The Kawneer man in your territory will help you reduce overhead on store-front work in three ways:

1. He will provide design and merchandising data, based on national experience with all types of retail stores, which will cut your research time and assist you in creating effective "Machine For Selling" store-fronts.

2. He will offer you a completely new line of store-front construction, with new products and new ideas, which will simplify your detailing, speed up your work, and give you results in stock construction previously available only in special work.

3. He will provide you with expert local installation service and pre-tested products which will cut down supervision time and help to eliminate "call-backs".

Over 250 Kawneer distributors will assist Kawneer field men in these new services to architects. Write today for new booklet, "The Architect and Machines For Selling". THE KAWNEER COMPANY, 307 FRONT STREET, NILES, MICHIGAN. (Western Factory, Berkeley, Calif.)
Pencil Points
PROGRESSIVE ARCHITECTURE

July, 1945

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Cover: Photograph by F. S. Lincoln: Composition by Stamo
Papadaki.
in floors, too...

IT'S THE Finish

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America's Beauty Floors
THAT COUNTS!

It's the new FACTORY FINISH on Bruce Finished Flooring that will make it a winner for postwar building

8 ways better than on the job finishes...

Smooth Sanding—Each strip sanded to perfect smoothness on multiple drum, precision sanders. No sander marks.

Prime Condition—Finishing starts immediately after sanding, so no “raised grain.” Moisture content of flooring is right.

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Yes! it's the Finish that Counts in Floors!

And Mr. & Mrs. Home Builder of tomorrow will know about the advantages of Bruce Finished Floors. Color advertisements in American Home, The Saturday Evening Post, Better Homes & Gardens, House Beautiful, House & Garden, and Small Homes Guide will present the beauty, wear and ease of cleaning features of this modern flooring. Watch for these smart, attractive ads!

E. L. BRUCE CO. MEMPHIS, TENN.
World's Largest Maker of Hardwood Floors
CARRARA STRUCTURAL GLASS offers a combination of polished beauty, permanence and sanitation which qualifies it exceptionally well for use in the washrooms of public buildings. It is impervious to moisture, chemicals, pencil marks. It is easily cleaned. In the interesting application shown, Carrara partitions and stiles are hung from ceiling and walls so that the floor area remains clear and unobstructed. Architects: Hart, Freeland & Roberts.

COMBINING DECORATIVE BEAUTY and practical usefulness. Pittsburgh Polished Plate Glass can serve a hundred purposes in public buildings. In this striking bank interior, heavy Plate Glass both bent and flat, is an important factor in creating a smart, business-like atmosphere. Note the large window at the rear. Architect: Walter W. Ahlschlager.

WHEN WINDOWS occupy such a large percentage of wall area, as in this University Building, it becomes especially important to specify a quality glass. Pennvernon Window Glass and Pittsburgh Polished Plate Glass are always dependable choices for glazing structures like this. Architects: Cram & Ferguson.
INTERESTING APPLICATIONS OF GLASS IN PUBLIC BUILDINGS

TRANSPARENT STAIR RAILS of Herculite Tempered Plate Glass offer new design possibilities, not only in public buildings, but in commercial and residential structures as well. Herculite Glass is tempered to give it many times the strength and impact resistance of normal Plate Glass. Architects: Reinhard & Hofmeister and Harrison & Fouilhoux.

We believe you will find much to interest you in our new illustrated booklet of ideas concerning the use of Pittsburgh Glass in building design. Send the coupon for your free copy.

Pittsburgh Plate Glass Company
2128-5 Grant Building, Pittsburgh 19, Pa.

Please send me, without obligation, your new booklet entitled: "Ideas for the Use of Pittsburgh Glass in Building Design."

Name .........................................................
Address .......................................................
City .........................................................
State .......................................................
The communicating system in a modern hospital is more important than in any other type of building. It has more jobs to do — and prompt, unfailing contact may be a matter of life and death. Among these important signalling and communicating jobs are: keeping track of the whereabouts of doctors and staff members, nurses' call, patient supervision, and integration of all the complex phases of hospital operation... Long experience as specialists in the design and manufacture of hospital communicating and signalling systems has taught us the importance of considering them at an early stage of the planning. Consultation with a Connecticut Telephone and Electric representative is a sound step toward maximum hospital efficiency. It involves no obligation.

**DOCTORS' CALL SYSTEMS**

A system for indicating at central positions which staff members are in the building is essential in every well-equipped, efficient hospital. "Connecticut" systems are adaptable to hospitals of all sizes, and can be arranged to meet any conditions.

**INTERIOR PHONE SYSTEMS**

Special systems to serve diet kitchens, nurses' homes and other specialized purposes are an important planning consideration. Such circuits provide faster communication, privacy where required, and remove a heavy load on central switchboard.

Connecticut Telephone & Electric Division

**DOCTORS' REGISTRY**

**INTERIOR TELEPHONE SYSTEMS**

**NURSES' CALL SYSTEMS**

**DOCTORS' SILENT AND AUDIBLE PAGING**

**NIGHT LIGHTS**

**NURSES' HOME TELEPHONE AND RETURN CALL SYSTEMS**

© PENCIL POINTS, JULY, 1945
Announcing important developments to make selling good hardware easier, installation simpler... profits larger.

1.
2.
3.
Corporated in more substantial appearing homes. Joe won't be in a financial position to make any mistakes in this home, that must last him for years to come.

From my talks with these flesh and blood G. I. Joes, it looks as though our architectural thinking should be broadened. We need to deal more research into the requirements and desires of the public as a whole—and G. I. Joe—as well as all the new materials and methods of construction.

Edward W. Ryder
Bangor, Maine

In 25 Words
Dear Editor:
I have just seen a copy of PENCIL POINTS showing the prize-winning houses. It has left me with only enough breath to say God Almighty!

Wade Pipes
Portland, Oregon

This Modern Stuff
Dear Editor:
I wish to register a feeble protest against the growing tendency of modern designers and of modern periodicals to make up designs, both in the process of delineation and of reproduction, so obscure and confused that draftsmen and contractors (to say nothing of laymen) cannot even read them intelligently, let alone build.

I cite your May issue with its Competition winners as a case in point. I defy anyone except the authors (and I reserve judgment in these instances) to tell me what in H—— the plans on pages 63, 65, 82, and 83 are all about. The same criticism holds true in some detail in practically every entry except the first money, which scheme is unfortunately the one least likely to sell the public.

I like this modern stuff and believe we are going to see more and more of it, but to persuade people to buy it is going to require master salesmanship which will not be helped if they can't get even an inkling of what it's all about.

Roi L. Morin
Portland, Oregon

Throw 'em Out
Dear Editor:
If it was desired to find a home for G.I. Joe, as the program led the competitor to suppose, the least the Jury could have done would have been to throw out all plans which would not meet the regulations set up for insured loans by the Federal Housing Authority.

To my way of thinking, it is detrimental for architects to be a party to any such thinking as was prevalent in the selection of the prize winners and mentions in this competition. If we are to lead the public, we must begin to think logically or our reputation will be definitely at stake.

In my opinion, the results will in no way benefit either the sponsors, the professional adviser, or the public; and will be a black mark against the architectural profession. Although I intended to enter this competition, I am glad now that I did not, as the results were either practical nor academically in good judgment.

Richard Hawley Cutting
Cleveland, Ohio

The "Guessing Game"
Dear Editor:
Stuck again. Stuck, because the Jury does not write the Program and often writes its own during judgment. Would it not be better for the Jury to approve the Program in advance, or to modify it more to its taste? Or to dispense with the Program as a snare and a delusion? As it is, guessing ability is the basin on which the competition is conducted.

I know. I don't have to enter the competition. But, probably, I'll be there again, trying to meet the Program whose provisions will be twisted to meet the preferences of the jurymen, which in the recent contest coincided with my own. Probably I need bifocals in order to read properly both the Program and the Jury.

Donald Barthelme
Houston, Texas

Everything Burlesqued
Dear Editor:
I was seriously interested in looking over the prize awards. So many of the country's reputable manufacturers have resorted to such an overdone trend in their advertising. Everything must be burlesqued.

From the results I fail to see where the competition has added one iota to the luster of (Pittsburgh Plate Glass Company) products. I did not enter, and speak from no feeling of pique. All I can think of is a description from Louis Bromfield's "A Modern Hero": "Like goldfish the inhabitants swam about amid the ornamentation of pianos." Even the draftsmanship is affected and the evident desire to arrive at some astounding "tour de force" was patently achieved.

I will close with my first vivid reflection on going over the drawings. Mr. Rapp, 3rd Prize, overlooked just one possibility: ground glass for his client's dinner.

James W. Adams
Washington, D. C.

And Had a Wonderful Time
Dear Editor:
Perhaps you will agree with me (and maybe the Jury) when I comment on the fact that the results of the Pittsburgh Competition were disappointing. The part of each plan has some excel-

(Continued on page 10)
FOR ALMOST HALF A CENTURY, the Raymond Company has successfully completed more than 11,000 contracts in North, Central and South America and many foreign lands. These activities have been so widely diversified as to include jetties, foundations, harbor and river improvements, tunnels, dams, highways, community development, housing and industrial projects.

As a result of this world-wide experience a highly trained personnel has been developed—the men who handle this particular range of Raymond service possess a comprehensive knowledge of foreign languages and native customs and are thoroughly familiar with working conditions in many countries. The sum total of Raymond experience—wisdom is yours to command. Inquiries will receive prompt and careful attention.

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CONCRETE PILE COMPANY
BRANCH OFFICES IN PRINCIPAL CITIES
140 CEDAR STREET • NEW YORK 6, N.Y.

SCOPE OF RAYMOND'S ACTIVITIES includes every recognized type of pile foundation—concrete, composite, precast, steel, pipe and wood. Also caissons, construction involving shore protection, ship building facilities, harbor and river improvements and borings for soil investigation.
Views

(Continued from page 8)
lent qualities, but that is as far as it goes. Don’t you think the contestants “let their hair down a bit” and had a wonderful time?
And one thing more—why the exposed plumbing in Mr. Kazdailis’ plan—and all those angular shapes? GEORGE E. TINGLEY Mystic, Connecticut

They Win Races, Too
Dear Editor:

Of the kind of houses shown in your Pittsburgh Plate Glass Company Competition there is only one example in this locality. It is located near the Hamburg State Fairgrounds, near the turn where the harness horses go into the stretch. In a race, it is a fairly common sight to see a driver pull his horse to the outside of the turn near this house. One sight of it sends the horse scampering down the stretch—a run-away and a winner.

By the way, where were all the architects among the premiated designs?

GEORGE FRED KECK Saugus, Massachusetts

ADEQUATE
...means EQUAL to what is required

At all times...in all parts of the building...under all weather conditions...regardless of variables in service and occupancy...Dunham Differential heating maintains comfort-level temperatures with efficiency and economy. Never an overheat (a problem during 95% of heating season)...and never an underheat...this system meets the “ups and downs” of weather as they occur...not with on-and-off control, but with continuous flow of sub-atmospheric steam at temperatures varying from barely noticeable warmth to the hot steam needed for zero weather.


DUNHAM DIFFERENTIAL HEATING

CHICAGO • TORONTO • LONDON

Or is your magazine no longer concerned with architects, architecture, and their advertisements?

A great profession has a right to expect some aid and inspiration from its press. It has been some time since the architectural magazines have published anything recognizable outside Southern California as architecture; and it is inexcusable to the extent that you, at least, know better. In the celestial orbits in which these publications now move, architects and architecture may have become anachronisms. If so, for bringing up the subject, I beg your pardon.

GUY H. BALDWIN Buffalo, New York

The Sponsor Makes Glass
Dear Editor:

It is obvious from the results of the competition that the sponsor is a manufacturer of glass products. This is as it should be. But reason should temper all things. I simply wonder how the winning drawings would look if the sponsor had been a cinder block, a roofing material, or a bamboo products manufacturer.

Beyond the fact that the structures delineated on the winning drawings showed many interesting, novel, and useful ways of employing glass products in a home, the other equally, if not more important, feature of the competition—namely that the building being designed was to be a home—was entirely overlooked in many, if not all, of the winning drawings.

I am no hidebound traditionalist but it is popular, as well as my own, opinion that a home is a place of privacy, security, comfort, convenience, and beauty. How can the occupants of a home have any privacy if the walls, roof, partitions, and most of the rest of the structure are open to the public view?...

How much security would your G.I. feel in a home slapped together out of skinny pipes, screens, folding partitions, and general construction much like that of our wartime wooden toys?...

Having adequate places to store one’s possessions and having these belongings easily and readily accessible certainly are major parts of comfort and convenience. ...

As to the beauty of the chosen designs, there are definitely two irreconcilable sides to that question—mine and the wrong one!

JOSEPH M. PUFFER Saugus, Massachusetts

And Now—a Few Kind Words
Dear Editor:

I wish to congratulate you for the very successful Pittsburgh Competition that graced your pages recently. Many of the plans shown indicated mature thought on the part of the contestants and the entire project was beautifully presented.

GEORGE FRED KECK Chicago, Illinois

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GEORGE FRED KECK Chicago, Illinois
Fathers freezing in his Bath...

INSTALL STEEL PIPING ADEQUATE FOR TOMORROW’S NEEDS

Because Mother’s washing dishes!

EVERYTHING was lovely until “the boss” downstairs started scalding the dishes. That’s when the hot water stopped.

Perhaps Father doesn’t understand why his family can’t have hot water upstairs and down at the same time. Maybe he doesn’t know that the pipes were too small in the first place, and that the city water pressure cannot deliver a good healthy stream of water upstairs when somebody’s using the water downstairs.

Don’t blame Father for his ignorance of proper water pipe diameters. He has to be shown why he should pay a little more for adequate-size pipe when he builds that new house or modernizes the old one. He will see the advantage of providing for all those extra fixtures and extra outlets.

Always remember this: No more water can be delivered than pipes can carry under existing city pressures. To get more water, use larger diameter pipes and larger meters, too. The best protection to insure an adequate flow is to use adequate-size steel pipe.

YOUNGSTOWN
THE YOUNGSTOWN SHEET AND TUBE COMPANY
YOUNGSTOWN 1, OHIO
Manufacturers of CARBON, ALLOY AND YOLOY STEELS

Pipe and Tubular Products-Sheets-Plates-Conduit-Coke Tin Plate
Electrolytic Tin Plate-Bars-Rods-Wire-Nails-Tie Plates and Spikes
JOBS AND MEN

MEN WANTED

DESIGNER-DRAFTSMAN wanted by small office in western Massachusetts. General practice with housing predominating. A permanent opening for the right man. R. J. Hubert, 18 N. Main St., South Hadley Falls, Mass.


LAYOUT LOFTSMEN AND CHECKERS with three to five years' experience on sheet-metal loft layout wanted. Must have educational background to qualify for position with established New England company. Good postwar possibilities. Write, giving qualifications, draft status, age and salary requirements. General Aircraft Equipment, Inc., 22 Elizabeth St., South Norwalk, Conn.

DESIGNERS-Detailers WANTED: Some experience on department store and general interiors. For architectural woodworking plant. Very pleasant surroundings and associates. S. W. Manheim Co., 3614 Euclid, Cleveland, O.

Exceptional postwar opportunities for top-flight DISTRICT SALES MANAGERS, RETAIL STORE DESIGNERS, and ARCHITECTURAL DRAFTSMEN, with manufacturer store-fronts, entrance doors, and new postwar building materials sold through established distributors and backed by national promotional program. Write giving details education, experience, etc. Address—Personnel Director, The Kawneer Company, Niles, Michigan.

Minneapolis firm of architects has opening for ARCHITECTURAL DESIGNERS, DRAFTSMEN, AND ENGINEERS. Give age, education, experience, and full particulars. Lang & Raugland, 502 Wesley Temple Bldg., Minneapolis, Minn.

ARCHITECTS AND ARCHITECTURAL DRAFTSMEN wanted by architectural firm in the Middle West. Application should state experience, definite references, and salary desired. Box 139, PENCIL POINTS.

EXPERIENCED DRAFTSMEN wanted by Midwest manufacturer. Must be familiar with all phases of architectural drafting, particularly store exterior and interior work. Excellent opportunity for present and postwar period. Write in confidence giving full details education, experience, and salary desired. Box 143, PENCIL POINTS.

ARCHITECTURAL DESIGNER AND ARCHITECTURAL DRAFTSMAN wanted. Must be capable of design, and development of working drawings and details. Established office, with extensive practice in public buildings, schools and hospitals. Excellent opportunity for capable men. Kansas City location. Box 145, PENCIL POINTS.

GENERAL DRAFTSMAN AND DESIGNER of schools, hospitals, and other public work, wanted in small office in eastern New York State. Give educational qualifications, references, and salary desired. Box 146, PENCIL POINTS.

HEATING, VENTILATING AND STRUCTURAL ENGINEER wanted as a partner in established architectural firm with general practice in a progressive Virginia city. If interested and qualified, submit statement of educational background and experience, and tell when and how registered. Also enclose photograph. Box 147, PENCIL POINTS.

ARCHITECTURAL DRAFTSMAN wanted capable of handling design and working drawings. Small office, principal practice, schools, churches, hospitals. Please give full particulars. Box 148, PENCIL POINTS.

STRUCTURAL ENGINEER, thoroughly familiar with all types of structure, building design wanted for permanent employment in our offices in Omaha, Neb. Send full details of schooling and experience. Leo A. Daly Co., 629 Insurance Bldg., Omaha 2, Neb.

(Continued on page 12)

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Of all the material things on which man relies in time of crisis, none is worthier of his trust than are Von Duprin fire and panic exit devices.

For nearly forty years Von Duprins have kept the faith. No matter what the emergency, they have always provided safe, sure, instant exit. They have saved countless thousands of men, women, and children from the twin terrors of fire and panic.

Whether they are the current models, of sturdy malleable iron, or the more brilliant brass and bronze types of pre-war days, Von Duprins are solely on the basis of their past performance merit your full confidence and trust.

Every Von Duprin is built to do just that!
Gracefully modern and accentuated with soft curves, Saturn will add distinction to postwar homes and buildings.

Not a postwar dream, Saturn is BUILT, and is only one of a series of lock designs to be produced immediately when victory releases materials and manpower.

SAN FRANCISCO    SCHLAGE    NEW YORK
**Views**

(Continued from page 12)

**Draftsman For Pencil Points**—Full-time position as member of editorial staff preparing plans, elevations, and details for magazine reproduction. This is a creative job, analyzing and explaining contemporary construction. A knowledge of building techniques and facility with pen required. State qualifications and salary expected. Box 156, PENCIL POINTS.

**Architectural Draftsman wanted**—talented in quick perspective studies. Western North Carolina office. State qualifications fully and salary expected. Box 151, PENCIL POINTS.

**Architectural Draftsmen**—Can employ for one year or less men capable of making good working drawings. Design and engineering ability not required. Office located in progresured Louisiana city. Practice varied. Work along “Contemporary” lines. Air-conditioned office. Good lake fishing. Swell job for the right man. Write fully. Box 155, PENCIL POINTS.

**Situations Wanted**

**Design Engineer**, N. Y. State license, twenty years’ comprehensive experience on architectural and engineering structures, seeks to develop clientele among New York architectural organizations with progressive construction programs. Box 141, PENCIL POINTS.

**Architect-Designer**—18 years’ experience, hospitals, public works, housing, industrial; self-reliant, and good personality; graduate Columbia University; seeks opening with progressive architects or engineers with possibility of future association or partnership; preferably South or West. Box 149, PENCIL POINTS.

**Architect**, age 32, desires to associate with progressive West Coast organization. This man is a Registered Architect in Michigan, N.C.A.R.B. registered, A.I.A. member, graduate architectural engineer, with 10 years’ varied professional experience in Detroit, Mich., Portland, Ore., and Pearl Harbor. Box 152, PENCIL POINTS.

**Architect**, with over 25 years of successful experience on all types of buildings, seeks association with firm located in mild climate, for reasons of family health. Box 153, PENCIL POINTS.

**Naval Officer**, 33, to be released this summer, married, child, excellent health, desires offer that will crystallize his future. Southern university graduate, sales engineering; superior positions two large corporations, housing project, head small construction corporation, prefabrication research and interest; planner, organizer, knowledge of Latin America, including Spanish and Portuguese. Box 154, PENCIL POINTS.

**Notice to Competitors**

Most of the drawings submitted in the PENCIL POINTS—Pittsburgh Architectural Competition have been returned to their owners. About seventy-five of them, however, are being held for possible use in a book of competition designs. As soon as definite choices are made the authors of these designs will be asked for permission to include the drawings in the book and those selected will be returned.

**William F. Bennett, Jr.** The return address marked on your entry in the Pittsburgh Glass Company Architectural Contest is incorrect. Will you send us your correct address, or call our editorial offices so that we may return your drawing?
When you want the best - call for WaDrains

Four STURDY brass flashing collar bolts fastened to head. Insures against loss during installation.

Furnished with either threaded or heavy cast outlet.

Calling All Jobbers!
The Wade Authorized Distributor Plan offers you the right kind of cooperation, the right source of supply, for the big things to come. Write for details.

QUALITY PRODUCTS SINCE 1865
Floor Drains • Roof Drains • Backwater Valves • Grease Interceptors
• Traps and Cleanouts • Swimming Pool Drains and Equipment
• Water Hammer Arresters.

The No. 3100 Roof Drain shown here is a good example of the extra quality and value you get when you specify WaDrains. Note the many features that contribute to longer life—to easier installation — to dependable trouble-free service. Whatever your drain requirements you'll find an answer in the WaDrain line. It's your simplest and safest way to be sure of complete satisfaction.

STOP WATER HAMMER with the Wade Arrester
Ends annoyance and damage of water hammer completely, permanently. Easily installed; needs no maintenance or adjustment. Sizes for all needs, all types of buildings. No. 6 illustrated; serves the average home..............................$12.00

WADE MANUFACTURING CO.
77-79 N. STATE STREET, ELGIN, ILL.

On the West Coast:
WADE-PORTLAND IRON WORKS DRAINS (FLEMING DRAINS)

PENCIL POINTS, JULY, 1945
First Prize—The Jury liked the emphasis given the exposition space in this design by Alden B. Dow, Inc., Houston, and thought it "fits well the nature of the site."

Second Prize—"Possesses beauty of drawing and great dignity" was the Jury's accolade for this design by J. Thomas Rather and George W. Rustay, also of Houston.

Third Prize—Termed "a well ordered, conventional design" was this drawing by J. Murrell Bennett, Dallas. But the exposition space was less than wanted.

Fourth Prize—Donald S. Nelson and Thomas D. Broad, Dallas, ran counter to the Jury's opinion when they gave more emphasis to the auditorium than exhibits.
Inland Research Creates the HI-BOND Re-Bar

Many practical difficulties overcome in making an outstanding contribution to the construction industry

Inland research actually scored twice in developing the HI-BOND Reinforcing Bar—first in designing a deformed bar of extremely high bond value, and equally important in developing steel mill rolls for efficient and accurate production.

Inland engineers, with long experience in construction, knew that there was need for a better reinforcing bar. After years of study a design was created, but it presented a number of problems before it could be rolled successfully. In fact, there were those who said it was impractical to roll. That was a challenge to Inland roll designers and mill men. After studies of the problems, rolls were cut and billets were formed into HI-BOND Bars—bars that were true to design and accurate—bars that could be rolled in any quantity, restricted only by wartime conditions.

The HI-BOND Bar is another example of how Inland research develops and makes available new steel mill products—products that do a better job—products that often save steel and cut labor costs.


Principal products: Sheets, Strip, Tin Plate, Bars, Plates, Floor Plates, Structural, Piling, Rails, Track Accessories, Reinforcing Bars.
As the San Francisco Conference pursues its way toward agreement on the world political setup, whereby men have dared to dream that Peace may be maintained in the world and War outlawed, a group of San Francisco architects—William Wilson Wurster, Theodore C. Bernardi, and Ernest Born—have presented the timely project shown here. In a series of masterly drawings they have visualized on the shores of San Francisco Bay a great group of buildings to house the activities of the permanent United Nations organization.

Inspired by the presence of the conference in their city and well aware of the geographic and climatic advantages that prompted its selection as the place for the current meetings, they chose Strawberry Point in Marin County as a site possessing in the highest degree the necessary character to be developed into a center of world importance. The design is offered as a preliminary study which would, of course, require further research and development before it might eventually be realized. It is the hope of the designers that it may help in some way to advance the great project of permanent world peace.

The architects approached their design of the center with two criteria in mind. To use their own words, “Its architecture must possess every utilitarian convenience and general amenity for work and living, with the space-usage flexibility of a loft building or warehouse—but it must also, by the beauty of all its parts and by the integrity of its...
1. Map of San Francisco Bay area highlighting Strawberry Point, chosen as ideal site for the project. 2. Aerial view looking northwest from 9000 feet altitude. 3. Looking south towards San Francisco. Main group of buildings on point; hotel and residential center at curved head of Richardson Bay to take care of delegates, staff, and personnel.

plan and the nobility of its conception, stir men's hearts to fine things and inspire in them the clarity of vision to see past the obscurations of cynics and doubters and give mankind the perseverance and power needed to make this truly the good world we dare to believe it could be."

The site chosen, as may be clearly seen, overlooks a panorama to the south including San Francisco, Oakland, and the bridges. It is sheltered from the westerly ocean winds by Mt. Tamalpais and the Marin Hills. It is within twenty minutes of the heart of San Francisco via the Redwood Highway. The land area is sufficient for all needed buildings, with plenty of space for future expansion to the north.

