BUYING INDEX

The advertising pages of THE ARCHITECTURAL FORUM have become the recognized market place for architects and all others engaged in building. Each month these pages offer the most complete guide to materials, equipment and services to be found in any magazine. A house or any other building could be built completely of products advertised in THE FORUM. While it is not possible for a magazine to certify building products, it is possible to open its pages only to those manufacturers whose reputation merits confidence. This THE FORUM does.

Specify

CHECK THESE 14 POINTS

- High resistance to compressive loads . . .
- Dustless and quiet under wheel traffic . . .
- Comfortable under foot—improves efficiency of workers . . .
- Moisture resistant . . .
- Rapidly laid at low cost . . .
- Ready for use soon as laid . . .
- High dielectric strength . .
- Smooth surface is easy to sweep . . .
- Vermin and termite proof . . .
- Fire resistant . . .
- Attractive appearance—red and black colors . . .
- Dense and tough structure . . .
- Relatively hard, yet resilient . . .
- An improved asphalt tile manufactured under strict laboratory control . . .

THE INDUSTRIAL FLOORING *that can take it!*

Carey Elastite ASPHALT TILE

THIS improved flooring, developed by CAREY research, is tougher, longer wearing—a flooring that can take a beating from wheeled traffic and yet that is resilient and comfortable for workmen. It reduces accidents and steps-up efficiency. Withstands highly compressive loads and rough usage.

An ideal material for factory, warehouse and machine shop floors; loading platforms; offices; laboratories; stores. It is fire-safe, moisture and weather resistant. Also specified for protection of built-up roofs subjected to traffic—makes them valuable for use as sun decks or recreational activities.

CAREY ELASTITE Asphalt Tile is a compound of asphalt and mineral filler, reinforced with asbestos fibres, densely compressed and die cut to size. Available in black and red colors, in $\frac{1}{2}$" thickness, and in sizes 12" x 12" and 12" x 24".

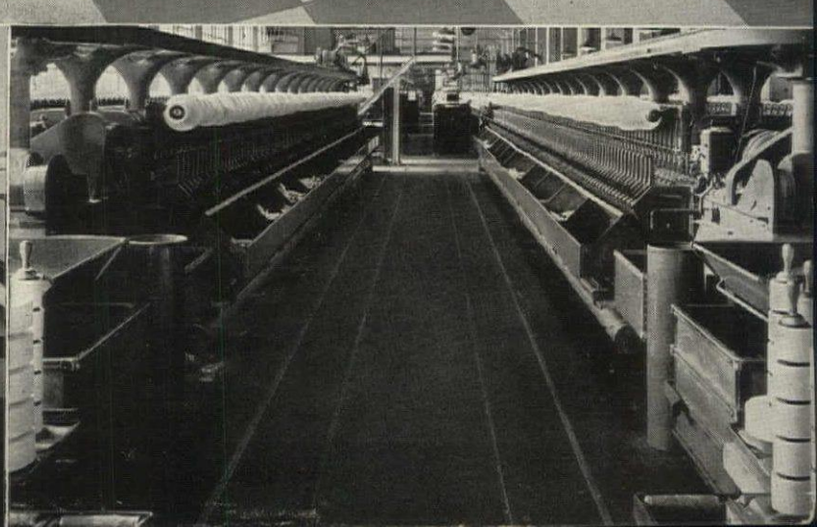
This modern tile helps to reduce accidents, lower maintenance, save time, improve appearance, promote cleanliness. CAREY ELASTITE Asphalt Tile is approved by the Underwriters' Laboratories for "Class A" built-up roofing, when applied in accordance with their instructions, on slopes up to and including 1" to the horizontal foot. Specify it for new construction and for resurfacing rough or worn floors. Write today for catalog and samples—address Dept. 20.

THE PHILIP CAREY COMPANY • Lockland, Cincinnati, Ohio

Dependable Products Since 1873

In Canada: The Philip Carey Company, Ltd., Office and Factory, Lennoxville, P. Q.

(Top left illustration) Slatersville Finishing Company, Slatersville, R. I.; (Middle left) Havatampa Cigar Factory, Tampa, Florida; (Lower left) Standard Brands Laboratory, Cincinnati, Ohio; (Lower right) Maverick Mills, E. Boston, Mass.



