PA-1961-02
The kid's right! You can specify Summitville Quarry Tile with the complete assurance that the floor will last almost indefinitely, even under severe conditions in schools, hospitals, commercial buildings and institutions.

Quarry tile is fire-proof, scratch-proof, acid-resistant, will not fade and never needs waxing.

Available in six natural earth colors and matching trim units.

For the full story, contact your local ceramic tile contractor.

You'll find him in the yellow pages or write direct.
This is **Aspen**

A new B.F. Goodrich Koroseal vinyl wall covering

Aspen, latest fabric-backed Koroseal vinyl wall covering by B.F. Goodrich, comes in 23 wall-toned colors and features all of the maintenance-free qualities of other Koroseal coverings. It is scuff, scratch and stain resistant, flame-proofed and washable with soap and water.

The durability of Koroseal drastically reduces one of the most costly building maintenance items, periodic wall repainting. Expensive labor, paint, and even complete shutdown of income producing space cut sharply into building operation profits. And painted walls usually begin to look shabby long before repainting takes place. Koroseal covered walls keep their rich, clean appearance for years. For samples of new Aspen or other Koroseal patterns, write Dept. PA-2, B.F. Goodrich Industrial Products Company, Marietta, Ohio.
Four massive stage sections which travel vertically on smooth, quiet hydraulic plungers are the key to the most flexible theater yet built.

Harvard's new Loeb Drama Center, the product of the imaginative design of Architect Hugh Stubbins, is three theaters in one. Engineered by George C. Izenour, theatrical design engineer, the four stages can be raised and lowered by pushbutton control to produce three different seating arrangements and a number of different stage effects, as desired for various performances.

Built by Rotary—The Rising Stages were designed and built by Rotary Lift to the architects' and engineers' specifications. In the revolutionary plan for the Loeb Drama Center they are used in combination with movable seat sections and pre-set lighting and rigging systems.

Operating like hydraulic elevators, the Rotary Rising Stages move quietly, safely, without vibration. Two powerful hydraulic plungers assure ample support for the tremendous weight of each section. A unique equalizing system keeps each pair of jacks level at all times. Rotary's Oildraulic Controller, developed for elevator service, insures smooth transmission of fluid power from the efficient pumping units, and complete control over vertical travel.

Stage Lift Experience—Rotary Lift was chosen for this challenging job because of its leadership in the manufacture of hydraulic lifting devices, modern passenger and freight elevators, industrial lifting equipment and Rising Stages for many entertainment centers throughout the country. Among Rotary's other Rising Stage installations are those at the Stardust Hotel in Las Vegas, Dallas Memorial Auditorium, McCormick Place Exposition Center in Chicago, Charlotte, N. C., Auditorium-Coliseum and the University of California.

The experience of Rotary engineers in this type of work is unequalled in this country, and can be most helpful to you on similar projects. See our catalog on Rising Stages in Sweet's Architectural File 23g/Ro or mail coupon below for more information.

Oildraulic® Elevating Equipment

Rising Stages • Passenger and Freight Elevators

For more information, turn to Reader Service card, circle No. 375

INDUSTRIAL LIFTING EQUIPMENT

Dover Corporation
Rotary Lift Division
1007 Kentucky, Memphis 2, Tenn.

Please send information on Rotary Rising Stages to:

Name________________________________________
Company______________________________________
Address_______________________________________
help create Harvard's "Automatic Theater"

In conventional proscenium type auditorium, seven rows of seats nearest stage rest on "A" and "B" Lifts. These seats are mounted on platforms which move on aviation type wheels.

For Elizabethan staging, front seat sections split in middle and are pivoted 90° (note wheel tracks) so that "B" and "C" Lifts can be raised to create apron stage projecting into audience area.

Theater-in-the-round brings into use all four lifts (shown here at different levels to demonstrate flexibility) and front seat sections are swiveled 180° from their original position.

Hydraulic jacks which move and support the stage sections are shown here. There are two jacks per section, equalized by a cable-and-strut system which insures perfectly level surface at any point of travel. Each lift has its own Rotary Oil-draulic electric pumping unit, controlled through Mr. Izennour's analogue console to permit interlocking and operational flexibility.

Photos by Clemens Kelischer
**Design** — Clean, modern, practical with coved corners and dished bottoms makes them highly functional and attractive plus blending with all laboratory furniture.

**Corrosion Resistance** — Made of modified epoxy resin, Durcon exhibits almost complete resistance to wide range of acids, alkalies, salts, solvents, and other organic chemicals.

**Wide Selection** — Table sinks, end sinks, drainboard-sink units, double compartment sinks, cylindrical sinks, cup sinks.

**Light Weight** — Approximately 40% as heavy as competitive sinks. Normally thickness of stone or porcelain sinks is at least 1" while Durcon is but 1/2" thick.

**Lower Cost** — Besides lower initial cost, there are savings on freight and installation.

**Easier Installation** — One man can easily install a Durcon sink either under table top or free standing. No hydraulic jack required as for ceramic or stone sinks. Less weight means less complicated supports.

**Heat Resistance** — Unlike other plastic laboratory sinks, Durcon will not warp nor soften when exposed to boiling solutions. Neither will Durcon support combustion.

**Shock Resistance** — No failure due to thermal shock need be feared. Wide range of tests also assure many years' service without cracking, spalling or other forms of mechanical or fatigue failure.

**Moisture Absorption** — Durcon sinks are impermeable to liquids. The percentage of moisture absorption over an extended period is a maximum of 0.06%.

---

**Durcon Laboratory Sinks**

*can withstand continuous temperature changes*

No failure due to thermal shock need be feared. Repeated cycles involving temperatures from freezing to boiling water have failed to cause even slight cracking in Durcon sinks. Warpage of Durcon sinks, even in boiling services, is definitely no problem.

The coefficient of expansion is low for Durcon Lab Sinks which are made of an epoxy resin modified by The Duriron Company.

Why not take a look at the many other reasons why you should specify Durcon Lab Sinks.

For further information and prices, contact your Laboratory Furniture Manufacturer or write for new Bulletin PF/5a.

**The Duriron Company, Inc.**

*Dayton, Ohio*
News Report


Editorial Contents

Significant role of U.S. architects in supplying technical assistance to other countries is indicated by two pace-setting hospitals shown in this issue: Joseph Neufeld's large university medical center for Jerusalem and W. O. Biernacki-Poray's exemplary research hospital for children designed for Kraków. Also featured is the new Faculty Center, a departure from Gothic tradition on University of Washington campus by Victor Steinbrueck and Paul Hayden Kirk & Associates (with selected detail). From Switzerland the Editors chose a serene crematorium by E. & R. Lanners & Res Wahlen. There are Interior Design Data and Related Design Fields examples, as well as articles on 'Bicycle-Wheel' Roofs and on a Resident Architect's Role in 'construction management.' Technical Articles this month range from a patent-pending Portapavilion to a newly developed glass adhesive that permits ingenious and fresh design in stained glass. Data on a dramatic free-standing stair and an analysis by Chelazzi of Structural Elasto-Mechanics are included. Plus Specifications Clinic and Mechanical Engineering Critique columns devoted to timely problems.

Jobs and Men

Directory of Products Advertisers

Progressive Architecture published monthly by Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N. Y. Ralph W. Reinhold, Chairman of the Board; Philip H. Hubbard, President and Treasurer; Fred P. Peters, Vice-President and Secretary; H. Burton Lowe, Merald F. Lee, D. Bradford Wilkin, William P. Winsor, Vice-Presidents; Kathleen Starke, Assistant Treasurer; Executive and Editorial offices: 430 Park Avenue, New York 22, N. Y. Subscriptions payable in advance. Subscription prices to those who, by title, are architects, engineers, specifications writers, designers or draftsmen, and to government departments, trade associations, members of the armed forces, college libraries, college students, publishers, advertisers, prospective advertisers and their employees—$5.00 for one year, $8.00 for two years, $10.00 for three years. Above prices are applicable in U. S., U. S. Possessions, and Canada. All practicing architects and engineers outside U. S., U. S. Possessions and Canada—$10.00 for one year, $16.00 for two years, $20.00 for three years—All Others: $20.00 a year. Single copy—$1.00; special issues—$2.00 per copy. Printed by Publishers Printing Company, New York, N. Y. Copyright 1960, Reinhold Publishing Corporation. Trade Mark Reg. All rights reserved. Indexed in Art Index, Architectural Index. Second class postage paid at New York, N. Y.
SLATER completely explodes the myth of buying dimming controls by the pound. Compare the revolutionary HI-LUX Dimmer with any other incandescent light control. Use any yardstick. HI-LUX is small (a neat 1½" deep, 1½" high and 1" wide). Fits standard switch boxes with room to spare. Uses standard wiring (only 2 connections). Employs semi-conductors. Needs no transformers or rheostats. That's HI-LUX... compact, dependable, superbly engineered.

HI-LUX is rated at 500 Watts and may be installed in 3 or 4-way circuits for all incandescent applications. For additional information and prices call, wire or write today.

CALL, WIRE or WRITE
TODAY

Slater Electric & Mfg. Co., Inc.
Dept. AB
Glen Cove, L. I., N.Y.

NAME_________________________
COMPANY_____________________
ADDRESS_____________________
CITY_________________ZONE______STATE_____

E. & H. Sales Reg'd. • 9735 Jeanne Mance St., Montreal 12, P.Q.

For more information, turn to Reader Service card, circle No. 377
They look alike, but...

Two masonry walls: They can be twins in surface charm and solidity. Yet, one can be the better building investment—free of maintenance problems for important extra years. That’s the one built with Dur-o-wal, the original steel masonry wall reinforcement.

A wall reinforced every second course with Standard Weight Dur-o-wal has 71 per cent greater flexural strength than its unreinforced counterpart.

With its trussed design, butt-welded construction, scientifically deformed rods, Dur-o-wal is considered the most practical thing of its kind by builders everywhere. Nationally wanted, Dur-o-wal is nationally distributed. Wherever you build a masonry wall, you can get Dur-o-wal.

it takes Dur-o-wal to keep them alike!

Two engineered products that meet a need, Dur-o-wal reinforcement, shown above, and Rapid Control Joint, below. Weatherproof neoprene flanges on the latter flex with the joint, simplify the caulking problem.

DUR-O-WAL
Masonry Wall Reinforcement and Rapid Control Joint

RIGID BACKBONE OF STEEL FOR EVERY MASONRY WALL

DUR-O-WAL MANUFACTURING PLANTS
- Dur-o-wal Div., Cedar Rapids Block Co., CEDAR RAPIDS, I A.
- Dur-o-wal Prod., Inc., Box 539, SYRACUSE, N. Y.
- Dur-o-wal Div., Frontier Mfg. Co., Box 69, PHOENIX, ARIZ.
- Dur-o-wal Div., Frontier Mfg. Co., Box 546, BIRMINGHAM, ALA.
- Dur-o-wal, Prod. of Ala., Inc., 4500 E. Lombard St., BALTIMORE, MD.
- Dur-o-wal Prod., Inc., 1678 Norwood Ave., TOLEDO, OHIO
Panel discussion:

Before Acoustiroc, a fissured mineral wool acoustical panel was a risky specification. None of the available materials was strong enough to be used in spans over 12" without danger of sagging or warping. That's why you don't see many of them around. But things have changed recently. The new felted structure of Gold Bond Acoustiroc makes
2' x 2' panels and tiles strong enough to support their own weight without sagging when installed under normally dry conditions. Now you can put Acoustiroc tiles or panels in any ceiling suspension. Ask your Gold Bond® Representative, or write Dept. PA-21, National Gypsum Company, Buffalo 13, N.Y.
stainless steel

No other metal has the strength, beauty and versatile qualities that serve you so well today and promise so much for tomorrow.

There is nothing like stainless steel for HOMES AND HOME PRODUCTS

McLouth Steel Corporation,
Detroit 17, Michigan
Manufacturers of high quality Stainless and Carbon Steels

Look for the STEELMARK on the products you buy.

McLOUTH STAINLESS STEEL
General Office Area, Public Service Company of Indiana, Connersville, lighted with Miller Aluminum troffers for Power Groove—125 footcandles maintained. Architect and General Contractor, Huber, Hunt and Nichols, Indianapolis.

**Miller POWER GROOVE Lighting for Renovation and New Building Projects**... this office is typical of many where Miller Aluminum troffers teamed with Power Groove Lamps are providing comfortable, high footcandle lighting at lower cost than ever before possible.

Designed especially for Power Groove, these Aluminum troffers are among a group of important fixtures recently introduced by Miller. Shown below are some other recent additions. For example, the Richmond for Power Groove... particularly suitable for lighting stores and public buildings.

Whatever the interior—Office, Store, School, Factory or Public Building—there's a Miller fixture to meet your needs... for use with the fluorescent lamp type of your choice.

For further information on Miller Power Groove Lighting, or help with a specific lighting job or fixture write Dept. 261, or contact your Miller Representative.

THE miller COMPANY, MERIDEN, CONN. - UTICA, OHIO
Designed for Architects • Engineers • Contractors

Whatever the architectural specifications, the slim-trim distinctive design of Stripline extruded aluminum slot-type diffusers blends in perfectly with the general decor. Stripline with separate mounting frames and interchangeable cores eliminates screwholes, leaves the decorative surface unmarred.

Stripline is INCONSPICUOUS... PRACTICAL, can be located anywhere to suit the interior designer's preference... in walls... ceilings... coves... moulds... window sills. Stripline is supplied as a continuous decorative unit, or in sections, to meet any requirements of interior treatment or airflow.

Unlike side wall grilles and air discharge slots, Stripline diffusers incorporate the exclusive Agitair diffusing vanes. These built-in diffusing vanes produce extremely high turbulence and aspiration... achieve rapid temperature equalization... insures the distribution of tempered air unvaried over a predetermined area without any noticeable air motion.

In the design of Stripline extrusions, top priority was given to solving the contractors installation problems. These units are now made with interchangeable cores and separate mounting frames for surface or plaster installations. An integral part of each diffusing core is the unique coil spring-lock which further facilitates the installation of Stripline when used as a continuous unit or where sections are required. This spring-lock feature locks the unit firmly in place, and eliminates the use of screwholes and screws.

For more information write for technical catalog ES-105

AIR DEVICES INC.
185 MADISON AVENUE • NEW YORK 16, N.Y.
BETTER PRODUCTS FOR
AIR DISTRIBUTION • AIR CLEANING • AIR EXHAUST
Easiest way to bend a ceiling (or wall) to your will is to build with plaster on metal lath. Its plasticity transcends the rigid limitations imposed by less flexible wall and ceiling materials. You enjoy a free hand in design. And you avail yourself of the beauty of plaster construction — of its light weight, fast erection, and fire ratings up to four hours. The complete line of Milcor metal lath and accessories includes everything you need to specify. Refer to Sweet's, section 12a/In. Or write today for catalog 202.

Milcor Metal Lath and Trim Products

MILCOR

Inland Steel Products Company

DEPT. B. 4069 W. BURNHAM ST., MILWAUKEE 1, WISCONSIN

For more information, turn to Reader Service card, circle No. 319
How NADD salesmen reduce "wear and tear" on architects

- They provide accurate information on characteristics, properties, limitations of use, and applications of structural clay products.
- They supply samples that show available sizes, colors, patterns, and textures of brick and tile units; keep the architect informed on the many new clay products which flow from industry technology.
- They supply constantly-updated information and literature on wall types appropriate to specific design problems; provide data on thermal, acoustical, fire and moisture resistance, and other technical properties of walls built of clay products.
- They maintain high technical competence, acquired or maintained largely via industry schooling, constant liaison with producers, and knowledge of local conditions.

The 107 member companies in NADD whose names are listed below provide constructive service. Their salesmen are ready to supply you with accurate, helpful information of all types about structural clay products.

National Association of Distributors and Dealers of Structural Clay Products
WASHINGTON, D.C.

In the interest of better service to the construction industry, these companies have contributed to this advertisement.
When you include fiberglass panels in your plans, protect everyone's investment by specifying new FiloPlated Filon. These remarkable fiberglass panels, developed and produced only by Filon Plastics Corporation, are backed by an exclusive 15-Year Guarantee on surface appearance, color stability and light transmitting properties—plus the added protection of a Structural Lifetime Guarantee as specified in writing and available on request.

Never before has such a powerful guarantee been possible. Only FiloPlated Filon is produced with a built-in, armor-like surface on both sides of the panel. This super-tough surface protects and preserves the beauty of the panel, providing unprecedented durability. The superiority and dependability of these panels has been demonstrated in test after test—proving conclusively that in fiberglass panel specifications, FiloPlated Filon has no "equal!"
From our point of view... the Burgess-Manning Radiant Ceiling gives more design freedom

Donald J. Prout, Architect

Mr. Prout's letter confirms the fact that no other radiant acoustical ceiling has the structural flexibility possible with the Burgess-Manning Radiant Heating, Cooling and Acoustic Ceiling. It is this unusual design flexibility—unhampered by compromises in radiant, mechanical or structural design—which permits suitable ceiling layout to any module.

Of extreme interest, also, is the performance of the Burgess-Manning Radiant Acoustical Ceiling in buildings where there is a considerable amount of glass area—as at the Kent County Memorial Hospital, particularly in the solariums and lobby. Even with the front of the hospital having a southern exposure presenting difficult air conditioning as well as zoning problems, the Burgess-Manning Radiant Acoustical Ceiling, Mr. Prout points out, "performed over and above our expectations."

While the original design included floor-by-floor cooling... today, just the first and third floors (operating suite) are completely cooled by Burgess-Manning Radiant Cooling. Only chilled water equipment will be required for cooling the other floors at a later date.

Hospitals and institutions across the country report complete and lasting satisfaction with the Burgess-Manning Radiant Acoustical Ceiling. You, too, can secure the many distinct and profitable design advances... with your budget no bigger... offered by the Burgess-Manning Radiant Acoustical Ceiling for hospitals. Send for the complete story—Bulletin 138-3F.
In New York’s new Corning Glass Building, architects Harrison & Abramovitz & Abbe sheathed the lobby columns, walls and elevator areas with the classic beauty of domestic white marble. For the exterior areas above a reflecting pool, they framed diamond-matched sections of dark green marble behind glass panels set in stainless steel frames. The marble will require little maintenance... remain an economical and beautiful choice through the years. Significantly, marble is being specified for large and small installations by architects of note throughout the country.

Qualified members of the MIA can give you complete information on the selection and use of more than two hundred marbles. For detailed literature and a list of members, write

Marble Institute of America, Inc.

32 South Fifth Avenue, Mount Vernon, New York
A floor of Armstrong Tessera Corlon on and under a staircase at American Society for Metals

The picture at left shows a stairway in the new American Society for Metals building at Metals Park, Ohio—architect John Terence Kelly, A.I.A. Armstrong Tessera Corlon (Style 86532) is wrapped completely around the stair treads and is installed on the tops and undersides of the landings. This installation, which is as practical as it is dramatic, takes unusual advantage of the exceptional good looks, toughness, and flexibility of Tessera Corlon. Tessera’s interesting random-chip design and functional versatility made it the logical choice for offices, hallways, cafeteria, and other areas throughout the building.

TECHNICAL DATA ON TESSERA:
- uses: heavy-duty commercial and de luxe residential interiors, above, on, or below grade;
- grease and alkali resistance: excellent;
- dimensions: .090" gauge in rolls 6 ft. wide and lengths up to 60 ft.;
- stylings: monochromatic and multicolor designs, 16 colors.

The Armstrong Architectural-Builder Consultant in your area can help you solve any flooring problems you encounter. He will make on-the-job recommendations and, if you desire, will get you the assistance of technical, design, and installation experts at Armstrong. Call him at your Armstrong District Office. Or write Armstrong, 1602 Watson Street, Lancaster, Pennsylvania.

ARMSTRONG FLOORS—APPROXIMATE PRICE PER SQUARE FT. INSTALLED OVER CONCRETE FOR A MINIMUM AREA OF 1000 SQ. FT.

<table>
<thead>
<tr>
<th>Price Range</th>
<th>Materials</th>
</tr>
</thead>
</table>
| 20¢ - 25¢  | Asphalt Tile 1/8"  
Linoleum Tile .0625" |
| 35¢ - 50¢  | Asphalt Tile 3/16"  
Greaseproof 1/8"  
C and O colors 1/8"  
Exelon (vinyl-asbestos)  
Tile 1/16" and 3/32"  
Linoleum (tile and sheet) .090"  
Vinyl Corlon (sheet) .065" |
| 55¢ - 70¢  | Asphalt Tile  
Greaseproof 3/16"  
Exelon (vinyl-asbestos)  
Tile 1/8"  
Linoleum ("Battleship") .125"  
Vinyl Corlon (sheet) .070" |
| 75¢ - 95¢  | Cork Tile 1/8"  
and 3/16"  
Linoleum,  
special plain colors, .125"  
Rubber Tile 1/8"  
Vinyl Corlon (sheet) .070" and .090"  
Linoleum 1/8"  
Custom Corlon  
(vinyl) Tile 3/32" |
| $1.00 and over | Cork Tile 5/16"  
Vinyl Corlon (sheet)—  
Palatial Series .070"  
Custom Corlon  
(vinyl) Tile  
3/32" and 1/8"  
Custom Vinyl Cork  
Tile 1/8" |
Vin-Cor...new vinyl protected

Withstands Fumes

Permanent Protection  Won't Chip or Peel  Withstands Fumes

Granco Vin-Cor is a new concept in protected metal—corrugated steel panels protected on both sides by a generous galvanized coating, plus a tough three-coat vinyl finish. Permanent protection against weathering and corrosive atmospheres. Permanent color proved by Weatherometer tests. Vin-Cor’s durable vinyl surface requires no maintenance. Won’t craze, chip or peel. The zinc coating provides important secondary galvanic protection when Vin-Cor is drilled or cut.

Granco Vin-Cor is made from tough-temper steel. Strong. You can specify lighter gages than ordinarily required or use fewer supports. Reduce costs. Vin-Cor is classified noncombustible by NFPA Std. No. 220.

Four Independent Corrosion-Resistant Coatings

Wide Variety of Patterns and Gages in Any Length to 12’ 0”

Granco Vin-Cor is available in the widest variety of beautiful, nonfades colors ever offered in a protected metal. Furthermore, you can have a different color on opposite sides of the Vin-Cor panel.
strength, beauty and economy with...

galvanized steel panels

Nonfade Colors  Fire Resistant  Corrosion-Proof

VINYL PROTECTED STEEL PANELS
The new protected metal for industrial and commercial construction—siding, roofing, insulated wall panels, fascia, canopies and other applications.

FROM THE GRANCO FAMILY

VIN-COR

VINYL PROTECTED STEEL PANELS

GRANCO STEEL PRODUCTS COMPANY
6506 N. Broadway, St. Louis 15, Missouri
A Subsidiary of GRANITE CITY STEEL COMPANY

MAIL FOR VIN-COR MANUAL... Just sign coupon... clip to your company letterhead... mail today. Attn.: Dept. P-12.

NAME

OUR CATALOGS ARE FILED IN SWEET'S!

FEBRUARY 1961 P/A
designs in bevel siding:

Vertical application of Western Red Cedar bevel siding provides interesting shadow lines and added illusion of height to chapel's ground-to-peak gable end.

Important to architects specifying wood bevel siding is Weyerhaeuser DRI-SHIELD. This new chemically treated, 4-Square product resists moisture, offering builders more weather-freedom on the job . . . from application to finishing, with paint or stain.

Weyerhaeuser Company
Lumber and Plywood Division

Architects: Steinhart, Theriault, Anderson
Seattle, Washington
For built-in value, nothing beats ceramic tile

Although the beauty and permanence of ceramic tile are well known, you can add extra value at no extra cost when you specify Romany•Spartan for use in and around the pool, shower and locker rooms.

Due to its extreme hardness and low absorption factor, Romany•Spartan tile is impervious to body oils. Colors are unaffected by ever-present purification chemicals—never become dingy or discolored. This assures less frequent cleaning...lowest lifetime maintenance cost. There's the extra safety, too, of unglazed Romany•Spartan ceramic mosaics with added abrasive for use on normally slippery areas.

From a design standpoint, there are no limitations. With the broadest line of colors, shapes, sizes, finishes, both glazed and unglazed, Romany•Spartan can satisfy every decorative requirement. Your nearby distributor or sales representative can provide information, samples and, if you wish, design help. Or write United States Ceramic Tile Company, Dept. PA-18, Canton 2, Ohio.

UNITED STATES CERAMIC TILE COMPANY
New Anemostat Stainless Steel Diffus-A-Plate

- withstands heavy traffic
- saves space
- provides excellent air diffusion

Anemostat Diffus-A-Plates for floor or sill application diffuse a pattern of conditioned air up the exterior wall and across the ceiling, insuring draftless comfort in the occupied zone.

Suitable for heating, ventilating and cooling. Induction type Diffus-A-Plates can be used as separate units or in continuous sections. Due to the design of the discharge openings which measure 1 inch by ¼ inch, these ruggedly constructed diffusers are heel and pencil proof.

Write for Anemostat Catalog DAP-70.
Find the water heater and tank you need

...IN SECONDS!

You can specify a BURKAY water heating system

with one catalog—get it from one source of supply

Save the time you spend thumbing through catalogs looking for the heater and storage tank you need. Here’s how: Use the A. O. Smith Burkay Engineer’s Manual to find the correct heater and tank size for the needs of the job. Then, turn to the heater section for complete heater data. Just a few pages away you’ll find details of the tank size you’ve selected. Total time required: just a few seconds.

Unlike most water heater manufacturers, Burkay makes both water heaters and storage tanks. So you can quickly specify the major system components from one catalog. What’s more, you get delivery from one source of supply. This means one order, one shipping notice, more time savings.

Reduced specifying time is just one of several reasons it pays engineers to specify Burkay water heating equipment and to use the Burkay Engineer’s Manual. Get the full story and an Engineer’s Manual by returning the coupon below.

THE FINEST COMBINATION in commercial water heating—a Burkay gas-fired water heater and a Permaglas glass-lined storage tank.

FREE MANUAL

A. O. SMITH CORPORATION
Permaglas Division, Dept. PA-261, Kankakee, Illinois
Please send me___Burkay Engineer’s Manual___Information on Burkay gas-fired commercial and industrial water heaters and water heating systems.

Name
Firm
Address
City
Zone
State

FEBRUARY 1961 P/A
save WITH STAINLESS STEEL

BRIGHT, GLEAMING STAINLESS STEEL ADDS THE EXTRA MARK OF QUALITY TO JUST ABOUT EVERY TYPE OF PRODUCT YOU CAN THINK OF. NOT ONLY IS IT THE MOST DURABLE, CORROSION-RESISTANT AND SANITARY METAL AVAILABLE TODAY, IT OFTEN SAVES IN THE LONG RUN WHEN YOU CONSIDER ITS EXTENDED SERVICE LIFE AND LOW MAINTENANCE. ANY WAY YOU FIGURE, STAINLESS STEEL IS YOUR BEST BUY—BOTH IN QUALITY AND SERVICE.

see YOUR STEEL SERVICE CENTER

YOUR LOCAL STEEL SERVICE CENTER MAINTAINS COMPLETE STOCKS OF STAINLESS IN ALL FORMS. BUYING STAINLESS REGULARLY AS YOU USE IT REDUCES YOUR INVENTORY, RESERVES CAPITAL INVESTMENT AND LOWERS IN-PLANT STORAGE COSTS. YOUR NEAREST STEEL SERVICE CENTER IS YOUR BEST ASSURANCE OF QUICK, ON-TIME DELIVERIES TO MEET TIGHT PRODUCTION SCHEDULES.

specify MicroRold STAINLESS STEEL SHEET & STRIP

MICOROLD—PIONEER PRECISION-ROLLED, LIGHT GAGE STAINLESS STEEL SHEETS—GIVES YOU MORE STAINLESS AREA PER TON OR AN EQUIVALENT AREA WITH LIGHTER WEIGHT. "THINNESS CONTROL" IN PRODUCTION MEANS THE DECIMAL THICKNESS IS UNIFORM THROUGHOUT THE LENGTH AND WIDTH. ASK YOUR STEEL SERVICE CENTER ABOUT THE MICOROLD STORY.

WASHINGTON STEEL CORPORATION

2-M WOODLAND AVENUE

WASHINGTON, PA.
Massive concrete slabs bearing the late President's words mark the winning project in the FDR Memorial Competition.
WEBSTER ELECTRIC COMMUNICATIONS
widest choice of versatile sound systems . . .
with exact fit for every installation.

Webster Teletalk
INTERCOM BRIDGES
EFFICIENCY AND SMART STYLING!

There's more to Teletalk than meets the eye — this is the prestige intercom styled by Brooks Stevens with today's most advanced features for instant voice contact. "User" benefits that add versatility, convenience — cut costs, increase efficiency on the smallest to the largest installation.

Teletalk is available in the widest range of intercom models . . . desk and wall cabinets . . . matched accessories . . . capacities from 6 to 60 or more stations. Versatile! Teletalk can be a private system, or it can be used to page, make general announcements, distribute music.

Electronic advancements include Telebar central control, built-in silencing circuit, executive priority, printed circuits, transistor or tube models, visible and audible annunciators, handsets for confidential conversation. Cabinets are a harmonious combination of gold-tone grillwork and fine cabinetry in walnut or driftwood finish. Utility models have high impact cabinets for severe service.

Your Webster Teletalk dealer* can show you the wide range of models and tell you about the low-cost lease plan.

COMMUNICATIONS DIVISION
WEBSTER ELECTRIC
RACINE-WIS

Webster Telecom
This is an automatic dial telephone intercom. Ideal for widely scattered stations. It operates like city dial phones — has its own 48-volt power supply. Easily installed.

* See the Yellow Pages.

Webster Sound
Engineered sound components for custom assembly. Components include high fidelity amplifiers, control centers, tape decks, record players, AM-FM tuners; for paging, music distribution, communications.

For more information, turn to Reader Service card, circle No. 347
WASHINGTON, D.C. A deceptively simple but forceful design of eight concrete steles bearing passages from the speeches and writings of the late President has been named winner of the competition for the Franklin Delano Roosevelt Memorial. Authors of the proposal are New York architects William F. Pedersen and Bradford S. Tilney and sculptor Norman Hoberman. Joseph Wasserman and David Beer are associates, and Ammann & Whitney are consulting engineers.

Structure of the memorial will be bush-hammered, reinforced concrete with special white marble aggregate, white fines and white portland cement. The seven tall elements will be of cellular construction, with walls from eight to twelve inches thick, depending on load conditions. The low, central slab will be poured monolithically and will furnish the weight necessary to stabilize and balance the 165-ft-high cantilever unit (see section). The floor system will be composed of terrazzo-finished slabs supported by diaphragm walls tying the steles together and stabilizing them. The shafts will be illuminated at night. Careful attention has been given to the approaches to the memorial; visitors will glimpse it through trees, and then, approaching over rises in the landscape, will perceive the total composition.

The following three pages show the other finalists and a selection of competition entries.

See T. H. Creighton’s “P.S.” on page 236 for a personal evaluation of the competition and its winner.

A proposal based around a Presentation Court and Gallery. Designers proposed institution of annual Franklin D. Roosevelt Award to be presented in court, winners to be memorialized in gallery. Memorial would be in form of grass mound incised with court and its approaches, which would have walls of concrete with heavy exposed aggregate of granite, and granite paving. Sculpture and fountains would be used appropriately. Architects: Joseph J. Wehrer and Harold J. Borkin; Landscape Architect: William Johnson; Sculptor: Thomas McClure.
An earth mound enclosing a circular fountain court. The designers felt that the memorial "must not compete with the other monuments [Washington, Lincoln, Jefferson]; yet it must have an expressive form which is strong enough to hold its own." The court would be walled with both cut and polished granite. Particular attention was given, of course, to landscape planning. Landscape Architects: Sasaki, Walker & Associates; Architects: Luders & Associates; Consultants: Svend Braun and T. Lewis Buser.

A reinforced-concrete pavilion within a ring of trees and atop a man-made hillock. Eight beams and column elements cantilever in two directions to create a feeling of strength and tension. A precast concrete "lens" is supported at roof center over a larger-than-life-size bust of Roosevelt. Beam separations act as viewing slits toward the other three memorials. Architect: Tasso Katselas; Structural Engineer: Gensett, Williams & Associates.

A heroic statue of the late President would stand beneath an oculus in this templelike structure. Visitors would ascend steps to enter, then, once inside, step down into a shallow amphitheater around the statue. Appearance of the shrine at night was considered quite important by the designers. Architect-Sculptor: Rolf Myller; Structural Consultant: Lev Zeitlin; Landscape Consultant: Robert S. Malkin; Mechanical Consultant: Ian Grad Associates; Artist-Painter: David Chapin; Lighting Consultant: Leslie Larson; Alternate Sculptor: Luis Sanguino.
A Sampling of Competition Entries...

1. Victor A. Lundy. 2. Davis, Brody & Wisniewski (Team: Albert Bergmann, Carl Meinhardt, Ralph Steinback, Hiroyo Tagawa, Edith Wong, Julius Tuyne, Jr.); Honorable Mention.


6. Baltazar Korob

7. Louis Checkman

8. [Image of architectural drawing]
Puerto Rican Cultural Center on Central Park

NEW YORK, N.Y. In 1956, Architect Edgar Tafel was commissioned by La Hermosa congregation of the Disciples of Christ in New York to design a new church. The group had been operating from a “store-front” church in a predominantly Spanish-speaking section of the city, and had grown large and prosperous enough to have its own building.

Shortly after receiving the commission, Tafel found a prime site on Frawley Circle, at the northwest corner of Fifth Avenue and West 110th Street. As plans progressed, interest developed in having a community center as part of the project. Pretty soon, the church and center became separated, and Tafel is now remodeling a former catering-banquet hall next door to accommodate La Hermosa. Currently, the project has grown into a full-fledged Puerto Rican Cultural Center with the enthusiastic backing of Mayor Robert F. Wagner and such dignitaries as Mrs. Eleanor Roosevelt, Puerto Rico’s Governor Luis Muñoz Marin, Angier Biddle Duke, Harry Emerson Fosdick, and José Ferrer.

The center will be a three-story structure with lobby, offices, meeting room, and 125-capacity auditorium on the ground floor; craft and music rooms and 10 meeting rooms on the second floor; and 225-person auditorium, kitchen, and terraces on the top floor. Exterior will be brick with horizontals of oxidized copper and columns faced with yellow terra cotta.

Tafel noted to P/A that fund-raising experiences with the project have been interesting. It was rather difficult to raise money for the combined church-community center, but when they were separated and the emphasis was mainly on the Puerto Rican Cultural Center, sponsors appeared and funds became considerably easier to procure!

Many concerned in the project are hopeful that it will provide the impetus to spark a redevelopment of the entire Frawley Circle area. New public housing exists to the north of the site, and redevelopment housing is scheduled to rise just to the east. Proponents of the center think that this indicates the possibility of creating a many-faceted Spanish cultural and community center.
PERSONALITY

Many times, what befalls a person occurs without his own plan or invention. The person who triumphs over adversity and achieves contentment with equanimity can be said to be a man. But to say "sweet are the uses of adversity" about the adventures of Hermann H. Field would be to treat cavalierly one of the most horrifying, and at the same time one of the most inspiring, personal ordeals in the annals of architecture.

Most architects are familiar with Architect Field's incredible experience—he, after a CIAM meeting in 1949, he visited Poland to search for his brother Noel, who had vanished behind the Iron Curtain; how he was taken to the Warsaw airport and bade farewell by Polish architect friends; how he was not heard from again until one day in 1954 when a Pole fleeing to the West brought word that he was alive, albeit imprisoned. The story has been told in P/A (p. 228, January 1956) how Field, in a supreme example of mental and physical courage, kept his life and sanity intact during those harrowing years in a cellar on the outskirts of Warsaw. As an architect-planner, he had offended by the Sovietized plan for the ruined center of that city, with its autocratic focal point, the "Palace of Culture and Science." He proceeded to replan the city's center in his head, later devising an ingenious modular graphic system with the straw in his cell. (Only a month before his release, Field was given pencil and paper, and made the drawings you see for the first time on these pages.)

Four months after his imprisonment on trumped-up espionage charges, Field was given a cellmate, the Polish journalist Stanislaw Mierzenski. Conversing softly in German, the two took flight from their deadly surroundings to a life of the mind. Their fantasy-preoccupation was, as Field describes it, "with the complexities as well as the cussedness (which we were observing at close range) of human behavior." After their release, this mental exercise bore fruit in the 1958 novel Angry Harvest and will continue to do so in the forthcoming publication (October) of Duck Lane, a story of the wartime vicissitudes of the inhabitants of an imaginary dead-end lane outside Field's cellar window.

