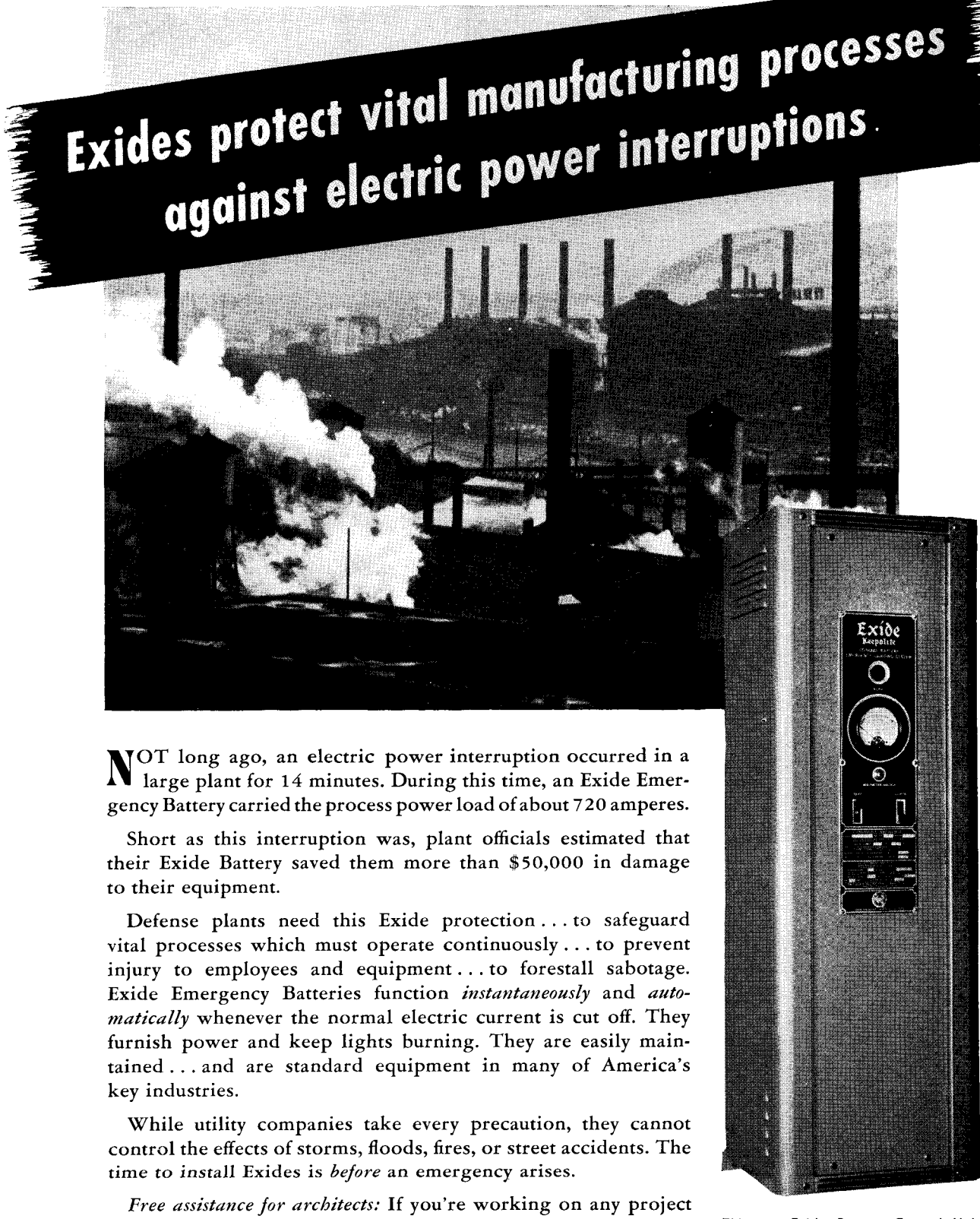
Exides protect vital manufacturing processes against electric power interruptions.



NOT long ago, an electric power interruption occurred in a large plant for 14 minutes. During this time, an Exide Emergency Battery carried the process power load of about 720 amperes.

Short as this interruption was, plant officials estimated that their Exide Battery saved them more than $50,000 in damage to their equipment.

Defense plants need this Exide protection . . . to safeguard vital processes which must operate continuously . . . to prevent injury to employees and equipment . . . to forestall sabotage. Exide Emergency Batteries function *instantaneously* and *automatically* whenever the normal electric current is cut off. They furnish power and keep lights burning. They are easily maintained . . . and are standard equipment in many of America's key industries.

While utility companies take every precaution, they cannot control the effects of storms, floods, fires, or street accidents. The time to install Exides is *before* an emergency arises.

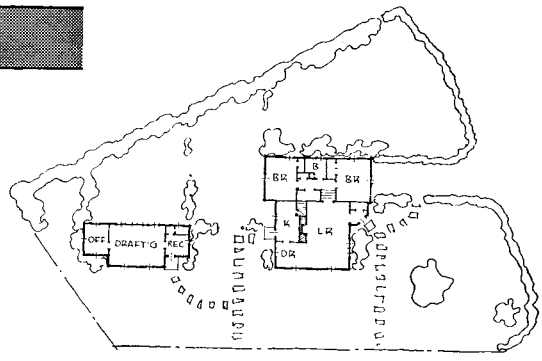
Free assistance for architects: If you're working on any project that needs protection against power failures, write or wire the nearest Exide Branch Office. Free help with plans and specifications will gladly be provided by an Exide Field Engineer, experienced in stand-by power and emergency lighting for factories, hospitals, theatres, stores and other structures.

This new Exide Battery Control Unit provides instantaneous, automatic emergency protection and fully automatic battery maintenance.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

Exide
EMERGENCY BATTERIES

(continued from page 14)



Just about the time the small-city architect gets his little downtown office set up, his files force him to move. So he builds his own home-and-office combination. The Witmers built two cottages, one for the home (at right in the photograph) the other for the office. And, typically, Mr. Witmer has a quiet room just for himself, for those peaceful hours of relaxation which his schedule never seems to permit

permanent staff of four with Mr. Witmer, which constitutes the only architectural office in Portsmouth and furnishes complete architectural service. Mr. Witmer's practice could probably be called the ideal of most architects, for it ranges from a job of detailing a gatepost to complete service on a $200,000 factory. Between these two extremes he has done houses, schools, churches, stores and offices, public works and highway bridges—a list which has grown to enviable proportions in the last eleven years and promises to become even more imposing as Portsmouth's urgent construction needs are met.

Not so easy at first

But it wasn't so easy at first. Mr. Witmer says, "Portsmouth is New England to the core, and in New England it usually takes a decade of most critical scrutiny, before the townsfolk will even begin to accept you—particularly if you've been born in Lancaster County, Pa., and haven't even a twig of a New England family tree against which to lean for the support of yourself and your credentials! It's easier now, but when I first started I pushed a lot of doorbells."

The majority of his jobs didn't come into the office without some effort. Like progressive architects in larger cities the country over, Mr. Witmer seldom loses an opportunity to seek potential clients. His name has been on many a club and Chamber of Commerce speakers' program. He advertises, too. Not extensively or blatantly, but in cooperation with activities of the New Hampshire Society of Architects—of which he is a past president and member of the current executive committee—and in semi-annual special construction issues of New Hampshire's leading newspapers. Paid advertising, in his estimation, is worth its price if handled cautiously and with an eye to all its values. And publicity, which he is constantly being given by New Hampshire's newspapers as a result of his architectural achievements, is, he thinks, of inestimable value.

Partly as a result of his intelligent use of both advertising and publicity, Mr. Witmer never needs to ring a doorbell today. The work of his office—done for clients who pay for complete architectural service—can be found all along the upper Northeastern seacoast. And the members of his staff are probably much more secure in their respective jobs than their professional colleagues usually are in larger city offices.

So far as the business conduct of the office is concerned, Mr. Witmer follows, in general, the pattern of any successful architect. An accurate and detailed cost account, which includes full notations on conferences as well as reports of its technical program, is kept of every job. Every one of his staff keeps time-cards; and overhead items such as telephone and telegraph supplies, etc., are prorated and charged to individual jobs.

His buildings are constructed very largely with non-union local labor when they run under a cost of about $15,000; and union labor is largely employed for jobs over that amount. This is explained by the fact that Portsmouth contractors use local labor primarily, and according to Mr. Witmer are not well equipped to do very large work, necessitating the invitation of contractors from Boston or Manchester.

All jobs are not done on a general contract basis. As a matter of fact, Mr. Witmer is increasingly adopting the practice of subletting a large part of the work. In addition to attaching an extra 4 per cent to the 6 per cent fee which his office usually receives, Mr. Witmer feels that the separate-contract system gives him a more direct control of the job, which allows him to serve his client more efficiently. When the job is out of town or involves need for particularly close supervision, he employs a clerk-of-the-works, often on a part-time basis. Ordinarily, however, supervision is handled by himself or one of his staff. Incidentally, each member of the staff is especially trained to keep step with the program of each job so that each is able to direct progress in Mr. Witmer's absence.

Wouldn't change places

If you ask this successful architect if he would change places with the head of a huge office in a teeming metropolitan area, you would receive an emphatic "No." As Maurice Witmer shrewdly observes, "The suburban community and smaller city hold out opportunities which very often metropolitan areas do not afford the average business man. And in these smaller communities you get to know the townspeople, you gain their confidences and are privileged to enjoy their intimate friendship. It's true that sometimes this can be a handicap—but by and large it keeps you on your toes!"

27 MILES OF PROTECTION!

This year-around, open-air rink in Southern California is 100 feet wide and over 200 feet long. Economical operation is provided for with NATIONAL *Steel Pipe.*

Here's another instance where NATIONAL Steel Pipe furnishes necessary protection against premature replacement!

THE owners of this large rink experimented with another system — then turned to NATIONAL for true economy. NATIONAL Refrigeration Pipe was specifically made for just such a type of installation, and its efficient long-lasting service has been proved many times. Designers and builders of ice and refrigerating equipment have long recognized the qualities of NATIONAL as a safeguard against premature replacements.

They have found that it has an extra resistance to corrosion—that it is dependably uniform, clean inside and out—that one of its most important advantages is its ductility—that it can be bent regularly around small radii without the least tendency to buckle or split—that it can be welded and threaded with ease. Workmen have enthusiastically endorsed NATIONAL because of its all-around, easy working qualities—it saves time, labor, and materials on the job. Numerous installations of NATIONAL such as this one, all over the country, are demonstrating the benefits of uninterrupted, economical, and satisfactory service. Bulletin Number 5 outlines the reasons why it offers the advantages that result in a successful and lasting installation. Ask for it today.

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UNITED STATES STEEL

REORGANIZING THE GOVERNMENT HOUSING AGENCIES

Rosenman report on the fire . . . Shifts in top men . . . Allocations in lieu of priorities . . . More funds for defense housing . . . Housing by co-op plan . . . Price and rent control . . . Outlook for high construction volume in 1942.

—By KENDALL K. HOYT

THE ABSORBING TOPIC in Government housing circles still is the ever recurrent question of reorganization among the agencies in Washington. The Rosenman report on what to do, it is believed, is on the President's desk.

Rumors are many and can never be guaranteed. Among the newest crop is the story that Judge Rosenman is recommending two plans—a long-range slum clearance program for after the war and an immediate program for emergency defense housing. On the latter, guesses vary from the idea that he dodges the problem of personalities and recommends a super bureau, to the rumor that he wants all defense housing handled by USHA.

Shifting top personnel

One possibility is that the President will not make the report public but will effect the necessary coordination by shifts in top personnel. Already, as included among the guesses in our story of last month, Federal Works Administrator Carmody, who is not in the best of health, has been transferred to an easier job by appointment to the Maritime Commission. Philip Fleming of the Wage-Hour Division replaces him at FWA.

That leaves the question of what happens to Nathan Straus, who holds forth at USHA despite rumors of long standing that he might be resettled in another post. Housing Coordinator Palmer is still in the picture and Mrs. Samuel Rosenman is working with him on a volunteer basis.

Meanwhile the housing situation once more is frequently a subject of newspaper editorials wherein the word "chaos" often appears.

The new plan to allocate critical materials on an industry-wide basis, in place of the old system of giving priorities to individual companies on specific job orders, has not yet developed far enough so that its effect on construction is fully apparent. But steps are in progress, with steel recently made subject to allocations.

The result should tend to let a contractor know where he stands. Under priorities, a company with a high rating may take over the materials intended for another man with a lower priorities number. Under allocations, the intent is to coordinate the flow of available supplies with production schedules so that work which is approved will get its share of the deliveries when needed.

Vast surveys of defense requirements are in process to make the plan work. All critical items used in defense housing will be subject to the new treatment eventually, and the critical list continues to grow as defense production draws more and more on supplies in all lines.

Defense housing has been under a quota system, similar in general intent to allocations, since September when available materials were adjudged sufficient for 200,000 family units privately financed and 100,000 publicly financed, in the price class of less than $6,000 or less than $50 per month rent. This plan was to run for six months with a resurvey of the situation next April.

Hope for small home construction

Hope that enough of the necessary metals could be found to "make possible a rather liberal interpretation" as to the building of small single-family houses was expressed by Donald M. Nelson in a speech about a month ago. Although he said the general policy is against granting of priority assistance to construction projects other than necessary to defense, health, or safety, this is not a "stop order" on building. Many basic materials are still available in abundance. By rationing the critical materials, needless use by public bodies and others can be prevented with the hope that enough will be left beyond military requirements for the most urgent civilian uses.

OPM has requested the Division of Civilian Supply to carry out the SPAB policy of withholding supplies not needed for health or safety from private and public construction. Leon Henderson therefore broadened his Lumber and Building Materials Branch of Civilian Supply into a Construction Branch. John L. Haynes continues as head of the unit.

Numerous amendments in priorities rulings have been made. The restriction against the use of copper sheet, strip, and screen in building construction has been eased. Instead of freezing stocks of already fabricated materials as of Nov. 1, manufacture may continue at a reduced rate till Jan. 1 and thereafter is prohibited.

The use of oil burners in Eastern defense housing projects has been restored now that a petroleum shortage is no longer feared. A number of amendments have been made as to maintenance and operating items for industries.

Special rules for maintenance, repair, and remodeling of homes are in preparation but have not yet been released as we go to press.

Process of adaptation

"The next few months will witness in the building industry a process of adaptation which should go a long way toward maintaining the total volume of building, public and private, at or near the high levels of the past two years." This is the forecast of Peter A Stone, price executive, Office of Price Administration, in a talk before the New York Building Congress last month.

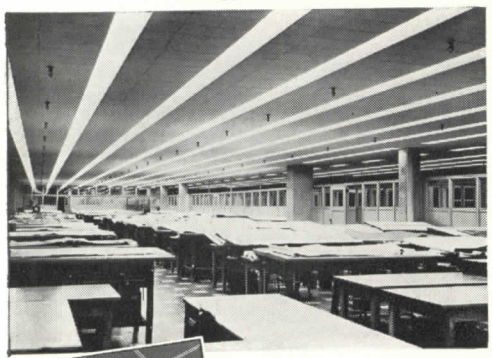
The increase in public building and factory construction for defense; demand for defense housing; development of substitutes such as enameled

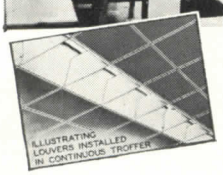
(continued on page 22)

PUT DEFENSE ON A 24-HOUR BASIS with Day-Brite Fluorescent

Because Day-Brite Fluorescent provides daylight when it's dark, it puts defense production on a 24-hour-a-day basis . . . This adds man-hours that are so vital to quick defense completions—assures greater accuracy, higher morale and less fatigue in offices, drafting rooms and departments of design where the flow-lines of defense originate!

Specify Day-Brite when you're planning for speed! Call in your local Day-Brite representative—his experience may save you added time—his services will cost you nothing!

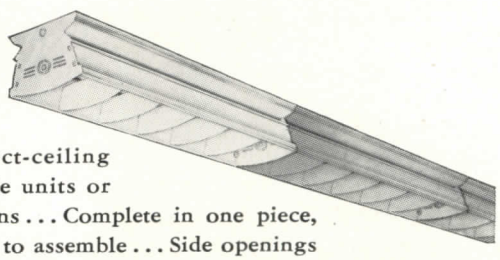




Day-Brite Recessed Troffers in the Engineering Department of a large producer of defense material.

LONG CONTINUOUS LIGHT STRIPS with this NEW DAY-BRITE UNIT

THE *EXPOSED* TROFFER— ***with Louvers***



Designed for direct-ceiling mounting as single units or long continuous runs . . . Complete in one piece, with no loose parts to assemble . . . Side openings for easy lamp removal—removable wireway cover for servicing. Two extremely important factors for low cost maintenance . . . Individual self-hinging louvers are removable; no screws . . . Sizes: One and two 48-in., 40-watt lamps parallel and one 60-in., 100-watt lamp . . .

DayBrite Rivals Daylight — Doubles Defense Hours!

The Complete Line of Fluorescent Lighting Fixtures

NATIONALLY DISTRIBUTED THROUGH ALL LEADING ELECTRICAL SUPPLY HOUSES

Day Brite Fluorescent

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DAY-BRITE LIGHTING, INC., 5493 BULWER AVE., ST. LOUIS, MO.

NEWS FROM WASHINGTON

(continued from page 20)

iron plumbing fixtures in place of metal plating; and the lenience in official interpretations, as to copper wiring for example, all should help remove pessimism in construction circles, he pointed out. "The building industry will not allow unused supplies and idle resources and man power to go to waste."

Contrasting the present war with the last, when the physical volume of construction dwindled for a period of years, Mr. Stone stressed the need of price control to check inflation and prevent the pressure of rising prices on all activities both for civilian and defense uses. At present, he said, only 15 per cent of the national income is being devoted to defense and we shall have to raise that percentage to 40 or 50. Unless inflation is controlled, he predicted, we will have a post-war crash worse than in 1929 with building and the real estate market among the worst sufferers.

Price control legislation is about to go before the House as we go to press.

Outlook for 1942

Mr. Stone's forecast is borne out by a recent statement from the OPM Bureau of Research and Statistics, saying:

"The volume of all construction in 1942 may be greater than in any year since 1930, with the exception of 1941. . . . The construction industry will have a very active year irrespective of what happens to non-defense construction."

The above will hold if non-defense construction is as little as $1 billion in 1942, it is stated, but the analysis is vague on what is likely to happen outside the defense field. The total defense construction program was less than $6 billion in July, but it is expected that the cumulative figure will reach $9 billion by January; $12 billion by next July; and $15 billion in 1943.

"Architects," the statement reads, "may run short of work in certain areas and materials yards and construction workers may be hard hit. But this, it is felt, should be an incentive for devising new techniques for construction without the use of critical materials." They don't say how.

Defense housing

An authorization for an additional $300,000,000 for defense housing is pending. A supplemental estimate of $15,000,000, presumably for administrative expenses, has reached the House Appropriations Committee and probably will be included in a forthcoming deficiency bill.

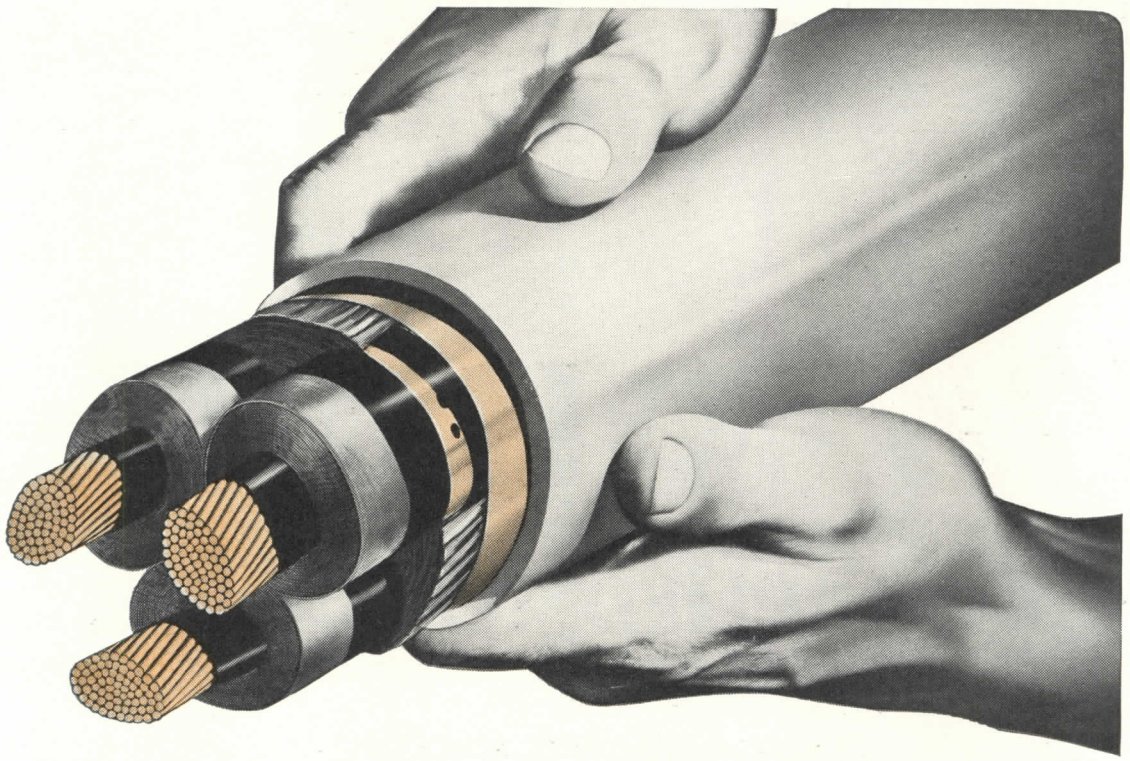
The co-op idea is the basis for a new housing plan for defense workers starting under FHA. Groups of workers in the $1,200-$1,800 home class can band together and apply to FHA for mortgage insurance under the liberalized Title VI, permitting insurance up to 90 per cent of appraised value. Individual houses rather than multiple units are contemplated. The Coordinator of Defense Housing has a pamphlet on procedure.

Architects may find a new field for promotion here. The projects must

(continued on page 108)

Photographs from Press Association, Inc.

BUBBLE HOUSE (see page 108): Erected in Falls Church, Va. with the aid of the Defense Homes Corporation, these novel defense homes resemble igloos during construction but can be varied in design as desired. The method of construction is as follows: An ordinary foundation, without a basement, is built. Over this is placed a pneumatic rubber form, against which in proper position are placed frames for doors and windows. Concrete is then sprayed over the form and the rubber form is deflated and removed. The house needs no interior plastering or outside painting. Left, workman sprays the concrete which solidifies over the rubber form



A tremendous trifle
trebles power cable life . . .

An achievement of Anaconda research benefiting both American Industry and Defense

IT IS Anaconda's new construction known as Type CB*. It was born in the Anaconda laboratories when an engineer applied the principle of conditioning oil by the introduction of carbon black, in a series of experiments then being carried on.

This principle, when applied to paper-insulated oil-impregnated cable, more than trebled the life of the cable under accelerated aging tests.

The resourceful research that made this vast improvement in power cable continues unabated by the emergency. In fact, daily it strives to produce better wires and cables not only for all-important defense purposes, but also for industry at large. And although the latter may be delayed in obtaining new and improved products, when peace comes these products will be ready to go to work in the constructive cause of greater industrial progress. 41376

• • •

ANACONDA WIRE & CABLE COMPANY
General Offices: 25 Broadway, New York City
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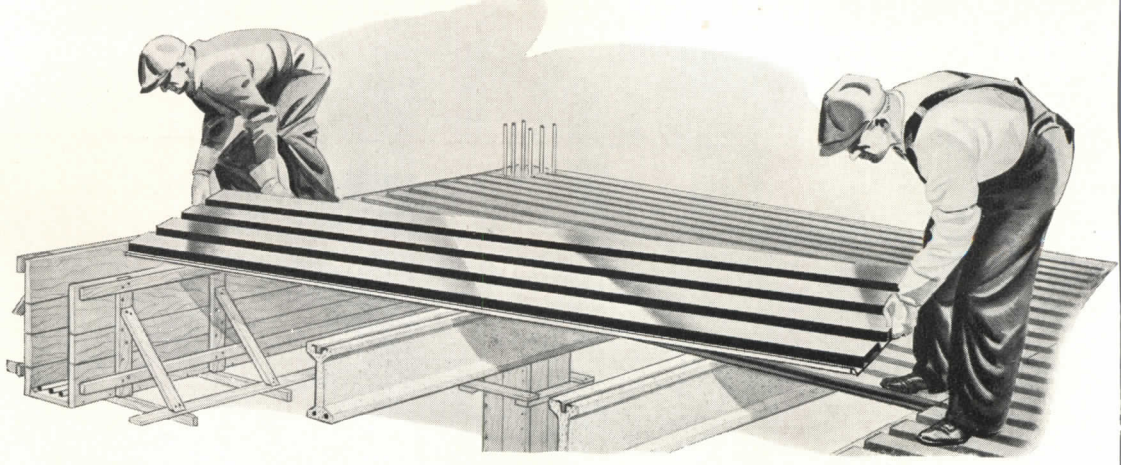
ELECTRICAL WIRES AND CABLES OF COPPER ARE THE LIFE LINES OF OUR NATION

ANACONDA WIRE AND CABLE

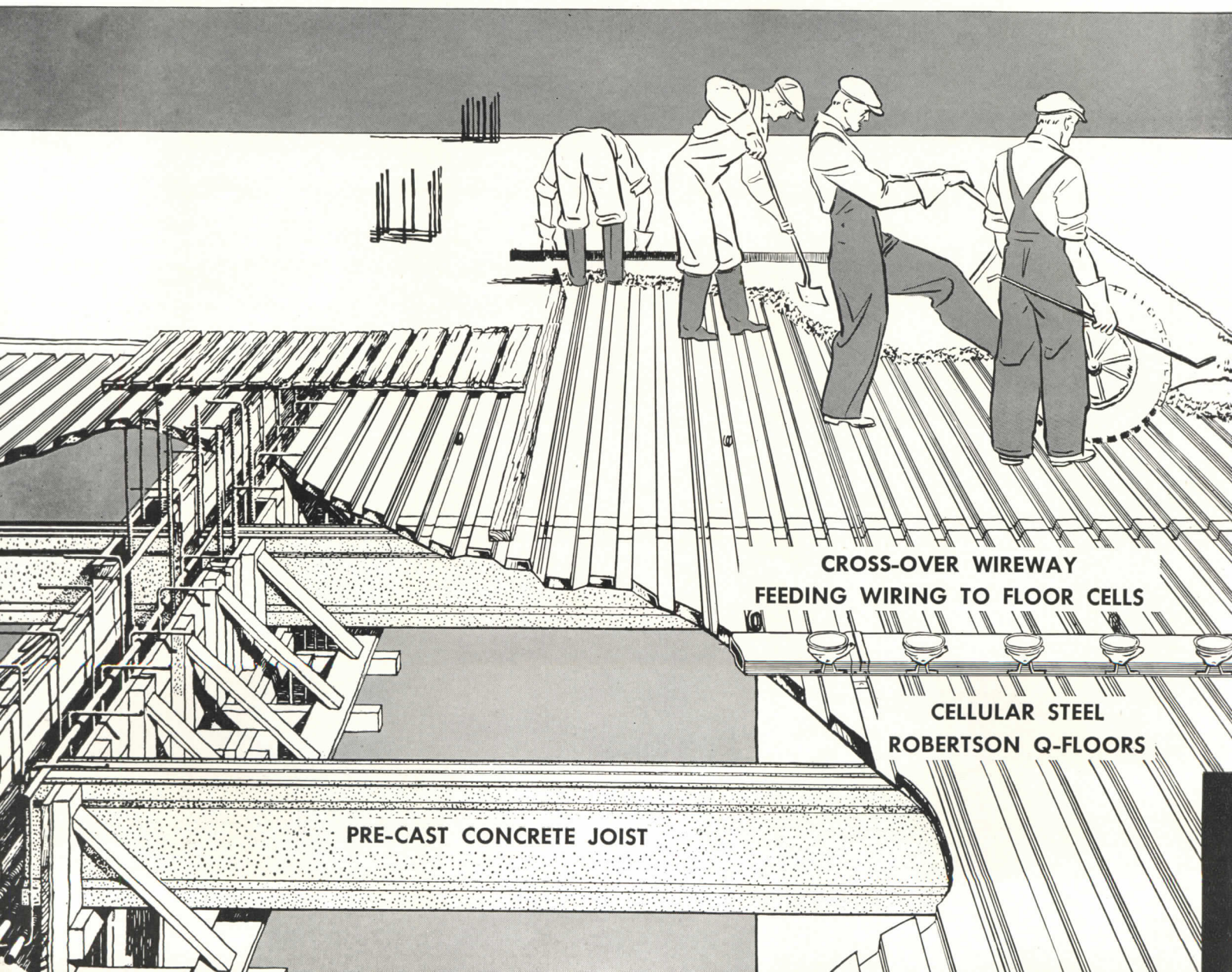
A 32-square foot unit of Q-Floor can be laid in 30 seconds. It is placed directly on steel beams, masonry walls or precast concrete joists. On the latter it is welded to bearing angles. These units immediately become safe, solid platforms upon which all building trades, masons, plasterers, plumbers, electricians and others, can work. 20% to 30% building time can be saved by the use of Q-Floors. Quicker completion of the job and quicker occupancy are assured.

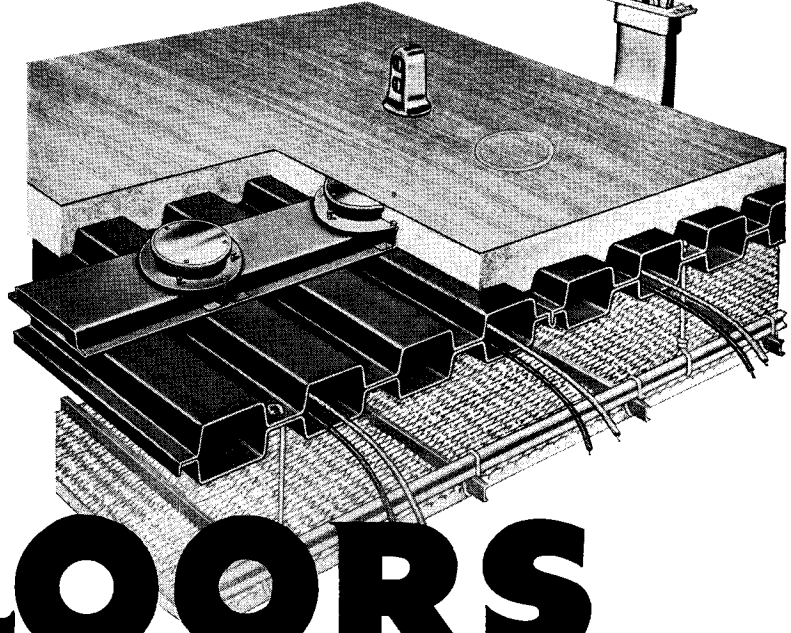


NOW QUICK-IN

CAN BE APPLIED TO A REINFORCED

SHOWING METHOD OF POURING CONCRETE FOR COLUMNS, GIRDERS, SPANDRELS AND



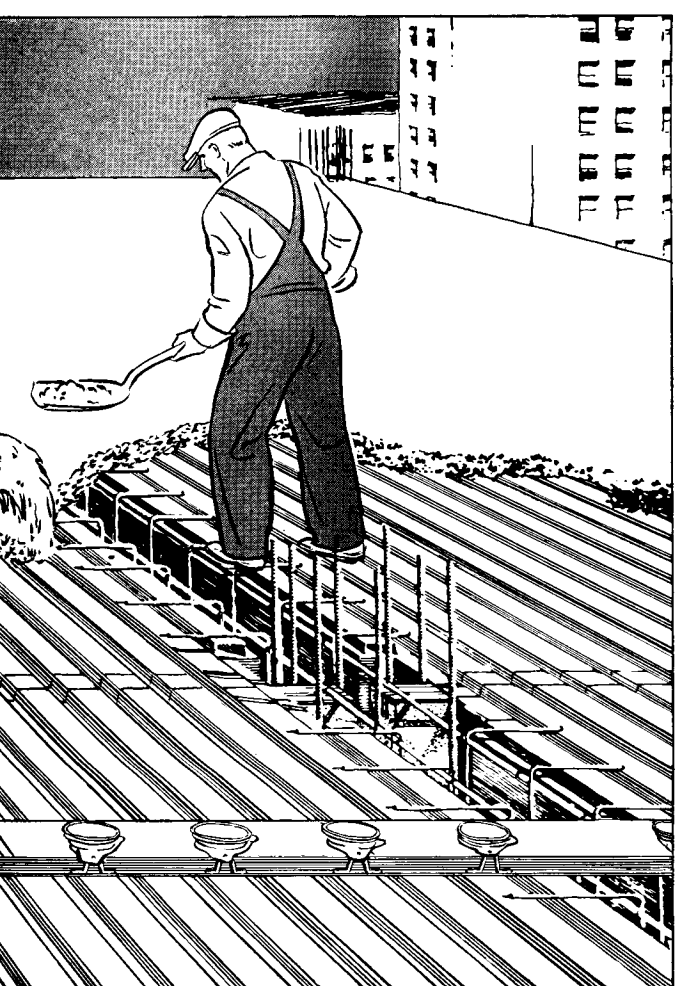


Here is a section of RK-type Q-Floor, showing the cellular steel construction which performs the double function of a structural sub-floor and a system of electrical wireways. The cross-over channel, with its handholes on multiples of six inches, permits easy installation of wiring in all wireways anywhere, at any time. The concrete fill over the top of the Q-Floor units and the suspended ceiling below are also shown. This construction has been given a four-hour fire rating by the Underwriters' Laboratories, Inc.

Q-FLOORS

CONCRETE STRUCTURAL FRAME

FLOOR FILL IN A SINGLE OPERATION



Through a new and unique method illustrated here, both the "quick installation" advantages and the "electrical availability" advantages of Q-Floors can be obtained with reinforced concrete structural frames. Q-Floors (UK-type shown at left) are laid as quickly on precast concrete joists as on steel beams and they immediately form safe and solid platforms upon which other trades can store materials, place scaffolding and carry on their work. Greater SPEED is the result!

By this method, all concrete used in the columns, girders, spandrels and floor fill can be poured in one operation. It is possible (1) to install the wood form work for columns and girders (2) place the precast concrete joists in position (3) install Q-Floor sections which provide for electrical underfloor wiring (4) install hangers for ceiling and mechanical systems (5) place the reinforcing steel . . . all before the concrete is poured. Shoring, except under poured beams and girders, is eliminated. This provides open areas in which various trades can work without obstruction. Fire hazards are reduced. More dry materials mean greater progress during unfavorable weather

The PRECAST JOIST used is fabricated with two $1\frac{1}{2}''$ x $1\frac{1}{2}''$ x $\frac{3}{16}''$ angles, back to back, in the compression flange of the joist. Angles are welded to steel diagonal shear bars. By installing these two angles in the precast joist during the process of manufacturing, it is possible to secure a straight smooth bearing surface with these angles. Joists are in turn set into the wood or steel form work for the girders. Q-Floor sections are then laid on the compression angles and screwed or welded to them. See details in illustration at left.

Additional data with suggestions and estimates furnished on request.

H. H. ROBERTSON COMPANY
FARMERS BANK BUILDING • PITTSBURGH, PA.

QUICK-IN

ROBERTSON Q-FLOORS

QUICK-CHANGE

NEW BUILDING TECHNIQUE MAY BE A SOLUTION FOR POST-WAR INDUSTRY

Corbett urges plans for converting war-time factories to mass production of light-weight building units

SPEAKING in Washington on Nov. 6, Harvey Wiley Corbett, FAIA, of New York, prophesied that during the post-war period the country would look to the building industry as a means for preventing unemployment and maintaining a high level of industrial production. To a group of manufacturers, Government officials, builders and architects that formed the Annual Construction Industry Conference of the Chamber of Commerce of the United States, Mr. Corbett said in part:

"If we knew the day when Hitler would attack us we would certainly concentrate every effort in preparing ourselves for that attack. If we knew the day when peace would be declared—are we going to be equally prepared for that emergency? When that day arrives this nation will, for a considerable period of time, have been engaged whole-heartedly in vast production processes. Great factories employing million of people, who have been housed near these factories, will be adjusted to year-round work at good wages, with neighborhood life following its usual channel, and becoming daily more intimate with the locality. And yet the day peace is declared none of the things which they have been producing will be needed.

Construction industry can aid

"The Government of the United States is fully aware of the tragic seriousness of this second emergency. The National Resources Board has discussed at length this problem. I believe the construction industry can make a highly valuable contribution in this field, because they can aid the Government in planning so that these great factories can quickly be turned to the production of products especially needed in peace-time building.

"Just what can we do with these great war-time factories to turn them quickly into peace-time production? The answer as I see it is comparatively simple. But let me assure you it has revolutionary implications as it relates to the building industry. Labor engaged in war production will not be willing to return to part-time, seasonal employment as has been the condition in the building world. The demand for rapid defense housing is going to demonstrate the economy of mass production of building elements completely finished in the factory, rapidly assembled in the field and one hundred per cent demountable so that we will not be saddled with ghost cities as we were after the last great war.

Plans for transfer

"I am personally convinced that what will be demonstrated in the field of housing can, with equal effectiveness, be put into production in the field of general building. It simply means greater standardization of the parts of which buildings are composed, with the resultant economies always effected by mass production accompanied by a better quality of goods. Plans should be made now to turn these great military factories into the production of interlocking, interchangeable, standardized, completely finished building units with which needed buildings for peace-time activities can be rapidly erected. If plans are properly made, the shift from war production to peace production could be handled almost overnight. Our Government must, of course, be ready to spend what is necessary to prepare for such a transfer. If we are spending billions to defend democracy, should we hesitate to spend billions to preserve it? If we can maintain the high level of national income during war, why can't we maintain the high level of national income during peace, at least until readjustment has been accomplished?

"And now what about design under these new revolutionary conditions? Let me draw for you a word picture of the future of buildings as I see it.

"First, no more skyscrapers. They are not a necessity from any point of view and only cause undue congestion in the streets wherever they are grouped, and certainly in an air raid it is easier to think of people getting down to earth from a five-story building than it is from a fifty-story one.

"The second point in regard to buildings of the future: They will weigh about one-third what they do now. Masonry, as we now know it—brick, stone, cement—will not be used. Walls three or four inches thick are ample to make a complete division between indoors and outdoors. Premade synthetic materials will replace the usual things now employed. Buildings will be quickly put together out of these mass-produced prefabricated elements. They can be taken apart with equal rapidity. Changes in arrangements can be rapidly and economically made to adjust them to the practical and functional needs of the changes which are always occurring in manufacturing and business procedures.

Buildings to meet needs

"We will cease to think of buildings as permanent structures lasting for many, many years, but will conceive of buildings as being produced as motor cars are produced, with the greatest engineering skill, the most effective design and talent, the use of the best materials for each specific purpose—all kept so flexible that they can be readily changed to meet changing human needs and not be built, as they have been in the past, of great unnecessary masses of solid masonry. For centuries the human animal has been trying to adjust himself to his permanent buildings. Let us in the future make our buildings so that they meet our own human needs as those needs demand. We will then be designing buildings for human use, and the design, instead of being static and dead, will become dynamic and alive."

FLASH!

50 STENOGRAPHERS KISS ARCHITECT AMES

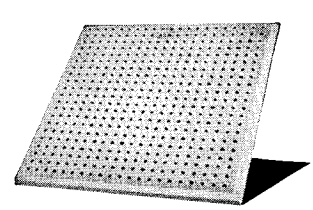
THESE ladies are showing their appreciation to Architect Ames. Did he take them all out to lunch? No . . . but he designed an office building in which it is really pleasant for them to work. Noise used to fray their nerves, induce fatigue, cause them to make troublesome errors. Now, Architect Ames has reduced noise to a minimum. How? With sound-absorbing ceilings of Armstrong's Cushiontone.

Cushiontone—the new, low-cost, perforated fibreboard in tile form—has a noise reduction coefficient as high as 75%. Unlike some acoustical materials, Armstrong's Cushiontone does not tend to absorb dust and dirt. It can even be repainted, when necessary, without affecting its sound-absorbing efficiency. The attractive ivory coloring blends harmoniously with any decorative treatment. And because Cushiontone reflects light efficiently (73%), the cost of adequate illumination can be kept at a minimum. This new ceiling material also is effective insulation against heat and cold, helping to keep rooms comfortable and healthful all year round.

Write today for a sample and a copy of the new data sheet on Cushiontone. Armstrong Cork Company, Building Materials Division, 1245 State Street, Lancaster, Pennsylvania.

ARMSTRONG'S CUSHIONTONE

Made by the makers of Armstrong's Corkoustic



NO. 9

ALUMINUM, DEFENSE, AND YOU

ALCOA ALUMINUM

SIX MORE PLANTS IN FIVE STATES ON THE WAY

DEFENSE PLANT CORPORATION OWNS THEM. We've been designated to build them . . . fast.

Actually, when the names went on the dotted lines of the contract on August 19, we had already placed more than $16,000,000 worth of orders for some of the equipment and materials it takes longest to make and get.

FIVE OF THESE PLANTS will smelt aluminum. Their combined capacity is planned for more than 500,000,000 pounds a year, which is greater than the nation's entire production of aluminum in 1940. Locations: Massena, N. Y., Spokane, Wash., Troutdale, Ore., Los Angeles, and in the State of Arkansas.

The sixth plant will refine alumina from bauxite. Its billion-pounds-a-year capacity adds 58% to the nation's alumina capacity. It will be located at Bauxite, Arkansas.

HOW GOES CONSTRUCTION? At this writing, as fast as title is secured to the sites, contracts are being let for grading and foundations so as to be ready for the structural steel, which is coming as rapidly as it can be gotten.

What is more important, the aluminum plants are scheduled to deliver ingot by the summer of 1942; the refining plant to deliver alumina in early summer, 1942.

WE'VE ASSIGNED a large staff of men full time to headquarters engineering, purchasing, and accounting on this government building job.

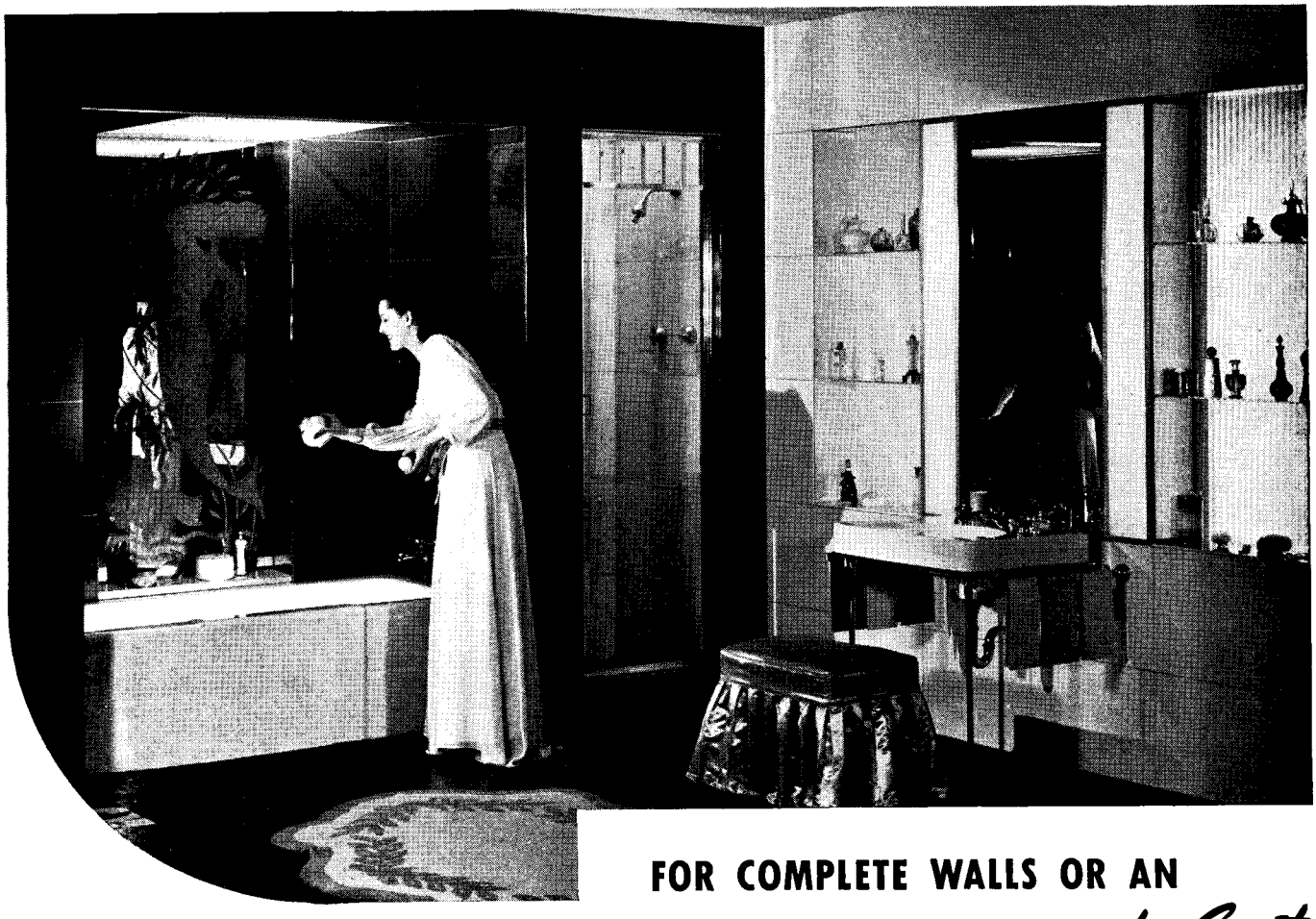
We're sending competent and experienced management men out on these jobs as superintendents and other staff executives on construction, and for subsequent operation of such of these plants as we are designated to operate.

