<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
<th>Article Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>119</td>
<td>Old art, new architecture</td>
<td>Milan museum uses twentieth-century display techniques to complement its fifteenth-century architecture and its even more ancient collection. An object lesson for anyone with a display problem</td>
</tr>
<tr>
<td>126</td>
<td>Building forecast: 1957</td>
<td>Next year will be another record-breaker for the building industry</td>
</tr>
<tr>
<td>128</td>
<td>Wanted: a new school cost system</td>
<td>Today's confusing methods of comparing school building costs are discouraging needed school construction</td>
</tr>
<tr>
<td>132</td>
<td>A lesson from Britain</td>
<td>Intelligent cost control helps pay for the amenities of imaginative landscaping and integrated art</td>
</tr>
<tr>
<td>140</td>
<td>High school stages</td>
<td>Sound ideas for better, lower cost auditorium design run up against the high cost of bureaucracy</td>
</tr>
<tr>
<td>142</td>
<td>Quality schools of reasonable cost</td>
<td>Case studies of six of the nation's outstanding new school buildings</td>
</tr>
<tr>
<td>154</td>
<td>Color and art in an office building</td>
<td>New York's newest speculative project is distinguished by colorful brickwork outside and a glowing mosaic in the lobby</td>
</tr>
<tr>
<td>156</td>
<td>Louis Sullivan today</td>
<td>A pictorial review of an important new book commemorating the 100th anniversary of the architect's birth</td>
</tr>
<tr>
<td>162</td>
<td>Reception rooms</td>
<td>Another in a series of articles on public rooms</td>
</tr>
<tr>
<td>166</td>
<td>New Haven's redevelopment</td>
<td>An introduction to the people and plans that are reshaping the city</td>
</tr>
<tr>
<td>170</td>
<td>New hope for the brick wall</td>
<td>Research by the clay product industry is paying off in the form of a prefab curtain wall and other new developments</td>
</tr>
<tr>
<td>176</td>
<td>Technical notes</td>
<td>Laminated wood arches . . . design by photography . . . solar heating . . . friction connections . . . overengineering . . . cheaper lumber . . . concrete umbrella</td>
</tr>
<tr>
<td>178</td>
<td>For all concerned</td>
<td>An editorial on urban renewal</td>
</tr>
</tbody>
</table>
Now you can plan economical classroom comfort
with the Norman Schoolroom System

gas-fired forced air heating
and ventilating with Util-i-Ducts

The Norman Classroom Package helps keep school construction costs down. It is a completely automatic gas-fired forced air perimeter heating and ventilating system which eliminates the extra cost and space required for a central heating plant. Each room has its own individual heating and ventilating system. Any number of additional classrooms can be added later without expensive revamping as required with a central heating plant.

The exclusive Norman Schoolroom System automatically filters and mixes outdoor air and room air to maintain a healthful and comfortable climate. It automatically compensates for variations in the heating and ventilating requirements caused by changes in occupancy and outside weather conditions. Outside air only is used for combustion.

Util-i-Duct sections are designed to blanket the outside walls with controlled tempered air and also provide handy bookshelf space. Each section has an individual diffuser with damper and adjustable louvers for accurate balancing and uniform distribution. Sections can be extended around the outside walls and under windows — available in standard length sections, corner units and adjustable filler sections to flush in with wall partitions.

Mail the coupon today for full details and specifications

NORMAN PRODUCTS CO.
1159 Chesapeake Ave., Columbus 12, Ohio

Please send me complete information on the Norman gas-fired, forced air Schoolroom Heating and Ventilating System.

NAME ____________________________
ADDRESS __________________________
CITY ____________________________ STATE _________
PANELFAB Doors, Panels & Vertical Sun Louvers

PANELFAB DOORS have a one-piece extruded .125" thickness aluminum perimeter edge, permanently bonded and roll-interlocked to aluminum facings. Wide variety of types and sizes available — reinforced for any type hardware.

PANELFAB PANELS are available with porcelain facings in 8 types — sizes up to 4' by 10'; with aluminum facings in 3 types — sizes up to 4' by 24'.
The Prudential Insurance Company has achieved space flexibility through the use of nearly two miles of Mills Movable Walls in its new home-office buildings in Jacksonville and Minneapolis. Whenever changes in space requirements make new layouts advisable, these walls can be taken down and relocated—quickly, easily and economically—without interrupting normal routine. With this efficient mobility Mills Walls combine architectural design and structural stability. Fully insulated and soundproofed, they are available in a wide variety of attractive styles and colors, with baked-on enamel finishes which require no maintenance whatever except occasional washing. Our Architects’ Development Service will help you to adapt Mills Walls to meet your specific needs. The Mills Company, 915 Wayside Rd., Cleveland 10, Ohio.
The Story Begins. Here's the multi-million dollar Flintkote Research Laboratory at Whippany, N.J., where many a "Flintkote First" has been conceived and developed. Here, also, is where the search for a superior new asphalt tile was begun... the H.M.W. Tile now being manufactured by the Tile-Tex Division of Flintkote.

The Story Unfolds. Working separately, yet in close cooperation with the Flintkote Research Laboratory, are scientists in the Tile-Tex Laboratory at Chicago Heights, Ill. Here many important advancements and refinements in floor tile are made. Developments that made Tile-Tex a leader in light attractive colors. Marbleization. Longer wearing tile. Flexible tile. Plank-shaped tile. And here the new H.M.W. formulations were perfected for Tile-Tex Asphalt Tile.

Another chapter of the story of the new H.M.W. Tile-Tex Tile was completed in this Tile-Tex Pilot Plant. Here the trial runs were thoroughly pre-tested...proved. Here the rich Tile-Tex manufacturing experience and "know-how" perfected the new H.M.W. Tile-Tex Asphalt Tile. Read about the advantages below.

THE H.M.W. STORY!

...Research mastery and manufacturing know-how team up to bring you this advanced new Tile-Tex Asphalt Tile.

TO THE TECHNICIAN...
this H.M.W. story means that: reinforced Higher Molecular Weight resins are now ideally formulated to produce a superior new Tile-Tex Asphalt Tile. A joint achievement of our research and manufacturing departments.

TO YOU, THE ARCHITECT...the H.M.W. story means the availability of a greatly improved asphalt tile with many practical and trouble-free advantages! Advantages that have been tested and proved in the field. Advantages that make more attractive floors...faster installation. More satisfied clients.

1. MORE FLEXIBLE! Tile-Tex H.M.W. Tile has obtained the highest flexure possible with lowest indentation.

2. GREATER DIMENSIONAL STABILITY! By use of H.M.W. resins, dimensions are not distorted under normal shipping and storage conditions.

3. GOES DOWN FAST! Tile-Tex H.M.W. Tile conforms to sub-floor more quickly. Lowers installation costs.

4. BETTER LAY UP! H.M.W. resins are tough and cut cleaner. Tile lay up easier and tighter, making a more attractive floor.

5. HIGHER RESISTANCE TO ABRASION! Proved by tests made on a Taber Abrader.

6. GREATER STRENGTH THROUGHOUT TILE! Provided by the higher molecular weight resins. Result: less chance of breakage and broken corners.

7. INCREASED ALKALI RESISTANCE! Particularly important for on-or-below grade installation over concrete.

8. SCRIBES EASIER! H.M.W. Tile saves time in cutting border tile.

9. ECONOMICAL! H.M.W. costs no more than ordinary asphalt tile.


In the 11 Western states: Pioneer Division, The Flintkote Company, P.O. Box 2128, Terminal Annex, Los Angeles, California.

In Canada: The Flintkote Company of Canada, Ltd., 30th Street, Long Branch, Toronto.

TILE-TEX...Floors of Lasting Beauty
Manufacturers of Flexachrome*...Tile-Tex*...Vitachrome*...Holiday*...Mura-Tex*...Korkolor®
...Holiday Flexachrome*...and Modnar*, the plank-shaped asphalt tile.

Teachers and students, supervisors and administrators agree...

The SINGER Combination Table has something for everyone!

Teachers like the SINGER Combination Tables because they provide a complete sewing unit in one classroom item. They eliminate moving from machines to separate cutting tables... avoid bottlenecks... maintain order.

Students like the deep openings that accommodate their standard tote trays, and the 2 smooth-sliding drawers for handy storage. They appreciate the ample space to the left of the needle for full sweep of the garment being made.

Supervisors and Principals like the way the SINGER Combination Tables adapt to a variety of classroom arrangements—wall alignments, island formations, U-formations. And they like the modern, straight-line styling of the table, available in beautiful blond or dark wood to brighten up any classroom.

Administrators like the economy features of the SINGER Combination Tables, particularly the way they adapt to conventional study classes.

The SINGER Combination Table is available at the special school discount, with any SINGER heads you prefer—Straight-Needle, Slant-Needle® or the new Swing-Needle® Automatic.

For a free folder, giving specifications and suggested classroom layouts, just mail this coupon.

SINGER SEWING MACHINE CO.
Educational Dept., 149 Broadway, N.Y. 6, N.Y.

Please send folder giving details about Combination Sewing and Cutting Table, and showing suggested classroom layouts.

Name
Address
City
State

*Trademark of SINGER MANUFACTURING COMPANY.
DALLAS TO BE HOST TO MULTITUDES

- Culminating many years of planning, Dallas, Texas, can soon provide convention facilities which will have few rivals. They will also accommodate local events of many kinds. Its new, spectacular Memorial Auditorium will be in two major sections. The largest unit will be the circular, domed arena which will seat 7600 persons in permanent seats, plus 2400 in portable seats on the arena floor, all of them facing a removable stage. Acoustical control is effected by a suspended ceiling which also supports the heating, cooling and lighting systems. There are no columns to obstruct the view. A connecting unit contains a theatre seating 2000, a large foyer and ten meeting rooms which can seat from 40 to 300 persons. Below the major units is over 90,000 square feet of exhibition space. The specifying of Sloan Flush Valves for these buildings, where multitudes will gather, is assurance of efficiency, durability and economy.

SLOAN Flush VALVES
FAMOUS FOR EFFICIENCY, DURABILITY, ECONOMY

Another achievement in efficiency, endurance and economy is the Sloan Act-O-Matic shower head, which is automatically self-cleaning each time it is used! No clogging. No dripping. Architects specify, and Wholesalers and Master Plumbers recommend the Act-O-Matic—the better shower head for better bathing.

Write for completely descriptive folder.
Integration crisis also complicates financing for new Southern schools

Minutes before bids were scheduled to be opened on Sept. 11 for a Davidson County, Tenn., school construction bond issue for $3 million, to pay a maximum of 3% interest, it was withdrawn from the market. A $400,000 issue of road and hospital bonds offered the same day by the same county drew six bids, and was sold to yield 2.9%. (This, however, was a higher quality bond, backed by the pledge of additional revenues of Nashville, instead of only county revenues.)

Officially, “tight money” was the reason the 25-year school issue was withdrawn, said county finance officer Judge Beverly Briley, and it will be offered again soon without its 3% maximum yield proviso. (Meanwhile county short term notes will be used to finance continued construction of several schools already under contract that these would have financed.)

Market observers, however, reported that no bids for the issue were in sight, anyway, and it really was withdrawn because of growing difficulty in the sale of many Southern school bond issues as a result of the troubled integration problem. Eastern and Northern bond houses, said observers, have become concerned about the possibility of future bond-pay­ment taxpayers’ strikes as an anti-segrega­tion weapon in some school districts.

A further complication: as soon as Tennessee’s legislature convenes again next year, pro-segregation members are expected to press bills to authorize aban­donment of public schools to thwart integration. This would cloud still more the market for any new Tennessee school bond issue. Similar bills are under con­sideration in other states.

Variations on such complications in pub­lic school financing were anticipated in a number of Southern states as the start of the new school year focused attention on the integration problem throughout the South. In Virginia, in fact, there also were rumblings of a tax revolt as pro­ and anti-integration forces drew their lines.

There, however, it took a reverse twist. Segregationist Governor Stanley was urg­ing enactment of state laws to withhold state education funds from communities that integrate their schools, either voluntar­ily or under federal court order. In retaliation, integration advocates hinted that they were considering a taxpayers strike—not over school taxes, but with­holding their state income taxes if the legislature adopted any measures contrary to the principle of US Supreme Court integration rulings.

WASHINGTON REPORT

FHA ‘220’ regulations still delayed; building becomes campaign issue

Long after FHA had issued revised regu­lations for all its other programs under the new Housing Act amendments, it still laggcd in producing those for Sec. 220 urban renewal rental housing projects. As FORUM went to press, no agency officer would give any official statement on when they might be forthcoming, or any explana­tion for their delay.

Around the agency there were scowls over reports in the press that the regula­tions might deny apartment builders the 10% profit and risk allowance included in the new amendments, instead authorize­only a sliding scale of allowances of lesser percentages (AP, Sept. ’56, News). By latest accounts, the “sliding scale” plan had been scrapped. If the agency exercises its authority to set some lesser rate on Commissioner Norman Mason’s certification that 10% would be “unrea­sonable,” the reduced rate will apply uni­versally to all new Sec. 220 projects. Now the great stumbling block to issuance of the regulations is reported to be what “overhead” allowances to give builders.

With Presidential Candidate Adlai Stev­enson preparing to issue a series of com­prehensive “reports,” including one on the problems of “rebuilding of cities,” observ­ers speculated whether he would discuss the Title I program and the longstanding difficulties over Sec. 220 mortgages.

Hall denies contract charge. As the election campaign got into stride the Democrats took the offensive and produced the most initial headlines. On a serious note, Con­gressman Jack Brooks (Dem., Tex.), chair­man of a House government activities subcommittee, released a report asserting that Republican Chairman Leonard Hall had given political “clearance” for a $43 million government contract as part of the $100 million expansion of the GSA oper­ated Nicaro nickel plant in Cuba. This was recorded, said Brooks, in a memoran­dum of Randall Cremer, former executive vice president of the Frederick Snare Com­pany, impounded by the subcommittee. In thi.: memo it was stated that James P. Pinkley, a GSA official, had told Cremer that Hall’s "clearance" was essential. It also described a purported meeting of

Cremer and Hall at which the GOP chair­man “asked for information re support of the party.” Eventually Snare was awarded the contract in a joint operation with Merrill, Chapman & Scott. Hall promptly denied the assertions of the Brooks report, saying: “I can’t help what anyone writes in his personal diary. I have never cleared any contract, big or small, for work with the government. Any suggestion that I did is pure bunk.”

On a lighter note, Democratic Candidate Estes Kefauver borrowed (and garbled) modern housing design for idiomatic pur­poses in one of his major addresses. While the White House had not been open to everyone equally under the present administration, Kefauver said: “The Republicans have run it as if it were a split-level rambler. During the election season, they let the voters in on the lower level … and on the upper level, the pre­ferred citizens, the men of wealth and the great corporate managers confer and de­cide in isolated splendor.”

Capital rezoning row looms; Ike vetoes “spot” exemptions

As a last resort, zoning exemptions in Washington, D.C., can be obtained by Act of Congress. President Eisenhower, how­ever, has opposed legislated “spot zoning.” In 1953 he vetoed a bill that would have allowed the modernization of two noncon­forming gasoline stations in District resi­dential areas. On July 31 he vetoed a similar measure that Congress had adopted a second time over the repeated objections of the District’s Commissioners. The President said the District has about 5,000 nonconforming properties, and it would be unfair to legislate benefits for individual parcels; such legislation would set a precedent for exemption appeals for every nonconforming property.

Meanwhile the District was heading into a lively controversy over plans for a gen­eral overhaul of its 35-year-old zoning ordinance. “Tentative” revisions and maps drafted by Planning Consultant Harold M. Lewis, of New York, have been pro­voking objections from many property owners, the Washington Building Congress and other business groups. These prelimi­nary recommendations would establish off­street parking requirements downtown and lighted street height, lot and building size regulations in both downtown and outlying commercial areas. Builder Morris Cafritz has claimed they will drive many prospec­tive tax-paying downtown improvements into Maryland and Virginia suburbs and specifically block a $15 million hotel and three office buildings. In May he spent $1 million in a junior Rockefeller Center type development he has been planning in the Temple Heights area. After reviewing public reaction to the “tentative” plans, Lewis will submit his final recommended ordinance revisions and maps to District officials Nov. 9. Last month he continued on p. 12
Classrooms designed for changing times

Fluctuating student census, new teaching methods, different curricula ... all call for changes in classroom requirements. Movable HAUSERMAN Interior Walls offer an extremely efficient means of equipping the modern classroom for all the various activities for which it may be used.

When student population increases, for example, a large classroom can easily be subdivided. HAUSERMAN crews erect a few feet of partition or an entire interior quickly and quietly without the time and mess usually connected with remodeling. Accessories, including chalkboards, tackboards, closets, book shelves and magnetic thumb tacks, enhance the value of HAUSERMAN Walls as vertical teaching surfaces.

Economy of maintenance also can be added to the list of HAUSERMAN advantages. The baked-enamel finish never needs repainting, just periodic washing with mild soap and water.

HAUSERMAN MOVABLE INTERIORS

A FREE BROCHURE entitled "Flexibility in the Co-ordinated Classroom" deals with classroom interior flexibility and its impact on both the psychological and physical environment of the student and the requirements of the community. It also reviews applications of Movable HAUSERMAN Classroom Walls to the problem of long-term school interior flexibility. If you write today, you will receive your free copy shortly.

THE E. F. HAUSERMAN COMPANY
7112 Grant Avenue, Cleveland, Ohio
Hauserman of Canada, Ltd., Toronto

Please send your free brochure to:
Name
Title
Street
City
State
For the world’s first circular office building...

BRIDGEPORT
Aluminum Extrusions:

Capitol Records' dramatic, new circular office building is another example of how Bridgeport aluminum extrusions make possible flexible, simple design... and speed fabrication and construction.

Symbolizing Capitol's product, the unique 12-story design achieved economies in construction, operation and maintenance by centralizing stairs, elevators, wash rooms and ducts in a central core. Bridgeport supplied aluminum extrusions for the architectural fabrications of this building.

These sections are typical of Bridgeport's wide variety of architectural extrusions for store fronts, curtain walls and interior partitions. A large selection of standard architectural shapes is available without die charge. Wherever your design requires extrusions, Bridgeport is ready to produce them.

Call on Bridgeport's light-metals specialists for technical assistance on your next project. Your nearest Bridgeport sales office can give you prompt service and expert advice on your extrusion needs.

Close-up showing building entrance for which Bridgeport furnished aluminum shapes.

Capitol Records Office Building, Hollywood, California
Architect — Welton Becket, F.A.I.A. & Associates, Los Angeles
General Contractor — C. L. Pech, Los Angeles
Glass and Glazing Installation — W. P. Fuller & Company, Los Angeles
Architectural Aluminum — Bebeo, Inc., Los Angeles, Dallas and West New York, N. J.
National Capital Planning Commission also had registered its opposition to the stringency of some of the Lewis proposals, it was reported that his reviewed-and-revised recommendations were being considerably “watered down.” If not, real fireworks are expected next winter, when these specific proposals come up for public hearings and formal adoption.

Peelle Co. settles tax suit, will pay US $900,000
After a three months' trial in New York federal court, the Peelle Co., of Brooklyn, N.Y., and Richmond, Ind., manufacturer of moving stairs and fireproof doors, agreed to make a payment of $900,000 (against a government claim for $953,000) for unpaid US corporation taxes, interest and penalties for 1945 through 1949. Tax officers charged that the company defrauded the government through secret bank accounts, fictitious expenses and inventory devaluation.

Inquiry into the Peelle firm's tax deficiencies followed indictment of two of its former top officers for personal tax evasions in Feb. 1954: Secretary-Treasurer John W. Peelle, 68, who was fined $7,500 and given a 30-day penitentiary sentence after pleading guilty to cheating the government of $24,498 over a three-year period, and retired President Henry E. Peelle, who was declared “mentally incompetent,” entered an institution, after being charged with evading personal taxes totaling $494,685 during a similar period. Neither man has been active in company affairs since 1950.

Urban Renewal

LA sets renewal examples; favors 'clearance' for large downtown area

 Usually regarded as the nation's youngest and growingest major city, Los Angeles also has been setting examples for many older cities as a leader in bold and comprehensive urban redevelopment and modernization.

In June, for instance, its voters by almost a 5-to-1 majority approved a $39.7 million bond issue for a vast airport improvement program. Following on preliminary plans by the architectural and engineering firms of Pereira & Luckman, Welton Becket & Assoc., and Paul R. Williams, the city will spend about $49.6 million for a huge new passenger terminal complex on a 228-acre expansion of International Airport, about $10 million for improvements for its San Fernando Valley Airport, and more than $50,000,000 for a network of heliports.

Rehabilitation vs. clearance. Last month, after considerable debate, the City Council faced up to making a major policy decision in a situation that poses a dilemma for many older cities: rehabilitation of declining and blighted areas, or their clean-sweep clearance and replacement with comprehensive, large-scale modern projects?

In this instance the council finally voted, 11-to-2, to give the green light to clearance and reconstruction, advocated by the city's planning department and Community Redevelopment Agency, rather than rehabilitation, advocated by former NAHB President Fritz Burns and property interests who have opposed public housing and federal subsidies for local redevelopment programs.

The project at issue involved the rectangular 136-acre Bunker Hill area, flanked by the city's growing Civic Center on one side, the central business district on two sides, and a freeway on the other. "Tentative" plans for the redevelopment agency prepared by Pereira & Luckman and Becket offices and the Donald R. Warren Co. (see cut) contemplate reincarnation of this semi-slum, mostly-residential area as a $150 million business, hotel-apartment and cultural trade and convention center.

Under federal Title I provisions, the city would contribute about $9 million and the US $18 million to cover the writedown loss on resale of the site to private redevelopment companies. On completion, the redevelopment agency estimates, the project would yield the city about $3.7 million in taxes every year, compared with present revenue of about $332,000.

At a number of hearings, the last one extending over three days, owners of some parcels in the area objected to the clearance proposals, insisted rehabilitation could save the area and eliminate the need for mass condemnation. When the council formally voted to approve the "tentative plan" on Sept. 6, it also ordered the building department to survey 300 structures in the area and report on the feasibility of a rehabilitation program. This looked mostly like a mere gesture, however. The principal effect of its main action was to authorize the redevelopment agency to contract for final plans and proceed with City-US Title I grant negotiations for the redevelopment—hardly a sensible or prudent action if it seriously entertained any idea that it still might order rehabilitation instead of redevelopment.

County music center. After many unsuccessful efforts to persuade the city or Los Angeles County to build a large convention auditorium and music center, a number of civic organizations were making much more progress this year with a plan for private, non-profit construction of such a $50 million project with only nominal county government support.

In June, the Arthur D. Little Co. of Cambridge, Mass. (hired because it was far enough removed to assure impartiality), completed a location and general plan study for such a center under a $185,000 contract with the County Supervisors. For this study the Little office had Boston Architects Shepley, Bulfinch, Richardson & Abbott draw schematic building plans, but when the project materializes local architects will probably be chosen to design each structure, possibly through competitions.

The County Supervisors approved the proposals in the Little report, and also contracted for this firm to make some supple-
mentary cost, parking and technical studies, and likewise agreed to pay for an appraisal of the large, 8-block recommended site estimated to cost $15 million.

Charles S. Jones, president of Richfield Oil, is president of the private citizens' non-profit corporation that has been formed to acquire the property and build the project, which would then be leased to the county. Mrs. Norman Chandler, wife of the publisher of the Los Angeles Times is chairman of the board.

Los Angeles to vote Nov. 6 on height-limit repealer

By a 12-to-2 decision, the Los Angeles City Council last month had decided to put to public vote on Nov. 6 a proposed city charter amendment that would repeal the city's 150' (13-story) building height restriction and allow unlimited heights so long as total floor area does not exceed 13 times site area. The current requirement for one parking space for every 1,000 sq. ft. of floor area for commercial buildings would remain in force, but any parking area within a building, even above the ground floor, would not be counted in computing floor area-site ratios.

Officials of the City Planning Commis-

sion, who approved the referendum subject to the floor area-site ratio provision, expect many 20- to 30-story buildings may be erected if the amendment is adopted, but fewer than that, because of uneconomic construction and operating costs. (Earthquake safety was a factor in the 20's when the 150' limit was adopted — although just a few years later the city itself erected its 27-story City Hall. At hearings on the proposed change, architects and engineers pointed out that modern design and construction can now produce earthquake resistant buildings of virtually any height.)

The Los Angeles County Planning Board has approved a proposed ordinance along the same lines for county areas not a part of the city, but county supervisors will probably wait for the outcome of the city referendum before approving it.

Early this year, however, the council of Beverly Hills, entirely surrounded by Los Angeles, rejected a report recommending approval for ten-story instead of maximum four-story construction in that community's business district. Although buildings would still have been limited to a four-to-one floor area site ratio, the Beverly Hills council felt the construction of higher buildings would increase "the intolerable traffic situation."

CINCINNATI POST

Cincinnati studies plans for 8-block civic center

A new eight-block civic center for Cincinnati on a vast elevated, landscaped mall has been proposed in the City Council by City Charter (majority) members. It would stand two and three stories above street level and provide streets and parking space for 8,000 autos underground.

Four of the eight blocks are in a large slum clearance district just west of the downtown area. After a $450,000 federal planning grant for the slum area is obtained, it is proposed to coordinate the new civic center into the total plan, and thus make it, too, eligible for federal Title I funds to help defray land costs.

In the preliminary plan above, prepared by Architects John A. Burdick and Otto Bauer-Nilsen, the center foreground building would be a new City Hall, and above it to the left a State Office Building. The large central tower would be a Federal Building, and the flat circular structure behind that a convention hall. Beyond that are two proposed private office buildings that would overlook the Ohio River.

Highway phase of Gruen plan adopted by Ft. Worth council

The plan for diverting traffic in downtown Ft. Worth, prepared by Architect Victor Gruen (AF, May 56) won official City Council approval on Sept. 20, only six months after its original public presentation. Council members unanimously approved a resolution making the traffic recommendations of the plan a part of the city's official highway system program, thus saving the way to have its downtown loop freeway adopted as part of the state's highway system, too.

If approved by state highway officials, the expressway portion of the redevelopment plan would be virtually assured of success, because the state would then provide almost $22 million for its construction, and the city would only need to meet the estimated expense of about $19.3 million for right-of-way costs. Action on the proposal was expedited by the city.
Cleanliness...
The vital yardstick for the modern hospital.
That's why for hospitals, especially, Moulflex vinyl-plastic tile flooring has so many unique advantages.
For Moulflex has an unusually dense, non-porous surface that sheds dirt, grease, acid and alkali miraculously... cleans easily with only damp mopping.
Cost? In standard gauge, Moulflex costs little more than grease-proof asphalt tile. Installation, of course, is fast, because precision-cut Moulflex is so easy to handle.
All these specific qualities... plus the fact that Moulflex can be used on, above or below grade... make it ideal for virtually all types of installations.
We would be happy to send you specification data.

MOULTILE INCORPORATED • Joliet, Ill. • Long Beach, Calif. • Newburgh, N. Y.
CONTINUOUS HORIZONTAL BRIDGING
Proved Most Efficient for Joist Stability!

The Steel Joist Institute, a non-profit association of open web joist manufacturers, maintains a continuous program of research and planning to improve the products and production methods of its members.

One such research project sought to determine the most efficient type of bridging to provide the greatest joist stability. The Washington University civil engineering research laboratory in St. Louis was engaged by the Steel Joist Institute to conduct the necessary testing and investigation.

This extensive study and analysis subsequently revealed that continuous horizontal bridging was the most effective.

This is just one of many practical contributions to the design and construction fraternity resulting from Steel Joist Institute research.

The high standards maintained by the Steel Joist Institute for the products of its member companies are your assurance that when you specify SJI-fabricated and SJI-approved joists, you're specifying the best.

Send coupon today for Technical Bulletin IBR describing the Steel Joist Institute's research program on bridging.

See Our Insert In Sweet's.
A.I.A. File 13-G
Vacuum cleaning with conventional attachments helps to keep Armstrong acoustical materials clean and new looking. A cloth slightly moistened with soapy water, or wallpaper cleaner, can also be used to remove most smudges.

Spray painting, using thin coats of oil-base paint, will not reduce the efficiency of Armstrong materials. Care must be taken to coat all bevels, perforations, and fissures. Materials can also be brush-painted, using a regular 4" brush.

MAINTENANCE . . . Do acoustical materials create cleaning or painting problems?

Today's acoustical materials generally require no more frequent or costly maintenance than ordinary painted ceilings. All Armstrong acoustical materials, for example, have smooth, pre-painted surfaces that can be cleaned or repainted as often as necessary without losing their noise-absorbing properties. Once installed, they become a permanent part of the building, need only occasional care.

When upkeep does become necessary, however, proper methods must be followed. Loose dirt should first be removed from the ceiling by vacuuming, with the nozzle drawn across the material in only one direction to prevent rubbing dust into the surface.

Smudges or clinging dirt can be removed by a slightly moist cloth, dampened in water and soapsuds. To keep moisture out of the backup pads in metal-pan materials such as Armstrong Arrestone, water and soapsuds should be applied with a sponge. Wallpaper cleaner or artgum is also ideal for wiping smudges from materials like Armstrong Cushiontone and Travertone.

All Armstrong sound-conditioning materials can be repainted by either brush or spray gun. Care must be taken, however, not to bridge or close up the noise-trapping perforations or fissures. Thin coats of a good grade flat oil paint are recommended.

For full maintenance data and other information on all acoustical materials in the Armstrong line, call in your Armstrong Acoustical Contractor. He can give you expert help in selecting the right acoustical material for any sound-conditioning job.

council so Ft. Worth leaders going to a conference with state highway officials in Austin the next day could initiate their dealings with the state department that much sooner. State study and review might take considerable time, but if state acceptance and funds are won, Ft. Worth civic leaders backing the plan anticipate clear sailing all along the line for further aspects of the redevelopment plan.

DESIGN

Wright sketches 510-story office tower, round, blue-roof Greek Orthodox church

Only a youthful, figuratively athletic architect could match the increasingly imaginative pace being set this year by Frank Lloyd Wright.

Eighty-seven years old last June 8, and his vigor, travels and unusual projects all multiplying with his years, the Master of Taliesin casually announced a month ago a plan for his most staggering building ever: a skyscraper rising a mile high beside Lake Michigan. Nor was he spoofing, he insisted. He has sketched rough plans for such a 510-story, 5,280' structure for a prospective client, and is convinced such a "perfectly scientific, perfectly feasible" building could be erected — anyone really decided to back it with the necessary financial wherewithal.

In a few weeks he would describe the proposed "cloudscraper" more fully, said Wright. A likely occasion: a dinner in Chicago on Oct. 17 to celebrate his 66th year as an architect and to launch the Frank Lloyd Wright Endowment Fund. Headed by Cary Caraway, a former Taliesin student now associate architect of the University of Illinois, this fund is endeavoring to raise $4 million to carry on Wright's work on the Taliesin school founded and operated by Wright since 1900.

Tower apartments. More plausible, and more likely to materialize much sooner was another proposed FLLW Chicago tower announced in August. This would be a 50-story luxury apartment with glass and aluminum walls on floors cantilevered out from a reinforced concrete core. It would be 625' high, or 20' taller than the Board of Trade, now the city's highest structure. A wealthy investment house executive admitted that there had been discussions on erecting such a building on a site owned by his family, but said nothing tangible has come of them so far.

Wright's circular Guggenheim Museum in New York, and his semi-hexagonal, pyramidal-dome Beth Sholom synagogue in Philadelphia were both going forward this summer (AF, June '56), and last month two more of his unusual buildings seemed likely to move ahead before long.

In Milwaukee, the Greek Orthodox Church commissioned him to prepare final drawings for a circular church with concave auditorium floor and convex roof covered with blue tile (see cut). Main floor aisles would form a Greek cross, and above would be a circular balcony. Last month officials of the church were considering whether to increase the diameter 4' or 5', which would boost seating from 600 to 800. Construction is scheduled to start next spring, after the church obtains a new site to replace the original one in the path of a proposed expressway. Estimated cost: $500,000.

In Madison, Wis., a reduced version of Wright's lakefront civic center (AF, Apr. '55) seemed almost certain to be under construction in 12 to 15 months. City Council has approved a contract with Wright to build a $4.5 million structure including auditorium, exhibition hall, community center, little theater and art gallery, plus boating facilities and parking area. A $4 million bond issue for the main structure already has been voted, and additional funds will be included in another bond issue.

Philadelphia ready to drop masonry back-up requirements

Approved by the city's building officials and awaiting only formal adoption by the city council last month was an amendment to Philadelphia's building code that would eliminate requirements for expensive masonry back-up behind exterior curtain walls. The impending regulations would automatically allow buildings designed with nonload bearing spandrel or panel walls without obtaining a variance.

Four-hour fire resistance will still be required for all load-bearing walls. But nonbearing spandrel or panel walls of noncombustible material will be allowed, with openings as large as 70%, without any prescribed fire-resistance rating, for walls facing a street or open space at least 50' wide, or at least 30' from a party line; facing a street at least 40' wide, or 20' to 30' from a party line they must be at least one-hour fire resistant. When at least 10' but under 20' from a party line, openings cannot exceed 40% and fire resistance must be at least two hours; when more than 3' but less than 10' from a party line, openings must not exceed 20%. At 3' or less from a party line, no openings are allowed and fire resistance must be increased to three hours.

Brunswick awarded $180,000 for furniture design piracy

Designers and manufacturers pondered last month the significance of a federal court decision that confirmed the validity of design patents on contemporary school furniture of the Brunswick-Balke-Collender Co., of Chicago, enjoined the Kuehne Manufacturing Co., of Mattoon, Ill., from producing any more similar furniture, and awarded Brunswick $180,075 damages from Kuehne for appropriating and infringing on Brunswick's designs and patents.

The designs at issue were those for the new classroom and institutional furniture Brunswick introduced in 1953. The patents on it were filed jointly in the names of Industrial Designers Dave Chapman, whose firm is design consultant to Brunswick, and Richard G. Reineman, production staff designer at Brunswick's Muskegon, Mich., plant, where the furniture was first produced. Chapman, former ASID president, received the 1953 Design Award Medal of the Industrial Designers and Manufacturers pondered the significance of a federal court decision that confirmed the validity of design patents on contemporary school furniture of the Brunswick-Balke-Collender Co., of Chicago, enjoined the Kuehne Manufacturing Co., of Mattoon, Ill., from producing any more similar furniture, and awarded Brunswick $180,075 damages from Kuehne for appropriating and infringing on Brunswick's designs and patents.

Brunswick awarded $180,000 for furniture design piracy

Designers and manufacturers pondered last month the significance of a federal court decision that confirmed the validity of design patents on contemporary school furniture of the Brunswick-Balke-Collender Co., of Chicago, enjoined the Kuehne Manufacturing Co., of Mattoon, Ill., from producing any more similar furniture, and awarded Brunswick $180,075 damages from Kuehne for appropriating and infringing on Brunswick's designs and patents.

The designs at issue were those for the new classroom and institutional furniture Brunswick introduced in 1953. The patents on it were filed jointly in the names of Industrial Designers Dave Chapman, whose firm is design consultant to Brunswick, and Richard G. Reineman, production staff designer at Brunswick's Muskegon, Mich., plant, where the furniture was first produced. Chapman, former ASID president, received the 1953 Design Award Medal of the Industrial Designers and Manufacturers' Institute for his part in developing this "first contemporary line of school furniture meeting today's advances in school training techniques and contemporary school architecture."

Judge John E. Barnes in US District

continued on p. 21
why invite FIRE?

KEYMESH lath for overall reinforcement. Made of galvanized woven wire. Especially recommended for ceiling construction.

KEYCORNER strip lath, preformed to fit snugly in corners. Lies flat when applied to joints. Galvanized to prevent rust streaks.

KEYBEAD corner lath with precision formed bead for outside corners. Open mesh assures strong, solid plaster corners.
you multiply fire resistance for pennies per square foot with KEYMESH

Some types of walls and ceilings invite fire.
When you use lath and plaster, plus KEYMESH, you cut fire hazard immeasurably. Just compare the difference.

With frame construction, a ceiling with exposed joists is gone in 15 minutes. Finished with gypsum lath, lightweight aggregate plaster and Keymesh, it stands up an hour and 38\% minutes.

With open web steel joists, the ceiling fails in 7 minutes when joists are exposed. Add gypsum lath and 1\% of lightweight aggregate plaster over KEYMESH and the ultimate fire resistance is 4 hrs. and 26 min.

With most types of light construction you'll find that lath and plaster with KEYMESH reinforcement can make the difference between "heavy loss" and "light damage" to buildings. You can do this at negligible cost...for pennies per square foot of finished surfaces.

Firesafety is not the only advantage of using KEYMESH reinforcing lath. Beauty, durability, and economy must be part of everything you design. With Keymesh you get all these plus other important advantages for your clients such as lower insurance rates and complete adaptability for any type of decoration.

Before you specify or build again, weigh these facts.

Fire Test Results on various types of construction by authoritative Testing Laboratories

<table>
<thead>
<tr>
<th>CEILING CONSTRUCTION</th>
<th>ULTIMATE FIRE RESISTANCE</th>
<th>ULTIMATE FIRE RESISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOOD JOIST FLOORS</td>
<td>PROTECTION OF JOISTS</td>
<td>STEEL JOIST FLOORS</td>
</tr>
<tr>
<td>Exposed joists.</td>
<td>15 min. None</td>
<td>Steel unprotected.</td>
</tr>
<tr>
<td>Gypsum wallboard 1% thick finished with casein paint.</td>
<td>25 min. 15 min.</td>
<td>Ceiling unprotected.</td>
</tr>
<tr>
<td>Metal lath, 5% -in. sanded gypsum plaster 1:2 for scratch and 1:3 for brown cost.</td>
<td>46 min. 12 min.</td>
<td>Ceiling of gypsum lath and 1% lightweight aggregate gypsum plaster.</td>
</tr>
<tr>
<td>Gypsum lath, 1% -in. of gypsum lightweight aggregate plaster reinforced with KEYMESH-type reinforcing lath.</td>
<td>1 hr. 38% min. 36 min.</td>
<td>1 hr. 43 min. 3 hrs. 28 min.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WALL CONSTRUCTION ON WOOD FRAMING</th>
<th>Ultimate Fire Resistance</th>
<th>ULTIMATE FIRE RESISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% fiberboard.</td>
<td>5 min.</td>
<td>7 min.</td>
</tr>
<tr>
<td>Metal lath with 3%-in. sanded gypsum plaster.</td>
<td>15 min. 20 min.</td>
<td>55 min. 1 hr. 43 min.</td>
</tr>
<tr>
<td>Tongue-and-grooved wood.</td>
<td>20 min.</td>
<td>3 hrs. 28 min.</td>
</tr>
<tr>
<td>3%-in. perforated gypsum lath with 3%-in. sanded gypsum plaster.</td>
<td>30 min. 36 min.</td>
<td>4 hrs. 26 min.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CEILING CONSTRUCTION STEEL JOIST FLOORS</th>
<th>ULTIMATE FIRE RESISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling unprotected.</td>
<td></td>
</tr>
<tr>
<td>Ceiling of gypsum lath and 1% lightweight aggregate gypsum plaster.</td>
<td></td>
</tr>
<tr>
<td>1% gypsum lath covered with 1% of gypsum plaster with lightweight aggregate.</td>
<td></td>
</tr>
<tr>
<td>Gypsum lath and 1% -in. gypsum plaster with lightweight aggregate reinforced with KEYMESH-type galvanized reinforcing lath.</td>
<td></td>
</tr>
<tr>
<td>3% gypsum lath, reinforced with 20-gauge, 1% KEYMESH-type lath; then covered with only 1% of lightweight aggregate gypsum plaster.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STEEL COLUMNS</th>
<th>ULTIMATE FIRE RESISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Steel, unprotected 10 sq. in. min. area of steel.</td>
<td>15 min. 1 hr. 2 hrs. 4 hrs.</td>
</tr>
<tr>
<td>Gypsum lath, one layer, 3% perforated, 1% -in. gypsum plaster mixed with lightweight aggregate.</td>
<td></td>
</tr>
<tr>
<td>One layer 3% perforated gypsum lath, 1-in. thickness of gypsum plaster, 100 scratch, 100 brown, mixed with lightweight aggregate.</td>
<td></td>
</tr>
<tr>
<td>Two layers 1% -in. long-length gypsum lath, 1% -in. gypsum plaster mixed with lightweight aggregate. Lath wrapped with one layer 20-gage galvanized 1% KEYMESH-type reinforcing lath.</td>
<td></td>
</tr>
</tbody>
</table>

KEYSTONE STEEL & WIRE COMPANY
Peoria 7, Illinois
KEYMESH • KEYCORNER • KEYBEAD • KEYWELD
KEYSTONE NAILS • KEYSTONE TIE WIRE
KEYSTONE NON-CLIMBABLE AND ORNAMENTAL FENCE

Keymesh is a registered Trademark of the Keystone Steel & Wire Company
WHERE FIRST IMPRESSIONS ARE IMPORTANT—Walnut Hardwood
Plywood Paneling—General Mills Reception Room, Minneapolis.

Pure function - singular beauty - design versatility are the
hallmarks of HPI HARDWOOD PLYWOOD

As an accent wall or attractively paneled room ... in
flush doors or as a completely design-flexible material
in the construction of room separators or built-ins ... 
Hardwood Plywood is decorative, practical, economical!

The exceptional strength and dimensional stability
of Hardwood Plywood assures dependable construc-
tion, lasting beauty. Because of its cross layers, Hard-
wood Plywood is highly resistant to impact—will not
split—can be cut, bent, applied and finished—easily,
quickly. Time and labor savings are considerable,
and your clients will appreciate the money saved
by ending yearly upkeep and maintenance.

Choose from Birch, Cherry, Gum, Mahogany,
Maple, Oak, Walnut and other Hardwood Plywoods
to achieve distinctive grain effects and tones—even
without the use of stains. Stock panels are available
in every area, and special sequence-matched panels
may be had from most mills on special order.

Write for your handy pocket-size, architect's and draftsman's template, full color
Hardwood Plywood wall hanger, copy of new Commercial Grades Standards and
illustrated Hardwood Plywood booklet.

Your Guarantee of Highest Standards
The HPI trade mark on Hardwood Plywood identifies
American mills operating under a rigid 3-point quality
control program—your assurance of consistent quality,
uniform grading.

HARDWOOD PLYWOOD INSTITUTE, Dept. 13-J
600 S. Michigan Ave., Chicago 5, Illinois

Please send time-saving TEMPLATE, line-punched for 2', 3'
and 4' widths; 4', 6' and 8' lengths—in scales of 1/4" and
1/2"—together with copy of A TREASURY OF HARDWOOD
PLYWOOD, large wall hanger showing 28 species and figure
types of Hardwood Plywood and latest COMMERCIAL
STANDARDS CS-35 ... all for 50¢ enclosed.

NAME
ADDRESS
CITY
ZONE
STATE
Cooperative group in California shows how small offices can obtain big jobs

In fertile southern California last month a cooperative of small architectural offices, organized to handle the larger and richer projects none of them could hope to land individually, was busy on its first job.

The job would be a $500,000 to $750,000 remodeling and expansion of the San Pedro Community Hospital. Its company of talented designers, Project Architects, was composed of Maynard Lyndon, who serves as chairman, Dean Arthur B. Gallion of the USC school of architecture, A. Quincy Jones and Frederick Emmons, Douglas Honnold, John Rex and Raphael Soriano, who maintains an office in Los Angeles as well as in San Francisco. Structural Engineer Dick Bradshaw is also an associate.

Seeds for Project Architects were sown about two years ago in informal conversations among members, and the group was formally organized about a year ago. The factors that brought about the union were simple, Dean Gallion explains: "Small firms want to get big work, but when an attractive big job appears on the horizon they all go after it together. Some of those they sought before landing the San Pedro Hospital included the Los Angeles airport expansion program and the San Fernando Valley Presbyterian Hospital.

One of Project Architects' big selling points is the attention the principals in the firm can give to any job, says Dean Gallion. "This pleases those clients who are always afraid the principals of large firms engaged in numerous projects all the time will delegate their jobs to subordinates," he explains. The San Pedro job, he points out, had three principals of Project Architects at all the meetings with the hospital board, and two principals have been engaged with it steadily since the job started.

And how to account for Dean Gallion's membership in the cooperative, inasmuch as he is not a practicing architect? He was involved from the start because the original discussions took place in his office. He also feels that he is in a good position to sell the idea to clients, and that Project Architects can help the USC school of architecture. Its students will be engaged for some of the work they can handle, he explains, thus giving them "a chance to work with experienced architects."

State Dept. announces five foreign building jobs

Latest foreign building design assignments disclosed by the State Department:

Paul Albert Thiry of Seattle, an embassy in Santiago, Chile.

Anderson, Beckwith and Hable and Campbell & Aldrich, of Boston, a chancery building for Taipei, Formosa.

Keyes & Lethbridge of Washington, an office building for Lima, Peru.

Harwell Hamilton Harris of Austin, Tex., an office building in Helsinki.

The architects Collaborative, of Cambridge, Mass., office building, Athens.

Sherlock, Smith & Adams of Montgomery, Ala., a "reproduction center" in Manila, where the US Information Service will prepare literature and publicity material for distribution throughout southeast Asia.

Fire hits big design office, but hardly interrupts work

A devastating office fire left Architects Harrison & Abramovitz and staff unimpressed, unperturbed and scarcely interrupted last month.

About 8:40 P.M. on Wednesday, Sept. 5, a cleaning woman discovered a blaze of unknown origin in the drafting room of the New York firm's second floor quarters in the International Building in Rockefeller Center. Soon seven pieces of firefighting equipment were on the scene, and firemen, who entered through the windows, fought a 60-minute battle against burning drawings, drafting tables and other architectural office trappings.

Thursday morning the entire staff rolled up its sleeves to salvage whatever could be recovered from the charred remains, before work crews started a rapid dewatering and repair job. By the following Monday morning, everyone was back designing and drawing as usual, although still sharing their quarters with painting and fix-up squads.

Many valuable blueprints, tracings and drawings were completely destroyed. Some charred papers were recovered by a special photo-tracing process; in other cases duplicates were made by recalling blueprints from contractors.
Remarkable New Hides Completely...

NEW multi-vent TROFFERLITE
THE DUAL PURPOSE FIXTURE
WITH 8 OUTSTANDING ADVANTAGES

FOR ARCHITECTS . . .
Insures clean functional ceiling design.

FOR ENGINEERS . . .
Simplifies planning.

FOR CONTRACTORS . . .
Simplifies field installation.

1. Air is gently diffused downward using pressure displacement principle, instead of high velocity air injection. Results: draft-free air conditioning.

2. Fewer fixtures and fewer installations needed, because air diffuser and illumination are in the same fixture. Big savings!

3. Temperatures remain uniform throughout the room. The pressure displacement principle simplifies field balancing.

4. Makes in-progress or after-completion changes easy and economical, with little inconvenience.

5. No dirt smudges on adjacent ceiling materials.

6. Partitions can be moved without interfering with air conditioning efficiency. There is no “throw” or “blow” because air is gently diffused downward.

7. Clean ceiling design . . . only the modern light fixture shows in the ceiling . . . no air diffusers. Highly efficient units provide control illumination for any lighting situation.

8. Concentrate air conditioning where you need it, over “hot” spots (where people or machines are concentrated). Conversely, where minimum air conditioning is needed, fixtures can remain unattached to air duct, or shut off.

IDEALLY SUITED FOR APPLICATIONS IN:

OFFICE BUILDINGS AND STORES
HOSPITALS
SCHOOLS
HOTELS AND RESTAURANTS
LABORATORIES
Air Diffuser
in a light fixture!

Jointly designed and engineered by

BENJAMIN ELECTRIC MFG. CO.
Des Plaines, Illinois

AND

The PYLE-NATIONAL COMPANY
Chicago 51, Illinois

FOR COMPLETE INFORMATION, INCLUDING ALL TECHNICAL DATA, MAIL COUPON NOW FOR FREE BOOKLET!

Dear Sirs: Please send me your free booklet on the Multi-Vent Trofferlite, the light fixture that diffuses conditioned air.

NAME
FIRM NAME
ADDRESS
CITY_ STATE_
ASTOR BUILDING TO FACE SEAGRAM, LEVER HOUSES

Vincent Astor planned to start clearing the site immediately for this "Astor Plaza" glass and metal 46-story tower to occupy almost the entire block across Park Ave. from New York's celebrated Lever House (1) and the new House of Seagram (2). This newest fashionable Park Ave. business building was designed by Carson & Lundin, will have about 1 million sq. ft. of rental office space, and cost about $75 million. It will have a helicopter landing on the roof, and a sub-basement garage for 400 cars. Its blockfront plaza will have a sunken garden, and exhibit glass house in front.

FLINT, MICH., COLLEGE AND CULTURAL CENTER

This $20 million community center designed by Smith, Hinchman and Grylls will occupy a 36-acre site across a stream from Flint College. Among its diverse buildings, all related in site composition, will be a planetarium (dome at left), a 3,000-seat, two-level auditorium with semi-circular stage and all theatrical presentation facilities (right background); also an art center, historical museum, transportation museum, carillon tower and restaurant.

NEW BUILDINGS

TENTLIKE SYNAGOGUE

The "chupe" or canopy, part of the ritual of Judaism, has been incorporated in the shape of this new synagogue designed by Architects Kelly & Gruzen, of New York and Newark. The tent effect is heightened by the use of colonnades jutting like tent poles from the flat roof. Location: Englewood, N.J. Cost: $400,000.

NBC "COLOR CITY" ADMINISTRATION BUILDING

In Burbank, Calif. NBC has started this three-story "Color City" administration building (1) adjoining existing blank-wall color television studios (2). Lift-slab construction is being used by the Austin Co., designers and builders, and prefabrecated walls are of glass and porcelain enameled aluminum. Other structures being erected at a total cost of $6 million include an additional color studio, and a master technical control center for all NBC West Coast telecasts.

DALLAS HOTEL, DEPARTMENT STORE, COMMERCIAL COMPLEX

Four office buildings, a 1,000-guest hotel, medical center, department store, and parking areas for 15,000 cars, are planned for this $125 million Exchange Park integrated commercial development that has been started on a 120-acre tract in Dallas. Braniff International Airways will occupy one ten-story, 181,000 sq. ft. office building. The Exchange Bank & Trust Co., headed by Wm. A. Blakley, owner and builder of the entire complex, will occupy a large portion of a 14-story, 251,000 sq. ft. Exchange Bank Building. Architects, engineers, site planners: Lane, Gamble & Assoc.
announced last month

PRIZE-WINNING DESIGN FOR COLLEGE DORMITORY

Warnecke & Warnecke, San Francisco and Oakland architects, won a special design competition for an 800-student residence hall at the University of California, Berkeley. Their design, above, is divided into four units for 200 students each. Each unit will have its own dining room and public room, but certain services will be common to all—library, kitchen, study rooms, and suites for the head residents. The idea behind the competition was to plan for smaller social groups of 40 to 50 students.

EVEN-TEMPERATURE LAB

To assure a constant temperature for special experiments in this Life Sciences Building to be started in January on the University of California's Riverside campus, Pereira & Luckman gave it extra wide vertical and horizontal sun baffles as an integral part of its design. There will be a two-story unit with bacteriology, biology, botany and zoology classrooms and laboratories, and an adjoining single-story, 300-seat lecture hall for the use of all departments on the campus. The latter will include special exterior foyer space for displaying rare plants being used in experiments.

WINNER IN MEMPHIS ARTS CENTER COMPETITION

Eight Memphis firms entered a competition sponsored by the Memphis Chapter, AIA, to design a Fine Arts Center. The first prize plan, by William Mann and Roy Harrover, Architects, Leigh Williams, Associate, groups an art academy, theater, and concert hall under one roof at an estimated cost of $1 million. The judges noted that the colonnade's gracious sense of shelter is particularly appropriate to the South.

NEW HOSPITAL MAKES MONEY BUT NEEDS ROOM

Grossmont Hospital in San Diego County, Calif., was completed in July, 1955, but already has been outgrown. Pereira & Luckman, designers of the original building, have prepared plans for a three-story, 78-bed extension (foreground) to be started late next year. The present hospital has operated in the black since its opening, and tax money ordinarily used to pay off deficits of district hospitals will be available for the enlargement if voters consent next month.

for news about TRENDS—p. 29
"What a fortune under one ROOF!"

... an interview with the spirit of Rembrandt van Rijn, whose works of art are treasured and protected by the New York Metropolitan Museum of Art

Rembrandt? Well, well! We're honored to have you pay us a visit. What do you think of our New Amsterdam?

So different from my "old" one of 300 years ago! I can hardly believe my eyes at all the amazing things I have seen. Those sky-high buildings! Each one is a masterpiece in its own right!

Rembrandt ... are you planning to look over your masterpieces at the New York Metropolitan Museum of Art?

What a fortune! Hope the roof doesn't leak! I'd hate to think of any damage to my "Old Lady Cutting Her Nails" or the "Portrait of Hendrickje Stoffels."

Don't worry about the museum roof, Rembrandt. It's very safe now. But you would have worried back in the 1930's. The roof did leak then . . .

And how I did worry then! Particularly when I saw attendants placing pails around to catch drippings during rain storms. What in the world was wrong?

In a nutshell, Rembrandt, the old roof was made of a material that just couldn't stand up against the punishment of weather, winds, and corrosive atmospheres. So the museum authorities immediately started a search for a roofing material that would give masterpieces permanent protection. A search that led to just one material, Monel* Roofing Sheet.

You see, Monel nickel-copper alloy has all the qualities a roof requires. Monel sheet is rustproof, strong, tough. It withstands the corrosive atmosphere of industrial and coastal areas. Its low coefficient of expansion and high endurance reduce the chance of fatigue failure. So, thanks to Monel sheet, Rembrandt, you don't have to worry about your masterpieces again.

Well, sir, no wonder the world is a better place to live in today... with metals like Monel Roofing Sheet available.