Traffic and circulation have been studied and can be adequately handled. From the future modern six-lane highway leading from the Golden Gate Bridge, a system of loops would lead down into the center from the low hills to the north, arriving through a tunnel under the main group of buildings into a parking area under the Court of the United Nations. Elevators would give direct access to the major buildings. Automobiles on the way to the parking area can let out delegates, personnel, and visitors directly into the great Entrance Court. Directly facing on this is a Press, Communications, Police, and Information Building. In the center of this Entrance Court is an Auditorium seating 10,000 people, giving ample space for delegates and visitors. The Auditorium is so located as to give access from all directions, making for easy entrance and exit. Modern, well-

(Continued on page 20)
Two views of main group of buildings, with huge domed auditorium flanked by curved Archives Building and Press and Information Building. Secretariats housed in long office buildings. Note seaplane and boat landings with restaurant at waterside to serve public arriving by air, land, or water.

**LEGEND FOR PLAN**

A. Auditorium, seating 10,000 people, for large gatherings, official, cultural.
B. Archives Building, where documents of member governments are on file for official use.
C. Library Court, with revolving Globe.
D. Outdoor Exhibitions.
E. Auxiliary Buildings, housing scientific foundations and study organizations.
F. Court of Flags. Flags of member countries would be flown here on state occasions.
G. Entrance Court and Auditorium Plaza.
H. Harbor for Small Craft.
I. Library, capable of expansion, to house historical documents open to the public and materials on history and politics.
J. Museum.
K. Outdoor Museum.
P. Press and Information Building.
R. Restaurant, open to the public.
S. Secretariats, or office buildings, housing the offices of the member governments.
U. Underpass to Parking Areas.
ox. Beacon.
Y. Seaplane Landing Base.
lighted office buildings provide working space for the Secretariat and the various committees. These office buildings are so located as to shelter the Entrance Courts and the Court of the United Nations from the occasional westerly winds. A Library for the use of all delegates and their staffs is centrally located facing an inner Garden Court. A Museum for the exhibition of unique documents or items of world-wide interest is centrally located adjoining the Library. An Archives Building for storage of records and documents is located to form a great backdrop for the Entrance Court.

In the hills to the north immediately adjacent to the central group of buildings will be other buildings housing activities concerned with the coordination and development of cultural, social, and humanitarian problems. Here would be the offices concerned with propagation of ideas on agriculture, science, and arts. Indoor and outdoor theaters and music halls are indicated in this part of the development.

At the edge of the United Nations Plaza and facing the water is a restaurant serving visitors and personnel, and suitable for entertainment of delegates and visitors. In addition there would be club rooms, promenades, and gardens on the roofs of the office buildings.

It is proposed to develop the whole area within the two-mile circle as a beautiful park. All the modern ideas of Science and Art would be utilized to produce the most convenient and workable center, as well as one pleasing to the eye. The work of the master painters and sculptors of the world could be incorporated.

South office building viewed from Entrance Court, with Press and Information Building at right foreground. Stairs at left lead up to Court of Flags. The ground level of the office buildings is an open promenade and loggia. Top floors house club rooms, dining rooms, and special meeting rooms. Offices are on intermediate floors. Outside walls are to be of grid construction, permitting use of transparent or opaque materials as needed.
BROOKLYN WAR MEMORIAL COMPETITION

Designs for a borough memorial to heroes of World War II, winning the recent competition initiated by the Brooklyn Eagle, are all for sites facing the proposed Civic Center. The first prize drawing (top, left) won $3,000 for Stuart Constable, chief designer of New York Department of Parks, and Elisabeth Gordon, New York, sculptor of the statue of Victory (above) for the forecourt. Aymar Embury II, architect, and Gilmore D. Clarke, landscape architect, won the $1,500 second prize with their design (left) for a sculptured and inscribed Wall of Honor in a loggia at the front of a memorial auditorium. Paul Fitzpatrick, vice president of the American Arbitration Association, won the third prize of $500 with his design (below, left) for a Hall of Arbitration. The proposals will be referred to the city for consideration among postwar projects.

Moved to reexamine his tree-planting program when Philip LeBoutillier, president of Best & Co., flatly refused to have trees around his new store on Fifth Avenue just beyond the blocks where sidewalk trees have been cherished since 1939 by Rockefeller Center and St. Patrick’s Cathedral, Nathan sent out a questionnaire to 17 landscape and architectural men. They gave their enthusiastic approval to his policy. Those questioned voted unanimously that “trees enhance the architecture of city buildings such as exist on Fifth Avenue or on similar streets of Manhattan” and with one exception (no vote cast) that “continuous trees along an avenue are beneficial to its beauty.” The majority favor “general tree-planting throughout Manhattan, such as exists in Paris and Vienna.” And all but one (no vote) disagreed specifically with LeBoutillier’s contention that “trees should have no place on Fifth Avenue, except on the park side, in front of a park.”

In denying the request of Mrs. Iphigene Ochs Sulzberger, president of the Park Association of New York City, Inc., that he consider planting trees, LeBoutillier took occasion also to complain that trees “obscure the architectural beauty” of St. Patrick’s Cathedral, the Church of St. Nicholas, the Pulitzer Fountain in the 59th Street plaza, and the hotels around the plaza. He also objected to the “measly trees” at the corners of the Public Library. He ventured his opinion that “the Park Association of New York City, Inc., should confine its efforts to parks, for which it probably was organized.”

Perry Coke Smith, of Voorhees, Walker, Foley & Smith, has been elected president of the (Continued on page 24)
In the Home of Tomorrow the radiator is conspicuous by its absence—it is everywhere, and nowhere. In Webster Baseboard Heating, the heating element is something so small that it fits behind the baseboard and runs in a continuous line all around the exposed walls of the room.

The baseboard unit supplies heat to the room using “forced” hot water. Air goes in at the floor-line, passes over the heating element, is warmed and comes out at the top—a constant, even circulation. No cold corners. No hot spots. No hot-or-cold levels... Installations of Webster Baseboard Heating show a variation of less than 2° from floor to ceiling.

With Webster Baseboard Heating there is nothing to limit or mar plans for interior decoration and furniture arrangement... And you will find that the absence of radiators in the room gives considerably more useable space.

Webster Baseboard Heating has been under development for several years and has met the most severe operational tests. It will be available to home owners and home builders when war conditions permit.

Make this test: Cut out illustration of radiator at left. Place cut-out picture under right window in main illustration above. See how presence of a radiator in the room interrupts whole scheme of decoration... A leading architect, collaborating with a well-known interior decorator, is preparing a series of paintings showing application of Webster Baseboard Heating to different types of rooms. When completed, these paintings will be reproduced in full color. Write today for your copy of this brochure on Webster Baseboard Heating. Dept. PP-7

WARREN WEBSTER & COMPANY, Camden, New Jersey
Pioneers of the Vacuum System of Steam Heating: Established 1888
Representatives in principal cities: Darling Brothers, Limited, Montreal, Canada
Three prizes of $100 each were awarded to three more teams, whose entries are shown above. The drawing at center is by Eduardo Mejia, as architect, University of Pennsylvania; Bolton Morris (special mention), as painter, and Andrew Hawkins, as sculptor, both of Pennsylvania Academy of Fine Arts. The drawing at lower left is by Mayer & Whittlesley, architects, New York, with Sgt. Edgar A. Tafel, associate; and Amedee Ozenfant, painter, New York. At lower right is shown the drawing of William Henry Deacy, architect; Vincent Carano, sculptor; and Ernest S. Leland, painter, all of New York.

First prize of $1,000 plus the students’ prize of $200, in the recent collaborative competition to design an enduring memorial “at a scale commensurate with Dr. Elmer A. Sperry’s ... importance” as inventor of the gyro-compass, has been awarded to Mary T. Wilcox, as architect, University of Pennsylvania; Helen Omansky, as painter, and Richard Frazier, as sculptor, both of Pennsylvania Academy of Fine Arts. Their winning entry is shown at left.

With the entry at the left, John Pile, as architect, University of Pennsylvania; Eda Castle, as sculptor, and Marie-Celeste Fadden, as painter, both of Pennsylvania Academy of Fine Arts, won the second prize of $200 plus the students’ prize of $75.

With the entry at the left, John Pile, as architect, University of Pennsylvania; Eda Castle, as sculptor, and Marie-Celeste Fadden, as painter, both of Pennsylvania Academy of Fine Arts, won the second prize of $200 plus the students’ prize of $75.

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A Planned Community ... Modern Homes with Lupton Metal Casements ... Added beauty and added liveability — natural ventilation and abundant daylighting — in every room. Lupton Metal Casements are easily operated and their sturdy construction assures weather-tightness and fire protection. Back of "Lupton" is more than 40 years in metal window design.

See our Catalog of Post War Types and Sizes in Sweet's for 1945, or write today for reprint.

MICHAEL FLYNN MANUFACTURING CO.
E. Allegheny Ave. at Tulip St., Philadelphia 34, Pa.
Member of the Metal Window Institute
KINNEAR DOORS
offer ADDED SAVINGS with this KINNEAR Motor Operator

Just touch the button and the KINNEAR Motor Operated Rolling Door coils upward without further effort or attention. Touch the button again and the door closes smoothly. The door can be quickly stopped and reversed at any point in its travel. Remote control switches, permitting the door to be operated from any number of distant points, may also be used.

The KINNEAR Motor Operator is an integral unit, insuring accurate alignment, quieter operation, greater efficiency and minimum maintenance. The motor is a specially designed high torque output unit, matched to the load requirements of the door. Worm gears are of bronze and the worms are of polished, hardened steel; both are machine cut. Precision ball bearings, graphite oilless bearings, bronze bushings and large sealed oil reservoir for adequate lubrication with minimum attention, are incorporated in the KINNEAR Motor Operator.

For complete information on KINNEAR Motor Operated Rolling Doors, write today! The KINNEAR Mfg. Co., Factories: 1900-20 Fields Ave., Columbus 16, Ohio; 1742 Yosemite Ave., San Francisco 24, Calif.

OTHER KINNEAR FEATURES INCLUDE:
...Flexible steel slat curtain that coils up out of the way, clearing the opening completely.
...Helical spring counterbalance that assures smooth, easy operation.
...Kinnear "tough" all-steel construction stands up under hard night and day service.
...Wall, floor and ceiling space around door always usable.
...Many others.

Critical attention to the limits of the roles of government and industry in construction research is invited by the Technical Committee, Producers' Council, Inc., in a tentative statement of principles sent out to professional and trade groups of the construction industry.

Explaining that "there appears to be need for constructive determination of the areas of research" because of divergent opinions "as to the proper scope, pattern, and objectives of government research, in relation to private enterprise and the maintenance of the American incentive system," the Technical Committee emphasizes that the Council itself does not wish to take a definite stand on this question until it has the advice of the industry. If a statement can be agreed upon, the Council proposes to put it before Congressional committees and government agencies concerned.

The statement offers definitions of the objectives of research—fact-finding and invention—and suggests divisions of responsibility, areas, financing, and official controls.

NOTICES

CHURCHILL-FULMER ASSOCIATES announce the removal of their offices to 19 West 44th St., New York 18, N. Y.
PERRY M. DUNCAN, Architect, announces the reopening of his office at 121 East 54th St., New York 22, N. Y.

THE DETROIT BRASS FOUNDRY, Los Angeles, Calif., will hereafter be known as THE LOS ANGELES BRASS CO., it has been announced by DON DAVIDSON, General Manager. The company will manufacture under the trademark name "L. A. BRASS."

The U. S. GENERAL AND CONVALESCENT HOSPITAL, Camp Carson, Colorado, has requested back issues of PENCIL POINTS and other architectural magazines for use by veterans in courses that are designed to aid in readjustment after years of active combat duty. Put your unused back issues to work by sending them to the attention of CAPTAIN R. F. RINKER, Chief of the Ed. Recon. Section.

CARL L. GARDNER has been appointed chief city planner in charge of the master plan division for the Chicago Plan Commission, it is announced by H. EVERETT KINGCAID, executive director. Until recently Mr. Gardner was in charge of all land planning for the Federal Housing Administration and has resigned to take this new post.
Silbraz is the name when you want leakproof copper or brass pipe runs that remain permanent for years; that contribute to increased prestige ... and business. Performance-proved in thousands of installations, here are 5 major reasons more and more owners are demanding safe, dependable Silbraz installations in all types of buildings.

1. VIBRATION PROOF
   - the physical characteristics and design of the Silbraz joint are such that the joint will withstand vibration under load better than even the pipe or the fitting.

2. FIRE
   - the silver brazing alloy used in Silbraz fittings has a melting point of 1300° F. In a fire, the pipe will fail—under load—long before the joints and fittings are affected.

3. CORROSION RESISTANT
   - in conveying many commercial gases or liquids, Silbraz joints have been found to stand up as well as the pipe itself and frequently better. This is due to their high percentage of copper and silver.

4. "ONE-PIECE" LINE
   - the brazing alloy incorporated in each Silbraz port, flows out when heated with the oxyacetylene flame, and makes a tight, leakproof joint—stronger than the pipe itself.

5. ECONOMICAL
   - Silbraz joints require neither maintenance nor repairs, and are good for a service span equal to or greater than the life of the pipe.

Silbraz fittings and valves are produced by leading manufacturers. You can specify them with assurance for plumbing and heating lines, fuel, gas and process lines—in better-class homes, apartment houses, public, commercial and mercantile buildings—wherever you want copper or brass pipe runs that can "stand-up" under all conditions and give your clients complete satisfaction.

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Duy United States War Bonds

Pencil Points, July, 1945 27
MORE planes available
MORE space available
SPECIFY AIR EXPRESS

WHEN TIME MEANS MONEY, Air Express earns its weight in gold. Specify this fastest delivery for all urgent shipments — there’s more space available these days for all important traffic.

HIGH SPEED FOR LOW COST. When you consider that shipments travel three miles a minute between airport towns and cities, the cost of Air Express is low, indeed, as is shown by typical rates on chart.

AND COST INCLUDES special pick-up and special delivery in major U. S. towns and cities — a service that makes same-day delivery possible in many cases. To 23,000 off-airline points there are rapid air-rail schedules. Direct service to scores of foreign countries.

WRITE TODAY for interesting “Map of Postwar Town” picturing advantages of Air Express to community, business and industry. Air Express Division, Railway Express Agency, 230 Park Avenue, New York 17. Or ask for it at any Airline or Express office.

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News

(Continued from page 26)

OBITUARIES

N. Max Dunning
1873-1945

N. Max Dunning, architectural adviser to PBA Commissioner W. E. Reynolds and public servant since World War I, died April 19 in Washington. Prior to entering government service, he designed schools, clubs, hotels, and commercial structures in the Midwest.

As one of the founders of the Architectural League of America, Dunning was secretary of its first convention in 1903 and became president of the League in 1904. He began the practice of architecture in Chicago, in 1894, and in 1900 won the first traveling scholarship of the Chicago Architectural Club, which enabled him to continue his studies abroad. He was a Fellow of the A.I.A., a former national director and vice president, a past president of the Illinois Chapter, and past chairman of various A.I.A. national committees.

Edith Elmer Wood
1872-1945

Dr. Edith Elmer Wood, internationally known housing authority, died April 29 at Morristown, New Jersey. She had been known for more than 30 years as an expert on slum clearance and low-cost housing problems. Her books and pamphlets on the subject also have been widely quoted.

As consultant to the United States Housing Authority and a director of the National Public Housing Conference, Dr. Wood completed in 1942 a nation-wide survey of wartime housing conditions. She founded the Anti-Tuberculosis League of Puerto Rico, of which she was president from 1906 to 1909 and honorary president until her death; served from 1917 to 1929 as chairman of the National Committee on Housing, American Association of University Women; supervised Columbia University's extension courses in housing from 1926 to 1930; was a member of the New Jersey State Housing Authority, the executive committee of the International Housing Authority; served for four years as vice president of the National Public Housing Conference.

Other leaders in the field paid tribute to Dr. Wood's devotion to "the cause of housing and human welfare" at a memorial meeting May 9 in New York. The meeting was sponsored by Citizens' Housing Council of New York, National Public Housing Conference, and National Committee on Housing.
Among countless plastic materials Saran has the inside track in the architectural field. Screen from Saran has already proved itself—an accepted product in up-to-the-minute building plans. High ranking among advantages that have brought it popularity over the best metal screens is resistance to corrosion. Saran simply can’t rust. It’s not affected by salt air, rain, snow, or fog. It possesses stamina, has a tensile strength of 50,000 pounds per square inch, yet is extremely resilient. Saran’s beautiful colors are a part of the material itself—there’s no need of repainting and there’s no danger of ugly streaking of sills. These and other advantages support the prediction of a brilliant future for screen from Saran.

Other Dow plastics are headed for success in building—close on the heels of the leader. For example, Styron and Ethocel possess properties definitely fitting them for many unique architectural duties. These materials are worthy of your consideration—any Dow plastics technician will be glad to discuss them with you.

The Dow Chemical Company • Midland, Michigan

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle

Screen from Saran leads the way

Let’s work it out together

The team at Dow feel that the successful use of plastics in architecture is not a one-man nor even a one-industry job. It calls for the combined skill and experience of architect, plus fabricator, plus raw materials producer. Working together, this team saves time and money and puts plastics to work successfully. Call us—we’ll do our part.
COMPACT, SIMPLIFIED PLANNING  
Keynotes this Prize-Winning Plywood Home

Plywood's structural possibilities are graphically illustrated in this second-prize plan, in the recent United States Plywood Corporation — “Arts & Architecture” Small Home Competition.

This highly simplified method of construction, based on the principle of the three-hinged arch, shows that plywood is truly a material that combines beauty and utility.

Laminated wood arches...strong plywood hardwood paneling...plywood sheathing for sub-floors, ceilings and walls to be papered...waterproof exterior sheathing...they all combine to produce a compact, livable, economical home for the modest budget.

Another very interesting feature of this design is the way Lt. Amdal provided for today's demand for easy transition between indoor and outdoor living. Here again the structural advantages of plywood permit a freedom of planning that would have been difficult, economically, with other materials.

Complete details of this and the other winning designs are available upon request.

WELDWOOD Plywood  
Weldwood Plywood and Plywood Products are manufactured and marketed by

UNITED STATES PLYWOOD CORPORATION  
New York, N. Y.

THE MENGEL COMPANY  
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Louisville, Ky.

Forty years of experience in equipping hospitals, and direct personal contact with superintendents, engineers and architects, qualify our Technical Service Department to give valuable assistance and authentic guidance in the important matter of planning for STERILIZER INSTALLATIONS.

A Typical Sterilizing Room at Charity Hospital of Louisiana, New Orleans, La. This 3000-bed hospital is completely equipped with Scanlan-Morris sterilizing apparatus.

TO SERVE SPECIFIC HOSPITAL NEEDS

Many of the finest small hospitals of the United States and Canada as well as scores of the largest are equipped with Scanlan-Morris sterilizing apparatus. No matter what a hospital needs in sterilizers, we can supply them.

Suggested layouts of sterilizer and other equipment based on careful survey of the conditions relating to the individual project, with complete recommendations for the most efficient and economical installation to meet the requirements, are furnished upon request and without obligation.

Typical layout for small hospital with major and minor operating (or delivery) rooms.

In this sketch, double doored autoclaves divide the sterilizing department into unsterile and sterile sections.

Scanlan-Morris, Madison 4, Wisconsin

Send Sterilizer Catalog and Planning Manual to:

PENCIL POINTS, JULY, 1945
You can have both economy and distinctive design with ARCHITECTURAL CONCRETE


Easy adaptability to exacting design requirements, firesafety and long life at low maintenance expense are extra values which architectural concrete offers.

Substantial economy of first cost is achieved because architectural concrete combines both architectural and structural functions in one material.

Besides these advantages and the rugged structural strength of concrete, it gives low annual cost, the true measure of economy in buildings.

Designers of postwar public, industrial and commercial buildings will find valuable data in our literature on design and construction practice with architectural concrete. It is free in the United States and Canada. See Sweet’s Catalog 4F/3.

PORTLAND CEMENT ASSOCIATION
Dept. A7-25, 33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of concrete through scientific research and engineering field work
★ Buy and Keep More War Bonds ★
A BUILDER ASKED THIS QUESTION

"Will the use of Aluminum Windows increase my labor costs?"

And this residence in Illinois answers . . . . "Definitely not!"

Two carpenters started to unpack the eighteen aluminum windows for this house (this is a prewar story, of course) at 10:30 one morning. At 2:30 that afternoon, with a half hour out for lunch, all eighteen windows were set, anchored and lined up, ready for the plasterers.

That's been nearly five years ago. Today, their good appearance, their easy operation, greater glass area and low upkeep continue to make living with them a joy.

Windows made of Alcoa Aluminum will again be available, from a number of manufacturers, just as soon as aluminum and manpower are available. Aluminum Company of America, 1868 Gulf Bldg., Pittsburgh 19, Pa.
Never before have so many K & E Slide Rules been wanted by engineers for such critically important work. You may have had to wait for the K & E Slide Rule you wanted. We apologize. We've stepped up our wartime production tremendously. But in the manufacture of Slide Rules haste can be a hazard. The engineer cannot tolerate instrumental errors in his equipment.

- K & E Slide Rules are traveling all over the world. They have to stand up to all kinds of climates and conditions. Only carefully selected materials, experienced skill and thorough workmanship are sure to do that.

That's why engineers know they can rely on the unvarying accuracy of a K & E Slide Rule anywhere, anytime.

You will find Don Herold's booklet, "How to Choose a Slide Rule" helpful and amusing. Write to Keuffel & Esser Co., Hoboken, N. J.
"Was the roof of tomorrow here yesterday?"

This is one of the new synthetic rubber plants, a unit in America's newest industry. On its many buildings are roofs built of Koppers Coal Tar Pitch and Tarred Felt... the type of roofing that was setting up records for durability away back before synthetic rubber was a practical possibility.

This is only one of the big wartime plants on which Koppers Roofing was used. Individual plants with as much as 60 acres under one roof have been covered with Koppers Roofing.

The war brought immense construction activity and resulted in many revolutionary new ideas in construction, but through it all no one was able to find any built-up roofing which is better than the good, old reliable coal tar pitch and felt.—Koppers Company, Inc., Tar & Chemical Division, Pittsburgh 19, Pa.

One of America's newest industries uses one of America's oldest roofings
Accenting the practical in new bathrooms

In modern bathrooms, the skill of the Architect can be apparent to the most inexperienced home owner. Practical, convenient arrangement of facilities; ingenuity in providing ample storage space; beauty, dignity and harmonious design in fixtures and fittings specified—all these are easily recognizable.

Kohler fixtures and fittings fulfill all requirements for first quality: the fixtures with their sound, rigid construction, permanently lustrous, easy-to-clean surfaces, and appropriately matched designs; the fittings with their sureness and ease of performance, and reliability of all working parts.

The arrangement above includes the new Kohler Gramercy lavatory with built-in fittings and roomy shelf back; the Cosmopolitan recess bench bath, with shower controlled by the efficient Triton mixer; and the quiet, smooth-acting Wellworth close-coupled closet. Quality control of Kohler products is assured by unity of supervision and complete manufacture in one plant—backed by 72 years' experience. If you don't have Catalog K-41, write Kohler Co., Dept. PP-7, Kohler, Wis.
She'll want a MODERN Kitchen

of course

During the war years, millions of housewives have formed some pretty definite ideas about their kitchens-to-come. They want them truly modern—certainly. BUT they'll want cabinet arrangements to fit their own individual tastes and needs. They'll want kitchen color schemes that meet their conceptions of kitchen beauty—and that may be changed as desired. They'll want solid value—not mere surface charm.

And that's exactly why so many architects and builders will specify Curtis wood kitchen units in the homes of tomorrow. Curtis stock cabinets make it possible to have the most desirable arrangement plus the most desirable color scheme. Curtis cabinets fit every kitchen arrangement. They are easily installed—fit perfectly with all standard kitchen appliances—and are priced for budget-minded home builders.

Curtis stock cabinets provide maximum convenience and storage space for any size or shape of kitchen.

Wall and base units are designed to fit easily and quickly together in various combinations to fit different needs.

Curtis cabinets are scientifically designed for greater efficiency in use. Expert in workmanship, they are recommended by "Good Housekeeping" Institute.

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Two Kinds of Architecture

It has seemed to us for many years that there might be an advantage to all concerned if architects made a clear distinction between the Small House and all other buildings. Both are architecture, yes—but when we consider the frequently quoted statement that trained architects are professionally employed on less than twenty percent of the first group and on over ninety percent of the second, it seems clear that there is some basic difference that should be recognized by our code of practice.

It becomes of unusual importance to look closely at this paradoxical situation when we face the generally agreed upon forecasts for postwar construction which predict among other things “an average of a million dwelling units a year for at least ten years.” A very large proportion will be low-priced single houses. Most of these, if we follow our prewar pattern, will be provided by speculative builders and developers, and architects will have little to do with controlling their quality of design and construction. Believing, as we do, that on the whole the best houses will be designed by those who have the best training for the task, and further believing passionately in the objective of getting the best possible houses built during these next years for the common man and his family, we regard the state of affairs as unsatisfactory.

We have as customers the thousands of American families who need and want houses, who have definite or limited funds with which to pay for them over a period of years. We have as suppliers a group of architects and a group of builders—the former gifted and trained in design, the latter capable and experienced in putting the houses together. The little man who wants a house needs a first-class designer plus an honest and able builder, but he feels, with more or less justification, that he cannot afford both. So he looks for the two functions combined in one person and usually takes what the average speculator can offer—a stereotyped mediocre design, built well or ill, but within his budget. He finds it livable, though imperfect, and never realizes that he could have had something better.

Now, if there were available in localities throughout the country a supply of well-trained architects who had chosen to make the small house their particular specialty, and if these men had taken the trouble to acquire experience in actual building, would they not be in an ideal position to give the low-income public what it really needs? By setting themselves up as architect-builders and undertaking as entrepreneurs to develop residential areas they would be able to provide numbers of completed houses, better designed and better built than would otherwise be procurable. Their activity need not interfere with the practice of architects doing larger work.