Today, Hermann Field is at home with his family in Boston, where, after five years writing the two novels which helped see him through the dark years, he has recently been appointed Director of the Planning Office of the proposed Tufts-New England Medical Center. This job, he says, "involves the close co-ordination of the development needs of a medical group with long traditions in the Boston scene with Boston's impending renewal efforts in a ... blighted downtown area."

Only building Field completed in detail was the Hotel-Transportation Center. Visit it.
Detail of redevelopment area shows Transportation Center and City Hall at intersection of two malls.

Finnish architects have said they feel his plan approach was valid and along the line which should have been followed.
Three Awards in Two Weeks for Nice Plant

The Nice Ball Bearing Company plant, Kulpsville, Pa., evidently lives up to its name, since recently, within the space of two weeks, it earned no less than three awards for its architect, Carroll, Grisdale & Van Alen of Philadelphia. In that short span, the building was awarded the Honor Award of the Pennsylvania Society of Architects for the best industrial building of the year; the Honor Award of Philadelphia Chapter AIA, for the same reason; and the Benjamin Franklin Gold Medal of the Producers' Council chapter for "the most imaginative use of modern building materials."

Bowling Blackballed

New York's Board of Standards and Appeals, which has been known to turn its head when an architectural felony was being committed in the city, emerged on the side of the angels at the public hearing on a zoning variance that would have permitted the construction of a three-level bowling alley in the waiting room of Grand Central Terminal (pp. 50, 164, January 1961 P/A). The board turned down the application by a vote of 4-0. Unfortunately, the terminal space is still in jeopardy, since it is zoned for "restricted retail" activity, and one of the leaders of the bowling alley crowd stated that they still might jam in restaurants, bars, and assorted concessions.

New York architects as a whole decried the bowling alley project, even though a group called the Architectural Bowling League—numbering among its members many who protested the plan—had applied for reservations in the completed alleys!

AIA Convention

Theme of the April 24-28 AIA Convention in Philadelphia will be "Redesigning Urban America." Author-economist John Kenneth Galbraith will be convention keynoter, and Lewis Mumford and Bruno Zevi will conduct a discussion on the esthetic, cultural, and sociological aspects of the city. Willo von Moltke, Roy Larson, Oskar Stonorov, Vincent Kling, Robert Geddes, and I. M. Pei will participate in a panel discussion of the renewal plan for downtown Philadelphia, with Edmund Bacon, executive director of the Philadelphia Planning Commission, in the chair.

Jury for the R.S. Reynolds Memorial Award, which is to be presented at the convention, consists of Paul Thiry, Minoru Yamasaki, Samuel T. Hurst, Hugh A. Stubbins, Jr., and Henrique E. Mindlin.

Austin Company Designs New Headquarters

The Austin Company has transferred the headquarters of its international engineering and construction organization to a 2½-story building at 8650 Mayfield Road, Cleveland Heights, Ohio. The 32,500 sq ft general office is the second Austin building on the company's 151-acre site on the perimeter of the projected Severance Shopping Center. Executive overlook a small lake from the second-floor wing, while the Research Division occupies its own wing, which spans a stream. General office space, a large exhibit lounge, and a 104-seat auditorium are on the

continued on page 58
superlative effects
...with standard window systems from MARMET

A surprising versatility in MARMET standard window systems gives you full freedom of design . . . even when planning closely budgeted jobs. In MARMET's standard Architectural Projected system (so ably employed by Edward S. Parson to accent the masonry in the College of Agriculture above), a choice of vertical mulls available in two series, permits a variety of face treatment in the design. In achieving the total effect planned by the architect, the choice of mulls is complemented by a choice of either thick or slimline extrusions, producing varying shadow patterns across the building's face.

MARMET AP's are made in many fixed lite arrangements with outward projected, hopper or casement type sash. Windows in the 5142 series are 13⁄8" in depth and 23⁄4" in depth in the 5212 series. Tubular sash is available in either series for ventilating lites where window design requires large expanses of glass. In AP's or in Curtain Wall, the flexibility of MARMET window systems gives you monumental treatment at standard engineered systems' cost. For superlative effects on your next job . . . specify MARMET.

Series 6442 Curtain Wall
The 6442 series permits doors to be hung right in the curtain wall section without special framing. Operating windows are built into the grid sections at the factory . . saving the cost of installing and "plumbing" at the job site.

NO LINTELS - NO JAMBS
A gridwall system which lends strong accents to horizontal building lines. Mating sections, pre-assembled at the factory, simply mate as they are anchored to the building . . cutting labor erection costs on the job site.

For additional information on the complete line of MARMET products—consult Sweet's Catalog File No. 17a or write to MARMET for catalog. Mar

MARMET CORPORATION
322-Q Bellis Street, Wausau, Wisconsin

For more information, turn to Reader Service card, circle No. 324
SARALOY® 400

frees design from conventional flashing limitations, cuts flashing labor costs 25% for new air terminal

45,000 square feet of Saraloy 400 roof flashing provide hundreds of permanent moisture seals for this ultra-modern air terminal. Among the many critical flashing problems solved by Saraloy 400 were: sealing 875 acute and obtuse angles created by almost inaccessible junctures of structural steel beams and purlins; flashing steel-to-concrete joints and lining scupper holes.

The design of the terminal’s elliptical cantilevered roof produced 144 different odd shapes and angles where beams, purlins and equipment housing shells meet. Flashing with conventional materials would require that each seal be specially cut and custom-fitted, often to match curved contours. The labor costs for installing metal flashing would have been prohibitive. Because Saraloy 400 could be quickly and easily cut and formed on the job, labor costs were about 25% less than the cost of installing conventional flashing materials. And each seal is permanent.

Saraloy 400 is Dow’s brand of flexible roof flashing. It can be bonded to almost any construction material, such as concrete, wood, metal, ceramic, and it can be painted. It provides a permanent watertight seal which won’t check, peel or crack... and which moves with building contraction and expansion. For more information write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Dept. 1501EB2.

OTHER DOW BUILDING PRODUCTS

STYROFOAM® — Long-lasting insulation for cavity walls; effective insulating base for plaster and wallboard. Rigid, low “K” factor, highly resistant to water and water vapor.

SCORBORD® (pat. applied for) — Superior rigid insulation for foundation perimeters, slab floors. Exclusive pre-scoring speeds installation.

ROOFMATE® — Lightweight, rigid insulation for built-up roofs serves as its own moisture barrier. Reduces blistering, resultant leaks. 2’ x 4’ boards speed installation.

THE DOW CHEMICAL COMPANY

Midland, Michigan

For more information, turn to Reader Service card, circle No. 368
Motor Hotel for Chicago’s North Shore

Ground was broken last December for the Hyatt-Lincolnwood Hotel in Lincolnwood, Illinois, between Evanston and Chicago. The five-story, 160-room hotel, and the low restaurant building to which it is connected, will be of reinforced concrete construction with brick and glass exterior and tan-brick trim. The project will be located at the northwest corner of Lincoln and Touhy Avenues, and will include an outdoor swimming pool, terraces, and parking for 500 cars. It will be air conditioned and fireproof, will have two dining rooms, a coffee shop, a cocktail lounge, banquet areas capable of seating 750, and four private dining rooms. Architects: Hausner & Macsai and Friedman, Alschuler & Sincere.

Contest, Fellowship, Scholarship

The architect (or contractor) who comes up with what is in the jury’s opinion the best and most original use of Sculptured Tile, a product of Stark Ceramics, Inc., will receive a trip to Paris and Rome for two. Deadline is March 31; entries will be judged by two architects and a contractor in Cleveland. . . . Details on University of Illinois’s Kate Neal Kinley Memorial Fellowship for study in America or abroad may be obtained from Dean Allen S. Weller, College of Fine and Applied Arts, Room 110, Architecture Building, University of Illinois, Urbana, Ill. Applications must be made not later than May 22. . . . Candidates for the Rotch Traveling Scholarship must have a record of study or practice in Massachusetts. Requirements can be obtained from William G. Perry, Secretary, Rotch Traveling Scholarship Committee, 955 Park Square Building, Boston 16, Mass. Applications due March 20.

White House Conference on Aging

The present “population explosion” among the elderly of the nation has drawn increased attention to the problem of housing them. People over 65 now constitute more than nine percent of the population of the country, and this percentage is expected to be maintained—or even increased—in the next few decades. Most persons in this age group will face the problem of finding housing to meet their special physical and social needs within drastically curtailed incomes.

Activity in the field of special housing for the elderly is now expanding rapidly as a result of 1965 revisions to the U.S. Housing Act. The first effects of this legislation, in terms of completed projects, are just now being seen. (Next month’s P/A will present a special feature on Public Housing for the Elderly.)

Last month, 227 people from all over the country met in Washington to discuss housing for the aging and make recommendations to the Government. The group constituted one of the 20 sections of the White House Conference on Aging.

Although only about 20 of the delegates were architects, they took a prominent part in the program. Walter K. Vivrett, Professor of Architecture at the University of Minnesota, was the Technical Director of the Housing Section, in charge of assembling background information and organizing the delegates into working groups.

Among other architects participating were William Keek of Chicago, Edward Noakes of Bethesda, Preston Stevens of Atlanta, George Kassabaum of St. Louis, and Oskar Stonorov of Philadelphia. Without doubt, the best-known among the nonprofessional delegates was Miss Mary Pickford of Beverly Hills, California.

The most significant project in a display at the National Housing Center was Victoria Plaza, a public project in San Antonio, which will be presented in detail in next month’s P/A. A full-scale apartment unit from the project gave the delegates some idea of the innovations included in the design, and a model allowed them to visualize its contribution to the city. Architect Thomas B. Thompson of San Antonio and Mrs. Marie McGuire, director of the city housing authority and keynote speaker for the Housing Section, were on hand to explain the program of the center.

Most of the conference represented housing authorities, welfare agencies, and civic, professional and religious organizations. (The AIA was not represented.) They all took their task seriously, discussing bitterly the problems and obstacles they faced and stoutly defending their proposed solutions.

These delegates were concerned principally with legal and economic means for making available more housing of suitable types and quality. They did not presume to make recommendations of design, but did discuss the relation of such housing to the community, a question on which the architects were able to speak with authority. It was agreed that the elderly must not be moved any farther than necessary from their previous neighborhoods, or from the facilities of the city core.

The importance of adequate housing for independent living, in order to reduce dependence on institutional facilities, was stressed repeatedly. The inadequacies of present institutions and inconsistencies in their regulation were criticized.

The question that generated the most heat was that of private versus public sponsorship. All proposals that called for increased Government subsidies were attacked as unfair to private enterprise. One such recommendation survived a floor fight when it was emphasized that public housing was endorsed only for those with inadequate means to obtain decent private housing. Experience has shown that this group makes up a large portion of the over-65 population, and that it is housed for the most part at public expense, even if not in public projects.

The problems of those who are ineligible for public housing, yet who are often inadequately housed, led to recommendations on the administration of FHA. Several delegates protested the unrealistic requirements

Continued from page 54

or abroad may be obtained from Dean Allen S. Weller, College of Fine and Applied Arts, Room 110, Architecture Building, University of Illinois, Urbana, Ill. Applications must be made not later than May 22. . . . Candidates for the Rotch Traveling Scholarship must have a record of study or practice in Massachusetts. Requirements can be obtained from William G. Perry, Secretary, Rotch Traveling Scholarship Committee, 955 Park Square Building, Boston 16, Mass. Applications due March 20.

White House Conference on Aging

The present “population explosion” among the elderly of the nation has drawn increased attention to the problem of housing them. People over 65 now constitute more than nine percent of the population of the country, and this percentage is expected to be maintained—or even increased—in the next few decades. Most persons in this age group will face the problem of finding housing to meet their special physical and social needs within drastically curtailed incomes.

Activity in the field of special housing for the elderly is now expanding rapidly as a result of 1965 revisions to the U.S. Housing Act. The first effects of this legislation, in terms of completed projects, are just now being seen. (Next month’s P/A will present a special feature on Public Housing for the Elderly.)

Last month, 227 people from all over the country met in Washington to discuss housing for the aging and make recommendations to the Government. The group constituted one of the 20 sections of the White House Conference on Aging.

Although only about 20 of the delegates were architects, they took a prominent part in the program. Walter K. Vivrett, Professor of Architecture at the University of Minnesota, was the Technical Director of the Housing Section, in charge of assembling background information and organizing the delegates into working groups.

Among other architects participating were William Keek of Chicago, Edward Noakes of Bethesda, Preston Stevens of Atlanta, George Kassabaum of St. Louis, and Oskar Stonorov of Philadelphia. Without doubt, the best-known among the nonprofessional delegates was Miss Mary Pickford of Beverly Hills, California.

The most significant project in a display at the National Housing Center was Victoria Plaza, a public project in San Antonio, which will be presented in detail in next month’s P/A. A full-scale apartment unit from the project gave the delegates some idea of the innovations included in the design, and a model allowed them to visualize its contribution to the city. Architect Thomas B. Thompson of San Antonio and Mrs. Marie McGuire, director of the city housing authority and keynote speaker for the Housing Section, were on hand to explain the program of the center.

Most of the conference represented housing authorities, welfare agencies, and civic, professional and religious organizations. (The AIA was not represented.) They all took their task seriously, discussing bitterly the problems and obstacles they faced and stoutly defending their proposed solutions.

These delegates were concerned principally with legal and economic means for making available more housing of suitable types and quality. They did not presume to make recommendations of design, but did discuss the relation of such housing to the community, a question on which the architects were able to speak with authority. It was agreed that the elderly must not be moved any farther than necessary from their previous neighborhoods, or from the facilities of the city core.

The importance of adequate housing for independent living, in order to reduce dependence on institutional facilities, was stressed repeatedly. The inadequacies of present institutions and inconsistencies in their regulation were criticized.

The question that generated the most heat was that of private versus public sponsorship. All proposals that called for increased Government subsidies were attacked as unfair to private enterprise. One such recommendation survived a floor fight when it was emphasized that public housing was endorsed only for those with inadequate means to obtain decent private housing. Experience has shown that this group makes up a large portion of the over-65 population, and that it is housed for the most part at public expense, even if not in public projects.

The problems of those who are ineligible for public housing, yet who are often inadequately housed, led to recommendations on the administration of FHA. Several delegates protested the unrealistic requirements

Continued on page 60
Submerging into a sea of silence is a poor alternative to the quiet pleasure of living in an Elof Hansson world of sound control. Our modern research laboratories are continuously immersed in solving the complex problems of this noisy civilization. Their significant achievements are demonstrated in the proved performance of superior products.

The latest addition to our diversified line—
New HANSOGUARD* Fire Protective Acoustical Tiles
A significant breakthrough in the development of multi-purpose acoustical ceilings. Designed to protect the structural components of a building by eliminating dangerous heat transmission through the ceiling structure. Provides time-rated fire protection combined with excellent acoustical efficiency. Important savings are achieved by elimination of other methods of fire protection, minimized maintenance, reduced insurance, and omission of wet construction. Available in random and Hansostar needle-point perforated patterns, and attractive fissured finish, to blend with any architectural interior.


The complete line of researched and engineered sound control products
Send for Catalog 61 for descriptions and illustrations of the complete line
Our Acoustical Engineering Staff is at your disposal—without charge or obligation

711 Third Avenue, New York 17, N. Y.

Authorised sales representatives in every major city in the U. S. and Canada
and excessive red tape of the present program. Although the recommendations of the conference are unlikely to affect the design of housing for the elderly directly, they will have many indirect effects on the quantity and type of projects constructed. Submitted to a new Administration that seems to favor an increase in public spending, these recommendations should stimulate further the already phenomenal growth of special housing for the elderly. J.M.D.

$25,000 Awards Program Set

Theme of the third annual architectural competition sponsored by Mastic Tile Division, The Ruberoid Company, is development of medical facilities to complement the residential, educational, and recreational areas that have been designed in the two previous programs. Hypothetical site shown would adjoin the education-recreation site of last year's competition (pp. 54-55, SEPTEMBER 1960 P/A). Jury is headed by E. Todd Wheeler, chairman of AIA's Committee on Hospitals and Health, and includes Donald S. Nelson, Broad & Nelson, Dallas; Donald E. Neptune, Neptune & Thomas & Associates, Pasadena; James J. Souder, Kiff, Coalen, Voss & Souder, New York; and Ray E. Brown, director of the graduate program in hospital administration at the University of Chicago, A. Gordon Lorrimer, New York, is professional advisor. Details and registration forms are available directly from Ruberoid or from its field representatives. Deadline for receipt of entries is June 30.

Hilltop Research Center for Electronics Firm

Hoffman Electronics Corporation's U-shaped Science Center is on a 10-acre site on top of one of the highest hills in Santa Barbara, Calif. Offices for the staff of 50 scientists and engineers are along the two end walls of the long, raised structure, giving views of the city below and the Santa Ynez mountains to the northeast. Laboratory space adjoins the offices and opens onto the interior, landscaped court. Interior corridors are not provided because covered walkways surround the building. The base of the U contains the entrance lobby, research library, and visiting director's suite. Construction is of laminated beams with glass and plaster panels. The landscaped central court provides a place for informal seminars, and there is a raised swimming pool for the staff to use. Entrance to the building (right) is by a flight of stairs suspended over a reflecting pool. The center is planned for eventual expansion to six times this size. Architects: William L. Pereira & Associates; Gin Wong, partner in charge.

Concrete Frame to Hold Movie-TV Museum

Hollywood's Motion Picture and Television Museum, to rise on a 3½-acre site opposite Hollywood Bowl, will be, in effect, a series of large platforms suspended in a structural "cage" of prestressed concrete. The opaque building in the rendering will house a completely equipped sound stage and television studio, where visitors will be able to watch production of films and television shows. Major portion of the museum will be devoted to exhibits telling the history and explaining the technical aspects of both media. Special areas will contain a projection theater, a hall of fame and wax museum, rooms dedicated to winners of film and TV awards, and a restaurant whose various rooms will recreate sets of famous motion pictures. An adjoining office tower will be added in increments as the need develops. Architects: William L. Pereira & Associates.

CALENDAR

Annual meeting of The Aluminum Association in Cleveland this month (14th, 15th, 16th, and 17th) will be highlighted by a trip to Oberlin College to mark the 75th anniversary of the discovery, by Charles Martin Hall, of the electrolytic process that set aluminum on the road to becoming the second most widely used metal in U. S. industry.

Architectural Tour Sponsorship

Sponsors of the Creighton-Lux-led tour of eastern Europe and Scandinavia, announced on page 54 of last month's issue, are Le Compagnie Mondial des Voyages, McGinnis Travel Service, and Air France.

OBITUARIES

William C. Mann, Mann & Harrover, Memphis, Tennessee, died December 31 after a short illness. His young firm won a number of awards, including several from P/A. . . . Frederick H. Brooke died in Washington, D.C., at the age of 82. He was the American architect on the British Embassy there, and designed the District of Columbia War Memorial in West Potomac Park.
The new Social Security Administration Headquarters
Acoustical Contractor: Lloyd E. Mitchell, Inc.

...47 acres of ceiling space in one
of the nation's largest government office buildings!

EASTERN ACOUSTICAL MATERIALS
GOT THE VERDICT! Here's new evidence that Eastern continues to get the decision on
the country's most demanding installations and most exacting specifications.
Eastern's all-metal, acoustical "Silent Ceiling" and Eastern's acoustical fasten-
ting systems offer maximum savings in erection time and maintenance
cost... assure shift-free, level-perfect placement!
Get the full story and judge for yourself why, when it comes to versatility, economy, eye appeal, serviceability and structural strength, Eastern acoustical
materials keep winning on all counts! Write today for full particulars—or see Sweets 11a

Eastern Products Corporation

Acoustical Division, 1601 Wicomico St., Baltimore 30, Md.

For more information, turn to Reader Service card, circle No. 308
SOLID VINYL
WOODGRAIN PLANKS
another exclusive style in
KENTILE
FLOORS

... especially designed to create the natural beauty of wood in combination with all of the easy-to-care-for, long-wearing characteristics of Kentile® Solid Vinyl. Available plain, or pre-pegged at factory in contrasting color of your choice.

Woodgrain Planks also available in Rubber. Woodgrain® Tiles (9" x 9") available in Solid Vinyl, Vinyl Asbestos, Rubber, and Asphalt.

SPECIFICATIONS—
Size: 4" x 36"; Thicknesses: Standard Gauge (.080") and 1/8"; Colors: Birch, Teak, Limed Oak, Walnut, Norway Maple.

Call your Kentile Representative for samples, or consult Sweet's File.*

*In New York, visit the new Kentile Floors Showroom Suite 3119 (31st Floor), Empire State Building, 350 Fifth Avenue.
APPOINTING NEW FRONTIERSMEN

By E. E. Halmoe, Jr.

Appointments of men to the Government's "second-echelon" jobs—the 500 or more heads of independent agencies and important bureaus within the Federal departments—are the matters of key importance to anyone who does business (or wants to) with the Federal Government.

With the major Cabinet appointments already made, these below-Cabinet-level jobs were beginning to be filled as Congress opened for business again January 3, and Washington began to recover from its unnatural political vacuum.

As most architects know, Washington operates what is probably the world's biggest "rumor mill"—and it has been running at full speed on a 24-hour basis for months, while the new Administration struggles with its job of taking over. The rumor mill operates best, of course, when it is fed as few facts—but as much unfounded conjecture—as possible. The principal product has been hundreds of names of men who will—or won't—be appointed to the policy-making, contract-administering posts.

For architects, the key second-level jobs can be listed handily: Commissioner of the General Services Administration; Administrator of the Housing and Home Finance Agency; Commissioner of the Federal Housing Agency; Commissioner of the Public Housing Administration; Administrator of the Veterans Administration; chiefs of the engineering branches of the armed services; Commissioner of the Bureau of Reclamation; Commissioner of Indian Affairs; and administrator of the Federal highway program.

Of these, GSA, HHFA, FHA, PHA, VA, and the highway post are subject to Presidential appointment. Subject to Cabinet appointment or assignment by the head of the particular agency involved are heads of the HHFA's Urban Renewal Administration and the Community Facilities Administration; the subchefs of GSA—principally Public Buildings Service; VA subposts; and BuRec and other such agencies. The military service chiefs—of the Corps of Engineers, the Navy's Bureau of Yards and Docks, the Air Force Civil Engineers—are appointed for regular "tours," and all three present chiefs have several years to go yet before their terms expire.

Some of these key appointments had already been made before Congress got under way—principally those of New Yorker Robert C. Weaver as head of HHFA, and Missourian Rex Whitton as administrator of the Federal highway program. (Incidentally, the presession furor over the so-called regulatory agencies should have little effect on architects or the construction industry, even if something is done to bring them under closer Presidential or Congressional control. Although some of these agencies—such as the Federal Power Commission—do have an effect on...
construction work, it is quite remote from actual field operations.)

One other point, before leaving discussion of the make-up of the new Administration: Watch for action on legislation that would renew the President's authority to reorganize agencies. The pertinent law expired a year ago, and President Eisenhower's request for renewal. The Kennedy Administration is certain to seek the same authority—and Congress' action will be the tip-off on how far it will go along this line.

Satellite Cities?

Regional planning agencies, wrestling with the growing transportation headache around Washington (and all other major metropolitan areas), continue to push for the idea of satellite towns as a solution. (Architects would have a "substantial" employment center of its own, its own business and entertainment districts, but would be connected to others and to the two big cities by a transit system. Satellites would be separated from each other by publicly owned lands used as parks or sites for connecting freeway loops.

Problem would be the enormous untangling of legislation and local governmental units that would be necessary before such a system of satellites could be built according to any plan, and the certainty that local governments would fight hard against any loss of their present powers.

But the task of providing some sensible means of transportation in the sprawling areas around the nation's big cities is one of increasing importance, particularly as more people begin to realize that highways alone simply cannot solve the problem.

In the Washington area, for instance, the Maryland State Roads Commission is asking the legislature for power to condemn lands for use for rapid transit systems, as well as highways. Such action has been opposed, so far, by the Federal Bureau of Public Roads, on the ground that Federal funds may not be used for transit purposes. However, it is expected that the new Administration will seek a broader interpretation.

Labor Pains

Housing—and all other areas of construction—will be vitally concerned with the offensive the building-trades unions are already mounting to get legal permission for "common situs" picketing (striking a whole job, even if a dispute is with a single one of many contractors).

As Congress began its session, such a change in the basic labor act still didn't seem likely to get through, but labor was pledged to push for it—and hard.

On another labor front, there seemed to be some hope of a solution to the jurisdictional disputes that have plagued the missile-base construction program:

The AFL-CIO was reported to be reviewing its "no stoppage" agreements of World War II vintage. Implication is that if the construction unions renew such pledges, they'll want some assurances from the Defense Department of employment of their members.

Behind the unions' concern is the very real threat that Congress might step into the matter with more restrictive legislation; criticism of the building trades on this score has been growing in Washington.

Classical Madison—Controversial FDR

Two proposed monuments—in monument-studded Washington—got into the news during the month.

One of these, for the moment at least, was noncontroversial: a monument to President James Madison, for which no site or design has been selected. Senator Willard Robertson of Virginia said the Madison memorial might utilize the 24 sandstone columns, left over from recent remodeling of the Capitol, as its central theme (though the columns would have to be protected from the weather).

The controversy arose—not unexpectedly—over the selection of a prize-winning design for a monument to Franklin D. Roosevelt (pp. 47–50).

Reaction to the design selection ranged from guarded newspaper comment on the originality of the idea to the Washington Post's headline characterization of "Book Ends Out of the Deep Freeze."

Reaction of the Roosevelt family was in general equally guarded—but certainly not approving.

As you know, the selection of the winner of the design contest is far from the end of the story. Various public bodies must now approve, as must Congress, and the estimated $4.3-millions cost must be raised both by public subscription and from Congress. It is estimated that at the very least it will be five years before anything is actually built on the site fronting the Potomac River.

Parking Problems

Washington's apparently ever-growing acreage of spaces devoted to parking automobiles—spaces that have now encroached on park areas surrounding Government buildings, as well as vacant lots—came in for criticism and a solution shocking to many a Government employee:

The Bureau of the Budget and the General Services Administration completed a study which recommended that Government employees be charged for parking space, with the money to be used to finance construction of garages. Such a move, figured the two agencies, would (1) force more car-pooling, thus resulting in fewer cars on the streets; (2) force greater use of available public transportation.

It is estimated that the city will have a "deficit" of 11,500 parking spaces by 1968.

FINANCIAL

As the new year got under way, business prospects for the construction industry continued to look good to many forecasters.

Latest forecast came from the traditionally optimistic Associated General Contractors, which foresaw a total of $57.5 billions of new construction (plus $19.5 billions for maintenance and repair work) for 1961.

That prediction is exactly in line with the outlook released a month ago by the Department of Commerce (January 1961 P/A), and it relies on the same elements: some recovery in housing; a substantial upsurge in privately financed work, plus gains in public works; and the hope that no major stoppage or catastrophe will interfere.

Again, these predictions were being bolstered by other factors that continue to attest to the strength of the construction sector of the economy.

For example, there was evidence that money has eased somewhat over the past several months: The FHA reported interest rates (average) on conventional first mortgages for both new and older homes were down about 0.05 percent near the end of the year (from July).

Another example: The Department of Commerce Business and Defense
Discover All The Ways Powder Actuated Tools Work For You!

Wood to steel, wherever such application is required.

Steel to steel, such as angles and brackets to beams.

Steel to concrete, such as conduit and pipe clips; duct straps, angles, brackets and braces.

Wood to concrete, such as furring strips, sill plates, partition plates.

Overhead concrete installations, such as drop ceilings, electrical fixtures.

Threaded studs to concrete, such as attachment of pre-drilled materials — also for materials that may require removal or replacement.

For the best in powder actuated tool fastening, rely on these brand names of member companies:

NELSON / OMARK / RAMSET / REMINGTON

For more information, turn to Reader Service card, circle No. 333

The distinctive sound of powder actuated tools has replaced much of the wearying staccato of traditional fastening methods; and because of their fatigue-saving advantages the tools offer greater efficiency than less modern fastening equipment.

Powder actuated tools, with their complete mobility and light weight, satisfy an extremely wide variety of fastening needs: wood to concrete; steel to concrete; steel to steel — wherever fastening is required. To help you discover more ways powder actuated tools can work for you, the Powder Actuated Tool Manufacturers' Institute provides a free portfolio of current information. Simply mail the coupon today!

To: Powder Actuated Tool Manufacturers' Institute, Inc.
Attn: Al Lane
200 College Street, New Haven 10, Connecticut
Please send me information on powder actuated tool fastening.

NAME ___________________________ TITLE ___________________________
COMPANY ___________________________
ADDRESS ___________________________
CITY ___________________________ ZONE ______ STATE _______

No representative will call, unless you so request.
MAHON ROLLING DOORS...
VERSATILE SPACE-SAVERS
... that also prevent heat losses

Heat costs money. With Mahon Rolling Doors you keep wintertime heat losses to a minimum in your plant, warehouse or railroad facility. These positive-action doors have to be opened only as much as necessary for easy transit—the space-conserving roll-up action can be stopped at any height—closure is quick and easy. You'll be pleasantly surprised at the difference Mahon Rolling Doors make in your employees' working efficiency... and your heating costs. Whether you're building, modifying or modernizing—upgrade with quality Mahon Rolling Steel Doors... ruggedly built for long life so that the doors and the diverse advantages last.

MAHON BUILDING PRODUCTS
- Aluminum or Steel Curtain Wall (in natural or colored metals)
- Rolling Steel Doors (Standard or Underwriters' labeled)
- Metalclad Fire Walls (Underwriters' labeled)
- M-Floors (Steel Sub-Floors)
- Long Span M-Deck (Cellular or Open Beam)
- Steel Roof Deck
- Acoustical and Trolley Forms
- Acoustical Metal Walls, Partitions, and Roof Deck
- Permanent Concrete Floor Forms

CONSTRUCTION SERVICES
- Structural Steel—Fabrication and Erection
- Steel Fabrication—Weldments
- Geodesic Domes—Fabrication and Erection

WRITE FOR ROLLING DOOR DESCRIPTIVE LITERATURE. ALSO IN SWEET'S FILES.

THE R. C. MAHON COMPANY
DETOIT 34, MICHIGAN

For more information, turn to Reader Service card, circle No. 366

Services Administration said that sales of electrical construction materials (including wiring, lighting fixtures, etc.) will increase about 4 percent this year over 1960. Since 1960 sales will be up about 7 percent over 1959, this is a substantial jump.

Still another: The "Value Line" survey also expects new construction outlays to go up this year, powered by a sizable expansion of Government spending on highways and public works. This in turn will mean better business in another year for building supply manufacturers: the full effect probably won't be felt until early in 1962.

This same upturn in highways and heavy construction, incidentally, is expected to help construction machinery manufacturers, who have been hard hit (operating at less than 55 percent of capacity) over the past year or so.

Contributing to this optimism, of course, is the certainty (as noted here last month) that Congress will pump some new money into several areas with reasonable speed: aid for school construction, for depressed areas, and housing for the elderly, for instance.

And then there is the continuing evidence of taxpayer support for bond issues that will support construction work (p. 63).

One interesting factor, though, for any observer familiar with construction operations, is the speed with which planners decide on construction as a solution for problems of unemployment and business stimulation.

Undeniably, construction work will do just that—but most people outside the business simply do not realize the time that must be consumed in planning and other activities before actual construction work can begin. That's one reason, incidentally, why the huge Federal-aid highway program was such a disappointment to many people in its early years—even though highway engineers, architects, and others consistently pointed out that it takes an average of 20 months from the time the money is available until the time that construction contracts are ready for letting.

Building projects often don't take that long. But, as many architects know, GSA figures up to three years from authorization to actual construction of Government buildings.

Members of the profession should sound this sort of a warning while legislation is in progress, in order to prevent a black mark against them later, in the mind of the public, when the appropriations don't produce jobs and a new flow of money the day after they are made. Pass this advice to your consultants on government jobs.
There's no fine print in Onan's pricing policy!

'Strip-downs' and 'price-adders' are getting out of hand in the electric plant industry. There have always been a few who have sold strictly on price, and of course, got the price down by stripping equipment of essential components.

Today, some leading manufacturers are stripping-down their electric plants.

These stripped-down prices are attractive. But when you add the cost of such essentials as oil and water pressure gauges, battery-charging ammeter, over-speed shutdown, radio suppression, flexible exhaust tubing—even mufflers!—what happens to your bargain price? You're right—you wind up paying more.

*Onan has never produced a stripped-down model, has never used essential operating accessories as 'price-adders.'*

Today, more than ever, it will pay you to go over electric plant prices with an eagle eye. *Compare Onan prices with others before you buy.* (But read the fine print.)

C. W. Onan, President

Onan Electric Power Plants are available in sizes from 500 to 230,000 watts.

**World's leading builder of electric power plants**

For more information, turn to Reader Service card, circle No. 331
NEWS from Dow Corning

Silaneal Prevents This

Assure Lasting Beauty For Your Designs—Specify Silaneal When You Specify Brick

Why take chances with efflorescence and other discolorations that mar the beauty of your buildings? Make it a practice to specify Silaneal® protection when you specify brick. Applied by the brick manufacturer, Silaneal makes brick water repellent. Thus, dirt is rain-washed away rather than being absorbed . . . and efflorescence is minimized.

Which brick should have Silaneal?
Any brick with a suction rate above 20 grams should have all surfaces treated with Silaneal for improved laying properties, better bond strength and minimum water penetration. Brick having a suction below 20 grams should be treated on the exposed faces but not on the bedding surfaces. See suggested Architectural Specification on the opposite page.

Speeds Construction
Brick with Silaneal treated bedding surfaces need no wetting before lay-up. Mortar joints stay workable longer. Completed walls brush clean quickly.

Write for this helpful information
1. Silaneal Bulletin, AIA File No. 3F.
2. Full color descriptive movie.
3. List of manufacturers offering Silaneal treated brick.
   Address Dept. 7314.

Specify
SILANEAL® keeps brick clean

Dow Corning
Suggested Specification for Silaneal

From Dow Corning Bulletin A14 File No. 3F.

"Brick having suction above 20 grams per minute (per 30 sq. in. of bedding surface) shall be treated at the brick plant with Silaneal® (manufactured by Dow Corning Corporation). The Silaneal concentration shall be adjusted until the brick pass the following test:

Allow bricks to air-dry 24 hours after treatment. Weigh the brick and place bedding-side-down in 1/8-inch of water. Remove after 60 seconds and weigh again. The average increase in weight shall lie between 1/3 and 2/3 gram per square inch of surface tested (between 10 and 20 grams for a nominal 4 x 8 brick having a bedding surface of 30 square inches).

Brick having suction below 20 grams, but which may have a tendency toward efflorescence or other staining, shall be sprayed with Silaneal® on the face and two ends only. Treatment concentration shall be of sufficient strength to control efflorescence and staining."

NOTE: There are several brick manufacturers who produce brick having low suction which already perform similar to a Silaneal treated brick. Little improvement in efflorescence control and reduction in dirt pickup could be accomplished by treating this type of brick with Silaneal. Silaneal treatment would not improve the laying properties of this type of brick.
CONNNOR...
COMFORT LINK IN
THE HILTON CHAIN

In these two handsome additions to Hilton hospitality, more than 5000 Connor air distribution units make a vital contribution to the comfort of travelers, conventioneers, and hotel employees. Virtually every product that Connor manufactures—from famous Kno-Draft overhead diffusers to Pneumavalve-equipped Series 45 P valve attenuators—is installed in these glamorous new buildings.

In the 900-room Denver Hilton, 1100 feet of Connor's attractive, functional KLS linear diffuser were used to complement the interior's essentially rectilinear pattern. The Pittsburgh Hilton—800 rooms and 24 stories—features many Connor linears, squares, and rounds.

Leading architects, engineers, and contractors agree that Connor's complete line offers the ideal combination of function and design...a combination that suits a wide variety of structural demands. Representatives in principal cities.

The Pittsburgh Hilton
William B. Tabler, Architect
Jaros, Baum & Bolles, Engineers
Limbach, Contractors

HOUSTON, TEXAS The pendulum has swung from one extreme to the other for James Johnson Sweeney. Having resigned in August from the Frank Lloyd Wright-designed Guggenheim Museum (p. 58, SEPTEMBER 1960 P/A), he has just been appointed director of the Museum of Fine Arts of Houston, latest addition to which was designed by Mies van der Rohe (below).

Sweeney, whose métier has long been the creation of a museum of art rather than the administration of a popular-education type program (emphasis on which led him to leave the Guggenheim), has as his goal in Houston the establishment of the Museum of Fine Arts as "an art center of world reputation." He states that it should be "a Texas museum, not merely a Houston museum. But it should not be merely a Texas museum. It should take its place as one of the significant museums of the United States and of the world."
Eames Designs Contract Line for Dorms

ZEELAND, MICH. Charles Eames has designed a system of storage, sleeping, and study units for institutional use — particularly college dormitories — that permits maximum conservation of space and exceptionally easy room maintenance.