So figure on Monel Roofing Sheet when you take your base bids. If you would like assistance on specific jobs call on us at any time.

The International Nickel Company, Inc.
67 Wall Street New York 5, N. Y.

Monel Roofing: ... for the life of the building
The Gas is burned “Inside the Water”

SELLERS
BLAST IMMERSION
WATER HEATER

- This is the “work horse” of the Sellers line of large volume water heaters. As much as 4600 gallons of hot water an hour from a single, compact package. Can be factory wired and assembled, or knocked down, for easy installation as conditions require.

Sellers unique immersion firing transfers maximum heat. Firing tubes are copper clad outside to resist water corrosion. Hot gases passing turbulently through the tubes scour and scrub dead gases from inside tube walls. Input heat is uniformly distributed through externally and internally clean tubes—efficiency is high... operating costs are low.

NOW!

So quiet it whispers

The sharply reduced sound level gives whisper quiet operation. It is not necessary to install this water heater in an isolated boiler room. You have freedom in selecting a convenient location.

Behind these heaters is a twenty-five year record of fine performance in schools, hospitals, apartments and institutions. As always... HOT WATER by SELLERS... means the selection of a single, simple unit for important hot water jobs. Write today for full information.

Use this Handy Coupon

SELLERS ENGINEERING COMPANY
4876 N. Clark St., Chicago 40, Ill.

Please send Bulletin No. 5201 and “Facts About Hot Water”

Name______________
Company______________
Address______________
Town___________________
Zone___________________
State___________________
FOR CHAMPIONSHIP POOL LIGHTING

Kirlin System

Built-in Lighting

Extra Wide Angle Lens for Wide Distribution of Light Rays

In this Wyandotte (Michigan) Memorial Pool, Architect Robert Schatho and Engineer Thomas Black decided on a light intensity on the water of 50 f.c. They specified Kirlin #1212 R-W - 300 W fixtures which can be relamped from above the 20' ceiling.

Other Reasons for Specifying Kirlin

- Made in all sizes — square or rectangular — and in Fluorescent.
- UL and IBEW Labels.
- In stock at leading wholesalers.
- Wide-angle or concentrating lens.
- Hinged rust-resisting doors in die-cast frames suitable for outdoor locations.


Kirlin #1212 R-W 300 W fixtures were used in the Allen Park (Michigan) High School pool. The architects, Eberly M. Smith Associates, specified 14 f.c. Intensity uniformly on intensity due to the wide angle lens even though fixtures border edge of pool for relamping from below.

USE THE CHAMPION OF LIGHTS

First you want to get just the right amount of light on the water. But you must examine costs — installed cost — maintenance cost AND the cost of electricity. When the lighting for your pools delivers the desired foot candles at the lowest cost and does this year after year, you then have championship lighting.

Consider the many pools, large and small, lighted with the KIRLIN System, as typified by the three shown here. At least 70% useful light is delivered by each lamp due to the Alzak GlasSurfaced reflector and Kirlin prism lens. This has been proven time and again in many different types of installations. Light from the highest point possible and with extra wide distribution, utilizes the light more effectively . . . Maintenance is at a minimum because fixtures can be relamped as easily from above the ceiling as below. Shock resistant glass keeps down damage and replacement expenses. No part of the fixture dangles from the ceiling, which eliminates dusting and increases the apparent ceiling height. Fixtures also may have aluminum boxes and all parts are rust and moisture resistant . . . You score on installed costs, too. Regular rubber-covered building wire is run direct to the heat-insulated junction box. No asbestos is required.

Specify the KIRLIN System, Champion of Lights, for Championship Pool installations.

Catalog for AIA Data File on Request

Largest Selling Recessed Line—Millions in Use Everywhere

The KIRLIN CO.
3435 E. Jefferson Ave.
Detroit 7, Michigan
BUILDING VOLUME: Increased public outlays keep total
1956 spending at record rate, about 2% above 1955 level

Thanks to accelerated increases in government outlays, total construction expenditures rose seasonally to an all-time monthly record of $4,261 million in August (see chart and table), and for the first eight months of the year continued to run about 2% ahead of 1955's record spending pace.

Held down by the lag in homebuilding, private construction expenditures for the January-August period were less than ¾% ahead of 1955 spending. Outlays for public construction, however, were 8% greater in August than a year earlier, and for the eight months period topped comparable 1955 expenditures by 6%.

In individual categories, according to the preliminary estimates of the Commerce and Labor Depts., all-time records were set in August in outlays for new office and warehouse buildings, private industrial plants, public utilities, schools, highways, sewer and water works. Spending for new stores, restaurants and garages, however, declined 8% from July, although still 14% ahead of 1955 January-August expenditures.

(Workers employed in contract construction climbed 56,000 from July to August to a total of 3,345,000, reported BLS. This was 257,000 more than those at work in Aug. '55.)

New peaks ahead. There was no doubt 1956 total construction spending would surpass the record of $43 billion set last year, and, in 1957, according to Forum's annual forecast by Economist Miles Colean, the building industry will have its best year yet (p. 126). Total building outlays next year will reach almost $47 billion, predicts Colean, with private nonresidential construction advancing about 6%, and public nonresidential about 4% over this year.

In a separate Commerce-SEC estimate of private enterprise plans for new plant and equipment spending last month, officials said this should reach about $35.3 billion this year, compared with an earlier estimate of $35.5 billion and 1955's record actual spending of $28.7 billion. On a seasonally adjusted basis, new plant and equipment outlays are expected to reach a rate of $36.3 billion annually for the third quarter of this year, and jump to a rate of $38 billion in this last quarter.

EXPENDITURES BY BUILDING TYPES

<table>
<thead>
<tr>
<th>Type</th>
<th>Aug. '56</th>
<th>1955 Rate</th>
<th>%±</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>2,023</td>
<td>1,933</td>
<td>4%</td>
</tr>
<tr>
<td>Nonresidential</td>
<td>7,366</td>
<td>7,067</td>
<td>4%</td>
</tr>
<tr>
<td>Commercial</td>
<td>2,087</td>
<td>1,934</td>
<td>8%</td>
</tr>
<tr>
<td>Offices; lofts;</td>
<td>3,094</td>
<td>2,963</td>
<td>4%</td>
</tr>
<tr>
<td>Industrial</td>
<td>2,981</td>
<td>2,713</td>
<td>10%</td>
</tr>
<tr>
<td>Hospitals; insts.</td>
<td>2,466</td>
<td>2,333</td>
<td>6%</td>
</tr>
<tr>
<td>Public utilities</td>
<td>2,281</td>
<td>2,177</td>
<td>5%</td>
</tr>
</tbody>
</table>

GRAND TOTAL... 11,175 10,309 +8

EDUCATIONAL BUILDING expenditures for the first eight months of 1956 totaled $2,023 million, compared with $1,933 million in the same period in 1955. Private school building was up $35 million, or 10%, and public construction up $55 million, or 3%.

BUILDING COSTS: No signs of halt in steady uptrend

With the effects of the steel strike settlement beginning to show in building materials prices, various construction cost indices continued their trend from July to August with no signs of early stabilization.

The composite index for nonresidential building of E. H. Boeckh & Assoc. moved up 0.2% (see chart), and in August was 5% higher than in Aug. '55. Over the period of a year, Boeckh's index for new apartment, hotel and office buildings advanced 4.9%, and its commercial and factory building index 5.1%.

Sharper increases of 1.5% and 1.8% from July to August were registered on the Engineering News-Record construction and building indices, but for the 12 months since Aug. '55 these were up only 4.8% and 4.4% respectively. The American Appraisal Co. index rose 0.5% in August, when it stood 4.6% higher than a year earlier.

Costs, the mother of adjustments. Revising structural or financing plans to compensate for higher-than-expected costs was commonplace. In San Francisco, for instance, voters approved a $5,275,000 bond issue last spring for an underground garage for the city's proposed Civic Center. But when bids were received in midsummer, city fathers were staggered by the lowest figure, which was $3,711,315, or almost $500,000 over the combined budget for construction, architects' fees and contingent funds. Fearful that the public might not approve a supplemental bond issue, the city began efforts to scrape up the necessary difference from other funds. "Besides," said one official, "by the time we could put the thing to a vote we'd fall behind another half million."

But in California building contractors could still observe some less-fortunate cousins. State highway officials were having to adjust to a whopping 16% roadbuilding cost hike there since Jan. 1.
Give your clients greater freedom in room arrangement

Otto Haisley School, Ann Arbor, Michigan
Louis C. Kingscott and Associates, Inc., Architects and Engineers, Kalamazoo, Michigan
Shirrer Construction Company, General Contractors, Pontiac, Michigan
William Bortolotti and Sons, Mason Contractors, Detroit, Michigan

The combination of light-directing glass block and vision strip keeps brightness at comfortable levels, provides vision and ventilation.

Acting as a daylighting team, the Toplite Panels and glass block provide sufficient daylight during normal days without need for artificial lighting.

Toplite Roof Panels supplement light from sidewalls in deep rooms or completely daylight windowless rooms

Now, near the windows, and far from them, good daylight can be everywhere. No longer is it necessary to confine close detail work to the area nearest the windows. Toplite Roof Panels permit daylighting of all building areas regardless of location or distance from exterior walls.

The prismatic glass units in O-I Toplite Panels "think" before they transmit the sun's rays. Needed North light and the soft low rays from the South are readily accepted. But rays from the high summer sun are rejected. Glare and heat of old-fashioned skylights are eliminated.

The complete story of this great new advance in efficient utilization of free daylight is available in a new booklet on Toplite Roof Panels. For your free copy, write today: Kimble Glass Company, subsidiary of Owens-Illinois, Dept. AF-10, Toledo 1, Ohio.

GLASS BLOCK AND TOPLITE ROOF PANELS TWO PRODUCTS

Owens-Illinois
General Offices - Toledo 1, Ohio
Send Today for your Free Copy of this Award-winning book

The American Brass Company's new publication, "Modern Sheet Copper Practices," received the highest award in its class—the Certificate of Exceptional Merit in the 1956 Building Products Literature Competition sponsored by The American Institute of Architects and The Producers' Council, Inc.

This new book shows suggested construction details and specifications which reflect the use of copper in current architectural design.

Easy to use. It opens easily, lies flat. The recommended practices and suggested specifications are on the page facing the drawing. Subjects are easy to find, as drawings are in a logical sequence according to type of detail.

Designed for the Architect, Specification Writer, Sheet Metal Contractor. The book is recommended as a practical guide with clear, brief suggestions for meeting everyday problems. Send for your free copy today.

for better sheet metal work use

ANAConDÀ COPPER

104 pages of detail drawings—recommended practices—suggested specifications.

The American Brass Company
Waterbury 20, Conn.

Please send me a copy of Publication C-1

NAME ...........................................
COMPANY ...................................
STREET .......................................  ZONE ... STATE ...

Please check type of business
☐ Architect  ☐ Builder  ☐ Sheet Metal Contractor
BUILDING MONEY: Tight credit boosts expenses but only curbs
marginal projects; insurance loans show increase

Construction was feeling the effects of the tightest credit squeeze since the Depression. But except for homebuilding (automatically hobbled with 4.5% FHA and VA interest ceilings), the main effects were not reduced construction, but mostly a check on the volume of increased building, and higher costs for financing.

The problem that confronted the booming economy was not a decreased supply of money or credit, but rather a sharp increase in demand—an increase government monetary experts feared would be inflationary if it ballooned too big.

Increased realty lending. Homebuilders and some others complained loudly of lack of credit. But obscured by their noise was the fact that mortgage lending apparently was running ahead of last year's volume, rather than behind it. Institute of Life Insurance data, for instance, showed that supposedly tightfisted life insurers invested 16% more in FHA mortgages in the first six months of 1956 than a year earlier, 4.7% more in VA mortgages, and 14% more in conventional mortgage loans, while their total investments increased only 1.4%.Reported the institute: "Mortgages were the largest single block of new life insurance investments in this six months, totaling $3,44 million, $344 million above a year ago."

From cities around the nation came these reports from mortgage officers of a number of the largest life firms explaining their efforts to stretch their funds:

- Chicago—"We haven't tightened up our credit. But our three-month rate last year was 4.5%. Now it's 5% and we're still not able to meet the demand. We've turned down 2,900,000 apartment building loans we would have granted a year ago. . . . It's not a shortage of money. It's just that demand exceeds supply.

Bankers concur. Nor were insurance executives alone in such views. Typical were these comments from leading commercial bankers discussing the Federal Reserve's higher discount rate, and its effects on construction:

- Chicago—"For big corporations with long-range plans, there are no serious problems. They can get all the money they need—at the higher rate. We've seen some cutbacks, but no major ones. Most have been on items which the companies hadn't been thinking about in the first place. . . . We look for a sharper cutback in the first six months of 1957 than in the last half of this year. After all, if you're a big corporation . . . throw up a new $1 million addition, you've long since passed the blueprint and planning stage now, and a quarter of a percent interest change isn't going to make you throw in the towel."

- Atlanta—"I don't think this increase will slow down expansions for large corporations that are reasonable and based on good business judgment. It will slow down and knock out speculation on operations of the marginal man who plans expansions which are not too sound. It will also slow down the marginal financing of municipalities, those on the borderline as to whether there will be adequate revenue to support them."

- New York—State Controller Arthur Levitt deplored the fact that school districts that floated construction bonds for about 3% a year ago must now pay about 3.7% on new issues. The municipal bond market depends mainly on banks and wealthy individuals who benefit by purchasing tax-exempt bonds, he said, but with institutional credit curtailed, and "today's redistribution of income," there are "just not enough of the wealthier individual investors around" to absorb all municipal offerings.

Commerce and Labor estimates, however, showed that private and public expenditures for educational construction were $90 million greater than comparable outlays a year ago from January through August, and in August set an all-time monthly record (p. 29).

BUILDING MATERIALS: Higher steel costs affect prices for
other items; unfilled structural orders reach record high

Production by the nation's steel mills climbed back to 100.1% of capacity last month, about six weeks after settlement of the steel strike. But prices had climbed, too. Within the BLS index of average wholesale building materials prices, structural shapes rose 5.3% and helped boost the total index 0.7% (see chart). Further secondary increases also occurred in the index in the months ahead as producers of various materials and equipment passed along the higher prices they had to pay for the steel going into their products. International Harvester and Thew Shovel, for instance, announced price boosts up to 7% for their construction and materials handling equipment because of higher steel prices and other expenses.

Looking for the best in a bad situation, the American Institute of Steel Construction noted that fabricated structural steel shipments dipped only to 165,470 tons in July, compared with 188,267 tons during the shutdown in July, 1952. Through July, it added, cumulative fabricated structural shipments were still 16% ahead of last year's for the same period (although through June they had been 22% ahead). New contracts for structural steel also declined during July to 288,166 tons, the first month they dropped below the 300,000-ton mark since April '55. New orders for the year's first seven months were still 22% above comparable 1955 orders.

Because of curtailed shipments, unfilled structural orders climbed to record backlog of 2,903,725 tons (see chart), or a volume that would require peak production for 11 months at the rate of average monthly shipments from January through July this year.

BUILDING MATERIALS PRICES turned upwards again in August to 131.6 on the index of average wholesale prices compiled by BLS. This advance from 126.6 in July was an increase of 0.7% in one month, and wiped out the decline from 131.3 that had taken place since April.
Architect-designed Lupton Aluminum Curtain-Walls make the facade of this smart, modern building. While these particular walls are neutral gray, they could be as colorful as a sunset. They can be designed with a variety of window styles and panel materials, in almost any color or combination of colors, smooth or textured. Their decorative possibilities have no limit.

Through pre-fabrication of panels and windows, building construction was faster than by conventional methods, yet the walls are weathertight, weatherproof, insulated and offer a lifetime of service. Fabrication and installation were done under one contract.

If you haven’t discovered the beauty, versatility and time-saving qualities of the Lupton Simplified Curtain-Wall System, do it now! You’ll find additional data in Sweet’s or write for the illustrated brochure that details this modern way to build.

MICHAEL FLYNN MANUFACTURING CO.

Main Office and Plant: 700 East Godfrey Avenue, Philadelphia 24, Pa.

New York Office: 51 East 42nd Street, New York 17, N. Y.

West Coast Office: 672 South Lafayette Park Place, Los Angeles 37, Cal.

Stockton Office and Warehouse: 1441 Fremont Street, Stockton, Cal.

Cincinnati Office: DeSales Bldg., 1620 Madison Road, Cincinnati 6, Ohio

Sales Offices and Representatives in Other Principal Cities
"CERAMIC TILE... A VERY SERVICEABLE MATERIAL COMBINING FUNCTION, BEAUTY AND ECONOMY!"

WELTON BECKET, F.A.I.A., AND ASSOCIATES

A cheerful and relaxing atmosphere pervades this design for a hospital solarium by Architect Welton Becket and Associates. Ceramic tile fused beauty and function into a soothing custom effect with marked therapeutic influence ... visible proof of the design flexibility made possible by imaginative use of standard ceramic tiles.

Tile offers further “proofs” that add up to long-range economy, too. The glazed tile walls will remain fireproof, stainproof, fade proof and durable for the life of the hospital. The smaller tile floor units will take hospital traffic year after year with negligible wear.

Ceramic tile is the convincing answer to modern hospital, school and other institutional requirements. It’s the surfacing material with “built-in” maintenance savings: easy cleaning, no waxing or painting and no replacement for the life of the installation. Your tile contractor will gladly give you information on the wide range of ceramic tile colors, textures and sizes. Both you and your client will profit from the use of ceramic tile on your next project.

The Modern Style is

TILE COUNCIL OF AMERICA, INC., Room 3401, 10 East 40th St., N.Y. 16, N.Y. or Room 333, 727 W. 7th St., Los Angeles, Calif.

PARTICIPATING COMPANIES: American Encaustic Tiling Co. • Architectural Tiling Co., Inc. • Atlantic Tile Mfg. Co. • Cambridge Tile Mfg. Co. • Carlyle Tile Co. • Dover Ceramic Co. • General Tile Co. • Gladding, McBean & Co. • Jordan Tile Mfg. Co. • Mosaic Tile Co. • Murray Tile Co., Inc. • National Tile & Mfg. Co. • Olean Tile Co. • Pomona Tile Mfg. Co. • Ridgeway Tile Co. • Robertson Mfg. Co. • Royal Tile Manufacturing Co. • Sparta Ceramic Co. • Styton Corp. • Styton Southern Corp. • Summitville Tiles, Inc. • United States Ceramic Tile Co. • Winburn Tile Mfg. Co.
Modine convectors are the choice of top architects and heating engineers when they want superb styling, backed by superb performance. These beautifully designed convectors have met every test for uniform, healthful heating . . . for long-life, economical service.

MODINE CONVECTORS

The Modine representative listed in your classified phone book can offer you a selection of 30 types of Modine convectors in 8000 sizes. Call him today, or write Modine Mfg. Co., 1507 DeKoven Avenue, Racine, Wisconsin.
Select the right protection for each building...

Only EDWARDS makes every Fire Alarm System*

*... and designs and manufactures every major component!

Only Edwards gives you fire warning systems that cover every building requirement, whatever the size, design, or use! For Edwards makes every type of fire alarm. Your Edwards Technical Specialist can always recommend one that's exactly right for a particular installation.

Over 80 years of designing and manufacturing signaling systems assure easy installation and absolute dependability in every Edwards system, whether manual or automatic, coded or non-coded, for homes, schools, institutions, or commercial buildings of any size or design. Complete technical service backs up you and your contractor on every job.


Specialists in Signaling Since 1872

EDWARDS

DESIGN • DEVELOPMENT • MANUFACTURE

ZONALARM — New! Fully automatic Zonalarm system protects large homes and farms 24 hours a day, regardless of power failures... sounds alarm and indicates location of the fire at a central point. Economical protection that's unique in its price range.

TYPE SSA — For large buildings: coded signal throughout the premises tells where alarm was sounded, locating the fire while it gives the evacuation signal. Fully-supervised system sounds a special trouble bell if there is any fault in the system.

TYPE CVCA — Simplest supervised system sounds an evacuation alarm without indicating location. Closed circuit, full supervision assures instant warning whenever system becomes inoperative due to open circuits, grounds or other defects.

TYPE S5AMR — For smaller buildings, sounds a distinctive alarm signal. For buildings where automatic location is unnecessary. Full supervision with trouble bell guarantees continuous protection.

TYPE SSAM — City-connected system sounds a coded signal within the building and also at the municipal fire headquarters, entirely automatically. Recommended particularly for large schools and institutions.

HOME FIRE ALARM — For small homes: the finest low-cost protective feature possible. Edwards Home Fire Alarm is an inexpensive, complete system. U.L. listed detectors. Installation needs only low voltage wiring between detectors and signal unit, gives instant warning of fire.
Maj. Gen. Emerson Itschner, 53, named Chief of Engineers; Arthur Drexler succeeds Philip Johnson at Museum of Modern Art

**GOVERNMENT PROMOTIONS**

Maj. Gen. Emerson C. Itschner, Asst. Chief of Engineers for Civil Works since 1954, was appointed Chief of Engineers to succeed retiring Lt. Gen. Samuel B. Strang, Jr. Only 53, the youngest Chief of Engineers in more than a century, Itschner will supervise military and civil construction programs that exceed $2 billion a year.

In a series of reorganization promotions and appointments for greater efficiency in its design, construction and maintenance programs, PHS Commissioner F. Moran McCombe made building management division Director Charles A. Peters an Assistant to the Commissioner, Deputy Director William A. Schmidt an Assistant Commissioner for Planning, and elevated Supervising Architect Leonard L. Hunter to Assistant Commissioner for Design and Construction. He brought in David S. Phillips as Assistant Commissioner for Management (from Internal Revenue), and Lawson E. Knott Jr., as Assistant Commissioner for Acquisition and Disposal (from the Army Engineer Corps).

After a year as Acting State Architect, Carl W. Larson, of Londonville, was named New York State Architect at $16,000 annually by State Superintendent of Public Works John W. Johnson. Larson, 66, was associated with Warren & Wetmore, of New York City, for several years before joining the department in 1926.

**EDIFICATION—EDUCATION**


Taking office as Ford Foundation president this month: Engineer and Educator Henry T. Headl, 51, formerly president of IIT, N.Y.U. and the American Society for Engineering Education. After graduating from Washington State College in 1923, Headl started work as a structural designer. In 1927 he joined Armour Institute of Technology as assistant professor of civil engineering, by 1938, when it had become IIT, was its president.

Yale University's new Professor of Mechanical Engineering and chairman of that department last month was Newman H. Hall, previously assistant dean in charge of the graduate division of N. Y. U.'s College of Engineering.

Through a grant from an anonymous practicing architect, Artist Edward Millman joined the department of architecture at Rensselaer Polytechnic Institute as visiting professor of art, primarily to teach graphics and basic design work to second year architecture students.

**Russell Hitchcock coauthored Built in U.S.A.: Postwar Architecture**

- 24—GOING ON 30?

When he reached November 30, would New York Architect and Construction Expert Harris Hunnewell Murdock find it just another milestone, or the end of a remarkable tenure in public service on behalf of the entire building industry?

On that day spry, 76-year-old Murdock, who has never let his age interfere with his work, will complete his fourth six-year term as chairman of New York's Board of Standards and Appeals. Twenty-four years on the job, and ready to go for 30, his retirement or reappointment awaited only the pleasure of Mayor Wagner, whose own father, the late Senator Robert F. Wagner, served long and diligently in Congress until he retired in 1949, at 72.

In his long career in design and construction, Murdock, PAIA-1943, was New York Building Congress president (1925-33), served on a state commission to revise the tenement house law, helped draft the multiple dwelling law, and was a governor of the New York Real Estate Board. Among the buildings he designed was the 27-story structure at the southeast corner of 42nd St. and Madison Ave., the first building erected under the city's original zoning ordinance adopted in 1916. After his appointment to the board in 1932, his former architectural office, Jardine, Hill & Murdock was disbanded during the construction hiatus of the thirties.

Whatever the Mayor's pleasure, Murdock's supervision of the board for almost a quarter century without serious criticism from the industry, from the public, or from politicians of any party, was a record any building official could envy, and only a rare successor would ever be able to approach.

**Russell Hitchcock coauthored Built in U.S.A.: Postwar Architecture**

- Moreell

**ENGINEERING HONORS**

Of the many old and new honors to be awarded at the ASCE convention in Pittsburgh this month, the one of top interest to the construction industry would be presentation of the 1956 John Fritz Medal to Admiral Ben Moreell (retired), board chairman of Jones & Laughlin Steel, former chief of the Navy's Bureau of Yards and Docks, organizer and commander of the “Seabees,” and for a short postwar period president of Turner Construction Co. This gold medal and certificate is a joint honor of the four largest engineering organizations—ASCE, AIME, ASME and AEE.

The winner of the first Ernest E. Howard Award for meritorious service in structural engineering and construction (named for the former ASCE president and partner of Howard, Needles, Tammen & Bergendorf), Professor Ralph E. Boeck, of Marquette University's department of civil engineering, chosen to receive honorary memberships, highest distinction of ASCE, was a governor of the New York City Board of Standards and Appeals, a joint honor of the four large engineering organizations—ASCE, AIME, ASME and AEE.

DIED: Sidney R. Raer, 65, St. Louis department store owner, treasurer of Civic Campaign, Inc. and a leader in community building and improvement programs, Aug. 25 in St. Louis; Engineer Ralph H. Burke, 72, designer and builder of the new O'Hare International Airport in Chicago, and engineer for many Chicago public works, Aug. 23 in Chicago; Kelvin Cox Vanderlip, 44, land developer and a vice president of Welton Becket & Associates, Aug. 21 in Los Angeles; Ford Knotts, 71, president of the J. G. White Engineering Corp. and specialist in the construction of dams and hydroelectric plants, Aug. 9 in New York; Architect Ernest Alan Van Vleck, 81, designer of New York's Curb Exchange, upper 5th Ave. department stores and many suburban New York schools, Aug. 8 in St. Petersburg; Sculptor Chester Beach, 75, designer of many architectural groups, 1927-28 president of the National Sculpture Society, Aug. 6 in Brooklyn, N.Y.; Edward G. Gavin, 58, editor of American Builder since 1945, originator of National Home Week, former editor of *American Lumberman*, July 28 in Chicago of a heart attack.
It will pay you to get the facts on

**IRON FIREMAN SelecTemp ZONE HEATING**

before choosing a heating or cooling system

for new construction or modernization

---

**A THERMOSTAT IN EVERY ROOM...**

Iron Fireman SelecTemp, a new heating method with low pressure steam, provides the comfort levels desired by occupants.

SelecTemp, in conjunction with individual unit cooling, marks greatest advance in temperature control for year 'round comfort.

SelecTemp heating makes it possible to regulate the temperature of any room with remarkable precision. Each of the small, compact room heating units (which require no floor space) is controlled by its own built-in thermostat.

SelecTemp is a simple system. There are no electronic controls, no motorized valves or dampers, no complicated control system of any kind; yet the temperature of each individual room is very closely controlled by the room thermostat.

SelecTemp is a modulating system. Both the temperature and volume of the circulating air are automatically regulated to meet the needs of each room.

---

**ALL KINDS OF BUILDINGS USE SELECTEMP.** SelecTemp is being used successfully in almost every type of building, ranging in size from five rooms to hundreds of rooms. Architects and property managers quickly visualize the great number of applications when they review SelecTemp's unique characteristics.

For example, note the Blanchard Valley Hospital shown below. Each special room—nursery, surgery, delivery room—has individually controlled heat. Each room can be heated to fit the patient's needs. There is an additional advantage for hospitals—thermostats and circulating fans are non-electric. With no electric wiring, the SelecTemp heating units are completely safe in operating and other rooms where inflammable gases are present.

---

**PERFECTLY BALANCED HEAT.** SelecTemp heating adjusts itself quickly to changes in heat gain or loss, such as result from solar heat or cold winds against exposed rooms or wings.

**OFTEN COSTS LESS THAN SINGLE ZONE SYSTEMS.** SelecTemp is engineered for very economical installation cost in either new or old construction. It is a low pressure steam system. Boiler and steam distribution lines are essentially of conventional design. The main departure from usual practice is in the use of small copper tubing between the steam mains and the SelecTemp units. These copper tubes can be snaked between joists and run behind baseboards, or within walls, as easily as electric wiring.

The College of Southern Utah (see picture below) found that thermostatic control in each room, with any system other than SelecTemp, would add at least $14,000 to the cost of the heating plant for their new dormitory. Because of the favorable experience with dormitory heating the college is now using SelecTemp for such large heating areas as the Gymnasium and the Commons.

In most cases, SelecTemp has proved competitive in price with conventional steam systems having no zoned temperature control.

---

**LOW OPERATING COSTS.** As in the case of the Everett building pictured here, many SelecTemp users have reported substantial savings in fuel costs. Reduction in fuel bills is one of several important features which are bringing about a swift spread in SelecTemp heating. For example, in motels, hotels and other buildings, heat can be turned down to as low as 40 degrees when rooms are unoccupied, with substantial fuel savings. Rooms reheat much more quickly than with other types of heating systems. Other features are: (1) Water heating coils can be installed in the boiler to provide ample hot water, winter and summer. (2) Guests never complain about under- or overheating, nor do they waste heat by opening windows.

---

SEND SELECTEMP SPECIFICATIONS AND FULL INFORMATION.

Arrange for brief demonstration of SelecTemp room unit, in actual operation, in our office.

**HERE ARE SOME OTHER TYPICAL SELECTEMP INSTALLATIONS**

---

**IRON FIREMAN MANUFACTURING CO.**

3091 West 113th Street, Cleveland, Ohio. (In Canada write to 80 Ward Street, Toronto)

☐ Send SelecTemp specifications and full information.

☐ Arrange for brief demonstration of SelecTemp room unit, in actual operation, in our office.

Name ________________________________

Firm ________________________________

Address ________________________________

City __________________________ State __________________________

---

Modernization of Akron's oldest office building (Everett Building) included SelecTemp heating. Through an entire heating season the steam savings were 49.3%. This building uses district steam.

---

Mt. Amin Academy, Lemont, Ill. "Controlling temperature in classrooms has always been a problem," says Architect Leo Sterkel of River Forest, Illinois. "You have solved it with SelecTemp's individual room control. We are more than pleased."

---

College of Southern Utah chose SelecTemp heating for this new dormitory because of its thermostatic heat control in each room. Such control with any other system meant an extra expenditure of over $14,000.

---

IRON FIREMAN
The temperature of individual rooms in this luxurious apartment building can be controlled by the occupants. With Iron Fireman SelectTemp neither overheating nor underheating disturbs the comfort of any tenant. In-the-wall cooling units provide the same room-by-room control of summer cooling.

windows. They regulate the heat themselves. (3) There is no problem of heat distribution in an extended structure like a motel. (4) Steam is safe.

ADVANTAGES OF SEPARATE HEATING AND COOLING. In the Panoramic Apartments and Town & Country Motor Hotel shown on this page (both luxury type establishments) Iron Fireman SelectTemp heating has been combined with individual through-the-wall room cooling units—a perfect combination. Some advantages are: (1) Thermostatic temperature control in both heating and cooling, with every room a zone. (2) Low operating costs—no heating or cooling of unoccupied areas. Rooms can be quickly reheated or cooled. (3) No inefficient compromise in attempting to combine the conflicting characteristics of heating and cooling by using a single room outlet. (4) No cooling condensate drain lines to install and service. (5) No cooling towers nor cooling water costs. (6) Greater dependability and continuity of service.

SEND FOR MORE FACTS. Mail coupon for catalog, technical data and specifications.

PANORAMIC APARTMENTS, MONTCLAIR, NEW JERSEY

The temperature of individual rooms in this luxurious apartment building can be controlled by the occupants. With Iron Fireman SelectTemp neither overheating nor underheating disturbs the comfort of any tenant. In-the-wall cooling units provide the same room-by-room control of summer cooling.

windows. They regulate the heat themselves. (3) There is no problem of heat distribution in an extended structure like a motel. (4) Steam is safe.

ADVANTAGES OF SEPARATE HEATING AND COOLING. In the Panoramic Apartments and Town & Country Motor Hotel shown on this page (both luxury type establishments) Iron Fireman SelectTemp heating has been combined with individual through-the-wall room cooling units—a perfect combination. Some advantages are: (1) Thermostatic temperature control in both heating and cooling, with every room a zone. (2) Low operating costs—no heating or cooling of unoccupied areas. Rooms can be quickly reheated or cooled. (3) No inefficient compromise in attempting to combine the conflicting characteristics of heating and cooling by using a single room outlet. (4) No cooling condensate drain lines to install and service. (5) No cooling towers nor cooling water costs. (6) Greater dependability and continuity of service.

SEND FOR MORE FACTS. Mail coupon for catalog, technical data and specifications.

SELECTEMP HEATING

EVERY ROOM A ZONE
New cartridge-powered tool sets both ¼" and ⅜" diameter studs in steel or concrete
With the Remington Stud Driver you can take on every stud-fastening job—light, medium and heavy-duty—and save time and money on each of them! Compact tool sets up to 6 studs per minute. Handles both ¼" and ⅜" diameter studs, needs no outside power source. Shown below are three of many Stud Driver applications.

Fastening wood to concrete
Place wood runners on chalk lines. Using standard guard or Remington GS-21, fasten 2 x 4 runners to the concrete floor or ceiling with Remington S-27 standard head studs.

Fastening door bucks to concrete floors and ceilings
Set door buck in place, plumbed and shimmed. Use Stud Driver with special guard to set floor anchor clips with Remington S-21 standard-head studs. Bend ceiling struts into position and secure with S-21 studs.

Installing cellar window wells
After the concrete forms are removed, position the steel window well and anchor it with the cartridge-powered Remington Stud Driver. Use four Remington S-21 standard-head studs. Compact Stud Driver easily fits into confined places and can be operated with one hand if necessary.

MAIL THIS COUPON FOR FURTHER INFORMATION

Remington

Industrial Sales Division, Dept. AF-10
Remington Arms Company, Bridgeport 2, Conn.
Please send me my free copy of the booklet "How to Use the Remington Stud Driver Fastening Method."
Name.___________________________ Position.__________________________
Firm.____________________________ Address.__________________________
City.____________________________ State______________________________

DATES


Mortgage Bankers Assn., annual convention running concurrently with exhibit of building, industry and services, Oct. 8-11, Conrad Hilton Hotel, Chicago

Federation of Sewage and Industrial Wastes Assn., annual convention, Oct. 8-11, Hotel Statler, Los Angeles

US Civil Defense Council, annual conference, Oct. 9-12, Biltmore Hotel, Atlanta

Noise Abatement Symposium, annual meeting, Oct. 11-12, Hotel Sherman, Chicago

California Council of Landscape Architects, annual convention, Oct. 12-14, Biltmore Hotel, Santa Barbara

Sanitation Maintenance Show & Conference, Oct. 14-16, Coliseum, New York City

Curtain Wall Construction Workshop, Oct. 15-16, Building Research Institute, Hotel Willard, Washington, D.C.

American Gas Assn., annual convention, Oct. 15-17, Atlantica City, N.J.

American Society of Civil Engineers, annual convention, Oct. 15-19, William Pea Hotel, Pittsburgh

American Title Assn., golden jubilee convention, Oct. 17-20, Fontainebleau Hotel, Miami Beach

Fifth Annual Conference for Architects, Dept. of Architecture, Univ. of Illinois, Oct. 18-20, Urbana

Architectural Woodwork Institute, convention, Oct. 18-19, LaSalle Hotel, Chicago

continued on p. 14
Every Foldoor is built around this "beefier" hinge

Leave the grunt-and-groan test to the wrestlers. All we want to point out is: strength and durability of a folding door hinge primarily on the hinge. Rods and pantograph parts are important, of course. But it's the hinge that takes the stress and strain of suspension and operation. The stronger the hinge, the more durable the door. That's why Foldoor designed the exclusive, 5½" Multi-V hinge—and uses it in every Foldoor made. This hinge is structurally solid, without cut-out "soft" spots. It provides extra rod support. It contains more working metal, inch for inch, than any other folding door hinge known. And because it is "stubbier," it's bound to be extra rigid. Combined with Foldoor's unique multipoint hinge-to-rod welding—heavy track—special trolley wheels—this Multi-V hinge assures the durability you demand on any installation. Ask your Foldoor Distributor. He's listed under "Doors" in the yellow pages.

HOLCOMB & HOKE MANUFACTURING COMPANY, INC.
1345 Van Buren Street, Indianapolis
In Canada: FOLDOOR OF CANADA, Montreal 26, Quebec
Installing Distributors in All Principal Cities

ONLY FOLDOOR IS DIFFERENT
AND BETTER THESE SIX WAYS

Gentlemen:
Please send free copy of new 1956 A.I.A. Foldoor Catalog

NAME
FIRM
ADDRESS
CITY _STATE_
Enclose a complete building
with new **Stran-Satin Curtain**

**using 1 tool**

**2 basic panels**

**3 simple clips**

The new Stran-Steel curtain wall system with exclusive *Stran-Satin* combines a satin-smooth finish, free of spangled patterns, with the protection of a noncorrosive zinc coating. You get the low cost of steel, plus the eye-appeal of far more expensive materials. Stran-Steel curtain wall system consists of two basic panels and has a simple field erection assembly technique. Panels are never pierced or marred by bolts, screws or rivets. By using special clips and a crimping tool, you get a smooth, leakproof surface. This assembly technique provides a modern method of wall or fascia construction for industrial, commercial, recreational, school, hospital or other public buildings. And buildings go up fast so other trades can begin work sooner.
**Wall System**

**Back-up panel** is clipped to horizontal girts of the building's framework. At the joints, the panels overlap and interlock.

Ten-foot steel bars are clipped horizontally and are on 4-foot centers. The clips are crimped to provide a permanent assembly.

Noncombustible insulation is inserted between the back-up panel and the steel bars.

Exterior panel is clipped to 10-foot bar and crimped in place. Next panel overlaps and covers clip for an unbroken surface.

**Stran-Steel curtain wall** is a quality product designed to meet strict architectural requirements.

**Exterior panel**
Exterior panel is heavy gage steel with Stran-Satin finish. Continuous lengths up to 54 feet can be furnished in three gages—18, 20 or 24.

**Back-up panel**
Back-up panel is also available up to 54-foot lengths in three gages with exclusive Stran-Satin finish. Offset construction eliminates metal-to-metal contact increasing insulating efficiency and reducing condensation.

**Insulation**
Sections are designed for 13/4-inch batt-type insulation. With a "U" factor of 0.14, this panel has the insulating efficiency of a 16-inch masonry wall.

Here's where you can get more information:
- Atlanta 3, Ga., 206 Volunteer Bldg.
- Cleveland 15, Ohio, 20950 Center Ridge Rd.
- Detroit 29, Mich., Tecumseh Rd., Ecorse
- Houston 5, Tex., 2444 Times Blvd.
- Minneapolis 4, Minn., 708 S. 10th St.
- Kansas City 16, Mo., 1322 Burlington
- San Francisco 4, Calif., 235 Montgomery St.
- Washington 6, D.C., 1200 18th St., N.W.

**For complete details on this new Curtain Wall Panel call your local Stran-Steel Architectural Products dealer or mail this coupon.**

Name
Company
Street
City
Zone
State

Stran-Steel Corporation
Ecorse, Detroit 29, Michigan • A Unit of
NATIONAL STEEL CORPORATION
tested and proved throughout the nation... the BIG advance in Air Conditioning!

GOVERNAIR

SELF CONTAINED UNITS

- COMPLETELY PACKAGED for maximum economy in installation and operation.
- COMPLETELY FLEXIBLE to meet any special load conditions or space requirements

GOVERNAIR has been building completely packaged air conditioning units longer than any other company in the field. Today, this valuable experience gained, in making hundreds of different types of installations, can benefit you on nearly any type of job you may be planning.

For, only GOVERNAIR offers the installation advantages of compact one-unit design . . . combined with our manufacturing flexibility that enables you to successfully meet unusual load conditions, space or multi-zone requirements.

Added to this is the GOVERNAIR reputation for quality-engineered, longer life products . . . designed to operate at maximum efficiency and economy. Write for full information.

ORIGINATORS OF COMPLETELY PACKAGED AIR CONDITIONERS.
READY TO OPERATE WITH SIMPLE ELECTRICAL, WATER AND DUCT CONNECTIONS

GOVERNAIR CORPORATION • 513 N. Blackwelder • Oklahoma City, Okla.

DATES cont’d.

National Assn. of Housing & Redevelopment Officials, annual convention, Oct. 21-24, Statler Hotel, New York City

American Standards Assn., annual convention, Oct. 22-24, Hotel Roosevelt, New York City

American Concrete Institute, annual regional meeting, Oct. 24-25, Sheraton-Mount Royal Hotel, Montreal


Society for Experimental Stress Analysis, annual meeting and exhibit, Nov. 1-2, Deshler-Hilton Hotel, Columbus, Ohio

Michigan Society of Architects and Univ. of Michigan College of Architecture and School of Education, conference on school planning, Nov. 1, Ann Arbor

National Assn. of Real Estate Boards, annual convention, Nov. 11-16, Jefferson Hotel, St. Louis

Structural Clay Products Institute, annual convention, Nov. 12-14, Boca Raton, Fla.

National Paint, Varnish and Lacquer Assn., annual convention, Nov. 12-14, Hotel Statler, Los Angeles

National Hotel Exposition, Nov. 12-16, Coliseum, New York City

American Society of Mechanical Engineers, annual meeting, Nov. 25-30, Hotels Statler and McAlpin, New York City

**V-LOK** Gets a School Under Roof Faster, Reduces Erection Costs

THIS BROCHURE DEFINES V-LOK CONSTRUCTION FOR SCHOOL MEN

DESIGNS READILY INTO SCHOOL LAYOUTS

V-LOK provides a simple, fast erection method of steel framing a school. With the steel frame erected and the building roofed in a matter of days, every other operation is speeded up. A school designed for V-LOK—or conventional framing changed over to V-LOK—is the greatest single step the Architect and School Board can take to reduce school costs and advance occupancy date.

Your General Contractor who erects ONE V-LOK school will be the first to ask for another V-LOK job. Add up the many plus values you are assured when you design and build with V-LOK and you have the one, complete answer to the school situation. Do you have our V-LOK literature?

GREATEST ADVANCEMENT IN 50 YEARS OF STEEL CONSTRUCTION

STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER INCORPORATED

CANTON 1, OHIO

*ENGINEERING*  *FABRICATING AND ERECTING*
In one of the world's 20 largest buildings...

The U. S. Department of Defense Military Personnel Records Center at St. Louis is one of the 20 largest buildings in the world. With more usable square feet of floor space than the Empire State Building, it is second only in size to the Pentagon among all government buildings.

It is lighted by 19,000 Day-Brite fixtures, especially located to provide proper intensities of vertical lighting of the 21,000,000 records on file. Specify Day-Brite on all original and relighting installations. Your Day-Brite representative will show you why lighting by Day-Brite makes the big difference. You'll find him in your classified phone directory.

Day-Brite Lighting, Inc., 5471 Bulwer Ave., St. Louis 7, Mo.
lighting by Day-Brite makes the big difference

Typical corridor area lighted with Day-Brite fixtures. Note uniform illumination over entire corridor length.

Huge record-storage area, especially arranged for vertical lighting of files with Day-Brite fixtures.
doorways...
FOR THE "WHO'S WHO" OF THE SKYWAYS

INTERNATIONAL-BUILT DOORS for aircraft hangars and industrial plants alike are designed to assure these two prime advantages: (1) Fast, easy operation under any climatic conditions, (2) Lifetime weather-tightness. Sound reasons why more and more major names in American aviation and industry are served by doors "tailor made" by International.

See Complete Catalog in Sweet's Industrial Construction File No. 7a

INTERNATIONAL STEEL COMPANY
2102 EDGAR STREET • EVANSVILLE 7, INDIANA

(KNOCK 'EM DEAD)
Let us pause briefly and contemplate the peaceful summer season now behind us; for there is little peace to come in the months ahead. The shopping season is coming up, the frantic months, the grim autumnal passion of the great American market, October, November, December, when the merchants mobilize to drive hordes of Christmas customers up and down Main Street with whips of tinsel. Noel, Noel, and elections too!

This year the shopping treatment, the numbing, has started early, perhaps with an architectural press release which came in just as summer began to wane:

"RADICAL DESIGN OF MARTIN'S IN GREAT SOUTH BAY CENTER EMPLOYS NEW USE OF SPACE"

"The man responsible for the building and interior design of $250,000,000 of some of the country's plushiest stores and hotels has just completed a two million unit with advance viewers say will top his previous talents in creating shopping appeal for women.

"Morris Lapidus, famed architect of the Fountainebleau, Eden Roc, and American Hotel in Miami Beach, has departed radically from orthodox merchandising concepts in his design of Martin's, opening August 10th at Great South Bay Shopping Center, Babylon, L.I.

"According to Fred Zeitz, Martin's president, the architectural aim was to create a free flow of customer traffic that would enable the customer to move almost unconsciously from one department to another."

(CLASSICS I)
Fit company for the beautiful Milan Museum conversion by Belgioioso, Persutti & Rogers in Italy (shown elsewhere in this issue) are some photographs shown recently in Architectura of postwar restorations of bomb-battered Italian architectural treasures, evidence that fine workmanship—and respect for fine workmanship—continue strong on the Mediterranean.
Thinking of buying a new model car this year? Appalled by the latest glitz and zoom from the Detroit-designing ateliers?

Here are three of the numerous architects across the country who have, with loving care, sought out fine designs in automobiles. The first, Morgan Yost, of Yost & Taylor in Kenilworth, Ill., is one of the foremost US classic car collectors: "At present I have ten old cars—or is it eleven—mostly Packards, my specialty. The engineering and workmanship of these cars are superb, with the magnificent Twelves of the Thirties as the finest example.

"Back when they and I were younger, I owned a number of Packards, since become Classics—a 732 roadster, a 740 phaeton (dual cowl with six artillery wheels!), a 906 convertible, then a series of sedans, I think 15 Packards in all. Young men are too inclined to be practical so I reluctantly sold those beautiful cars as children came along. I have since employed private detectives to try to locate the phaeton with no success. A reward is still out. I sold it in 1929 when it had but 22,000 miles on it, absolutely mint, and it was still in use at the start of the war so it could easily be around somewhere.

"When I threw away the practicality of youth a few years ago I searched for a Packard phaeton to fill the vast and empty void. Through a New York Times ad I located a 1933 Twelve Dietrich Sport phaeton, model 1006 (1). After paying too much for it, I drove it home from New York by way of Washington D.C. Vaporlock stalled the car in the tunnel through the Allegheny Mountain on the Pennsylvania Turnpike, holding up the traffic of the nation for an agonizing time. A friendly trucker pushed me out like a porpoise before his load of fish began to spoil, and just as the big red wrecker-ambulance-fire truck arrived to yank us out. Opening the hood vents solved the trouble and I rolled home at a steady 60—even though I confess I shot it up to an easy 75 once or twice to amaze some modern bathtub pilots. These Twelves are absolutely quiet, have monumental acceleration and a top speed adequately better than 100 miles per hour. This 1930 Packard boat-tail speedster (2) is also a rare model, a straight Eight using the large engine on a short wheel base, a sports car of its day."

Out in California, John Lyon Reid cherishes a rare jewel among cars (3 and 4), a 1938 Jaguar S.S. (Standard Swallow) 100.

On the East Coast Stan Sharp, of Ketchum, Gina & Sharp drives an almost new classic, a 1954 Rolls Royce Silver Dawn (5).

"If you keep it 10 or 12 years it isn't really expensive transportation," he says. "But that's not why I bought it. It's a pleasure. When we get out of one of those rough school-board meetings, it's a joy to get into it and drive away."—W. McQ.
IN A TIGHT HEAD JAMB?

no problem with OVERHEAD concealed DOOR CLOSERS

fits in 3" square with room to spare
(inside dimension of head jamb)

overall only 2 7/8" x 2 7/8" x 17" long

The most compact of all concealed overhead door closers. Ideal for installations where modern shallow head jambs are specified.

ALL the controls are built-in...

1. two closing speed adjustments
   The closing speed from open to approximately 15° is controlled by one adjustment and the latch speed from 15° to closed position by another.

2. hydraulic shock absorber (back check)
   At approximately 80° a hydraulic resistance starts to slow down or check the opening action of the door. Hydraulic back check optional.

3. spring cushion door stop
   Door is "cushion stopped" at choice of any one of four factory-set positions 95°, 110°, 125°, or 140°. Stop removed for wider openings to 160°.

4. built-in door holder
   Where specified—built-in to hold door at choice of 85°, 90°, 100°, or 110°.

Three sizes for center hung and butt hung installations.

THE OSCAR C. RIXSON COMPANY
9100 west belmont avenue • franklin park, ill.
write for full details
Timeless Terrazzo, Contemporary Classic

Durable enough to serve for years without end as the floor for a Student Union building . . . adaptable enough to reproduce the colorful pattern of a shuffleboard in a private home! That's timeless Terrazzo, the contemporary classic.

No pattern is too difficult, no task too demanding, for Terrazzo. Initial cost is more than offset by absence of repair or replacement cost. The smooth, joint-less surface cleans readily, is easy to walk on and less slippery than a waxed surface.

Specify any design you wish, in virtually any combination of colors—Terrazzo, marble-hard and concrete-durable, is versatile as your imagination. Free AIA Kit upon request to the National Terrazzo and Mosaic Association, 711 Fourteenth St., N.W., Washington 5, D.C. Catalogued in Sweet's.
FLOORS
give the first impression
of good taste

First impressions are vital in attracting restaurant trade and encouraging people to "eat out more often." A Vina-Lux floor quickly expresses the good taste that implies good food and good service. With Vina-Lux, color can be used to give decorative expression to the entire restaurant .. to coordinate and key its design and furnishings.

This modern floor brings beauty and style .. and a big bonus of practical qualities. It's the new answer to the old problem of grease and spilled foods. It's the quick answer to maintenance problems, cutting cleaning time, eliminating the need of waxing. It's your answer to greater freedom and inspiration in designing smarter restaurant floors.

Why not write for Vina-Lux samples and color charts?

Pattern shown: Wintergreen

AZROCK PRODUCTS DIVISION • UVALDE ROCK ASPHALT CO.

555 Frost Bank Building • San Antonio, Texas • Makers of Vina-Lux • Azrock • Duraco • Azphlex
In an area where news-making structures greet the eye on every side, the new Socony Mobil Building sets some impressive records. It is New York's biggest in 25 years. With its stainless-steel skin, it is the world's largest metal-clad building. It is the first big office building in New York to use a high-voltage wiring system, and the first to use self-service elevators exclusively.

In choosing Jenkins Valves, however, the builders followed a familiar precedent. They took the same future-minded view of operating economy as the planners of so many of the other notable buildings that shape Manhattan's famous skyline . . . who also specified Jenkins Valves.

For new installations, for all replacements, let the Jenkins Diamond be your guide to lasting valve economy. Jenkins Bros., 100 Park Ave., New York 17.

A DAILY "POPULATION" of 10,000 office-workers requires, for modern standards of comfort and convenience, piping compatible in volume and variety to that of some cities. The thousands of Jenkins Valves chosen for reliable, efficient, and safe control of major systems in this complex network include Iron Gates and Checks on the main city water supply; Cast Steel Gates with motor operation for remote control on fire lines; and Bronze Valves of all patterns on water, oil, air, and gas lines.
Effective concealment for trim modern beauty... plus the rugged reliability only liquid closers provide!

You can be sure of complete harmony of design between doors and door closers when you specify Norton Inador. You can also be sure your clients will receive all the reliability, durability, low maintenance and precision workmanship so characteristic of all Norton Door Closers. For fully illustrated descriptions and engineering data on this and other models, consult the current Norton catalog. Write for one today if you don’t already have a copy.

NORTON®

DOOR CLOSERS


The complete INADOR mechanism is concealed in a mortise in top rail of door... 4 sizes to meet every need... all models available with (A) regular arm or (B) holder open arm.
WHEN YOU SEE THIS KIND OF WORKMANSHIP, EXPECT TROUBLE...

**GOOD workmanship** is one of the most important factors in preventing leaky brick walls. Good workmanship includes filling the bed joints and head joints—wetting the brick—and backplastering the face brick.

Expect trouble when mortar is dabbed only on the corners of the brick, even when the head joint is slushed. Because it is so workable, Brixment makes it easy for the bricklayer to use enough mortar to completely fill the joints, and still lay the brick easily and accurately to the line. Brixment mortar has greater plasticity, higher water-retaining capacity and bonding quality, greater resistance to freezing and thawing, and freedom from efflorescence. Because of this combination of advantages, Brixment is the leading masonry cement on the market.

BRIXMENT

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY
CLOW
I.P.S.* cast iron pipe
will outlast the
building itself!

State Office Building, Springfield, Illinois
Director Dept. Public Works and Buildings: E. A. Rosenstone
Supervising Architect: Louis H. Gerding
Associate Architect: Lankton and Ziegele
General Contractor: W. E. O'Neil Construction Company, Chicago, Ill.
Plumbing, Heating and Air Conditioning Contractor: Economy Plumbing and Heating Company, Chicago, Ill.

READ WHY
it was specified:

The new Illinois State Office Building in Springfield was constructed in "H" type design at a cost of about $11,500,000. It has a combined area (all floor space) of about 10 acres...eight floors plus a basement. A branch post office and a cafeteria are included.

Entire building is air conditioned.

Downspouts, drains and waste lines are all Clow I. P. S. (threaded) Cast Iron Pipe—which is corrosion-proof, requires no replacement, no upkeep. Installation is fast, economical, permanent. Clow I. P. S. Cast Iron Pipe has same O.D. as steel pipe...plain or threaded ends...3, 4, 5, 6, 8, and 10" sizes in 18' random lengths. NEW SIZES 1 1/4" in 8-10' lengths; 2" in 10-13' lengths. Also available with integral calking hub on one end (other end plain) in 18' random lengths 3, 4, 5, 6, 8 and 10" sizes.