It so happens that at this moment there are a number of talented architects who will soon be coming out of the uniformed forces with several years of experience in building various sorts of war projects. With this start, some of them might find a useful and profitable career in this business of providing better small houses. We suspect that some of them will. There seems no sane reason why the professional code could not be adapted to cover this special field and set up the special safeguards that would guard it against degenerating into speculative operations.
When restrictions are relaxed, Evansville expects to be ready to break ground for this project "in memory of the men and women who served their country and those who made the supreme sacrifice in the Second World War"—quoting the inscription suggested by Walter Koch of the Post-War Development Committee, which concludes: "We, the citizens of Evansville, pledge ourselves in perpetuity that this great facility shall be administered for the benefit and in the common interest of all. Let no individual, class, or political group ever violate this pledge."

Analysis by Roland Wank, A.I.A.

Evansville, with a population of about 100,000 in 1940, is one of the many middle western cities which were affected early by the southward sweep of industry from the Great Lakes belt. It expects greater gains as industry further diffuses. Yet its passenger communications by rail and air have not been very convenient. Now, with growing industries, Evansville prepares for intensive schedules as soon as restrictions are lifted. Already there are eighteen flights by two airlines daily in place of last year's four movements, and a third airline has requested space and landing privileges.

From the designer's point of view, the characteristics of this traffic are important. No scheduled flights are expected to begin or end at Evansville; therefore, no need exists for airline hangar space or shop facilities. Nor did the airlines regard the port as a logical service point for in-flight meals, so kitchen space for that purpose was superfluous. The port is not a likely spot for stops of transcontinental ships; thus runways and aprons could be held to the dimensions and loads of present day Constellations and DC-6's.

Traffic definitely anticipated on the basis of past experience includes: private transport planes of nearby industrial corporations; feeder lines; charter and taxi operations; aerial freight; and advanced amateur flying, supported mainly by high-income residential districts close by.

Evansville was lucky in its progressive and forceful citizenry and city administration. Mayor Manson Reichert appointed a postwar development committee of the Board of Aviation Commissioners and lent them his full support. The resourceful and imaginative committee, consisting of Lew LeMoine, Victor Goeke, and Edward Lewenthal, was sparked by its indefatigable secretary, Walter G. Koehn (pronounced Cook). The manager of the port, Emory Boelison, also a member of the County Planning Commission, assisted in the development of plans and zoning ordinances to assure permanent air clearances.

It was these men who recognized the chance for the port to answer another of Evansville's crying needs: for recreational facilities, indoors and out, especially of a kind that lets all members of a family enjoy their leisure time together.
and Recreation Center, Evansville, Indiana

together amid surroundings appropriate to this nation's dream of a higher postwar standard of living. The Board felt, too, that this need will increase as working hours are reduced to a peacetime basis. Thus evolved a concept which served as a frame of reference for the designers and which might be stated as follows:
The first and overriding objective is to supply the facilities needed by the passenger airlines. Other flying activities shall be accommodated until expanding scheduled passenger traffic crowds them out (by which time facilities will have been provided for them elsewhere). That expansion shall not be limited short of the capacity of the field itself. The field, the administration building, and all other features shall permit orderly expansion without basic changes or interruption of traffic.
All potentialities for recreation inherent in the airways facilities themselves shall be fully exploited.
In addition, all suitable land not serving the primary objective of air traffic shall be planned for recreational use, together with additional lands acquired for that purpose; and while initial development will be limited, future expansion to the capacity of the site shall be definitely anticipated. Recreational facilities shall be so varied that at any time of the year or day any member of any family will find some that are attractive and within his means. Such facilities, as well as concessions and other accommodations for airlines, tenants, and the public shall be self-supporting or profit-making if possible, but this consideration should not conflict with widest use by the greatest number. Finally, the port and the attached public park should be visualized as the front door of the city. They shall say to the visitor, and to the casual through-passerenger, "Welcome!" and "Come again!" and "This is the kind of people we are and we hope to have earned your liking and respect." Needless to say, the above outlined concept was enthusiastically supported by the airlines, whose ultimate resource
The site plan (left) for initial development of the Administration and Recreation Area should be examined in conjunction with the study for later development shown below. For the immediate future, the scheme is rather messed up by the necessity for keeping the old Modification Center main shop as a hangar for charter and private planes, plus garage for field service equipment, etc. The subsequent plan will give an expanded and more orderly arrangement of recreation facilities and permit direct access from the highway to the general parking area. Its enlarged apron will allow more plane positions, a small freight depot, and a vacant stretch assignable to cargo planes, charter, or private transport craft as needed. Proper hangars will be provided on the northwest corner of the field.
is the air-mindedness of the public. There remained, how­ever, the necessity to convince taxpayers and citizens—par­ticularly restaurant men, haberdashers, etc., who might raise perhaps shortsighted but nevertheless effective objec­tions to competition by the commercial features of the project. The Committee set about that task with such skill and tact that the public gave the proposal a resounding “yes,” assuring the ability of the city to construct a going project by itself. The prospect of some federal help has not, however, been slighted, since without it some of the attrac­tions of the plan would have to be postponed.

During the war a fighter plane Modification Center was built on land leased from the Airport under the auspices of the Defense Plant Corporation. Some of the improve­ments will be adapted to the new project instead of being removed. An existing concrete apron of 21 acres and other pavements will furnish a large part of the surfaced needed for parking spaces, drives, walks, playgrounds, and taxi­way to the main building of the Modification Center. That mammoth structure, cut down to a manageable size, will be used as hangar, garage, warehouse, firehouse, and so forth. A utility building and boiler plant will be converted to a permanent maintenance headquarters, while the trans­former station, water reservoirs, fire hydrants and mains, fencing, etc., will be absorbed into the project.

All future tenants or users of the project were considered, together, as the client; the architects functioned somewhat as a secretariat to see that all needs were stated and mutually discussed. The CAB, the Weather Bureau, the Airlines, the Management of the present port, the Post Office Depart­ment, the American Express Company, were all consulted, and their advice was invaluable. On recreational planning, the Post-War Development Committee interpreted the needs and desires of the community; and the architects had counsel from Lawrence G. Linnard, Landscape Architect.

SITE LAYOUT
Choice of locations was limited by instrument landing clearances. CAB considers 750’ on either side of runway centerlines a good width, within which not only fixed ob­jects but even parked cars or planes should be prohibited. Subtracting the 1500’ wide clearances from the area of the field, scattered wedge-shaped interstices were left, of which only one was big enough to contain the apron, administra­tion building, recreational area, and parking spaces, all in one group. Since close proximity between those features was considered essential, the choice was automatic.

FIELD IMPROVEMENTS
The runways being in existence, the main item under this heading will be the passenger apron, laid out initially for six plane positions (150’ diam. circles) with an over-all width of 300’ for passing. The six gates will be equipped with illuminated identification numbers, two power circuits for battery charging and cargo lifting devices; and with stations of the PAX system of the administration building.

The plane gates will connect to the administration building by blacktop walks, laid in a diagonal pattern to minimize distances but otherwise quite in accord with past (and admittedly unsatisfactory) practice. Unsettled factors pre­vented agreement on a better solution. Other field improve­ments will consist of taxiway links to reach the new apron, arranged to speed operations by tapping runways near their ends. All this work will be in reinforced concrete.

ADMINISTRATIVE AND RECREATION AREA
At the start, a single highway entrance controlled by a gate lodge will serve all administrative and recreational facili­ties. The Highway Department will be urged to add a de­celerating lane to the highway pavement. Circulation inside the project is easily read on the plan.

On the east side of the swimming pool, a shelter astraddle the fence over the recirculation and sterilization plant will house the double-faced refreshment counter: one counter to serve the pool population, the other open towards the mall. In front of the refreshment stand, the center strip of the mall will be paved with waxed concrete for dancing; the floor will be surrounded by tables, chairs, gay sunshades, and subdued lighting.

The game area is to be equipped principally for informal and sociable ball and other minor games; with some portion set aside for tennis and easy interchangeability to comply with shifts of demand. A small children’s playground with spray pond, seesaws, swings, etc., will be separately placed in about the center of all attractions, and the more bucolic adult pastimes, such as horseshoe pitching, will be dis­tributed around the picnic grounds.

The main picnic area was placed for a good view of the airfield and apron. However, the noise and commotion of that vicinity may not appeal to some, and prohibition there against open fires will prevent cooking. Therefore, it is intended to add another picnic ground near Highway #57 when demand warrants and the budget permits.
In the recreational park, the major future improvement would be enlargement of the general parking space with a one-way marginal road connecting into Highway #57; the highway to be improved with additional turning lanes and an entrance plaza upon which a combined bus terminal and service station might be placed. The original main gate would thus be restricted to administration building traffic, supervised by the gatehouse guard.

Of the old structures of the Modification Center, only the maintenance building would be retained. The balance of the property newly opened up would develop into additional game areas, picnic grounds, children’s playground, and an athletic field of the overgrown sandlot variety. An outdoor movie amphitheater was also considered, though its repertory might suffer too much from the noise of airplane motors.

Since this structure will account for the lion’s share of the investment, special thought was given to prevent early obsolescence and to avoid errors that might necessitate fundamental alterations or abandonment within a few years. Even a superficial examination of past records would caution designers against at least two frequent lapses. One is the assumption that any forecasts of traffic that are reasonable enough to be accepted by a budget-conscious building committee will be worth a hoot tomorrow. In this fantastic industry only the most outrageously uninhibited daydreamers have a chance of being somewhere near right.
Expansibility has been provided in the Administration Building for the Airlines Offices, which may, in case of unexpected growth, either displace less essential users from existing space or be given additional room through extension of the building eastward. As CAB, Weather Bureau, and Management Offices grow, they can first take over the Board Room and crowd out the Grounds and Park Management from the General Office. Later the office floor can be extended eastward and finally the whole wing can be extended westward.

Beyond good planning to insure easy circulation for incoming and outgoing passengers and to provide more than usual comfort and convenience, special facilities have been thoughtfully disposed. Out-of-traffic waiting rooms, coffee shop, and restaurant are easily accessible and overlook the field. Rental shower and tub baths and a baby-care room are uncommon features for a port of this size.

Baggage will be at first handled by small trucks but as traffic grows chutes and conveyors will be added.
The passenger concourse, a trafficway rather than a hall of splendor, is designed for easy service: with ticket counter along field side; concession space, rest rooms, and baggage lockers opposite. A useful and spectacular item is the second floor dining room, terraced and projecting out toward the field with a sloped ceiling to emphasize the sky view.
The other obvious pitfall lies along the design approach that regards the structure primarily as a civic monument, subject to all the planning straight-jackets and stylistic afflictions with which a tradition-loving nation likes to hamstring public buildings. Recently, colonnades in place of a plain sheet of glass on the view side have become less frequent; but one is still likely to find impressive concourses laid across the path of hurrying passengers, grand stairs taking the space needed for ticket counters, and desperate striving to squeeze unequal spaces into some kind of symmetry, regardless of consequences.

On this project, the designers, guided by the progressive Committee, tried to stick to the following considerations:

1. **Expansibility.** In spite of limitations inherent in the horseshoe shape of the site, and regardless of present-day convictions as to the ultimate traffic the port can carry, those activities which would be affected by unexpected growth of traffic shall have room to expand.

2. **View and Orientation.** The basic reason for existence of the building is the flying field; every activity within is related to it; therefore, all but service areas shall have the fullest attainable view of the field. For the control room and the main restaurant, all-around views are, of course, commonplace today; but in many otherwise adequate plans, the waiting room is still in the middle of the building, the kitchen occupies field frontage that rightfully belongs to the coffee shop, or airlines offices must depend on the phone for contact with their service crew or their planes.

3. **Convenience of Passengers.** This building must take its proper place in the all-around policy of airlines to make every passenger feel himself the recipient of special solicitude. This purpose will be served, primarily, by an efficient layout to speed him on his way; secondarily, by comfort features of the equipment and finish, in matters such as atmospheric control, lighting, acoustics, and the like.

4. **Efficiency of Airlines Offices.** As noted before, this space, contiguous to the field and elevated above it, will permit direct contact with the plane and service crews and direct view of the planes at the apron. On the other side, there is equally uninterrupted frontage towards travelers and their baggage.

For flexibility, all of the airlines' space—offices, counters, and aisles—is continuous without structural subdivision. Thus, space can be reallocated as needed. At first, a part of the office space will be surplus, available for concessions. Airlines storage space in the basement could be connected to the offices by direct stairs, if desired.

5. **Non-Interference of Traffic.** Airports house a good many diverse activities, most of which are in a perennial rush and should be kept out of each other's way.

Sightseers will undoubtedly be the largest group; while they will not be forcibly kept out of the building, their main interest may lead to the roof terrace via an independent outside access. Mail and express do not require much accommodation at present, since both are hauled to and from planes without entering the building (except express transferred between planes, which may go to the baggage room). But the east end of the building can be altered should those activities demand space later.

6. **Convenience of the General Public.** Even though the structure was designed for function rather than symmetry, the fact that it will be part of the "Evansville Memorial Airport" has not been lost from sight. Beyond travelers and their escort, it is intended, also, to cater to the widest possible public—whether this produces an income or not. Luxury services are, of course, expected to produce a return, and concession space has been allotted with both service and income in mind. But, aside from welcoming the citizen just because he is a citizen and a part owner, he is regarded as a potential passenger or aviation enthusiast.
The swimming pool is expected to be the most popular feature of the recreation area. It will accommodate 1,500 people within its enclosure at one time. Part of the bath house roof is to be paved for spectators, who can also overlook the roller-skating rink. The paving around the pool itself will be terraced and surrounded by a grass strip.

Admission tickets, checked belongings, rental skates, will be handled at the Field House which will perform similar services for the adjacent game courts too. This structure, which will also house rental lockers and showers, will adapt its functions to the seasons. In summer, the main lounging room, its outer walls removed, will offer a shaded haven to checker and domino playing elder excursionists; the surrounding porch will provide for ping-pong, shuffleboard, and the like. Bath the lounge and the porch will constitute a first line of defense against summer squalls. The counter may serve packaged refreshments.

In fall, the main refreshment concession at the pool will continue operation until cold weather to serve roller skaters, picnic area and dance floor patrons, even though the pool and bathhouse are closed. But for the winter, refreshment service at a reduced scale will be transferred to the counter at the Field House, the lounge of which will be converted by then into a warming-up place by installation of glass exterior walls and vestibules. Through the cold season, it will cater to hardened roller skaters and games courts users; during the coldest weeks, a part of the game area is to be flooded for ice skaters, for whom the raised seat and sunken hearth of the Field House should constitute a special attraction.

The Gatehouse will be a combination of information center, superintendent's residence, guard headquarters, lost children department. In addition, it may be used to collect fees on the occasion of special events, to direct traffic as between the parking spaces and turn away the overflow on peak days, or to stop traffic altogether in emergencies.
Whatever special problems a particular location may present, the basic requirements for terminal facilities are essentially always the same—convenience and comfort for the traveler, maintenance of fast and accurate schedules, facilities that assist operational efficiency.

SITE

Four controlling factors influence the selection of a terminal site:

1. Location: It should be near the central downtown area, for travelers' convenience, but not too central; not, that is, so close that heavy traffic congestion causes operating delays. Not unimportant in the choice of a fairly central location is the safety factor that good street lighting provides for night-time travelers.

2. Size and Physical Characteristics: Site should be large enough to include all needed present facilities and anticipate likely future needs: regular in outline, and relatively flat (the two last factors facilitating efficient planning and economy of construction, operation, and maintenance).

3. Traffic Circulation: Arrangements for handling the traffic should avoid left-hand turns, narrow entrances and exits, and congested adjacent street traffic.

4. Property Value: A larger, more adequate site slightly removed from the most crowded city center is frequently to be preferred to a smaller, more costly site at the hub; traffic congestion is less, and there is room for expansion.

In all four of these respects, the Baltimore project rates high. It is close enough to the center of town for convenient access to stores, hotels, theaters, etc., yet far enough out to avoid excessive traffic. There is space enough on the plot to include the highly desirable element of the on-site service garage which eliminates "dead mileage" between terminals and garages, effects considerable saving in operating costs.
Wisohmeye, Arrasmith & Elswick, Architects
Lucius White, Associate

Cummins Construction Co., Contractors
Roldon F. Dressler, Designing Engineer for the Service Building
Waiting room.

Restaurant.

Concourse.
One great advantage of the on-site garage and Service Building (shown on this page) is the operational flexibility (without waste motion) it gives to coping with peak periods of travel. Without the near-by garage, efficient handling of unforeseen peak loads would require twice the docking space (often unused), costly delays (while busses come from a distant garage), or both.

and handling of equipment, and permits use of extra busses required on short notice with very little waste movement or time. Furthermore, the garage reduces the traffic load on crowded city streets.

The site is quite regular in outline; grades are not a serious problem, and the property value was considered in reasonable relation to anticipated operating revenue. The corner location of the terminal provides almost ideal lanes for bus movements in a clockwise direction—entering the lot from the front street, easing into the platform area, and exiting on the side street. When servicing or repairs are needed, a "trip" to the garage is simply a matter of a few feet.

**TERMINAL BUILDING**

The central location of the main waiting room with respect to the bus concourse follows Mr. Arrasmith's standard recommendation—particularly for large stations where 12
TYPICAL BUMPER 7'-0" LONG

Detail of concourse.

As for check lockers, Mr. Arrasmith comments: "You can never have enough wall space for enough of them." One location that is "very desirable"—and one that is used at Baltimore—is the area between the recessed, out-swinging doors from the waiting room to the concourse. Built-in lockers such as are used in the Maryland station prevent accumulation of dust and dirt and hence help reduce building maintenance.

Rest rooms preferably occur on the main floor level, but "floor space prohibits this in many cases (as at Baltimore) and basement or balcony locations have proved satisfactory. . . . These facilities should be easily reached from the waiting room but not too accessible from the street. . . . Women's rest rooms should include a comfortable, adjacent lounge . . . no lounge space for men should be provided, as this usually becomes a loafing place and nuisance. Facilities for bathing and changing clothes should be a part of every modern rest room." The arrangements at Baltimore follow these design principles with two exceptions: no bathing facilities are included; and a small lounge adjoins the men's toilet room: "Determining the correct location for the baggage room is always a headache," says Mr. Arrasmith. If it is centrally located with respect to the outside loading platform, cross traffic of both passengers and baggage results. If placed at one end of the concourse, this usually brings it at a considerable distance from the bus lanes at the other end. The solution at Baltimore, due to the right-angular organization of bus docks, is a compromise solution somewhere between these two extremes. An elevator to a storage basement almost doubles the storage space without using too much of the precious ground-floor area.

Location of the restaurant in the Baltimore station follows exactly the principle Mr. Arrasmith recommends—equal accessibility from the street and waiting room; kitchen so placed that handling of supplies and garbage is separated from bus or passenger traffic; adequate storage space and toilets for the help (in the basement). "The soda bar and newstand should be located in the waiting room near the restaurant, as these three are usually operated by the same concessionaire."

Concourse-loading platform. "It is generally agreed that the sawtooth or irregular parking is the most efficient." For large terminals, separate parking lanes are usually assigned to local and to "long haul" busses, the latter being yet further subdivided into separate lanes for arriving and departing busses. "It is very important," Mr. Arrasmith says, "that the baggage room and dispatcher be centrally located between the two." In the Baltimore plan, the dispatcher occupies a glass-enclosed corner office that commands a full view of the lanes on the two sides.

Finally, as to the "very vital" problem of passenger control on the loading platforms: "Where it is not possible to have individual loading doors from the waiting room to each bus loading area (and it seldom is), it has been found advisable to use a barrier with individual gates to each bus." In the case of the Baltimore station, the barriers are formed by removable stanchions and cords which are used only in special peak-load hours.

Structure of the Baltimore terminal includes concrete foundations, steel frame, concrete floors over bar-joist members, filler walls of brick with cement, terra cotta, stone or porcelain enamel exterior surfacing. Sash are of wood (steel ones, not available). Partitioning is of clay tile or standard metal sections. Floors and bases of all main rooms are finished with terrazzo.
If proposed plans go forward after the war, Cleveland will boast a new million-dollar city bus-service terminal. Designed to solve the problems of economical operation, servicing, and storage of the Transit System's busses, the project is made up of five related, functional elements: gas and oil service unit, inspection and wash house, repair shop, storage garage, and offices. Organization of these on the site (selected for its strategic location with respect to bus routes) is such that an entering bus will be progressively serviced as if on a production line:

1. At the end of its day's run a bus uses the entrance drive to reach a covered gas and oil service station, large enough to service four busses simultaneously; this unit also contains a magazine room where money boxes are turned in and stored.

2. Busses requiring inspection or cleaning proceed in a direct line to the next service unit; the inspection bay is equipped with hydraulic lifts and other equipment for inspection of batteries, tires, body, and mechanical parts; in the wash house portion, sweeping and vacuuming operations precede the automatic washer wherein an electric eye starts sprays and four rotary brushes working.

3. Next in line is the repair shop at the back of the site, where all minor repairs, greasing, unit changes, etc., are handled.

4. Finally comes the garage itself, composed of four-sections each with a 90-foot clear span that allows parking in the herringbone pattern, angled toward the front doors. Each section accommodates 58 busses—a total of 282. For busses that do not need inspection, cleaning, or repairing, a by-pass road is provided at the right of the wash-house wing which leads around to the back and so directly into the garage.

5. At the front of the storage structure is the office unit: administrative offices, dispatcher's office, driver's report room, lounge, locker, and toilet rooms.

Proposed construction is steel frame, concrete floor and roof slabs. Exterior walls: brick with stone trim, glass-block panels, and steel sash. Doors throughout will be of the overhead type, electrically operated. Heating lines (steam furnished by a nearby City plan) will extend outside under the paved drives to eliminate snow and ice problems in winter. All heating will be automatically controlled—forced air at floor level, supplemented by direct radiation thrown toward the underside of stored vehicles.
1. SWITCH TOWER

Any observant eye senses the weary architectural quality of the average railroad structure. Most of them were built before the days of automatic controls; not a few stations were designed to include the station master's home; the picturesque tastes of the "romantic" days of railroading contributed their full quota of costly-to-maintain gewgaws. A new set of conditions exists today. There are automatic switches and signals; bus lines and air lines are vigorous competitors for trade; the streamlined train is sending the "iron horse" out to pasture.

Design of the Switch Tower shown here is an attempt to work out a thoroughly functional solution to a contemporary problem. Fireproof, equipped with an electro-pneumatic device for automatic control of switches and signals, the proposed building would have pipe structural columns, terra cotta filler walls with face-brick surfacing, insulated roof, and broad expanses of glass on the track side.

Lester Tichy, the designer of the three units presented on these pages, is currently retained as architect for the Pennsylvania Railroad, and is preparing plans for some of that line's postwar construction.
2. Railroad Station For A Town Of 20,000

LESTER C. TICHY, ARCHITECT

When the railroad station was also the home of the station agent, there was a modicum of logic in conceiving of its design as that of a residence; and it wasn't the railroads' fault that the period of their expansion coincided with a highly escapist delight in the architectural whatnot. By now, however, as Mr. Tichy points out, "many of these structures are entirely obsolete."

In designing the station for a town of about 20,000, Mr. Tichy explains that he tried "to work out a functional design both to meet present day needs and to anticipate future conditions. . . . The basic facilities (ticket office, baggage room, toilets, etc.) would remain static, while the waiting room space could be either enlarged or contracted depending on the community's changing needs." The fact that the passenger has a full view of the tracks is a plan advance of no little importance.

Selection of materials and structural systems that require minimum maintenance—painting or repairing—is part of the architect's fundamental approach to the design of railroad facilities. For exterior wall materials, he suggests (depending on the particular location and availability) natural stone or corrugated metal panels; prefinished, corrugated asbestos cement board is proposed for interior ceiling finish, and vertical frame members would be either light steel channels or pipes.
3. Combination Station And Switch Tower

LESTER C. TICHY, ARCHITECT
This interesting proposed structure is an exceptional instance of design integration. Until the advent of automatic switching devices, the Switch Tower always had to be placed within view of converging tracks; with automatic controls, this is no longer necessary, and the tower can be placed at any reasonable location. Built as a unit with the railroad station itself, it also accomplishes numerous operational economies: reduced overhead; one plant instead of two to heat and maintain; simpler inspection, even (possibly) reduced personnel. Like the other railroad structures shown on preceding pages, this scheme would be built of permanent, easily maintained materials. Here again the passenger would have the great advantage of being able to see approaching trains from within.
Garage, Store, and Office Building

J. E. GREINER CO. AND DE LEUW, CATHER & CO.,
CONSULTING ENGINEERS

In cooperation with the Department of Highways and Department of Vehicles and Traffic of the District of Columbia and Public Roads Administration (FWA).

SECTION
AT CENTER LINE OF BUILDING

SIDE ELEVATION

BASEMENT PLAN

FIRST FLOOR PLAN

PENCIL POINTS, JULY, 1945
Developed in connection with a “Transportation Survey and Plan for the Central Area of Washington, D. C.,” for the Commissioners of the District of Columbia, this proposed garage, store, and office building is an attempt to provide a single answer to three phases of the problem of decline in downtown business districts: (1) Provide additional parking space; (2) supply more first-floor shops and business offices (for which there is usually active demand); (3) put to good use otherwise vacant property.

The suggested scheme would occupy an entire block. The ground floor consists of almost continuous shop fronts. A delivery truck entrance provides speedy, off-street delivery to basement stock rooms of the stores.