EVERY KNOWN IMPROVEMENT in design and construction and equipment is being incorporated in these plants. We intend that every dollar that will be spent shall be the best dollar's worth that experience can build. We do not make one cent of profit from this assigned job of construction.

We think we know how to get the government value-received for its money, because we are completing the expenditure of more than $200,000,000 of our own money in an expansion program which started after the beginning of the present war. Some of this expenditure is in new alumina and aluminum plants which will bring our own Alcoa capacity up to more than 700,000,000 pounds a year. The remainder is in tremendous expansion of facilities for fabricating every form of aluminum.

DEFENSE, GENTLEMEN, is getting its aluminum.

ALUMINUM COMPANY OF AMERICA



FOR COMPLETE WALLS OR AN

Inexpensive Beauty Spot

MAKE YOUR FIRST CHOICE

Versatile Vitrolite

Vitrolite supplies permanent, easy-to-clean walls for bathrooms and kitchens in homes of ALL PRICE CLASSES

Beauty in a home too often is a luxury. But not where richly colored, never-fade glass walls of Vitrolite are used, for this material is so permanent that its first cost is the last expense. It adds a distinctive touch to large homes, can be specified even for smaller homes, and still come within limited building or remodeling budgets.

Provided in sixteen attractive colors, it gives free range to the architect's creative ability. A variety of sizes assures minimum number of joints. Its colors will never dim, its surface never be damaged by water or steam. So, make Vitrolite your *first choice* when you want to combine rich beauty with economy. Libbey·Owens·Ford Glass Company, Dept. AR1241, Nicholas Building, Toledo, Ohio.

LOW AND MEDIUM price homes can have Vitrolite beauty without excessive cost. Paneling around tub and washbowl add beauty and provide easily cleaned splash areas.

EASE OF CLEANING and permanent beauty are provided by Vitrolite wainscoting. Impervious to water, stains and greases, Vitrolite wipes clean with a damp cloth.

LIBBEY·OWENS·FORD
Glass **Designed for Happiness**

REVIEWS OF CURRENT LITERATURE

by ELISABETH COIT, AIA

THE COVERED BRIDGE. . . . By Herbert Wheaton Congdon. Brattleboro, Vt., Stephen Daye, 1941. 150 pp., 6¾ by 9¾ in., illus. $3.50

FOR the small monumental functional building there is hardly a more perfect example than the covered bridge. And here is an architectural rendering of the subject by an architect, sympathetically written and well illustrated.

Although there are many more bridges in Vermont, only half of those over the Connecticut river are counted as belonging to the state, which gives a total of 170 for Vermont; and these examples show many different solutions.

Descriptions of various early patented trusses and their subsequent modifications by local builders, who borrowed freely on occasion from completely different systems, make good reading: Kingpost, Queenpost, Warren, Burr, Town Lattice, Howe and Long, sometimes so combined that "It takes an engineer to explain the difference!"

Stories of the builders and users and of the behavior of the bridges themselves illustrate the art.

There was Nick Powers whose unusually long single span aroused distrust. As the props were about to be knocked away he climbed to the ridge: "If she goes I'll go with her . . . If she sags an inch I'll jump off." She settled only a fraction of an inch. Then there was Lemuel Chenoweth of Virginia who presented his model in competition with some Yankee builders. Little notice was taken of his model which was not "painted in the highest art" like the others. So he set it upon abutments formed by two chairs and stood on it, defying the others to do likewise with their models. He got the contract.

The bridges themselves are the most interesting characters in the story: Bridges caught in floods and rolled downstream, the oiled treenails holding the timbers so well that often the bridges were re-erected where they landed or towed back to their original anchorage, in contrast with the tangled wreckage of modern steel and concrete structures; the wooden bridges today doing heavy duty for which they never were designed; bridges removed because of space demands for modern traffic and found to be as sound as when they were built.

Mr. Royce's round hundred photographs, so placed in the text that no leafing back or forward is necessary, show not only definite architectural details: mass, roof slopes, portals, truss construction, abutments; they also illustrate well the setting of the bridges in the Vermont landscape. References and a full index complete this gay account of structures built "a load of hay high and wide"—and, moreover, handsome.

HOUSING FOR HEALTH. . . . Lancaster, Pa., Science Press, 1941. 221 pp., 6 by 9 in., $1.00. (Distributed by American Public Health Association, 310 Cedar Street, New Haven, Conn.)

TWELVE papers on different aspects of housing presented at conferences of the Milbank Memorial Fund, the Yale-Life Conference on House Building Technics and of the APHA's Committee on the Hygiene of Housing.

Some of the sections have appeared at least in abstract or in mimeographed form during the past two years, such as the Committee's "Basic Principles of Healthful Housing" and Dr. Svend H. Riemer's trenchant "Family Life as the Basis of Home Planning" based on the Stockholm Study of Family Living Habits; and it is well to have these now in convenient permament form. Of the others now published architects will be particularly interested in Dr. C.-E. A. Winslow's "Heating and Ventilation of the Home," Mr. A. A. Twitchell's preliminary report on a field study of heating, lighting and noise conditions in recent housing projects. "New Possibilities in the Low-Cost Home Construction" by Mr. Robert L. Davison of the John B. Pierce Foundation, and a summary of findings of the National Health Survey on "Certain Characteristics of Urban Housing and Their Relation to Illness and Accidents."

CONTOURSCAPING. By Ralph Rodney Root. Chicago, R. F. Seymour, 1941. 246 pp., 7½ by 10 in., illus. $10.00

YOUR GARDEN IN THE CITY. By Natalie Gomez. New York, Oxford, 1941. 247 pp., 5¾ by 8¾ in., illus. $3.00

IN "Contourscaping" a landscape architect of long practice discusses the theory of landscaping as a three-dimensional fine art, as distinguished from the results of "drafting room combinations of decorative plant material . . ." and "the opinion of the many . . . that anyone having anything to do with horticultural things is a landscape architect." Thoughts on form, light, color, movement, on orientation and soil as they may affect plant color and form, and on planting to diminish noise compose a work of pure theory, mastery of which requires of the reader a fair degree of curiosity and some skill in assembling statements from word arrangements.

Your city garden, whether back yard, terrace, roof or window box, is competently handled by the director of the Garden Center of the Little Gardens Club of New York, as to design, construction, planting and cultivation for maximum four seasons' enjoyment: What fertilizers, how much and how applied, what plants for which location, and remedies for troubles—the whole concise, well illustrated and well indexed.

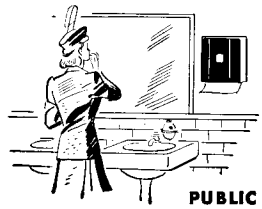
MEDIAEVAL MONUMENTS AT THE CLOISTERS. . . . By James J. Rorimer. New York, Metropolitan Museum of Art, 1941. 16 pp., 25 plates, 10½ by 14 in. $2.50

THE FLORA OF THE UNICORN TAPESTRIES. By E. J. Alexander and Carol H. Woodward. New York, N. Y. Botanical Garden, 1941. 28 pp., 6⅛ by 9 in., illus. 25 cents

TWO publications contributing to one's understanding and enjoyment of

(continued on page 32)

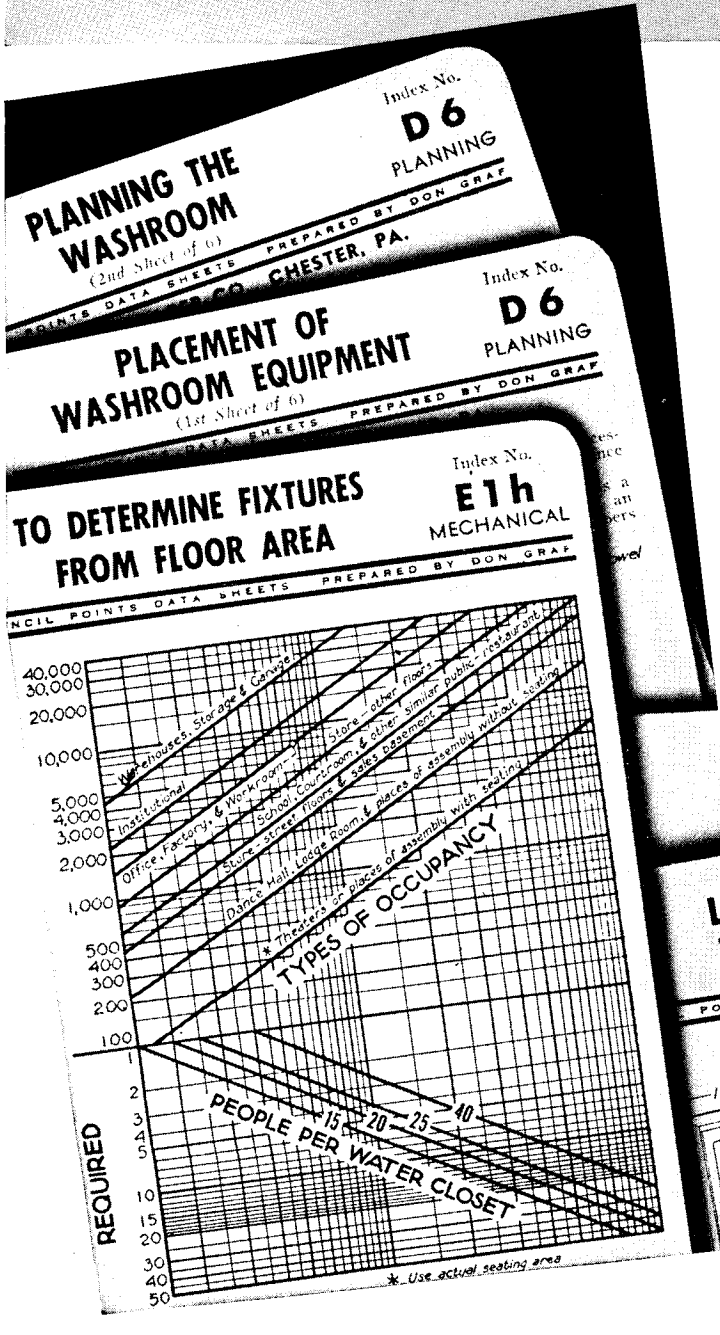
FACTORY WASHROOMS



PUBLIC WASHROOMS

OFFICE BUILDING WASHROOMS

All can be planned for greater EFFICIENCY and ECONOMY with these NEW DATA SHEETS



BUSINESS MEN today regard clean, sanitary washrooms as major investments in industrial and public good will. That's why it's so important for architects to plan washrooms for continued efficiency and economy *in use*. To help you provide facilities that will win the approval of both owner and user, the Scott Paper Company offers you these new "Data Sheets."

In them, you will find a brief digest of all the fundamental needs of "good will" washrooms. Traffic, fixture-location and sanitary problems are thoroughly discussed. By using these "Data Sheets" with the Scott Washroom Advisory Service, you can give clients washrooms that combine low operating overhead with complete user satisfaction. For your set of "Data Sheets," just mail the coupon.

• • •

The new "Soft-Tuff" ScotTissue Towels have *10 times* more rub strength than the old-type ScotTissue Towels. They go farther, cut costs. Yet they are soft as ever.

Scott Paper Company, Dept. AR12, Chester, Pa.

Let me have, without obligation, my set of the new Don Graf Pencil Points Data Sheets on washroom planning.

Name_____

Organization_____

Address_____

City_____ State_____

REVIEWS OF CURRENT LITERATURE

(continued from page 30)

collections at the Cloisters, a branch of New York's Metropolitan Museum of Art.

Mr. Rorimer, the curator, assembles by place of origin his material, consisting of Romanesque and Gothic architecture and architectural details, tapestries, sculpture, furniture and metal work, outlines the history, describes the items and shows their acclimatization at "The Cloisters" which was especially designed to receive them, the story illustrated by over 50 photographs.

Among these items one, unique in its genre in design, workmanship and condition, the Unicorn Tapestries, is described by the editor of the *Journal* and the assistant curator of the New York Botanical Gardens in a booklet written primarily to record the identity of as many as possible of the 101 distinct plants forming a background for the action of the Hunt of the Unicorn. The booklet does more than this. For the short historical note, the uncommonly expressive, and indeed, exquisite, skeleton drawings by Walter Graham, and the photographs, including many detailed enlargements, give much of the essence of the work: design technique and feeling. In gratitude to the authors for their contribution to our art be it said that they have identified 85 of the 101 plants.

CURRENT PERIODICAL LITERATURE

OUTDOORS AND IN: Gardens as Living Space. By Garett Eckbo. Magazine of Art, Washington, Oct., 1941, pp. 422-7, illus.

INTEGRATION of indoor and outdoor living space is found all through history: Egyptian villas; the less pretentious Roman development such as that at Pompeii; the mediaeval cloister; Persian, Indian, Chinese and Japanese gardens, as well as Moorish, Spanish and Mexican patios—all secluded, private, structurally enclosed outdoor living rooms. The Persians had a word for it: bagh. We need one to help us think in terms of site-space design, rather than of houses and gardens, and produce greater decentralization of house and infiltration of garden before arriving at the limit imposed by need of climate-control within the house. Photographs, plans, and text well illustrate how site-space development stretches the housing dollar.

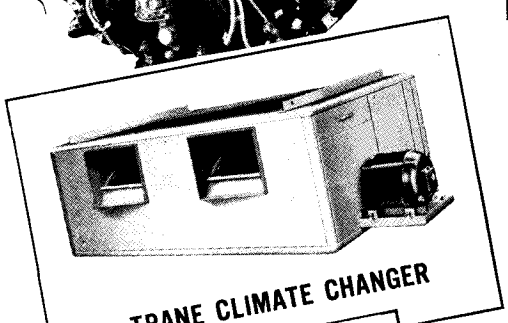
. . . SOME NOTES ON ICELANDIC ARCHITECTURE. By Frederic R. Stevenson. Journal of the Royal Inst. of British Architects, London, Sept., 1941, p. 191

MODERN Icelandic architecture shows definite blood relationship with that of Scandinavia, especially with Denmark. There is no brick on the island, and volcanic stone is so difficult to work that it is used now only as a

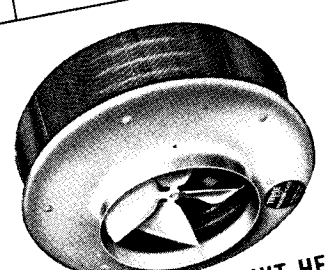
(continued on page 34)

TRANE

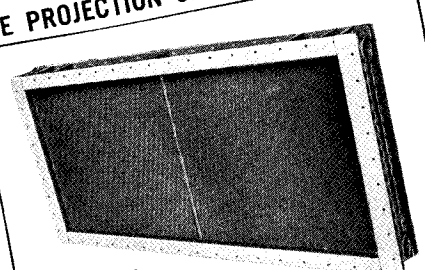
provides correct air for airplane engine testing



TRANE CLIMATE CHANGER



TRANE PROJECTION UNIT HEATER



TRANE HEATING COIL

THERE are few, if any, jobs more important in the country today than the manufacture of engines for the aircraft which guard America. One of the most important factors in this field is the Wright Aeronautical Corporation of Paterson, New Jersey, manufacturers of the famed "Cyclone" engines.

After assembly, the Wright engine is immediately placed in what are known as "test cells" where the engine is operated and tested to insure perfection in every detail. A standard fixed temperature greatly simplifies this procedure and facilitates uniform testing. This is accomplished by the use of an arrangement consisting of two rows of Trane Steam Heating Coils and four rows of Trane Water Cooling Coils. In addition, over forty Trane Climate Changers are used for heating, cooling and ventilating the operators' rooms which are located between each pair of test cells.

To the architects, engineers, contractors, builders and industrials of America who are combining their efforts to further the national defense program, Trane has this message: We have the products, the knowledge, the production facilities and the nation-wide representation which you need to assist in the solution of your heating, cooling and air conditioning problems of every description.

THE TRANE COMPANY

LA CROSSE, (AIR) WISCONSIN

Also TRANE COMPANY OF CANADA, LTD. • TORONTO, ONTARIO

HEATING • COOLING • AIR CONDITIONING EQUIPMENT FROM 85 OFFICES

REVIEWS OF CURRENT LITERATURE

(continued from page 32)

tour de force. Reinforced concrete is universal, used even for garden walls, and Icelandic workmen are very expert in handling it. Though towns are small, people are very conscious of what is good planning and what isn't, and almost every little community has its master plan ready. . . . The country's natural hot water has long been privately harnessed for home heating (you just dig as you would elsewhere for cold water); and Reykjavik has already well in hand the first successful scheme for communal heating.

DON'T BLAME THE ARCHITECT. By George M. Waddill. School Executive, New York, Nov., 1941, pp. 32-3

SCHOOL PEOPLE complain that architects fail in planning school buildings to meet needs of teaching and other school activities. Actually the architect is often not given opportunity to study the problem: The building is wanted by the opening of the next school year, meanwhile the school superintendent is too busy to work with, or to arrange teacher conferences for, the architect, who may have limited experience in his field, may not know that the art room requires sinks, or realize the economy in maintenance of tile or face brick, may have no idea of the amount of blackboard space really needed or how high it ought to be, or of the number and variety of things needing storage.

OLD STYLE MUSEUMS WON'T DO. By Alma S. Wittlin. The Studio, New York and London, Sept., 1941, pp. 72-3; 87

FOLLOWING articles on Washington's classical National Gallery and London's Tate, this "plea for new conceptions in planning and presentation" suggests a wider discontent doubtless than the author intended. Recording briefly the rôle of the 19th century "cross between a storeroom of a ducal residence and a natural history showroom" and, in contrast, the appeal to the spectator's reason with resulting emotional response, Dr. Wittlin hopes that "concrete proposals for the rearrangement of public collections may be dealt with in these pages." Conceivably some of the architects who have *thought about* this matter are ready either to deal independently with it or to offer Dr. Wittlin collaboration.

A.S.A. PROJECT A62 FOR COORDINATION OF DIMENSIONS OF BUILDING MATERIALS AND EQUIPMENT. New York, American Standards Association, 1941. 61 pp., 8⅜ by 10¾ in., illus. $1.00

THIS, the first report of the cooperative project sponsored in 1939 by the AIA, American Standards Association and Producers' Council, shows application of the 4-in. increment in masonry, whether of natural stone, concrete and cast stone, or structural clay products; in structural wood; in wooden doors and windows; and in metal windows.

THE MIRACLE OF DEFENSE CONSTRUCTION

by Frazier Hunt

FOUNDATIONS FIRST. *Before the airplane hangar (right) could go up, the hard-working bulldozer (above) had to dig up and level out the foundation. The bulldozer, with its tractor tread and colossal roar, is the building industry's private "tank."*

NOTE TO READERS:

The article reprinted here appears, as a Johns-Manville paid advertisement, on pages 121 and 122 of the December 13th issue of the *Saturday Evening Post*. It is one of a series by well-known writers, designed to help inform the public of the indispensable part American Industry is playing in our National Defense Program.

Because the spotlight of defense publicity has been on tanks, guns, ships and planes, too few people are aware of the miracle of construction which had to precede the production of these defense materials. Factories had to be planned and built. Workers had to be housed. Roads, bridges, air fields, fortifications, bases and a hundred other building jobs had to be started from scratch and completed "yesterday."

How this great building industry, recovering from the worst depression in its history, dug in and achieved the impossible is here recounted for the first time. It is our sincere hope that in presenting this story to millions of readers we are making a contribution to the entire construction industry and to each individual member of it.

Johns-Manville

AMONG THE UNSUNG HEROES of America are the "bulldozers"—those giant machines which, like faith, can move mountains.

The whole story of American preparedness starts with those snorting monsters and with men with blueprints and steam shovels, cement mixers, pile drivers, and the thousand and one other tools that are used on any kind of a building job.

Because bombers don't grow on trees. And tanks don't bloom on rose bushes. And you don't dig TNT out of the ground as you do potatoes. All those weapons are made in great factories, giant plants—in buildings that have to be planned by engineers and architects, and built by carpenters, riveters, welders and roofers, working from sunup to sundown.

Before the tank, before the bomber, before the army, had to come the bulldozer-operators, the masons, the steel workers, the electricians, the plumbers, the painters and the whole construction gang . . . And what an almost inconceivable number of buildings are needed for National Defense! Around 1400 separate housing units in an average cantonment; close to a thousand separate buildings in a powder factory; hundreds of sheds and storage bins at a Navy Yard; houses for the workers near many new plants—ground to be cleared, streets to be laid out, roads built, water mains installed, whole cities built from the ground up. What *is* the construction business? Brother, it's everything you *don't see*—multiplied by ten! You see the tank on the ground or the plane up in the air, but if the construction industry hadn't done *its* job, there wouldn't *be* any tank and there wouldn't be any plane, either.

To realize how the building industry really *has* performed miracles, you must realize that this industry had to start from scratch. Particularly was this true of those architects and large construction companies which, during the great American building era of the twenties, had sent beautiful edifices of steel, stone and cement soaring high into the sky. These builders of great new cities, of office buildings, of mammoth factories, of power plants, of bridges and transportation arteries that were the wonder of the world—these builders and the architects, designers and engineers had faced a famine since 1930. The genius was there. The will to build was there. But only through digging deep into their bank accounts had they been able to keep even a skeleton organization together. Only the courage born of free enterprise could have sustained them. About all they had left was one shirt to their backs . . . Yet these same men are performing the miracle of defense construction for America today.

These men might well have said, "Give us a year to get ready. Our staffs are scattered, our equipment rusty." But there wasn't any year. THE TIME WAS NOW!

The Building Materials Dealer

It wasn't only the big boys who rolled up their sleeves and went to work, either. The local building industry responded, too. The building materials dealers, many hard hit by the depression, instantly made their services available for National Defense housing and other construction. They did this often at a sacrifice because they were already short of materials for civilian needs (that's you and me). Despite the fact that building materials manufacturers have been working their plants 24 hours a day, seven days a week, the dealers are finding it increasingly difficult to furnish supplies with the speed the public has been educated—up to now—to expect.

These smaller companies have shown typical American initiative in meeting their difficulties despite delay in getting materials and shortage of skilled workers. They are particularly deserving of sympathetic understanding on the part of the American public at this time, and it is certainly to their credit that they are not only finding ways around their present difficulties, but are also planning for the future. For these are the men on whom Mr. and Mrs. Homeowner, U. S. A., must depend for the type of housing which will express the true American way of living when peace has come.

We writers and talkers are too deep in the forests of finished products that American genius has built, to be able to see the individual trees. We forget, sometimes, that Uncle Sam didn't furnish the bulldozers and the thousand and one necessary tools when

(Continued on next page)

This is the sixth of a series of advertisements sponsored and paid for by Johns-Manville. For more than 80 years this company has been serving America's basic industries.

How indispensable these industries are to the American Way in time of peace is generally recognized. This series is to help inform the public of the indispensable job these industries are doing in this time of great National Emergency.

Johns-Manville is proud of the contributions its products are making in helping the Construction Industry accomplish "The Miracle of Defense Construction" quickly and at the lowest possible cost.

JOHNS-MANVILLE

THE MIRACLE OF DEFENSE CONSTRUCTION

(Continued from preceding page)

the defense rush struck. These tools were furnished by the great and small building concerns and contractors who had kept alive for ten years only through their courage and ingenuity. Someday they knew they would be needed, and needed desperately. That day came when France fell, and America awoke to her peril. Overnight America demanded adequate defense—armies, training camps, guns, tanks, planes, shells, ships, TNT and powder. And when that call to duty came, not one miracle occurred, *but a thousand!* In a year—in two at the most—the builders HAD to do what Germany had taken seven, in some cases ten years to do.

And they did it! They are saving America by literally building a NEW America. They have conquered Time—they have laughed at Fate. They are winning! Today the bombers and the tanks and the big guns are rolling out of the factories which these men—these builders of the NEW America—have built.

The other day I stood on a spot where for a hundred years tall corn had grown. It was the heart of the broad Corn Belt of this rich land of ours—a single plot of 22,000 acres lying between the Kankakee and the Des Plaines Rivers, a few miles out of Joliet, Illinois. In this single great triangle, where for generations 146 Illinois families had grown corn, were all the basic requirements for a giant plant to make the high explosives for our bombs, shells and torpedoes. Here was plenty of water, excellent transportation, hard roads, safety from enemy bombing attacks and rolling land for protection against inside explosions.

One Miracle Among Many

So *this* was the spot for "the miracle of the corn fields." The construction company which did the job asked few questions when the government gave them the nod. Quietly they shipped in their key men, and then added workmen at the rate of 100 a day. The bulldozers grunted, the cement mixers groaned, the men sweated and swore—but where the tall corn had grown, there now sprouted chimneys, pipelines, buildings and shops. The sum total of these adds up to one of the biggest, most efficient and safest TNT plants in the world—all done ahead of schedule. That's easy to write about, but these men on the job, just as a starter, had to build 51 miles of standard-gauge railroad, with 117 loading and unloading stations; 44 miles of heavy-duty roads and 80 miles of ordinary highways; 85 miles of pipelines that ran from 4 inches to 42 inches—with 15 miles of sewage pipe thrown in for good measure (and good sanitation). Before this mighty TNT plant was completed, the construction company had put up 460 separate buildings.

The building of this plant is but one example of the job being done. So vast, so widespread is our defense construction a writer despairs, in a short article like this, of ever getting across to you its true magnitude. Maybe this would help: In the first nine months of 1941, we have used enough concrete in airport pavements alone to equal almost all the concrete used in road building in these 48 states in the same period. To pave these urgently needed airports, we have laid enough concrete to build a single-lane transcontinental highway from Charleston, South Carolina, to Los Angeles and back again East as far as Indianapolis, Indiana, or more than 5,000 miles.

America Does It Again

The blue eyes of hard-working, super-efficient, 49-year-old Brigadier General Brehon Somervell, Chief of the Construction Division of the Army Quartermaster Corps, twinkled with pride when he talked to me in his Washington office about the all-important part the building industry is playing. "You can't exaggerate what has already been accomplished," he said to me. "It's like the statement made by the great General Goethals about the building of the Panama Canal, *'Birds were singing in the trees one week and ships sailing by the next.'* Americans, working for America, have done it again! The whole building industry has come forward in unbelievably fine shape . . . The results speak for themselves. The efficiency and patriotism of these splendid men have been inspiring. They have tackled what looked to be impossible jobs and they have driven them through, and in many cases ahead of schedule. Labor, too, has, on the whole, been fine . . . We have almost completed our first great program and are deep in our second now. I can't say too much for these men of this fundamental industry."

I don't want to bog you down with figures, but it is fascinating to take hold of one or two items involved in the single business of Army-cantonment construction. We've used enough lumber in our Army camps to nail a 12-inch plank, 1 inch thick, eight and three-quarters times around the world. In building camps and Army cantonments alone we've employed more than 490,000 workers, and a billion dollars' worth of lumber. A score and more of our great civilian building contractors simply rolled up their sleeves, spat on their brawny hands, and dared bad weather and hard luck in their drive to get finished, in time, camps that would be snug and habitable for our expanding army.

How the Job Was Laid Out

The whole enormous job really breaks up into three separate divisions—and behind each stands the vast civilian building industry, with its trained men, its tools and its high patriotism. The Army & Navy Corps and Bureaus developed their specifications and then turned them over to the trained civilian architects and engineers of the country. These men, with their first-hand knowledge of materials and design, did the original planning. They worked night and day, adapting civilian methods and techniques to the new field of construction necessary to our national defense.

All of them did—and are doing—their work in three main divisions because all military construction was split into three parts. *First:* To the Construction Division of the Quartermaster Corps went the job of building the plants for Army training, and ordnance and soldier supplies. *Second:* To the Army Corps of Engineers went the task of laying out the construction of fortifications, camouflage works and all Army Air Corps projects and bases, including the nine great air bases acquired in the Atlantic from the British and the new Alaskan air fields. *Third:* To the Bureau of Yards and Docks of the Navy went the complicated job of building naval air bases in the Pacific and Atlantic, as well as at home, and the whole varied and multiple tasks of Navy construction, from shipyards to training schools.

Behind each of these three divisions stood, in phalanx, the great building industry. Architects, engineers and contractors furnished the brains and the muscle to drive the nails in our far-flung fortresses of safety. Also, hundreds of our finest construction brains were willingly drafted to serve as reserve Army and Navy engineers and Constructing Quartermaster officers. From the Philippines to Puerto Rico is ten thousand miles; from Dutch Harbor, Alaska, to Samoa, in the South Seas, is roughly five thousand miles. So the picture of our preparedness program covers a canvas five thousand by ten thousand miles square. Over this great expanse of land and sea, American engineers, builders with saw and hammers, contractors with fantastic bulldozers and pile drivers, have swarmed like busy bees.

A billion dollars was assigned to the Engineer Corps of the Army. There were bomber and fighter factories and assembly plants to be constructed, air bases to be rushed to completion . . . Altogether 54 great groups of buildings and bases.

Almost overnight a new base is born; a new pearl added to our priceless necklace of national defense—Guam, Wake, Midway, Palmyra, Johnson—these are a few of the names.

Groups of sturdy, daring contractors banded together on most of these jobs, and they found they had to build from the coral and sand *up*. These new Magellans, modern Vasco de Gamas had to tote everything with them, including drinking water!

People Back Home

And (to get back home) in this year of 1941, despite the heavy demands of war, our builders have found time somehow to build many of the new homes needed in defense areas. Next year they will build more. But many materials that might go into homes will have to go to defense plants, powder mills, air schools and shipyards, and so We the People must be patient. When our nation is fully armed and strong we can go ahead and build our new homes once again, without let or hindrance.

And in the meantime we can also thank our building-material manufacturers for having the courage, good sense and patriotism to keep intact their organizations, their research laboratories and their staffs when the going was tough and uncertain. Many had to draw deeply on their reserves, but when the crisis came and the building industry had to really perform "the miracle of defense construction," it was ready with new products, more efficient production, to tackle *and finish* the job. Once again, private industry had proved it could "take it."

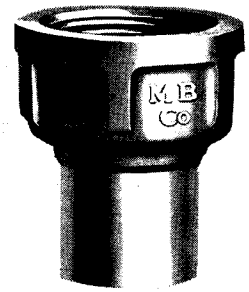
So why should any of us complain if, during this coming year, the great effort and the continued need of turning out vast quantities of war goods leave us short-handed in men and materials for home building? The sacrifice and the temporary hardships will be well worth the cost, it seems to me. For what is a home worth if it be not secure, free and decent?

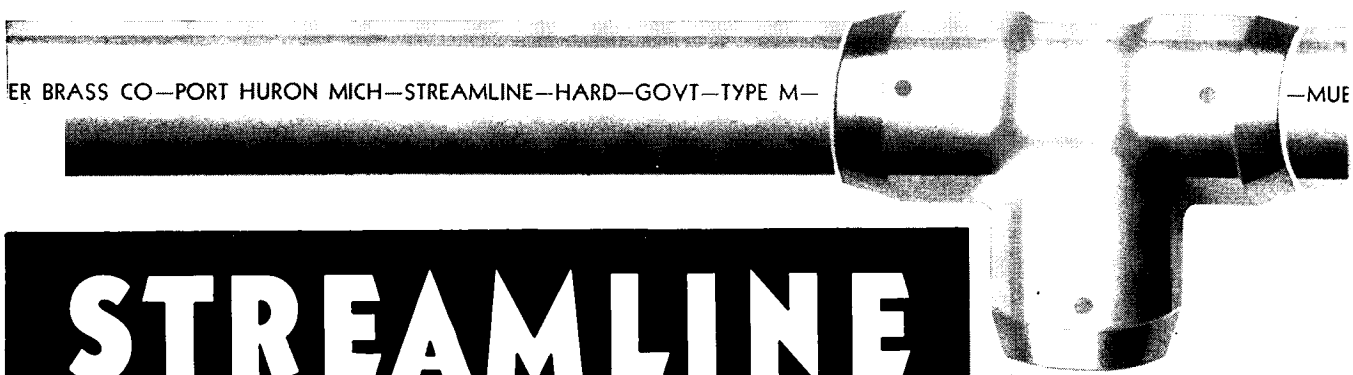
That's what we're struggling for and arming for, isn't it? And, when we get there, don't forget the defense job had to be done *from the ground up*—that private industry was ready to do it—and that the roar of the bulldozers was the first signal of ultimate victory for our democratic way of life.

This is the sixth of a series of advertisements sponsored and paid for by **Johns-Manville** *and designed to tell the American people how indispensable our basic industries are for National Defense.*

— JOHNS-MANVILLE —

PLUMBING AND HEATING DEPENDABILITY RESTS IN





STREAMLINE

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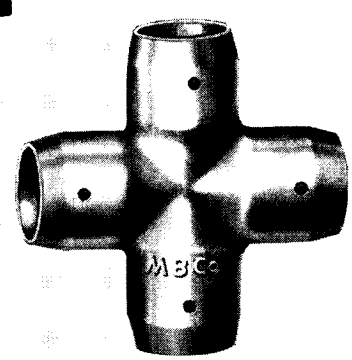
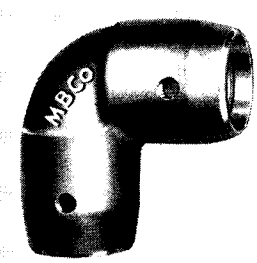
COPPER PIPE AND FITTINGS



● An efficient—and lastingly efficient plumbing or heating piping system is one of the most vitally important factors in any home, or in any building where a conducting system is required. It is the actual nerve center upon which the very livability of the dwelling depends—and this becomes more and more apparent after some years of service.

STREAMLINE Copper Pipe connected with STREAMLINE Fittings assures a piping installation that incorporates tremendous resistance to rust, clogging and vibration. More than that, its cost is little, if any higher than materials that corrode and leak after a few years of service.



STREAMLINE Copper Pipe conducts hot water quicker with less heat loss than ferrous piping. It requires less room to install, has no threaded joints to leak and is the best possible insurance against plumbing repair bills. Like all good things, STREAMLINE has many *imitations but no equals*. Specify genuine STREAMLINE. Insist upon it being used.

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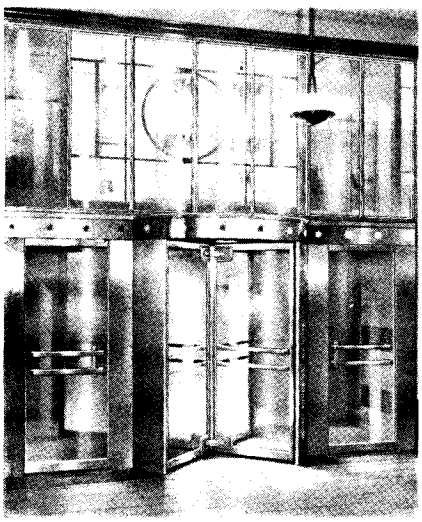

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1—Cuts heating and cooling costs.
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Revolving Door

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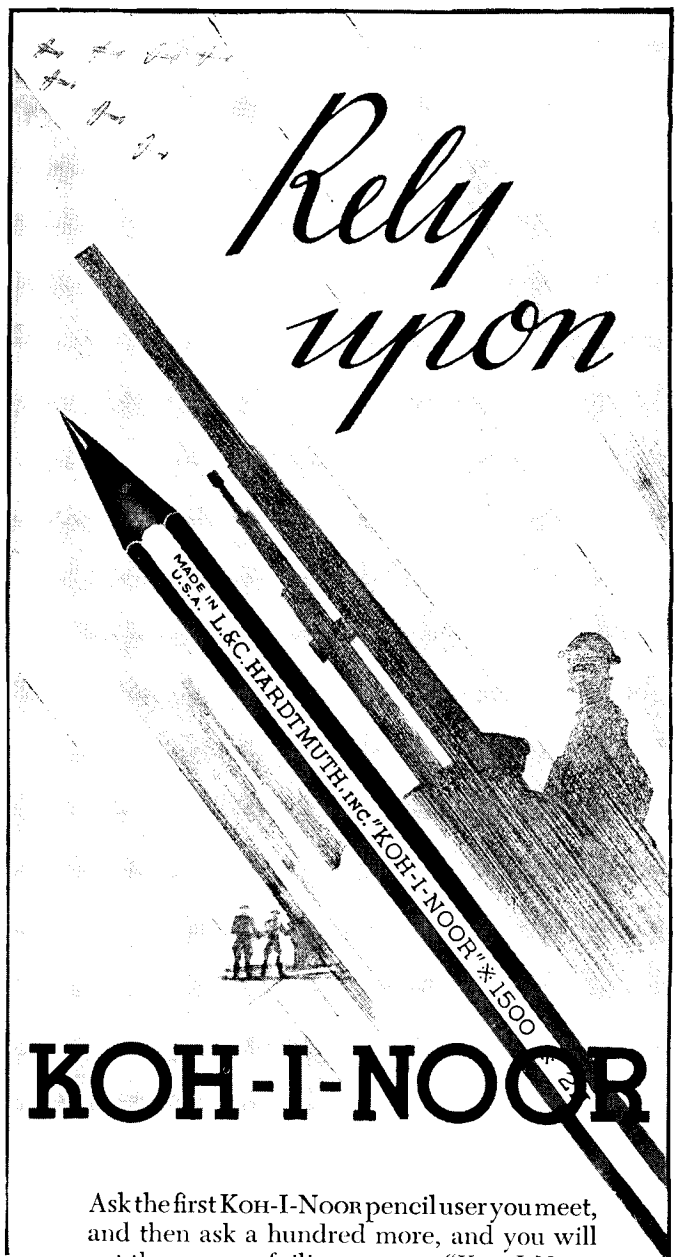

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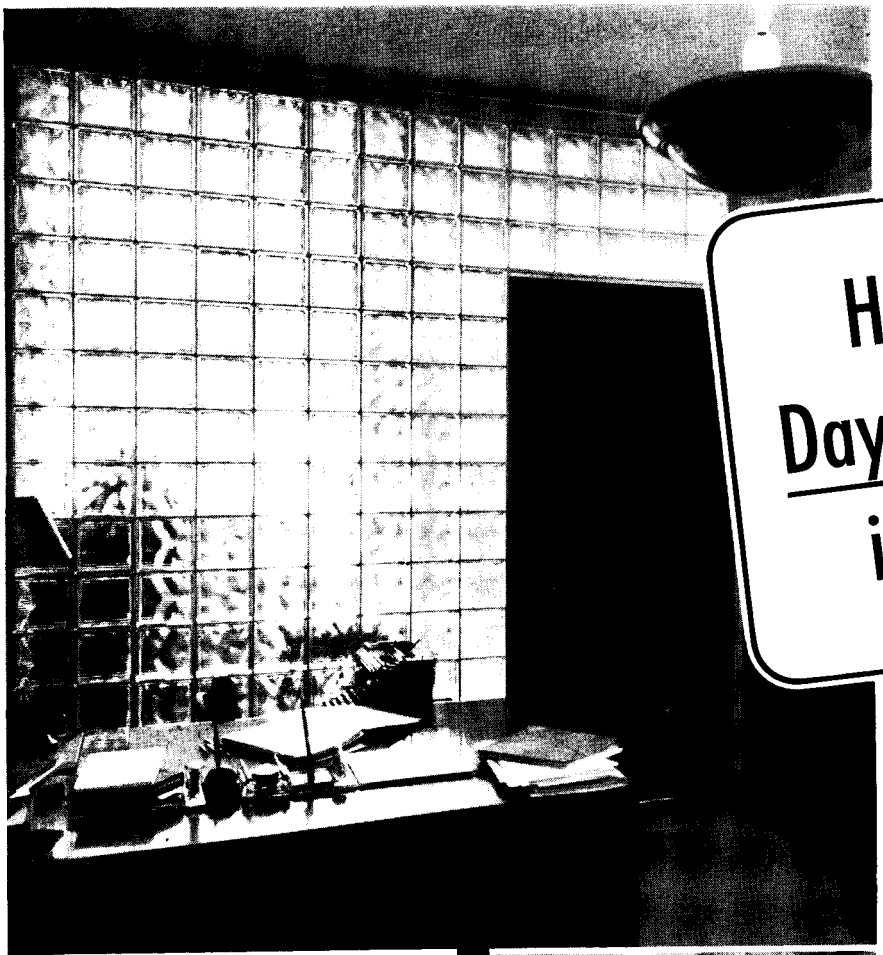

SMART GOOD LOOKS characterize this panel of PC Glass Blocks in one of the Wheeler Kelly Hagny Building suites. But the panel not only pleases the eye. It also brings "borrowed light" into the office to make seeing easier, the room brighter. It is a privacy-preserver of the best type. And it helps to make the room quieter, because of the high insulation value of the blocks.

