you provide the advantages of
fire-safety . . . permanence . . . lasting beauty

O
n the drafting board, Milcor Metal Lath gives you unlimited freedom to develop structural forms and shapes.

On the job site, Milcor Metal Lath provides maximum rigidity with light weight. The whole wall and ceiling is held together in one fire-resistant monolithic slab, free from cracking, warping, and shrinking tendencies.

Although not plentiful today, metal lath is more easily obtained than substitutes which do not have the fire-safety, permanency, or vermin-resistance of steel . . . and which have never equalled metal lath as a satisfactory plaster base.

Steel-reinforced plaster faithfully expresses your conception of form and color tone. The entire plastered surface remains at practically the same temperature, thus avoiding condensation and resultant plaster blemishes such as lath streaks. The plaster stays new-looking longer, a credit to your reputation.

Consult the Milcor catalog in Sweet's Orwritings. Or write today for the Milcor Manual.

3. You are the architect. You provide the advantages of fire-safety . . . permanence . . . lasting beauty.
DESIGN POSSIBILITIES FOR RESIDENCES

with

Glass

The modern home combines beauty, utility, and efficiency. That's why treatments or walls of Carrara Structural Glass are so frequently specified in architect's kitchen and bathrooms designs. Carrara is permanent, easy to clean, unsurpassed in beauty. It is available in ten attractive colors and in a wide range of thicknesses. Architect: Nello Clements.

The trend toward more and larger windows calls for the use of quality glass for glazing. Pittsburgh Window Glass is widely used for general glazing because it has an unusually high degree of clarity, good looks, and freedom from distortion. For glazing large areas, lustrous Pittsburgh Plate Glass is recommended.

Striking effects can be obtained by using Pittsburgh Mirrors. Small rooms can be made to seem larger, narrower rooms wider, dark rooms lighter. Available for your designs are mirrors of blue, flesh tinted, green, or gunmetal regular Plate Glass and gold, silver, or gummel backing. Interior by Mildred Cooper, Bigelow and E. Glat, Werner. Architects: Kollin Piron.

More and more, the outdoors is being brought into the home by the use of large picture windows and panels of glass. Such generously proportioned glass areas, without cross-sash of any kind to interfere with vision, enable the architect to take full advantage of attractive surroundings in designing gracious homes. Pittsburgh Polished Plate Glass is the practical choice for applications like this. It is brilliantly reflective of surface, enhancing substantially the exterior appearance of the home. And it affords clear, undistorted vision through it from any angle. Architect: A. S. Alschuler.

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

* Design it better with

Pittsburgh Glass

PITTSBURGH PLATE GLASS COMPANY

Pittsburgh Glass Company
215-16 Grant Building, Pittsburgh 19, Pa.

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

Name: ____________________________
Address: __________________________
City: ____________________________ State: ________________________

May, 1946
CEILINGS UNLIMITED

MILLER FLUORESCENT TROFFER LIGHTING SYSTEMS (continuous Wireway)—for stores, offices, schools, factories, and public buildings—open new vistas in architectural design. Their use makes it engineeringly (as well as aesthetically) sound to plan entire buildings around the lighting.

The backbone of MILLER TROFFER SYSTEMS is the patented MILLER CEILING FURRING HANGER, which eliminates the necessity of laboriously fitting recessed lighting into hung ceilings. Instead, simply hang Miller Ceiling Furring Hangers from structural ceiling— and furring, tile, and TROFFER lighting systems are hung from the hangers. Old structural problems solved — no new ones created. And note these PLUSES — supports from structural ceiling reduced 50 to 75% — conduit and conduit fitting costs reduced up to 80% — wiring costs reduced up to 50% — with substantial economies in permanent operation and in maintenance.

Limited only by the architect’s imagination, MILLER FLUORESCENT TROFFER LIGHTING SYSTEMS, simple to install, mark a new high standard in lighting service — CEILINGS UNLIMITED.

THE MILLER COMPANY • MERIDEN, CONN.
ILLUMINATING DIVISION

STAINPROOF—waxed at the factory, Kentile shrugs off stains, dirt, scum. (And a special grease-proof Kentile fits in wherever needed.)

MOISTUREPROOF—That’s Kentile . . . even on basement concrete, in direct contact with earth.

VERSATILE—Your color scheme—your own floor-design ideas are worked out perfectly with Kentile.

SPEEDY TO INSTALL . . . Authorized contractors all over the U. S. are trained to do a fast laying job—without interfering with “business as usual”.

THE WHOLE STORY!

Kentile offers 15 different advantages—all told in the new, full-color catalogue showing all the colors, some of the numberless patterns and plus full-color pictures of Kentile in use. Send for your copy—no obligation.

DAVID E. KENNEDY, Inc.

17 Second Avenue, Brooklyn 1, N. Y.
288 Bonn Allen Blvd., Austin 5, Tex.
7000 El Dorado Street, San Francisco 16, Calif.
30 No. Michigan Ave., Chicago 2, Illinois
120 Storer Bldg., Boston 16, Mass.
614 Olympia Bldg., Pittsburgh 11, Pa.
1211 National Broadcasting Co. Bldg., Cleveland, Ohio

STAIN PROOF— waxed at the factory, Kentile shrugs off stains, dirt, scum. (And a special grease-proof Kentile fits in wherever needed.)

MOISTUREPROOF—That’s Kentile . . . even on basement concrete, in direct contact with earth.

VERSATILE—Your color scheme—your own floor-design ideas are worked out perfectly with Kentile.

SPEEDY TO INSTALL . . . Authorized contractors all over the U. S. are trained to do a fast laying job—without interfering with “business as usual”.

THE WHOLE STORY!

Kentile offers 15 different advantages—all told in the new, full-color catalogue showing all the colors, some of the numberless patterns and plus full-color pictures of Kentile in use. Send for your copy—no obligation.

DAVID E. KENNEDY, Inc.

17 Second Avenue, Brooklyn 1, N. Y.
288 Bonn Allen Blvd., Austin 5, Tex.
7000 El Dorado Street, San Francisco 16, Calif.
30 No. Michigan Ave., Chicago 2, Illinois
120 Storer Bldg., Boston 16, Mass.
614 Olympia Bldg., Pittsburgh 11, Pa.
1211 National Broadcasting Co. Bldg., Cleveland, Ohio
But...

Proper Ventilation may be vastly more important to your clients.

On the job... day in and day out... Herman Nelson Centrifugal Fans are providing better working conditions in plants, factories and commercial establishments all over America. They are helping to speed up production, to cut down accidents and to reduce absenteeism.

Architects, Engineers and Builders can specify Herman Nelson Centrifugal Fans with confidence. Like all other Herman Nelson Products—these fans provide the maximum in both efficiency and operating economy. Into their design and construction have gone the engineering skill, research developments and exacting manufacturing methods amassed by The Herman Nelson Corporation in 40 years devoted exclusively to the production of quality heating and ventilating equipment.

Consult THE NEAREST HERMAN NELSON PRODUCT APPLICATION ENGINEER OR DISTRIBUTOR. He will provide practical as well as technical assistance in the most satisfactory solution of any heating or ventilating problem.

The Herman Nelson Corporation
for 40 years manufacturers of quality heating and ventilating products
Moline, Illinois
ANNOUNCING TO ALL ARCHITECTS IN THE UNITED STATES

The ANNUAL PROGRESSIVE ARCHITECTURE AWARDS

For each year beginning with 1946 the publishers of PROGRESSIVE ARCHITECTURE will make two national awards.

1 To the architect of the building or group of buildings (not a private residence), constructed during the year in the United States, which best exemplifies sound progress in design.

2 To the architect of the private residence, constructed during the year in the United States, which best exemplifies sound progress in design.

Every architect in the United States is invited to present his work or make nominations for awards by a distinguished professional jury. The awards are intended to foster sincere, reasoned progress in architectural design in the United States by citation and recognition of those architects whose efforts to improve contemporary standards are indeed the most successful.

JURY

The buildings to be cited as the best constructed during 1946 will be selected by a jury qualified to consider all aspects of the buildings. Those invited to serve are: George Howe, until recently Deputy Commissioner for Design and Construction, PBA, noted architect of country residences and large commercial structures, author and critic; William Wilson Wurster, Dean of Department of Architecture, M.I.T., pioneer in design of houses meeting the most advanced standards of contemporary design; Eliel Saarinen, internationally famed architect and long associated with the Cranbrook Schools; Dr. C.E.A. Winslow, distinguished sanitarian and Chairman of the New Haven Housing Authority, lecturer, author of books and pamphlets on public health problems, emeritus Professor of Public Health in Yale Medical School; Fred N. Severud, noted engineer and authority on construction methods and use of materials; Kenneth Reid, Editorial Adviser of PROGRESSIVE ARCHITECTURE; Thomas H. Creighton, Editor of PROGRESSIVE ARCHITECTURE.

The awards will consist of suitable plaques to be given to the winners at a presentation dinner attended by nationally prominent speakers and leaders of the profession. It is proposed to give the dinner in or near the home town of one of the award winners.

PROGRAM

The only basis for selection of the buildings winning awards in the two classifications above described will be demonstrable progress in fitness, strength, beauty, and purpose. The Jury will be asked to give consideration to the appearance, plans, structure, use of materials, site arrangement, and relation to community plan and community needs.

ENTRIES

Every architect in the United States is invited to present before February 1, 1947, the best of his own work constructed during 1946—also to nominate buildings by other architects that he believes worthy of consideration by the Jury.

From a preliminary judgment the Jury will select a limited group of finalists. Preliminary submissions should include at least three photographs, preferably 8" x 10", showing both the interior and the exterior of the building, as well as site plan, floor plans, and a brief description of the function of the building and its outstanding features. When the finalists are chosen, more detailed information will be requested about these.

INQUIRIES

Entries or inquiries about the PROGRESSIVE ARCHITECTURE annual awards should be addressed to Thomas H. Creighton, Editor, PROGRESSIVE ARCHITECTURE, 330 West 42nd Street, New York 18, N.Y.
ARCHITECTURAL DESIGNERS, DRAFTSMEN, AND MECHANICAL ENGINEERS — good positions available, Santa Fe, New Mexico. Fine climate and good working conditions. Write P. O. Box 398, Santa Fe, for further details, outlining education and experience.

DESIGNER or EXPERIENCED DRAFTSMAN interested in creative modern design of offices and commercial buildings. Good salary based on ability and excellent future. Lester C. Tichy, 169 Lexington Ave., New York 17, N. Y.


EXPERIENCED ALL-ROUND ARCHITECTURAL MAN, age 35 to 50, for well-established office. Must be able to develop plans complete from sketches to final drawings. One who can assist on specifications preferred. Salary commensurate with ability. Answer at once. Finger & Rustay, 711 National Standard Bldg., Houston, Tex.

PHOTOGRAPH. Ronald Greene, Architect, 809 Jackson Bldg., Asheville, N. C.

Several experienced architects and engineers of exceptional ability will find in this established office in Southeast attractive opportunity for permanent association. Box 256, Progressive Architecture.


In Industrial Plants

PECORA CALLING COMPOUND

Time tested for 58 years, Pecora Calling Compound is impervious to heat, cold and moisture, or acid fumes. This makes it the ideal calling material to use in industrial plants where temperature variations and fumes would have a deleterious effect on a compound less rugged, less qualified.

For Pecora Calling Compound will not dry out, crack or chip when properly applied. It will adhere to stone, glass, metal and wood, and adjust itself to variations in expansion and contraction. There are these six important benefits when Pecora Compound is used for sealing joints around window or door frames and for pointing masonry:

• FUEL SAVING
• FREEDOM FROM NEEDLESS DRAFTS
• NO MOISTURE SEEPAGE IN JOINTS
• NO NEEDLESS DUST INfiltrATION
• BETTER TEMPERATURE CONTROL FOR AIR CONDITIONING
• BETTER OCCUPANCY CONDITIONS

See SWEET'S for suggested specifications, or write for descriptive folder and detailed information.

PECORA PAINT COMPANY, INC.
• Established 1862 by Smith Bros.
• Member of Painters Council.

ROOF COATING • WATERPROOFING • DAMPROOFING • SASH PUTTIES

PECORA PAINT COMPANY, INC.
Sedgley Avenue & Venango Street • Philadelphia 40, Pennsylvania

American Sterilizer Company
Erie, Pennsylvania

DESIGNERS AND MANUFACTURERS OF SURGICAL STERILIZERS, TABLES AND LIGHTS

INSTRUMENT and UTENSIL STERILIZERS...

which provide for complete utilization of available power and automatic control of rate of heating. EXCESS VAPOR REGULATOR eliminates losses usually sustained through wasteful creation and disposal of steam.

DRESSING and INSTRUMENT STERILIZERS...

Precision equipment of functional dependability. SMALL INSTRUMENT STERILIZERS in portable and cabinet models featuring "burn-out-proof" safety.

WATER STILL...
in which a thermometer permits operator to gauge performance at all times and to accurately adjust regulating valve. Provides safety against "burn-out" and cleaning simplicity that means longer periods of operation.

INSTRUMENT and UTENSIL STERILIZERS...

which provide for complete utilization of available power and automatic control of rate of heating. EXCESS VAPOR REGULATOR eliminates losses usually sustained through wasteful creation and disposal of steam.

DRESSING and INSTRUMENT STERILIZERS...

Precision equipment of functional dependability. SMALL INSTRUMENT STERILIZERS in portable and cabinet models featuring "burn-out-proof" safety.

WATER STILL...
in which a thermometer permits operator to gauge performance at all times and to accurately adjust regulating valve. Provides safety against "burn-out" and cleaning simplicity that means longer periods of operation.

AMERICAN STERILIZER COMPANY
Erie, Pennsylvania

DESIGNERS AND MANUFACTURERS OF SURGICAL STERILIZERS, TABLES AND LIGHTS
JOBS AND MEN

(Continued from page 18)

PROGRESSIVE ARCHITECTURE

ARCHITECTURAL or Architectural En¬
ing Graduate by major airline
for functional design work on airports,
terminals, and hangars. Applicant
should have initiative and ability to
develop designs both preliminary and
details from outline requirements. In¬
dustrial building experience desirable.
Location Midwest. Reply giving age,
education, general qualifications, and
desired salary. Box 262, PROGRESSIVE
ARCHITECTURE.

ARCHITECTURAL DRAFTSMAN for Char¬
lott, North Carolina. Applicants
should be capable of producing complete working
drawings and details from the sketch
stage. State salary desired and a
complete description of your working
conditions in an office that has a wide
geographical experience. Box 258, PROGRESSIVE
ARCHITECTURE.

ARCHITECTURAL DRAFTSMAN for Char¬
lott, North Carolina. Applicants
should be capable of producing complete working
drawings and details from the sketch
stage. State salary desired and a
complete description of your working
conditions in an office that has a wide
geographical experience. Box 258, PROGRESSIVE
ARCHITECTURE.

ARCHITECTURAL DRAFTSMAN for Char¬
lott, North Carolina. Applicants
should be capable of producing complete working
drawings and details from the sketch
stage. State salary desired and a
complete description of your working
conditions in an office that has a wide
geographical experience. Box 258, PROGRESSIVE
ARCHITECTURE.

 requi-
PROGRESSIVE ARCHITECTURE • Pencil Points

THIS MONTH

JOHN B. PARKIN

The Nichol Township School, first building in this issue, was designed by John Burnett Parkin with special knowledge of school requirements since he is a member of the Committee on Planning, Construction, and Equipment of Schools for the Province of Ontario. Honorary graduate of the University of Toronto, he has engaged in private practice in Toronto since 1937. He had previously traveled and worked in England and Toronto since 1937. He had previously

Charles W. Lorenz

The Designing Architect of the Board of Education, City of St. Louis, Charles W. Lorenz, worked out the broad progressive school building program presented in this issue, in collaboration with the Commissioner for School Buildings, Joseph P. Sullivan. Lorenz received his architectural education at Washington University, St. Louis, and then traveled in Europe as winner of the James Harrison Steedman Traveling Fellowship. In addition to his office work he has found time to enter professional competitions, and also to pursue his principal hobbies, photog-

RICHARD J. NEUTRA

PHILIP H. HUBBARD

This issue of PROGRESSIVE ARCHITECTURE is a welcome opportunity for the publication of Dr. Richard J. Neutra's article, The Informal Travel Notes on Latin America. Dr. Neutra is an architect who has traveled extensively in Latin America and is an expert on the architectural trends of the region. The informal travel notes on Latin America consist of an examination of the many made en route by this alert and imaginative architect. The picture of the Neutra was made at the airport of Rio de Janeiro, where they were greeted by a large group of Brazilian architects and students.

MRS. NEUTRA

Two factors are necessary to produce a fine asphalt tile installation—first, the best asphalt tile that can be made and second, top-notch application "know-how" by a responsible asphalt tile contractor.

The floor contractor who handles Tile-Tex products is carefully chosen by The Tile-Tex Company. His selection is not by happenstance. He must know a good deal about the problems involved in installing all kinds of resilient floors and a great deal about applying asphalt tile. He must be generally familiar with all phases of building construction and, above all, he must be a conscientious craftsman and financially responsible.

We have exerted our best efforts, over the years, to improve the standards of installation practice in the asphalt tile field. We shall continue to do so as improvements in the quality of Tile-Tex Asphalt Tile make possible corresponding improvements in installation technique. We know that you and your clients buy the Tile-Tex system—(1) good Tile-Tex products provided by a pioneering manufacturer and (2) good workmanship provided by the flooring contractor.

(Continued on page 16)

THE TIE-TEX COMPANY, INC.
Asphalt Tile Mfr. Subsidiary of The Flintkote Company
Chicago Heights, Illinois • 220 E. 42nd Street, New York City

For the best in flooring

THE TILE-TEX 1946 PLEDGE
1. Adequate Plant Facilities
2. Continuous Product Development
3. Uniform Product Quality
4. Controlled Installation Standards
5. Maintenance Service Program

All of this means that when you specify Tile-Tex Asphalt Tile you also have available the services of a nation-wide organization of floor specialists. When you see the sign above on the door of a floor contractor's office, you know that here is a flooring man of ability and integrity who is qualified to install the best in asphalt tile—Tile-Tex.
coming chief designer two years later and a designing partner in 1933. He has practiced under his own name since 1943, and is the architect of many distinguished buildings in the Pacific Northwest. He also has been a leader in professional activities there.

Extensive knowledge of his field has been acquired by E. R. Daggy, author of the lighting article in Materials and Methods this month, through varied experience as a lighting engineer. This has been supplemented with studies at Northwestern University and Institute of Design. A long-time employee of the Public Service Company of Northern Illinois, then a creative designer of

lighting for store and office interiors for eight years, he now is a designer with Milton H. Callner & Co., owners and developers of commercial properties in the Chicago area. This background enables him to design complete interiors, notable for their successful lighting.

As Technical Secretary, Insulation Board Institute, Paul B. Chese is a productive author of articles on insulation and heating, and a textbook, Building Insulation, now in its third edition. He was formerly Technical Secretary of the American Society of Heating and Ventilating Engineers in New York, and taught heating, ventilating, and air conditioning at the Polytechnic Institute of Brooklyn. His experience has included work with manufacturing organizations as well as numerous professional offices. Chese is a graduate of the University of Illinois. His article in this issue is an exposition of causes and cures for surface and internal condensation.

His extensive work in house prefabrication led to the selection of Carroll A. Towne as a member of the Building Material Sub-Committee of the Technical Industrial Intelligence Committee, F.E.A., for study during 1945 of German developments in that field. His observations during the course of that study form the basis for his article in this issue. Joining the staff of TVA in 1933, following a decade of landscape experience in Massachusetts and Florida, he has had varying responsibilities in community planning, recreational development, and the housing of TVA employees. His formal training was at Massachusetts Agricultural College, but his exceptionally broad experience in TVA is reflected in Towne’s versatile abilities. He has done special work for the government outside of TVA, and his professional activities include membership in the American Institute of Planners.

(Continued from page 14)
SELECT AUTH FOR SCHOOLS and put 50 years of experience into the job

Auth signaling devices for schools embody all the quality of detail and efficiency of service that a half a century of experience in signaling devices can teach.

Add that to your own experience and you're sure of a job you can stake your reputation on.

Complete Auth dismissal bell systems with Telechron-motorized program clocks, in conjunction with attractively toned bells, chimes, buzzers, horns and gongs gives you a wide choice for class-rooms, corridors, offices, yards, etc.

Auth intercom phone systems—the systems that are noted for simplicity—are available with any popular type of instrument for non-selective or selective talking. Secre­tarial instruction switchboards if desired.

Auth dependable fire alarms are available to meet your state re­gulations for schools. See the complete Auth catalog for many other specialties.

Hundreds of modern schools are completely Auth-ized. Experienced Auth engineers will gladly offer any suggestions or designs you wish. Just write us or contact the Auth representative near you.

NEXT MONTH

• Critical problems architects now must face are to be discussed in the June issue by authorities on planning, development, and building who will contribute to a symposium, "The Architect in Mid-Forty." As the major pre­sentation of the issue, this will include representative buildings that illustrate the varied statements of opinion and comment.

• The dilemma of the housing emer­gency will be stated by Wilson W. Wyatt, Housing Ex­peditor, as a preface to our consideration of three categories of small houses—speculative, custom-built, and prefabricated. Examples will be drawn from the work of Thomas, Granger & Thomas,meuble, Wash.; Daniel Schwartzman, New York; Wil­liam F. Henegar, Palo Alto, Calif.; and Halden, McLaughlin & Associates, New York.

• Believing that houses alone do not make a community, we will also show the elements in neighborhood planning that should be provided along with houses. Examples will include, first, a project by Van Dorn Bailey, Portland, Ore., and studies of a rural community made by University of California archi­tectural students under direction of Howard Meine. This broad approach will be supplemented by discussion of urgent community buildings—the school, the center, the small hospital. Examples will be drawn from the work of Samuel Warner, Shreveport, La.; Sta­rin, Swanson & Sta tin, Bir­mington, Mich.; and the United States Public Health Service.

• In the Materials and Methods sec­tion next month, ways of stimulating "Cooperation Between Architect and Engineer" to effect simpler, more effi­cient, and more handsome structures will be discussed by Paul Weidlinger, New York, who has practiced as both and now is a consulting engineer. He recently had charge of engineering de­velopment of Modlar construction for Konrad Wachsmann. (See March Pro­gressive Architecture.)