On the second floor, daylight offices border interior parking space and access ramps. Upper levels, including the roof, are wholly devoted to parking. The scheme is diagrammatic; several more parking levels (depending on the local need) might well be added; if the number of floors (including ground floor and roof) exceed four, however, passenger elevators or escalators should be provided. Another possibility that would apply to sloping sites is that two levels might be served directly from streets without the use of ramps. The project is specifically designed for the part-time parker—the shopper or person making business calls; parking rates are proposed that would encourage frequent turnover. Space for all-day parking would be provided on less valuable property, somewhat further removed from the immediate downtown area.
To be built as an adjunct to Casa Linda Estates, 435-acre tract on which Carl M. Brown, developer, put up some $3,000,000 worth of houses before the war, this 31-acre decentralized shopping village is located 7 miles from downtown Dallas at an important intersection of a circumferential thoroughfare (Buckner Boulevard) and a state highway (Garland Road). In addition to serving the Casa Linda property, the project would also provide a shopping center for several other adjoining residential developments and such trade as might derive from highway traffic. Hare and Hare have developed the land plan and basic arrangement of building groups shown on this page; design of the actual buildings will be done by others.

A basic assumption is that upwards of 1,500 motorists may wish to trade, dine, or be entertained here at one time. Hence, the various stores and restaurants and the theater are organized courtyard fashion around a central area that is subdivided into landscaped parking enclosures. Additional parking space will be available at the curbsides bordering the commercial structures. Two large auto-service stations, each to cost $75,000, are strategically located either side of Buckner Boulevard in the direct line of travel of arriving customers.

The scheme worked out by the City Planners provides approximately 3,000 feet of buildings—office buildings, shops, drive-in bank, a 1,000-unit locker plant, auto sales and service, and a restaurant 80 by 200 feet, one portion of which is to be developed as a patio or courtyard for outdoor dining. The developer reports that already, with only the theater actually built, more than 50 applications are on file for rental of business premises.

Such generous and comfortable provisions for the motoring public may well present a vigorous challenge in postwar years to downtown property owners who fail to find an answer to the problems of crowded streets and too little convenient parking space.
Efficient storage and servicing of a city department's trucks is an architectural-engineering problem more often handled by rote than with creative imagination. In the project detailed here, but one specific instance is sufficient to indicate why this solution jumps well out of the category of the "routine" into the realm of progressive architecture.

It has evidently been standard practice (derived from what obsolete truck sizes or other original set of conditions, we know not) to provide 45-foot bays in garages for sanitation departments. In the Brooklyn job, these are discarded in favor of a clear span of 126 feet (see truss detail, page 81). This shift in design procedure is based on nothing less obvious than the fact that contemporary trucks are of a certain size and need space in which to maneuver; but, curiously, it takes the exceptional designer to re-examine accepted standards and re-chart obvious reference points and come up with a solution that sets higher standards. Design of the rest of the structure appears to be equally thoughtful and objective.

Basic requirements were the need to house and maintain 15 garbage collection trucks, 25 can carriers, and 72 snow plows. Attendant or separate facilities which had to be included were washing and gasping service stations; lockers, toilets, and showers for 270 men; a workshop; a salt storage bin; office space for foremen; and general offices for keeping records and handling payrolls or other business.

The parti was based on a traffic plan requiring trucks to enter and exit on one street; which, in turn, called for space for trucks to maneuver inside the garage. Customary practice is a "drive-through" scheme which eliminates inside maneuvering, a factor which in this case (in the architect's judgment) is outweighed by the greater problem of centralized control which the drive-through scheme involves and by the enormous heat loss which results when large doors on two sides are opened.

Organization of the plan (over page) is such that the office block and control space occupy a projection at the front of the building between the two entrance doors (at left) and the bank of overhead exit doors of the garage proper. When trucks return from their day's work, gasping and washing take place simultaneously at the two entrance bays which, in fact, constitute washing compartments wherein facilities are designed to clean one truck in two minutes. The gas lines are located in the open area just in front of the washing bays, an area deep enough to avoid blocking of the sidewalk. Within the garage area, the walkway spaces between traffic lanes are raised platforms. This device assists both safety of personnel and protection of the structure.

The minor-repair and testing shop on the ground floor is provided with separate heating and ventilating facilities. Site limitations required placement of the boiler room in a small basement (under the office-control tower) and location of locker room, toilets, showers, and ventilating equip-
The penthouse salt bin, framed with trusses that resist side pressure, holds 200 tons of rock salt. Brought to the bin by a bucket and belt conveyor, it delivers the salt to the garage level by gravity.

The basement boiler room comes under the office and control-tower block; steel-framed, the building is supported on piles. Entrance wash bays are at left (front) of the ground floor; storage space for can carriers and snow plows occupies the wedge-shape areas at right.
ment at a second-story level. Between the two floors is a mezzanine with two offices for district superintendents. A penthouse bin for storage of 200 tons of rock salt occurs at the right and front of the building, the salt being hoisted to the bin by a bucket and belt conveyor and fed to the ground floor by gravity for quick distribution.

The mechanical plant consists of two boilers, with heat supplied by overhead unit heaters. The ventilating system of the main garage, designed to maintain safe working conditions under all normal situations, is based on an exhaustive study of likely concentrations of noxious gases and any possibility of concentration of explosive gases that might result from spilled gasoline, exhausts, etc. Electric outlets at column bases provide current for lights and small power tools through trailer lanes to parked trucks.

Structure is steel frame with welded trusses. The large central area of the roof is supported by eight 126-foot trusses (see detail) spaced 20 feet apart. Simple in pattern, the truss panels are designed to accommodate the large ventilating ducts which occur over the aisles between parked trucks. The truss chords are 18-in. T sections, the stem portion of the T taking the place of gusset plates; web members, welded to these, are made up of double channels faced together to form an efficient rectangular cross section. The salt-storage bin is supported between columns by trusses specially designed to resist side pressure of the salt load.

Face brick is specified for exterior walls; for partitioning, either face brick or other suitable masonry units of a light color will be used to provide high light-reflection values; ceilings are to be plaster on metal lath; sash is of the industrial type, pivoted or projected, and glazed with wire glass. In the truss projection clerestory lighting is provided.

Over second story rooms, the roof is a concrete slab; over the main garage, masonry plank is specified. The entire roof is to be insulated with 1-in. insulating board; roof surfacing is 20-year bond type on lightweight fill.

Office and locker room floors are asphalt tile; ceramic tile is used for toilets and shower rooms, and cement for stair halls. For the floor of the main garage (to be supported on piles, as is the entire building) a heavy traffic type concrete floor is to be installed.

In the whole design, painting or other maintenance items are kept at a minimum; only metal work and safety markings will need repainting.
Chief requirements in the design of this standard service station (with variations) were: to produce a profit; to accomplish maximum sales; to create consumer demand; to establish immediately the identity of the station as that of the particular company. On further examination, however, it develops that in order to meet these candid goals, efficient consumer service was a sine qua non of the problem.

Plan of the basic minimum, complete station developed for a corner lot through joint research by the architects and company representatives is shown above; an actual building (completed before the war in Omaha) and two photographs of the scale model appear at left. This building (30'-6" x 52'-6" over-all), planned for a 75' x 100' plot, consists of sales-office space (12' x 19'-6"); two service bays occupying an area 28'-6" x 31'-3"; utility room (6'-8" x 15'-10"); heater room (5' x 10'-6"); and rest rooms (each 5'-1" x 6'-4").

Organization is such that from the office the operator can see both service bays and out to the pump island and yard. Location of rest rooms is convenient and obvious. One standard "sales appeal" element of the design is the circular drum motif—symbol of the company’s standard package—at the sales office area. Another is the pair of fences that extend from the outside corners to the property line and terminate in circular trade-marks, creating of the whole (as the research report puts it) "a large billboard speaking a powerful message." In some locations, local ordinances prohibit use of such wing walls; in others, one of three standard heights is used, depending on the extent of screening desired.

In most essentials, this unit is to be used for immediate postwar construction; research is going on for improvement, however. One proposal is use of a ceiling-hung heater unit which would allow adding the space at present occupied by the heater to the storage area. Standard, prefabricated panels for stockpiling are another possibility. Among materials recommended for exterior surfacing are porcelain enamel glazed tile, stucco on masonry, plywood, and plate glass.
This month *PENCIL POINTS* • *PROGRESSIVE ARCHITECTURE* initiates a technical information section: MATERIALS AND METHODS. The new section will contain reports on technical advances that affect architectural design; technical progress in the development and application of new materials and equipment; and new uses for familiar materials.

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ADVANCES IN HOSPITAL LIGHTING DESIGN

BY ISADORE ROSENFIELD, A.I.A., Chief Architect for Hospitals, Bureau of Architecture, Department of Public Works, City of New York

The following is a transcript of a lecture delivered before a professional audience in New York City, together with significant portions of the discussion which followed. It is part of a projected publication on hospital design. Another portion, on mechanical equipment for hospitals, will be published here next month.

Light in the hospital involves much more than merely being able to see properly; there are also bactericidal and psychological effects of light to be considered. These are frequently in separable and involve both natural and artificial sources.

We know a good deal more about artificial than about natural light because artificial lighting means are in the hands of producers of electric current, bulbs, tubes, fixtures, gadgets, etc. These are well advertised, so people know about them. This, though good, has the disadvantage of directing undue attention to artificial means, resulting in comparative neglect of the natural means. The average person concerned with safeguards against air-borne bacteria thinks of ultraviolet lamps, whereas recent literature shows that daylight, with safeguards against air-borne bacteria, is still bactericidal. Natural light is cheaper than artificial, yet many people consider windows primarily a matter of architectural style.

There is need for both artificial and natural light for most purposes in a hospital, and there is a great deal we have yet to learn about both. Developments in both fields are now in a state of flux, but we can be certain that merely to hang a lighting fixture from the ceiling will not meet modern ideas of proper lighting.

The author has studied illumination for many years, and in collaboration with his associates has been particularly interested in developing and integrating hospital lighting. This discussion of artificial lighting summarizes his experience to date.

TRADITIONAL METHODS HAVE DRAWBACKS

The traditional method of lighting a hospital room is to hang in its middle a fixture—usually a glaring glass globe, or in more advanced practice an indirect or semi-indirect fixture. If the room is large, requiring more than one fixture, units are generally spaced in the aisles or distributed in an over-all pattern. Traditional methods have the following shortcomings:

1. As long as the light source is in a glass globe of one kind or another, it causes glare in the eyes of the patient.

2. As long as the fixture is made of glass it is a hazard to patients and maintenance personnel, because maintenance work on the lighting fixtures involves being insecurely balanced on a ladder.

3. Maintenance of traditional fixtures is costly because for servicing they require the efforts of two people from the engineering department, to carry a ladder. One must hold the ladder while the other climbs it.

4. Indirect fixtures deliver most of the light on the ceiling instead of where it is wanted. Therefore they are inefficient.

5. All traditional fixtures have bacteria-bearing, dust-collecting shoulders or pans. Dust impairs the efficiency of the fixture.


7. Recent Experience in Hospital Lighting, Pencil Points, Nov. 1940.

Fig. 1—Ceiling lighting fixture (incandescent), concentric ring type, all metal.

Fig. 2—First experiments in hospital ward lighting. Chart on this page shows results obtainable in a Riggs ward, shown on facing page.
The traditional location of fixtures in the middle of the room, in an over-all spacing, or in the aisles does not result in delivery of light to parts of the room where it is most wanted.

BED LIGHTING NEEDS

After analysis of the shortcomings of traditional lighting methods the following criteria were laid down:

(1) Most light should be delivered where it is most needed. In the case of a patient in bed the location is at the head. This would make it possible for the patient to read in ample light, and examination of patients by doctors and nurses would be facilitated in most cases, eliminating the special examination light usually required. This means placing the source immediately back of the patient’s head, so intensity would diminish toward the feet, with the least amount of light delivered to the aisle beyond.

(2) The source should be so placed and masked as not to cause glare to the patient whom it illuminates or to his neighbor across the aisle. The angle of light should be such as not to cause unpleasant reflections when looking at reading matter nor excessive brightness contrast between reading matter and background.

(3) The fixture should be made largely of metal so as to be nonbreakable, and it should be accessible for servicing without having to climb a ladder.

This may seem impossible of achievement. Study showed that it was not possible to satisfy all conditions with one solution. In this connection a new principle was introduced, distinguishing between a person lying in a horizontal position and a person in a sitting or standing position. Little thought was formerly given needs of the person who remains in a horizontal position for a long time. This is the problem of the sick person and this is the problem peculiar to hospital lighting.

Under the above principles the problem of lighting office space, utility rooms, serving kitchens, and similar occupancies is satisfactorily met by the concentric-metal-ring fixture with the silvered bulb in the middle (Fig. 1).

It is unbreakable, is not a dust collector; the bulb can be replaced from the floor by a stick with a bulb holder at the end; it will not cause glare from most reasonable standing or sitting positions; it distributes the light very well; and, if placed where needed most, will produce satisfactory conditions of illumination.

PRACTICAL EXPERIMENTS

For bed patients, many lighting schemes were tried before a satisfactory solution was found. After evaluating traditional methods (A, Fig. 2) a fixture was tried consisting of concentric rings with the lamps in a reflector box above (B, Fig. 2). The whole fixture was flush with the ceiling. This type of fixture was installed in all the wards at Goldwater Memorial Hospital. It was meant for general illumination only, and was supplemented by individual hooded lights at the head of each bed. The method did not prove a success. While the ceiling fixtures were made of metal and did not produce glare, the following were the main disadvantages:

The general lighting fixtures were placed in the aisles in the traditional manner. For this reason they contributed almost no light to the bed areas. Being flush with the ceiling, they produced excessively bright spots against the dark ceiling. The ward looked gloomy unless all patients turned on their individual lights. 2340 watts were required for a typical 24-bed ward.

It was then decided that it is virtually impossible to produce satisfactory lighting for a person in a horizontal position as long as the fixture is at the ceiling. Where then should the fixture be placed? Many positions were evaluated. The most promising location was thought to be somewhere between floor and ceiling, certainly above eye level, but not so high as to be in line of normal view of a patient in bed. It was decided to try a height of about seven feet which, in a Riggs ward, is the head of each bed. The method did not prove a success. While the bedside and general illumination will diminish toward the feet, this should be favorable for reading and for examining patients. It would not be necessary to have both general illumination fixtures and individual reading fixtures; one unit would accomplish both.

An experiment on these lines was made at Goldwater Memorial Hospital. While it was rather crudely improvised, it showed much promise. This scheme of illumination was then incorporated in all the wards of the new pavilion at Riverside Hospital (C, Fig. 2). Instead of 2540 watts, this scheme required only 1290 watts, and gave much better light.

PARTIAL SUCCESS

This installation proved a general success but showed the need of many refinements. For instance, four full fixtures and four half fixtures (at end walls) per ward proved somewhat inadequate in total light output. It was concluded that in future installations there should be a light for each bed instead of for each pair of beds. Although this building has not as yet been put to patient use because of the war, it nevertheless became obvious that depending on the same fixture for both bedside and general illumination will cause difficulties, because if a fair proportion of the patients should decide to put out the lights immediately contiguous to them the ward would be plunged into comparative gloom.

This led to the latest series of experiments which took place in a loft where ward conditions were simulated (Fig. 3). These experiments were made with two mediums: the usual incandescent; and fluorescent (hot cathode).

In the incandescent experiment (Figs. 4 & 5), each fixture had two 150-watt lamps. This amounted to a total of 5400 watts for a 24-bed ward, but it provided a high level of illumination where it was most wanted. It delivered six to seven foot-candles at the head.

The drawing shows beams on the ceiling. A new design in flat slab concrete construction eliminates practically all cross beams.

Investigation of Light Sources for Public Buildings in New York City’s Post-War Program, by Albert Lynch, Lighting and Lamps, June 1944.
of the bed, 5.5 to 6 at the middle of the bed, 5 at the foot of the bed. Such high illumination is practically unknown in hospital lighting.

But incandescent lighting would seem to be practically a thing of the past. Under present conditions it remains practical where direct current is used, as it frequently is at older hospitals which have their own electric generating plants. In most hospitals, however, alternating current is used; under this condition fluorescent light is the logical medium. After several experiments it was decided that the most satisfactory fixture with fluorescent light is the continuous trough over the screen and a modified half trough on the wall at the ends of the ward (Fig. 6). This fixture is divided into compartments. The sections over the beds are for direct illumination. They are covered on top by a reflecting shield and have openings on the bottom. The openings are masked by louvers to prevent glare in the eyes of the patient occupying the opposite bed. Each of these lights is controlled by a switch, giving the patient individual control. The sections between the direct illuminators have reflectors on the bottom to throw light to the ceiling for indirect general illumination of the room or ward. This set of lights is controlled by switches at the door to the room. The readings on the three locations on the bed, from head to foot, were 8, 7, and 3 foot-candles with both sets of lights on, and 7, 6, and 2 with only the over-the-bed lights on. This means a patient could receive attention in adequate light in the middle of the night from his own overhead light, without use of a plug-in portable light. Each section of the direct and indirect parts of the trough had two 50-watt tubes. For a 24-bed ward, three beds deep, such as was used in this experiment, the total wattage would be approximately 1500.

INVESTIGATION CONTINUES

A hypothetical case does not always reveal hidden factors which may come as great surprises when findings based upon it are applied in actual human situations. For this reason a complete installation of this improved lighting will be tried out in a ward at Goldwater Memorial Hospital. Light and brightness tests will be made and comments by doctors, nurses, and patients will be recorded. Higher wattages will be tried because, while the present level of illumination is a great improvement over traditional lighting, it is felt that it might be advantageous to raise it somewhat.

This type of lighting should prove more satisfactory as the size of the ward decreases. It should be better in a semi-private ward of three to four beds, and ideal in a room of one or two beds where both beds have their heads against the same wall.

Before leaving this subject, a word should be said about cold cathode lighting. The principal shortcomings of incandescent lighting are generation of heat, high current consumption, and concentration of light at source points (causing glare). Fluorescent light is ever so much cooler, takes a good deal less electric energy to produce the equivalent amount of light, and, because of its tubular form, distributes the source evenly over a fairly long line. One of the objections that still stands out as somewhat formidable to fluorescent (hot cathode) light is its color. (In these experiments, "white" tubes were used.) However, "white" fluorescent light is nearer to daylight than incandescent light. People will either get used to it as they have successively become used to candlelight, kerosene lamp light, gaslight, Wellsbach incandescent light, electric incandescent light; or else a new quality will be
developed in fluorescent light to meet all objections. "Cold cathode" light comes in continuous thin tubes of considerable length. Many of its features promise greater possibilities in some respects than hot cathode; one could light a large room from a single outlet; the tubes are small in diameter and could be arranged in almost any required space and pattern; the current consumption is smaller, etc. However, it could be arranged in almost any reasonable manner. "Cold cathode" light has been variously handled. In the traditional pendant fixture it had features that are not well suited to its environment. In this manner the night light came from the same fixture as the ordinary illumination. Many patients object to this type of lighting as being bright enough to be disturbing. The sleep of a patient deserves greater care than that of a well person.

The more acceptable method of lighting is by fixtures about 18" from the floor, usually built flush with the wall to prevent injury. These are located so as to light the principal aisles and corridors. To direct the light to the floor and to prevent glare, the fixtures are equipped with horizontal louvers. These should be green or blue, never white, or else the louvers themselves become a source of glare. To prevent dust from settling on the louvers themselves, we used plastic "glass" with louvers cast in the plastic sheet. To prevent glare and injury, the plastic of the plastic sheet is tilted, with its top edge flush with the wall, its bottom edge recessed (Fig. 7).

CORRIDOR LIGHTING

The level of illumination in corridors need not be high. Almost any type of safe and sanitary illumination suitable to a vertical human position will generally do, except where the patient is apt to see it through glass in the corridor partition, glass in the door, or through a transom (Fig. 8). In many public hospitals there is glass in these locations. It is therefore important so to place the corridor light that it will be out of the patient's view. For this reason it is proposed to use a typical end-unit fixture which throws the light to the ceiling, and place it about 7'-0" above the floor on the ward side of the corridor. When this is done a patient looking out of the ward to the corridor can see that there is light but he cannot see the source. (Similar to Fig. 5.)

OPERATING ROOM LIGHTING

The design of lighting fixtures for operating rooms involves several factors other than illumination. The necessity for ridding the air of bacteria has been shown by tests and is now recognized. Both air conditioning and air sterilization by means of ultraviolet lamps are therefore desirable. In addition, tests have indicated that utilization of air conditioning results in less possibility of explosions of anesthetics because raising the humidity of the air makes it less likely that objects in the room will hold a charge of static electricity. Instead of treating these various factors as separate problems, it is more reasonable to integrate air conditioning and air sterilization with proper operating room lighting. This approach was followed in the fixtures installed at Tri-boro Hospital. Two principal factors were taken into consideration:

(a) The proper arrangement of mercury vapor lamps which radiate ultraviolet rays for the purpose of destroying air-borne bacteria;

(b) Properly directed air movement so as not to negate, but rather to complement, the action of bactericidal lamps. This implies that the air current at the operating table should be upward, away from the patient, so that any bacteria not destroyed by the rays would be carried away in the upward flow of exhaust air, rather than downward on an open wound.

In order to accomplish the above, a scialytic bactericidal lamp was used. This is a dome-type surgical lighting unit with a circular bactericidal lamp tube attached to it. The dome varied in this case from the usual type, in that it had an open top, which permitted the upward-flowing air to pass by the bactericidal lamp (Fig. 9).

Auxiliary bactericidal lamp units were provided on the ceiling in addition to the one on the surgical fixture in order to lower the level of contamination of the air in the entire operating room.

From the point of view of lighting alone, many other types of fixtures are feasible. The principal advantage in the fixture described is that it is open at the top, a feature which, in addition to facilitating the upward movement of air, also does away with the reflection of much heat on the head of the surgeon, his assistants, and the patient. The surgeon should decide whether he prefers the light imbedded in the ceiling or whether he wants it nearer, and the extent of mobility he desires in the lighting unit. It should be pointed out, however, that ceiling lenses are the least efficient as to candlepower output per watt at the working plane. On the
10-15 watt lamp
"Louver-glass" lens

other hand, the higher the fixture is from the operating table, the less heat it reflects on the table. A comparison of the mechanical efficiency of three types of operating room fixtures follows:

<table>
<thead>
<tr>
<th>Type of Fixture</th>
<th>Wattage</th>
<th>Illumination Foot-</th>
<th>Foot-</th>
<th>Watts working plane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movable in two planes</td>
<td>350</td>
<td>1500</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>Movable in one plane</td>
<td>400</td>
<td>1800</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>Ceiling (stationary)</td>
<td>2700</td>
<td>1200</td>
<td>0.44</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the operating light and bactericidal lamps, the operating room should be equipped for general illumination to be employed in preparing the operating room and in cleaning up after the operation. More time is spent on these duties than in actual operating.

EMERGENCY LIGHTING

Emergency lighting in the operating room, delivery room, and similar situations must not depend on one source of power only. Institutions which generate their own electricity usually also have public utility connections for emergency lighting. An automatic relay switch throws the emergency current into action when the normal current fails. When an institution depends entirely on utility current, it is desirable also to connect the critical points with a special, automatic, water-actuated generator.

A more clumsy solution is to have separate emergency fixtures with batteries. One must be sure, however, that the battery is always charged and that the fixture is on hand; and then there is always the confusion resulting from temporary darkness until the detached fixture is brought into action. In the first two methods described the transition is automatic.

LABORATORY LIGHTING

In laboratories, traditional lighting consists of a globe suspended from the ceiling, or an ordinary disc reflector, likewise hung. In both cases the outlets are frequently over the aisles instead of over the tables. When placed over the tables, the source of light is generally within sight of the worker, causing both eyestrain and discomfort from heat.

The following requisites are assumed for proper laboratory lighting:

(a) maximum intensity of illumination on the working plane;
(b) avoidance of disturbing shadows;
(c) the source of light out of sight of the worker;
(d) maximum foot-candles per watt, which in turn implies a minimum of heat generated.

One fixture which meets laboratory requirements most satisfactorily is of a semi-direct type with a prismatic glass reflector-refractor. It must be understood, however, that the light distribution curve of this fixture is such that the location, spacing, and mounting height must be carefully studied in order to obtain a uniform intensity of illumination at the desired working plane (Fig. 10).

It is evident from the figure that the
area directly under the fixture receives less light than the area around it; it is thus necessary to space the fixtures so as to cause an overlap of the well lighted over the less illuminated areas. This overlap is also helpful in eliminating sharp shadows of objects directly under the fixtures. This being the case, the fixtures may be mounted directly above the working plane. It is also possible to mount them at sufficient height so that the source of illumination is out of sight, and so that little heat generated by the fixture can reach the laboratory table.

This fixture employs incandescent lamps. It is believed that as good, or better, results could be obtained with fluorescent lighting, particularly if plastic lenses, with louvers cast into the sheet, were used. The louvers eliminate glare.

The laboratory is probably one of the most promising fields for cold cathode, but here, again, experimentation must first be undertaken.

AUTOPSY LIGHTING

In autopsy work a high level of illumination is required. The usual arrangement requires high wattages immediately over the heads of the workers. This generates much heat, which not only produces direct discomfort but likewise accelerates the generation of odors. After demonstrations and adjustments in cooperation with manufacturers, a type of fixture using fluorescent lamps was developed. This consists of four 40-watt tubes mounted under a single reflecting canopy. Stems supporting the reflector are also equipped with three ordinary 60-watt incandescent lamps. For cleaning, or at other times when general illumination alone is required, only the incandescent lamps are turned on (Fig. 11).

One of the virtues of fluorescent lighting for this purpose lies in the fact that proper illumination is obtained with the expenditure of only approximately 200 watts. This, as well as the fact that fluorescent lamps generate comparatively little heat, makes them superior to the incandescent type traditionally employed.