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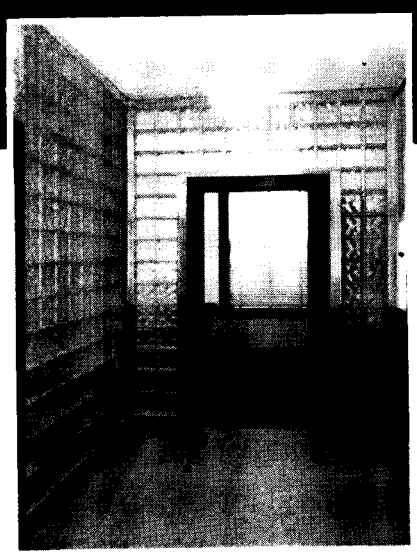

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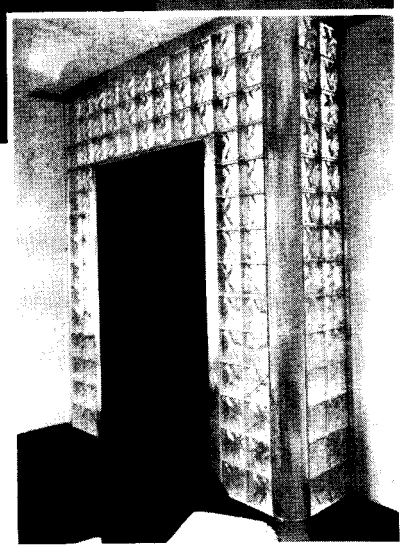

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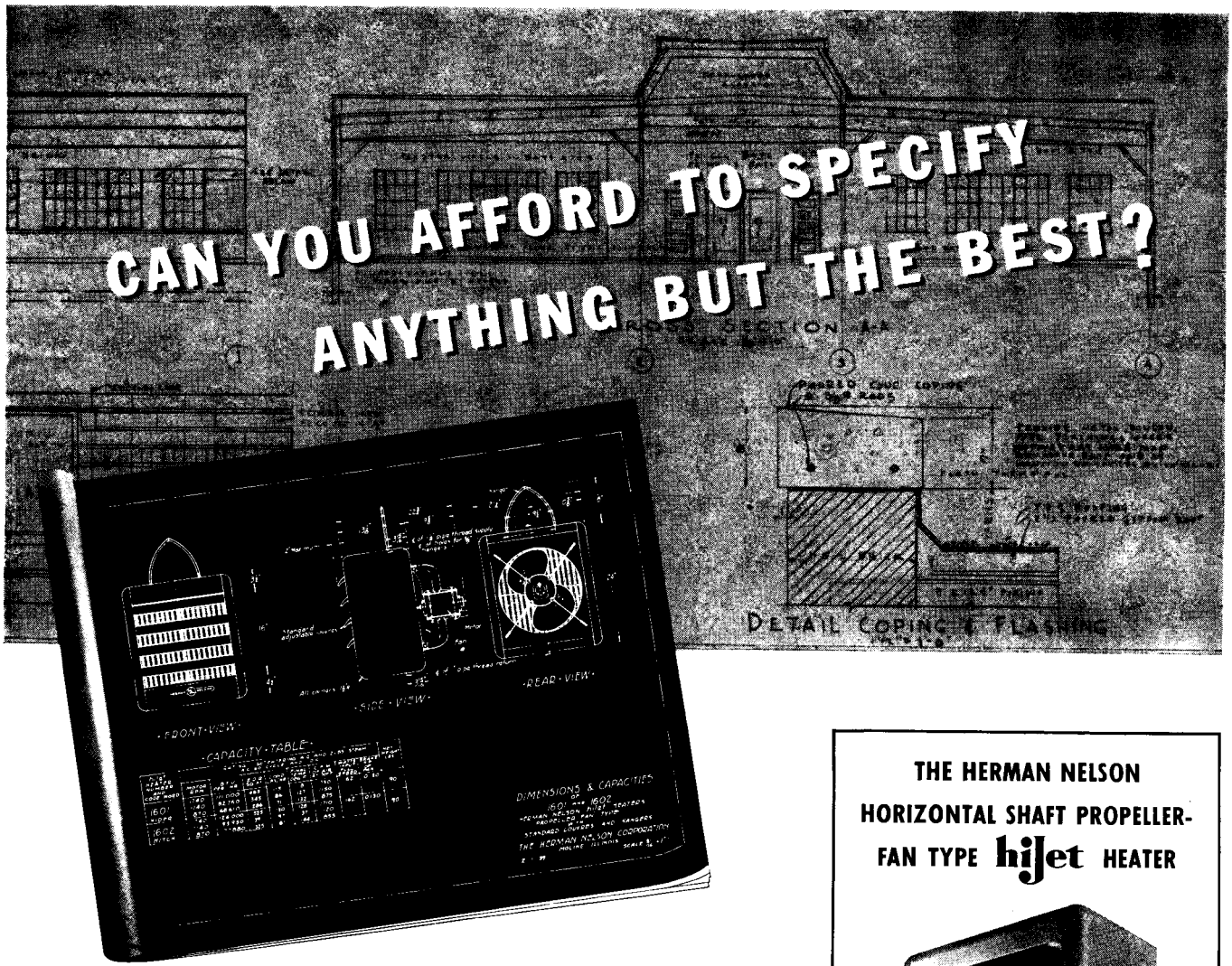

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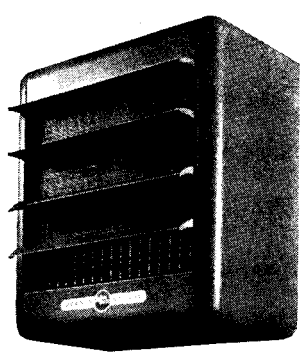

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ARCHITECTURAL RECORD • DECEMBER 1941

THE CONSTRUCTION OUTLOOK FOR 1942

"An incipient construction boom stimulated in recent months by vast Federal defense expenditures has been effectively hobbled; basically, by shortages of critical materials; more directly, by recent actions of the Supply Priorities and Allocations Board. In spite of this the prospect for a relatively large dollar volume of construction in 1942 is exceedingly good. While non-defense construction will be pared to a minimum, defense construction in many classifications is expected to increase."

THE QUOTATION ABOVE should calm the minds of those who felt that the SPAB order of Oct. 9 decreed the virtual stoppage of construction activities. It forms part of a statement on construction estimates for 1942 issued by the Statistical and Research Division of F. W. Dodge Corporation and suggests what Dodge officials anticipate will be the case—"for 1942 a total dollar volume of new construction greater than that of any post-depression year except 1941." Thus, although Dodge estimates indicate a 32 per cent decrease in dollar volume of total construction for the 37 Eastern states for 1942 as compared with 1941, there is little basis for black pessimism.

But scarcities of some critical materials will certainly operate to effect what will probably be a drastic curtailment of non-defense construction. And to many an architect, engineer and builder this fact will necessitate a rapid adjustment to a radically changed situation so far as the market for certain types of professional and technical services is concerned. The extent to which such adjustment will be required depends on the status of individuals involved and a realistic analysis of recent trends and events as these may have a bearing on developments in any given locality.

For this reason the following comments can reflect only a general situation as it is conservatively estimated for 1942. It seems obvious that defense needs and controls instituted by defense planning agencies imply an uneven distribution of projects and an increasing tendency toward specialization in needed types of buildings. Here are F. W. Dodge Corporation dollar volume estimates for the 37 Eastern states for 1942:

1. RESIDENTIAL BUILDINGS—Total, $1,225,000,000. Of this one- and two-family houses account for $1,075,000,000. Most of the 1942 residential construction will unquestionably be done in the 275 or so defense areas and will fall under the heading of "defense housing." The *number* of new dwelling units may run to 290,000 or some 27 per cent less than the estimated total during 1941. Both dollar volume and number of residential units will be largely determined by the extent to which critical materials will be made available for house building.

2. MANUFACTURING BUILDINGS—Total, $1,175,000,000. Continuation of the current defense plant expansion program should maintain the volume of this building classification at the 1941 estimate level.

3. COMMERCIAL BUILDINGS—Total, $330,000,000. Curtailment of office and loft building construction and bank, store and restaurant buildings makes probable a 33 per cent decline from 1941 estimates. However, defense-stimulated projects will about maintain the 1941 level for such buildings as garages, service stations, hangars and warehouses.

4. OTHER NON-RESIDENTIAL BUILDINGS—Total, $355,000,000. Included in this classification are such buildings as hospitals, public buildings, religious, social and recreational structures and miscellaneous non-residential buildings. A marked decline from the 1941 volume is to be expected, for the only such projects that will go ahead are those that are necessary for direct national defense or are essential to the health and safety of the people.

NO "STOP-BUILDING" EDICT has been issued by any Government agency or bureau. The SPAB order did not limit construction projects which do not require critical materials nor did it aim to prevent the sale or use of already existing building products containing critical materials. The SPAB order, in effect, did three things:

1. It decreed that the country's 1942 construction program would be controlled.
2. It limited priorities assistance to projects necessary to defense and for the health and safety of the civilian population and thereby implied that construction would be concentrated primarily in designated defense areas.
3. It served notice that availability of critical raw materials to building product manufacturers would be curtailed with allocations of these (mostly metals) sufficient for only a limited construction program.

Gottscho

SAFEGUARDING CIVILIAN AND

Community facilities are sorely needed in defense areas, and their construction is essential if the success of the defense program is to be assured. For "it is the people who count—the people who produce the weapons of defense and the men who use these weapons. Safeguarding men in uniform when they are on leave and defense workers and their families against conditions harmful to health and morale is, therefore, an integral part of our defense effort."

By PAUL V. McNUTT, Administrator, Federal Security Agency, and Director, Office of Defense Health and Welfare

THE DIFFERENCE between success and failure in the defense program of this Nation may depend in large degree upon the health and morale of its people. Battleships, tanks, aircraft, ammunition, and guns are not enough. It is the people who count—the people who produce the weapons of defense and the men who use these weapons. Safeguarding men in uniform when they are on leave and defense workers and their families against conditions harmful to health and morale, is therefore an integral part of our defense effort.

The location of camps and plants for defense purposes was determined in accordance with military and naval strategy, and could not take into account the availability of public facilities and services. With the development of each new military site or industrial center, there has arisen in many areas a serious shortage of decent housing facilities. The provision of housing accommodations for defense workers in areas where there were shortages was, however, speedily recognized as essential, and Congressional measures authorizing the construction of such units were adopted. But new houses must be supplemented by community facilities. Water supply systems, sewerage systems, sewage treatment plants, hospital facilities, and recreational facilities must be adequate to serve the large numbers of new people moving into defense communities.

When a city follows a normal pattern of growth and gradually increases in size and population, community facilities are also developed gradually to meet its needs. But when dozens of new cities spring up overnight, as they have under the defense program, we find a dangerous lack of community facilities prevailing and inability on the part of the locality to provide for the thousands of new families brought there by defense needs. Less dramatic perhaps than the launching of a battleship or the construction of a powder plant, but quite as essential to the success of the defense program, is the construction of sorely-needed community facilities in these overcrowded defense areas.

What is the actual situation back in the local communities suddenly confronted by new and unusual demands for community services?

The Office of Defense Health and Welfare Services under my direction has participated in studies collecting information on deficiencies and shortages in essential facilities. It found cases like these everywhere:

In one town, the children of defense workers are attending classes in the basement of a building next to the boiler room, access to which can be obtained only by crawling through a window.

In another, the dumping of large quantities of sewage from a nearby camp has caused the inadequate sewer systems to back up and flood the streets.

In still another town, a steel center, each gallon of water available is being used and re-used 16 times a day, the same water for both industrial and drinking purposes.

Here is a concrete example of how lack of facilities may impede rearmament preparations. Steel is one of the basic materials in military production, and to make steel you must have water. Any depletion of the town's water supply, because of lack of rain, or a flooding of the reservoirs because of too much rain, would delay manufacturing.

Similarly convincing evidence of the need for hospital and recreational facilities is to be found in every crowded defense town. Soldiers on leave gathered at street corners or aimlessly wandering the streets are mute testimony to the importance of a community center where they can relax, write letters, meet friends, and engage in wholesome forms of recreation. The lack of adequate hospital and clinic facilities may have serious consequences threatening the health and efficiency of those in defense production.

In the early part of this year, Public Law No. 137, authorizing $150,000,000 for construction of community facilities, was enacted by Congress. Under this measure Federal funds are available to provide school buildings, hospital and health centers, recreational facilities, water works, sewerage systems, filtration plants, sewage disposal facilities, and other facilities to take care of the influx of people into localities near military camps, naval bases and

Services of CEM

stations, and newly located industrial plants, where such facilities cannot otherwise be provided.

Federal leadership and financial assistance to state and local governments are helping to provide such facilities in the places where they are most urgently needed. In the four months since June, 1941, when this measure was signed by the President, 699 projects for community facilities have been approved by the President. Of this total, 171 are in the field of sanitation, 77 are hospitals and health centers, 192 are schools, 248 are recreation centers, and 11 represent miscellaneous projects. Projects related to operations of the Federal Security Agency are passed on by the appropriate units of this Agency and a "certificate of necessity" furnished to the Federal Works Agency, which is the administering agency under this law and receives applications for such projects.

Building community facilities is not a frill. It is a necessary adjunct to our military and industrial defense activities. In many instances, the lack of such facilities has seriously impeded the progress of the defense program. In one area, defense plants have experienced difficulty in getting skilled workmen to move there because of the shortage of school accommodations for their children. Crowded, unsanitary and unpleasant living conditions reduce the efficiency of those engaged in defense production; coupled with bad water supply and sewer systems, they raise the spectre of epidemics which might seriously interfere with defense work.

We have no time to lose now. No step necessary to safeguard health and morale can be overlooked by this Nation. The projects already approved and under construction are a promising step in the right direction. As more communities begin to feel the effects of defense expansion, and community needs increase, additional funds will be necessary to provide for these additional demands. In any case, non-military defense construction—which is essential to the progress of the defense program—must keep pace with construction of military and industrial buildings and defense housing.

ARMY MORALE

AN OFFICIAL STATEMENT FROM THE WAR DEPARTMENT

AN ARMY POST is in many respects a little city in itself. Obviously the functions of administration, personnel training, warehousing, maintenance and the housing of enlisted and commissioned personnel generate need for a vast amount of construction. Because the job of the army is a specialized one, the types of buildings which are required are also of a certain specialized character; and to this extent an army post can almost be regarded as a self-contained unit with buildings which have few counterparts in civilian existence except so far as the technicalities of their construction and equipment may be concerned.

But however complete may be the development of a modern army post, facilities for recreation, temporary housing and transportation are necessary to fill the needs of post personnel who may be on leave or otherwise temporarily relieved from an official status. As Kipling aptly observed, "Single men in barracks don't grow into plaster saints"; and although the USO program is providing better recreational facilities than army men have ever previously enjoyed, it is inevitable that requirements for such facilities will overflow the limits of an army post into the field of civilian administration.

Any town within easy traveling distance of a sizable army post will probably find that its recreational facilities are overtaxed and inadequate for the needs of our expanding military forces. In most instances more theaters, more dance halls and more inexpensive restaurants—where a man can get a glass of beer in pleasant, wholesome surroundings —should be provided. In addition, hotel accommodations for visitors are in a great majority of cases sorely overtaxed; and the need for small houses for the use of married personnel both of enlisted and commissioned rank, and civilian employees of the army, has been shown in several cities and could probably be easily demonstrated in several others.

In suggesting that facilities of these types be increased by developing whatever new building may be required to provide them, the army does not, of course, wish to encourage needless over-expansion in any instance. But it is convinced that with proper planning these provisions can be made in structures that are adaptable to many other uses when, and if, the military will no longer have use for them. This suggests that every city near a military establishment ought to be surveyed with these requirements in mind. This is being done at the present time by many Governmental agencies that have become involved in the housing program. The situation regarding the present availability of such needed construction is being considered in view of the constantly increasing pressure. Immediate steps are being taken in particularly acute areas to eliminate deficiencies in facilities by providing new construction or by rehabilitating existing buildings to fill the stated needs.

WHAT TYPES OF NEW CONSTRUCTION

In its famous order of Oct. 9, SPAB characterized projects for which priorities assistance would be given as "projects . . . either necessary for direct national defense or . . . essential to the health and safety of the people." With defense building already nearing peak activity, the RECORD looks at non-defense building, finds "essential" needs loom large, and reports a plan for meeting them.

What happens when a town newly bursting with defense activity finds its population suddenly doubled? How badly are the town's facilities overloaded, and how much new construction will be required? What types of construction projects? Here is a great field for building, as yet largely unexplored and little understood.

Obviously there is no mystery about the need for defense housing (AR 11/41), which has been much in the public prints, and which is at least well programmed. But what about the other types of buildings that must come with new housing in the 275 defense areas? Certainly new schools will be required, new hospitals, new recreational facilities, new streets, water lines, sewerage facilities, new fire and police stations. These and many others will be necessary for the "health and safety of the people."

The quoted phrase, incidentally, is from the now-famous SPAB order which limits priorities assistance to building projects either necessary to defense or "essential to the health and safety of the people." It is evidence that the need is recognized in the priorities and allocations system.

The need is more tangibly recognized in the program of Defense Public Works, with its $150,000,000 appropriation for new community facilities in defense areas. But this money is virtually gone already, and the program is terribly inadequate. Also important in this connection is the Public Works Reserve of the National Resources Planning Board, which is programming a great amount of such building throughout the nation as a post-emergency measure.

But what of the future of a defense community? How is the immediate need to be met without saddling the town with ghost areas and useless buildings after the emergency is past?

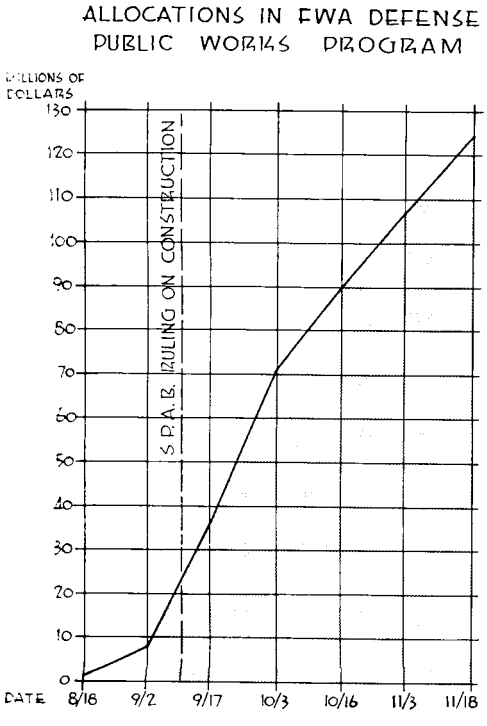
It is not surprising that few communities have anything like adequate data on the immediate need, much less any logical plan for the integration of necessary new buildings into the community's future pattern. No community could have been prepared in advance for such boom conditions as have burst upon them, or could be expected to undertake by itself the financing of everything now required. As to the planning, however, the impact of defense must be reckoned with.

The community has much at stake. Obviously it cannot simply ignore the new people in its social plans, trying to build a barricade between the old town and the new. The town's citizens will suffer along with military personnel and defense workers, if its facilities are inadequate "for the health and safety of the people."

And, equally obvious, the community pattern will be changed for years to come by the present defense construction. To ignore the problem is to invite haphazard construction, by either Federal Government or private enterprise, buildings neither suited to the locality nor useful after the emergency. There is also the risk of overbuilding, if no overall control is exercised. Only by local initiative can such hazards be avoided. Fortunately, community and regional planning has progressed rapidly in recent years, both in technical advancement and in public acceptance, and needs only to be geared up to the defense exigencies.

Basic planning requirements are four: 1. A thorough and detailed analysis of new and expected increases in population due to defense, together with best estimates of what increases will be permanent; 2. An item-by-item inventory of construction needs, from schools to taverns; 3. At least a skeleton plan for the community's future pattern; 4. An integration of present and future requirements.

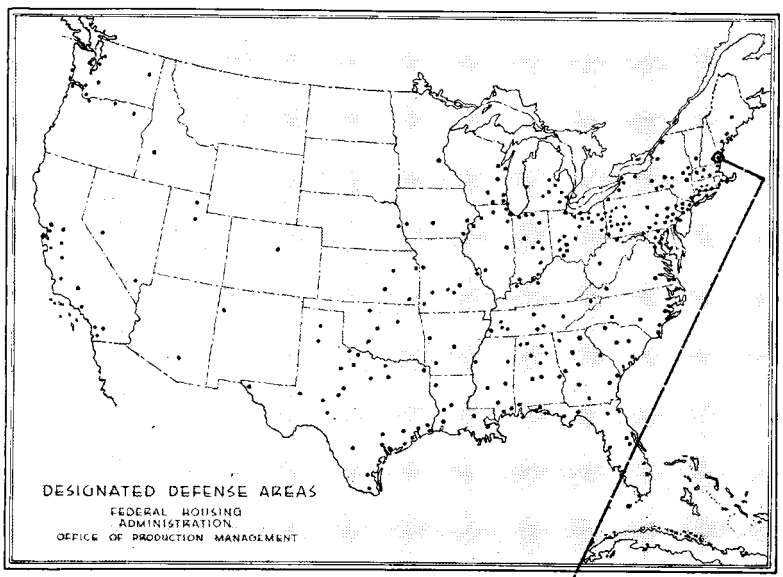
Such a plan is by no means beyond possibility. And with the plan prepared, the community has the basis for constructive action in several directions: 1. The plan would become a route map suggesting the way of getting the new construction started; 2. It would be insurance against poorly conceived buildings and haphazard land development; 3. It would tend to prevent undue expansion; 4. It would influence the new construction toward maximum usefulness in the post-emergency period.



Rapidly mounting allocations in FWA's Defense Public Works Program will soon use up the $150,000,000 appropriation to *build* much-needed community facilities. To grant all applications would have required many times that appropriation

ARE "ESSENTIAL" ..... TODAY?

What does all this imply in actual building needed? Specialized local problems in the 275 defense areas will probably result in 275 solutions. But with populations increasing spectacularly, and with the Government's determination to maintain the American institutions that safeguard the health and safety of the people, a tremendous building potential is obvious.



A CASE IN POINT — PORTSMOUTH, N. H.*

ONE OF THE FEW communities in which these problems have been seriously tackled is Portsmouth, N. H. This small New England city, now buzzing with activity in the navy yard, gives a fair picture of the strain on a community's existing buildings. Portsmouth expects its population to double by next year. The situation is so acute that a local newspaper* has characterized it thus: "It is no exaggeration to state that Portsmouth now has the greatest problem in its 318-year history and that its future for the next 318 years will be vitally affected by the way this problem is handled."

So Portsmouth has tackled its problem, recognizing diagnosis as a prerequisite to prescription. An alert group of citizens has carefully analyzed its needs and prepared a revealing report. It is the type of down-to-earth analysis which architects and other planners are well equipped to help compile in their own localities.

The Portsmouth study, used here to help clarify the term "essential building" and to introduce a 32-page section of buildings of the type required in defense areas, has a triple significance: 1. Its survey of the need for new construction projects serves to dramatize, if not to measure, the requirements of other areas: 2. It presents a workable method of attacking the planning problem: 3. It indicates the types of buildings which will be required to maintain both military and civilian morale.

POPULATION TO DOUBLE

To sum up briefly what the defense effort is doing to this New England seacoast city, the 1940 census was approximately 15,000: the 1942 census will be 31,000 or more. The trading area is rocketing from 60,000 to more than 100,000. In eight months' time, better than $17,000,000

*To J. D. Hartford, publisher of The Portsmouth Herald, and to Franklin E. Jordan, The Herald's very able managing editor who undertook the formidable task of getting the entire city's defense problems down into facts and figures, we wish to pay very special tribute.** Their example is a challenge to officials, groups or civic-minded individuals in many another defense area and community. Mr. Jordan's findings, originally published serially in the newspaper and later republished in a booklet *Portsmouth and National Defense* constitute the factual basis upon which this study is built.

**The Herald wishes special credit extended to the Portsmouth Planning Board, the City Council, the State and the Seacoast Regional Development Associations; the National Resources Planning Board, the Department of Commerce, Federal Bureau of Investigation, other Governmental agencies; the National Board of Fire Underwriters and the International City Managers' Association.

worth of defense projects have been completed or contemplated—this in a city whose total assessed valuation was only $20,000,000. Portsmouth's credit was excellent—$764,000 borrowed; a borrowing capacity of $266,000 remaining. However, needed new municipal facilities alone (page 47) add up to nearly $2,225,000. Hence the Planning Board's request to the Government for about this amount.

AFTER THE EMERGENCY . . . Judging from World War experience and tempered by the fact that a two-ocean navy is being built, post-emergency population will probably drop from around 31,000 to 20,000. To avoid overbuilding and excessive financial burden therefore becomes a primary factor in planning. The brief summaries below show how some of the more important problems have been analyzed to serve both war and peacetime needs.

HOUSING

About 1,500 new dwelling units are either completed or under construction (800 PBA; 169 Defense Homes, plus private projects). These will care for an increased population of about 7,000. At Kittery, Me., the navy has built 600 dwelling units for Yard workers. Housing in neighboring towns plus other projects in Portsmouth must handle the additional population.

AFTER THE EMERGENCY . . . Relief problems may be acute. If new industries are started, these will help immeasurably. To handle the relief problem, the new housing could provide shelter; slum clearance (and city woodlands) could supply fuel; the community could probably provide necessary clothing; city lands could be made into municipal gardens; relief workers could furnish labor, and a minimum of cash would be needed.

BUILDING REQUIRED TO MEET THIS SITUATION

HEALTH

In general well equipped to serve public health, the city does need either a new wing added to the hospital or a Community Health Center; also a public comfort station (see map). Both of these would be desirable permanent additions when the emergency ends. In all, facilities needed to handle the defense problem total $144,000.

SAFETY

The Fire Department's building needs consist of two new sub fire stations (see map) totaling $28,000. If the present one-room school in the Plains area is converted to this use, a saving of $7,000 would be effected. A good building code would add greatly to civic safety. A fire drill tower ($7,000) is also highly desirable. For the Police Department, the only present building need is a new photographic laboratory.

EDUCATION

Last year's student enrollment of about 2,800 filled the nine Portsmouth schools. Although the emergency population increase will bring more than 1,200 new school children, the Planning Board figures that it is unwise to provide new classrooms for more (see After the Emergency, below, for explanation). For 1,200 additional pupils, 40 more classrooms (30 to a room) are needed. However this is figured, it implies three new school buildings to cost about $993,000 (see map). Any slight overbuilding that may result from even this conservative estimate will be concentrated in the new 16-room Heights school, required to serve 480 youngsters housed in PBA homes.

AFTER THE EMERGENCY . . . Overbuilding of the school plant is disastrous, as roughly half of education cost is maintenance and repair. To avoid this and yet handle the extreme defense need, the half-day-session plan could be introduced. Generally disliked by educational authorities, it seems preferable to post-war overbuilding headaches. The proposed expansion of the school plant would thus emerge from the crisis as little more than adequate to meet the city's permanent requirements.

TRANSPORTATION

Street widenings and extensions, bridge repairs and new parking facilities represent a total need costing $207,000. Improvements to the airport ("disowned by all who should father it") to make it into an advanced base would cost an additional $250,000 (army estimate). An increase in bus and truck traffic might well justify a municipal bus terminal as an essential new facility—to cost around $50,000. A municipal or state pier may be indicated. Any or all of these improvements would fit in with post-war uses.

WATER

Portsmouth had a serious water problem before the emergency; it is now acute. In addition to a new 53-well field and the Federally supplied PBA system, a large new single source is vital. Possible solution: reaching out to the Winnicutt River, erection of 2 small dams, a filter system, pumping station and connecting mains. Total cost of doubling system: $1,011,000.

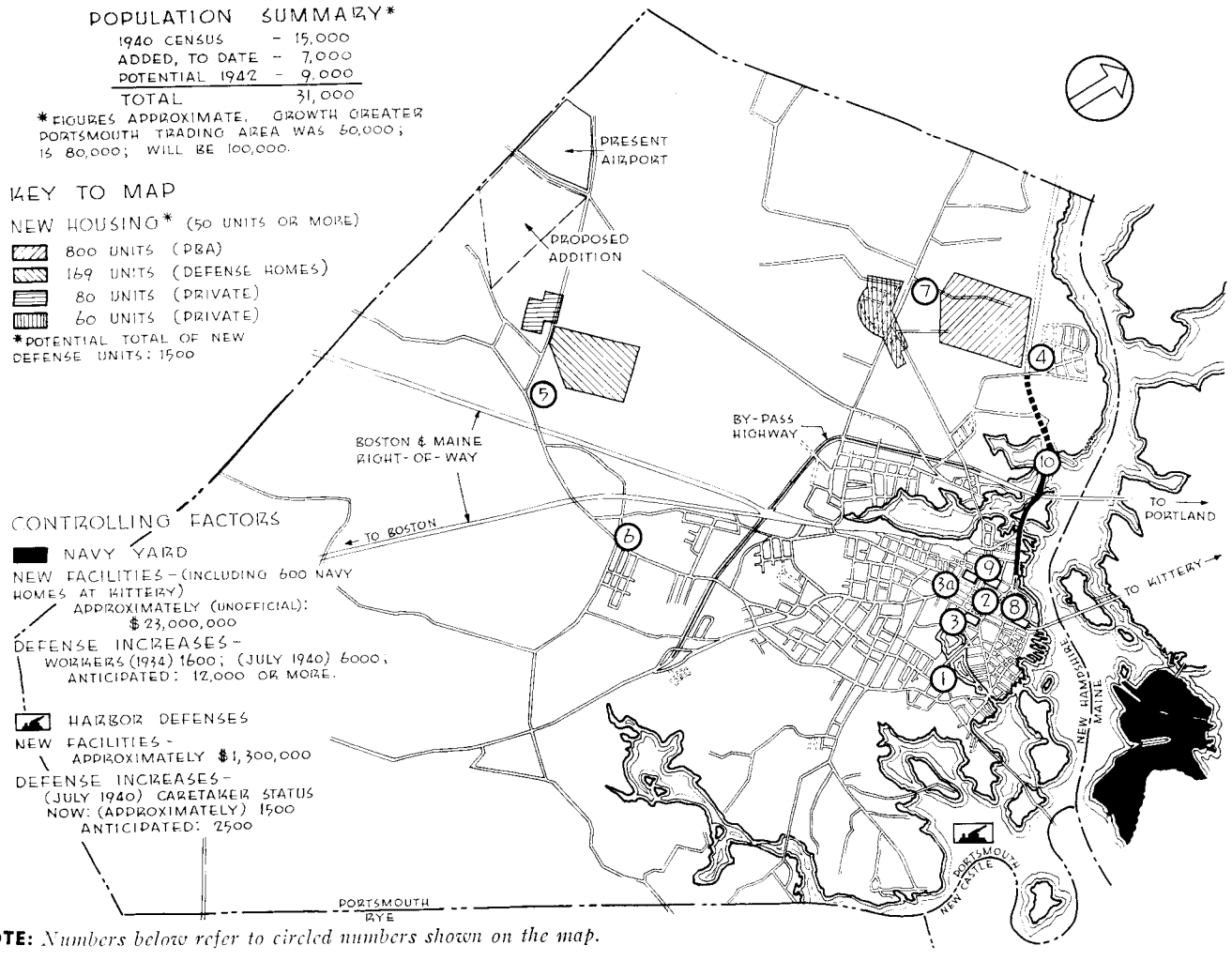
AFTER THE EMERGENCY . . . The new, large single source (Winnicutt River) could be used to serve the city; the smaller fields could be shut down and held in reserve—materially cutting operating expense and providing an important safeguard for the future.

RECREATION

Portsmouth is happily supplied with parks for mothers and small children, athletic and recreation facilities for school children and a permanent Army and Navy Building which can take care of some USO needs. But if the whole community, defense workers as well as soldiers and sailors, is to be supplied with appropriate recreational facilities, a real need is an adult municipal gymnasium and auditorium. If added to the Army and Navy Building (to be used by USO for the duration), as recommended by the Planning Board, this would cost approximately $60,000. Either the gym or a separate hall would provide facilities for dances and parties. For an all-around sport center, a real sports arena—for track, hockey, boxing, wrestling, football, etc.—to cost around $50,000, would be an excellent provision.

IMPACT OF DEFENSE ON PORTSMOUTH, N. H. . . . .

ESSENTIAL BUILDING NEED—emergency and thereafter



NOTE: *Numbers below refer to circled numbers shown on the map.*

HEALTH

1. **10-Bed Addition to Hospital ($25,000) or a Community Health Center ($30,000).** Present hospital adequate for 25,000 population: new contagious ward needed for a larger population. But post-emergency population will probably be about 20,000; a new Health Center would both serve emergency needs and become an important permanent addition to the city—a diagnostic and minor treatment center for baby, prenatal, dental and maternity care and treatment of social diseases. Health officer and Red Cross would also have headquarters here. It could also serve a long-range function as educational center for the prevention of disease and accident.

2. **Public Comfort Station.** Centrally located: inexpensive ($1,000). A highly desirable facility to serve the new population and the post-war city. Erected in connection with a city parking lot, maintenance would be negligible.

EDUCATION

3. **Senior High School ($750,000).** To serve present senior high enrollment (plus 9th grade which would be coordinated "for the duration," leaving the junior high adequate for the emergency) plus new defense population students, a new high school for 1,300 is necessary. This would be a permanent part of the city's school system. To avoid overbuilding (half of education cost is maintenance and repair) half-day sessions could be introduced, which would care for any foreseeable population potential.

3a. **Present Senior High School,** which has recently had an addition. To enlarge to serve the new population would be patchwork. Therefore, the new senior high (above) is proposed. The present senior high building could serve as one of two badly needed city facilities—a new city hall or the city's future trade school (to be operated "for the duration" by the Federal Government).

4. **New Heights Grade School—** 16 rooms for 480 elementary pupils (all PBA housed; see map): $158,000. This school to be knowingly overbuilt for possible later conversion.

5. **New Plains School—** 8 rooms for 240 elementary pupils: $85,000. New Defense Homes houses and other near-by private developments (see map) require a new school. As many of the new population will remain in this area after the emergency, the school would be a permanent addition to the city's system.

SAFETY

6. **Plains Sub Fire Station** (with equipment): $24,000. This would serve the new population of 1,600 or more in the Plains sections, many of whom will be permanent additions. To save money, present one-room Plains school might be remodeled into the new sub fire station (approximately $7,000 saving).

7. **New Two-Unit Sub Fire Station** to serve Atlantic Heights housing, including the new 800-unit PBA houses: $24,000.

RECREATION

8. **Gymnasium-Dance Hall—** Either independent or added to present USO building (the permanent Army and Navy Building which will be used for the duration by USO). Approximately $59,000.

TRANSPORTATION

9. **New Municipal Parking Lot.** Two are already in existence; but the traffic problem is far from solved.

10. **Proposed Street Extension** to help unsnarl serious traffic condition and provide more direct route to PBA houses and other Atlantic Heights housing.

OTHER NEEDED NEW BUILDING

A new Pumping Station; Indoor Swimming Pool; Orchestral Shell; possibly a Municipal Golf Course and a Municipal Bus Terminal. Streets, Sewers. Equipment of all sorts, etc. City is fortunate that $3,150,000 by-pass highway and bridge (see map) was completed in 1940; other defense areas will find a similar traffic artery a primary need.

WHAT DOES ALL THIS MEAN NATIONALLY?

Widely differing needs will be found to exist in the various defense communities. Only by precise knowledge of a specific community's problem can indispensable building be determined. But as an indication of the range of building which may prove essential in one locality or another, we submit the following check list and the 32 subsequent pages.

HEALTH . . . pages 49-56

- NEW HOSPITALS
- ADDITIONS TO HOSPITALS
- NEW UNITS OF HOSPITALS (NURSES' HOMES, LABORATORIES, ETC.)
- PUBLIC HEALTH CLINICS AND ADMINISTRATIVE OFFICES
- COMMUNITY HEALTH CENTERS
- INCINERATION PLANTS
- SEWERAGE DISPOSAL SYSTEMS
- WATER SUPPLY AND ATTENDANT STRUCTURES
- FOOD INSPECTION CENTERS
- PUBLIC COMFORT STATIONS
- RESEARCH LABORATORIES

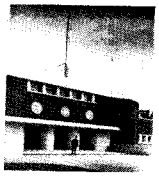
SAFETY . . . pages 57-62

- FIRE STATIONS
- SUB FIRE STATIONS
- DEPARTMENTS OF CORRECTION
- POLICE STATIONS
- JAILS
- TELEPHONE EXCHANGES
- RADIO STATIONS
- LIGHT AND POWER PLANTS
- AIR RAID SHELTERS
- EVACUATION CAMPS
- RED CROSS WORKSHOPS
- NEW CITY HALLS
- WELFARE OFFICES
- COUNTY FARMS
- HOMES FOR THE AGED, INFIRM OR STATE CHARGES
- CLOSELY ALLIED ARE TRANSPORTATION FACILITIES:
- BUS TERMINALS
- PARKING FACILITIES
- BRIDGES
- HIGHWAYS
- PIERS
- SERVICE STATIONS
- RAILROAD STATIONS
- AIRPORT BUILDINGS
- TICKET OFFICES

EDUCATION pages 63-72

- GRADE SCHOOLS
- HIGH SCHOOLS
- TRADE AND TECHNICAL SCHOOLS
- SPECIALIZED SCHOOLS OF ALL SORTS
- ADULT EDUCATIONAL AND CULTURAL CENTERS
- LECTURE HALLS
- AUDITORIUMS
- NEW LIBRARIES
- ADDITIONS TO LIBRARIES

RECREATION pages 73-80

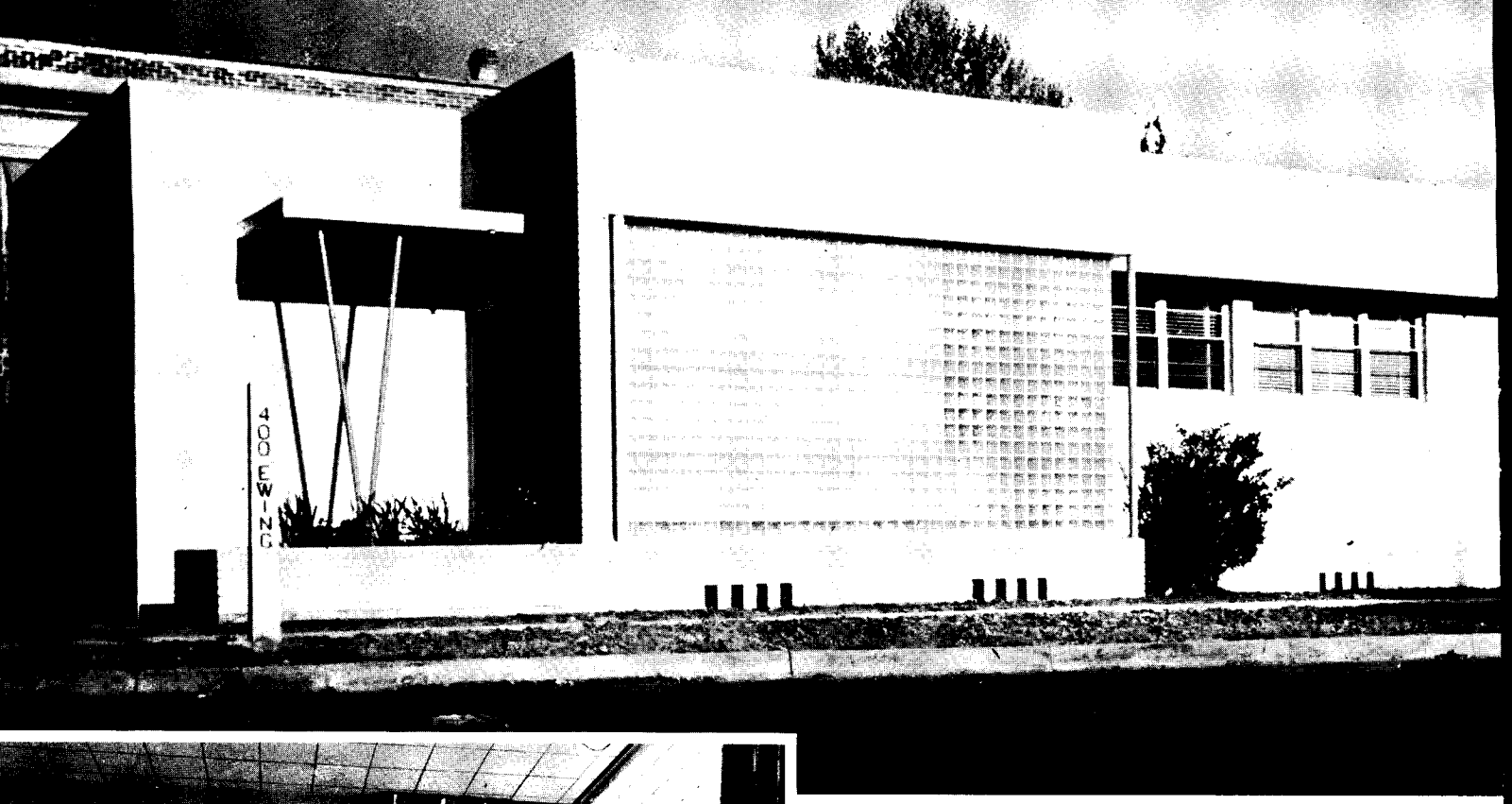


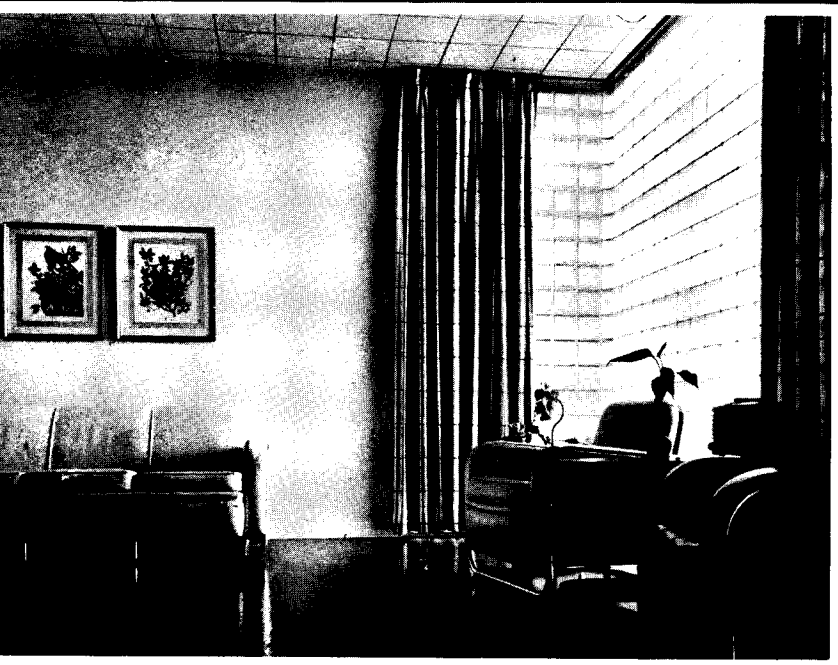
- CIVIC AUDITORIUMS
- GYMNASIUMS
- PLAYGROUNDS
- BAND SHELLS
- SWIMMING POOLS
- SPORTS BUILDINGS, PUBLIC AND PRIVATE
- SPORTS ARENAS
- THEATERS
- OUTDOOR THEATERS
- CLUBHOUSES
- COMMUNITY CENTERS
- SKATING RINKS
- PARKS AND REQUIRED STRUCTURES

AMERICA'S BUILDING NEED . . . . . FOR HEALTH

WHAT DOES BUILDING ESSENTIAL to the health of the civilian population include? A listing of specific types of structures might offer many points of argument. But there can be no argument about the fundamental services on which communal health depends — a pure water supply and its distribution; disposal of sewerage; incineration of refuse; hospitals and related institutions; public health facilities; public welfare agencies, etc. The types of buildings needed to house and facilitate these services are numerous and varied. Here, surely, the specialized skills of architects, engineers and construction firms should be greatly in demand.