• In the Materials and Methods sec­tion next month, ways of stimulating "Cooperation Between Architect and Engineer" to effect simpler, more effi­cient, and more handsome structures will be discussed by Paul Weidlinger, New York, who has practiced as both and now is a consulting engineer. He recently had charge of engineering de­velopment of Modlar construction for Konrad Wachsmann. (See March Pro­gressive Architecture.)

• Other technical articles will be by Henry L. Shuldhner, consulting chem­ist in practice for 20 years, whose sub­ject will be "Corrosion and Piping Se­lection" and by Hale J. Sahne and Allen Wilson, of the Celotex Corpora­tion, who will discuss "Acoustic Treat­ment for Factory Buildings." This is based on a government-sponsored sur­vey of war factories which sought to increase production through reduction of noise.

• OMITTED LAST MONTH

Photographs illustrating Selected De­tails in our April issue were made by: Hedrich-Blessing; Ezra Stoller; Ben Schnall.

5 REASONS WHY

Owners prefer Silbraz Joints for copper or brass pipe runs

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—whenever you want copper or brass pipe runs that can "stand-up" under all condi­tions and give your clients complete satisfaction.


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.

18 PROGRESSIVE ARCHITECTURE • Pencil Points

AUTH ELECTRICAL SPECIALTY COMPANY, INC.
422 EAST 53RD STREET, NEW YORK 22, N. Y.
Since 1892

In Principal Cities

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—whenever you want copper or brass pipe runs that can "stand-up" under all condi­tions and give your clients complete satisfaction.


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—whenever you want copper or brass pipe runs that can "stand-up" under all condi­tions and give your clients complete satisfaction.


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—whenever you want copper or brass pipe runs that can "stand-up" under all condi­tions and give your clients complete satisfaction.

Attractive, maintenance-free walls and roofs... low in cost... can't rot... can't rust... can't burn

STURDY... utilitarian... Johns-Manville Corrugated Transite meets today's demand for simplified construction and streamlined design.

In the building above, the unusual architectural effect was achieved by applying the sheets horizontally instead of vertically.

Low in cost and adaptable to most types of modern building, Corrugated Transite offers a way to save money both on construction and maintenance. It's made of asbestos and cement, two practically indestructible materials. The large fireproof sheets—with their unusual strength increased by corrugations—permit a minimum of framing. Quickly installed, they require little or no upkeep.

When need for alteration arises, the sheets are practically 100% salvageable.

For more facts, send for brochure. Johns-Manville, Dept. PA-5, P. O. Box 290, New York 16, N. Y.
In winter, perfect window insulation is attained instantly by merely lowering Rusco storm sash. Reduces heat loss and infiltration by more than 50%—Rusco permanently insulates and weatherproofs entire window opening.

Only this modern, self-storing window insulation gives your clients these year-around advantages!

In summer, Rusco storm sash simply slides up into storage position, giving full, direct ventilation through permanent Rusco screen.

Stormproof, draft-free ventilation winter or summer by raising lower Rusco sash part way, lowering upper inside sash. Air deflects upward into room—permits open window ventilation with complete safety from storm damage or drafts.

**RUSCO Self- Storing Combination Screen & Storm Sash**

**THE F. C. RUSSELL CO. • 1836-R Euclid Ave. • Cleveland 15, Ohio**

**DESIGNER**: Is that a new secret Society?

**NILMERG**: There's nothing secret about it. I see you using one of those wonderful COLUMBUS Crayon Pencils—therefore I know you are a Noodler.

**DESIGNER**: You refer to my practice of noodling up drawings by giving them extra brilliance and verve with broad strokes of this thick crayon pencil?

**NILMERG**: Indubitably. And that's just the pencil for it, too. COLUMBUS Colored Crayon has a wax composition with superb adhering qualities for broad area layouts, sketches, renderings, map making, etcetera.

**DESIGNER**: Want to know a trade secret? COLUMBUS Crayon makes me feel like a bloomin' Botticelli. I get vivid effects that go over swell with clients.

**NILMERG**: I have heard many artists, architects, engineers and draftsmen express similar sentiments.

**DESIGNER**: Little man, you are a benefactor to the Knights of the Drawing Table.

**NILMERG**: Thank you—and when ordering from your Dealer, be sure to get the whole COLUMBUS range—red, blue, black, brown, orange, white, yellow, vermilion, carmine, purple, green, light green, and combination red-and-blue.
Adlake Aluminum Windows offer many advantages for so little more. Elimination of excessive air infiltration, finger-tip control, no warping or sticking—thanks to an exclusive combination of nonmetallic weatherstripping and serrated guides. What's more, they're beautifully designed for lasting architectural appeal and efficiency. We believe you'll find it well worth while to get full information about Adlake Windows before specifying or detailing any window.

**The Adams & Westlake Company**

Also window makers to the transportation industry

Established 1857 Elkhart, Indiana New York · Chicago

In Rockefeller Center utility was combined with attractiveness when the terrazzo floors were made permanently non-slip, wet or dry, by the use of Alundum Aggregate. Architects of the finest structures are using Alundum Aggregate to add permanent safety to the other features which make terrazzo popular — attractive appearance, durability and economy. Incorporated in the surface of a terrazzo floor in the proper proportion Alundum Aggregate assures non-slip effectiveness that is not lessened by liquids nor by wear.

Also available: Alundum Aggregate for cement floors, Alundum floor and stair tile, Alundum Ceramic Mosaic Tile.

**Norton Company** Worcester 6, Mass.

Who would think that lettering with a pencil could be so expensive?

Fine drawing pencils sell for only $1.00 a dozen. But they can cost you plenty in the hands of skilled draftsmen assigned to the time-consuming task of hand-lettering drawings. And lettering with a pen is even more expensive. Install Underwood's new Elliott-Fisher Electric Lettering Machine and you'll save important time and money. A typist can get more work done... with electric machine speed and efficiency. For drawings, plans, charts, schedules and many other forms, this new machine brings to your work uniformity, speed and precision... improved appearance... perfect legibility.

And it is so flexible, that you can readily use it for any other typing job that may come up. Write today for complete information regarding this important new Underwood equipment that makes lettering a drawing as simple as typing a letter. Full details are yours for the asking.

CHECK THESE OUTSTANDING FEATURES OF UNDERWOOD'S NEW ELLIOTT FISHER ELECTRIC LETTERING MACHINE

- Electric Keyboard... a full standard electric keyboard... fast, simple and easy to operate... many times faster than hand methods.
- Sharp and Clear Impressions... a Special Blue Print Ribbon plus Dual Stroke Control of the electrically operated type bars assure proper density of every type impression to provide sharp and clear reproductions.
- Flat Writing Surface Platen... flat as a drawing board... accommodates small or large drawings with equal facility... provides unlimited flexibility for making corrections or revisions without removing the drawing from the machine.
- Complete Visibility... approximately 396 square inches of any large drawing or tracing may be clamped in lettering position on the platen quickly and easily. This entire area is completely visible to the operator for lettering at will.
- Pin-Point Accuracy... lettering can be positioned with pin-point accuracy anywhere on a drawing quickly and easily... a notched rifle-sight line-indicator tells the operator exactly where a type will print.

Accounting Machine Division
UNDERWOOD CORPORATION
Makers of Underwood Typewriters, Accounting Machines, Adding Machines and Supplies.
ONE PARK AVENUE NEW YORK 16, N. Y.

Copyright: 1946 Underwood Corporation

TWO LINES OF PITTCO METAL... EACH DISTINCTIVELY STYLED

There are two lines of Pittco metal... each distinctively styled

PITTCO PRIMER. Recently, Pittco Primer was introduced to satisfy the need for a lightweight, moderately priced line of store front metal. The same careful planning and harmonious styling which have made Pittco De Luxe so popular are evident in the Primer line. Pittco Primer also was designed as a unit... each piece styled to complement and heighten the beauty of the other members with which it is used. Pittco Primer can be set easily and quickly from the outside, effecting a substantial savings in setting time. And the self-adjusting clip always maintains a firm grip on the glass, no matter what its thickness. These practical advantages plus the high degree of architectural beauty in the Primer line promise success comparable to that already attained by Pittco De Luxe.

FRONT METAL GLASS COMPANY
MAY, 1946 27
Early American Style Wrought Iron Hardware

The designs offered in Corbin's line of Early American Wrought Iron Hardware are truly representative patterns of the hardware of early America. However, it is entirely within the limits of good taste and judgment to use some of them on buildings which are not strictly early American in their predominant motifs, but combine as well, architectural features of foreign lands. This is true because many of the colonial designers were influenced by English or oriental designers.

The Lexington “Notched Arrow” pattern, illustrated, was made in the colonies as early as 1698 and specimens of this design are still in existence. This design is one of several illustrated in the folder “Early American Wrought Iron Hardware”. Write for your free copy and acquaint yourself with this Corbin line of authentic hardware . . . available in reasonable quantities for prompt shipment.

P. & F. Corbin
DIVISION OF AMERICAN HARDWARE CORPORATION
NEW BRITAIN, CONNECTICUT

Good Buildings Deserve Good Hardware

THE TRUSCON DONOVAN AWNING TYPE STEEL WINDOWS
for ample light and draft-free ventilation in a wide range of structures...

The Donovan Awning Type Window offers the architect a wide range of opportunities for design distinction in window areas in schools, hospitals, auditoriums, and similar structures. . . and assures for these buildings unique advantages in lighting and conveniently controlled ventilation.

The Donovan design completely eliminates all unhealthily exposed connecting arms, shades, casein, etc. The opening principle of the open ventilators permits a free flow of fresh air into the building. Fully opened, the windows afford approximately 100% ventilation. Completely closed, they control or completely eliminate ventilation. Ventilators operate in unison, manually or by means of a special automatic disengaging mechanism. The upper ventilators may be left open and the lower ventilator closed.

Write for illustrated manual giving complete mechanical details of the Truscon Donovan Awning Type Steel Window.

TRUSCON STEEL COMPANY
YOUNGSTOWN, OHIO - Subsidiary of Republic Steel Corporation

No doubt about it! In the lives of America's homeowners, Lumite® Window Screen is here to stay!

This amazing plastic screen that can't rust, corrode or stain... that can't dent or bulge... is enjoying a "boom" that will last our lifetime and yours.

So... to meet this insistent increasing demand for LUMITE, we have built a plant that is not only modern in every respect today... but is also planned to cope with the inevitable production-expansion which many years of tomorrow will bring.

All plant equipment is up-to-the-minute... our looms the most modern to be had. Our craftsmen know their jobs from A to Z...

and our Research and Testing Laboratory staff experiments endlessly to produce new uses for better merchandise.

This is the only plant in America built for the sole purpose of manufacturing plastic screen and fabric. On 300 acres of rolling Georgia countryside, this new plant will fill the ever-growing demand for LUMITE, giving you speedy and efficient service.

Write today for full information and samples of LUMITE Plastic Screen.

WOVEN OF SARAN
A DOW CHEMICAL CO. PRODUCT

WHY LUMITE IS A BEST-SELLER:
• RUSTPROOF
• WON'T BULGE
• CAN'T STAIN
• NO PAINTING
• CLEANS EASILY
• EASY TO HANDLE
• EASY TO FRAME
• NON-INFLAMMABLE
• TESTED COLOR
• LASTS LONGER
• AND STRONGER—Lumite is woven of heavy plastic filament (0.015" diameter)

CHICOPEE MANUFACTURING CORPORATION
47 Worth Street, New York 13, N. Y.
World's largest maker of Plastic Screen Cloth

ARCHITECTURAL CONCRETE
FOR HOSPITAL BUILDINGS OFFERS
FINE APPEARANCE...ECONOMY...FIRESAFETY

ARCHITECTURAL concrete fulfills every important construction requirement for modern hospitals, including sanitary cleanliness, fire-safety, attractive appearance and economy. The rugged strength and durability of concrete structures keep maintenance cost at a minimum, giving many years of service at consistently low annual cost.

PORTLAND CEMENT ASSOCIATION
Dept. S-25, 33 W. Grand Ave., Chicago 10, Ill.
A national organization to improve and extend the uses of concrete through scientific research and engineering field work
Designed ESPECIALLY FOR PANEL HEATING

THE HOFFMAN 90 SERIES CONTROLLER

Especially for Panel Heating

The sensational growth of Radiant Panel Heating has made necessary the development of special equipment to best serve its unusual characteristics. Designed with these requirements in mind, the Hoffman 90 Series System precisely controls and maintains the relatively low temperature required by radiant panels. It has proved itself in thousands of forced hot water heating systems now in operation.

In this system, water is continuously circulated through the panels by the Hoffman Circulator. As long as the heat requirements of the panels are satisfied, the Hoffman Control Valve remains closed, and the circulating stream by-passes the boiler. When the circulating water begins to lose heat, the Control Valve is slowly opened by the Hoffman 90 Series Controller, permitting hot water from the boiler to enter the system. Just enough is admitted to maintain the proper temperature in the panels.

Obviously, the mechanical brain of the system is the Hoffman 90 Series Controller. The coordinated action of its Outdoor and Water Temperature Bulbs automatically selects the water temperature necessary to keep the building at the desired degree of warmth. With delicate precision, this Control smoothly varies the temperature of the continuously circulating water, so that the heat supply is always exactly equalized with the heat loss.

The complete story is too long to tell here—write today for descriptive booklet.

EVERY ROOM IN THE HOUSE

a world of modern comfort, built with STEEL insulation

Wherever new homes are being built ... wherever old homes are being remodelled ... and more and more architects and builders are specifying Ferro-Therm, the modern reflective all-steel insulation ... that keeps 90 to 95% of all radiant heat just where it belongs ... Reduces fuel costs by 20-30% ... Remains 100% efficient for the life of the building.

Ferro-Therm, for all its steel sturdiness, is thin and flexible ... and comes in light, easy-to-handle sheets ... ready for immediate and permanent installation ... Also ideal for special remodelling jobs where the right kind of insulation transforms a musty attic or cold, damp cellar into a comfortable playroom, den or library ... Write for information.

EVALUATE BEFORE YOU INSULATE

Ferro-Therm

Reg. U. S. Pat. Off

AMERICAN FLANGE & MANUFACTURING CO., INC. STEEL INSULATION 30 ROCKEFELLER PLAZA, N.Y. 20, N.Y.
Sure protection...
Easy installation

with ANACONDA THROUGH-WALL FLASHING


You can readily see from this illustration why Anaconda Through-Wall Flashing is known as "the flashing that drains itself dry on a level bed." The die-stamped dam and corrugations provide positive drainage in the desired direction, intercepting and disposing of wind-driven rain and moisture penetrating the masonry.

Equally evident is the fact that this preformed flashing is easy to install. Because of the flat selvage, sharp bends for counter flashing, or for locking to adjacent metal, are easily made. And merely by nesting one or two corrugations, Anaconda Through-Wall Flashing is readily locked endwise to form water-tight joints.

The photograph below shows the Grafton, West Virginia, High School, in which this durable, rustproof flashing provides positive protection against seepage, and decreases the risk of heaving by frost.

For detailed information on Anaconda Through-Wall Flashing, write for Publication C-28.
RECESSED CABINETS

Important factors in planning the modern hospital—

Typical of the trend in the planning of modern hospitals are these photographs of Scanlan-Morris recessed cabinets built into St. Nicholas Hospital, Shawangunk, and St. Alphonsus Hospital, Port Washington, N. Y. In addition to the cabinets shown, other Scanlan-Morris cabinets in these hospitals are:

1. Recessed combination cabinet for storage of solutions and blankets in surgical corridor near Central Service Room and delivery room.
2. Recessed supply cabinets in sterile work service department, surgical floor.
3. Recessed base cabinet in surgical corridor.
4. Recessed cabinets in splint room equipped with metal shelves and plaster bucket compartments.
5. Recessed cabinets, counter type, in sterile work room of Central Service Department—stainless steel counter tops.
6. Counter type cabinets for soiled utensils, equipped with double sink—in maternity department.

Scanlan-Morris recessed cabinets, each cabinet custom built from plans and specifications covering the individual requirements of the hospital, are installed in many leading hospitals. The cabinets bodies are made of 20 gauge furniture steel. All corners are made with double tapered and sweated seams, insuring dust-proof construction. Frames are flat, electrically welded to insure maximum strength and rigidity. The cabinet bodies may be finished in any color to harmonize with the color of walls and other equipment. Tops are finished in nickel plate or chrome plate, as specified.

That's why every plan for surgical modernization should include a friendly Brasco Front.

A Complete Line for Every Design

Specify Scanlan-Morris

BRASCO MANUFACTURING CO.
HARVEY - (Chicago Suburb) - ILLINOIS

National Distribution Assures Effective Installation
ROOD WASHROOMS

one of the "Big 4" in good working conditions

... say men and women workers in 400 plants

ISABEL: "You can tell how considerate a company is of its employees just by looking at the washrooms."

GRACE: "Can't you though! They must really want us to be happy here—they keep this one so clean and pleasant."

SANITARY modern washrooms mean a whole lot to women workers . . . and men workers too. An unbiased survey of men and women workers from coast to coast shows that these factors are the "Big 4" in good working conditions: good washrooms, proper lighting, safety devices and adequate ventilation.

Besides helping keep workers happy, plenty of hot water, soap and good quality individual paper towels help keep germs from spreading. By encouraging frequent and thorough washing, good washrooms help reduce the number of absences due to colds and their more serious complications.

Haven't you yourself been irritated by a poorly planned, badly equipped washroom? Then make sure your washrooms are designed to be "Health Zones," not "Germ Exchanges"—"morale-boosters," not "temper-testers."

GOOD WASHROOMS

S A N I T A R Y modern washrooms mean a whole lot to women workers . . . and men workers too. An unbiased survey of men and women workers from coast to coast shows that these factors are the "Big 4" in good working conditions: good washrooms, proper lighting, safety devices and adequate ventilation.

Besides helping keep workers happy, plenty of hot water, soap and good quality individual paper towels help keep germs from spreading. By encouraging frequent and thorough washing, good washrooms help reduce the number of absences due to colds and their more serious complications.

Haven't you yourself been irritated by a poorly planned, badly equipped washroom? Then make sure your washrooms are designed to be "Health Zones," not "Germ Exchanges"—"morale-boosters," not "temper-testers."

SCOTTISSUE TOWELS

STAY TOUGH WHEN WET

SCOTTISSUE TOWELS

STAY TOUGH WHEN WET

THE MOST VERSATILE OF ALL BUILDING MATERIALS...

Alcoa Aluminum

Surprising but true—Alcoa Aluminum is the most versatile of all building materials. What you can do with other metals you can often do better with aluminum—plus the fact—it can often replace nonmetallic materials.

There is plenty of practical experience to prove the advantages of Alcoa Aluminum. More than 100 million pounds of Alcoa Aluminum have been used in the construction field. There are over 212 ways you can use aluminum in building construction alone. Five important uses are illustrated here—each with distinctive advantages.

Alcoa's years of experience can be valuable to you. Our nearest sales office will be glad to work with you on specific applications. ALUMINUM COMPANY OF AMERICA, 1860 Gulf Building, Pittsburgh 19, Pennsylvania.
Decorative Glass is aglow with Glamor

Architects and designers realize the advantages of Blue Ridge Decorative Glass for backgrounds needing glamor and sales appeal. The translucent characteristic of patterned glass (diffusing light and providing privacy) offers a wide range of decorative opportunities. The dignified appeal of Figured Glass is seen more and more in smart shops, offices, salons, lounges and private homes.

Blue Ridge Decorative Glass, in a variety of patterns, is made by the Blue Ridge Glass Corporation of Kingsport, Tennessee, and sold by Libbey-Owens-Ford through leading glass distributors. Five popular patterns are shown below. The glass may be Securi­tized (heat tempered) for added resistance to thermal and physical shock...may be semitransparent or obscure. For further information, write Blue Ridge Sales Division, Libbey-Owens-Ford Glass Company, 9256 Nicholas Building, Toledo 3, Ohio.

Typhonite Eldorado — the comfortable, trusted pencil whose purpose is to work with you! It brings out the best in every drawing and does a beautiful job on every job!

DIXON'S TYPHONITE

ELDORADO

PENCIL SALES DEPARTMENT, JOSEPH DIXON CRUCIBLE CO., JERSEY CITY 3, N. J.
WE'RE FOREVER BUSTING BUBBLES

That’s the secret of Gold Bond Macoustic— the fireproof acoustical plaster!

WHEN Gold Bond Macoustic is mixed with water, small gas bubbles form. After application, these bubbles burst, automatically creating millions of tiny sound-absorbing channels within the plaster which give this material its high acoustical efficiency.

The pleasing finish of Macoustic harmonizes with practically any type of wall treatment. It imposes no limitations on design and may be used equally well over flat or irregular surfaces, coves, barrel or groined ceilings. It is applied by regular plasterers and adds so little to the cost that Macoustic sound conditioned ceilings may be included in even the most modest budgets.

Macoustic is supplied in oyster white, ivory, cream and buff. When redecoration is necessary, it may be spray-painted with Gold Bond Sunflex water-mixed paint without appreciable loss of sound absorption. For complete information, see Sweet’s or write National Gypsum Company, Buffalo 2, New York.

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 his 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.
SPECIFY ‘INCOR’ FOR EARLIER OCCUPANCY AT LESS COST

Time was never so expensive as it is today—and time-saving with ‘Incor’ 24-Hour Cement was never so important. On this 6-story apartment, built in 1937, ‘Incor’ saved 7 working days, with 40% less forms—a net cash saving, at 1937 costs, of $1.45 per cu. yd. of concrete. At today’s costs, this net saving would be $2.81 a cu. yd. on 2270 cu. yds. concrete. Nearly 20 years’ experience shows that ‘Incor’ time and form savings often run to double these figures, on all types of structures—concrete-frame, steel-frame and wall-bearing. Specify ‘Incor’ 24-Hour Cement: save 40-60% on form material and make-up, cut time and overhead, get earlier completion at less cost. Write for “Cutting Concrete Costs”—packed with time- and money-saving suggestions.