QUALITY ECONOMY

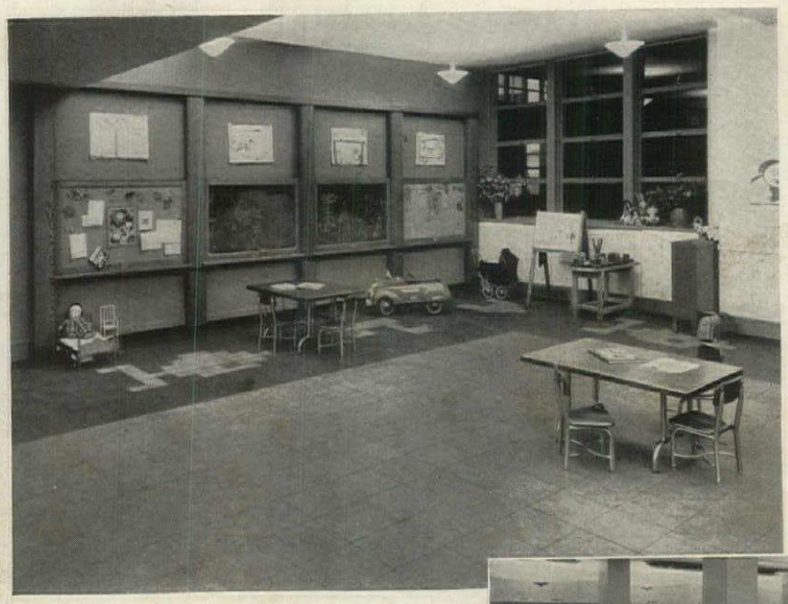
HUNTER COLLEGE

350,000 SQUARE FEET

KENTILE *Asphalt Tile*

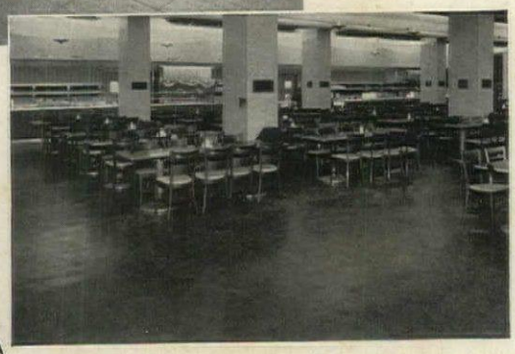
SHREVE, LAMB and HARMON Architects

PSATY & FUHRMAN, INC. Contractors



KIDDY PROOF

Running, sliding and scuffling will never harm this Kentile floor. Although resilient and sound deadening it won't be dented or scratched. And the colors can't be rubbed off—they are in the pigmentation right through to the back. Notice the interesting design possibilities. You should see it in colors!



GREASE-PROOF KENTILE

is another advantage now offered by David E. Kennedy. Available in Kentile's 20 most popular colors it is absolute proof against any of the usually staining fluids or materials — animal or vegetable fats, alkalines, etc. And it has every one of Kentile's many other advantages.

Chosen for the most important jobs! These "blue ribbons" are awarded Kentile regularly—for good reasons. Consider schools. Asphalt tile is just about the most economical floor obtainable. And its smooth fitting tiles are laid with a minimum of time and effort. Through the years all its original beauty is perfectly preserved by simple occasional mopping with, once in a long while, an easy waxing. And although as tough and long-lasting as you could want it is also resilient—comfortable underfoot and a definite deadener of foot falls. It is virtually stain-proof, moisture-proof, fireproof. It can be laid directly over concrete on ground levels. And the beautiful effects made possible by its 44 marbleized and plain colors are unparalleled. Learn—today—*all* about Kentile, by mailing this coupon.

David E. **KENNEDY, INC.**

for **FLOORS** *and allied materials*

DAVID E. KENNEDY, Inc.
58 Second Ave., Brooklyn, N. Y.

Please send your 16 page full color book about Kentile.

Name .....

Address .....

City ..... State .....

☐ Without obligating me in any way, please have your local representative call to give me detailed facts and figures.