St. Thomas





CLINIC

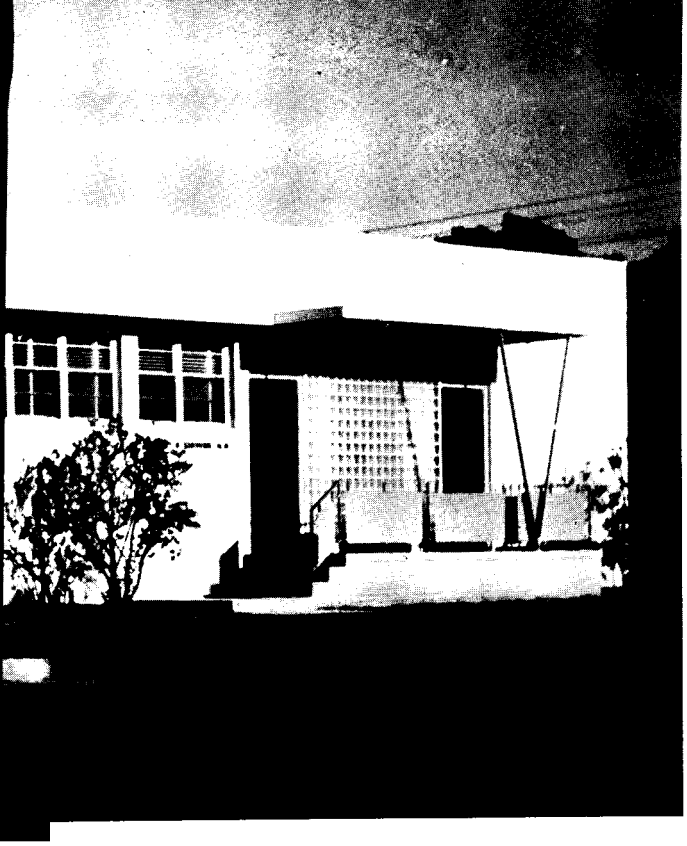
DOCTORS BUILDING, BEAUMONT, TEXAS. STONE & PITTS, ARCHITECTS. This building was designed to serve three doctors—one a pediatrician, the other two in partnership specializing in surgery, gynecology and obstetrics. Hence the two waiting rooms. All three doctors share the use of a minor surgery room, metabolism room, laboratory and X-ray rooms. Major operations are performed at a hospital. The layout immediately suggests its adaptability to a variety of community health uses. High windows prevent undesired vision from the exterior. The building is year-round air conditioned. Spread footings and grade beams are of concrete. Partitions are of wood stud with waterproof stucco over tile veneer surfacing exterior walls. Built-up roofing covers an insulated roof frame and decking of wood. Floors (except in the air conditioning room where concrete is

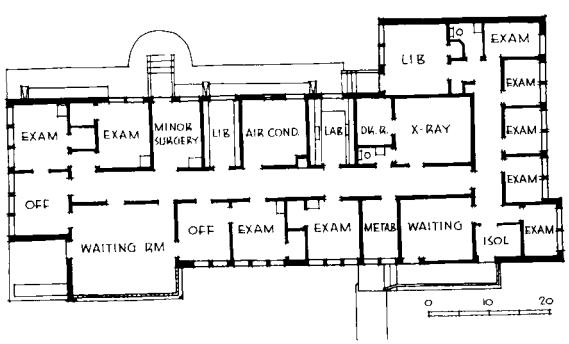
SMALL HOSPITALS . . .

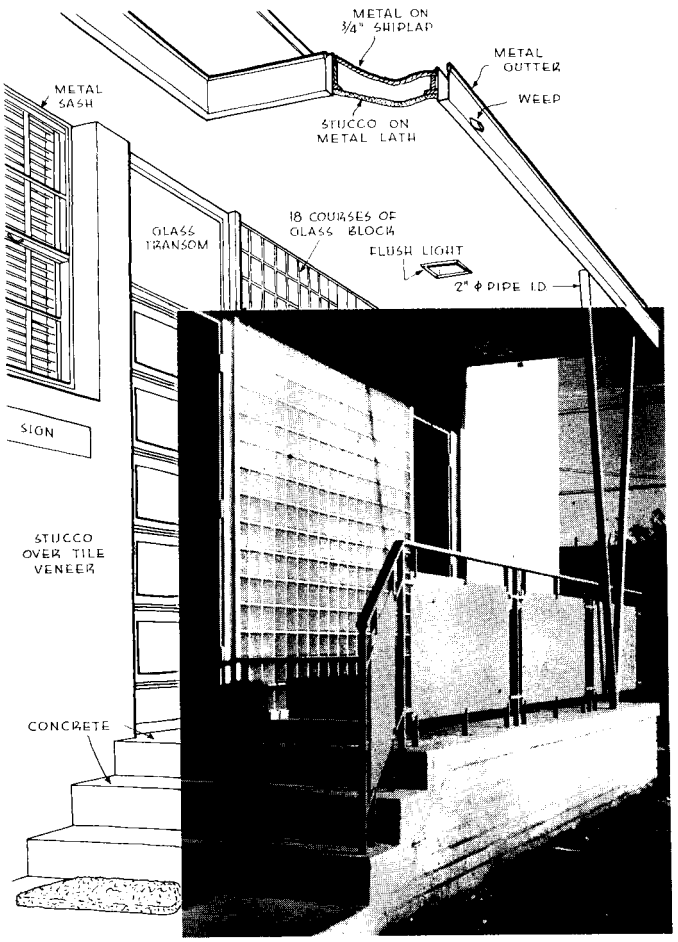
such as these will be needed in many a vital area:

City Hospital, Cleveland, Miss. Overstreet & Town, Architects. G. C. Gardner, Builder.

Lake Shore Hospital, Lake City, Fla. Ray Littlefield, Architect. Built by WPA. Cost (1940): $40,000

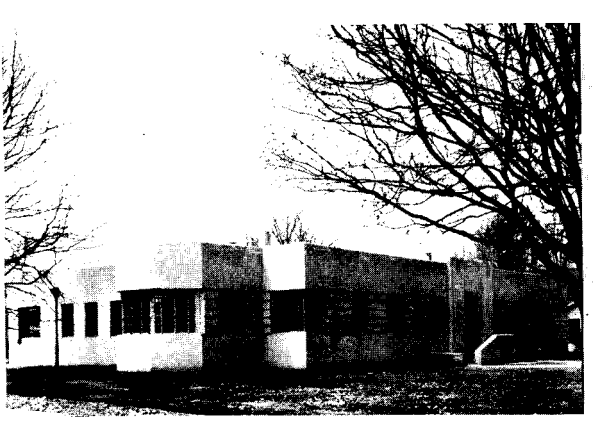




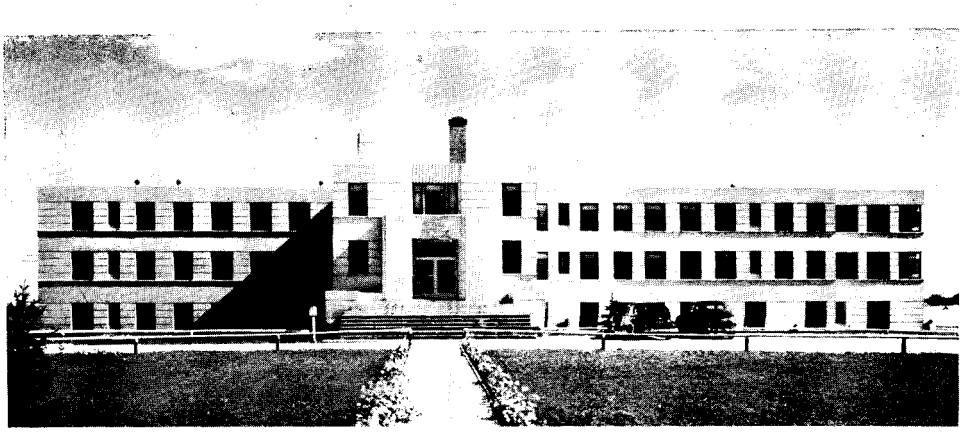


Photos by St. Thomas

used) are finished in linoleum, laid over plywood panels that are nailed to a shiplap sub-floor. Building cost: 45 cents a cu. ft., including air conditioning, light fixtures and architects' fees, but excluding furniture and X-ray equipment. The building contractor was G. Sargl.

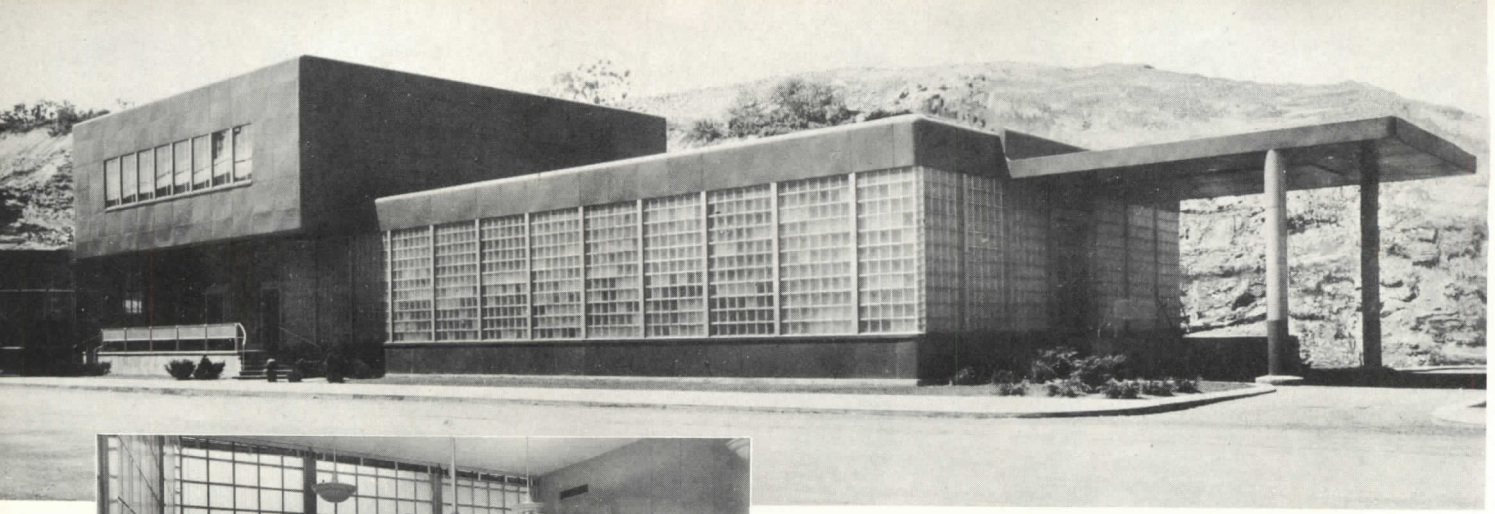


Rosedale Hospital, Rosedale, Miss. Overstreet & Town, Architects. G. C. Gardner and W. M. Priestly, Contractors. Cost (WPA 1936-37): $18,000

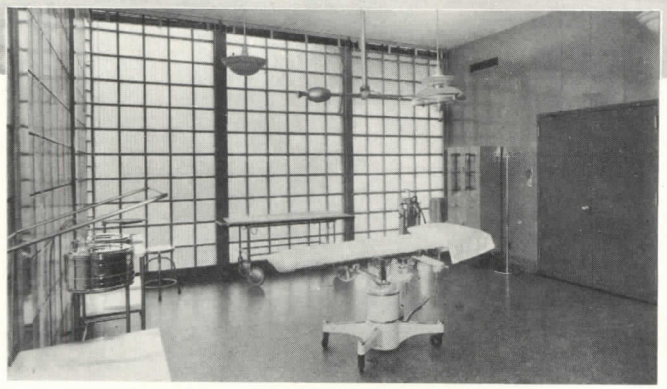


General Hospital, Alpena, Mich. Joseph C. Goddeyne, Architect. Owens-Ames-Kimball Co., Contractors. Cost (1939): $139,000

Photos courtesy Portland Cement Assn.



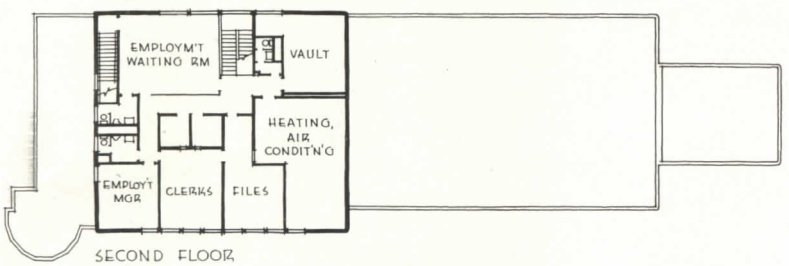
Photos by Rembrandt Studios



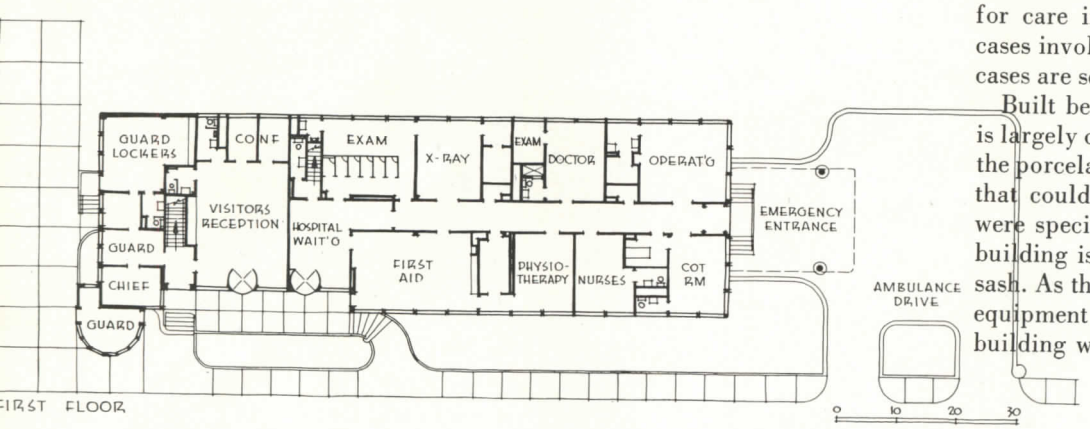
INDUSTRIAL HOSPITAL

BUILDING FOR THE CARNEGIE-ILLINOIS STEEL CORPORATION (IRVIN WORKS). THE RUST ENGINEERING CO., DESIGNERS. While this structure solves specialized problems of plant personnel (the second floor) and plant protection (officers' cage controlling entrance to the plant), its hospital facilities indicate possible solutions for communities requiring diagnostic centers or hospital services to supplement those of the local hospital. From the second floor, successful job applicants come for physical examinations by way of a rear stair to the hospital waiting room. Hospital facilities include emergency and treatment—operating, X-ray, first aid and physiotherapy. One doctor and two nurses are required. The cot room provides for care immediately after operation or for cases involving only a brief rest period. Other cases are sent to a Pittsburgh hospital.

Built before the day of priorities, structure is largely of pressed steel, but the patterning of the porcelain enamel facing suggests wood uses that could well be adapted. The glass block were specially designed for hospital use. The building is wholly air conditioned, with fixed sash. As there is no basement, air conditioning equipment is located on the second floor. The building was erected by the B. L. Winner Co.



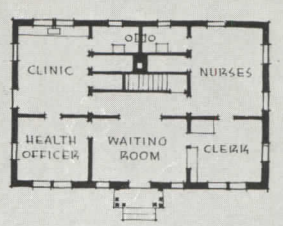
SECOND FLOOR

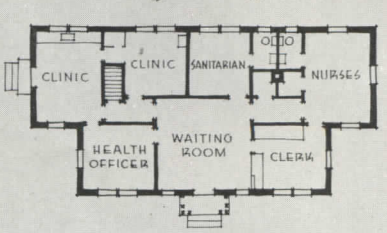


FIRST FLOOR

HEALTH CENTERS

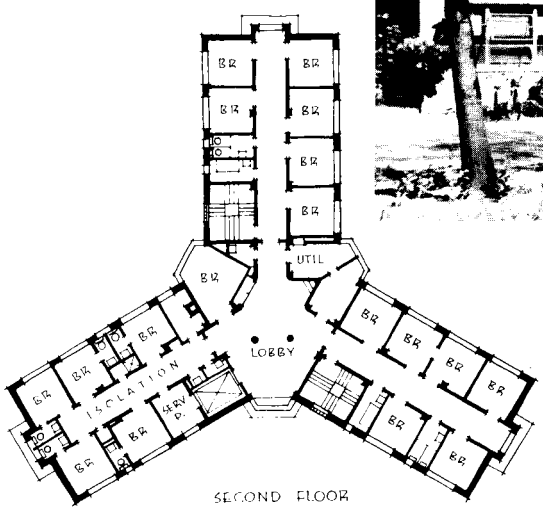
THOMAS W. GARDNER, ARCHITECT





TENNESSEE. *Promoted by the* Tennessee Department of Public Health, full-time health services are now established in nearly 60 counties. Permanent health center buildings have been built in six of the counties. Three of these were constructed by the Commonwealth Fund and were presented to the counties; three were provided from local sources. The plans indicate types of planning data which the Department distributes to the various health units as a working basis.

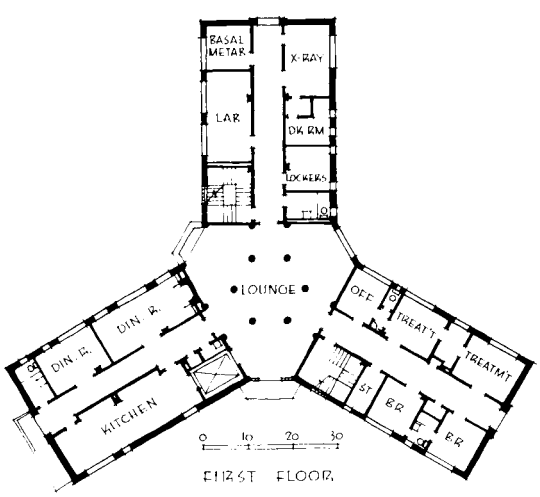
Margaret DeM. Brown



SECOND FLOOR

INFIRMARY

BALDWIN HOUSE, VASSAR COLLEGE, POUGHKEEPSIE, N. Y. FAULKNER & KINGSBURY, ARCHITECTS. Specifically this building is planned as the infirmary of a women's college; but its general scheme could easily apply to a new unit of a large hospital or a separate community health building. Shape of the building simplifies control of each floor and provides maximum of sunlight and air. Second and third floor plans are similar except that the north wing of the third floor is used for nurses. The building is equipped for usual infirmary care and has modern hospital equipment to handle accidents, emergencies and dietary work. Major operations go to a hospital in the city. Economy considerations determined the use of wall bearing construction, with steel bar joists for floor framing. Interior columns are of fireproofed steel. Contractor for the infirmary was Edgar V. Anderson.



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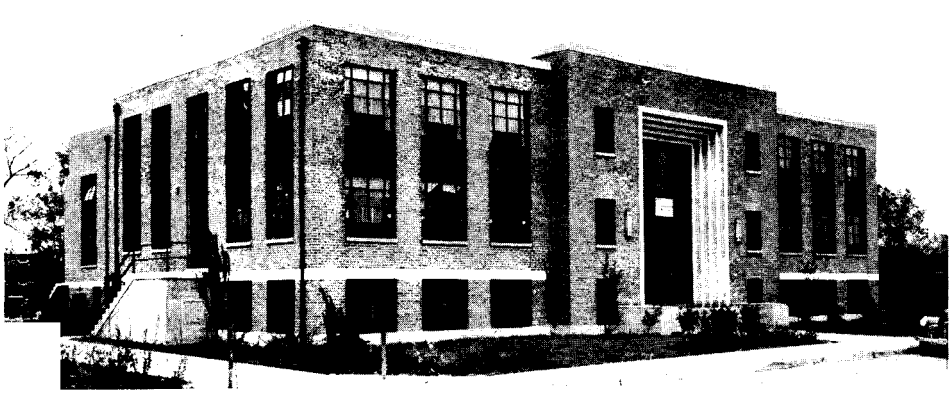
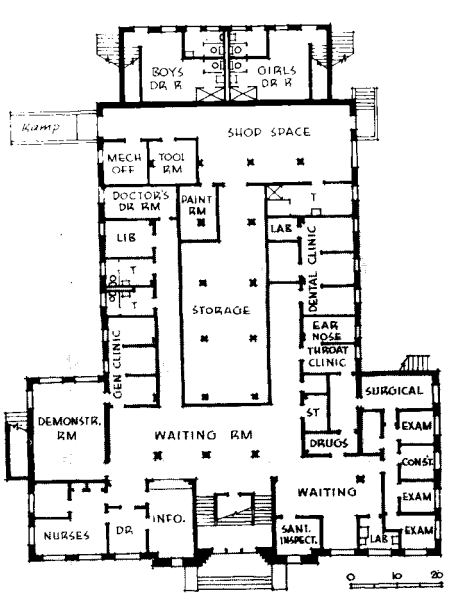




KENTUCKY. The health center shown here occupies the ground floor of the community center building for Beecher Terrace, a Louisville housing project for Negroes. One of two such housing-project centers in Louisville where a complete preventive service is furnished, it caters to the residents of the project who cannot afford to employ their own physicians and to those who are similarly situated in the surrounding community. The space is rented by the Louisville Department of Public Health from the Housing Administration.

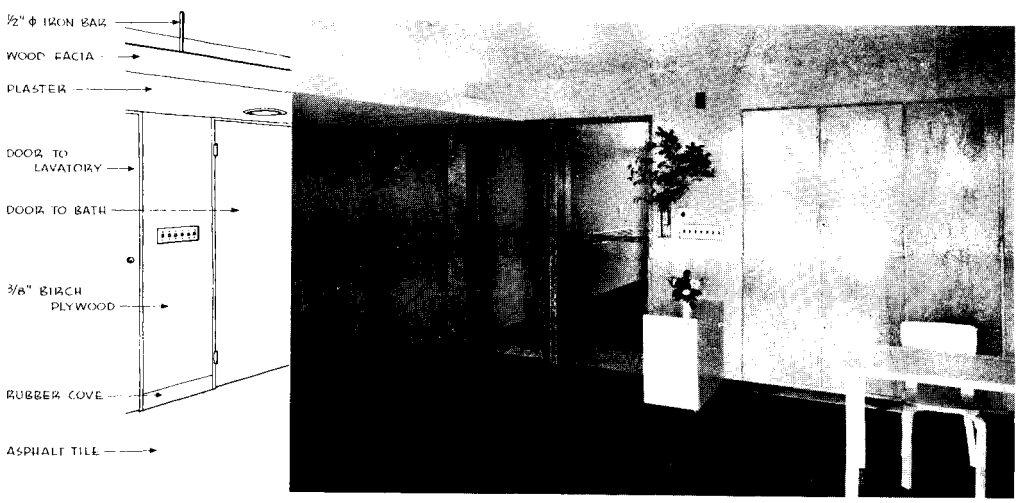
Photos by Cushing-Gollatly

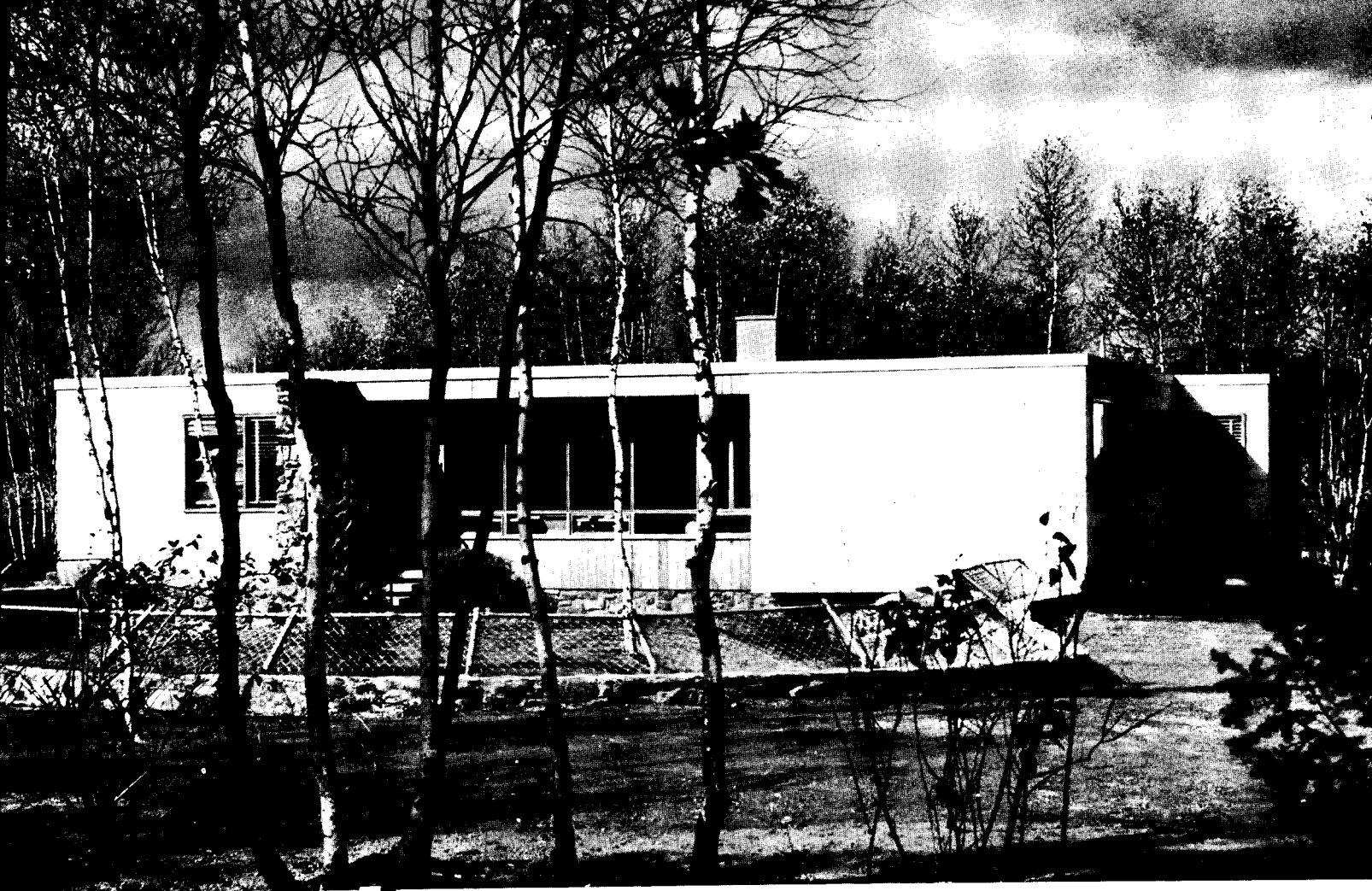
TREATMENT BUILDING

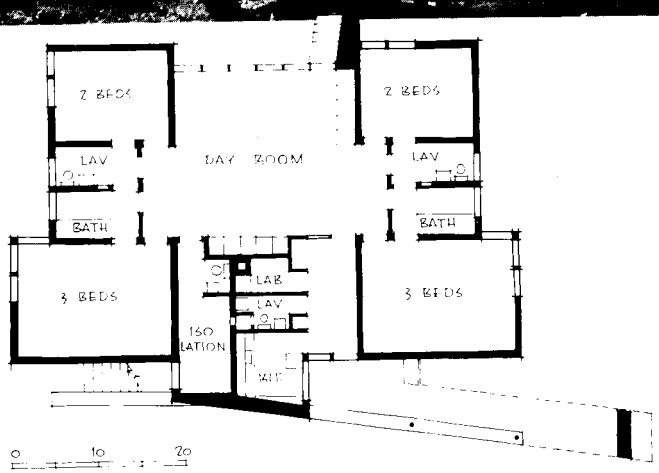
BALDPATE INC., SANITARIUM, GEORGETOWN, MASS. SAMUEL GLASER and L. L. RADO, ARCHITECTS. This forthright little structure is the first of a series of treatment buildings for disturbed patients that will be built on wooded property adjoining the main hospital. As the building is essentially a home, restrictive devices have been visually minimized; the homelike elements emphasized. Compactness and economy are the keynotes of the plan and structure. There are no interior changes in level.

From the attendant's desk in the cheerful main living room, all activities can be readily controlled. The room is finished in birch plywood and has an asphalt tile floor. Patients' clothes wardrobes are built into the wall behind the control desk. Unnecessary projections and mouldings are eliminated. A solid band of windows and a glazed door overlook the walled and fenced terrace and lawn. The use of solid stone masonry piers and projecting walls gives a psychological sense of security, yet obviates the institutional feeling. The sleeping rooms — to be used either privately or as wards — have double doors to the living room and other doors leading to the separated bath and toilet rooms. An isolation room is provided for violent patients, and a kitchen and laboratory complete the plan. A boiler room and storage room occupy the partial basement.

Exterior walls are of cinder concrete block. Interior walls are double walls of three-in. cinder concrete units with one in. between for soundproofing. Floor is of precast concrete bar joists on three-in. concrete slab. The general contractor was August Johnson Associates Inc.



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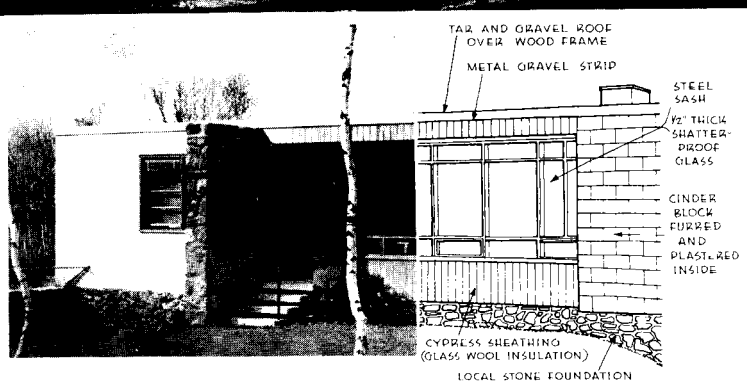
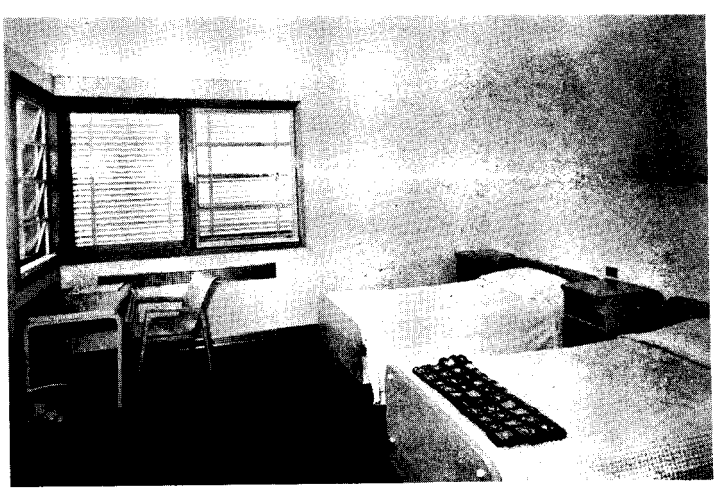
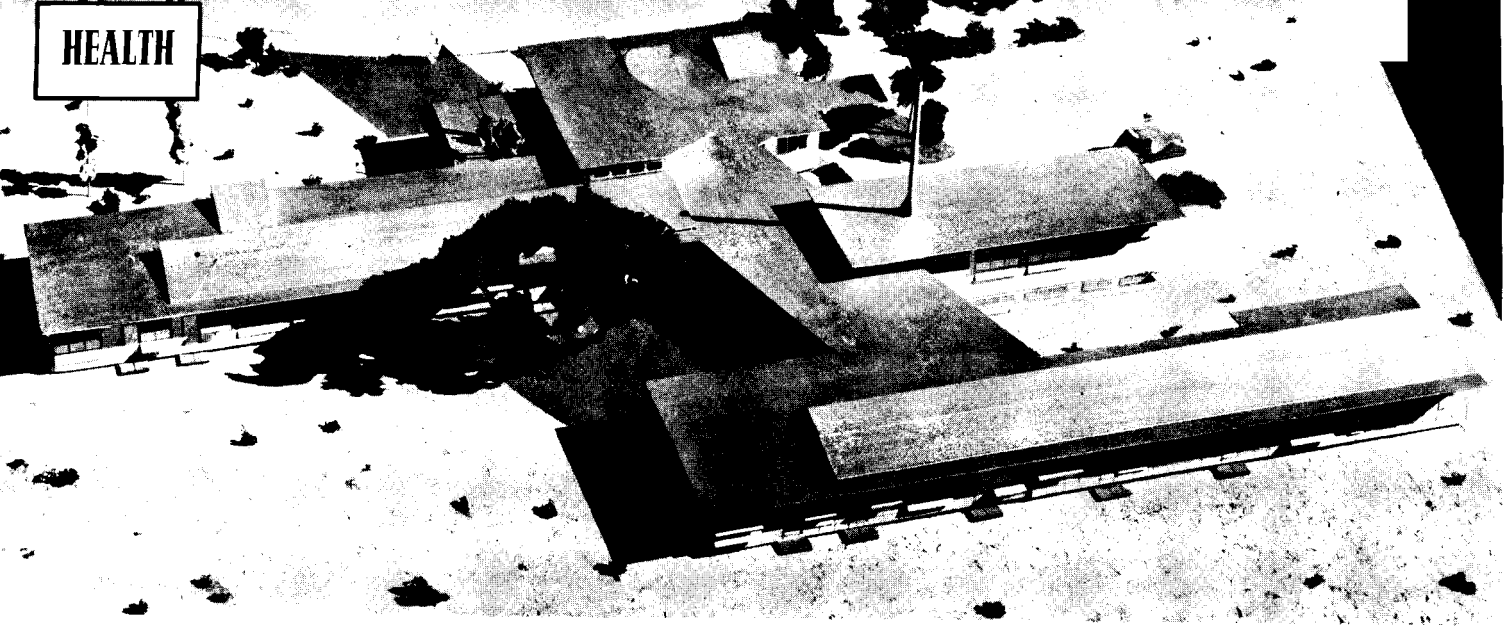
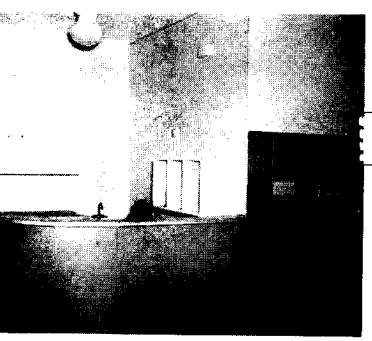

TAR AND GRAVEL ROOF OVER WOOD FRAME
METAL GRAVEL STRIP
STEEL SASH
½" THICK SHATTER-PROOF GLASS
CINDER BLOCK FURRED AND PLASTERED INSIDE
CYPRESS SHEATHING (GLASS WOOL INSULATION)
LOCAL STONE FOUNDATION

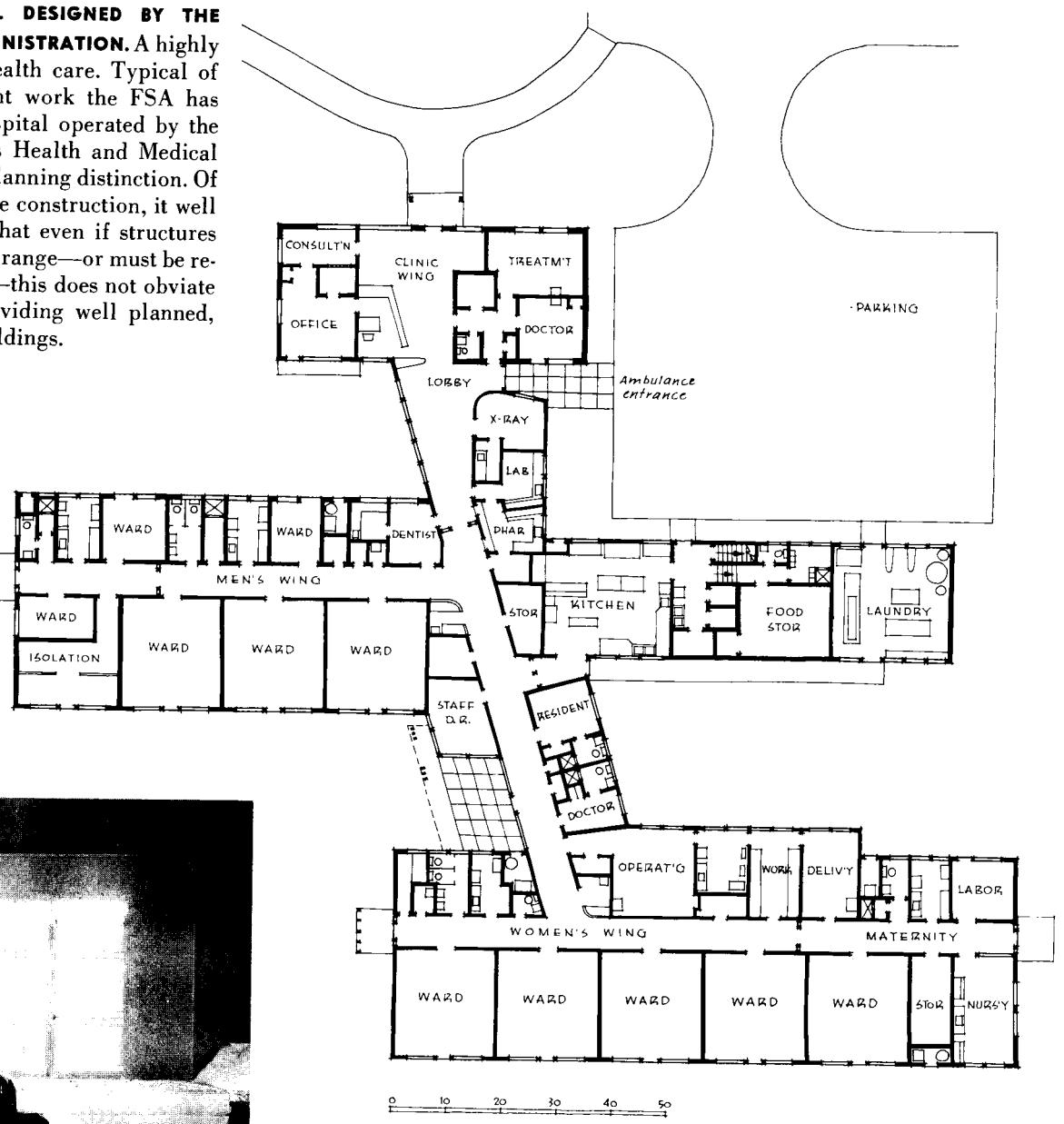




HOSPITAL

CAIRNS CONVALESCENT CENTER, ELEVEN MILE CORNER, ARIZ. DESIGNED BY THE FARM SECURITY ADMINISTRATION. A highly efficient center for health care. Typical of much of the excellent work the FSA has done, this 60-bed hospital operated by the Agricultural Workers Health and Medical Association has real planning distinction. Of simple, stuccoed frame construction, it well illustrates the point that even if structures are in the lowest price range—or must be regarded as temporary—this does not obviate the possibility of providing well planned, functional service buildings.

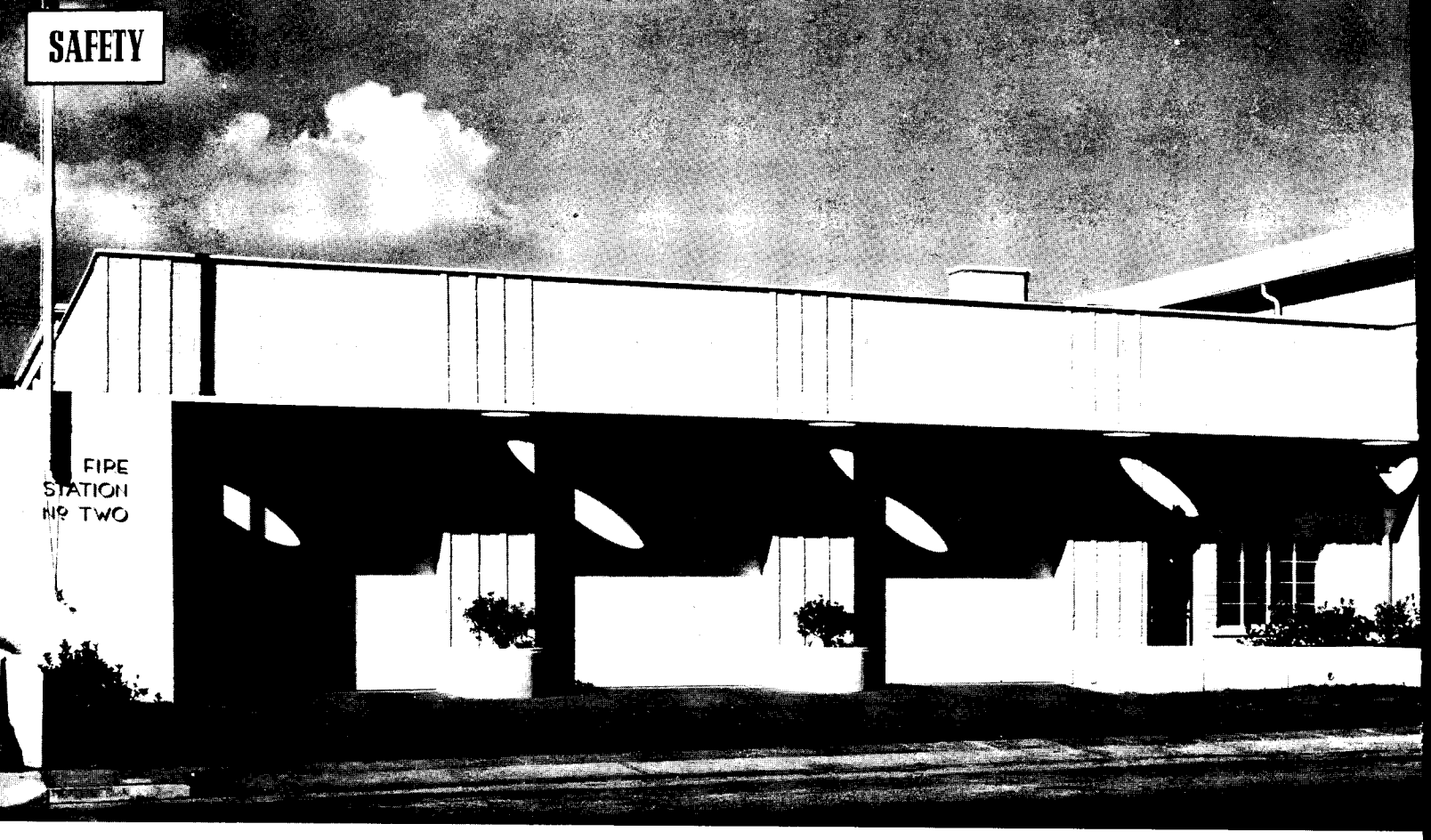




AMERICA'S BUILDING NEED . . . . . FOR SAFETY

ON WHAT DOES CIVILIAN SAFETY depend? Basic, of course, are proper police and fire departments with attendant facilities, departments of correction and municipal courts. To fortify these services and make them efficient, good transportation and communication facilities are also essential. Closely allied are adequate light and power. In time of war, air raid shelters and evacuation centers become vital. In defense areas — as elsewhere — a wide variety of types of buildings is required to serve these needs. Here again, the building designer and the construction industry may expect to make important contributions to defense.

George D. Haight



LIBRARY - FIRE STATION

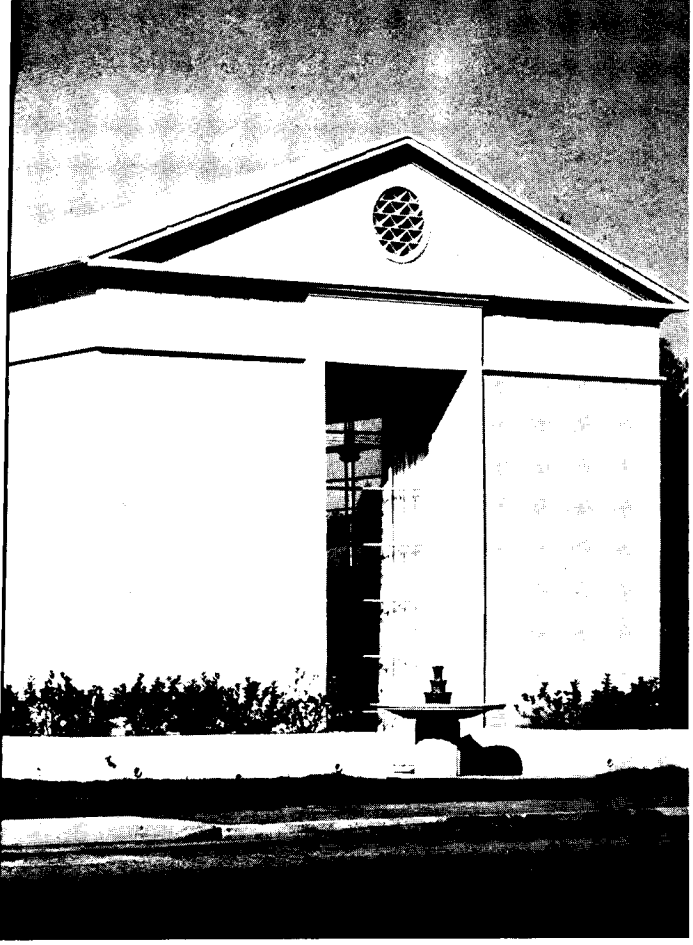
TROPICO BRANCH LIBRARY AND FIRE STATION NO. 2, GLENDALE, CALIF. GRAHAM LATTA, ARCHITECT. Although the combination of functions is extraordinary, they operate entirely independently, and skillful use of the corner lot provides each with excellent facilities. The fire station faces a major boulevard away from the street intersection; the library is on the quiet street side. Interestingly, both building types are important for civilian welfare—the fire station guarding community safety; the library serving both educational and recreational needs.