Clow Cast Iron Pipe can be...

CLAYTON B. CLOW & SONS, Inc.
201-299 North Talman Avenue • Chicago 80, Illinois
Manufacturers of Cast Iron Pipe
Wholesalers of Plumbing and Heating Supplies

LETTERS

THE REAL ESTATE OPERATOR
Forum:
Your article about the real estate operator (AF, Aug '56) was of interest.
Our country has been developed by speculators in land from the early companies of Gentlemen Adventurers who opened up the continent in colonial times to the contemporary builders of satellite and suburban communities. Critics of land speculation wouldn't be here if some one hadn't been willing to take a chance.
Our checkerboard plan of platting has proved itself the best. It is indefinitely expandable and can be made beautiful. Our finest modern buildings are being built on the same principles in three dimensions instead of two. One great difficulty with European cities now that they are growing rapidly is that their ground plans are not expandable.

HERBERT U. NELSON, secretary
American Real Property Federation
Washington, D.C.

Forum:
The introduction of suburban centers with big signatories acting as bellows and the very important factors of tax angles and depreciation have helped to relegate the old-style real estate broker to relative obscurity. But let us not disparage the judgment of real estate brokers who not only dreamed of building cities, but created many situations and landmarks which are an integral part of our national history.

After viewing realty operations in a metropolitan city for more than 50 years, I am sure that men who had instinct and vision, rather than the professional appraisers with the schoolbooks and slide rules, were the great factors in working out the destiny of areas and neighborhoods and were responsible for the patterns of profitable undertakings.

I respect statistics as such, but I still rely on the forecasting brains of men who have proved that they possess the thing the world calls "savvy."
HENRY BRODERICK
Henry Broderick, Inc., real estate
Seattle, Wash.

Forum:
I disagree with some of your conclusions. Architects are almost as much to blame as are real estate operators for the lack of land planning and proper structural design in city and suburb. They should have raised their voices in protest generations ago, when the trend toward haphazard zoning and structural design first manifested itself.

The original speculators in land were certainly not the professional operators we know today. They were village merchants, blacksmiths, doctors and other leaders whose high earnings provided them with surplus cash to "invest" in local land. As landlords they cared little about the

continued on p. 62
This brand name also means...

Kiln-dried Lumber

Here are some of the reasons why architects specify seasoned lumber

*Dimensional stability*—Because it is scientifically seasoned before surfacing to size, kiln-dried lumber is preconditioned to resist dimensional changes. The name “Weyerhaeuser 4-Square” on lumber is assurance of proper seasoning.

*Easier to handle and work*—Because kiln-drying removes excess moisture, seasoned lumber is easier to handle and process. The drying also gives the cellular structure of the wood more uniformity, which improves workability.

*Strong and durable*—Kiln-drying greatly increases the four strength properties of lumber (bending strength, vertical strength, stiffness, and hardness) by the firm “patterning” of the wood cells and fibers.

*Takes and holds finishes*—Seasoned wood holds paint remarkably well—and prolongs the decorative and protective life of the finish.

*Important facts for architects*—Because it means reliable quality—because it has been widely advertised for many years—the Weyerhaeuser 4-Square brand name is well-known to the public ... a mark of sound building value.

Architects can specify Weyerhaeuser 4-Square with confidence because this lumber is scientifically kiln-dried, precision-manufactured, properly graded and carefully loaded for shipment. It is available in many species and grades, in commons and clears.

Weyerhaeuser Sales Company
ST. PAUL 1, MINNESOTA
In a hospital there can't be the slightest margin of error. Nowhere else is equipment required to pass such critical tests. Mr. Howard A. Palestine, Manager of Mid-Island Hospital, Bethpage, Long Island, puts it this way: “Like all hospitals, ours operates 24 hours a day, 7 days a week... and we do it with the help of such dependable equipment as Kewanee Boilers. It was the reputation which KEWANEE has built up over the years which prompted us to specify that this type of boiler system be used.” Rated on nominal capacity, Kewanee Reserve Plus Rated Boilers with 50% extra built-in power, fill normal requirements in stride. Yet, they can be stepped up instantly to produce additional power needed for emergencies—for fluctuating loads. They provide for expansion too. Here you get “cruising speed” boiler operation with greater efficiency—lower fuel and maintenance costs... less stress and strain, plus constant protection against breakdowns and repairs. There's no necessity to operate at full speed all the time. In addition, “cruising speed” operation means you get much longer boiler life. So select Kewanee Reserve Plus Rated Boilers. You can be sure of dependable service, with savings in money too.

KEWANEE "CRUISING PASSES CRITICAL"
SPEED" BOILER OPERATION
TEST AT MID-ISLAND HOSPITAL

Reception room and admitting desk of Mid-Island Hospital.

The spotless kitchen where sterilizing meals are prepared.

Here are five Kewanee Boiler-Burner Units which provide "round the clock" dependable service at Mid-Island Hospital.

* KEWANEE BOILER DIVISION

A BIRD'S EYE VIEW OF

U. S. Coast Guard removes buoys from Little Bay de Noc before winter freeze-up covers the lake with several feet of ice. Here, on the shore of Little Bay de Noc, is the home of Bird's Eye Veneers.
Up here at the northern end of Lake Michigan, we take winter pretty seriously. For our friends, the Coast Guardsmen in the picture, falling thermometers mean raw days out on the lake, fishing their great warning buoys out of the water. And to us, here at Bird's Eye, winter heralds the approach of our favorite annual exposition — the Chicago Furniture Show.

Actually, we're always preparing for this show, all year 'round, turning out those rich and varied veneers which are the recognized hallmark of truly fine furniture. But it's the Big Show that gives us our Big Thrill . . .

Again this winter, for all to see, the world's leading furniture makers will display their most prized merchandise — with one thing in common: authentic, dependable hardwood veneers by Bird's Eye.

Designers specify hardwood veneers because no other material can ensure so much richness, warmth and quiet elegance in a piece of furniture. Manufacturers insist upon them because the natural beauty of these real veneers, cut by Bird's Eye's skilled artisans from premium northern hardwoods, cannot be successfully imitated, copied or substituted. That's why you, too, should

Demand genuine hardwood veneer when you buy furniture.

WINTER OPERATIONS

Bird's Eye Veneer
SINGLE PLY VENEERS
ALL NORTHERN HARDWOODS

Bird's Eye Veneer Company
Escanaba, Michigan
On the Shore of Little Bay de Noc
"We like Reznor gas unit heaters because initial costs are low; our clients prefer them because they're so inexpensive to maintain and operate."

"We're convinced that Reznor gas unit heating is the best heating investment for a wide variety of commercial and industrial buildings. Under the right conditions, no other system can approach it for performance. Under any conditions no other system can approach it for economy.

"We found that the cost of the necessary Reznor gas unit heaters compares very favorably with the cost of any other type of heating equipment of the same total capacity. And with Reznor, the equipment cost is total cost. There are no registers or radiators, no expensive piping or duct work to buy. That means real savings on installation cost, too. To install a Reznor gas unit heater you just suspend it, make simple gas, electrical and vent connections and move on to the next one. That's real economy...it helps stretch budgets.

"Our clients like Reznor heaters for other reasons, too. Reznor heaters not only save money in the beginning, they keep on saving year after year. Reznor heat is instant heat...there's no need for costly stand-by firing. With on-the-spot Reznor heat, there's no heat lost in transmission. And with each Reznor heater operating independently, there's no need to heat areas which aren't in use. All Reznor heaters require is a simple cleaning once a year. It's no wonder that our clients who have tried it once want Reznor heating in their next building."

Remember, there is no equivalent for Reznor gas unit heaters. Be sure you have complete information on these fine heaters at your fingertips. Write today for your free catalog or call your nearby Reznor distributor. You'll find him listed under "Heaters-Unit" in the yellow pages of your telephone directory.

LETTERS cont'd.

form, symmetry or structural refinements of their holdings. The professional operators who came later might be excused if they seemed less concerned than architects about correcting these evils.

But while we are trying to place the blame for this indifference, what about our City Fathers, who permitted streets to bend or terminate to suit the whims of politicians or influential private citizens? I do not suggest that operators and brokers are entirely blameless in the haphazard development of towns and cities. Perhaps they could have done more, but I knew many professional real estate men who regarded structural eyesores as a constant challenge to their initiative and skill and who wouldn't rest until they were replaced by improvements in keeping with the local trend.

Criticism cannot alter the basic fact that widespread indifference brought about the present lack of the esthetic in structural design and control. Perhaps cooperation among all interests may still do some good.

WILLIAM J. BREEDE
New York, N.Y.

Forum:
Your article's light tap on the wrist so far as the architects are concerned and the heavy blows inflicted upon the real estate developer are unjustified.

You did not mention the Urban Land Institute, its Community Council and the constructive advice given to both architects and developers through this Council. You also made no mention of the Building Planning Service of the National Assn. of Building Owners and Managers, which for 30 years has been available and has been used by owners and architects for the purpose of combining the practical and the aesthetic in modern structures.

Realtors throughout the nation are prominent in city planning boards and in many instances are making valuable contributions in the matter of zoning.

CLARENCE M. TURLIEY, realtor
St. Louis, Mo.

Forum:
Your article on "The Real Estate Operator" is an accurate summary.

GRAHAM ALDIS
Albis & Co., real estate
Chicago, Ill.

Forum:
I liked your article and think it touched very salient points not generally recognized by the public. It is undoubtedly true that real estate men are the architects of their future cities, lay out its streets as they subdivide, build its homes and promote many downtown and industrial improvements. Prior to 1910, before the idea took root that the responsible elements of the real estate business must be joined together to assure more responsible action in city growth, it

continued on p. 66
new dimension...

in fixture value with
THE new SMITHCRAFT FINISH

Smithcraft now adds a new dimension in fixture perfection. The new Smithcraft painting process consists of the finest and most modern Bondertite and Baked Enamel Finish combination in use in the lighting industry today.

In addition to its superior appearance, the new Smithcraft finish has these outstanding qualities:

- Adheres firmly to metal — Stays white indefinitely, without yellowing — Provides positive resistance to chemicals and heat — Resists abrasion because of optimum hardness — Reflects a maximum percentage of light

Because the new Smithcraft finish possesses all these attributes to a greater degree than ordinary finishes, it produces many important new benefits for owners and users of lighting ... better appearance, better lighting qualities, easier maintenance and longer, trouble-free life.

All the units in the complete and diversified line of Smithcraft commercial and industrial fixtures are now finished with this new process. Typical is the Sheraton (shown above) ... a trim, modern unit, only 3 1/4" deep; the Sheraton is ideal for low-ceiling applications. It is available for two and four-lamps in 4-ft. and 8-ft. lengths. Plan to use the Sheraton in your next school, store or office design.

Ask us to send you the current Smithcraft catalog — it is a comprehensive list of the newest and most functional fluorescent fixtures in use today.

Smithcraft LIGHTING
CHELSEA 50, MASSACHUSETTS
America's finest fluorescent lighting
Low-cost New Jersey hospital shows how Honeywell can help you satisfy

Thermostat on the wall gives occupants of Riverside Hospital bedside temperature control. Patients have only to dial the temperature that suits them best. The Honeywell thermostat then maintains it accurately and dependably, regardless of the room's exposure or changes in the weather outdoors. Every patient bedroom is thermostat-equipped.

Use factor helps determine building's control needs. In the operating rooms, for example, temperature requirements are not the same as in patient bedrooms. Number of people present in some areas varies, creating still another type of control problem. In all cases, Honeywell thermostats precisely control heating, cooling and ventilating as needed.
any client's indoor weather needs

Honeywell Customized installation gives patients Bedside Temperature Control, assuring ideal comfort

Riverside Hospital is the result of careful planning and active cooperation among civic leaders of Boonton, New Jersey. Now Boonton has an attractive 65-bed hospital, in keeping with the latest industrial engineering principles.

In a busy hospital indoor comfort needs vary widely. To meet them, Riverside's planners wisely chose Honeywell Customized Temperature Control for the heating and air conditioning system.

Its flexibility makes the Honeywell installation ideal. In air-conditioned spaces such as the operating room, it maintains temperatures at precise levels winter and summer. During the heating season patients in every room enjoy individual room temperature control. And in other areas, strategically placed Honeywell thermostats compensate quickly and accurately for exposure and changes in weather, use and occupancy.

That's what "customized" means—a control installation fitted to the needs of the building and its occupants, in heating and cooling, in ventilating, and in controlling humidity.

True customized control can best be provided by Honeywell. For only Honeywell manufactures all three types of controls—pneumatic, electric, electronic—which permits Honeywell to make truly objective recommendations.

Whether it's a hospital, factory, bank or store—any building of any size, new or existing—Honeywell Customized Temperature Control can help solve your clients' control problems.

For full details of Honeywell Customized Temperature Control, and the economical Periodic Maintenance Plan, call your local Honeywell office. Or write Honeywell, Dept. MB-10-159, Minneapolis 8, Minn.
May we help you in selecting a plant location?

In our Omaha headquarters we have accumulated a vast amount of factual information covering the eleven western states served by Union Pacific.

This information is kept up to date through day-by-day contacts with our traffic representatives located in cities and towns throughout that area.

So, if you are planning to build a plant for warehousing, distribution, assembly, or what not, in the growing West, it is quite possible that we can help you in selecting a location that will meet your requirements.

For confidential information, ask your nearest U. P. representative to call on you, or contact—

INDUSTRIAL DEVELOPMENT DEPARTMENT
UNION PACIFIC RAILROAD
Room 380, Omaha 2, Nebraska

LETTERS cont'd.

was true that there was much bad development, because most early layouts were made for purely speculative purposes. When the National Association of Real Estate Boards was formed—and as it yearly grew stronger—those in the real estate business were increasingly impressed with their community obligations. Professional conduct was made a condition of membership, and education in various facets of the real estate business became a great movement within the National Association. I believe it was in 1917 that the National Assn. spearheaded city legislation to efforts to secure Planning Commissions and a city plan. Realtors everywhere have cooperated with this activity and have been themselves primarily responsible for the planning work done in one after another of our American cities. It is my judgment that the realtor will be a greater and greater influence in future civic design.

WALTER S. SCHMIDT, president
Frederick A. Schmidt, Inc., realtor
Cincinnati, Ohio

HP OR TH

Forum:
I have always been interested in the development and building of the Terrace Plaza Hotel in Cincinnati, about which you reported in the August issue. Such analyses made several years past completion are always interesting from both a design and a business standpoint, and are important if we are to learn from past mistakes.

I am perplexed, however, because in one place you give the name as the "Hilton Plaza" and in another as the "Terrace Hilton." As I recall, the architects designed all the items in the hotel from towels to matchbox covers with distinctive insignia so no doubt such work will have to be redone. Perhaps they should use whichever of these names that will best lend itself to creative monogramming.

GORDON C. FIERCE, architect
Greenburg, Pa.

* The new name is Terrace Hilton, not Hilton Plaza, and the old monogram (TP) will indeed have to be changed.—ED.

Forum:
Your Terrace Plaza article neglects its lighting installation which was far ahead of its time when it was put in. The fact that you found that the total effect of the hotel interior, including the special areas, still "holds up" is as much a satisfaction to me as the architectural design must be to the architects.

In the article there is some chiding concerning the maintenance of the lighting in the Penney and Bond Stores. As in the hotel proper, the intent was to solve the lighting problems not in terms of what was then current practice, but rather in terms of the knowledge of what could and should be. The foot-candle level in these
STEEL DECK
and LONG SPAN
M-DECKS

MAHON STEEL DECK
and LONG SPAN
M-DECK SECTIONS

STANDARD DOUBLE RIB

WIDE-FLANGE DOUBLE RIB

LONG SPAN M-DECK
SECTION M1

LONG SPAN M-DECK
SECTION M2

LONG SPAN M-DECK
SECTION M3

1,600,000 Sq. Ft. of Mahon Steel Roof Deck!

Mahon Standard Double Rib Steel Deck is still the most practical material for modern roof construction... it is used to roof a greater percentage of new construction year after year. There are two good and logical reasons for this: It weighs less per sq. ft. and it costs less per sq. ft. than any other type of permanent roof building material. And now that Long Span M-Decks are available in a number of Structural Sections and Acousti-Structural Sections that meet virtually any requirement in roof construction and combined roof/ceiling construction, STEEL, employed as the structural unit and interior finish material as well, will roof even a broader range of building types. Long Span Acousti-Structural Sections may be employed as shown for a beamed ceiling effect, or reversed for a flat metal ceiling surface. Noise Reduction Coefficients range from .70 to .85 for various Sections. Mahon Acoustical and Troffer Forms are also available for recessed lighting in acoustical ceilings of concrete joist and slab construction. See Sweet's Files for information, or write for Catalogs D-57 and M-57.

THE R. C. MAHON COMPANY • DETROIT 34, MICHIGAN
Sales-Engineering Offices in Detroit, New York and Chicago • Representatives in Principal Cities
Manufacturers of Steel Roof Deck and Long Span M-Decks; M-Floors, Permanent Concrete Floor Forms, Acoustical and Troffer Forms; Insulated Metal Walls and Wall Panels; Rated Fire Walls; Rolling Steel Doors, Grilles and Underwriters' Labeled Automatic Rolling Steel Fire Doors and Fire Shutters.
This fine Nebraska school gets

More classroom comfort per

Firsts in classroom comfort by Herman Nelson!

- The first practical, high efficiency HOT WATER heating element for unit ventilators.
- DRAFTSTOP, the first unit ventilator to eliminate window downdrafts — without increasing heat load.
- LIGHTSTOP, the first accessory to adapt the unit ventilator to audio visual classrooms.

AND NOW—

- **HerNel-Cool** first AIR CONDITIONING UNIT designed, built and priced specifically for schools.

Senior High School, Grand Island, Nebraska. Superintendent of Education: Dr. Earl Wiltse; Architect: F. N. McNett Company; Engineer: R. L. Fickes; Mechanical Contractor: J. L. Lingeman Company. The design resembles a human hand, with the administrative areas concentrated in the "palm" and classrooms extending down the four fingers.

BETTER AIR IS OUR BUSINESS
dollars with DRAFT|STOP!

Controls drafts without added heat load

The new Senior High School at Grand Island, Nebraska is recognized as an architectural and engineering "jewel". The finest, most modern equipment combines with excellent planning to create the last word in educational facilities.

It was natural that DRAFT|STOP was selected for the all-important job of cooling, heating and ventilating the classrooms. DRAFT|STOP heats only when heat is necessary... saves fuel when it is not. It controls downdrafts without added heat load. It's unique design provides a constant supply of properly heated or cool fresh air... automatically compensating for temperature changes. Pupils are alert and comfortable from the opening of school to the closing bell. Teachers are free to concentrate on teaching—in a healthful atmosphere that is conducive to learning.

That's why there is an ever increasing demand for more classroom comfort per dollar... the DRAFT|STOP way! Want more facts? For a 16 page case study, write to Herman Nelson Unit Ventilator Products, American Air Filter Company, Inc., Louisville 8, Kentucky.

*Patented (there are no substitutes)
why Architects and Engineers— as well as Contractors and Owners—prefer INTERIOR FIRE PROTECTION EQUIPMENT

because:

it's easier to specify just what is best for each individual project, you know you'll get all that you specify; Allenco serves better, looks better, avoids waste of cost, time, space.

A.I.A. file 29x2 gives most thorough easy-to-find data on components, custom-size cabinets, complete systems... includes ready-to-use standard and alternate specs. Write for your copy; meanwhile check Sweets.

LETTERS cont'd.

stores was raised from the standard 15 f.c. to as much as 35 f.c. This does not seem unusually high today, but it was in 1948. The means to that end were not as readily at hand either, and experience had to be gained on the spot. As a result, some of the fixtures utilized proved more clumsy to maintain than ones we would design today. If, however, we are now in a position to criticize these fixtures as not being ideal for maintenance, it is because these very fixtures helped to pioneer the way to a smoother solution of the problem of providing higher foot-candle levels in stores.

Again, the cost of electricity is criticized. Since 1948, incandescent, fluorescent and cold cathode lamp development has progressed incredibly, and what is standard today was not standard then. Therefore, a high light level designed in 1948 costs more to maintain than does that designed today. Let me point out once more, however, that these two stores were a definite step forward in lighting efficiency and helped to pioneer the way for the acceptance of a higher light level in merchandising display.

ABE H. FEDER
Lighting by Feder
New York, N.Y.

Forum:
Your story on the Terrace Plaza was wonderful. I compliment you on the way you handled the subject.

H. C. NANSON JR.,
president-treasurer
The Allis Press
Kansas City, Mo.

HYPERBOLIC PARABOLOIDS
Forum:
Letters published recently in your magazine (AF, March '56) indicate that hyperbolic paraboloids are generally treated as an object of marvel or as an exhibit rather than as a structural form. We have made a test on a sample of such a surface, rectangular in shape (6' x 4') and made with 1 1/2" plain unreinforced cinder concrete. Although this material is inferior in strength to reinforced granite concrete, it withstood a load of 1 1/2' of sand and 1' of water before it collapsed. This membrane was supported only at its four corners and hence there was no chance of its acting as a beam at all. Nevertheless, it carried a live load of six times the design load.

S. SIVANBANI
City Improvement Trust
Madras, India

KUDOS
Forum:
Congratulations on your fine coverage of IIT's Crown Hall (AF, Aug. '56).

ROBERT LAWTON JONES, architect
David G. Murray & Associates
Tulsa, Okla.
**NEUTRA'S NOTES**

Forum:
I appreciate deeply FORUM's friendly review of my new book *Life and Human Habitat* (AF, Aug. '56). I very much agree with your reviewer that for constructive use, any ideas I have collected should be applicable and capable of being traced on the finished products—the more so, as these ideas are not the outcome of speculation, but of clinical observation.

I have hundreds of scrap notations in my drawers which show this constructive, useful application of *Survival through Design*, etc., very clearly, but they deal mostly with how the "physiological approach" or any "biological realism" is helpful as a procedure. The good outcome, the satisfying result, I always thought, is best proven by individual testimonial of the user, and even more by some, at least, elementary statistics the way all research finds authentication.

For example this scrap notation has helped me and helps my collaborators as a friendly directive:
"Whenever there is an expressed craving or emotional emphasis—a recall of fatigue regularly experienced in the past, or of endocrinic discharges at irritation—make this clear in the conversational record—a craving might be voiced thus: "I like to sit on the patio in front of my bedroom before I go to sleep," or "I can't stand it after a working day—the kids are running the TV, making noise—it just drives me crazy. I want to go somewhere, but not indoors." If we can alleviate for him these problems, he will love us. If we bypass them, he will be frustrated by his architect for the amortization period. Auditory sensitivity is a determinant of plan."

RICHARD J. NEUTRA, architect
Los Angeles, Calif.

**CRITIQUE**

Forum:
We are very much impressed with the tremendous uplift in quality of editorial material which has appeared in recent issues of the Forum.

We have been equally impressed with the concern for ideas as live issues in an architectural environment.

The critique of the M.I.T. buildings (AF, March, '56), raising the issue of mannerism and not knowing what to express, is a subject of great concern, and the Forum in bringing it to light has made a real contribution.

I hope a similar critique of the new eclecticism for which the torch burns brightly in some places could further focus interest on an exciting esthetic problem involving all of us.

ULRICH FRANZEN, architect
New York, N.Y.
Seymour High School, Seymour, Wisconsin, cost only slightly over $10.00 per square foot to build. The entrance is oriented to protect it from prevailing storms, and the large canopy allows unloading several school buses at one time without exposing the students to winter weather. This school contains over 55,000 square feet, including all the classrooms and specialized teaching facilities required by a modern high school.


Fenestra Acoustical-Structural Building Panels form the roof for this combination gymnasium and auditorium at Seymour High School. Efficient acoustical treatment inside the panels cannot be harmed by objects striking the ceiling. This room was designed so that spectators would not have to cross the playing floor to reach the bleachers and so that daylighting would not produce sun shafts or bright spots on the playing floor. The gymnasium entrance is located off the school lobby so that it may be easily used for evening activities. The Music Department adjoins the stage and is isolated from the classrooms to eliminate disturbance and noise.
How Fenestra* Acoustical-Structural Building Panels help you

BUILD BETTER SCHOOLS

AT LOWER COSTS!

School building costs reduced as much as $2.00 per square foot over similar building in the same area—thats typical of the experience of school boards and architects who take advantage of the design and building economies of modern Fenestra Acoustical-Structural Building Panels.

Seymour High School, Seymour, Wisconsin, is a good example of the fine schools now being built in many sections of the country with this unique building product. Its basic structural system consists of Fenestra Acoustical-Structural Building Panels on bearing walls.

These lightweight, high-strength steel panels form the structural roof and the finished interior ceiling with "built-in" acoustical treatment. They replace five different materials—usually requiring extra labor and cost—with one prefabricated metal building unit, erected in one operation by only one trade.

The unique cellular design of Fenestra Acoustical-Structural Building Panels makes them strong enough to span up to 31 feet under normal roof loads and provide lateral support for the bearing walls. Their width—24 inches—fits perfectly with modular design techniques. This speeds up construction and eliminates cutting and fitting of the panels and other materials on the job.

The flat bottom surface of the panels, which forms the interior ceiling, is perforated. Sound absorbing material that produces a noise-reduction coefficient of 80% is enclosed inside the panels. It cannot be harmed by painting or maintenance cleaning. There is no “stuck-on” material to discolor or fall off and require replacement. Because this plate is a part of the structural panels it is made of 16-gauge steel—4 times thicker than the usual metal pan ceiling construction. This assures extra resistance to damage by objects thrown against the ceiling or other impact. You save money on maintenance costs year after year!

The library at Seymour High School, as well as the classrooms, features a Fenestra Acoustical-Structural Building Panel roof for a quiet, pleasant atmosphere and efficient sound control. This school is designed to function as a community center, too. This room opens off the building lobby and other public rooms, and the school offices are combined in this community center unit. They are easily used in the evening without opening the entire school, and visitors do not have to pass through classroom areas.

Room-to-room noise flow is prevented by sound transmission barriers incorporated into the panel design.

Interior masonry bearing walls with Fenestra Panels spanning between them save structural steel and reduce foundation and footing requirements. The exterior walls may be chiefly glass and used only as curtain walls. Schools using this basic structural system have varied in cost from $9.00 to $15.00 per square foot depending upon mechanical facilities, interior trim and school accessories.

All across the country, architects and school boards are discovering that they can design and build better schools at lower costs with Fenestra Acoustical-Structural Building Panels. If you are now planning a new school, you should get complete details on these unique building products and the new design concepts possible with them. Call your local Fenestra Representative, today—listed in the Yellow Pages—or mail the coupon, below.

*Trademark

Fenestra Incorporated
Dept. AF-10, 2296 East Grand Blvd.
Detroit 11, Michigan

Please send me complete information on building better schools at lower costs with Fenestra Building Panels.

NAME ____________________________
FIRM ____________________________
ADDRESS ____________________________
CITY __________ STATE ___________
New laboratory developments give you a

WIDER CHOICE OF RESILIENT FLOORS OVER CONCRETE
in contact with the ground.

Recent product developments and improvements and the formulation of new adhesives have greatly broadened the selection of resilient floors that may be specified for use over grade-level concrete subfloors. For such subfloors, there is now almost the same freedom of choice of resilient floors as for suspended subfloors. For many years, asphalt tile was the only type of resilient flooring material that could stand up under the alkaline moisture conditions in concrete in direct contact with the ground. Now, in addition to asphalt tile, there is a choice of Armstrong Excelon Tile (vinyl-asbestos), Custom Corlon Tile (homogeneous vinyl), Rubber Tile, and Cork Tile.

Just announced as the newest choice for on-grade concrete subfloors is Armstrong sheet Corlon with Hydrocord* Back. This is the first and only sheet plastic flooring specially developed for installation over on-grade concrete. For concrete subfloors below grade, all of these floors, with the exception of Cork Tile and sheet Corlon, may safely be specified, provided they are installed with the recommended Armstrong adhesive.

Beyond the increased variety of types of resilient floors for basements and basementless buildings, there is also a wider choice of designs than ever before. New distinctive Spatter effects and Corkstyle* designs are now available in Armstrong Asphalt Tile and Excelon Tile in addition to the straight-grained tile. New subtle tone-on-tone tile effects—and the Terrazzo and Decoresq designs in Corlon—further broaden the decorative scope available.

The chart on the opposite page lists the various Armstrong Floors, their general characteristics, and the proper adhesives to use for installation over below-grade as well as grade-level concrete subfloors.

Many of the types of resilient floors on the market today were originally developed in the Armstrong Research and Development Center. Pictured above is one of the laboratory rooms where scientists measure the basic physical properties of the resilient flooring materials, underlayments, and adhesives of the future. For the years ahead, as in the past, the primary objective of Armstrong research is the development of floors with maximum service characteristics at minimum costs.

Armstrong FLOORS

LINOLEUM
PLAIN
JASPÉ
SPATTER®
TEXTELLE®

DECORAY®
RAYBELLE®
ROYELLE®
MARBELLE®

TOWN HOUSE® INLAID
CRAFTLINE® INLAID
EMBOSSED INLAID
STRAIGHT LINE INLAID
ARMSTRONG RESILIENT FLOORS FOR USE OVER CONCRETE SUBFLOORS

- ARMSTRONG ASPHALT TILE
  This low-cost floor has long-wearing qualities and beauty unmatched by any other type of economy flooring material. Highly resistant to the effects of alkaline moisture, Armstrong Asphalt Tile is recommended for use on concrete in direct contact with the ground, on or below grade.
  Armstrong Greaseproof Asphalt Tile, for areas where splashing or spillage of grease is a problem in addition to alkaline moisture; matches colors in the regular tiles.
  **Recommended Adhesives**
  On-Grade Concrete—Armstrong No. S-160 Emulsion
  Below-Grade Concrete—Armstrong No. S-160 Emulsion
  Dusty, Porous, or Damp Concrete—Armstrong No. S-90 Asphalt Cement, after priming with Armstrong No. S-80 Asphalt Primer

- ARMSTRONG 3/8" GAUGE EXCELEON TILE
  The vinyl content in this vinyl-asbestos flooring gives it excellent resistance to grease and acids as well as the ability to withstand alkaline moisture. Moderate in cost, it is highly recommended for use on concrete subfloors or on below grade.
  **Recommended Adhesives**
  On-Grade Concrete—Armstrong No. S-160 Emulsion
  Below-Grade Concrete—Armstrong No. S-160 Emulsion
  Dusty, Porous, or Damp Concrete—Armstrong No. S-90 Asphalt Cement, after priming with Armstrong No. S-80 Asphalt Primer

- ARMSTRONG SERVICE GAUGE EXCELEON TILE (1/16")
  Service Gauge Excelon Tile is a thinner gauge of the same vinyl-asbestos composition in 3/8" Gauge Excelon Tile. It is recommended for use where low initial cost is an important factor. In a price range just above that of asphalt tile, Service Gauge Excelon Tile offers excellent resistance to grease, acids, harsh cleansers, and alkaline moisture.
  **Recommended Adhesives**
  On-Grade Concrete—Armstrong No. S-90 Asphalt Cement
  Dusty, Porous, or Damp Concrete—Armstrong No. S-90 Asphalt Cement, after priming with Armstrong No. S-80 Asphalt Primer

- ARMSTRONG RUBBER TILE
  Now the exceptional beauty and durability of Armstrong Rubber Tile can be incorporated in luxurious interiors in basements and basementless buildings over concrete subfloors in direct contact with the ground. This provides the opportunity to specify a fine flooring material in keeping with the other elements of a high-style interior in such areas.
  **Recommended Adhesives**
  New On-Grade Concrete—Armstrong No. S-104 Chemical-Set Waterproof Cement or Armstrong No. S-225 On-Grade Cement
  Cured On-Grade Concrete—Armstrong No. S-225 On-Grade Cement
  Below-Grade Concrete—Armstrong No. S-104 Chemical-Set Waterproof Cement
  Dusty or Porous Concrete—Armstrong No. S-104 Chemical-Set Waterproof Cement, after mopping floor with a damp mop
  Exceptionally Damp Concrete—Installation not recommended

- ARMSTRONG CUSTOM CORLON TILE
  Armstrong Custom Corlon Tile is a truly luxurious floor. Because it can be installed over both grade-level and below-grade concrete subfloors, it brings beauty to basements and basementless buildings. Made of the highest quality vinyl resins, this floor also is highly resistant to grease, acids, and most solvents. It is made in two finishes, a high gloss surface and a new exclusive "satin-matte" finish. The latter is available in Imperial Custom Corlon Tile featuring a smart terrazzo design. Both finishes are suited to the most luxurious interiors.
  **Recommended Adhesives**
  New On-Grade Concrete—Armstrong No. S-104 Chemical-Set Waterproof Cement or Armstrong No. S-225 On-Grade Cement
  Cured On-Grade Concrete—Armstrong No. S-225 On-Grade Cement
  Below-Grade Concrete—Armstrong No. S-104 Chemical-Set Waterproof Cement
  Dusty or Porous Concrete—Armstrong No. S-104 Chemical-Set Waterproof Cement, after mopping floor with a damp mop
  Exceptionally Damp Concrete—Installation not recommended

- ARMSTRONG CORK TILE
  The beauty of Armstrong Cork Tile is especially suited to areas where an atmosphere of refinement and quiet dignity is desired. This handsome flooring can now be installed over on-grade concrete subfloorings providing the top of the concrete slab subfloor is at least 12" above grade level and the grade slopes away from the foundation.
  **Recommended Adhesives**
  On-Grade Concrete—Armstrong S-214 Waterproof Cement, providing top of concrete slab is at least 12" above grade and grade slopes away from foundation
  Below-Grade Concrete—Installation not recommended

- ARMSTRONG CORLON (with exclusive HYDROCORD backing)
  This is the first and only sheet flooring specially manufactured for installation over on-grade concrete subfloorings. The new Hydrocord backing, an exclusive Armstrong development, is unaffected by the alkaline moisture normally present in on-grade concrete. Corlon is today's most popular sheet plastic flooring, and its availability for "on-grade" installation opens up new decorative possibilities in basementless houses and light commercial interiors. The virtually seamless vinyl plastic wear surface is extremely resistant to grease, acids, and most solvents.
  **Recommended Adhesive**
  On-Grade Concrete—New, specially developed S-235 Hydrocord Adhesive. Bonds flooring directly to subfloor . . . no lining felt is used.

**NOTE:** In addition to their usage on grade-level and below-grade subfloorings, all of these Armstrong Floors can be installed on all types of suspended floors. All will provide satisfactory service when installed over radiant-heated concrete subfloorings.

ARMSTRONG CORK COMPANY makes all types of resilient floors for all types of interiors. Almost any flooring problem can be met with one or more of the floors in the Armstrong Line. As a result, we can offer impartial recommendations to solve any flooring problem. Our main interest is to aid you in making a sound flooring selection. Armstrong Architectural-Builder Consultants throughout the country are glad to assist architects and help make specific recommendations for individual jobs. Your Armstrong representative is well experienced with resilient flooring. He can also call upon the Armstrong Research and Development Center and Bureau of Interior Decoration for assistance. For information on any flooring question, call your Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, Lancaster, Pennsylvania.

<table>
<thead>
<tr>
<th>PLASTICS</th>
<th>CUSTOM CORLON® TILE</th>
<th>EXCELEON® TILE</th>
<th>DECORESÒ® CORLON</th>
<th>GRANETTE® CORLON</th>
<th>TERRAZZO® CORLON</th>
<th>MOSAIC® CORLON</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESILIENT TILES</td>
<td>ASPHALT TILE</td>
<td>Regular</td>
<td>Greaseproof</td>
<td>Conductive</td>
<td>RUBBER TILE</td>
<td>LINOTILE®</td>
</tr>
</tbody>
</table>

**TRADE-MARK**
EXCERPTS

Architectural control
Excerpts from an address at Cooper Union by C. McKim Norton, vice president of the Regional Plan Assn.

Should a city go so far as to exercise architectural control over buildings built by private enterprise?

A growing number of smaller communities are to one degree or another imposing architecture standards, constitutional or not. Some insist that houses must look alike (example, Coral Gables, Fla.), others that they cannot look alike (example, Scarsdale, N.Y. The City of Rye, N.Y., has established a Board of Architectural Review which passes on buildings as to excessive uniformity, excessive dissimilarity or inappropriateness. Some cities control the appearance of buildings in certain areas which have achieved recognized beauty, such as New Orleans’ “Vieux Carré.”

There is great danger in architectural control, except as a means to preserve a style in areas of historic significance. The look-alike ordinances are, obviously, too mechanistic. The Board of Review can discourage atrocious and incongruous building, but it cannot guarantee good architecture. Furthermore, the Board is not in a position to bring principles of area design to bear in passing on buildings one at a time. Historic areas can, and should be preserved, but how far should new developments be guided beyond the general guidance of an area design plan?

This is the point, where the lawyer should bow out and leave the field to the design professions to come up with constructive answers. The public and the courts are ready and waiting.

Biblical green belts
Excerpts from an article in the Journal of Britain’s Town Planning Institute by Leslie Ginsburg

The earliest known reference to green belts occurs in the Book of Numbers, written during the thirteenth-century B.C., and is from Chapter XXXV, verses 2 et seq.:—

“Command the children of Israel, that they give unto the Levites of the inheritance of their possession cities to dwell in; and ye shall give also unto the Levites suburbs for the cities round about them. And the cities shall they have to dwell in; and the suburbs of them shall be for their cattle, and for their goods, and for all their beasts. And the suburbs of the cities which ye shall give unto the Levites shall reach from the wall of the city and outward 1,000 cubits round about . . . and ye shall measure from without the city on the east side 2,000 cubits, and on the south side 2,000 cubits, and on the west side 2,000 cubits, and on the north side 2,000 cubits; and the city shall be in the midst: this shall be to them the suburbs of the cities.”

The Levitical cities were 48 in number, of which six were the famous Cities of Refuge. These 48 “cities” would probably be the only new settlements in the land, as the invading Israelites would have occupied existing towns and villages wherever possible. Thus the Law for Suburbs (migrash in Hebrew) applies in the first case only to new settlements, specially created for the Levites. It would appear therefore that it was considered too difficult or perhaps not necessary to have a green belt around the existing settlements, where the ordinary people dwelt.

The translators of the King James’s Bible have used the word “suburb” for the Hebrew word migrash. Literally this is correct, migrash meaning the land outside the city, and to the Jacobean’s suburb.

Opinions expressed in these excerpts are not necessarily those of FORUM’s editors.

Remember
YOU CAN COUNT ON
OUR 102nd YEAR

for
AIR CONDITIONING EQUIPMENT
of every description

PACKAGED LIQUID CHILLERS
7 1/2 to 100 tons— with room console units to provide controlled cooling and heating without duct work.

CONDENSING UNITS
Up to 100 tons, F-12 or F-22.
Air Handling Units...
Cooling Towers and
Evaporative Condensers
to match.

PACKAGED AIR-COOLED, AIR
CONDITIONING UNITS
2 through 7 1/2 tons. Residential and Commercial applications.

PACKAGED AIR CONDITIONING UNITS
In multi-color combinations 3 through 50 tons.

The Architect or Engineer specifying Air Conditioning Equipment is looking for efficient trouble-free performance—quietness and long life—AND THAT’S WHAT YOU GET when you specify CURTIS—Investigate CURTIS—you will find CURTIS Equipment enjoys an enviable reputation with people who know.

See the CURTIS catalog in Sweets Architectural File, or write for free Architects’ Manual.

CURTIS MANUFACTURING CO. • REFRIGERATION DIV. • 1914 KIENLEN • ST. LOUIS 20
probably meant open land outside and not a loosely built up area such as we refer to in current language.

Rabbi Rashi, commenting during the eleventh century, has a little more to say, however: "A migraḥ is a clear empty space outside a city, all round, to add to the beauty of the city, and one is not permitted to build a house there, or plant a vineyard, or sow seeds."

Jerusalem is the other city specifically mentioned in the Bible as having a green belt. Living in exile in the flat plain of Babylon, the prophet Ezekiel during the first half of the sixth century B.C. envisaged an ideal plan for Israel. In Chapter XLVIII he divides the country equally among the tribes, with Jerusalem in the center, having land for the Priests to the north, land for the Levites to the south, agricultural land to the east and west, while the city itself is surrounded by a green belt. Thus verses 15 and 17:—

"and the five thousand . . . shall be a profane place for the city, for dwelling, and for suburbs; and the city shall be in the midst thereof. . . . And the suburbs of the city shall be toward the north 250, and toward the south 250," etc. The unit of measurement is not written but is believed to be the Aramaic paṭṭaḥ—of six cubits, amounting to 10'. Thus the green belt here would be 2,500' all round the city.

Apart from these ordinances concerning "suburbs" there is also a remarkable forerunner to the Restriction of Ribbon Development Act, though, like so many passages in the Bible, it has other meanings:—

"Woe unto them that join house to house, that lay field to field, till there be no place, that they may be placed alone in the midst of the earth!"—Isaiah V, 8, and the Prophet is responsible for the exclamation mark.

Curtain wall fundamentals

Excerpts from a talk before the Michigan Society of Architects by J. M. Roehm, Director of Research and Development, Kawneer Co.

If metal curtain walls are to live up to their great promise, close attention must be given the basic engineering principles which are essential to good performance. Four items deserve particularly heavy emphasis: 1) thermal expansion and contraction, 2) weathering, 3) heat transmission, and 4) condensation.

Expansion and contraction

Curtain walls are generally mounted on reinforced concrete structures, steel structures fireproofed with concrete or just plain steel structures. In any case, the thermal expansion or contraction of the basic structure is less than that of the curtain wall. In fact, the supporting structure remains fairly constant dimensionally throughout the year because of the close inside temperature control maintained both summer and winter.

When dealing with different rates of expansion and contraction within the same building system, three things can be done: 1) the difference can be allowed to go into displacement, 2) it can be allowed to go into stress, or 3) a combination of the two can be provided.

The best practice is to accommodate horizontal expansion and contraction in split mullions and to take up the displacement at each mullion. In practice, however, the frequency of expansion joints varies widely. They are often as far apart as every fourth panel, and they work all right if everything is properly done. But this is apt to produce a constantly noisy wall—a wall that pops and scrapes and

continued on p. 84
STAYS DRY — Cut a piece from your sample. Place it in water. Note how the hermetically-sealed glass cells filled with dead air keep it afloat. Weight it down for days, weeks or longer if you like. Remove the weight and it bobs back to the surface . . . proof that the sealed cells have absorbed no water, still have their original insulating efficiency.

VAPOR-PROOF — With a nail file, cut a \( \frac{1}{4} \)" thick slice from your sample. Hold it to your lips and try to blow smoke through it. The smoke won’t penetrate . . . proof that FOAMGLAS is a positive vapor barrier in itself.

STRONG AND RIGID — Place your FOAMGLAS block on the floor. Stand on it. Note how it supports your weight without crushing. Compressive strength is over seven tons per square foot . . . making it ideal for load bearing applications.

WON'T BURN — Hold a flame to your sample. You’ll see at once that it does not burn . . . an important safety feature in all construction. It’s even acid-proof and rodent-proof as you can prove if you happen to have a vial of acid or a pet rat handy.
Send for a sample and make these simple tests!

Prove to yourself that FOAMGLAS is your ideal insulation!

Let us send you a free sample of FOAMGLAS. Use it to make the few simple tests illustrated. You'll prove that this unique cellular glass insulation has exactly the right combination of properties to assure you of these vital benefits: constant insulating efficiency . . . long, maintenance-free life . . . strength and rigidity for a variety of structural applications . . . ease of handling and installation.

Thousands of actual users have proved in actual performance the benefits so clearly demonstrated by these tests. No wonder, then, that new users every day are picking FOAMGLAS to insulate the roofs, ceilings, walls and floors of all types of buildings, low temperature spaces, piping and equipment. Send for a sample today and make your own tests. Use the handy coupon, or write . . .

Pittsburgh Corning Corporation
Department D-106, One Gateway Center
Pittsburgh 22, Pa.
In Canada: 57 Bloor Street West, Toronto, Ontario

LIGHT WEIGHT — Just pick up your sample to see how light and easy to handle it is. Check actual weight on your company's postal scale if you wish. The density of FOAMGLAS is only 9 pounds per cubic foot.

EASY TO SHAPE AND CUT—Shave some strips off your sample with an ordinary paper clip . . . workmen use knives, saws or trowels for quick shaping and fitting on the job.
Kent State University designed for the present and

ENDURO STAINLESS

With college enrollments at an all-time high and expected to go even higher, student feeding has become "big business." Food preparation and handling facilities must be designed for maximum efficiency and productivity.

Fully aware of these facts, officials of Kent State University and the architects planned not only for the present but also for the future by designing all of the advantages of ENDURO Stainless Steel into Terrace Hall Dormitory and Cafeteria.

Otto Pedersen, Director, Food Service, believes that in addition to providing labor-savings and longer life, stainless steel also creates

Terrace Hall Cafeteria is the largest all-stainless steel food service in Northeastern Ohio. ENDURO is used throughout for serving lines and kitchen. Two separate units can serve 4,500 meals a day.

Range tops, sinks, storage racks, work surfaces, deep fat cookers, ventilating hoods and meat hangers are fabricated from ENDURO Stainless Steel. Equipment is mounted on legs which permit easy cleaning and allow air circulation. Well-defined, open aisles maintain smooth traffic flow.

REPUBLIC

World's Widest Range of Standard Steels
STEEL...

a strong morale factor in the employees’ attitude toward sanitation and cleanliness. This factor, in itself, more than offsets any increased initial cost over other materials.

Your role in planning and designing food-handling facilities is rapidly increasing in scope. Republic offers you the services of its metallurgical and engineering staffs in helping you obtain the best possible use of ENDURO Stainless Steel.

Sweet's Architectural File, section 6c has all the facts on architectural applications of ENDURO Stainless Steel. Or send coupon for more information.

ENDURO Stainless Steel equipment has smooth, rolled edges and, wherever possible, stands away from the wall to help prevent accumulation of dirt, etc. Flush tile floors are well-equipped with stainless steel drains to meet sanitary requirements.

MORE REPUBLIC PRODUCTS FOR MODERN ARCHITECTURE

$2.54 SAVING PER OPENING on fuel and air-conditioning costs in the Socony Mobil Building is provided by Truscon's stainless steel reversible window. Tests have proved the window 80 times more resistant to air leakage than allowable industry standards. Truscon® Engineers will help you adapt this window to your requirements. Write for fact and specification file.

MORE SAVINGS IN LIGHTER FRAMING AND FOOTINGS are possible with the new Truscon Clerespan® Steel Joist. To meet all types of loading conditions, it utilizes a Warren-type truss. Joist depth is standardized at 18" to 48". Open webs provide passage for and concealment of ducts, pipes, electrical conduit. Send for new Truscon catalog, E-280, which gives you all the facts on Clerespan Steel Joists up to 96 feet in length.

REPUBLIC STEEL CORPORATION
Dept. C-1462
3110 East 45th Street
Cleveland 27, Ohio

Please send more information on:
☐ ENDURO® Stainless Steel for Architectural Applications
☐ Truscon Stainless Steel Reversible Windows

Also send:
☐ Truscon Clerespan Steel Joist Catalog E-280.

Name ____________________________ Title ____________________________
Company ____________________________
Address ____________________________
City ____________________________ Zone ____________________________ State ____________________________
From factory space to wood-paneled offices quickly and economically with Weldwood Movable Partitions

Faced with a shortage of offices, the Aurora Pump Company, of Aurora, Ill., used Korina and Natural Birch Weldwood Movable Partitions to turn idle factory space into extra offices. Matching hardwood paneling covers unsightly girders and columns, while corrugated Fiberglas does double duty: hides factory ceiling . . . gives soft, diffused light. It's hard to believe this corridor was formerly factory space. Real wood-faced partitions end painting and redecorating costs . . . need only an occasional waxing to stay beautiful forever.

Exclusive metal-key joining system keeps Weldwood Movable Partitions a solid wall—yet allows them to be quickly moved or rearranged. It's so easy, untrained workmen can create new office arrangements overnight. Partitions have a core of Weldrok—a ncombustible material that tends to reduce noise transmission.

Send coupon for specifications and installation data. Or for further information on Weldwood Movable Partitions call any of our 87 offices in principal cities. In Canada: Weldwood Plywood, Ltd.

Weldwood
MOVABLE PARTITIONS
A product of UNITED STATES PLYWOOD CORPORATION
Weldwood—The Best Known Name in Plywood

Aurora Pump Co. picked Korina™—blond, African hardwood—for the partitions forming this office. Matching Weldwood flush doors carry out décor. Weldwood Movable Partitions also come in oak, birch, mahogany and other fine woods. They more than satisfy today's two top office demands: beauty and flexibility.
As a result of Wheeling's greater packaging care, lath arrives at job-site in perfect condition, perfectly rectangular with true 90° corners. It's rigid and flat, no buckling. Men can work faster, better. Because selvage is held to a minimum there are no overlapping bulges so plaster takes better.

Only Wheeling Metal Lath comes packaged this exclusive way: 500 sheets in sturdy lifts of 50 10-sheet bundles. It's packaged for easy handling, stenciled for immediate identification, tagged for surer counting and banded to insure arrival in perfect condition.

Specify Wheeling Metal Lath next time you want superior lathing for superior plastering. It's the best start for the best finish.

The full line of Wheeling Building Products includes Metal Lath and Accessories, SOFTITE Cop-R-Loy Galvanized Sheets, Steelcrete Reinforcing Mesh, Steelcrete Bank Vault Reinforcing, Expanded Metal, ExM Gratings, ExM Angle Frame Partitions and Tri-Rib Steel Roof Deck.

Wheeling Engineered Metal Lath Package

DELIVERS True, Flat, Rigid Metal Lath!

Metal Lath for Strength... Plaster for Beauty!

WHEELING CORRUGATING COMPANY • BUILDING MATERIALS DIVISION
WHEELING, WEST VIRGINIA

Atlanta Boston Buffalo Chicago Columbus Detroit Houston Kansas City Louisville Minneapolis New Orleans New York Philadelphia Richmond St. Louis
Doors open straight upward—no space is wasted anywhere

Maximum protection against theft, riot intrusion, vandalism

Every door is REGISTERED for your protection

Extra-heavy zinc coating, for lasting weather resistance

You get more protection plus more efficiency in Kinnear Rolling Doors. Coiling above the doorway, they open out of the way! They never block light from close-by windows or fixtures. No floor, wall, or ceiling space is sacrificed. Hoists, conveyors, high-lift fork trucks and similar equipment can be used to maximum advantage.

1. Details on every Kinnear door are REGISTERED—kept in fire-safe vaults. Damaged or worn parts are permanently replaceable. Your Kinnear Door is never "orphaned."

2. Kinnear's rugged interlocking-slat curtain is heavily galvanized (1.25 ounces of pure zinc per sq. ft., A.S.T.M. Standards). In addition, the special Kinnear Paint Bond assures immediate, thorough coverage and adhesion of field-applied paint.

Kinnear Rolling Doors are engineered to fit any need, with manual-lift, crank, chain or electrical operation. Controls for motorized doors can be placed at any number of convenient spots. For long, low-cost service, insist on Kinnear Rolling Doors! Write for catalog.

The KINNEAR Mfg. Co.

FACTORIES
1640-60 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.

EXCERPTS cont'd.

squeaks. This is due to what is known as stick friction—more properly called static friction. Thermal forces build up; static friction resists until suddenly the thermal force overcomes the friction with a resulting bang.

Split mullions, such as these permit the thermal expansion to go into displacement. Since aluminum responds rapidly to temperature change, in allowing for expansion, it is good practice to base the amount of clearance on the assumption that all thermal expansion will occur in the curtain wall and that none will occur in the building structure. The building structure, enclosed as it is by the curtain wall, will tend to remain close to the inside temperature of the building throughout the year, whereas the curtain wall will expand and contract with every rise and fall of outside temperature. (The clearance of .072" shown in sketch is calculated on this basis and is admittedly greater than will ever be needed.)

The other way to accommodate thermal force is to allow it to go into stress. When this is done, care must be taken to space attachment members properly with relation to the section properties of the curtain wall framing elements. Stress must be kept below the level which will cause permanent set, and loads on the framing elements must be kept below a value which will cause column buckling.

In one-story, and sometimes two-story buildings, we provide clearance for horizontal expansion and contraction. Top and bottom of panels are firmly anchored thereby causing the thermal forces acting in a vertical direction to go into stress. In multi-story buildings we provide clearance for expansion and contraction through slip joints in the vertical members.

Weathering

If rain and wind blow through the wall the client is very unhappy, and correction of the problem can be costly to the contractor. If proper provision is made for expansion and contraction, we cannot have a hermetically sealed wall—we know that moisture can get into the wall, and we must make provisions to drain it out. Areas within the wall should be vented to the outside. This is good practice since vapor barriers should always be on the inside of the wall.
"I always thought

glass was glass"

"So did I until

I used American

LUSTRACRYSTAL*"

AMERICAN PRODUCT LINE
American manufactures sheet glass with the least distortion and the greatest clarity, whiteness and luster.

LUSTRAGLASS—single and double strength for conventional glazing.

*LUSTRACRYSTAL—economical heavy sheet glass for larger openings and many other applications.

MAX. SIZE—72" height x 120" width. Information on larger sizes available on request.

THICKNESS—⅛", 3/16", ½".

LUSTRAWHITE—a picture glass of exceptional clarity and flatness.

LUSTRAGRAY—for better television viewing; and special glazing.

BULB EDGE GLASS—for use as counter dividers, wind deflectors and shelves.

THIN GLASS—for microscope slides and covers. Extremely flat and true to tolerance.

SUPRATEST—a laminated safety glass.

PANAL—a fiberglass-reinforced plastic structural panel.

WATCH OUR PRODUCT FAMILY GROW

Here’s crystal sheet glass with benefits you can readily see. No scientific tests are necessary to point out Lustracrystal’s greater whiteness, undistorted clarity and luster. You can tell it’s best at a glance.