Many such built-in systems available today have the disadvantage of being static: it is difficult to add to or alter them. "Eames Contract Storage" eliminates this drawback by standardizing the basic units and making them attachable and detachable, thereby permitting variation in individual groups of units. The Eames system incorporates into the basic structure not only typical storage units, but also other amenities and necessities usually found in residence halls: beds, desks, general storage and lighting fixtures. Conceivably, the only additional furniture needed to complete the furnishing of a room utilizing the storage system would be chairs, and perhaps a table for extra personal equipment such as radios and phonographs.

A major space saver is the fold-down bed, which is stored behind a large panel and lowered at night by means of a counterbalanced spring assembly to the steel-supporting brackets. Ease of room maintenance is provided by having the units touch neither ceiling nor floor, being mounted to the wall on steel brackets bolted to Unistrut. Herman Miller Furniture Co., Zeeland, Mich.

Spray-On Coating Has Sound-Absorbing Properties

NEW YORK, N.Y. "Acoustex" is a spray-on coating for walls and ceilings that provides a surface finish and at the same time has sufficient porosity to cause a good quality of sound absorption throughout the area treated. The added advantage of equal spread of absorption results from the fact that Acoustex covers the entire surface, rather than having to be applied to specific areas like most standard acoustical products. In addition to its noise-reducing powers within a given enclosure, the surfacing, by sealing minute holes and cracks, will tend to eliminate sound that emits from other rooms.

Acoustex may be used instead of two coats of plaster and a paint finish on relatively rough reinforced concrete ceilings and slabs, and on precast, cast-in-place, and poured concrete, gypsum block partitions, hollow tile and cinder block. Cost reductions over established finishing methods are obvious. Acoustic Chemical Corp., 22 E. 17 St., New York, 3, N. Y.

Ceiling and wall textures of Acoustex come in 10 standard colors.
Privacy Achieved with Plastic Webbing

This piquant gazebo and the fence protecting the terrace from the prying eye of the milkman are constructed of “Weblite” fencing, a woven plastic webbing and redwood. The fencing is woven of a saran yarn extruded by Firestone Synthetic Fibers Company from a resin made by Dow Chemical Company. The webbing is nonabsorbent and impervious to moisture, has a high tensile and impact strength, and does not deteriorate from exposure to sunlight and mildew. Present colors available: white, turquoise, and green. Weblite, Inc., 24 Jericho Turnpike, Mineola, N. Y.

Glass-Fiber Panels Now Leaded

Flat glass-fiber panels embedded with steel strips in diamond (shown) or scallop designs can be used for a number of partitioning purposes both inside and outside. Translucent panels are available in either green or white, measure 24” x 96”. Strips are either gold- or steel-colored. Barelite Corp. of America, 386 Gerard Avenue, New York 51, N. Y.

Structural Aluminum System for Low Rise

New structural aluminum closure system for one-story buildings has as its basis an assembled load-bearing frame fabricated from 6063-T6 alloy alumi-

num extrusions. This frame, joined to standard roof beams specified by the architect, will take total loads imposed on a one-story building of any square footage, including live, dead, and wind loads. The frames are built on a 4' module. Two or three of the 90-lb frames can be joined together and erected simultaneously, making it possible to put up 120 sq ft of wall at once. Spandrel panels are of architect’s own specification. A number of buildings utilizing the system are now under construction. Functional Structures, Inc., 154 E. Erie St., Chicago, Ill.

SOM Coliseum Uses Plastic-Overlaid Plywood

A 22'-high fascia of gleaming white acrylic-surfac ed exterior plywood dis-
tistinguishes Skidmore, Owings & Merrill's new Memorial Coliseum in Portland, Ore. The new material was supplied by Georgia-Pacific Corp. and U.S. Plywood Corp. in cooperation with Kimberly-Clark Corp., makers of acrylic plastic overlay. Installation of the 1/2"-thick, factory-finished, edge-sealed panels was rapidly accomplished by crews working from a permanent traveling scaffold which will be used for window washing. Maintenance of the surface is expected to be quite low. New material will be made in a number of colors, as well as white. Georgia-Pacific Corp., Equitable Building, Portland 4, Ore., and United States Plywood Corp., 55 W. 44th St., New York 36, N.Y.

Sink Has Recessed Drainboard

Stainless steel sink insert comes in two models—single bowl with two drain sides (shown) and double bowl style. Unit is recessed from counter, making draining simple. Drainboards and bowl(s) are manufactured in one integral unit, obviating seam leakages. Amenities include cutting board that slides from left to right, and a colander that also slides and, when turned over, becomes a drainboard. Kitchen Conditioner Co., 169 Lodi St., Hackensack, N. J.

Foamglas Now Sandwiched In Kraft Paper

"Foamglas," Pittsburgh - Corning's popular cellular glass material, is now available in a new form. "Foamglas Board" is produced by sandwiching several 11/2"-thick blocks of Foamglas between two layers of laminated kraft paper, with a special asphalt for adhesive. Laminating paper is recessed 1/8" from the edge of the board to permit tightly butted joints that can be sealed with roofing bitumen. Availability of the insulation material in board form speeds installation time and cuts labor for roof insulation applications. Boards are 24" x 48", weigh about 10 lbs. Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh 22, Pa.

Armstrong Announces Fluid Applied Roofing

A weatherproofing roofing compound for use on unusually configured roofs has been made available by Armstrong Cork. The process, which can be applied by air-operated, pressure-fed rollers, hand rollers, or conventional spraying equipment, employs two compounds: F/A 400, which is based on neoprene and serves as a primer base coat, and F/A 600, based on Hypalon and providing weather-resistance and color for the surface. Basic color is white, but coating may be pigmented with other colors on request. Thickness recommended is 20 dry mls, producing a surface membrane which will weigh, in most cases, less than 20 lbs per 100 sq ft. Armstrong Cork Co., Lancaster, Pa.

Lights Use Handblown American Glass

Lights fashioned of handblown American glass come in two shapes: a curved cone pendant (group shown) and a hemisphere. Colored shades are over a white opal ball, accommodating up to a 100-watt bulb. Hemispheres are frosted and crackled for a unique appearance, style shown is of smooth glass. Prices range from $13.75 up to $40.75 for a group. Designed by Norman Cherner for Raymor Manufacturing Co., Inc., 225 Fifth Ave., New York 10, N. Y.

Heat Storage System in Solar-Earth Heat Pump

Two collecting and dissipating coils of "Wether-Bee," a solar-earth source heat pump, serve as storage and utilization elements for heat. Heat collected by the exposed coil is transmitted to a reservoir coil in the earth, to be used on cold nights or cloudy days. By spring, when the system has a low-condensing medium available, it is prepared to utilize the winter's cold to absorb the summer's heat. The heat pump is compact and may be installed in an upright, counter-flow, or vertical position. One unit conditions year-round. The pump is also manufactured as a water source unit for either water or air distribution. Tests have given it a coefficient of performance of 4.02. Heat Pump Systems, Inc., 232 South River St., Aurora, Ill.
Formica Enters Door Field

With the purchase of Logue Woodworkers, manufacturers of Con-Dor-Lux doors, the Formica Corporation is now in the door business. Doors can be specified in any color, pattern or wood-grain Formica plastic laminate. Doors arrive at the job site premortised and ready to hang (orders for the doors will include hardware specs to allow for premortising). The doors are created to fit their specific openings, regardless of type of frame. They are packaged separately and arrive marked for their individual openings. Floor-to-ceiling door shown is surfaced in a dark wood-grain laminate. Formica Corp., 4614 Spring Grove Ave., Cincinnati 32, Ohio.

Concrete Hardener Makes Floors Last Longer

"Flintcrust Liquid" is said to prevent sanding and dusting of heavy-traffic concrete floors by hardening the outer layer into a tough surface. It is flushed on just like water and works immediately so that traffic need not be interrupted. Flexrock Co., 5686 Cuthbert St., Philadelphia 1, Pa.

Urethane Floor Sealer Withstands Roller Skates

Urethane has been put to use to protect a wood gymnasium floor that is used for roller skating on week ends. Varnishes or sealers (required on gym floors to maintain appearance and ease of cleaning) powdered away under this unusual traffic, exposing the wood to the abrasive action of the skates. The new finish soaks into wood, and tests are said to indicate that it is twice as tough as conventional floor finishes. It is applied by the same methods as a regular floor finish and in the same amount of time, and takes only four hours to dry. Its higher cost is said to be compensated for by its long life and labor-saving advantages. The coating resin, "Spencer F77-60MS," is sold by Spencer Kellogg & Sons, Inc., P. O. Box 989, Buffalo 5, N. Y.

1500-Watt Quartzline Lamp for 240-Volt Power

"Quartzline" lamps, useful because they last twice as long as conventional bulbs and retain their original light output throughout their life, were previously available only in 500 watts for 120-volt power, and 1500 watts for 277-volt power. General Electric has now brought out a 1500-watt lamp to serve the many areas where the lamps can be used effectively but where only 240-volt power is available. The new lamp is available only in limited quantities at present, and costs about $21.75. General Electric Co., Nela Park, Cleveland 12, Ohio.

Modular Bank Counters Are First of Their Kind

A new concept in bank counter design—a modular system of furniture—is said to be the first of its kind on the market. Only six separate components serve as the basic design; additions and variations in placement allow for easy expansion and individual styling. A completely new line of undercounter equipment has also been developed, to accompany the modular counters. Twelve basic units offer a variety of possibilities for particular requirements. A large variety of finishes is available—over 100 colors and patterns in plastic-laminate surfacing, also marble and mosaic tile. Advantages cited by manufacturer for the patent-protected system are versatility, flexibility, ease of installation, and economy. Remington Rand Systems, Division of Sperry Rand Corporation, 122 E. 42 St., New York 17, N. Y.

Food Waste Disposal At High Volume

High-volume disposal of food waste in supermarkets, hospitals, food-processing plants, and restaurants can be handled easily and hygienically by a new powered disposal unit. Unit is constructed in a manner similar to heavy-duty hammer mills in order to offer long life and to take care of the large feeds in automatic disposal of waste food materials. Operation begins automatically when water valve is open, and stops when the valve is closed. Waste is moved to the grinder at a uniform rate to prevent overloading regardless of the amount fed into the hopper. Cabinet model is 50" long x 23" wide x 36" high, weighs 625 lb. Buffalo Hammer Mill Corporation, 1247 McKinley Pkwy., Buffalo 18, N. Y.
Only Yesterday . . . Arrow-Hart pioneered in creating the first switch featuring quiet, mechanical action, and was the first to offer a complete line of quiet switches.

Today . . . Arrow-Hart, having introduced more quiet switches than any other manufacturer, ranks first in the design and development of these switches and now offers the most modern switch available — the Space-Saver Quiette Switch. Designed for thin-wall construction, the Space-Saver Quiette Switch is a further addition to Arrow-Hart's full line of Quiette A.C. Switches — the most complete line available!

Whatever your specifications, there's a member of the Arrow-Hart Quiette Switch family engineered for the application.

Write for your copy of the new folder, "The Complete Quiette Switch Line," Form No. 327-G1371 to The Arrow-Hart & Hegeman Electric Company, Dept. PA, 103 Hawthorn Street, Hartford 6, Conn.

SWITCHES SHOWN INCLUDE H&H SPECIFICATION GRADE. Listed as standard by Underwriters' Laboratories.
To qualify a client's building for lowest fire insurance rates, reinforcement of a roof deck with an unprotected undersurface is a necessity.

**...the danger of failure** is always present when fire strikes if roof decks are simply specified and built to meet “incombustible” ratings. Keydeck roof deck reinforcement gives concrete or gypsum decks the tensile strength and monolithic character needed to qualify for hourly fire resistance ratings...necessary to get lowest fire insurance rates.

Keydeck also gives greater strength and greater impact resistance to roof decks than ordinary reinforcement.
AIR/TEMPERATURE

Air-Conditioning News

News of air-conditioning applications, developments, and equipment is reported in bimonthly issues of American Air Facts, 4 pages. Printed in five regional editions, the first three pages of the newspaper will be identical for all editions; fourth page will contain additional news of local projects and problems. American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.

Ducted Electric Heating

Fresh-Air Electric Heating, 40 pages, describes the various methods of heating by electricity and demonstrates the desirability of ducted systems. Booklet points out that ducted electric heating simultaneously provides for air freshness, humidity control, continuous filtering, greater safety, better temperature control, and addition of central air conditioning. System design is thoroughly described. A brief presentation of products is followed by suggested applications, with floor plans showing recommended duct layouts. Lennox Industries, Inc., 200 South 12th Ave., Marshalltown, Iowa.

Gas Monitor Guards

Against Explosions

A new automatic gas-detection safety device is described in 4-page brochure. “Monitor” senses changes in air density caused by gas accumulations, but is unaffected by changes in humidity, pressure, or temperature. The instrument can set off any type of alarm system through its explosion-proof switch. Cost of unit is said to be less than one-third the cost of existing automatic gas-detection equipment. Size is a compact 15 1/2” x 7” x 10 1/2”. Detectogas Instruments, Inc., 3110 Eastside, Houston, Texas.

CONSTRUCTION

New Lath Designed for Machine Application

“Pinholath,” an advanced gypsum lath, is the first specifically designed base for machine application of plaster. Considered a major development in the industry, due to the material and labor savings made possible by its exclusive design, this pin-holed lath has been proven to give greater absorption and, with plaster, greater impact resistance than regular laths now being used for machine application. Its most significant economy is in making it possible to apply full thickness of base coat in one application. Data sheet, 2 pages, describes product. Bestwall Gypsum Co., 120 E. Lancaster Ave., Ardmore, Pa.

New Standard for Douglas Fir Plywood

New U.S. Commercial Standard for Douglas Fir Plywood has been issued, superseding all previous editions. Numerous revisions have been made “in the interest of assuring plywood products of reliable, predictable quality and performance.” Discussed in the 20-page booklet are specifications relating to definitions, requirements, sampling and testing, standard stock sizes, special constructions, inspection, marking, method of ordering, and nomenclature. Approved DFPA grade trademarks are reproduced on final pages. Douglas Fir Plywood Association, 1119 A St., Tacoma 2, Wash.

Research House Explores Uses of Plywood

Tomorrow’s Home Today is a complete case history of a research house built to explore the uses of fir-plywood components in home building. The 16-page booklet describes the house built in Champaign, Ill., by DFPA, Plywood Fabricator Service, Inc., and the Lumber Dealers Research Council. In-
Impact and Abrasion Resistance

Maximum abrasion resistance under extreme test conditions... one minute of strong sand-blasting completely destroyed a baked enamel panel, and removed 90% of a catalyzed epoxy-coated panel—while GLID-TILE showed no change in the same test!

Corrosion Resistance

GLID-TILE cures to a nonporous coating that withstands many highly corrosive agents—most acids, solvents, alkalis and hot water. It can be easily cleaned with strong soaps and detergents without harming the beauty and life of the finish.

Stain and Chemical Resistance

GLID-TILE offers chemical and stain resistance against damaging substances such as citric, acetic and lactic acids, grease, oil, chemicals and gaseous fumes. Bacterial contamination can be easily eliminated from GLID-TILE by standard cleaning methods.

Versatility in Application

GLID-TILE has versatility—it may be used on many types of surfaces... masonry blocks, poured concrete, cement-asbestos panels, wood and metal.

Wide Choice of Tile-Like Colors

A broad range of the latest pastel colors are available by tinting GLID-TILE with Glidden Dramatone Multi-Purpose Tinting Colors.

Easy, Low-Cost Maintenance

GLID-TILE costs only a fraction of the usual structural, glazed or ceramic tile, yet is outstanding in performance and beauty. There are no hard-to-clean, unsanitary mortar joints, which often deteriorate and require expensive replacements.

Walls in high-traffic areas retain their tile-like beauty for many years when coated with Glidden plastic finishes.

Refer to Sweet's Architectural File 13 H

GLID-TILE offers beauty and easy maintenance for maximum cleanliness wherever they are used.

For more information, turn to Reader Service card, circle No. 314
cluded are details of planning, design, and engineering of the six types of components used in the house, and the conclusions that may be drawn from various structural innovations. No materials larger than 2 x 4's were used in the house. Detailed descriptions and photographs of fabrication and erection of the components are provided. Douglas Fir Plywood Association, 1119 A Street, Tacoma 2, Wash.

On Free Data Card, Circle 207

DOORS/WINDOWS

Full-Size Details on Weatherstripping

Full-size details are a prominent feature of new 1961 catalog of weatherstripping designs. Catalog, 28 pages, shows extruded aluminum and bronze weatherstripping for doors, windows, saddles, lightproofing and soundproofing, sliding doors, and saddles for floor-hinged doors. Recently developed products and specifications are shown. Zero Weather Stripping Co., Inc., 463 E. 136 St., New York 54, N.Y.

On Free Data Card, Circle 208

ELECTRICAL EQUIPMENT

High-Efficiency Fluorescent Lamps

Introducing High-Efficiency Fluorescent Lamps, 4 pages, presents technical data and application suggestions for the new light source. Lamps create a new type of white fluorescent light, making them especially suitable for applications where high light output at low cost is more important than critical color rendition. Output is 15% higher than cool white lamps, 36% higher than daylight lamps. Lamp Division, Westinghouse Electric Corporation, Box 388, Bloomfield, N. J.

On Free Data Card, Circle 209

SPECIAL EQUIPMENT

Vibration and Noise Controlled by Isolation

New Booklet K4G, 8 pages gives engineering specifications and performance data for 27 types of products for the control and measurement of machinery vibration, shock, and noise. Installation photos show a variety of equipment and the solution of typical problems. Bulletin contains a detailed description of relative merits of steel springs, rubber, and cork as isolation media. A selector chart includes a wide range of equipment, indicating recommended and alternate methods of isolation, and indicating when concrete foundations are necessary. The Korfund Company, Inc., Cantiague Rd., Westbury, L.I., N.Y.

On Free Data Card, Circle 210

Sound Barriers of Lead

Improved Sound Barriers Employing Lead is a 12-page report of studies by Bolt, Beranek & Newman on the reduction of sound transmission. Technical data and accompanying text show how lead can be used effectively as an acoustical material. A typical example calculates the transmission loss of ¾” fir plywood. Then the effect of laminating a 1/16” lead sheet to the plywood is calculated. Lead Industries Association, 292 Madison Ave., New York 17, N.Y.

On Free Data Card, Circle 211

Kitchen Planning

How to Plan a Trend-Setting Kitchen presents 20 pages of full-color kitchens, some from existing homes, some from the firm’s Merchandise Mart displays. Each kitchen presents colorful and comfortable solutions to the problems of food storage and preparation, serving, and dining. New “Gourmet” and “Custom” refrigerators and freezers are featured. Revco, Inc., Deerfield, Mich.

On Free Data Card, Circle 212

Fabrics for Protective Covering

Protective Cover Fabrics is a 14-page general guide to the principal uses of various weather-protective fabrics. Illustrated with sketches of typical applications, the booklet discusses cotton duck, cotton drills, tent twills, and Continued on page 88
NEW SINGER DISTRIBUTION CENTER TO DELIVER OPTIMUM SAVINGS THROUGH DIVIDEND E

The new Singer Distribution Center at Syosset, Long Island, is a good example of what Dividend Engineering can mean to a new building. This modern structure has a roof area of 103,800 square feet. Too little or too much roof insulation could result in wasteful expenditures for power, fuel, equipment or material. The architects and engineers determined the correct thickness by using Dividend Engineering data to analyze the economics of various thicknesses. They found that four inches of Fiberglas® Roof Insulation was the optimum thickness for maximum heating and cooling cost savings. The increased thickness costs $38,000 more, but it will produce savings that more than justify the expense.

Let us demonstrate Dividend Engineering on one of your current projects. Contact your local Fiberglas representative, or write Owens-Corning Fiberglas Corporation, Industrial and Commercial Division, 717 Fifth Avenue, New York 22, New York.
DIVIDENDS ON A $38,000 INVESTMENT IN ADDITIONAL INSULATION:

$91,000 SAVED ON THE HEATING-COOLING SYSTEM

The four inches of insulation will reduce the heat loss or gain through the roof by 70 per cent as compared to one inch of insulation. This permitted the installation of a smaller heating-cooling-ventilating system at a $91,000 saving.

$8,930 SAVED ANNUALLY IN OPERATING COSTS

$5,900 will be saved on fuel and power; $280 on maintenance; and $2,750 in interest. Projected savings: $8,930. This will be a clear annual saving to the company . . . in addition to the initial $91,000 and interest saved on equipment.

ENGINEERING

AN ACCURATE MEANS OF EVALUATING MATERIAL PERFORMANCE TO FORECAST OPTIMUM SAVINGS IN INITIAL AND OPERATING COSTS, WITH HIGHEST RETURN ON THE OWNER'S INVESTMENT.
coated nylon. Each type of fabric is described as to its own particular advantages. Some applications for which special fabrics are appropriate are awnings, playing-field covers, swimming-pool covers, air-supported structures. Wellington Sears Company, 111 W. 40 St., New York 18, N.Y.

Specifications for Walk-In Freezers

New Walk-In Specification Guide helps owner and architect to determine the most suitable "Walk-In" cooler or freezer for particular requirements. The guide is prepared exclusively for the architectural specification writer, and gives recommendations for the design of new or expanded facilities. Dept. S, Bally Case and Cooler, Inc., Bally, Pa.

Contemporary Furniture

New 16-page brochure presents line of furniture appropriate for either commercial or residential use. Storage units, coffee bars, executive desks, cocktail tables, hi-fi cabinet, and conference table are illustrated, then described briefly in price list. Materials are brushed aluminum, walnut, rosewood, marble. Design throughout the line is restrained and elegant. ODI, 136 William St., New York, N.Y.

New Revolving File Grows with User Need

New horizontal rotary file grows with its user's need—up to six times its original capacity—without adding additional floor space. "Speedline" model combines the speed of rotary filing with the modular flexibility of the old sectional bookcase. Basis of the design is the horizontal wheel, or "Rotor-Tier." Instead of being parallel to each other in a rectangular space, as in a drawer, folders of records are filed radially around a hub. Folder, 8 pages, describes system. Wassell Organization Inc., 225 State St. W., Westport, Conn.

Plans and Barriers for Parking Lots

Basic parking-lot plans and parking equipment are shown in new 4-page Bulletin 14A. Five plans for parking at various angles are shown. The plans give suggested dimensions, but may be adapted to fit virtually any size or shape of lot. Also shown are six styles of wheel-stopping barriers, designed for orderly parking without damage to either vehicle or property. Barriers are suitable for automobile, truck, or bus parking on any type of surface—black top, concrete, macadam, gravel, sand, or cinders. Harris-Barrier, Inc., P. O. Box 23026, Indianapolis, Ind.

Seeded Grass Blanket

New 8-page brochure describes "Troy-turf," a blanket containing grass seed, mulch, fertilizer, and other nutrients. The blanket produces grass on steep embankments, in difficult-to-seed washout areas, along stream banks, in gullies, and in poor soils. Instructions are included for the simple roll-on installation. Horticultural Division, Troy Blanket Mills, 200 Madison Ave., New York 16, N.Y.

Plastic and Metal Toilet Compartments

New catalog, 20 pages, includes full line of toilet compartments from manufacturer who originated the metal toilet compartment. Color swatches show the 22 vivid colors available in porcelain-enamel or baked-enamel steel. Photographs and details show the various models of ceiling-hung or floor-braced compartments. New item in the line is the plastic-laminate toilet compartment. Descriptive paragraphs give its physical characteristics, and specifications are included. Henry Weis Manufacturing Co., 941 Oak St., Elkhart, Ind.

Glass-Fiber Panels for Many Uses

An 8-page brochure described as "the most comprehensive in the reinforced-plastic panel industry" has been published. Contained in the brochure are full testing details and conclusions about "Filoplate," a recently developed panel that is structurally guaranteed for the lifetime of any structure, and specifications for "Rololite," the first cross-corrugated panel in roll form.
The Traditional Beauty of Bird King Tab Architect Shingles Dignifies a Curving Roof of Modern Lines

On this house of worship, the Bird Architect Shingle blends the traditional and the modern... flexible, to conform with the roof's special soaring curve; heavy, to insure all-weather protection.

Slatelike Beauty, with depth and rich shadow lines, gives the impact and dignity worthy of a church.

Uniformity of Surfacing in even distribution of jumbo color granules is controlled in manufacture — no unsightly application on the site.

Greater Safety, Triple Protection: 300 lbs. per square, thick as standard slate; 3 full layers at every point, with 6" exposure. For use on slopes with pitch as low as 2" in 12".

See specifications in SWEETS FILE or write Bird & Son, Inc., Box PA-2, East Walpole, Massachusetts • Charleston, S.C. • Shreveport, La. • Chicago, Ill.

Moisture and Termites a Problem? Write for details on Bird Termite Prevention System and Vapor Barrier
Also included are general specifications, heat- and light-transmission values, and load-carrying tables for the entire line of corrugated, flat, glazing, and decorative panels. Technical and Field Services, Dept. T3, Filon Plastics Corporation, 333 N. Van Ness Ave., Hawthorne, Calif.

Science Furniture for Secondary Schools

Expanded line of stock science furniture is presented in new 48-page catalog. The complete line of secondary school science furniture includes instructor desks, student tables, fume hoods, sink assemblies, aquariums, germinating beds, storage and display cases, etc. In addition to the furniture and equipment catalogued, 11 floor plans are presented to show layouts and roughing-in information on all items. Kewaunee Technical Furniture Co., 3009 W. Front St., Statesville, N.C.

Firehood Room Divider

Colorful brochure, 4 pages, shows new "FireHOOD," a conical fireplace that is available in 9 colors of porcelain-enamed steel. Four models suit any requirement—without hearth or base (for installation on job-fabricated hearth), with rubber-tipped steel legs, and with casters (for outdoor mobility). Another product, versatile "FireHEARTH," is adaptable to free-standing or wall-fastened application; and when integrated with special shelf units it becomes a decorative room divider. Condon-King Co., Inc., 1247 Rainier Ave., Seattle 44, Wash.

SURFACING MATERIALS

Report on Plaster-Ceiling Research

Extensive research by the Gypsum Association on the performance of lath and plaster ceiling systems has been in process for the past seven years, with the purpose of developing plaster constructions that will provide a high degree of crack resistance. The phase dealing with small suspended ceilings is now virtually complete, and a summary of the findings is presented...
How to end up with an insulated roof exactly the way you designed it

Specify Insulite Cant Strip and Tapered Edge Strip with Insulite Roof Insulation.

The full Insulite line of roofing products is designed to make it easy for the roofing contractor to do a complete job—and to do it quickly and at low cost.

1 The basic Insulite Roof Insulation is a tough, rugged product with the extra strength and rigidity to resist cracking, crushing and flexing.

2 Insulite Accessories—Cant Strip and Tapered Edge Strip—insure perfect joints where the roof meets a vertical surface, or where there is a building-up or tapering-off area. These accessories give a smooth, strong surface that will not break or puncture under hard construction or maintenance activities.

PROTECT YOURSELF FROM MAKE-DO EXPEDIENTS

Insulite Accessories make it easy for any contractor to follow your details. No sawed, beveled or built-up boards. Insulite Cant or Tapered Edge Strips are shaped to do a perfect job even in tough problem areas.

You get perfect construction and insulation where the roof meets a wall, chimney or other vertical surface; where the outer edges taper off; where you want drainage channeled.

BE SURE OF A ROOF THAT CAN TAKE IT

Insulite Roof Insulation is made of all-wood fibers from hardy, slow-growing Northern trees. It is not soft; it is not brittle. It has the high transverse and compressive strength needed to resist the hardest kind of wear.

Insulite Roof Insulation will give you a roof that stands up under loaded wheelbarrows, heavy LP gas cylinders, bitumen kettles, the heaviest equipment that might be used on it.

ACCESSORIES ARE OF COMPATIBLE MATERIAL

Insulite Tapered Edge Strip and Insulite Cant Strip are made from the same basic wood fibers as Insulite Roof Insulation. This eliminates any hazards caused by the introduction of two materials with conflicting properties.

Insulite Accessories have the same low coefficients of expansion; the same vapor permeance characteristics; the same thermal resistance. Dimensional stability of Insulite Roof Insulation is excellent.

CHOICE OF DIMENSIONS AND TYPES

Insulite Roof Insulation comes in 24" x 48" and 23" x 47" sheets—1/2", 1", 1 1/4" or 2" thick. Edges are square in the 1/2" thickness. In other sizes you may order either square or shiplapped edges.

Insulite Cant Strips come in 4' lengths—either 3" x 3" or 4" x 4". Insulite Tapered Edge Strips are 4' long by 12" wide. They measure 1 1/4" at the thick edge, and taper to 3/4" at thin edge.

Choose from two kinds of Insulite Roof Insulation: Ins-Lite, or asphalt-treated Graylite.

GET MORE FACTS AND NEW BOOKLET

Just call your Insulite representative for more information or send the coupon below directly to Insulite for the new Insulite Roof Insulation Manual.

SPECIFY

INSULITE®

Roof Insulation Products

INSULITE, made of hardy Northern wood fibers, is produced by Insulite Division of Minnesota and Ontario Paper Company, Minneapolis, Minnesota.

Please send me my copy of the new illustrated Insulite Roof Insulation Manual.

NAME

ADDRESS

CITY

ZONE

STATE
Inside Window Washing with the Fleetlite double hung Monumen-tilt!

For conventional and curtain wall high rise buildings, the monumental double hung aluminum window that can be fully screened and still cleaned at floor level from inside the building.

**SHORT SPECIFICATIONS**

**MATERIAL** — Extruded Aluminum alloy 6063-15 with a minimum tensile of 22,000 psi.

**DESIGN FEATURES** — Sash have glass-frames hinged at the lower rail. For inside cleaning, glass-frames pivot "hopper style" when in the lower position. Continuous head and sill for mullioned units.

**HARDWARE** — Removable spiral type balances. Glass-frames lock into sash by concealed cam locks. Installation anchors of heavy gauge steel.

**SASH DOUBLE WEATHERSTRIPPED** with wool pile. Glass-frames continuously weather-stripped to sash.

**AIR INJECTION** not to exceed 5 cubic feet per minute per foot of crack length under static air pressure equal to winds of 25 mph velocity.

**GLAZING** up to and including ½" insulating glass.

**SCREENS** — Fiberglass, half or full length available.

**FINISH** — Lustrous satin-like surface. Anodized if specified.

Complete specifications and full size details available upon request.

---

Asbestos-Cement Sheeting

"Colorlith," used in industry and schools for lab-table tops, sinks, hoods, shelves, and other heavily used surfaces, is described in new 12-page report. The effects of different finish coats on the 186 ceilings studied, along with effects of the plaster base, the plaster basecoat, and ceiling-perimeter construction, are analyzed. Recommendations for plaster performance are clearly summarized, and a chart gives relative performance of various lath and plaster ceilings. Gypsum Association, 201 N. Wells St., Chicago 6, Ill.

On Free Data Card, Circle 225

Information on Terrazzo

Information kit, including 30 sheets, contains data and specifications on terrazzo. Subjects discussed are conductive terrazzo, outdoor terrazzo, monolithic terrazzo, terrazzo over radiant heating. Guides to location of divider strips are provided. Other data sheets give reliability test findings, maintenance instructions, and methods of restoring conductive terrazzo. NTMA membership list is appended. National Terrazzo and Mosaic Association, 2000 K St., N.W., Washington 6, D.C.

On Free Data Card, Circle 226

Curtain-Wall Panels Surfaced with Tile

A new line of curtain wall panels surfaced with American Olean ceramic tile has been introduced. Folder, 4 pages, shows 4 basic types available and gives installation details. The tile is set with weatherproof, flexible grout, and is frostproof. An organic adhesive securely bonds the tile to the panel core. Sandwich core is composed of asbestos-cement board bonded to rigid insulating board. Maul Macotta Corporation, 1640 E. Hancock Ave., Detroit 7, Mich.

On Free Data Card, Circle 227

Asbestos-Cement Sheeting

"Colorlith," used in industry and schools for lab-table tops, sinks, hoods, shelves, and other heavily used surfaces, is described in new 12-page
The windows in the new East High School in Rochester, N. Y., were chosen with winter in mind.

All projected and hopper ventilating windows contain Schlegel Woven Pile Weatherstripping. Schlegel's dense pile of soft wool fibres adjusts to all uneven surfaces—snugly cushions every window. Its resilience—a property not found in plastic or metal—assures a positive seal.

When subzero winds blow up a gale, not one of East High's 2200 students sits in a draft.

Cuts maintenance costs. Here's why you're sure of winter-proof windows when you specify windows with Schlegel Weatherstripping. Schlegel Woven Pile won't rust, crack, or rot. It is designed to last as long as the unit it seals.

Dow Corning silicone treatment makes it extra water-resistant—locks out howling winds, driving rain, snow, and sleet.

WAYNE FOLDING PARTITIONS
work wonders in saving space (and dollars)

New Development in Wallcoverings

"Endura-Cloth," proclaimed a new development in wallcoverings, is a stainproof vinyl-covered canvas with unusual resistance to steam, abrasion, scuffing, and fire. Brochure, 4 pages, gives description of its properties and easy installation. Tests have shown that the material is capable of being scrubbed 25,000 times. Patterns are attractively designed. United Wallpaper Company, 3101 S. Kedzie Ave., Chicago 23, Ill.

On Free Data Card, Circle 229

New Developments in Scored Tile

New booklet, 4 pages, gives information about several new products in "Scored Tile" line. Of special interest is a complete selection of trim shapes, now available for the first time, for both conventional mortar installation and for adhesive and thin-set mortar installation. A chart of standard Scored Tile patterns shows the wide range of possible effects. Booklet also announces the introduction of a new Scored Tile design that is adaptable

Send for new catalog today.

WAYNE IRON WORKS • WAYNE, PA.
For more information, circle No. 346
You could design the file on the right into a 12 1/2"-deep wall space facing a narrow aisle and forget about aisle blocking when the compartments are opened.

For this file has no drawers to eat up valuable space. Wide open, with all contents visible and reachable, this file projects only 6" (8" for legal size). Even if this file were not built into a wall, you could save your client a fat 30% of floor space.

To recommend them, you would specify Y&E Pro-Files.*

The idea that makes Pro-File work to your advantage is a neat patented Rock-A-Tilt mechanism which in sketch looks like this.

The center of gravity remains within the shell, even with all the compartments loaded and open. These files may be stacked to the ceiling with no fear of overbalancing or tipping.

Design them into walls. Utilize them as divider half-walls, back to back, or built in under bookcases or shelving.

Or, better, use your own imagination.

If you would like specification literature on Y&E Pro-Files, tear out this ad and mail it to us with your name and address.

Since we also build darn good standard files, like the one on the left above, we'll send you specifications on them, too, if you'll just ask. *Patented

Both wide open
Concrete Modules in Filigree or Veneer

Gems in Concrete, 6-page folder, shows variety of geometric designs in reinforced-concrete units. "GemGrille" units are filigree modules available in 1' x 1' x 3" or 1' x 2' x 3". "GemCrest" are veneer modules in many sculptured patterns. They can be used as random inserts, vertical or horizontal stripes, entire panels or walls. American Traverse Co., 11 Prospect Ave., Hewlett, L.I., N.Y.

New Adhesive for Terrazzo-to-Concrete

Booklet, 12 pages, introduces "Terrabond" adhesive, which is based on Thiokol's polysulfide liquid polymer and exhibits an outstanding ability to bond poured-in-place terrazzo to a concrete base. Results of laboratory tests reported in the bulletin indicate that Terrabond adhesive provides a bond stronger than either concrete or terrazzo.

Terrabond terrazzo flooring, consisting of portland-cement terrazzo bonded with the new adhesive, is similar to monolithic terrazzo in that it is installed directly on a concrete slab. However, by the Terrabond process, the terrazzo surface can be as little as 3/8" thick and can be installed at any time, even when slab is fully cured. Additional advantages: initial cost is 30% to 40% lower than conventional terrazzo; lower maintenance cost than resilient floors; impermeable moisture barrier provided by the adhesive. Market Development Dept., Thiokol Chemical Corporation, 980 N. Clinton Ave., Trenton 7, N.J.

Now on standard concrete block-shapes...

1/8" THICK GLAZED FACES

With the perfection of new S-G glass silica sand forming a continuous surface, SPECTRA-GLAZE exceeds requirements of ASTM-C-126 for glazed surfaces. However, the glaze of SPECTRA-GLAZE units is more than just a surface. It's a full eighth-inch thick—the same all the way through. You can climb it, walk on it, even sandblast it without damage.