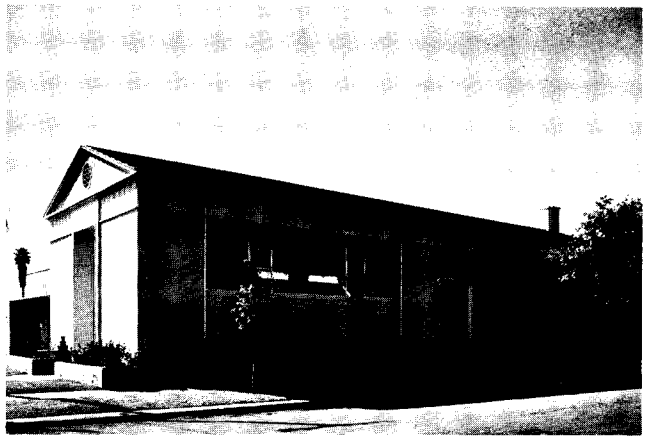
Two engines, a hook and ladder and a crew of ten men to a shift can be accommodated in the fire station. The alley entrance to the apparatus room simplifies returning after a run. In the kitchen, in addition to the usual equipment, each man has an individual, locked and ventilated food locker. In place of the usual dangerous and drafty "pole hole" for the slide pole, a "pole closet"—without a floor—is used.

The library is simply organized around the low-ceilinged vestibule and delivery desk. Location of the desk, combined with the placement of card file cases at either side, makes control absolute at this point. High windows on the street wall provide excellent north light, yet interfere not at all with normal bookcase heights.

The two-story fire station and one-story library are well integrated visually. The second story portion is placed at the rear above that part of the first story where normal ceiling heights prevail. The higher apparatus room, plus a parapet above the garage doors, effectively screens the second story from the boulevard. Structure is of reinforced brick and concrete. Willard Lutz was the general contractor.

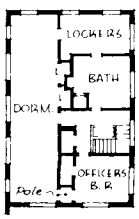
Photos by George D. Haight



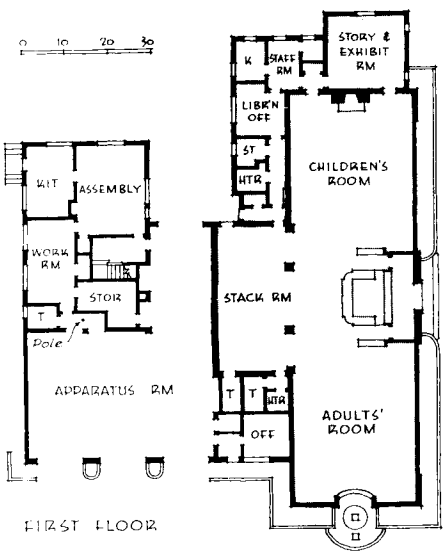


LIBRARY (See door detail below)

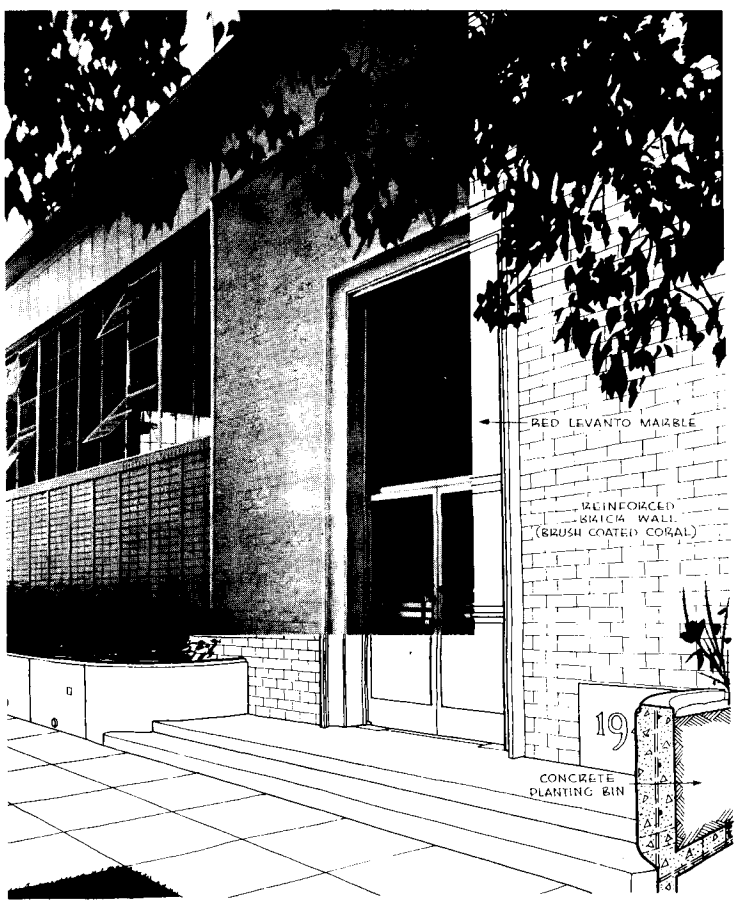
READING ROOM



SECOND FLOOR

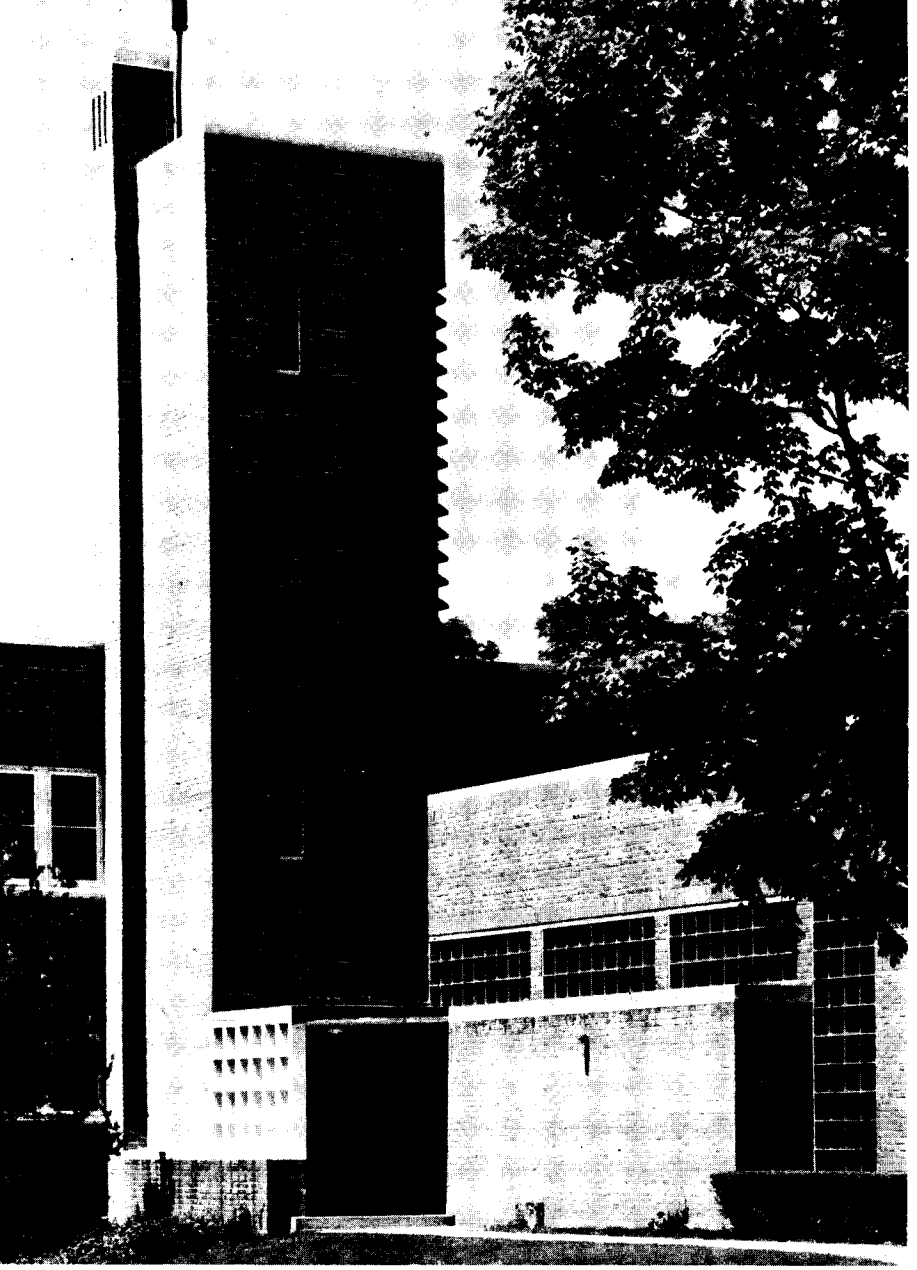


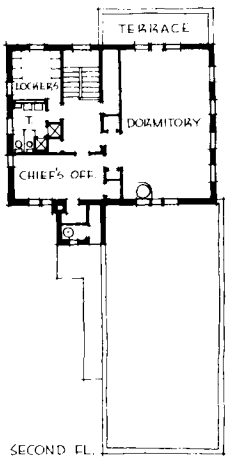
FIRST FLOOR

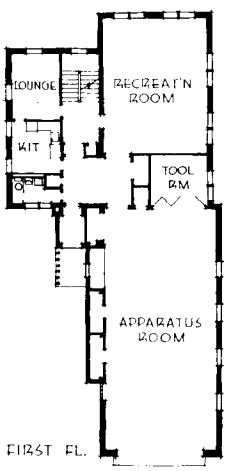


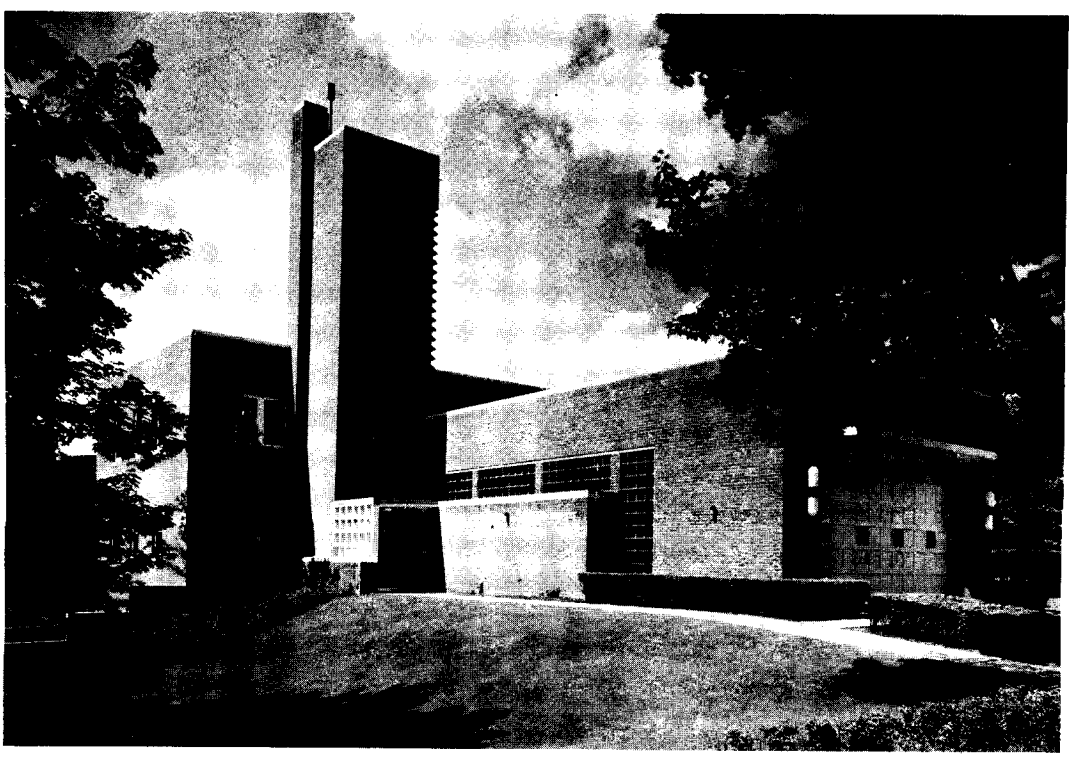
DISTRICT FIRE HOUSE

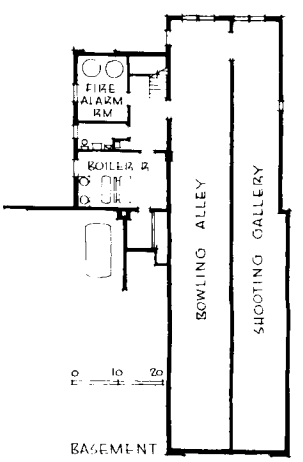
FIRE HOUSE FOR GREENVILLE FIRE DISTRICT, TOWN OF GREENBURGH, SCARSDALE, N. Y. SCOTT & TEEGEN, ARCHITECTS







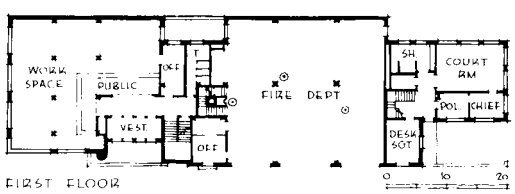




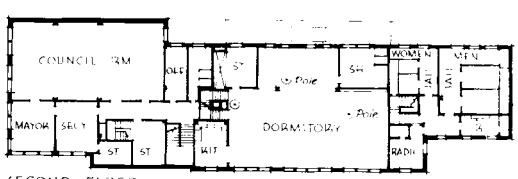
Photos by John Gass

CITY HALL - FIRE STATION - POLICE STATION

CITY HALL, CHICKASHA, OKLA. PAUL HARRIS, ARCHITECT. This new city hall (a community welfare defense need in some localities) has three functional units—a fire station (widely needed) with space for four trucks, dormitory for 12, office, kitchen and dinette; a police department (frequently needed) consisting of chief's office, sergeant's room, police court, radio room and jail quarters; and city administrative offices. The building is entirely of architectural concrete. Walls are 10-in. thick, cast against 2-in. sound absorbent material which was used as form liner. The first floor areas are surfaced in terrazzo. Where steel shortages occur, one feasible answer in certain cases may be to employ plain concrete walls of greater thickness in place of the usual reinforced construction. General contractor for the building was Chester Cowen.



FIRST FLOOR



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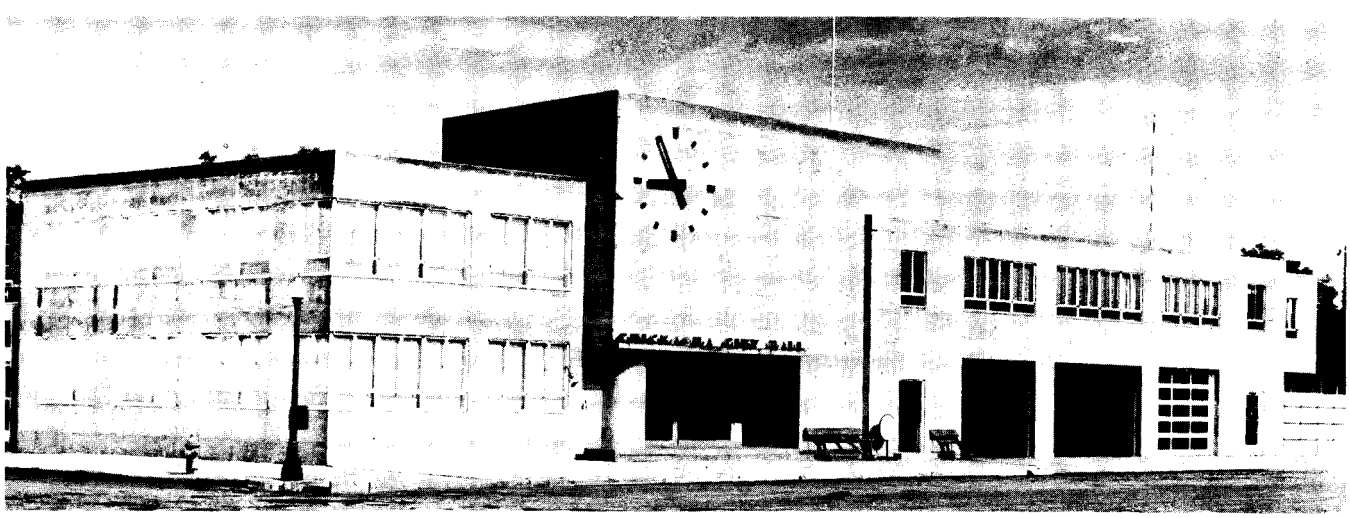
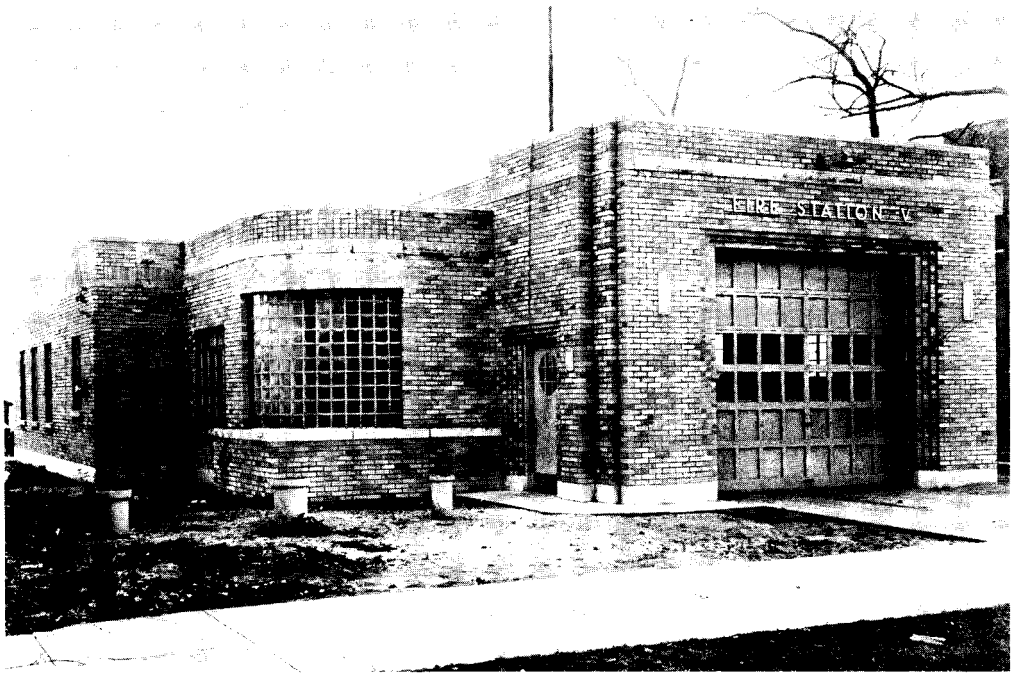
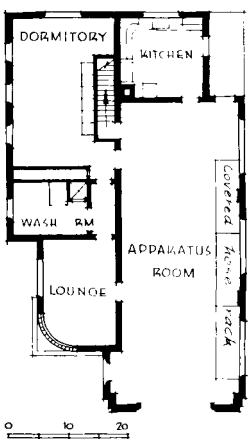


Photos courtesy Portland Cement Assn.





FIRE STATION

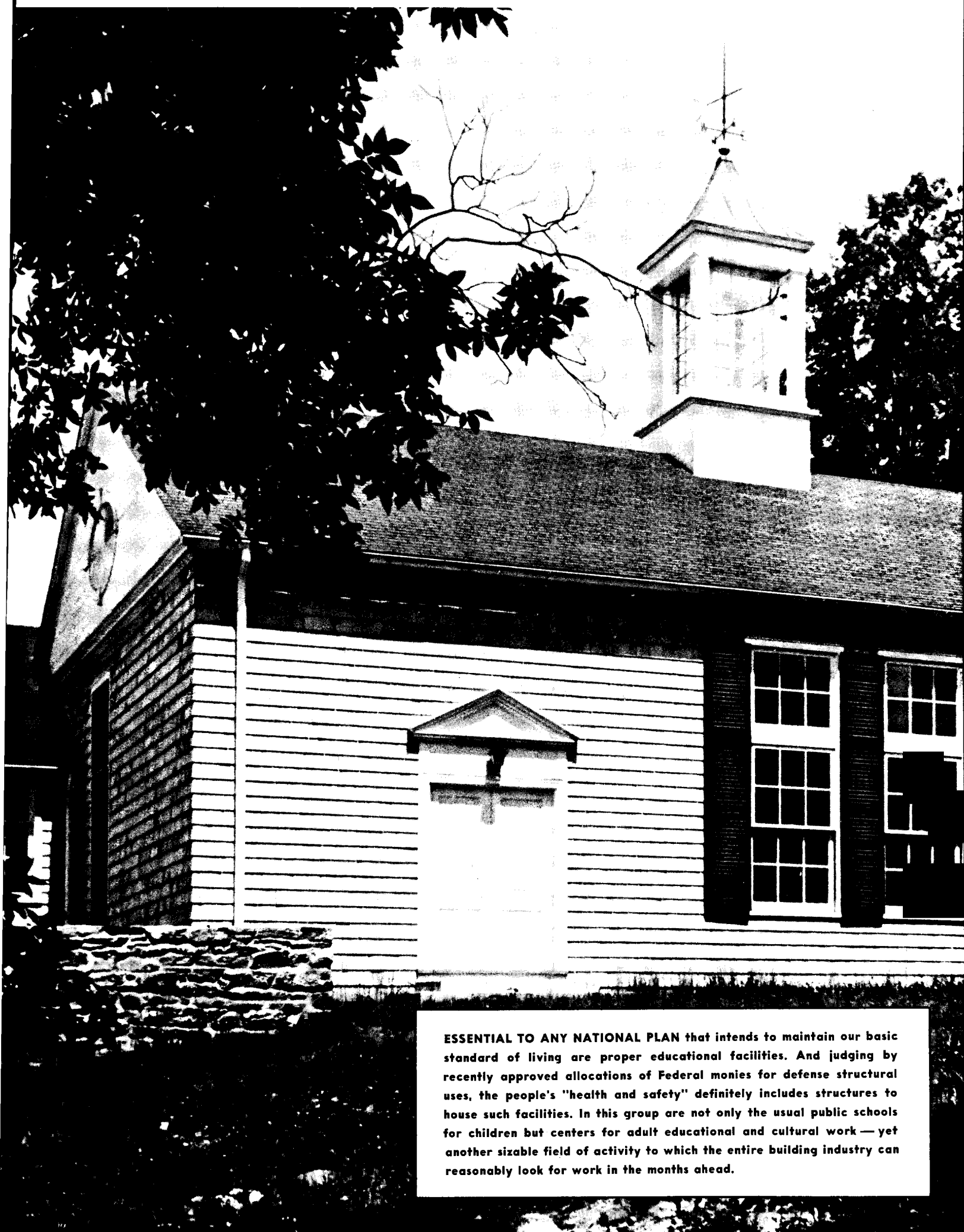
FIRE STATION NO. 5, PEORIA, ILL. HAMILTON B. DOX, ARCHITECT. The particularly newsworthy feature of this one-story 40-by-66-ft. building is the provision for hose drying. In place of the customary tower, a tunnel-like structure slopes down along one wall of the apparatus room to an opening in the heater room on the lower level. Racks within support the wet hose lengths, while warm air is forced through the dryer. The station accommodates a crew of six. Floors are of concrete, surfaced with asphalt tile in the living quarters. Walls are of concrete block faced on the exterior with buff face brick, with precast concrete trim. Windows are steel sash and glass block. A tar and gravel roof covers a layer of insulation board and a concrete slab above steel bar joists. Cost: $16,000. The general contractor was the George D. Johnson Co.

Gass Photo

FIRE STATION

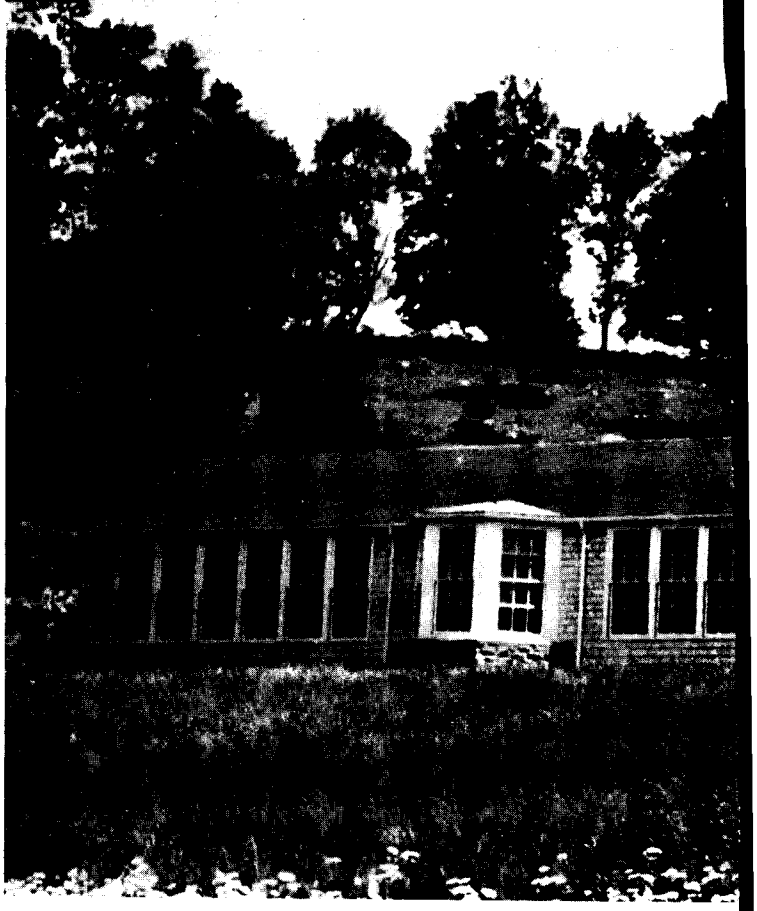
FIRE STATION, RIVERDALE, NEW YORK CITY. BUREAU OF FIRE DEPARTMENT BUILDINGS. JAMES T. TRACEY, ARCHITECT

AMERICA'S BUILDING NEED . . . . . FOR EDUCATION



ESSENTIAL TO ANY NATIONAL PLAN that intends to maintain our basic standard of living are proper educational facilities. And judging by recently approved allocations of Federal monies for defense structural uses, the people's "health and safety" definitely includes structures to house such facilities. In this group are not only the usual public schools for children but centers for adult educational and cultural work — yet another sizable field of activity to which the entire building industry can reasonably look for work in the months ahead.

ELEMENTARY SCHOOL



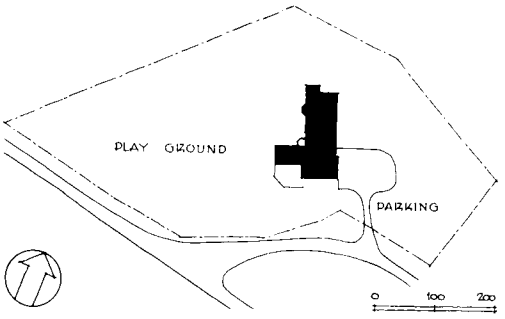
CORNWALL ELEMENTARY SCHOOL, CORNWALL, CONN. ADAMS AND PRENTICE, ARCHITECTS. Replacing several small antiquated schoolhouses that were scattered over a wide area in surrounding villages, this new New England school has much to recommend it to the attention of architects, town school boards or others concerned with the planning of an efficient small school plant. It was built within a limited budget, $54,113—20½ cents per cu. ft., excluding architects' fee; it provides for future expansion; it allows for great flexibility to accommodate changing instructional needs and (economy note) it makes generous use of local materials.

Choice of a one-story school scheme effected sizable economies, permitting non-fireproof construction and elimination of stairways. A small basement under the primary room wing contains heater room and janitor's storage room. Heater pipes are carried in trenches to the classroom wing. The main classroom wing (which can be readily extended) runs approximately parallel to the land contours. Besides the noteworthy rooms themselves (see below) this wing contains a utility-library room, janitor's closet, teachers' rooms and toilet rooms.

The air-conditioned assembly room, used by the school as an auditorium, play room, theater and dance hall, also serves the community for various town functions, lectures and dramatics. Walls of this room are surfaced in three-ft. squares of waxed Duali plywood applied to the studs with exposed brass-headed nails.

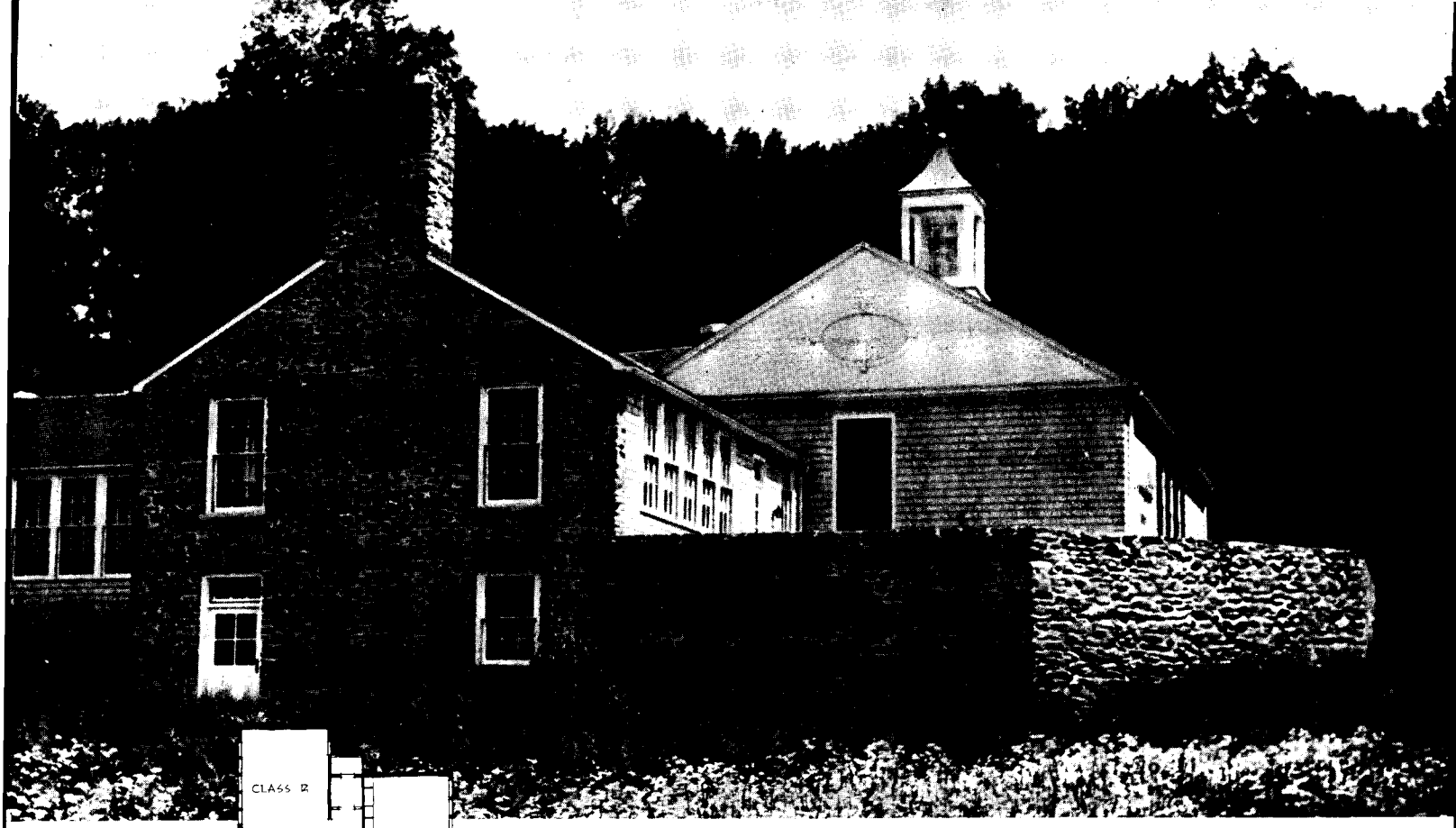
The large primary room with papered walls and fireplace has its own toilet room and an outdoor play area separated from other age groups. The well-equipped kitchen serves both as clinic and service kitchen for assembly-room gatherings.

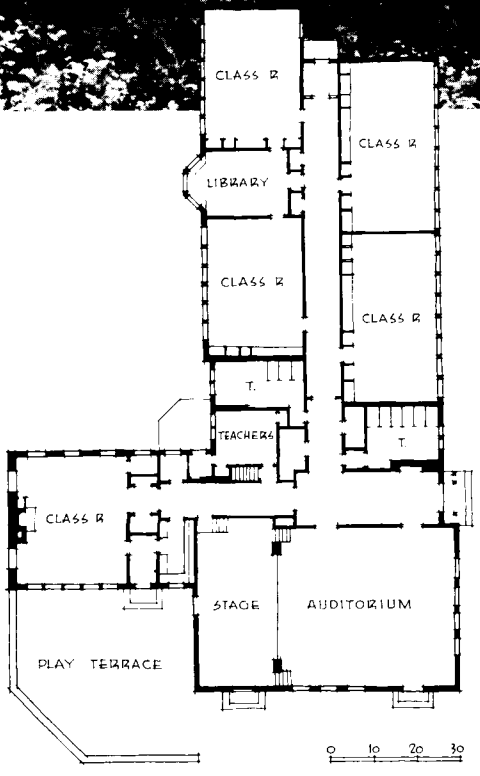
A portion of the south wing and the large terrace wall are of local stone; the balance of the exterior is surfaced in gray-stained cedar shingles. General contractors were The Carlson & Torrell Co.

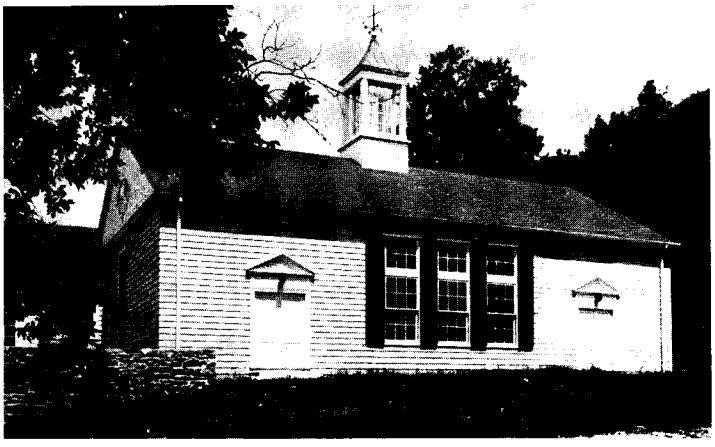


Interior photos by George H. Van Anda

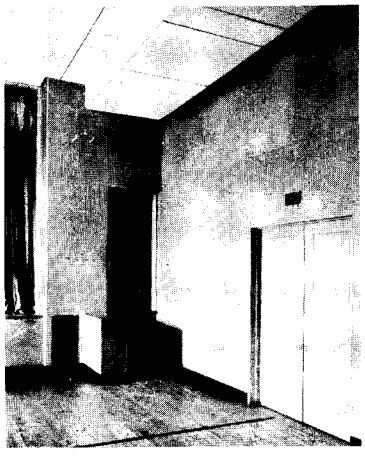
CLASSROOMS. Each of the four classrooms accommodates 35 children and allows utmost flexibility of arrangement. One wall is a solid bank of windows with storage shelves and cabinets beneath. Facing this is the corridor wall which contains not only coat closets but bookshelves and compartments of varying shape and size. A work sink with adjacent cupboards and shelves occupies one end of the wall assembly. An unusual provision is the end wall of simple unpainted pine boarding. Here the children's work may be mounted, and even a little painting or nailing will do no serious damage. To facilitate partitioning of activities without interfering with basic flexibility of the room area, a curtain wire with turn buckles spans the room a distance from the pine board wall. Each classroom is painted a different color in neutral tone. Floors are of asphalt tile; ceilings (as in the assembly room) are finished in acoustical board

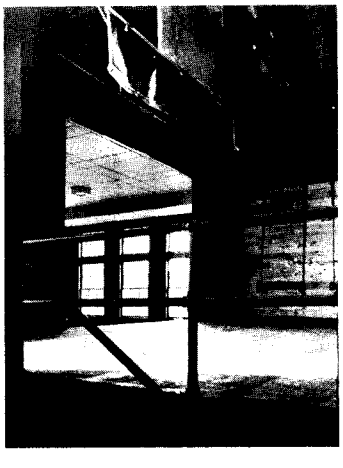


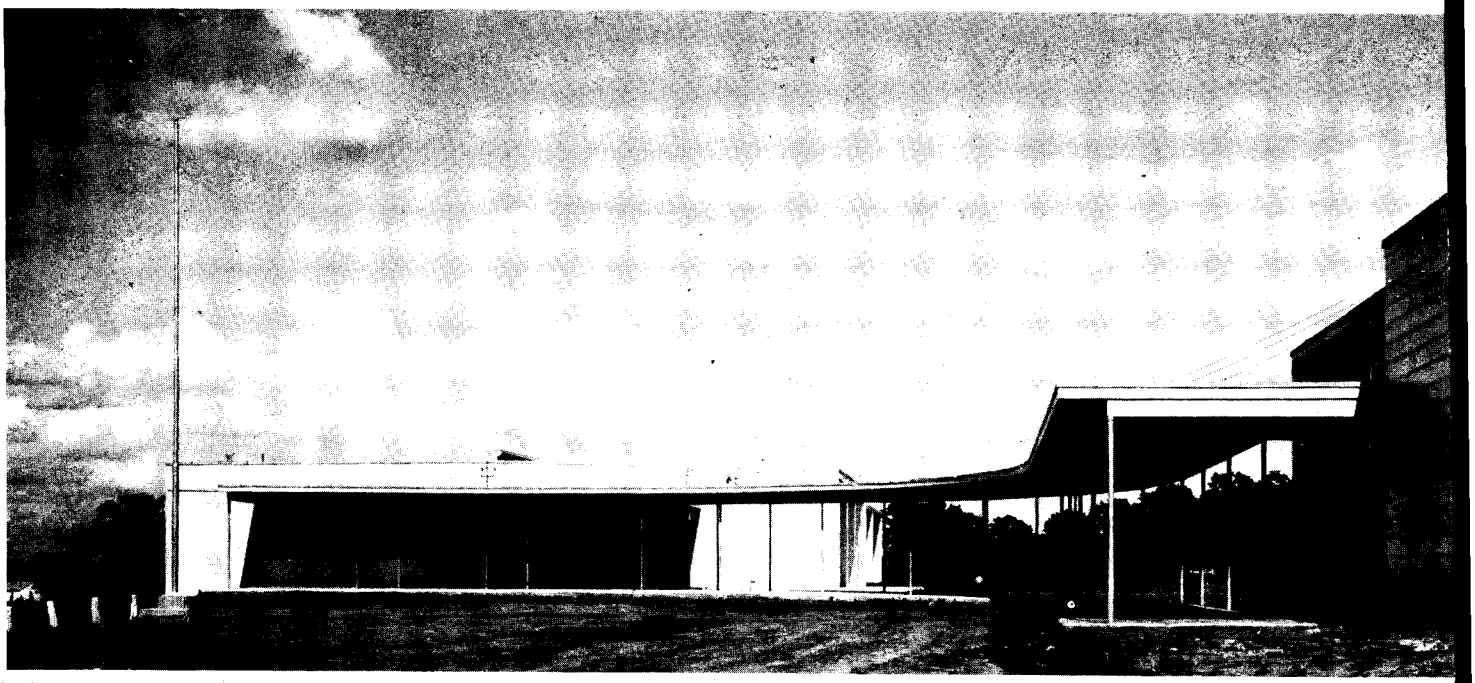




ASSEMBLY HALL walls are surfaced with 3-ft. squares of Duali plywood





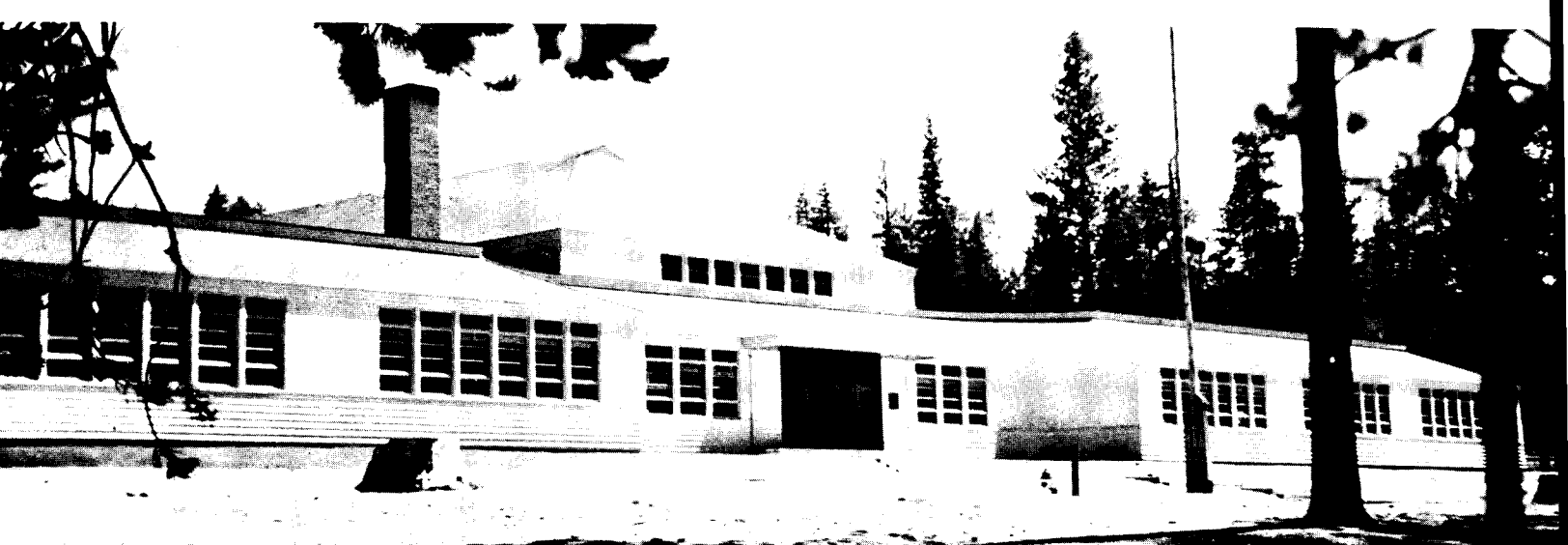


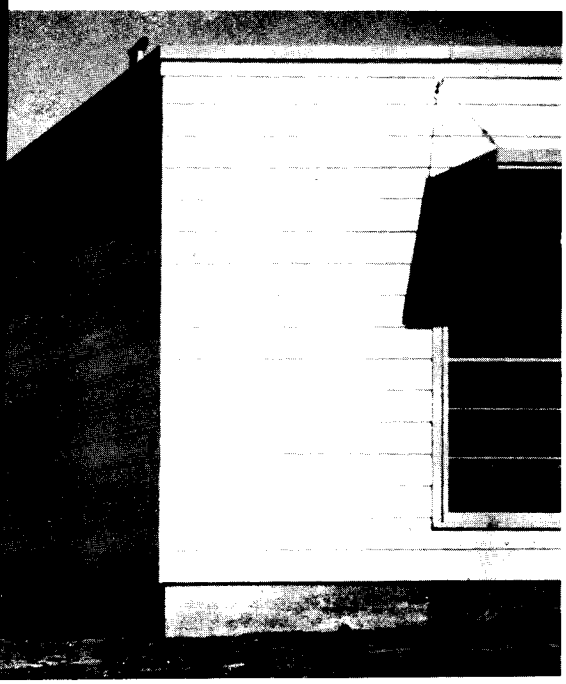
HIGH SCHOOL unit at left; workshop and music building at right. Four elementary classroom buildings are in an adjacent grouping

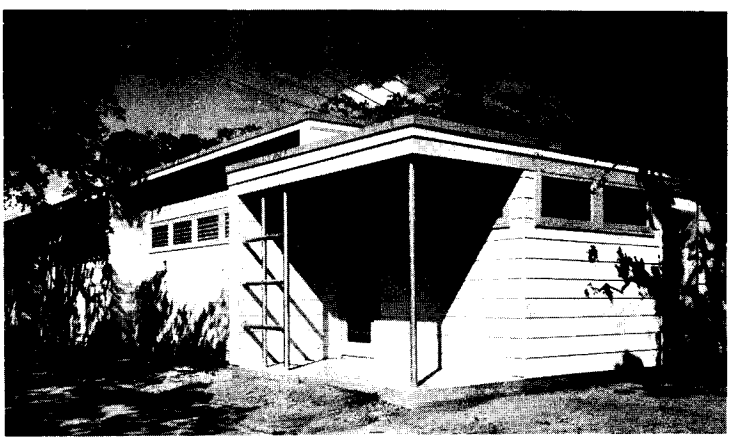
COMMUNITY SCHOOL

THE CONSOLIDATED SCHOOL, COLLEGE STATION, TEXAS. C. J. FINNEY, ERNEST LANGFORD, ARCHITECTS. This combined elementary and high school group is a notable example of sound preplanning to care for foreseeable future as well as present needs. Population trends, school enrolment and factors of the community's financial, physical and social condition were carefully tabulated and analyzed by students of the Department of Architecture of Texas A. & M. College, which is located in the district. On the basis of these and actual proposed plans drawn up by the students, the architects worked out the finished scheme. Present buildings include a high school unit, work-shop and music building and a group of four elementary classroom structures. An auditorium and a gymnasium will be added as funds become available. Separate play areas are provided for the high and elementary school groups. In addition to classrooms the elementary group contains an office for the principal, and book storage room; a clinic and pupils' store. The high school unit consists of five classrooms, office for the principal and superintendent, book storage, teachers' lounge, study hall and library, science and home economics workrooms. Any of the buildings may easily be expanded without alteration to existing structure. The construction system is based on a 4-ft. module, effecting savings of three per cent of the total cost. Interior walls are simply finished in plywood. The school was built by the Smith Building Co.