DISCUSSION

ROSENFIELD: I take particular pleasure in introducing Albert Lorch, Supervising Engineer of our Electrical Section, because he was the first electrical engineer to become genuinely interested in cooperating with us in the studies of illumination. To my regret, too many engineers in the building field work from handbooks as if the ultimate had already been achieved. Mr. Lorch has been very helpful. I am going to ask him to say a few words about the experiments on lighting of which he has technical charge.

LORCH: Mr. Rosenfield mentioned the lighting experiments which were conducted some years ago at Goldwater Memorial Hospital. These indicated that the most suitable means of illuminating hospital wards with filament lamp sources was by totally indirect trough fixtures mounted atop the partitions which divide the ward into bays. The first practical application of this type of illumination was made not so long ago in the wards of Riverside Hospital, and the results were very gratifying.

It was then decided to make further experiments to develop satisfactory means of illuminating hospital wards using fluorescent light sources, and comparing these with fixtures equipped with incandescent lamps. To reproduce actual conditions as closely as possible, a replica of a hospital ward bay was set up in a shop equipped to fabricate lighting fixtures. Thus it was possible to make up and revamp fixtures quickly, on the spot, to test the various ideas which developed during the experiments.

We experimented with ward lighting by fluorescent light sources with totally indirect fixtures. Such a fixture was designed (Fig. 12) and, while the illumination over the bed is very uniform, the fixture is very clumsy in appearance, the trough being 20° wide. Then again, for each fixture there are four tubes and two sets of auxiliaries to service. While the reflected spot on the ceiling directly over the fixture has a brightness of only 116 lamberts (a very low level), the brightness contrast, here the spot and the surroundings in an otherwise relatively dark ward, could be annoying to patients. I want to point out here that it is becoming more and more recognized that brightness contrast is something to be avoided more than brightness itself. Until recently, luminous intensity has been given solely to foot-candles of illumination and shielding of light sources; annoyance due to brightness contrast has been neglected. To illustrate, the headlights of an automobile will cause intense discomfort to the observer on a dark night, while the same headlights viewed on a sunny day are not hard to look at.

QUESTION: How do you measure, and what is the gauge of, brightness?

ANSWER: Brightness may be measured with a "brightness meter," and is stated either in terms of "candles per square inch" or in "foot-lamberts." To convert candles per square inch to foot-lamberts, we multiply by 452. The foot-lambert designation is used for low-intensity brightness, candles per square inch for higher intensities.

To eliminate the spot on the ceiling over the partition, it was decided to develop a fluorescent fixture which would afford a relatively high level of illumination directly on the bed for examination of the patient or for reading. The fixture is louvered so as to cut off the direct light source from the line of vision of any other bed patients. The fixture also has a totally indirect section of fluorescent lighting for general illumination of the ward at a low level. Figure 6 gives a general idea of how this fixture performs. It consists of two types of sections; one type is a louvered section for direct bed illumination and the other for the space between the beds. A totally indirect general low level ward illumination. Each section has two 30-watt daylight fluorescent tubes, one for each side of the partition. The direct sections have a hinged metal cover on
top which also acts as a downward reflector. The indirect sections are each equipped with a hinged glass lens cover.

QUESTION: Suppose the indirect ward lighting is required to be on but the patient does not want the light over his bed?

ANSWER: The patient simply turns off the local switch at the bedside, which controls his own direct fixture. The indirect ward lighting remains on because it is on a separate circuit controlled from a central switching location near the ward entrance.

It will be seen from the chart which accompanies the illustration that with only the indirect units turned on, general ward illumination of approximately 13 to 14 foot-candles will be obtained. This is ample for nurses and others, yet is not annoying to the bed patients. On the other hand, the direct section of the fixture affords 7 or 8 foot-candles of illumination at the head of the bed. This is by far the highest glareless illumination for beds achieved in our municipal hospitals thus far.

Further experiments are under way to develop a fixture in which the direct section will have two 30-watt tubes in place of one. Preliminary tests indicate that this arrangement will afford about 13 to 14 foot-candles of illumination at the head of the bed. At the same time, the stroboscopic effect of fluorescent lighting will be reduced to a minimum.

Further experiments are under way to achieve more pleasing spectral qualities of light by using different color schemes for walls, partitions, floors, and equipment, and also by the use of colored plastic louvers. These experiments, thus far, are only a beginning, not conclusive; but they point the way for further development.

We have prepared a comparison of the heat generated by incandescent lighting with that due to fluorescent lighting for a 24-bed ward. For approximately the same level of illumination, an incandescent, totally indirect, system would generate enough more heat than the type of fluorescent installation under discussion to equal approximately the output of a steam radiator of 50 sq. ft. of radiation. This is about 50% of the amount required to heat the ward in winter. What a boon the absence of this heat would be during hot summer months! In spaces which are to be air-conditioned, it is folly first to pay for the current to create heat, then to extract it at more expense.

QUESTION: Wouldn't you say that it is desirable to have a glass over the open sections of the fixture?

ANSWER: We do have a glass, which I referred to in a previous question as a lens.

Plans are under way to equip a complete ward at the Goldwater Memorial Hospital on Welfare Island with the fluorescent fixture just developed. Final evaluations, especially as regards spectral qualities and serviceability, will be arrived at.

Getting back to the important consideration of brightness contrast: here is a semi-indirect fixture employing a translucent plastic shield (Figs. 13, 14). Note that the brightness contrast between the shield and the illuminated spot on the ceiling is about 3 to 1, 5 to 1 being considered fair practice. The result is very pleasant and restful. The illumination is at a very satisfactory level. This fixture should find good application in public buildings other than hospitals.

We had quite a problem getting a wall fixture which would give sufficient illumination on the bed without producing too bright a spot on the wall. We made half a dozen different attempts. Finally, we manufactured this fixture (Fig. 5) with 12 louvers that could be adjusted or taken out. Too many louvers reduced the light output. We removed the louvers one at a time and kept measuring the light on the bed and the brightness on the wall and finally got down to two louvers, with which we obtained practically full illumination output, yet the brightness was cut down to 28 from the 1500 which it measured without louvers.

QUESTION: As things now stand, which fixtures do you propose to use?

ANSWER: For direct current installation we propose to use Figs. 4 and 5. For alternating current, we propose to use Fig. 6. Both types are subject to further experimentation.

A. G. TONN-HERRMANN (Chief Architect, New York City Dept. of Public Works): I want to make a comment concerning these experiments. We hope they will be of benefit to the profession. I would like to add that if anyone else is doing similar work we will be glad to receive a copy of his findings.

Fig. 12—Ward lighting: uniform distribution, sufficiently low ceiling brightness, but awkward appearance, high first cost, high maintenance cost.

Fig. 13—Ward lighting: satisfactory distribution, no glare, sufficiently low brightness ratio between dense plastic shield and ceiling. Recommended for spaces where definite esthetic effects are desired.

Fig. 14—Adaptation of type of fixture shown in Fig. 13, for mounting over office screens, for illuminating corners, tables, desks.
WHY ZONE HEATING SYSTEMS?

by W. J. Warren, Heating Engineer, Chicago

In designing a heating system, the importance of observing the sun's effects has often been overlooked. Engineers frequently select the minimum outdoor design temperature, and then compute the maximum capacity of the heating elements—radiators, convectors, unit heaters, and the like—without much thought as to the operation of the system on "in between" days. They assume that a system that will maintain comfort under the worst conditions can be "slowed up," or that part of its heating elements can be turned off when outdoor temperatures are higher than those for which the system was designed. Let's see what effect the sun might have.

As an example, we shall consider a building having 20-ft. by 20-ft. bays and a 12-ft. story height, exterior walls of average construction with 50% of their area in single glass windows. The proportion of window area in the wall is of minor significance in the over-all picture we wish to consider, as will be pointed out later. Let's assume an 80°F design differential, 70°F inside and -10°F outside. The heat loss for a typical bay at noon would be about 9,600 Btu/hr for the bay. A south bay will not require heating at outdoor temperatures above those mentioned to prevent the discomforts of over-heating.

To the total shown above, a factor of 10% to 20% is added according to the exposure of the rooms to be heated before selecting the capacity of the radiators, convectors, or other heating elements. However, since air leakage may be either inward or outward, depending upon wind direction, let's consider only those items tabulated above.

Chart A: Heating load for various outdoor temperatures when sun is not shining.

A more detailed analysis could be made by considering reduction in solar radiation obtained by using shades at the windows. This helps to reduce the magnitude of load fluctuations but, on the other hand, heating due to artificial
lighting would tend to increase it.

All that has been stated above is predicated on a wall of which 50% of the area consists of windows with a single thickness of glass.

If the percentage of glass in the wall is increased or decreased, the problem is much the same except that the range of load fluctuation may be greater. If the windows were of double glass, the heating load would be less. Since double glass admits practically the same solar radiation as single glass, this would tend to accentuate the load fluctuation with and without sun. The result would be that an even lower outdoor temperature would constitute the equilibrium point at which no heating is required.

Although glass block has a considerably lower solar radiation effect than single glass, it also has a lower heat transmission factor. Upon checking the equilibrium point of this type of construction, the outdoor temperature at which no heating or cooling will be required for a west bay is found to be between 55° and 60° F above zero for a wall having the same proportion of glass used in our example for single glass.

For a south bay the equilibrium point would be at about 40° to 45° F outdoor temperature.

Human beings radiate or absorb heat largely through the skin. Buildings also have considerable "skin" area for the volume enclosed. Since all of the cold air which penetrates into the building comes through the "skin," the building wall will be warm if we can keep the "skin" warm. This is why heating elements are placed at or near outside walls.

Then, too, there is the phenomenon of "down-draft" to be considered. The higher the windows, the more pronounced the down-draft effect becomes. Few of us realize what the temperature is on the inside of the "skin"—the wall or the glass surface. For single-glazed windows the inside surface temperature would be about 15°F when it is -10°F outside and the room is 70°F. This is 55° below the room temperature and the effects of cooling the air next to such a relatively cold surface are immediately apparent. We are all familiar with the manner in which cold air drops and in which the down-draft is set in motion. With double-glazed windows the temperature of the inside glass surface would be about 22° below room temperature under the conditions mentioned above. While this difference is much less than that with single glass, the cooling effect, particularly with high windows, is quite considerable and warrants attention in the design of the heating system.

Considering these two phenomena, "skin effect" and "down-draft," the conclusion is that the heating medium should be installed at, or as close as possible to, the "skin" of the building and immediately below the windows to counteract the "down-draft" effect.

Chart B shows that the maximum heating effect of the sun will occur at about 8:00 A.M. on the east side, at noon on the south side, and about 4:00 P.M. on the west side of the building. This indicates quite definitely the necessity of some means of分区 for heating, mechanical ventilating, or air cooling systems in buildings. Otherwise, the only means of preventing over-heating will be opening and closing the windows.

Vapor or hot water heating systems wherein the "intensity" of the heating medium can be varied, both for different zones throughout the day and in proportion to the outdoor temperature, will help to alleviate the tendency to over-heating, and will be more comfortable for occupants who may be seated close to heating elements. Furring, or concealing heating elements in enclosures below the window stool with a grille or opening in front and one in the stool, helps to improve the appearance of the system. It also creates the upward movement of air in front of the window necessary to offset down-draft.

It is important to note, too, that if a mechanical ventilating system is to be installed for use as an air cooling system, a temperature control system should be provided. This should link the cooling system with the heating system in some way, so that as the radiators are throttled lower and lower until they are turned completely off, the cooling system will provide the necessary cooling effect.

Special attention should be given to corner bays, particularly those on the southeast and southwest corners, since these present special problems of both heating and cooling. In about nine cases out of ten, they are subject to the greatest load fluctuations, being difficult to heat and even more difficult to cool. They more or less require treatment as separate zones in themselves. Because they have sun exposure on two sides, they reach peak load conditions at different hours than the side bays. Such special bays require a temperature control of such nature that, when more cooling or more heating is needed, there remains in the system a reservoir from which to draw sufficient warm or cold air to maintain comfort independently of any neighboring or adjacent spaces.

When designing a heating system, look out for the sun. Check to see what will happen when the sun shines at various outdoor temperatures. Check the time of day when wide fluctuations of load may occur on different parts of the building. Then zone the heating and the cooling system, if one is to be incorporated into the building, so as to adjust for these variations and prevent over-heating of the space. By avoiding over-heating, not only can operating costs be reduced, but occupants can have more comfortable living conditions.
This heating system was originally developed by the architects and A. Gritschke, Heating Engineer, for the first addition to the Rugeon School, Glenview, Ill. (See Pencil Points, April, 1945; also September, 1943.) Although it was not installed due to priorities difficulties and costs of installation and attendant construction, it has been declared to be most practical in regard to operating efficiency. It is possible that low operating costs might have offset any unusual initial expense. Certainly the entire conception is based upon efficient, complete use of treated air to provide “air conditioning” (air cleaning, tempering, and humidity control), air movement, panel heating, and fresh air by circulating a single air stream. As an added feature, ductwork and floor structure are combined by using one of the newer materials, “Flexicore” hollow precast concrete slabs.

The diagram at the right illustrates the principle of the system and shows how fresh and recirculated air are moved through a series of operations. Below are first floor and foundation plans of the one-story building, and an enlarged plan showing disposition of the precast hollow slabs and the method of utilizing their cores for both panel heating and register supplies. On the back of the sheet are details of the installation and technical data applying to the particular school building for which it was designed.

**Details**

- **TYPICAL HEATING AREA**
- **FOUNDATION PLAN**
- **TYPICAL WORKROOM**
- **TYPICAL CLASSROOM**
- **CORRIDOR**

Combined PANEL and FORCED WARM AIR HEATING... Perkins, Wheeler and Will, Archts.
Above are details of air supply unit installations, shown in plan and elevation. Above, at right, are details of method of installing dampers in the cores of the "Flexicore" slabs, in order to regulate air flow. At right is a diagram showing proportions of the heating load cared for by various parts of the system. There are three distinct heating means: (1) floor panels serving as radiant panels only; (2) floor panels which conduct warm air to registers and incidentally provide panel heating; and (3) warm air registers.

Floor panels (item 1) were designed for a surface temperature of from 70 to 85 F, to take care of heating load when outdoor temperatures range from 25 to 68 F. When outdoor temperature drops below 25 F, return air from the radiant floor panels is re-heated by booster coils (see plan over page) before being discharged through the warm air registers. A room thermostat sets the booster coils in operation as required. (Booster coils are supplied with steam by a central boiler, which also heats other parts of the school.) A low-limit thermostat prevents air colder than 70 F from entering the room. After passing through the booster coils and air supply registers, air can be recirculated in combination with fresh air in any desired proportion.

Combined PANEL and FORCED WARM AIR HEATING...Perkins, Wheeler and Will, Archts.
WHAT WARTIME PRACTICE HAS TAUGHT US ABOUT WOOD CONSTRUCTION


Conditions for "proper" design, fabrication, construction, and maintenance did not generally prevail during the war. For instance, the fact that a piece of lumber will reduce in cross-sectional area as it seasons often went unrecognized. "... Structural design suitable for unseasoned lumber should be employed, and the bolts at the joints should be drawn up as the lumber seasons to avoid possible misplacement of fastenings and over-stressing of joints from looseness and distortion. ... When seasoned lumber is available, it is to be preferred for buildings."

Better control and simplified design, fabrication, erection, and maintenance are possible with seasoned lumber because dimensional changes take place before, rather than after, fabrication and erection. It is desirable to use lumber which has a moisture content in equilibrium with the conditions of service. But in war buildings, he said, "The haste with which the job had to be done, whatever its size, made necessary the use of much personnel with little or no experience with design, fabrication, and erection of wood structures. There was little time for refinement and checking."

The more common design faults found in war buildings were:

Poor joint design.

Failure to provide adequate truss camber, particularly when built of unseasoned lumber (which requires more camber than dry lumber).

Failure to provide hangar or other door details which left operation of the door unaffected by truss deflections.

Use of trusses with too low a height-span ratio.

Improper design of columns or compression members, such as assuming that a built-up nailed or bolted member acts as a solid member, or designing spaced columns improperly.

Application of principles or procedures used for metal design without adequate regard for the properties of wood (failure to recognize that wood is non-homogenous—that its strength in all directions is not the same).

Use of non-structural, improperly graded lumber.

Most common construction faults were misfabrication and sloppy workmanship, such as boring bolt holes and connector grooves at the wrong location and then reboring nearby to correct the error; using wider or deeper connector grooves than those specified; inaccurate fabrication followed by horsing around and mauling of members into place during assembly; omission of fastenings; rough handling such as picking up large trusses; misplacement of or chipping the trusses during erection; improper storage of lumber awaiting fabrication or erection; re-sawing lumber without re-grading; and omission of specified truss bracing.

However, an official inspection revealed that "on the whole, wood gave performance beyond all expectations. ... The practically unanimous reactions of engineers, without and within the industry, who inspected the wartime timber structures were (1) amazement that many more failures did not take place in wartime structures in view of the strain; (2) a realization that the design stresses in use prior to the war for stress-grade lumber were far too conservative, and therefore uneconomical, for timber buildings properly designed and constructed. ..."

New Lumber Specifications

In December, 1944, the National Lumber Manufacturers' Assn. Board of Directors approved as recommendations for postwar application the National Design Specification for Stress Grade Lumber and Its Fastenings, based on the assumption of competent engineering or architectural design, accurate fabrication and adequate supervision, with the preparation, installation, and joining of wood members and the connectors, mechanical devices and adhesives for their fastenings conforming throughout to wood engineering practice, and the further assumption that properly grade marked or certified stress-grade lumber will be used. The Specification includes the recommended working stresses contained in W.P.B. Directive 29.

Wartime use has broadened realization of the merits of timber connector and glued laminated lumber construction; designs recently developed show savings in lumber, hardware, and fabrication without sacrificing load capacity or utility.

PLANNING FOR MASONRY CEMENT

A new masonry cement is announced by the Lone Star Cement Corp., 342 Madison Ave., New York City 17. The company researchers got together with masons in various parts of the country to find out what the masons really wanted in the way of concrete to use; they were tested under actual field conditions. Their findings, gathered over a period of ten years, revealed that masons were interested in six principal properties—plasticity, high water retention, strong bond, controlled setting time, economy, and ability to hold color. The Corporation claims its new cement embodies these and other properties and exceeds Federal Spec. SS-C-181B and A.S.T.M. Spec. C 91-44T requirements.

NEW VENEER COATING

A ready-mixed veneer for concrete, cement, brick, and stucco exteriors, "Re-wallow Composition," is said to seal cracks and leaky joints at the same time it provides a coating. Because of its heavy viscosity, one coat only is said to be necessary; this is laid on with a paintbrush, then leveled with a roller, smooth or stippled. It has an oil-resin base; it's washable. It may also be used over other surfaces and can be blended with colors. Paint-Point Corp., 99 S. 6 St., Brooklyn, N. Y.

ONE-COAT LACQUERS

A new development in lacquer formulations is announced by Hercules Powder Co., Cellulose Products Dept., Wilmington, Del. Lacquer itself is made up of solids—nitrocellulose, resins, pigments—dissolved in a volatile solvent that evaporates, leaving a film which is the protective coating. By increasing the solids content per gallon of lacquer (according to the end use required), a "good solid" lacquer results which is said to take only 2 or 3 coats to finish a piece of furniture where old-style lacquer requires 5 coats. (Hercules does not manufacture lacquers, but produces nitrocellulose and suggests uses.)

CURTAINS FOR GERMS

Edwin F. Guth Co., 2615 Washington Blvd., St. Louis 3, Mo., announce a new fixture for use with germicidal lamps. A base of ultraviolet light is provided which can be so placed as to "curtain" off an area against outside germs. Suggested uses: over counters of exposed food to prevent settling of germs; over milk bottles to retain sterility; over cosmetics to prevent mold; over passage between reception room and doctor's office; for rooms in the home. The fixture is designed for use with 15- and 30-watt germicidal lamps.

RIGIDIZED METAL SHEETS

A new method of cold forming sheet metal by "rigidizing" results in extra heavy strength as well as patterned surface effects. Rigidized sheets eliminate the problem of "waves" in the flatness of panels for architectural use; porcelain enamel sheets and panels are said to be especially adaptable for store front installations. Rigid-Tex Corp., Buffalo 3, N. Y.

RETURN OF THE "GRENADE"

W.P.B. restrictions have been lifted on the manufacture of the "Grenadier," a 2-lamp, 40-watt, steel-framed, fluorescent unit for use as a single fixture or a continuous strip, for ceiling or lower mounting. It features translucent plastic side panels, a reflector bottom equipped with transverse louvers, a light distribution of approximately 41% upward and 45% downward for a total over-all efficiency of 86%. W. F. Wakefield Brass Co., Vermilion, Ohio.
Air Conditioning and Air Handling Equipment

1-20. **Air Conditioning for Hospitals (MAF-1)**, A.I.A. File U-E-11, Mitchel illustrated booklet. Advantages of air conditioning for hospital operating rooms, temperature and humidity control, X-ray rooms, nurseries, laboratories, etc. Information on packaged air conditioners. Airtemp Division of Chrysler Corp.

1-21. **What We Make (Cat. No. 500),** 200-page illustrated catalog (4% *s*). A condensed catalog of types of air handling and allied equipment, from air conditioning units and downdraft heaters to steam turbines and ventilators. Capacity, dimension, and typical performance tables: construction information, special design data section. B. F. Sturtevant Co. Because the printing is limited due to paper shortage, requests for this catalog will be filled only if special application is made on your company letterhead.

Ash Disposal

1-19. **Bulletin No. 1244,** Chicago Fire Brick Co. (Reviewed in June.)

Concrete


Doors

4-25. **Manual of Veneered Doors (No. 42),** A.I.A. 19-E-12, Hardwood Products Corp. (Reviewed in June.)

4-26. **Riverbank Sound Insulating Doors,** 6-page illustrated booklet on wood and metal-covered doors equipped with sound insulating properties. Information on decibel scale; architects' specifications; suggestions and recommendations for hanging, etc. Hardwood Products Corp.

Electrical Wiring

5-15. **Manual of Better Home Wiring,** A.I.A. File 31-C-6, 8-page booklet. Part I gives recommended requirements for houses, including number and type of circuits and outlets for various parts of the house; Part II presents suggested specifications for six family dwellings. Westinghouse Mfg. Co., Better Homes Dept.

Electronics


Expansion Joints

5-14. **Expansion Joints (1942 catalog),** A.I.A. File 4-E-11, Serviced Products Corp. (Reviewed in June.)

Finishes


Fireplaces and Equipment

6-21. **Book of Successful Fireplaces,** A.I.A. 14, Donley Bros. Co. (Reviewed in June.)

Flooring and Floor Coverings

6-13. **Ideas: Portfolios of Practical Suggestions for Modernizing Business Interiors (14% *s*),** Armstrong Cork Co. (Reviewed in June.)

6-22. **Bates Grates (Cat. 54-44),** A.I.A. File 14-P-21, 16-page illustrated catalog on anti-slip open steel flooring and head rest财 and stair treads. Fillet-welded to main bars, available in standard and special spacers and stock panels. Walter Bates Co., Inc.

6-23. **Kerlow Open Steel Flooring (Cat. MC44),** 22-page illustrated catalog on advantages of open steel floorings for industrial use. Data on types, anchoring, installation; typical floor plans, load tables. Kerlow Steel Flooring Co.


Floors


Glass

7-23. **Glass,** A.I.A. File 26-A, Libbey-Owens-Ford Glass Co. (Reviewed in June.)


Gypsum and Gypsum Products

7-25. 2" Solid Partition, A.I.A. File 20-B-31, United States Gypsum Co. (Reviewed in June.)

Heating

8-24. **Catalog 79A, A.I.A. File 30-C-1,** 4-page illustrated booklet. Information on automatically or hand fired boilers of various types for homes and buildings. 1-B-R ratings, fuel dimensions, accessories. Burnham Boiler Corp.

8-46. **How to Choose a Heating System for Your New Home,** 16-page illustrated consumer booklet advising post-war home builders to consult architects for accurate estimates of radiant heating installation costs. Presentations of residences where radiant heating systems are used; data on installation and operating costs. A. M. Byers Co.


8-45. **A Primer on Space Heaters,** Evans Products Co., Evanair Division. (Reviewed in June.)

8-51. **Payne Zone Conditioning,** 20-page illustrated consumer booklet (4% *s*), on thermostatic control of gas furnace unit heat for one room or a grouped "zone" of rooms. Payne Furnace & Supply Co., Inc.

8-48. **Prox Sectional Boilers,** 18-page illustrated booklet. Catalog of data on heavy duty iron or steel (mechanically sound fired) for large installations. Capacity ratings from 615 to 27,940 sq. ft., steam header type. Rating tables, section plans, structural assemblies drawings, dimensions. Frank Prox Co., Inc.

8-49. **How to Handle Heat Generation for Radiant Heating Systems,** 4-page illustrated folder presenting H. B. Smith Co.'s "experiences as a contribution to practical progress" in the panel heating field, shown by photographs of installation in a residence. The H. B. Smith Co., Inc.

Incinerators

9-28. **Kewanee Garbage Burner, A.I.A. File 29D2 (Cat. GW-850),** 4-page illustrated folder on a steel welded garbage burner (available when steel allocation permits) which supplies 165 to 700 gals. hot water per hour. Data on base and lower rocking grate, steel storage tanks for hot water, piping connections; specifications and measurements. Kewanee Boiler Corp.


Insulation

9-25. **Novoid Cork Insulation (A.I.A. portfolio),** Cork Import Corp. (Reviewed in June.)

9-26. **Insulite (No. 3),** 4-page data sheet, "Insulite" products; specifications, standard sizes, and booking weights: building board, sheathing, "Lok-Joint" wallboard, interior board, tile-board, plank, "Fibrelite," "Dualboard," tempered and untempered hardboard. Insulite Division of Minnesota & Ontario Paper Co.