LONE STAR CEMENT CORPORATION

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD’S LARGEST CEMENT PRODUCERS. 15 MODERN MILLS, 25,300,000 BARRELS ANNUAL CAPACITY

OFFICES: ALBANY • BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS • JACKSON, MISS. • KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK • PHILADELPHIA • ST. LOUIS • WASHINGTON, D. C.

19 Years’ Outstanding Performance... ‘INCOR’... America’s FIRST High Early Strength Portland Cement

PROGRESSIVE ARCHITECTURE

PENCIL POINTS

WE MUST HOUSE THE VETERAN FIRST

As we write this, the Civilian Production Administration has just issued its order limiting the bulk of construction to housing, from now on until further notice. This should come as a surprise to no one. The situation it aimed to meet is a genuine emergency—for which questionable decisions made during and after the war may be blamed but which, nevertheless, must be dealt with and overcome promptly.

It is now weeks since Wilson Wyatt was appointed by the President as Housing Expediter and presented to the Congress the statement of legislation needed if he were to accomplish his job. Congress has been shamefully slow in acting upon his recommendations and while it has been fighting against various details of his program, the needs have been growing more intense. Had the requests of the War and Navy departments for means with which to fight the war been similarly haggled over and hacked to pieces, our ultimate victory would not only have been indefinitely postponed but might never have been achieved.

At the outset of the war we had a situation analogous to this one in respect to the position of the architects and architecture. The members of this profession then accepted gracefully the ban on all except necessary construction. We have no doubt that they will do the same thing now, realizing that the nation’s number-one present need is to provide decent homes as soon as possible for the many thousands of families of war veterans and war-displaced workers who cannot otherwise go on with the job of rebuilding a sound peacetime economy.

We hope that the administration of the new CPA order will be done with wisdom and fairness and that it will be recognized that, despite the sentimental joys traditionally attributed to home ownership, it will be a sound policy to provide rental housing, rather than small houses to buy, for a large percentage of the home-seeking families. We hope that it will be recognized, too, that expanding communities cannot be made up of homes alone and that there must be various other types of buildings provided to take care of community needs. Some of these are surely “necessary and non-deferrable.” We hope that architects in each locality will be invited to serve on the proposed local construction committees and that they will be guided during such service by considerations of general welfare rather than their own immediate personal advantage.

If all parties concerned will go at the thing energetically and faithfully it will not be too long before the situation will be relieved and the restrictions can be relaxed. The time for arguing is past. The housing must be provided and the sooner it is done the better it will be for all.
"Laboratories for learning" may be an overly self-conscious term to apply to school buildings; but it does symbolize the healthy trend toward a more scientific approach that exists today in progressive school design. From the time when the little one-room school was hardly more than a shelter from the weather, much has happened in both teaching and design techniques to mark this trend. Good schools are now planned with the welfare of each teacher and each pupil the constant reference points, and this is reflected in better relations between activities; better planning of the various functional areas; better light; simpler, easier-to-maintain structures; money put into better educational facilities rather than into impressive, academic fronts—in short, better environments for learning. The schools for two communities shown in this issue are heartening examples.

This remarkable one-teacher school will serve all grades through the eighth. Size of the Canadian township is indicated by the fact that enrollment for these eight grades totals but 35.

The design is a vigorous departure from the traditional approach to schools of this size. The relatively open plan, the bilateral lighting, the fact that the building will be built on a reinforced concrete slab on gravel fill with integral wrought iron coils of a radiant-heating system, are but the more obvious instances.

The domestic science and manual training rooms are separated from the main room by a clear glass screen so that the teacher can supervise all activities. The recreation end of the main room may be closed off from the classroom space by a folding partition. Combined with the classroom, it forms a community hall 20 feet wide and 60 feet long. A movable, sectional stage, stored when not in use in the ample storage room, converts the east end of the room into a speaker's platform or simple stage for theatricals. This room, incidentally, will constitute the only meeting place for the district. A serving door in the domestic science room allows use in conjunction with the recreation room for children's hot lunches or for community sappers.
ONE-ROOM SCHOOL

JOHN BURNET PARKIN,
Architect

structure

Over-all dimensioning of the building is based on a special wood-framing system (reflected in roof and window framing) designed on a 4-foot module. But, because a local stone is readily obtained, exterior walls are masonry—stone facing backed up with brick. The clerestory windows are operable from the floor level, providing cross ventilation as well as light; the main classroom window faces south and extends from the ceiling line down to the sill, 2 ft. 4 in. from the floor. Acoustical material is specified for the ceiling finish, and asphalt tile is to be used for a floor surface. Windows throughout are double-layer, insulating glass. Artificial lighting is designed to provide 20 foot-candles of illumination at desk height; fixtures will be of the semi-indirect, china bowl type.
An important consideration in the development of all the new schools for St. Louis was that, in addition to serving their prime function as educational institutions, they should also be designed for maximum community or neighborhood use. In the plot plan for this proposed 2,100-student high school, this is admirably illustrated in the choice of site, which is not only ample but includes within its area a small public park developed by the City Park Department.

All recreational facilities, both outdoors and in, will be available for the use of the public on weekdays when school is not in session, on weekends, and during the summer. The "Tots' Play Area" in the park, the only area that would harbor noisy activities during school hours, is placed where the noise would not disturb those in school.

In the general organization of the H-shaped plan (shown in detail in the separate floor plans) public-use rooms such as auditorium, gymnasiums, etc., are relegated to the southwest wing toward the play garden and landscaped park. The cross bar of the H contains the typical classrooms; work shops and specialized classrooms occur in the northeast wing.

CLASSROOM RESEARCH

Nowhere is the exceptional care given to the design of the St. Louis schools more evident than in the development of the individual classrooms. Commissioner Sullivan, convinced that in most cases it would be possible to improve on what had gone before, decided that even the Building Department's own resources were not enough. Precisely what were the teaching needs? What new educational trends might affect these? How better could each room be dimensioned and arranged to meet the new need, to make each subject more intelligible and appealing to the student?

To find the answers, thorough research was made of all the existing classrooms in St. Louis being used for a certain subject; principals, teachers, and custodians were all consulted; both good and bad plan points were noted. Then, preliminary room plans were drawn up and several teachers of the subject under consideration were called in to offer their suggestions and criticisms. Final plans were adopted only when all agreed that the new room was a definite improvement over any with which they were currently working. Detailed discussion of this very realistic and human development of several such specialized areas is given in connection with the finished room plans shown on Pages 54-55.

FITNESS OF APPEARANCE

Another point which deserves more than passing mention is the appearance of the finished structures, as evidenced in the rendering. While these St. Louis structures grow quite directly from the floor plans and are expressive of them, they are considerably more than mere functional translations. These buildings look like schools, though in no case do they resort to the sentimental association of stylism. There is a fitness to the purpose, an appropriate warmth and friendliness—a character quite other than one would look for, say, in an industrial plant. They are not only rationally planned buildings; they are good school architecture. They check out well against our reference points for what constitutes true progress in architectural design.
PROPOSED HIGH SCHOOL—For 2100 Students

CHARLES W. LORENZ, Designing Architect
KENNETH E. WISCHMEYER, Consulting Architect

CLASSROOM PLANNING

Mr. Lorenz describes the procedure used in the development of the individual classroom plans: "After the general plan of the building had been worked out...we made up large scale drawings of the various rooms and called in teachers from each of several high schools in the city. Each type of training was considered separately. If, for instance, the subject was biology, we would sit down with perhaps six teachers and go over every aspect of the plan to insure that it would be thoroughly suited for the teaching of biology. This was done for every subject."

MAY, 1946 55

HOME ECONOMICS... Mr. Lorenz states: "The home economics equipment in any existing high schools is probably more out of date than that of any other study in the curriculum. As a result, the group of teachers that met for discussion of the home economics teaching was well-motivated with ideas." The plans conform to their requirements. Kitchen tables and work counters are of different heights, different materials, and designed for various price brackets. Some will be equipped with aluminum stoves, others with granite ware, cast iron, stainless steel, etc. Each unit will have an electric mixer, and there will be a chalkboard panel over each sink. The laundry area is designed so that it may be opened up to the foyer area for proper supervision. In existing schools, the teachers prefer a small window at the ceiling and a high window of the rest of the building which are unaited in appearance as they are in utility. In the new school, to achieve some semblance of the scale and appearance of a home, an actual small house is to be constructed within the available space—a house with brick walls (plastered inside), an 8-foot ceiling, standard residential windows, and hardwood floors.

CLOTHING... In the plans of the clothing room, the sewing tables are arranged to accommodate 4 students each—or 2 to each machine. The machines are so installed that they fold down into the table top. A drawer with a lock is provided for each student.

GENERAL SCIENCE... The proposed plan was developed in the form of a seat bank divided into 10 tables of 4 places each; each seat is accessible without interference with adjoining seats. This basic scheme was received with enthusiasm by the general science teachers—"the most vocal of the groups consulted to date." But they suggested the following modifications: that the instructor's area be at least 10 feet long, with an additional table, with drawers and cases under, for classroom exhibits and for the front wall, in addition to the fixed blackboard; a sliding board that would move to a position above the fixed one; that a small stand and outlet be provided for a projector, and that the windows have dark shades; that storage space include 15 to 20 drawers approximately 20" x 12" x 4" (or 6") to house complete, simple experiments, thus eliminating the necessity of materials from scratch for each demonstration; that there be a display case visible from the corridor but accessible from the storage space.

CHIMISTRY... Development of the chemistry laboratory plan was similar to that of the physics room. An initial recommendation of the chemistry teachers was that, in place of the usual double-sided tables, the table be designed so that students would use only one side, thus eliminating the problem of one student backing into another and spilling chemicals. Another point: as need for stools at the tables since lecture notes would all be taken at the seat bank.

PHYSICS... A teacher at one of the existing schools pointed out that he had changed the customary layout by placing the demonstration table in front of the side wall, instead of the center so that the students could see the intersection of the side wall and the front wall, as well as the demonstration. They recommended that classes be limited to 32 pupils. Specific suggestions: that the tables be 2' x 3' spaced 34" apart and painted with electrical outlets at each end; gas cocks should be more deeply recessed; attached, printed seats should be used instead of stools. For the demonstration table, an air compressor should be provided; the room should have dehumidifying and exhaust fan; there should be cabinet space above and under the work top containing two sinks. After thorough discussion, the room plans above was developed with a ramped seat bank placed near the office end of the room.

BIOLGY... The panel discussing the biology room, considering an existing room 36' x 34' seating 36, recommended 36 was the maximum number of students for a biology class, but they found this room to be too small. For two biology labs, they recommended that there should be one lecture room similar in design to the general science room. Further requests: that storage be provided at each table for books and supplies; that the demonstration table be large, with an 18" x 36" sink so designed that large jars could be placed in it—i.e., that the overflow drain not be in the center of it.
Before embarking upon the actual design of any of the schools for St. Louis, the Board of Education instituted an objective research into the desirable standards and facilities needed for schools of different size and type. For the larger elementary schools (18 to 26 rooms), of which the Ames school shown here is representative, the following tentative requirements were set up:

- Classrooms
- 2 Kindergartens
- Library
- Gymnasium-Playroom
- Gymnasium
- Auditorium
- Industrial arts room
- Science room
- General office
- Cafeteria and kitchen, or at least a place for serving warm meals
- Principal's office
- Doctor's office
- Teacher's room on each floor
- Toilet rooms for children on lower floor only
- Adequate storage space for each room
- Elimination of basements where possible
- Facilities for audio-visual education
- Adequate storage space for each room
- Elimination of basements where possible
- Facilities for audio-visual education

As with all of the city's schools, emphasis is placed on the desirability of designing for maximum community use. In developing the plans of the Ames school, a difficult problem was presented in the small size and irregular shape of the lot, located in a congested, industrial neighborhood. It was desirable to keep the structure to three floor levels; yet adequate playground space had to be maintained. The answer was found in an irregular, U-shaped plan with the auditorium projected to make use of an odd corner of the site. The open end of the site provides a good-sized playground for the older students; the court formed by the plan shape creates a protected play space for primary and kindergarten children.
In the design of the Nottingham school, the same general standards as were used for the Ames school were applied. For the smaller (10-14 classrooms) elementary schools, however, the Board finds one kindergarten to be enough and does not require a separate auditorium. A gymnasium with a stage at one end serves both gym and auditorium functions.

Like the other St. Louis schools, this one is conceived of as a community building, with recreational facilities available to the public at other than school hours. The home economics room (which, incidentally, is planned so that for social functions food may be served directly to the gymnasiums) can also be used for adult cooking classes.

The typical classrooms, wardrobes, and storage space follow the standard used in the Ames design, though the size of the site made it possible in this case to line the classrooms along one side of the corridor, giving the same orientation to each. The question of the use of a workroom between each two classrooms is still under discussion; in the primary room area, at least, there is a possibility that a bay off each room will be substituted.
PRIMARY PLAYGROUND: Playgrounds for primary and upper-grade children are completely separated by the building shape and placement on the large site.

THE GYMNASIUM-PLAYROOM is 40' x 60' in area; a room of the same size but with a stage serves as both gym and auditorium.

NOTTINGHAM ELEMENTARY SCHOOL—For 400 Students
CHARLES W. LORENZ, Designing Architect
KENNETH E. WISCHMEYER, Consulting Architect

In the Nottingham school, all of the classrooms are designed to eliminate the need for shades, except in those rooms which must be darkened for slide projection. "My experience has been that the only way to prevent most teachers from keeping the shades down is not to have any shades," says Mr. Lorenz.

It is interesting to learn how the neighborhood received this very forthright, progressive design: "We presented the plans and elevations for this school to the people living in the neighborhood where the building will be erected—one of the city's newest residential areas. While there were a few who thought it too 'modernistic,' these were very few indeed. The design was enthusiastically received by the majority and especially by the teachers."
STAIRWAY

Plan of Stairs

Section

Section

Section

Section

Section

Section

STERN HALL,
UNIVERSITY OF CALIFORNIA

CORBETT & MACMURRAY: WURSTER, BERNARDI & EMMONS,
ASSOCIATED ARCHITECTS

DISPLAY UNITS

LA REINE CANDY SHOP,
NEW YORK CITY

SIMON SCHMIDTER: FELIX AUGENFELD, ARCHITECT:
ASSOCIATED DESIGNERS

SELECTED DETAILS

SCHMIDTER: FELIX AUGENFELD, ARCHITECT:
ASSOCIATED DESIGNERS

MAY, 1946
PERUVIAN PEASANT WOMEN... Millions of the descendants of original, native Americans, representatives of past great cultures, have now become voters and a political force. Increasingly, they will become consumers of our technological civilization. They need schools, health centers, hospitals, housing; they present urgent problems to planners, designers, and architects. In Peru, Aprismo, the Indian-friendly People's Party of Haya de la Torre, is a dominant power. But in all countries—whatever the present politics or stage of development—in Argentina, in progressive states of Brazil, in Cuba, there is a growing demand on the part of rural peoples for participation in contemporary modes of living and for being treated by governments IN A CONTEMPORARY RATHER THAN A COLONIAL MANNER. Architects and construction trades must think in non-metropolitan terms; in Mexico, as in Puerto Rico, rural projects have reached impressive scope. A similar future may be predicted for most other countries going through similar transition.

OBSERVATIONS ON LATIN AMERICA

By RICHARD J. NEUTRA

FOREWORD: Richard J. Neutra has recently returned from an extended trip through the countries of Latin America. Travelling under the auspices of the United States Department of State, he was the guest of several foreign governments, planners' and architects' associations, and universities. His studies centered on the subjects of housing, hospitals and other health facilities, schools, both urban and rural; and the physical planning of cities and regions.

Throughout his trip, much of which was made by air, Mr. Neutra spent considerable time in the company of local architectural men. From these "often young and active" professionals, Mr. Neutra says, he received invaluable help in learning about and understanding the various local problems—the political complications and economic difficulties, as well as the encouraging trends and the progressive work the leading designers are doing to improve matters.

The following discussion is based on speeches, broadcasts, round-table discussions, and press conferences conducted during his sojourn, by Mr. Neutra on current problems of planning and design in Lima, La Paz, Buenos Aires, Montevideo, Sao Paulo, and Rio, as well as in Santo Domingo, Haiti, and Havana. The editors feel that Mr. Neutra's opinions should be stimulating to both North and South American readers and that they have significant bearing on the overall problems of planning in general.

To assist his memory and crystallize impressions, Mr. Neutra made numerous quick sketches during his extensive travels. Several of these are reproduced on this and the following pages to illustrate points made in the commentary. The accompanying interpretive captions were prepared by the author.
It must be remembered that the founding of the great Latin American cities took place a very long time ago. Montevideo, about the youngest, is more than 200 years old. Curiously, these cities seem younger and fresher in many ways than the cities of North America. One reason, of course, is that while the United States was wholly engaged in war and hence could not indulge its energies in the civil- 

l ans pursuit of rebuilding its cities, the metropolises of the countries to the South have forged ahead and made old guide books outdated, if not obsolete, in a surprisingly short time.

Without being critical, I find it instructive to study how differently cities develop, quite aside from whether it is private or public money that is being expended. Take as an example the contrast between this modern city, founded by daredevils in the early Sixteenth Century, and running a contemporary park-and-

freeway plot—

(under construction) , and running a contemporary park —and _

central inter - mountain park in front of a skyscraper un1vers1ty

It is strange that no book has been written about the siting of Latin American towns—the coastal sites, the altiplana and mountain sites, the desert sites, and the sites on the banks of the rivers.

It is strange that no book has been written about the siting of Latin American towns—the coastal sites, the altiplana and mountain sites, the desert sites, and the sites on the banks of the rivers.

It is strange that no book has been written about the siting of Latin American towns—the coastal sites, the altiplana and mountain sites, the desert sites, and the sites on the banks of the rivers.

It is strange that no book has been written about the siting of Latin American towns—the coastal sites, the altiplana and mountain sites, the desert sites, and the sites on the banks of the rivers.
In Los Angeles, a great deal of money has been put into the design and construction of restaurants—walk-ins and drive-ins—stores, from small quality shops to central and outlying department stores, middle-class residences, and housing. At first glance, all of this seems rather less in the foreground of the picture in Buenos Aires, where the outstanding objects of investment have been splendidly executed tall apartment buildings, huge modern departments of the university, research laboratories, hospitals, theaters, and the work advanced by the auto club downtown and along the well kept highways, the neat and practical subways, and the well designed, amazingly clean harbor and waterfront facilities.

It is interesting to speculate on how much different cities and regions might profit from the exchange of ideas and comparison with the experiences of others. Such cross fertilization can start with simple questions: What are the new problems with you and with us? On what might additional emphasis be placed here and there? What, outside of established local routine, might be tackled to advantage?

HOUSE AT WALLINGFORD, PENNSYLVANIA

ROBERT F. BISHOP, Architect

A wooded ridge with an excellent view to the southeast is the setting for this compact country house, located but 12 miles from downtown Philadelphia. Perhaps the chief reasons why the house looks so thoroughly indigenous are that its masonry portions are of stone from local quarries, the plan is studiously worked out to take fullest advantage of the site opportunities, and the architect adjusted placement of the house so that not a single desirable tree among the fine stand of oaks, maples, and tulip poplars was removed. The house itself is a notable instance of integration of plan, structure, and finished design.
HOUSE AT WALLINGFORD, PA.
ROBERT F. BISHOP, Architect

The property slopes up to the west and southwest; the other directions, except for the southeast (which is open and coincides with the best outlook), are wooded. Hence, the southeastern orientation of all main living rooms. The clerestory crosslights and ventilates the center of the house.

The owner is a teacher and needed a study; the shop was provided for his woodworking hobby. His wife suggested the combined kitchen and dining room, as informal family living (there are three boys) was the prime consideration.

Structure is combined local stone masonry and conventional frame; sash are standard, horizontal sliding, fitted with double glazing; shingles and siding are of cypress. The house is heated by a gas-fired forced hot-air system; the roof has 4-inch wool-type insulation.
As is the case with so many successful houses, this one on the Oregon coast started with the selection of a remarkable site—a finger of rich wooded land, with the ocean bordering it in a rough semi-circle and a meandering inlet at one side. The house, oriented for the ocean view, is planned in a U shape, with the windowed main living rooms on the view side and a sheltered, wood-paved entrance courtyard within the enclosing wings.

A regional expression adds much to the essential logic of the planning: the woods of the Northwest are imaginatively used, and there is a simplicity to the detail that seems wholly in keeping with the locale. A point that is difficult if not impossible to analyze is what appeals to us as the “inevitability” of the design as a whole—a factor which cannot, of course, actually be separated from the fundamental factors of good planning and construction. Scale, proportion, angling of roof pitch are parts of it. But the result—the esthetic satisfaction which the design creates, quite apart from consideration of the house as a suitable home for its occupants—falls in the realm of pure inspiration. The various factual determinants have been blended with notable success, in our opinion; in addition, the unit achieves unusual harmony with the environment of which it is now a part.
The family consists of the parents and two daughters. The U shape of the plan provides complete separation between the service wing and the family-bedroom wing. Between is the large living-dining space, opened up by full-height windows to both the ocean and courtyard views. It is somewhat surprising to discover that on the downhill side the house is a full two stories in height. On the lower level are a guest room suite, a playroom, the laundry, and furnace room. The exterior of the frame house is of rough sawn spruce; double-layer insulating glass is used in all large windows; the courtyard is paved with cedar-log sections.
LIVING ROOM. Doorway leads to the entry.

HOUSE AT NETARTS BAY, OREGON
PIETRO BELLUSCHI, Architect

The architect was able to make some unusual applications of wood, since the owner is in the lumber-processing business and could furnish from his own mills material that is not ordinarily available. Perhaps the most striking instance is the spruce burl used for the wall paneling of the living-dining room; ceilings of this area are of 3-inch fir flooring. The living and dining spaces open into one large, L-shaped area; a ceiling track and curtain allow partitioning when desired, however. The kitchen is large enough to include a corner-windowed breakfast nook. An important plan provision, all too frequently given slight attention, is the extra storage space. In addition to a large room in the basement, there is a special storage room on the ground floor, between the kitchen and garage, that opens out to the courtyard.

ENTRY, looking toward living room.