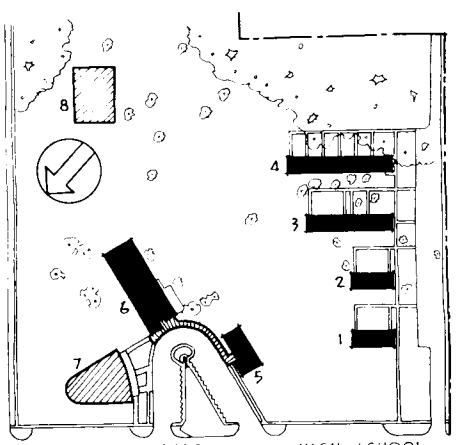
CONSOLIDATED SCHOOL







LOUVERED OPENINGS on the west face facilitate cross ventilation

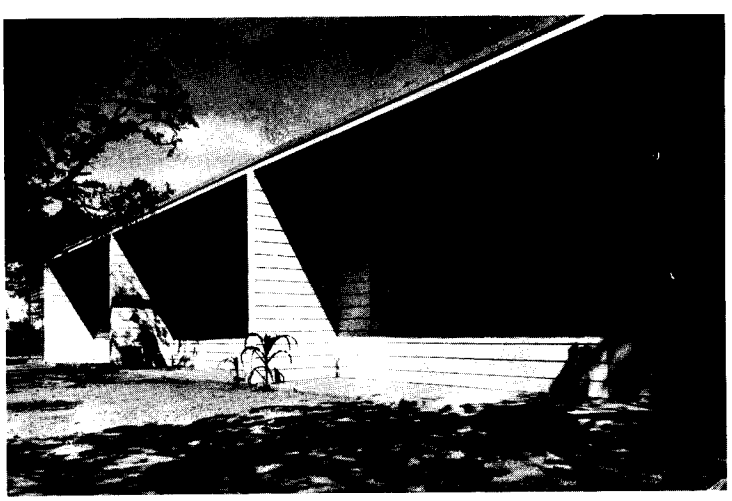


ELEMENTARY SCHOOL

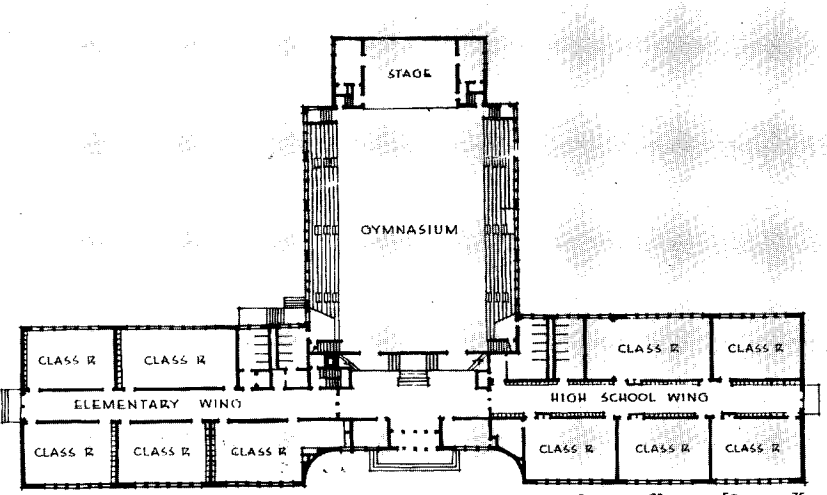
1. 1ST GRADE - 2 CLASS ROOMS
2. 2ND GRADE - 2 CLASS ROOMS
3. 3D & 4TH GRADE - 4 CLASS RMS
4. 5TH, 6TH & 7TH GRADE - 6 CL. RMS.

HIGH SCHOOL

5. MUSIC AND SHOP
6. CLASS ROOM UNITS
7. FUTURE ADDITION
8. FUTURE GYMNASIUM



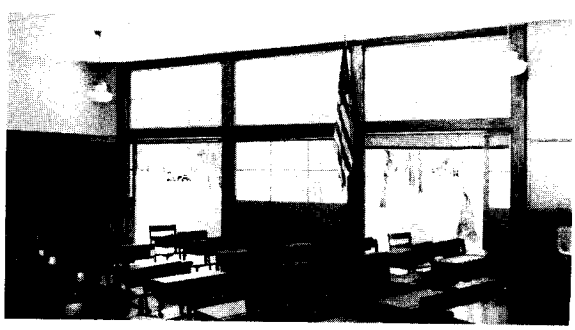
ELEMENTARY CLASSROOMS are shaded by deep reveal and overhang



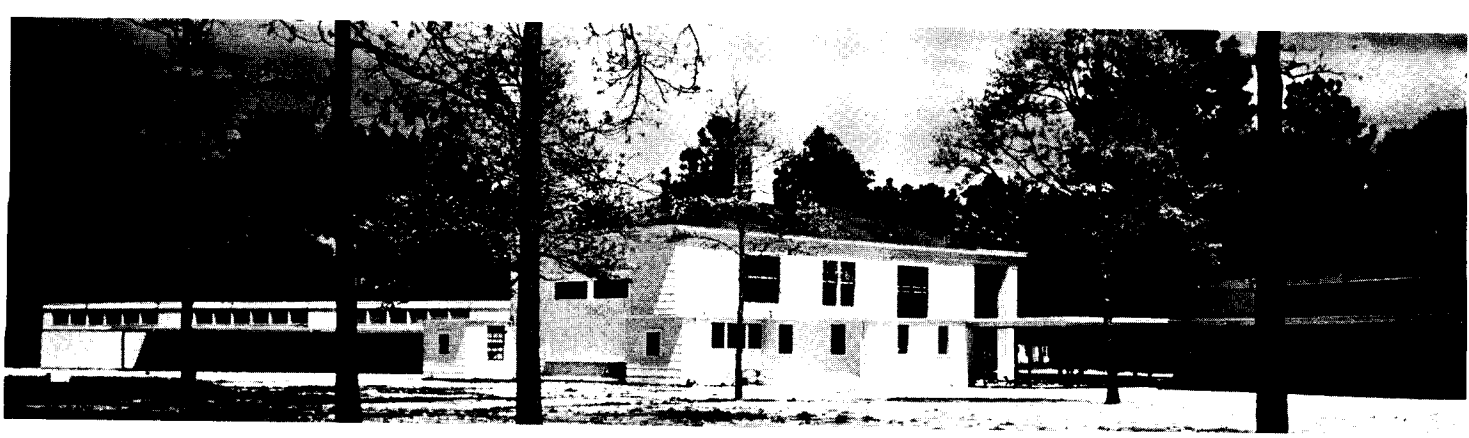
CRESCENT SCHOOL, KLAMATH COUNTY, ORE. HOWARD R. PERRIN, ARCHITECT. Entirely of wood, this school affords both elementary and high school facilities. The elementary wing, at left of the main foyer, consists of five classrooms and an activity alcove; serving high school students are two regular classrooms, a combined classroom and library, a science room and domestic science room.

Foyer, corridors and classrooms have fir floors and plywood wainscoting with fibreboard above. The ceilings are also fibreboard.

The gymnasium-auditorium is economically planned. Locker rooms occur beneath the permanent bleachers. The gym floor is of maple. George H. Buckler Co. was the contractor.



CLASSROOM UNIT. Sliding windows open up two-thirds of one wall to outdoors

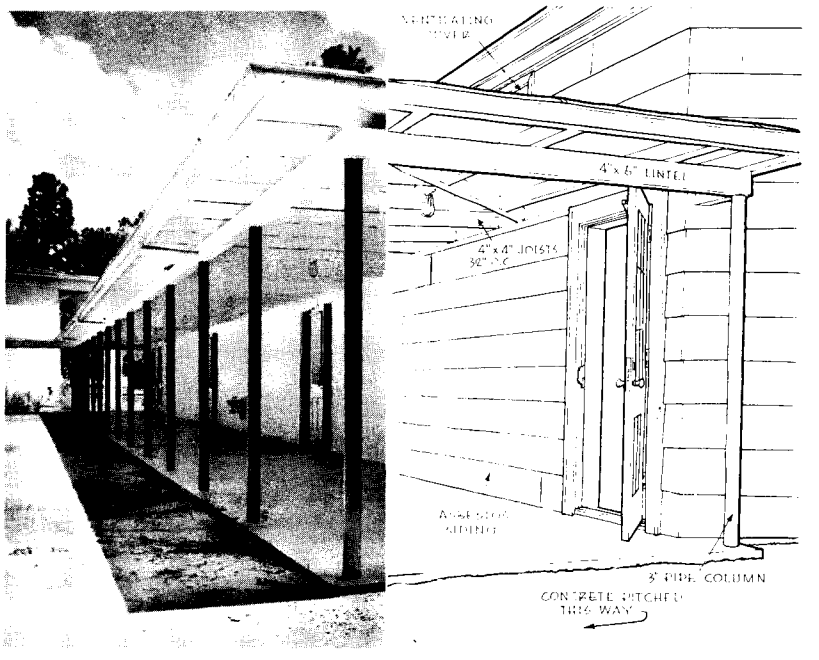


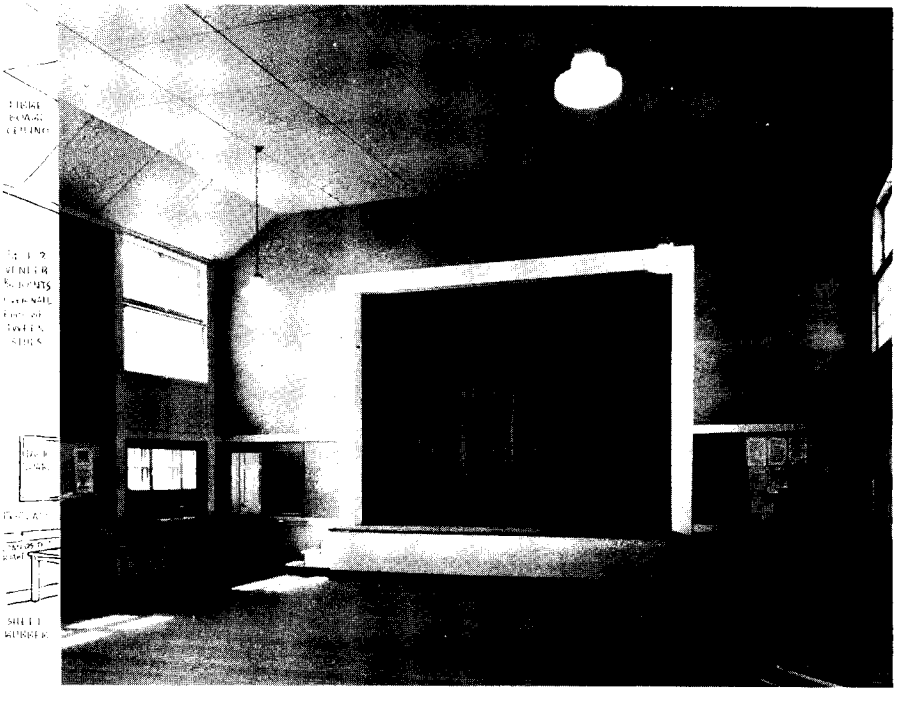
Photos by St. Thomas and Paul Peters

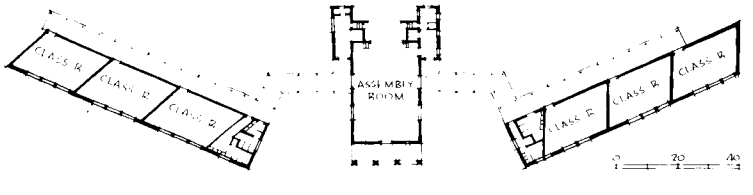
ELEMENTARY SCHOOL

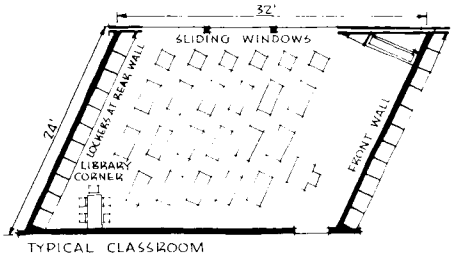
GARDEN OAKS ELEMENTARY SCHOOL, HOUSTON, TEXAS. TALBOTT WILSON & IRWIN MORRIS, ARCHITECTS. Built on the not unusual plan of a central auditorium unit and a pair of receding wings, this new Texas school is of very special interest because of its novel classroom plan and arrangement that was worked out to solve the lighting problem. Research found that, to avoid glare, many teachers were turning pupils' desks at an angle to the windows. But this produced an equally undesirable result: students then faced the blackboard at an angle. The architects of the Garden Oaks School started with the desired relationship between light source and desk angle; then laid out the blackboard wall so that it faced the desks directly. This resulted in the parallelogram-shaped room. In addition to eliminating glare from the blackboard wall, it produced two useful corner areas—one at the rear for an "individual work" table; the other, at front, for a lavatory, heating unit and teacher's locker. It also afforded structural economy, as narrower rooms and shorter roof spans were possible. The window wall is so designed that two six-by-seven-ft. doors can be slid back into wall pockets opening up two-thirds of the wall to outdoors—a practical addition to classroom areas in mild climates. An outdoor "corridor" connecting classroom blocks and assembly hall unit eliminates much construction and permits cross ventilation.

Another newsworthy feature is the auditorium stage arrangement. The auditorium floor is at ground level and the back wall of the stage consists of large sliding doors; when these are rolled back, the stage can serve an outside audience on the lawn as well as the one inside. General contractor for the school was Carl Bradford.





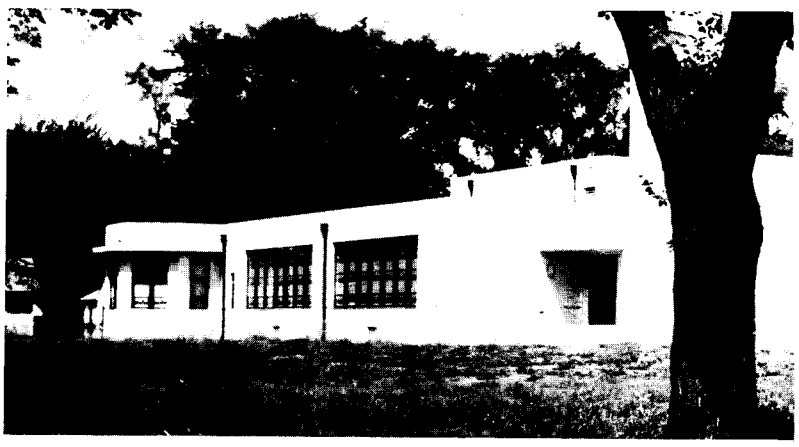


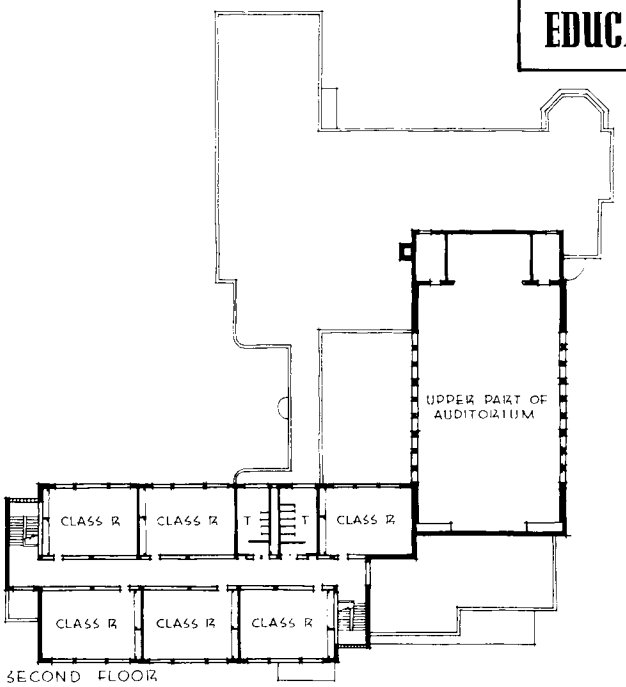


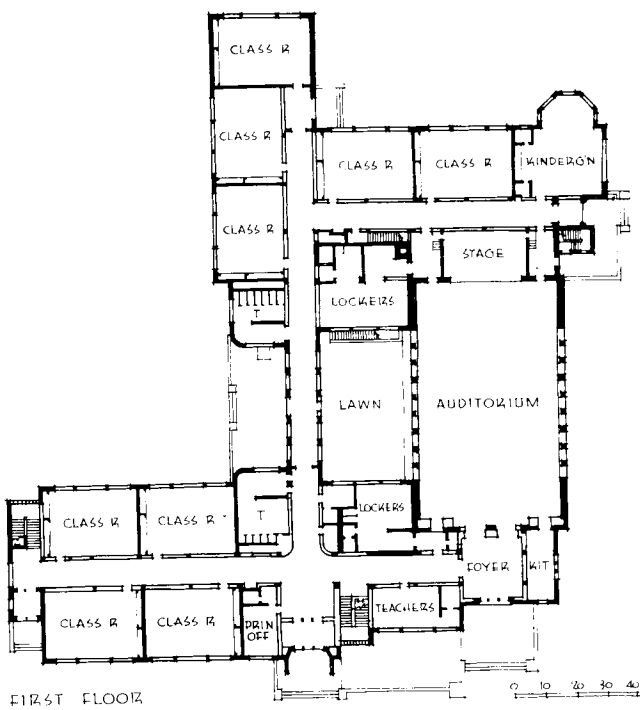
TYPICAL CLASSROOM

SCHOOL

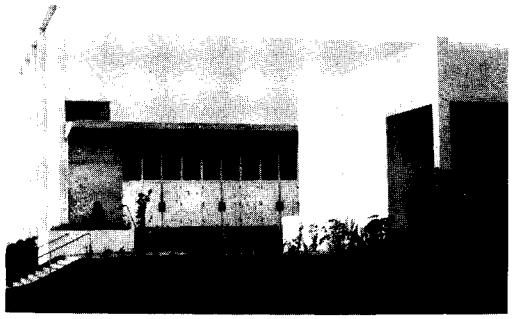
JEFFERSON GRADE SCHOOL, IOLA, KANSAS. LORENTZ SCHMIDT, ARCHITECT. Maximum natural illumination with as many rooms as possible at ground level dictated the school plan. Foundations are of spot footings and heavy beams. The first floors are framed throughout, allowing unrestricted space for ductwork and piping. Otherwise of concrete, the exterior walls are 10-in. thick above the first floor line, reinforced vertically and horizontally in both wall faces. Expansion joints are provided, located mostly at inside corners where they are inconspicuous. Exterior surfaces were left as they came from the plywood forms, and were later cleaned and painted with cement paint. No interior furring was used; exterior walls of the classrooms were first given two coats of asphaltic plaster bond, then plastered. The Huff Construction Company was the general contractor.

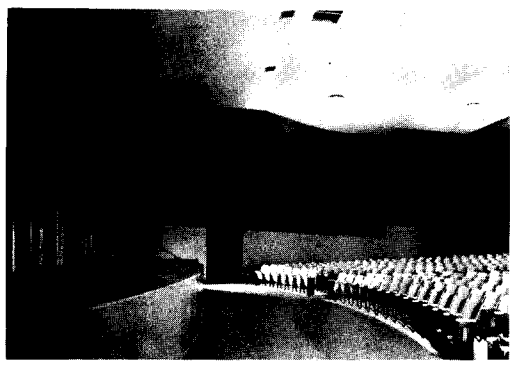






Photos courtesy Portland Cement Assn.



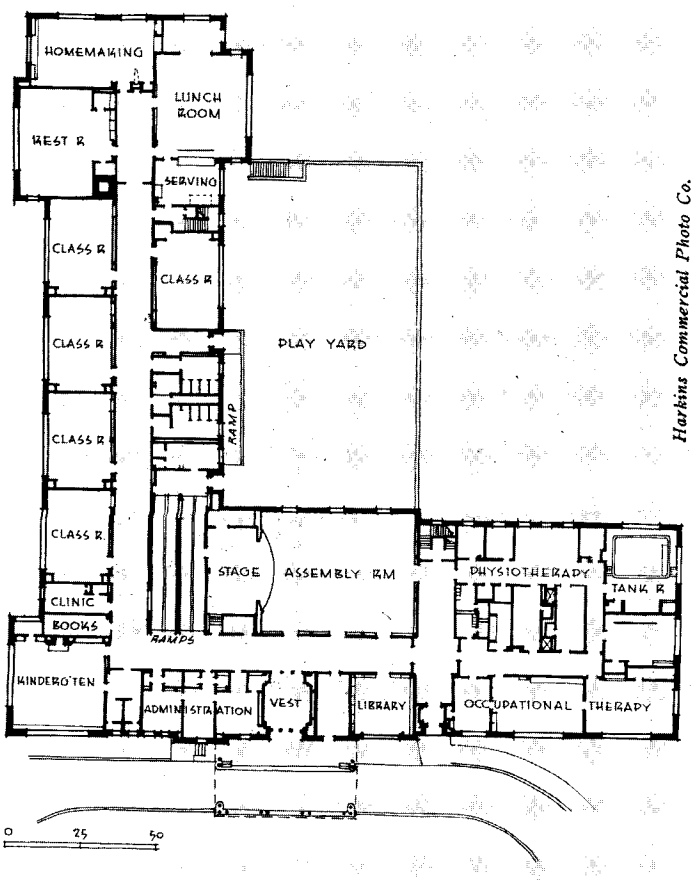


Interior photos by Julius Shulman, exterior by Luckhaus Studio

AUDITORIUM

OF THE RALPH WALDO EMERSON JUNIOR HIGH SCHOOL, LOS ANGELES, CAL. RICHARD J. NEUTRA, ARCHITECT

SCHOOL FOR CRIPPLED CHILDREN

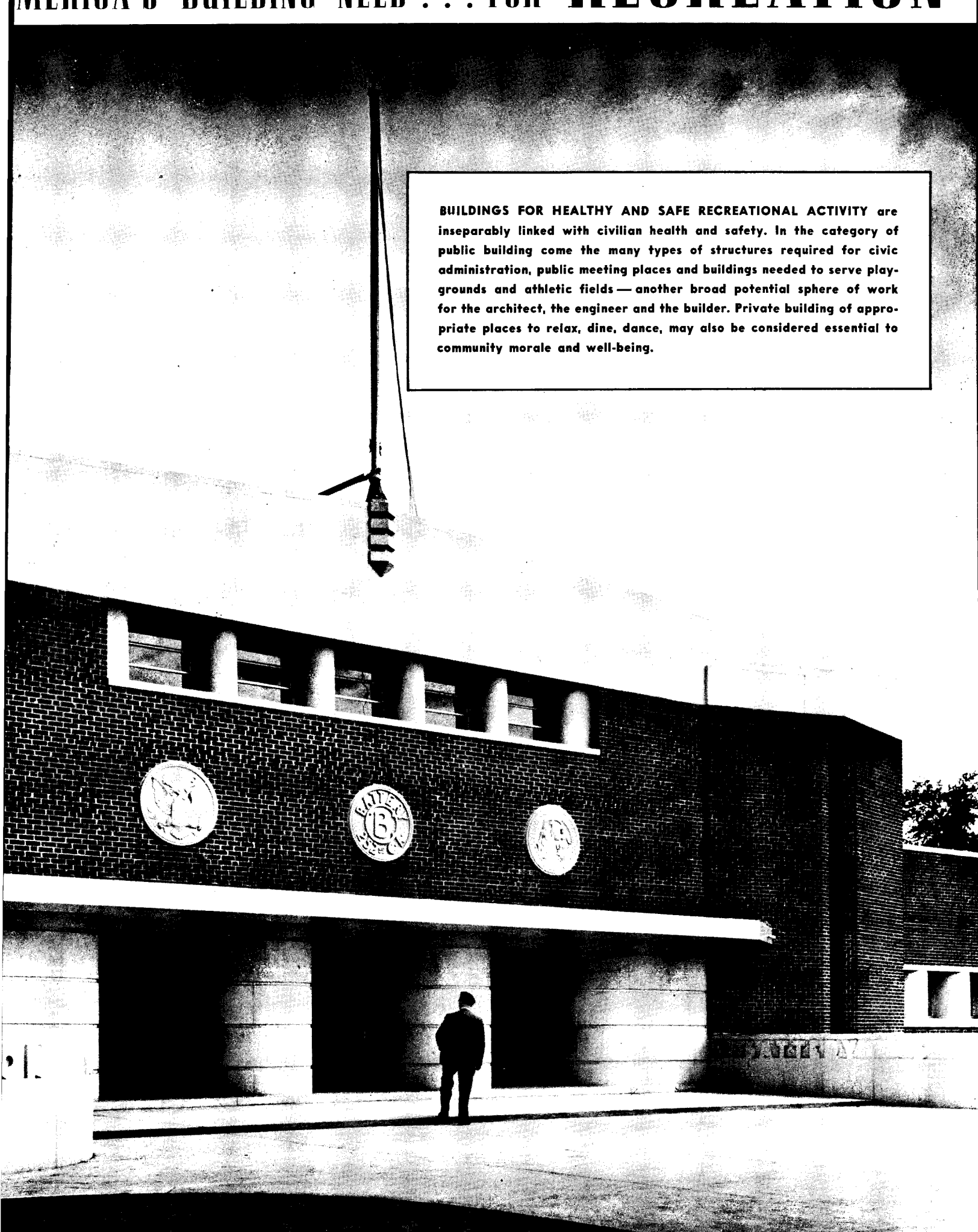


Harkins Commercial Photo Co.

R. J. DeLANO SCHOOL, KANSAS CITY, MO. KEENE AND SIMPSON, ARCHITECTS. A specialized (but frequently needed) type, this school is designed expressly for the use of crippled children, cardiac cases, the visually deficient and the hard of hearing. One whole wing of the building is devoted to therapeutic activity. Incorporation of a therapy department with the school structure — equipped with a separate entrance — suggests a possible solution for communities which need a health service center that can be shared by school children and adults alike. The school was awarded a medal by the Kansas City Chapter of the AIA for outstanding architectural design and planning. General contractor: S. Patti Construction Co.

AMERICA'S BUILDING NEED . . . FOR RECREATION

BUILDINGS FOR HEALTHY AND SAFE RECREATIONAL ACTIVITY are inseparably linked with civilian health and safety. In the category of public building come the many types of structures required for civic administration, public meeting places and buildings needed to serve playgrounds and athletic fields — another broad potential sphere of work for the architect, the engineer and the builder. Private building of appropriate places to relax, dine, dance, may also be considered essential to community morale and well-being.



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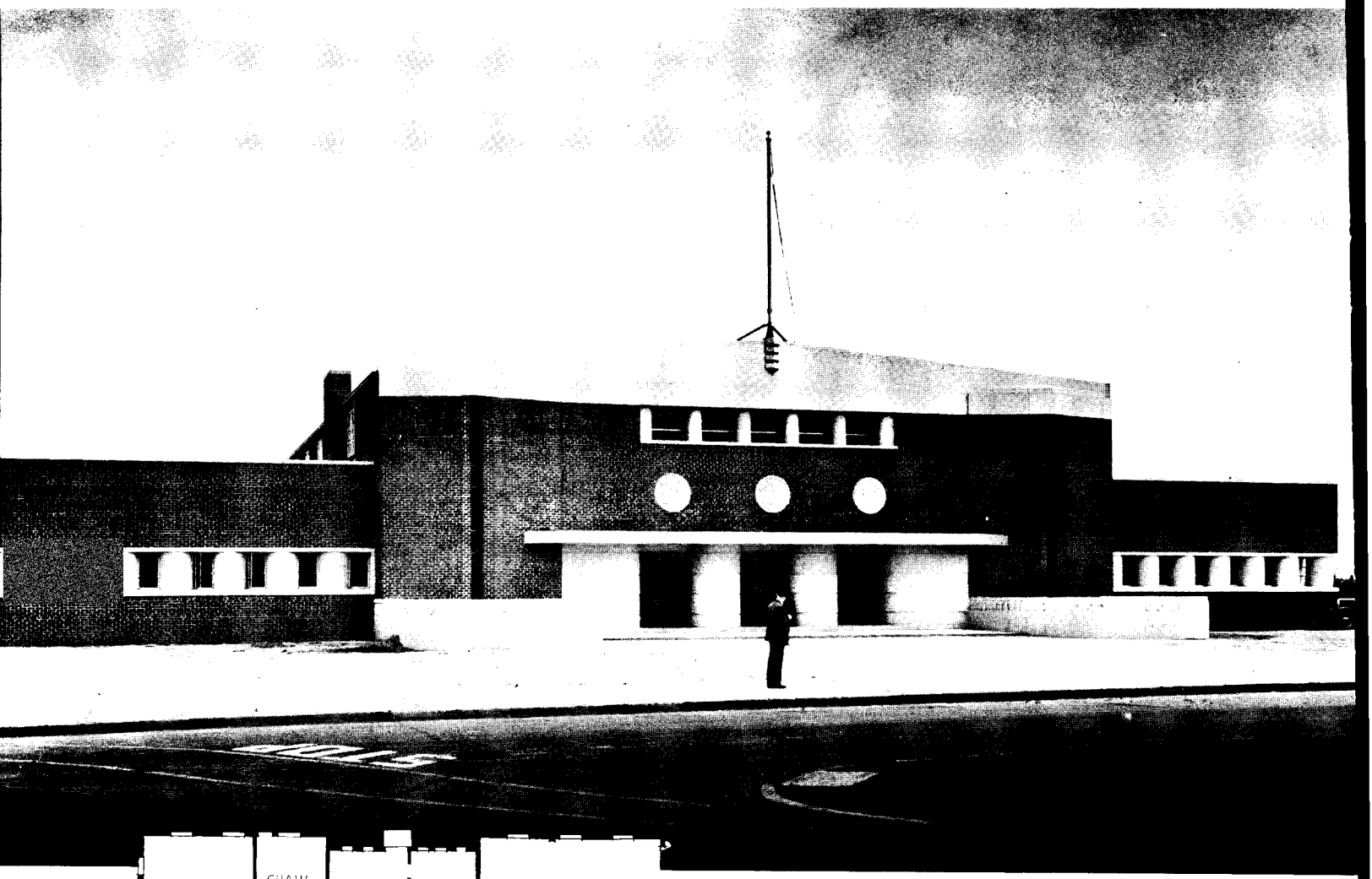

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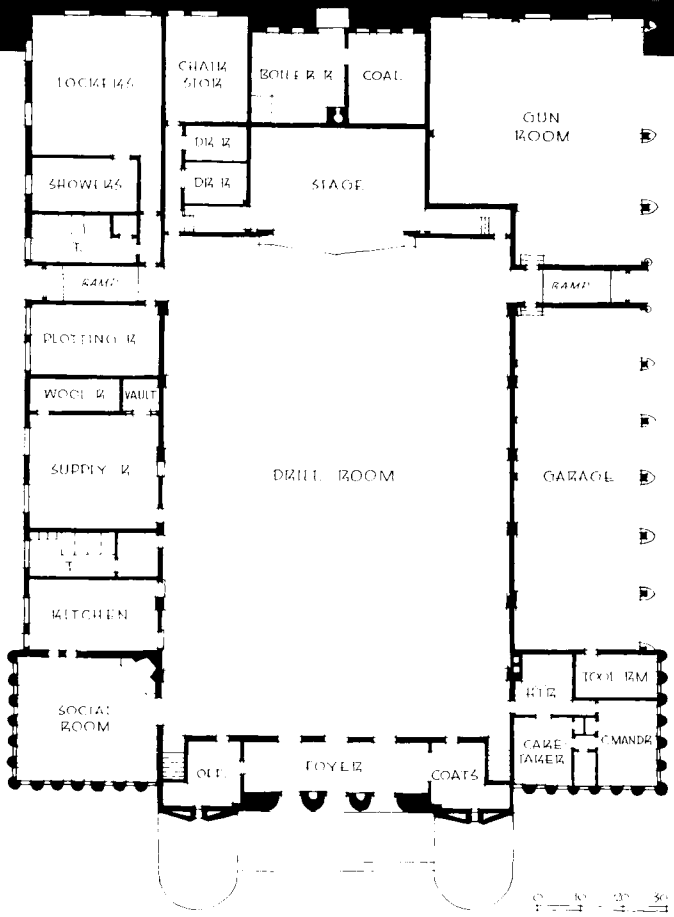
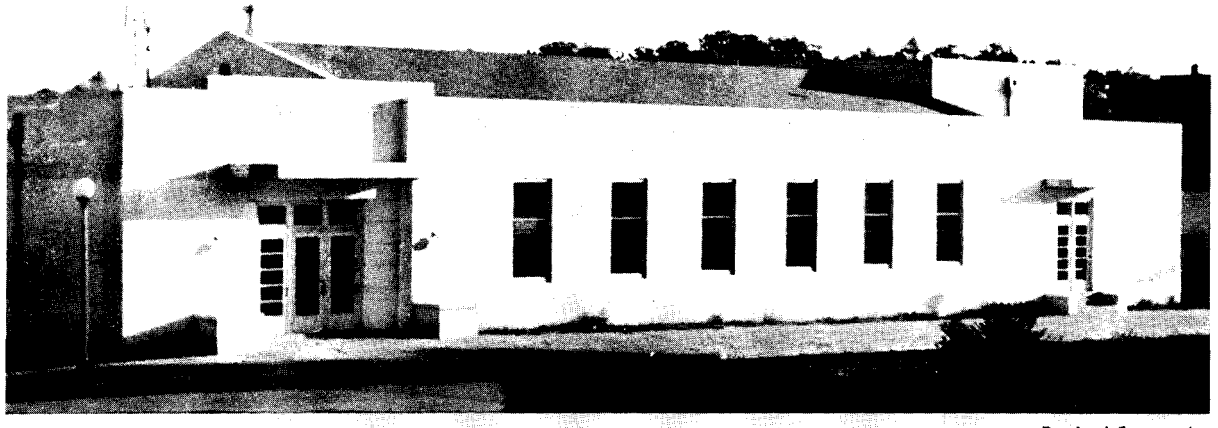
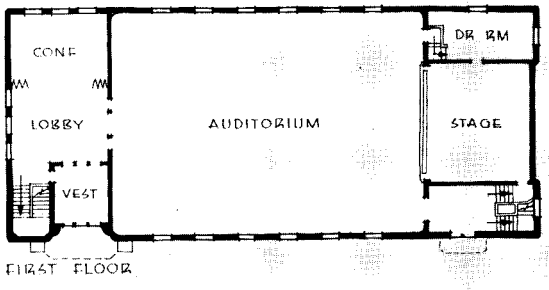


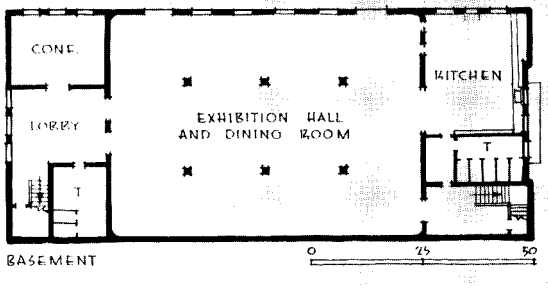
ARMORY-AUDITORIUM

ARMORY AT LUMBERTON, N. C. JOS. J. SAWYER, ARCHITECT. This structure was built for use as both armory and civic auditorium for a city of 25,000 population. Civic and other groups use the social room and kitchen. The kitchen facilities can care for 500 diners seated at tables in the drill hall. Space is provided for two large coast artillery guns (one in firing, one in traveling position) and several trucks. Offices for the Commander and caretaker are at the front of the building. Behind the building is an athletic field for baseball and football. Masonry walls support a *steel-framed* roof. Cost: approximately $102,000. W. M. Burney was general contractor.



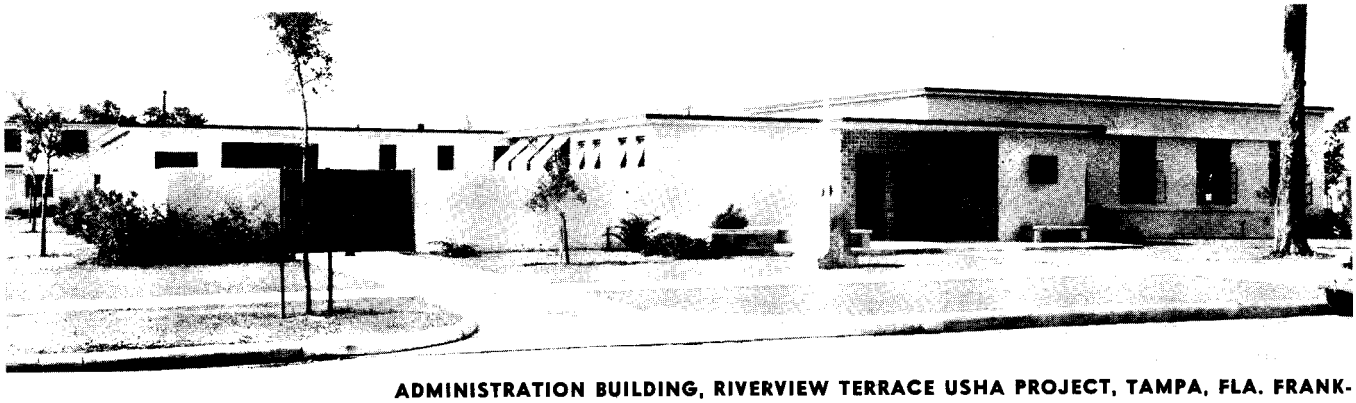
Portland Cement Assn.





AUDITORIUM

CASS COUNTY AGRICULTURAL SOCIETY AUDITORIUM, WEEPING WATER, NEB. N. BRUCE HAZEN, ARCHITECT. The building serves a triple purpose—added exhibit space for the annual county fair; permanent quarters for the Agricultural Society and the Farm Bureau; and civic center for the village of Weeping Water. The auditorium is used for community gatherings of all sorts, lectures and theatricals. As the building is always open, the toilet facilities provide a public comfort station (badly needed in many defense towns). In the basement is a kitchen and banquet room. Basement and exterior walls are of architectural concrete. The main floor is of concrete beam and joist construction; the roof, sheet plywood (which had previously been used as forms) over steel trusses and channel purlins. All interior walls are plastered. Auditorium and stage have maple floors; other floors are finished concrete. Cost: $42,000. S. C. Lein was in charge of construction.



Southern Photo and News

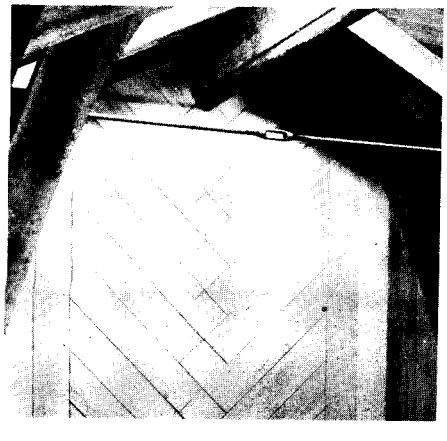
COMMUNITY CENTER

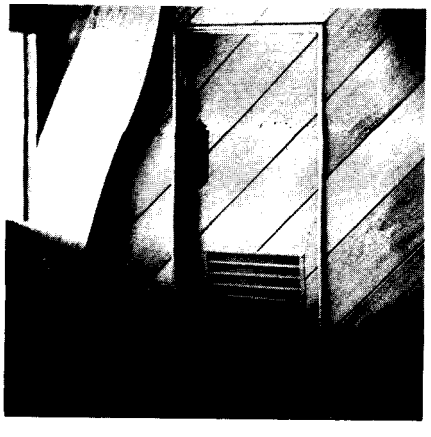
ADMINISTRATION BUILDING, RIVERVIEW TERRACE USHA PROJECT, TAMPA, FLA. FRANKLIN O. ADAMS, SUPERVISING ARCHITECT; FRANK A. WINN JR. & NORMAN F. SIX, ASSOCIATED. Headquarters for a 328-unit project. Throughout, a reinforced concrete framing system supporting walls, floors and roof was employed. To eliminate leakage and dampness, a novel system of wall air space was introduced. Hollow space within the walls was opened up to the outside at the bottom by means of small ports of 8 to 10 sq. in. in area, so located as completely to relieve rarefied air within the walls and to maintain air inside and outside at equal pressure. In addition, copper vents are spaced at the top of walls just under the overhang of the concrete roof slab to obtain circulation of air within the walls.