9-27. **PC Fomaglas Insulation for Roofs,** Pittsburgh Corning Corp. (Reviewed in June.)

Lighting and Lighting Equipment

12-23. **Luminite,** illustrated folder on an electrically lighted wall switch plate that shows location of a light switch in the dark, serves as automatic safety night light, helps prevent wall smash. Associated Products Co.
12-25. Number "44" Catalog, A.I.A. File 31-F-23, 38-page illustrated catalog of fluorescent, incandescent, and germicidal lamps, now permitted by WPB to include heavy-gauge, rigid, all-steel models, steel louvers and shields, and steel and aluminum reflectors. Edwin F. Guth Co.
12-26. Verd-A-Ray, 4-page illustrated folder on "Verd-A-Ray" lamps—a "modern form of light which is kind to the eyes, for use in all standard incandescent and fluorescent fixtures of all types of industrial plants." Definition, technical data. Verd-A-Ray Corp.

Lighting Fixture Glassware


Paint

16-45. Color for Safety (B33), Arco Co. (Reviewed in June.)
16-49. Optonic Color System, 12-page booklet on process of color in industry, schools, hospitals, homes. Definition and guide to use of "optonic" colors; suggested outline for color survey of a building. Arco Co.

Protective Coatings

16-47. Eternium (772), Barrett Division, Allied Chemical & Dye Corp. (Reviewed in June.)

Roofing

16-10. Built-Up Roofs, 12-page booklet. Specifications on types of built-up roofs for industrial plants, garages, flat roofs, construction jobs; underwriters' rating; deck type; roof deck incline per foot; inch, surface or finish construction; and weight of materials per square. Includes roof insulation data, flashing specifications, detail drawings. Certain-teed Products Corp.
18-11. Featherweight Concrete Insulating Roof Slabs (Cat. 103 Roof Standards), A.I.A. File 12 e 2, 52-page illustrated catalog on concrete roofing slabs—channel, nailing, interlocking, glass insert, acoustical, seal, and floor. Detailed sheets, specifications. Federal-American Cement Tile Co.
18-88. Built-Up Roofing Specifications, Flintkote Co. (Reviewed in June.)
18-12. Skinnies and Siding, 8-page illustrated booklet. Data and specifications on asphalt shingles (individual, strip, square butt strip, hexagon strip), and asbestos shadings ("lapertex" straight edge, wood grain, and smooth finish). Color chart. Flintkote Co.
18-89. Things You Should Know About Your Roof, Johns-Manville Corp. (Reviewed in June.)

Sound Insulation

19-23. Sound Conditioning, An Aid To Effective Church Management, Celotex Corp. (Reviewed in June.)
19-24. Sound Conditioning, An Aid To Those Responsible for Education, Celotex Corp. (Reviewed in June.)
19-25. Less Noise in Factory and Shop, 12-page consumer booklet containing diagrams showing how sound conditioning protects factory and shop workers and eliminates negative effects of noise. Photos showing actual factory installations of "Celotex" acoustical products on ceilings and baffles. Celotex Corp.
19-26. Acoustical Units and Plaster, American-Pranklin-Olean Tile Co. (Reviewed in June.)

Steel

19-27. Steel in the Making (1964), Bethlehem Steel Co. (Reviewed in June.)
19-30. Mayari R (Cat. 158), 32-page illustrated catalog on low-alloy steel for lightweight, high-strength, corrosion-resistant applications. Installations, typical and physical properties; chemical composition: workability, welding, and fabricating qualities. Products, sizes, other high-strength steels. Bethlehem Steel Co.
19-28. Industrial Steel Fabrication, Marine Fabricators Co. (Reviewed in June.)

Sump Pumps


Tile

20-15. Facing Tile (Catalog 450), Facing Tile Institute. (Reviewed in June.)

Toilet Compartments


Ventilating

22-07. Bulletin No. 2201, Herman Nelson Corp. (Reviewed in June.)

Water Heaters

23-32. Is It Costing You Too Much To Heat Water? 10-page illustrated consumer booklet (5% x 9). Information on use of copper water tube for residential hot water piping systems. Revere Copper and Brass, Inc.
23-31. Smithway Automatic Gas Storage Water Heaters (Bulletin 154A), A. O. Smith Corp. (Reviewed in June.)
23-33. Smithway Automatic Electric Storage Water Heaters (Bulletin 553), A. O. Smith Corp. (Reviewed in June.)

Water Systems


Windows

23-35. New Postwar Modular Sizes for Metal Windows, Meeker Bros. (Reviewed in June.)
23-36. Wood Windows for Use with Glass Block, South Side Lumber and Supply Co. (Reviewed in June.)
...from the Technical Press

House Construction in Great Britain


It is notable that the government of Great Britain, as an official action, has found time even in the midst of war to attempt to evaluate construction methods and materials for the rebuilding which must take place in that country. We have nothing like it in the good old U.S.A. (This can be said despite the efforts of several not-unknown government bureaus and private organizations.

The closest we have yet come is a suggestion that a construction sub-bureau might be set up within the Bureau of Foreign and Domestic Commerce of the Department of Commerce. The intent here seems wholly praiseworthy, but the suggestion is still too new to appraise. Let us hope that politics won't kill it in embryo.)

Twenty-two studies are at present contemplated in the British series of publications; of these, we have received sixteen, which will be reviewed in succeeding issues. Subjects covered deal with, in addition to houses per se, school construction; plastics; plumbing; painting; gas installations; steel; reinforced construction; plastics; plumbing; paint- and winds up with 14 brief paragraphs covering the subject generally and in relation to many specific types of wir- ing, there is a differentiation between the relation between drawings and specifica- tions, another on office practice, etc.

Electrical Drafting


Treating his subject essentially as a type of mechanical drafting, but never- less in the belief that a special tech- nique is desirable for presenting elec- trical circuit diagrams and wiring plans, the author has produced a com- prehensive work, practical in both text and illustrative matter. In addition to chapters on electrical drafting itself, covering the subject generally and in relation to many specific types of wir- ing, there is a differentiation between the relation between drawings and specifica- tions, another on office practice, etc.

Thermal Insulation in Buildings


On the basis of research conducted by the British Building Research Station before the present war, Mr. Dufton argues that financial return is only one of many reasons for regarding thermal insulation as worth while; that the many additional values gained need better appreciation.

Insulation against solar heat in summer is considered by the author to be as important as reducing winter heat losses, for comfort, to reduce cooling loads on air-conditioning systems, and to reduce possible structural damage due to expansion caused by high tem- peratures. The Building Research Sta- tion tested various thin structures (glass, sheet metal, etc.), treated in various ways, to obtain data on their relative efficacy in excluding solar heat. Roof construction was simulated; all materials were tested under identical conditions. Glass, clear, was found to transmit the most solar heat. White- wash in 1 or 2 coats on the underside reduced insulation somewhat; so did thin white cloth suspended 1 in. above or below the glass. Most effective were two coats of whitewash on the top sur- face; temperatures under test pieces thus treated were more than 80°F lower than under clear glass.

Sheet metal painted black on both sides transmitted the most heat of any non- glass materials, 42% as much as clear glass. Using two blackened metal sheets with 1 in. of ventilated air space between, 33% as much heat was trans- mitted; ventilating the air space re- duced this to 25%, approximately the same value as that obtained with an untreated, flat asbestos-cement sheet (24%). Un-treated galvanized iron, corro- rugated, transmitted 29%; ½-in. wall- board, metal-clad on both faces, with the upper face black, lower skin-plated, 19%; one inch of wallboard similarly treated, 14%.

Most startling reduction was obtained by using sheet metal, either single or with an air space between two sheets, when white paint, aluminum paint, or simply exposed tin plating was used for surface finish (8 to 0% of glass trans- mittance). No heat at all was trans- mitted (above mentioned surface tempera- ture for the day) when a single metal sheet, with top surface white-painted, lower surface tin-plated, was used. Curious, 1% of the amount of heat transmitted by glass came through a structure composed of 2 similar sheets of metal, plus a 1-in. unventilated air space; 3% when the air space was ventilated.

In another case, thermal insulation of a ceiling not only prevented pattern-staining due to dust adhering to condensa- tion which gathers over lathing and structural members, but also made the temperature of the entire ceiling struc- ture more nearly equal to that of the air, and so decreased the amount of dust precipitated.

Reinforced Concrete without Falsework

(Article by Jacob Feld, Consulting Engineer, New York, N. Y. Engineering News-Record; May 5, 1945.)

In designing a reinforced-concrete grade-separation bridge for New York City's postwar building program, struc- tural steel frames serve the dual pur- pose of permanent reinforcing and temporary support for concrete forms during the bridge's construction.

The bridge is of rigid frame reinforced concrete type. Experience revealed that three operations in constructing this type of bridge are costly: supporting arch forms on falsework; bearing long, heavy reinforcing rods; and separating and holding in proper position the inner and outer reinforce- ment layers. All these operations were eliminated in this unusual design by employing welded structural steel angle members, and the falsework is designed first as rigid frames to sustain the weight of forms and wet concrete; after the concrete has set, the structure becomes a reinforced rigid frame, the structural angles acting as reinforce- ment in both faces.

For this particular bridge, loading for the completed rigid frames was so heavy, in order to accommodate truck traffic, that the weight of reinforcing needed for these ultimate loads was more than sufficient for the preliminary purpose of supporting the wet concrete and forms. (This condition might, or might not, exist in other types of con- struction, and might seriously affect the economies apparently obtainable.)
Air-Entraining
PORTLAND CEMENT Cont’d.

TYPES OF USES—Air-entraining portland cement concrete has proved its worth for all types of paving subject to excessive
temperature variations. It has been used by the Corps of Engineers, U. S. Army; and by private architects, engineers,
and contractors. Applications include highway and airport paving,
dams, and tanks, as well as buildings. It has been found successful for slip-form construction and for quinte.

While it is probable that air-entraining cement produces a concrete with slightly reduced bond-strength between the
cement and reinforcing steel (due to the fact that the air
bubbles may limit the area of bond) this has not been a
serious factor, and may be offset by such means as changing
the physical design (shape) of reinforcing. Satisfactory results
have been achieved when air-entraining cement was used for
reinforced concrete structures. However, adequate test
data do not exist.

Masonry mortar must be smooth, workable, and butty.
Special mortars are available for this purpose, but if, for any
reason, a portland cement mortar is required, it has hitherto
been necessary to sacrifice smoothness, etc. Use of air-
entraining cement for this purpose reduces the harshness
characteristic of mortar made of normal portland cement and
sand. In addition, if the new cement inhibits laitance and
bleeding, the result is a more water-resistant product, which
may prove efficacious in reducing that bugaboo of brick-
layers, efflorescence. Investigation in this quarter has not
yet proceeded far.

Machine-made concrete products usually require a mixture
that is very dry, usually too dry to develop maximum strength.
The use of air-entraining cement imparts to such a
mixture a rubbery consistency which permits its handling at
an earlier stage, with less breakage, than is possible with
normal cement. Therefore, block and pipe manufacturers can
utilize a concrete which more nearly attains maximum strength
if air-entraining cement is used; breakage of "green" products
may be reduced.

COST—Air-entraining portland cements are sold at the
same prices as normal portland cements. These cements con-
tain the air-entraining agent, which is interground with the
cement at the mill. Cost of air-entraining agents added to the
concrete at the mixer, though slight, is extra.

REFERENCES
A.I.A. material filed under Index No. 3A.
American Society for Testing Materials (ASTM)
C175-47T, "Test for Air-Entraining Port-
land Cement for Concrete Pavements," Revised, 1944.
C185-47T, "Test for Air Content of Port-
land Cement Mortar," Issued, 1944.
Construction Methods (magazine)
December, 1944. "Air-Entrained Concrete Applied to Structural
Engineering News-Record (magazine)
October 10, 1940. "Pervenue Scaling Successfully Checked," by
O. L. Moore.
August 24, 1944. "How to Use Air-Entraining Cements," by
H. G. Farmer and G. L. Lindsay.
Rock Products (magazine)
convention of ready-mixed concrete industry.

SOURCES OF SUPPLY—Omission of any name from this
list of manufacturers emphatically is not to be construed as
indicating that the manufacturer’s product in any way lacks
merit.

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Manufacturer</th>
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<tr>
<td>Florida Air-Entraining P. C.</td>
<td>Florida Portland Cement Co., 305 Morgan St., Tampa, Fla.</td>
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<tr>
<td>Hawkeye Air-Entraining Cement</td>
<td>Hawkeye Portland Cement Co., 602 Hubbell Building, Des Moines, Iowa</td>
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(Trade name not ascertained) Lehigh Portland Cement Co., Allentown, Pa.
Lone Star Air-Entraining P. C. | Lone Star Cement Corp., 62 Madison Ave., New York City |
Medusa Air-Entraining P. C. | Medusa Portland Cement Co., 1000 Midland Blvd., Cleveland 15, Ohio |
(No trade name adopted) National Cement Co., Birmingham, Ala. |
North American Air-Entrain-
ing Portland Cement | North American Cement Corp., 41 E. 15th St., New York City |
Plastolith | Northwestern States P. C. Co., Mason City, Iowa |
Penn-Dixie Air-Entraining P.C. | Pennsylvania-Dixie Cem. Corp., 10 E. 42nd St., New York City |
Columbia Air-Entraining P.C. | Pittsburgh Plate Glass Co., Columbia Cement Division, Zanesville, Ohio |
Duraplastic | Universal Atlas Cement Co., 135 E. 42nd St., New York City |
Air-Entraining PORTLAND CEMENT

Air-entraining portland cement is normal cement to which has been added a small amount of air-entraining agent which, in turn, causes the mixed concrete to entrain a quantity of minute, separate air bubbles. It was developed first as a material for paving concrete, to eliminate scaling of concrete due to alternate freezing and thawing and to chloride salts commonly used to remove ice from highways. It has been tested widely in highway applications since 1935, and has been used successfully, though less widely, in several types of construction. It is potentially of great usefulness in many types of construction. Air-entraining portland cement is now available through regular trade channels.

DESCRIPTION—It should be understood that use of air-entraining cement is not a substitute for good aggregate or good workmanship. Conversely, the desirable properties of this new product will be obscured if it is used care in workmanship and selection of aggregates is observed that is employed in handling normal portland cement.

All portland cements contain small amounts of alkalies—compounds of sodium and potassium. When a small amount of animal fat, vegetable oil, or resin is added, and the cement mixed with water, the alkalies dissolve and combine with such agents to form a small quantity of soap. This process is termed “neutralizing” the air-entraining agent, and was formerly common practice. The newer practice of adding a pre-neutralized agent is rapidly gaining acceptance. The action of mixing whips a small amount of air into the concrete, and the soap entrap the—auto the air in uniformly distributed microscopic bubbles. These tiny air bubbles repel each other and do not readily unite to form larger bubbles. Examination of the hardened concrete under a microscope shows that the bubbles vary from about 1/100 to 1/1000 of an inch in diameter.

The function of the billions of minute air bubbles has been likened to that of ball bearings; they hold apart the particles of fine and coarse aggregate; while the solid particles can roll freely on the bubbles, they cannot roll freely through or around the bubbles. In both laboratory tests and field use, the resulting concrete has proved to differ from normal portland cement concrete in being:

1. More plastic and workable, so that it spreads, screeds, and finishes more easily;
2. More cohesive, viscous, or “gummy,”
3. More durable in withstanding scaling effects of de-icing salts and freezing-thawing cycles of weather;
4. More uniform throughout its mass.

PROPERTIES—It has been observed that concrete made from air-entraining portland cement “bleeds” less; it has less “water-grain.” In paving, this property enables finishers to follow the placing operation almost at once, thus eliminating much of the customary time-lag and reducing overtime labor costs. In placing structural concrete, this characteristic makes for a better bond between successive lifts, and tends to reduce sand streaks.

“Density” of concrete has long been regarded as a chief requirement of quality. This would seem to be at variance with the practice of deliberately introducing air into concrete; but such a conclusion is not justified. With regular cement, more water than is essential for chemical reaction usually is introduced in order to make the mix workable and placeable. When it evaporates this excess water leaves in the concrete air channels into which water can penetrate. The excess mixing water also might cause ponds to collect beneath particles of aggregate. After the concrete has hardened these channels and ponds form areas where water may enter and freeze and where salts can crystallize. If the resulting expansion exerts force greater than the tensile strength of the concrete, failure may result.

Proper use of air-entraining agents, on the other hand, causes concrete to become more homogeneous; substantially reduces the possibility of bleeding and of segregation of the particles; and, due partly to the action of the microscopic air bubbles, partly to the smaller quantity of water required to produce a workable mix, decreases the permeability of concrete. Under high pressure saturation tests some water has been found to penetrate concrete made from air-entraining cement; however, the tiny air bubbles were found to be only partly full of water. None was completely full. This means that, if water penetrates to them, there is space to take up the expansion due to freezing or to crystallization of salts.

The discontinuous air bubbles may slightly reduce strength of the concrete, but this is offset by reducing the quantities of sand and water (which produces a richer, stronger mix; see "Preparation") and, at least potentially, by increased bond due to reduced sedimentation.

PREPARATION—The amount of cement per cubic yard of concrete should be the same for air-entraining cement as for normal cement. Quantities of materials that produce one cubic yard of concrete when normal cement is used produce more than a cubic yard when air-entraining cement is used. The excess varies with the proportion and aggregates used and is best determined by trial mixes. Since this wet concrete is more plastic than that made with normal cement, a satisfactorily workable mix is obtained with less sand and water. Use of air-entraining cement generally permits a reduction in sand content of about 3% to 6% of the total amount of aggregates, and a reduction in water of about a gallon or more per sack with lean mixes, or less than half a gallon per sack with rich mixes. This reduction of sand and water offsets the bulking effect of the air and enables the user to obtain the same yield per bag of cement. Tests show that, for the same yield, with lean (4-sack) concrete higher strengths generally result, while with rich (7-sack) concrete somewhat lower strengths are obtained with air-entraining cement than with normal cement.

AIR-ENTRAINING AGENTS—Two air-entraining materials have been approved by Committee C-1 on Cement, of the American Society for Testing Materials: (1) Vinsol resin, an inexpensive by-product produced by the Hercules Powder Co., and (2) Durax, a product manufactured by the Dewey and Almy Co. Other substances will produce the desired reaction but conclusive test data on them are not yet available.

There are two methods of using an approved air-entraining agent with portland cement: (1) intergrinding the substance with the cement at the mill; (2) adding the substance to the concrete at the point of mixing. The first is currently more common practice.

PROPORTION OF AIR-ENTRAINING AGENT—ASTM C175-44T (Specifications for Air-Entraining Portland Cement) requires that such cement meet certain standards. The quantity of vinsol resin, which is the substance ordinarily used when an agent is added at the mill, is not limited except that sufficient is required to produce the necessary air content. The maximum content of Durax is 0.05%.
Take a look at that blueprint. It's so blurred you couldn't read it with a magnifying glass. Same old trouble over and over again—soft, crumbling leads, smudged drawings, bad blueprints!

Wait, pal! I can shed light on that problem. Go get yourself the drawing pencils that never crumble, that produce clean, dense, opaque lines all the time and every time. Get Typhonite Eldorado!

Eldorado drawings result in blueprints as clear as a bell and a pleasure to read. And remember—these pencils are unerringly uniform in every degree. Perfect. Get 'em tomorrow. O.K.

The best steer I ever had. For my money, Typhonite Eldorado is the world's finest drawing pencil. Try it! We'll send you a free Comparison Sample. Request it on your business or professional stationery, specifying degree.

DIXON'S TYPHONITE
ELDORADO

DIXON'S TYPHONITE ELDORADO--3H

PENCIL SALES DEPT. 167-J7, JOSEPH DIXON CRUCIBLE COMPANY, JERSEY CITY 3, N. J.
GENERAL CABLE CORPORATION'S
ST. LOUIS PLANT CELEBRATES RECORD
WIRE PRODUCTION ACHIEVEMENT

More than twenty months of inspired war effort on the part of the Men and Women Employees of the St. Louis Plant of General Cable Corporation were crowned today with gratifying success when the millionth mile of critical field communication wire, single conductor, rolled off the production line ready for shipment to our armed forces overseas.

This notable General Cable achievement, one of the most significant accomplishments in the production of a vital war material to be achieved in the St. Louis area and unequalled in performance in any communication wire plant in the world, marks an epochal milestone in the production of field wire which began in the local plant in October, 1943.

More than four thousand employees working on an average of fifty-two hours per week in three shifts, seven days, are engaged in meeting the urgent requirements for field wire of the United States and its allies. Current production is running in excess of four thousand miles per day or, putting it another way, approximately five times around the globe once a month.

In commenting on the product feat of the local organization, Dwight R. G. Palmer, President of General Cable Corporation stated: "Though the performance of our St. Louis Plant was accomplished in an ordinary line of duty, Management nevertheless is particularly gratified that its personnel, comprised of races, creeds and colors, have once more evidenced their patriotism by establishing this outstanding record. We salute the Men and Women of our St. Louis Plant for this production achievement!"

More than one hundred thousand employees of the Men and Women employees of the St. Louis Plant, who were involved in this production project, were given a very great need to conserve and protect what is now all their efforts. 

The millionth mile of field wire was produced by a dedicated and hardworking group of employees who, through their efforts, have contributed significantly to the war effort. 

In preparation of income tax returns. Ordinarily the O. P. A. must complete its prosecutions within a year after bringing charges.
Just one example of General Cable's Service to the Nation and its Allies

This output of one million miles of single conductor communication wire for the armed services represents the all-out effort at only one plant producing enough wire to encircle the globe five times each month.

All ten General Cable plants have been working three shifts, seven days per week, on this and other essential military items.

Come final Victory, General Cable will as energetically attempt to do its part in winning the peace.

GENERAL CABLE CORPORATION

Manufacturers of Bare and Insulated Wires and Cables for Every Electrical Purpose
Protect the future value with Servel All-Year

Performance proved in more than 400 installations

You take no chances when you specify and install the Servel All-Year Gas Air Conditioner. It has proved its efficiency, economy and dependability in more than 400 successful installations from coast to coast.
of your post-war homes

Gas Air Conditioning

It keeps homes "modern" longer,
financing agents agree

You can make sure your post-war homes maintain a high re-sale value for many years by installing Servel All-Year Gas Air Conditioning.

Financing agents state that homes so equipped will stay "modern" longer. They agree that the Servel Air Conditioner increases the value of any home far more than any other new idea that may be developed. For this reason, you'll find most banks, building and loan organizations, etc., prepared to extend larger loans, offer better terms, on homes containing this new Servel equipment.

In addition to paying dividends in increased investment value, Servel All-Year Gas Air Conditioning provides homeowners with an entirely new quality of living the year round. It keeps homes delightfully cool and free from humidity during the summer. And in winter it provides clean, even heat, comfortably humidified. A touch of the finger is all that is required to select just the climate desired indoors, no matter what the weather outside.

You can specify Servel All-Year Gas Air Conditioning with full confidence that it will meet architectural and building requirements, as well as home-owner expectations. More than 400 installations have already been made, in every part of the country. Some have been operating for more than four years. Owners are unanimously enthusiastic about the new comfort, the convenience, economy and dependability of this new Servel summer-winter unit.

Find out today how easily and inexpensively you can protect the future value of your post-war homes with Servel All-Year Gas Air Conditioning. Get full technical details and complete installation data from the trained application engineer at your local Gas Company. Or write direct to Servel, Inc., 4507 Morton St., Evansville 20, Indiana.
ECONOMIC POLICY AND PLANNING. It is
therefore to note the nature of this
interest in shelter provision.

"ON THE RECORD" TESTIMONY

Probably the best over-all picture can
be gleaned from the recent hearings of
the Taft Subcommittee on Housing and
Urban Redevelopment, of the (George)
Special Senate Committee on Post-War
Economic Policy and Planning. It is
significant that 11 of the 15 parts of
this Committee's printed record of hear-
ings—covering more than 1,000 pages of
testimony and charts and tables—are
concerned with housing and redevelop-
ment. We cannot attempt even to sum-
marize its findings in this column, for
the Committee was virtually indefatig-
able. Everyone who has or wants a
finger in the pie was represented and
contributed to an invaluable "on the record" compendium.

The reference value of the testimony is enhanced by a well-arranged index.
Worthy special mention is Housing Facts
and Goals, the exhibit presented by Administrator Blandford. (The Admin-
istrator's testimony and the graphic
material may be obtained from the Na-
tional Housing Agency; the record of
hearings may be purchased from the
Superintendent of Documents, Washing-
ton, 25, D. C."

THE SOCIAL PROFITS

Government enterprise should operate
on a basis of social accounting. Straight
bookkeeping principles of profit and loss
are inapplicable to activities which con-
sider the intangible gains of better
health, better citizenship, and hap-
iness. Unfortunately, the public housing
movement in America has been unable
to achieve the status of the (older) field
of education. Schooling for every citizen
requires no justification in terms of dol-
ars and cents. Low-cost housing still
has to indicate fiscal "savings" to the
community, if its expense is not to be
attacked as unwarranted.

The Newark Housing Authority, recog-
nizing this necessity, has issued some
"stockholders' reports." (The Social Ef-
fects of Public Housing, November
1944, 92 pp., charts and illustrations;
Public Housing Pays Dividends, April
1945, 10 pp. Prepared by the Housing
Authority of the City of Newark, N. J.
57 Suez Ave., Newark, 4, N. J. A
limited supply of the reports is avail-
able for free distribution upon request
to the Authority.) In discussing the
dividends of public housing, the Au-
thority clearly translates into monetary
d values the economic savings the projects
have brought to the city. But in the
more extended report of the Social Ef-
fects, the social bookkeeping method
is apparent.