TRUSCON Residential Double-Hung Steel Windows

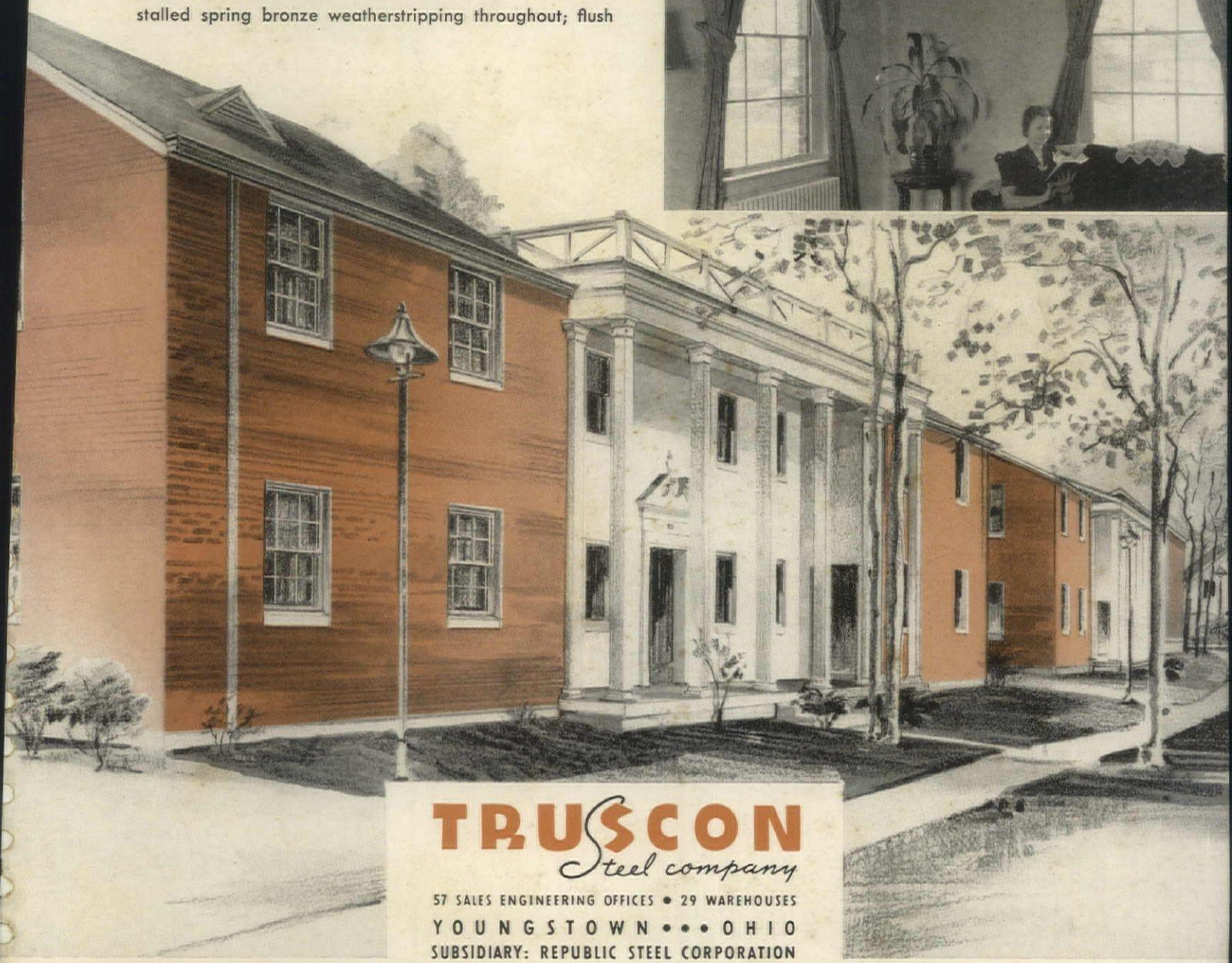
Cover the full range of modern window needs from single houses to multiple-residence groups

● Stansbury Manor at Middle River near Baltimore, Maryland, is a noteworthy example of the "individual" treatment of the better class multiple-residence plan.