See SWEET'S CATALOG 4g/Bu for details or write for "Construction Details" and "Test Reports."

Morse Boulger Building Incinerators Since 1873

today's engineering plus more than 70 years experience building incinerators of all types and sizes.

Morse Boulger

today's engineering plus more than 70 years experience building incinerators of all types and sizes.

Morse Boulger

today's engineering plus more than 70 years experience building incinerators of all types and sizes.

Morse Boulger
In new Newark headquarters for Prudential... 3M Adhesives

MAKE FLOOR TILE, COVE STAY PUT—CUT COSTLY CALLBACKS!

"With labor costs at $5.50 per man-hour, we find it pays to use quality adhesives. We use 3M Brand Adhesives because they speed installation and cut callbacks." The words are from Mannie Nagel, of Harry Rich Floors, Inc., installers of 25,000 lineal feet of cove and 40,000 square feet of vinyl and rubber floor tile in the handsome new building for Prudential Insurance Company of America.

3M Cove Base Adhesive, applied by trowel, holds base in place immediately without shoring—dries within 30 minutes to complete a permanent bond for vinyl, rubber or asphalt cove to any sound, clean surface. 3M Brand Vinyl and Rubber Tile Adhesive, easily applied by notched scraper, provides 5 to 20 minutes open time for floor installation convenience—remains flexible and tough when dry.

See how additional 3M Adhesives can help you! Besides cove base and floor tile adhesives, there are outstanding 3M adhesive products for bonding ceramic tile and other materials on floors, walls, counters... for adhering insulation and sealing ducts... for sealing curtain-wall and other external joints. They add up to the most complete, most reliable line of construction adhesives for every building need. For more information, see Sweet's Catalog, your nearby distributor, or send for the new booklet that describes the entire line. Write AC&S Division, 3M Co., Dept. SBC-21, St. Paul 6, Minnesota.
The Talents of the Architect as Artist are illustrated in the March issue with a ten-page portfolio of recent outstanding drawings. Renewed interest in surface textures, in many faceted, even sculptural shapes in architectural design has resulted in the architect’s return to meticulous pen and pencil renderings.

The State of Architecture is another subject of importance in the March issue. The P/A Symposium on the State of Architecture discusses the direction of architecture today. P/A’s Editor, Tom Creighton, has conducted a written discussion among nearly 100 most articulate and influential architects. Part I will show the diversity of opinion and lack of design disciplines prevalent today.

Additional Features Include articles on public housing for the elderly and two elementary schools. Materials and Methods discusses the prefixing technique of prestressed steel, dew point temperature location, multi-outlet electrical systems, and wire-fabric heating.

Make sure you receive every issue of PROGRESSIVE ARCHITECTURE. Use post-free subscription card in News Report Section.
February 1961

PROGRESSIVE ARCHITECTURE NEWS REPORT

VOGEL - PETERSON

Detail shows how dove-tail extrusions (which mount on any centers) hold brackets at any desired height.

Tailored to fit any given open or closeted wall area. Smart in design and modern in “clear”, “gold” deep etched anodized finishes and combinations. Quality built — closed-end aluminum tubing, rigidly held in east aluminum brackets that are adjustable for height in dovetailed mounting extrusions. Brackets also adjustable to any desired centers.

Write for Bulletin CL-610

VOGEL-PETE RSON COMPANY
ROUTE 83 & MADISON STREET • ELMHURST, ILLINOIS

For more information, turn to Reader Service card, circle No. 352

ROCKER-GLO

Quality you can measure by Performance

Sparkling new Libbey-Owens-Ford Building in Toledo, Ohio, rises 15 floors above street level. New, modern, 20-ampere, Rocker-Glo switches control the lights used in all office areas.

P&S Rocker-Glo can be used on fluorescent and tungsten filament loads at full current rating. Quiet in operation, it is smoothly activated by pressing, pushing, rocking or rolling.

Note: P&S Super AC Switches (20AC1) were also used in this building in all hallways and laboratories.

For information, write Dept. PA-261

PASS & SEYMOUR, INC.
SYRACUSE 9, NEW YORK

For more information, turn to Reader Service card, circle No. 332

99
This is the ISTA Center in downtown Indianapolis, one of the most modern buildings in Indiana. The major portion of the 9-story structure is devoted to rental office space, while the remainder serves as headquarters for the Indiana State Teachers Association.

A specially engineered Johnson Pneumatic Control System with individual room controls provides the occupants with the ultimate in air conditioned comfort at all times. This important rental feature also permits complete flexibility in making future changes in office layouts.

For added efficiency, a central indicating panel furnishes the building engineer with a continuous display of temperature at key points in the system. Over the years, the dependable, trouble-free operation of this Johnson system will assure the ISTA Center of an ideal climate for working efficiency at a lifetime cost below that of any other type of control.

When you build or air condition, make certain that you, too, take advantage of the unmatched performance and economy features of a specially planned Johnson Pneumatic Control System. Your local Johnson representative will welcome the opportunity to make recommendations. There is no obligation.

Johnson Service Company, Milwaukee 1, Wis. 105 Direct Branch Offices.

Indiana State Teachers Association Center, Indianapolis. McGuire & Shook, Compton, Richey and Associates, architects; J. M. Rotz Engineering Co., mechanical engineers; Leslie Colvin, general contractor; Freyn Brothers, Inc., mechanical contractor; all of Indianapolis.
Matico Polymerite™... A New Concept in Floor Tile

From an intensive program of research and development, Matico now proceeds to change all existing concepts of flooring with a tile that is years ahead of its time. Matico Polymerite Floor Tile has the characteristics of the finest floor tile—all at a remarkably low cost! Wears up to twice as long as asphalt tile too!

This astonishingly low-cost, easily-maintained tile resists grease and stain, and is flame-retardant. It has optimum flexibility, maximum uniformity, gauge control and appears in 32 vibrantly alive colors, every hue of which is under the most rigid technological control.

Now the sky is the limit on flooring specifications at astonishingly ground-level cost. Matico Polymerite Floor Tile finally opens the door to superlative flooring for every application. Be sure that you get the specifications on Matico's Polymerite Floor Tile right away. Your Matico representative can furnish them. Or, write today.


For more information, turn to Reader Service card, circle No. 336
Bethlehem "S" series steel joist
with cold-formed chords

*Improved Design*—Cold-forming makes possible a wide variety of sizes and shapes to fit any design need. Wide, flat-surfaced chord members give improved lateral stability as well as excellent bearing area for supporting centering, sub-purlins, precast plank—and firm, flat backing for ceiling lath.

*High Strength*—The new design takes full advantage of cold-forming, which makes it possible to place the steel in the most advantageous position for sustaining loads. And the additional strength due to cold-working increases the safety factor and provides increased resistance to damage in handling.

*Send for Our New Catalog*
A brand new catalog describing the new cold-formed chord joist as well as the other Bethlehem joists in both the "S" series and "L" series is yours for the asking. Full details, design and load tables are also included. Write to the nearest Bethlehem sales office, or direct to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, Bethlehem, Pa. Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL
Permanent murals that will not lose their palette-fresh color

For bright, bold accents of color in lobbies, auditoriums, and other public places, Weldwood® Kalistron® provides the architect and designer with a versatile, relatively low-cost medium. Kalistron is tough and durable, easy to maintain by washing. It comes in a wide range of colors fused to the underside of clear, textured vinyl—protected from scraping, smudging, air-borne oils, fumes, and dirt.

Applied to a noncombustible surface, Kalistron meets “Tunnel Test” (ASTM E84-59T) requirements as a low flame-spread wall covering. Write for free sample and data sheet.

KALISTRON  MADE ONLY BY  WELDWOOD
United States Plywood, Flexible Materials Division, P.O. Box 17085, Louisville 17, Kentucky

For more information, turn to Reader Service card, circle No. 345
From Armstrong: a giant step in fire-retardant ceilings

Now, for new schools: two types
of Acoustical Fire Guard—12" x 12" tiles
and exclusive new lay-in units

In the school corridor on the left you see the new Armstrong Acoustical Fire Guard lay-in ceiling system. The classroom has a ceiling of Acoustical Fire Guard tile.

This was the first time-design-rated acoustical tile. Since its development two years ago, millions of feet have been installed.

The new lay-in system is another great advance in fire-retardant ceilings.

Three-hour U.L. rating

The Armstrong Acoustical Fire Guard lay-in ceiling system combines the advantages of an exposed grid system—economy and fast installation—with those of a time-design-rated acoustical ceiling. It protects the structural components of a building by resisting the dangerous transmission of heat from one area to another. Underwriters' Laboratories, Inc., has given this new ceiling system a beam protection rating of three hours. Floor-ceiling assemblies combining this system with bar joist and slab, as well as with beam and steel floor construction, earned two-hour ratings.

Resists 2,000-degree heat

The Acoustical Fire Guard lay-in ceiling system achieves its remarkable fire-retardant quality through two new developments.

The first is the Acoustical Fire Guard lay-in unit. Because of its composition, this new lay-in unit can withstand exposure to flames and 2,000-degree heat. It also offers excellent acoustical and sound attenuation properties.

The second element is a new suspension system capable of withstanding the same extreme conditions as the lay-in unit. Called the Armstrong Acoustical Fire Guard Grid Suspension System, it is designed to accommodate the expansion of both main runners and cross-tees, and thus to hold the lay-in unit securely in place when exposed to fire. The Fire Guard Grid Suspension System is the first to be combined with a lay-in ceiling unit to offer rated fire protection. Both the lay-in unit and the grid system carry the U.L. label.

Economy in time and money

In most cases, the new lay-in ceiling system will cost even less than ordinary plaster ceilings on metal lath. And like Fire Guard tile, it can save builders up to two months' construction time because it goes in dry. This is especially important in school construction. Schools must open on time. Fire Guard helps meet deadlines—at savings of thousands of dollars.

The Acoustical Fire Guard lay-in ceiling system is now available in both a Fissured and the popular Classic designs. There are two nominal sizes: 24" x 24" x %" and 24" x 48" x %".

For more information about either Acoustical Fire Guard tile or lay-in units, call your Armstrong acoustical contractor (he's in the Yellow Pages under "Acoustical Ceilings") or your nearest Armstrong District Office. Or write to Armstrong Cork Company, 4202 Watson Street, Lancaster, Pennsylvania.

* Patent Pending
This is glass at work

Glass is much more than a design material in this room. Its function is to bring out the true beauty of fashionable furs. It takes glass to transmit true light, the kind of light that makes a fuchsia look like fuchsia, the kind of light in which you never mistake a Norwegian blue fox for a silver.

This particular lighting glass is Alba-Lite®. It's an opal glass. It removes all the harshness from bright light without adding to or detracting from its color.

And Alba-Lite glass will give diffusion in a lasting way. Glass will not discolor or fade over the years. It will never change in any way which might affect the light passing through.

That's one of the reasons an installation like this stays on an architect's "must-show" list for decades.

Glass lasts in other ways, too. It won't warp or buckle with time. It stays clean longer and is easier to freshen than other materials. It has no static charge, so it neither attracts nor holds to dust.

The Commercial Lighting Application Guide presents a handy résumé of some of the things you can do with glass. For a copy, write to our Lighting Sales Department, 23 Crystal St., Corning, N. Y.

CORNING GLASS WORKS
CORNING MEANS RESEARCH IN GLASS

For more information, turn to Reader Service card, circle No. 305
February 1961 PROGRESSIVE ARCHITECTURE

THOMAS H. CREIGHTON, FAIA, EDITOR
JAN C. ROWAN, AIA, MANAGING EDITOR
CHARLES MAGRUDER, AIA, ADMINISTRATIVE EDITOR
BURTON H. HOLMES, AIA, TECHNICAL EDITOR
JAMES T. BURNS, JR., NEWS EDITOR
JOHN MORRIS DIXON, ASSOCIATE EDITOR
ASSISTANT EDITORS
C. RAY SMITH, GEORGE LUBASZ,
JEAN HATTON DUFFY, ELLEN PERRY
CONTRIBUTING EDITORS
NORMAN COPLAN, E. E. HALMOS, JR.
ADA LOUISE HUXTABLE, WILLIAM J. McGUINNESS,
ILSE MEISNER REESE, HAROLD J. ROSEN,
JUDGE BERNARD TOMSON
GRAPHICS
JOAN HURLEY, ART DIRECTOR
NICHOLAS LOSCALZO, ELMER A. BENNETT, DRAFTSMEN
PRODUCTION
JOSEPH M. SCANLON, PRODUCTION MANAGER
ANN DOUGLASS, EDITORIAL PRODUCTION
MARION FEIGL, PRODUCTION ASSISTANT
EDITORIAL ASSISTANTS
CAROLYN A. DEMOREST, JUNE WETHERELL FRAME,
ANITA RUBINSTEIN

REINHOLD PUBLISHING CORPORATION
430 PARK AVENUE, NEW YORK 22, NEW YORK
CONTENTS

Cover  SUSPENSION-TYPE ROOF SYSTEM, Municipal Auditorium, Utica, N.Y. (page 144)  
Photo: Tranquille

Frontispiece  ENTRANCE TO FACULTY CLUB, University of Washington (page 114)  
Photo: Dearborn-Massar

114  FACULTY CLUB, University of Washington, Seattle, Washington  
Victor Steinbrueck and Paul Hayden Kirk & Associates, Associated Architects

121  WALL SECTION: SELECTED DETAIL, University of Washington

122  U.S. DESIGNS FOR HOSPITALS ABROAD

122  JERUSALEM  
Hadassah Hebrew University Medical Center, Jerusalem, Israel  
Joseph Neufeld, Architect

131  WALL SECTION: SELECTED DETAIL, Hadassah Hebrew University Medical Center

132  KRAKÓW  
American Research Hospital for Children, Kraków, Poland  
W.O. Biernacki-Poray, Architect

136  CALDER'S CITY

138  CREMATORIUM, Baden, Switzerland  
E. & R. Lanners & Res Wahlen, Architects

144  BICYCLE WHEELS

154  CRAFTS STORE: INTERIOR DESIGN DATA  
America House, New York, New York  
David R. Campbell, Architect

158  THE RESIDENT ARCHITECT: PRACTICE OF ARCHITECTURE  
By Edward L. Friedman

160  PORTAPAVILION RESTAURANT

165  STRUCTURAL ELASTO-MECHANICS by Paul Chelazzi

169  ADHESIVE-BONDED STAINED-GLASS WINDOWS

172  FREE-STANDING STAIR by Paul Rogers

174  CENTRAL AC FOR APARTMENTS GROWS: MECHANICAL ENGINEERING CRITIQUE  
By William J. McGuinness

176  CSI ACTIVITIES REVIEWED: SPECIFICATIONS CLINIC  
By Harold J. Rosen

178  ARBITRATION: PART 3: IT'S THE LAW  
By Bernard Tomson and Norman Coplan

180  VIEWS

184  TRANSPLANTING EAST TO WEST: BOOK REVIEWS

236  THE ARCHITECT AND HIS COMMUNITY: P.S.
Most of the University of Washington's existing campus buildings are in the Gothic style, an idiom, the architects felt, totally opposed in character and scale to the more personal character desired for this building. A faculty club, they thought, should have residential scale to encourage casual use and to achieve the aim of bringing the faculty together. Since the site is somewhat isolated from other buildings, the architects decided that a complete departure from campus tradition was justified. Their goal was an orderly, intimately scaled building in which space is used as an important design element; a building simple enough in concept and detail to suggest a timeless or undated quality.

The topography of the steep site was exploited. Parking is out of sight, under the dining room and below the lower floor level. The dining room has a panoramic view to the east; lounges on the south and the entrance on the west take advantage of the existing trees.

Economy was a basic factor because two-thirds of the cost of the building was paid for by the faculty. A steel frame was used with steel T-deck roof exposed on the interior, into which were inserted lighting and acoustical panels. The exterior is white stucco with stainless steel expansion joints 9-ft o.c. Windows on the west façade are unpolished gray plate contrasted with clear polished plate in the operating sash. Obscure glass was used also on the north and west walls of the inner court to give the gallery and the court privacy while preserving a sense of openness.

The Center is so popular as a gathering place for many functions that it is anticipated it will soon be too small, and the building may have to be expanded. Total construction costs, including site work but excluding equipment, was about $290,000, or $20 per sq ft.
The balcony at the south end of the dining room has a panoramic view east and south to the Cascade Mountains, Mt. Rainier, and Lake Washington (above). The steel T-deck roof of the dining room continues as balcony roof. An uncovered bridge links balcony to lounge.

The inner court used for receptions and dining (right), is protected enough for use in windy weather. This glazed "heart of the building," the architects say, gives to the interior a "sense of spaciousness and light in all weather."
The dining room for 250 persons, the largest and most frequently used space in the club, is given greater importance by the high ceiling over its center section (below and across page bottom). Since neither carpets nor tablecloths could be afforded, acoustical control is provided by two tiers of glass-fiber baffles, hung at right angles to one another (photo at right and section). Light is supplied by suspended, incandescent fixtures in this section, and elsewhere by fixtures set in the T-deck. In the dining room and lounges, wood slats are cemented to exposed steel flanges for a finish sympathetic to the adjacent wood walls.
In placing the building on the steep site, the architect took advantage of the view, existing trees, and different levels: parking, hidden from view, is under the dining room and below the tower floor level (right). To avoid installing air conditioning, since economy was a prime concern, generous roof overhangs and many operating sash were included and have proven effective. The stucco exterior has a white sand dash finish and stainless steel expansion joints 9-ft o.c. The steel frame is painted dark gray.
U.S. architects have a significant part to play in the field of technical aid to other nations. "American know-how" is most sought after in large projects involving special planning and technical problems. Prominent among these complex building types is the hospital. In many countries, not necessarily "underdeveloped" ones, the principal national medical center is American-designed. Often these projects are initiated under the guidance of U.S. Government experts. Several firms have built a large international practice of hospital design. One New York firm is currently working on 25 projects in 9 countries. The two hospitals presented on the following pages are of special interest because both were initiated by Americans and will be realized through American financial aid. In each case, the architect was involved in the project in the earliest stages, and in each he played a more-than-professional role.

HADASSAH HEBREW UNIVERSITY MEDICAL CENTER • JERUSALEM, ISRAEL • JOSEPH NEUFELD, ARCHITECT • A. L. ZETLIN, STRUCTURAL CONSULTANT • JAROS, BAUM & BOLLES, MECHANICAL ENGINEERS • LAWRENCE HALPRIN, LANDSCAPE ARCHITECT

Although he has designed other buildings during the period and has become known as a teacher and critic at several schools of architecture, Neufeld, long recognized as a progressive hospital designer, has devoted the major part of his professional activity for the past 10 years to this medical center. His dedication to it has involved him not only in architectural problems, but in programming and research as well. The project, for which preliminary planning began in 1951, will be the primary medical teaching and research facility for Israel and the largest medical complex in the Middle East. It will include a 500-bed hospital, a 40-bed maternity pavilion, nurses' school and residence, outpatient clinic, syna-
Hospitals Abroad

The site comprises 300 acres on a low hill three miles west of Jerusalem, overlooking the pastoral valley around Ein Karem, an ancient monastery village. The texture of the landscape—warm-colored stone interspersed with the silvery foliage of olive and cypress—is interrupted only by a few unobtrusive stone buildings. In this setting, Neufeld had to place a complex containing acres of enclosed area on several floors.

The building mass was broken into small units informally laid out following the contours of the site. Stone similar to that of the hill itself was used, particularly on the lower floors, to soften the visual impact of the buildings. Differences in elevation were turned to advantage in providing ground-level access to several lower floors.

To provide adequate circulation between departments without penetrating them, the central buildings are organized around a "lifeline" running almost a quarter of a mile from north to south.
The plan of the acute nursing unit grew out of the need to minimize the distance from nurse to bed for complex, modern treatments. Neufeld's radial scheme, made public far in advance of its completion, has undoubtedly influenced more recent studies of centralized plans for intensive-care units.

The patients are accommodated in self-contained, eight-bed suites, including nurses' stations and sanitary facilities. The central nurses' station functions largely as an administrative center except during the night shift, when sub-stations may not be occupied. The corridor, therefore, carries a minimum of traffic, and over relatively short distances. The void at the center of the unit induces a flow of air to supplement the mechanical ventilation in warm weather.

The follow-up unit is a result of increasing numbers of ambulant patients and new attitudes toward convalescence. The patient transferred there from the acute unit need travel only across a corridor. Here he can enjoy greater self-reliance and sociability, yet remain readily accessible to the doctors and staff members following his case.

In a follow-up unit with a central nurses' station, both patients and staff are likely to spend considerable time in the corridors. In the plan of this unit, the usual tunnel-like interior corridor is replaced by two exterior corridors. Depending on the season, one or the other of these corridors will be used as a patients' lounge. It will be superior to the conventional lounge in that the patient can sit just outside his room, convenient to his personal belongings and accessible to the staff; he can face to the south in the winter, to the north in summer.

The enclosed corridors also offer superior protection from the weather. Even in severe storms, small openings in the corridors can provide ventilation without disturbing patients. The location of heating equipment in the corridors prevents uneven heating of the rooms.

The "core" at the center of the unit is convenient to either corridor. It contains only rudimentary services, compared to the acute unit core, but is designed so that equipment could be added for the treatment of more serious cases.

The patients are accommodated, as in the acute unit, in suites of eight beds. Here rooms are subdivided visually by storage and sanitary facilities to form a sort of "neighborhood" of two-bed spaces, thus offering a suggestion of privacy while encouraging the sociability that is beneficial in convalescence.
At the center of this line is a vertical "hub," concentrating the major part of all vertical movement in one group of elevators for efficiency of utilization. The essential services—kitchen, laundry, and central sterile supply—are located at the base of this hub. Above them are the main lobby and those facilities for which communication is most critical—the surgery and acute nursing departments.

The plaza at the end of the entrance drive provides access to the outpatient, administration, and emergency departments, as well as to the main lobby. The location of the emergency department at this level in the center of the complex facilitates its function as the night control point for the entire hospital.

Direct contact between emergency and surgery departments eliminates any duplication of operating facilities. The contour of the site places the surgical suite two floors above ground level, the optimum height where the possibility of conventional warfare must be considered. It is sufficiently insulated from direct aerial bombing, and high enough to minimize the effect of "near-misses" that explode on the ground. The semicircular plan of the suite shortens circulation and allows a radial flow to the operating rooms, which are all equally distant from central facilities.

Laboratory and therapy facilities are planned for accessibility to inpatient and outpatient departments, to avoid duplication of costly equipment. X-ray and deep-therapy departments are located on the second and third floors above the main lobby. Clinical laboratories, located next to the nursing units along the "lifeline," are also adjacent to the outpatient clinic. To the south along this line is the eight-story laboratory wing of the university. The organization of the clinical, research, and student laboratories allows for contact between them and facilitates the movement of students and staff between clinics, laboratories, and classrooms.

The possibility of war, ever-present in Jerusalem, required provisions for the emergency operation of the hospital. The nature of the site, and the system of tunnels connecting the buildings, made such provisions possible at little additional cost. In emergencies, the lower-level truck entrance, under the central plaza, would become a well-protected reception point. Underground storage spaces adjacent to it, which are equipped with sanitary connections, could be used for evacuees from the upper floors of the building.
The medical center embodies a pioneering application of Progressive Patient Care principles. The acute nursing unit (above), radial in plan, is surrounded by shaded balconies overlooking the valley to the east; the central ventilation well can be covered in winter. The follow-up unit (below) is composed of eight-bed suites, partially subdivided by storage and sanitary facilities. The sunny south corridor will be furnished with deck chairs in winter for use as a patients' lounge.
A complex of wings and separate pavilions to the south and west of the central hospital building round out the initial facilities of the medical center. All departments are connected to the central building by tunnels, which carry essential supplies and services and provide for uninterrupted communication in times of emergency.

**Medical School Wing**
Completing the nursing-laboratory-teaching sequence along the "lifeline" of the center, this two-story wing houses an auditorium, lecture halls, classrooms, and administrative offices for the medical school. Each 176-seat lecture hall can be divided by a movable partition into two 80-seat halls. Above the lecture halls is a rooftop amphitheater, which will be equipped with aluminum seats. The auditorium seats 492.

**Dentistry School**
This three-story building, sponsored by Alpha Omega, a U.S. dental fraternity, will be devoted to clinical and teaching facilities for a student body of 400. Two additional floors will accommodate further graduate work and research. The basement level, housing lockers and services, provides access by tunnel to the medical school wing. Patients enter at the south end of the lower floor; students and staff, at the north end. The upper two floors are almost identical in plan, with similar facilities for different classes. Patient circulation on these floors is confined to the corridors along the west side.

**Nurses' School and Residence**
This building houses 172 nurses and the required classrooms and laboratories. Although single rooms are generally considered mandatory for nurses because of the problem of night duty, Neufeld has housed them in double rooms, at a considerable saving. This innovation was made possible by providing 12 "quiet rooms" where off-duty nurses may sleep during the day. All rooms are above ground level and away from vehicular traffic. The courts afford secluded outlooks from the rooms and common spaces. Teaching facilities on the lower level are above grade on the downhill side of the building.
Synagogue
The significance of this building, necessarily so much smaller than its neighbors, is asserted by its prominent position in the center and by its distinctive form and color. Neufeld compares it to "a single stone set carefully at the focal point of a composition." The building is located at the head of a long, gardened mall leading up from the entrance drive and is accessible from the main entrance plaza. Its position between the follow-up nursing unit and the maternity pavilion is convenient for ambulant patients attending services, and for rituals associated with birth.

The form and texture of the building emphasize its relation to the local landscape and the traditions of Jerusalem. The sanctuary is partially submerged in the ground, its roof forming a memorial piazzetta opening from the entrance plaza. Local stone is used on the interior for both floors and walls. The austerity of this material will be offset by the brilliant colors of the lantern above. Its 12 vaulted openings will serve as settings for stained-glass windows designed by Marc Chagall, representing—abstractly—the 12 tribes of Israel. This lantern, penetrating the piazzetta above, will be the symbol of the synagogue from all points of view.

Maternity
The maternity pavilion offers a new solution to the problem of locating nursery facilities that has certain advantages over either the central nursery or the rooming-in scheme. Neufeld's plan shortens the distance between mother and baby and reduces the risk of cross-infection, thus avoiding the expense of separate compartments for each child.

The basic unit of the design is a suite for eight mothers, with its own nurses' station, toilet, utilities, and nursery. All movement of babies and mothers, and a major part of nursing and visitor traffic, is kept within this suite. Nurses' stations are located so that one can take over the functions of two during night shifts.

Delivery and administration facilities on the lower floor of the pavilion are designed to be adequate for five nursing floors, with a total capacity of 200; in the first stage, only one 40-bed floor is being built.
Local stone has been used extensively to relate the buildings to the environment. The white plaster walls which characterized early modern architecture in Palestine tended to weather poorly and seemed out of place among the traditional stone buildings of Jerusalem.

The concrete structural grid of the buildings is exposed on the exterior, with a recessed in-filling of local stone or brick and prefabricated aluminum window units. The stone is cut in the traditional two-to-one proportion and used as a bearing wall. The red and white brick is used alternately to relieve the austerity of concrete and stone, considered too forbidding for a hospital. Seen from a distance, the walls take on the color of the hill; it is only on approaching the buildings that their polychrome character becomes apparent.

One standard window-wall detail has been applied throughout the center (acrosspage, selected detail). It can be used to fill all or half of the structural bay, permitting the development of a "variation-on-a-theme" effect, relating buildings of different types in the center.

The typical unit includes a double-hung window and a spandrel designed to house convectors or ventilators or both. The interior framing is designed to accommodate heating risers and returns within removable aluminum casings.
This project is a convincing demonstration that an architect can do more for the world than executing commissions as they come along. Biernacki-Poray, a New Jersey architect, recognized a pressing need and dedicated himself to meeting it, donating his own time and that of his staff and enlisting the support of two national governments and a group of influential private citizens.

World War II had left his native Poland in ruins; losses of manpower and postwar boundary changes hampered recovery and retarded technology. Today, shortages of health facilities and personnel continue to reflect the general privation; inadequate housing has led to an increase in disease, especially among children. Poray's objective was to provide a new pediatric hospital, contemporary in design, construction, and equipment, as a contribution to recovery and as an example for future efforts.

In the spring of 1958, having learned that the U.S. Government had funds exceeding $100 millions on deposit in Poland, Poray approached the State Department concerning his project and obtained enthusiastic approval for it. In Warsaw, the plan was received reluctantly at first as a potential Trojan Horse; Poray was able, however, to secure the wholehearted support of the Polish Government.

Kraków was chosen as the location because its population has nearly doubled since prewar times, with no improvement in hospital facilities. Despite obsolete facilities, its university continues to make major contributions to science, as it has done since the time...
of Copernicus.

The proposal for a new hospital led to the establishment of a new campus for the Medical Academy, four miles southeast of the city. Thus Poray became involved in preliminary planning for an entire campus.

Returning to the United States, Poray organized a committee of industrialists, financiers, legislators, and medical experts to sponsor the project. Its administration was delegated to CARE, which had already handled considerable medical aid to Poland.

At that point an unexpected obstacle arose: the Mutual Defense Assistance Act of 1951 was interpreted as prohibiting the use of U.S. funds in Poland for such a project. Representative Clement Zablocki introduced an enabling amendment to the act that was passed, with the help of other interested members of Congress, in July 1959.

Arrangements are now being made for the donation of materials and equipment by American manufacturers and for their free transportation by the Polish Government. Ground-breaking is scheduled for the spring of 1961 and completion for early 1964, in time for the 600th anniversary of the university.

The program for the hospital, based on consultation with medical experts of both countries, includes teaching facilities for the academy, clinical facilities for the region, and medical research facilities.

Pediatric clinics accommodating 270 patients are housed in the four-story circular wing, which is separated from the rest of the hospital to minimize cross-infection. The circular plan was selected for efficiency of circulation; supervision of the curved corridors is effected through a system of overhead
mirrors. Special rooms equipped with one-way glass and with sound systems allow student observation of treatment rooms. Another clinic of 90 beds is located in the central building, convenient to surgical and diagnostic facilities.

Teaching facilities occupy the upper two floors of the central building. The central auditorium, two stories high, seats 114 for lectures and demonstrations and is expandable to a capacity of 414 for films or conferences. Other facilities on the fourth floor (not shown) include a student reading room and a snack bar.

The polyclinic, occupying a one-story wing to the north, includes provisions for examination, admission, outpatient treatment, and scheduled health clinics. The patio provides an enclosed and supervised play area for waiting children. This wing includes a combination chapel and multipurpose room seating 100, and a 10-bed dormitory unit for parents.

The research department is planned to function as an almost independent institution. Initially, only part of the first floor will be built. (Photographs of an early model show a future second floor.) As funds and trained personnel become available, the department will be expanded to four floors. The animals used in research programs will be housed in a separate octagonal wing, with separate entrances to each room, to minimize the risk of cross-infection. In addition to research facilities, the lower floor houses the kitchen, the laundry, central sterile supply, storage, lockers, and the emergency department.

The extensive use of American materials and equipment, the sources of which were not yet determined, required unusual adaptability in design and specifications. Since replacement and repair will be relatively difficult, durability will be the major consideration in the selection of equipment.

Several materials common in the U.S. but new to Poland will be introduced: acoustical treatments, including perforated metal, mineral fiber, and perforated plywood types; vinyl-asbestos floor covering; and flush-type metal office partitions. Aluminum curtain walls with porcelain-enamel spandrels will be used on the exterior; columns and solid walls will be faced with marble or granite. Many mechanical installations will also be new to Poland. Among them will be a heating system utilizing metal acoustical-ceiling panels as radiant surfaces.
Calder's City
Highlight of the most recent exhibition of Alexander Calder’s work was the large stabile-mobile which he titled “The City.” It filled so much space in the Perls Gallery that not only were his other, more modest, mobiles, stabiles, and mobile-stabiles overshadowed in the rooms where they were shown, but the space-defining scope of the big piece itself seemed to be lost, even if its size was exaggerated. Its black-painted sheet steel forms, around which and within the enclosure of which one could walk—conscious always of the appended, almost anticlimactic movement of the suspended discs at the culmination—were as out of place in the pleasantly formal gallery rooms as was Sandy Calder himself, red-faced, husky voiced, bluff, and natural-seeming among the sophisticated group that gathers for openings. P/A’s Editor, Tom Creighton, suggested to Calder that this was no way to see the piece, that it should be out in the woods or the fields somewhere, where it could form its own peculiar and effective “urban” environment. Calder both frowned and laughed; then a few weeks later he sent the photographs which we show here, happily proving that “The City,” like any city, is more handsome when surrounded by green areas. The piece has been sold, Calder reports, to the Museo de Bellas Artes, Caracas, Venezuela.
CREMATORIUM
The cemetery of Baden is on the outskirts of town. The approach to the site (see overpage) leads uphill along the border of a wooded hill, past a small parking area and an existing, remodeled mortuary, and through the rough concrete monumental arch. From there, a 6-ft-high wall, also of rough concrete, and a row of plane trees lead to the courtyard, which is flanked by the chapel and the new mortuary. The architects say that they used "simple and strong materials to give an effect of serenity and earnestness rather than of mourning." The photographs of the project indicate that they achieved their aim and that good architecture alone can create a suitable environment for interment or cremation; there is no need to resort to sentimental gimmicks, which so often is the case.
The cross-section of the buildings and the courtyard (right, above) shows an underground passage 1 connecting the chapel 2 with the furnace room 3. After the service, the coffin can be driven through the passage by means of a hydraulic-lift coffin-car. The electric furnace plant was equipped so that the staff would have to do as little manual work as possible. The work of cremation is done by one man only.

The ground floor and basement plans (right, below) show the simple disposition of the rooms. The chapel has sheltered exterior corridors on both sides which can be used for standing room during large ceremonies. Waiting rooms at rear of chapel are for relatives, the priest, or a small orchestra.

The courtyard (below) indicates some of the natural materials used in the project: cobblestones, copper, and gray-green sandstone.
The chapel, which seats 200, is used by both Protestants and Catholics. Main entrance is from the sides. For smaller ceremonies, a dark blue linen curtain is drawn across the window wall; for major ceremonies, the curtain is drawn back and the side passages, protected by wide roof overhangs and perimeter walls, are used as standing room for an additional 180 people. The high windows permit a view of the surrounding wooded hillside. The chapel has a fir ceiling, blue sandstone front wall, red sandstone floor, oak doors, and fir benches. The fountain bowl—a focal element in the courtyard—is of copper.
“Ezekiel saw the wheel a-turning
Way up in the middle of the air.
The big wheel run by faith
And the little wheel run by the grace of God.
A wheel in a wheel
Way up in the middle of the air.”
For 2000 years, builders have used domes of revolution to span circular assembly areas, and in so doing have subjected spring-line supports to lateral thrusts. In recent years, one of the most frequently used devices to contain these forces—a method which had its origin early in the Renaissance—has been the perimetrical ring. The past three decades, however, have bridged the birth and realization of a suspension method of spanning round spaces which utilizes a compression ring at the circumference of a structure and a ring of tension at its center. Although others undoubtedly dreamed of the possibility of constructing one, among the first designers in the United States to propose the circular suspension roof were Simon Breines and Josef Van Der Kar, who used such a scheme for a large arena-like structure with a catenary roof 1, which they entered in the international competition for the Palace of the Soviets in 1932. Breines again proposed such a system—with the aid of the late David B. Steinman—for the Roebling Building, to be built at the New York World’s Fair in 1939. Gathering war clouds put the project on the shelf, however, and the patent which he had obtained for a structural system of this kind expired in 1950. That others were concurrently and independently aware of the advantages of this structural concept is illustrated by Aladar Olgyay’s design for the roof of an autonomous-type “Ring Aircraft Hangar,” which he proposed to the U.S. Air Force shortly after World War II 2.

In 1958, Edward D. Stone’s internationally known U.S. Pavilion at the Brussels Exhibition, which spanned 330’, was the first of the somewhat erroneously labeled “bicycle-wheel” roofs to be completed 3. At San Antonio, Texas, in the following year, the Villita Assembly Building was dedicated 4. Designed by O’Neil Ford & Associates (N. A. Salas, Project Architect), with William E. Simpson Company as structural engineers, the saucer-shaped, suspended-roof system covers a 132'-wide central room with a seating capacity of 1500 people. (This structure is documented in detail on the following pages.) The municipal auditorium of Utica, New York, finished in 1960, contains a prestressed dual-cable suspension roof spanning 240’ 5. Its architects were Gehron & Seltzer, and the structural engineer was Lev Zetlin. Seltzer estimates that a roof of this type may be practical for use in buildings up to 1800’ in diameter, since the costs in roof application actually decrease as the span is elongated.