This is a welcome study, inasmuch as
the negative side of the picture—slums
breed disease, crime, fire, etc.—is em-
phasized so frequently. The converse
and positive side—does good housing ac-
ually eliminate these evils?—has rarely
been treated systematically. Professor
Jay Rumney, with Sara Shuman's assis-
tance, conducted this sociological study
on a basis of social accounting. Straight
bookkeeping principles of profit and  loss
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phasized so frequently. The converse
and positive side—does good housing ac-
ual...
Well, the U. S. Government picked Kentile for the largest office floor area ever laid down—the entire Pentagon Building.

Yeh? Which commercial office buildings have used it?

Pretty nearly every outstanding office building for the last ten years. Rockefeller Center put it in the first building erected—and then put it on every floor of every building put up thereafter.

But the Rockefellers don't have to worry about price!

No, but they buy pretty shrewdly. And why is Kentile used so often when material is bought on "low bid"—like for Hunter College, N.Y., for instance?

Oh, that's not a scientific way to buy.

It's science you want? Bell Telephone tested every type of flooring for six months before picking Kentile for their Murray Hill Laboratory.

Laboratory stuff. I want practical tests.

Such as the selection of Kentile for A. & P. stores, Woolworth stores, Sears Roebuck stores, Walgreen stores—the list is terrific?

Well, they don't have any grease falling problem.

They do, and they use Greaseproof Kentile where needed—as likewise do Union News and Exchange Buffet restaurants.

Popular price chains. How about beauty and glamour?

You asked for it. Kentile was chosen by Tiffany for their store—and by such "decorated" spots as the Williamsburg Inn, Stouffer's Restaurant, Santa Anita Race Track.

Okay, okay, so now I know Kentile is the best.

But you don't know all the reasons why—and you should to be really informed. Why not ask any flooring contractor in the United States what Kentile's position is—or look at the Kentile catalogue in Sweet's. It tells the whole story. If you want an individual copy for yourself, it will be gladly sent upon request.
RICHMOND A.C. FORM-TYS

Advantages for Architectural Concrete Wall Forms

Patent No. 2,222,339

The Richmond A. C. Form-Ty is a 3,000 lb. safe load tie unit especially designed for requirements of architectural concrete walls assuring dimensional correctness as well as architectural finish and

Provides for:

• Small clean hole (less than ¼” diameter) for grout patching.
• Spreading action between wales to gauge wall thickness.
• Available in pull-out type for complete withdrawal or, 1½” break back if desired.

Approved by Portland Cement Association

Richmond Offers—consultation on best types of forms and ties to be used for a given job; estimates on job requirements and recommendations on specific form problems. All of this is without obligation. Richmond’s method of packing and shipping is a distinct service in itself.

Richmond Reusable Accessory Devices—known as “Working Parts,” are furnished RETURNABLE FOR FULL CREDIT — no rentals charged.

Form-Ty Engineering Guide on Request

RICHMOND ANCHOR COMPANY, INC.
816 LIBERTY AVENUE, BROOKLYN, N. Y.
MANUFACTURING SINCE 1911

Reviews

(Continued from page 106)

for the combined housing projects for the second year than for the first.”
The septennial inventory of Pittsburgh’s housing agency (The First Seven Years, A Report of the Housing Authority of the City of Pittsburgh for the Years 1937-1944, September 1944; 63 pp., illustrations, tables, charts) makes good citizens’ reading. It should gain considerable support for the Authority by its straightforward and attractive presentation. This interracial housing Authority has a good record but is well aware that its job has just started. Its report should aid in dispelling Pittsburgh’s inertia toward adequate solution of postwar housing and planning problems. It also indicates the possibilities of expertly prepared literature for winning support.
The Vallejo Housing Authority in California has prepared an informative tenant’s handbook. It is arranged simply in loose-leaf form and will be added to periodically. Utilitarian documents on this order are effective as another means of selling a housing program.

FOLK WISDOM OR FOLK LORE?

Home Ownership: Is it Sound? John Dean. Harper & Bros., 49 East 33rd St., New York, 1945. 215 pp., appendices, foreword by Robert Lynd. $2.50 Caveat emptor is as timely a warning in home buying as in any other consumer purchasing. Most actual or would-be home owners probably would welcome a special FTC serving their peculiar needs. Meantime, “Own your own home” is embedded in the folklore of capitalism. It is a homily overweighted with emotion and too rarely subjected to objective scrutiny. John Dean, a sociologist, has dispassionately dissected one of the most outstanding current bogies. He merely distinguishes between sound and unsound home ownership—but in that simple approach lies dynamite.

This analysis actually stacks up far better for those with a stake in the building market than they would suspect. His critical approach to the economics of house-buying does not mean a reduction of building activity. For one thing, he points up the tremendous potentialities of the market for rental housing, which in the preoccupation with home ownership has been ignored substantially. Inasmuch as only about 20% of private homes are architect-designed (the remainder mostly springing forth from stock plans) a scaling down of the overpadded home-owners’ ranks would barely affect the architect. Dr. Dean’s objective, sound ownership, though resulting in a numerically smaller market, would provide a far greater outlet for creative and functional design.
The monograph is well documented. The
Typifying the manner in which standing seam sheet copper roofing may be used over bays and entrances to impart both warmth and color, and to accentuate the structure's individuality.

Anaconda Copper

THE AMERICAN BRASS COMPANY, General Offices: Waterbury 88, Connecticut
Subsidiary of Anaconda Copper Mining Company • In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ont.
TO SEE THE ELEVATOR OF TOMORROW . . .
LOOK AT SEDGWICK HOSPITAL ELEVATORS TODAY

Modern design inside and outside. Sedgwick elevators become an integral part of the hospital.

Precision-engineered Sedgwick elevator machines are specially designed for hospital elevator service.

Sedgwick Hospital Elevators are ruggedly constructed to do many essential jobs.

Comfortably proportioned to accommodate stretchers, visitors or hospital personnel.

The new Sedgwick Electric Hospital Elevators are expressly designed for use in hospitals up to six floors where car speeds up to 150 feet per minute are required.

These multi-use Sedgwick elevators are made with three types of control. One—The Sedgwick simple, straight automatic push button control with dispatching buttons in the car for each landing and a call button at each opening, for operation without an operator or attendant. Two—Sedgwick's self-centering, manually operated lever-type car switch for those elevators to be run by an operator. And three—Sedgwick dual control which offers all the advantages of automatic floor stops and permits operation of the elevator with or without an operator by simply flicking a switch.

These are some of the advantages of Sedgwick Multi-Use Electric Elevators for smaller hospitals. There are many more. We would like to tell you about them. So if you have a perplexing lifting problem—present or postwar—tell us about it. Our engineers will be happy to help and show you how Sedgwick elevators solve smaller hospital vertical transportation problems through safer, surer, more economical operation.

Sedgwick MACHINE WORKS
164 West 15th Street, New York 11, N. Y.

MODERN HOUSES FOR EVERY INCOME

In Mrs. Rosenman's own words, her book has "attempted to perform a blood chemistry of housing finance, a dissection of construction cost, an X-ray of land and land-development cost, a metabolism of real-property taxes." This statement succinctly reveals the volume's scope—and also the somewhat lyrical style maintained throughout.

It is intentionally a book for popular appeal—which seems good. It can make sense to Aunt Susie as well as the pedants and administrators. It is in many ways a crystallization of housing ideas at present in the wind. Dorothy Rosenman's vast experience with the housing movement is apparent on every page.

Three primary goals are singled out: the provision of homes at lower cost to bring them within the reach of family incomes under $2,000; the stabilization of values; and the location of homes in "a convenient, prosperous, and pleasant milieu." Recourse to what technology, business, and the government can do, separately and as partners, indicates the degree to which the aims will be realized.

The methods of reducing housing costs are examined from the angles of borrowed money, land and its improvement, construction and distribution, and property taxes. The section of the physical aspects of reducing building cost presents particularly interesting material not available elsewhere in such compact form. "No one of these cogs is in itself capable of effecting a sufficient percentage of the cost to produce the desired result."

The attainment of property stability and a favorable milieu are interrelated factors and depend largely on the planners and their tools. One cannot determine at which point the author steps from house to planner. This also is to the good. Her broad approach is completely in step with, if not a bit ahead of, the house-neighborhood-community concept which has been gaining such widespread acceptance.
A feeling of spaciousness depends, perhaps, more on what the eye sees than on the actual size of the room.

A wall of glass lets the eyes roam. The room takes on the light, broad feel of the outdoors, is opened up to the beauty of gardens, flowers and views.

Designers of all types of houses are counting on Daylight Engineering to make rooms brighter, more livable...rooms flooded with healthful, cheerful, eye-saving daylight. And they're counting on Daylight Engineering to win a quicker "yes" from prospects, and greater satisfaction from home owners.

When you open up the walls with glass, you can provide extra comfort and heat saving by using Thermopane—the L-O-F windowpane that insulates. It's a worth-while feature to include in the houses you design or build.

The benefits of Thermopane are described briefly at right. For full information, write for our illustrated Thermopane Book and for Data Sheets by Don Graf. Libbey-Owens-Ford Glass Company, 2375 Nicholas Building, Toledo 3, Ohio.

Thermopane...
the windowpane that insulates, makes big windows practical in any climate

Thermopane provides effective insulation because a layer of dehydrated air is hermetically sealed between its two panes of glass. Thanks to the patented Bondermetic Seal, used to prevent dirt and moisture infiltration, there are only two glass surfaces to clean.

This double-glass windowpane fits into a modified sash, just like a single pane of regular glass...stays in all year. It's the modern, practical way to provide the benefits of bigger windows, with assurance of winter comfort and heating economy. Available in Canada.

LIBBEY - OWENS - FORD
a Great Name in GLASS
One of the most reassuring aspects of the book is the vigor with which Mrs. Rosenman hammers away at certain basic principles often given but passing attention. The important distinction is maintained between slum clearance and redevelopment on the one hand, and housing for slum dwellers on the other. A plea is made against the "marked neighborhood" whereby families of a certain income level, whether high or low, determine completely the character of a significant proportion of residential land. The helter-skelter flight to the suburbs is deplored, and the wide possibilities of central city land are indicated. The frequently ignored limitations of American home ownership are treated. The desirability of a property tax based on present use is stressed. There is mention of almost every major housing proposal that has ever been seen.

This material is not particularly new; nor are the viewpoints expressed. The value lies in the author's invariably sound judgment, her ability to bulwark her case in each instance with an appropriate history as well as inspection of current theories.

A rather dramatic account of provision of shelter during the war has been prepared by NHA for use at the conference of the United Nations in San Francisco. (War Housing in the United States, National Housing Agency, Superintendent of Documents, Washington 25, D. C., 26 pp., 10 cents.) It is a non-technical resume of the public and private housing erected since Pearl Harbor. Its particular usefulness seems to lie in the discussion of those communities created by exigencies of war, about which little information has heretofore appeared.

A Louisville bank president has proposed that the FHA insure mortgages on sound older dwellings on the same basis which has been applied to new homes. He distinguishes this problem from that of rebuilding the slum areas. It is his contention that such a scheme would encourage home ownership and tend to retard obsolescence. This proposal is examined in a symposium (Tomorrow's Town, National Committee on Housing, Inc., 512 Fifth Ave., New York, 18, N. Y.) in which the measure is given fairly close attention. As presented there, the plan reveals some major flaws. It does not recognize that structural and neighborhood deterioration cannot be treated piecemeal or that near-blighted areas require the same over-all vision a slum redevelopment project requires; that the market for buying and remodeling aged property is probably much over-rated (in fact, off-hand, it sounds like an unfortunate alternative for minority groups who have little choice other than to purchase the no-longer desirable houses of a more privileged class); that the complete desirability of home ownership may be unwarranted in the light of Mr. Dean's skepticism about home ownership (see above).

Two Types Available

FRESH-AIRE—Designed especially for tightly constructed, fully insulated, weather-stripped homes. Special intake draws fresh air from outdoors. Both types supply evenly distributed, circulating warmth—without smoke.

WARML-AIRE—Recommended particularly for homes that are not fully insulated and weather-stripped. Intake draws cool air supply from indoors.

Send for Fireplace Catalog—or see Sweet's

Bennett-Ireland
745 Cedar Street, Norwich, New York
Private Office—a difficult lighting problem solved by coordinating desk and luminaire layouts. Maximum seeing comfort is provided with 85 foot-candles on the worktable after 1000 hours burning.

High-level illumination of 50 foot-candles or more is recommended for office work. When Westinghouse Fluorescent Luminaires were installed in this tabulating room, they provided efficient lighting, free from annoying shadows, and tabulations increased 12% by actual count.

You get BOTH in Westinghouse Lighting

Soundly engineered equipment is vital to good lighting. So is correctly engineered application of that equipment to your specific requirements. You need BOTH. You get both from Westinghouse.

With correctly designed Westinghouse luminaires, you get maximum illuminating efficiency with minimum maintenance expense ... and at no sacrifice in appearance. Of equal importance, with Westinghouse, you also have available the advisory services of thoroughly qualified lighting engineers in applying this equipment. Where unusual conditions must be overcome, these men bring to your lighting problem vast Westinghouse experience gained in the pioneering of standards and principles now widely accepted throughout the lighting industry.

Both these phases of good lighting—right DESIGN and right APPLICATION are available to contractors, architects and users through Westinghouse distributors. Get in touch with the distributor nearest you or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

In 1942 this chapter of the A.I.A. formed a special Post War Committee to examine the problems of urban planning. The aims were "to stimulate the interest of architects in problems of urban planning," and "to encourage the type of architectural training that will better equip the architect to contribute to urban planning."

It is suggested that growing interest in planning may be charted through the increasing number of publications on the subject. Budgets for planning also have been increased by sixty percent between 1941 and 1943, in larger cities, and by nearly one hundred percent in small communities.

Definite statements of policy crystallize the work done by this committee. Planning must be democratic, initiated by the people of the community, and submitted to the people (even though this may create waste and lack of continuity). Technical aid should be given by state and federal governments but, as far as possible, their interference in local planning should be avoided.

The entire urban area must be planned at one time, with a schedule permitting orderly evolution. Each area must establish its own goals with foresight to anticipate state and national influences on location of industries and movements of population. Following careful research as to existing conditions and goals, a planned schedule of action must be prepared. A centralized official agency, preferably an integral part of the local government, must be in charge of this work.

Citizen participation and dissemination of planning information should come about through cooperation by all representative citizen organizations.

Approved State and Municipal Projects:
New York State Postwar Public Works Planning Commission, State and Municipal Projects.

By law, this exact record of the progress of the design of all approved projects must be available to officials and the public at all times. Such a compilation has been published before, each issue being a larger booklet and making an impressive report of the activity of the Commission.

Community Airports and Airparks:
Esso Aviation Products, Aviation Division, 26 Broadway, New York 4, N. Y.

With an eye to accommodations for the small individually-owned plane, the Esso Company has published this excellent "small airport" primer. All material has been "reviewed and approved" by the Editorial Board, National Aeronautics Association.

Although commercial aviation will initiate tremendous postwar developments, it is apparent that the private ownership of small planes will have an effect comparable to that of the automobile on the structure of cities, towns, and rural areas. The effect of this increased private ownership upon economy and the location of centers of trade is as unpre-
Tie tf&vaZdt J^/faAedfy
STREAMLINES BUILDINGS...REDUCES COSTS

Oildraulic Elevators
REQUIRE NO PENTHOUSE, NO HEAVY SIDEWALL STRUCTURE, NO SPECIAL MACHINE ROOM

You can streamline your building designs and, at the same time, make sizeable savings in construction costs. How? By specifying Oildraulic Elevators for 2, 3 or 4-story structures.

Because this modern elevator is pushed up from below (not pulled from above) there’s no need for costly, unsightly penthouses or for heavy load-bearing supporting columns. And no special machine room is required with an Oildraulic Elevator... the compact power unit can be located in any convenient space.

It’s Done by Hydraulic Power

The elevator car (for freight or passenger service) is raised by a powerful hydraulic jack, as shown at right, powered by an electric oil pumping mechanism. Initial cost is low. Operating cost is low too... power used only when elevator rises, descent by gravity. And there’s little maintenance expense, even after years of service.

The operation of the Oildraulic Elevator is hydraulically smooth...no abrupt starts or stops. Landing stops are accurate to within 1/4 inch, plus or minus—most important on freight elevators because of the increased use of powered vehicles for material handling.

The coupon at the right will bring you complete information and Architect’s Preliminary Layout Data on Oildraulic Elevators.

OILDRAULIC ELEVATORS - LEVELATORS

Oildraulic Levelators
ELIMINATE NEED FOR RAMPS AND LOADING DOCKS. MAKE BUILDINGS MORE EFFICIENT

Oildraulic Levelators fit right in with the trend to functional and integrated design in postwar industrial and commercial buildings. They save plant space and streamline structures by eliminating ramps and loading docks. Increase building efficiency by speeding up traffic.

Everything on the Same Level

With an Oildraulic Levelator loads up to 50,000 pounds can be raised directly from the plant floor to trucks, freight cars, or different building levels. Levelator car, when down, becomes a part of the floor and can be trucked over. The plant floor can be poured at grade instead of at railway car or truck bed height—a real cost saving!

Owners approve Oildraulic Levelators because operation is fast, safe, dependable, and economical. Car rises quickly and smoothly as oil is forced into powerful hydraulic jack by a simple electric pumping mechanism (or by available compressed air). Installation simple.

Use the coupon below to request Catalog RE-301 showing the use of Oildraulic Levelators in various types of structures.

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ROTARY LIFT COMPANY
1025 Kentucky, Memphis (2), Tenn.
Please send [ ] Catalog RE-301 on Oildraulic Elevators [ ] Catalog RE-290 on Oildraulic Levelators to:

NAME
ADDRESS
CITY____________________ STATE____________________
dictable as it was when the automobile first appeared to shorten distances.

Types of planes to be used by individual owners include the small two- to four-seater in use before the war, the helicopter, and a proposed model with collapsible wings which will be usable on highways.

Recommendations include: membership needed for an efficient airport committee; aspects of site choice; typical runway layout and building markings; equipment for the airport's sources of revenue.

The information contained in this booklet is not specific enough to warrant its use as a handbook, but it has considerable value as a presentation of the basic factors in planning a community air facility.


Moholy-Nagy, president of the Institute of Design, Chicago, writes of the increasing uses for photography and describes methods of teaching the development of photography as an art form, as opposed to its familiar use as a medium for recording and reporting. He feels that photography's working rules are not yet frozen into "unalterable dogmas" which would restrict it as an art form.

Photography without the camera, using the photogram, he advocates to exploit the full range of tonal values, leading to experiment with the interplay of light and the study of forms. Much of this work is being done at present at the Institute of Design.

Periodicals

Reviewed by Maude Kemper Riley

THE ARCHITECTURAL REVIEW

45 The Avenue, Cheam, Surrey, England

April 1945

Some sort of citation for excellence of publication should go to the Architectural Review for its April special issue entitled "Electricity in its Regional Setting," a fifteen-article study of power potentialities in the British Isles, prepared by the magazine by the Association for Planning and Regional Reconstruction. The practical idealism of TVA Chairman Lilienthal (U.S.A.) is felt to hover over British concentration upon this vital problem: Britain's discrepancy between power required and power generated.

"If we fail to solve the problem, posterity may have no alternative but to buy outside—coal and oil from lands more abundantly endowed, electricity perhaps by some improved type of submarine power cable from Scandinavia," states the introductory article. Survey, followed by Plan, is the modern technique for meeting colossal questions such as this. In stating existing conditions and in offering their expert advice for best ways of unlocking the present deadlock, the writers (all of them British) who contribute to this series may be said to have made the "Survey." One more courageous step should achieve the "Plan." The articles are accompanied by beautiful and pertinent photographs and by diagrams, maps, and charts of resources and present exploitation of same. It is to be hoped that this issue is enjoying wide circulation in the land of its origin, as well as among all industrially progressive peoples.

THE ARCHITECTS' JOURNAL

45 The Avenue, Cheam, Surrey, England

April 5, 1945

In condensing John Hersey's article on the Plan for rebuilding once-stately Leningrad (Architectural Forum, Dec. 1944), The Architects' Journal points up Chief Architect Baranov's views on contemporary design, observing that "if
IN THE DINING ROOM—Panels of Insulux bring the blessed sunshine in yet keep prying eyes out.

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Reviews

Wright and Le Corbusier were dominate, then Moscow, Leningrad, Paris, Washington, and New York would all look exactly alike.” In search for a worthy contemporary style Baranov specifies “heroic and glorious enough to be worthy of Leningrad, heroic and glorious defense.” Reconstruction of the city is already under way.

Report by the Housing Committee of the R.I.B.A. acknowledges a shortage of timber not likely to be met with impetus, and publishes a review of the extent of materials and labor on hand, estimating these to be sufficient to meet the goal of 200,000 houses completed in five years. Bricks, cement, plaster board, roofing tiles, and insulation materials, plumbing and cooking units, structural steel (also for window frames), aluminum (if it can be produced cheaply) are to be the working materials. Labor enough will be trail Regional Councils will be established. Clear permits and to adapt general standards to local conditions.

Astragal points out that folks in Russia and Sweden build their own homes of simple plans and materials. Bell Britishers can, too.

JOURNAL OF THE ROYAL INSTITUTE OF ARCHITECTS

66 Portland Place, W.1, London, England
March 1945

The Ministry of Works devised a vage Scheme in 1941 to save dam historic buildings from complete destruction after enemy action. Some a cloister could be supported by s and buttresses; a housefront seal prevent further damage to an his interior; or, when the facade threa to cave in, the main features of the building could be removed and s. Many odd findings have resulted from this activity. Medieval houses unco at Southampton, for instance, prompted a program to reconstruct paper the original plan of the me town. At All Hallows, Barking, a cross-shaft was found, to which antiquarian importance is att. Archeologists are on the alert, London to Pompeii to recognize, exposed, relics of even older civiliza than those historic spots so re destroyed.

JOURNAL OF THE ROYAL INSTITUTE OF ARCHITECTS OF CANADA

57 Queen Street West, Toronto, Canada
April 1945

This issue of the Journal is devoted to the work of schools of
THE growing demand for PC Glass Blocks is due mainly to their ability to do so many things so well.

They direct diffused daylight over wider areas. They add a distinctive note of beauty to both modern and traditional plans. They preserve privacy. Their insulating qualities help to maintain desired temperature and humidity, to lessen condensation. They are unusually free from repairs and maintenance. They reduce cleaning costs. No other building material equals their versatility in these respects.

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Imperial Pencil Tracing Cloth is right for ink drawings as well.

(Continued from page 118)

Architecture in Canada. Pertinent introductory remarks by the editor, Eric R. Arthur, remind that the professor of architecture is now about to commence his most grueling war work—with end of term and beginning of term coming simultaneously. Also, summer courses and night courses are the order of the day. The present shortage of newly trained architects and the urgency of increasing the numbers are made obvious by the statement that, in all Canada, only 20 students will graduate from schools of architecture this spring.

School work illustrated is from the architectural schools of McGill University, University of Toronto, University of Manitoba, and the Ecole des Beaux-Arts in Montreal.

An article by Francis Henry Taylor, director of the Metropolitan Museum of Art, dealing with the extent of Nazi-dealt damage, destruction, and loss of historic buildings, monuments, and famed collections of art in Europe, will be of interest to all architects and to scholars of antiquity. This article, reprinted from Atlantic Monthly, corrects the impression given by a daily newspaper which interviewed Taylor in September, 1944, on his return from France and England, where he went as a member of the American Commission for the Salvage and Protection of Historic Monuments in War Areas. The Herald Tribune quoted Taylor as saying that "not a single painting or sculptured work of national importance is missing from France." While those in the know credited Taylor with meaning that all national collections were found intact, the inference that private collections were of little, or much less, artistic importance caused bitter comment among our art dealers, many of whom had lost their foreign collections to Goering's omnivorous freight trucks. "How long would it take," they protested, "to ascertain that every art work of importance, supposed to be in New York, were here and safely in the hands of its rightful owner?" Estimates seemed to be two years as minimum. (Taylor was in France only a week or two.) But he explains that "the private collections of France no longer exist... The Germans tried assiduously to cloak their thievery with some form of legal fiction." The experts' biggest headache lies ahead: to untangle the "sales under duress," and to track down some of the world's finest paintings, once privately owned.

LIFE Rockefeller Center New York, N. Y.

Life gives 25 pages to a portfolio of ideas for Home Planning. Prefabrica-

(Continued on page 122)
every window has an Alcoa Aluminum Sill

Easy to install, neat in appearance, low on upkeep—good reasons for using Alcoa Aluminum window sill on this and many other projects before the war. Convincing arguments for continuing their use as they again become available.

Their light weight makes handling easy. One man can set Alcoa sills. Sections are thin, permitting sills to be extended into the masonry, making tight joints. Aluminum needs no protective painting to safeguard it against the weather.

As aluminum is released for civilian uses, sills will again be stocked in convenient warehouses around the country. Plan on including Alcoa Aluminum sills in the residences and buildings you are now planning. Send for your copy of the booklet “Sills and Copings of Alcoa Aluminum”. ALUMINUM COMPANY OF AMERICA, 2198 Gulf Building, Pittsburgh 19, Pennsylvania.
tion is again the main theme, the thought being that costs can be kept down and improvements made on existing awkward and insufficient houses with the purchase of units such as baths, garages with adequate storage and workshop areas, added bedrooms. Life and the Architectural Forum asked seven architects to submit designs. Best of them are shown by photographs of scale models or full-size construction; some are shown in color.