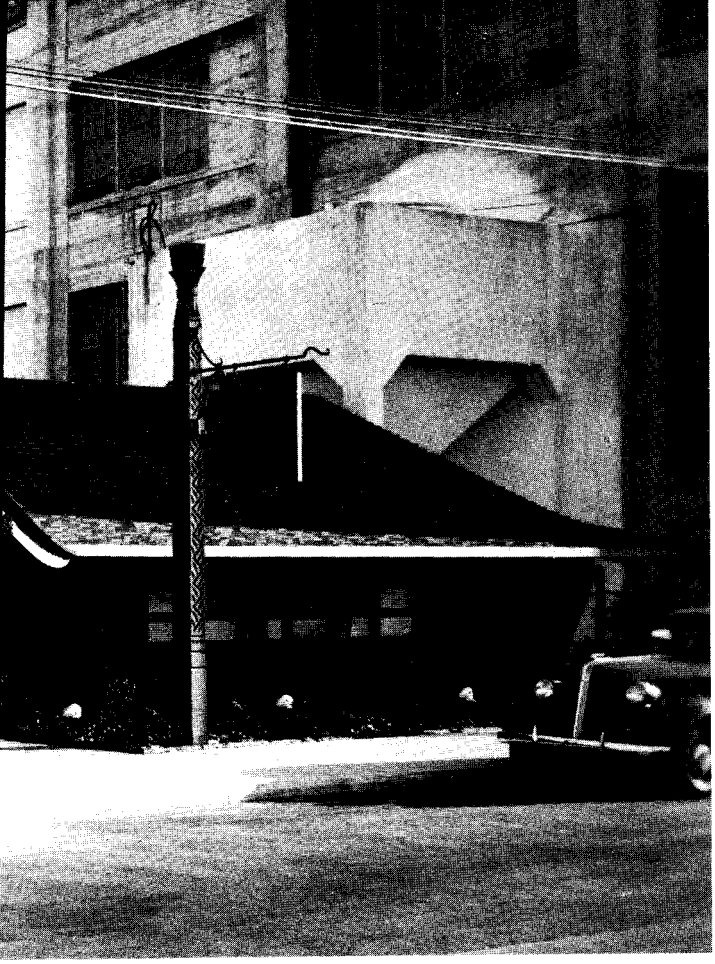
TAP ROOM

TAP ROOM FOR THE ACME BREWING CO., LOS ANGELES, CALIF. WILLIAM G. MERCHANT, ARCHITECT. This particular tap room was designed as an adjunct to an important brewing company to accommodate 150 guests. While it could hardly be considered a likely municipal facility, it is, nonetheless, a type of reputable entertainment and relaxation center for which many defense areas have a real need. And because this one has been so expertly handled and makes so interesting a use of wood—redwood in this instance—we include it in this summary presentation. Of special interest are the flying knee braces spaced regularly in the walls of the building supporting the roof. Besides carrying the roof loads, these braces take up considerable lateral forces, making possible the very wide eave overhang (a device, incidentally, which makes elimination of metal gutters, downspouts, etc., entirely feasible). The roof is of cork, made shingle fashion 1¼ in. in thickness, which affords a high degree of insulation. With the exception of the bar, which is worked out in rosewood and stainless steel, the entire building is built of dense select all heart redwood. The general contractor was Noel M. Calhoun.

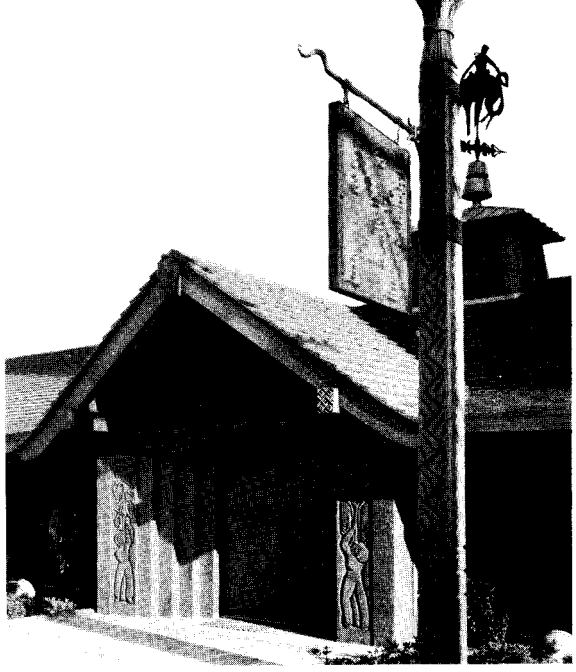
DETAILS—Wood Carving by Robert Howard

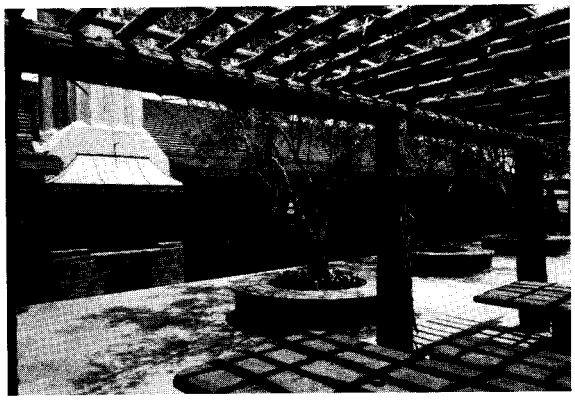


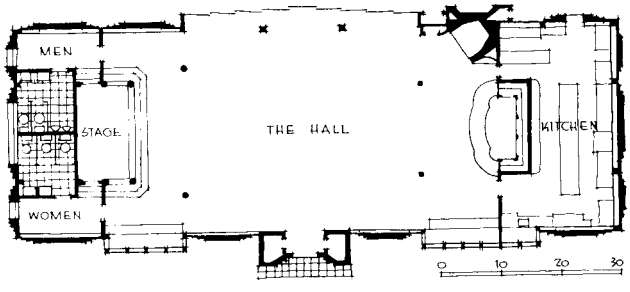


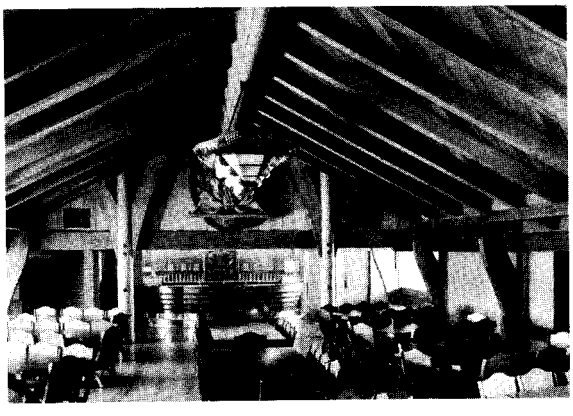


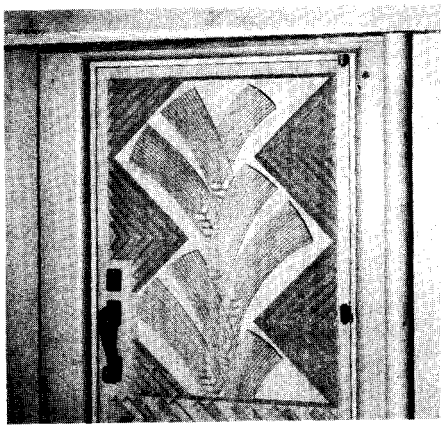
Photos by Miles Berne, courtesy California Redwood Association

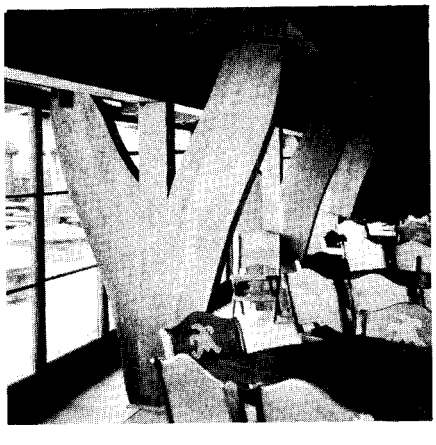


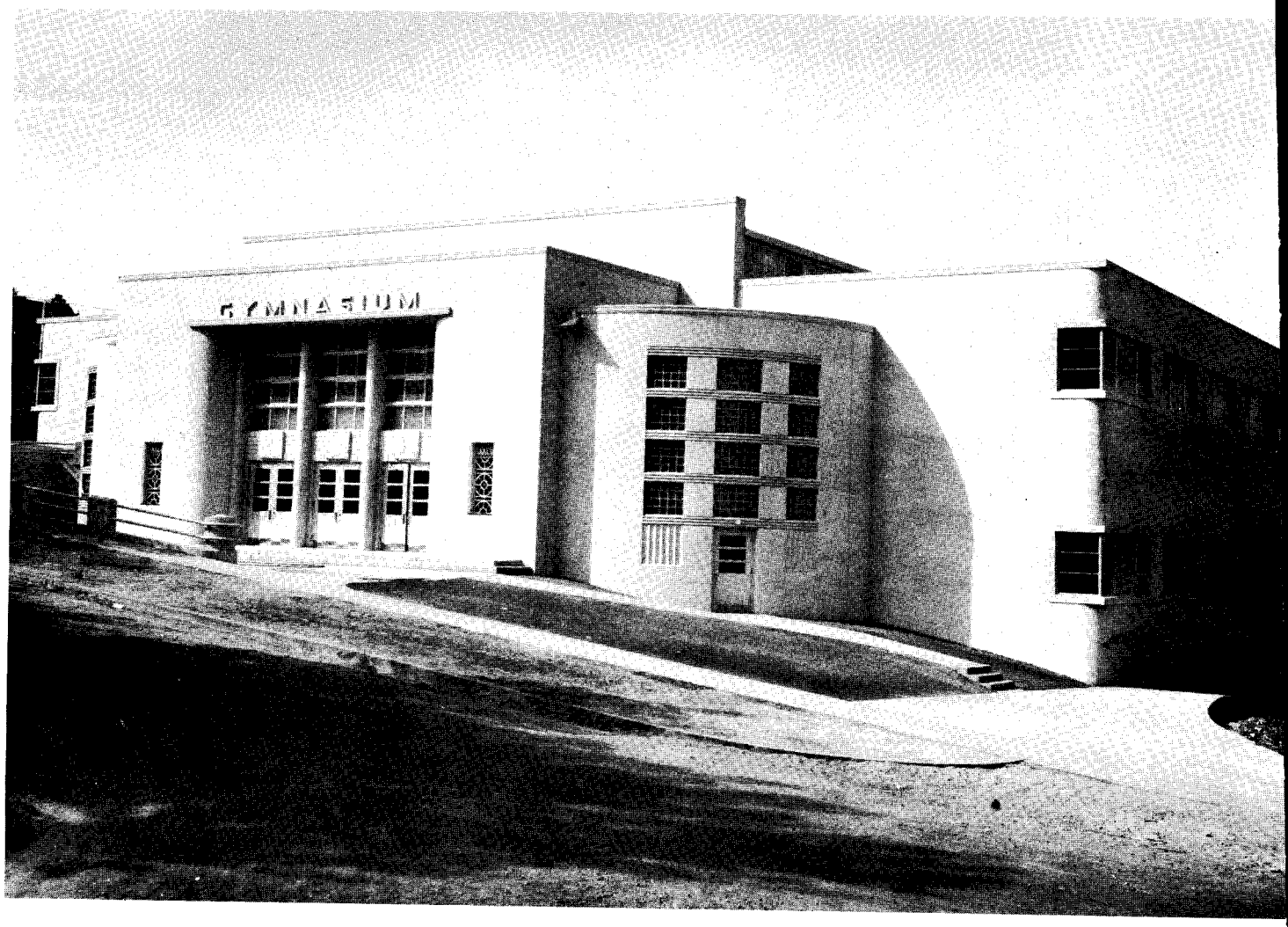


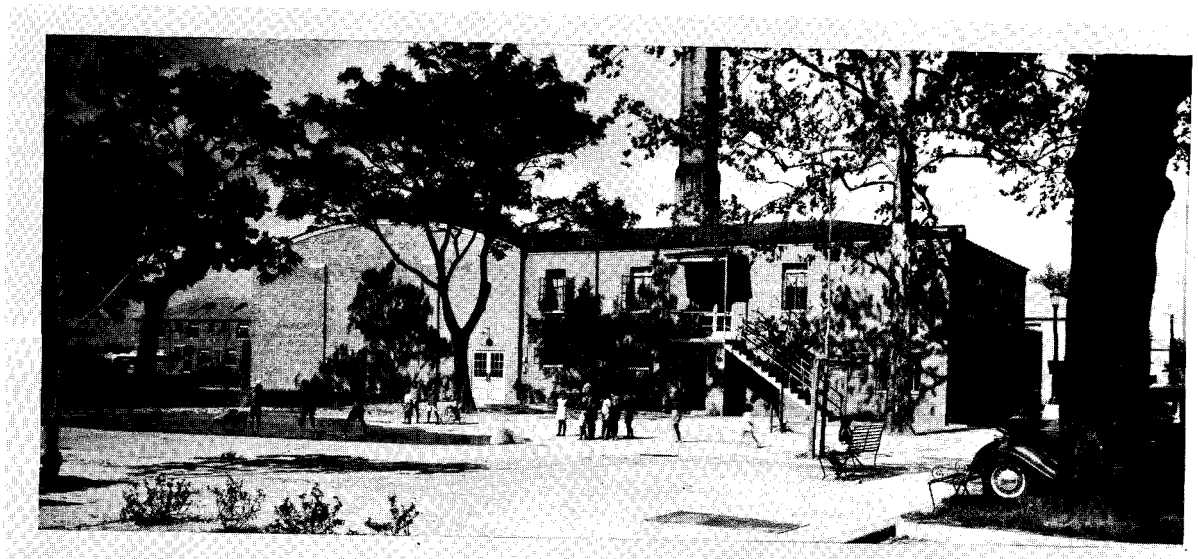






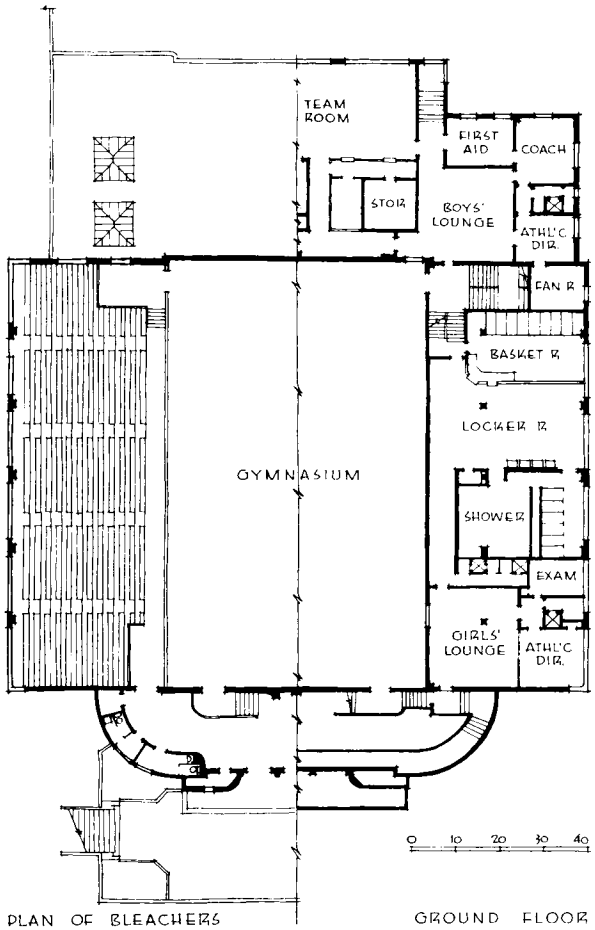



GYMNASIUM

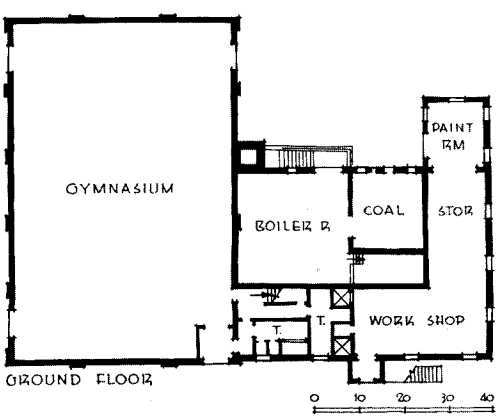


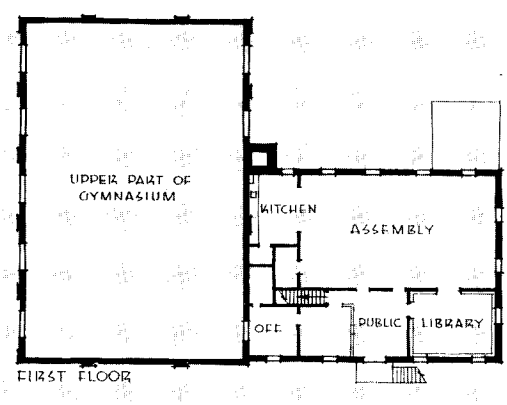
GYMNASIUM

HIGH SCHOOL GYMNASIUM, THE DALLES, ORE. JOHN W. MALONEY, ARCHITECT. Both structural frames and walls are of concrete. The building, located on a sloping site, provides facilities for physical training and athletic needs of the local high school. But such a structure might well fit in with the recreational needs of defense towns in various parts of the country. Walls are 8-in. thick and are used without furring. For sound control, ¾-in. insulation board is used in the ceilings, the sheets being placed in the forms and the concrete of the slab placed directly on them. The contractor was The Ekrem Construction Co. Cost (made possible through a PWA grant) was $104,000.

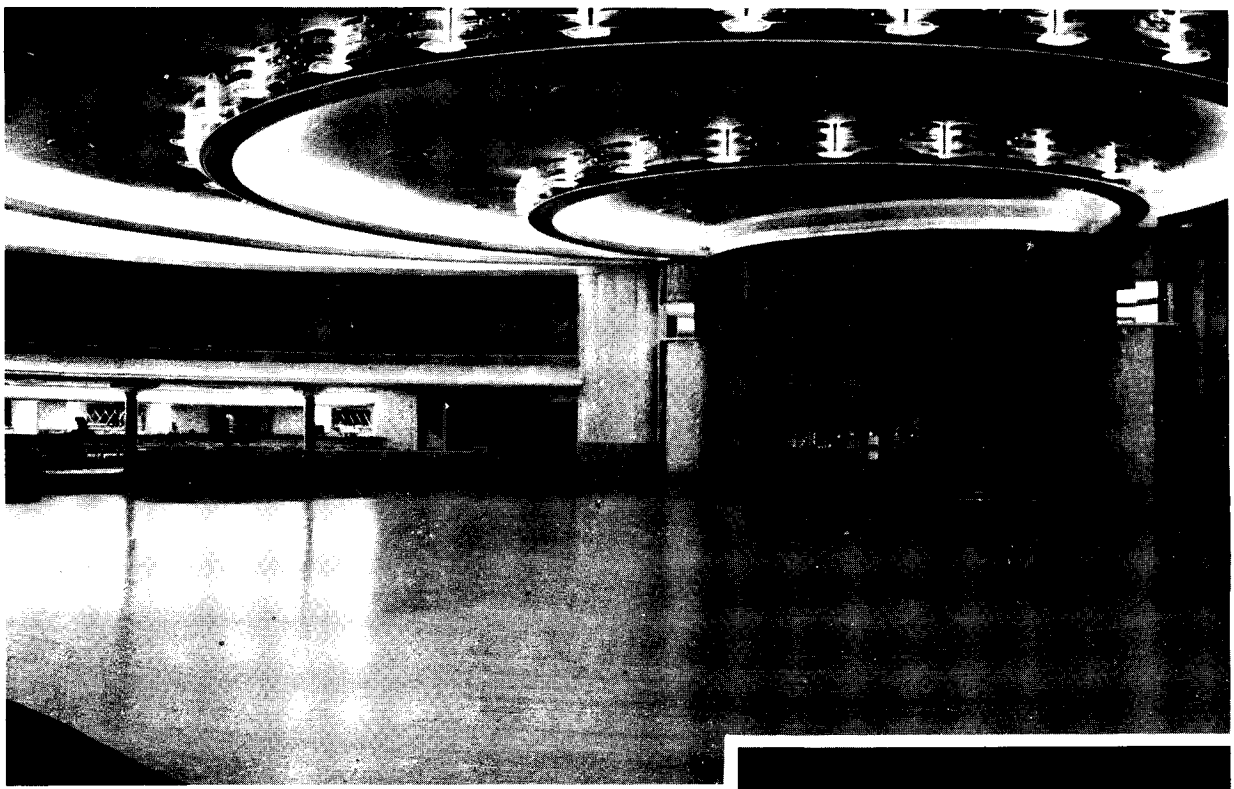


COMMUNITY CENTER





COMMUNITY HOUSE, NEW BROOKLYN HOMES (USHA), WILMINGTON, N. C. LESLIE N. BONEY, ARCHITECT. Illustrative of a structure serving the basic needs economically, this building combines community center facilities with the housing project power plant. The gymnasium opens out on two sides to the community playgrounds. At ground floor level is a sizable workshop and storage room. Above are an assembly hall, serving kitchen, small library and the necessary office and public spaces. General contractor for the project was T. A. Loving and Co.

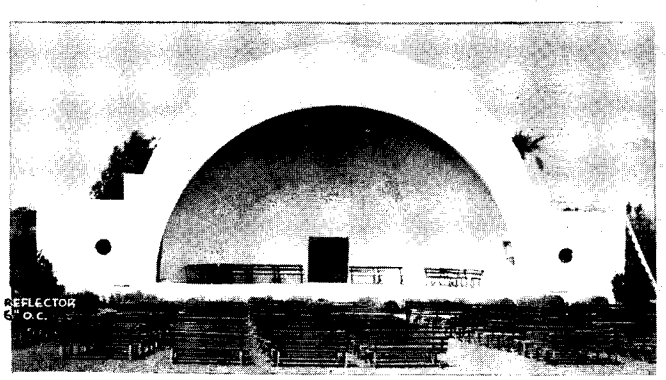


Photos by Hamilton

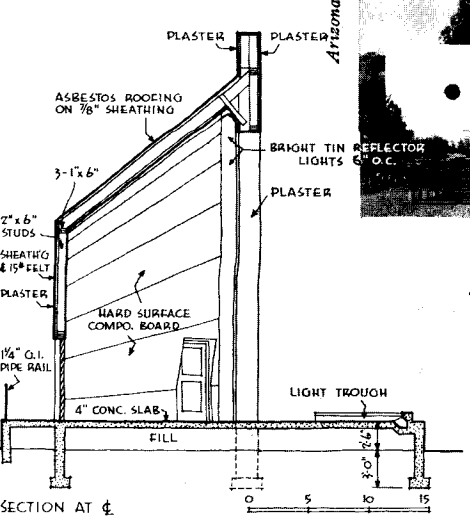
DANCE HALL

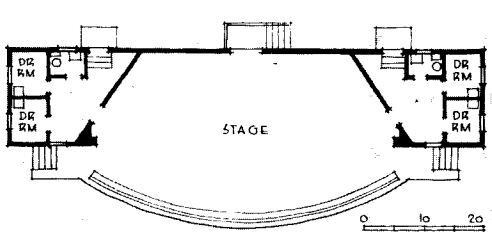
THE PALLADIUM, LOS ANGELES, CALIF. GORDON B. KAUFMANN, ARCHITECT. A large, privately operated dine-and-dance place, this illustrates a type of facility which would be widely used in any defense area or town adjoining a cantonment. Located on one of Los Angeles' main boulevards, the dance floor occupies 12,000 square feet of area. Hastings and Quinn were the general contractors.

BAND SHELL



Arizona Republic Photo





ENCANTO PARK MUSIC SHELL, PHOENIX, ARIZ. LESCHER AND MAHONEY, ARCHITECTS. This outdoor band shell consists of a stage 50 ft. in width converging to 38 ft. at the rear of the stage. Overall depth is 30 ft.; depth under the covered portion is 16 ft. Access steps to the stage occur at each side and at the rear center. Shell opening rises to a height of 25 ft. above the stage floor, which comes down to 16 ft. at the rear. Stage is 2 ft. 6 in. above grade. The stage floor is of reinforced concrete construction; the shell is a built-up continuous semi-arc wood truss. The tapered arc ceiling is made of a hard surfaced composition board. Entire exterior of the shell is stuccoed over wood sheathing and building paper. Roof is of composition surfaced with a white asbestos cap sheet. Contractor for the music shell was The William Peper Construction Co.

OFFICE AND COMMERCIAL BUILDINGS

A BUILDING TYPES STUDY

☆ **IN LISTS OF PROJECTS** Federally approved as essential to civilian life, commercial buildings do not at present appear. In newspapers, word may be found of priorities granted for repair and maintenance of, for instance, stores. This may be justifiable as temporary policy under existing conditions.

Is it, as permanent policy, wise?

Consider the defense worker who suddenly finds himself part of a brand-new community, or of a municipality trebled in size overnight. The defense house we build him is far from stores. The new fire station does not furnish him food. He finds it hard to reach clothing stores to outfit his children for their new school. And the insurance man's office, where he might be buying an annuity, is miles away. The equally distant dentist's office is too busy to give him an appointment.

There you have a man working to uphold the American way of life, but he can't get food, clothes or necessary professional help without a terrific struggle. Stores are far too few, or non-existent locally. What is perhaps worse, a policy of ignoring such a definite need can interfere with the storekeeper's or the professional man's well-being to a greater degree than an emergency warrants.

For these, all of them, are the people who make America worth defending. To lower standards too far might be giving the totalitarians a victory without a battle.

The hypothetical case just outlined is not farfetched. That its existence is becoming recognized is evident when word comes of at least one defense housing project, now being planned, which contains several community shopping centers.

☆ **JUST AS IMPORTANT** as recognition of the need is the manner of providing for it. It is imperative that shops or commercial buildings be designed for their specific communities. Problems of site, of planning, of types of facilities to be provided are as varied as the communities they will serve. Perhaps, as a Washington, D. C., realtor tells us, requirements can be pretty definitely limited, economically, to provisions for groups of ten stores, one or two of them 40 or 50 ft. by 100 to 150 ft., the remainder 20 or 25 ft. by 65 to 75 ft. This same source, operating on congested city land, finds parking space at such a premium that second-floor recreational establishments or offices are undesirable; one-story buildings seem most suitable. In another locality a different set of requirements might hold.

But even more important are the basic considerations: direction of municipal growth; local values as indicated by assessments; the present demand (a false situation which must yet be met); normal rates of population change—in urban areas possibly a decline, or in suburbs a steady increase, or in the far more numerous medium-sized municipalities, even regularly periodic changes.

Depending on the results of this kind of research, buildings may be temporary—designed for future remodeling to meet an anticipated demand, or for destruction or removal when the emergency disappears. Or they may be planned as permanent assets to a growing community. Only by some such program can new tragedies of waste be averted.

Construction in the face of existing material demands should not appear impossible. Nothing of this kind has ever been impossible to Americans. We may build of materials least affected by priorities; we may eliminate all but the essential minimum of scarce materials; we may find new design techniques to utilize substitute materials. We might get priorities.

Would it be such a calamity if, supposing storefront metal stocks should be exhausted, we should build storefronts of wood and glass?

COMMERCIAL BUILDING FOLLOWS POPULATION TRENDS

LOCATELLI BUILDING, BELMONT, MASS. JOHN EDMUND KELLEY, ARCHITECT. The Albert J. Locatelli Company, builders and owner-operators of this project, had had much experience with commercial developments. Therefore they considered population and assessed valuation records when selecting a community for their newest venture, and spent some time in checking the types of stores already available against the normal needs of such a community.

The comparative population and valuation figures (page 83) indicate that Belmont is one of the most rapidly growing communities in the greater Boston area, if not in the entire Commonwealth of Massachusetts. However, they do not include several salient facts:

1—Belmont's growth was phenomenal from 1925 (pop. 5,256) to 1930 (pop. 21,748).

2—No new stores had been built in its shopping and municipal center since 1928.

3—The shopping and municipal center is also the geographic center, not only of Belmont as a whole, but of that part of Belmont which was experiencing the greatest home building activity; and of community interests centering in churches, schools, etc.

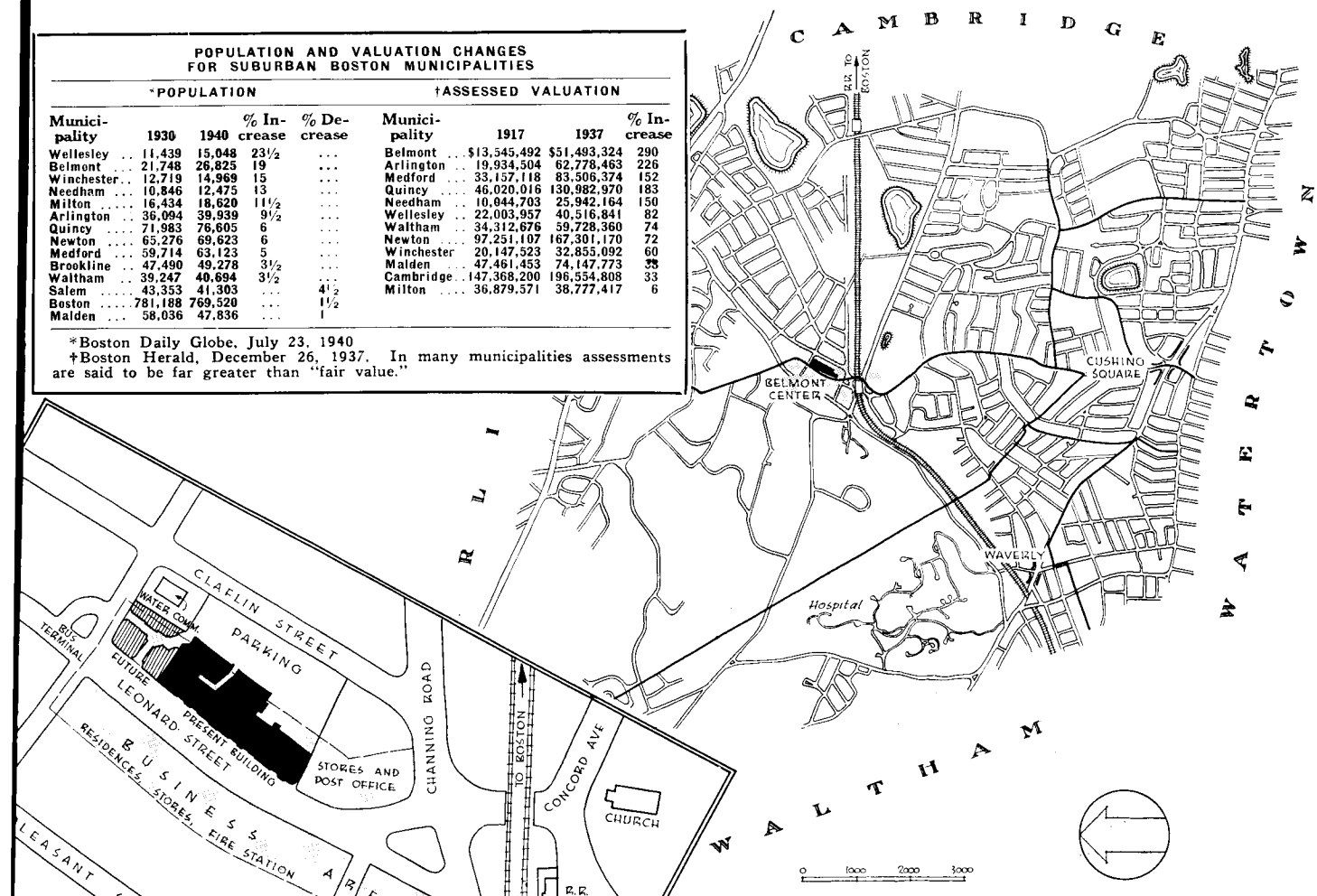
From these facts it was evident that a need for shops and a limited amount of office space existed. Study of shops already established determined what kind of new stores would be most likely to succeed. These ranged from a laundry pick-up station to a branch department store. Parking space for 220 cars was provided in the rear, with direct access to all stores. A strip of street frontage, 12 ft. deep by 500 ft. long, was deeded to the town to provide for diagonal parking in front.

POPULATION AND VALUATION CHANGES FOR SUBURBAN BOSTON MUNICIPALITIES

Municipality	*POPULATION 1930	1940	% Increase	% Decrease	Municipality	†ASSESSED VALUATION 1917	1937	% Increase
Wellesley	11,439	15,048	23½	...	Belmont	$13,545,492	$51,493,324	290
Belmont	21,748	26,825	19	...	Arlington	19,934,504	62,778,463	226
Winchester	12,719	14,969	15	...	Medford	33,157,118	83,506,374	152
Needham	10,846	12,475	13	...	Quincy	46,020,016	130,982,970	183
Milton	16,434	18,620	11½	...	Needham	10,044,703	25,942,164	150
Arlington	36,094	39,939	9½	...	Wellesley	22,003,957	40,516,841	82
Quincy	71,983	76,605	6	...	Waltham	34,312,676	59,728,360	74
Newton	65,276	69,623	6	...	Newton	97,251,107	167,301,170	72
Medford	59,714	63,123	5	...	Winchester	20,147,523	32,855,092	60
Brookline	47,490	49,278	3½	...	Malden	47,461,453	74,147,773	55
Waltham	39,247	40,694	3½	...	Cambridge	147,368,200	196,554,808	33
Salem	43,353	41,303	...	4½	Milton	36,879,571	38,777,417	6
Boston	781,188	769,520	...	1½				
Malden	58,036	47,836	...	1				

*Boston Daily Globe, July 23, 1940

†Boston Herald, December 26, 1937. In many municipalities assessments are said to be far greater than "fair value."



ABOVE, map of entire town; LEFT, map of the central shopping and municipal district. Note that within a half mile of the Locatelli Building are the town hall, library, utilities buildings, post office, railroad and bus stations, and all churches and schools

Henry F. Teele

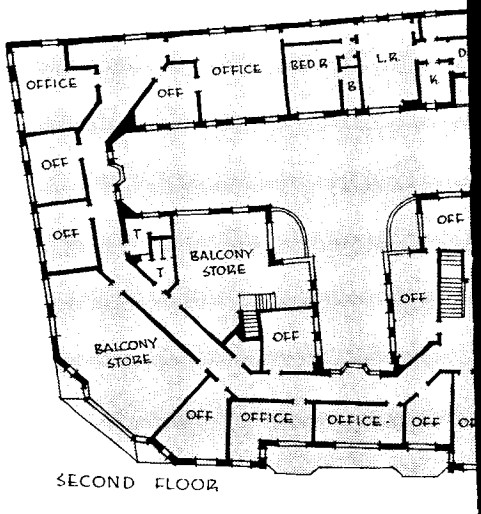
THE TYPE of building, and of stores, was determined by the character of the surrounding homes. Most of the latter were built within a radius of two miles of the center, and cost from $10,000 to $40,000. They supplied a ready outlet for good quality merchandise at fairly good prices, which would enable merchants to pay for good quarters. Demand for office space was limited to a few suites for small professional offices, headquarters for a small drug store chain, the Locatelli Company's own offices, etc.

The building was planned for erection in three units, of which one was completed in 1939, and the second in 1941. In the first unit, smaller stores were provided for; quarters are uniformly 65 ft. deep, vary from 13 to 28 ft. in width. Each store has an individual heating unit with thermostatic control.

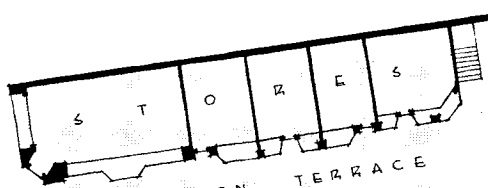
The second unit contains 6 stores, 11 offices and a janitor's apartment. Stores in this section range from 1,000 to 15,000 sq. ft. in area. All are heated by a central plant.

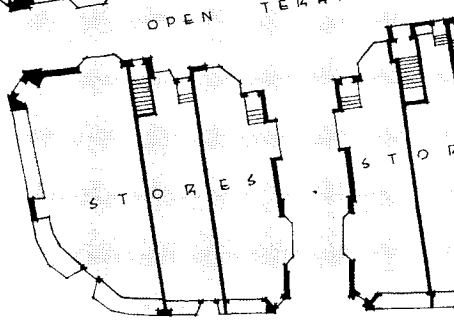
Appearance of the building is designed to harmonize with the architecture of public buildings in the center. Small units rather than a single large structure were decided upon, because it was believed that, with small units, changes could be more easily made to suit tenant requirements.

Construction of exterior walls is brick and stone with wood trim. Floors are supported on steel framing to facilitate structural changes to suit tenants. Noteworthy in plan are the concourses, which lead from the landscaped parking area to stores.

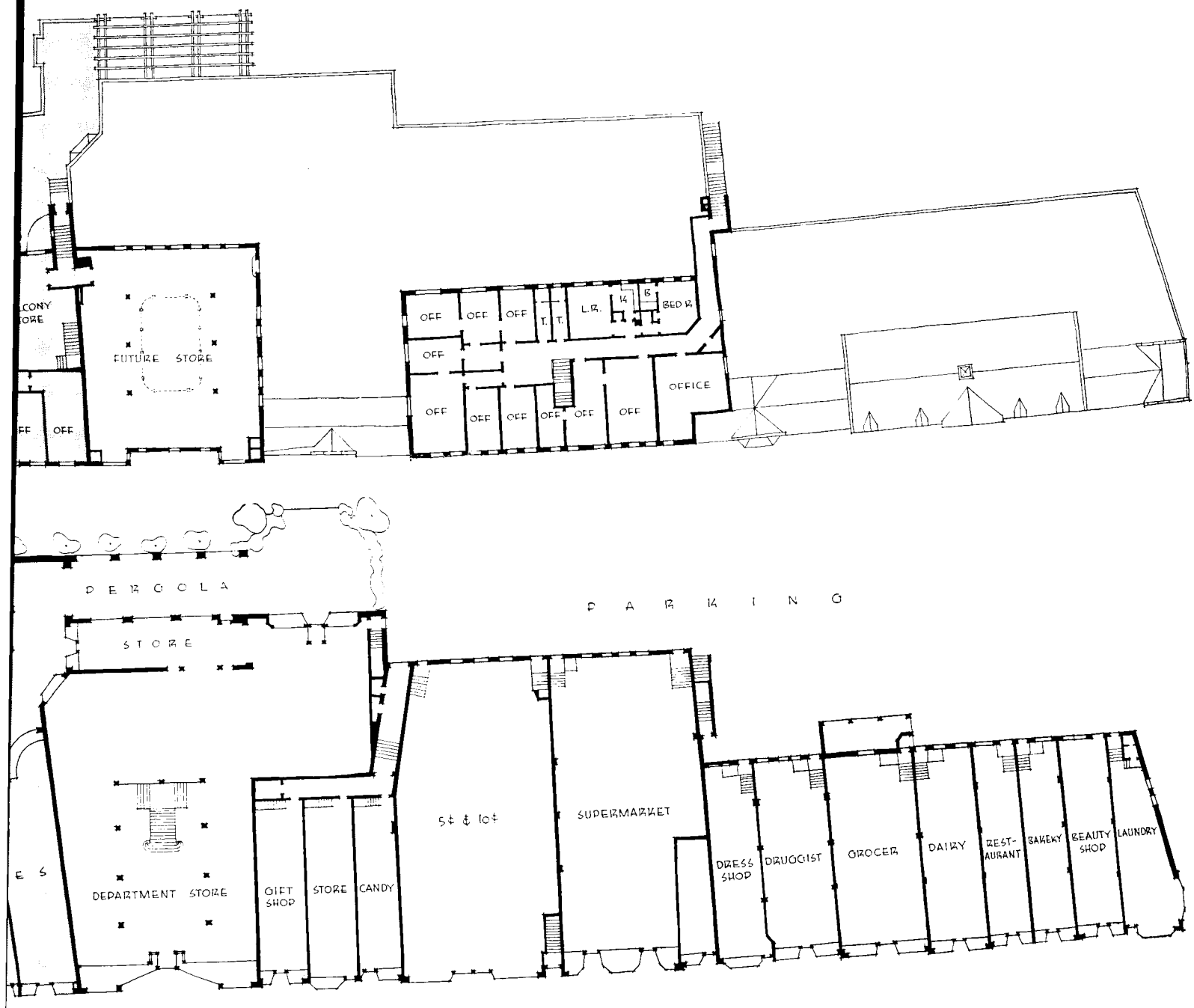


SECOND FLOOR





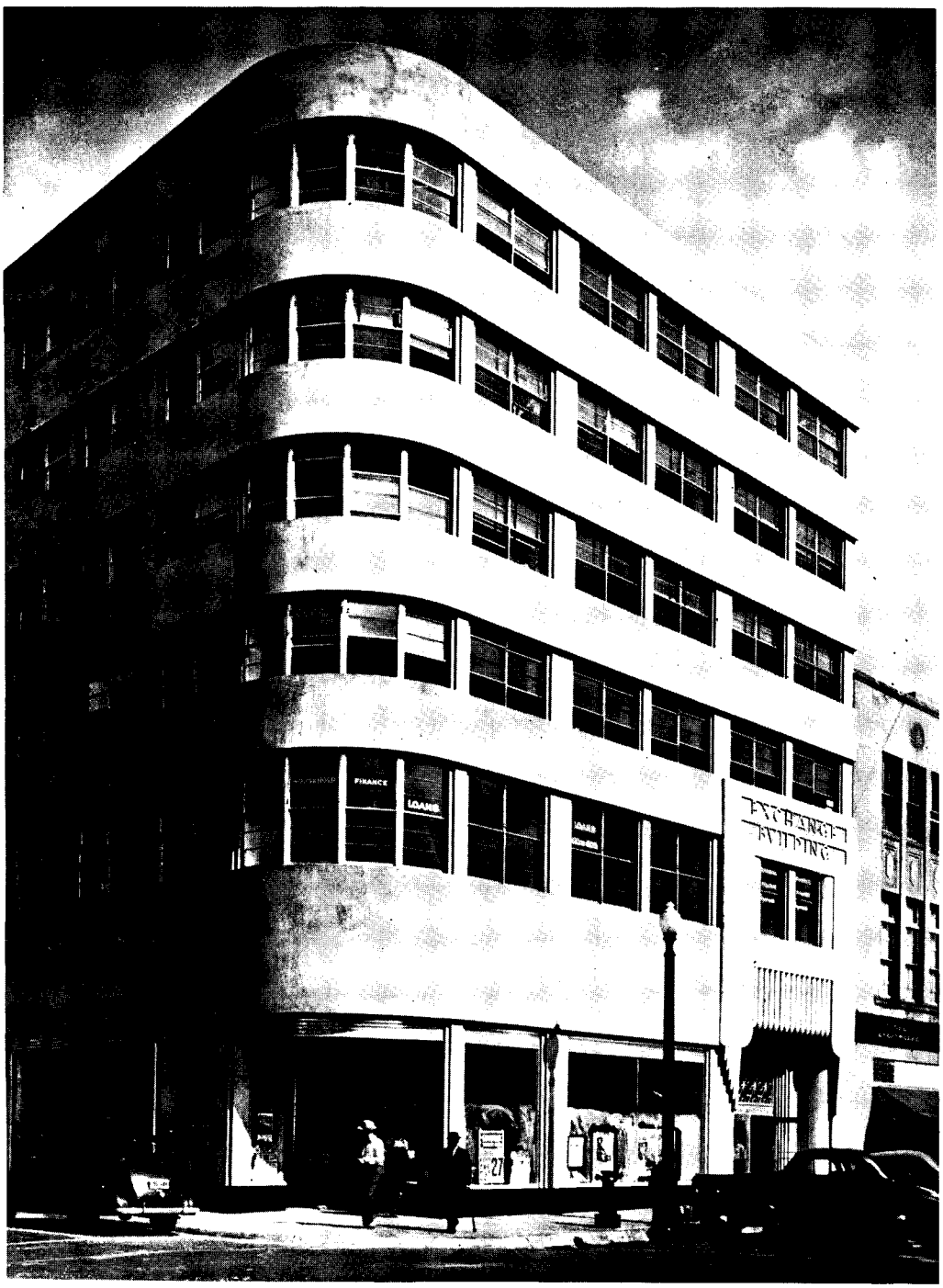
FIRST FLOOR

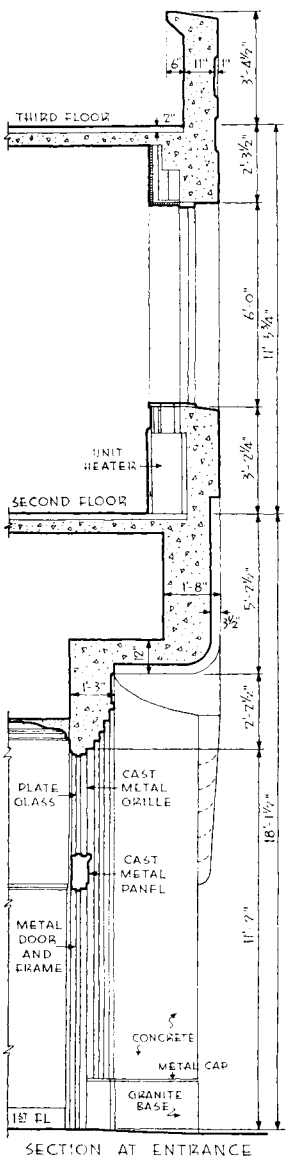


Henry E. Tonle

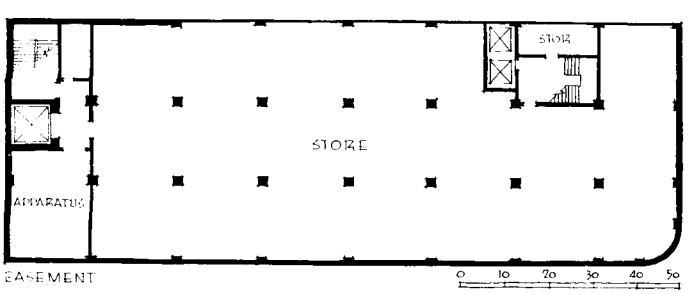
Photo at left shows the two completed units. Plans show all 3 units

FLAT SLABS REDUCE CUBAGE

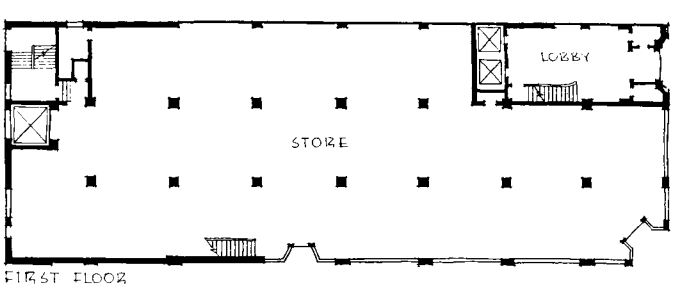




SECTION AT ENTRANCE



BASEMENT



FIRST FLOOR

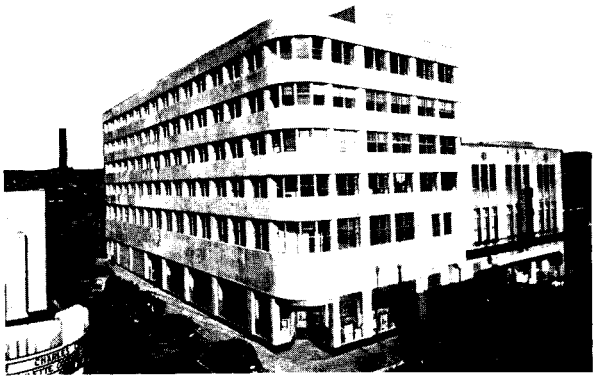
IN SIX-STORY BUILDING

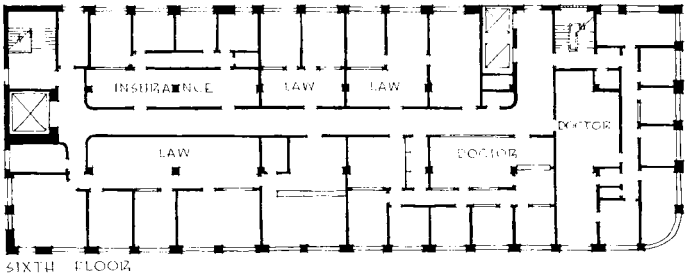
EXCHANGE BUILDING, LA CROSSE, WISC. J. MANDOR MATSON, ARCHITECT. At least $35,000—and a full story in height—were saved in constructing this monolithic concrete building. Savings were due to economical design, careful attention to forms, close supervision of concrete mixing and placement.