KITCHEN

LIGHTING DESIGN AND HUMAN ENVIRONMENT
By E. R. DAGGY, Design Engineer, Milton Callner & Co., Chicago

Editor’s note: Originally written for lighting fixture designers and engineers, this paper appeared in the December 1945 issue of “Illuminating Engineering” in somewhat longer form. The author, design engineer with Milton Callner & Co., Chicago, has had considerable experience in lighting design, and his remarks on the fitness of fixtures are comforting, to say the least. Illustrations for this presentation have been selected by the editors.

The author neither desires nor intends to attempt specific solutions to lighting design problems, nor to deal with the basic principles of light control or the science of seeing. The thoughts here stem rather from the feeling of a need to examine the subject of lighting design generally in the belief that the process will promote wider acceptance of the principles which underlie the functional approach.

As to fixtures
There is an increasing tendency in the architectural and industrial design professions to spurn manufactured lighting equipment, to turn to custom-built lighting, specially designed. Why? A quotation from a prominent architect may explain:

"Whether they know it or not, manufacturers of cheap fixtures increase the cost of building by making it necessary for anyone who wants to do a good lighting job to design special fixtures. Sweden is one country that I know that has seen to it by one method or another that mass-manufactured products are good in design."

There are reasons, of course, for this deficiency in our lighting products. For one thing, manufacturers, when the advent of the fluorescent light source was increasing considerably the complexity of the whole lighting subject, quite naturally concerned themselves principally with sales urgencies, competition, and desire for a quick turnover. Time was when lighting practices were pretty well standardized. It was all in the book. Usually if one could manage to pour 20 to 25 foot-candles of indirect light all over everything the problem was considered solved; there was a pointing with pride and everyone was happy. The need to think was present only to the extent of selecting a fixture shape. Then came along the fluorescent tube, a new shape, higher efficiencies, and the possibility of higher illumination values.

Sixteen coach lamps and a stained glass bowl were once tops for pompous architecture; semi-inverted kerosene lamps (head of page) for the "cottage." Tubular lamps can't be quite that badly mishandled; but bare tubes are often questionably and even the pleasantly simple commercial fixture has mechanically embossed ends.
with diffusions from a direct light source. To meet an immediate need, the fixture manufacturer tried to find this new source into the incandescent mold. Fluorescent lamp fixures were made as nearly like incandescent lamp fixtures as possible. Usually they turned out to be awfully proportioned, queer, almost overwhelming shapes of glass and metal. Many were sold; from the results it has become obvious that what has been done is far from satisfactory.

We are also discovering that all kinds of problems are popping up to plague the lighting profession: questions of brightness, glare, diffusion, contrast, direction, shielding, and maintenance around on every lighting job. This all means that we are caught up in evolutionary progress, and, for a change, we must think. It is the time to recognize that a new procedure in design is part of this evolution. Here is a direction in which we are inevitably moving, a direction in which we in the lighting profession must channel our thoughts if we would fill our rightful function and lead in lighting progress instead of following the insistent public demand that is being rapidly awakened by the progressive architect and industrial designer. It is high time we recognized light for what it really is, part of our atmosphere of living, a means to an end; and that what really counts is that we see what we wish to see, clearly and comfortably. We need an approach which realizes that, to be right, lighting should be part of our atmosphere of living—not obtrusive and effortless.

**APPROACHES TO DESIGN**

The light source is important only as the tool with which we work. The paint in the artist's tube has no importance until it is placed on the canvas. The tube that holds the paint is important only in that it does its job, doesn't leak, and squirts properly under the artist's fingers. To change the simile, gone (and surely not missed) are the decorative efforts, the frills and heavy ornamentation once considered necessary to beautify stores, registers, and radiators. We know now that gilding is unnecessary in our housing equipment. Warmth and human comfort are what really matter. Perhaps we can produce better lighting if we look into the methods of approach to a design problem and try to find out how we can improve our own methods of going about a job.

The approach that walks backward is probably the most commonly used. It consists simply of seeking out and applying without question, proven solutions to similar problems—a sort of "making the best of what's to be had" method. Unfortunately it entirely copies the mistakes of the past. Frequently the designer who is used to working this way obeys a daring urge to venture into "antiquism;" quite cleverly he converts a cowbell into a table lamp or a rocking chair into a chandelier or whatever. Because it's the past. Frequently the designer who is used to working this way obeys a daring urge to venture into "antiquism;” quite cleverly he converts a cowbell into a table lamp or a rocking chair into a chandelier or whatever. Because it's the past.

**UNCREATIVE BORROWING**

The approach that walks backward is probably the most commonly used. It consists simply of seeking out and applying without question, proven solutions to similar problems—a sort of "making the best of what's to be had" method. Unfortunately it entirely copies the mistakes of the past. Frequently the designer who is used to working this way obeys a daring urge to venture into "antiquism;” quite cleverly he converts a cowbell into a table lamp or a rocking chair into a chandelier or whatever. Because it's the past.

**THE NOSTALGIC APPROACH**

How can even a devout antiques buffs justify the cane wagon wheel with tubular fluorescent lamps mounted on its spokes? The multiple oil lamps, complete with totally unnecessary windshields, are no less anachronistic than candle shapes unhappily resurrected.

**PROGRESS WITH FLUORESCENT**

When craftsmen considered every surface a legitimate playground on which to exercise their whimsies.

**FUNCTIONAL DESIGN**

Functional design is naturally adapted to this era of the machine, for the machine is honest in purpose and conception. It cannot lie; it does not pretend; it does not try to look or act like anything but its true, useful self. Its parts are made of the material best suited to their purposes. It pulls its horsepower, lifts its load, does its job. It cannot kid, fake, or cover up.

Does the idea seem cold, bare, devoid of sympathetic feeling for human values beyond the cold mechanical necessities of the problem? But it is not! All such elements are parts of each problem. The progressive designer must consider his problem both physically and psychologically because, above all, he is designing for human welfare.

To apply such a creative approach to lighting means that one must consider light not only with regard to the direct lighting results accomplished, but also with relation to the atmosphere of living of which lighting becomes inseparably an integral part. The concept renders implicit the need to consider emotional values as well as architecture, color, form, and lighting as interrelated parts of the design problem. It becomes necessary to consider what is best from all points of view, for the good of the whole.

From the lighting standpoint this may mean at times the sacrifice of foot-candles to the advantage of color or atmosphere to the complete picture.

**THE CREATIVE ATTACK**

Now we come to the simplest method of all, and, perhaps because we are so much less bound, the one that seems to harden us for its realm: functional or organic design procedure, which means a process of straightforward thinking that becomes creative because to employ it one must approach each problem from the beginning, strip it down to the naked need, and build up from there on the basis of the answer.

Such an approach recognizes that the result is of first importance, that all our problems can be solved more easily and naturally if we will rid ourselves of false concepts and go at the job simply, with full honesty. It means we must develop our knowledge of materials to appreciate their natural qualities and learn to use them to their best advantage. It recognizes that in seeking to ornament natural surfaces we often deface the deeper, more worth-while, lastin beauty inherent in the material.

**COLOR AND LIGHTING**

It is necessary, before discussing the point further, to

---

**LEFT**

Ceiling fixtures furnish only a small portion of the illumination required; contrast these with the usually important, pattern-based portables. ABOVE, an engineering drafting room with continuously, lowered fluorescent fixtures is designed that the entire ceiling becomes the source of illumination, the individual lamp or fixture diminishing in importance.
lighting design

with diffusion from a direct light source. To meet an immediate need, the fixture manufacturer tried to fit this new source into the incandescent mold. Fluorescent lamp fixtures were made as nearly like incandescent lamp fixtures as possible. Usually they turned out to be awkward, poorly proportioned, queer, almost overwhelming shapes of glass and metal. Many were sold; from the results it has become obvious that what has been done is far from satisfactory. We are also discovering that all kinds of problems are cropping up to plague the lighting profession: questions of brightness, glare, diffusion, contrast, direction, shielding, and maintenance abound on every lighting job.

This all means that we are caught up in evolutionary progress, and, for a change, we must think. It is the time to recognize that a new procedure in design is part of this evolution. Here is a direction in which we are inevitably moving, a direction in which we in the lighting profession must claim our thoughts if we would fill our rightful function and lead in lighting progress instead of following the insistent public demand that is being rapidly awakened by the progressive architect and industrial designer. It is high time we recognized light for what it really is, part of our atmosphere of living, a means to an end; and that what really counts is that we see what we wish to see, clearly and naturally to-end and enclosed, create "lines of light."

the nostalgic approach: How can even a devout antiquarian justify the wagon wheel with tubular fluorescent lamps fixed to its spokes? The multi-light lamps, complete with totally unnecessary windshields, are no less anachronistic. when craftsmen considered every surface a legitimate playground on which to exercise their whimsies.

Uncreative Borrowing

Another, more subtle, design approach is eclecticism, a big word that means to borrow the forms and ideas of other systems and apply them to the problem at hand. This method is sometimes used with cleverness and effect and, although it is basically dishonest, the results may occasionally be justified by good intent. More often it is forced and foolish; witness the indiscriminate streamlining of stationary objects. See materials wilfully contrived out of their appropriate functional usage in order to perpetuate a style or fad. See "modern" abstractions that have brought to ill repute an excellent word. At its best eclecticism adds little to the stream of progress.

The Creative Attack

Now we come to the simplest method of all, and, perhaps because we are such complex beings, the one that seems the hardest for us to grasp: functional or organic design procedure, which means a process of straightforward thinking that becomes creative because to employ it one must approach each problem from the beginning, strip it down to the naked need, and build upon this the basis of what is best for the job.

Such an approach recognizes that the result is of first importance, that all our problems can be solved more easily and naturally if we will rid ourselves of false concepts and go at the job simply, with full honesty. It means we must develop our knowledge of materials to appreciate their natural qualities and learn to use them to their best advantage. It recognizes that in seeking to ornament natural surfaces we often deface the deeper, more worth-while, lasting beauty inherent in the material.

Functional design is naturally adapted to this era of the machine, for the machine is honest in purpose and conception. It cannot lie; it does not pretend; it does not try to look or act like anything but its true, useful self. Its parts are made of the material best suited to their purposes. It pulls its horsepower, lifts its load, does its job. It cannot kid, fake, or cover up.

Does the idea seem cold, bare, devoid of sympathetic feeling for human values beyond the cold mechanical necessities of the problem? But it is not! All such elements are parts of each problem. The progressive designer must consider his problem both physically and psychologically because, above all, he is designing for human welfare.

To apply such a creative approach to lighting means that one must consider light not only with regard to the direct lighting results accomplished, but also with relation to the atmosphere of living of which lighting becomes an inescapably integral part. The concept renders implicit the need to consider emotional values as well as architecture, form, and lighting as interrelated parts of the design problem. It becomes necessary to consider what is best from all points of view, for the good of the whole.

From the lighting standpoint this may mean at times the sacrifice of foot-candles to the advantage of color or atmosphere. It is a matter of judgment that may not be calculated in figures, but must be arrived at by feeling of the professional illuminator.

Color and lighting

It is necessary, before discussing the point further, to
LIGHTING DESIGN

examine for a moment the subject of color and color intensity. In the first place, color in relation to human environment is beginning to be more widely understood and used. There seems little doubt that this trend will continue to develop.

The possibility of benefits to humanity in release from drabness and monotony in our surroundings is very great indeed. We spend a third of our lives in our working environment; yet until recently little thought has been given to making this environment stimulating, or even pleasant. We have been inhibited; it has been unsuitable to be exuberant and happy in our business surroundings.

Our habits are changing. The change will gain momentum as business comes to realize more fully that psychological and physical benefits to the employe are directly reflected in the amount and quality of the work he does. We can surely expect to see an ever widening use of carefully planned color schemes in our stores, offices, schools, and factories—color schemes planned to make use of the stimulative qualities of bright bold colors as well as those that bring quietness and relaxation.

This is functional use of color as truly as is its use to reflect light. Color has other functional possibilities: as a valuable aid in displaying and selling merchandise, as an absorber as well as reflector of light, and as a means of complementing or concealing architecture.

To return to lighting and its relation to the functional use of color: now it becomes easier to see through the glass in spite of a loss in over-all candlepower. The principle may be used to advantage in planning color schemes for picture galleries, instrument panel rooms, and the like. It also seems likely that there may be spots where it would be advantageous to paint ceilings and walls dark in the reflective vicinity of illuminated show cases.

LIGHTING IS PART OF ARCHITECTURE

In considering lighting in conjunction with architecture we find a great need generally expressed for a better coordination of lighting equipment with architectural form. To accomplish this should not be too difficult if we consider the function of light and strive to subdue the light source as much as possible. Such a procedure would automatically tend to bring about a sort of flowing together of light and architecture to their mutual advantage. Whether the lighting is built in or added in the form of fixtures, this seems a worth-while goal.

There is a challenge in all this for the lighting profession, a challenge to take up this cause of creative thinking, to apply it to lighting coordination, for the benefit of all concerned. It seems now that the utility lighting engineer can extend the greatest cooperation in meeting this challenge. To repeat, the manufacturer of lighting equipment is restricted by sales considerations. The architect and the industrial designer have tried to meet the need, but they do not often enjoy specialized training in the theory and handling of light sources that enables them to solve all lighting problems without making costly mistakes. The lighting engineer, on the other hand, is highly trained in fundamentals, has had experiences in controlling light, and has digested most of the available information on his subject. He has a clear track for thought that is ideal for a creative approach. He is the natural go-between for the architect and the manufacturer of lighting equipment and can offer them his services without constraint. He is in a position to benefit his customers, and the results of his efforts are reflected in good will to the company he serves. If he will do less fumbling for fixtures and more thinking about the designing of lighting he will find himself in a position to lead the lighting industry into progressive ways that keep pace with contemporary thought.

One can hardly think much about design without feeling that it involves more than approaches to the solution of mechanical problems. The solutions affect directly our philosophy of life and living. Acceptance of functional-creative thinking will grow because it is honest, straightforward, and considerate of the needs of mankind. It does not displace the lessons of the past, but continually strives to improve upon them. Its works are of lasting benefit because they are basically sound in conception and execution.

LIGHT FOR MERCHANDISING: LEFT, dark surfaces close to a clear glass display portion reduce reflected image to the minimum. BELOW, despite careful design and recessed storefront, reflections of the outer scene obscure the merchandise on display.

LIGHTING SALES AREAS

There is room for careful study of the functional coordination of color and light in merchandise display. It does not seem, for instance, that full use is being made of store interiors of the important possibilities of deep colors on walls that back merchandise of a very light nature. In such a use general lighting might suffer through absorption; but the merchandise display, which is the important consideration, would be enhanced through contrast. The use of deep colors may also be justified at the expense of light when reflections from glass surfaces are present; if the surface behind a person facing a glass-covered object is dark, there is noticeably less surface reflection from the glass than if the same surface were light. Thus it becomes easier to see through the glass in spite of a loss in over-all candlepower. The principle may be used to advantage in planning color schemes for picture galleries, instrument panel rooms, and the like. It also seems likely that there may be spots where it would be advantageous to paint ceilings and walls dark in the reflective vicinity of illuminated show cases.

LIGHTING FOR CHURCHES

There is a challenge in all this for the lighting profession, a challenge to take up this cause of creative thinking, to apply it to lighting coordination, for the benefit of all concerned. It seems now that the utility lighting engineer can extend the greatest cooperation in meeting this challenge. To repeat, the manufacturer of lighting equipment is restricted by sales considerations. The architect and the industrial designer have tried to meet the need, but they do not often enjoy specialized training in the theory and handling of light sources that enables them to solve all lighting problems without making costly mistakes. The lighting engineer, on the other hand, is highly trained in fundamentals, has had experiences in controlling light, and has digested most of the available information on his subject. He has a clear track for thought that is ideal for a creative approach. He is the natural go-between for the architect and the manufacturer of lighting equipment and can offer them his services without constraint. He is in a position to benefit his customers, and the results of his efforts are reflected in good will to the company he serves. If he will do less fumbling for fixtures and more thinking about the designing of lighting he will find himself in a position to lead the lighting industry into progressive ways that keep pace with contemporary thought.

One can hardly think much about design without feeling that it involves more than approaches to the solution of mechanical problems. The solutions affect directly our philosophy of life and living. Acceptance of functional-creative thinking will grow because it is honest, straightforward, and considerate of the needs of mankind. It does not displace the lessons of the past, but continually strives to improve upon them. Its works are of lasting benefit because they are basically sound in conception and execution.

LIGHTING IN THE HOME: Far LEFT: not long ago it was fashionable to eliminate most permanent fixtures, rely on portables, making home lighting impossible. NEXT PHOTO shows a wartime expedient, pierced plywood, THE NEXT, light diffused from a skylight, natural by day, artificial by night. BOTTOM, with plan and purpose carefully coordinated, many fixtures built in, contemporary houses encourage the lighting designer.
Moisture on interior building surfaces is often a serious problem. Water dripping from a ceiling may cause damage to manufactured articles and machinery and annoyance to the occupants of the building. Short circuiting of power and lighting equipment may also occur in severe cases. Unless proper precautions are taken to prevent moisture condensation, many buildings may be damaged by it. Water vapor may be caused by such activities as manufacturing processes. Buildings in this category are numerous and include laundries, paper mills, canning factories, textile mills, bakeries, and tobacco factories. Surface condensation may even occur in residences or other buildings devoted to human occupancy if sufficiently high indoor humidities prevail. However, surface condensation in buildings of this type is usually confined to window surfaces rather than wall and ceiling surfaces, except in unusual circumstances such as in kitchens and bathrooms.

Moisture will not condense under certain conditions on inside wall and ceiling surfaces, but may pass into or through the building materials and condense within the insulation or construction materials, where it may cause considerable damage. The first problem—condensation on interior wall and ceiling surfaces—then may arise from a lower thickness of insulation. The second problem—condensation within the building materials—can often be corrected by the use of vapor barriers, supplemented in certain cases by attic venting. In order more readily to understand these problems let us review some of the fundamentals.

WATER VAPOR

Water exists in three states, namely, gaseous, liquid, and solid. In the gaseous state it is known as water vapor or "humidity." The air is a mixture of water vapor and a number of gases, including nitrogen, oxygen, and carbon dioxide. All gases can hold air, or that can be mixed with air, depends solely on temperature—the higher the temperature, the more water vapor the space can contain. The presence of the air mixed with the water vapor has no relationship to the amount of water vapor the space can contain, although it is common practice to speak of the humidity of the air.

RELATIVE HUMIDITY

As stated in the preceding paragraph, the capacity of a space to hold water vapor depends upon and increases with the temperature. When a given space contains the maximum amount of water vapor at any temperature, it is said to be saturated, or to have a relative humidity of 100%. Usually, however, "air" is not saturated with water vapor and therefore the relative humidity is less than 100%.

For practical purposes—although the practice is not entirely correct—relative humidity may be considered to be the ratio of the amount of water vapor present, compared with the maximum amount the space could hold at that temperature. It should be noted that if saturated the capacity of the space to hold water vapor would be correspondingly reduced and the relative humidity increased, eventually the air will be saturated; that is, it will have a relative humidity of 100%. If the temperature is reduced below the dew point, some of the water vapor will be condensed to liquid.

In the example previously cited, the space contained 0.70 pound of moisture at 70°F and was 61% saturated at this temperature. If the temperature were reduced to 47.1°F, the "air" would be saturated, or in other words, the relative humidity would be 100%. Moisture would begin to condense on any surface at or below this dew-point temperature.

WET AND DRY-BULB TEMPERATURES

The relative humidity in a space is usually measured by two ordinary thermometers, secured to a common base. The bulb of one thermometer is exposed and the temperature recorded taken with this thermometer is the same as that taken with any other ordinary mercury thermometer. This bulb is known as the wet-bulb thermometer and is enclosed in a cloth bag moistened with water and which, due to evaporation of water, will give a lower temperature. This is called the wet-bulb temperature. Such a combination wet-and-dry bulb thermometer is called a psychrometer.

ESTIMATING INSULATION REQUIRED

It will be apparent from the foregoing that whenever warm humid air comes in contact with surfaces which are below the dew-point temperature, condensation of the moisture will occur. The problem then is to determine the required thickness of insulation.

The required thickness of insulation is determined by the following equation:

\[ R = \frac{0.01 (t - t_o)}{U} \]

where

- \( R \) = total required resistance to prevent surface condensation
- \( t \) = inside still-air surface temperature
- \( t_o \) = outside temperature
- \( U \) = dew-point temperature based on inside temperature and relative humidity (or wet-bulb temperature).

The total required resistance to prevent surface condensation based on the foregoing temperature gradient relationship is expressed by the following equation:

\[ R = \frac{0.61 (t - t_o)}{U} \]

Where

- \( U \) = the reciprocal of the required resistance.

The capacity of a space to hold water vapor conversely decreases as the temperature decreases. Consequently, if the air at any specified temperature is not saturated and the temperature is reduced, the capacity to hold water vapor will be correspondingly reduced and the relative humidity increased, until eventually the air will be saturated; that is, it will have a relative humidity of 100%. If the temperature is reduced below the dew point, some of the water vapor will be condensed to liquid.

In the example previously cited, the space contained 0.70 pound of moisture at 70°F and was 61% saturated at this temperature. If the temperature were reduced to 47.1°F, the "air" would be saturated, or in other words, the relative humidity would be 100%. Moisture would begin to condense on any surface at or below this dew-point temperature.

CONDUCTIVITY

The conductivity of a material is defined as the ability of the material to conduct heat in a given direction. The conductivity relationship or “U” value of a material is shown in the chart. The higher the “U” value of a material, the less it will conduct heat.

CONSTRUCTION

The chart may be used for estimating the total required resistance to prevent surface condensation for various inside relative humidities. This required resistance is based on the inside-outside temperature difference of 100°. For smaller temperature differences the required resistance will be correspondingly less as the temperature difference is directly proportional to the temperature difference. The required “U” value (maximum) in each is the reciprocal of the required resistance.

PREVENTING CONDENSATION ON WINDOWS

Moisture condensation on windows can sometimes be prevented or controlled by installing storm sash or double windows. This, however, depends on temperature conditions and relative humidity.

The curves of Figure 2 show maximum permissible relative humidities for both inside and outside temperatures. This curve is based on an inside-outside temperature difference of 100°. For example, for single glass, the maximum permissible relative humidity is about 50% for the inside temperature of 70°F. For higher humidities, the insulation thickness becomes prohibitive.