Lustracrystal also offers a big savings you can see. It is made heavy, large and strong enough to be used in place of plate glass for many glazing applications. Builders using Lustracrystal have reported saving 35% on glass costs.

Look in your Classified Phone Directory for the name of the AMERICAN distributor in your territory.

Always specify and use AMERICAN for:

• True Economy
• Dependable Strength
• Crystal Transparency
• Lustrous Beauty

MODERN GLASS
Best at a Glance

AMERICAN WINDOW Glass COMPANY
PITTSBURGH, PA.
PROVIDES THE FINEST IN SOUND SYSTEMS

Every Altec Lansing sound product is especially designed to do a specific job. Altec manufactures more than 100 sound products—including microphones, amplifiers, controls, speakers and enclosures, thus providing the right combination of components for every installation regardless of size.

Typical of the wide range of Altec products are the two amplifiers shown. The new Altec 342A is a 20 watt public address amplifier that is truly outstanding in its flexibility of function. Incorporating the “input-matcher” features, the 342A permits the use of any combination of 4 inputs to match your exact circuit needs. It is quickly and easily installed and occupies a minimum of space—the ideal amplifier for small or intermediate size installations.

The Altec 260A is a 260 watt amplifier of low distortion and wide frequency range for public address and industrial control applications where long life and minimum maintenance are paramount. In addition to other outstanding features, the filament warm-up period is controlled by delay relay, thus permitting remote full on-off control.

For further information on Altec Lansing sound products see Sweet’s Architect’s File (32a/AL) or Industrial Construction File (12j/AL) or write Department T-F for the Altec Engineered Sound Products Catalog.

This diagram shows typical details for baffling moisture infiltration and for weeping out any accumulated water. Note that each composite panel has within it a complete drainage system.

Heat transmission

The term “panel” in this discussion refers to the complete unit consisting of mullions, horizontal members, insulated panel and glass. It is this composite structure which has the function of keeping heat out of the building in the summer and in the building in the winter.

This comparison brings to light very quickly some of the fundamentals of good practice. The quickest gain that can be made is to use double glass instead of single glass. By so doing, heat transmission is cut almost in half. This comparison is based on a 5’ x 10’ unit with an insulated panel 80” high. Note what a small difference 8” of concrete wall makes. This chart quickly illustrates the point that in a composite structure of aluminum, glass and insulated panel, very little is to be gained by increasing the core insulation of the panel. In many cases the added insulation will result in more expense than the cost of heating or air conditioning required to compensate for the lack of this insulation. However, if heating elements are located directly behind the insulated panel, then it will probably be desirable to have a high insulation value.

continued on p. 91
New concepts in custom-built schools, achieved with Luria standardized steel frames

CREATIVE SCHOOL ARCHITECTURE
AND LURIA BUILDINGS

Old Town, Maine High School

THE WORK OF MAINE ARCHITECT
ALONZO J. HARRIMAN
The creative designs of Architect Alonzo J. Harriman, A.I.A., of Auburn, Maine, distinguish many types of structures. His schools, which are nationally known for their functionalism, handsome design and economical construction, are particularly good examples of his work.

Good school designing requires the individuality of custom-built structures. Yet, today's school shortage dictates economical construction and speedy erection. School architects from coast-to-coast are achieving both goals...with the use of Luria steel structures. More and more of today's handsome, custom-designed school buildings utilize the Luria system of standardization. To get the complete Luria story, write or telephone your nearest Luria office for a catalog or personal call.

LURIA ENGINEERING Company
511 Fifth Avenue, New York 17, New York • Plant: BETHLEHEM, PENNSYLVANIA
District Offices: ATLANTA, PHILADELPHIA, BOSTON, CHICAGO, WASHINGTON, D. C.
BULLDOG INDUSTRIAL
TROL-E-DUCT

Keeps Power Moving with Production

Duct tailors to any job—mobile trolleys feed and support tools!

BullDog scores again—by putting "power on wheels"! And you'll rate high with your clients when you introduce them to BullDog Industrial Trol-E-Duct®, the modern system that "trolleys" power right to the job. Smooth-rolling trolleys move along the duct with an easy tug, feeding current to portable power tools—speeding production, increasing safety. Duct sections are designed for quick installation, making it easy to plan an efficient power-distribution layout for any size plant. Trolleys can be added with ease, and duct relocated to fit plant changes—eliminating unnecessary downtime.

Installing Trol-E-Duct is sound business. Like all BullDog products, it leads to extra profits by creating greater customer satisfaction. Check into it now—as your BullDog field engineer or qualified distributor—or write BullDog Electric Products Company, Detroit 32, Michigan.

IF IT'S NEW... IF IT'S DIFFERENT... IF IT'S BETTER... IT'S

BULLDOG
ELECTRIC PRODUCTS COMPANY

A Division of I-T-E Circuit Breaker Company

Export Division: 13 East 40th Street, New York 16, N.Y. • In Canada: BullDog Electric Products Co. (Canada) Ltd., 80 Clayson Road, Toronto 15, Ont.
Striated styrene wall panels offer many new possibilities in commercial and in home planning

One of the most promising of the new plastic wall materials is the striated wall panel, made of Monsanto Lustrex styrene. The dramatic beauty and unusual toughness of the panel make it a versatile tool for the kitchen, bathroom, den, office, restaurant, hospital and store.

Striated panels can be applied on concrete, cement, or cinderblock... on plaster, plaster board, or plywood. Their rich, deep colors blend harmoniously with any interior, and won't fade or change. The panels can be counted on to resist rust, warping, chipping, peeling. Used in playrooms they're acoustically qualified for hi-fi. On bathroom walls, they offer high resistance to moisture and mildew. They provide a practical source for color in the modern kitchen.

Building suppliers stock striated styrene panels in tongue-and-groove sheets, 12" wide, in various lengths, in about a dozen different colors. Matching trim is also available. Attached with a special mastic, they're guaranteed for 25 years of non-fading service.

Monsanto supplies Lustrex styrene plastic for many outstanding applications, especially well suited for architectural and building purposes.

Present and future uses of plastics in building are under constant study by Monsanto's Structural Plastics Engineering Group. You are invited to call upon them for expert technical counsel.

Panels illustrated are manufactured by Ridge Plastics Company, Elyria, Ohio.

A NEW REPORT "Plastics in Housing," has recently been published by the Department of Architecture of the Massachusetts Institute of Technology. The M.I.T. study was made possible by a Monsanto grant-in-aid. Copies are available at $2.00 each.

Address Monsanto Chemical Company, Plastics Division, Room 224, Springfield 2, Mass.
Rotary Oildraulic® Elevator will lift

NEW YORK COLISEUM, NEW YORK CITY

OWNER: Triborough Bridge & Tunnel Authority
ARCHITECTS: Leon and Lionel Levy
ADVISORY ARCHITECTURAL COMMITTEE: Aymer Embury II, Eggers & Higgins, John B. Peterkin

ENGINEERS: Guy B. Panero
STRUCTURAL ENGINEER: Jacob Feld
GENERAL CONTRACTORS: Walsh-Fuller-Slattery (joint venture)

ROTARY OILDRAULIC ELEVATING EQUIPMENT installed by Burwak Elevator Co., New York
HUGE ELEVATOR CAR RISES 62 FEET ON 3 HYDRAULIC JACKS

The new $35 million Coliseum in the heart of Manhattan is big...even by New York standards. It has a four-level exhibition hall, lobby a block and a half long, a 20-story superimposed office building...and one of the largest elevators in the world.

The elevator was designed and built by Rotary Lift Co. to handle any object that might be displayed in the vast expanse of the Coliseum, from a luxurious yacht to a complete highway tractor-trailer unit.

Oil-hydraulic operation
Three 15” diameter oil-hydraulic jacks, powered by Rotary Oildraulic electric power units, support and raise the elevator. Sixteen equalized guide shoes on double guide rails, developed by Rotary Lift Co. for this installation, steady the giant car and its load during the 62-foot rise. Rugged construction of all mechanical parts and precise controls assure complete safety.

Economical and dependable
In unusual applications like this, as well as in simple, small-capacity elevators, Rotary Oildraulic equipment offers many installation and operation advantages.

Because the car and its load are supported by an oil-hydraulic jack, there is no need for an expensive penthouse or heavy load-bearing sidewalls.

Consistently smooth, dependable performance has been proved in thousands of installations.

For improved building design at lower cost, investigate the possibilities of Rotary Oildraulic Elevators on your next job. Factory-trained personnel in a national distributor organization will help you with plans and specifications...and provide reliable installation and maintenance service. Look for “Rotary Oildraulic” under “Elevators” in the yellow pages of your phone book.

SEE OUR CATALOG IN: SWEET’S

Oildraulic® Elevators
PASSenger AND FREIGHT
Engineered and built by Rotary Lift Co., 1111 Kentucky, Memphis 2, Tenn. Specialists in oil-hydraulic elevators and lifts.
EXCERPTS cont'd.

Condensation

The problem of condensation on metal is one that has always plagued the designer of metal curtain walls. He is caught here between the sometimes conflicting requirements of good appearance, economical production, economy of materials and ease of erection. The ideal way to eliminate this problem of condensation is to completely break the metallic conduction from the inside of the building to the outside. Some day, we hope to have a structure which will economically accomplish this, but no one has yet arrived at an ideal design. Therefore we must contend with this problem of through metallic conduction.

There are however things we can do to improve the situation. The ideal way to eliminate condensation on a mullion section would be to place an insulated panel outside of the mullion itself. This, of course, is impractical from the point of view of architectural appearance. The other way to solve the problem is to put the mullion completely outside of the panel. This then causes problems of mounting the framing to the main building structure. Therefore we are generally confronted with the problem of locating a mullion in the wall system with part of it exposed to the outside and part to the inside.

These curves indicate that it is better to have most of the mullion on the inside. The more mullion within the building, the lower the outside temperature may drop before condensation will take place on the metal.

Another way to help reduce condensation is to locate heating elements in the right place with reference to the wall. A warm air curtain rising from peripheral hot air registers or fin radiators will, under the same conditions of mullion design, accommodate lower outside temperatures before condensation occurs. A third continued on p. 36
Versatile Concrete Masonry
the newest outlook in building

You can keep up to date on block by checking with your local NCMA member—he has all the facts. Call him soon.

NATIONAL CONCRETE MASONRY ASSOCIATION • 38 SOUTH DEARBORN • CHICAGO
way to overcome condensation is to insulate the inside or outside of the mullion.

This graph illustrates the effect of a hot air curtain on the reduction of condensation. It also shows that this is not quite as effective as shifting the mullion location towards the inside of the building.

Here is another chart that shows what results can be expected with a break in metallic conduction. The drop in outdoor temperature which will result in condensation of the inside metal is probably not as great as would be expected. On the other hand, this small difference is quite helpful in some designs. The smaller the area of metal in contact with the insulating strip, the better.

In considering reduction in heat transmission, the architect and his client will have to decide whether the reduction in heat loss is worth the extra complication and cost in structure to achieve it. It is the old matter of economics again dictating that we arrive at the optimum design for the total building and not necessarily the best design for the wall itself.

continued on p. 100

Specify the One
Power Roof
Exhauster
with these
12 vital features!

Gallaher Has Them All!
Inconspicuous Appearance
Low Installed Silhouette
Corrosion Resistant Finish
Sound Structural Design
Shipped Completely Assembled
Quiet Operating
Certified Ratings
Scroll Design
Weatherproof
Safe Fume Handling System
Meaningful Guarantee
Standard Motors

All 12 features are vital to years of service and efficient performance, and Gallaher Air-Vans have them all. Architect and engineer achieve function and appearance. Owners save money over the years.

For full information, contact:
The GALLAHER Company
4108 Dodge St. Omaha, Nebraska
Export Office: 306 Paul Building, N.Y.
Cable: Keiserquip
make sure your building doors pass their entrance exams

**FINAL EXAM**

**YES** ☑ **NO** ☐

- Open and close doors smoothly, quietly, automatically.
- Meet architectural requirements for appearance and space.
- Are easy to install and maintain.
- Increase property values.

**100% BEST BY TEST**

**Specify**

**STANLEY**

Magic Door

CONTROLs

Write for complete information on Magic Carpet®, and other Stanley Magic Door Controls that will meet your specific requirements. Complete automatic door service is available from your nearby Stanley Magic Door Representative. He is listed in your telephone directory.

Ask for AIA File No. 16-G. See 1956 Sweet's Architectural File—10c

*PAT. IN U.S.A. AND CANADA

MAGIC DOOR DIVISION, THE STANLEY WORKS
DEPT. J, 1002 LAKE ST., NEW BRITAIN, CONNECTICUT

Representatives in Principal Cities

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS • STANLEY STEEL STRAPPING • STANLEY STEEL
low cost R/C DUCT FLOORS
(ELECTRIFIED CONCRETE JOIST FLOORS)
provide 100% electrical flexibility
for the tenants of the handsome, new reinforced concrete building of E. I. du Pont de Nemours and Company

R/C Duct Floors (electrified concrete joist floors) provide the management and personnel of the new E. I. du Pont de Nemours and Company (Finishes Division)* with a complete network of underfloor electrical outlets for power, light, telephone, and intercom systems—at a new low cost. Additional outlets can be connected to convenient risers in minutes. There is no ripping up or drilling through floors and ducts. R/C Duct Floors, which meet all building code requirements, consist of standard steel electrical distribution ducts set in the structural slab of reinforced concrete joist floors... no expensive fill or topping is needed. Cost studies show that R/C Duct Floors average 19% less than cellular steel floors. Furthermore, reinforced concrete buildings start quicker and are completed sooner.

Owner  E. I. du Pont de Nemours and Co.
Location  7250 North Cicero Ave.
Lincolnwood, Illinois (Suburb of Chicago)
Architect  Ralph Stoetzel
Chicago, Illinois
Engineer  Joseph T. Corp., Inc.
Contractor  Chicago, Illinois

WRITE FOR NEW 16-PAGE BULLETIN

CONCRETE REINFORCING STEEL INSTITUTE
38 South Dearborn Street • Chicago 3, Illinois
ARCHITECT: Donn Hougen
CONTRACTOR: Thomsen Abbott Construction Co.
CABINETS: Robert Brand & Son Co. and Modern Cabinet Co.
CONSOWELD DISTRIBUTOR:
Wausau Supply Co.

Consoweld 10 Cocoa Echo on corridor walls in the Wood County Court House. Altogether more than 14,000 square feet of 8 different Consoweld patterns, including woodgrains, were used in various applications in the building, and on the judge's bench.

CONSOWELD 10 EASY TO APPLY, MAINTAIN, IN NEW COUNTY COURT HOUSE CORRIDORS

The beautiful colors, ease of application, and minimum maintenance of Consoweld were reasons for selecting Consoweld for wainscoting and other applications in the Wood County, Wis., Court House.

Consoweld on walls and counter tops provides color with durability. All Consoweld patterns have been color-tuned by Color Research Institute for color harmony and public preference. Application is easy and economical because Consoweld is applied in large panels—up to 51” x 144”, resulting in a minimum of seams.

Consoweld is a dense, tough plastic laminate. It comes in two thicknesses—Consoweld 6, the standard 1/16”, and Consoweld 10, the extra-thick 1/10” panel that is applied directly over sheathing-grade plywood, gypsum lath, and other less-than-perfect surfaces. Mail the coupon for architect-builder file folder giving full information.

The beautiful colors, ease of application, and minimum maintenance of Consoweld were reasons for selecting Consoweld for wainscoting and other applications in the Wood County, Wis., Court House.

Consoweld on walls and counter tops provides color with durability. All Consoweld patterns have been color-tuned by Color Research Institute for color harmony and public preference. Application is easy and economical because Consoweld is applied in large panels—up to 51” x 144”, resulting in a minimum of seams.

Consoweld is a dense, tough plastic laminate. It comes in two thicknesses—Consoweld 6, the standard 1/16”, and Consoweld 10, the extra-thick 1/10” panel that is applied directly over sheathing-grade plywood, gypsum lath, and other less-than-perfect surfaces. Mail the coupon for architect-builder file folder giving full information.

Consoweld Corp., Wisconsin Rapids, Wisconsin
Please send me architect-builder file folder on Consoweld and name of nearest distributor.

NAME: ____________________________
FIRM: ____________________________
ADDRESS: _________________________
CITY ____________________________ STATE ________

Ground strips for plastering also act as nailing strips for moldings. Below wainscotting height the walls were finished in gray coat over which Consoweld was applied directly with mastic adhesive.

Consoweld 10 EASY TO APPLY, MAINTAIN, IN NEW COUNTY COURT HOUSE CORRIDORS

The beautiful colors, ease of application, and minimum maintenance of Consoweld were reasons for selecting Consoweld for wainscoting and other applications in the Wood County, Wis., Court House.

Consoweld on walls and counter tops provides color with durability. All Consoweld patterns have been color-tuned by Color Research Institute for color harmony and public preference. Application is easy and economical because Consoweld is applied in large panels—up to 51” x 144”, resulting in a minimum of seams.

Consoweld is a dense, tough plastic laminate. It comes in two thicknesses—Consoweld 6, the standard 1/16”, and Consoweld 10, the extra-thick 1/10” panel that is applied directly over sheathing-grade plywood, gypsum lath, and other less-than-perfect surfaces. Mail the coupon for architect-builder file folder giving full information.

Consoweld Corp., Wisconsin Rapids, Wisconsin
Please send me architect-builder file folder on Consoweld and name of nearest distributor.

NAME: ____________________________
FIRM: ____________________________
ADDRESS: _________________________
CITY ____________________________ STATE ________

Ground strips for plastering also act as nailing strips for moldings. Below wainscotting height the walls were finished in gray coat over which Consoweld was applied directly with mastic adhesive.
Workers who get around

use Ramset®

Unhampered by hose, wires or other cumbersome equipment, workers using RAMSET can move anywhere... fasten anything securely to concrete or steel just by squeezing a trigger!

RAMSET is powder-actuated. Operator carries the power in his pocket. One-hand operation makes it easy on ladders, scaffolds, other awkward places.

DUO-JOBMASTER® sets the standard for the industry. It is two tools in one, sets 5/8" or 3/4" fasteners with the same tool, merely by switching barrels.

The DUO-JOBMASTER is a powerful, full-sized working tool developed from 10 years' experience. This one tool will do 90% of your fastening jobs!

For fastening anything to hard materials, RAMSET FASTENING SYSTEMS can save you time, money, effort. Your FREE catalogs await you. Ask for both RAMSET and SHURE-SET.

This hammer-in tool for cinder block and masonry uses no cartridge; just makes hammer-power more effective. When nails fail and RAMSET is more powerful than needed, use SHURE-SET!

EXCERPTS cont’d.

City of the future

Excerpts from an article in the magazine Challenge by Frederick Gutheim

It would be unreasonable to assume a steady increase in automobile congestion on city streets. Commuting time, if projected on the record of the past quarter century, would soon reach absurd proportions. Clearly, then, a profile of our future cities will have to take into account more than trends now visible.

The way our cities are growing involves two main areas of difficulty. While cities are becoming more congested, there is a steady flight from the city of both the younger, more vital families and of industry. Consequently, assessed values are dropping and many cities face diminishing revenues. Some are fighting a determined battle against these changes, but even the cities which are holding their own realize that the surrounding suburbs are growing faster. As cities spread out they present the second difficulty—the financial inability of suburban communities to stand on their own feet. This is usually evidenced by poor roads and transit conditions, inadequate water and sewer lines, overcrowded schools and the inability of an entire suburb to dig itself out after a snowstorm. Almost every student who has examined all sides of these problems has arrived at the same solution: metropolitan regional government.

It is important to realize that the metropolitan city of the future is not just the large city of today with its fringe of suburbs amalgamated into some form of a supercity. It is really a sort of city-state, often embracing large areas of watershed, or linking scattered suburban communities which are separated by open country. Contrasted to city planning, metropolitan regional planning embraces such considerations as the availability of natural resources, water supply, flood plains and scenic and recreational areas. It deals with the peaceful coexistence of town and rural areas, where farming is not necessarily affected adversely by the rise of speculative land values or by the approaching urban fringe. It seeks to organize and integrate the city's public utilities, transportation system and such government services as education and health.

To predict that America in 1975 will be a metropolitan America does not mean that it will be dominated by vast, impersonal supergovernments. Certainly, as we advance toward more efficient government of large cities, we shall also find ways to give expression to smaller sectional units of government. The best bet for the future metropolitan area may be a rather loosely federated government.

continued on p. 106
SOCONY MOBIL BUILDING
New York City
ARCHITECTS:
Harrison & Abramovitz
John B. Peterkin
BUILDER:
The Turner Construction Co.

TEMPLE UNIVERSITY (Addition)
ARCHITECT:
Skidmore, Owings & Merrill
ASSO. ARCHITECT:
James A. Nolen, Jr.
BUILDER:
John McShain, Inc.

POMEROY'S NEW SERIES-7 STEEL ENCLOSURES...

smarten interiors... cut construction costs

Style, construction and flexibility in design make POMEROY'S NEW SERIES-7 Enclosures the choice for today's buildings. Custom built in continuous or single unit runs, Series-7 Enclosures possess exclusive features that affect economies in modernization work as well as in new building projects. For your next project—large or small—call POMEROY.

S. H. POMEROY CO., INC., 25 BRUCKNER BOULEVARD, NEW YORK 54, N.Y.
Trane Wall Line Convectors combine low initial cost with low installation cost to meet even the tightest heating budgets. Designed for attractive wall-to-wall applications in schools, office buildings, hospitals and institutions... wherever high capacity and economy are a must. Unusually rugged construction with extra reinforcements and full back. Over-all cabinet heights 14", 20", 26"; depths 4" and 6"; lengths to 72".
fill any radiation need!

Nation's most complete line of fin-type radiation simplifies specifications and maintenance...concentrates responsibility.

CHURCH ROOM OR CLASSROOM, hospital, home or factory—no matter what type of building or where—no matter what type of radiation—this one-source supply can cut design time and help you plan better.

Specifications are simplified, maintenance made easier. And the reason is simple. TRANE manufactures the nation's most complete line of fin-type radiation, so you can concentrate responsibility in one reliable source.

Since 1925 TRANE has led the way in developing and improving a broad line of radiation products. You can depend on TRANE quality and TRANE ratings in job after job after job. TRANE product literature is complete, easy to use.

So on your next job—say "TRANE." Call your nearby TRANE Sales Office, or write TRANE, La Crosse, Wisconsin.

TRANE
MANUFACTURING ENGINEERS

One source, one responsibility for:
Air Conditioning • Heating • Ventilating
Heat Transfer Equipment

The Trane Company, La Crosse, Wis. • Eastern Mfg. Div., Scranton, Pa. • Trane Co. of Canada, Ltd., Toronto • 90 U.S. and 19 Canadian Offices

Matched Trane products for all your heating needs

Force-Flo heaters block cold air, stop drafts.
Model H & P unit heaters put heat where you want it.
Torrador heaters deliver large volumes of air long distances.
Steam Specialties include full line of valves, traps, vents.

Trane Wall-Fin brings draft-free heating to long wall and window areas. Large tube diameters make it especially suitable for loop systems where pressure drop is critical. Use single element where capacity requirements are low, multi-tiered elements where high capacity per linear foot is required. Sloping-top cabinets or expanded metal grilles. Choice of 1 1/4" or 2" steel or 1" or 1 1/4" nominal copper elements.

Trane Convectors combine efficiency with compactness and beauty. Aluminum-copper heating element responds quickly, provides heat instantly...eliminates wasteful overheating common to other types of radiation. Ideal for homes, offices, institutions. Can be installed free-standing, recessed or wall-hung. 21 cabinet styles with flat or sloping tops. Knob or chain dampers optional.

Trane Baseboard Convectors assure your homeowner clients greater comfort by heating where the cold begins—along outer walls, under windows. Give greater freedom of furniture arrangement, add beauty to any home. And they may be installed up to 50% faster because cabinet and coil come pre-assembled, closures snap together. Nonferrous heating element. 8 1/4" and 12" heights.

architectural FORUM / October 1956
For 35 Years...

Architects have

NEW Sweet's Catalog insert with separate spreads for each door...complete specifications on each spread...traceable details drawn to scale.
specifed

more than any other brand!

The "OVERHEAD DOOR" has enjoyed and appreciated the confidence of architects for three and a half decades. Such leadership has been a pleasure—yet demanding. It means not just the finest class B or better Sitka Spruce or Douglas Fir. Not just the best rust-resistant and reinforced tracks. Not just the finest hardened rollers money can buy...nor the best electrically engineered operators.

But the outstanding requirements we have met add up to a certainty of quality installation and responsible service...by exclusively dedicated craftsmen.

New fire station at Toledo shows how the Overhead Door Corporation handles most rugged physical and design requirements. Architects: Bellman, Gillett & Richards.

A Complete Line of Doors...Commercial and Residential...Including Electric and Electronic Operators.

America's pioneer and leader in upward-acting garage doors

OVERHEAD DOOR CORPORATION
Hartford City, Indiana

MANUFACTURING DIVISIONS
Hillside, N.J. • Nashua, N.H. • Cortland, N.Y. • Lewistown, Pa. • Oklahoma City, Okla. • Dallas, Tex. • Portland, Ore.
An outstanding unit, combining incandescent light to high-light merchandise with sparkle and warmth—and a high-level of well-diffused fluorescent light for comfortable overall seeing. Hinged, one-piece aluminum louver offers maximum rigidity, minimum weight. Can't come apart, can't sag. Utilizes six or eight 48" Rapid Start fluorescent lamps and one 200 or 300 watt incandescent lamp directly above a glass lens in the center of the egg-crate type louver.

**SPECIAL**—Unique Alzak* aluminum reflector controls and blends fluorescent and incandescent light. No splash of incandescent... no contrast of fluorescent and incandescent colors on surface of fixture.

*T.M. Aluminum Company of America

Above: Garcy No. RS9700 units installed in John Wanamaker's, Wynnewood, Pennsylvania

**GARCY 5600 LUMINAIRES FOR LUXURY LIGHTING**

<table>
<thead>
<tr>
<th>VARIETY IN SIZE AND NUMBER OF LAMPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2' x 2' — Two, three or four lamp rows</td>
</tr>
<tr>
<td>2' x 4' — Two, three or four lamp rows</td>
</tr>
<tr>
<td>2' x 8' — Two, three or four lamp rows</td>
</tr>
<tr>
<td>4' x 4' — Six, eight or ten lamp rows</td>
</tr>
<tr>
<td>Choice of rapid start fluorescent or slimline lamps</td>
</tr>
</tbody>
</table>

**GARCY Quality by Design**

Send for Bulletin—552 L

In Canada: Garcy Co. of Canada, Ltd., 1244 Dufferin Street, Toronto 4

**EXCERPTS cont'd.**

Only such a federated form of government can assure suburban communities that their independent character will be protected.

This pattern seems even more desirable politically and more efficient financially than the pragmatic alternative so often advanced—the proliferation of metropolitan districts concerned only with transportation, water, sewers and other special duties. The division of government by function leads to wasteful duplication and interagency conflicts and to a wasteful erosion of civic responsibility. We must be careful that as our cities grow, they do not become too impersonal. For unless individual political responsibility is preserved, an urban America may not be a fully democratic America.

If we can create large cities that maintain a human scale, we can have the cultural and economic advantages of bigness without its disastrous consequences upon which many past civilizations have founded.

These cities will come to resemble urban archipelagos. Each "island" will have a considerable degree of autonomy and individuality. They may have two entirely different transportation systems, one to use within the community and the other, in this automotive Venice, for longer distances. People will live nearer their work and much of the traveling now necessary will be eliminated. A rich community life, with greater opportunities for personal development and experience, will be possible. The widest choice of types of housing can be offered in each community, as distinguished from the highly stratified and socially brittle communities that are being created today. There should be no sacrifice of metropolitan cultural institutions like symphonies, universities, libraries and museums, but there should be a corresponding and healthy development of these on a community scale. Thus, it is at the level of the individual community within the metropolis as a whole that there is the greatest opportunity for the development of "urbanity"—the character that is lost in the suburban tidal wave that has temporarily engulfed us.

Among today's metropolitan plans, the one that most closely fits American conditions and needs is the so-called "finger plan" of the Danish capital of Copenhagen. Here is a linear metropolis in which a healthy core spreads into a series of suburban communities, separated from each other by natural land forms of rugged hills and tidal inlets which are developed into forests, parks and beaches. There is an effective plan of movement throughout the metropolitan area. In my judgment, the future of our great cities lies in rationalizing and refining the strong growth lines imposed by various communications systems.
They get matched grain wood beauty — at a practical price!
They use real wood paneling on ugly pillars, on irregular curved walls, on limited budgets?
They do it with new, improved Flexwood, real wood paneling in flexible form. So flexible, it's installed easily — often in a matter of hours — on pillars, posts, straight or curved walls!
40 beautiful woods, in architectural and random grades, for new jobs or alterations. Meets all fire code requirements for offices, banks, hotels, homes, etc. Every installation guaranteed! Send for samples.

Architects and designers call it the year's most exciting new idea in vinyl wall coverings. It's Kalistron's new Shadowline, new in texture, new in pattern. Shadowline is permanently textured (unlike some "textured" coverings). It incorporates the same easy-to-clean vinyl protection for which Kalistron is noted — nothing can mar it, dent it, scratch or scuff it. Its texture stands up, its beauty stands out ... indefinitely.
If you are searching for something new — and beautiful — and durable, then Kalistron's new Shadowline is for you. Send today for samples.

UNITED STATES PLYWOOD CORPORATION
Flexible Materials Division
2821 So. Floyd St., Louisville 13, Ky.

Student Union Building, University of Connecticut
Increasingly high comfort standards, on the one hand, and pressure to reduce operating expenses, on the other, have centered interest on the importance of automatic temperature control. For both comfort and the cost of comfort in today's schools are determined largely by the efficiency of the control system.

In the impressive new Edison Junior High School* progressive school planners have demonstrated how it is easily possible to stress economy while making exceptionally complete provisions for student and teacher comfort. Some of the highlights of this up-to-the-minute comfort control system are shown by the accompanying photographs.

Those who subscribe to the modern idea of getting more comfort per dollar know that Johnson offers the most practical means of achieving it. The Johnson organization has over 70 years' experience in solving the temperature regulation problems of schools—more specialized experience than anyone else!

Johnson engineers apply this experience specifically to your individual problems—each Johnson System is designed and installed to meet the exact needs of the individual building, its occupants and its particular heating and ventilating equipment. This combination of unmatched experience and expert application results in control systems that are unsurpassed for comfort as well as economy.

Any building, small or large, can enjoy the comfort and money-saving advantages of a Johnson-engineered Control System. Why not discuss your temperature control problems with a Johnson engineer soon? His recommendations are yours without obligation.

Johnson Service Company, Milwaukee 1, Wisconsin. Direct Branch Offices in Principal Cities.

*Edison Junior High School, Sioux Falls, South Dakota. Harold Spitznagel & Associates, architects, Sioux Falls; Homer Bird, mechanical engineer, Minneapolis; Carlson & Glasgow, mechanical contractors, Sioux Falls.
ON THE WALL of each classroom, sensitive Johnson Thermostats provide precision, waste-free regulation of both heat and ventilation. Use of individual room control makes certain that occupants of each room enjoy ideal temperatures, even though heat and ventilation requirements often vary widely from one classroom to another due to differences in exposure, occupancy levels, activities and other factors.

UNIFORM AIR DISTRIBUTION is essential to consistent comfort. Opening and closing of dampers as air is discharged at various points throughout the building could result in too little ventilation in some rooms, too much in others. Here, behind the scenes, Johnson Static Pressure Regulators keep the entire ventilation system in perfect balance and insure even air distribution at all points.

HEATING AND VENTILATING of this modern building are accomplished by a combination of central fan heating and ventilating units and convector radiation. The entire system is automatically coordinated at all times to insure the greatest possible operating efficiency. Corridors, the gymnasium, auditorium, cafeteria and other large spaces are as closely controlled as classrooms.

OUTDOOR AIR FOR VENTILATION is admitted through the action of Johnson Dampers and Damper Operators. Air is heated only enough to offset the effects of outdoor temperatures. The temperature of the water supplied to the convector radiation is also controlled according to outdoor conditions. This weather-compensated primary control adds greatly to comfort while minimizing fuel consumption.
Just compare the new Stromberg Electronic Time System...

- Jewelled Master Clock movement with automatically wound 72-hour spring power reserve.
- Secondary Clocks standard with hourly and 12-hour supervision — correction cycles completed in 60 seconds.
- Program Unit, capable of 1440 signals daily on each circuit, immediately resets following power interruption.
- Manual signals sound instantly on depressing program key.
- Seven-channel transmitter — one for clock supervision, six for program signals.
- Installation and maintenance service available throughout U.S.A. and Canada.

A product of the laboratories of the largest clock manufacturer in the world—YOUR GUARANTEE of performance, quality and dependability.

EXCERPTS cont'd.

How to savor a house

Excerpts from an article by Dan McMasters in the Bulletin of the AIA’s Southern California Chapter

More sensitivity, I feel, ought to be brought to the viewing of a new house. Architects ought to encourage earnest amateurs to 1) distinguish the subtler variations in our local architecture, and 2) dress appropriately. Attitude is everything.

Pineapple Modern: This you’ll recognize by the so-called Kanaka roof and by assorted banana trees, tree ferns, a lanai and at least one hula. Can be as refreshing as the afternoon breeze over Oahu or, in clumsy hands, as disconcerting as your mother-in-law in grass skirt after two cocktails. Suggested dress for the women: bare midriff and costume jewelry; for the men, polychrome sports shirt, pastel slacks.

Honest John Modern: Above all else, this is sincere, even if the structural timbers have to be sent back to the mill for rough-refinishing. Its steel skeleton is always exposed forthrightly; if it has to be buried, why, a second skeleton is applied for looks. Very reassuring, like a hearty slap on the back (and sometimes unsettling). Demands great discipline; successful examples are as artless and yet as consummately handsome as an axe-handle.

Women: wear peasant skirt and sandals. Men: sweatshirt, baseball cap, or tweeds.

Sho-sho-shoji: Honest John on an Oriental kick. Relies on post and beam, bonsai (potted pines, junior), scroll paintings and shojis. Women: tabi are a must; also popular for some reason are Bermuda shorts and bangs. Men: black slacks and corduroy jackets.

Barefoot Boy Modern: Not to be confused with Honest John. This is Marie Antoinette playing Girl Scout in a monochromatic camp pitched in a carefully disinfected glade. Some see it as the quintessence of good form, serenity and Casual Living. Others call it a pallid cloak for a guilty conscience, a radiant-heated pillar for the Twentieth Century Simon Stylites. Women: the simple black dress with the single strand of matched pearls. Men: natural shoulders, what else?

Wide Angle Modern: A style for the true connoisseur, for it’s the most elusive to find. The house looks ordinary and is just that. But hidden in it somewhere are two or three “angles” tailor-made for the camera of Photographer X whose particular technique sells with Editor Y of Shelter Magazine Z. These angles exist apart from the needs and wishes of the client. In fact, he may not even know they exist, only wondering how he ended up with that damn gold-fish pool in the entry. Since some of the best examples of Wide Angle Modern are the belly shot or the bird’s eye view, come in coveralls.
Prominent on the new wing of this Greensburg, Pennsylvania, High School are the permanently colored Alcoa architectural brown aluminum spandrels and the contrasting silver Alumilited finish mullions.

This installation merits attention because it is of a twice proved spandrel construction whose design characteristics permanently assure control of expansion and contraction, flatness of spandrel surfaces and watertightness. Modifications from a previous design involved the addition of Fiberglas insulation and steel sub-framing.

Design details and specifications for Overly's Flat-Type Spandrel System, insulated or uninsulated, are available on request. Write, outlining your design requirements today.

OVERLY MANUFACTURING COMPANY
Greensburg, Pennsylvania  •  Los Angeles 39, California
So easy to care for... saves up to 50% on maintenance costs!

Despite constant exposure to heavy traffic and accidentally spilled food, the Terraflex floor in the Sperry Gyroscope Co. cafeteria at Lake Success, L. I., shows no sign of wear... still looks fresh and colorful.

More than a million people use the Miami Terminal of Eastern Airlines each year. After several years of service, Terraflex has proved its durability... still looks colorfully new... has cut maintenance time and costs.

Johns-Manville TERRAFLEX Vinyl Asbestos tile flooring... beautiful, colorful, incredibly durable!

ACTUAL ON-THE-JOB FIGURES show that Johns-Manville Terraflex floor maintenance expense is reduced as much as 50%, when compared to the next most economically maintained resilient type flooring.

A quick damp mopping usually keeps Terraflex clean and bright... its nonporous surface requires no hard scrubbing... frequent waxing is eliminated. Despite heavy traffic service... spilled liquids and foods... abusive treatment, Terraflex retains its sparkling, new appearance.

J-M Terraflex vinyl asbestos tile, available in 17 attractive marbleized colors, is the ideal flooring for restaurants, public areas, schools, hospitals... wherever reliable floor service, long-wearing beauty and maintenance economy must be combined.

For complete information about Terraflex vinyl asbestos floor tile, write Johns-Manville, Box 158, New York 16, N. Y.

See “MEET THE PRESS” on NBC-TV, sponsored on alternate Sundays by Johns-Manville.

Check these special TERRAFLEX advantages:

1. Lasts Longer
   Made of vinyl and asbestos, Terraflex will outwear any other type of resilient flooring of equal thickness.

2. Easy to Clean
   Dirt can't penetrate Terraflex's nonporous surface. A swish of a damp mop keeps it shining bright.

3. Maximum Service
   Terraflex defies kitchen oils and greases... strong soaps will not dull its lustre.

4. Wide Color Range
   Terraflex comes in 17 marbleized colors that go all the way through the tile—won't wear off or wash out.

5. Greater Resilience
   Terraflex is flexible, provides comfort and quiet underfoot... resists indentation.
wear new Flexalum TWI-NIGHTER® blinds!

It's nothing but the best for the new Socony Mobil Building, New York's first stainless steel skyscraper. When it came to the venetian blinds, it isn't surprising they picked the Flexalum Twi-Nighter Blind for all 3261 windows. This new venetian blind offers unprecedented light control for all administrative and technical needs. By shutting much tighter than was ever possible before, it will keep out six times more daylight than conventional blinds. It also offers important advantages that make for lower maintenance costs and longer life: spring-tempered snap-back aluminum slats, wipe-clean plastic tapes, non-fray nylon cords and many other features. Yet, Flexalum Twi-Nighter Blinds cost no more.

FULL LIGHT CONTROL
Makes rooms not just dim, but dark; assures complete privacy. An important advantage for office buildings, apartment houses, hospitals, and schools.

SNAP-BACK SLATS
Bend them, abuse them. Flexalum slats are spring-tempered to snap back even when bent to a 90° angle. Mar-proof finish won't rust, chip, crack or peel.

WIPE-CLEAN TAPES
A damp cloth is all that's needed to wipe them clean. Stains come right off the non-porous surface. Flexalum tapes won't fade, fray, shrink or stretch.

FLEXALUM ALUMINUM AWNINGS
FLEXALUM DRAW DRAPERIES
FLEXALUM AUDIO-VISUAL BLINDS

For complete information, contact your local Flexalum manufacturer or Hunter Douglas Aluminum Corporation, Department AF-10. The Chrysler Building, 405 Lexington Ave., New York 17, N. Y. (In Canada: Hunter Douglas Limited, Department AF-10: 9500 St. Lawrence Boulevard, Montreal, Quebec)
Betty Furness invites you to “Time”  
Westinghouse Elevator Operation

One “Do-it-Yourself” Stop Watch Test Is Worth Ten Thousand Words

You can’t describe superior elevator performance, you’ve got to experience it. That’s why we’re rolling out the red carpet to you who are planning new heavy traffic buildings—or thinking about modernizing old ones. A simple stop watch test verifies these new standards set by Westinghouse for more economical and more efficient elevating:

1. Better floor-to-floor time saving
2. Elimination of all unnecessary door open time
3. Maximum speed with smoothness and comfort

Yes, we invite you to test all operational phases of Westinghouse automated, operatorless elevator systems—and learn more about the remarkable components which allow elevators to think for themselves:

1. Selectomatic for master supervisory control
2. Synchro-Glide for accurate, smooth, soft landings
3. Traffic Sentinel® for safe, courteous, yet time-saving passenger handling
4. Automatic Traffic Pattern for Traffic Controlled Elevatorino
5. Shuntless Relays and Electric-Driven Selectors for reliable operation

Call our nearest office today to arrange for a stop watch demonstration and also learn how you save up to $7000 per car per year with operatorless elevators.
View of the music hall, one of the areas where Ceco-Meyer Steelform concrete floor joist construction was used... in this case, in the slab levels. Same framing was used for other floors, ramps and concourses.

FRAMING METHODS
CUT DEADLOAD 30%...
SAVE TIME...
PRODUCE RIGID FLOORS AND ROOFS

Ceco helps architects, engineers and contractors meet schedules for finest buildings. It takes a lot of material to build a safe public structure of ten million cubic feet. Weight could be a problem. That was the condition confronting Leo A. Daly Company, architects and engineers, in designing the Omaha Civic Auditorium. They determined 30% in concrete load could be saved by using Ceco-Meyer Steelform concrete joist construction for floors, concourses, ramps and balconies. Similar weight savings were made by using Ceco Open-Web Longspan Steel Joists in areas of the roof. Architect Daly put it this way:

"Metal pan rib floors were used where loading and span permitted. Though the weight is light, the depth of the floor produces great rigidity. Formwork is economical, requiring only a simple centering board for the soffit form under each rib or joist. Longspan Steel Joists used in appropriate roof areas cut weight, too, as compared to heavier standard truss and purlin construction."

When Peter Kiewit Sons' Company set up the building schedule, Ceco service went into action, delivering all material as needed—on time. For the best in floor framing methods and service, call in your Ceco Engineer.
This is the Omaha Civic Auditorium, showing the music hall entrance at left and the exhibit hall entrance at right. Leo A. Daly Company, Architects and Engineers; Peter Kiewit Sons’ Company, General Contractors.

**JOIST SECTION SUPERIMPOSED ON SOLID SLAB OF EQUAL LIVE LOAD CAPACITY**

**HERE'S THE ECONOMY OF CONCRETE JOIST CONSTRUCTION**

Ineffective concrete eliminated by a shape of section which allows maximum depth for rigidity and minimum deflection. Savings in material and dead weight thus result in better structural performance.

**STEEL JOIST CONSTRUCTION SAVES WEIGHT**

Open-Web Steel Joists comprise the lightest standard construction and cut framing time by months, compared to heavier, slower methods. They permit wide open floor areas with fewer columns.
Drive-in Motor Lobby for

Dallas Adolphus Hotel

Adolphus Hotel of Dallas is among the first to provide automobile drive-in facilities for guest registration. Hotel elevators lead directly to the Motor Lobby in the new 650-car garage, which covers 200 by 100 ft., with full basement, six floors and roof parking.

Good job planning and dependable 'Incor' high early strength made it possible to complete this durable, fire-safe structure seven months and two days after breaking ground, including time out for bad weather.

'Incor' was used in the frame as well as in basement walls, for 24-hour form removal. Result, top construction speed with fewer form sets. Same thing holds true for beam soffits and sides. Exterior street walls are concrete and glass, with lintel beams forming solid portion of walls.

Also used in 105,000 sq. ft. of precast, light-weight channels, 'Incor' made possible assembly-line production speed, with minimum forms and only a small stockpile of units in casting yard.

Big thing about 'Incor' is profitable job speed. And along with dependable high early strength goes assured high ultimate strength as well — dual reason for insisting on America's FIRST high early strength Portland cement for lowest annual cost.


LONE STAR CEMENT CORPORATION

LONE STAR CEMENT CORPORATION

LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD
A twentieth-century stair climbs a fifteenth-century wall in the Sforza Palace, Milan’s famous museum. The ancient bomb-damaged building has been restored by a firm of Italy’s most advanced architects.
The latest in twentieth-century display techniques are used to enhance, not destroy, the flavor of a great historical building.

NEW MUSEUM 500 YEARS OLD

No association of today with yesterday in design could be closer, more intimate, more instructive than the redesign by Architects Belgiojoso, Perssutti & Rogers of the display rooms of the famous old Castello Sforzesco in Milan. Originally designed in 1451 by Giovanni de Milano (later consultants: Bramante, Leonardo), the building underwent one ambitious restoration almost 50 years ago and became the repository of one of the great Renaissance collections. But in the last four years the contemporary architects have succeeded in changing the character of the museum from crowded attic to dramatic stage, and in doing it they have taught lessons about both the past and the present.

The Sforza today looks less like a habitable palace than it did after the last restoration; domesticity, even the ducal domesticity of the Sforza's, was swept out. Also removed, however, were a number of unoriginal partitions which have disguised or altered the basic structural rhythm of the original building. Another basic affinity was established between the Renaissance past and the present: the display mounts themselves are either "invisible" modern, or frank repeats of the materials of the old castello. Bracket and pegboard systems abound, but the standards and hangers for these are handcrafted in wrought iron or bronze, and the wood fixturing is all beautiful joinery—an adroit hint by the architects that their craft tradition lives on.

The original viewpoint of the works of art is preserved throughout; stonework sits at the proper height, even if some supporting stones are missing (instead of "restoring" these missing stones the architects used iron rods).

In sum the new old Sforza is neither pure fifteenth century, nor distilled twentieth century, but an addition of the basic qualities of both with a subtraction of a great deal of the pomposity of both. The result is philosophic, in a very lively way. A good example of the designers' pleasant walk on the high wire between 1451 and 1956 is the sinuous new hand rail wrapped respectfully but with great style around the aged column (left).
Deep masonry reveal and a delicate steel-frame window, left, are keys to the combination of old and new in the redesigned rooms—a dramatization which itself helps charge the atmosphere with quiet excitement. General simplification has emphasized the surviving ornament, materials and ceiling shapes (as in the umbrella ceiling, below) and added a great deal of power to such subtle works as the Madonna with Angels and Saints, by Andrea Mantegna, the large painting on display. The new additions are intended to work too, however delicate. This steel frame window has swing type opening at bottom, sash in center, and fixed glass, top.

Masonry stands repeat texture of walls; wood moldings permit flexibility in hanging.

Asymmetrical walks, marble panels, surround severely symmetrical pool in the central Corte Ducale.
**New Museum 500 Years Old**

**Bas-relief** juts forward from solid stone and wood stand, reminiscent of its original masonry standard, but no copy.

**Column caps** sit at original height on new walnut stems, in deliberate contrast denoting old and new. Column keys into slot.

**Lighting,** as far as possible, is fitted into the building, not attached by a profusion of fixtures. A particularly recondite effort is made to use natural light, much in the technique of sophisticated photographic studios. The old ceiling, shown in photo (left) was opened to insert panels of adjustable vanes. Made of American larch, these can be tilted to compensate for angles of the sun.

**Helmets, swords,** and shields are displayed on walnut panel attached to light emerald-green wall.
Three adjustable grids are visible here: in floor, on walnut display panel, and on wall.

Timber suspended on brackets neatly digests upward tubular lighting fixture.

Dual fixture, one of the few that are very evident, illuminates indirectly above, spots below.

The present can sometimes become an ally of the past. Leonardo painted vine trellis frescoes on the ceiling and upper walls of this room, which was patched up and restored in the nineteenth century. In the current restoration the patches were removed to reveal his work more truly, and the architects added to the arboreal quality of the room by putting in banks of walnut display fences on bronze legs with garden-like lamps on wood posts. Exhibits are changed frequently in this labyrinth.

Craftsmanship is conspicuous in the joinery of the walnut base supporting this ancient bell.

Tapestries hang from wood cross pieces on bright brass supports, angled to catch daylight.
NEW MUSEUM 500 YEARS OLD

Suspended lamps are deliberately reminiscent of ecclesiastical fixturing, in bronze. Notches in wall are display fixture sockets.

Greatest treasure of the Sforza Museum is Michelangelo's Pietà, the sculpture which many critics consider a precursor of impressionism because of its undetailed, plastic quality. It is shown in a room of numerous levels, and is placed so the visitor comes on it almost as a surprise—a climaxing surprise to his entire tour. Behind the Pietà is a serena stone screen, with a faint blue color, to set off the creamy marble of the sculpture. A large window directly before the Pietà floods it with diffuse light, assisted by another window to one side.

Funeral monument of Bishop Battista Bagaroto is another resident of this room. Zigzag pattern on wall was retained from an earlier restoration by Beltrami.

Renaissance scale of space is dramatized quietly in this great room with relatively few things in it, but precious things.
FORUM FORECAST:

NEW CONSTRUCTION ACTIVITY
(millions of dollars)

<table>
<thead>
<tr>
<th></th>
<th>1955 Actual</th>
<th>1956 Estimate</th>
<th>Change</th>
<th>1957 Forecast</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL PRIVATE AND PUBLIC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonresidential building</td>
<td>30,572</td>
<td>30,800</td>
<td>.7</td>
<td>31,900</td>
<td>3.6</td>
</tr>
<tr>
<td>Industrial</td>
<td>7,612</td>
<td>8,950</td>
<td>17.6</td>
<td>9,450</td>
<td>5.6</td>
</tr>
<tr>
<td>Commercial</td>
<td>2,399</td>
<td>3,100</td>
<td>29.2</td>
<td>3,400</td>
<td>7.7</td>
</tr>
<tr>
<td>Warehouses, office, loft buildings</td>
<td>3,043</td>
<td>3,525</td>
<td>15.8</td>
<td>3,650</td>
<td>3.5</td>
</tr>
<tr>
<td>Stores, restaurants and garages</td>
<td>1,136</td>
<td>1,325</td>
<td>16.6</td>
<td>1,400</td>
<td>5.7</td>
</tr>
<tr>
<td>Other nonresidential building</td>
<td>2,170</td>
<td>2,325</td>
<td>7.1</td>
<td>2,400</td>
<td>3.2</td>
</tr>
<tr>
<td>Religious</td>
<td>734</td>
<td>750</td>
<td>2.2</td>
<td>775</td>
<td>3.3</td>
</tr>
<tr>
<td>Educational</td>
<td>492</td>
<td>550</td>
<td>12.2</td>
<td>600</td>
<td>9.1</td>
</tr>
<tr>
<td>Hospital and institutional</td>
<td>351</td>
<td>275</td>
<td>-21.7</td>
<td>300</td>
<td>9.1</td>
</tr>
<tr>
<td>Social and recreational</td>
<td>239</td>
<td>250</td>
<td>4.6</td>
<td>275</td>
<td>10.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>354</td>
<td>500</td>
<td>41.2</td>
<td>450</td>
<td>-10.0</td>
</tr>
<tr>
<td>Residential (nonfarm)</td>
<td>16,585</td>
<td>15,100</td>
<td>-9.0</td>
<td>15,650</td>
<td>3.6</td>
</tr>
<tr>
<td>New dwelling units</td>
<td>14,990</td>
<td>13,350</td>
<td>-10.9</td>
<td>13,800</td>
<td>2.4</td>
</tr>
<tr>
<td>Additions and alterations</td>
<td>1,266</td>
<td>1,300</td>
<td>2.7</td>
<td>1,350</td>
<td>3.8</td>
</tr>
<tr>
<td>Nonhousekeeping*</td>
<td>339</td>
<td>450</td>
<td>32.7</td>
<td>500</td>
<td>11.1</td>
</tr>
<tr>
<td>Farm construction</td>
<td>1,600</td>
<td>1,500</td>
<td>-6.3</td>
<td>1,400</td>
<td>-6.7</td>
</tr>
<tr>
<td>Public utilities*</td>
<td>4,604</td>
<td>5,100</td>
<td>10.8</td>
<td>5,300</td>
<td>3.9</td>
</tr>
<tr>
<td>All other private</td>
<td>161</td>
<td>150</td>
<td>-6.8</td>
<td>166</td>
<td>3.8</td>
</tr>
</tbody>
</table>

| Public total    |             |               |        |               |        |
| Nonresidential building | 12,419     | 13,300        | 7.1    | 14,700        | 10.5   |
| Industrial      | 4,227       | 3,900         | -7.7   | 4,050         | 3.8    |
| Educational     | 721         | 400           | -44.5  | 300           | -25.0  |
| Hospital and institutional | 2,442  | 2,500         | 2.4    | 2,700         | 8.0    |
| Other nonresidential building | 331     | 275           | -16.9  | 300           | 9.1    |
| Residential building | 733         | 725           | -1.1   | 750           | 3.4    |
| Military facilities* | 263         | 250           | -4.9   | 350           | 40.0   |
| Highways        | 1,297       | 1,400         | 7.9    | 1,500         | 7.1    |
| Sewer and water* | 4,520       | 5,150         | 12.1   | 6,000         | 16.5   |
| Miscellaneous public service enterprises | 1,085 | 1,250         | 15.2   | 1,350         | 8.0    |
| Conservation and development | 279        | 500           | 79.2   | 550           | 10.0   |
| All other public | 593         | 675           | 13.8   | 700           | 3.7    |


1 Also includes major alterations and additions.
2 Includes hotels, motels and dormitories.
3 Includes buildings of various types (power plants, telephone exchanges, stations, maintenance shops, warehouses, etc.) as well as power, telephone and telegraph lines and other nonbuilding construction.
4 Includes mainly buildings of various types (warehouses, barracks, theaters, hangars, schools, etc.) as well as airport and other nonbuilding construction.
5 Includes buildings of various types (sewage plants, pump stations, etc.) as well as nonbuilding construction.
1957 will be the best year yet for the building industry.

A steady increase in private spending and a surge of public activity will boost the total to almost $47 billion

by Economist-Consultant Miles L. Colean

In 1957 new construction activity will enjoy another year of expansion reaching a total of $46.6 billion or better, about 6% higher than 1956's very creditable showing. Not only that, the 1957 expansion will be more firmly and broadly based than in 1956.