Truscon Residential Double-Hung Steel Windows were selected for the identical reasons that have influenced their continued use by architects and builders of single-family and apartment houses of all descriptions.

Available in 96 standard types and sizes, these windows are manufactured from electro-galvanized sheets, Bonderized; baked-on prime coat of paint; tubular sash construction; hardware and spring balance tapes of ENDURO stainless steel; effortless operation; factory-installed spring bronze weatherstripping throughout; flush exterior installation of screens and Tempryte insulating windows; and costs that are usually lower than less durable windows properly weatherstripped.

Detailed information about these popular windows is available in Truscon's 80-page catalog in "Sweet's." If you wish, an individually bound catalog will be sent to you immediately upon request.



TRUSCON *Steel company*

57 SALES ENGINEERING OFFICES • 29 WAREHOUSES

YOUNGSTOWN • • • OHIO

SUBSIDIARY: REPUBLIC STEEL CORPORATION

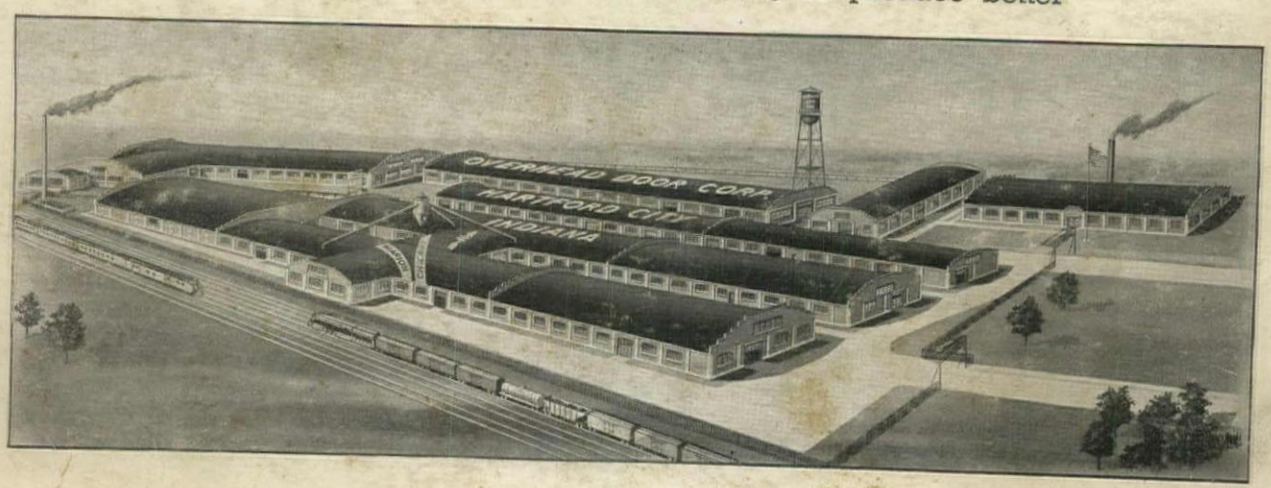
Stansbury Manor is sponsored by Glenn L. Martin Company, Baltimore, Maryland. Harry M. Price, Cincinnati, Ohio, Architect.

Truscon Steel Company maintains sales-engineering offices in 57 principal cities to assure prompt attention to the needs of architects.

"OVERHEAD DOOR"

TRADE MARK

This is an age of specialization. We specialize in garage doors. Our plant is devoted exclusively to the manufacture of The "OVERHEAD DOOR" as a complete unit, from blueprint to installation. Here, in our modern factory, the men of "OVERHEAD DOOR" work constantly to produce better



doors, better service. Straight line production methods give utmost value per dollar of cost. Each department turns out a part designed specifically for our one product; quality is uniform throughout.

Linking our efforts with yours is a nation-wide sales-installation-service . . . hundreds of capable, responsible men who know doors and how to install them for lasting efficiency. Their specialized knowledge can help you bring lower operating costs to manufacturers and convenience to many owners of new or remodeled homes. No job is too large or too small. Phone the local "OVERHEAD DOOR" representative; let him make a complete survey without obligation.

OVERHEAD DOOR CORPORATION

HARTFORD CITY, INDIANA, U. S. A.