Among the most recent research
studies in this general type of roof design is that being conducted by Robert Le Ricolais, working with graduate students at The School of Fine Arts at the University of Pennsylvania. It is Le Ricolais’ opinion that, for large-span buildings, the “radial system” heretofore applied is not the optimum one. A far more efficient pattern is derived with the triangular grid system (see large photograph of model on preceding spread). Such a method eliminates the necessity of a center tension ring, which in the case of the Brussels Pavilion amounted to approximately twice the cable weight. Furthermore, with the triangular grid, the intersections of the network involve a fixity at each point, thereby cancelling bracing elements. His tenet is that, although a matter of detail, understanding the properties of the equipartition of the plane are the basic elements of rational design.

Villita Assembly Building

Named after the older section of the city in which it is located, the Villita Assembly Building has a multiuse circular plan which is well suited to its site and the surrounding neighborhood. Having agreed on the logic of a round plan, the designers were led to the consideration of a suspended-roof system, consisting of a compression ring, bearing on exterior columns, and an inner tension ring connected by steel cables which would integrally support a composite roof decking. The feasibility of these preliminary roof studies was readily confirmed by the consulting structural engineers.

The roof was designed for a 20 psf live load in addition to the dead load of its roofing materials. Although a wind load of 30 psf was included in the design of the walls, it was assumed that there would be no wind load coming into a saucer-shaped roof of this kind.

The inner tension ring, with its spider-web truss, was first positioned on the rough concrete floor slab and remained there while a wood scaffold was built at its side. After the ring was raised to its approximate final height by gin poles, the scaffold was centered to support the ring-truss while cable-connecting operations were completed. Since it was anticipated that the cables would elongate under load, each cable was prestretched individually. After end connections had been made, a pull of 18,000 lb was applied to each cable—twice the amount it was expected to support under normal loading—and sustained for 15 minutes. To assure that all stretch had been removed from the cables, this pull was reapplied for a second 15-minute interval.

Flutter, which is a tendency of any hung roof if not sufficiently stabilized, was eliminated by the prestressing of the cables. After the pie-shaped, precast concrete roof panels were concentrically anchored to the cables, beginning at the center and allowing 2½” voids between all panel units, a superimposed load of 50 psf above design load was placed over the entire roof, which was a step requiring 188,000 nominal-size bricks. With this load applied, hiatuses between panels were grouted with regular small-aggregate concrete. Rigid glass-fiber
board, later to serve as a sound-absorbing material, was fastened beneath the roof panels to hold the grout in place. After the grout had set, the bricks were removed (again working toward the compression ring), and the residual tension of the cables placed the concrete in compression. A 1" lightweight concrete topping provided a smooth, curved surface to receive built-up roofing.

The building is owned by San Antonio's City Public Service Board. It is
used for conventions, exhibitions, meetings, parties, banquets, and other entertainment. The main hall has adequate space for 1500 people seated at tables, and a small stage for musical or theatrical performances was provided. The lower outer circle houses auxiliary facilities. Storage and mechanical equipment were placed in the basement, where the large central area can also be used for overflow exhibits, or other purposes, when space demand is exceptionally heavy.

As mentioned previously, the architects decided that a round form for this building was a logical solution to the problem. Considerations which led to this conclusion were explained by them as follows:

"The site is in the heart of San Antonio, in the section known as La Villita, or the Little Village. This is one of the older parts of the city and its adobe houses were restored a few years ago to their former charm and beauty, the little plaza was landscaped, a small outdoor theater was built on the banks of the river, and the little houses are rented to artists for studios and galleries."

"After much study and discussion, it was decided that a circular building best
served all interior purposes, was well suited to the unusual site and neighborhood, and would be much more interesting from the standpoint of mass and all elevation appearances than any other form. Further, a circular shape appears smaller and less out-of-scale with the little houses of La Villita than would a big box.

"One could carry this esthetic and function analysis quite far, there being certain pertinent connotations to the words 'circular' or 'round.' When one speaks of a gathering of persons, one often says 'gather around,' 'discussion circle,' 'round table,' etc. We all live in squares and rectangles, generally move on straight-line streets and around blocks, but when we play, we very often find that we naturally 'circle around.' The obvious advantage of the circle in group dancing is clearly shown by the way couples invariably move around a circle in a room of any shape. Of all dances, 80 percent are basically circular in movement and pattern. Those who sit on the sides also invariably form a circle."

Areas surrounding the Villita Assembly Building (left) were developed by Landscape Architect Stewart E. King (James E. Keeter, Associate) into pleasant patios and promenades which create a cushion between the formality of the cylindrical shape of the building and the surrounding traffic. Mexican bricks and paving tiles, old Danish gas lamps (discarded by the City of Copenhagen), and local pottery and planting material create a relaxed atmosphere conducive to informal gatherings.

Construction cost, including air conditioning and sound amplification system, was $786,223, or approximately $18.30 per sq ft.
The ceiling of the assembly hall consists of suspended, sound-reflecting wood-surfaced panels.
The successful transformation of a brownstone into this retail store devoted to the sale of contemporary American crafts was accomplished by an architect long associated with the craft movement. David R. Campbell, architect of the Museum of Contemporary Crafts (February 1957 P/A), has now become President of the American Craftsmen’s Council and Director of the Museum of Contemporary Crafts.

To focus attention on the store and, at the same time, respect the adjacent brownstones, dark-bronze aluminum louvers were used to “blank-out” the upper floors of the façade (left), while the interior of the store is displayed through two-story-high windows. The major problem in planning the interior was to provide sympathetic exhibition areas, in a narrow building, for a great number and variety of individual objects—from large tapestry wall-hangings and free-standing sculptures to small ceramics and jewelry; and to show these changing displays in an interior which would give an impression of space without clutter.

The first-floor sales area is fluidly extended back to the rear court and up to the mezzanine. Displays are confined primarily to the walls, where shelves are easily readjusted on recessed metal strips, and to low tables of various heights. Flexible lighting for the changing displays is provided by movable spotlights on ceiling-installed tracks. Surfaces of rough brick, pandanus cloth, and wood provide varied textures to complement the products. Interior furnishings (the stair, cabinets, door handles), as well as the flooring and ceiling, are all of carefully selected materials and express sensitive craftsmanship, thus creating a totally harmonious environment for the work of professional designer-craftsmen.

In order to encourage custom installations of craft work at wholesale price, an Architectural and Interior Design Consultation Service has been formed to function as the link between the architect or interior designer and the craftsman. The new Service offers a range of diverse activities. It will help an architect in selecting a craftsman and following a project through to final installation—making sure that specifications are observed and timetables met, transmitting renderings, handling correspondence, and co-ordinating the work of the craftsman and the contractor or subcontractor.
An impression of uncluttered spaciousness is achieved despite the great variety of objects displayed. This goal was accomplished by completely opening the first and mezzanine floors (above) from front to rear. On the first floor, individual display areas for different kinds of craft work are set off in spaces defined by the mezzanine and the lowered floor level, which extends into the rear court (left). Major surfaces are of brick and wood to complement the crafts work. Appropriately, interior furnishings, as shown in the door handles and stair detail (below), are expressions of sensitive craftsmanship.

**DATA:** descriptions and sources of the major materials and furnishings shown.

**CABINETWORK, STAIR**

**DOORS, WINDOWS**
All: plate glass/Herculite/Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.; set in angelique (Dutch Guiana teak).
Door Handles: angelique/architect-designed/custom-made/craftsman Richard Lefeber.

**FURNITURE, FABRICS, ACCESSORIES**
All: made by American craftsmen/America House, 44 W. 53 St., New York, N. Y.

**LIGHTING**

**WALLS, CEILING, FLOORING**
The Resident Architect

BY EDWARD L. FRIEDMAN

The problem of supervision of building construction is discussed in this article by a Resident Architect on the staff of I.M. Pei & Associates.

As a profession that is offended by the oversized Detroit Dreamboat, and the slick Madison Avenue techniques used to merchandise it, we would do best not to admit to a device of ours that allows skim milk to masquerade as cream. Every architect, at one time or another, has been disappointed by a building that he had keenly anticipated seeing on the basis of photographs—masterful pictures by a photographer who proved to be more skilled than the building's designer. This not-so-gentle art of deception is sometimes achieved through omission and emphasis; it is most effective, perhaps, when it disguises poor quality of construction and detailing. If, however, the form and design of the architecture are good, then we must heed the concise warning of the AIA Handbook of Architectural Practice: "Architects should always be mindful of the fact that their creations are finished building projects and that the construction phase of their service must be complete and competent if the final results are to give them satisfaction." Unfortunately, as the Handbook goes on to point out, "... complete and competent [architectural supervision] ... seems to be surprisingly rare," especially in light of the findings of the 1956 Survey of Architectural Practice, which revealed that more than 70 percent of the building projects exceeding a cost of $100,000 were constructed without benefit of continuous supervision by the architect's office. It is difficult to estimate the extent to which architecture has suffered as a result, but the sad truth is that, unlike some of Le Corbusier's work, few buildings are so perfect architecturally that they can overcome defects in their construction.

There is some confusion in the terminology of the profession as to the proper name for the architect's supervisor of construction. The office manager refers to him as a "field man"; registration examining boards are fond of calling him a "clerk-of-the-works"; the AIA Handbook has suggested renaming him "project inspector." I myself submit that, due to the changing concept of construction supervision, he should correctly be called Resident Architect. Unlike the familiar field man, who is usually a graduate of the building trades and is more knowledgeable about the contractor's problems than the architect's intent, the Resident Architect has a university background in architectural design and engineering, as well as a considerable apprenticeship in the field. He possesses a broad understanding of mechanical equipment and is able to co-ordinate it physically with the architecture at the time of installation, thus avoiding costly contract changes. He is familiar with the standards of good and bad workmanship in all of the trades, and establishes levels of acceptance for the contractor before the work has been substantially started. The proper execution of the work—determining that the job is properly organized, that the work is expedited, and that safety requirements are met—is his responsibility, and to this degree he shares accountability for the job with the contractor. Above all, he must have the ability to anticipate problems, thus avoiding expensive afterthoughts and unsatisfactory compromises. He is, in short, an architect who is a building construction specialist. As such, he is entitled to the esteem and consideration of the most important members of the architect's staff.

This might suggest that a person, to meet these qualifications, would have to be a sort of Universal Man—a Leonardo, who in addition possesses the wisdom of Solomon. Perhaps there have been Resident Architects of this caliber, but most of them have been attracted by more remunerative positions in the building business, where the profit factor makes reward in proportion to ability more practical. This exodus is due to economic factors, and may be compared to the building engineering professions, where the cream of the graduates are being drained off by industry into better-paying and more responsible positions, causing a substantial reduction in available talent. If industry ever finds room for more architects, we could find ourselves in the same predicament.

It appears unlikely, however, that architectural firms will ever be able to offer the same financial rewards as industry, so other means must be found. What is needed is a reorientation in the curriculum, one that will combine more courses in building construction with more time in the field. If this twoproonged approach to architecture is sufficiently important—and I think it is—an immediate remedy could be requiring a candidate for the licensing examination to acquire as a prerequisite a limited amount of field experience in the employ of an architect or engineer.

What are some of the ways in which one becomes a Resident Architect? In a few cases, it is the result of a person not being proficient as a designer; more often it is the natural outgrowth of the work of the draftsman, as he interprets plans and specifications to the contractor. In some cases, where a new system of construction is being introduced, the architect may find that his own research on the method best qualifies him to supervise the field work. In all events, the system of selection is too casual and, once employed in the field, the future prospects are too dim. Until it is realized by architect and owner alike that compe-
The fundamental role of the Resident Architect is to produce a building of quality within the contractual limits of price and intent. An intelligent understanding must be reached of the character of the construction contract purchased, so that a sense of proportion may be maintained in guiding the contractor’s best efforts toward the vital areas of the building. Patience and diplomacy are important attributes in creating the necessary atmosphere of respect and understanding with the contractor; a restrained attitude is necessary until his good will has been assured. The Resident Architect must be able to judge how the contractor will manage the job by sizing up his ability and response at the beginning of construction. In the words of the Associated General Contractors of America: “It takes a good architect but a short while to determine whether the project will have to be watched very carefully or the minimum assistance will be required.”

The job of Resident Architect should not be interpreted as that of an inspector who simply judges the work once it is completed. It is incumbent on him to verify the work at the time of installation, and to clarify immediately to the contractor the performance that will be expected of him. The frequent habit of misusing the punch list (which is intended for completion of work and correction of minor details) to require removal of work at the contractor’s expense, does not always safeguard the owner’s interests and may lead to very damaging secondary effects. Neither is the Resident Architect a policeman who observes that the contract is followed to the letter; it is not only a physical impossibility to oversee every construction operation, but reasonable tolerance must be shown in inspection, depending on the nature of the work.

The ethical position of the Resident Architect is a curious one. Legally, he is an agent of the architect of record, and Article 38 of the General Conditions binds him to “. . . side neither with the Owner nor the Contractor, but [he] shall use his powers under the contract to enforce its faithful performance by both.” He is retained, however, at the owner’s expense, generally due to the architect’s recommendation for the desirability of continuous inspection, and he is morally obligated to act in the owner’s best interests. Under these circumstances, it is not always advisable to enforce performance by the owner. Of course, these divergent attitudes may never come into conflict, but in order to sustain his professional identity, the Resident Architect should observe a fair and impartial position until such time as the contractor evidences less than good faith in the performance of his contract. Even at these times, it must be remembered that a peaceful—rather than antagonistic—relationship with the contractor will enhance the chances for a satisfactory completion of the contract.

It is a fact of life, however, that there are times when rapport with the contractor cannot be established. Unless the Resident Architect has been invested with the necessary authority, he will be unable to cope with these situations. The contractor must know that the Resident Architect controls the job, that his decisions are not easily nullified, and that he can exert financial pressure by withholding payment for unsatisfactory work. This requires that the Resident Architect be empowered with certification of payments to the contractor and approval of change orders to the contract up to a specified cash amount. If the work is to be properly co-ordinated, it further demands that he be a clearing house for all information and correspondence pertaining to the job.

In spite of these heavy responsibilities, job control by the Resident Architect should never be absolute, and his areas of responsibility and modus operandi should be clearly defined. Written records, although cumbersome, are mandatory for instructions to the contractor and job meeting discussions; standard reporting forms describing progress of the work, site decisions, change orders, etc., should be required at scheduled intervals. Matters affecting visual appearance, including shop drawings, should always be referred to the designer. Whenever possible, single installations should be set up for design approval. Change orders issued in the field should be reviewed periodically by a principal of the firm for interpretation and technical merit.

The role of the Resident Architect need not be confined solely to the field. If he is to be ultimately responsible for construction performance, it is advisable that he be given the opportunity to review the plans and specifications before issuance to bidders, to insure that they are adequate and to avoid needless difficulty and expense in the field. Frequently, the contract negotiations have an important bearing on the way the work is pursued in the field. For this reason, the Resident Architect should be present at these meetings. It should be unnecessary to mention that all contract documents should be reviewed for meaning and content by legal counsel before final signing.

After the construction contract is let, job meetings with the contractor and any of his subcontractors should be called by the Resident Architect as early and as frequently as necessary in order to discuss the progress of the work, and particularly to expedite the proper organization of the job. Where complicated construction is involved, the quality of the contractor’s job-engineering is of prime consideration, and a prompt collaboration of architect and contractor talents will always be helpful in anticipating problems and developing techniques of overcoming them.

During the course of construction, the Resident Architect will find it useful to keep a photographic record of any defective or unsatisfactory work. This will provide future evidence, should it be needed, as well as an office file of unusual construction procedures that normal progress photos do not describe. Also of value is a personal diary, with daily entries, in which the Resident Architect notes in ink any important discussions or observations not ordinarily covered by other written reports. Photographs and diaries are admissible court evidence, and provide a system of record-keeping that should be automatic with field personnel.

The emergence of the Resident Architect as a building construction specialist, rather than as an interpreter of the plans and specifications, may be traced to the changing character of the general contracting industry. It was not unusual in the past for a general contractor to carry many of his own trades—particularly concrete, carpentry, and masonry—but the pressure of competition has rendered large work forces impractical. In many instances, the general contractor is today only a broker who collects subcontractor bids and organizes them into a single package. This is the trend rather than the exception. Although it has probably brought more competitive pricing, it has also resulted in a reduction of project organization and supervision by the general contractor, and has placed a greater responsibility for construction performance on the architect. This fringe effect merits consideration from the architectural profession, since it provides it with an opportunity to help restore its role of Master Builder.
Unique outdoor restaurant shows new concepts for temporary and portable shelters. Significant aspects of the patent-pending system—its aluminum structural frame, the superior performance of its plastic covering, and its simple jacking method of erection—are discussed here.

An important structural statement on seasonal and temporary shelters has been made in the new outdoor restaurant for Sterling Forest Gardens, near Tuxedo Park, New York. Barrie Greenbie, inventor of the "Portapavilion," designed the restaurant in co-operation with Arthur Wagner Associates, who were in charge of design for Sterling Forest Gardens.

Significance of the structure can be seen in at least two major respects—its structural frame and its plastic covering. First: the bolted aluminum members span a large area without the use of masts, guy wires, falsework, or scaffolding. The structure is self-erecting, having been quickly and easily hoisted into position after almost complete assembly on the ground. The frame may easily be prewired, with all fixtures and appliances attached, before erection.

Second: the Portapavilion is part tent and part building, like the Cambridge Drama Festival Auditorium, but unlike that and other structures of its kind, does not require air inflation to maintain its shape. Instead, the Portapavilion relies for its configuration upon the high tensile strength of the vinyl-coated nylon covering, which is stretched under sustained tension over the aluminum frame. The ability of the plastic covering to withstand considerable tension over long periods of time makes this possible in a manner that conventional canvas will not permit. The designer was thus free to create a shape that is independent of the rigid characteristics of balloons and domes.

Setting
The setting of the Sterling Forest Gardens Portapavilion is also unusual. The restaurant is part of an extensive landscaping development that features meandering walkways, trees, and plantings identified with name plates, a man-made lake, and—at the edge of the property—a loudspeaker-guided tour through geological exhibits.

From the restaurant pavilion, the view that includes this varied landscape and the hills beyond is handsomely framed in the wide gable-shaped openings. Overhead is the plastic covering in a strong, pool-blue color. From the grass outside, half a dozen peacocks strut freely through the restaurant. For the 150 or so diners eating Restaurant Associates' fare in these surroundings, the experience is a delightful one.

Structure
The roof of the Portapavilion is a series of spokes that form two, eight-sided adjoining units. Half of the rafters of each unit are alternately raised above the other half for a "folded"—or multi-gabled—form. The octagonal unit opening to the view has tables for diners; the rear unit has cafeteria lines and a kitchen serviced from the road.

Each pair of opposing rafters (ridge or valley sections) forms a collapsible bent, which when raised and locked into place acts as a three-hinged arch. Each unit of this structure consists of four such bends joined at a common peak. Two smaller, similar bends form the connecting midsection.

Ridge and valley members are composed of two 10" aluminum channels bolted together; spacers between the channels permit electrical lines to be unobtrusively located. Lights (and ventilating equipment in the kitchen area) are suspended from the structural frame. Between valley and ridge members, a system of cables and turnbuckles acts as bridging.

Perimeter columns of 4" OD steel pipe are bolted to the concrete foundation, and flagstone flooring over slab-on-grade runs flush with these connections.

Covering
A 12-oz vinyl-covered nylon (Facile Corporation's "Facilon") is the weather-protective covering of the Portapavilion. It has proven far more successful than canvas in its tensile strength, its wearing ability against the elements, and—when used as it is here—its resistance to wind loading. The material has been notoriously unsuccessful when used in tents, despite properties vastly superior to canvas; however, Greenbie analyzed the cause of its failure in tents and worked out a fabrication pattern that takes greater advantage of the ma-
Ridge and valley members are 10" aluminum channels meeting at special center fitting. Opposing rafters are a collapsible bent, acting as a three-hinged arch when raised and locked into place. Over this structure, plastic covering is stretched under sustained tension.
There was little data available on the material's performance before Greenbie contemplated using it. He experimented with a 1' x 2' section, prestressing it to 20 psf, and testing it for all possible weather conditions. He also investigated attachment methods by towing a framed 4' x 4' panel at 75 mph behind a car and under water behind a motorboat.

The material can be engineered to any specification; the Sterling Forest covering was designed for 20 psf wind load. It was engineered to resist winds of 60 mph, but withstand winds of much higher velocity during the worst hurricane this past fall. Interestingly, too, in tests on an earlier structure, Greenbie discovered that severe ice loading broke the covering's structural support without noticeable damage to the fabric itself.

When stress is removed, the material almost immediately recovers 50 percent of its stretch, then more slowly up to 92 percent. Thus, after initial installation, one major tensioning adjustment may be necessary after the first heavy wind. Tensioning is easily accomplished by turnbuckles which connect the cover to the outer ends of the rafters. Unlike a tent, the Portapavilion does not need constant adjustments with changing weather conditions.

Each triangular section of the covering (between ridge and valley members) is composed of small rectangular areas, joined together in a sail-like pattern. All seams are heat-sealed, with 3/4" or 1" overlap. Perimeter edges have a 2" reinforcing hem of Facilon. Nylon seatbelt webbing along the seams at ridges and valleys is continuous across the peak, taking all wind stress.

At the peak, the fabric has a special ventilating section that keeps the pavilion cool even in the hottest weather. Flutter and flapping is greatly reduced, compared to an ordinary tent or awning.

Fabrication was by Plastic Creators, Little Ferry, New Jersey. Although there is no information available on the estimated life of the material, the fabricators report that swimming pools of Facilon have been in use for more than 10 years. Greenbie's first Portapavilion, built in Saratoga, New York, has been in continuous use for 30 months, or the equivalent of 7 to 10 summer seasons. Canvas tents will last approximately 3 to 4 seasons.

Revised Erection Method

Although not part of the Sterling Forest Portapavilion, a jack-column erection scheme has been more recently developed by Greenbie, to be easily incorporated into this structure.

Each valley unit—rafter, brace, and column—would utilize a telescoping column which may be extended by a jack located inside the column. Each beam is attached by means of pin connections to its column and brace, and the column and brace pinned to the base plate, with the whole assembly free to pivot in a vertical plane along the line of the rafter.

When the building is ready to be erected, all components are assembled radially and connected to a common center fitting. Since the columns are telescoped to half their finished height, all parts are within easy reach of workmen on the ground. As the telescoping columns are extended, the rafters travel upward to their fully erected position.

Power may be applied at only two of the telescoping columns, or at all columns simultaneously, depending on the load, the type of mechanism used, and other variable factors. In a "folded-roof" structure, as at Sterling Forest, power is applied to the valley jack columns only. As all other rafters are attached to the two or more lifting rafters, these are also elevated.

The framework at this stage resembles the earlier Portapavilion at Saratoga—a conical form (page 105, October 1959 P/A). For the "folded" form at Sterling Forest Gardens, the ridge rafters may then be raised individually at their outer ends, the inner ends having already been hoisted to peak position. After erection, the jack columns are locked in their final position.

Erection Method

At Sterling Forest

The structure at Sterling Forest was erected in a somewhat similar way, except that it was pulled up with a crane from the center. The straight columns were initially attached to the rafters only, folding inward under the rafters. The outer ends of the rafters were attached to, and rested on, the brace members, which were pinned to the base anchors. As the rafters were pulled up by the crane, the outer ends rode up on the braces in a knee action, the columns swung down into place and were bolted to the base plates in finished position. The structure was then secure and the crane removed. Each octagonal section was erected separately, and the connecting midsection put up last.

The Sterling Forest building could be lowered with a heavy duty lift truck or other jacking equipment. According to Greenbie, addition of the jack column erection concept would make this type of structure even more easily demountable and portable.

The entire structure covers 6000 sq ft, weighs less than five tons (exclusive of equipment), and was brought to the site on a single truck. Erection was completed in 36 hours by five men, and the establishment was serving meals within two weeks after the slab was poured.

Total cost of the structure—erected over a week end at union double-time rates, and including plastic covering—was $4 per sq ft. This figure, however, does not include cost of the foundation, which is an expensive, doughnut-shaped grade beam required because of the peat bog underneath.

Others involved in the pavilion project were Henry Gorlin, Structural Engineer, and H. E. Nimke, Mechanical Engineer.

Further Possibilities

The Portapavilion is a patent-pending system, owned by newly incorporated Portapavilion Structures, Ltd. The company is currently prepared to market 40' to 60' diameter structures similar to the Saratoga prototype, and plans to develop other designs on an individual basis between architect and client.

Highly flexible in its possibilities, the pavilion could take a wide variety of forms, although a symmetrical plan (or combination of symmetrical elements) is the most efficient use of the system.

The structure is flexible in its function too—other suggestions include summer theaters, cabarets, dance pavilions, skating rinks, and exhibition areas. It would be ideal to cover a band shell, its designer feels, since the plastic covering does not reverberate and would work excellently where acoustics have been designed for open air. For other variations, curtains or panels can be hung at the perimeter (or from other parts of the structure) to provide theater backdrops, exhibition boards, weather protection, or visual interest.

Greenbie, also a painter and stage designer, is recipient of a Ford Foundation grant to develop an experimental dance theater. He is presently working on further developments of the Portapavilion (with Arthur Wagner Associates, New York industrial designers), both in its individual applications as a portable shelter, and in its possibilities as a means of raising formwork for concrete structures. He is also planning an adaptation of the system for collapsible, portable, solid-roof structures.
BY PAUL CHELAZZI

In this discussion by an engineer-architect, the elasto-mechanical behavior of a beam, as it occurs in a simple structural design, is analyzed. High school algebra and geometry, plus common construction sense, are the only tools used to develop the related formulas. The author hopes that an understanding of this exposition may assist the architect in his association with his structural engineer.

In lecturing before architectural students, the author has frequently been asked to elaborate on various points of structural elasto-mechanics. On such occasions, the students seem to reflect a sense of inferiority concerning their ability to fully comprehend the behavior of structures. Since structural form can be a major source of architectural expression, the adequacy of their training becomes a serious question to them.

"We are short in math. Even simple mechanical laws, for example, as expressed by the three equations of statics, are vague when symbolized by the 'mysterious sigmas,' namely, \( \Sigma H = 0 \), \( \Sigma V = 0 \), and \( \Sigma M = 0 \)."

But are they so mysterious? Let us examine their meaning in the case of a man who, returning to his home, is pushed against a wall by a gust of wind.

Obviously, the wind pressure \( H \) which is transferred through his body must produce, at the point where his elbow touches the wall, a reaction \( H' \) which is exactly equal to the pressure of wind \( H \). As a matter of fact, should the wall reaction \( H' \) be smaller, his elbow would sink into the wall; or, if larger, he would be thrust away from the wall.

Consequently, all horizontal forces acting on the body must balance; i.e., their sum must be equal to zero. This, simply, is what the shorthand of statics means by \( \Sigma H = 0 \).

As the wind subsides, the man again feels steady on his legs. While in this position, the weight of his body \( P \) is transferred through his feet to the pavement where the total load must be balanced by the reactions \( R^1 \) and \( R^2 \). If these reactions were respectively larger or smaller than \( P \) and \( P' \) (the components of the body's weight), he would either be forced up into the air or he would sink into the ground. This equalization of forces is indicated by \( \Sigma V = 0 \).

The third equation, \( \Sigma M = 0 \), becomes evident when the man decides to resume his homeward walk in spite of a strong headwind opposing him.

Intuitively, he bends against the wind, shifting the weight of his body forward until he has balanced the wind pressure \( H \).

Evidently, this condition is reached when the weight of the body \( P \) acts along a vertical line, located at a distance \( a \) from the point where his forward foot transfers it to the ground. Thus, a moment \( P_a \) is generated which is equal to the moment \( Hh \) created by the wind.

"Well," one of the students might comment at this point, "perhaps we understand this explanation of statics, but when we begin to investigate basic structural problems the textbooks only offer us formulas 'as shown in treatises on mechanics' that we must take for granted."

This is particularly true of all formulas derived from the differential equation of the elastic curve.

But let us see how we can obtain these formulas by observing the elastic behavior of bent members in the reality of an actual structural design, with the help of some high school algebra and geometry—with an assist from our sidewalk-superintendent's construction sense.

Typical Example

To meet special requirements, the shed shown should be designed with a translucent membrane roofdeck supported on rubber beams. The entire roof structure is so light that its dead load is practically negligible.

Since it will be built in a locality where no wind or snow would appreciably stress the structure, the only load the beam will carry is that transferred by top-hung doors \( P \) at the ends of the cantilevered spans.

As the columns are also made of rubber, the loads \( P \) produce marked distortion.

Due to the fact that there is no load on the beam between columns, we can visualize intuitively that the beam will assume a circular curve of radius \( r \), the determination of which will be the scope of this investigation.

First, however, let us observe the effect of load \( P \) when it is transferred to the hinge which—through its plate—bears on the column, causing it to shorten by a fraction \( \Delta L \) of its length \( L \).

It will be seen that the hinge-plate distributes the load \( P \) over the entire top of the column, so that the component unit areas of its section \( A \) are evenly stressed by a unit load \( f \), which obviously is equal to \( P/A \).
From the time that Hooke discovered his famous law _ut tensio sic vis_ in the 17th Century, beginning students of physics have known that in load-carrying, elastic-material bodies the ratio between the unit stress \( f \) and the unit distortion \( \frac{\Delta L}{L} \) which it causes, remains unchanged within the range of allowable loading.

Applying this criterion to the shortening of our column, we can equate

\[
\frac{f}{\frac{\Delta L}{L}} = E
\]

It may also be defined as that load which could shorten the column to one-half its length, since the denominator in the above equation would equal unity. We shall see later, however, what the real physical meaning of \( E \) is.

**Elastic Behavior of the Beam**

Let us now observe the elastic behavior of the beam within the central span \( I \delta \).

To assist this visualization, the beam has been subdivided into small unit-span lengths \( \Delta L \), which have been marked on its profile along with an indication of its neutral axis. The latter has been located at mid-depth of the beam, assuming that it is made of a homogeneous material and that it has the same modulus of elasticity in both compression and tension.

Up to this point of our analysis, the doors have yet to be hung. When they are—when the loads \( P \) produce reactions \( R \) at the columns—the left upper quarter zone of the unit-span length \( ABCD \) (to the right of section \( s-s \)) will become dis-
### Radius of Curvature

1. \( f = E \frac{dA}{AI} \)
2. \( fdA = E \frac{dA}{AI} dA \)
3. \( \frac{dA}{AL} \frac{Y}{R} \)
4. \( f = \frac{EY}{I} \)
5. Since \( \Sigma f dAy = M \)
6. \( I = \frac{M}{f} \)
7. \( f = \frac{EY}{I} \)
8. for a rectangular section
9. \( M = f_{\text{max}} S \)

### Beam Formula

- \( f = \frac{E}{I} \frac{M}{Y} \)
- \( f = \frac{E}{I} \frac{M}{Y} \)

### What is \( E \)?

As shown (Fig 5):
- \( r = \frac{d}{2} \) which equated to (6) gives \( \frac{d^2}{8} = \frac{EI}{M} \)

\[ E = \frac{M^2}{8} \cdot \text{Pul} \]

\[ \text{残忍} \]

### Structural Elasto-Mechanics 167
We have seen that the unit stress $f$ is equal to $E$ multiplied by the unit distortion $\Delta y/L$.  

Applying this formula to evaluate the unit stress in the elongated fiber at distance $y$ from the neutral axis, $\Delta y$ in this case is represented by $d\Delta y/2$, and $L$ by $\Delta y/2$; therefore, $d\Delta y/2$ over $\Delta y/2$, or $d\Delta y/\Delta y$, multiplied by $E$ gives the value of $f$.

Hence, the resisting tensile force provided by the section area $dA$ of the fiber under consideration is $I-L$.

But in 12 we found that $I$, when substituted in 12-1, gives $I-I$.  

Obviously, the total resistance that the section can develop is the sum of the partial resistances contributed by all fibers in the section, whether located above or below the neutral axis.

The elastic forces of compression and tension of individual fibers, when multiplied by their respective distances from the neutral axis, produce moments which, when added together ($\Sigma$ indicates this summation), generate a total resisting moment that has to balance the moment $M$ due to loads $P$.

So, through 13-5, we finally can determine 13-6, which has thus been obtained without undue mathematical hardship.

**Determining $E$**

What is $E$? Although the interpretation of $E$ given in the analysis of the column is theoretically valid 7, it does not present a realistic mechanical picture.

Its significance would be clearer if we examine the curvature of the beam as governed by geometrical conditions 9, as well as by elastic behavior 13-6.

In so doing, we obtain 14-7, an equation which has a true mechanical meaning, since $E$ is expressed in terms of a moment $Pl$, a span length $P$, a sag $s$, and a section geometrical factor (which is what $I$ actually is, even though it is generally called moment of inertia).

So much is $I$ considered simply a factor, that in deriving the beam formula 15-8 and applying it to a rectangular section, we obtain from 1 the section modulus 15-9, another factor which is sometimes referred to as static moment.

The section modulus $S$, however, may be derived independently by direct elasto-mechanical considerations—without introducing the somewhat misleading conception of moment of inertia.

Let us do so in the case of a homogeneous-material, rectangular-section beam supporting two symmetrical concentrated loads 16-A.

The effect of the loads and reactions can be visualized by taking the moments they generate with respect to the midspan section, which has to develop the resisting moment necessary to balance them 16-B.

Should the beam be regarded as fixed in space at midspan reaction $R$ would lift it to a location indicated by the broken line, while $P$ (operating in an opposite direction) would offset part of that lift so that finally the two halves of the beam would stabilize at the location denoted by the full line.

At midspan, the difference between the moments due to $R$ and $P$ has to be balanced by $C$ and $T$, which respectively represent the total compressive and tensile forces provided by the beam fibers 16-C.

We know that fibers are elastically inoperative in the layer located at the neutral axis; their potential resistance is what $I$ actually is, even though it is generally called moment of inertia.

To produce a resisting moment equivalent to the sum of those that the individual fibers can develop, the lines of action of $C$ and $T$ must pass through the centers of gravity of the triangular stress-distribution diagrams. These centers are located at a distance 1/3 of $d/2$, or $d/6$, from the top and bottom of the beam.

So the arm of the couple $C-T$ is limited to 2/3 of $d$, and the resisting moment that it can develop is $e \times bd^2/6 = es$.

Thus, $S$ is obtained independently of the moment of inertia concept on which the derivation of 15 has been based.

Once the elasto-mechanical behavior, as outlined above, is clear in the architect’s mind, his association with his structural engineer should be better integrated and more productive of efficient structures of high architectural merit.

Should this modest effort contribute toward that end, the author would feel amply rewarded.
ADHESIVE-BONDED STAINED-Glass WINDOWS

Recent development of a clear epoxy-resin adhesive has added a new dimension to the art of stained-glass window design and construction. Stained-glass windows, produced by a method using this new adhesive, can now be included in many buildings where the budget would exclude the possibility of leaded stained glass.

Over the centuries there have been several innovations in the materials used for stained-glass windows—vitrifiable enamels, opalescent glass, and, more recently, free patterns utilizing glass brick and plate glass—but none of these has ever offered serious competition to the age-old combination of pot-metal glass and leaded glass. Now, modern chemistry has joined the architect and designer for what may be considered the first major break-through in stained-glass window construction since “The Ascension” was made for the Cathedral of Le Mans some 900 years ago.

Development of a clear epoxy-resin adhesive has made it possible to produce stained-glass windows for the United Church of Squaw Valley, California, by bonding glass to glass with a virtually indestructible bond line. This new technique offers many opportunities for economical stained-glass windows in churches, schools, institutions, and homes.

Advantages of Bonded Glass

The primary advantage of bonded glass is in the savings realized. To produce 2000 sq ft of stained-glass windows for the United Church—including design, materials, and glass bonding—cost between $7 and $10 per sq ft. This is an appreciable reduction from the estimates of $40 and $80 per sq ft for leaded stained glass to cover the same area. It signifies that stained-glass windows can now be made available to church groups at a price well within their budgets.

This was illustrated by the experience of several representatives of one church who had visited Squaw Valley during the recent Olympic Games. The church they were building had been designed with clear-glass walls, because available funds would not include stained glass. They were not satisfied with this condition, however, since there was too much visual connection with the outdoors, particularly in certain areas. After inspecting the United Church, the members decided that bonded stained glass represented a desirable way to replace the clear glass at a reasonable cost.

Another advantage is freedom of design. With bonded-glass panels, it is possible to float a single element in space. The designer is also free of the structural restrictions imposed by leaded glass. Shapes can be more intricate, for one only needs to cut the stained glass and bond it, in any position, to a clear or opaque-glass backing. Intriguing color designs are achieved by building layers of glass, a construction previously impossible by other methods.