CONSTRUCTION CHART

Material condensation on windows can sometimes be prevented or controlled by installing storm sash or double windows. This, however, depends on temperature conditions and relative humidity.

The curves of Figure 2 show maximum permissible relative humidities for both inside and outside temperatures. This curve is based on an inside-outside temperature difference of 100°. For example, for single glass, the maximum permissible relative humidity is about 50% for the inside temperature of 70°F. For higher humidities, the insulation thickness becomes prohibitive.

VAPOR PRESSURE

The question naturally arises as to why water vapor passes through certain structural materials. What is the impelling force? Is it the temperature? Which materials permit vapor to pass and which do not?

Water vapor mixed with air has a certain pressure which is the impelling force. This pressure is known as vapor pressure. The relationship between the vapor pressure and the degree of saturation or relative humidity is. For example, at 0°F, the pressure...
PREVENTING MOISTURE CONDENSATION

- 10

-30

10%

1/

VAPOR BARRIERS

condensation increases as the inside relative humidity is higher than that which would prevail inside if the outside atmosphere were the only source of moisture. Laundries, for example, are typically humid environments where the relative humidity can be substantially higher than that expected from outside atmospheric conditions. Even in colder climates, the moisture content in the walls of a house can be greater than the moisture content of the exterior air due to the warm air inside.

Air at low temperatures, even if saturated, contains a comparatively small amount of water vapor and has a correspondingly low vapor pressure, as is evident from the fore-going data for saturated water vapor at 0°F. If an air space at this temperature, for example, is brought into a house and heated to say 70°F, the relative humidity will be only 5%, since at 70°F, the weight of saturated water vapor is 119.2 grams per pound of dry air. The inside vapor pressure and moisture content will therefore be substantially higher than that found outside, or that which would prevail inside if the outside atmosphere were the only source of moisture. Laundry, kitchens, and bathrooms contribute large quantities of water vapor, and these are often supplemented by humidifiers of various types or by automatically controlled humidification devices such as those found in conjunction with air-conditioning systems. Furthermore, with the tendency toward tighter buildings resulting from the use of weather strips, storm sash, calking, and other improvements in building construction, there is greater probability than formerly was the case for the moisture generated by these activities to build up within the enclosure.

Condensation within walls does not occur in all cases; it is the exception rather than the rule. The probability of condensation increases as the inside relative humidity increases and as temperature decreases.

VAPOR BARRIERS

Condensation within walls can be prevented by installing adequate vapor barriers on the warm side of the construction. In the case of a frame wall, this would be the inside face of the studs, or on the interior surface. Important requirements are: first, that the vapor barrier be installed at a location such that the temperature on the warm side of the barrier is above the dew point of the air-vapor mixture in the room at all times; and second, that the vapor resistance of this barrier be substantially greater than that of the materials on the cold side.

Vapor barriers are of two general types, namely (1) paints or liquids, applied as finishes on the interior surface of the wall; and (2) paper or sheet materials, installed as a facing of the studs or furring strips before the interior finish is applied. Of the first type, asphalt, and many vehicles are among the most efficient; and in the second classification, diaphragm or laminated papers, smooth-surfaced roll-roofing, and aluminum foil are among the best vapor barriers.

When to use vapor barriers. While there is no hard and fast rule for determining when vapor barriers shall be used, the line of demarcation for ordinary conditions is generally considered to be the 35-degree January isotherm. In other words, for average conditions, vapor barriers should be used where the average January temperature is 35 degrees or colder. Roughly speaking, this condition obtains everywhere south of the Ohio River. In exceptionally high indoor humidities prevail, however, vapor barriers should be used in the indoor atmosphere of all climates where any cold weather is experienced.

Required value of vapor barriers. To perform satisfactorily, vapor barriers should have a certain maximum vapor-permeability rate. In other words, to qualify as a vapor barrier, a material should not permit the passage of more than a certain amount of vapor through it in a given period of time based on a standard atmospheric pressure differential. According to Univ. of Minnesota Engineering Experiment Station Bulletin No. 273, this permeability rate should not exceed 1.5 grains of moisture per hour per square foot per inch of mercury pressure difference.

As previously indicated, materials which generally meet this requirement include certain duplex papers (a sheet of asphalt between two layers of paper), asphalt-saturated roofing papers, and aluminum foil. Ordinary saturated roofing felt (paper) and building papers are not good vapor barriers as they permit the passage of more than the maximum permissible amount of vapor through them. Ordinarily, no vapor barrier is required, as vapor condenses on exposed surfaces of buildings, is absorbed by the ground, or is evaporated by sunlight.

Vapor-barrier paints include certain oil paints and varnishes, and aluminum and asphalt paints. However, not all paints of these types are of necessity good vapor barriers. Barriers are much more effective than ordinary bitumen or other water-emulsion paints good vapor barriers. Usually at least two or three coats of paint are required to obtain satisfactory results but there may always be some doubt as to whether the coating as applied is continuous and sufficiently efficient for the purpose. For this reason, paper or sheet vapor barriers are usually more reliable. These materials are generally preferred to the liquid type, provided the barrier is properly applied so that all joints are taped and, if possible, sealed.

ATTIC VENTILATION

Vapor barriers, when needed, should be used in both walls and floor ceiling. Old floor ceilings, old attic ceilings. Old plaster on the warm surface as possible, either on the interior or the exterior finish such as on the plaster (if paint is used), or just in back of the plaster and plastering (if plaster is used). Theoretically, as far as ceilings are concerned, the most efficient vapor barrier is applied no further protection is required. However, in many cases, there are vapor barriers in top floor ceilings such as hatchets, scuttle holes, or attic stairways, through which air can pass during the summer. To encourage air passing through this area, insulated attic should be ventilated to the outdoors to prevent the escape of any vapor which may enter the attic. These openings should have a total area of at least 6 cubic feet per hour per square foot of ceiling area (or attic floor area). Louvers having this amount or more of open area are needed. Louvers provide ventilation through ventilating openings, and prevent condensation at the top of the attic. If mechanical ventilation is used, the amount of air change should be at least 6 cubic feet per hour per square foot of ceiling area.

Today practically everyone agrees that there are too few homes for the families of America. Practically nobody agrees on how to correct the situation. V-E Day found Germany, England, and the United States each in its own way struggling with the problem of emergency housing. Herein is presented a purely brief review of those efforts in hopes of bringing to light some important points to be considered in the course ahead.
Housing and Prefabrication

Some company-designed prefabs qualified for FHA insurance but the volume was relatively small.

Space Standards

In Germany, all emergency housing was confined to 21 square meters, divided into two rooms, with a tiny all-used for storage, toilet, or child's sleeping cubicle—permitted in some localities. In Great Britain, the temporary program was based on two or three variants of a basic two-bedroom floor plan covering 640 square feet.

In the United States, the WDU was the government standard for publicly-financed prefabs. In all three countries, the word "temporary" plainly referred to space standards but the public persistently used that word to prefab devaluing. (It will take a lot of doing to unravel public confusion on this point.)

Labor

In Germany, factory labor was frequently prisoner labor, supervised by native foremen. Field labor was mostly by prospective occupants, although some contract (and some municipal) labor was used. In England, scarcity of bricklayers and other traditional skilled labor temporarily stopped organized labor opposition to novel methods.

In the United States, the A.F. of L. declared a truce on walls against factory and on-site prefabrication. The C.I.O. continued to organize prefab factories, and the A.F. of L. devised some factory contracts in order to compete. Organized labor began to develop an awareness to the fact that its constituents were housing customers.

Materials

In Germany, everything was short or missing. The biggest volume in prefab houses and barracks was in timber construction. Runners was poured concrete post-girder-shed construction. There were some risky innovations, including "asbestos" board made with paper scrap; and exterior wall panels made of gypsum-asbestos plaster tried with fair success. No plywood and virtually no steel were in use.

In Great Britain, lumber was scarce but remained mandated for floors in all housing. (British families insist on this, regardless of the nation's state.) Asbestos board in a great variety of molded shapes was used. (At one time, 80% of Great Britain's asbestos board capacity was earmarked for housing.) Steel framing and some steel cladding were used. The Aluminum House, pride of the Aircraft Ministry, was designed to absorb the huge stockpile of aluminum scrap that threatened the economic future of the government-sponsored aluminum industry. Steel would have been cheaper—and fully as practical.

Precast concrete slabs, panels, blocks, and the like, along with prelaid brick panels and thin brick veneer on concrete backing, were being studied, mostly for permanent postwar housing. Britain's archaic plumbing standards were the center of hot debate, but up to September 1945 the Ministry of Health stood firm for the old standards that force British houses to use one-third more metal in plumbing than is required by United States standards.

Active research in and some use of foamed concrete (notably in the Aluminum House) was under way. (Foamed concrete has insulating value, some structural value—depending on weight—low moisture absorption, and is cheap.)

In the United States, materials bottlenecks came, went, and came again like colored hits in a kaleidoscope. The story is too familiar to be repeated here. But for some reason, little that was really new in materials emerged to become established in industry.

Systems

In Germany, the predominant prefab system, applied to both barracks and housing, was a factory-built wood panel system developed by the Holzbau Konvention, a prewar research organization located at Niesky. The elaborately detailed system, composed of standard panels of 1” T-and-G boards on 2” x 2” framing, was not exceptional as compared with U. S. practice, and produced structures a little better than U. S. OCO barracks built during the depression.

Another system given a big play by Neuertf, architect and official advisor to the Reich on prefabrication, used precast concrete posts, lintels, and roof girders, between which were inserted and mortared precast concrete slabs about 2½” long, 18” high, and 2” thick. A variant of the basic system used double slabs to provide a cavity wall, with or without insulation. Other variants used 4” thick slabs of lightweight concrete and 2½” thick slabs of lightweight concrete, with or without insulation. A variant used 4” thick slabs of lightweight concrete (in a new development) for 2½” thick slabs of lightweight concrete, with or without insulation. A variant used 4” thick slabs of lightweight concrete, with or without insulation. A variant used 4” thick slabs of lightweight concrete, with or without insulation. A variant used 4” thick slabs of lightweight concrete, with or without insulation. A variant used 4” thick slabs of lightweight concrete, with or without insulation.

A third system, developed by the research staff of the Stuttgart Technical High School, used for several hundred houses, was based on a standard wood-frame panel surfaced on both sides with a gypsum-asbestos panel applied to woven reed matting. Panels were neat, lightweight, rigid, and had standing seam metal roofs, and could be painted. In 1954 the Stuttgart weather without special waterproofing treatment.

In England, as of June 27, 1945, government contracts for emergency prefabs were as follows:

<table>
<thead>
<tr>
<th>Ministry of Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project code (Aluminum House)</td>
</tr>
<tr>
<td>Avon</td>
</tr>
<tr>
<td>Uni-Soeo</td>
</tr>
<tr>
<td>Tarran</td>
</tr>
<tr>
<td>Phoenix</td>
</tr>
<tr>
<td>Universal</td>
</tr>
</tbody>
</table>

The Arcon system definitely broke away from the panel idea, featuring instead a number of ingenious devices to permit rapid erection of the steel frame and rapid application of the cladding and trim, serving as a wiring raceway which could be sprung into place and required no fasteners, was designed for this house.

Another unique feature—the large curved and cor-

GREAT BRITAIN

American Lend-Lease prefab being erected in Tottenham Court Road, London, England.

TVA-designed prefabs in production at the E. L. Bruce factory, Memphis, Tenn., for shipment to Oak Ridge, the "atomic city." 400 miles away.
Prefab emergency house, Stuttgart, Germany, with wall panels of gypsum-sawdust applied to reed matting; photo taken July 1945, two years after construction.

In the United States, the biggest volume of prefab production was found in the various on-site systems. Most of these preassembled framing for walls, partitions, doors panels, and roof trusses in kits built either in the open or under cover at all the building sites. Through organizing of work at the site secured some very rapid results. Virtually all this type of work was of frame construction.

Most on-site prefabrication was based on panel systems which differed only in detail. Plywood cladding was featured when it could be obtained. The TVA-designed section house, featuring stressed-skin plywood construction, went into volume production for the atomic bomb projects. But the most spectacular contribution to the U.S. housing emergency was made by the trailer industry, which supplied trailers (built to government specifications and with non-critical materials) into every nook and cranny of the country's war-production areas.

In Germany, the "market" never warranted tooling up for large-scale volume production of any prefab components. Largest factory setups were in woodworking plants, which used stock machinery supplemented by unremarkable jigs for wood panel fabrication. Usual dimensional tolerances were ±1/8" or greater.

In Great Britain, the huge government orders created dream markets for prefab contractors—except for one flaw. Contracts called for completion within two to three years with no assurance of renewal. This was the reason why the elaborate plan to tool up for the all-steel Portal house was abandoned, and is definitely the reason why all other systems except the Aluminum House did not. Elaborate plans were under way for fooling up to produce the Aluminum House. Included were metal jigs (tolerance control ±1/32") for framing, kilns for curing foamed concrete panel cores, conveyor systems for moving materials and components to final assembly lines, and the like. Government-owned aircraft factories were being converted for production. Reports on tooling-up costs varied from $24 to $320 per house, with heavy bets on the higher figure unless the production period was extended to cover a period longer than two years or unless some of the tooling-up costs were trimmed. Curiously, the Ministry of Works parceled out its contracts for standard cabinets and kitchen-bathroom units to a number of small companies, thereby tending to inhibit machine production of components ideally suited to mass production.

A month after V-E Day, there was little but speculation to go on regarding the effectiveness of prefabrication in England.

In the United States, a similar uncertainty about the long-term market kept prefabricators from plunging on tooling-up for mass production. Government-controlled designs, markets, materials, and labor were all aimed at the current emergency, and subject to radical adjustments to meet rapidly changing conditions. Even when substantial orders for factory-built prefabs were placed, short delivery periods forced contractors to refine tooling-up pretty much to stock machinery and inexpensive panel jigs. No investments in specialized machinery remotely comparable to that found, for example, in the automobile industry, were ventured.

In England, the Labor Government seems to be gradually replacing the temporary program with a slower and longer-range permanent program. It remains to be seen whether this can satisfy the enormous pressure for immediate results in re-housing bombed-out families and returning servicemen with a program that meets permanent space standards. A separate and presently unanswered question relates to the role prefabrication may play in the permanent program. Its prospects may improve because the foreseeable market covers at least a ten-year period.

In the United States, the immediate future is too clouded by uncertainty to make more than one or two long-range points. First, in the long run, markets for prefabs in this country are going to be built on the foundation of popular demand, not on government orders. Second, government orders, no matter how large, are likely to continue to be short-term panel or house orders that expire in 1946, as 1940, for the kind of mass production that replaces manpower with machine production in lieu of labor time. Under these conditions, during the next decade the bull of U.S. endeavor may aim at increasing the present limited production of components in the average house, rather than in the inordinately low-wattage low-income buildings with all-out prefabs. It may prove a lot simpler to establish a mass market large enough to warrant machine production of a storage closet than to do the same thing for a whole house.
I 94 PROGRESSIVE ARCHITECTURE • Pencil Points

A new Small Homes Council Bulletin details, steel window details, and double numerals the practical use of the above, and with such dimensions. Such a coordination of dimensions of building materials and equipment and the transmission of building plans is devoted to recommendations for further studies in wood engineering (and architectural schools). This paper is devoted to recommendations for efficient, prewar building techniques, and since such recommendations have been found quite impossible to seal joints between large units used in prewar building by methods, and a study of this particular work has brought the designer and researcher to the point of failure deflections reach a step standard of reasonable acceptance criteria. The slight disparity in plotted graphs and tables might be used for both single and double glass of all degrees of transmissivity and include the highly transparent types such as insulated glass, which is contributed by the cladding, the partitions, the stairs, the chimney, and so on. Normally they are ignored but all paper a part and cannot be neglected without waste. Tests showed that stress measured to be generally attained in time with efficiency, prewar building tradi-

data paper pamphlet, 26 pp., tables, charts, appendices.

This pamphlet is an argument to show that building materials and equipment and the correlation of building plans and details with efficiency, prewar building techniques. Such a coordination involves:

1. Sizes of building materials and equipment and the correlation of building plans and details with efficiency, prewar building techniques.

2. Details which show the assembly of the above, and

3. Building Plans which correlate building materials and equipment and the correlation of building plans and details with efficiency, prewar building techniques.

The paper contains a breakdown of administrative barriers between college departments and frequent discussions between teachers of related subjects. Although this paper is devoted to recommendations for further studies in wood engineering, its advice might well be extended to all studies in engineering or architectural schools.

科学学和工程学的，建议设计者和研究者应指出，设计师和研究者应指出，设计师和研究者应指出，设计师和研究者应指出。


American Standards Association Project.


Contact Tewson, Architects, Decorators, and Builders.


Contact Tewson, Architects, Decorators, and Builders.

Spong e rubber core with sheet aluminum in the South Pacific, Cycleweld a sandwich panel: a nitrogen-filled hard Division announces a war development, difficult. Let's hope the protruding think, any in which it would be more imagine no field in which coordination work under the Chairmanship of John MODULAR COORDINATION IN KITCHENS M. A62 (Modular Coordination), a study for saddle shapes. The Glenn L. Martin Co., and the U.S. Plywood Corp. announced it jointly. Burns' original news release said, in p. 96, PROGRESSIVE ARCHITECTURE, January 1946; architect, of the Detroit Edison Company in this field. We can imagine no field in which coordination is more necessary—nor, we should think, any in which it would be more difficult. Let's hope the protruding range and the sore-dumb-like refrigerator are on the way out.

SANDWICH WALLS FOAMED PLASTIC... We've heard, from time to time, of various multilayer wall materials; several of these "sandwich" products have been developed experimentally. Now Chrysler Corporation's Cyleweld Division announces a war development, a sandwich panel: a nitrogen-filled aluminum rubber core with sheet aluminum surfaces. To resist termites and other bugs in the South Pacific, Cyleweld developed instrument cases and houses below.

Invisible, three variations of the Honeycomb structural sandwich (see also last month's column) designed to meet water and fire protection demands by compound curvatures. Left, square-patterned core for single curvatures; center, trapezoidal core, for double curvatures; right, standard egg-crate size for saddle shapes. The Glenn L. Martin Co., and the U.S. Plywood Corp. announced jointly for technicians, using this new product bonded together with a special adhesive, and eliminating nails, rivets, or other bonding agents around which termites might work their way.

Du Pont also announces a foamed plas­
tic, cellular cellulose acetate (CCA) for short), lighter than cork, which has good thermal insulating properties and "remarkable" structural strength when bonded between two sheets of metal, wood, or plastic. It is of uniform densi­ty—a mass of pin-point-sized bubbles—and will not disintegrate under vibra­tion, resists heat sufficiently so it can be bonded with thermostatic settings, and may be bonded with ordinary wood working machinery. Its density can be adjusted in manufacture to produce a product weighing from four to nine in per cu ft as desired. Du Pont stresses its suitability as a core for a sandwich product.

And of course there's the Glenn L. Martin—U. S. Plywood Honeycomb sandwich, shown below. How will you, Dear Reader, live between "sandwich" walls, eat sandwiches at lunch, marry a girl who collects Sandwich glass?

BUCKMENMTU FOLL GqN AT CURRENT THE vVVEEPING C QEHIS would have been incomplete without a re-appearance of E. Buckminster Fuller, the peren­nial idea man of prefabrication. As you've doubtless heard long since, he's the still-bubbling genius of Fuller Houses, Inc., with a new igloo-like house of aluminum alloys, stainless steel, and plastics, supported by cables from a central mast, with a revolving air intake on the roof.

Apparently Beechcraft, airplane manu­facturers, will take your order. The house measures 33 ft in diameter, 22 ft in height, will cost $6500 (if manufactu­rers can start 50,000 at a time), and will be completely equipped with pre­fabricated bathroom, refrigerator, dish­washer, clotheswasher, heating, and air conditioning. It is one of the most stimulating of recent developments, partly because Fuller is willing to dis­cuss accepted conventions to get at the root of the house problem. But it is even, it will have hard sledding, and the next time we have a housing crisis, a Fuller will reappear to smooth out into Fuller realization of our difficulties. That's a prognostication, son!
HEADQUARTERS FOR THE FACTS ON SHEET COPPER CONSTRUCTION

Revere believes that its responsibility only begins with the production of fine metals, and does not end until those metals are giving satisfactory service in the hands of users. Often, this means not only metallurgical research, but also extensive field and laboratory work in the practical application of Revere products.

As a result of such research, architects and contractors throughout the country now have new and vastly improved information on which to base sheet copper construction. Using the clear, simple charts supplied by Revere, sheet metal contractors are already taking wide advantage of the advanced engineering principles Revere has developed. These experts are convinced, as is Revere, that this new sheet copper construction will far outlast that done by former methods.

Nearly all prominent architects and contractors have Revere’s new book on the subject, “Copper and Common Sense.” We urge you to use the data in this book. It was prepared especially to help practical men in their day-to-day problems. Call on the Revere Technical Advisory Service, Architectural, for any further help you may wish. Revere products are sold by Revere Distributors in all parts of the country.

Air Conditioning is a potent builder of good will in men’s stores. Patrons like to be cool and comfortable—they stay longer and buy more. “Packaged” Air Conditioners, pioneered by Chrysler Airtemp, provide cool shopping comfort—completely and economically.

“Packaged” Air Conditioners fit into plans for any business establishment. More and more, progressive architects are specifying this modern, simplified method of air conditioning. “Packaged” Air Conditioners are compact, easily moved, occupy less floor space and can be quickly and easily installed, singly or in multiple. They operate entirely automatically.

Merchants prefer “Packaged” Air Conditioners because they are engineered and manufactured for long life and perform effortlessly and quietly with little or no attention. They have made amazing performance records all over the country. Operating and upkeep costs are surprisingly low.

Behind these “Packaged” Air Conditioners stands Chrysler Corporation, famed for engineering and mass production skill—your assurance of high quality, dependability and low cost. • Airtemp Division of Chrysler Corporation, Dayton 1, Ohio. In Canada: Therm-O-Rite Products, Ltd., Toronto, Ontario.