Three favorable trends that appeared this year will continue even more strikingly in 1957 and will probably characterize activity throughout most of the next decade:

- An increasing ratio of new building activity to gross national product—now about 11% compared with the 9.6% average of the past decade.
- An increasing share of government construction in the total—it will continue consistently on the high side of 30% compared with the 27% average of the last decade.
- An increasing importance of industrial and commercial building within the area of total private activity—now about 21% compared with the 16% average of the past decade.

These trends, although then only in their incipiency, were recognized in the FORUM forecast of 1956 (AF, Sept. '55). For total activity, the 1956 forecast turns out to be right on the button, although the new trends within the total affirmed their directions more quickly than had been contemplated. Thus government activity moved up further, due mainly to the expansion of road building, and private nonresidential building mounted vigorously to offset a greater than expected drop in private housebuilding.

NEW PRIVATE CONSTRUCTION as a whole will move ahead more strongly in 1957 than it has during 1956, because of both the continuing rise in nonresidential building, and private nonresidential building mounted. The total is expected to rise 4% to $31,900 million.

Industrial and commercial building will again be leaders in the private construction picture, as they were the brightest spots in 1956. In both categories, new high records were reached during the present year both in dollars spent and in the physical volume of work put in place.

Industrial building increased 29% in 1956. The boom was an integral part of this year's great upsurge in the expansion of manufacturing capacity. Factory building, which is being pushed by the drive to keep productivity ahead in the race with wages and to prepare for the magnification of markets during the decade ahead, will get an added fillip from the locational opportunities created by the highway program. The forecast: up about 10% to $3,400 million.

Commercial building has been strong in 1956 and will continue strong in 1957 as a result of the continuing growth of metropolitan areas, the redistribution of population within those areas and the evolution of new merchandising methods. While these lusty activities will continue to give vigorous support during 1957, their advance may be a little less breathless than it has been in the current year. The outlook for this category is for a 4% increase in 1957 to $8,650 million. Office buildings, particularly outside New York City where a phenomenal era seems to be at a near peak, will be an important feature of 1957's advance. Vacancies in office buildings and other commercial space of good quality are extremely low and rents are as high or higher than a year ago. Parking garages will again be volume producers. Shopping centers, restaurants and service facilities of various kinds will get added impetus as the expanding highway program provides new strategic sites.

Other nonresidential building will have another satisfactory year, moving ahead at about the same rate as in the past few years (price changes taken into account). Religious building will continue to march stalwartly forward. Private school building which has been strangely laggard considering the increase in the number of families in the higher income brackets and the influence of desegregation, should improve more rapidly in 1957, as also should institutional and recreational building. Private hospital building, particularly, will be aided by substantial grants from foundations.

Utility construction will make a notable advance in 1957, especially in telephone and telegraph (due to population increase and income rise), pipe lines (due mainly to expanding demands for gas for heating fuel), and electric and power (because of a variety of stimuli—population, income, air conditioning, kitchen gadgets, etc.). From 5% to 10% of this activity will involve the construction of buildings, as opposed to purely engineering structures.

Residential building will move out of its present slough to somewhat higher, firmer ground. The sharper-than-
SCHOOL COSTS

As the school bells rang out again on distressing shortages, energetic school men and architects were determined that the nation learn more exactly about the problem of its school building costs. Costs had become a bugaboo and a frustration leading to inaction. So for this year’s pupils alone, US communities are short by 275,000 classrooms. Had the larger expected enrollments for the year 1960 streamed through the doors this September, the shortage would have been even more staggering—470,000 rooms, if one takes the estimate of the US Office of Education. Despite record construction — 67,000 new classrooms in the last school year—the gap yawns as wide as ever and shows no signs of closing yet.

The next 26 pages of this month’s FORUM are devoted to school costs—in four parts:

1. A proposal for a fresh approach to cost reporting—right.

2. How the British provide schoolhouse amenities within controlled costs—p. 132.

3. An accounting of the high cost of bureaucracy in an effort to lower the cost of high school stages—p. 140.

4. A half dozen case studies of US schools which achieve quality at reasonable cost — p. 142.
Before we can hope to get our needed schools, the school bond voter must be given cost figures which are easy to understand and difficult to distort.

**WANTED: A SENSIBLE SYSTEM OF SCHOOL COST REPORTING**

Two facts stand out from any examination of our school problem today:

- The crisis has been born and bred at the local level—created by the inability, reluctance, and, in some cases, downright refusal of communities to meet their educational needs.
- People who need good schools, and who can afford them, aren’t spending for them. The reason: distorted ideas of what a school should cost—ideas based on easy, but invalid, cost comparisons.

The need for a more accurate system of school-cost reporting, one that would reflect more than just bare-bone facts about construction, has, of course, long been recognized. Over the years, several complicated formulas have been worked out, mainly to satisfy the need of professionals for more precise information. But as yet, no system has emerged that would give school boards and voters a simple, accurate yardstick that they could work by. Lacking a way to measure quality and what a school aims at in its educational program, the citizen today compares school costs by the only methods he understands—cost per square or cubic foot, or cost per student place or classroom. And the result is that schools are unfairly compared, that schools which are cheap because they are inadequate are used to deprecate good ones, and that good ones are voted down.

Against this background, FORUM posed a question to some of the nation’s school experts*: Can a method of school-cost reporting be developed that, in short form, would give voters substantially accurate information and, in an expanded version, be of help to the specialist? From the evidence so far assembled, we believe that it can. What follows is a suggestion for the way the problem might be tackled.

1. To begin with, one has to recognize that different people compare school costs for different purposes. But what is a good system of comparison for one group is not necessarily good for another.

Voters compare a proposed school with other schools because they want assurance of a “good buy” before voting bonds; school boards compare because they have to weigh one educational feature against another in setting up their programs.

architects and school consultants use comparisons, partly, to protect their professional reputations; state school officials turn to them as a way of administering aid and regulations on an equitable basis.

The trouble is that a system of unit costs, though it may make a state administrator's job easy and protect him from attack, can operate to freeze any kind of experimentation and to put one of the other groups—the architects in this case—into a strait-jacket. (This is precisely what has happened in states such as California and New York where inflexible unit-cost limits have been applied to the state-aid programs.) By the same token, the sort of detailed, qualified costing that does service to the architect may do complete disservice to the voter. A complicated report that the layman finds hard to understand simply opens the door to misinterpretations and perversions by those who have a special stake in the outcome of a vote.

2. In a crisis such as this, then, we have to decide whose interests shall be given top priority in drafting an improved cost reporting system.

The need now is not for a refinement of our existing cost reporting. What we have to find is a tool that will remove one of the worst blocks to a rational school building program—the opposition of voters. Voters today are frightened of school costs; they don't understand what the costs represent, and they don't vote bond issues. Any new system of reporting must therefore be tailored not to the specialist, but to the voting public.

The people we have to think of first, says Architect John C. Van Nuys, "are the ones who have the final say on what dollars are going to be spent when they mark an X on the ballot."

3. Any practical cost system must be based on services rendered by the school, rather than on arbitrary units of physical measurement.

The trouble with our present cost reporting is that it fails completely to describe the educational program of a school. "We see the square-foot cost, the pupil cost, the whole breakdown strictly from a construction point of view," says School Consultant Nickolaus L. Englehardt Jr. "What we ought to be finding out is what is going on educationally."

There is no way under today's costing to reflect the fact that one school has an ambitious music program and so requires instrument rooms and a practice hall; that another stresses physical education and provides two gymnasiums instead of one; that still another has elaborate manual training facilities and shops in addition to its academic plant. Neither can today's system show that part of the space of a school—an extra large auditorium, say—is actually a community facility, too, and thus is not properly chargeable in whole to the school's costs.

All that we do get from today's measures is a picture that may be more misleading than enlightening. A large number of square feet per student, for instance, may mean either of two opposite things: high quality because of generous space allotment, or waste because space is thrown away. Along the same lines, big rooms may show a lower cost per square foot than small rooms. But their degree of utilization may be lower. Finally, even between comparable facilities, dollar figures fail to tell the whole story. Costs per square foot vary from month to month and locality to locality. Thus, while they are useful if properly interpreted, a better yardstick is urgently needed.

"People are so confused with all kinds of figures now," says Walter Cocking, noted school editor, "that they often settle for something much less than they like and much less than they could have. We need some kind of quantitative guide that will help people see that if they are to have good schools they will cost more than poor ones."

4. Practical cost appraisal might start by classifying schools into groups, depending on the extent of their facilities. Comparisons would always be held to schools of roughly the same size.

For working purposes a breakdown into four groups might be reasonable:

- schools with classrooms only, plus minimum administration facilities;
- schools with classrooms and administration space, plus modest multipurpose rooms (auditorium, cafeterias, gymnasiums);
- schools with classrooms and administration, plus full development of special rooms;
- schools with classrooms, administration and fully developed special rooms, plus community facilities.

A system such as this would not aim at hairline accuracy or a definitive breakdown of costs. But it would provide a reasonably precise measure — easily understood — of costs in relation to what those costs are for. And it would have the value of comparing apples with apples, instead of with oranges as we are doing now.
A fair analogy of such a system, Walter Cocking points out, already exists in the clothing business. Over here are the cheapest men’s suits. Here is a group a little better, and another a little better still. Finally, here is the best and most expensive line. Couldn’t we, Cocking asks, classify school buildings in much the same way? Couldn’t we lump them into three or four categories that would provide a fairer measure than we have now?

A system along these lines might well be feasible. In a study of several hundred Massachusetts schools, for instance, Administrator John Marshall found that once adjustments were made for geographical and seasonal cost differences, buildings with similar facilities showed a remarkable cost uniformity.

5. Any attempt to devise an improved cost system should treat warily the idea of rating quality by a mathematical factor.

Over the years, several techniques have been developed for translating quality into quantitative terms. Most of them rely on one or another scoring or weighting methods, and they are designed primarily to recognize and compare architects’ skills in creating one building as against another.

For example, A’s school may allot a particularly generous amount of space to classrooms. It may rate a score of 10 in this category, whereas B’s allocation, which is not so good, will receive only a 7. B, however, has been more proficient in the use of auxiliary space. He gets a 5 for his skill here, while A draws only a 3. And so it goes, until each facet of design is scored.

Though these techniques may be of some value to the professional, they are apt to create only confusion and argument at the voter level. Worse still, they fail to get at the core of the problem. The voting citizen isn’t nearly so interested in comparing dissimilar buildings—which weights would allow him to do—as he is in comparing similar buildings, his town’s elementary school, say, against the new grade school in the town next door.

Besides confusing the voter, weighting or scoring systems ignore the factor of efficiency in the use of schools.

In the hands of one school administrator, an oversize hall may be treated as just so much waste area. But another principal, with more imagination and initiative, may seize on the added space as an opportunity for broadening the educational program; he may put the footage to work intensively. Quality scoring can in no way reflect this, nor, indeed, can it tell us anything worthwhile about what function facilities perform once they are completed.

Therefore, it is probably best not to try to assign a mathematical factor to quality. If quality should be described, it is best done, briefly, in words.

6. Cost accountants, using their own techniques of cost appraisal, ought to be encouraged to probe into the school cost problem.

The American Institute of Accountants has already shown a readiness to join in a study of school costing. We welcome their participation. Accountants have been among the leaders in implanting the idea that you cannot very well measure costs without some relation to what costs are for. Their skills can be invaluable in attacking the school-cost problem, particularly their ability to sift from a mass of statistical data those indexes that are most meaningful in arriving at valid comparisons.

7. An advisory council, or steering committee, should be created now with the immediate aim of fostering full-scale research into the problem.

The development of a satisfactory cost formula can only come about through a technical assault, coupled with extensive field testing. An advisory council, therefore, should probably concern itself first with finding a means of undertaking systematic research, either through an established agency or a specially created group.

Since its primary task would be to produce a formula that would be effective with the public, the council might be expected to draw several of its members from the ranks of those who have concentrated on the public aspects of the school program. The council might include a representative from a citizens school committee, an experienced school board member, a journalist, an accountant, an educational consultant, an architect and a state school official.

The council would work hand in hand with the research teams on the project, offering advice and constantly evaluating progress in terms of the specific goal. Once a formula had been developed, it would be up to the council to decide whether or not the system offered the best hope of providing voters with the tool we so desperately need.
England’s schoolhouses pay for the amenities of imaginative landscaping and integrated art with money saved through intelligent cost control.
A LESSON FROM ENGLAND

ABOUT SCHOOL ATMOSPHERE

The British Minister of Education here explains the origins and workings of the remarkably fine British system of school cost control, which sets a floor of minimal standards and teaching space requirements per student and a ceiling of maximum cost per student, giving the architect room for play in between. One highly visible result: the architect who can keep under the ceiling while providing the floor, has cost leeway for including such amenities as murals, sculpture, landscaped courts or the luxury of extra teaching space. He also has scope and encouragement to experiment toward this end. These are powerful incentives both to true economy and to quality.

Behind all this is implicit a set of values that makes architectural quality in schools—as well as low cost—a national policy; that does not assume school landscaping should necessarily be dictated by the most economical man-hour use first of bulldozers, then of power grass mowers; and that does not assume adolescents to be fairly hopeless vandals but people ripe for exposure to all the civilizing influences possible. It is salutary to remind ourselves that other nations, much less fortunate in their economic situation than we, are successfully attacking costs without surrendering to a poverty psychology about schools.—ED.

by ANTONY PART

The atmosphere of the schools matters. It is part of the whole process of education. It should pervade the whole environment; it belongs not only to the classroom, but to the main central spaces of a school, to the library, to the principal’s office, even to the places where coats are hung and books are stored. Atmosphere depends partly on the noise level in the corridors and the degree of civilization in the cafeteria. It belongs to the texture of the building, the choice of materials for walls and roof, the selection of color throughout the structure. It derives from the proportion of everything, from the shape of a door handle to the massing of a building. And it belongs not to the buildings alone but to their disposition on the site, to whether they are slapped down in a sea of asphalt or seem to have grown out of the land.

Should there perhaps not be more schools of which it can be said: “The exact placing of the building was determined by two large oaks and a fir tree which have been retained within a few feet of the building.”

To write this for Americans is perhaps an impertinence. To my mind there is nothing in the world to match the grace and charm of a New England village. If American designers of high schools can find contemporary answers to match the quality of the church and its surroundings at Concord, Mass., study of other people’s efforts is superfluous.

In Britain, our postwar school building experience has convinced us that to achieve schools which are good not only by objective measurements, but also by the standards of civilizing, pleasant atmosphere, the first main key to success is the choice of the right system of financial control. The system must have, inherent in it, incentives to good architecture and to experimentation. In Britain we have been concentrating on this problem, among others, and our experience, sketched here against our differing administrative background, may contain useful ideas for the States.

The British Education Act of 1944 required each local authority to draw up a Development Plan for primary and secondary education—a sort of blueprint indicating the organization of the schools and their physical distribution. This in turn is tied in with town and country planning for purposes other than schools. Thus there is for almost the whole of England and Wales today a series of maps or plans showing in broad terms what the general layout of each area is intended to be. This process insures that the siting of schools is properly considered in relation to housing, transport, open spaces and industry. After all, a high school is an expensive investment and it must stand for many years. And however economically we plan the layout of the grounds, it is going to make large demands on land.

It has been a cardinal aim of all British postwar governments to see that no child of compulsory school age should be out of school and no school should have to work double shifts. For this purpose, which has so far been achieved, a technique of annual build-

Biology pool at 2,000-student Mayfield school, London, illustrates intimate landscaping for large high school. Powell & Moya, architects.

Sculpture of child with guardian angel stands at entrance to primary school in St. Albans; D. Henrion, sculptor. Architect C. H. Aalin is official county architect for Hertfordshire, which has outstanding design program.
ing programs was established. These programs are drawn up by the local authorities each year in the light of estimated effect of the birth rate and housing programs on the area by the time the schools are completed. These local authorities are county and county borough councils, locally elected bodies responsible for a variety of services. There are 146 local education authorities for a school population of 6½ million, which means that the average local authority covers much more territory than the average US school board.

We have tried to bring about an effective, confident partnership between the Ministry of Education and the local authorities—or in American terms, between the state and the school boards. We have tried to arrange things on the basis of three principles:

1. First, education must remain essentially a local service.
2. Second, the state's job is to establish the framework for local action. We try to do this by setting up a few key controls and allowing the maximum freedom under them. For example, the state regards itself as the guardian not of standards but of minimum standards. Under the Act of 1944 these standards have to be prescribed centrally, but we have taken much care to cast them in the form not of detailed methods but of results. We prescribe, for instance, the amount of daylight required in a classroom, not the height of a classroom ceiling.
3. Third, we believe the right choice of financial control is vital. In England and Wales, the cost of the public system of education is shared between local education authorities and the central government. As a general principle, the state pays 60% of total expenditure, both current and capital. But because the wealth of localities varies a great deal, we have a quite elaborate system of adjusting the grants. The richest area gets only 36% of its expenditure paid by the state; the poorest gets as much as 88%.

Immediately after the war we did not worry too much about the cost of school buildings. We were faced with the threat of a critical school shortage to match the great new housing program. The state's task was to explode the localities into urgent action and to set up procedures which would cut approvals to a minimum, coordinate under one agency controls over scarce materials and labor, and generally enable the school building program to grow from nothing to 1,000 projects a year.

By 1949 this had been achieved. But we could see we were not going to get the schools we had to have unless we could build them more cheaply. Even before the financial crisis of that year, we had started analyzing the cost of schools and found an enormous variety. In particular we found the most expensive were seldom the best, and some of the best were among the cheapest.

We analyzed the schools in two ways. First, area per child. Second, cost per square foot. The first, when broken into its component parts—teaching and nonteaching area—shows how efficient the layout is. The second reflects the cost of construction.

The building regulations subsequently made by the Minister of Education lay down that every secondary school is to have a total teaching area of not less than so many square feet. This may be divided up in any way the locality likes but it must include certain facilities such as assembly hall, gymnasium and space for practical instruction. A different total minimum teaching area is prescribed for each size of school.

But the minimum teaching area is only half of the area story—too often literally half! Too much of the rest of the school was often taken up by circulation space of a kind suitable only for circulation.

So we made some intensive studies of the logistics of secondary schools and we also studied the proportion of the school day for which each space was used. We found that, whereas a typical secondary school designed in 1948 had needed 112 sq. ft. per child,
Central court (above) and drama court (right) of Worthing technical high school in West Sussex avoid the bleakness and monotony of most paved school courtyards. This school, designed by Development Group of Ministry of Education, was prototype for a multistoried prestressed concrete prefabrication system.

Casual pond and trees sitting on entrance walk—how daring to keep them, and how much interest they add. Pool is at 1,650-student Woodlands school in Coventry, designed in steel framing and prestressed concrete panel prefabrication system by Ministry's Development Group. Trees are at London's Mayfield girls' high by Powell & Moya.
Lessons from England

Murals with big scale and boldness are characteristic of much British school art—for example the entrance mural at St. Crispin’s secondary school in Wokingham, Berkshire. At left is assembly hall in same school with painted stage curtain and painted ceiling over raised dining side aisle. This 600-student school, designed as prefabrication prototype by Ministry’s Development Group, set example of experimentation and ungrudging amenity while keeping well within Ministry’s low cost-per-student controls.

Outdoor murals in tile, such as this at Worthing secondary school entrance, are among favorite uses of school art in Britain. Dorothy Annan, artist.

It was possible to design an equally good, if not better, school to 78 sq. ft. per child. This figure has since been reduced, without damaging educational efficiency, to 73 sq. ft. of teaching area.

The analysis of cost per square foot proved to be just as interesting. We were surprised to find what many architects had done with their clients’ money. Some hid it in the roof, a lot of them buried it in the ground, and not a few spent it on removing all the interesting features from the site. An analysis of cost per square foot is a very searching test. It demonstrates, sometimes with painful clarity, whether the amount of money spent on a particular part of the building reflects the importance of that part in the scheme of things.

This analysis too showed that quite large savings were possible. In the light of these findings, we combined area per child with cost per square foot into cost per child. We then embarked on a campaign to get better value for money and as a first move, we set about achieving a saving of 25% in the cost per child within two years. This effort was successful. In fact it was achieved at a time when building costs as a whole rose by 27%. So the actual saving was about 50%.

The saving was achieved by analysis, and to my mind analysis lies at the root of leadership in school building. But it is not too much good analyzing only area per child or cost per square foot. They interact. The cost per child system (usually known as cost per place) insures that the school is looked at as a whole.

The most fruitful result of this approach is that British school buildings have to be built up to a standard and down to a price. This system gives good architects a splendid incentive. The cost per place is not too easy to achieve. The Ministry of Education sees to that. But the architects know that provided they keep within it and comply with the minimum standards, they may do anything they like. They will not be criticized for introducing murals or sculpture. Alternatively they may find themselves able, for example, to provide classrooms 100 sq. ft. larger than their clients had originally hoped for.

Seven years ago we also felt not enough research and development was being done and that what was being done was too piecemeal or was in the hands of people interesting in selling particular products. We also foresaw that the severe shortage of site labor in some areas would continue, and that those areas would never be able to build enough secondary schools in time unless they could use prefabrication. In 1949 prefabricated methods suitable for
Texture and color enliven the atmosphere. Walls flanking a main staircase at Mayfield girls' secondary school in London are vitreous mosaics, by Artist Philip Suf- folk. Opposite the wall with the abstract pattern shown is another portraying the nine muses in mosaic. Architects, Powell & Moya.
So we set up a development group at the Ministry of Education, a team of architects, estimators, educators and administrators, and gave them as their first main task the development of four systems of prefabrication suitable for any kind of layout and capable of use up to three or four stories. This meant designing on a two-way horizontal module with a related vertical module. This approach involves no such thing as a standard classroom or any standardization of layout. We are strongly opposed to any such development. The first requirement is that each system be flexible enough to allow architects to approach the design of each school as an individual problem. The second requirement is that each system shall provide permanent buildings of good quality.

The cost of developing the systems was borne by manufacturers, who knew that the potential market was large and that the orderly system of annual building programs would make possible substantial orders from localities well in advance of delivery dates. The development of the prefabrication systems, including the building of four prototype schools, did not cost the taxpayers a penny in development contracts. About 20% of each annual program is now being carried out by prefabrication methods.

There is one great risk about development work: the "developers" may get out of touch with, or too far ahead of, the main body of architectural practitioners. This potential gap we try to bridge by our Building Bulletins. These contain not requirements but suggestions. They try to analyze the various problems from first principles and their recommendations are always cast in the form of methods of approach, never of standard plans or prescribed dimensions.

Some of the schools shown on these pages are built by prefabrication systems; some are not. There is a healthy competition among methods. All are among the better examples we have to offer; they are not, unfortunately, a typical cross section. But happily we are producing, at an acceptable price, efficient buildings which have a lively atmosphere and a civilizing influence. At the least, we have come far from the pseudo-Tudor and neo-Georgian and, we hope, just as far from the army post and the instructional institution. Nothing like this progress could possibly have been made without a suitable system of cost control designed not to frustrate, but to stimulate, architectural innovation and imagination.

Old and new portions of Mayfield school, London, are joined with tact: new three-story structure is in keeping with scale of Edwardian building; the link is a covered way leading from covered play space, and an old tree gentles the juncture. Addition brings old 500-student school to 2,120 student size.

Bigness of school is indicated in this view from south, with assembly hall flanked by two of three teaching blocks. From most vantage points, bigness is little apparent.
Gymnasiums of glass, timber and brick make handsome row, nicely avoid overpowering effect. Because school is so large, Architects Powell & Moya made determined effort to imbue its parts with intimacy, keep scale small.

Assembly hall foyer opens out across delightful biology pool and its tree island. This school, built by simplified, traditional methods, compares favorably in cost with designs using prefabrication systems.
Most high school stages are fifty years behind the times. Bringing them up to date would save money and give students and communities something much more exciting and rewarding to work with. What holds high school stages back? A good part of the answer to that question—and to the question of why the group client is so often a difficult client—can be found in the story of...

THE MAN WHO TRIED TO IMPROVE HIGH SCHOOL STAGES

When Robert Klein began the unusual adventure in good citizenship related here, he knew a great deal about stages. When he finished, he also knew a great deal about the New York City Board of Education. But not so much can be said of the Board: it emerged learning nothing.

Klein is an easy man to learn from. His enthusiasm and knowledge of his subject come across tempered with modesty and matter-of-factness. A few years ago, after three decades as producer, director and teacher on the professional and college stage, Klein began producing community plays and encountered the high school stage. He made a discovery which FORUM has learned is shared by some of his professional counterparts and in colleges which have had to make-do with converted high school stages, but of which most architects and boards of education are still oblivious.

His discovery was this: standard high school stage design is still stuck back in the 1890s. The reason seems to be that most new high school stages are basically modeled on what was designed during the high school building surge of the twenties and these in turn were an understandable one generation behind their time.

Klein analyzed the faults of one cumbersome and antiquated high school stage after another, and found that their most common and serious offenses are: 1) the expensive and inflexible fixed lighting; 2) the hardwood flooring; and 3) the cyclorama curtain which typically lines the interior of the stage. (For his reasons and recommendations, see opp. p.) It especially bothered him to realize that the stages cost more money than they would if these features were improved.

In July '53, these thoughts fresh in his mind, Klein picked up his newspaper and read of the millions of dollars New York City was to spend on new high schools. His conscience as a citizen pricked him. Why should the taxpayers put out extra money to get obsolete stages? So he wrote the board of education, summarizing his points, explaining he had no personal ax to grind, and inquiring if he might contribute his advice. No answer.

Eighteen months went by, and in Dec. ’54, Klein read of more millions to be spent on high schools. His conscience pricked him again. This time he adopted the strategy of going to the man at the top; he wrote Mayor Robert Wagner. This procedure appeared to work like a charm, for a prompt reply from the mayor's educational aide said that Klein's letter was being forwarded to the board of education’s Bureau of Construction, and in no time Klein had a letter from the Bureau:

“We understand well what you are talking about and are making serious efforts to overcome obsolete ideas of school design. If you will be so kind as to call this office we will be glad to show you our drawings of current school designs, and benefit from your knowledge and interest.”

The mystery of the manual

Klein had a pleasant visit at the Bureau of Construction where he admired the acoustic improvements to be made in the new auditoriums. But when he brought up the subjects of lights, flooring and cyclorama curtains, he was told: “Unfortunately you have come to the wrong people. We can only execute what is ordered on those matters. We follow the specifications.”

“Who does the ordering, who sets these specifications?” asked Klein.


At Klein's behest, this bible was produced and the pertinent sections examined. It was indeed out of date. “We shall have to find the editor of this,” said Klein. Nobody knew who he was.

So Klein wrote the mayor's office again. A secretary phoned and after the usual misunderstandings (“You are
the man who wants some advice about high school stages? I suggest you try Columbia University’’), Klein was referred to the board’s Division of Housing, to which he wrote, explaining his purpose and adding:

“If any progress is to be made, the manual would have to be changed. Please let me know whether it is in your power to change the manual or in whose power it is.” The reply:

“I wish to assure you that we are making every attempt to secure the best in consultation. . . .

“In order to classify your proffered services, may I ask that you indicate the following:

“I. Have you written or published anything on stage or school auditorium design?

“II. Are you connected with the theater?

“III. Has this been your major field of study?”

This seemed to Klein a rather oblique answer to his question, but he sent on his credentials: dramatics teaching at Rollins, Wells, Connecticut and Goddard colleges; founder of the Studio Theatre at the New School for Social Research; guest lecturer at Yale and Fordham; producer of 20 plays in England and of several hundred in Berlin; management of three Berlin theaters of his own; management for four years of the Max Reinhardt theaters; director of dozens of US community productions.

‘Round and around

The Board replied that a summary of this background was being forwarded to “the committee concerned with the Manual of School Planning.” Klein’s next communication was from the chairman of the committee on School Plant Planning who wrote:

“I am organizing a total of 28 subcommittees to design the facilities to be incorporated in the plans for new school buildings. When we reach the subcommittee on school auditoriums I shall forward to the chairman of that group the information you have provided.”

After another month slid by, Klein asked whether a subcommittee chairman had been named. The reply:

“I have forwarded your letter to the chairman of the Subcommittee on School Auditoriums of the Committee on School Plant Planning, who is the Assistant Director of our Speech Improvement Bureau. May I suggest that you communicate with her for whatever information you require.”

So Klein wrote her. She replied:

“The Committee on High School Auditoriums has not yet been convened. We shall of course be glad to call upon you as consultant as the need arises.”

Klein had now been engaged in this remarkably nebulous correspondence for five months. All he wanted to do was discuss, with someone effective and responsible, means of improving oblo­lete stages. This seemingly reasonable goal was becoming so elusive that in his next letter to the subcommittee chairman, Klein wrote:

“I cannot help feeling somewhat puzzled that you as chairman should not be interested in my observations—whether the Committee has convened or not.”

Klein got no answer to this letter. Indeed he never has had further word from the subcommittee chairman. Like the others, she faded from the scene.

continued on p. 196

KLEIN’S RECOMMENDATIONS:

The educational stage should stimulate the creative imagination of everyone working in it and the audience too. It should teach group effort. If it can teach something about the creative imagination of everyone working in it, so much the better. We do not expect all students to become chemists; but we do not equip their laboratories with empty beer bottles instead of test tubes. Why be less logical about their stages?

Lighting now usually consists of fixed overhead lights and permanent footlights. The overheads light the back of the actor’s head; the foils awkwardly light the faces from below, and the ceiling. No other stages in the world have been lighted like this for years. Improvements: In place of fixed overheads, a horizontal pipe behind the front upper curtain, for clamping eight or nine moveable spots. Pipe lowers with winch or counterweights (winch is cheaper) to prepare spots. Instead of foots, spots at the sides of the auditorium, masked from audience, directing beams at stage at an angle of 45° of a cube, or else spots directed from auditorium ceiling or balcony rail.

Flooring is now usually beautiful hardwood which must not be marred. But the floor of a stage is an important tool because the braces and jacks which support stage scenery—flats—are pegged to the floor with stage screws. Playwright Jean Kerr ruefully reminisces in the New York Times Magazine that she grew up thinking there was always a person behind every stage tree because strangely enough, in her school, no stage screws were permitted. Things have not changed. Improvement: Soft pine floor, so students and community can do creative work with canvas flats. These floors wear a long time; in a high school, where settings are not an every-day occurrence, the floor would likely last a generation. For appearances, a stagecloth can cover the floor. Suitable for any activity; not even the professional ballet uses hardwood floors!

Cyclorama curtain, lining the stage interior, obtrudes clumsily over scenery; worse, the pipes on which its side extensions hang run transversely, thus get in the way of attempts either to fly or set up scenery. Improvement: Curtain’s purpose of background for speaker, singers, etc. could be fulfilled more attractively, flexibly and cheaply with flats kept for the purpose. If architects are actually designing back walls so ugly they must never be seen, which is hardly likely, a better solution than cyclorama curtain is a taut cyclorama—a curved canvas painted in colored spatters that appear any hue, depending on lights. Students can make one or it can be bought for less than cyclorama curtain.
1. A HARMONIOUS CAMPUS PLAN

At the hub is a delightful library shaped like a cogwheel.

MIDDLEVILLE ROAD SENIOR HIGH SCHOOL, East Northport, L. I. • 93 classrooms • 800 students; expandable to 1,000.

Features: Activities buildings in visual scale with classroom blocks. • Gym set in slope keeps lobby, lockers low, economical. • Classroom units, for conventional program, adaptable to block-of-time or group school programs; interior block partitions movable, utilities and skylighted lockers concentrated at end. • Classroom vision strips with all-day electric lighting for closely figured savings in heat, construction, blinds, overhangs. • Administration unit combines into lounge-meeting area.

Construction: Concrete and block foundations; reinforced slab on grade. • Cavity brick bearing walls. • Suspended acoustic ceilings. • Metal deck roofs on steel frame; library, reinforced concrete. • Plastic skylighting. • Forced hot water heating.

Costs: $1,478,168 including fees and all fixed or built-in equipment. • $17.57 per sq. ft.

Credits: Architects: Ketchum, Gina & Sharp. • Structural engineers: Severud, Elstad & Krueger. • Mechanical & electrical engineers: Levy & O'Keefe. • Acoustical consultants: Bolt, Beranek & Newman. • Landscape architects: Tregenze & Briglia. • General contractor: Ellis Chinos Construction Corp.

Canopied walk running length of classroom side of campus is cheerful, its brightly painted ceiling changing color at intersections.
Exterior harmony derives from well-scaled activities units, pattern of walks, sensitive use of slight slopes. Photo, taken beside administration unit, includes auditorium-cafeteria at far left, round library, two classroom blocks at right.

Library's "cogwheel" wall forms little light alcoves which would be greatly enhanced by planting in outdoor niches. Circular roof is cantilevered beyond indentation line. Shelving is backed by cement asbestos panel with glazing above and below.
SIX QUALITY SCHOOLS AT REASONABLE COST

2. SOCIABLE OUTDOOR AREAS

Courts make pleasant year-round use of paving, planting, benches, boulders.
Approach skirts good trees, breaks stairs into curve and levels that also give access to meeting room at right.

Meeting room has stage at left, folding lunch tables in walls. Translucent plastic shields upper two thirds of windows.
SIX QUALITY SCHOOLS AT REASONABLE COST

3. CLASSROOMS OPEN TO THE BREEZE

Transverse instead of parallel corridors make a patio grid out of the finger plan.

ST. FRANCES CARRINI ELEMENTARY SCHOOL, New Orleans, La.
★ 12 classrooms completed, six under construction. ★ For future: four more classrooms, administration, library, auditorium, cafeteria. ★ Enrollment of 800 has far outstripped construction.

Features: Hot climate planning for maximum sweep of breeze through each classroom. ★ Expansion planning with utilities and corridors organized for addition of classrooms in pairs. ★ 50' patios between wings reported adequate sound buffers. ★ Abundant built-in storage, wardrobes. ★ Fireplaces in kindergartens.

Construction: Heavy piling and reinforced concrete foundations for poor soil. ★ Framing, steel columns, bar joists. ★ End walls, nonbearing brick; north walls, sliding clear glass; south walls, heat reducing glass. ★ Roof, 2' exposed insulation decking on exposed joists, built-up roofing and marble chips. ★ Corridor ceiling, wood decking. ★ Corridor-classroom partitions, 7' redwood glazed above; classroom partitions, brick and redwood; toilet partitions 7' ceramic tile, glazed above. ★ Asphalt and ceramic tile flooring. ★ Individual gas-fired forced warm-air heaters, supply ducts integral with floor slab.

Cost: For 18 classrooms only plus related corridors and landscaping, excluding fees, $361,517. ★ Cost varied from $11.50 to $13.45 per sq. ft. during four construction phases.


Classroom walls open with sliding doors to patio on north. In first rooms built (right) south wall was similar. In later additions ventilation was improved with south wall of glass jalousies (left) and glass jalousie transoms over north sliding doors.
**Long wing** is only one classroom deep, giving top-to-bottom ventilation and daylight along generous north and south classroom walls. Each class has its own patio.

**Corridors** connecting wings were originally open (right), have since been glass enclosed (above) to form assembly areas and bad weather play space. Until building program reaches final stages several years hence, school must make do without activities units, is hard pressed to supply classrooms alone for fantastically soaring enrollment.
4. TWO-STORY CLASSROOM CLUSTERS

Concrete school uses an economical plan, special sunshades

SOUTH COLUMBIA ST. ELEMENTARY SCHOOL, Bogalusa, La. 14 classrooms. 420 pupils.

Features: For building economy and concentrated land use, classroom are arranged in tight clusters of four, stacked in two stories around an open central hall and toilets, served by a single stair and ramp. Separate common wing has center area that doubles as circulation lobby for cafeteria on one side and assembly room on other, and as covered play space facing play yard. Classrooms have jalousie windows, louvered sunshades on east and west windows.

Construction: Reinforced concrete spread footings, slabs, columns, ribbon beams and flat roof slabs. Walls, glazed ceramic structural tile. Concrete block partitions (glazed tile in toilets). Windows, aluminum sliding sash, projected, fixed glass and jalousies. Flooring, smooth-troweled concrete, asphalt tile in classrooms and offices, ceramic tile in toilets. Built-up roofing over 1" rigid glass fiber. Fluorescent lighting. Acoustical fiber tiles on ceilings. Hot water boiler, warm-air circulating heaters at center of each four-room cluster; space heaters in cafeteria and auditorium.

Cost: $268,466 (incl. fees, excl. land, furnishings); $9.87 per sq. ft.

Ramp (photo right) rises slightly from stairs to open cross-walk and second-floor classrooms on either side. At center doors to toilets and mop closet are unified in frame, separated by panels of dark glazed tile. Open wells light court, classrooms below.

Canopy of steel decking on single center posts leads across play yard to classrooms. Note jalousie windows for maximum ventilation, metal-grating treads on lower half of stairs to admit light underneath, prevent playground dirt from being tracked into classrooms.

Sunshades, on east and west walls of classroom wing, combine here with open stairwell at center and detached concrete columns at left to make a striking composition. Wood louvers in steel frames are angled to admit northerly light.
SIX QUALITY SCHOOLS AT REASONABLE COST

5. GOOD NEW ENGLAND NEIGHBORS

A modern school goes well with a traditional church—winter and summer

NEW PRESTON ELEMENTARY SCHOOL, New Preston, Conn. A 4 classrooms, expandable to 8. A 120 pupils, expandable to 240.

Features: Three-wing plan (incl. future classroom wing) centering on lobby-reading room. A North-facing clerestory window along inner side of classrooms. A Glass strips between classrooms above 7'-4" height. A All-purpose room has in-wall folding lunch tables, two 8' x 8' folding stage platforms. A Cabinets along hall incorporate coat cubicles on hall side, cupboards on classroom side.

Construction: Concrete T footings. A 4" slab on 6" gravel All. A Steel frame on 12' x 33'-6" bays over classrooms, 12' x 38' over all-purpose room; 3" steel deck, ½" rigid insulation, built-up roofing (2" x 10" wood joists and wood deck over low hall-administration portion). A Walls, painted or natural redwood T&G siding on 2 x 4 studs, glass in wood frames, projected sash. A Partitions, painted cinder block. A Chalkboard, fabric tackboard and pegboard in classrooms. A Asphalt tile flooring. A Acoustical tile ceilings throughout. A Fluorescent lighting. A Warm air heating.

Cost: $135,650 (excl. fees, furnishings, landscaping); $14.20 per sq. ft.

New school of simple horizontal lines sits modestly across road from old church. Photo (left) shows entrance at center, multipurpose wing at right, classroom clerestory at left above colored panels shielding toilets. At rear (below) classrooms open to south sun and playfield under 3' overhangs. Exposed columns support 33'6" spans.
SIX QUALITY SCHOOLS AT REASONABLE COST

6. RUGGED RANCH HOUSES

A school of houselike units fits its landscape and its community.

WHITE SCHOOL (Elementary), Rio Vista, Calif. ▲ Three first-grade classrooms and two kindergartens in first of four units. ▲ 150 pupils, expandable to 600.

Features: 20' wide center corridor, enclosed against prevailing winds, used for play space, lunch, meetings. ▲ 9' luminous plastic ceilings in classrooms (total cost $8,250) yield uniform desk-level lighting (average: 41 f.c. electric only), 99 f. c. total; wattage: 1,675 w. per 925 sq. ft. classroom or 1.82 w. per sq. ft.). ▲ Natural redwood siding and aluminum sash for easy maintenance.

Construction: Strip foundations of reinforced concrete. ▲ Exterior walls 2 x 6 studs 16" o.c., 1" diagonal sheathing, redwood siding or stucco, redwood plywood interior finish. ▲ Wood built-up beams resting on 24" dia. concrete sewer-pipe columns filled with reinforced concrete; 2 x 12 rafters 16" o.c. White sprayed-on composition roof to reflect heat. 6" concrete floor slab with copper-tube hot water radiant heating; asphalt tile floors (vitreous tile in toilets). ▲ Gravity ventilation, exhaust through continuous slots to roof ventilators at corridor walls.

Cost: $180,443 contract (excl. fees, land, furnishings; includ. $27,443 in over-all sitework for future units). ▲ $13.68 per sq. ft. for first unit alone.

Broad hall, 20'-wide enclosed against wind and dust, is used for lunch, meetings. Hall is daylighted through end walls of glass in aluminum sash. What appears to be skylight is reflection on smooth ceiling.

Houselike look of new school echoes residential neighbors in its use of California low-pitched roof, natural redwood siding, mullioned window walls, wood fences.

Luminous ceiling, among the first used in a school, given even light of 41 foot-candles at desk level (99 incl. daylight). Light from fluorescents is diffused through plastic.
Simple shapes, colorful brickwork and a glowing mosaic lobby distinguish a speculative project from its brethren

COLOR AND ART
HELP AN OFFICE BUILDING

To New Yorkers tiring of wedding cake and tinsel, this sturdy new office building on Third Ave. has some interesting suggestions for a change of diet. It uses the economical brick and glass ribbons of earlier buildings, but instead of wrapping these around its maximum zoning "envelope" in a series of ugly, jigg-jog setbacks, it organizes them into three distinct shapes and colors: a broad, gray base, a slim white midsection, and a big blue block of a tower with its columns projecting on two sides—all of brick. In devising this more orderly and balanced—if slightly stubby—shape, Architect Lescaze and Builder Kaufman threw away over 1 million cu. ft. of rentable space that zoning laws would have permitted on this lot. Lescaze's sketches, which show the building designed to the maximum bulk permissible (below, left) versus the actual proposal (right), helped persuade the city to grant a variance: in return for all the light and air left around it, the tower was permitted to cover 33% of the plot instead of the normal 25%, protruding slightly out of the envelope at its upper corners.

Cutting the wedding cake was done profitably. The top 11 floors, 40% of the building's rentable office area, are fully surrounded by light and air, and fully occupied at New York tower-grade rents of $5.50 to $7. Each of these floors, a simple rectangle of 13,500 sq. ft. around a service core, has proved adaptable to a wide variety of tenant needs.

On the ground floor of his $13.5 million building, the owner made an added $80,000 (0.6%) bid for prestige in New York's competitive office market by lending bright notes to a neighborhood only recently under the shadow of the Third Ave. El: a big lobby mosaic and stainless-steel sculpture (not yet installed). Says Builder-Owner Kaufman: "It costs so little to have something outstanding I'm amazed more 'spec' builders don't go in for it."
Colorful lobby glows with 16' high mosaic wrapped around automatic-elevator core. Each side has a primary-color background of blue, red or yellow, lively dashes and figures suggesting busy lobby itself. Design, by Painter Hans Hofmann, was executed by Mosaicist Vincent Foscato. Abstract stainless steel sculpture for main entrance by Jose de Rivera is on loan to New York's Museum of Modern Art and is not shown.

Colorful exterior expresses a base in gray, a pedestal in white and a tower in blue. At rear, fire stairs are set off from tower in white brick. Building, seen here across New York's Third Ave., is a block east of Grand Central Station.
A great American architect’s intricate passion and irony are brought to life in a masterly new book of words and pictures a century after his birth

SULLIVAN SURVIVES

A BOOK REVIEW BY WALTER McQUADE

There is still something mysterious about architecture. It involves ornament, mood, underskin enjoyment. It cannot be expressed in prescriptions or shorthand specifications; it has to be felt, and cannot easily be prefabricated.

This mystery, the link between buildings and human emotions, in the end centers in vision, not in function. Some structures endure many generations, deepening in significance even as they go out of date. Sometimes these buildings eventually connote whole cities, as the corner of Carson-Pirie-Scott, left, means Chicago to many. They are monuments. We are tearing most of them down.

How many of these buildings are we putting up today? Not many. It does seem that most of our impersonal new architecture is in for rapid emotional obsolescence, to leave today’s architects wondering if they have not been forced into the position of being custom merchandisers of building effects, not originators. And then there is Louis Sullivan, the father of their functionalism.

Sullivan, born 100 years ago this fall, proved long ago that buildings in our efficient industrial era still can be deeply successful as human backgrounds; adding, not subtracting; vitalizing, not conforming; defining the complex quality in people which is called human dignity. His magic is there whether his building watches over a suburban matron seeking a bus in Chicago’s Loop, or a defiant wanderer in downtown Manhattan. If you don’t believe it is there, cover the top of either photograph on these pages with a piece of blank paper and see how much the people lose.

It is painfully true in most of our best modern buildings that humans—bathed in soft, complete floods of light, standing on bland wall-to-wall carpeting, enclosed by

Condict Building, New York, 1897-98

Carson–Pirie–Scott Building, Chicago, 1900
Small Sullivan bank built in 1919, secure in its town, Columbus, Wis.

Farmers and Merchants Union Bank

"When we decided to build, all that I knew was that I wanted a good bank building. . . . Of course I wanted it to look well. . . . But I had never really thought about these things in quite the same way before I met Sullivan as I did afterwards."

Clients Mr. & Mrs. J. R. Wheeler

From a letter from Sullivan, Dec. 1919: "If you are in doubt about any matter refer it to me promptly; otherwise use your best judgment in carrying on the work to completion in the spirit of my drawings.... In other words I look to you to be the directing brain of the actual work."

Builder Carl Ibisch
simple planes, primary colors—often seem mindless. They are reduced.

Sullivan enlarged them. He was not a sentimentalist—he built dynamic, sometimes brutal masses, the latest in modern technology of his day. But he also reached out in sympathy for the individuals who make up crowds. His florid formal decorations have vivid force, direct not abstract. He deliberately created complexity in feel and shadow, as if to declare to the unlettered: “I know, I know, our modern business buildings have to be spare and efficient, but you’re not that way. Your mind is ornamented with many devious impulses. I know it is, because mine is too.”

At his height, in the 1890’s, Louis Sullivan was cocksure, but toward the end, in the twenties, sick with sorrow and alcohol and the lonely steady despair of having lost his audience to classical stylists, he put his trust in posterity. He had little else to trust. “. . . do not trouble yourself as to whether or not others understand . . . in due time . . . others will perceive in your works more or less of what you, more or less adequately, have thought, felt, lived, loved and understood.”

The author and photographer of this new book*, John Szarkowski, justifies this trust in a wonderful way. He has perceived and conveyed the passion, joy and sometimes irony surrounding great architecture, and brought it to us better than Sullivan himself could on the printed page. His technique is mild; a prologue tells about the construction of one of Sullivan’s last buildings, a little bank in Columbus, Wis. (opp. p.). The client and his wife recall how it went; a letter from the architect to the builder is quoted. Then, after a brief, unsentimental biography of Sullivan, Szarkowski goes on with pictures, accompanied by quotations from diverse people: Andrew Carnegie, Thorstein Veblen, Frederick Jackson Turner, Frank Norris, Philip Armour, Ward McCallister, Kipling, and other unlikely architectural critics. Most of the quotations and some of the photographs have little direct bearing on buildings, but they give you an ascending sense of Sullivan’s Chicago. Standing with the silent photographs they are lyrical, humorous and tragic.

This book is a work of great talent. The stirring thing about it, beyond its taste and depth, scholarship and compassion, is in the way Photographer Szarkowski included people in so many of his pictures. Sullivan always included them in his architecture; after these many years of progress they turn out to have the same faces.

*THE IDEA OF LOUIS SULLIVAN. By John Szarkowski. Published by University of Minnesota Press. $10

architectural FORUM / October 1956

Wainwright Building, St. Louis, 1890

Schiller Building, Chicago, remodeled 1935
"The layout of the floor space was in mind for many years, but the architectural expression of the business of banking was probably a thing more felt than understood... From this search finally emerged the name of one, who, though possibly not fully understood or appreciated at first, seemed to handle the earth-old materials in virile and astonishingly beautiful forms of expression.

"The owners of this building feel that they have a true and lasting work of art—a structure which, though built for business, will be as fresh and inspiring in its beauty 100 years from now as it is today."—Carl K. Bennett, vice president.

“I have struck a city—a real city—and they call it Chicago. The other places do not count. Having seen it, I urgently desire never to see it again. It is inhabited by savages. Its water is the water of the Hugli, and its air is dirt. Also it says that it is the ‘boss’ town of America.”—Rudyard Kipling
Another in a series of articles about the public room

What to do architecturally about those who only sit and sigh and yawn and ponder, and nod and sit (and stand) and wait

RECEPTION ROOMS

"While streams the evening sunset on quiet wood and lea,
I stand and calmly wait till the hinges turn for me."
—William Cullen Bryant, Waiting by the Gate

In the past year a substantial number of architects and designers have been queried by FORUM on the design of one or another kind of room. Their responses on how to make the most of most of the room types, from kitchens to bedrooms, have been widely divergent, but nearly all of these contemplative professionals are agreed on the best kind of reception room. It is the one with the right girl behind the reception desk—a stylish receptionist for the waiting women to look at out of the corners of their eyes, narrowly; a beautiful one for the men to stare at, and dream the minute hand away.

The most complete architectural definition of the aims and objectives of reception room design was offered by George F. Pierce Jr., of George Pierce and Abel B. Pierce, Houston, Tex., in his set of test questions:

"Does the visitor feel welcome? . . . Does the receptionist have control? . . . Is interoffice circulation possible without going through the reception area? . . . Is the area doing a real job of selling public relations, or is it just a run-of-the-mill showroom for company products? . . . Does it provide a telephone at a comfortable location for visitors' use? . . . Have the old magazines, dull trade literature, etc., been eliminated? . . . And, most important, is the area staffed with a beautiful young thing who can say 'No' so pleasantly that the caller walks out floating on a pleasant pink cloud of happiness?"

In reception room design, it would seem, humanism is usually triumphant. Most of the rest of the advice received from designers on how to bring this triumph about, how to make visitors comfortable and reasonably happy, falls into five categories, shown here with examples:

1. CONTEMPLATING NATURE

Few architects and clients can surpass the forms of nature as Frank Lloyd Wright did in his reception area in the Johnson Wax Factory in Racine (opposite); the next best thing is to wipe out the wall with a sheet of plate glass. In reception rooms this sometimes equals the difference between sitting in a woodland glade and in the examination room of the local precinct station.

All doesn't have to be shown; frequently just a touch of the outdoors is enough, as in the poetic tree silhouettes outside the reception room at the Center for Advanced Study in the Behavioral Sciences by Architects Wurster, Bernardi & Emmons (2).

Other introductions of the outdoors: (4) Grossmont District Hospital in California by Architects Pereira & Luckman; General Motors Technical Center (3) by Architects Eero Saarinen & Assoc. and Smith, Hinchman & Grylls Inc.; St. Joseph Lead Co. (2) by Architects Hellmuth, Yamasaki & Leinweber; Maryland office building of the Fairchild Engine and Airplane Corp. (5) by Architects Fordyce & Hamby Associates.
RECEPTION ROOMS

2. BRIGHTEN THE CORNER

There is no better indoor civilizer than electric light, but none more difficult to define exactly in effect. Frequently, reception rooms can be made as pleasant with small intense lights, narrowly focused, as they can with floods of light from banks of luminaires. Compare all 22 reception rooms shown on these four pages, and try to formulate a guide other than this basic one: either the room has to be so bright that it has an inherent liveliness by virtue of sheer force of foot-candles, or it must use definite shadowing.

Architect William Beckett's own office (6) in Los Angeles has a reception room which exemplifies the latter part of this rule. In the main working area is mass lighting; its shadows liven the waiting area. In contrast, the domed inner garden beyond the reception room of the Andersen Corp. office building in Bayport, Minn. (7), Brooks Cavin, architect, pours light into the reception area naturally in the daylight hours, by courtesy of Mr. Edison at night.

A frequent technique is shown in lower photographs. This method lights the reception desk—and that receptionist—and lets the blessing reflect on from there: the reception room in the offices of Designer Raymond Loewy (9); the reception room of Designer Maria Bergson (8).

3. GATHER 'ROUN THE STEPS

This type is a strongly traditional solution. Whether the stair is a gleaming, stainless steel, flying flight of steps (10), the famous stairway in the Styling Administration Building at GM Technical Center) or a row of elevator doors (11), the Alcoa Building in Pittsburgh; Harrison & Abramovitz, architects, Altenhof & Brown, Mitchell & Ritchie, associate architects), its well is a logical place to interpose a waiting area.

4. DIVERSIONS

Many clients think that sales are the healthiest diversions in the world, and their architects have sagely absorbed this opinion in the design of their reception rooms. The sales pitch can be hard or soft, tangible or indirect.

In the quintet of allusively decorated reception rooms above, the most delicate reference is probably the handsome array of fancy trowels (most of them gilded, some solid gold) used at past ceremonial cornerstone layings (16). Collecting these is a bona fide hobby of the president of Herbert Charles & Co., Inc., a realty firm occupying these premises in New York. Designer Michael Saphier made a fine display of a part of the collection. (This handsome office design will be shown in more detail in next month's issue.)

A more direct approach is shown in the reception gallery in the executive offices of Olin Mathieson Chemical Corp. (14) by Designs for Business Inc., and in the Lewinson Opticians (18) in Seattle by Bennett Douglas. Both display samples, but in interesting ways. In the men's dormitories at Tulane University (17) by Freret & Wolf, Andrey & Feitel, Ricciuti, Stoffle & Associates, the focus is art. In the Northwest Orient Airlines New York offices (15) it is a map of the Orient; Carson & Lundin, architects.

5. THE MERGER

This type represents the partial tearing down of the wall between reception room and working room, perhaps the most effective means of introducing someone to the operation of any office. The visitor keeps busy watching, which would have been appreciated by Thoreau, who sighed: “As if you could kill time without injuring eternity.” At the Brookfield Center, Conn. office of Designer Lester Beall (19) this idea prevails strongly. At the Andersen Corp. offices (20) by Architect Brooks Cavin, it is expressed more cautiously. In the CBS executive offices in New York by the Knoll Planning Unit, the visitor watches the secretaries at work while waiting at an inner reception space to see the boss.
HOW TO GET RENEWAL OFF DEAD CENTER

For New Haven, it took a mix of three elements:

a good plan, a mayor willing to stick his neck out, and an unusual citizens organization

On a gray afternoon in September, the mayor of New Haven left his partly finished lunch at Mory's, climbed into the cavern of his official Cadillac, and headed back, somewhat circuitously, for his office.