Design Considerations

The Squaw Valley church has attracted many, because of its contemporary design and its utilization of new construction materials and techniques. It was designed by John Lipscomb, George Kilham, and Richard Whitaker, associated with Architects Barbachano, Ivanitsky & Watanabe, of El Cerrito, California; Stefan J. Medwadowski was the Structural Engineer. The glass was designed and executed by Anne Knorr.

The chapel structure consists of a free-standing, shell-like, reinforced-concrete hyperbolic paraboloid, supported entirely by buttresses at its two points of ground intersection. Stained-glass windows enclose this space, the glass becoming lighter and more translucent toward the front of the chapel, to emphasize the shell’s directional aspect and lead the worshipers’ eyes to the chancel and its natural background. The designers attempted to bring Squaw Valley seemingly within the church by opening the interior to the exterior, at the same time limiting the effect by a feeling of enclosure. These walls could have been attempted with leaded stained glass; however, the leaded lines were objectionable and the cost for design and fabrication was wholly prohibitive. Clear glass was also considered inappropriate, since it would have resulted only in a visual transfer from inside to outside without arresting the eye. A close collaboration between architect and artist was needed to help achieve the religious atmosphere created by the structure, yet produce it at reasonable cost within a short time period.

Before work began on the stained-glass panels, several different types of adhesives were considered. Only the epoxy resins seemed to offer assurance of permanence, ease of handling, and economy. A number of manufacturers were given the opportunity to present test data on their epoxy-resin adhesives. The adhesive requirements were both stringent and unusual:

High strength. The adhesive had to bond glass to glass permanently, with shear strengths high enough to produce a shatterproof, “safety-glass” effect. This indicated that a sharp impact could crack the glass, but the adhesive must not allow it to shatter or separate where it was bonded.

Flexibility. Because the window panels are high, glass flexing caused by wind loading and internal and external pressures had to be taken into account. Thus the adhesive had to remain flexible in nature, and not become brittle with age, or with changing climatic conditions.

Clarity. To avoid even a slight darkening of the stained glass which would impair its brilliance, the adhesive had to cure to a clear film. This was a difficult assignment, for epoxy resin itself has a yellowish cast. Since adhesive color is related...
1 Bonded layers of glass are visible in detail of chancel. At night, lights beneath chapel floor highlight edges to produce soft, prismatic effect.

2 Rectangular stained-glass segments are positioned prior to bonding to clear-glass backing.

3 Putty knife is used to spread thin layer required for bonding.

4 Masking tape around each glass piece produces even edge of adhesive when glass is pressed down.

5 Pieces on clear glass are allowed to remain until adhesive sets—in a matter of hours—to permit handling of panel.
to bond-line thickness, even a yellow formulation will become clearer as it is progressively thinned out. However, it was necessary that the epoxy adhesive have a virtually transparent bond line regardless of resin thickness.

Aging properties. Not only did the adhesive have to assure a transparent bond line, but it also had to stay clear and nonyellowing.

Thermal changes. A highly critical problem was the difference in thermal expansion to which the adhesive would be exposed. The stained-glass pieces are bonded to the inside of the window panels. In the winter months, the stained glass is warmed by the heat in the chapel, while the gray crystal is subjected to freezing temperatures outside. If the adhesive were not able to compensate for these simultaneous variations in temperature, bond failure would cause the stained glass to pop off. It should be noted that the temperatures in the summer months reverse the conditions—the interior is cool while the exterior reaches 90 F.

Moisture resistance. Another important requirement was that the adhesive be unaffected by prolonged exposure to moisture condensation. It was expected that some water would develop and remain on the bond line for long periods of time, and could even be trapped at certain locations. The epoxy adhesive, therefore, had to be moisture-resistant to prevent bond deterioration.

It is understandable then that this unusual stained-glass window project could have died in embryo unless an adhesive were produced to fulfill all of the above requirements. With only weeks remaining before fabrication had to begin, so that the church would be completed by dedication day, Miss Knorr turned the bonding problem over to Adhesive Engineering, San Carlos, California, a division of the Hiller Aircraft Corporation.

This company, a pioneer producer of epoxy adhesives for aircraft, missiles, and other rugged adhesive-bonding applications, developed an adhesive for the desired properties and thoroughly tested it to prove that it would be satisfactory. Tradenamed “Glasshesive,” the two-component, room-temperature curing epoxy adhesive is based on Shell Chemical Company’s Epon®828 resin, and possesses other exceptional properties in addition to meeting the specifications previously outlined.

The adhesive has a working life of two hours at 70 F, which allows enough time to bond a substantial number of glass pieces without having to mix up small batches of adhesive at frequent intervals. It is a controlled-flow liquid of syrup-like consistency which spreads out when pressed against the glass. The adhesive sets within 10 to 12 hours to permit handling the bonded panels, and cures with good strength in 24 hours at 70 F. It is waterproof, and resistant to climatic changes and temperatures from -67 to 220 F.

One of the adhesive’s most important features is that it utilizes a minimum-irritation curing system, and can be regarded as less toxic and less sensitizing than most conventional systems.

Bonding Glass to Glass

In the United Church there are 175 individual stained-glass panels, ranging in size from 10" x 3' to 3' x 7'. Approximately 50 pieces of stained glass are bonded to each double-strength 1/8" thick gray crystal panel. The imported, hand-poured pieces vary in thickness from 1/6" to 1/2" and in length from 2" to 12".

To construct the panels, Miss Knorr and her assistants had to cut and bond over 9000 pieces of glass. Each piece was cut to shape, so that the flow of glass would blend with the hyperbolic-paraboloid form of the concrete shell. After the stained glass was properly positioned on each panel, the bonding surfaces were wiped to remove dust and then cleaned with a chemical to remove all oil film. The adhesive was prepared by mixing together the premeasured resin and curing agent.

The adhesive was applied in a thin layer over the surface of each piece of glass to be bonded. To minimize air pockets and to avoid excessive build-up in any one spot, the adhesive was carefully smoothed out. The stained glass was then pressed down against the panel.

A second layer of stained glass was similarly bonded to the first layer to attain the multicolored effects projected in the design. In most cases, the second layer covers only certain portions of the glass underneath, while acting as a connecting bridge between several pieces of glass.

About 10 adjoining panels were prepared at one time, so that contrasting color schemes could be better controlled. When the adhesive had set sufficiently to permit handling, the bonded panels were removed from the tables and stacked vertically to cure.

Cutting the glass to produce the phoenix, dove, and fish symbols was quite intricate—particularly the phoenix, since it involved inside cuts. That it can be done by the skilled glass designer, however, is further indication of the design latitude available with this type of stained glass. Basically, any shape that can be cut in glass can be incorporated into a design. The real challenge lies in the fact that the designer is no longer restricted to the one-plane rigidity of leaded stained glass. The epoxy adhesive permits glass to be overlaid in myriad patterns without distracting from the continuity of design.

Erecting the Panels

Of the 175 panels made, only three were broken—two in transit and one at the construction site. However, breakage occurred only where stained glass was not bonded to the clear panel. Interestingly, the breaks ran in a zigzag pattern around the bonded glass and appeared as if they had been cut cleanly with a glazier’s tool. Wherever the stained glass was hit, it cracked but did not shatter.

To hold the stained-glass panels in place, the architects designed a system of glue-lam columns divided into three different spacings around the chapel shell. The mullions, which ended 1 1/2" from the roof shell, were designed to take a horizontal wind loading of 15 psf. Since design of the roof was based on over 100 psf, slip joints were placed at the top of each mullion to allow the shell to deflect a maximum 1 1/2".

The panels were joined to the wood mullions with a wood stop on both sides. Between each panel is a horizontal aluminum H-section. If glass breakage occurs, a panel can be replaced easily, since there is enough space within the aluminum strip to permit the glass to be slipped out. Any panel can be duplicated exactly and installed like a standard window in a relatively short time and at low cost. By comparison, a broken, leaded stained-glass window usually requires a technician to remove it, so that it can be returned to the manufacturer for repair. This becomes a time-consuming and expensive procedure.

The Future

It is believed that this is the first time that stained-glass windows have been successfully made by bonding glass to glass. The use of extremely large areas of stained glass now becomes feasible, because costs can be substantially reduced. The technique may similarly be used in public buildings, when budgets permit art work. Technical, sculptural, and three-dimensional constructions are not only possible, but are actually under consideration.
FREE-STANDING STAIR

BY PAUL ROGERS

The structural design of a free-standing stair—a type which has challenged architects and engineers for many years—is analyzed by the President of Paul Rogers & Associates, Consulting Engineers, Chicago. Although similar stairs have been designed by empirical methods, this structural solution follows a precise mathematical analysis developed by a German engineer.

A spectacular stair was recently constructed as part of the new Diplomat Motel in St. Louis. The stair, which connects the second and third floors, is outside of the building and its landing is entirely unsupported. Such a structure, silhouetted against the sky, creates a dramatic effect.

The theoretical computations of this stair are rather complicated. In addition to bending moments and shear forces, severe torsional forces are present which—combined with axial and compression and/or tension forces—call for higher mathematical calculations than is usual in building construction.

A thorough mathematical analysis of the free-standing stair was developed by the German engineer W. Fuchssteiner. In general, his recommendations were followed. A brief description of this design procedure may induce other architects to adopt this intriguing form of construction.

A stair section similar to the one constructed is shown in diagram 1. An imaginary support is provided at "B" 2. This "rigid frame" is analyzed for dead and live loads, and the envelope of the maximum bending moments is drawn.

As the support at "B" is not real, its effect must be counteracted by horizontal shear forces which, in turn, create torsional moments in the stair flights 3.

The selection of dimensions and reinforcing bars was in accordance with the optimum combination of moments, shear, torsion, and axial forces (acrosspage, Derivation of Formulas). The final stair as detailed is illustrated 4.

Architects were Hausner & Macsai, Chicago, and Joseph Passonneau, St. Louis, Associate Architect.
APPENDIX : DERIVATION OF FORMULAS

THE TIMES WORK INTEGRAL IS AS FOLLOWS:

\[ \Delta u = \int [M_{ai} M_{it} + \frac{1}{I_k} M_{yi} M_{kt} + \frac{1}{I_k} (1 + \frac{I_k}{I_y}) M_{ri} M_{kt}] \ dy + \frac{M_{ri}}{L} \left[ \frac{1}{I_k} M_{yi} M_{kt} + \frac{1}{I_k} (1 + \frac{I_k}{I_y}) M_{ri} M_{kt} \right] \frac{dx}{\cos \alpha} \]

\[
= B C_{1} \sin \alpha (3 + \frac{I_k}{I_y} \cos \alpha); \quad \frac{\Delta K}{L} = 0;
\]

\[
\frac{\Delta S}{S} = \frac{L}{2} \left[ \frac{1}{I_k} M_{yi} M_{kt} + \frac{1}{I_k} (1 + \frac{I_k}{I_y}) M_{ri} M_{kt} \right] \sin \alpha \cos \alpha \left( -\frac{I_k}{I_y} \right) \frac{dx}{\cos \alpha} + \left[ \frac{1}{I_k} M_{yi} M_{kt} + \frac{1}{I_k} (1 + \frac{I_k}{I_y}) M_{ri} M_{kt} \right] \frac{dx}{\cos \alpha} + \frac{1}{I_k} (1 + \frac{I_k}{I_y}) \frac{dx}{\cos \alpha} \sin \alpha
\]

\[
\Delta S = \frac{I_k}{2} (3 + \frac{I_k}{I_y}) \frac{dx}{\cos \alpha} + \frac{1}{I_k} (1 + \frac{I_k}{I_y}) \frac{dx}{\cos \alpha} \sin \alpha
\]

\[
\Delta L = \int [X_{ci} + \frac{\Delta S}{S} \Delta L / (\Delta S x \Delta L - \Delta S^2)] ft-lb
\]

\[
X_{ci} = -\Delta S \Delta L / (\Delta S x \Delta L - \Delta S^2) \quad ft-lb
\]

\[
X_{ci} = +\Delta S \Delta L / (\Delta S x \Delta L - \Delta S^2) \quad ft-lb
\]

\[
\begin{align*}
Q_x &= -Q_y \\
Q_y &= \frac{1}{2} X_S \cos \psi \\
N &= -\frac{1}{2} X_S \sin \psi \\
M_x &= X_S \cos \psi \\
M_y &= X_S \sin \psi \\
M_T &= -X_S \sin \psi \\
\end{align*}

\[
\begin{align*}
Q_x &= -(N \cdot (B \cos \alpha - X_S \sin \alpha)), \\
Q_y &= 0, \\
N &= -\frac{1}{2} X_S \sin \psi, \\
M_x &= -B X - \frac{1}{2} X_S \tan \alpha, \\
M_y &= X_S \sin \psi + X_S \cos \alpha, \\
M_T &= (\frac{1}{2})(X_S \cos \alpha - X_S \sin \alpha) \\
\end{align*}

FEBRUARY 1961 P/A

Free-Standing Stair : 173
Central AC For Apartments Grows

BY WILLIAM J. McGUIINNESS

A review of current air-conditioning methods for apartment buildings, and evidence of a trend toward central air conditioning, are presented by a practicing mechanical engineer.

Within the past three years, the use of central air conditioning for apartment houses has increased rapidly. It is now expected that almost all high-quality apartments will be air conditioned, with a preference shown for a central source. Prior to 1958, the expectation was not quite so definite. At that time, we witnessed the decline of the window unit in favor of the through-the-wall unit. The latter device, also air-to-air in principle, and self-contained except for its electrical connection, calls for large holes in the exterior walls. Perhaps this requirement, more than any other, now threatens to supplant it with any system that leaves the outside walls imperforate, or punctured only by small holes to admit fresh air. There are, of course, other considerations—so many that air-conditioning methods for apartment houses will undoubtedly continue to change and move toward ideal solutions to the problems presented. Some of these methods recently or currently used, and reasonably suitable, are as follows:

1. **Window Units.** Self-contained and air-cooled. Include compressor, condenser, and evaporator coils and fan. Fresh air for ventilation is admitted directly from outdoors. Condensed moisture discharged directly to outdoors.

2. **Through-the-wall Units.** Identical in operating principle with window units. Like them, the only central connection is electricity.

3. **Fan-Coil Units Below Windows.** Hot or chilled water from central source flows through finned-coil tubes over which a fan blows room-air for conditioning. Fresh air for ventilation is distributed separately to each apartment from a central conditioning source or is taken in, unconditioned, directly through a small grille in the exterior wall at the unit for conditioning there.

4. **Induction Units Below Windows.** Unit operation similar to (3), but fan is replaced by the centrally conditioned fresh (ventilation) air, which, by jet action, induces the greater flow of room-air over the finned tubes, by which the induced air is conditioned.

Disadvantages of the window unit (1) are, of course, obvious. Principal among these is that it displaces planned fenestration and must therefore be considered largely a makeshift. Other shortcomings, shared by through-the-wall units (2), are compressor noise, dust and drafts, and dripping of condensate.

Most of these disadvantages are overcome by the use of central air conditioning (3). "Centralization" is a reference to the fact that a cooling medium (chilled water) is produced centrally for use in the fan-coil units. Because pipes are provided to carry this cooling agent to the coils, the piping system and a three-way valve can provide a method of delivering hot water, also centrally produced, to the fan-coil units for heating in winter. These systems close up the wall (except for a small grille to admit fresh air when this air is not centrally distributed), eliminate the compressor in the room, and provide heat in the same unit.

So far, little consideration has been given to the use of induction units (4), another type of central system. This method, so popular now in office buildings, requires that conditioned fresh air be brought to the jet unit to replace the fan and introduce tempered ventilation air at this desirable location. The extra expense and difficulty of routing air ducts up (or down) exterior walls has discouraged the use of induction units. Indeed, the scheme of introducing tempered, fresh ventilation air into rooms from locations on high interior walls in connection with fan-coil units is more expensive than merely leaving the small hole at the unit, through which outdoor air may be drawn by the fan and conditioned by the room. In 1957, at the Harrison Park Apartments in East Orange, N.J., which have a fan-coil installation, ventilation air was introduced to apartments and, under greater pressure, to public corridors. This prevented apartment cooking-odors from penetrating to the halls. Excess air was exhausted through kitchens and baths (April 1957 P/A). This is one of the few installations of its type. Economic comparisons appear to favor the direct fresh-air intake through the exterior wall.

The use of central air conditioning by fan-coil units is now a strong and widespread trend. A dozen or more installations are now in the planning stage in New York City, following the choice of this method by Louis Denberg and Alexander Hirsch for Wedgewood House at 69 Fifth Avenue. A 211-ton installation, it employs Carrier "Weathermaker" fan-coil units and a Carrier absorption-type water chiller. The power is purchased steam, which appears to be consistently chosen for buildings along the distribution lines of this utility. Fresh air is admitted at the units, which are individually controllable by the tenant.

The cooling tower is above a two-story wing, a location close to the basement water chiller.

In the specific case of apartment houses, where quiet is important, the use of the absorption-type water chiller has been a great step forward. Available on a wide scale since 1945, these units, operating on 12 psi of steam and utilizing water and lithium bromide for heat transfer, have provided a quiet and simple source of chilled water. The noise and vibration of a compressor is avoided, and the need for the employment of the specially licensed operating engineer, demanded by most cities, is eliminated. Its lack of vibration makes it suitable for installation on the roof next to the cooling tower, minimizing the condensing-water piping.

The next step is probably the use of centrally distributed fresh air to eliminate the last of the holes in the façade. This development will probably lead to the use of induction units for central air-conditioning systems in apartment houses.

The architect for Wedgewood was H. I. Feldman, and the Consulting Engineer, E. U. Markush.
TENANTS SELECT THEIR OWN TEMPERATURE IN 25 APARTMENTS ZONED BY B&G Hydro-Flo System

Stratford Manor Apartments, Schiller Park, Ill., attracts tenants with such luxury features as individually controlled Hydro-Flo Heating for each apartment.

Five buildings, each with five apartments, are heated with one boiler in each building. Five B&G Boosters, together with auxiliary Hydro-Flo equipment, are installed on each boiler to provide thermostatically controlled circulation to individual apartments. Tenants receive all the comforts of radiant hydronic heating plus their own choice of temperature. Only a forced hot water heating system can provide zoning so effectively and economically.

The B&G Hydro-Flo Systems installed in these apartments have proved so satisfactory that the builder plans to install the same system in 92 additional housing units to be built.

B&G BOOSTER®... key unit of the B&G Hydro-Flo System

Engineered for compactness, silent operation and years of service, this electric pump circulates boiler water for heating. It is built by precision manufacturing methods which translate good design into a superior product. This key unit and other auxiliary Hydro-Flo equipment can be installed on any hot water boiler.

Bell & Gossett Company
Dept. GN-37, Morton Grove, Illinois

Canadian Licensee: S.A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto 16, Ontario
CSI Activities Reviewed

BY HAROLD J. ROSEN

Since its founding in 1948, the Construction Specifications Institute has overcome many of its growing pains. Some of its goals and standing-committee work that are of special interest to architects and engineers are discussed by the Chief Specifications Writer, Kelly & Gruzen, Architects-Engineers.

The Construction Specifications Institute, also known as CSI, is an organization of individuals concerned with the preparation of specifications for the construction of buildings and heavy construction. The institute was organized during 1948 and 1949 by a small group of men in Washington, D.C., who were, for the most part, employed by the Federal Government and who recognized the need for an organization that would work together to improve construction specifications.

Today, the organization has a membership of about 3500 individuals in some 40 chapters throughout the nation. The active members are those who are concerned professionally with specifications used in the design, construction, maintenance, and equipment for construction projects. They are primarily architects and engineers. The associate members are those who use specifications in purchasing or procuring construction materials and equipment, and are primarily engaged in selling and manufacturing construction materials and equipment; and those who are engaged in contracting in the construction industry.

The goals of CSI are: (1) to effect close association and co-operation between those in the construction industry in a major effort to improve construction specifications; (2) to co-operate with architects, engineers, contractors, and manufacturers in an effort to develop concise, clear-cut specifications; (3) to work toward the adoption of uniform methods of specifying; (4) to disseminate information concerning specifications; (5) to provide a pool of specifications data for the benefit of all; (6) to assist in the adoption of proper curriculums in professional schools to train future professional specifications writers.

The years since 1948 have been filled with growing pains, slowly developing membership, organizational tribulations, and limited funds. The goals set by the early pioneers were not yet bearing fruit. Recently, however, having overcome many of these earlier problems, concerted efforts on the part of the national officers of CSI have resulted in programs that are intended to implement these goals.

Various standing committees have been established to work on the specific goals of CSI. Those committees that are of specific interest to specifications writers are Committees T-1, T-2, and T-3.

Committee T-1 is the Technical Committee, with subcommittees as follows: T-1a (Civil Engineering and Heavy Construction); T-1b (Architectural); T-1c (Mechanical and Plumbing); T-1d (Electrical); T-1e (Bibliography); and T-1f (Nomenclature). Committee T-1 and its subcommittees are charged with attaining the technical objectives of CSI. For example, under subcommittee T-1b various chapters have received assignments to develop technical data on specific architectural subjects. The Philadelphia chapter has prepared a CSI “Recommended Practice on Glass and Glazing.” This tentative recommendation encompasses: Part I (Items Included); Part II (Items Not Included); Part III (Nomenclature); Part IV (References); and Part V (General Data on Glass), which includes the companies manufacturing glass in this country, the uses of glass, and trade practices. Subcommittee T-1a (Civil Engineering and Heavy Construction) has, through the northern California chapter, issued a “CSI Recommended Practice on Paving and Related Work.” The New York chapter is charged with the responsibility of subcommittee T-1f (Nomenclature), and is endeavoring to compile and define a list of terms used in specifications that will be looked upon as standard in the construction industry.

Committee T-2 is devoted to the establishment of General Conditions. It has already issued a cross-reference, comparative index of the General Conditions of these major associations: AIA, ASCE, AASHO, and APWA.

Committee T-3 (Specifications Methods Committee) has as its objective the task of developing better specifications-writing techniques, more effective methods for preparing specifications, more precise and standardized specifications language, more logical arrangements, better formats, and other guide lines to better specifications. Subcommittees have been established to accomplish the above as follows: Subcommittee B-1 is engaged in preparing a general arrangement of the Contract Documents; Subcommittee C-1 is concerned with the tabulation of a list of trade sections; Subcommittee D-1 is charged with the development of Standard Forms, Arrangement and Contents of Invitations, Conditions of Bids, Proposal Forms, and Addenda; Subcommittee E-1 is concerned with developing a general approach to writing trade sections, such as form, arrangements, and contents; Subcommittee E-3 is charged with enunciating general principles for use of trade names by investigating the “or equal” clause, base bid clauses, and performance specifications; Subcommittee F-1 is concerned with a listing of good and poor specifications language; and Subcommittee G-1 will try to develop standards of typing, binding, and appearance of specifications books.

These ambitious goals are slowly being realized through the work of the various committees. The Construction Specifications Institute welcomes new members to its fold who are interested and concerned with its problems. Application for membership should be made to: The Construction Specification Institute, 632 Dupont Circle Building, Washington 6, D.C.
You pay no more for unequalled SLOAN quality...

Sloan Flush Valves Save Water

• Water is scarce in many parts of the country and it costs money—and costs often rise when it must be pumped within a building to distant branches and upper floors. You can save both water and money when you specify the Sloan ROYAL Flush Valve.

In the ROYAL, there are two water-saving features providing maximum water economy—(1) "non-hold-open," which prevents the waste of water accidentally or maliciously and (2) "no regulation," which means there is no regulating screw to get out of adjustment. These are the two most important features of modern flush valves and, as standard equipment, only the ROYAL has both.

This exclusive combination of features is another example of that bonus of quality you expect from Sloan. And since you can have Sloan quality at no extra cost—why not make sure you get it.
Arbitration: Part 3

BY JUDGE BERNARD TOMSON & NORMAN COPLAN
Nassau County District Court Judge and a New York lawyer continue their discussion of arbitration.

The decisions of the United States Supreme Court relating to arbitration which we have discussed in our last two columns were followed by still a third decision involving the application of the arbitration provisions of a collective bargaining agreement to grievances filed by certain employees against their employer (United Steel Workers, v. Enterprise Wheel and Car Corp., 4 L. Ed. 2d 1424).

In this case a number of employees had left their jobs in protest against the discharge of another employee. They were advised to return to work by the officials of their union, but when they sought to comply with these directions, they were told by the company that they were no longer employed. A grievance was filed, but the employer refused to arbitrate. A Federal court ordered arbitration, and the arbitrator found that the discharge of the men was not justified, even though their conduct was improper. In his view, the facts warranted, at most, a short suspension, and, therefore, ordered the reinstatement of the employees with back pay.

After the discharge of the employees and before the arbitrator had rendered his award, the collective bargaining agreement expired. The employer contended that the expiration of the contract barred reinstatement of the employees. The arbitrator rejected this position, ruling that the agreement imposed an unconditional obligation on the part of the employer which survived the termination of the contract.

The employer appealed to the courts, and the Federal Circuit Court of Appeals held that an award for back pay subsequent to the date of termination of the collective bargaining agreement could not be enforceable, and the requirement for reinstatement was also unenforceable because the collective agreement had expired. On appeal to the United States Supreme Court, this decision was reversed. The Supreme Court said:

"The refusal of courts to review the merits of an arbitration award is the proper approach to arbitration under collective bargaining agreements ... the arbitrators under these collective agreements are indispensable agencies in a continuous collective bargaining process. They sit to settle disputes at the plant level—disputes that require for their solution knowledge of the custom and practices of a particular factory or of a particular industry as reflected in particular agreements.

When an arbitrator is commissioned to interpret and apply the collective bargaining agreement, he is to bring his informed judgment to bear in order to reach a fair solution of a problem. This is especially true when it comes to formulating remedies. There the need is for flexibility in meeting a wide variety of situations ... the question of interpretation of the collective bargaining agreement is a question for the arbitrator. It is the arbitrator's construction which was bargained for; and so far as the arbitrator's decision concerns construction of the contract, the courts have no business overruling him because their interpretation of the contract is different from his."

The expanding use and acceptability of arbitration as reflected in the United States Supreme Court decisions discussed in this series of columns is also mirrored in recent decisions relating to disputes in the construction field. One of the most significant of these determinations was a case decided by the New York Court of Appeals (New York's highest court) involving the scope of arbitration under a construction contract. (In the matter of the arbitration between Grayson Robinson Stores, Inc. and Iris Construction Corp., 8 N.Y. 2d 143).

In the New York case, a contractor was the owner of certain vacant land. He entered into a contract with a company that operated retail department stores to construct a department store on his property and to lease it to that company for a period of 25 years at a specified rental. The agreement provided for arbitration of all disputes pursuant to the rules of the American Arbitration Association.

After the plans and specifications for the building were completed and the public ground-breaking ceremony had been held, the contractor advised the tenant that because of difficulties in obtaining mortgage money, he could not proceed with the work unless the tenant agreed to increase the rent, which was then provided by the contract. The tenant refused to increase the rental and the building was never completed. Although the tenant was aware of the fact that the contractor needed mortgage money to construct the project, there was nothing in the agreement between them which would have relieved the contractor from his obligation to construct the project in the event he would have difficulty in obtaining this money.

The contractor contended that his obligations under the construction contract were impossible of performance and that he was, therefore, relieved of his obligation to the tenant. The tenant, on the other hand, demanded arbitration of the question and requested the arbitration panel to order the contractor to specifically perform the contract. The arbitrators ruled that financial difficulty did not excuse the contractor from performance, as distinguished from actual or physical impossibility, and ordered him to "proceed forthwith with the improvements of the premises in accordance with the terms of said lease, as amended."

The contractor, in opposing the confirmation of this arbitration award by the courts, took the position that the arbitrators were without power to enforce specific performance of a construction contract. He argued that a court of equity, because of necessity of continuous judicial supervision, would not order specific performance of a construction contract, and, therefore, the court should not confirm an award which directs specific performance of such an agreement. The lower courts, confirming the award, rejected this argument.

Next month's column will discuss the appeal of this case.
What is there about sealants based on THIOKOL polysulfide polymer that makes a difference to architectural designers, engineers, specifiers, builders?

Unique properties of polysulfide sealants meet every structural sealing need in all types of building ... from monumental curtain wall to umbrella-like geodesic domes.

1. **Adhesion** makes the difference. Bonds with weld-like strength to practically all building materials. Will not flow from joints under heat, stress, or traffic.


3. **Longevity** makes the difference. Properly formulated and applied, sealants based on THIOKOL polysulfide polymer last for years. No frequent, costly maintenance.

4. **Custom-sealing** makes the difference. A true and lasting seal formed on the job—for each job and condition. No gasketing, cutting, splicing, vulcanizing. Tolerances in structural materials and their normal variation from specs can be compensated for immediately.

5. **Excellent resistance** to all elements makes the difference. Withstands oxidation, moisture, wind, rain, sun, temperature extremes, oil, chemicals, solvents.


SEND COUPON TO Thiokol Chemical Corporation, Dept. AS-33, 780 N. Clinton Ave., Trenton 7, N.J. for further information about the important differences inherent in sealants based on Thiokol polysulfide polymer.

For more information, turn to Reader Service card, circle No. 342.
Chaos Among the Creators

Dear Editor: As a fifth-year student in the Department of Architecture, University of California at Berkeley, I undoubtedly suffer from the universal student “affliction”: that is, an overly critical and even pessimistic attitude toward the evolving world of design. An awareness of this tendency has thus far kept my criticism in verbal—and therefore revisable—form.

It appears to me that in contemporary architecture’s headlong flight toward originality and individuality, even its most able and talented proponents have gone beyond deepening and expanding the groundwork of their early 20th Century predecessors. In fact, many seem to be busy embellishing and even destroying the architectural development of the past half century. In the name of “delight” and other more flowing and less meaningful terms, (conjured up by various writers of architectural and lay publications in their haste to show the world the new and the different), we are passing by more serious and thoughtful architectural endeavors. It is almost as if Professor Steen Eiler Rasmussen’s “Inevitable Architectural Cycle” is about to repeat itself once more. If I might attempt to paraphrase the explanation which he put so well in a history “course” a few years ago: The architect continually tries for individual expression, and attempts to put before the public something new, different, and therefore interesting and exciting. This results in a repetitive cycle of development from the pure and simple through the different, to the exciting, and thence to the “Baroque.” (There is then a great “purifying revolution” and the cycle begins once more.) One needs only to view a few of the various periods of development in our architectural past to find examples of this theory. On the other hand, if this trend can be construed as bringing about a serious expression of our continually changing Western civilization, perhaps it is a desirable occurrence.

Certainly many great designers the world over are consciously answering new architectural problems with new, valid, and exciting forms (although another time and place would also be apropos to question such forms in light of our developing needs and technology).

However, it is the efforts either of those who are unable to attain similar heights of creative endeavor or those who are not interested in thoughtful architectural design that are most disturbing to myself and my classmates. To cite a few examples: Dramatic if not exotic forms as might befit the governmental edifices of a nation’s new capital city, carved from the very jungle, are scaled down, “squashed” together, and applied to a bowling alley in Michigan so that it will not look like a bowling alley.” Or the bold roof forms that relate to the total scheme of an equally bold high school are “lifted” and set down on a bathhouse! Finally, a well-known designer signs his name to a “serene” residential entry design which features non-structural columns that begin in a structural form and end in a banana peel—surrounded by a riot of texture, color, and gold gilt!

How can we as architects have the effrontery to condemn the most mundane of builders for taking once-valid architectural idioms, making them “popular,” and then misapplying them over miles of tract development when the architectural profession itself is everywhere pandering valid design to the point, in some instances, of architectural fakery?

Perhaps these thoughts have unfortably likened my attitudes to those of the Victorians, who fought the dawn of a new era at the turn of the century. Perhaps I am old before my time. However, I cannot help feeling that it is time for this profession, which I am about to enter, to pull up short, to take stock, and to inquire, collectively, where we are going.

RICHARD SCHOEN
Berkeley, California

The questions raised in Mr. Schoen’s letter are important ones that have been troubling P/A’s Editors. We feel that it is indeed time to “inquire, collectively, where we are going.” Last month, in reporting the Jury discussion during the P/A Design Awards Program, we indicated some of the realization of chaos on the part of the Jury. That was a realization, by mature, experienced critics, several of whom also teach architecture, of a state of confusion among their professional colleagues. Mr. Schoen’s plaint comes from a similar realization, on the part of a student of architecture, of a chaotic state within the body of architects from whose work he is supposed to be learning. It is here that the stock-taking is most important. One can happily practice in a situation where everything goes; learning principles or developing directions in such a situation is impossible.

We would disagree with Mr. Schoen in only one respect. The words “delight,” “serene,” and other “less meaningful terms” were not conjured up by “various writers.” These are words used by the architects themselves to describe their individual efforts within the diversity of design at the moment. It is the practice of architecture, not the reporting of it, that produces the “exciting forms” that Mr. Schoen suggests might be questioned “in light of our developing needs and technology.”

It seems to us that it is the responsibility of the press to report, to analyze, and even to question the work being done in its field. It is for the purpose of questioning, of asking the architects to “pull up short, to take stock, and to inquire, collectively, where we are going,” that P/A begins reporting next month, in a Symposium on the State of Architecture, replies from more than 50 of the most respected practitioners to a series of questions that we asked them. Whether this Symposium answers the
The three and a half million dollar Atlanta Hilton Inn was developed and constructed by Hogan Bros., Inc. of Metairie, La. The architect was George Saunders, Walter E. Blessey handled the structural engineering, and Edward Sanford was in charge of mechanical engineering. The installation of the plumbing system was made by Hoffman-Wolfe Southern Corporation of Atlanta.

When it comes to modern, rust-proof, clog-proof, life-time supply and drainage plumbing systems, more and more architects, builders and plumbers are saying: "All copper". The jet-age Hilton Inn, just opened in Atlanta, Georgia, is an excellent example because Streamline copper tube and solder-type fittings are used for supply and drainage plumbing in this ultra-modern 310 room structure.

Because of solder joint strength and lighter weight of copper, even complex plumbing assemblies can be quickly shop prefabricated or assembled on the site with a minimum number of solder joints. With copper there's more actual useable area in the building because furring-out is eliminated. The standard 20 foot lengths, uniform dimensions, complete range of sizes, weight-savings and lower labor costs make Streamline copper tube and fittings more economical, too.

Send for catalog D-459, for all the latest facts on Streamline DWV copper tube and solder-type fittings, the modern, sanitary drainage piping material.

SEE YOU IN CHICAGO . . .  BOOTH 845-849

MUELLER BRASS CO. PORT HURON 27, MICHIGAN

For more information, turn to Reader Service card, circle No. 330
vital questions that are raised in Mr. Schoen's letter, and that are in the minds of many students of architecture, will be up to the reader to decide. We are sure, however, that you will find the discussion extremely interesting, somewhat disturbing, and strong enough to constitute a "statement" on directions at this time.

T.E.C.

Regionalism and Individualism

Dear Editor: As a native of the region with which Paul Hayden Kirk and his work have become identified, I feel obligated to take issue with your editorial statement that "Little provision need be made for outdoor living in a climate where it is seldom warm and often rainy" (page 124, November 1960 P/A).

First off, while that statement may be an irrefutable architectural truth (I'm not an architect and therefore unqualified to judge), it most certainly doesn't apply to our Northwest climate. Ours is certainly one of the most "outdoor" regions in the country. True, it is often rainy in the Northwest. But no matter how often it rains, it's a rare year when annual rainfall exceeds 35 inches. It is almost never cold in the Puget Sound basin (the region in which the Kirk house was built) but, by the same token, it is rarely hot either.

That we are not blessed with good weather always, compels us to be prepared to take every advantage of "weather-permitting days." For this reason, a very casual look at recent home design in this area will reveal that outdoor living is a primary consideration.

Although your statement is a simple one and seemingly harmless, it is used to rationalize the lack of outdoor living provisions in the Kirk house. So used, it should first be true. I'm sure that Kirk can supply you with a host of more accurate reasons for excluding the outdoor living aspects of the design.

I found John Dixon's introduction to the section astute and interesting. In my opinion, he omitted the final and most significant step. The forces that continue to minimize regional differences also tend to whittle away at man's opportunity to express himself individually. I feel that the architect represents one of the few forces left to help man protect and preserve his individualism. Assuming his design to be sound, he should certainly be more aware than ever of his moral obligation to provide man with a fortress from which he can defend his desire to express himself as he chooses. His house should — by its very design — tempt its occupant to be himself. I feel certain that man's house will be the last bastion of his individuality. Let's protect it fiercely. Saving "regionalism" is nothing by comparison.