Code requirements determined the thickness of the flat slabs; ceiling heights in office floors above the mezzanine are uniformly nine ft. The flat ceilings were in some cases acoustically treated, in others treated with Swedish putty and painted. In every case, the smooth surfaces permitted great freedom in locating interior partitions, thus reducing costs of tenant alterations.

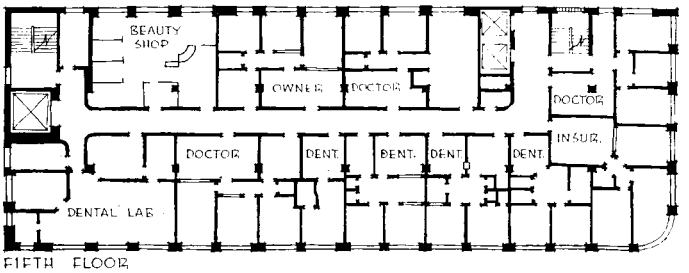
Forms were of plywood with a lacquered surface, and were treated with a tallow cement at joints. The first precaution prevented damage and staining when forms were re-used; the second prevented spillage at exterior spandrels, columns, etc. Ornamental work was formed against milled, lacquered white pine. Ceiling forms were of fibreboard.

Concrete mix was carefully analyzed, tested, and checked at the point of mix. In pouring, voids were kept at a minimum by constant puddling in the forms. Concrete in columns had to be vibrated, due to the amount of steel. Exterior surfaces were given a 2:1 wash, let stand a few hours, and rubbed with carborundum stone.

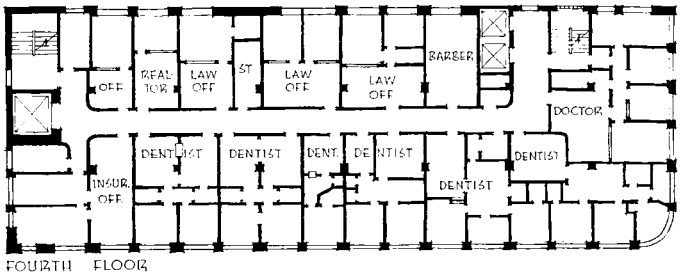




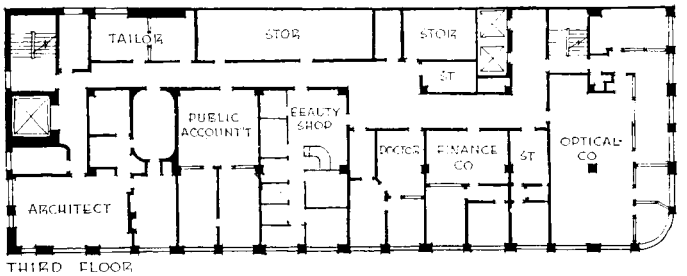
SIXTH FLOOR



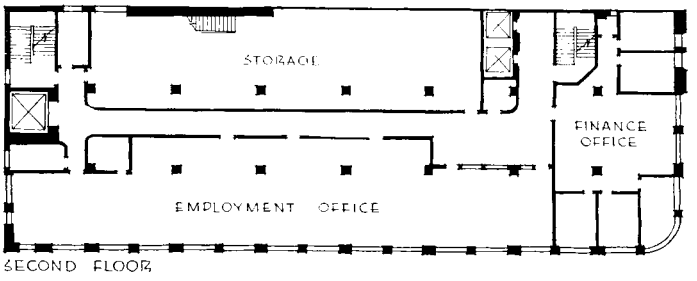
FIFTH FLOOR



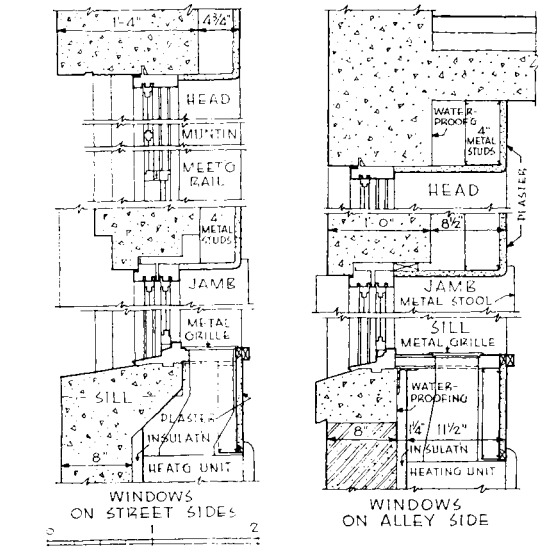
FOURTH FLOOR



THIRD FLOOR

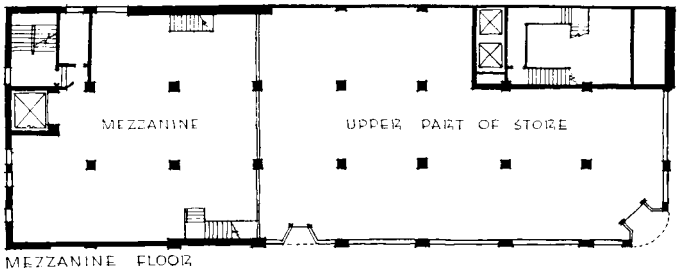


SECOND FLOOR



WINDOWS ON STREET SIDES

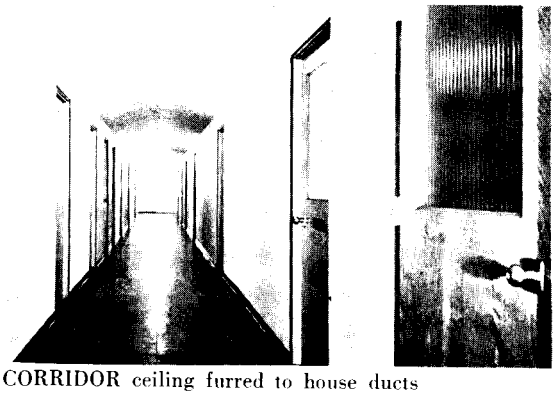
WINDOWS ON ALLEY SIDE



MEZZANINE FLOOR

Photos by Maw

ARCHITECT'S OFFICE, one of 83 business suites



CORRIDOR ceiling furred to house ducts

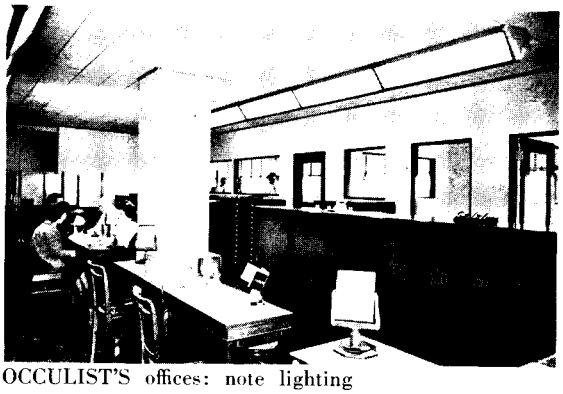
CARE IN DESIGN and construction resulted in concrete which needed a minimum of patching when forms were stripped—another source of savings.

Several design features are noteworthy. Spandrels are projected four in. beyond exterior column faces. This provides, on inside surfaces, reveals in which air conditioning and heating units are installed. Lighting and plumbing risers are furred in with columns, with capped outlets, reached through access doors, at each floor. The rounded corner of the building is designed to provide a setting which appears more spacious than is actually the case; the street intersection on which the Exchange Building sits is rather narrow.

Roof construction is flat slab, with two-in. insulation and a 20-year built-up roof. Interior partitions on office floors are of expanded steel, to accommodate piping. Office ceilings are acoustically treated or painted. Corridor ceilings are furred to take air conditioning ducts.

The entire building is air conditioned, with the same units used in winter for circulating heated air; in summer, cooled air. One of the elevators has a dual control so that it may be run by tenants.

The building was 80 per cent occupied before it was officially opened in June, 1941. The contract price was $176,228. Dr. Frank J. Hoeschler is the builder-owner.

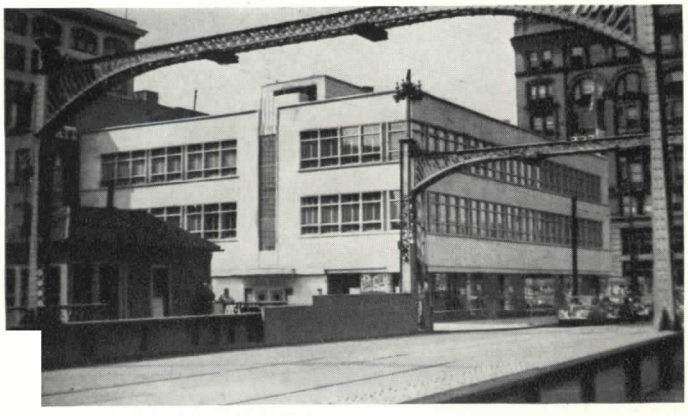


OCCULIST'S offices: note lighting

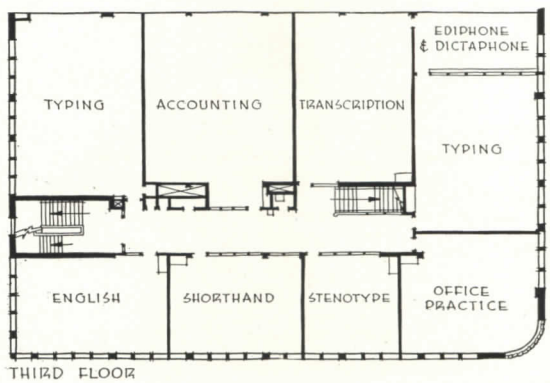
TYPICAL OFFICE with acoustic ceiling

FIXED SASH AND AIR CONDITIONING BAR NOISE, DIRT

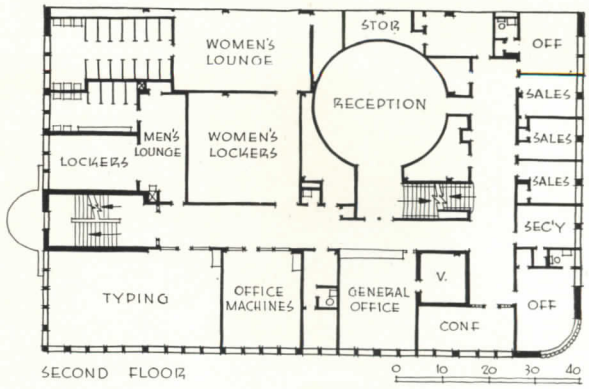
BUSINESS INSTITUTE BUILDING, MILWAUKEE, WIS. EBLING & PLUNKETT, ARCHITECTS. The first office building of any size to be erected in downtown Milwaukee in a decade, this building provides for stores on the first floor and a private commercial school on upper floors. The site, on the Milwaukee River, offers satisfactory natural lighting conditions; but traffic noise, and downtown soot and dirt, had to be combatted. Consequently windows are fixed and double-glazed; building is air conditioned, though recessed radiators heat toilet rooms and first floor stores. Fluorescent lighting in classrooms supplies 45-50 ft. candles, even in the rooms without natural light. Construction of lower stories is reinforced concrete; top floor is steel-framed. Most ceilings are acoustically treated. Roof is of metal decking, insulated, and can be flooded for summer cooling. General contractor was the Selzer Ornst Company.



STUDENT ENTRANCE is from river terrace.



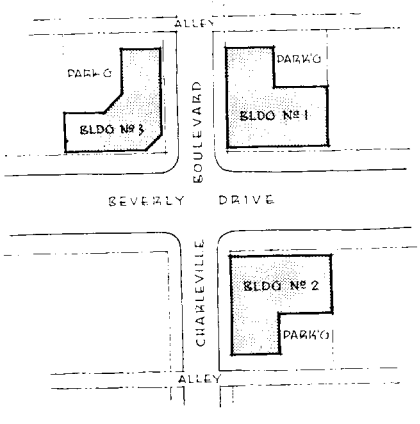
THIRD FLOOR



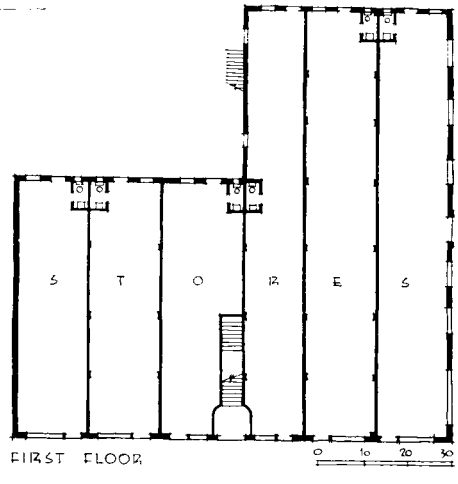
SECOND FLOOR

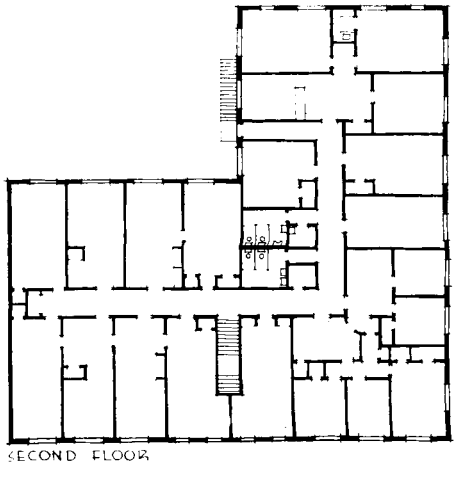
BUILDING No. 2

PLANNED FOR MODERNIZATION



TYPICAL plans, at right, are of Building No. 2





Photos by Miles Bernt, and The Mott Studios.

BUILDING No. 3

AS VALUES DEVELOP

CORINNE GRIFFITH BUILDINGS, BEVERLY HILLS, CALIF. ALLEN G. SIPLE, ARCHITECT FOR BUILDINGS 1 AND 2; PERCY P. LEWIS, ARCHITECT FOR BUILDING 3. These three office-and-store structures occupy three corners of an intersection one block off busy Wilshire Boulevard. They were built largely as an investment to carry taxes on the properties, in the belief that the sites eventually will increase in value. Construction is economical—wood frame, reinforced masonry walls, and caisson footings—but was planned to permit additions if the rental value of the site increases.

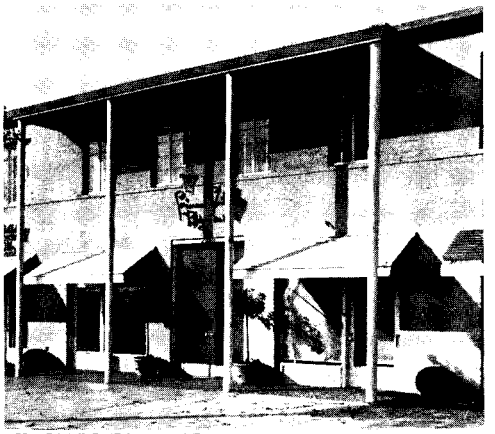
For example, the two identical structures (Buildings No. 1 and No. 2) are set back five ft. from the property line to permit future construction of store fronts of more metropolitan character when income value of the stores warrants. The type of tenant now attracted to these stores is such that window display is a secondary consideration, so the five-ft. setback is landscaped.

Rental value of stores is at present about $6 to $8 per ft. per mo. Corresponding value on Wilshire Boulevard, a block away, is $15 per ft. per mo. Store fronts on Wilshire Boulevard often cost about $200 per front ft.

Provision for future improvement is also evidenced in the second floors, which contain no structural walls, other than the envelope; roof is supported solely by columns, to permit flexibility in arrangement. Temporary partitions are wood stud and plaster. Because many tenants are motion picture agents, offices are arranged in suites.

Building No. 3 is related to the other two in appearance, but is not set back from the street. On all three, awnings are formed of adjustable wood slats.

Fred Snell was general contractor on all three buildings.



IF VALUES INCREASE and different storefronts became desirable, the present five-ft. setbacks may . . .

. . . be utilized for new store facades, as was done in this building, also by ALLEN G. SIPLE

CONSERVING METALS WITH STONE AND GLASS VENEERS

By FRANK G. LOPEZ JR., Associate Editor, ARCHITECTURAL RECORD

With the numerous new materials developed in recent years, the face of America's typical business street has been vastly changed—it is cleaner, more attractive, more successful from the merchandising point of view. But some of these materials are now hard to get; others, in themselves readily obtainable, may require supplementary use of strategic metals. It is the purpose of this brief review, and of the Time-Saver Standards which follow, to indicate means of reducing the amount of scarce materials required, and thus aid designers and builders of essential commercial buildings.

Surfacing materials ordinarily available in sheet or slab form, and adaptable for facades of commercial buildings, include: *natural stone veneers; structural glass; concrete slabs and cast stone; terra cotta;* sheet metals and combinations of metal or glass and other materials. Types italicized are apparently most readily available.

MATERIALS AVAILABLE

Natural stones may be divided into two broad classes: 1, *hard, crystalline or coarse-grained stones,* generally available in relatively thick slabs (1½ in. to 2¼ or 4 in. for granites; usually 4 in. for limestones, etc.; approximately 2 in. for bluestones, etc.); and 2, relatively fine-grained stones, usually available in comparatively thin slabs (marbles, soapstones, serpentines, etc., in thickness from ⅞ in. up).

Structural glass commonly used for facing buildings is opaque, is usually heavier than window glass; and is available in thicknesses ranging from ¼ to 1¼ in. Most common thicknesses are 11/32, 7/16, ¾ in. Fire-finished structural glass has a surface finish and glaze produced by bringing the surface to a high temperature. Ground and polished—or "plate glass"—finish is mechanically produced, and results in a true plane surface which facilitates setting, provides a uniform, homogeneous slab, and exposes rich interior colorings.

CONSTRUCTION IN STONE

Relatively thick stones (approx. 4 in.) can be tied into the wall by providing bond courses; few or no metal ties to backing masonry are required.

Relatively thin stones (⅞ in. and up) ordinarily require metal ties to the backing material; and, if the facing exceeds prescribed limits in height, supports other than the face-masonry itself are needed. This applies also to such materials as 1½-in.-thick granite; for the average building wall-ties alone are sufficient except over wide openings.

Anchors for stone veneers have, in the past, been formed preferably of nonferrous, corrosion-resistant material: brass, bronze, monel, etc. With these metals difficult to obtain, manufacturers as a whole agree that corrosion-protected iron wire or straps, of suitable gauge, are reasonably satisfactory.

Usually four anchors are required per slab; these are sufficient for slabs of the largest sizes commercially available. In such materials as soapstones, tremolites, serpentines, etc., anchors are normally in sides of slabs, two being approximately 6 in. down from the top, two 8 in. up from the bottom.

In many cases, such as window jamb and head returns, return pieces may be doweled to facing slabs, possibly with a saving of one or two anchors per stone. The soft, fine-grained stones can be job-drilled and may be secured (for instance, to bulkhead framing) with long screws. This necessitates either incorporation of the anchorheads into surface decoration, or provision of some means for covering anchor-holes along an edge with a moulding. There are also types of store-front mouldings having a projecting lip which can act as a "retainer" or anchor.

One method of eliminating spandrel anchors entirely consists of securing stone veneer spandrels by means of projecting masonry piers. In this type of work, the stone veneer is keyed behind the pier-facing. Two methods of accomplishing this have been used. The first is to build up spandrels and piers concurrently. The second is to build up piers only, omitting spandrels and spandrel backing, and then to place the spandrels from *within* the structure and build spandrel-backing in afterward.

At sidewalk level, all types of stone can be secured by imbedding the bottom edge 1 in. or more.

Intermediate supports for stone veneers are ordinarily required every 10 or 11 ft. (in height)—in other words, approximately at story levels. Common practice has been to provide shelf angles concealed in joints and secured to backing material. These may be limited to units each 4 in. long, so placed that each shelf angle supports corners of two adjacent slabs. It is also possible to design projecting belt courses of concrete or masonry units, securely bonded to the backing, which supplant the shelf angle.

CONSTRUCTION WITH STRUCTURAL GLASS

The City of Chicago has set up standards of good practice for the use of structural glass, which are subscribed to by leading manufacturers. Some restrictions implicit in these standards may be waived due to shortages.

Sizes of slabs are held to a maximum of 10 sq. ft. if not more than 15 ft. above the sidewalk. Above 15 ft., area may not exceed 6 sq. ft. Maximum length of any piece is 48 in., and the minimum thickness 11/32 in. unless heat-treated.

Backing has to be substantial, rigid, incombustible, a true plane, plumb and straight (stone, concrete, brick, tile, concrete block, cement plaster on metal lath on studs 12 in. o. c.).

Setting can be done only when backing is thoroughly dry and has had an approved bond coat (100 per cent coverage). Glass has to be set with mastic cement in sufficient quantities to insure at least 50 per cent coverage after the glass is in place.

Construction details. Where glass extends to sidewalk, each section has to rest in a metal moulding set at least ¼ in. above the highest point of the sidewalk. More common practice is to provide a ¼-in. cushion strip between glass and sidewalk.

If a bulkhead is over 26 in. high, glass has to contain at least one horizontal joint between sidewalk and window.

At joints, all abutting edges must be ground square; and all glass-edges have to be well buttered with pointing compound. Mitres are prohibited except for very wide angles.

If glass is confined between non-resilient materials, a ¼-in. expansion joint is required at each end. Otherwise, terminations are covered with metal mouldings so designed that they can be caulked watertight.

Shelf angles are required at each horizontal joint, starting 36 in. above sidewalk level. These may be short lengths, as indicated for stone veneers.

Mechanical fastening, in addition to mastic, is required above lintel level. This (in Chicago) must consist of nonferrous metal, in lengths of not less than 2 in., at least No. 18 ga., and is required on each vertical or horizontal edge of each piece. Fastenings have also to furnish bearing support as well as hold the glass veneer in a vertical plane.

Precautions. No glass-to-glass joints are permissible. If pointing compound is omitted, a slight pressure will eventually cause small cracks.

Raised lettering, laminated designs, etc., may be secured directly to the glass. However, hardware, accessories such as awning boxes, etc., must be secured directly to the backing, and withheld from structural glass by sleeves.

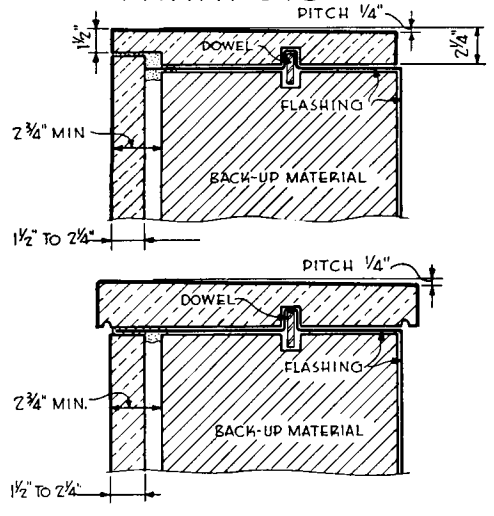
BUILDING FACINGS—1: Stone Veneers

ARCHITECTURAL RECORD
TIME-SAVER STANDARDS
DECEMBER 1941

This Time-Saver Standards sheet contains data on use of thin stone veneer slabs. Standard methods as well as those which require a minimum of metal are shown. Data are intended for use as guides to designers rather than as specific solutions.

Since emphasis is placed on stonework details and anchoring, little space is given to methods of waterproofing, backing, etc. It is recommended that the designer consult manufacturers' literature for exact information on each product.

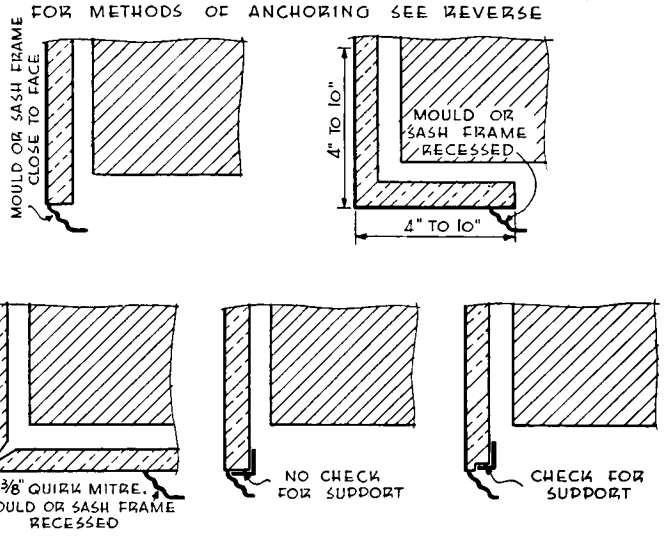
COPINGS AND PARAPETS



SOFFITS FOR WINDOWS, ETC.

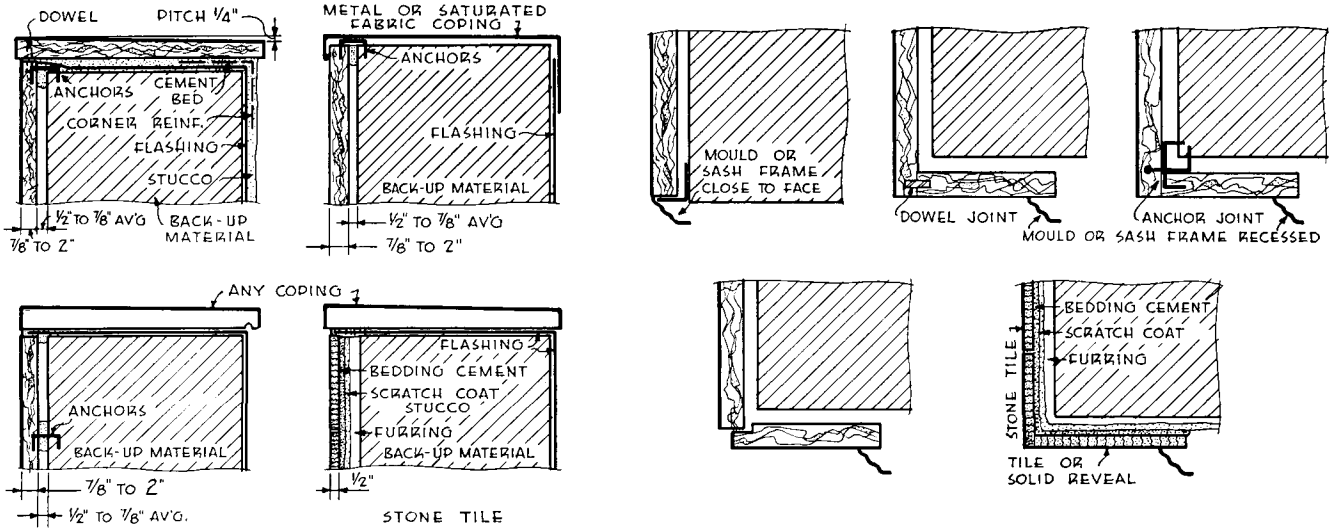
(JAMBS AND EXTERIOR ANGLES SIMILAR)

FOR METHODS OF ANCHORING SEE REVERSE



HARD OR CRYSTALLINE STONES

SUCH AS GRANITE



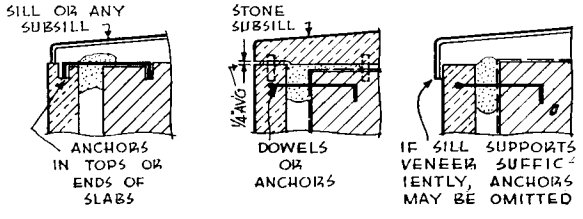
RELATIVEY SOFT STONES

SUCH AS MARBLES, SOAPSTONES, ETC.

SCALE OF ALL DRAWINGS 1" = 1'-0"

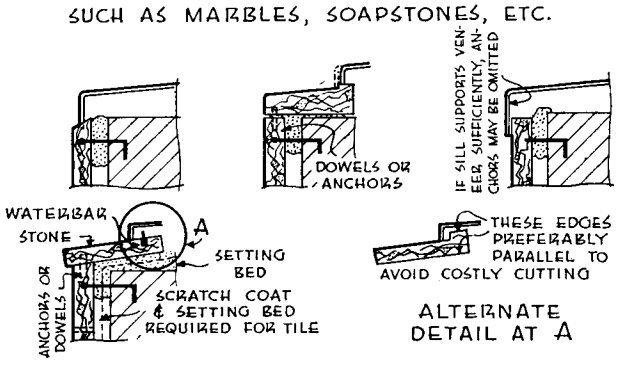
BUILDING FACINGS—1: Stone Veneers

HARD OR CRYSTALLINE STONES
SUCH AS GRANITE

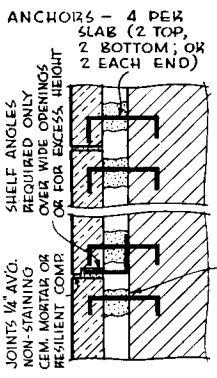


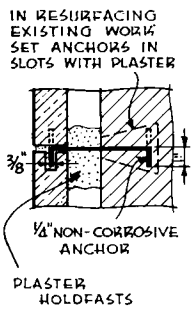
WINDOW SILLS

RELATIVELY SOFT STONES
SUCH AS MARBLES, SOAPSTONES, ETC.

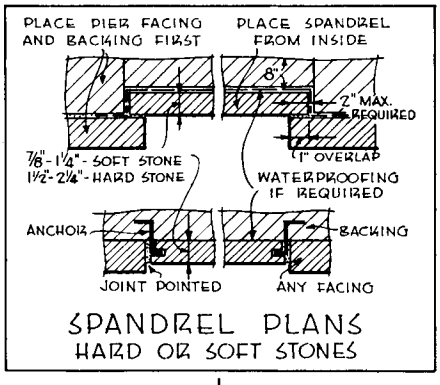


ALTERNATE DETAIL AT A

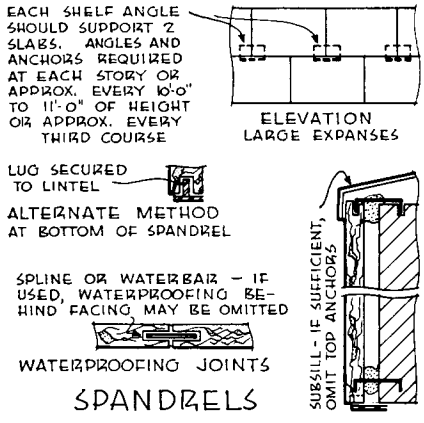




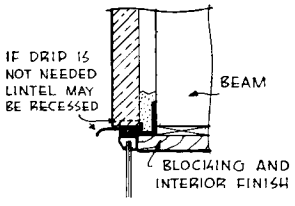
SPANDRELS



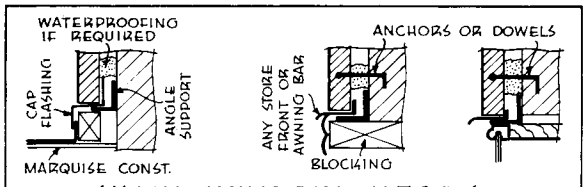
SPANDREL PLANS
HARD OR SOFT STONES



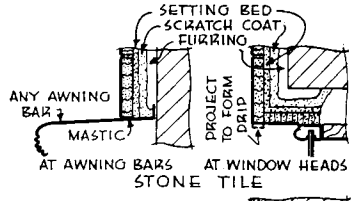
SPANDRELS



SHOW WINDOW HEAD

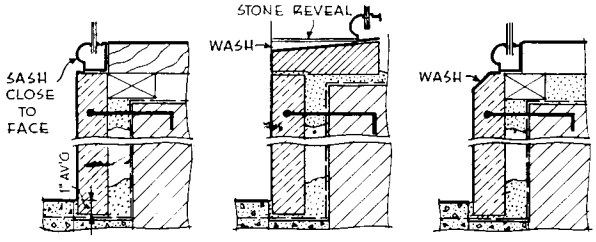


SHOW WINDOW HEADS
AWNING BARS, MARQUISES
HARD OR SOFT STONES



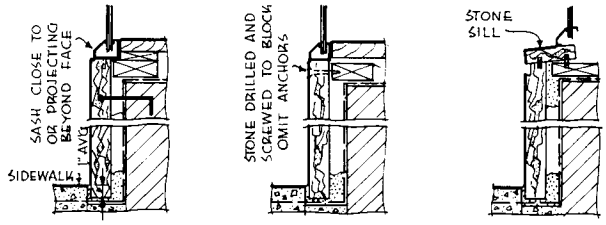
SHOW WINDOW HEADS AND AWNING BARS

SCALE OF ALL DRAWINGS APPROX. 1" = 1'-0"



BULKHEADS

HARD OR CRYSTALLINE STONES
SUCH AS GRANITE



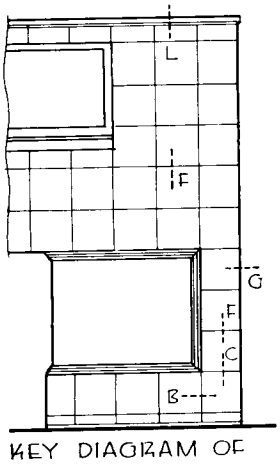
BULKHEADS

RELATIVELY SOFT STONES
SUCH AS MARBLES, SOAPSTONES, ETC.

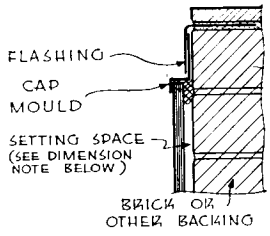
BUILDING FACINGS—2: Structural Glass

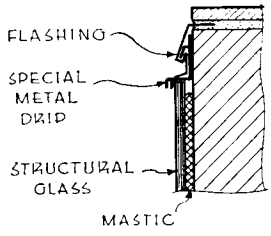
ARCHITECTURAL RECORD
TIME-SAVER STANDARDS
DECEMBER 1941

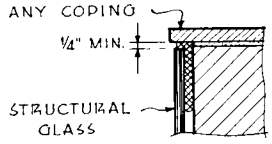
This Time-Saver Standards sheet contains data on use of structural glass veneers for exterior wall surfaces. Standard methods shown are based on requirements of the City of Chicago; in addition, details which are permissible under certain conditions and which may result in savings of critical materials, are shown. It is recommended that the designer consult manufacturers' literature for exact information on each product.



KEY DIAGRAM OF BUILDING FRONT





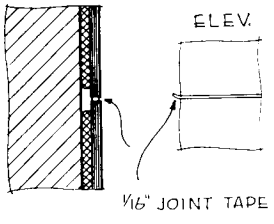


ANY METHOD IS PERMISSIBLE WHICH:— PREVENTS WATER PENETRATION, HELPS SECURE THE STRUCTURAL GLASS AND PERMITS EXPANSION.

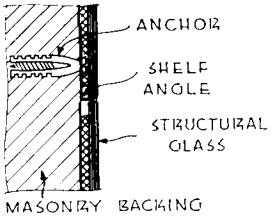
DETAILS AT "L"

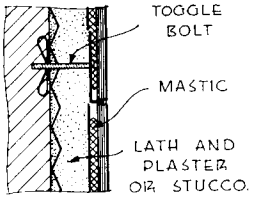
COPINGS

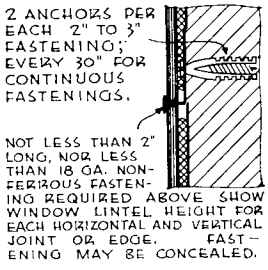
SCALE OF ALL DETAILS APPROXIMATELY 1½"=1'-0"



DETAIL AT "C"

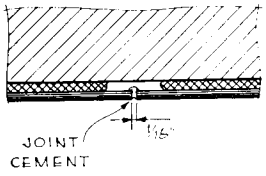






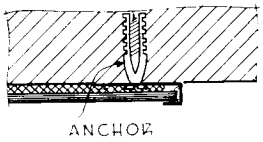
ALTERNATE DETAILS AT "F"

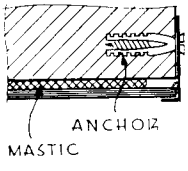
HORIZONTAL JOINTS

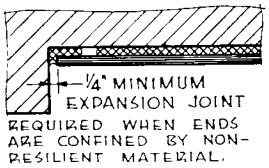


DETAIL AT "B"

VERTICAL JOINTS







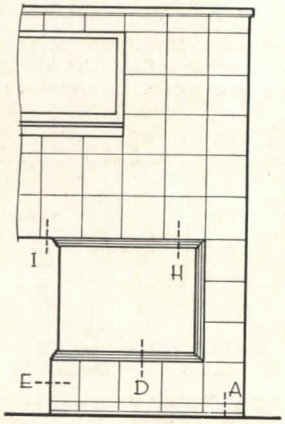
REQUIRED WHEN ENDS ARE CONFINED BY NON-RESILIENT MATERIAL.

DETAILS AT "G"

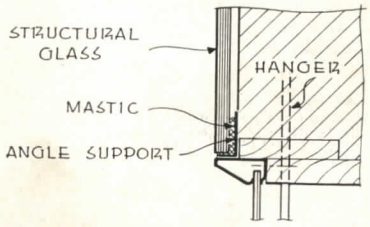
TERMINATIONS

USEFUL DIMENSIONS	STRUCTURAL GLASS THICKNESSES OF 11/32", 7/16" AND ¾" REQUIRE ¾", ⅞" AND 1⅛" RESPECTIVELY FROM FINISH FACE TO ROUGH.

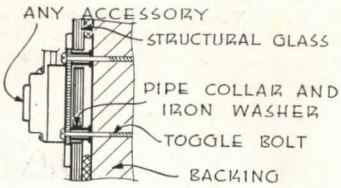
BUILDING FACINGS—2: Structural Glass



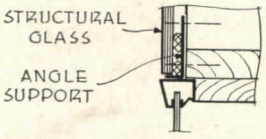
KEY DIAGRAM OF BUILDING FRONT



DETAIL AT "H"

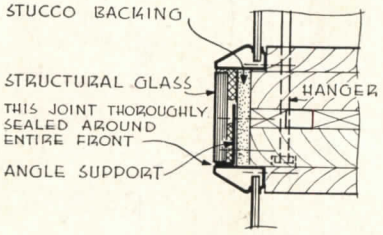


SIGNS OR ACCESSORIES

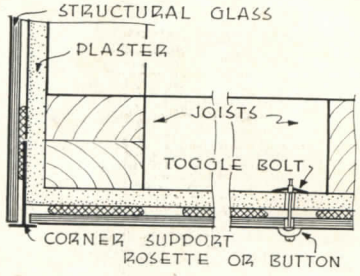


DETAIL AT "H"

SHOW WINDOW HEADS



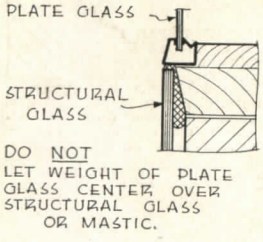
DETAIL AT MULLION



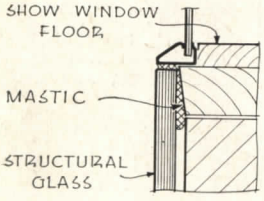
DETAIL AT "I"

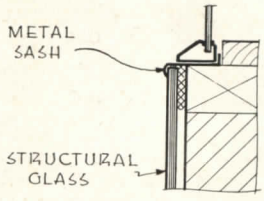
VESTIBULE CEILING

SCALE OF ALL DETAILS APPROXIMATELY 1½" = 1'-0"



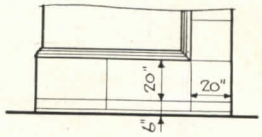
DO NOT LET WEIGHT OF PLATE GLASS CENTER OVER STRUCTURAL GLASS OR MASTIC.





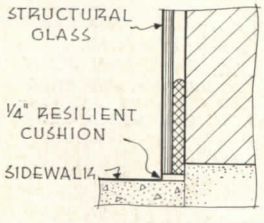
DETAILS AT "D"

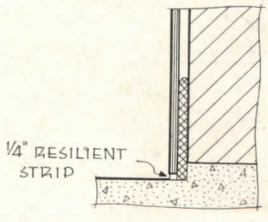
SHOW WINDOW SILLS

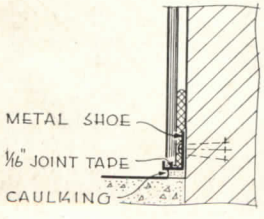


IF BULKHEAD IS OVER 26" HIGH, PROVIDE AT LEAST ONE HORIZONTAL JOINT

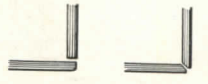
ELEVATION AT "E"







DETAILS "A" AT SIDEWALK LEVEL



MITRES ARE PERMITTED ONLY FOR VERY WIDE (ALMOST 180°) ANGLES