Halfway along the route, the mayor nudged his companion and waved to a new playground. "We built that," he said, "and we told the people 'this is redevelopment.'" A little farther, and the car passed a school under construction. "Now this is redevelopment, too, and that's the way we've talked about it to the public." Finally, the limousine nosed into the narrow streets of a slum rat nest—an area slated to be cleared completely. "This, of course, is real development," the mayor said. "But do you know something? By the time we got around to this phase, to all the problems of relocating families and businesses, people weren't half frightened of redevelopment.

They'd heard the word before, seen the results, and accepted it. They understood that all this was for the good of the city."

For Richard C. Lee, an intense, 40-year-old Democrat who is serving his second term as New Haven's mayor, this creep-before-you-walk approach to redevelopment has been one of the subtler parts of a sustained and highly energetic campaign that today has brought New Haven to the verge of a full-scale attack on its slums and blight. Whatever the political wisdom of that campaign—and Lee, for one, believes that there are "very great political rewards" for the party that convinces the people that "it can best succeed in this mighty task"—the results are unmistakable. New Haven today fairly seethes with cooperation and common hopes. Between City Hall and community, there is a degree of rapport and coordination that for the first time in years seems to offer a real chance of bringing to life the plans the city has talked about for so long.

By last month, this was the state of things in the city that is America's oldest planned community:

» Southwest of the city center—just three blocks from the heart of downtown—one of the city's oldest and worst slums, the Oak St. area, is at last breathing its last (plans have been under way to clear it since 1951). Under the Title I renewal program, the city has signed a loan and grant contract with the federal government which will pour $2.5 million of US grant funds into a project whose net cost will run to $3.8 million. Involved are 42 acres of residential and business slum which will be cleared completely and replaced with three or more high-rise apartment buildings (space for 700 middle-income families) and a 500,000 sq. ft. office building for Southern New England Telephone Co. The city is now assembling the site, plans to auction off the residential segment in November, hopes to have it in the hands of a private redeveloper by year's end. Four syndicates are known to be looking at it, with a team of Yale University and Real
URBAN RENEWAL

Oak St. project (No. 1 on map) is farthest along of renewal plans, will follow general lines of symbolic model (picture). Like Oak St., other projects—South Central in the business district (2) and Wooster Square (3)—are closely tied to new traffic net. Biggest area under planning is Dixwell Negro neighborhood (4), where work is just getting under way.

Estate Operator Roger Stevens rated as the hottest prospects.

In the east-central part of the city, a combined renewal-clearance project covering 265 acres is now moving into the final Title I planning stage. The area here, centering around Wooster Square, was once one of New Haven's finest neighborhoods. The plan is for a joint assault by the city and neighborhood groups to restore its former elegance, eliminate the blighting influence of traffic, and clear out nonconforming land uses. The finished proposal should be ready for the Board of Aldermen next spring.

At the center itself, a 105-acre area embracing the present business district and the wholesale-retail food center to the south of it is now under advanced planning for commercial redevelopment and residential renewal. Details are very much under wraps. But Lee has said the project, which runs through the heart of downtown right to the edge of the central green, calls for a huge shopping center, a new high school and probably apartment housing.

To the northwest, the city's biggest project—293 acres of renewal with a minimum of clearance—is now getting under way in the Dixwell Ave. Negro neighborhood. Planning is still in the very early stages.

All this is a rich redevelopment diet, and whether the city will be able to digest it in the next few years is a serious question. Quite apart from its financial requirements, the program is bound to present tremendous problems of assimilation for a community with as old a way of life as New Haven's. But however the present projects fare, they can in no way detract from the fact that the city has had the courage to tackle its future in a grand way and, even more important, that it has found a way of doing it together.

A farsighted plan

How has New Haven managed it? With one important exception, the city in the early postwar could have fitted the description of almost any old US community. The exception was that it had a remarkably farsighted plan for doing something about its age and decay—a blueprint drawn in 1941 by Planner Maurice E. H. Rotival and since updated several times. This has been the first element in New Haven's resurgence.

Rotival's theory was that the city had to rely for its prosperity on its traditional role as a traffic distribution center, and that the problem was to find a way to revive the city, to feed it, and to consolidate it against further disintegration and blight. On the thesis that general interstate traffic, though not intended for downtown, ought to be brought close enough to the core to enter if it wanted, Rotival laid the route for a bypass artery linked to two expressways that would cut through the central and eastern parts of the city. Within this traffic net, and oriented to it, he and Norris Andrews, director of the City Plan Commission, later pinpointed nine specific areas for redevelopment.

As it turned out, this plan, which was generally supported by the Chamber of Commerce and much of the community, proved of tremendous importance. Because the city was able to present its traffic ideas in the context of an over-all scheme for community development, it even-
tually brought the state highway department around to its way of thinking. (Rotival's route for the bypass is now the path of the new Connecticut Turnpike; the two expressways—the Oak St. connector and the relocation of Route 5—will cut through the center essentially as he drew them.) And because it succeeded, the Oak St. and Wooster Sq. renewal projects, both of which are tied inextricably to the traffic net, are now possible.

**A strong mayor**

Whether through dedication to the idea of renewal, or shrewd recognition of its political potentials, Lee, when he took office in 1954, seized on this plan and made it the win-or-lose theme of his administration. Last fall, he staked his chances for re-election on it, and after once having acquired the distinction of losing a mayoralty bid by two votes, won handily with the biggest plurality in the city in nearly 20 years. In providing political leadership for the program, Lee has provided the second element for the resurgence.

Lee believes that too many communities have assumed that renewal is a job for planners alone. To him, the program is so “unbelievably complicated” that it calls for the most skilled administrators, a breed, he sadly confesses, that is annoyingly rare. Lee’s worries about the processing of the program led him, in 1955, to set up the post of development coordinator in City Hall and to staff the redevelopment agency under a seasoned hand. To the coordinator—35-year-old Edward J. Logue, a Yale Law School graduate and one-time legislative secretary to Chester Bowles—Lee has handed the responsibility for tying together the work and plans of the Redevelopment Agency, the City Plan Commission, the Parking Authority, the Traffic Engineer, and the Bureau of Environmental Sanitation, which enforces the housing code. Logue, who acts as the mayor’s deputy and who sits within the sound of a raised voice of Redevelopment Director H. Ralph Taylor, is not only supposed to see to it that one hand of the city knows what the other is doing in redevelopment, but that all hands are doing what they’re supposed to in terms of the common goal.

Though this internal coordination has unquestionably speeded the city’s renewal mechanics—perhaps as much as federal red tape will allow—it is safe to say that this alone could never have produced the community support that New Haven has mustered for renewal. That job has taken leadership, not just from City Hall, but from every segment of the community.

As a one-time newspaper man and former director of the Yale News Bureau, Lee has probably been more aware of that leadership requirement—in terms of its public relations aspects—than any US mayor. His A B C handling of the renewal program—the labeling of relatively simple improvements as redevelopment to win understanding for the bigger projects—and his sloganizing (“An Awakened New Haven Builds for the Future”) reflects this. So does his constant pounding on the renewal theme; his organization of a junket to Philadelphia for 75 of the city’s leaders so that they could see what others had done with renewal; his emphasis on working through neighborhood groups. And so does the Citizens Action Commission, which typifies the third and final element in the resurgence—community support.

**A working citizens’ committee**

The CAC was created by Lee in Sept. ’54, with the express purpose of stimulating and winning public backing for redevelopment. Though it bears some resemblance to St. Louis’ Civic Progress, Inc., CAC has a broader membership, one that includes labor leaders, educators and public officials, as well as businessmen, and it has official status. Carl G. Freese, president of the Connecticut Savings Bank, has been its chairman from the start, and its two vice chairmen are A. Whitney Griswold, president of Yale, and Merritt Vanderbit, president of Greist Manufacturing Co. The commission has 14 members at large, six action committees, which are each concerned with a particular aspect of city existence and which at times have involved as many as 300 people in their projects, and a paid executive director, Gordon Sweet. Up till now, it has had a budget of $30,000 a year to operate on, with the money coming from grants from the New Haven Foundation.

Once a month, CAC meets with the mayor and his staff. Far more than a scowling board in these sessions, the commission may assume a planning function by making specific recommendations on a proposed project, or it may help set policy by charting the lines the city should follow in attacking its problems. Although CAC’s over-all purpose has been to rally the support of neighborhood, civic and special interest groups for what it believes the city should do, Lee has never hesitated to use it for basic spadework. In two years it has found itself involved in making an economic study of a proposed ship terminal (its conclusion: not enough cargo to warrant the cost); has drafted an enabling bill for the state legislature to permit cities to set up public industrial development corporations; and has helped create a business relocation office—possibly the first in the country—to ease the blows of clearance for small business and to help it resettle. In the campaign for a regional market, a drive that led to legislative passage of a bill authorizing the State Marketing Authority to build a $2 million produce center on filled land near the harbor, CAC not only undertook site and cost studies, but helped to carry the fight in the Senate and Assembly. Its showing that Republicans wanted the bill as much as Democrats gets much of the credit for clinching passage.

To Lee, this sort of cooperation provides some insurance for the mayor who is incautious enough to crawl far out on the urban renewal limb. The political risks of renewal—the dangers of miscalculation that may lead to overthrow from office—Lee believes are great, and he suggests that this may be one of the big reasons why so many cities have been slow to take to the cure. But, as he told the American Municipal Assn. last year: “It is my frank and blunt opinion that urban renewal is going to work successfully, properly—even, and magnificently—only in communities where the chief executive is willing to take the calculated risk of serving as the catalyst.” In his own case, with cooperation, he still seems willing.
NEWEST CURTAIN WALL in building field is this ceramic veneer panel, for hospital in California. Structural clay industry is counting on this development and others to put it back into competition with metal curtain wall. New panel is heavy. This one weighs 900 lb.
NEW HOPE FOR THE BRICK WALL

After standing pat for 25 centuries the clay products industry is now betting $500,000 a year on research. And it's beginning to pay off in the form of prefab curtain walls and a host of other promising new developments.

A remarkable change is taking place in the brick and tile industry, an industry that, historically, has resisted change with consistent force. The hospital wall shown on these pages is evidence of what is happening.

The new Methodist Hospital, in Arcadia, Calif., is no extraordinary piece of architecture: a trim, handsome structure, with a skin of glass and thin, green spandrels. But it is a significant new building, because its spandrels are made of metal, but of a clay—ceramic veneer—backed by lightweight concrete. Further, the spandrels are 3" thick, which is thin indeed for the brick industry.

This is by no means the only new development in the changing world of structural clay; but it is the most recent and, potentially, one of the most important. Also, it is typical of a new kind of thinking that may save this ancient industry from oblivion.

Actually, this new panel is really not such a bold departure when it is looked at in perspective. Thinner panels have been made for thousands of buildings—of metal. Prefabricated panels too—of metal. But this break with tradition for clay is important to the designers of tomorrow's buildings, because it means that two elegant materials—ceramic tile and brick—which had, to many, become too cumbersome and too slow to work with, may once again be competitive with metal and porcelain enamel, the two materials that now have such a firm grip on the curtain wall market.

A wall of clay

The story behind the new hospital and its new panel involves three organisations: the Architectural Terra Cotta Institute, which developed this prefabricated panel; Gladding, McBean & Co., its manufacturer; and the Structural Clay Products Research Foundation, the newcomer which is carrying a heavy research and development load for the entire structural clay industry.

Traditionally, ceramic veneer walls had been installed in two stages: first, the backup wall was put into place; then the veneer facing was attached—either with an adhesive material or with small anchors, that held the veneer firmly to the wall. Either process was slow and costly.

With prefabrication techniques, the wall sections now are installed as single units—veneer coupled to backup wall—which means a great reduction in erection time, plus a lower cost for the units themselves.

Two panel sizes were prefabricated for the Arcadia hospital: a 30 sq. ft. section and a 15 sq. ft. section. All panels were cast in the plant, using a large, vibrating table—the same kind that is used in the manufacture of precast concrete. It took just a few minutes to cast each panel. Within an hour, the table could be tilted and the panel slid onto a pallet and stored. After two or three days of aging, a panel could be hoisted into place on the building.

Working with precast panels, the contractor gained in several ways. First, of course, he could install the panels in less time. Also, the panels were much thinner; if the veneer had been attached by one of the old methods, the wall would have been 8" thick instead of 3". It is estimated that the panels, installed, cost between $4.50 and $5.50 per sq. ft., which was only slightly more costly than installing a veneer facing alone, by hand-set method, to an existing wall. Thus, the precast method eliminated most of the cost of installing a backup wall.

This cost was lower than a metal wall bid on the same job. But weight, though down considerably from any existing ceramic veneer wall, is still quite high. The 30 sq. ft. spandrels weigh about 30 lb. per sq. ft., or about 900 lb. each. A metal panel that size would weigh only 200 lb., or even less.

Weight is going to be a drag on future structural clay walls, whether they be faced in terra-cotta or brick. For metal curtain walls offer the architect and contractor a lighter-weight, easier-to-handle alternative. (Most existing metal walls weigh just 6 or 7 lb. per sq. ft.) The Structural Clay Products Research Foundation says that it has developed a panel which does weigh considerably less than the 30 lb. per sq. ft. panels on the Arcadia Hospital.
but even this newest panel is relatively heavy: 15 to 18 lb. per sq. ft., with a thickness of 1/2".

And walls of metal

Of course, a single development such as this new wall panel does not constitute a revolution, particularly in the erupting field of the curtain wall. The advance during the past five years has been so swift that you can almost pick a material at random, and somewhere you will find somebody wrapping it around a new building: aluminum, stainless steel, bronze, copper, porcelain enamel—even glass.

Indeed, the transition from masonry to metal has come so suddenly, and with such decisiveness, that the real question now is whether the renaissance in clay has come too late.

Until this decade, the only important development to come forth for the structural clay industry in a century was the introduction of machinery to shape clay products, and that happened in the 1870's. Even today, brick is made in much the same way that it was made in the days of Nebuchadnezzar, 2,500 years ago, when the Babylonians discovered that firing made brick harder and more durable than mere sun baking.

For years, it didn't really matter that brick and tile were made from ancient recipes. The products were good. The market was healthy. Competition wasn't terribly serious. Then came the first shocking blow: The Great Depression. Of the 2,000 brick and tile manufacturers in the US, less than 500 survived the lean times of the early thirties. Lumber took a great slice of the residential market. Only now is the clay industry beginning to regain its position.

But after the Depression, for the depleted brick and tile producers there still remained the multistory building, a lovely, impermeable market. Then came the second shocking blow: the metal curtain wall.

Porcelain enamel moved first and fastest. It captured a $2 million share of the curtain wall market in 1947, then expanded; its share this year will be $60 million. Then aluminum, which was little used in 1950, built itself a home. Thus, he cannot grow to giant status with conventional brick, and no backup materials were needed.

Contrast this with the fabricators of porcelain enamel wall panels. Here, there are just a dozen companies, each with a long reach to distant markets. Although its research laboratory is new, the brick and tile industry had known as long ago as 1948 that things just weren't right. In 1948, the industry's trade association, the Structural Clay Products Institute—which goes under the rather quaint name of "Skippy" because of the way its initials articulate—asked Arthur D. Little, Inc., the Cambridge (Mass.) consulting organization, to study the industry and recommend a course for its future. Little's key recommendation was an industry-sponsored research program. Also, Little screened hundreds of scientists to find one whom it would recommend to head the program. In 1950, with a director of research, Robert B. Taylor, who had been assistant director of research at Owens-Corning Fiberglas Corp., and a staff of one, Paul Johnson, who had been a member of the engineering staff of SCPI, the Structural Clay Products Research Foundation went to work. For the first five years, Taylor and Johnson, who is now deputy director of research, worked in Chicago, principally at the Armour Research Foundation. Under a special, somewhat unique, agreement, Structural Clay Research used Armour facilities and Armour scientists, under Taylor's direction, to probe into clay's empirical history and its uncertain future.

From contributions of nearly 100 brick and tile manufacturers, the research program started out with a fund of $1.25 million, to be budgeted over a five-year period. (Today, in addition to its own research center, which cost about $500,000, its annual budget has been raised to $500,000.)

At first, just a brick

The first product of Taylor's research program was a new brick, called SCR brick, introduced in the spring of 1952.

Although its research laboratory is new, the brick and tile industry had known as long ago as 1948 that things just weren't right. In 1948, the industry's trade association, the Structural Clay Products Institute—which goes under the rather quaint name of "Skippy" because of the way its initials articulate—asked Arthur D. Little, Inc., the Cambridge (Mass.) consulting organization, to study the industry and recommend a course for its future. Little's key recommendation was an industry-sponsored research program. Also, Little screened hundreds of scientists to find one whom it would recommend to head the program. In 1950, with a director of research, Robert B. Taylor, who had been assistant director of research at Owens-Corning Fiberglas Corp., and a staff of one, Paul Johnson, who had been a member of the engineering staff of SCPI, the Structural Clay Products Research Foundation went to work. For the first five years, Taylor and Johnson, who is now deputy director of research, worked in Chicago, principally at the Armour Research Foundation. Under a special, somewhat unique, agreement, Structural Clay Research used Armour facilities and Armour scientists, under Taylor's direction, to probe into clay's empirical history and its uncertain future.

From contributions of nearly 100 brick and tile manufacturers, the research program started out with a fund of $1.25 million, to be budgeted over a five-year period. (Today, in addition to its own research center, which cost about $500,000, its annual budget has been raised to $500,000.)

At first, just a brick

The first product of Taylor's research program was a new brick, called SCR brick, introduced in the spring of 1952.

It wasn't a sensational development in the true research sense; it was simply a bigger brick—12" long, including the width of the mortar joint, and 6" thick, which made it about twice as long and 2" thicker than conventional brick. But it was a logical new product, for it made it about twice as long and 2" thicker than conventional brick. But it was a logical new product, for it made it about twice as long and 2" thicker than conventional brick. But it was a logical new product, for it
HEART OF RESEARCH in structural clay industry is Structural Clay Products Research Foundation, in Geneva, Ill. Manufacturers are too small to carry their own research programs, so they've banded together in industry-wide program. SCR Center was built early this year.

called SCR re-nu-veneer. It's a \( \frac{3}{4} \)"-thick brick, designed for the house renovation market. At a conference on masonry construction, held two weeks ago by the Building Research Institute, in Washington, Taylor struck an optimistic note for this product. He said: "If this new product reaches 10% of its potential market, it will provide a $58 million annual market for our industry in the remodeling field—a field in which we've never had a major foothold."

Thin brick veneer has been tried before, but never with great success. Taylor sees a good future for this newest try, for a number of reasons. One reason is that the thin bricks can be attached quickly; special metal clips hold each brick in place, and each clip is attached with just a single nail; also, the brick can be moved laterally—to position it properly—before it is mortared into place. Earlier thin brick veneer didn't always look quite like the real thing, particularly at corners. But Taylor's development includes an L-shaped corner unit that makes the finished job look like a genuine brick structure. Re-nu-veneer is being test marketed now in Columbus, Ohio.

Of course, neither SCR brick nor SCR re-nu-veneer is an answer to the metal curtain wall. In this area, Taylor's group is working on several developments, the most important of which is the prefabricated wall section—for both partitions and exterior walls, made either of brick or tile. He said last month: "We have developed an extremely fast-setting cement grout which enables us to produce 2"-thick panels without large mold investments. We estimate that these panels can be produced at the plant for $1 per sq. ft., and installed for another $1 per sq. ft."

At the Geneva laboratory, Taylor and his team— which now includes 31 scientists and engineers—are experimenting with both terra-cotta panels and panels of brick, and, too, with a number of new kinds of mortar, for quick-setting mortar is essential to an efficient prefabricating process. They have experimented with various plastics as mortar additives, hoping to find a new bond that is both high in tensile strength and quick to set. They have one now that gives a strong bond, sets in 15 minutes, instead of 24 hours.

Then a diet

The industry research program is looking closely at its weight problem too, because a heavy-weight product is not only a drawback at the building site, it is also an expensive item to ship. This project is just now getting into the pilot plant stage. But Taylor knows already that a lighter clay product can be produced. He says that this development will permit a 40% reduction in weight for structural brick and tile units: "In other words, a current 5 lb. brick will weigh 3 lb., and the 8 lb. SCR brick will weigh less than 5 lb." He says too that the water absorption of such units will not be appreciably higher than current clay bodies. Further, the new process will permit the production of lighter-weight units by nearly every manufacturer in the industry research program, without requiring that the manufacturer discard his existing facilities. He can even use...
the same kinds of clay that he now uses. Also, because the new brick will be less dense, grinding it to exact size will be, in Taylor's words, "an economic possibility."

For the past three years, Taylor has been working with an eastern furnace manufacturer on the development of a new furnace that will produce the light-weight aggregate for these new bricks. A pilot model will be in operation later this year. By December, Taylor hopes pilot production will amount to 50,000 lightweight bricks a day.

The process works like this: The new furnace takes small particles of clay, about the size of grains of sand; it expands and fuses the particles to five times their original size. The particles come out of the furnace as multilayered spheres. These are then blended with unburned clay and the mixed batch is molded and burned, just as ordinary clay would be.

Of course, the lighter bricks are not as strong as ordinary brick, but ordinary brick doesn't really have to have all that strength anyway. Ordinary brick has a compressive strength of roughly 10,000 lb. per sq. in.; the new brick's compressive strength will be above 3,000 psi. Thus, the new brick sacrifices unneeded compressive strength to save weight.

It will have still another advantage: the new brick's dimensions will be easier to control during production. Regular brick is difficult to produce to precise dimensions, because you never quite know how much water or how much organic matter is contained within the clay, which means that shrinkage during firing is apt to vary from one batch to the next. Because much of the new blend has been prefired, the problem of shrinkage is considerably reduced. Also, of course, the new bricks can be ground to size if precise tolerances are necessary.

It is still too early for anybody to know how much it will cost to produce this new brick, though it will certainly be more expensive than regular brick. A new furnace, for example, will cost $75,000 to $100,000. It will be another year before this new lightweight aggregate is commercially available. Meanwhile, the pilot furnace will supply the new expanded clay to the Structural Clay Research labs and to a few brick manufacturers for experimental work.

The new furnace holds forth another possibility for the future. For panel walls, where load-bearing requirements are secondary, it is possible that structural clay products of still lighter weights will be available, simply by using a greater proportion of expanded clay in the blend—perhaps ¾ expanded to ¼ regular clay. Such products would have lower compressive strength—say 1,000 to 1,500 psi—but their weight would approach that of some of the lighter curtain wall materials that exist, such as stainless steel and porcelain enamel on steel.

Labor savers

But until that far-off day, when the brick industry turns full-force into prefabrication, it must live with a serious materials handling problem. Here is an industry that for centuries has turned out millions of small, identical products every day, but has never found a satisfactory way to handle them—except by hand. Look inside a brickmaking plant, and you will find a team of 11 or 12 men busily packaging bundles of brick for shipment. When you consider that it costs only a few cents to produce a brick, it's a short step to the conclusion that you cannot afford to give much labor time to its handling, whether in the plant or at the site. The research people have been looking at this problem too, though it's likely to be some time before manufacturers see commercial results. At present, there is an automatic packaging machine in operation at the research center—an elaborate affair—designed and built by Taylor and his crew, that assembles and packages 62 bricks at a time and stacks each set in such a way that it can be handled by truck at the building site. The machine uses several sets of photoelectric cells that tell it when to work, when to stop, and a complex series of hydraulic lifting and handling devices that move the bricks from place to place. From the time the bricks are fed into the machine, until they move out, neatly packed and wrapped tightly in steel bands, it takes just one man to keep the process under control. Taylor's group has had only a few months to tinker with the machine. He is very cautious about discussing its future value to the industry—except to say that he is optimistic—because he feels that it may be a couple of years before many commercial versions will be in use. But then, says Taylor, the manufacturer will be able to package 100,000 bricks a day with a minimum of plant labor.

Brick packages are used on many major building projects now. But no manufacturer has an automatic packaging machine: he must use an 11- or 12-man labor force to package his product. Also, a good many of the available hand-packed packages are unsatisfactory even to the masonry contractor—usually because the package is too big and too unwieldy.

The SCR packaging machine will reduce labor costs in the plant, and, too, it will save time at the building site, because the size and shape of the package is such that it can be handled either in multiples, by fork lift truck, or singly, by hand truck. Also, it is expected to be practical for either house construction or multistory construction.

At a building site, of course, there is the other half of the materials handling problem. Here, the 62-brick package will be a time-saver. The few tests that have been made to date demonstrate that. For example, one contractor—one a small house—says that he saved more than $18 per 1,000 bricks by using the packages. (He got his bricks from the research center, because manufacturers are not shipping the package; it isn't economical to do it by hand-strapping methods.)

The continuously adjustable scaffold, another new SCR development, is said to increase productivity by 20% to 25%. With the new scaffold, the mason is always at optimum working position and his supply of brick and mortar are always at a convenient height and location behind him. Scaffolds of this type are now on the market (photo, opp. p.)

Another development, which people at Structural Clay Research do not want to talk publicly about yet, can boost productivity still further. In combination with the scaffold and a marked mason line, this newest development will increase productivity by 50% to 100%, according to Taylor. A number of buildings have quietly gone up in recent months trying out all of these developments. Taylor says that they have proved to be workable and that masons have been receptive to them. (FORUM will report on these developments later.)

The future

As anyone familiar with the history of the building industry knows, the question of how long it will take these improved masonry techniques to be adopted throughout the industry will not be determined strictly on their merits, but also on their acceptability to the men who must put them to work. Unfortunately, the building industry as a whole has been content to ride for years on yesterday's ideas, and has been slow to adopt new production techniques.

Despite its conservative attitude in the past, Taylor is confident that the
industry in the future will accept change. He argues that there are many contractors and labor leaders who are as alarmed at the progress of the metal curtain wall as are the most enlightened brick and tile manufacturers.

Last month's industry-wide meeting in Washington, which was set up by the Building Research Institute of the National Academy of Sciences-National Research Council, was still another hopeful sign. The two-day meeting, attended by several hundred people from the brick and tile industry, marked one of the few times in recent years that members of the industry were willing to get together and exchange ideas. In the past, guards were held high, with everybody seeming to fear that somebody was going to slip away with a trade secret—even though there were few secrets, and fewer worth taking.

Because of this new spirit among the makers of products of structural clay, there is a feeling of optimism in the air. The metal wall be damned, the brick and tile manufacturers are actually betting money on their future. In a survey made this spring, Robinson Newcomb Associates, market analysts of Washington, D.C., found that the industry expanded its capacity by 2.4% in 1954, then 9.9% in 1955. And, according to early reports, the analysts expect a 1956 expansion that will exceed 4%. In his report, Robinson Newcomb says: "The industry spent more and expanded more proportionally in the last two years than did the producers of any other major building material."

Of course, if you can muster up faith in the industry's research program—as most industry members seem quite able to do—and if you have bullish convictions about the nation's immediate economic growth, then it is easy to become dazzled at the industry's potential. For example, more than $1 billion was spent on the larger multistory buildings last year; for the walls alone, the nation spent about $30 million. For schools, we spent even more—$2.4 billion, and $146 million for school walls. Toss in factories, stores, and don't even bother counting houses, and you have a $200 million market, for somebody.

For the next few years, at least, and perhaps for longer, it seems likely that metal and enamel are going to continue to gain ground in this market. But if the renaissance of structural clay has not come too late, and if the people who do the spending see economies, then clay shall win back its share, and perhaps even a little more.
TECHNICAL NOTES

ALL GLUE, NO NAILS

*Long Island's new sports arena is largest of its kind in the world*

The 137 tons of lumber that arc over this new sports arena at Commack, Long Island, make up the largest rink of a laminated wood arch design in the world. The 12 arches which support the roof extend over a clear span of 205', at a peak height of 65'. The arena is 350' long, with a usable floor area of 17,000 sq. ft. Two-and-a-half tons of glue—and no nails—hold the superstructure together.

Because of the alternate freezing and thawing of the ice rink, Architect James Van Alst specified a waterproof glue that could withstand stresses that would ordinarily tear the wood apart.

*The arena has permanent seating accommodations for 4,100 people. Its rink size is larger than the rink in New York's Madison Square Garden.*

ROAD DESIGN BY PHOTO

*Engineers at Ohio State use camera to measure “give” of road surface*

A combination of engineering, photogrammetry and astronomy may prove to be a key to reducing the cost of highway construction and maintenance. At Ohio State University's Engineering Experiment Station, a new photogrammic method of measuring a road's deflection under heavy loads has been in development for two years. Actual road tests now indicate that the method has "definite promise."

The process works like this: any road surface—even the most rigid one—bends when weight is applied to it. The deflection may range from 1/100th of an inch to 1/10th of an inch. The new process uses strips of tape, applied to the highway's surface, as targets. The tapes are photographed by a special stereoscopic camera—first before any weight is applied to the surface, then again as a loaded truck passes over.

The two photographs show extremely small differences in the locations of the tape targets—too small to be viewed by the naked eye. And here is where astronomy comes in. Photonegatives of the tape targets are printed on glass plates and the differences measured on a Gaertner Measuring Engine, a device used to determine size and locations of stars. Finally, the pavement deflection is calculated mathematically.

Some $7,800 is going into the Ohio State study. The objective is to develop information on the effects of heavy axle loads on the structural life of both flexible and rigid pavements. Prof. Robert F. Baker, of Ohio State, will present a paper on the method at the January meeting of the Highway Research Board, in Washington.

HEATING BY SUN POWER

*New Mexico tests first office building to use sun as only heat source*

Man has tried since the time of the Greeks to capture the sun as his worker. But, at best, his effort has seldom been significantly rewarding, until very recent times.

This summer, on a hot patch of desert near Albuquerque, N.M., two young mechanical engineers—Frank Bridgers, 34, and Donald Paxton, 43—took a bold step: they built the world's first solar-heated office building, then promptly moved into it themselves to see how well it worked.

The Solar Building, owned by Bridgers & Paxton Engineering Consultants, cost $60,000—which is rather costly for a building of this size (4,400 sq. ft.). Its heating and cooling system alone cost about $15,000, which is about twice as much as a conventional year-round air-conditioning system would cost.

But the men believe that savings in operation will be substantial: about 25% to 50% lower than a conventional heating system, only slightly lower than a conventional cooling system. And, more important, they expect to collect valuable solar heating cost data from the building. The building will be used as a working model for equipment and services that Bridgers & Paxton recommend for their clients.

To capture the sun's energy, the engineers, and Architects Stanley & Wright, sloped the building's southern wall at a 30° angle, then covered the wall with 800 sq. ft. of glass-covered, partly hollow aluminum panels. Within the 56 panels, which are covered with a heat-absorptive paint, water circulates, heats (to as high as 140° F.), then is pumped to a 6,000 gal. storage tank. From the tank, it is pumped through the heating system. When the building is warm enough, the hot water skips the heating system, simply circulates between collector panels and storage tank until it is needed—say at night, in cloudy weather or when the building needs more heat than the panels can deliver.

Of course, the building needs electric power too; solar power does not do every job. It needs electric power to move water from place to place, and also to operate its air-conditioning system, which works from a heat pump.

This extra power is necessary because science has yet to find a fairly efficient way to store solar energy. (The 6,000 gal. tank in the Solar Building is only a crude beginning.) Actually, enough solar power falls onto those collector plates in a day to keep the building supplied with all of its power needs for a month. But the collection and storage system, advanced as it is, is still extremely inefficient.

The Solar Building is a notable move forward for solar power, for it is just the fourth building ever to be used for study of solar heating costs. Those other three are residential buildings in Arizona, Colorado and Massachusetts.
The structural engineer is under fire. Says one engineer to others, "Let's not be so conservative!"

The main criticism: overdesign. He has heard criticism before, from architects and from engineers of other types. But now he is getting it from one of his brothers. John T. Percy, a professor of structural engineering at Rensselaer Polytechnic Institute, says, "I have been looking carefully at low-grade wood, hoping to find some way to make it more usable to the building industry. Now, after tests, the laboratory concludes that low-grade wood, covered with resin-impregnated paper, can be used for siding, house trim, cabinet partitions."

Further, says Percy, hidden costs are savings: thicker floor members require a corresponding increase in wall surfaces; heavier dead loads result in larger columns and foundations.

What's the cause? Percy names several causes. One is the handbook. He says: "Handbook standardization was originally planned to relieve the engineer so that he would have more time for special analysis. Many designers, however, pick oversized members in their uncertainty."

Another cause is simply the weight of tradition: "Designs and details of old buildings are constantly being used and reused." The pity is that these old buildings were purposely designed with large safety factors, for materials in those days were not standardized.

Today, he says, structural engineers should be able to determine future loadings with "a fair degree of accuracy." He concedes that many designers still remain, but he questions whether the safety factor of 4 is always necessary: "With an intelligent appraisal of available laboratory data, the engineer can closely approximate the physical characteristics of the materials of construction."

To overcome this practice of overdesign, he recommends that the engineering societies make two studies: an appraisal of existing knowledge, to find just what engineers do know and don't know; a study of existing structures to find cost-cutting methods.

**PAPER-COVERED WOOD**

Cheap lumber, less swelling are two advantages

The US Forest Products Laboratory, at Madison, Wis., has been looking carefully at low-grade wood, hoping to find some way to make it more usable to the building industry. Now, after tests, the laboratory concludes that low-grade wood, covered with resin-impregnated paper, can be used for siding, house trim, cabinet partitions.

The paper cover makes it possible to use cheaper lumber—by hiding such defects as knots and splits—and, too, it reduces lateral swelling 25% to 40% for pine, 20% for oak. Two layers of paper reduce oak swelling by 35%.

But there are disadvantages: nails might be driven through a weak spot, the lumber cannot be resawn or planed, which means that it is likely to be used only for finished products.
HOW BIG 1967?

Statistics are only as good as the use that is made of them, and this goes for predictions of building volume too. We are happy to present on p. 126 Miles Colean's forecast that building in 1957 will hit just under $47 billion (his forecast of $44 billion for this year looks as if it would be on the button).

Although this reflects what is probable it does not put a limit on what is still possible. In a sense, the building industry is not even up to normal. Last year's building volume was almost 11% of all goods and services produced in the nation—but in 1927 the share was 12.2%. Meanwhile automobile sales had grown more than 400% greater than they were 25 years ago, food sales were very nearly 200% greater, and electrical goods 221% greater.

The great vehicle of growth for the building industry is urban renewal and orderly new city creation. Where is the top for the building industry? There is no top in sight. If we had the ability to seize all our opportunity we might, with supporting industrial capacity, go above $50 billion.

HOW MUCH BLIGHT DO WE NEED?

A highly progressive mortgage banker, one who has been a monumentally good citizen in his own city, shocked us the other day by declaring that serious urban renewal must wait for distress to bring land prices down. In the meantime he is investing in more and more outlying shopping centers.

This evoked an old old memory. Way back in 1934, in these pages, Frederick L. Ackerman, a perspicacious architect who has since passed on, made sardonic remarks about our housing processes for people of modest income. Said he: "They cannot be housed until nearly two thirds of our habitations have fallen into such decay that they no longer rate as investments but are viewed as liabilities by owners, mortgage holders and collectors of taxes. These facts would seem to indicate that slums and blighted areas are among the assured end products of our economy."

Now there is no sensible man who decries the existence, even in an economy of abundance, of second-hand markets for partly depreciated goods; used cars, used refrigerators, washing machines, etc.—and even, at the bottom of the scale, worn clothing. And yet in no industry except urban building have we permitted a used-goods market in fully depreciated properties to flourish so profitably that it cuts off, diminishes and discourages all but a trickle of new production.

How much blight do we need?

One reason why blight persists and urban renewal lags is that a great deal of blight carries an assured profit where-as renewal is an elaborate risk venture. And certain government officers, like the present heads of the FHA, watch renewal like hawks to make sure nobody makes a cent too much out of it, even after the tremendous fight the enterpriser has to make to push his project through a thick sea of government. We refer back to the Urban Renewal Round Table report in this magazine last April for two major facts:

1) urban renewal can be made profitable to all concerned, including the federal treasury and the city treasuries; 2) this can happen only if renewal is converted into a steady process, a constant flow, with adequate encouragement.

We now add that blight must be made unprofitable, of and by itself. This can be done. We need only get the community behind law enforcement against landlords who make big profits out of operating substandard and anti-human obsolete dwellings. And then we have to begin working out tax policies that operate against slums.

We assume that the overwhelming interest of the building industry is in healthy building, and that those who operate blight are not its friends but its foes.

PROGRESS—IN CANADA

Last month the Canadian Federation of Mayors and Municipalities was addressed by J. S. Hodgson, director of the Development Division of Canada's famed Central Mortgage and Housing Corp., their equivalent of our FHA.

Hodgson's speech is a fine example of good sense. He said, among other things: "Some . . . regard urban renewal as a luxury . . . others admit the need but contend that their city cannot afford it. I suggest that a city cannot afford to ignore urban renewal: if it does so it is headed toward bankruptcy just as surely as a trucking company that refuses to trade its old vehicles. We have only about 100 months' grace in which to make our cities work efficiently (until the second postwar generation appears).

"Redevelopment is usually presented as an exercise in municipal accountancy. Assessments are usually increased. For example in one clearance operation the city's tax revenue multiplied sixfold, from $36,000 to $240,000 a year. Yet although the higher assessment may be a consequence of an increase in values, the worth of redevelopment is better judged by other criteria. "Values in nearby properties are sustained or increased. Perhaps most important, the renewed area functions more efficiently. Beyond this are the human factors. "Let us regard our cities not merely as buildings and streets but as the very fabric of our 20th Century civilization."

Forum sincerely recommends Mr. Hodgson's speech to our own FHA and its commissioner, Norman Mason. In the past month our FHA has apparently considered a sliding scale of profit and risk allowances rewarding smaller projects rather than large ones—Hodgson declares for the large ones. Our FHA, in its correct but exaggerated concern lest the initiative and drive of developers might earn a little too much, has shown slight concern over the vastly greater earnings of antisocial non-initiative in slums, the beneficiary of inaction. It would be unthinkable for our FHA to lapse into a combination of tolerance toward blight within cities and overstimulation of development outside, but this possibility has to be consciously avoided. FHA must serve the whole USA.

And building's interest lies that way too.

Douglas Haskell
...no other form material compares with

Fir Plywood

FIR PLYWOOD’s unique combination of advantages makes it the standout choice for any form job. Tricky forming problem?...fir plywood easily forms curves, angles, decorative effects. Appearance count?...specify fir plywood for smooth, monolithic surfaces. Re-use important?...fir plywood gives up to 200+ pours per panel. Costs critical?...in addition to its low-cost-per-use, fir plywood cuts application time and costs by up to 20 per cent.


always specify by
DFPA grademark

INTERIOR PLYFORM®—standard concrete form grade made with moisture-resistant glue. Gives up to 10 re-uses.

EXTERIOR PLYFORM®—standard form grade made with waterproof glue. Can be re-used as many as 25 times.

*OVERLAID FIR PLYWOOD—special panel with hard, glossy fused resin-fiber surfaces. Waterproof glue. Gives up to 200 re-uses.
Air conditioned comfort in the

**Lutheran Brotherhood**

new home office building in Minneapolis

is regulated by a **POWERS**

thermostatic control system

Advanced thinking in facilities, architectural design and superior mechanical equipment is embodied in this life insurance society's new building. It is one of the first in the Twin Cities to have a curtain wall and complete modern air conditioning incorporated into the original design of the building.

Year 'round air conditioning is provided by separate perimeter and interior systems. In the perimeter areas, air conditioning units are served by a high pressure conduit system. Thus, occupants in each individual space may select the temperature desired by adjusting the Powers thermostat inside the unit.

Interior zones are supplied with conditioned air from ceiling diffusers. Here, too, Powers controls automatically adjust temperature to the requirements of occupancy and outside weather.

Humidity control is provided by a "reheat system." Air is chilled to remove excessive moisture. It is then warmed to the comfort condition called for by the Powers master zone thermostat which operates control valve on zone steam reheat coil.

Air infiltration through windows and curtain walls is prevented by Powers static pressure controllers. They automatically maintain a fixed differential between indoor and outdoor air pressures.

Are You Planning a New Building or modernizing an old one? If so consider the advantages of a Powers Quality system of temperature control. They have been time-proved dependable in thousands of buildings since 1891. For utmost comfort and lowest upkeep cost... specify and install Powers air conditioning control.

For further information contact our nearest office

**THE POWERS REGULATOR COMPANY**

**SKOKIE, ILLINOIS** | Offices in Chief Cities in U.S.A., Canada and Mexico

65 Years of Automatic Temperature and Humidity Control

**POWERS**

Symbol of Economy

and Quality Control
Efficiency combined with architectural beauty is the keynote in this colorful building. It has a curtain wall of blue-green porcelain enameled steel; an auditorium seating 266 people; the Martin Luther Library; sunken garden terrace and fresh air intake louvers above, which are well integrated into the building design. Photo below shows zone temperature indicator also the central control panel of the Powers Air Conditioning Control System.
anticipated sag in total residential activity in 1956 was due to a drop in expenditures on new dwellings, because of a number of eventualities: bad weather held up starts during the brief period early in the year when credit was relatively easy; credit generally began to tighten as the weather improved; the rate of savings continued to drop until after the housebuilding season was far underway; the push of industrial expansion proved tough competition for the pegged interest rates in the home mortgage market. On top of this, buyers manifested an uncustomary aloofness. Owing both to price rises and improved quality, dollar expenditures for new dwellings have fallen proportionately less than the number of units, but the dollar drop of 11% is still disappointing.

The brighter residential building picture in 1957 will result from a more ample supply of mortgage funds, greater interest on the part of buyers, and more vigorous efforts by builders to get in tune with demand. Expenditures on new dwelling units should be up by about 3.5% and the number of new private housing starts should reach 1,150,000. Some change in the volume of apartment building (now less than 10% of the total) is to be expected because of the provisions affecting private multifamily housing in the Housing Act of 1956. Cooperative housing is likely to be the biggest gainer. Otherwise, while on the helpful side, the new legislation does not offer enough to pull apartment activity out of its half-decade of doldrums. Hotel and motel building will be heading into a minor boom which will take on greater importance during the next several years. Alterations and additions will continue to be on a modest upswing.

PUBLIC CONSTRUCTION in 1957 will reach its highest peacetime level, both in terms of absolute volume and in proportion to the total of all new activity. Except in the highway segment little change will occur in the federal-state ratio of participation. Four fifths of these funds will be state and local, with emphasis on school building, highway and sewer and water facilities. Federal expenditures will be heavily weighted on the side of military and highway activities.

Nonresidential construction will be led by school building, which, though still troubled by the desegregation issue, will make a more substantial advance (8%) in 1957. Nevertheless, at around $2.7 billion, it will still be lagging behind estimates of need. Industrial building ($300 million—mainly for atomic energy) will be reduced 25% from its already declining 1956 level, while hospital and institutional building (also $300 million) will make a 9% gain.

Public housing which, for statistical purposes, also includes housing built on military establishments under Title VIII of the National Housing Act will take a real jump, making 1957 the second biggest public housing year since World War II (1951 reached a total of 71,200 dwelling units). Expenditures at $350 million will be up at least 40% from the 1956 level and may go beyond that. Probably about 60,000 dwelling units will be started, about equally divided between the military and the civilian programs.

Military construction took more than the expected upturn in 1956. Further expansion, particularly in connection with Air Force operations, is assured for the coming year. The forecast total: $1,500 million, up 7%.

Highway construction in 1957 will feel the first impact of the new federal aid program. Total highway outlays, for the first time probably will top $6 billion (up about 17% from 1956) and will be pointing upward for a number of years.

Sewer and water construction, like school building, a laggard in relation to all estimates of need, will increase about 8% in 1957 to $1,350 million. This is another area of activity that will be stimulated by the highway program and will expand for at least the next decade.

continued on p. 186
The new Salvation Army Territorial Headquarters in Chicago is another example of Kawneer’s ability to engineer, produce and install a complete skin from the anchors on out. Kawneer works closely with the architect by helping him establish his design budget well in advance of the bids. Kawneer assures him that the translation of his design will be true and accurate. The curtain wall of this building will consist of Ingram Richardson 2” insulated porcelain enameled steel sandwich panels, double-glazed pivoted Kawneer aluminum windows and self-supporting aluminum mullions. Special weather-tightness features, adequate provision for expansion and contraction, and tested prefabrication methods assure the architect complete client satisfaction. For further information on how Kawneer can assist you in metal wall engineering write: Metal Wall Department, Kawneer, Niles, Michigan.

Write for folders describing Kawneer metal wall jobs and windows.
New Buildings Go Up Faster At Lower Cost With Steeltex®

Across The Nation, Designers And Contractors Use Pittsburgh Steeltex Because It Saves Money

In Daly City, Calif. . . . down in Austin, Tex. . . . at Monroeville, Pa. . . . in Hagerstown, Md., Pittsburgh Steeltex is:
  • Helping build better, stronger buildings of all kinds.
  • Cutting construction costs—"five per cent," said one builder; "five cents per square foot," said another.
  • Shortening building time—"we saved six weeks," said the builder in California.

Steeltex, the sturdy steel wire mesh reinforcing which carries its waterproofed form right on its back, was the choice of the men who designed and constructed the representative buildings on these pages. They agree Steeltex does a better job at lower cost.


In California—Westlake Shopping Center's J. C. Penney Company Department Store in Daly City. Architect & Engineers—Lloyd Gartner, A.I.A. and Associates of San Francisco; Contractor and Owner—Henry Doelger Builder, Inc., of Daly City.
J. C. Penney Company Store in Daly City, Calif., (lower left) is a totally fireproof department store with 93,350 square feet in its basement, first floor and second floor. The architect said:

“The facility and speed with which Steeltex Floor Lath was installed and the whole operation was completed resulted in a saving of many weeks of valuable construction time.”

Henry Doelger Builder, Inc., builder and owner of the Westlake Shopping Center which includes the J. C. Penney store, credits Steeltex with “about six weeks saving in time and about five per cent in cost.”

Monroeville Junior High School, near Pittsburgh (upper left) used approximately 110,000 square feet on floor slabs with the contractor, Guy Miller Company, declaring:

“At a conservative estimate, $1.50 cents per square foot was saved in time and material as a result of using Steeltex instead of other methods.”

The American National Bank of Austin, Tex., (upper right) used about 7,000 square feet of Steeltex. Contractor J. M. Odom said: “On steel joist spans under 25 feet with a spacing of not over 32 inches we save approximately five cents per square foot over most other types of deck.”

Fairchild Aircraft Division, Office Building, Fairchild Engine and Airplane Corp., at Hagerstown, Md., (lower right) Steeltex was used for 46,000 square feet of office space. The architect estimated “a Steeltex-supported slab over bar joists, spaced 24 inches on center, to be 40 to 45 per cent less expensive than a conventional four-inch reinforced slab using wooden forms, and over steel beams, six to eight feet on center.”

Peter A. Strobel of the consulting engineering firm of Strobel and salzman said the savings due to the use of Steeltex on the Fairchild building “are quite substantial and, according to our estimate, vary between $.40 to $.70 per square foot.”

The Steeltex story is the same in the East, West, North or South. Designers and builders favor Steeltex because it makes better roofs and floors and speeds construction.

You, too, can benefit from Steeltex’s advantages. For more details on the Steeltex story, write for the new booklet “Steeltex, Backbone of Concrete, Plaster and Mortar.” Or call the nearest district sales office to learn how you can do a better job in less time when you use Steeltex.
THE FACTORS BEHIND THE 1957 FORECAST:

A growing economy. In 1957 the economy generally will be in an expansive phase. Gross national production promises to move from a range of $408 billion to $410 billion to a point in the neighborhood of $425 billion. Employment will be at high level and national income will get another substantial boost. Under these circumstances construction is bound to share in that expansion as it invariably has, except during wartime. It may be expected that construction will maintain the high ratio to gross national product that it reached in 1955 and 1956 (11.0% and 10.8% respectively). In 1957 it will be around 11%—and would do better if investment funds were more plentiful.

A peaceful world. This forecast is based on the assumption that the international situation, while troubled with the unpleasant surprises that have become almost routine, will be kept out of a shooting phase.

A friendly business atmosphere. It is also assumed that the federal administration will remain friendly to business—that it will maintain the confidence of both consumers and investors in the strength of the economy. If these premises hold, the federal budget will show a surplus at present tax rates, leading to the further assumption of getting in 1957 the tax cut that was heroically foregone in an election year.

An expansion of investment. The fiscal soundness of the federal government should lend support to the continued expansion of capital investment, which so far as the industry's interest is concerned, will be reflected mainly in a further advance in the volume of commercial and industrial building. At the same time the current uptrend in savings, which may be expected to persist into next year, should increase the availability of borrowed funds. The expansiveness of demand, however, is such that it will quickly absorb all the money obtainable and will leave little or no prospect for any reduction in interest rates.

A multiplying population. Because the number of potential household-formers remains at a relatively low level, the rate of increase in the number of households will be fairly stable at around 800,000. On the other hand, the rate of population growth will continue upward, bringing its pressure to bear on the housing supply. The steady advancement in family income will make it possible to seek improvement in the standard of housing. The potential expansion of housebuilding will be held back, however, by the tight controls on the money market, by the arbitrary FHA and VA interest regulation and, as far as multifamily construction is concerned, by numerous impediments which FORUM has repeatedly pointed out, but which the 1956 Housing Act went only part of the way in removing.

A spreading road net. A new stimulating influence will be introduced next year by the expanded highway program, which will not only be directly a major source of activity but will also bring incentive to practically every other form of construction. While the stimulus of this program will be cumulative during the next decade, even 1957 will begin to demonstrate its effects on new residential subdivisions, regional shopping centers and industrial park development.

A good supply of materials. The uptrend in the prices of building products, although certain to continue as a result of the steel settlement and other factors, is likely to be mild and to have no major effect on plans. No real shortages of materials should develop, though many items such as structural steel, cement and gypsum products are likely to continue to be on the tight side.

The year should be one of healthy growth rather than one of feverish boom. It should be one in which the restraining hand of monetary policy will prevent either excessive price rises or inventory speculation. It should, in other words, be a year that does not exceed itself, but still leaves room for expansion to continue in 1958.
in buildings...

everybody benefits from stainless steel

the architect specifies long-lasting Stainless Steel for its strength, its beauty and its economy of maintenance. In heavy use areas and for weather-exposed panels and trim, nothing stands up or keeps its smooth finish like Stainless Steel.

the builder likes working with Stainless Steel. It is easy to install, does not dent, peel or discolor and presents no problem on matching or replacement.

the tenants enjoy living or working in buildings that are bright, clean and attractive because of Stainless Steel.

McLouth Stainless Steel

For the product you make today and the product you plan for tomorrow specify McLouth high quality sheet and strip Stainless Steel.

McLouth Steel Corporation Detroit, Michigan • Manufacturers of Stainless and Carbon Steels
New adjustable header duct junction units assure a level finished floor

National Electric has developed an easily adjustable junction unit ring for its Header Duct Steel Underfloor Raceways.

The new Header Duct junction unit ring is designed to eliminate the raised spots and depressions that occur when underfloor raceway junction boxes protrude above or become recessed in the floor due to minor variations in the level of the concrete. Adjustment of three easily accessible recessed screws in the cover of the unit is all that's required to level the ring with the concrete surface... assures a smooth, level, attractive finished floor.

National Electric junction unit rings can be moved down as well as up after the concrete has set. A galvanized steel collar around the junction unit ring keeps concrete from bonding to the ring and preventing a downward adjustment.

This newest Header Duct improvement is typical of how every detail in NE Header Duct is engineered to help you give the owner complete flexible electrical distribution for power, light, communication or telephone—where and when it's needed.

If you're planning for cellular steel floors make sure you include Header Duct—the all-steel grounded feeder raceway from distribution panel to the raceways formed by the cellular steel floor panel.

National Electric Products
PITTSBURGH, PA.
3 Plants • 10 Warehouses • 36 Sales Offices
...for a touch of Glamour that lasts and lasts!

NEW, EXCLUSIVE Gold Seal SEQUIN®

Vinyl flooring now, with new ⅛" “Secuin” linoleum, you can offer commercial clients a truly luxurious, high styled heavy-duty floor. Here is rich, beautiful coloring... a terrazzo type design that fairly scintillates before the eye... excellent resilience—for exceptional quiet and comfort underfoot. Seven decorator colors provide ample selection for matching any decor.

And new “Secuin” is as rugged and easy to maintain as it is beautiful! Colors are inlaid clear through to the backing. Its satin-smooth surface seals out dirt, resists stains... makes cleaning easy! Grease, grime and spills just wipe off with a damp cloth! And “Secuin” needs less buffing—for scuffs “disappear” in the design. See new Gold Seal ⅛" “Secuin” linoleum at your Gold Seal Dealer.

SPECIFICATIONS: 6-ft. wide yard goods, ⅛" gauge, bur­lap backed. Install over suspended wood or concrete subfloors. Available in: Grey mix, Grey, Green, Dark Brown, White Multi, Taupe, Beige. Also made in standard gauge for residential use—in 16 colors.

FOR HOME OR BUSINESS:

INLAID BY THE YARD—Linoleum • Nairon® Standard • Nairon® Standard
RESILIENT TILES—Rubber • Cork • Nairon Carpet • Nairon Standard
Vinylbest • Linoleum • Randelle® Linoleum • Asphalt
PRINTED FLOOR AND WALL COVERINGS—Congoleum® and Congowall®
RUGS AND BROADLOOM—LoomWeave®

FOR THE LOOK THAT’S YEARS AHEAD

Gold Seal FLOORS AND WALLS
HOW DO YOU MEASURE AGE?

You cannot measure age in terms of years. The child is young; the Marble on which she stands, many millions of years old. Yet as the child advances in years and matures, the Marble retains its fresh youthfulness. In fact, with very little care, Marble will stay young forever. Remember that, when you calculate cost.