R.V. Denby

Dear Editor: Congratulations on the "Places, People, and Houses" article in the November 1960 P/A. This is the most commendable piece done by the professional press in years, and if continued, might help to stimulate less conformity and more real character in progressive architecture!

Buford L. Pickens
Director of Campus Planning
Washington University, St. Louis, Mo.

Cheers from Overseas

Dear Editor: I have just received the October issue of your very beautiful and useful magazine. This is the second copy I have received since I began my subscription, and I want to express my admiration not only for its contents but for the esthetic pleasure produced by its well-designed pages.

David Lorenzini
Palermo, Italy

Late Comments on "The Passing of the Pro"

Dear Editor: We want to compliment you on your "Passing of the Pro" in the August 1960 P/A. Your comments with respect to architects should be made more often, as witness the ersatz "boxes," renderings by the square inch, etc.

Karl Kamrath, FAIA
Houston, Tex.

Great Architecture: A Collaborative Achievement?

Dear Editor: You have stated in a recent article that great architecture springs from the creative genius of individual men; that the individual spirit, only, can conceive and carry out a totally unified achievement; and that architectural contribution from groups of individuals are ineffective and lacking in co-ordination.

How, then, can you ignore one of the greatest collaborative efforts of all time: the union of architects, artists, sculptors, craftsmen, and laymen, each doing their own part, to produce the cathedral at Chartres?

Rosalind P. Levine
Orange, N.J.

The Mantelpiece Swindle: Let's Not Lament the Past

Dear Editor: I have just finished the November 1960 P/A with considerable joy — due not only to the word picture but the whole format. The report of the Award Seminars is certainly refreshing and most informative. Let’s have more.

Now about the editorial. I have always enjoyed the P.S. for its combination of learning, wit, etc. I was a little disturbed, however, about the mantel swindle. I prefer your thoughts and predictions of what’s to come, rather than about what has been. With the new environment, there must be plenty to offer your readers about art and architecture.

Robert M. Little, FAIA
Miami, Fla.
Great new things are shaping up in concrete block

Wall designed by Architect Alfred B. Parker, Miami. Photo courtesy of National Concrete Masonry Association.

Atlas Masonry Cement provides the right mortar

A notable thing about the new look in concrete masonry is what is being done with standard block. Here, for instance, a closed-lattice effect is achieved by laying up “stretcher” type concrete block, so that the ends are exposed. This basket-weave pattern creates an interesting exposed masonry wall resembling hand-hewn stone. For laying up this block, or any concrete masonry unit, ATLAS MASONRY CEMENT continues to be the preferred cementing material in mortar. It produces a smooth, workable mix, provides a strong bond, gives weathertight joints that are uniform in color. And ATLAS MASONRY CEMENT complies fully with ASTM and Federal Specifications. For information on masonry cement write: Universal Atlas, Dept. M, 100 Park Avenue, New York 17, N.Y.
I have postponed writing a review of this book for some time now, because I could not put my finger on exactly what disturbed me about so handsome a product—for it is a handsome book, beautifully turned out. No less a person than Richard Neutra has written a brilliant foreword, with his usual clarity and feeling for the written word. David Engel has also done well in the organization of his material, photographic and written.

Both Neutra and Engel caution us abundantly that while we may look at the pictures as much as we wish, and try to understand the Japanese motivation that brought these gardens to reality, we must—under no circumstances—crib them wholesale. I could not agree more. It is difficult, however, to conceive of a fifth-grader so dull of purpose that he would not sense the perfect opportunity, despite authoritarian warnings. And while garden-club members may not have retained all the perspicacity of their school days, it is hardly possible that the idea should not rub off on them, also.

*Japanese Gardens for Today* has almost the identical format of *Gardens of Japan* (by the Japanese architect Tetsuro Yoshida, and published in 1957 by Frederick A. Praeger). But Yoshida—fortunately, I think—did not understand the Western appetite for being told exactly how-to-do-it. Engel, on the other hand—unfortunately—understood this appetite too well not to use it for his own advantage in writing about Japanese gardens for Western consumption. Thus we have the dilemma wherein Teacher understands full well the value of principles, but also realizes that class grades (and consequently his own standing in the front office) will be much higher if he steps out of the room for a moment and gives the kids a break.

Engel has organized his material in terms of theory, practice, and realization (of form). In “The Theory” (15 pages, 6 of which contain color plates), the author attempts to distill from the various periods of Japanese gardening history those principles which he considers con-
In conclusion, BOSTIK Architectural Coatings protect and beautify poured, precast and prestressed concrete; concrete block, brick and masonry; asbestos board, masonite and overlay plywood.

You'll find the complete, colorful story in Section 9 B/b, Sweet's 1961 Architectural Catalog File.

To see how BOSTIK Architectural Coatings can wed texture and color in your current design expressions, write and tell us what you have in mind.

*BOSTIK is the trademark for BB Chemical Company Coatings.
A Graphic Example of Redwood's Natural Beauty and Remarkable Versatility

It's hard to imagine any material other than redwood being used for this handsome home.

The natural, mellow tones of the saw-textured redwood are in perfect harmony with the lovely setting... helped the architect create a delightful feeling of warmth and graciousness. Write to Dept. A1 for your copy of "Redwood Homes—Ideas from Architects' Own Homes".

The California Redwood Association coordinates the research, forestry management, grading and consumer service activities of these member mills: ARCATA REDWOOD COMPANY • SIMPSON REDWOOD COMPANY • UNION LUMBER COMPANY • THE PACIFIC LUMBER COMPANY • GEORGIA-PACIFIC CORPORATION • WILLITS REDWOOD PRODUCTS COMPANY

CALIFORNIA REDWOOD ASSOCIATION

576 SACRAMENTO STREET • SAN FRANCISCO 11

CRA-TRADEMARKED CERTIFIED KILN DRIED REDWOOD

All the wonderful warmth of wood is best expressed in redwood.
Because Certified Kiln Dried redwood provides far greater dimensional stability than most woods, it is often specified for paneling, room dividers and fine cabinet work.

Redwood was also specified for the kitchen, including the cupboard doors. Note the insert panels of vertical grain redwood plywood, an interesting detail.

Saw-textured redwood siding can be left to weather naturally and beautifully or simply treated with an easy-to-apply water-repellent.

The all-heartwood grades of redwood are ideal for terrace decking as they offer exceptional resistance to decay and weathering.

Architect: Goodwin Steinberg, A.I.A.
AMERICA'S BEST KNOWN WINDOWS SOLVE PROBLEMS IN ANY TYPE OF LIGHT CONSTRUCTION
The Andersen Window that solved two problems in this Michigan Motel

Need for large window areas plus insulating effectiveness met with Andersen Gliders

To take advantage of the view without sacrificing natural ventilation, Architect George Lytle selected Andersen Gliders—the picture windows that glide open sideways.

But, Andersen Gliders also helped solve the heat loss problem. Each unit is electrically heated—controlled in the unit and from a master control panel in the office. Temperatures in each unit can be lowered as guests leave, raised as guests arrive—all from the office. Saves on the heating bills.

And, Andersen Windows, with the natural insulating qualities of wood plus their weathertightness (about 5 times industry standards) serve perfectly.

Andersen Windows offer you maximum design flexibility for any light construction project: 7 kinds of windows, 30 different types, 685 cataloged sizes.

Check Sweet's File or write for Detail catalog and Tracing detail files. Andersen Windows are available from lumber and millwork dealers throughout the United States and Canada.

Andersen Windows
America's most wanted windows

Andersen Corporation • Bayport, Minnesota
Continued from page 184

continuing in Japanese gardens today. "The Practice" (23 pages, 4 of which contain color plates and 6 contain diagrams of fences, paving patterns, etc.) is a review of techniques, giving specific instructions and disclosing various tricks in scale and perspective which the Japanese like to employ: "... a boat may be constructed in half the ordinary size, with the result that the pond looks bigger than it is.

By "The Realization," the author means the sort of form that has resulted from these theories and practices, and he devotes the next 200 pages to black-and-white offsets that are large and clear. With the exception of a few extraneous pictures showing pavings and walls made of roof tiles set on edge in a spaghetti-like pattern, the bulk of this section shows exactly what it is intended to show: the forms that result from an almost religious devotion to nature and an almost total disregard for the effort, the patience, and the dedication required to achieve this degree of sublimation in the landscape. The difference in values cannot but impress Americans, who would like to have the same thing, but in a supermarket package to which one adds water, stirs to the proper consistancy, and disposes of for replacement when it comes time to rake the pebbles.

However, the "Plant List," occupying the final 20 pages of the book, may be the very elixir that Americans are looking for in the supermarket. I hardly noticed it in the original perusal of the book, since I do not usually examine the conventional appendage of a "plant list" with meticulous care. I certainly would have passed this one by as undistinguished, except that "herbs" and "tall evergreen trees," classified together, caught my eye. In skipping about, I learned that the yellow birch tree is hardy in a moist, dry soil. At this point, I decided to start at the beginning of the chapter, only to find that "Many species not commonly found in Japan... are so appropriate and attractive in naturalistic settings that, in the author's opinion, if they existed in Japan, they would be used in Japanese gardens..." This makes one wonder whether, in the author's opinion, the species which are commonly found in Japan would be used if they did not exist there.

In the next paragraph, Engel reiterates his conviction that his list is "especially appropriate for planting in a Japanese naturalistic garden," and then warns the reader to "confine your selection to plants on this list." Apparently he will tolerate no deviation, even though some of the plants do not grow in Japan. Or perhaps this whole section is for the garden clubs with whom one admittedly must be stern.

All of this makes me wonder whether Engel is entirely sincere (or consistent, to say the least) when he proclaims in his introduction that "... no one advocates merely copying the Japanese garden. What is proposed is simply that we understand the principles of its design, its handling of materials, and, above all, its spirit." He goes on to say: "Once having grasped these essentials, we may proceed to plan a garden, adapting the sense and spirit of Japanese design to the material and physical requirements and limitations of the project." This sounded good at first reading, but it has bothered me more and more since then. It is too reminiscent of another era when, for instance, architects labored under the delusion that, since medieval man had managed to capture a sense and feeling of religion in Gothic cathedrals, American

---

When this compact Haws Water Cooler is mounted, it'll hug the wall—off the floor! — and you'll never see this view again. As craftsmen, though, we're proud of the quiet cooling unit, the heavy-gauge steel panels, the leak-preventing silver soldered fittings, and (above all) the built-to-last craftsmanship. It's a sturdy, compact cooler with all plumbing and electrical connections concealed. Efficient!

And let's face it....

The slim-design cabinet, finished in hammertone grey enamel and crowned with gleaming, contoured stainless steel, makes this cooler a beauty. A practical beauty with enough pre-cooled water to serve 155 persons an hour. And we have money-saving low capacity models, too!

Write for detailed specs! Ask for your copy of HAWS complete catalog and see our data in Sweet's File.

---

For more information, circle No. 34>
ALL MARS - ALL TOPS

...all imported from West Germany, made to meet the highest standards of professionals.

the pencil that's as good as it looks

Mars products are available at better engineering and drafting material suppliers everywhere.

MARS
J.S. STAEDTLER, INC.
HACKENSACK, NEW JERSEY
New Kohler Engine and Electric Plant Building

Capacity to meet growing sales

Our customers' requirements will be met better than ever by the 12 acre new factory devoted entirely to the manufacture of engines and electric plants at Kohler, Wisconsin.

The building provides nearly three times the space formerly available, and allows for further expansion. Straight-line, one-floor production and newest equipment mean increased production, prompt deliveries.

Kohler engines, manufactured since 1920, are being increasingly specified for equipment used in agriculture, construction, industry and recreation. Kohler electric plants, known the world over for reliability, provide efficient electric power for a wide variety of sole supply, portable, automatic stand-by and marine uses.

Highest standards of service are assured by a nation-wide distributor and dealer organization.

The new factory is part of a continuing plan of expansion and diversification by Kohler Co.

Write for illustrated printed matter L-20

Kohler Co. Established 1873
Kohler, Wis.
NO. 2500 FOLDING PANEL HARDWARE

only product with double-duty spring pivot facilitates installation and yields permanent door-track engagement/aluminum track, nylon guides(for two or four door, closet or between-room installations/hidden hardware for passageway use/designed by Grant, functional hardware craftsmen since 1895/complete catalog available on request

GRANT PULLEY & HARDWARE CORP.

49 High Street, West Nyack, New York
944 Long Beach Ave., Los Angeles 21, California

sliding door hardware • drawer slides • drapery hardware pocket frames • pulls • special sliding hardware • closet rods
Saarinen sculps concrete into the feeling of flight

This new $15 million terminal at Idlewild—designed by Architect Eero Saarinen for TWA—is a sweeping sculpture in concrete as functional as it is breathtaking. Topped by a giant four-section arch cantilever lightweight concrete roof shell, the structure stands free—supported only by four concrete buttresses that flow up and into the shell. No internal columns break the spacious sweep of the shells.

Control of concrete—in both plastic and hardened states—played a vital role in achieving this distinctive wedding of architecture, engineering and construction. POZZOLITH was used as the plasticizing, water-reducing, set-controlling concrete admixture. For the continuous, monolithic con­creting of the steep-sloped roof shells, it provided the precise set control required by the contractor to achieve the complex geometry of the roof shell contours. And the concrete finished easily with good texture, no plastic cracking, low shrinkage and high strength.

This is architectural concrete . . . a bold, expressive and practical medium for today's creative architect. And POZZOLITH adds to the versatility, beauty and utility of concrete . . . makes it a more durable building material—superior in performance and economy to plain concrete or concrete produced with any other admixture.

Write us for details on POZZOLITH, or see our new general catalog in Sweet's, Section 9.
DRAMATIC NEW TRANS WORLD AIRLINES UNIT TERMINAL. Idlewild Airport, New York. Two-and-a-half year project scheduled for completion in late 1961. Four soaring concrete roof shells over 50,000 sq. ft. in area—supported by only four buttresses—weigh 6000 tons, contain 3200 cu. yd. Pozzolith concrete, and 500 tons steel. Small inset photo is architect's model of completed terminal structure from which walkways connect with two star-shaped departure facilities each accommodating seven aircraft. Architect: Eero Saarinen & Associates • Supervising Resident Architect: Ralph Yeakel • Consulting Engineers: Ammann & Whitney—Boyd G. Anderson, Senior Partner in Charge • General Contractor: Grove, Shepherd, Wilson & Kruege, Inc.—Kenneth P. Morris, Field Project Manager • Testing: Haller Testing Laboratories, Inc.

The Master Builders Company
Division of American - Marietta Co.
Cleveland 18, Ohio

World-wide manufacturing and service facilities

MASTER BUILDERS
POZZOLITH

*POZZOLITH is a registered trademark of The Master Builders Co. for its ingredient for concrete which provides maximum water reduction, controls rate of hardening and increases durability.

For more information, turn to Reader Service card, circle No. 325
Designers everywhere will welcome this extension of the usefulness of inspiring Serene, one of the most popular of many new Acousti-Celotex mineral fiber tile patterns currently influencing acoustical ceiling design.

Now, you may employ the sheer beauty of Serene's free-flowing pattern of miniature "sound traps" in the creation of uniformly level, precision-aligned ceilings... and get UL-approved fire protection, too... simply by specifying "PROTECTONE" Mineral Fiber Tile.

Call your Acousti-Celotex distributor for samples, specifications, free Ceiling Consultation Service. He's in the Yellow Pages.

Serene Pattern PROTECTONE® Mineral Fiber Tile. One of the family of Celotex UL fire-rated acoustical products.

Acousti-CELOTEX
SOUND CONDITIONING PRODUCTS

The Celotex Corporation, 120 S. La Salle St., Chicago 3, Ill.
In Canada: Dominion Sound Equipments, Limited, Montreal, Que.

If it's "by CELOTEX" you get QUALITY...plus!

For more information, turn to Reader Service card, circle No. 215.
Bracket in a Class by Itself

Wall brackets, like other components of Julius Blum's Carlstadt railing system, combine design flexibility with quantity-production economy. Adjustable for any railing, pitch and now also for variations in handrail-to-wall distance, these versatile brackets can be anchored easily to any kind of wall surface. Designed for maximum strength, Carlstadt components will withstand even the hard usage encountered in schools and public buildings. The architect can choose from a wide variety of stock handrails, posts and accessories. And Carlstadt railings are easy to fabricate and install. For the complete range of components, see Catalog No. 8 or Sweet's Architectural File No. 6e/BL.

More than 8,000 items constantly in stock.

JULIUS BLUM & CO., INC.,
Carlstadt, New Jersey
Phones:
Carlstadt, GEnova 8-4600;
Philadelphia, MArket 7-7996;
New York, OXford 5-2236

For more information, turn to Reader Service card, circle No. 304

Space-Frame Research


These two books present with elegant typography the results of 11 years of research into space-frames built of Unistrut components. Sponsored by Charles W. Atwood, President of Unistrut Corporation, the work has been done under the direction of Architect Paul H. Coy at the College of Architecture and Design of the University of Michigan, with the aid of the University's Research Institute. Coy is to be congratulated on showing that an architect can be entrusted with the direction of what is conventionally considered "engineering research."

Finding an exact solution to the analysis of this type of complex three-dimensional truss is practically impossible. Even if the vertical supports are ignored, and if the joints are assumed to be perfect spherical hinges, such a relatively straightforward framework as Coy's third test structure is indeterminate to the 257th degree!

This, of course, merely places it in the same category as almost any other real building. The problem is to find an approximate method of calculation that will predict reasonably accurately the forces that the various members will have to carry. Coy wisely chose to pattern his approach on the moment-distribution method, based on the theory of elasticity. Engineers are familiar with this method and it is accepted by municipal authorities.

The simplifying assumptions are explained at length in the early part of the book. Experiments carried out in 1955, on five full-size structures erected and tested at the University of Michigan, proved the practical validity of these assumptions. Computations for 20 space-frames, or their components, comprise the major part of Volume A. The second, B, gives a very clear summary of the roof spans that are possible with the Unistrut elements and how lateral loads should be carried, followed by tables of fixed-end moments and distribution and carry-over factors.

Although Coy chose the theory of elas-
... In the NEW ADVANCE
Sound Conditioned 40-Watt
Two-Lamp Rapid Start
Fluorescent Lamp Ballasts

Now, through continuing research and development, Advance engineers bring to the lighting in­
dustry these new “A” QUIET-RATED fluorescent lamp ballasts that absorb the magnetic vibration
of the core and coil before it becomes sound. This is a new concept that is only presently possible to
achieve with the use of a special THERMO-PLIABLE COMPOUND. These new ballasts also incorp­
orate the exclusive Advance “KOOL-KOIL” principle. They operate cooler, give up to 15% more light
output and increase ballast life 3 1/2 to 4 times over ordinary ballasts.

For silent lighting installations in schools, hospitals, libraries and other critical areas where absence
of noise is the primary consideration, specify ADVANCE “A” QUIET-RATED fluorescent lamp bal­
lasts. Catalog No. RQM-2S40 for 118 V. operation. Catalog No. VQM-2S40 for 277 V. operation.
Newest idea in service station design

When architect Edward D. Stone created this service station for Gulf Oil Corporation, he specified his internationally famed grille design in lustrous white Ceramic Veneer. The result is a functional structure with walls of unusual attractiveness which capture sunlight while controlling heat and glare. Outward visibility is unimpaired; privacy is preserved. When you specify Ceramic Veneer grilles you have many smart designs from which to choose. Or, Federal Seaboard will custom-make grille units of your own design. Either way, Federal Seaboard’s vast range of ceramic colors rivals the spectrum. Write today for solar screen and color guide brochures. Without charge we will gladly furnish construction detail, data, advice and estimates on preliminary sketches involving Ceramic Veneer — grilles, plain surfaces or polychrome panels.

FEDERAL SEABOARD TERRA COTTA CORPORATION
10 East 40th Street, New York 16, New York • Plant at Perth Amboy, New Jersey

For more information, turn to Reader Service card, circle No. 310
World Headquarters offices of Pepsi-Cola Company, 500 Park Avenue, New York City, are illuminated with ceiling panels of new impact resistant rigid vinyl sheet panels of modular design. Illumination level is 50 foot-candles at desk height. The Bakelite vinyl panels were fabricated by Piolite Plastics Corp. Lighting was by Globe Lighting Products, Inc., and installation by Fischbach and Moore, Incorporated.

Refreshing light for the "light refreshment"

LUMINOUS CEILINGS OF HIGH-IMPACT VINYL PANELS
LIGHT NEW PEPSI-COLA WORLD HEADQUARTERS BUILDING

In many towering offices along New York's famous Park Avenue, translucent ceilings made of Bakelite rigid vinyl sheet improve lighting efficiency and enhance decor. Here, in the World Headquarters of Pepsi-Cola, panels of new high-impact Bakelite rigid vinyl sheet form a glowing, handsome ceiling. No shadows at eye level...no problem of balancing daylight and interior lighting. This is custom-made illumination—so natural, you are hardly aware of its existence!

Bakelite rigid vinyl sheet forms panels with extra resistance to hard knocks and rough handling during installation and maintenance...they are resistant to warping and cracking...they go years without discoloration by ultraviolet. Costs can be cut because much thinner sheets can be used than for other types of diffusers. They're self-extinguishing, and in addition the installation can be designed so they'll soften and fall out before the sprinkler operating temperature.

With new Bakelite high-impact vinyl sheet you get greater freedom of design...new beauty for older fixtures...much longer service life.

Write today for more information! Dept. JG-110B, Union Carbide Plastics Company, Division of Union Carbide Corporation, 270 Park Ave., New York 17, N.Y.
When you specify Republic ELECTRUNITE Electrical Metallic Tubing in the next larger size, you not only get quality material, but extra client benefits as well. This next larger size provides protection for today's circuits and provides additional wiring capacity for tomorrow's greater electrical loads. Your building design keeps pace electrically for the future at no additional installation cost. Here's why:

Republic ELECTRUNITE offers low material cost plus installation economies in measuring, bending, and wire pulling. Electrical contractors are able to install the next larger size of Republic Electrical Metallic Tubing at no additional cost over the smaller size required utilizing threaded type conduit.

If budgets are tight, specify Republic ELECTRUNITE E.M.T. in standard size requirements and pass on the savings to the building owner in additional outlets, more attractive fixtures, or for staying within the appropriation.

ELECTRUNITE has been job proved by millions of feet installed over the years. Installations made more than 25 years ago are still in service today, ready for more years of electrical service. And, ELECTRUNITE—the steel raceway with a galvanized finish that will not chip, flake, nor peel—is preferred for concealed or exposed concrete installations.

Take advantage of Republic ELECTRUNITE installation economies and plan for future electrical capacity on your next project. Call your Republic representative, or write for additional information. Send coupon below.

TRUSCON ALUMINUM CLASSROOM WINDOWS offer the economy of large glass areas combined with wide selection of projected ventilator arrangements. Weather-stripped with vinyl plastic around the entire perimeter—tight seal, minimum infiltration of air, reduced heat costs. Attractive hardware. Check your A.I.A. FILE No. 16-E, or write for data and specifications.

TRUSCON "O-T" OPEN TRUSS STEEL JOIST is designed to fulfill your building ideas. Straight-bottom chord to carry to spandrels and columns. Economically extended end. Designed in balance with all other structural elements—to 20,000 psi working stress in cooperation with the Steel Joist Institute. Exceptionally strong. Pleasing appearance. Send coupon for data.

TRUSCON SERIES 57 HOLLOW METAL DOORS are designed to withstand the high-frequency usage of public and commercial buildings. Available in a wide selection of types, designs, and finishes, with a complete selection of hardware, including anti-panic closures. Single-swing and double-swing units. Your complete building requirements from one source. Write today.
Maryknoll Junior Seminary, St. Louis County, Missouri
Architects and Electrical Engineer:
Leo A. Daly Company, St. Louis, Mo.
General Contractor:
Gamble Construction Co., St. Louis, Mo.
Electrical Contractor:
Kaemmerlen Electric Co., St. Louis Mo.

REPUBLIC STEEL CORPORATION
DEPT. PA-1759
1441 REPUBLIC BUILDING - CLEVELAND 1, OHIO
Please send more information on the following products:

- Republic ELECTRUNIT® Electrical Metallic Tubing
- Truscon Aluminum Classroom Windows
- Truscon "O-T" OPEN TRUSS® Steel Joist
- Truscon Series 57 Hollow Metal Doors

Name: __________________________ Title: __________________
Firm: __________________________
Address: ________________________
City: ____________________________ Zone: ______ State: _______

Please fill out the form and return to REPUBLIC STEEL CORPORATION.
Like the motor in your car or truck, what's under the hood of your Kinnear Rolling Door is as important a part of its extra value as the part that is always in view.

Concealed in the hood of each Kinnear Rolling Door is a mechanism so skillfully engineered and ruggedly built that it has no equal for long-lasting, low-cost efficiency.

In fact, the rugged precision of Kinnear's under-the-hood mechanism is one of the reasons it so seldom needs to be seen (just as you seldom look under the hood of a car with a trouble-free motor).

Although this sometimes makes the first cost of Kinnear Rolling Doors a little bit higher than "copies," it also assures lowest-cost door operation and maintenance.

Under-the-hood quality is also one of the reasons so many Kinnear Rolling Doors have served continuously — often in daily use — for more than half a century!

In addition, Kinnear Rolling Doors offer coiling upward action that clears the entire opening quickly . . . saves floor, wall and ceiling space . . . keeps the opened door curtain out of the reach of damage by wind or vehicles.

When fully closed, Kinnear Rolling Doors provide extra protection against wind, weather, vandalism, trespass — even against fire. (Heavy galvanizing** resists corrosion, and Kinnear Paint-Bond makes any finish coating you apply adhere immediately and last longer.)

The KINNEAR Mfg. Co.
FACTORIES:
1900-20 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in All Principal Cities

*Hot-dip galvanizing adds 1.25 ozs. pure zinc to each sq. ft. of metal (ASTM standards).

---

**Hot-flip galvanizing adds 1.25 ozs. pure zinc to each sq. ft. of metal (ASTM standards).

Under the hood, what counts

The KINNEAR Mfg. Co.

Saving Ways in Doorways

Continued from page 198

Required Reading


Architects and school administrators with wide experience in school design and construction, who are thoroughly conversant with recent research in the processes of learning and teaching, will find little new in this most recent report from Educational Facilities Laboratories, nor is it intended that they should. The Cost of a Schoolhouse obviously has not been published for this small, knowledgeable group. Instead, it is aimed at the large number of school administrators, architects, and school board members who have had little previous experience in school design and building, and whose professional reading is limited.

As such, it is right on target, for it presents in lively and thoroughly readable fashion as many facts as its potential readers are likely to absorb. It also has a final provocative chapter, "Tomorrow," which states many of the convictions about the future that Educational Facilities Laboratories has acquired in the two years since it was established by the Ford Foundation (with an appropriation of $4,500,000) "to help American schools and colleges with their physical problems by the encouragement of research and experimentation and the dissemination of knowledge regarding educational facilities."

**Hot-flip galvanizing adds 1.25 ozs. pure zinc to each sq. ft. of metal (ASTM standards).

Continued on page 214

Purists may quarrel with the format,
Concrete block patterns make these buildings stand out...

Attractiveness and quality—as well as economy of construction—are the contributions made by concrete masonry to the three housing structures pictured here.

- Luxury living in the suburban apartment is enhanced by a building-long solar screen which provides architectural effect, privacy and comfort.
- Split block for the medium priced home has all the advantages of the finest stone or face brick—attractiveness, long-life, low maintenance—but not the high cost.
- A simple concrete block entrance screen accents the doorway of this low-silhouette all-concrete masonry home.

These applications are typical of the ever growing, increasingly imaginative uses of concrete masonry in all types of modern construction—in every price range.

To lay up the block in each of these structures, the contractors used Lehigh Mortar Cement. Its plasticity and workability made it easier for the masons to do a good job—helped assure clean, durable masonry walls. Lehigh Portland Cement Company, Allentown, Pa.
The P/A Reader and the World of Architecture

During 1961 the Editors will continue their efforts to serve the P/A Reader and the World of Architecture by expressing the whole creative process—the art and science—that is architecture.

Progressive Architecture set the pace for '61 with the outstanding Annual Design Awards Issue. This issue plus other upcoming issues offer the architect the unparalleled opportunity to study the best of work in progress right now on the boards of their fellow architects across the country.

P/A's new standard of architectural publishing initiated last year will flourish during 1961 . . . with more interpretative art of architecture, more technical presentations with more graphic material. In short, P/A's editorial world for 1961 will reemphasize all the qualities inherent in P/A's program—to instruct, inform and inspire the architect with integrity, leadership, authority and style.

PROGRESSIVE ARCHITECTURE
430 Park Avenue, New York 22, N.Y.
A Reinhold Publication
From Haughton Elevonics...

A new concept of convention center elevating for magnificent COBO HALL

Convention hall elevating has its own special problems. And for Detroit's vast new Cobo Hall, where it is said no foreseen convention is too large to handle, there were some special special problems.

Here's how they were solved by a specialized system of Haughton electronically controlled elevators.

Designers knew that before and after scheduled events, building traffic would mean a heavy demand for elevator service between parking areas (basement, first and roof floors) and second floor. At other times, comparatively light traffic could be expected between all floors.

Five Haughton automatic units were installed. Cars are big—six feet deep and eight feet wide. A bank of three serves basement, first, second and roof levels. Two cars serve first, second and third floors for lesser traffic needs. All units are motivated by an amazing "electronic brain" that anticipates service needs and dispatches cars at proper time and in proper sequence.

The complete reliability of Haughton vertical transportation is thoroughly recognized by building professionals and owners. We will be glad to provide you with complete information on Haughton design, modernization and maintenance capabilities.

*Haughton's advanced program in elevator systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance.

From Haughton... new concepts in vertical transportation for buildings of every type.

Haughton Elevator Company - Division of Toledo Scale Corporation, Toledo 9, Ohio

Offices in principal cities | Passenger and Freight Elevators | Escalators | Dumbwaiters | Specialized Lift Equipment
Gold Bond announces:

A NEW NAILABLE STEEL STUD

DOUBLE FLANGE gives you double holding power! Gypsum wallboard, metal lath and gypsum lath are all easily nailed to this new steel stud. Better still—they stay nailed. The unique second flange, inside the stud, grips the nails so tightly that further hammering won't pop them loose. Your labor costs will be lower, your finished job better. The new stud comes complete with accessories, including a special extender splice for meeting variations in ceiling heights, and a special track that's nailable to either floor or ceiling. Ask your Gold Bond® Representative to demonstrate the dramatic nail-holding power of this new Nailable Stud. Or write Dept. PA-261 for free sample and technical information. National Gypsum Co., Buffalo 13, N.Y.
Continued from page 208

but it strikes me as precisely right to attract the many readers who would never wade through the usual hardcover tome filled with architectural jargon or educational gobbledygook. It is concise and generously illustrated.

I find particularly frightening the prediction that "ultimately the school will become as automated as the American home, where the housewife has been freed of so many boring and laborious tasks." When this comes to pass it may be that the teacher will be required to hold a graduate degree in engineering—which, of course, would also be useful to the housewife of today. There is little doubt that machines will be able to take over many routine tasks, thus freeing teachers for more creative work, yet it is to be hoped that education will not be dehumanized in the process.

The Cost of a Schoolhouse points to the discouraging fact that "though there is no national system of education in America, our schools are as alike as though uniformity were compulsory and diversity were illegal." But progress is being made by a small group of talented and dedicated architects, and an even smaller group of educators, who have the fortitude to try something different. "Historically the school was not architecture, at least not notable architecture." But there is hope: "No architectural historian could overlook today's schoolhouse in America or abroad."

Educational Facilities Laboratories, Inc., under the capable direction of Dr. Harold B. Gores, has in its short life already made significant contributions to progress in school design. This book should be part of the library of every architect interested in schools, and should be compulsory reading for most school administrators and school board members. It is available without cost from Educational Facilities Laboratories.

An Interesting Reminder


Any book with the word "architecture" in its title will pique the curiosity of the profession. This book, however, does not seem intended primarily for the profession, and although it may be prominently displayed in bookstore windows, many architects may be content to leave it there.

Wayne Andrews, an editor at Charles Scribner's Sons, and President of the New York Chapter of the Society of Architectural Historians, has written several books on history and architecture. This survey is a collection of his own photographs taken over the past 20 years—a scrapbook of his travels to some of the monuments of American architecture.

When a small volume attempts such scope—ranging from our colonial beginnings to our present diversities of style—it is inevitable that disagreement will arise concerning the author's emphasis. He devotes 10 pages to H. H. Richardson, 15 to McKim, Mead & White, and 24 to Frank Lloyd Wright, which may or may not be out of line. But then the total package of Neutra, Gropius, Breuer, Mies, Johnson, Harrison, SOM, Belluschi, Yeon, Yamasaki, Saarinen, Maybeck, Greene & Greene, Weese, Schindler, Harris, and Wurster is lumped together (and in that order) as the final 20 pages. There is an assumption in his presen-
Modern Door Control by LCN "SMOOTHEE®" Door Closers
WESTERN AND SOUTHERN LIFE INSURANCE BUILDING, CINCINNATI, OHIO
Harry Hake & Harry Hake, Jr., Architects
LCN CLOSERS, INC., PRINCETON, ILLINOIS
Application Details on Opposite Page
Members of the FTI protect your reputation as well as their own by means of an enlightened program of quality control, and aggressive pursuit of improvement in structural glazed and unglazed facing tile.

Through standardization of colors, shapes and sizes, through cooperation with the Modular Building Standards Association, through provision of product information (including precise descriptions of physical properties, performance characteristics, and specifications), these responsible manufacturers save you planning time . . . help minimize installation time and waste.

By means of continual testing, rigid quality control is maintained. By means of research, quality is improved and new architectural needs are met. Institute engineers offer technical aid, help solve design installation problems. Increased production by Institute members meets job schedules and design needs.

Only members of the FTI underwrite the costs of this constructive program; only members of the FTI support this long-range point of view that helps architects perform efficiently, enables the building industry to deliver the best possible end product. Only members of the FTI merit your support.

For further information, contact the Facing Tile Institute or the sales offices of the member companies listed above. In the interest of better facing tile construction, these companies have contributed to this advertisement.
The stool, also designed for the lobby, can be used as a table or an extra seat.

A comfortable, but not too slouchy, arm chair designed first for use in the Time Magazine lobby is available for whatever use seems appropriate.

HERMAN MILLER INC.
ZEELAND, MICHIGAN
Continued from page 214

tation that some of these men can be neatly characterized by a single photo of a single building. Mies has, of course, his Lake Shore Apartments; Belluschi has, not so inevitably, his Equitable Building; but then Harwell Hamilton Harris has six photographs covering four residences; and Wurster, Bernardi & Emmons close the book with three shots of the Palo Alto Behavioral Sciences Center.

But this, after all, is what makes horse racing. At least we can spot Andrews’ favorites with the most casual glance; we know his enthusiasms, and we have the privilege of placing our bets elsewhere. At any rate, it is a pleasure to see a few old favorites still in the running. A number of lesser-known early buildings are included in the survey, and photos by Andrews are reported to be in great demand for the slide collections of architectural schools.

A more serious criticism arises, however, in connection with the author’s glib captions, which, aside from an occasional introductory page, are the only commentaries in the book. Particularly glaring is his use of the word “impersonal.” Some examples: “Neutra is famous for the impersonal elegance of his designs . . .”; “Gropius . . . an impersonal educator in Germany and America . . .”; and (discussing Le Corbusier and his influence on the UN building) “Impersonal in most of his work, Le Corbusier has only recently experimented with sculptural forms in which his personality is evident.”

In earlier sections of the book, comments are more anecdotal—about the architects, their times and trials—and give a fresh view of some often-anthologized buildings.

There is a complete absence of descriptive comment, such as on details of style, use of materials, and development of form. Andrews avoids all this, taking for granted either the trained person’s sensitivity, or the amateur’s indifference to such matters. As a result, his book is certainly not pedantic. Some readers will feel, however, that there is little meat to it.

The layout is undistinguished, with one or two photographs on each page. By not using more dramatic layout or illustrations, Andrews attempts to focus attention on the total building in its broad setting of time and region. There are few detail shots or interiors. Andrews feels that “a good photograph is not a record of a building.” He thus gives architectural photography less of a place as an art Continued on page 222
Physical education and athletic authorities all approve floors
of Northern Hard Maple. Few of them will accord even reluctant
acceptance to any other kind of floor. That’s a documented fact.*
And the reasons voiced aren’t whims, but expert judgment
that demands the respect of school building committees.

Certainly, genuine MFMA-millmarked Northern Hard Maple,
properly laid, costs a bit more than splintering woods or makeshift
synthetics. But it’s enormously better—more enduring, more
resilient, brighter, tighter, warmer, more pleasant to walk on, stand
on, run on, jump on, dance on and, if need be, to fall on!