REVERE COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
250 Park Avenue, New York 17, New York
Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.;
New Bedford, Mass.; Reno, N. V.
Sales Offices in Principal Cities, Distributors Everywhere.

Listen to Exploring the Unknown on the Mutual Network every Sunday evening, 9 to 9:30 p.m., EDT.

CHRYSLER AIRTEMP HEATING • COOLING • REFRIGERATION
spread interest in home building and purchasing is understandable. Publishers are striving strenuously to fill an apparently insatiable demand for books on these subjects. New books on houses are potential best-sellers.

When one of these is unabashedly called The Book of Houses, its right to that exclusive title is immediately under suspicion. The burden of proving such right falls upon it. This book does not sustain its claim. However, despite its misguided choice of name, it does have some value for a prospective home purchaser.

One of the authors, John P. Dean, regional economist of the Federal Public Housing Authority, recently published a scholarly, candid inquiry into the soundness of home ownership.* The several chapters on the subject in The Book of Houses heavily draw upon the earlier work. Their frank, factual information will be helpful to one in the quandary of whether to build or to rent. The order of choice indicated as proper for the average family at this point is: to rent a single-family house, to buy a second-hand one, to buy a ready-built, and lastly, to build a house to suit individual tastes. This last alternative is given little encouragement.

These chapters on home ownership, the best in the book, briefly discuss the financial and legal hazards of home purchasing. These hazards are not minimized. Their seriousness must be understood if this nation is to avoid a repetition of the disastrously high foreclosure totals of the early 1930's.

The name, as co-author, of Simon Breines, who has been associated with modern, progressive house design on the East Coast, leads one to expect more than this book gives. The authors realistically state the fact that, at the lower cost levels, homes of good modern design are seldom available to the prospective home purchaser. "The writers personally feel that a modern house will yield more housing for your money. Most home-purchasing families will find few if any good modern homes on the market to choose from... For some time to come, good modern is likely to remain a luxury product of the well-to-do." Failure by the authors forcibly to demonstrate that good modern need not be a luxury product is a cause of disappointment.

The photographs show a few modified modern houses, but chiefly the usual contractor-built houses, the eclectic, half-timber, Cape Cod, French chateau adaptations, and all the other synthetic architectural styles which the last fifty years have produced. House plans of the latter group are intelligently analyzed and their faults are pointed out. Their shortcomings are skillfully contrasted with the merits of their prototypes.

The book contains no bibliography, but the frequent use made of sketches and illustrations from Federal Housing Administration publications recalls the refreshing excellence of those Government pamphlets. Some of the material appeared in FHA Technical Bulletin No. 4 Principles of Planning Small Houses, FHA Land Planning Bulletin No. 1, Successful Subdivisions, and in FHA Technical Bulletin No. 7 Planning Profitable Neighborhoods. This re-use highlights the value of these booklets, which are available for a few cents from the Superintendent of Documents, Washington, D. C. Recommendations might here be made also of FHA Technical

*The Family's Dilemma, John P. Dean and Simon Breines, Crown Publishers, 149 Fourth Ave., New York, 1946. 144 pp., illustrated. $2.00

THE FAMILY'S DILEMMA

The Book of Houses, John P. Dean and Simon Breines. Crown Publishers, 149 Fourth Ave., New York, 1946. 144 pp., illustrated. $2.00

Unless the acute housing shortage is relieved by speedy, large-scale production of homes, an estimated 31 million families will be without homes by the end of 1946; millions of other families want new homes. The consequent widespread interest in home building and purchasing is understandable. Publishers are striving strenuously to fill an apparently insatiable demand for books on these subjects. New books on houses are potential best-sellers.

When one of these is unabashedly called The Book of Houses, its right to that exclusive title is immediately under suspicion. The burden of proving such right falls upon it. This book does not sustain its claim. However, despite its misguided choice of name, it does have some value for a prospective home purchaser.

One of the authors, John P. Dean, regional economist of the Federal Public Housing Authority, recently published a scholarly, candid inquiry into the soundness of home ownership.* The several chapters on the subject in The Book of Houses heavily draw upon the earlier work. Their frank, factual information will be helpful to one in the quandary of whether to build or to rent. The order of choice indicated as proper for the average family at this point is: to rent a single-family house, to buy a second-hand one, to buy a ready-built, and lastly, to build a house to suit individual tastes. This last alternative is given little encouragement.

These chapters on home ownership, the best in the book, briefly discuss the financial and legal hazards of home purchasing. These hazards are not minimized. Their seriousness must be understood if this nation is to avoid a repetition of the disastrously high foreclosure totals of the early 1930's.

The name, as co-author, of Simon Breines, who has been associated with modern, progressive house design on the East Coast, leads one to expect more than this book gives. The authors realistically state the fact that, at the lower cost levels, homes of good modern design are seldom available to the prospective home purchaser. "The writers personally feel that a modern house will yield more housing for your money. Most home-purchasing families will find few if any good modern homes on the market to choose from... For some time to come, good modern is likely to remain a luxury product of the well-to-do." Failure by the authors forcibly to demonstrate that good modern need not be a luxury product is a cause of disappointment.

The photographs show a few modified modern houses, but chiefly the usual contractor-built houses, the eclectic, half-timber, Cape Cod, French chateau adaptations, and all the other synthetic architectural styles which the last fifty years have produced. House plans of the latter group are intelligently analyzed and their faults are pointed out. Their shortcomings are skillfully contrasted with the merits of their prototypes.

The book contains no bibliography, but the frequent use made of sketches and illustrations from Federal Housing Administration publications recalls the refreshing excellence of those Government pamphlets. Some of the material appeared in FHA Technical Bulletin No. 4 Principles of Planning Small Houses, FHA Land Planning Bulletin No. 1, Successful Subdivisions, and in FHA Technical Bulletin No. 7 Planning Profitable Neighborhoods. This re-use highlights the value of these booklets, which are available for a few cents from the Superintendent of Documents, Washington, D. C. Recommendations might here be made also of FHA Technical

*The Family's Dilemma, John P. Dean and Simon Breines, Crown Publishers, 149 Fourth Ave., New York, 1946. 144 pp., illustrated. $2.00
inside writing

my father: who is on earth. John Lloyd Wright. G. P. Putnam's Sons, 2 w. 45 St., New York, N. Y., 1946. 194 pp., illus. $2.50.

To help you decide whether you may want to read this intimate account of the Wright family, we offer a typical page:

"A fifteen-foot Christmas tree, fully trimmed, cornucopias and all, sparkled in the center of the octagon. The sound of sleighbells signaled Santa's arrival with his bag of gifts which were passed out to each person by name. The grown-ups danced, the children played. Papa was always the life of the party. It seemed that the party was given for him and the other children. It never started till he arrived and it ended when he left. Mrs. Waller was a gracious hostess.

"Papa liked Mrs. Waller—Mr. Waller, too! Mrs. Waller liked Papa—so did Mr. Waller!"

"Mother always looked pretty at the parties. She wore the dresses Papa designed for her.

"Papa designed most of Mama's dresses. Most of Mama's dresses were brown!"

"When the Susan Lawrence Dana Estate was completed in Springfield, Mrs. Dana threw a housewarming for everyone who had worked on the building. It was really a mixed crowd, all formally dressed in owned or rented attire. One of the hod carriers brought his twelve children. Except for the formal getup, it could have been called a democratic affair. Papa was master of ceremonies. He looked like a Three-Tail Pasha among his people. I think the party was given for him.

"Papa liked Mrs. Dana!"

"Mrs. Dana liked Papa!"

"I liked to smell her Chanel. So did Pan-pa."

TRIPLE CONFUSION


Godfrey, Briggs, and Robertson present opinions of three confused architects. They deplore the existing esthetics and functional chaos of our cities, towns, and rural areas. They abjure "extremes" either of modernism or traditionalism and each flounders in his own point of view and pet proposals. Without doubt, "natural" growth in certain byways of England, America, and probably every other country has produced ingratiating and successful towns, market places, shopping centers, and streets. It is for the protection of these against modern improvements that Geoffrey pleads. I suspect that not everyone would agree with his appraisal of what should be retained or discarded in the building investment and the builder's reputation.

Stran-Steel construction is not only permanent . . . it's fast and simple as well. Basic framing members are joists, channel plates and studs, cut-to-length for rapid assembly with ordinary carpenter's tools. Sheet-metal screws accomplish framing connections, while collar bolts are nailed directly to the Stran-Steel patented nailing groove.

Match good design with good materials. Build with Stran-Steel, the modern framework for better homes, apartment buildings and light commercial or industrial structures. For further details, see Sweet's File, Architectural, Sweet's File for Builders, or the January issue of Building Supply News.
CONCRETE BEAUTY
is More than Skin Deep

Clarity of line and smoothness enhances the architect's vision, but his design must also assure strength and durability. Only quality concrete fulfills the demand of the architect for both beauty and permanence.

Calcium chloride in the mix insures proper curing conditions, resulting in greater strength concrete with denser and more uniform surfaces.

FACTS on the long acceptance by engineering and research authorities are cited in the booklet, "Calcium Chloride in Concrete." Ask for a copy.

CALCITE CLORIDE ASSOCIATION
4145 Penobscot Building
Detroit 26, Michigan

Quality Concrete......with
CALCIUM CHLORIDE in the mix

This illustrated book shows the many and varied uses of PC Glass Blocks in building construction. See how you can help clients to improve working conditions with this unique building material and also to save their money.
GUIDE TO PUBLISHED WORK

Prepared by CHARLOTTE ZAGER

This CLASSIFIED SUMMARY of the various types of buildings published in the architectural press hereinafter appears to be aimed primarily at the architectural community, replacing the familiar reviews of periodicals. It is intended to afford our readers a more ready reference to the latest architectural work. The source magazines and their addresses will also be listed.

CLUBS

"Remodeling Project—From Flat Spanish to Modern Club"—DOUGLAS HUN. INDIAN ARCHITECT: MONTGOMERY, ARCHITECTS, Tucumcari, N. Mex. (Architectural Record, p. 122)

COMMERCIAL


"Steeple for Rittenhouse Square"—GEORGE W. RICHARDSON, ARCHITECT, Philadelphia. (Architectural Forum, p. 120)

"In the Design Office"—ROBERT SIDNEY DICKINSON, ARCHITECT, New York. (Architectural Review, p. 146)

"Design Laboratory"—BARTHOLOMEW M. ROBERTSON, ARCHITECT, New York. (Architectural Forum, p. 130)

Office Buildings


Storefronts

"Burger House, New York"—CHUCK FRIEDBERG, ARCHITECTS, New York. (Architectural Record, p. 102)

"Design for Growth"—ERNEST J. KUMP, JR., ARCHITECT, St. Louis. (Architectural Forum, p. 95)


"Rock-a-Bye Childrens Furniture Store"—ROBERT S. WAGNER, JR., ARCHITECT, New York. (Architectural Record, p. 122)

"Furniture Store"—CHUCK FRIEDBERG, ARCHITECTS, New York. (Architectural Record, p. 127)

"Pace-Setter for a Candy Chain"—DANIEL C. BRAY, ARCHITECT, New York. (Architectural Record, p. 130)

"Theatre at Utrecht"—W. M. BODDEN. ARCHITECT, The Hague. (Architectural Record, p. 135)


"Theatre at Munich"—LALLERSTEN. ARCHITECTS. Munich, Germany. (Architectural Forum, p. 145)


"Health Hospitals

"Faith Hospital, St. Louis, Mo."—DONALD C. BRIDGES, JR., ARCHITECT, St. Louis. (Architectural Record, p. 105)

"The Dumbarton Oaks Project"—ERNEST J. KUMP, JR., ARCHITECT, St. Louis. (Architectural Record, p. 110)

"Schools

"A Model Swiss Elementary School"—J. R. STEINER, ARCHITECT, Zurich. (Architectural Record, p. 109)

"School Architecture from the Educational Administrator's Point of View"—ERNEST J. KUMP, JR., ARCHITECT, St. Louis. (Architectural Record, p. 115)

"The Dumbarton Oaks Project"—ERNEST J. KUMP, JR., ARCHITECT, St. Louis. (Architectural Record, p. 120)

"The New Nation's Schools"—THE NEW NATION'S SCHOOLS, p. 130


"New Elementary School Provides for Modern Educational Needs"—SAMUEL G. FELD, ARCHITECT, New York. (Architectural Record, p. 130)

"New Elementary School Provides for Modern Educational Needs"—SAMUEL G. FELD, ARCHITECT, New York. (Architectural Record, p. 135)

MODERN APPEARANCE AND CLEANLINESS

Ceiling Hung Weisart Flush Compartments

Ceiling hung Weisart flush compartments, equally for reasons of appearance and cleanliness, are particularly adapted to latest trends in the design of public buildings. Thorough floor cleaning is quickly and economically accomplished, as all parts of the compartments are without floor contact.

Weisart partitions and doors are of highest class flush steel steel. Bonderized galvanized steel is finished with synthetic enamel baked at high temperature, affording triple protection against corrosion. Durable and lustrous finish may be had in a wide range of colors. Weisart compartments are thoroughly field tested. The cost is moderate. Send now for detailed description and specifications.

HENRY WEIS MANUFACTURING CO., INC.
521 WEISART BUILDING, ELKHART, INDIANA

GUIDE

(Continued from page 108)


HOUSING

Housing Projects.

"Emergency Housing"—Study made by Bronx Housing Authority in cooperation with the United States Housing Authority for the Neighbor or children in the United States. (Architect and Engineer, May, 1946, p. 22)

Development Restricted to Houses of Contemporary Design, Little Switzerland, Elkhart, Ind.—ALFRED and JANE WEST CLARK, DESIGNERS. (Feb. Progressive Architecture, p. 99)


Project for a Group of Six Houses at Chelsea Bay, Staffe, N., for the Cammack R. D. C., W. J. PAGE, DESIGNER. Example of this development type. (Architectural Forum, p. 144)

Residences.

A Cottage at Carmel—Residence by ANGELO HERRINGTON, ARCHITECT. (Feb. Architectural Review, p. 9)

A Group of Small Homes—CHESTER B. FOSTER, ARCHITECT. (Feb. Architectural Record, p. 9)

"House Equipment Packaged"—ROGGER-WARNER's valley oak, and its application in [text cut off]


Vacation House—HUGH STUBBS, JR., ARCHITECT. Project for a single family and wood frame. (Feb. Architectural Record, p. 54)

"Designed for Site and Season"—JOHN H. FOWLER, ARCHITECT. (Feb. Architectural Forum, p. 139)

"Four Houses to Start Arizona's New Room"—Three houses built by ARTHUR K. BROWN, ARCHITECT, near cotton. (Feb. Architectural Forum, p. 98)

"Steep Site, Small Budget"—RAFFIEL S. SCHEINBERG, Architect. (Feb. Architectural Record, p. 78)

"Plan to Build in Four Stages"—EUGENE RYDER, ARCHITECT. (Feb. Architectural Record, p. 102)

COVERED BUILDING

Cable, Photographs and floor plans. (Feb. Architectural Record, p. 54)

(Continued on page 112)

HOUSING

Housing Projects.

"Emergency Housing"—Study made by Bronx Housing Authority in cooperation with the United States Housing Authority for the Neighbor or children in the United States. (Architect and Engineer, May, 1946, p. 22)

Development Restricted to Houses of Contemporary Design, Little Switzerland, Elkhart, Ind.—ALFRED and JANE WEST CLARK, DESIGNERS. (Feb. Progressive Architecture, p. 99)


Project for a Group of Six Houses at Chelsea Bay, Staffe, N., for the Cammack R. D. C., W. J. PAGE, DESIGNER. Example of this development type. (Architectural Forum, p. 144)

Residences.

A Cottage at Carmel—Residence by ANGELO HERRINGTON, ARCHITECT. (Feb. Architectural Review, p. 9)

A Group of Small Homes—CHESTER B. FOSTER, ARCHITECT. (Feb. Architectural Record, p. 9)

"House Equipment Packaged"—ROGGER-WARNER's valley oak, and its application in [text cut off]


Vacation House—HUGH STUBBS, JR., ARCHITECT. Project for a single family and wood frame. (Feb. Architectural Record, p. 54)

"Designed for Site and Season"—JOHN H. FOWLER, ARCHITECT. (Feb. Architectural Forum, p. 139)

"Four Houses to Start Arizona's New Room"—Three houses built by ARTHUR K. BROWN, ARCHITECT, near cotton. (Feb. Architectural Forum, p. 98)

"Steep Site, Small Budget"—RAFFIEL S. SCHEINBERG, Architect. (Feb. Architectural Record, p. 78)

"Plan to Build in Four Stages"—EUGENE RYDER, ARCHITECT. (Feb. Architectural Record, p. 102)

(Continued on page 112)
GUIDE

(Continued from page 118)

Case Study House 12—WHITNEY B. SMITH, ARCHITECT. Increasing one of the last houses in a series for a man who designed his home with building materials, construction, design, and heating systems. Floor plans. (Arch. and Art, p. 20)

"A Room on the Lake"—GILDE MINELETT, ARCHITECT. A delightful house of relatively small size, fulfilling the various functions of living, sleeping, and entertainment. Some rather novel use made in the arrangement of space, and interesting detailing. Floor plans. (Trans. AIA, p. 82)

"One of the Great Houses in America"—Full coverage of the E. B. Rathvon Home in Portland, Ore. (Des. on Living, 1945). By Paul Bonatz, Architect. Photographs of house and four plans. (Trans. AIA, p. 82)

The Kinnear Manufacturing Company
Factories: 1900-20 Fields Ave., Columbus 16, Ohio

No. 1—STRONG AND FLEXIBLE. Re-silient strength is a key feature of the time-proved interlocking-slat construction of KINNEAR Rolling Doors. These doors resist weather, wear, and withstand extra years of constant day and night use.

No. 2—SMOOTH OPERATION. The spring-counterbalanced rolling action of KINNEAR Rolling Doors is quick and easy. Smooth, tugging action of doors may be operated from a single point. (Motor operators may also be specified for FREE Plans of this Answer House No. 1 featuring above beautiful—planned-the type of home families dream of owning—some time. Thanks to the Simpli-Fire Room it is a home thousands can own—soon. Architects are invited to write for definitive drawings together with details of plan of co-operation.

No. 3—SPACE-SAVING. The steel slat curtain rolls out of the way, stores compactly above the lintel, never impedes traffic or plant activity. All surrounding floor and wall space is fully usable. Materials stored close to doors do not restrict their operation.

The Kinnear Manufacturing Company
Factories: 1900-20 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif. Offices and Agents in All Principal Cities

No. 4—ECONOMICAL. Durable construction, smooth operation, and space-saving features of KINNEAR Rolling Doors are mainstays of economy. These doors increase efficiency, save time and manpower, reduce maintenance costs.

No. 5—MOTOR OPERATION. Motor-operated KINNEAR Rolling Doors offer extra time-saving convenience, and promote prompt door closure that saves heating and air-conditioning costs. Push-button control stations can be placed at any number of convenient points, and any number of doors may be operated from a single point. (Motor operators may also be added to your manually operated KINNEAR Rolling Doors.)

Pin your door needs down to these KINNEAR advantages. Write for details!

An Anthracite Simpli-Fire Room provides more house, more heat, for less money

An Anthracite Institute how can you help prospective house owners meet today's living costs? Must you offer them less and less home—fewer, smaller rooms—inefficient heating?

Anthracite Institute tackled this problem on the basis that heat is a necessity only part of the year; that money could be saved on a scientifically engineered heating arrangement, and used to buy more home.

The result is the Answer House with the Simpli-Fire Room, one of the most far-reaching developments in years.

1. Convincedly located, a few steps down from the kitchen, the Simpli-Fire Room eliminates all need for the costly, old-fashioned cellar, saves construction time, reduces overall cost.

2. Heating costs, too, are lower, since the Simpli-Fire Room is designed for the Anthracite, the economy quality fuel.

3. Thanks to the Simpli-Fire Room, the use of anthracite becomes easier than anyone ever dreamed. The storage bin is within easy shovel reach of the heater. Ashes fall into a light metal basket, which is removed outside the house. Ash shoveling is a thing of the past—along with dust and dirt!

4. Type of heating is optional... steam, hot water, or warm air... with specifications bearing the Seal of Approval of the Anthracite Institute available for each system. Plenty of heat is assured with warm, healthful floors.

Answer House No. 1 featured above is beautifully planned—the type of home families dream of owning—some time. Thanks to the Simpli-Fire Room it is a home thousands can own—soon.

FOR FREE Plans of this Answer House—Send fill out, mail coupon today

Anthracite Institute
Department 510
101 Park Avenue, New York 17
Please send free of charge handsome 16-page color brochure showing Answer Homes Nos. 1, 2, and 3 with floor plans; also details of Simpli-Fire Room.

NAME—
FIRM—
STREET—
ZONE—STATE—

ANTHRACITE INSTITUTE

MAY, 1946 119

PROGRESSIVE ARCHITECTURE • Pencil Points
HILLYARD'S FLOOR SEALS, FINISHES
AND TREATMENTS
Send economical treatment and maintenance. Full of helpful hints on Hillyard Chemical Company. It is FREE. Properly Protect and Make Attractive all types of floors and give Entire UNIFORMITY and ECONOMY. UNIFORMITY AND TREATMENTS

Hillyard Chemical Company
370 Turk St., San Francisco, Calif.

DISTRIBUTORS
Hillyard Chemical Co. • St. Joseph, Mo.
178 York St., San Francisco, Calif.

(Continued on page 112)
You never saw a more satisfied building owner than The Snail. He likes his house so much, he takes it with him wherever he goes. It has an armored wearing surface that protects him from his natural enemies.

What keeps the snail snug and safe can keep your clients happy, too!

Over 90 years of successful roofing experience has demonstrated the sound value of the gravel or slag wearing surface of a Barrett Specification Roof:

1. It holds in place the heavy-poured (not mopped) top coat of coal-tar pitch - providing a doubly thick waterproof covering.
2. It provides protection against the sun's actinic rays which otherwise dry out the essential oils of the bitumen.
3. It protects the roof against mechanical damage, hail and wind, wear and tear.
4. It interposes a surface of fireproof rock between the building and flying embers - makes a roof that carries Fire Underwriters' Class A Rating.