Age is relative

Cost—true cost—is more than initial outlay. It embraces also the cost of maintenance. If maintenance costs are high, then the material is expensive, no matter how low the initial cost. Marble costs slightly more, initially, than many other materials, but is so inexpensive to maintain that it is usually the most economical to use. There are facts and figures to prove the economy in a report: "Proof that Marble Costs Less . . ." available at no cost from the Marble Institute of America, 32 South Fifth Avenue, Mount Vernon, New York. Write today.

marble

THE MARK OF SUCCESS
AMTICO Vinyl Flooring is a product of American Bilrite Rubber Co., Trenton, N. J. In-service cost and maintenance are cut by this colorful vinyl tile’s resistance to wear and the ease of cleaning.

**Striking looks...**

**long-term economy**

...two important advantages in flooring made of

**BAKELITE**

**BRAND**

**Vinyl Resins**

BAKELITE COMPANY, A Division of Union Carbide and Carbon Corporation 30 East 42nd Street, New York 17, N. Y.

The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC
How vinyl-faced Super-Fine benefits both client and contractor

Because of vinyl-faced Super-Fine insulation's high thermal efficiency and effectiveness in helping to prevent condensation, Theodore Rogvoy (A.I.A.) and David J. Zahner (M.E.) selected it to wrap cold-air ducts in Detroit's Eastgate Shopping Center.

Super-Fine insulation is available with vinyl or other reflective and plain vapor barriers extended to form tabs. Super-Fine is made of fine glass fibers which form millions of dead air cells—effectively reducing both loss and gain of heat. These inorganic fibers will not support combustion, absorb moisture, rot, settle or decay. This assures your client long-lasting and efficient insulation.

Contractors know that blankets of Super-Fine insulation are strong, light weight, pleasant to handle and easy to apply.

For free folder with suggested specifications, write: L·O·F Glass Fibers Company, Dept. 60-106, 1810 Madison Avenue, Toledo 1, Ohio.
Good Windows, Yes!  
— But A Bayley Specification assuresses you of MUCH MORE!!

Check these Extra Bayley Services

- Engineering Consultation Based on 77 Years of Reliability and Leadership In Window Development.
- Pre-engineering Collaboration in applying time-proven, basic designs to the specific project.
- Engineering Field and Sales Cooperation with all parties responsible for the project's completion.
- Engineered Detailing specifically for each project—individualized "custom planning."
- Engineering Controlled Follow-through on all manufacturing operations involved in completing a specific contract.
- Engineered Installation Preparation—detailed marking, scheduling and delivery in Bayley's own trucks to the job site.
- Engineered Installation by Bayley's trained and supervised installation mechanics.
- Engineering Inspection of Completed Project to insure a satisfactory, quality finished installation.

PLUS

The over-all reliability of a 77 year old, nationally recognized, financially responsible company with complete, modern manufacturing facilities; supported by a nationwide sales engineering and service organization.

Bayley Projected Windows and Bayley Curtain-Wall system—in aluminum and steel—has had a major influence on today's trend from the old conventional to the modern. If you are not familiar with Bayley Details see Sweet's or write; or call in your local Bayley Representative.

Bayley Curtain Walls in Whitehall Junior High School, Allegheny County, Pa.  

THE WILLIAM BAYLEY CO.
Springfield, Ohio

District Sales Offices: Springfield • Chicago • New York • Washington
BIG SAVING!

10 and 16-ounce Chase® Thru-Wall Flashing actually gives you more copper at less cost!

Remember, it's the COPPER that does the waterproofing job of flashing through a masonry wall—and the expenditure should bring the MOST COPPER to the job.

Why pay for thinner copper (and less protection) when you can get the full protection of Chase Thru-Wall Flashing for less money?

10-ounce Chase Copper Thru-Wall Flashing costs 25% less than 7-ounce "copper fabric" or membrane flashing, yet Chase gives you 42% more copper!

16-ounce Chase Copper Thru-Wall Flashing, which costs only about 8% more than 7 oz. membrane flashing, actually gives you a bonus of 128% more copper!

Chase Copper Thru-Wall Flashing is made from rolled temper copper—not just a dead soft "deposited" temper. (This feature alone means years more service!) And Chase Flashing has a 3-way bond keyed right into the metal—a watertight bond secures the wall for good!

For more information, write for free folder giving details and specifications.
how you can get the full benefits of high-velocity air conditioning

This executive office in the Research Administration Building, one of seven at the General Motors Technical Center air conditioned by Thermotank, shows a typical installation of Thermotank's custom-designed diffusers with integrated sprinkler heads.

YOUR assurance of trouble-free performance, satisfactory temperature control with quiet, economical operation, is the practical background of our world-wide organization, pioneer in high-velocity air conditioning.

Since 1901, when Thermotank, Ltd., installed the first air conditioning in ships, we have engineered air handling systems for some of the world's foremost industries, including comfort air conditioning in offices and factories; humidity and temperature control for special processes.

During the five years of our operation in the United States, our services have been used by leading architects and engineers and by such companies as General Motors, Ford, Standard Oil, Michigan Bell and Borden's.

Our consulting engineering services may be used as extensively as desired—from preliminary surveys for utmost economy in first and annual costs through complete engineering design, specifications, and supervision during construction for satisfactory performance of the end result.

Write today, without obligation, for literature and details of our experience in solving diversified problems of heating, ventilating and air conditioning.

THERMOTANK
Air Conditioning Engineers & Consultants
Air Conditioning Products
11191 Lappin Ave. • Detroit 34, Mich.
In Canada: MONTREAL and TORONTO

STAGES cont'd. from p. 141

But she does have the distinction of not having passed him on to someone else. Maybe he had struck bottom.

... and around again

Determined that he would not give in for a while yet, Klein tried a new avenue. He wrote Superintendent Dr. William Jansen. Setting forth his central points, Klein said:

"I would especially be interested to learn why there always must be:

1. a hardwood floor in which one is not allowed to put a nail or screw;

2. a lighting system with border-lights and useless overhead lights;

3. a curtain set which hangs on iron pipes."

An associate superintendent (the man who had countersigned the first letter from the Division of Housing, half a year before) answered this one:

"With regard to the three specific statements that you make, I can inform you, first, the floors of our stages are made of soft wood; secondly, those in charge of our High School Division insist on lighting and, finally, we 'fly' curtains and scenery on such stages.

"I appreciate your interest and I shall put your letter in the hands of the chairman of the Manual Revision Committee."

Klein had to admire the speed with which he was reconsigned to the 23-legged Revision Committee. The letter was almost too silly to answer, but Klein tried:

"I obviously did not succeed in making myself clear in my letter. Of course there must be lighting. I only asked why is there old-fashioned lighting. I am very interested to learn that floors are now made from soft wood, from which I take it one is now permitted to put nails and screws in the floor. May I ask whether there serves on the committee for auditorium stages a practical theater man..."

Here is the reply in full:

"I have your letter requesting certain information about the design of high school auditoriums and stages. In reply:

1. We allow no nails or screws in the stage floor at any time.

2. Our auditoriums are planned for educational use not theatrical purposes.

3. We have among our teaching staff people who are thoroughly familiar with the theater through actual professional practice.

"Thank you for your inquiry."

continued on p. 198

FOLDING DOORS

...MORE BEAUTIFUL

...MORE DURABLE

...AND FIRE RESISTANT

...WHEN THEY'RE MADE OF TOLEX SUPPORTED VINYL

THE GENERAL TIRE & RUBBER CO.
TEXTILEATHER Division, Toledo 3, Ohio
Send me the names of folding door makers who use TOLEX supported vinyl coverings:

Name:

Address:

THE perfect folding door material!

We'll send you sources!
Washrooms in Soldiers Memorial finished in Carrara® Glass!

- There are three important reasons why Carrara Structural Glass is the ideal material to create washroom walls and partitions in public buildings.

BEAUTY. The gleaming, highly polished finish of Carrara and its wide range of colors make its selection important where beauty and attractive color schemes are desired.

DURABILITY. Because it is all pure glass, Carrara is designed to last. It won’t crack, craze, stain or change color with age. Its uniform homogeneous structure is completely unaffected by water, acids, cleaning compounds, pencil marks or odors.

EASY MAINTENANCE. An occasional wiping with a damp cloth keeps Carrara fresh and clean. And because Carrara is made in large sections and installed with true, even joints, there are few places to trap dust and germs, and add to cleaning problems.

The Soldiers Memorial, in St. Louis, Missouri, was designed by Maurice Russell Crowell & Muggardt. P. J. Bradshaw, associate, Plaza Commission Architects, St. Louis, Missouri.
Offer You the Most in

* YEARS OF RESEARCH
* SOUND ENGINEERING
* QUALITY CONSTRUCTION

There are a number of companies that can and do build doors for aircraft hangars and for industrial use. But there are none that can offer the "plus values" and complete assurance of dependable operation of Byrne doors.

Since 1928, when the first Byrne doors were constructed, this company has conducted a constant research and development program. It has regularly maintained one of the largest engineering staffs in the industry. And adherence to top quality of construction has always been a "must."

It's not difficult to get a lower "quote" on your door requirements than you'll get from Byrne. But if you want to be sure that you are getting the most for your door dollar, you'll specify Byrne. Many of the country's leading architects do just that.

Full information is contained in our current catalog. We'll be glad to send you a copy—no obligation, of course.

Klein was left wondering why, if theatricals are not educational, the schools have them. What is the purpose of these activities? Why give students a misconception of the working stage? Are nails in the floor and spots instead of footlights anti-educational? Does not the Board perhaps confuse scholastic with educational? Some of these students might become inspired to study stage design. Many of them will later on join community theaters; would it not be sensible to have their school productions furnish them with some inkling of the necessities of the modern stage? Would not community theaters gladly pay the high schools for the rental of their auditoriums were they permitted to put up some professional sets? But Klein did not ask these questions because he had finally had enough of the committee-ridden, buck-passing bureaucratic art of using time and paper to "dispose" of a problem without the need of facing troublesome questions. His summary of his attempt to be a responsible citizen:

"On the few occasions I had a chance to converse with anyone, I was asked what I had to sell and what my real interests in the matter were. When I pointed out that my only interest was to see the taxpayers' money used wisely and to see an improved stage, this seemed to baffle and disturb my hearers. I suspect they thought I must be some sort of pink.

"As to the argument of the Board that it needs no theater expert on its committee, I quote from the book, Modern Theater Practice: 'It is unfortunate that directors in school and community theaters often allow salesmen from scenic studios and lighting equipment companies to select lighting equipment for them. Usually the salesman is looked upon as an authority, and a considerable amount of money is wasted on the purchase of three or four borderlights and proscenium striplights that are obsolete in design and of very little use for the sort of production common in school theaters.'

"I could find no motive to the Board's resistance to improvement. The nearest thing to light on the matter was an incident after my meeting at the Bureau of Construction, back at the beginning of the whole affair. A very nice architect took me aside at that time and said, 'Dear sir, we all start as idealists. But after many years of red tape you learn it is hopeless and you give up.'"
Eliminate overhead wiring hazards... 

SPECIFY  

JUMBODUCT 

INDUSTRIAL UNDERFLOOR ELECTRICAL RACEWAYS

Versatile in design, National Electric Jumboduct offers plenty of capacity for production line wiring... eliminates the hazard of overhead wiring... permits flexible, attractive plant layouts by providing for readily accessible electrical distribution in the floor at a minimum cost.

A Jumboduct system in your plant means:

Plenty of capacity
4" x 4" Cross Section—more room for wires

Efficient power distribution
2" pipe threaded outlets every 24" permits exact location of equipment

Low Cost
• Easy-to-handle 10' lengths
• Same simple installation procedure as standard Nepoduct.
• Quick access to inserts
• Investment in conductors limited to today's needs with ample space for tomorrow's additions

Safety
• Protected against corrosion by Sherardizing
• Coated with a baked-on acid-resisting enamel
• A completely grounded all-steel system

Get the details on JUMBODUCT today! Write for your free copy of the engineering Data Book on NE JUMBODUCT.
A ROOF TO GROW UNDER is a built-up roof constructed of Barrett pitch and felt—the same materials used in the famous Barrett SPECIFICATION® Roof. Those materials...application by approved roofers...inspection by Barrett experts...and the specifications themselves—all contribute to the functional performance of this roof. It's guaranteed by bond for up to 20 years, yet often serves years longer without attention. Its long-life design is exactly right for your latest design! BARRETT DIVISION, Allied Chemical & Dye Corp., 40 Rector St., N. Y. 6, N. Y. In Canada: The Barrett Co. Ltd., 5551 St. Hubert St., Montreal, Que.

30% less labor Costs, 15% less Waste

With **CELOTEX**

**Double-Waterproofed INSULATING SHEATHING**

Because Celotex Insulating Sheathing is easier to cut and fit, it goes up 30% faster, with up to 15% less waste. It insulates and weatherproofs as it builds, at one cost, and makes building paper unnecessary. Laminated for extra strength and rigidity, with no corner bracing needed with 4' wide, 3/8" thick Celotex Insulating Sheathing to meet FHA requirements. Has approximately 30% greater strength than ordinary sheathing with let-in bracing, as proved in actual demonstrations by independent testing laboratories.

Only Celotex Insulating Sheathing is made from tough, interlocking, long Louisiana cane fibers ... nature's long-life fibers ... protected against dry rot and termite attack by the exclusive Ferox® Process. This ideal basic material for insulation board combines strength, lightness, and resistance to deterioration. Moreover, this sheathing is **double-waterproofed** to seal out damaging, job-delaying moisture ... outside, by protective asphalt coating ... inside, by special processing of the fibers. It provides **practical job advantages** unmatched by any other brand of sheathing.

For dependable, easily-applied, time-saving sheathing ... be sure to specify Celotex **Double-Waterproofed** Insulating Sheathing.

**For better building insulation... specify genuine**

**CELOTEX**

INSULATING SHEATHING

The Celotex Corporation, 120 S. LaSalle St., Chicago 3, Illinois

These Celotex Insulation Products Can Simplify, Improve, Cut Costs, On Your Construction Jobs!

**CELOTEX CHANNEL-SEAL ROOF INSULATION**

New safeguard against blistering, and separation of felt and insulation! Units form network of channels to permit equalization of air pressure throughout roof area. Asphalt-coated on both sides, all edges. Rigid, tough, yet light, easy to handle. Coated surface assures positive bond to both roof deck and roofing felt. Thicknesses for every job specification.

**FLEXCELL® Bituminous Impregnated Cane Fiber Board**

As **PERIMETER INSULATION**, Flexcell contributes toward a warmer concrete slab floor by reducing possibility of heat loss through floor edges.

Write Now for full data on various types of job-proved Celotex Cane Fiber Insulation:
New Inland Steel Building
foretells office life of tomorrow

Bold, new design concept of Chicago building includes in-floor power, heating and air-conditioning — made possible by

Milcor® Celluflor

An extraordinary architectural achievement is taking form on the skyline of Chicago's Loop — it's the distinguished new headquarters building of the Inland Steel Company. Here is the ultimate in imaginative planning and engineering — unprecedented today, sure to be abreast of the best tomorrow.

The Inland Steel building has 19 floors — without interior columns. It has the longest clear spans of any tall building ever built. Its utilities are in a separate tower. Absolutely nothing obstructs the floor space.

Air-transfer for year-round air conditioning plus power and communications pathways for all the potentials of the electronic age are provided in the floor — in Milcor Celluflor, the cellular steel floor that combines light weight with great strength.

Celluflor is made of TI-CO®, the galvanized steel with the protective coating that won't flake or chip. Celluflor was selected for warm and cool air distribution because TI-CO galvanizing protects against time, temperature and humidity.

For more information on the interesting Inland Steel Building design, or for Catalog 270 which describes Milcor Celluflor construction, write to address listed below.

INLAND STEEL PRODUCTS CO.
DEPT J, 4031 W. BURNHAM ST. • MILWAUKEE 1, WISCONSIN
BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND
DALLAS • DENVER • DETROIT • KANSAS CITY • LOS ANGELES
MILWAUKEE • MINNEAPOLIS • NEW YORK • ST. LOUIS
When lighting systems are based on diffusion through PLEXIGLAS® they have the efficiency, permanence and beauty that add up to illumination of the highest quality. This acrylic plastic provides superior transmission and diffusion of light. It is rigid, strong and durable, with exceptional freedom from discoloration on long exposure to fluorescent lamps.

At the General Motors Technical Center, nearly seven acres of PLEXIGLAS attest its advantages as a lighting material. Write for our booklet, "Architectural Lighting with PLEXIGLAS." It shows many of the diffuser shapes and designs that are available from lighting equipment manufacturers.
22 Ceiling Units Installed In Massive 13,500-Seat Coliseum

Comfort conditioning the cavernous interior of this unusual new structure in Charlotte, N. C., is a man-size job. The huge aluminum dome, easily the world's largest at more than 332 feet in diameter, covers an area of two acres.

Heating and ventilating the new coliseum is accomplished by 22 Marlo Ceiling Units, with a combined capacity of 336,800 cubic feet per minute.

The building was designed by architect A. G. Odell, Jr. General contractor was Thompson & Street Co., mechanical contractor was Hopkins, Hicks and Ingle, and engineer was Mechanical Engineers, Inc., all of Charlotte.

View at right shows some of the 22 Marlo Heating and Ventilating Units installed in the new coliseum. Write today for more detailed information on these and other Marlo air conditioning units.

SEE OUR BULLETIN IN SWEET'S CATALOG

RESEARCH

A spotlight on new tests, new standards, new studies

Plaster cracks

Secondary expansion of perlite plaster has been held responsible by some for the failure of ceilings in several big buildings (AF, Sept. '54 and Feb. '56). It is known that perlite plaster, unlike ordinary sand plaster or vermiculite plaster, undergoes a secondary expansion. All three types of plasters expand to a maximum volume and then decrease to a minimum after their set. Uniquely, perlite plaster then begins to expand again and continues this secondary expansion for a long period of time.

An extensive series of experiments with gypsum plaster used with lightweight aggregates is being conducted in Australia and is now partially presented in a three volume report.* The results indicate that plaster ceilings, restrained against movement, are unlikely to fail due to expansion. It is thought that the stresses introduced by the primary expansion will be relieved by plastic flow. Also, plastic flow should almost entirely relieve the stresses introduced by the secondary expansion of perlite plaster. This conclusion does not apply where there is appreciable bending in the supporting structure. Deflection of the floor-ceiling construction may contribute to noticeable deflections due to the secondary plaster expansion and lead to failure.

The report suggests that the secondary expansion is a result of an ionic interchange between the gypsum and the perlite. Calcium, potassium and sodium ions in the perlite may combine with the hydroxide ions from both the water chemically united with the plaster and the absorbed free water. Further studies at the Australian organization are being directed to determine the limits of the secondary expansion and definition of the amount of structural movement that will cause failure or serious deformation for various perlite-plaster mixes. It is believed that a chemical test of the perlite and plaster in solution can be developed to predict the amount of secondary expansion for any perlite-plaster mix.

Although these reports represent only a part of the Australian program of studies on lightweight aggregates with gypsum continued on p. 209

*J. J. Russell, Properties of Gypsum Plaster with Lightweight Aggregates: 1. Plaster AB/1, Perlite AA/1; 2. Plaster AC/1, Perlite BC/1, Vermiculite AMT/1; and 3. Plaster CC/1, Perlite CO/1; Division of Building Research, Commonwealth Scientific and Industrial Research Organization, Melbourne, Australia, 1955.
"No—it's completion time, not starting time, that counts!"

"YOUR INVESTMENT IN A BUILDING CAN'T PAY OFF UNTIL THE TENANTS MOVE IN. Build with steel floors and they move in much, much sooner. No matter how you build, you have to allow time for demolition and excavation. By that time, your steel is ready. And then, steel Q-Floors will knock another 20 to 30% off construction time.

"Look at this model. Those cells are the steel Q-Floor. It is dry, noncombustible, clean. It goes up as fast as the frame. No temporary forms, no shoring. Two men can lay 32 sq. ft. of Q-Floor in half a minute and it immediately becomes a dry, working platform. Even in freezing weather, work speeds along, not delayed by wet materials.

"This is just the first reason for Q-Floors. Think of the electrical availability. After all, you're investing for thirty, forty, fifty years. And you sometimes forget that floors are what a building is for. Even though the floor is a small fraction of total cost, floor space earns the income. It should be alive with ducts, pipes, wires, the earning arteries of a structure. You don't want your building born with hardened arteries, with monolithic slabs for floors.

"See how the load-carrying steel cells of Q-Floor are crossed over by raceways for wires of every conceivable electrical service. This is your assurance that your investment will keep step with future increased demands for electrical business machines. You can put an outlet on every six-inch area of the exposed floor. It literally takes only a few minutes. Floor layouts are permanently flexible. Alterations tremendously simplified. It saves a huge amount of money over the years.

"And Q-Floor costs less than the carpet that covers it.

"There is no reason for not having Q-Floors."

Write for the complete story—

H. H. Robertson Company
2401 Farmers Bank Building • Pittsburgh 22, Pennsylvania
In England—Robertson Thain Ltd., Ellesmere Port, Cheshire
In Canada—Robertson-Irwin Ltd., Hamilton, Ontario

NAME
COMPANY
ADDRESS
CITY

*The original cellular steel floor... since 1930 over 12,500 installations.
Distinctive Beauty and Outstanding Safety
for Office Buildings with Architectural Concrete

The Farmers Union Building in Denver, Colo., shows the possibilities of architectural concrete in designing modern office buildings.

This $3 million structure has architectural concrete exterior walls, reinforced concrete frame, ribbed concrete floors. It is 115 x 110 ft. in plan, has 10 stories above ground, two basements, an adjoining concrete parking garage. An unusual feature is a concrete interior service core designed for high blast resistance.

Architectural concrete offers many advantages: distinctive beauty, rugged strength, unexcelled resistance to the elements, maximum fire safety, extra long life and proved economy. With their moderate first cost, low maintenance cost, and long service, architectural concrete office buildings serve at true low annual cost.

In designing office buildings you now should consider the advisability of incorporating blast-resistant features. Actual field tests proved that only concrete provides adequate protection against sudden lateral forces.

Our technical staff will gladly help you attain the maximum structural and economical advantages of concrete. Write for free helpful literature. Distribution is limited to the U.S. and Canada.

PORTLAND CEMENT ASSOCIATION Dept. 10-7, 33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work.
LOOK WHAT A DAYLIGHT WALL DOES

This light, bright classroom tells you better than any words why 44 out of 45 teachers surveyed in a research project were in favor of daylight walls.

Typical comments:

“Students do not get tired and restless, because there is no feeling of confinement.”

“The lighter, brighter surroundings create a good environment for learning.”

If you'd like the complete study, read the column at the right and mail the coupon.

DAYLIGHT WALL FACTS

Daylight is the primary source of light for classrooms. Since most of the United States is cloudy or overcast during most of the year (especially during school months), the main problem is to bring enough daylight in. The Daylight Wall answers that problem.

In a typical 24-foot-wide classroom, on a dark, overcast day with only 500 foot-candles of light on the Daylight Wall, there can be 33 foot-candles or more on even the last row of desks from the windows. That is 23 more foot-candles of eye-easy light than the minimum recommended by the American Standard Practice for School Daylighting! That's what clear glass will do for you.

Let us send you a booklet giving you valuable information concerning:

Light needed on various room surfaces
Bilateral, clerestory, monitor design
Window variations to fit the need
Light transmittance data

---

Dept. 42106
Libbey-Owens-Ford Glass Company
Libbey-Owens-Ford Glass Company
608 Madison Avenue, Toledo 3, Ohio
Send me Daylight Walls booklet M-12 and a report by Prof. Paul R. Henssling.

Name: ________________________________
Address: ______________________________
City: __________ Zone: _____ State: ______

(Please Print)

architectural FORUM / October 1956
See the clear, true undistorted reflections in the windows of this Prudential Savings & Loan building. The glass is Parallel-O-Plate.

these reflections tell a true story...
looking in,
looking out,
looking at

When reflections in a window are distorted, see-through vision is distorted too. As a result, the building makes a shoddy impression.

The reflections in the window of this building are clean and true because this glass is L.O.F Parallel-O-Plate® - the most distortion-free (the only twin-ground) plate glass made in America.

Yet in most localities, Parallel-O-Plate Glass costs no more than ordinary plate glass.

So it makes good sense to have Parallel-O-Plate Glass in your windows, storefronts, display cases and mirrors. You'll find it's so much better — looking in, looking out, looking at. Read the column at the right for important facts on Parallel-O-Plate.

PARALLEL-O-PLATE GLASS

Finest plate glass made in America...only by LIBBEY-OWENS-FORD
a Great Name in Glass
plasters, they do provide considerable information on mechanical strengths and stiffnesses of these materials.

Another study of the problem of plaster cracks has led to the development of a measure of building motion. Studies of lateral building motion due to earthquakes, conducted at the University of Washington in Seattle, explored the possibility of using the cracking of gypsum plaster as a criterion of lateral motion. The results indicate that the cracking is proportionate to building motion and can be used to show its magnitude. The tests conducted under the supervision of Professor Alfred L. Miller used one part gypsum plaster and two parts sand plaster, instead of the lightweight aggregate materials used in the Australian studies.

Diagonal tension cracks in plaster walls and ceilings result from skewing or shear deformation of the diaphragms. During such deformations, diagonal tension and diagonal compression stresses are induced. Brittle materials can withstand only limited amounts of such stress without cracking. Cracking indicates that the limit has been exceeded and this limit was named the "cracking modulus." Its numerical evaluation is expressed in terms of a ratio. The ratio is that of the slope of a reference line, which is perpendicular to the imposed motion, to the slope of the crack which has been caused by that motion.

Of great interest is that the studies of neat plaster and sand plaster show the "cracking modulus" to be dependent on the gypsum matrix rather than the imbedded aggregate, provided that the mixture is homogeneous. Test panels were studied with both wood lath and metal lath. The average "cracking modulus" was 0.0095 or approximately 0.001 for both kinds of lath. However, the lateral loads were slightly greater at the time of cracking for half of the metal lath samples. The wood lath samples and the remaining metal lath samples cracked at about the same lateral load. For practical purposes, the "cracking modulus" appears to be independent of the lath base.

To use this information to determine the amount of skewing that has taken place in a plaster wall or ceiling diaphragm, multiply the "cracking modulus" by the height of the wall or the ceiling dimension normal to the distorting force. Thus, if the plaster "cracking modulus" is known to be 0.001 and the cracked wall is 8' high, the differential lateral displacement between the ceiling and floor diaphragms would be 0.001 x 8' = 0.008'.

To this value must be added the actual width of the crack, measured in a horizontal direction. The cracking modulus concept is supported by a consistent relationship within the limit of cracking and therefore appears to be valid.

Libbey • Owens • Ford Glass Company, 608 Madison Avenue, Toledo 3, Ohio.

**Vizusell**

...the newest idea in merchandise presentation

Vizusell® is a system of strong metal channel uprights into which brackets and accessories can be locked at any height with the twist of a screwdriver. Recessed edges of uprights accept 1/4" or 1/2" panels.
Dramatic (unplanned) trial by fire

PERMANENT — Expanded Coralux perlite, the principal ingredient of Fesco Board, is dielectric, chemically inert and non-absorptive. As a result, Fesco Board will not rot, mildew, deteriorate. Mineral composition will not support organic life of any kind.

EASILY HANDLED — Roofers are increasingly endorsing Fesco’s exclusive, fast-laying 24” x 36” size because it is increasing daily production and improving workmanship never used.

NO BETTER BOARD —

The unique, exclusive properties of Fesco Board are the properties of expanded Coralux perlite—of which it is made. In tests found the incombustibility, the moisture resistance, and the ease of handling. A test of the fire resistance of expanded Coralux, by itself, was subjected to temperature of 1800° F. for 4 hours. No deterioration was observed on the roof insulating material.

CARTONED —

The exclusive, patented method of cartoning, and for jobbers, for jobbers, tested Fesco Board is in cartons, containing 60 square feet.

MOISTURE RESISTANCE DATA: Fesco Board has no capillary or wick-like attraction for moisture as do fibrous materials. Moisture resistance tests by a nationally known laboratory read as follows:

<table>
<thead>
<tr>
<th>Thickness</th>
<th>% Absorption By Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches</td>
<td>2 Hour</td>
</tr>
<tr>
<td>1</td>
<td>0.5</td>
</tr>
</tbody>
</table>

From 0 to 100% relative humidity no volume changes experienced in Fesco Board.

AT ANY PRICE

Properties of Fesco Board are based on the properties of expanded Coralux perlite—of which it is made. In tests found the incombustibility, the moisture resistance, and the ease of handling. A test of the fire resistance of expanded Coralux, by itself, was subjected to temperature of 1800° F. for 4 hours. No deterioration was observed on the roof insulating material.

LIGHTWEIGHT — Easy-to-handle board units measure 1” x 24” x 36” and weigh approximately .9 lbs. per square foot — about one half the weight of most existing insulation boards.

INCOMBUSTIBLE — Reliable, authenticated laboratory tests show Fesco Board to have a flame spread factor of only 20.5, and smoke contribution factor of 0.
proves incombustibility of

FESCO®

ROOF DECK INSULATION

BOARD

Last winter fire broke out in one bay of a large industrial plant in Canada. The performance of Fesco Board in that fire will be of interest to every architect. Here are the facts:

THE ROOF was 4-ply, T & G, with 1" Fesco Board over vapor barrier on steel decking.
TEMPERATURES in the bay reached 1600°, heat so intense that steel roof members and steel decking buckled.
THE FIRE SOURCE was of such great volume and volatility that it raged for one hour and fifteen minutes before being extinguished.
FESCO BOARD remained intact, unbiased and unbroken, preventing flame tongues or fire balls from breaking through the roof and spreading fire to other bays.
FIRE DAMAGE was limited to the single bay where it originated.

A detailed case history of the performance of Fesco Board in this fire will be shown on request. Here is dramatic proof that Fesco Board provides an ideal combination of properties not found in any other roof deck insulation board. — Write for sample and data.

Water from firemen's hose stands on unbroken deck over fire-damaged bay. Fesco prevented "break through" of fire, though 1600° temperatures buckled steel roof members and decking.

Roofing peeled back for inspection shows heat warped steel deck, charred vapor barrier, undamaged Fesco Board. Note strong bond of Fesco Board to felts—pried loose from board with spade.

F. E. SCHUNDLER & COMPANY, INC. 504 RAILROAD STREET • JOLIET, ILLINOIS

RATED FIREPROOF MATERIALS, ACOUSTICAL & INSULATING

Pittsburgh Glass lets the light in
... and the beauty, too!

In this dramatic new high school at East Hartford, Conn., just about every room boasts a huge, glass window-wall. The daylighting is superb, and so is the view—two important considerations if you want fresh, alert minds.

The cluster-plan buildings are connected with glass-enclosed walkways that are bright and cheerful, while offering complete protection against the elements. But look at the gymnasium to see what a miracle material glass really is. The gym is glazed with large panels of Herculite® shock-resisting plate glass to dispel the gloom. And, since Herculite is heat treated and tempered, it is incredibly strong—a useful property in athletic areas!

All in all, 50,000 square feet of Pittsburgh Glass were used here. Countless visitors feel that the glass deserves great credit for the daylighting, the view, and the graceful beauty of this new school.
CONSULT YOUR SWEET'S ARCHITECTURAL FILE
— for information about the use of these famous Pittsburgh Glasses in school construction:

Solex®
— heat-absorbing and glare-reducing plate glass

Herculite®
— shock-resisting tempered plate glass

Twindow®
— the world's finest insulating window

Polished Plate Glass
— for clear, undistorted vision

Pennvern® Window Glass
— window glass at its best

Entry to gym, showing Herculite Glass. Unit at upper left houses ventilating system.

Academic wing at left, shops to right. Venerable beech trees were carefully preserved during construction.

Auditorium is at left, then (clockwise) the gym, shops, classrooms and office building.

Architect: Nichols & Butterfield, West Hartford, Conn.
Another first by R-W!

New "Folded-Way" Aluminum Partitions

This R-W "Folded-Way" aluminum partition installed in West Senior High School at Aurora, Illinois, is the first aluminum gymnasium folding partition ever installed anywhere! Electrically operated and fully automatic, a turn of the switch key does everything.

Childs & Smith, Architects, Chicago

Only R-W gives you so much more

New Beauty! Modern Design! Everlasting Performance!

- No painting expense—ever! Each section made of smooth, flush, durable aluminum.
- Lightweight! 3" thick partition sections weigh 50% less than conventional designs.
- Scientifically engineered! Honeycomb internal construction provides maximum strength, minimum weight and minimum sound transfer.
- Dimensional stability! Not affected by humidity or temperature changes.
- Fully automatic electric operation! Key switch control does it all.

For details and specifications, write for FREE catalogs today

110 W. THIRD STREET, AURORA, ILLINOIS
Branches in Principal Cities

BOOKS

MIES VAN DER ROHE. By L. Hilberseimer. Paul Theobald & Co., 5 N. Wabash Ave., Chicago, III. 200 pp. 8¼" x 11¼". Illus. 59.75

"At a time when Wassily Kandinsky was experimenting with form and color, he happened to enter his studio one evening at dusk. In the dim light he saw his paintings only as form and tone values and was forcibly struck by their simplicity. He realized that by eliminating details and reducing everything to a minimum, the effectiveness and meaning of his paintings could be greatly intensified. Something similar happened to the architects of the twenties. They, too, realized the superfluity of meaningless architectural elements; they discovered the basic essentials of architecture and came to express their ideas with refreshing directness and simplicity."

L. Hilberseimer is an old-time colleague not only of the subject of his new book, but of that whole stem of the modern movement which sprouted in Germany after World War I; he himself founded the Dept. of City Planning at the Bauhaus of Dessau (and is a professor at Illinois Institute of Technology today). He has lived the lore of the movement, so he can remember it with authority, as indicated in the paragraph above.

But his book about Mies is hardly a memoir. Instead, he divides his pictures and thoughts into a dozen essay subjects, ranging from "Proportion" to "Public Buildings," in explaining what this leader has accomplished in the past 70 years. Illuminated by intimate knowledge and some fine photographs, the book is a welcome addition to the chronology of an important movement in architecture.

OSCAR NIEMEYER: WORKS IN PROGRESS. By Stamo Papadaki. Reinhold Publishing Corp., 430 Park Ave., New York City. 192 pp. 9" x 9". Illus. $10

Only a few architects have grown stylistically tall enough in the shadow of the big three—Mies, Corbusier and Wright—to be visible internationally. Notable among these few is Oscar Niemeyer of Brazil, a Corbusier student and a master architect. In 1950 Stamo Papadaki produced an excellent book: The Work of Oscar Niemeyer. This new book returns after only six years to the chronicle of Niemeyer's creative career, and interestingly, opens rather defensively.

Author Papadaki (and also Niemeyer himself, who contributed notes) are evidently still smarting from the accusation of empty flamboyance included in a critique of Brazilian architecture published by Britain's Architectural Review in 1954.
Where would you go for the answers?

Where should the fountain go?
What food service units?
What shape counter?
How many stools?
How about shelving?
Refrigerated display case?
Allow for expansion?

Right answers to questions like these are vital to profitable operation. Best way to get them is to put the problem to the company that offers a staff of experienced planning men . . . a wealth of chain store planning experience . . . a complete line of equipment for selection in meeting your needs . . . a solid reputation for doing the whole job right.

Let us help you solve your "problem of Store #19."
Write The Bastian-Blessing Company, 4205 W. Peterson Avenue, Chicago 30, Illinois.

your best buy!

See Our Catalog Insert 24c/Ba in Sweet's Architectural File

BASTIAN-BLESSING

WORLD'S LARGEST MANUFACTURER OF FOUNTAINS AND COUNTER FOOD SERVICE EQUIPMENT

... griddle stands
... sandwich units
... soda fountains
... refrigerated display cases
... dishwashing machines
... sink units
... food warmers
PRECAST FLOORS ON STEEL FRAME

This picture was taken during the erection of precast floors on the Shoreland Towers, Indianapolis, one of three luxury apartments designed by Paul L. Cripe, Inc., and built by L and L Building Corporation. All three used Flexicore on a steel frame. This method can cut a month or two off construction time on a job of this size, and give your client a month or two additional rental income. Construction costs are cut by saving weeks of on-the-job labor and the usual delays of poured floors. The smooth underside of the Flexicore floors were exposed throughout, eliminating plaster ceilings. Find your nearest manufacturer in the list below and phone or write for more information on Flexicore construction.

Flexicore slabs are exposed to make attractive ceiling treatment for auto entrance, below left, rental unit, center, lobby, right.

<table>
<thead>
<tr>
<th>State</th>
<th>City</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALABAMA</td>
<td>Birmingham</td>
<td>The Alabama Cement Tile Co.</td>
</tr>
<tr>
<td>COLORADO</td>
<td>Denver</td>
<td>Flexicore Company of Colorado</td>
</tr>
<tr>
<td>FLORIDA</td>
<td>Tampa</td>
<td>Universal Concrete Pipe Co.</td>
</tr>
<tr>
<td>ILLINOIS</td>
<td>Chicago</td>
<td>Chicago</td>
</tr>
<tr>
<td></td>
<td>Franklin Park</td>
<td>Mid-West Concrete Pipe Co.</td>
</tr>
<tr>
<td>INDIANA</td>
<td>E. Chicago</td>
<td>Columet Flexicore Corporation</td>
</tr>
<tr>
<td>MICHIGAN</td>
<td>Livonia</td>
<td>Price Brothers Company</td>
</tr>
<tr>
<td>MINNESOTA</td>
<td>St. Paul 8-4</td>
<td>Martin Concrete Products Co.</td>
</tr>
<tr>
<td>MISSOURI</td>
<td>St. Louis</td>
<td>Flexicore P.O. Box 557, Callisville, IL</td>
</tr>
<tr>
<td>NEW JERSEY</td>
<td>Camden</td>
<td>Camden Lime Co.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Anchor Concrete Products, Inc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W. R. Renalt Company, Inc.</td>
</tr>
<tr>
<td>PENNSYLVANIA</td>
<td>Monongahela</td>
<td>Pittsburgh Flexicore Company</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AaroConcrete Corporation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relaxcore of Texas, Inc.</td>
</tr>
<tr>
<td>WISCONSIN</td>
<td>Beloit</td>
<td>Mid-Sales Concrete Products Co.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Murray Associates, Limited</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Creaghan &amp; Archibald Ltd.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shell Industries Ltd.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flexicore Co. of Puerto Rico</td>
</tr>
<tr>
<td>CANADA</td>
<td>Toronto</td>
<td>Anchor Concrete Products, Inc.</td>
</tr>
<tr>
<td></td>
<td>Montreal</td>
<td>Gebron &amp; Archibald Ltd.</td>
</tr>
<tr>
<td></td>
<td>Woodstock</td>
<td>Ontario Shell Industries Ltd.</td>
</tr>
<tr>
<td>PUERTO RICO</td>
<td>Rio Piedras</td>
<td>Flexicore Co. of Puerto Rico</td>
</tr>
</tbody>
</table>
Meeting the architect’s concept

High velocity air diffusion in the Price Tower

The photograph at the right shows how Mr. Frank Lloyd Wright incorporated Anemostat Straight Line All-Air High Velocity Units in the ceiling design of the Price Tower at Bartlesville, Oklahoma. The conditioned air is supplied through continuous Straight Line Diffusers located on two sides of the suspended ceiling. The diffusers do not only have vital functional use, but also add to the aesthetic appearance of the architect’s design.

The Anemostat All-Air High Velocity distribution system also offers important advantages. It can be used with smaller than conventional ducts. It can be installed in less time and at less cost. It requires no coils, thus eliminates leakage, clogging and odors. Furthermore, Anemostat round, square and straight line diffusers with high velocity units are adaptable to a wide variety of architectural designs.

Write for “High Velocity Air Conditioning: Its Effect on Building Design” to Anemostat Corporation of America, 10 E. 39 Street, New York 16, N. Y.

Anemostat—The Pioneer of All-Air High Velocity Systems
The architects are just playing around over there, the Review hinted.

Retorts Papadaki: “Lyrical exuberance is not or does not appear to be necessarily humble . . .” Explains Niemeyer: “It seems that they do not use the same measure—severe and objective—when they deal with their own projects as when they are examining ours. . . . Our modern architecture reflects the social contradictions in which we live and in which it has developed.”

The reader of this book will wonder. For instance, Niemeyer’s planned Modern Art Museum for Caracas, Venezuela, surely is a brilliant tour de force, renouncing geography to expand upward into its own private world (photo above). “Our desire,” says the designer, “was to develop a compact form detaching itself clearly from the landscape and expressing in the purity of its lines the forces of contemporary art.” But are the South American “social contradictions” so emphatic as to compel a retreat of architecture to the detachment of modern art? And is there any future in these defiant intellectual gestures?

The large number of drawings and model photographs, contrasted with the disappointing number of photographs of finished buildings and a minimum of words make this book itself wan although beautiful. There are too few moments in it when the reader feels again the sorcery of this architect, who can mix his two main ingredients, sun and concrete, with such valid imagination. Possibly six years was an unfairly short interval to publish again.

CONTEMPORARY CHURCH ART. By Anton Henze and Theodor Filthaut. Published by Sheed & Ward, 840 Broadway, New York 3, N.Y. 128 pp. 8½” x 11¼”. Illus. $7.50

Sixty-four pages of thoughtful text and 128 pages of handsome photographs on the integration of church art and architecture. About one-third of the illustrations are from US churches; the balance, from Europe.

BUILDER’S VEST-POCKET REFERENCE MANUAL. By William J. Hornung. Published by Prentice-Hall, Inc., 70 Fifth Ave., New York 11, N.Y. 3” x 6” x 3/4” thick. $1.95

This is an unusually compact and useful little handbook for builders with good enough eyes. Small but very clear. It is all arranged so the builder can not only quickly choose structural sizes to fit spans, but can quickly make a rough estimate of costs. The manual’s small dimensions make it genuinely a vest-pocket book.
THE LIGHTING SYSTEM THAT
goes together on the floor

...and saves 50% on Installation costs

The new Gibson Ortho Fixtures mount on a special channel called the Uni-RACE. In the photo above, the telescoping sections of the Uni-RACE are being assembled on the floor in a matter of minutes. The receptacles which come with each 4-foot section are connected as shown in the inset. The light but rigid Uni-RACE in 24' to 48' lengths is easily lifted and hung directly on joists, beams or stems. The fixtures simply snap into place on the Uni-RACE which holds them in perfect alignment. An easier, faster and far better job! Is it any wonder that contractors report savings of more than 50% in labor and materials on Gibson Ortho Installations?

Wouldn't you like more information about this totally new concept in industrial and commercial lighting design? Drop us a line today. We'll send you the whole story.

Model 77-424X

SNAP—IT'S UP • Connection is made through a built-in plug in the fixture which engages the receptacle in the Uni-RACE. Any fixture may be put up or taken down at will without interrupting other fixtures on the circuit.

VARIABLE SPACING • Ortho units may be mounted in continuous rows or spaced at intervals of 4, 8, 12 or more feet. Fixtures may be added, removed and rearranged any time by one man without tools.
100,000 amps gets a new boss—the Westinghouse Tri-Pac breaker

The Westinghouse Tri-Pac breaker is the smallest protective device that can be used where 100,000 amps can be poured into faults. It combines the inherent advantages of both the molded case breaker and fusible current limiters to positively protect electrical circuits—throughout the range from overloads to fault currents that could build up to 100,000 amperes, if not stopped.

Co-ordinated triple circuit protection—thermal, magnetic, and current limiting—in one compact breaker. At much less cost than larger air circuit breakers of equivalent ratings and with more safety and convenience than switches combined with fusible elements. That's why Tri-Pac offers the most practical and economical solution to the constantly increasing interrupting requirements of network systems and those fed by large transformers.

The breaker trip portion of Tri-Pac handles overloads and moderate faults—eliminating fuse replacement headaches and costs. On higher currents, the current limiters in Tri-Pac trip faster, insuring the prompt protection required at those high currents. In Tri-Pac the current limiters and the breaker are co-ordinated so that the current limiter will trip at and above a point slightly under the interrupting capacity of the breaker. Below that point, the limiters remain undamaged, letting the breaker do the work.

Fault single phasing—a drawback of fuses—is averted by Tri-Pac breakers. The blowing of a current limiter actuates the breaker trip bar and all poles of the breaker open simultaneously. And when a high fault current is interrupted, indicating buttons on the current limiters clearly designate the troubled phase.

NETWORK SYSTEM PROTECTION

With today's increased use of network systems, the possibilities of 100,000-amp fault currents are not uncommon. New Tri-Pac breakers insure positive protection against all system current faults—large or small—at a new and greater economy.

HERE'S MORE INFORMATION ON TRI-PAC

A Westinghouse sales engineer can show you additional reasons why the new Tri-Pac breaker is your best buy for powerful circuit system protection. Call him today.

WATCH WESTINGHOUSE!

COVER THE PRESIDENTIAL CAMPAIGN ON CBS TV AND RADIO!
Modern and economical curtain wall construction methods consisted of installing the windows first and then the panels. Different colored panels were uniquely used throughout the structure complementing its overall attractiveness.

Modern school planning necessitates and typifies the need for modern, durable, and economical building materials.

Because Davidson Panels are quality engineered to fit the first time, they offer unlimited applications for any wall framing system. After they’re up they stay put—colors remain new always—maintenance is practically zero.

On your next building project consider specifying Architectural Porcelain Panels by Davidson in order to be assured your design will continually reflect the dignity of your planning for the years to come.

In case you have missed Design Study 1 and 2, let us know. We will be glad to send as many copies as you need.
For further information on the application of Davidson Architectural Porcelain check and send to: DAVIDSON ENAMEL PRODUCTS, INC., 1105 E. Kibby St., Lima, Ohio

- Full scale drawings showing the application of Architectural Porcelain for the Boght Hills School.
- Detailed, 16-page Architectural Catalog, 1956 Edition
- Porcelain Panels for Store Fronts
- Porcelain Panels for Shopping Centers
- Porcelain Panels for Schools
- File of Typical Construction Details
- Reference File Jacket on Architectural Porcelain
- Reprints of this Study #3. Quantity

NAME
COMPANY
ADDRESS
CITY & STATE
For more data use coupon, p. 271

(1) **STEEL ARCH ROOF** spans 120'-without a truss, purlin or post
Bridging the 120'-wide arena in the Phoenix Coliseum with little more than a 1/16" thickness of steel is a new trussless Wonder roof. Engineered on the same principle as the manufacturer's quonset-type industrial and commercial buildings (AF, Aug. '55) the long-span arch is shallower in section than the half-moon prefabs yet is still completely self-supporting. On the Coliseum the ends of the arches are braced against steel plates and welded. (see drawing, left). The roof is site-assembled of 5'-wide curved bands of 18-ga. galvanized steel with minute cross corrugations. Sections, 6' to 10' long, are bolted end to end into 60' to 120' arcs and interlocked along side flanges for a rigid structure of any length. The roof will support 42 lb. per sq. ft. (more than a 5' snow load) and can buck hurricane winds of 113 mph. For thermal and sound insulation and fire protection, 3/8" of acoustical plaster can be sprayed directly to the metal underside. Cost of Wonder roof per sq. ft. in place is estimated at 75¢ for material, 15¢ for labor. Roofing over the 31,200 sq. ft. display area on the Arizona job pictured took 450 man-hours—an average of eight men working seven 8-hour days. Contractors and owners may be most impressed with the reasonable price and suitability of the roof for such structures as hangars, supermarkets, convention halls, auditoriums and school gymnasiums. (Height at center of 40' allows for some free swinging aerial acts.) Designers, and spectators on the inside, will appreciate what the roof system does without: pillars, purlins and posts to peek through and crane around.

*Manufacturer:* Wonder Building Corp. of America

(2) **CONCRETE MEMBERS** are cast and cured in continuous process
Coming off factory lines at the rate of 6' a minute, Dunbeam structural joints, slabs, and lintels could be fairly described as extruded reinforced concrete. The W. E. Dunn process adapts continuous production methods to concrete by "densifying" what is, after all, one of the earliest "plastics." In the process, steel reinforcing is placed on a pallet (a flat one for slabs but shaped for sections such as I's and T's) and chain-fed into the machine while semi-dry concrete is poured into an oscillating hopper. As the positioned reinforcement passes over a vibrating section of the belt, measured amounts of concrete are dropped.

*continued on p. 230*
better gymnasiums deserve better seating

MORE SAFETY—Four double vertical uprights per row put the spectator load directly on the floor, not the casters or walls.

MORE STRENGTH—Self-supporting, free-standing steel understructure does not depend on wood members for strength.

MORE ROOM—22" or 24" row depths, plus under-seat clearance provides more toe, heel and leg room.

MORE VISIBILITY—10½" or 11½" row rise makes seeing easier.

LESS EFFORT—Free-floating, interlocked roller housings and supports under seats make Medart Seats easiest of all to open and close.

Write for NEW catalog

SPECIFY the best, then INSIST on it!

MEDART PRODUCTS CO., INC., 3584 DEKALB, ST. LOUIS 18, MO.

*Medart Telescopic Gym Seats are fully protected by U.S. Patents
National Bank of Commerce, San Antonio
Architect: Kenneth Franzheim, F.A.I.A., Houston
Associate Architects: Atlee B. and Robert M. Ayres, San Antonio
General Contractor: The Henry C. Beck Company, Dallas

Reynolds Aluminum Applications in this Building:
Reynolds Series 100 Vertically Pivoted Windows

See Reynolds great new series, “CIRCUS BOY”, Sundays, NBC-TV Network
IN MODERN ARCHITECTURE

Exchange Bank & Trust Company
Office Building, Dallas, Texas

Architects:
Lane, Gamble and Associates, Dallas

General Contractor:
Robert E. McKee
General Contractor, Inc., Dallas

Curtain Wall Fabricator:
The Browne Window Manufacturing Company, Inc., Dallas

Reynolds Aluminum Applications:
Aluminum Extrusions for Sun Shades

First National Bank of McAllen, Texas

Architects:
MacKie and Kamrath, A.I.A.
Houston

Associate Architects:
Lloyd Borger and Kenneth Bensten
Houston

General Contractor:
M. R. Nelson Company, McAllen

Integrated Wall System Fabricator—Erector:
Texlite, Inc., Dallas

Reynolds Aluminum Applications:
Extrusions for Wall Framing System

REYNOLDS ALUMINUM SERVICE TO ARCHITECTS

Reynolds Architect Service Representatives offer specialized assistance on aluminum design problems, on applications of standard aluminum mill products, and on the use of commercially fabricated aluminum building products. They can help to coordinate varied aluminum requirements for procurement efficiency and economy. Inquiries should be addressed to...

Architect Service, Reynolds Metals Company, Louisville 1, Kentucky.

ALUMINUM
TYPICAL KlieGL SPECIALTIES...

Foremost in the field, producing the best in theatrical lighting equipment. Whatever your requirements, we have it... spotlights, floodlights, borderlights, footlights, cinemoid, slide projectors, wiring devices, switchboards, patchboards, rotolector panels, etc.

KlieGL... the STANDARD for STAGE LIGHTING

Advisory service available. Your needs studied and practical recommendations submitted. Write for information desired.

Lighting dimmers for FREE-STANDING BOARDS • CONSOLES • WALL MOUNTING PANELS

You'll find a dimmer for every application in Ward Leonard's adjustable autotransformer line. For example, there's the 2.5 kw VARISTAT, the 6.6 and 8 kw RADIASTATS, and the 6 and 12 kw MULTISTATS for interlocking or non-interlocking control. Manual or remote-control motor operated.


FOR BUILDINGS OF ALL TYPES

...first in efficiency, economy and client satisfaction

TODD BURNERS
GAS OR OIL

PRODUCTS DIVISION
TODD SHIPYARDS CORPORATION

Headquarters: Columbia & Halleck Streets, Brooklyn 31, N. Y.
Plant: Green's Bayou, Houston 15, Texas

WARD LEONARD ELECTRIC CO.
Resistors • Rheostats • Relays • Control Devices
1. REDUCES SUN HEAT. Rooms are cooler with daylight filtered through this blue-green glass because \( \frac{1}{4} '' \) Aklo Glass shuts out as much as 44% of the sun's radiant heat energy.

2. REDUCES SUN GLARE. Frosted Aklo Glass diffuses incoming daylight, thus diminishing "hot" spots of light. This is important when working on highly reflective materials close to windows.

3. SCREENS SKY BRIGHTNESS. Architect Guido A. Binda of Battle Creek, Michigan, used windows to the ceiling for maximum daylight, yet screened out a good portion of sky brightness with Frosted Aklo Glass.

Do your daylighting requirements or architectural treatment call for large ribbons of windows . . . floor-to-ceiling fenestration? Meet these requirements and still keep the problems of sun heat and sun glare under control . . . with Blue Ridge Frosted Aklo Glass.

Growing use of Aklo in buildings of all types is good evidence of its performance. But see for yourself. Ask your L·O·F Distributor for a Blue Ridge radiometer demonstration which shows how much Frosted Aklo Glass reduces glare and sun heat. Aklo Glass is readily available from your L·O·F Glass Distributor or Dealer, listed under "Glass" in your phone book yellow pages. Or write to Libbey-Owens-Ford Glass Co., 608 Madison Ave., Toledo 3, Ohio.
distributed by a series of pins, and snugly packed around the steel by the vibration. Two sets of high speed tampers and trowelers then go to work on the material automatically shaping and smoothing it to precise dimensions. Adjustments can be made on the hopper feed rate for various aggregates and the tamper units are mounted eccentrically to take up wear and maintain constant thicknesses. Any single unit or combination of lintels, coping or beams up to 2' wide and 8" high can be produced on the machine. Slabs can be formed with plain or tongued and grooved edges. In addition to solid shapes, the Dunbeam can turn out cored members. Load bearing strengths of all Dunbeam members meet ASTM standards. Cost of an 8" I-beam runs about $1 a lin. ft. Machinery is available on a rental basis with 6 months allowance for delivery. Dies for different shapes run from $500 for a rectangular slab to $2,500 for a cored member. As for that inevitable question, can the Dunbeam handle prestressing? “Entirely feasible,” says Dunn’s Engineer Rutgers, who is busy supervising machinery orders for everything from cored deck to seawall pilings, “but please, please, wait till next year.”