An “in-line bathroom,” occupying a space 2'10" x 13', to be installed along the wall of any bedroom, provides separate stall shower and dressing compartment, lavatory, toilet, with storage spaces for linen and toilet articles. This design, by George Kosmak and Ruth Gerth, and Kosmak’s “corner lavatory” which can go anywhere in the house, will no doubt have the greatest number of takers, if put into manufacture. The “3-passenger bath” designed by Morris Ketchum, Jr., and Jedd Stow Reisner for families that must dress at the same hour—a luxurious though closely spaced 3-compartment unit—may be installed in the center of an upstairs needing an extra bath and able to spare 11 square feet. This and the “in-line bathroom” are ventilated by exhaust fans. Warm colors, plenty of mirrors, foot-pedal water controls, indirect ceiling lighting, are some of the features of this communal bath.

Of suburban intent are the other designs. The “indoor-outdoor living room,” by Samuel A. Marx with Noel L. Flint and C. W. Schone, Associates, is of no great interest beyond its main feature—the glass front—which is a matter of owner-taste. “Everyone will want to spend more time out-of-doors,” the planners surmise. But Allmon Fordyce’s “living-kitchen” is a masterpiece of ingenuity that supposes a monied and servantless family of good size to whom dining, conversation, pursuit of hobbies, firelight, and sunshine are best when taken simultaneously and within sight of all. Partitions are never complete, laterally or vertically. The “storage-garage” by John Funk is also a suburban dweller’s dream come true with well lighted spaces for workbench; fitted storage lockers opening two ways for bicycles, trunks, toys, rakes and rollers, garden chairs, etc. A trellised gardening shed adjoins. May be built of wood, brick, or cheap cement block.

Life actually built two additional bedrooms on a house in Tarrytown from the “convertible bedroom” design of Malcolm Graeme Duncan. It allows two youngsters, sharing a bedroom, to separate their new 11' x 15' space with a

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LACLEDE STEEL COMPANY
GENERAL OFFICES ARCADE BUILDING ST. LOUIS, MISSOURI

Reviews

(Continued from page 122)

folding partition; to own (separately) two closets, two windows, a desk-wash basin combination, many shelves and drawers. Cost is $2,500 but with pre-fabrication can be cut down a third. Efficient placement makes up for lack of space but the design seems better for traveling than for "living" at home.

INTERIORS
11 East 44th St., New York 17, N. Y.
April 1945

A remarkable civic theater in Malmo, Sweden, built in a park with money raised by townspeople, held "first night" last fall, after being under construction for six years from plans made in a competition back in 1933. The great auditorium has seating capacity for 1,200 but may be reduced to 600 or 400 by drawing in at the sides and rear light linden wood partitions, hung on steel tracks along the ceiling. Backstage is larger than the entire auditorium; dressing rooms all have windows on the park; lobby space includes musicians' lounge, artists' lounge; attached are a cafe, bar, an experimental theater, and orchestra rehearsal room. The design is by Sigurd Lewerentz, competition winner, in conjunction with the two runners-up, Prof. Erik Lallerstedt and David Hallden, whose plans also were admired by the citizenry of Malmo.

ARCHITECT AND ENGINEER
68 Post Street, San Francisco, Calif.
April 1945

Although the editors were aware that this issue of A & E would be read by "foreigners" (delegates to the great Conference), they put forth one of their dullest issues. An overpoweringly long article on Chinese porcelains and the technical particulars of high-fired monochromes continues throughout the issue.

A picture feature of San Francisco's Civic Center, which could have been twice as impressive, and a tantalizing article on the famous Bailey Bridge, are the features. D. C. Bailey's (British Ministry of Supply) quick-assembly spanning device looks like a lulu but captions and brief article fail to show how the sections can be pushed forward from the bank to bridge a gap of 240 feet without the use of pontoons, the non-requirement of which is one of the handy features that make the invention "quite the best thing in that line" General Montgomery has seen. A pre-fab house of steel for immediate production in Britain is also pictured and described.
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PENCIL POINTS, JULY, 1945 125
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The eye-catching advertisements shown below are part of a series we're publishing to remind the public that, when it comes to building a home right, "there's no madness in method!"... and that the only right method is to employ an Architect's experienced services.

Yes, we've been "telling the world"... and to date over one hundred thousand home-planning couples have said: "Tell us more!" So to each couple we've sent "How to Plan Your New Home," the now-famous book Edwards and Company has prepared in cooperation with the A.I.A.

Many architects have requested extra copies of this book as an effective means of keeping prospective clients aware of the architect's proper place in their building dreams. Limited quantities are still available... imprinted with your name, if you so wish.
Air conditioning, by shutting out factory noises, dust and dirt, has become a "must" in modern industry. Offices can be built as a part of the plant for convenience without sacrificing employee efficiency. Cool, quiet and comfortable behind closed windows and doors, office personnel keeps cleaner and does more accurate work. Better working conditions attract a better type of office help! "Packaged" Air Conditioners, pioneered by Chrysler Airtemp, provide clean, cool, properly dehumidified and gently circulated air in many of our offices today. Flexible and easy to install, these dependable, trouble-free and time-tested Chrysler Airtemp "Packaged" Air Conditioners, with the hermetically sealed radial compressors, can be used singly or in multiple—with or without a duct system. Specify Chrysler Airtemp "Packaged" Cooling as a sound investment in factory offices. • Airtemp Division of Chrysler Corporation, Dayton 1, Ohio.

A Valuable Investment
In the Modern Factory Office


CHRYSLER AIRTEMP
HEATING • COOLING • REFRIGERATION
Look how Noise Demons kill efficiency...

Look at the ceiling that kills Noise Demons...

It's Armstrong's Cushiontone!

ERRORS MULTIPLY and your clients' work piles up, when their offices are overrun with noise demons. These ugly pests hamper concentration, use up energy, destroy business efficiency.

Noise demons are born in the ceaseless din of clattering machines, loud voices, and strident bells. But you can show your clients how to end them once and for all—with economical ceilings of Armstrong's Cushiontone.

The 484 deep holes in each 12" square of this fibrous material trap and kill noise demons—absorb up to 75% of all noise striking the ceiling. Cushiontone is an excellent reflector of light, and it can be repainted without decreasing its high acoustical efficiency.

NEW FREE BOOKLET gives all the facts. Write for your copy to Armstrong Cork Company, 6907 Stevens Street, Lancaster, Pa.
Your dreams of a new home must wait on the future. But if you could see all the thrilling advantages that are being planned by American industry for your postwar home, you'd agree that it's well worth waiting for!

- And now that V-E Day belongs to history and part of the battle has been won, you'll feel all the more like buying additional War Bonds, both to speed final Victory and to help finance your new home when you're ready to build it.
- The modern techniques of functional design and compact construction which enabled Defoe to build seven different types of fighting ships for the Navy will be converted to producing quality-built homes in the postwar period.
- Defoe will produce homes with advantages of beauty, comfort and livability heretofore unknown in their price range. There will be nothing stereotyped, extreme or fantastic in Defoe homes. They will combine functional convenience with a wide range of individual designs, yet give you all the economies of volume production.
Get This FREE BOOKLET for your reference library

Tells how best to provide for using visual aids
in school, church, hospital, and other buildings

VISUAL aids are now important teaching tools in almost every educational program... are destined to be as commonly used as textbooks. Your clients will recognize the wisdom of providing for the most effective, convenient use of visual aids in your plans for building or remodeling.

Let this new, free handbook help you. It covers the requirements of both classroom and auditorium... gives experienced counsel on seating arrangements; locations for projector, screen, loudspeaker, cables, and wall sockets; electrical specifications; illumination and acoustics; projection booths; service and storage rooms; other important considerations.

To get your copy, pin the coupon to your letterhead. No obligation!

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FILMOSOUND 16mm. sound-on-film projectors are overwhelmingly preferred by educators and other users. Built in a full range of capacities to meet every need for lastingly superior sound and picture reproduction.

FILMCARC 16mm. sound-on-film projector with powerful arc lamp illumination. Provides brilliant pictures and ample sound volume in large auditoriums.

OPTI-ONICS — products combining the sciences of optics • electronics • mechanics

BELL & HOWELL COMPANY
McCormick Road, Chicago 45

Please send, without obligation: () copy of Architects' Visual Equipment Handbook; () name of nearby B&H Special Representative; () Details about Filmosounds and Filmacarc.

Name
Address
City State

Buy and Hold More War Bonds

Near you is a member of the B&H staff of Special Representatives. Thoroughly informed on visual education, he is able and willing to help you work out any related problem. Get acquainted with him now... he'll urge you to ask for his aid at any time. Send the coupon to learn his name.


Precision-Made by Bell & Howell
For the World's Outstanding Buildings
the most widely used concrete reinforcement

IN the new Chicago Post Office—and in hundreds of the world's other notable buildings—the architects and engineers knew that concrete floors, roofs and walls must be safe, strong, fireproof—permanently. That is why so many of them specified U.S.S American Welded Wire Fabric for concrete reinforcement.

Made of cold drawn, round steel wires, prefabricated by electric welding into roll or sheet form, American Welded Wire Fabric reinforcement is adaptable for most types of concrete construction, from wide highway ground slabs to thin-sectioned precast slabs and other building products.

The recognized superior reinforcing value of closely spaced high-yield point steel wires, the high allowable working stress granted by many building codes and used by responsible engineering, contracting, and architectural organizations, enable users of American Welded Wire Fabric to make appreciable savings in the amount of steel to be purchased, transported, handled and installed.

The successful service of American Welded Wire Fabric in concrete construction promises many further practical uses, as yet unknown. It will prove economical and efficient in one or more constructions in every building project.

AMERICAN STEEL & WIRE COMPANY
Cleveland, Chicago and New York
Columbia Steel Company, San Francisco, Pacific Coast Distributors
United States Steel Export Company, New York

UNITED STATES STEEL


U.S.S American Welded Wire Fabric

140 PENCIL POINTS, JULY, 1945
There is no other drain that offers the protective drainage feature of the Josam Non-Clog Triple Drainage Drains. Their "three-way" performance not only assures continuous, uninterrupted floor drainage in spite of accumulated debris, but also positive protection against leakage. Sediment container intercepts debris, allowing clear water to flow into drain line (normal drainage). If water seeps into floor around drain, it is returned directly into drain line... does not spread into floor or walls (double drainage). Even if sediment container becomes filled with debris, drainage continues through holes in auxiliary rim, signalling need for cleaning (triple drainage). Besides, as illustrated at left, the features of this drain are a positive guard against carelessness in cleaning and replacing sediment container. Don't shorten the life of the buildings on which you are working by taking chances with floor drains that do not have these exclusive features. Give them added years of life and service by specifying Josam Non-Clog Triple Drainage Drains every time!
No matter what type of construction is on your boards, you must consider adequate sanitary facilities.

The Crane line, in the future as in the past, will include every type of plumbing in a wide variety of styles to permit you the greatest flexibility in your design.

To aid you in laying out bathrooms, washrooms, kitchens, and other sanitary facilities for these projects, we have prepared a data book giving accurate detailed dimensions of the plumbing fixtures that will be included in the new Crane postwar line.

A copy will be sent on request to any architect interested. Ask for "Transitional Data on the Crane Plumbing Line."
Sherarduct

A RIGID STEEL CONDUIT
worthy of your finest buildings

NATIONAL ELECTRIC
SHERARDUCT

- IS MORE HIGHLY RESISTANT TO MOISTURE AND CORROSIVES.
- BENDS MORE READILY.
- FABRICATES INTO THE JOB EASIER.
- "LASTS AS LONG AS THE JOB."

NE Sherarduct is a rigid steel electrical conduit that is worthy of the finest buildings. National Electric pioneered "Sherardizing" over thirty years ago. This process, by which zinc dust is driven into steel pipe and applied to the surface under heat, is unsurpassed for protection against rust and corrosion.

Even deposit of the zinc gives a uniformly protected, smooth surface over which is applied Shera-solution which impregnates the zinc. In addition, the steel is "Spellerized" to produce a pipe which works more smoothly, bends easier and threads cleaner.

The craftsmanship in this conduit is illustrated by the coupling. The tapered threads provide strong, close union which keeps out corrosion. For complete information write for our 350 Page Engineering Data Book—free.

CONDUITS, RACEWAYS, WIRES AND CABLES FOR EVERY ELECTRICAL PURPOSE.
Correct design will prevent this

... and then a copper gutter can last for generations

WHEN a copper gutter failed, in the past, nobody seemed to know the real reason. Revere determined to get to the root of this matter... on behalf of sheet metal contractors, architects, and the copper industry itself.

Revere research soon showed that a typical failure starts in the way illustrated above. The metal gutter buckles locally; sometimes the soldered lockseam is sheared. This may be caused by expansion and contraction of the copper with changing temperatures, or by some movement of the building.

The way to prevent such effects, it was found, is to engineer into the gutter enough columnar strength so that buckling is eliminated, and to make certain the shear strength of the joints is fully adequate.

From such facts Revere has worked out new and simple methods that reduce sheet copper construction to a matter of engineering design. These will be described and illustrated in a booklet now being prepared. Upon request we will place your name on our list to receive a complimentary copy when issued. Write the Revere Executive Offices. Revere materials are handled by Revere Distributors in all parts of the country. For help in difficult problems, call on the Revere Technical Advisory Service, Architectural.

REVERE COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
Executive Offices: 250 Park Avenue, N.Y. 17, N.Y.

Listen to The Human Adventure on the Mutual Network every Wednesday evening, 10 to 10:30 p.m., E. W. T.
Elgin B. Robertson owns this trim, little cottage in Dallas selected by the editors of Architectural Forum as one of the recently constructed U. S. homes most likely to influence new trends.

Because they have twice the average U. S. income, Time's million alert, progressive families can afford to own more homes and better homes—the kind of homes that will be admired and copied by the hundreds of thousands of other U. S. families who build or buy new homes. In a very real sense, the readers of Time help establish the home-building trends of the nation.

P.S. According to surveys made among test-groups of Time families in seven large cities, 180,000 Time families are already planning to build; 109,000 more to remodel!
H&H FLUSH RECEPTACLES

No. 1913
No. 1913-I
No. 7725
No. 1914

These popular types of Convenience Outlets are available in brown and white plastics, as good in looks as they are good in quality. Duplex and single; T-slot with double side-contacts, self-adjusting.

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No. 7725 — Duplex, top-wired Bakelite. No. 1914 — Duplex 2-circuit, side-wired, Bakelite...

Architects' data-sheets, on request, give specifications of all-purpose line for flush or surface installations.

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A Practical Course (HOME STUDY) by Mail Only
Prepares Architects and Draftsmen for structural portion of
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For many this is the most difficult section of the examinations. Qualifies for designing structures in wood, concrete or steel. Successfully conducted for the past nine years. Our complete Structural Engineering course well known for thirty years.

FUNDAMENTALS OF PERSPECTIVE
By Theodore DePostels, A.I.A.
Edited by Don Graf

The widely known author of Fundamentals of Perspective has evolved a simple and easily understandable method of showing the order in which the lines of a perspective are drawn. By numbering each line of the constructed perspective and signifying its direction with arrows, the procedure and reasons for it becomes quickly apparent. To further clarify the examples, FOUR COLORS are used.
The system of using colors, numbers and arrows makes it possible to eliminate much of the text which, in the past, has been found necessary in books on perspective to explain the construction of the drawings. Several of the sheets contain practical helps to speed up the making of perspectives. These are simple to understand and convenient to use, yet are not generally known except to professional delineators.

20 Plates in Stiff Cover, Price $2.50

Reinhold Publishing Corp., 330 W. 42nd St., New York 18
Not enough!

**Looks like everyone** with a hammer and saw is planning to cash in on the postwar demand for homes.

But hammers and saws are not enough if the home is going to sell!

Your postwar prospects will want well-built homes, designed for "better living"! And they'll expect them to be completely equipped, electrically, with the best in home appliances included as basic elements in the home.

- They'll want adequate wiring and proper lighting.
- Automatic heating and air conditioning.
- An automatic water heater for plenty of hot water.
- An all-electric kitchen with refrigerator, range, dishwasher, garbage Disposall, exhaust fan, clock, and steel cabinets.
- An all-electric laundry with washer, dryer, ironer.

**Most People want G-E Equipment**

In a recent survey of women all over the country, 53 out of every 100 said General Electric makes the best electrical appliances for the home!

This preference, more than twice that for the next most popular brand, is why so many builders and architects are planning to include all the dependable G-E appliances in their postwar homes.

**It Can Cost Less To Live Electrically**

One of the strongest selling points for a fully equipped home will be its lower cost!

The initial cost, with complete equipment included in the mortgage, will be less than if such equipment had to be bought separately. Savings in operation, maintenance, and through longer life of dependable G-E appliances, will more than offset the slight increase in monthly payments.

For figures and facts on these savings, send for your free copies of the two G-E booklets, "Your New Home And Your Pocketbook," and "Castles In Foxholes."

General Electric is ready with a complete technical service to help you in designing homes for better living, electrically. Home Bureau, General Electric Co., Appliance and Merchandise Department, Bridgeport, Conn.


FOR FINAL VICTORY—BUY AND HOLD MORE WAR BONDS
Specifying Treated Lumber Means

**BETTER CONSTRUCTION**

Wood will always be first as a construction material. And now its tendency to warp, swell, shrink and change in dimensions can be controlled. It can become repellent to decay and termite attack. The cracks, creaks and "sticks" that result from the dimensional changes in wood can be practically eliminated. When you specify WOODTOX you specify a "clean" proven, practical and economical wood treatment.

Our WOODTOX, TIMBERTOX and WOODFIX make the use of properly treated lumber practical for general construction, for both indoor and outdoor use. It is a "clean" treatment. The wood is not changed in color or appearance and there is no hindrance to any finish desired. The vehicle of these preparations is a light volatile oil of high penetration. Consequently, a simple dip treatment gives a good penetration sufficient for all general construction use. Because of this, any lumber yard is easily equipped for the treatment. The architect's specification calling for the treatment is both practical and economical.

**SEND FOR BULLETINS . . .** fully describing purposes and methods of application of our standard wood preservative and moisture repellents . . . the complete technical data an architect needs.

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**Speeds Up Operations 40%**

Vemco Drafting Machines will enable you to get more production from your drafting room without adding to the personnel or sacrificing accuracy. Vemco machines operate smoothly, easily and with precision, eliminating many drafting tools.

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Availability somewhat limited by war conditions

IT'S A CELLAR FIRE ESCAPE TOO!

BILCO
Copper Steel

CELLAR BULKHEAD
FOR
ACCESSIBILITY
PERMANENCE
SECURITY

You give the home cellar real utility when you provide a direct-to-the-yard cellarway. And in modern cellars with game rooms and workshops, safety demands a second exit. BILCO Hatchway Doors provide a modern, trouble-free and attractive outside entrance. Copper steel lasts a lifetime. Leak-proof, warp-proof, fire-proof, termite-proof and burglar-proof. Can't be blown or knocked shut.

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165 Hallock Avenue, New Haven 6, Conn.

Please send me specifications and prices of Bilco copper steel cellar bulkheads for homes and other structures.

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Address
City State

STAINED TO PERFECTION!

Homes that are outstanding examples of modern architecture are even more beautiful when they're stained with Cabot's quality Shingle Stains! This is because Cabot's Stains bring out all wood's natural beauty—penetrate deep—protect for years! And there's no waste of raw material—no peeling or blistering even when they're used on green lumber.


Cabot's Shingle Stains
Creosote
Heavy-Bodied

JAIL & PRISON EXPERTS
Backed by 65 years experience
we can assist you with your
PLANS - SPECIFICATIONS - COST DATA

FRIES & SON
Steel Construction & Engineering Co.
TO ARCHITECTS:

An Interim Statement on Automatic Heating by General Electric

POSTWAR, this Company will aim at substantial sales increases in the fields of domestic heating and air conditioning equipment. The sales increases we will seek cannot be achieved unless and until we obtain wide acceptance of our new designs by architects, heating engineers, building contractors, and dealers, as well as by future home owners.

It is a matter for regret that because of war pressures on our facilities and personnel, and war restrictions on materials, we must still postpone announcements to architects and engineers of the specific details of new designs and services.

We probably will have no miracles to offer . . . but building on our sound and successful prewar experience we plan to offer a line of products competitive in price with all heating equipment of like quality, and offering genuine economies in fuel consumption and service requirements.

If the name "General Electric" means to you what we hope it does in technical competence and integrity, in full acceptance of all proper responsibility for every product bearing the G-E Monogram, this statement of our belief in the new line will earn a certain measure of your interest.

In the not too distant future we hope General Electric can serve you, and serve you well . . . not alone with products which will justify your selection of them, but with layout and specification assistance of a highly practical character. So we hope that as circumstances permit, you will "wait for G E" . . . with this assurance of our belief that you will then find it highly worthwhile to turn to G E. General Electric Company, Air Conditioning Department, Section 5507, Bloomfield, New Jersey.

BUY . . . and hold . . . WAR BONDS

GENERAL ELECTRIC
Automatic Heating Equipment

BUY . . . and hold . . . WAR BONDS

Tune in: The "G-E HOUSE PARTY" every afternoon, Monday through Friday, 4 p. m., EWT, CBS . . . The "G-E ALL- GIRL ORCHESTRA," Sundays, 10 p. m., EWT, NBC . . . "THE WORLD TODAY" News, Monday through Friday, 6:45 p. m., EWT, CBS.
American Industry well merits a decoration for its brilliant record in the Mighty 7th! But, as our newly decorated Pacific heroes quickly return to combat, so industrial leaders aren’t resting on their laurels. Back into Bond action—they are now busy consolidating recent Payroll Savings Plan gains!

First, many executives are now patriotically working to retain the substantial number of new names recently enrolled during the 7th War Loan. By selective resolicitation, they are urging all new subscribers to maintain Bond buying allotments.

Second, many are also employing selective resolicitation to urge every worker who increased his or her subscription in the 7th to continue on this wise, saving-more-for-the-future basis.

Help to curb inflationary pressures and harvest peacetime prosperity by holding the number of Payroll Savings Plan subscribers—and amounts of individual subscriptions— to the mark set in the Mighty 7th!

The Treasury Department acknowledges with appreciation the publication of this message by

PENCIL POINTS

This is an official U.S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council

154 PENCIL POINTS, JULY, 1945
NEW STEEL LAUNDRY SAVES A DAY'S WORK

1. U-S-S Stainless Steel for work surfaces and sinks lasts forever—never rusts.
2. Porcelain enamel on a U-S-S Vitreenameal base, Swish and it's clean. Comes in many brilliant colors for washing machines, hot-water heaters, tables, sinks and wall tile.
3. Enamelled steel (painted) for sanitary storage space and cabinets.
4. U-S-S Galvanized Steel for area wells, ducts, gutters and downspouts.

WE'VE seen some marvelous plans for postwar automatic laundries... but in most homes today, the laundry is still the forgotten room.

Pictured at left is a laundry of tomorrow, that not only saves work but is both practicable and good-looking. It makes extensive use of steel—for steel does so many jobs so well.

When planning your new homes don't neglect the laundry. Our new booklet, "85 Ways to Make a Better Home," will give you many usable ideas. It will show you how to build better homes at low cost—with steel.
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A PLYINEERED PRODUCT

AMERICAN PLYWOOD CORPORATION
NEW LONDON, WISCONSIN
THE BOOK YOU'VE WAITED FOR!

DON GRAF DATA SHEETS
IN ONE BOUND VOLUME

A wealth of material including valuable information on manufactured products is included within the covers of this single book, together with hundreds of sheets originally appearing in Pencil Points. Elusive facts, hard-to-remember facts, buried facts, appear on these subjects—

1. Materials in General
2. Structural Design
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The Opportunity to Own This 779-page Book That Will Save Your Time and Temper in Finding Those Hard-to-locate Facts

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Restrictions on paper and shortages of bookbinding materials have limited the size of this edition. To be sure of getting your copy order it today. Use the handy form below. As soon as we receive your order with the remittance of $5.00 for each copy (plus 5c sales tax if for delivery in New York City), we will send your copy postpaid. When this edition is exhausted wartime restrictions may prevent an immediate reprinting. This book is handsomely bound in red cloth with silver stamping. Strong paper stock will allow unusually hard use—and you will be using this book constantly!

PENCIL POINTS. Dept. B • 330 West 42nd Street • New York City 18

Enclosed find $ for copies of Don Graf DATA SHEETS bound in book form. I understand that delivery will be made to me postpaid as soon as published. (Include sc sales tax for each volume for delivery in New York City.) No C.O.D. orders. No foreign orders accepted at this special price.

Name
City
Address
State

FENCIL POINTS, JULY, 1945 157
Visit the New Sylvania Lighting Center for Latest Fluorescent Ideas

Architects will find the Sylvania Lighting Center packed full of lighting ideas. This display of model rooms at 500 Fifth Avenue (2nd Floor), offers the architect a world of postwar lighting applications that will be of immeasurable help to him in formulating plans for the home of the future.

Accept Sylvania Electric's cordial invitation to visit their Lighting Center. Sylvania engineers will be glad to describe and answer questions concerning the modern lighting applications on display.

Notice the accompanying photographs—a few of the highlights to be found at the Sylvania Lighting Center, 2nd Floor, 500 Fifth Avenue, New York, N. Y.

In the kitchen continuous strips of fluorescent light are over the work surfaces. This type of illumination can be extended around the entire kitchen.

Study-type office or small conference room has louvered central fixture that provides both indirect general lighting and good working light on the desk itself.

Sylvania Electric
Makers of Fluorescent Lamps, Fixtures, Accessories; Electric Light Bulbs; Radio Tubes; Cathode Ray Tubes; Electronic Devices
Every now and then another substitute for tile appears on the market. Most of these products are colorful and attractive. Some of them are quite satisfactory for certain uses. All of them pay tribute to the superiority and leadership of tile by trying to duplicate its many assets.

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