It’s backed by many thousands of dollars spent for research to
improve manufacturing, uniformity of design and dimension and
proper kiln drying. MFMA educational work on waterproofing
and trouble-free installation methods is available in free booklets,
pamphlets and technical research papers. See Sweet’s 13j-MA.

*Ask for Coaches’ Survey Summary, available to all Architectural and School people.
PELLA PRODUCTS

THE FOCAL POINT OF QUALITY

WAYZATA MEDICAL CLINIC ARCHITECTS: SHIFFLET, BACKSTROM, HUTCHISON & DICKES, INC.

UNDERSCREEN OPERATOR is of extruded aluminum. Exclusive nylon GLIDE-LOCK® permits locking M-P window in 10 positions.

PELLA wood multi-purpose windows

set residential tone for clinic

PELLA WOOD MULTI-PURPOSE WINDOWS present interesting solutions to the problem of integrating a commercial building within a residential neighborhood. The nicely proportioned wood frames harmonize easily with both natural environment and other construction materials. For planning flexibility, PELLA offers a range of 15 vent or fixed sizes and 5 fixed picture sizes. WOOD M-P WINDOWS may be arranged as awning, hopper or casement units. For user convenience, screens and storm panels are self-storing. PELLA also offers WOOD TWINLITE® WINDOWS, which combine vent utility with the traditional double-hung look. Full specifications in SWEET'S or consult your classified telephone directory for the name of the nearest U. S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.

PELLA ALSO MAKES QUALITY WOOD CASEMENT WINDOWS, WOOD FOLDING DOORS AND PARTITIONS, ROLSCREENS AND WOOD SLIDING GLASS DOORS

For more information, turn to Reader Service card, circle No. 335

FEBRUARY 1961 P/A
FORMICA® DOORS
pay their way in an office

To lend a touch of elegance to a handsome office Formica Doors have no equal. But they are as functional as they are decorative. Formica decorative laminate is famous as a hardworking penny pincher of maintenance cost.

Formica Doors come to the job site pre-fit and pre-mortised at a price no higher than top quality wood doors. Faces and stile edges are Formica veneered over quiet, warp-free solid cores.

Call your district Formica sales representative or write for technical information and specifications.

FORMICA CORPORATION
DEPT. S-4, CINCINNATI 32, OHIO

subsidiary of CYANAMID
ELEGANCE

Conceived in the consummate skill of a knowing hand . . . designed with a feel for fashion and a flair for elegance. This is the incomparable new Series A315 . . . reversible window by the master craftsmen of Albro. Some noteworthy features:

- trim, modern styling
- choice of aluminum or bronze
- mechanical and alumilite finishes
- custom quality
- easily installed, sash removable from inside
- for commercial, institutional, monumental structures
- backed by rigid performance tests and . . .
- more than three decades of creativity in metals

See it in Sweets or write

ALBRO METAL PRODUCTS CORP.
944 Longfellow Avenue
New York 59, New York

For more information, circle No. 379
For soft, subtle, shadowless lighting  
...Kalwall translucent walls

Kalwall Translucent Walls light altar and nave of the First Missionary Church,  

Kalwall Translucent Walls glow with soft radiance at night.

Kalwall Translucent Walls light altar and nave of the First Missionary Church,  

For soft, subtle, shadowless lighting  
...Kalwall translucent walls

No harsh shadows ... no "hot spots" ... no glare disturbs the reverence of this church. Daylight is diffused and spread softly to every corner by Kalwall Translucent Walls.

But controlled light is just one of the advantages Kalwall can bring to the buildings you design.

Kalwall panels weigh but 1.5 lbs/sq ft — yet are so strong, supporting framework can be all but eliminated. Kalwall is shatterproof.

Kalwall has the best thermal insulation of any light-transmitting material — excellent acoustical insulation, too.

Kalwall is available in different colors and space patterns — in panels up to 4' x 20'. Write today for complete details on this dramatically different basic building material.

KALWALL CORPORATION  
Dept. H-21, 43 Union Street, Manchester, N. H.

For more information, turn to Reader Service card, circle No. 355
NOTICES

New Addresses
Milton Alpern, Consulting Engineer, 2079 Wantagh Ave., Wantagh, N.Y.

New Firms
Colonel Clinton B. F. Brill, (ret'd), Ralph C. Roe, and Kenneth A. Roe, principals in firm of Brill Engineering Corporation, Consulting Engineers, 220 Church St., New York, N.Y.
Burmeister and Bealle, Architects, 1914 1/2 Grant St., Mobile, Ala.
R. F. Henning, Architect, 4202 Emmet St., Omaha 11, Neb.
Sverdrup & Parcel, Consulting Engineers, 111 8th Ave., New York 11, N.Y. and 915 Olive St., St. Louis 1, Mo. Formerly Smillie & Griffin.

New Partners, Associates
John Sturgis, made an Associate in firm of Leach, Cleveland & Associates, Architects-Planners-Engineers, Los Angeles, Calif.

Elections, Appointments
William J. Hayes elected Vice-President and Director in firm of Tarapata-Mahon, Associates, Inc., Architects-Engineers.

Name Changes

Academic Appointment
Professor G.M. Mandalia, formerly of Kharagpur, India, made Head, Architecture Department, University of Roorkee Roorkee, U.P., India.

New Service for Communities
Lockwood, Kessler & Bartlett, Inc., Civil Engineering Consultants, and Raymond & May Associates, Community Planning Consultants, have formed a new comprehensive service designed to assist communities in solving growth and modernization problems.

P/A Congratulates...
B. W. Light, in firm of Union Switch & Signal, division of Westinghouse Air Brake Company, named Manager of Purchases, succeeding the retiring H.I. McKeever.

WHEN YOU CHANGE YOUR ADDRESS
Please report both new and old addresses directly to P/A five weeks before you move.
PROGRESSIVE ARCHITECTURE
Circulation Department
430 Park Avenue, New York 22, N. Y.

GOOD DAYLIGHTING DESIGN STARTS WITH...

AVOID BUCKLING & WARPING OF MAPLE FLOORING

with EDGE GRAIN
CONNOR'S "LAYTITE"
UP TO 50% LESS EXPANSION in the use of Edge Grain
(According to Forest Products Laboratory)

Use "LAYTITE" EDGE GRAIN for:
★ LESS EXPANSION AND CONTRACTION
★ MORE YEARS OF HARD WEAR
★ LIGHTER AND MORE UNIFORM COLOR
★ LESS DIFFICULTY IN HUMID AREAS

CONNOR Forest Products Since 1872
SCHOOL AND GYM FLOORS OUR SPECIALTY

CONNOR LUMBER AND LAND CO.
PHONE VI -2-2091
P.O. BOX 810-K WAUSAU, WISCONSIN

For more information, turn to Reader Service card, circle No. 361

224
For more decorative exteriors and interiors architects everywhere are using ANOTEC architectural anodized aluminum grilles.

ANOTEC is versatile...it is being used with success in new construction and in modernization, on banks and bus terminals, homes and hospitals, motels and churches, schools and office buildings.

It is available in Circular, Diamond, Hexagonal and Rectangular patterns, in a wide choice of standard and custom dimensions. ANOTEC architectural colors include gold, blue, brass, green, red, black and clear anodized.

For almost limitless variety of uses, applications, patterns, colors and dimensions—for more decorative designs—specify ANOTEC!
See the difference TRANQUILITE makes in transforming a cold, harshly-lighted hospital room into an attractive, modern setting. Patients look better, see better . . . even feel better!
TRANQUILITE ... a "Decidedly Better" Hospital Bed Light by DAY-BRITE

Switching provides reading light, night light and general illumination
Convenient electric outlet for examining light, electric razor or radio
No annoying glare . . . ideal for multiple-patient rooms and wards
Available in 2 or 4-foot lengths, stainless steel or baked white enamel finish

First time you see it you'll know that here's a behind-the-bed fluorescent hospital fixture worthy of the Day-Brite name—with the clean lines and quality look you expect from America's first name in lighting equipment.

But only when you have seen it in action can you fully appreciate what an amazing difference TRANQUILITE makes. Cold, clinical-looking hospital rooms take on new warmth . . . become more inviting. In older rooms, TRANQUILITE's soft illumination hides defects . . . adds a modern touch.

TRANQUILITE is just one of a complete line of "Decidedly Better" Day-Brite fixtures for every hospital need. All are/easy to install/easy to clean/easy to maintain. Get the full story from your Day-Brite representative, or write: Day-Brite Lighting, Inc., 6260 N. Broadway, St. Louis 15, Mo., and Santa Clara, Calif. In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ont.

DAY-BRITE
NATION'S LARGEST MANUFACTURER OF COMMERCIAL AND INDUSTRIAL LIGHTING EQUIPMENT

For more information, turn to Reader Service card, circle No. 306
P/A JOBS AND MEN

SITUATIONS OPEN

ARCHITECTURAL DESIGNERS & DRAFTSMAN — Well established office, Central Pennsylvania, offers permanent positions to capable designers and senior draftsmen with well-rounded training and experience, especially in contemporary school work. College degree not essential, but helpful. Salary and advancement dependent on ability to produce and to assume responsibility. Good working conditions and liberal benefits. Please submit in complete confidence resume of education, experience and salary requirements. Box 145, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL GRADUATES NEEDED IMMEDIATELY — For position with small North Dakota office doing general work. Young, interested in contemporary design with ability and personality. Excellent opportunity to advance with growing firm. Give details, experience, education, references, desired starting salary, initial reply. Confidential, Box 146, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL REPRsentative — Important metal trade association needs young Architect to take charge of promoting industry products to the architectural profession, contractors, industry and manufacturers of building components. Duties will include personal contacts in the field, as well as technical and product design service, preparation of specifications, technical literature and advertising. New York headquarters with fair amount of travel. Appearance and personality important, ability to write and speak before groups helpful. As our research is developing a new line of products to act as sound and vibration barriers, some knowledge or experience in this area would also be helpful. Small organization, usual benefits. Good chance for advancement depending on ability to develop this program and interest in other Association activities. Salary commensurate with qualifications and experience. Box 147, PROGRESSIVE ARCHITECTURE.

ASSISTANT TO MANAGER — Young Architectural or Civil Engineer graduate for growing integrated building and custom equipment manufacturing firm. Central California. Box 148, PROGRESSIVE ARCHITECTURE.

DEVELOPMENT ENGINEER — A leading producer of copper and brass has a position for a man familiar with architectural drafting and building construction, and who has had experience or training in the architectural metals business and in the work of the mechanical trades. Must be capable of working with architects and engineers in an advisory capacity, and should have a flair for sales and sales promotion. Opportunity is present to use creative ability in developing new products and applications for the copper metals in the building field. Box 149, PROGRESSIVE ARCHITECTURE.

INTERIOR DECORATOR — Excellent opportunity for top-grade decorator (female) to work closely with national architectural firm in doing interiors of churches, schools, apartment, office and industrial buildings. Send complete resume and small photograph to Box # 163, PROGRESSIVE ARCHITECTURE. All replies will be answered.

SITUATIONS WANTED

ARCHITECT — 30, married, Connecticut registration, eligible for NCARB, B. Architecture, Yale, 7 1/2 years varied experience in small offices. Capable of complete charge of all phases of the work, take initiative in the development of new work. Seek permanent position of responsibility and increasing opportunity with progressive firm. Will relocate. Box 164, PROGRESSIVE ARCHITECTURE.

ARCHITECT — 35, B.Arch., M.Arch., licensed, nine years of diversified and responsible experience in design, working drawing and administration. Seeks position with progressive firm. Will consider anywhere in the U.S. preferably West Coast. Resume on request. Box 150, PROGRESSIVE ARCHITECTURE.

ARCHITECT — 40, married, with two children. 18 years experience here and abroad, all types of buildings including hospitals. Designer, manager and coordinator, present position of responsibility and increasing opportunity with progressive firm. Will go overseas. Resume available on request. Box 151, PROGRESSIVE ARCHITECTURE.

ARCHITECT — 49, single; over 20 years varied experience. Box # 163.

For more information, turn to Reader Service card, circle No. 364

ADVISING RATES

Standard charge for each unit is Five Dollars, with a maximum of 50 words. In counting words, your complete address (any address) counts as five words, a box number as three words. Two units may be purchased for ten dollars, with a maximum of 100 words. Check or money order should accompany advertisement and be mailed to Jobs and Men, c/o Progressive Architecture, 430 Park Avenue, New York 22, N. Y.

Insertions will be accepted not later than the 1st of the month preceding month of publication. Box number replies should be enclosed as noted above with the box number placed in lower left hand corner of envelope.

Modern
As
Today,
Yet built for the
Centuries with
MOUNT AIRY
GRANITE

Here's another outstanding example of modern construction, dignified by the enduring strength and beauty of Mount Airy Granite.

Uniform color and texture of the stones preserves the clean lines of the structure, yet gives added interest to the large, plain surfaces.

Mount Airy Granite's versatile effectiveness is further emphasized when used for facing public corridors and elevator entrances.

What's more, should expansion or remodeling be necessary, there will be ample supply of Mount Airy Granite to match it perfectly!

NORTH CAROLINA GRANITE CORPORATION
Mount Airy, North Carolina

For more information, turn to Reader Service card, circle No. 364
Bethlehem announces...

11 NEW LIGHTWEIGHT WIDE-FLANGE BEAMS!

... for still greater economy in steel construction

These new sections, combined with the new ASTM Specifications for higher-strength steels (A36, A440, A441), will provide still greater flexibility and economy in steel construction.

- Seven new lighter weights for wide-flange beams currently produced. These average 8 to 11 per cent less weight per foot than the present lightest weights!

- Four new light beams increasing Bethlehem’s BL series to 14-in. and 16-in. nominal depths!

- All immediately available from regular rolling schedules!

PUBLICATIONS DEPARTMENT
BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.
Please rush me a copy of Booklet 582, "11 NEW LIGHTWEIGHT WIDE-FLANGE BEAMS."

Name

Company

Address

City.... Zone.... State....

Export Sales: Bethlehem Steel Export Corp., 25 Broadway, New York 4
EPOXY RESINS
CONSTRUCTION
FOR THE
INDUSTRY
A FREE FACTUAL REPORT ON FURANE'S EPOCAST-EPIBOND, HOW TO USE IT AND WHAT IT CAN MEAN TO YOU...

We now have available to members of the construction industry, an eight page folder with photographs and descriptions of practical applications of epoxy resin in the construction fields. The booklet describes in detail the areas in which epoxy can be a valuable aid in construction projects.

Write today for your free copy!

Furané Plastics
4516 Brazil Street, Los Angeles, California
42 Chason Street, Hempstead, Long Island, N.Y.
Chapman 5-1151
Vanhoe 3-6246

SAVE ON
CENTRAL
HEATING!

Use Reznor direct-fired duct furnaces in stores, offices and factories

Specify Reznor direct-fired furnaces and save big money for your clients by avoiding expensive boilers, piping and controls. Clients stay happy because Reznor furnaces are built for long-run performance with low maintenance.

For complete data, call your Reznor representative (under "Heaters-Unit" in the Yellow Pages) or write for Catalog SA-5900, Dept. 5-F, Reznor Manufacturing Co., Mercer, Pennsylvania.

REZNOR HEATERS
"WORLD’S LARGEST SELLING DIRECT-FIRED HEATERS"

The Finest Medium for Originals and Reproductions
ARCHITECTURAL PRESENTATION IN OPAQUE WATERCOLOR by Chris Choate

Here is a complete guide to architectural illustration in color in the finest medium for both originals and reproductions. A noted architect and professional illustrator, Chris Choate reviews the fundamentals and advanced techniques of architectural illustration and relates their use to painting in opaque. He demonstrates many valuable methods for developing perspective, mood, atmosphere, pictorial surroundings and an indication of functional purpose. Beginning with selection of materials, color mixing and brush techniques, the author illustrates the step-by-step procedure from rough perspective to finished presentation.

Client acceptance, financial approval, fund raising, leasing and publicity are all made easier by color presentations with strong human appeal. Mastery of the use of opaque watercolor will result in the development of an easily executed, flexible technique for illustrating all types of architecture in dramatic, human terms. This lavishly illustrated book provides a complete education in the best method for the most effective interpretation of any architect's concepts.

Examine It Free for 10 Days MAIL THIS COUPON TODAY

160 pages, 8 1/4" x 10 1/4"
265 illustrations
$12.50

REINHOLD PUBLISHING CORPORATION
Dept. M-766, 430 Park Avenue, New York 22, N. Y.
Send me a copy of Architectural Presentation in Opaque Watercolor for 10 days' Free Examination.

☐ Purchase price enclosed (Reinhold pays postage)
☐ Bill me (plus postage) ☐ Bill company

Name
Address
City & Zone State

SAVE MONEY. Enclose $12.50 with order and Reinhold pays all shipping costs. Same return privilege. Please add 3% sales tax on N.Y.C. orders. Do not enclose cash.

230 FEBRUARY 1961 P/A
Modern smooth-fin design of Aerofin coils permits ample heat-exchange capacity in limited space — permits the use of high air velocities without turbulence or excessive resistance.

Aerofin performance data are laboratory and field proved. You can safely specify Aerofin coils at full published ratings.
ARCHITECT—Boston area, top designer and renderer, energetic, over 25 years experience on all types of buildings and in all phases of architectural practice. Interested in partnership or associateship with progressive architect whose emphasis is on contemporary design. Prefer Boston or area within approximately 60 mile radius. Box 153, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Desires position requiring imagination, versatility and effort at associate or partner level. 36, family, BSCE and B Arch. Harvard. 10 years varied contemporary experience with name men and own practice. Design, presentation, working drawings, job-captain, supervision. Registered three states. Complete resume on request. Box 154, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL DRAFTSMAN—With 9 years varied experience in architects' offices desires advancement to responsible position in active small office. Qualified for field supervision, shop drawings, specification writing, site layout. Age 37, married, 3 small children. Prefer Midwest, East, Southeast location. Present location Connecticut. Box 157, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL ENGINEER—M.S. Arch. Engr.—over 3 years varied experience in structural design, working drawings, preliminary drawings and contacting of clients. Graduate study was in all facets of structural design. Have applied for architectural licensing. Desire responsible position with architectural firm or consulting office where structural design background may be put to use. Box 158, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL PRODUCTION & GENERAL MANAGER—With extensive proven ability to increase production and profits. Thoroughly qualified Administrator in all phases of architectural practice through actual experience in design, drafting, specifications, supervision and management in both large and medium size firms throughout country. Currently managing large firm on West Coast. Have improved their situation where challenge no longer exists. Particularly interested in position with progressive Southern or West Coast firms who have steady large volume of work. Also interested in a firm who may want manager for a branch office. For complete resume of successful accomplishments write Box 159, PROGRESSIVE ARCHITECTURE.

SENIOR STRUCTURAL ENGINEER—With thorough supervisory experience with leading engineering and construction firms. Large industrial, power plants, waterfront structures, dams, airfields, bridges, etc. Excellent estimator and staff writer. Southerner, client contact and negotiating experience. Desire position with architectural, consulting or industrial firm. Box 160, PROGRESSIVE ARCHITECTURE.

STRUCTURAL ENGINEER-ARCHITECT—Multi-registered, top qualifications, diversified experience. Modern large concrete structures, aircraft hangers, industrial, commercial, municipal buildings, bridges, dams, etc., promotional work. Seeks position as chief engineer or partnership in progressive firm. Box 161, PROGRESSIVE ARCHITECTURE.

Top Level Architect—Licensed in New York, Massachusetts and NCARB; Designer, manager and coordinator. Graduate of two schools wishes to associate with elderly architect, who wishes to partially retire, while retaining client contact and allied activities. Will assume all office duties. Replies strictly confidential. Box 162, PROGRESSIVE ARCHITECTURE.

MISCELLANEOUS

ARCHITECTURAL & DESIGN PERSONNEL AGENCY—A personalized placement service for top-level architects, designers, engineers, draftsmen, estimators and interior designers; selective contacts arranged in a confidential and professional manner. Interviews by appointment. 58 Park Avenue, New York, Murray Hill 3-2523.


HELEN HUTCHINS PERSONNEL AGENCY—Specialist Architectural, Industrial, Interior, Design; Decorative Arts and Trades; Home Furnishing Field, Architects, Designers, Draftsmen, Administrative Personnel, Interview by appointment. 767 Lexington Ave., New York 21, N. Y. TE 8-3070.

MECHANICAL ENGINEER—Desiring cooperation with architect or resort management in the design and installation of the first Swimming Pool in the USA with artificial sea wave generation. Holder of design license for America. Pool size, height of waves to your requirements or to our recommendations. G. R. Mueller, M.E., 5520 E. Vassar, Denver 22, Colorado.
If you're thinking of wood and fire safety...read this!

Roddis genuine hardwood plywood paneling is beautiful and durable...and is now available in a new form that gives you maximum fire safety too. It's Roddis fire-retardant hardwood plywood paneling.

You can select from a variety of fire-retardant treated constructions...lumber core, veneer core or new Timblend core—prefinished, if desired. All are labeled and listed by Underwriters' Laboratories...all are manufactured to meet Federal Specifications SS-A-118b (Class B)...and all meet or exceed most building requirements. For complete information see Sweets, or write to Weyerhaeuser Company, Roddis Division, Marshfield, Wisconsin.

Weyerhaeuser Company
Roddis Division
Marshfield, Wisconsin

Why not design a "fire-safe" room...in wood. It can be done! With Roddis fire-retardant prefinished paneling, famous Roddis Fire Doors. Even the furniture can be built of Roddis fire-retardant hardwood plywood.
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Transformer Co</td>
<td>199</td>
</tr>
<tr>
<td>Aerofin Corp</td>
<td>231</td>
</tr>
<tr>
<td>Air Devices, Inc</td>
<td>12</td>
</tr>
<tr>
<td>Albro Metal Products</td>
<td>222</td>
</tr>
<tr>
<td>Andersen Corp</td>
<td>188, 189</td>
</tr>
<tr>
<td>Anemostat Corp. of America</td>
<td>24</td>
</tr>
<tr>
<td>Armstrong Cork Co, Building Products Division</td>
<td>108, 109</td>
</tr>
<tr>
<td>Armstrong Cork Co, Flooring Div.</td>
<td>18, 19</td>
</tr>
<tr>
<td>Arrow-Hart &amp; Hegeman Electric Co</td>
<td>77</td>
</tr>
<tr>
<td>BB Chemical Co, Subsidiary of United Shoe Machinery Corp</td>
<td>185</td>
</tr>
<tr>
<td>Bell &amp; Gossett Co</td>
<td>175</td>
</tr>
<tr>
<td>Bethlehem Steel Co</td>
<td>106, 229</td>
</tr>
<tr>
<td>Bird &amp; Son, Inc</td>
<td>89</td>
</tr>
<tr>
<td>Blum, Julius &amp; Company</td>
<td>198</td>
</tr>
<tr>
<td>Burns &amp; Russell Company</td>
<td>96</td>
</tr>
<tr>
<td>Burgess-Manning Co</td>
<td>16</td>
</tr>
<tr>
<td>California Redwood Association</td>
<td>186, 187</td>
</tr>
<tr>
<td>Celotex Corp</td>
<td>196, 197</td>
</tr>
<tr>
<td>Connor Engineering Corp</td>
<td>70</td>
</tr>
<tr>
<td>Connor Lumber &amp; Land Corp</td>
<td>224</td>
</tr>
<tr>
<td>Consoweld Corp</td>
<td>101</td>
</tr>
<tr>
<td>Corning Glass Works</td>
<td>110</td>
</tr>
<tr>
<td>Day-Brite Lighting, Inc</td>
<td>226, 227</td>
</tr>
<tr>
<td>Dover Corp., Rotary Lift Division</td>
<td>2, 3</td>
</tr>
<tr>
<td>Dow Chemical Co</td>
<td>56, 57</td>
</tr>
<tr>
<td>Dow Corning Corp</td>
<td>68, 69, 218</td>
</tr>
<tr>
<td>Duriron Co, Inc</td>
<td>4</td>
</tr>
<tr>
<td>Dur-O-Wal</td>
<td>7</td>
</tr>
<tr>
<td>Eastern Products Corp</td>
<td>61</td>
</tr>
<tr>
<td>Exolon Company, The</td>
<td>94</td>
</tr>
<tr>
<td>Facing Tile Institute</td>
<td>216</td>
</tr>
<tr>
<td>Federal Seaboard Terra Cotta Corp</td>
<td>200</td>
</tr>
<tr>
<td>Fenestra, Inc</td>
<td>35, 36, 37</td>
</tr>
<tr>
<td>Filon Plastics Corp</td>
<td>15</td>
</tr>
<tr>
<td>Fleet of America, Inc</td>
<td>92</td>
</tr>
<tr>
<td>Formica Co.</td>
<td>221</td>
</tr>
<tr>
<td>Furane Plastics, Inc</td>
<td>230</td>
</tr>
<tr>
<td>Glidden Co</td>
<td>82 thru 84</td>
</tr>
<tr>
<td>Glynan-Johnson Corp</td>
<td>204</td>
</tr>
<tr>
<td>Goodrich, B. F., Co.</td>
<td>1</td>
</tr>
<tr>
<td>Granco Steel Products Company</td>
<td>20, 21</td>
</tr>
<tr>
<td>Grant Pulley &amp; Hardware Corp</td>
<td>193</td>
</tr>
<tr>
<td>Guth, Edwin F., Co</td>
<td>3rd Cover</td>
</tr>
<tr>
<td>Hall-Mack Company</td>
<td>34</td>
</tr>
<tr>
<td>Hansson, Elof, Inc</td>
<td>59</td>
</tr>
<tr>
<td>Haughton Elevator Co</td>
<td>212</td>
</tr>
<tr>
<td>Haws Drinking Faucet Co</td>
<td>190</td>
</tr>
<tr>
<td>Heifetz Company</td>
<td>26</td>
</tr>
<tr>
<td>Hillyard Chemical Co</td>
<td>80</td>
</tr>
<tr>
<td>Inland Steel Products Co</td>
<td>13</td>
</tr>
<tr>
<td>Insulite Division of the Minnesota &amp; Ontario Paper Company</td>
<td>91</td>
</tr>
<tr>
<td>Johnson Service Co</td>
<td>100</td>
</tr>
<tr>
<td>Kalwall Corp</td>
<td>223</td>
</tr>
<tr>
<td>Kentile, Inc</td>
<td>62</td>
</tr>
<tr>
<td>Keystone Steel &amp; Wire Co</td>
<td>78, 79</td>
</tr>
<tr>
<td>Kinneer Mfg. Co</td>
<td>200</td>
</tr>
<tr>
<td>Klemp Metal Grating</td>
<td>225</td>
</tr>
<tr>
<td>Kliegl Bros.</td>
<td>235</td>
</tr>
<tr>
<td>Kohler Company</td>
<td>192</td>
</tr>
<tr>
<td>Lamont &amp; Riley Co</td>
<td>99</td>
</tr>
<tr>
<td>LCN Closers, Inc</td>
<td>214, 215</td>
</tr>
<tr>
<td>Lehigh Portland Cement Co</td>
<td>209</td>
</tr>
<tr>
<td>Libbey-Owens-Ford Glass Co</td>
<td>27 thru 30</td>
</tr>
<tr>
<td>Magee Carpet Co</td>
<td>26</td>
</tr>
<tr>
<td>Mahon, R. C., Co</td>
<td>66</td>
</tr>
<tr>
<td>Maple Flooring Mfrs. Assn.</td>
<td>219</td>
</tr>
<tr>
<td>Marble Institute of America</td>
<td>17</td>
</tr>
<tr>
<td>Marmet Corp</td>
<td>55</td>
</tr>
<tr>
<td>Master Builders Co</td>
<td>194, 195</td>
</tr>
<tr>
<td>Matico, Mastic Tile Div., The Ruberoid Co</td>
<td>163 thru 165</td>
</tr>
<tr>
<td>McLouth Steel Corp</td>
<td>10</td>
</tr>
<tr>
<td>McPhilben Lighting Co</td>
<td>218</td>
</tr>
<tr>
<td>Mearl Chemical Corp</td>
<td>92</td>
</tr>
<tr>
<td>Miller Company</td>
<td>11</td>
</tr>
<tr>
<td>Miller, Herman, Furniture Co</td>
<td>217</td>
</tr>
<tr>
<td>Minnesota Mining &amp; Mfg. Co</td>
<td>97</td>
</tr>
<tr>
<td>Morse Boulger, Inc</td>
<td>96</td>
</tr>
<tr>
<td>Mueller Brass Co</td>
<td>181</td>
</tr>
<tr>
<td>National Association of Dealers &amp; Distributors</td>
<td>14</td>
</tr>
<tr>
<td>National Gypsum Co</td>
<td>8, 9, 213</td>
</tr>
<tr>
<td>North Carolina Granite Corp</td>
<td>228</td>
</tr>
<tr>
<td>Onan, D. W., &amp; Sons, Inc</td>
<td>67</td>
</tr>
<tr>
<td>Owens-Corning Fiberglass Corp</td>
<td>86, 87</td>
</tr>
<tr>
<td>Pass &amp; Seymour</td>
<td>99</td>
</tr>
<tr>
<td>Pittsburgh Plate Glass Company</td>
<td>39 thru 44</td>
</tr>
<tr>
<td>Portland Cement Association</td>
<td>33</td>
</tr>
<tr>
<td>Powder Actuated Tool Manufacturers Institute</td>
<td>65</td>
</tr>
<tr>
<td>Reinhold Publishing Corp</td>
<td>98, 210, 211, 230, 232</td>
</tr>
<tr>
<td>Republic Steel Corp</td>
<td>206, 207</td>
</tr>
<tr>
<td>Reznor Mfg. Co</td>
<td>230</td>
</tr>
<tr>
<td>Rilco Laminated Products Division, Weyerhaeuser Co</td>
<td>201</td>
</tr>
<tr>
<td>Roddis Division, Weyerhaeuser Co</td>
<td>233</td>
</tr>
<tr>
<td>Rohscreen Company</td>
<td>220</td>
</tr>
<tr>
<td>Rotary Lift Division, Dover Corp</td>
<td>2, 3</td>
</tr>
<tr>
<td>Sanymetal Products Company, Inc</td>
<td>25</td>
</tr>
<tr>
<td>Schlegel Mfg. Co</td>
<td>93</td>
</tr>
<tr>
<td>Slater Electric Co</td>
<td>6</td>
</tr>
<tr>
<td>Sloan Valve Co</td>
<td>177</td>
</tr>
<tr>
<td>Smith, A. O., Corp.</td>
<td>31</td>
</tr>
<tr>
<td>Sonoco Products Co</td>
<td>38</td>
</tr>
<tr>
<td>Staedtler, J. S., Inc</td>
<td>191</td>
</tr>
<tr>
<td>Summitville Tiles, Inc.</td>
<td>2nd Cover</td>
</tr>
<tr>
<td>Thiokol Chemical Corp</td>
<td>179</td>
</tr>
<tr>
<td>Torjesen, Inc.</td>
<td>90</td>
</tr>
<tr>
<td>Trinity Div., General Portland Cement Co</td>
<td>Back Cover</td>
</tr>
<tr>
<td>Union Carbide Plastics Co., Div. of Union Carbide Corp</td>
<td>205</td>
</tr>
<tr>
<td>United States Ceramic Tile Co</td>
<td>23</td>
</tr>
<tr>
<td>United States Plywood Corp</td>
<td>107</td>
</tr>
<tr>
<td>United States Steel Corp</td>
<td>202, 203</td>
</tr>
<tr>
<td>Universal Atlas Cement Co., Div. of U.S. Steel Corp</td>
<td>183</td>
</tr>
<tr>
<td>Vogel-Peterson Co</td>
<td>99</td>
</tr>
<tr>
<td>Wasco Products, Inc</td>
<td>26, 224</td>
</tr>
<tr>
<td>Washington Steel Corp</td>
<td>32</td>
</tr>
<tr>
<td>Wayne Iron Works</td>
<td>94</td>
</tr>
<tr>
<td>Webster Electric Company</td>
<td>46</td>
</tr>
<tr>
<td>Weyerhaeuser Company (Lumber &amp; Plywood Division)</td>
<td>22</td>
</tr>
<tr>
<td>Yawman &amp; Erbe Mfg. Co, Inc</td>
<td>95</td>
</tr>
</tbody>
</table>
Regressed Lens Downlights with Designed Optics by Kliegl

...the Great Name in Lighting!

Designed Optics... properly controlled general area illumination from a concealed lens downlight. Using a specially designed hidden lens support cone and a Fresnel Lens with black painted risers, Kliegl Regressed Lens Downlights give a soft illumination without side glare or surface brightness.

Kliegl Regressed Lens Downlights are optically designed to give excellent performance and easy maintenance. A special flush face plate design produces the distinctive "clean look" when installed.

Plan to use Kliegl Regressed Lens Downlights on your next project. For complete information, write for our Architectural Lighting Catalog.
The Franklin Delano Roosevelt Memorial Competition has produced, in the first award, what seems to me a very stirring, a very fitting memorial design. In addition, the entire competition results seem to me a most important, most indicative picture of the status of U.S. architecture at this point. I have just come back from seeing the models of the six finalists at the opening of an exhibition of these and a number of other submissions at the Corcoran Gallery in Washington. In addition, I have spent days going through a microfilm of all of the 562 entries in the first stage of the judging, in order to assist in preparation of a book, which Reinhold will publish, that will show the total competition. Hence I write, if not with authority, at least with a rather full knowledge of the complete picture, and after a lengthy and sober consideration of the models and the drawings of the winning design and the other finalists and honorable mentions.

I wish that other journalists had done the same. Fritz Gutheim recorded a quick adverse reaction in The Washington Post; and John Crosby, the syndicated Herald Tribune columnist who is now a very witty authority on everything including architecture (and with whom I usually agree, even on architecture), has reported that he and the “avant-garde” New York architects don’t like the design. These comments, made after a view of the very inadequate publicity pictures that were sent out immediately after the judging, have been picked up eagerly and fondly by several elements of the population of which I am not overly fond. They are the same groups that were quick to make amusing and quotable remarks about the UN Headquarters preliminaries, the St. Louis waterfront competition result, and the Air Force Academy concept. One coterie is made up of professional scoffers at contemporary design—in painting, sculpture, architecture, and even music and the dance. They would have preferred to see a typical Washington-type-architecture memorial. Another clique is composed of those who oppose competitions. They would rather have had the project put in the hands of a “safe” architect-sculptor-landscape team (“safe” meaning—let’s not do anything exciting or controversial, boys, because that will make it hard to get the project through Congress and we’d never get our fee that way).

Now I know that neither Gutheim nor Crosby, or the others making cute, snide remarks about book ends and so on, want to aid the persons I describe, but the fact is that they are providing such an assist—and quotable quotes—for the reactionaries who are likely to oppose this memorial in Congress. And I want to make it clear that I would not take issue with them so sharply if I were not truly convinced that this is a good result. In other words, I am not only applauding Judge Francis Biddle and his Commission for their wisdom and clear thinking in devising and carrying through this competition, rather than in making the award of the job a political handout; I am also complimenting the architectural result.

The problem was a difficult one. It was obviously impossible to design a building; the Lincoln and the Jefferson Memorials are too close to try to make an equal, more contemporary statement in architecturally enclosed space. That was where Katselas went off, with his handsome plastic structure. The dimly lighted grottos are for more somber memorial purposes, as is the Roman Ardeatine Memorial to the slaughter of Roman citizens; this is where Myller went astray, with his beautiful single slab. And yet something rising was called for (nearly a hundred of the entries used some form of grouped column symbols) that would speak for itself without competing with the simple spire dedicated to George Washington. A delightfully shaped and landscaped bowl, such as Sasaki and Luders devised, or a subtly sculptured landscape like the Wehrer-Borkin entry, do not provide sufficient focus, enough finality.

That left Geller and the winning team. For my money it was a tossup. Geller’s scheme has more for the viewer to do and see; it has more excitement in the outward thrusting form of the slabs. But the Pedersen-Tilney, Wasserman-Beer, Hoberman design that the jury favored is deceptively simple. It raises straight up, slabs that are sculptured with great delicacy—slabs that rise from bases that interlock in a series of platforms, steps, and terraces, in a manner that creates—or rather suggests—handsomely articulated space. And in the center, locking everything in a balance that again is not as simple as it first seems, is a final, underplayed tablet. As one enthusiastic architect said the other night (having come to scoff, but staying to praise loudly): it seemed to speak of the man himself who was being remembered, standing at the focal, key point of many intersecting activities, tying them together into a workable unity.

I have my minor quibbles about the design. I hope that certain improvements are made (particularly in landscaping) in the final design. But I hope it gets built. And I certainly will give no comfort to those who will now try to prevent that happening.