THE BARRETT DIVISION

40 Baxter Street, New York 6, N. Y.
2800 S. Sacramento Avenue, Los Angeles
Chicago 23, Ill.

In Canada: The Barrett Company, Ltd.
5001 St. Hubert Street, Montreal, Que.

The architects and engineers who have shifted their sights from air-conditioning to air-comfort recognize this fact: No air-conditioning system can provide true air-comfort unless it is equipped for proper air-distribution. For when conditioned air is blown through ordinary grilles and registers, drafts occur, and stale air-pockets with unbalanced temperatures and humidity persist.

The big difference, therefore, between supplying conditioned air to a room and providing true air-comfort is scientific air-distribution.

Such perfected air-distribution is provided by ANEMOSTAT Air-diffusers. Scientifically designed to control the distribution of conditioned air, ANEMOSTATS distribute incoming air in predetermined patterns and in proper proportions. In this way, drafts and resulting discomforts are eliminated completely.

Here is how ANEMOSTATS control the flow of conditioned air... how they assure true air-comfort:

ANEMOSTAT: Air-diffusers siphon room air (equal to about 33% of the supply air) into the flaring metal cones. This room air is then mixed with the supply air within the ANEMOSTAT - and revitalized - before it is recirculated (at lower velocities) in definite proportions to the air in the room. Heated or cooled air, therefore, flows silently from the ANEMOSTATS - spreading uniformly throughout the room... spreading true air-comfort.

Important, too - there can be no maintenance expense with ANEMOSTATS. They have no moving parts - nothing to wear out.

Customers of the Hutzler Bros. Department store, Baltimore, Md., receive true air-comfort through Anemostat draft-free air-diffusers. Fur department is shown.

For further information about ANEMOSTAT draft-free air-diffusion, write for bulletin today. Or if you have an immediate air-conditioning or air-diffusion problem, an ANEMOSTAT engineer is ready to help.

"No air-conditioning system is better than its air-distribution."

†-ADD ANEMOSTAT Air-Diffusers for True Air-Com fort

The Barrett Specification Roof, with its wearing surface of gravel or slag, provides building structures with the same measure of armored protection from their enemies - rain, hail, fire, sun, mechanical wear and tear.
The experience of the Wells Building typifies the increased operating efficiency and the reduced operating costs made possible by Otis elevator modernization.

Formerly, this building, with an occupancy rate of 85%, was served by 6 hydraulic-plunger elevators. These were replaced with 4 modern, high-speed gearless Otis elevators with Peak Period Control. Although the building is now 100% occupied, tenants are receiving better service even in peak periods. With 4 elevators doing the work of 6, the building has made substantial savings in operating costs.

A survey, plan and estimate covering your specific modernization needs incurs neither cost nor obligation. For the finest in vertical transportation tomorrow, call the nearest Otis Office today.

---

**Increased occupancy...**

**Fewer elevators...**

**Better service**

---

**Vimlite**

A highly practical, low-cost method for partitioning industrial space: offices, stockrooms, indoor and outdoor recreational areas, store display sections and plant space.

Vimlite is reinforced glazing plastic (2 types: wire mesh and plastic mesh) — tough, flexible and translucent. It allows maximum privacy without blocking light sources. Easy to install, Vimlite can be used for floor-to-ceiling wall sections or for portable or stationary enclosures. Vimlite is an excellent insulator, and can be used with great efficiency on air-conditioned enclosures that are needed in special types of manufacturing. Vimlite will not interfere with permanent light sources.

Vimlite is available at building supply and hardware stores. Write for folder containing samples and information about this very useful industrial material. Celanese Plastics Corporation, a division of Celanese Corporation of America, 180 Madison Avenue, New York 16, N. Y.

**GARDENERS...** Vimlite is ideal for cold frames, greenhouses, starting beds... Shatterproof... Transmits ultraviolet light.
COMMERCIAL SOLVENTS CORPORATION, Neotoma plant, Terre Haute, Indiana. Diffused natural daylight floods areas where laboratory workers conduct experiments with white rabbit. Insulux has high insulating properties which reduce cost of air conditioning and heating.

Controlled Daylight

...and more...with Insulux

ARCHITECTS are making increased use of Insulux Glass Block because it is a functional building material with unique characteristics and because it adds to the appearance of most buildings. Panels of Insulux transmit and diffuse natural daylight better than ordinary windows. Besides controlling light they seal out dirt and dust—insure privacy. High insulating value reduces the cost of heating and air conditioning.

Insulux resists vapor and fumes—painting is not required. It is easy to clean and keep clean. In laboratories, factories, public buildings, stores, theaters, offices and homes if there is a problem in light control there is usually a spot for the advantageous use of Insulux Glass Block.

Investigate the almost unlimited architectural possibilities of this modern building material.

5 REASONS WHY

1 SAVE FUEL—Better insulation means low heat loss.
2 SAVE UPLIFT CHARGES—Easy to clean and to keep clean. No painting required.
3 SAVE MAN HOURS—Better light means insures better working conditions.
4 SAVE SPOILAGE LOSSES—No infiltration of dust or dirt.
5 SAVE REPLACEMENT COSTS—Proofs of Insulux do not rust or corrode.

INSULUX

For technical data, specifications, and installation details, see our section in Sweet's Architectural Catalog, or write Dept. C-29, Owens-Illinois Glass Co., Toledo 1, Ohio.
YOUR NOISE PROBLEM, TOO, should have the benefit of Johns-Manville experience!

Any job...whether it's a small room or a large auditorium...gets undivided responsibility—J-M Materials, plus J-M Installation...

TO MATTER HOW SIMPLE or complex your acoustical problem, you stand to benefit by Johns-Manville's 35 years of acoustical research and installation experience.

Pioneer in the science of sound control, Johns-Manville combines the knowledge of what material you should use with the facilities to apply it properly so that you receive its full value.

Johns-Manville maintains a staff of trained engineers in the principal cities to make a study of your problems and give you specific recommendations for your particular job. This service is available without cost or obligation.

Once the proper treatment is determined, whatever the size of the job, the installation is handled by a competent organization of J-M acoustical construction engineers equipped to do the work rapidly, economically, and with a minimum of inconvenience.

Take advantage of Johns-Manville's undivided responsibility which insures the best sound control treatment for the individual job, large or small. You can rely on Johns-Manville.

For the complete story, write for our brochure, "Sound Control," Johns-Manville, Dept. PA-5, P. O. Box 290, New York 16, N. Y.

Almost any roof looks good when it is new. The real test comes after it has been exposed to tough conditions...to water lying in low spots...to breaks caused by vibration...to years, years, years.

That is why roofs are like beauty that is skin deep.

If a roof fails for any reason, the client is apt to think you are to blame.

That is why it is safest to specify the kind of roofing materials that long years of experience have proved will last...roofing whose "beauty" goes clear through to the deck. Your safest bet is coal tar pitch roofing. With all the improvements that have been made in other things, no one has been able to find any better built-up roofing than this old true-and-tried material.

For your own sake, as well as for the sake of your client, specify coal tar pitch.—Koppers Company, Inc., Tar & Chemical Division, Koppers Building, Pittsburgh 19, Pa.

Why are roofs sometimes like "skin-deep" beauty?

KOPPERS coal tar built-up roofing
KOPPERS coal tar membrane waterproofing

PUT A CEILING ON NOISE

Why are roofs

A broadcasting studio at NBC, Radio City—one among many hundreds of studios using Johns-Manville Acoustical Materials and Sound Control Experience.
"It's GAS for heat," says Doyle

"Oh no," says Brown, "it's OIL"

...yet both of them agree the best for heat's G.E.

Whether your client is Brown or Doyle, you can go along with his heating preferences and still specify G.E.

There are G.E. gas- or oil-fired units for your steam, hot water or conditioned warm air applications. Each of these is time-tested, reliable ... worthy of the G.E. reputation ... and yours!

Remember, too, that a G.E. unit will please your client because of its economical operation. Some G.E. owners have reported savings up to 35% of their fuel bill.

So, for the kind of home-planning clients tell their friends about, be sure to include a G.E. unit in your specifications. See Sweers Catalog for details. For information on price and delivery call your nearest G.E. dealer — you'll find him listed in your Classified Telephone Directory. General Electric Co., Air Conditioning Department, Section 6505, Bloomfield, N.J.

Automatic Home Heating

GENERAL ELECTRIC

Boiler for steam or hot water heating systems

G-E Winter Air Conditioner (warm air)

G-E Conversion Oil Burner

G-E Winter Air Conditioner (warm air)

Boiler for steam or hot water heating systems

LATEST NEWS on SOUND INSULATION

Balsam-Wool data sheets!

- Insulating to prevent sound transmission is only one of the many subjects covered by these Balsam-Wool Data Sheets. For here is a storehouse of latest information on correct insulation practice — which embodies months of research, years of experience. The complete file of thirty-two Balsam-Wool Data Sheets is yours for the asking — just mail the coupon for your set!

Balsam-Wool Application Data Sheet

Balsam-Wool SEALED INSULATION

BALSAM-WOOL • Products of Weyerhaeuser • NU-WOOD

WOOD CONVERSION COMPANY

Dept. 117-S First National Bank Building

St. Paul 1, Minnesota

Please send me set of Balsam-Wool Application Data Sheets.

NAME

ADDRESS

CITY

STATE

MAY, 1946
Designed and Engineered
FOR EVERY KIND OF JOB!

IN the American-Standard line of quality heating and plumbing products, you'll find equipment and fixtures styled, designed and engineered to fit the widest variety of applications.

American-Standard makes radiator heating, warm air and winter air conditioning equipment for coal (hand fired or stokers), gas, or oil. And American-Standard plumbing fixtures give you an equally wide choice for residential, commercial and institutional buildings.

Backed by many millions of dollars in research, these widely advertised American-Standard products have been serving the Nation's Health and Comfort for more than half a century. Their smart appearance, efficient performance and proved operating economy assure lasting customer satisfaction. No products enjoy greater public acceptance. Yet, they cost no more than others and are available for modernization jobs on our FHA Time Payment Plan.

For information, contact your Heating and Plumbing Contractor. American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pennsylvania.


"Impossible" is a word that is not recognized by engineers. To dam a mighty river, tunnel under it or suspend a bridge across it—things such as these that once seemed pure imagination were made possible by instruments devised to refine and extend human faculties, to translate the precision of engineering thought into action.

Keuffel & Esser Co. is proud to have played so large a part in making such instruments widely available. In this way K & E equipment and materials have been partners of the engineer and draughtsman for 78 years in shaping the modern world. So universally is this equipment used, it is self-evident that K & E have played a part in the completion of nearly every engineering project of any magnitude. Could you wish any surer guidance than this in the selection of your own "partners in creating"?

Not only for construction and building, but for setting up precision machine tools and long production lines, in the fabrication of large ships and aircraft, experienced engineers know that they can rely utterly on K & E transits and levels. Coated lenses for increased light transmission, precision-ground adjusting screws, chromium-coated inner center and draw tubes, completely encased leveling screws, improved achromatic telescopes—all these typify the advanced design of these instruments.
Lots of clients need a floor that doesn’t do a lot of things.

For instance... that doesn’t let cockroaches live happily on it—in fact, they scurry away from it.

That’s Hubbellite.

Or a floor that won’t let mold grow on it—that actually retards bacteria growth to the point that it can be considered an aid to sanitation.

That’s Hubbellite again.

And a floor that doesn’t go to pieces in the presence of neutral oils and greases.

Also Hubbellite.

Or a floor that doesn’t soften or disintegrate in the presence of kitchen fats—one that withstands the action of foods which ordinarily play havoc with commercial kitchen floor surfaces.

H & H ROBERTSON CO.
2405 Farmers Bank Building
Pittsburgh 22, Pennsylvania

Offices in 50 Principal Cities
World-Wide Building Service

Douglas Fir Plywood
Again Allocated

Automatically control the lights by opening and closing of doors in closets, storage and refrigeration chambers, vaults etc. Numbers illustrated here are designed to switch on lights when door is opened; others available for lighting when door is closed.

Write for specification data on the complete line.

Douglas Fir Plywood Association
Tacoma 2, Washington

TODAY’S most urgent and immediate need is for housing—and the Douglas fir plywood industry pledges complete cooperation with the Reconversion Housing Program.

The demand for housing requires that Douglas fir plywood again be put on an allocation basis. This means that a substantial proportion of the industry’s production will be channelled to housing contractors, stock cabinet manufacturers, prefabricators and distributors.

As a result, the present supply situation for all other industrial and commercial uses will be temporarily aggravated.

May we strongly urge you to anticipate your needs for in advance—and discuss your requirements with your usual sources of supply.

Even though today’s supply situation in Douglas fir plywood is critically short, for many projects such as forming concrete surfaces, for signs and display work, for boat building, and for many other industrial and commercial uses, it is almost indispensable. In these cases it will worth waiting for, as it will save time and labor and do a better job.

Douglas Fir Plywood Association
Tacoma 2, Washington

Progressive Architecture • Pencil Points

MAY, 1946 131
For low-cost concrete homes

Could be, that available concrete and lightweight aggregate block will play a big part in small home construction. And certainly this type of construction finished with Medusa Portland Cement Paint makes a charming small home.

Medusa Paint has Portland Cement as a base—the same material used in the block itself. That's why it bonds perfectly, making a permanent decorative and weatherproofed cement-like finish. Medusa Paint's low first-cost and easy application—helps you keep the total price within the budget. It mixes with water—is sprayed or brushed on damp or dry, inside or outside on concrete, stucco, or masonry surfaces. Your choice of eight distinctive colors, black and white. Here's paint that saves time because it can be used on new damp construction and can be applied on damp days.

For all the facts on Medusa Portland Cement Paint, write today for the descriptive illustrated book "How to Paint Concrete, Stucco, and Masonry"—26 years of experience are packed into this volume.
Ben Franklin found extra visibility by combining two different lenses, expertly ground, in each frame of his glasses. These eighteenth-century bifocals enabled him to "see those things close at hand, as well as those at a greater distance, without using two pairs of spectacles."

"PRE-TESTED" stands for Extra Visibility

By blending two different graphites, expertly ground, it combines the working qualities of point strength, smoothness and wear with the extreme blackness and opacity needed for sharp delineation.

This twentieth-century drawing pencil makes knife-edge lines and bold black shadings that lose none of their brilliance in reproduction.

For PRE-TESTED perfection, try Blaisdell Ben Franklin. Write us, mentioning this magazine and the degree you want; and we'll send you a free sample and the name of your nearest Ben Franklin dealer.

MADE IN 17 DEGREES-6H to 9H

# Blaisdell "PRE-TESTED"

Ben Franklin

Ben. Franklin

"PRE-TESTED" DRAWING PENCIL

Blaisdell PENCIL COMPANY ESTABLISHED 1892 PHILADELPHIA 46, PA.

Swartwout AIRMOVER and Intake Louvers give you complete natural ventilation

• Get heat, smoke and fumes out of your buildings, quickly, for best working conditions, more contented employees, better production; Swartwout Ventilating Equipment supplies the needed combination of facilities to move unwanted air out through the roof and to let in the necessary fresh air.

AIRMOVER Roof Ventilator, only 32 inches high, gives you unlimited air exhaust, according to your needs, without unsightly "top-heavy" appearance on your roof. Widely used - proved under severe conditions. For necessary replacement air, fresh from ground level, Swartwout Industrial Intake Louvers provide up to 90% clear opening — make an excellent appearance in the walls of any building.

Modernize your ventilation as other efficiency-minded operators have done. Write for complete information on AIRMOVERS and Swartwout Louvers.

THE SWARTWOUT CO. 18649 Euclid Avenue Cleveland 12, Ohio

The Texas Method of Lighting Schoolrooms gives:

A STARTLING

INCREASE IN EDUCATIONAL GROWTH . . .

PLUS . . . A Significant Reduction in Classroom Visual Difficulties and Energy Problems!

Your School can do it, too!

It is not difficult to get the remarkable results Texas has in its experimental program for using light in schools.* This consists of proper painting of walls and ceilings with Luminall—the light-reflective paint and proper fenestration and seating arrangements. Here is a challenge to school authorities to find the way for their community to give greatly improved well-being and an amazing increase in educational growth to their school children.

Send today for descriptive literature. Address National Chemical & Mfg. Co., 3610 S. May Street, Chicago 10, III.

* Developed in the Mexia Texas Public Schools under the direction of D. B. Harmon and reported in Illuminating Engineering; Architectural Record, etc.
The old law of supply and demand plus high wages and other costs make time a most important factor in any installation job. The Grand Rapids Invisible is a time and money saver because it is by far the easiest of all sash balances to install. If you, too, are interested in cutting off time at this end, make a date with the Grand Rapids Invisible. You'll be impressed with its durability, ease of adjustment and the fact that it is actually invisible — no exposed tubes — tapes and cables entirely eliminated. And, too, only 10 sizes meet 95% of all residential requirements.SEND FOR SASH BALANCE CATALOG which contains complete information on sash balance sizes, directions for installing, etc. All fully illustrated.

The Pencils with "BUILT-IN-QUALITY" which assure you of the finest results in Drawings, Tracings or Renderings. 22 Accurate Degrees to work with — 37 degrees 68 to 9H for drawing — Extra B, Intense Black (for layout artists) and Tracing 1—2—3—4—4—4 to make clean crisp lines for clear legible blueprint reproduction.

Also ask for SEMI-HEX Carbo-Weld Thin Colored Pencils. Fine for use on maps and blueprints.

Write to Dept. P for two free pencils, 1 black (mention the degree), 1 color. Buy them from your dealer or if unavailable send us $1.00 for prepaid trial dozen of your favorite degree or assortment. This offer good only within U.S.A.

RODDIS for over half a century has enjoyed a reputation for giving customers what they want. Customers now want above everything else — products, doors and plywood to meet critical construction needs.

Today Roddis is making only standard size doors and plywood panels, according to Roddis' standard construction specifications. As a result, production has been multiplied and we are giving more customers — more of what they want — more doors, more plywood panels, more door units.

By pacing its production policy to meet today's requirements, we believe we are doing the greatest good for the greatest number of customers and maintaining our half century reputation for meeting customers' needs.

RODDIS LUMBER & VENEER CO.
MARSHFIELD, WISCONSIN

Consult Your Local Millwork and Fixture Manufacturers — and Lumber Dealers
"It is Different... and so Modern!"

How often you hear this remark when folks inspect a home where the doors, panels and cupboards have no hinges showing... in other words, when SOSS INVISIBLE HINGES are "out of sight." These hinges give THE modern touch. They eliminate unsightly broken surfaces marred by protruding bars, and permit the flush surfaces so important in modern streamlined design. SoSS Invisible Hinges are located where hinges naturally should be—out of sight. They are nationally advertised.

Write for the SoSS "Blue-Print Catalogue" giving full details of the many applications of this modern hinge. Free on request.

SOSS MANUFACTURING COMPANY
27769 HOOVER ROAD • DETROIT 13, MICH.

ALFRED FIELD & CO., INC., 93 Chambers St., New York 8, N. Y.

Gillott's Pens
A POINT FOR EVERY PURPOSE

There is a continuing need for high quality, well made pens. Gillott's Pens meet this need. They are made by skilled craftsmen who have been making pens for many years. The materials used are of the finest quality. The design is simple and functional. The results are pens that are both beautiful and practical.

The manufacturers and fabricators of architectural metals are anxious to work with you, to offer helpful suggestions, and to be of assistance in any way they can. Consult them whenever you plan new buildings.

Architects who are interested in a Free copy of the new Handbook on Stairs and Railings, just published by the Association, should write today on their business letterhead. Address PA 5.

NATIONAL ASSOCIATION OF ORNAMENTAL METAL MANUFACTURERS
309 CEDAR AVE., TAKOMA PARK WASHINGTON 12, D. C.

May 1946 139
FOR HEAVY STORE TRAFFIC

COME ONE ... COME ALL. The more customers walk on it, the better the TERRAZZO floor in this store will like it. TERRAZZO will take all the trampling and look none the worse thereafter. And what a relief to forget floor maintenance, repairs and possible replacement.

TERRAZZO is made to order for all stores. Its unlimited possibilities for design and color combinations make it easy to use an individual distinctive store design. There's hardly anything you can't do with this modern floor to make a store attractive. It fits in perfectly with every architectural scheme.

And when you specify TERRAZZO your upkeep costs practically vanish. It is magically easy to keep clean. Initial cost is moderate and maintenance is low.

THESE 5 BENEFITS ARE YOURS WHEN YOU SPECIFY TERRAZZO

1. ECONOMY 2. COMFORT 3. CLEANLINESS 4. COLOR AND DESIGN 5. DEPENDABLE INSTALLATION

The student of the pencil will find this book with its well arranged lessons a great aid to his progress. Three lessons cover fundamental strokes; the indication of rough and smooth stonework; brickwork at large and small scale; various wood textures; brickwork at large and small scale; and various wood textures; wood textures; wood textures.

Each lesson consists of brief yet adequate text, together with one or more illustrations. The latter are not only expertly done in Kauntzky's inimitable manner, but they are reproduced by a graver process on a paper of much the quality of that employed for the original drawings, with the result that the reproductions are practically indistinguishable from the originals. Leaves of pencil work will want this book for these reproductions.

24 Plates, 9x12 inches, handsomely bound ........... $2.00

THOMAS KAUTZKY'S

“PENCIL BROADSIDES”

Our new, illustrated Visual Fronts book contains many ideas that will be helpful whatever type of store you are planning. Write for your copy to Libbey-Owens-Ford Glass Company, 4356 Nicholas Bldg., Toledo, Ohio.

Even though auto showrooms have been more “visual” than average stores, many of them lack the clean-cut, smooth lines of the cars they display. Realizing this, thousands of auto dealers are planning to remodel their business places.

A Visual Front is ideal for car display. Its expanse of plate glass provides an unhampered view of the interior. Does of clear Tel-flex® tempered glass emphasize this visual sweep and make the store look more inviting. By day the clear glass front brightens the entire showroom—at night acts as a beacon to attract attention.

The Visual Front is thoroughly practical. Glass withstands years of weathering and doesn’t need refinishing. To reduce the possibility of condensation, glaze the front with Thermopane®, L-O-F’s transparent insulating unit.

Glass is striking in its beauty. Bulkheads, trim, pilasters and walls of sparkling Vitrolite® glass facing add a smart, colorful touch that marks the front as up-to-date.

THE POST "LAB" CONTROLS BLACLINE PRINT QUALITY
POST LABEL GUARANTEES IT

The clean white background; the live, sharp, jet black detail; the consistent long keeping — are all the result of careful, competent testing of paper stock, chemicals, formula and a final test on the finished coated product — available in medium and fast printing speeds; also transparent. Test Blacline today for better prints every day.

THE FREDERICK POST COMPANY
2440 N. AVONDALE AVENUE, CHICAGO 18, ILL.

DETROIT • HOUSTON • CHICAGO • LOS ANGELES • MILWAUKEE

THE FAMOUS FLORENS or the MASCULINE MAUL

Rx
for "D D"
(draughtsman's droop)

HALLOWELL
STEEL STOOLS

No need to stoop for your friend's pen or ruler. The "Hallowed" Steel Stool gives you reach with comfort. Equipped with the exclusive "Hallowed" patented built-in cushion, the stool takes the strain off your knees, lowers your work table to eye level. Write today for details. Rates from $2.25. Hallowell Mfg. Co., (Incorporated), 97-27 Bell St., Long Island City, N. Y.

Send for Leaflet No. 8
KOH-I-NOOR PENCIL COMPANY, INC.
Bloomsbury, N. J.

To aid in meeting today's emergency needs, Crane Co. is concentrating production on residential plumbing equipment specifically designed for the low-cost home. Above are shown fixtures now being produced in quantities in Crane plants. Compact in size and priced to fit the needs of homes built on a limited budget, the fixtures are high in quality — truly representative of the name Crane.

Besides plumbing for the residential field, Crane Co. is producing fixtures to cover the essential needs of non-residential construction.

Whatever plans are on your boards — residential or non-residential — consult your Plumbing Contractor or Crane Branch. They will be glad to assist you in every way possible.

CRANE CO., GENERAL OFFICES:
835 S. MICHIGAN AVE., CHICAGO 5
PLUMBING • HEATING • PUMPS • VALVES • FITTINGS • PIPE
NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

MAY, 1946
K E N N A T R A C K

EQU A L I Z E D " 4 " W E E L C A R R I E R W I T H E X P A N S I O N S L E E V E L L O C K

KENNATRACK is available with plain or ball bearing wheels—either of which will give smooth, effortless action. It is a compact and which will operate in any opening large enough to take the 1-5/16" wide track, and carry doors of a minimum 1" thickness. Set in a simple saw cut in the top of the door, and located by means of a drill jig, it is locked in place with an expansion screw. This screw assures proper alignment, and once installed it cannot be changed adjustment.

T U N N E L M O U N T I N G B R A C K E T

Once in place, this bracket permits the complete installation or removal of the track from floor or ceiling—without disturbing the wall structure. That portion of the track which comes within the door opening is fastened to the header with screws; the hidden end of the track is supported by the Tunnel Mounting Bracket.

R O L L E R D O O R G U I D E

The Roller Guide keeps the door in perfect alignment without binding the action of the carriers. It can be mortised into the floor with a 1/2" wood bit, and it allows a full 1/2" of adjustment between floor and door.

The four Standard Package Units of KENNATRACK contain: 2-lengths of track 66" long; 4-Roller Carriages; 2-Tunnel Mounting Brackets; 4-Expansion Screws. Screws for mounting either parallel or perpendicular, are furnished, and instructions.

* Special Lengths: If the standard 66" lengths of KENNATRACK do not meet your requirements—Write for specifications on longer lengths.

J ay G. McKenna, Inc.
E. Jackson Blvd. • Elkhart, Ind.

S U P E R F R E E Z E R V E S T I B U L E D O O R
For busy doorways of low temperature rooms

JAMISON
B U I L T C O L D S T O R A G E D O O R S
H A G E N S T O R K, M A R Y L A N D
BRANCHES IN PRINCIPAL CITIES

KORALINE

C O N T R O L L E D Q U A L I T Y
is a "PLU S VALUE" in CHROMEDGE Metal Trims

The consistently high quality of CHROMEDGE Metal Trims is assured by centering all quality control factors at the point of manufacture. For the widest choice of practical shapes...for a full range of specialty matched designs...for the beautiful, velvet-nooned CHROMEDGE finish that never rubs off black...for controlled quality and other exclusive advantages, insist on genuine CHROMEGRAF!

As part of its 1946 editorial program, House & Garden reports each month to its readers on some phase of home-building.

These advertisers will tell House & Garden readers about their products in 1946.

April House & Garden discusses roofs—flat or peaked.

A survey shows that 45 out of 100 House & Garden families plan to build or buy a house; 30 out of 100 have remodeling plans. Here are sales-making customers—people with incomes and influence. 60% are executives or professional men; 33% are officers or directors of one or more companies.

The houses they build, the products they use, will set the standard of quality in their communities.

Tell these House & Garden readers about your product...they are an entering-wedge market for volume sales.

House & Garden

These advertisers will tell House & Garden readers about their products in 1946.

These advertisers will tell House & Garden readers about their products in 1946.
This foolproof, "built-in" solution to the garbage problem wins lasting approval from owners or occupants of any home or apartment. Rugged formed steel construction makes it more durable and breakproof than ever. Top and body carry a 10-year guarantee against breaking or rusting out.

You can install a Majestic Underground Garbage Receiver as close to the service entrance as you wish—the neat, close-fitting, leak-operated lid seals odors inside, keeps dogs, rats, flies, freezing cold and fermenting heat outside. Proved by years of satisfaction among thousands of users! Write!

The Majestic Company
1073 Erie St., Huntington, Ind.

Solves the Garbage Problem

And it features the popular Majestic Formed Steel Construction

Also makes the Majestic Floor Mounting Kits that provide no more than six inches of clearance between the floor and wall, and eliminates any possibility of odors or insects from entering the wall cavity.

WRITE FOR DESCRIPTIVE FOLDER P

Majestic Industries, Trenton, N. J.
For Natural Beauty use Cabot's Stains!

These fine stains actually bring out the natural loveliness of wood...add charm to a building's fine design! Cabot's Stains are quick and easy to apply...won't peel or blister even on green lumber...give maximum protection...at minimum cost. A variety of colors...from clear, brilliant hues to effective weathering grays and browns. *Contains from 60%...to 90%...create...the best wood preservative known.*

FREE BROCHURE—"Stained Houses"—contains illustrations and complete information plus color swab. Address Samuel Cabot, Inc., 1259 Oliver Bldg., Cleveland 9, Ohio.

Cabot's CREOSOTE
SHINGLE STAINS

HEAT+HOT WATER from super-efficient Oil Burner Unit built by JOHNSON

For HOMES, STORES, OFFICES, etc.

ECONOLUX 115V

Ample heating power for 10-room house or small business structure...completely automatic...very low fuel cost. And abundant domestic hot water without any added storage tank. Johnson has engineered all this into ONE compact 150,000 B.T.U., Oil Burner Unit (24" diam. x 60" height) that comes to you all assembled for quick, inexpensive installation. It's good looking...quiet...efficient...and a money saver. Ask your Johnson dealer or write for specifications.

...Johnson Oil Burners...

148 PROGRESSIVE ARCHITECTURE • Fencil Points

Builder Brown was Baffled . . . .

BUT ONLY FOR A MOMENT

With the architect and contractor, he turned to Ceco...Together they solved the problem

Builder Brown was constructing a plant which called for special types of metal screens. But these required special rolling equipment and dies that were not available. It looked tough—until he turned to Ceco. Out of their engineering know-how, they suggested certain changes using standard Ceco construction. The contractor and architect approved. Better results were achieved—60% of cost was saved—and the job was completed ahead of schedule.

MATERIALS HARD TO GET? CECO CAN GIVE YOU PROMPT, EARLY DELIVERY ON METAL SCREENS

For every purpose—every building—every opening—Ceco has the right screen. Not just one type, but every type needed for new buildings or replacements—for wood windows or metal. No job is too large or small—no problem too difficult. Hard-to-screen openings are a specialty...Ceco screens in steel, bronze and aluminum are available NOW for all buildings including RESIDENTIAL.

READ THESE OUTSTANDING ADVANTAGES OF CECO METAL SCREENS

A Partial List of Other CECO Products

Metal Windows and Doors
Metal Weatherstrips
Steel Joists, Steel Roof Deck
Reinforcing Steel
Highway Products
Double-Drain Roofing

In construction products CECO ENGINEERING makes the big difference
### INDEX TO ADVERTISERS

<table>
<thead>
<tr>
<th>Advertiser</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam, Frank, Electric Co.</td>
<td>111</td>
</tr>
<tr>
<td>Adams &amp; Workhouse, Inc.</td>
<td>24</td>
</tr>
<tr>
<td>American Bottles, Inc.</td>
<td>101</td>
</tr>
<tr>
<td>American Broadcasting Corporation</td>
<td>116</td>
</tr>
<tr>
<td>American Co. of America</td>
<td>39</td>
</tr>
<tr>
<td>American Express Co.</td>
<td>35</td>
</tr>
<tr>
<td>American Flange &amp; Mill Co.</td>
<td>39</td>
</tr>
<tr>
<td>American Radiator &amp; Standard Sanitary Corp.</td>
<td>128</td>
</tr>
<tr>
<td>American Steel &amp; Wire Co.</td>
<td>13</td>
</tr>
<tr>
<td>American Stillman Co.</td>
<td>13</td>
</tr>
<tr>
<td>Ansonia Copper Mining Co.</td>
<td>35</td>
</tr>
<tr>
<td>Anderson Corp.</td>
<td>119</td>
</tr>
<tr>
<td>Ansonia Copper of America</td>
<td>119</td>
</tr>
<tr>
<td>Ansonia Industries, Inc.</td>
<td>112</td>
</tr>
<tr>
<td>Arrow-Hart &amp; Hayden Electric Co.</td>
<td>130</td>
</tr>
<tr>
<td>Arth Electrical Specialty Co., Inc.</td>
<td>15</td>
</tr>
<tr>
<td>B &amp; T Metals Co.</td>
<td>144</td>
</tr>
<tr>
<td>Barber-Colman Co.</td>
<td>104</td>
</tr>
<tr>
<td>Bennett Division, The Allied Chemical &amp; Div Co.</td>
<td>118</td>
</tr>
<tr>
<td>Blauvelt Pencil Co.</td>
<td>134</td>
</tr>
<tr>
<td>Blue Ridge Sales Division, Libbey-Owens-Ford Pencil Co.</td>
<td>40</td>
</tr>
<tr>
<td>Bronx Manufacturing Co.</td>
<td>37</td>
</tr>
<tr>
<td>Bruce, E. L. Co.</td>
<td>7</td>
</tr>
<tr>
<td>Cabot, Samuel, Inc.</td>
<td>148</td>
</tr>
<tr>
<td>Calcium Chloride Association</td>
<td>106</td>
</tr>
<tr>
<td>Cambridge Tile Mfg. Co.</td>
<td>3rd Cover</td>
</tr>
<tr>
<td>Cera Steel Products Corp.</td>
<td>149</td>
</tr>
<tr>
<td>Celanese Plastics Corporation</td>
<td>127</td>
</tr>
<tr>
<td>Cheney Industries</td>
<td>146</td>
</tr>
<tr>
<td>Chicago Manufacturing Corp. Lumber Division</td>
<td>30</td>
</tr>
<tr>
<td>Cotlar, P. &amp; F. Division, American Hardware Corp.</td>
<td>26</td>
</tr>
<tr>
<td>Crane Co.</td>
<td>143</td>
</tr>
<tr>
<td>Dixon, Joseph, Cradle Co., Pencil Sales Dept.</td>
<td>41</td>
</tr>
<tr>
<td>Dow's, Typhoon Ebroado Pencils</td>
<td>41</td>
</tr>
<tr>
<td>Douglas Fir Plywood Association</td>
<td>131</td>
</tr>
<tr>
<td>Elliott, R. K., Co.</td>
<td>148</td>
</tr>
<tr>
<td>Fisher, A. W., Inc.</td>
<td>23</td>
</tr>
<tr>
<td>Field, Alfred, &amp; Co., Inc.</td>
<td>138</td>
</tr>
<tr>
<td>General Controls Co.</td>
<td>138</td>
</tr>
<tr>
<td>General Electric Co., Air Conditioning Dept.</td>
<td>126</td>
</tr>
<tr>
<td>General Pencil Co.</td>
<td>102</td>
</tr>
<tr>
<td>General Repairs Hardware Corp.</td>
<td>156</td>
</tr>
<tr>
<td>Hart &amp; Hayden Mfg. Div.</td>
<td>130</td>
</tr>
<tr>
<td>Hillard Chemical Co.</td>
<td>114</td>
</tr>
<tr>
<td>Hoffman Specialty Co.</td>
<td>32</td>
</tr>
<tr>
<td>Hope's Winches, Inc.</td>
<td>147</td>
</tr>
<tr>
<td>House &amp; Garden</td>
<td>145</td>
</tr>
<tr>
<td>Imperial Pencil Tracing Clerk</td>
<td>114</td>
</tr>
<tr>
<td>Imuska Products Division, Owens-Illinois Glass Co.</td>
<td>122</td>
</tr>
<tr>
<td>Jamestown Metal Corp.</td>
<td>133</td>
</tr>
<tr>
<td>Johnson Cold Storage Co.</td>
<td>29</td>
</tr>
<tr>
<td>Johns-Manville Corp.</td>
<td>20, 124, 151</td>
</tr>
<tr>
<td>Johnson, S. T., Co.</td>
<td>148</td>
</tr>
<tr>
<td>Kennedy, David E.</td>
<td>5</td>
</tr>
<tr>
<td>Keuffel &amp; Esser Co.</td>
<td>129</td>
</tr>
<tr>
<td>Kemmerer Building Corp.</td>
<td>34</td>
</tr>
<tr>
<td>Kemmerer Mill Co.</td>
<td>34</td>
</tr>
<tr>
<td>Koh-I-Noor Pencil Co., Inc.</td>
<td>142</td>
</tr>
<tr>
<td>Koppers Co., Inc.</td>
<td>125</td>
</tr>
<tr>
<td>Libbey-Owens-Ford Glass Co.</td>
<td>40, 141</td>
</tr>
<tr>
<td>Libbey-Owens-Ford Glass Co.</td>
<td>40, 141</td>
</tr>
<tr>
<td>Loomis Stove Cement Corp.</td>
<td>44</td>
</tr>
<tr>
<td>Mahon, R. C., Co., The</td>
<td>109</td>
</tr>
<tr>
<td>Majestic Co.</td>
<td>146</td>
</tr>
<tr>
<td>Majestic Flushing Co.</td>
<td>146</td>
</tr>
<tr>
<td>McKee's, J. G., Inc.</td>
<td>144</td>
</tr>
<tr>
<td>Medusa Portland Cement Co.</td>
<td>132</td>
</tr>
<tr>
<td>Merk Brothers</td>
<td>115</td>
</tr>
<tr>
<td>Miller Steel Co.</td>
<td>2nd Cover</td>
</tr>
<tr>
<td>Miller Co., The</td>
<td>4</td>
</tr>
<tr>
<td>National Association of Ornamental Metal Mills</td>
<td>139</td>
</tr>
<tr>
<td>National Chemical &amp; Mfg. Co.</td>
<td>135</td>
</tr>
<tr>
<td>National Electric Products Corp.</td>
<td>101</td>
</tr>
<tr>
<td>National Gypsum Co.</td>
<td>42</td>
</tr>
<tr>
<td>National Terraic and Mosaic Association, Inc.</td>
<td>142</td>
</tr>
<tr>
<td>Nashua, N. H., Corp.</td>
<td>25</td>
</tr>
<tr>
<td>Norton Co.</td>
<td>36</td>
</tr>
<tr>
<td>Ohio Chemical &amp; Mfg. Co.</td>
<td>120</td>
</tr>
<tr>
<td>Ohio-Windsill Glass Co., Insulux Products Div.</td>
<td>122</td>
</tr>
<tr>
<td>Pacific Cable Co.</td>
<td>107</td>
</tr>
<tr>
<td>Pittsburgh Plate Glass Co., 2, 3, 27, 49</td>
<td>116</td>
</tr>
<tr>
<td>Pittsburgh Cement Association</td>
<td>31</td>
</tr>
<tr>
<td>Pont, Frederick, Co.</td>
<td>142</td>
</tr>
<tr>
<td>Raymond Concrete Pipe Co.</td>
<td>9</td>
</tr>
<tr>
<td>Rankhill Publishing Corp.</td>
<td>140, 146</td>
</tr>
<tr>
<td>Revere Copper &amp; Brass, Inc.</td>
<td>100</td>
</tr>
<tr>
<td>Rice &amp; Co., The</td>
<td>117</td>
</tr>
<tr>
<td>Roberton, N. W., Co.</td>
<td>21</td>
</tr>
<tr>
<td>Robbins Lumber &amp; Veneer Co.</td>
<td>137</td>
</tr>
<tr>
<td>Reble &amp; Veneer Co.</td>
<td>137</td>
</tr>
<tr>
<td>Russell, F. C., Co.</td>
<td>22</td>
</tr>
<tr>
<td>Sansen Carriage Works</td>
<td>146</td>
</tr>
<tr>
<td>Sanborn Products Co., Inc.</td>
<td>123</td>
</tr>
<tr>
<td>Schlaegel Lumber Co.</td>
<td>21</td>
</tr>
<tr>
<td>Scott Paper Co.</td>
<td>38</td>
</tr>
<tr>
<td>Scottlloyd Co.</td>
<td>12</td>
</tr>
<tr>
<td>Steffen Co.</td>
<td>102</td>
</tr>
<tr>
<td>Sisson Mfg. Co.</td>
<td>138</td>
</tr>
<tr>
<td>Stouffer Co.</td>
<td>138</td>
</tr>
<tr>
<td>Standard Pressed Steel Co.</td>
<td>142</td>
</tr>
<tr>
<td>Steel Division of Great Lakes</td>
<td>142</td>
</tr>
<tr>
<td>Steel Corp.</td>
<td>150</td>
</tr>
<tr>
<td>Sturdivant Co.</td>
<td>148</td>
</tr>
<tr>
<td>Titus &amp; Co.</td>
<td>15</td>
</tr>
<tr>
<td>Trojan Steel Co.</td>
<td>29</td>
</tr>
<tr>
<td>Underwood Corp.</td>
<td>26</td>
</tr>
<tr>
<td>U. S. Air Conditioning Corp.</td>
<td>15</td>
</tr>
<tr>
<td>Wais, Weingarten Mfg. Co.</td>
<td>110</td>
</tr>
<tr>
<td>Weldon Roberts Rubber Co.</td>
<td>144</td>
</tr>
<tr>
<td>Westinghouse Electric Corp.</td>
<td>148</td>
</tr>
<tr>
<td>Wilson Engineering Corp.</td>
<td>148</td>
</tr>
<tr>
<td>Woodman Co.</td>
<td>127</td>
</tr>
<tr>
<td>Youngstown Sheen &amp; Tube Co.</td>
<td>43</td>
</tr>
</tbody>
</table>

---

**Wait...**

...the roofing "specs" you need are in this New, Simplified Book

Now, when you want any type of built-up roofing specification...smooth-surfaced or gravel-surfaced...you can simply copy it from the new, revised Johns-Manville Specification Manual.

Clear, concise, and up-to-date, based on Johns-Manville's 88 years of roofing experience, this Manual is organized to give you in the quickest possible way a complete roofing specification for any type of deck-wood, steel, concrete, or gypsum.

In addition, the book gives complete flashing specifications and detailed drawings of various flashing methods. It specifies how roof insulation should be applied. It tells why a J-M Flexstone Roof made of asbestos felts—fireproof, rustproof, smooth-surfaced and unaffected by the sun—deserves the architect's careful consideration.

We cordially invite you to send for your copy. There's no obligation, of course.
exclusive Suntile values

1. NEW MODULAR SIZES FOR CERAMIC MOSAIC
   To give Planners full advantage of the modern trend toward work simplification, Ceramic Mosaic Suntile is offered in Modular Sizes, saving layout work and reducing waste of labor and material. For the present, Wall Tile will not be made in Modular Sizes.

2. AUTHORIZED DEALERS
   SunTILE Dealer
   The Suntile Dealer is distributed in all principal cities through Authorized SunTILE Dealers only. Each SunTILE Dealer has been selected for his business integrity and his ability to handle quality work. An order placed with him is a guarantee of good material and good workmanship.

3. SUNTILE QUALITY
   No compromise has been made in the quality of SunTILE to meet today's increased demand. By new methods of production control, and inspection, our rigid pre-war standards of quality and production have been maintained or improved.

4. DEPENDABLE DELIVERIES
   In fairness to all customers of SunTILE Dealers, definite quantities of SunTILE are currently allotted to each Dealer, in proportion to his normal pre-war demands. Orders are shipped regularly each month. A SunTILE Dealer’s installment promise, based upon his allotment, can be relied upon by the Architect.

---

Interesting profession, isn't it?

Cincinnati 15, Ohio
Member of the Builders Council.
There's a degree of **Electrical Living** for every home

**This Book Explains A New Development In Electrical Systems For Homes**

Electrical Living is vital in modern homes . . . but there are varying degrees needed to fit the size of family and income. By recognizing this fact, and using the correct degree for homes you design or build, you will give greater owner satisfaction.

Westinghouse engineers have solved this problem by developing Four Degrees of Home Electrification for popular priced homes. This booklet clearly describes the Four Degrees, and gives basic data, such as wiring diagrams and lists of equipment, to help you select the proper degree. Minimum wiring requirements and suggested specifications are also included. Ask for Booklet B-3774. Free. J-91558

. . . and this book has the technical data you need to design any residential installation

The most comprehensive handbook ever produced on home wiring. Ten chapters. 120 pages. Dozens of charts, tables and diagrams. Covers every detail you require to plan and design a complete electrical system for homes. Costs one dollar. Send coupon below.

---

Westinghouse Electric Corporation
Extension Training—Industrial Relations Dept.
306 Fourth Avenue, Pittsburgh 30, Pa.
Gentlemen: Please send me books marked below:

( ) The Four Degrees of Electrical Living (Free)
( ) Home Wiring Handbook (Enclose $1.00 with order)

Name

Address

City State