Manufacturer: W. E. Dunn

---

Repea orders prove —
NOT JUST ANOTHER STOKER...
but a proven way to years of comfort
with clean, safe, economical heat

Repeat orders are the proof! Even without praise such as is contained in the brief quotes above, when purchasers come back again and again, a manufacturer knows his product is doing the job. Will-Burt Stokers have always been manufactured by the same people, in the same place... more every year... proof that if you need service, you will know where to get it. If you do not know about Will-Burt features, it will pay you to get the facts. Ask us—and ask your architects and engineers. (It pays to have their advice.)


Our Twenty-Seventh Year in The Stoker Business

---

CAVITY BLOCK interlocks at joints to eliminate mortar bed
A miniature cavity wall, the Presto masonry block capitalizes on the insulation value of plain air space. Its two concrete faces are bound by steel ties and each unit is keyed to interlock at top, bottom and ends. No mortar bed is needed; the blocks are laid dry with no inside to outside masonry contacts. (After the wall is erected, joints are pointed to insure an effective moisture seal.) The corrugated metal ties, inserted automatically in the casting process, are said to make extra reinforcement unnecessary. A Presto block wall is claimed to

continued on p. 236
Along the FOOD LINE...

FIRST COST can be the LEAST COST if it’s the LAST COST

No material is more at home around food (or beverages, drugs, chemicals, etc.) than AL Stainless Steel. And that’s not just because stainless is perennially good-looking, and so easy to keep clean.

Basically, it’s because stainless steel equipment is the most economical you can buy. It stands up so much better—lasts so much longer—costs so much less to clean and maintain—that it actually saves you money in the long run. First cost isn’t the whole story, you know. It’s the long-term, overall cost that counts, and no other material is as hard, strong and resistant to heat, wear and corrosion as stainless steel.

So, when you want equipment that has to look well, maintain high sanitary standards and take a beating every day, remember that only stainless steel can give you the utmost in service and economy. Use time-tested AL Stainless, and let us help you work out any design or engineering details. Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.

Write for your copy “STAINLESS STEEL for STORE FRONTS and BUILDING ENTRANCES”

If modernization or new construction is on your mind, this 40-page booklet contains many ideas on handsome treatments for you. (Note: A new booklet on “AL Stainless in Food Preparation and Serving Equipment” is in process—write for one of the first copies when available.)

ADDRESS DEPT. B-32
SLOTTED OR SQUARE
FOR CONDITIONED AIR

KNO-DRAFT SLOTTED AIR DIFFUSERS: handsome extruded aluminum in modules of 2, 3, 4 or 6 feet. Install singly or butted in series to form continuous diffuser line on wall or ceiling. Adjustable one-directional flow for small areas; multidirectional flow for larger areas. Exclusive Kno-Draft adjustable air direction vanes. Grid-type volume control. Damper grids equalize air distribution over length of diffuser.

KNO-DRAFT SQUARE AIR DIFFUSERS: sturdy pressed steel, aluminum finish. Capacities from 50 to 1250 cfm. Eight sizes for easy overlap installation in acoustical or plastered ceilings or snap-in installation in T-bar ceilings. All units geometrically proportional so that, at constant neck velocities, static pressure is same for all sizes. Precise, circular diffusion patterns over large area assured.


CONNOR; Square and Slotted Air Diffusers

PROTECTS... inconspicuously!

Grinnell
SIDEWALL SPRINKLER

Specially designed deflector effectively distributes water over a predetermined area from the wall to the center of the room. Economical to install when remodeling rooms with narrow ceiling areas, such as hotel rooms and corridors.

For details, write Grinnell Company, Inc., 269 West Exchange Street, Providence, Rhode Island—manufacturing, engineering and installation of automatic sprinklers since 1878.
PROVED THROUGHOUT INDUSTRY FOR OVER THIRTY YEARS

Industrial leaders all over the world have used Rust-Oleum to stop and prevent rust for over thirty years. Rust-Oleum can do the same for your tanks, stacks, pipes, machinery, metal sash, wire fences, girders, etc.

RUST-OLEUM IS EXCLUSIVE

Rust-Oleum uses a specially-processed fish oil vehicle that penetrates rust to bare metal, dries right, and is free from objectionable odor. Accept no substitutes. Buy—and specify Rust-Oleum. You'll be happy that you did. There is only one Rust-Oleum—it is distinctive as your own fingerprint.

APPLY DIRECTLY OVER RUSTED SURFACES

Just scrape and wirebrush to remove rust scale and loose rust—then brush Rust-Oleum 769 Damp-Proof Red Primer right over the remaining rust, usually eliminating costly surface preparations. Then—follow-up with your desired Rust-Oleum finish color.

MANY COLORS, INCLUDING ALUMINUM AND WHITE

You beautify as you protect, because Rust-Oleum finish coatings are available in practically all colors, including aluminum and white. They use the same basic rust-inhibiting vehicle as Rust-Oleum 769 Damp-Proof Red Primer and so provide double protection.

GREATER COVERAGE—EASY TO USE

Rust-Oleum is so easy to apply by brush or spray that one man can often do the work of two. Because of Rust-Oleum’s easy-flowing qualities, an average of 30% more coverage is usually received—depending upon the type and porosity of the surface.

PRACTICAL ANSWER TO YOUR RUST-PRODUCING CONDITIONS

Rust-Oleum dries to a firm, decorative finish that resists salt water, heat, fumes, sun, steam, humidity, and weathering. Whatever your rust problem—you’ll find Rust-Oleum the modern, practical way to stop rust.
Mengel Closet Walls are factory-built modular units, shipped K.D. in individual cartons, in 2', 3', 4', 5' and 6' widths. They are all 91½" high, to permit tilt-up installation with 8' ceilings.

They are easily installed in almost any combination in place of conventional walls, thereby saving floor space and money. They are also widely used as extra closets in existing buildings.

To see the Lightolier Collection at these selected authorized distributors...

AUSTIN: N. Y., Midtown Electric, Inc.
ALBUQUERQUE, N. MEXICO: State Elec. Supply Co., Inc.
ALLENWOOD, PA.: Coleman Elec., Co.
ANNARIBBOLO, TEXAS: Home Elec. Supply Co.
AUSTIN, TEXAS: Bledin Elec., Supply Co.
BAYFIELD, CA: Jenkins E. Co.
BOSTON, MA: Bayfield E. Co.
BUFFALO, N. Y.: Buffalo Improvement Co.
CAMERON, N. C.: Cameron Electric Supply Co.
CHARLESTON, W. VA.: Virginia Elec., Inc.
CLEVELAND, OHIO: The N. L. E. Co.
COSTA MESA, CALIF.: Mary M. Hargraves
DALLAS, TEXAS: Central Wholesale Co.
DAYTON, OHIO: Dayton Elec. Supply Co.
DAYTONA BEACH, FLA.: Hughes Supply, Inc.
DENVER, COLO.: The Central Elec. Supply Co.
DES MOINES, IO: Northern Lighting, Inc.
DETROIT, MICH.: Michigan Elec., Inc.
DULUTH, MINN.: Superior Elec., Inc.
EGON, ILL.: Flex Elec., Supply Co.
ELMIRA, N. Y.: Boyco Supply Corp.
EL PASO, TEXAS: Lighting Unlimited
ERIE, PA.: Koss Electric, Co.
FITCHBURG, MASS.: Service Elec. Supply Co.
FT. LAUDERDALE, FLA.: Edison Elec. Supply Co.
FT. MYERS, FLA.: Southern Hardware Co.
FT. WORTH, TEXAS: Anderson Furniture Co.
GARDEN, N. Y.: Hughes Supply, Inc.
GARDEN, N. Y.: Rene Elec., Inc.
HARRISONVILLE, PA.: Ramsey Supply Co.
HARRISON, IOWA: Beacon Light Supply Co.
INDIANAPOLIS, IND.: Standard Electric, Inc.
JACKSONVILLE, FLA.: Jacksonville Elec., Inc.
KANSAS CITY, KANSAS W. T. Electric Elec., Co.
KENTON, OHIO: Kenton Elec., Co.
KNOXVILLE, TENN.: Rutten Elec., Supply Co.
LANSING: PA. Rhino E. Supply Co.
LAWRENCE, KANSAS: Williams Supply
LITTLE ROCK, ARK.: Advance Elec., Supply Co.
LOUISIANA: ARKANSAS, THE LITTLEELECR
LOUISVILLE, KY: Realty Elec., Co.
LUBBOCK, TEXAS: Baum E. Supply Co.
MEMPHIS, TENN.: Belvedere Lighting Co.
MIAMI, FLA.: Kline Elec. Supply Co.
MINNEAPOLIS, MINN.: Northern Elec., Supply Co.
MONTGOMERY, ALA.: Midland Electric Co.
NASHVILLE, TENN.: National Elec., Supply Co.
NEW HAVEN CONN.: Gulf Light & Supply Co.
NEW ORLEANS, LA.: Electrical Supply Co.
NEWPORT NEWS, VA.: Carlisle Supply Co.
OKLAHOMA CITY, OKLA.: Haverhill Bros.
OSCAR, NEBR.: Seattle Elec. & Supply Co.
PHILADELPHIA, PA.: A. F. Co., Co.
PITTSFIELD, MASS.: Con Supl. Co.
PRINCE GEORGE'S CO.: Northern E. Co.
PROVIDENCE, R. I.: City Hall Ave.
RHODE ISLAND: B. E. Elec. Supply Co.
ROCHESTER, N. Y.: Western Electric Co.
ROCKFORD, ILL.: Englewood Elec. Supply Co., S.
SACRAMENTO, CALIF.: Republic Elec., Inc.
SAN ANTONIO, TEXAS: American Supply Co.
SOUTH BEND, IND.: Englewood Elec. Supply Co.
SPRINGFIELD, IL: Indian Electric Co., Inc.
SPRINGFIELD, MA: Standard Electric Supply Co., Inc.
ST. LOUIS, MO.: A. & M. Clark & Co.
ST. PAUL, MINN.: Elec. Supply Co.
ST. PETERSBURG, FLA.: C. C. Doerr Lighting
STAMFORD, CONN.: Messer Elec., Co.
SALT LAKE CITY, UTAH: Shaw Elec. Co.
SALEM, NEW HAMPSHIRE: Shaw, Frank, Co.
SACRAMENTO, CALIF.: California Electric Supply Co.
SALT LAKE CITY, UTAH: Shaw Elec. Co.
SAN FRANCISCO, CALIF.: California Electric Supply Co.
SANTA FE, N. MEXICO: Delco E. Supply Co.
SIOUX FALLS, S. D.: Durand Electric Co.
ST. LOUIS, MO.: A. & M. Clark & Co.
ST. PAUL, MINN.: Elec. Supply Co.
ST. PETERSBURG, FLA.: C. C. Doerr Lighting
STARK, OHIO: Advance Elec., Co.
STARKVILLE, MISSISSIPPI: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, MISSISSIPPI: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, MICH.: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
STARKVILLE, OHIO: Advance Elec., Co.
When critical lighting professionals require quality lighting—decorative or functional—for stores, offices, hotels, showrooms—and homes, too—they look to Lightolier. Whether what’s needed is a precision engineered fluorescent installation, or an eye-arresting accent for a distinctive lobby, they usually find it at Lightolier.

Typical of Lightolier’s leadership in exciting new decorative lighting: #40554 directly above... Lightolier’s Cornucopia, where sparkling Claremont glass cones soar from a shimmering brass ring, spreading evenly diffused, glarefree illumination. Left, #40572... the new light touch in a woven wicker basket that lifts and lowers to shed warm, latticed light wherever needed. Below left, #40543... Lightolier’s pierced brass shields, so flexible that each shield swivels in or out as well as up or down, may be mounted vertically or horizontally to create imaginative lighting effects.

LOOK TO LIGHTOLIER where scientific engineering and ingenious design meet to fulfill your most exacting specifications. At Lightolier or at the selected, authorized distributors listed at the left.

NEW YORK: 11 East 36 Street
CHICAGO: 1267 Merchandise Mart
LOS ANGELES: 527 West 7 Street
be highly resistant to earthquake and tornado shock. The crimps in the ties not only strengthen the masonry but, once in the structure, serve as drips for condensate to prevent moisture from collecting on interior wall surfaces.

In many light commercial structures, furring can be eliminated by running wiring and plumbing lines right up through the cavity. Presto units can be turned out on a hydraulic forming machine in heights of 4" to 12" and lengths up to 16". The conventional 8" x 8" x 16" runs about 30¢ to 40¢ a block; a Romanesque 4" x 16" would be about 25¢ apiece.

Manufacturer (of block machine): Presto Brick Machine Corp.

---

New School Project on the Board?

...add "the touch" that makes it really new... HAWS classroom DECK-TYPE FOUNTAINS

Acid resisting porcelain enameled cast iron receptors, 10" x 24", equipped with drinking faucet and pantry faucet...with HAWS-advanced sanitation features for almost cleanliness and safety.

Specify water facilities where they're needed most—right in the classroom! HAWS versatile deck-type fountains are available with optional combinations of VANDAL-PROOF faucets and fixtures to meet any classroom need.

And for appearance...they can't be beat! Handsomely designed in lifetime stainless steel or acid resisting enameled iron, they add pleasing functional beauty. Five basic series fit every space and service situation. Make your school refreshingly new throughout—with HAWS Deck-Type Fountains.

Write for detailed information...TODAY!

HAWS features complete lines of drinking fountains, electric water coolers, emergency eye-wash fountains—and KRAMER Flush Valves, for every make plumbing fixture.

---

(4) PERMANENT FORM for concrete fitted for floor electrification

Another major function has been added to Granco's impressively versatile and inexpensive Cofar. Already combining a floor deck, permanent form and reinforcement for poured concrete, the corrugated steel panel literally has been pressed into service for power distribution. Like the standard sheet, the new E (electrically) -R (ready) Cofar measures 2'-6" wide, spans up to 14', and is welded directly to the building frame. Instead of 24'-to-20-ga. steel it is formed of heavier 18-ga. metal and its troughs are widened and capped to become duct cells for telephone, signal system and other electrical lines. Pictured above is a two-cell system running diagonally left to right. One- and three-cell systems are also available. All E-R Cofar panels have transverse reinforcing T-wires welded to each corrugation. In-place cost of deck-form on 10' beam spacing with a two-duct system 6' o.c. would be about $1.20 to $1.25 per sq. ft. including concrete and temporary supports. Standard header ducts and junction boxes can be used with E-R Cofar.

Manufacturer: Granco Steel Products Co.

(5) ONE-MAN CLINCHER fastens flanges on metal building panels

Speeding up connection procedure on its aluminum and steel wall and floor panels, Pencresta Inc. has developed the Riv-clinch. This simple fastening tool with a unique togglelink arrangement is handled easily continued on p. 244
When you plan open areas, plan on carpet for
50% lower maintenance costs

Most clients would probably guess their floor space at far less than it is. Since a general office staff of ten people requires a minimum of 1,000 square feet, according to an article in Management Review, most of your clients have a lot of floor space to maintain. The trend to more open planning in general offices means more heavy traffic areas. And here is where you can save your clients money. Specify carpet... because carpet can save over 50% in heavy traffic areas.

The cost of labor and equipment needed to keep non-carpeted floors at an accepted maintenance level averages $383 per 1,000 square feet annually, in heavy traffic areas. Carpet averages only $189 per 1,000 square feet a year—a clear saving of $194 a year for each 1,000 square feet, or 50.7%.

Industrial Sanitation Counselors, maintenance engineering specialists, whose clients include Lever Brothers, Ford, and many other blue-chip companies, based these figures on their own field work, which shows that carpet cleans so inexpensively because it cleans so easily. Soil stays loose in the pile—routine vacuuming can easily remove it. Less labor and equipment are needed—just one operator and one operation. Dirt doesn’t grind in and there’s no gloss to wear off.

Carpet looks better longer, too. It’s amazing durability is due to the resiliency that makes it yield with pressure, spring back when pressure is released. Carpet looks soft—wears hard. In addition, carpet reduces noise and provides slip-proof footing.

Send for your file copy of “Cutting Costs With Carpet.” Write Dept. Al, Carpet Institute, Inc., 350 Fifth Avenue, New York 1, New York.

Specify carpet designed and made for the American way of life by these American manufacturers
Artloom • Beattie • Bigelow • Cabin Crafts-Needlepoint • Downs • Firth • Gulistan • Hardwick & Magee • Hightstown • Holmes • Karastan • Lees • Magee • Masland • Mohawk • Nye-Walt • Philadelphia Carpet • Roxbury • Sanford • Alexander Smith

CARPET INSTITUTE, INC., 350 Fifth Avenue, New York 1, N. Y.
Armco Pipe Piling stayed dry in wet foundation at 1000 Lake Shore Drive

Foundation for the new 23-story apartment building at 1000 Lake Shore Drive, Chicago, could have been a problem. Driving piles from below the level of nearby Lake Michigan called for absolute watertightness of each pile. The driven piles had to be dry for concrete placement. Yet there was no problem. The Armco Pipe Piling withstand the impact of up to 120 blows per foot needed to meet the 60-ton bearing requirement. Average pile length was 67 feet.

Armco Pipe Piling provides many additional advantages that can save money in design and in construction. They are available in a wide range of diameters and wall thicknesses. This means you can meet your requirements exactly. And long lengths—up to 90 feet—mean less splicing at the job.

Costs are lower. Write us about your pipe piling requirements. We can supply the price estimating information you need. Armco Drainage & Metal Products, Inc., Welded Pipe Sales Division, 3476 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario, Export: The Armco International Corporation.

ARMCO PIPE PILING
How this new plant cafeteria benefits with Gold Bond Insulation Roof Board

The ROOF on Mesta Machine Company's new 500 man cafeteria in Pittsburgh has the full insulation value specified, thanks to Gold Bond Insulation Roof Board. The application was made by Warren-Ehret Co., roofing contractors, and here's how their district manager, Al Lauer, sums up:

"Gold Bond Insulation Roof Board resists compression... it's easy to mop... and it doesn't soak up asphalt!"

Gold Bond Insulation Roof Board stands up under installation traffic—loaded wheelbarrows, workmen's feet, sharp-rimmed asphalt buckets. The insulation value is not squeezed out of the roof board!

There's a smooth surface on Gold Bond Insulation Roof Board, smoothness that lets workmen mop faster and more easily—and get maximum coverage of asphalt or pitch. There'll be lower labor costs on the roof you design with Gold Bond Roof Board—and a better job done, too.

Gold Bond Insulation Roof Board has a minimum absorption of pitch or asphalt. The insulation value you specify is protected against "loss through soak-in"—and you save material.

This insulation roof board is moisture-resistant—each fiber is impregnated with water-resistant resin or asphalt. Available with full asphalt coating for still more moisture-protection. You can specify square, shiplap or offset edges.

Call your Gold Bond representative, or write Dept. AF-106, National Gypsum Company, Buffalo 2, N.Y.
A new CARRIER Centrifugal for air conditioning

From Carrier—the people who built the first centrifugal refrigerating machine—now comes a new centrifugal designed for big-building air conditioning and for chilling water for industries.

It's a hermetic—with Carrene-cooled motor... exclusive with Carrier! Cool, dry refrigerant gas from the refrigerating circuit keeps motor temperatures at a uniform level under all load conditions.

It's a hermetic—with Electronic controls... exclusive with Carrier! You push a single button and electronic controls start, regulate and protect the machine automatically.

It's a hermetic—with Central Control Console... exclusive with Carrier! All control functions are co-ordinated in a central console. You can locate this nerve center right by the machine, or in the next room.

It's a hermetic—with Hydraulic Capacity Vanes... exclusive with Carrier! Capacity-regulating prewhirl vanes are positively positioned by hydraulic power under the automatic control of the electronic system.

Telephone the nearest Carrier office for your copy of the big new factual booklet on Carrier Hermetic Centrifugal Refrigerating Machines. Or write Carrier Corporation, Syracuse, New York.
NEW SERIES OF STORAGE UNITS developed by the Knoll Planning Unit. Combines natural teak and white plastic laminate in chests, vanity and bed table. All sides are finished for versatility in room planning. Drawers have metal slides for smooth and easy operation. Information on request.
500-Room Hollywood Beach Hotel, Hollywood-by-the-Sea, Florida, was recently air conditioned, using a York TURBOMATIC system.

Ruskin Apartments, Pittsburgh, Pa., are air conditioned by a York TURBOMATIC system, making living more comfortable, healthful.

York TURBOMATICS make an air conditioning

Two Moore-McCormack liners, now being built by Ingalls Shipbuilding Corp., will be air conditioned with York equipment including TURBOMATICS. The system will help make trips to hot climates even more enjoyable.

Colgate-Palmolive Building, N.Y.C., is another new building air conditioned with York TURBOMATIC equipment.

Doctors Building, Atlanta, Ga., is air conditioned with a York TURBOMATIC system supplying chilled water for the cooling.

The Dayton Biltmore, Dayton, Ohio, [a Hilton hotel] is air conditioned by the lightweight, smaller sized York TURBOMATIC unit.
system lighter, smaller, more flexible

The heart of the York TURBOMATIC water cooling system for air conditioning is the TURBOMATIC compressor, a powerful single-stage unit of advance design. It gives users these important benefits:

1. Saves space, weight. A 350 horsepower TURBOMATIC system can be installed in 120 square feet of space. It weighs considerably less than former systems of the same capacity. This economy of size is important to the builder who wishes to conserve rentable space and to the architect who may wish to mount the system on a high floor without expensive load-bearing structural work.

2. Matches your power source. You can buy the TURBOMATIC system equipped with the motor of your choice, or you can use any other power source... a steam turbine drive, for instance.

3. Simple to operate and maintain. The TURBOMATIC compressor has only one-quarter the number of parts of previous units. It has a minimum of gasketed joints, and since it is automatic, it can easily be controlled as to need no attendant, even for starting and stopping!

York TURBOMATIC systems have already been proven in operation (see left hand page) and have established fine records for trouble-free operation. For more information, get in touch with your nearest York sales office. You'll find the telephone number listed in your Classified Directory under "Air Conditioning Systems."
by one man, who can form securely crimped joints along panel flanges every 3' in less time than a welder spots connections 4' apart. Clinched deck sections put through seismic, wind resistance and shear tests at Cornell University matched the strength of welded construction. Comparing application costs with welding the manufacturer found the Riv-clinch saves $1.50 to $3 a square. Another advantage of the mechan-
Superior Steam Generators are an ideal solution to the problem of heating schools. Shipped completely assembled after factory test, they are backed by the undivided responsibility of their maker. Installation is simple and inexpensive. No special foundation is required. Rugged and compact, they fit into small space.

Superior's built-in induced draft eliminates the need of an expensive chimney, and also provides that extra measure of safety so desirable in school installations by preventing the escape of combustion gases into the boiler room and the rest of the building.

Built for years of dependable low-cost operation, Superior Steam Generators reduce maintenance to a minimum and earn their cost many times over through long-lived efficiency. They are guaranteed to generate their maximum capacities at thermal efficiencies in excess of 80% and will burn the cheapest grades of fuel oil (or gas) fully automatically.

Clean, quiet, safe, reliable operation, plus fuel savings of 20% or more over conventional boiler installations, make Superior Steam Generators ideal for both the school and the budget. A full range of sizes from 20 to 600 b.h.p. for pressures from 15 to 250 p.s.i., or in the hot water type, provides units of proper capacity for every school.

For complete details, write for Catalog 812

Specialists in PACKAGED BOILERS... exclusively

SUPERIOR COMBUSTION INDUSTRIES INC.
TIMES TOWER, TIMES SQUARE, NEW YORK 36, N.Y.
even Ironbound floors are no better than the men who install them

Ironbound* Continuous Strip* Maple Floor in York Community High School, Elmhurst, Illinois.

PARTICIPATING Ironbound INSTALLERS

Akron 8, Ohio
The Akron Floors Co. 177 W. Bowery St.
Birmingham, Ala. E. F. Guthrell Flooring Co. 213 First Ave., N.
Boston 34, Mass. National Floors Co. 113 Brighton Ave.
Canton 8, Ohio Canton Floors, Inc. 2548 Clearview Avenue, N.W.
Chicago 41, Ill. Chas. H. Anderson Floors, Inc. 3869 Milwaukee Ave.
Chicago 51, Ill. Austin Flooring Co. 5510 W. Chicago Ave.
Cleveland 9, Ohio The Ironbound Co. of Cleveland 1310 Brookpark Road
Dallas 23, Texas Austin Flooring Company 922-B Shady Side Lane
Denver, Colo. Matthews Flooring Co., Inc. P.O. Box 671
Des Moines, Iowa Reaves-Ryan & Co. 701 South Logan
East Liverpool, Ohio Des Moines, Iowa Austin Flooring Company Hubbell Bldg.
10001 Lyndon Ave.

Kansas City, Kansas
Austin Flooring Company Box 952
Kansas City 14, Mo. Chas. H. Anderson Floors, Inc. 7929 Wornall Road
Los Angeles 6, Cal. A. B. Rice Co. 1312 Dewey Avenue
Miami 42, Florida Matthews Flooring Company Box 1211
Minneapolis 19, Minn. Chas. H. Anderson Floors, Inc. 10001 Lyndon Ave.
Montreal 9, Quebec Northern Flooring Co. 8230 rue Mayrand

You can give your client the best in hardwood floor construction if you specify installation by an experienced and responsible floor contractor. Ironbound floor contractors back up their installations and guarantee a satisfactory floor. These licensed floor experts are your best assurance of a good hardwood floor. Talk to the nearest Ironbound flooring contractor listed below. He'll be happy to work with you on specifications for all types of hardwood floor construction.

AUTHORIZED IRONBOUND INSTALLERS ASSURE EXPERIENCE, GUARANTEE SERVICE

There may be an installer nearer you. For a complete list, write Ironbound Floors, Box 128, Reed City, Michigan.
California County Hospital
Brightens Interiors with
6000 Square Feet of
Mississippi Glass

Extensive use of rolled glass in partitions, doors, and windows gives this new San Mateo County Hospital a bright, cheerful atmosphere... creates a pleasant environment for staff, patients and visitors. The extreme practicality of glass partitions as well as their unexcelled beauty recommended their installation. The diffusing glass floods rooms and corridors with softened "borrowed light," yet protects privacy. And maintenance is so simple... the glass wipes shining "hospital clean" with a damp cloth, never requires repainting.

When you build or remodel consider the many benefits that only glass can offer you in partitions, doors, windows, skylights. Specify Mississippi Glass. Available everywhere in a wide variety of patterns and surface finishes for every daylighting requirement.

Send for free catalog. Address Dept. 6.
The modern skyscraper, shown above, is just one of many buildings where DrafTite wool fiber has been used as a seal around the opening perimeters of aluminum windows.

Where friction is a factor, wool fiber is the most satisfactory material for eliminating air infiltration. For proof, we can point to the many manufacturers of prime windows who have selected this material as the best weather-stripping for their products.

Standard has long been a leading supplier of this type of seal and is currently producing 250 million feet annually.

Look to Standard for DrafTite weatherstripping of aluminum windows

The venting portions of all windows in this modern New York skyscraper at 112 West 34th Street are weather-sealed with DrafTite ... Brugioni and Boehler, Architects.

Send for our 12-page catalog ... illustrating all DrafTite standard sizes and shapes for every type of metal window or door.

The Standard Products Co.
BUILDING PRODUCTS DIVISION, LEXINGTON, KY.
you can count on...

Minimum Field Erection Costs!

...when you specify NICHOLSON Toilet Compartments

There's no need for your installation charges to get out of line. Nicholson Toilet Compartments are designed and constructed for rapid assembly and easy adjustment to location contours.

✓ All panels and pilasters pre-drilled, with provision for vertical and horizontal adjustment.

✓ All hardware locations are pre-drilled and finished.

✓ Pilasters and front panels are shipped as assembled units.

you can count on quick delivery, too!

There's no delay in shipment... because Nicholson Toilet Compartments are stocked in standard sizes and colors for fast "from stock" shipment.

For serviceability and service... plus minimum field erection costs... specify Nicholson.

**Specify right from this new Nicholson "tell-all" bulletin!**

Contains complete specifications, illustrations and engineering drawings... facilities, styles, construction, layouts and hardware. Send for a copy today!
The panels are folded and unfolded electrically by a keyed switch and operate on a rollerdrive chain over ball bearing-hangers. A resilient floor seal drops down automatically to shut off sounds between the divided areas and to prevent any side sway in the panels. A pass door can be included for access through the FoledeR-Way without opening up the entire wall. Despite its bulk, the R-W stores compactly in a wall pocket. Costs vary according to size and particular building needs.

Manufacturer: Richards-Wilcox Mfg. Co.

WHEREVER YOU NEED WALKING SAFETY -

IN THE OFFICE
Where appearance is important!
ALUNDUM Aggregate in terrazzo means attractive appearance as well as safety for people coming in from the street in all kinds of stormy weather.

IN THE WASHROOMS
Where wet floors are a hazard!
No slipping on this washroom floor. ALUNDUM Aggregate, an integral part of the floor, makes a non-slip surface even when covered with soapy water.

IN THE PLANT
Where resistance to wear is vital!
ALUNDUM (C. F.) Aggregate for cement floors will withstand highly concentrated traffic year after year and provide a permanently non-slip surface even when covered with water, oil or other liquids.

WHEREVER YOU NEED WALKING SAFETY -

(8) LATEX TERRAZZO trowels over subfloor in thin resilient coat
Half the water in a standard terrazzo mix can be replaced with Surco liquid latex for a durable homogeneous floor. Offering good resistance to sharp blows, the cementitious topping has enough flex to yield to structural movement and requires no expensive metal divider strips. It can be trowelled over any subfloor in a 1/4" thickness instead of the conventional 2" (relieving the building of a 20 lb. dead load per sq. ft.). In its liquid state the Surco rubber provides the moisture needed for hydration of the cements while efficiently dispersing film-forming latex solids throughout the marble chip mixture. The latex comes in two types. Surco Red Label is recommended for cafeterias, auto showrooms and other areas where floors must be highly resistant to grease and oil. Surco Yellow Label formulated for waterproofing qualities can be used for shower receptors and washroom floors. Because of the saving in materials and grinding time, Surco latex flooring costs less than 90c per sq. ft.—about half as much as conventional terrazzo.

Manufacturer: Surco International Corp.
Miss Foster finds an outlet!

But as handy as she is, Miss Foster's ingenuity isn't the answer to her boss's old-fashioned wiring headaches.

Perhaps our Miss Foster's problem is exaggerated, but it is a known fact that many wiring installations in commercial buildings are being made obsolete by modern electrical demands. If you're planning or building offices, you'll want to avoid the kind of wiring that leads to lack of electrical convenience and limited use of floor space. You can't crowd desks around wall outlets and it just isn't practical to have dangerous and unsightly exposed wires and raceways running across floors.

The best answer to sound electrical planning and to Miss Foster's problem is General Electric Q-Floor wiring, the system that makes every square foot of floor space available for outlets. It's the underfloor wiring system that provides outlets for typewriters, dictating machines, calculators, telephones, intercoms, lighting, and other electrically operated equipment wherever you want them—now, or at any time in the future.

General Electric's Q-Floor wiring system is designed for installation with cellular steel subflooring. Every cell is a raceway. This means that every six-inch area of the floor is a potential location for an outlet. Electrical changes can be made easily. No costly alterations, no litter, no tie-up of space, no matter how often or how much your electrical requirements change.

Thousands of cellular steel underfloor wiring installations, all of which are still electrically up-to-date, have given General Electric specialists years of experience in handling electrical planning. These specialists have the “know-how” to help you select and apply the best system for your particular needs.

For more information on G-E Q-Floor wiring or about other General Electric underfloor systems—Fiberduct wiring or the new two-level steel underfloor wiring system—call your G-E Construction Materials District Office, or write to Section C58-104, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.
Non-shrink calking and glazing extrusions delivered to your site in strip form for fast hand application. Eliminates compound waste...assures lasting seal. Use "Parflex" without warming in temperatures near Zero°F.

Like a sample? Write today!

Have you a PROBLEM?

MACK ARCHITECTURAL PLASTICS may be the solution

Over 35 years experience in the production of industrial plastics is available at Mack to help solve special building problems with durable, economical molded plastics. Molded plastics offer important advantages for certain applications...permanency of color, rapid assembly and erection and the efficiency of pre-formed shapes.

Mack technicians offer a 3-way service to architects and building men with problems to solve or ideas to develop including the adaptability of plastics to your job, recommendations on materials selection and design collaboration. For advice on the use of plastics in your business, just write Mack outlining your problem or ideas.

Plan your building down to the last detail by guarding it with a Kenco Submersible Utility 109 Pump! Absolutely automatic, foolproof. Can be installed completely beneath the basement floor line. Pumps 3300 GPM at 10' head. Quiet operation. Compact—fits any sump 13" wide by 12" deep. See the complete line of Kenco Submersible Pumps—capacities from 600 to 5000 GPH—at your jobbers.

MACK MOLDING COMPANY, INC.
125 MAIN STREET
WAYNE, NEW JERSEY

Hendrick MANUFACTURING COMPANY
50 Dundaff St., Carbondale, Pa.
Perforated Metal • Perforated Metal Screens • Wedge-Site and Hendrick Wedge Wire Screens • Architectural Grilles • Milton Open Steel Flooring • Site-Site Treads • Armorgrid • Hendrick Hydro-Defazer

Perfect / DECOR SAFETY OPERATION / for every building with a basement

KENCO PUMP DIVISION
1305 Oberlin Avenue • Lorain, Ohio • Phone 56-826

Curtain Wall Calking
Removable Stop-Glazing

Parflex Pre-Formed Calking Extrusions

Used on 7,000 Panels in the Socony-Mobil Building

For Beauty in Buildings

What makes one building interior stand-out over others? In many cases it's that extra touch of splendor made by the inclusion of Hendrick Grilles.

There are over one hundred different Hendrick Grilles available to harmonize with the most modern designs for residential, business or public buildings...and many are exclusive Hendrick designs. Each design can be furnished in a wide range of overall dimensions, bar sizes and number of perforations. And they're easy to install because they always lay flat...don't bend or warp. Write for complete details.

Hendrick MANUFACTURING COMPANY
50 Dundaff St., Carbondale, Pa.
Perforated Metal • Perforated Metal Screens • Wedge-Site and Hendrick Wedge Wire Screens • Architectural Grilles • Milton Open Steel Flooring • Site-Site Treads • Armorgrid • Hendrick Hydro-Defazer

Perfect / DECOR SAFETY OPERATION / for every building with a basement

Plan your building down to the last detail by guarding it with a Kenco Submersible Utility 109 Pump! Absolutely automatic, foolproof. Can be installed completely beneath the basement floor line. Pumps 3300 GPM at 10' head. Quiet operation. Compact—fits any sump 13" wide by 12" deep. See the complete line of Kenco Submersible Pumps—capacities from 600 to 5000 GPH—at your jobbers.

KEENCO PUMP DIVISION
1305 Oberlin Avenue • Lorain, Ohio • Phone 56-826

252
KEEP ANY DOOR UNDER PERFECT CONTROL

...with the CORBIN "400" Door Closer

- Completely controlled closing through 180°
- Any combination of closing and latching speeds
- "Silence Adjustment" for noiseless closing at any speed
- Fully-automatic, built-in hold open adjustment
- All sizes interchangeable
- For full mortise, partial mortise, or surface application

You can meet any installation or operational requirement perfectly with the CORBIN "400" Door Closer. It's completely adjustable through 180°... always closes exactly the way you want — even on extra heavy doors, or doors subject to strong drafts. What's more, every part is built to withstand the most severe conditions — rack, pinion, cylinder, piston — all are precision machined. And there's no sacrifice of compactness for performance. This modern, streamlined closer projects only 1 3/8" from the door face! The CORBIN "400"

is used on doors in schools, hospitals, offices and public buildings the world over. For beauty, versatility, and top performance, specify the "400".

P & F CORBIN Division
The American Hardware Corporation
New Britain, Connecticut
MODERN! RIGHT DOWN TO THE REST ROOMS...
ECONOMICAL, TOO, WITH FLOOR-FREE DESIGN

ZURN SYSTEM teamed with AMERICAN-STANDARD off-the-floor fixtures keynotes Prudential Building's modern rest room motif.

Completely unobstructed rest room floors add the final touch of modernity to Chicago's all-new Mid-America Home Office Building of the Prudential Insurance Company of America. Here, in more than 100 rest rooms, more than 1000 American-Standard plumbing fixtures are supported off-the-floor by the Zurn System to provide the ultra-new look and sparkling clean sanitation standards tenants and employees expect.

Zurn System Behind Scenes. Concealed behind the walls, the Zurn System provides rigid, permanent support for the superior American-Standard wall-type fixtures. Zurn drains, hydrants, Supremo Cleanouts and Greaseptors were installed to assure smooth functioning drainage control.

Most Economical, Too! Architects, engineers, contractors recognize the superior beauty and sanitation of floor-free design. But important too is its greater economy that pays off again and again over the life of the building.

Installed Value. From a new skyscraper to a modernization job, this investment in better rest rooms will pay off for you too. How? With up to 30% demonstrated savings in cleaning time...easier maintenance...prevention of dirt and vermin...more rentable floor space...construction savings...good will of customers and employers...plus the modern look that stays "new" year after year.

Get The Complete Story on the proved benefits of the Zurn System and American-Standard off-the-floor fixtures. Write for your free copies of "You Can Build It For Less A New Way" and "Better Rest Room Guide."

THE ZURN SYSTEM®
J. A. ZURN MFG. DIV.
Zurn Industries, Inc.
Erie, Pa., U.S.A.

OFF-THE-FLOOR FIXTURES
AMERICAN-STANDARD
Plumbing and Heating Division
New York 18, N.Y.

This advertisement is sponsored jointly by Zurn Industries, Inc. and the American-Standard Plumbing and Heating Division.

Zurn Mfg. Div. Dept. AZ-36
Zurn Industries, Inc., Erie, Pa., U.S.A.
Please send me free copies of "You Can Build It For Less A New Way," and "Better Rest Room Guide."

Name
Position
Company
Address
City Zone State

Mail coupon for new literature. Describes benefits of floor-free rest room design. There's no obligation, of course.

Better Looks, Easier Cleaning. Modern rest rooms like these using the Zurn System and American-Standard off-the-floor fixtures, not only look better, but actually speed cleaning time up to 30% based on comparisons with old-style installations.

Saves Material, Time, Labor. Zurn System supports off-the-floor fixtures from behind wall...for a new world of better rest room design. Cuts installation and maintenance. No furring-in, floor reconstruction, unseen water seepage.

Naess & Murphy, Architect & Engineer
M. J. Corboy Corp., Plumbing Contractor
In their handsome and spacious new steel-deck stadium, the people of Minneapolis have one of the most modern sports centers anywhere. Owned and operated by the Metropolitan Sports Area Commission, the new stadium replaces old Nicollet Park as the home of the American Association's Minneapolis Millers.

The stadium is fan-shaped with three tiers and a roof. The upper two tiers have American Bridge Standard deck. Total estimated weight of structural steel is 1,555 tons, all but 376 tons of which was fabricated in the Minneapolis plant of American Bridge. Erection was sublet by American Bridge to Industrial Construction Company.

The grandstand will comfortably seat 15,000. Approximately 15,000 more can be handled in the bleachers which will ring the field, bringing the total to 30,000 seats when completed.

American Bridge steel-deck stadiums and grandstands are the product of more than 30 years of technical and practical experience in this specialized field of construction. They are easily adapted to any local requirement as to size and design and to ground contour without extensive grading. They are easy to extend by adding sections at the ends, or by double-decking. The watertight steel plates form a perfect roof for room facilities beneath the stadium for lockers, concession booths, etc. Simplicity of fabrication and ease of erection assures quick completion. Every job is scientifically plotted for maximum spectator comfort and convenience and to the owner. Our engineers are at your service for free consultation. Cost estimate furnished without obligation for definite projects. Just address your inquiry to our nearest office.

General Contractor: Johnson, Drake & Piper, Inc., Minneapolis
Architects & Engineers: Thorshov & Curry, Inc., Minneapolis
Tolz, King, Duwell, Anderson and Associates, Inc., St. Paul

American Bridge Division, United States Steel Corporation * General Offices: 525 William Penn Place, Pittsburgh, Pa.
Contracting Offices: Atlanta - Birmingham - Boston - Chicago - Cincinnati - Cleveland - Dallas - Denver - Detroit - Elmhira - Gary
United States Steel Export Company, New York
PRODUCTS cont’d.

For more data use coupon, p. 271.

GET IN TOUCH WITH TYLER FOR...

first complete color system exclusively for supermarkets

...specialized assistance in supermarket planning

Go right with color in the supermarket—use the NEW TYLER-KETCHAM COLOR COMPARABILITY SYSTEM developed in consultation with Howard Ketcham, Inc., color experts. Covers Tyler equipment in color and its relation to walls, flooring, signs, the entire store interior! Flexible, simplified. Wide range of selections. Store-tested. Write Store Planning Dept. for complete details, today.

TYLER
TYLER REFRIGERATION CORPORATION
Niles, Michigan
Canada: Tyler Refrigerators, 722 Spadina Ave., Toronto

NEW TYLER SALES-CASE LINE (Series Y) for self-service Meat, Produce, Dairy, Ice Cream, Frozen Food Deps. Introduces new, low 3 3/4“ merchandising height; many other new "Advanced Design" features that simplify, speed up installation; cut costs; boost profits! Send coupon for complete data.

(9) ACOUSTICAL PANEL cushions and bounces distracting noises

The E. H. Noise Reduction Panel tackles the problem of acoustical control with a sensible combination of materials. One face of the laminated 4' x 8' panel is perforated to let noises through to an absorbent blanket of mineral wool. Any sounds penetrating the cushion are stopped dead by a dense gypsum back-up board while the solid outer face bounces off noise from the other side. Weighing about 5 lb. per sq. ft., the 2 3/4“ thick EH Panel can be cut to size on the job. It costs about $2.50 a sq. ft. and can be used for effective isolation of industrial machinery, fan plenums and TV contestants. Perforated aluminum or hardboard is used on the absorptive side, hardboard or asbestos cement for the sound-reflective skin. The round holes are standard, but numerous other slotted and square patterns are also available. The perforated aluminum is recommended sheet may be obtained on order. (Interestingly, the amount of open area can vary from 5% to 30% without affecting the panel’s efficiency except in very high and very low sound frequencies.) Also available are metal studs, channels, special doors, air intake and silencers for constructing a record booth or complete office to put inside a boiler plant.

Manufacturer: Elof Hansson, Inc.

(10) PLAY SCULPTURE complements school grounds and activities

A lot of concrete has flowed through the hopper since Creative Playthings, Inc. sparked a meeting of national park officials with a bold collection of art for play’s sake (AF, Oct. ’53). Now fabricating a broad assortment of cast panels, slides, playgrounds and welded tubular steel climbers, the firm is a top source of beautifully sculpted and engineered equipment for the modern schoolground. The Pueblo-like...
Western Carolina College Chooses GILSULATE® for New Steam Installation

On its modern campus at Cullowhee, N. C., Western Carolina College recently poured 66 tons of type B and 8 tons of type A GILSULATE on a 1500-foot steam line installation. This brought to more than 1200 tons the volume of GILSULATE used by North Carolina institutions, schools and colleges during 1955—enough to fill 40 railroad cars, or a ditch one yard wide by one yard deep and 10 city blocks long!

The installation consists of a 6" steam and a 2" condensate piping system. During pouring, only 2 men were required in the trench and 3 men above to open the bags and pour.

No other insulation for hot underground pipes can match this low-cost performance—just as no other insulation can match GILSULATE for permanent protection of piping systems. No wonder more and more engineers, architects and contractors are specifying GILSULATE for their hot underground piping work!

Whatever the type of job you have in mind—airport, school, utility, institution, factory, railroad—it will pay you to investigate the unusual features of this easily-installed, dependable, low-cost system. Use the coupon below or see your local GILSULATE dealer.

FACTS ABOUT GILSULATE

1. EASY TO USE—just pour and tamp...pipe heat does the rest.
2. FORMS 3 ZONES of protection against heat loss and all hazards commonly encountered by hot buried pipes.
3. NEEDS NO HOUSING OR MECHANICAL SHEATHS: no mixing, special handling or equipment.
4. ONLY NEEDS NORMAL PIPE SPACING: for multiple pipe or cramped conditions.
5. THREE TYPES AVAILABLE:
   Type A for 220°-300° F. temp. range
   Type B for 300°-385° F. temp. range
   Type C for 385°-520° F. temp. range

THE TRIPLE-ZONE INSULATION SYSTEM FOR LIFETIME PROTECTION OF HOT UNDERGROUNDPIPES

GILSULATE®

AMERICAN GILSONITE COMPANY, SALT LAKE CITY 1, UTAH
Affiliate of Barber Oil Corp. & Standard Oil Co. of California

Send me more information on GILSULATE

NAME

TITLE

COMPANY

ADDRESS

HPA
Universal

Indiana Limestone cannot be identified with any one architecture or any one building type. Its use is indicated wherever permanence, minimum maintenance and the textural beauty of natural stone is desired.

Contact the Indiana Limestone Institute or the nearest associate member.

INDIANA LIMESTONE INSTITUTE

Founded in 1932 as a service organization for the architect and contractor.

BEDFORD, INDIANA
More than 2 1/2 miles of aluminum busways carry power in New York Coliseum

New York Coliseum
CONSTRUCTED BY TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY, HON. ROBERT MOSES, CHAIRMAN
Architects—Leon and Lionel Levy
Mechanical and electrical engineer—Guy B. Panero
Advisory architectural committee—Aymer Embury II, Eggers & Higgins, John B. Peterkin
General contractors—Walsh-Fuller-Slattery
Electrical contractors—T. Frederick Jackson and J. Livingston Co. (joint venture)
Busways—General Electric Company

Important Innovations in Coliseum
New York City's new Coliseum is modern in every detail, particularly in its electrical distribution system. This 26-story office building, combined with 365,000 square feet of display space, has one of the first major installations of a higher voltage distribution system (480Y/277 volts). More than 2 1/2 miles of busway incorporating aluminum conductors were used to feed power to this huge structure.

Higher Voltage System Saves Money
The higher voltage system provides greater capacity and flexibility than conventional systems. Yet it requires only half as many, or half as large, risers and feeders. Characteristics such as excessive voltage drop or costly power losses present no problems to this system. The use of lightweight aluminum bus bars makes the equipment easier to handle and easier to install.

More and more manufacturers of packaged electrical distribution systems are finding that Alcoa® Aluminum Bus Conductor offers advantages of lower cost, availability, design flexibility. Aluminum distribution bus weighs a third less than a copper system of equal conductivity. Pound for pound, it has greater current-carrying capacity than cable in conduit.

Alcoa Aluminum Is Your Best Bet, Too
Wherever your production requirements demand an efficient, flexible electrical distribution system, it will pay you to specify busways with Alcoa Aluminum Conductors. Write us for the names of manufacturers who specialize in this lighter, better, more economical product.

Aluminum Company of America, 2304-K Alcoa Building, Pittsburgh 19, Pa.

Your Guide to the Best in Aluminum Value

Architectural FORUM / October 1956

259
houses pictured above (first prize winner in the Museum of Modern Art Play Sculpture Competition) are made up of different arrangements of five patterns of slabs and two kinds of pipe grids. The complete village, weighing in at 9,700 lb., costs $1,385 FOB. Plans and footing specifications are included. Playhouses can be purchased separately for about $250 to $315 each. Individual slabs and pipe walls are $60 to $65.

The three arched ladders comprising the Amphitheatre Climbers (above left) challenge children of assorted sizes and skills to test their muscles in graceful surroundings. Available in senior and junior groups, the three arches cost $325 and $375 FOB. Flat playground sites can be given some rippling interest and fun with a staggered series of hilly Tunnel Bridges. Colored terra cotta, dark and light gray, the two-part units are each $90 FOB. The Playweb Gym, (below) is a sociable silo shape that invites all kinds of young gymnastics. It is finished in bright blue enamel and costs $150 FOB.

Manufacturer: Play Sculptures, Div. of Creative Playthings, Inc.
In Fig. 1 above, the detail shows that the valley is connected to the metal roofing sheet with a ½" wide unsoldered seam. In Fig. 2 the valley sheet extends up under the roofing pans at least 6" and the roofing pans are connected to the valley sheet by a ¼" lock as shown.

The method shown in Fig. 1 can be the cause of many leaks that occur at a valley. When you consider that no other roofing material would be installed to lap over the valley flashing ½" it doesn't seem logical that because the roof covering is metal a ½" lap will not leak.

To avoid any chance of leak trouble either method shown in Fig. 2 should always be employed. Should the water be diverted against this lock by ice, leaves, sticks, etc., it might lodge in the valley, no leaks will occur because a head lap was provided.

We do not wish to presume to tell you how to design your structures or dictate their construction. For there are many satisfactory methods of installing gutters, leaders, roofs, flashing, coping covers, etc., which, of necessity, change with the design and type of construction and materials used. The purpose of this advertisement is to point out the methods of installation that have been proved by many years of use, and backed by more than a century and a half of experience in working with copper, to be the most satisfactory techniques. You will find these methods in Revere’s 110 page brochure, "COPPER AND COMMON SENSE." Send for a copy today. And remember: Revere has a staff of specialists known as Technical Advisors, whose experience qualifies them to render valuable service and advice regarding the use of metals in the building field. Feel free to consult with them at all times regarding the use of Revere Copper; you incur no obligation. Revere Technical Advisors may be contacted through the Revere Office nearest you.
(13) **SIX-LIVED FUSE** pinpoints trouble with tiny neon beacon

Behaving like a circuit breaker, a blown Sightmaster fuse can be switched to a new position to restore power service. The safety-dial unit also makes the job of poking into a dark, baffling fuse box less foreboding; its tiny neon light glows to show immediately which line is overloaded. The fuse does not have to be taken out or replaced until six power failures—a considerable life span on most installations. It is made in 15, 20, 25 and 30 amp. capacity (identified by different colors) and sells for about 85¢ each.

*Manufacturer: A. Lawrence Karp*

(14) **PLUG-IN FIRE ALARM** shrieks warning of ominous hot spots

Should room air near a Fire Spy reach a dangerous 140° F., the diminutive box lets out a piercing alarm and keeps screaming until the temperature is brought down to 100°. A practical accessory to sprinkler systems in plants, schools and offices, the reusable thermostatic device plugs into any A.C. outlet and draws no current except when signalling. It weighs 8 oz. and sells for $6.95. If there are no disasters to test the Fire Spy, a lit cigarette or match held in front of the thermostat button should give assurance of its working order.

*Manufacturer: Laramie Chemical Corp.*

(15) **Darkening drapery for windows**

A flame-resistant fabric has been developed by Du Pont for darkening windows in classrooms and auditoriums. The Tontine material is colored and textured on one side and has a neutral beige side to face the window. It is made completely opaque by a middle coating of black vinyl. Soft and lightweight, Tontine will drape easily over large glass areas. It can be sewn and pleated, and hung on standard hardware.

*continued on p. 274*
Here is another fine example of the application of Hope's Multi-Story Window Wall construction to modern building enclosure.

These window walls start at sill level and extend to the full height of the second story ceiling. They include fixed glazed areas, top and bottom ventilators and insulated painted steel panels.

The architect and builder are permitted the greatest freedom in design arrangement. Fixed glazed areas, ventilators, insulated panels (porcelain or painted), louvers and doors may be inserted in Hope's Multi-Story Window Wall openings wherever desired.

In addition, other advantages include structural savings due to the light weight of Hope's Window Walls that carry right down to the footings. Ease of erection results in rapid enclosure, saving time and labor. And the superior strength and rigidity of Hope's Steel Window Walls retain their full weathertightness for the life of the building.

Write for Catalog 152-AF for Full Information
The Acoustical Ceiling: Of Prime Importance
In School Design

Here in the interesting, widely-known Edsel Ford High School, a spacious corridor is used for informal student meetings. The original Random Pattern* in Acousti-Celotex Tile blends evenly across the broad ceiling surface.

In the two gymnasiums (inset), a special application was engineered to follow the graceful curve of the unique thin shell concrete roofs, using an acoustical construction that will withstand the impact of indoor athletic games.

Your Acousti-Celotex Distributor, listed on the back cover of our Sweet's Catalog, will be glad to cooperate with you in working out your ideas for the most effective ceilings in your school projects.

Ask him particularly about school applications of Steelacoustic† Panels, Cavity Tile, Acousti-Lux‡ Translucent Panels, and the Structural Acousti-Line System. All of these new products make their own specific contribution to the part that ceilings play in good school design.
An apartment building with all-aluminum skin

ALODIZED WITH ARCHITECTURAL ALODINE®

Chetwynd, an apartment building of all-aluminum skin, is ready for occupancy. Its exterior is protected and beautified by Architectural Alodine — a chemically formed coating integral with the metal. The process has many advantages. It is economical in comparison with other commercial finishes and it reduces maintenance costs. Aluminum thus protected is given a beautiful appearance and glare is materially lessened. The color is sunfast.

A file folder describing this new process in detail, and containing samples of Alodized Architectural Aluminum, is yours for the asking. Write us.

AMERICAN CHEMICAL PAINT COMPANY, Ambler 23, Pa.
DETOIT, MICHIGAN  ST. JOSEPH, MISSOURI  NILES, CALIFORNIA  WINDSOR, ONTARIO
New Concepts of Design Unfold to Architects Using Space-saving MODERNFOLD DOORS

Surprising...really surprising how much a folding door can contribute to imaginative design...that door is MODERNFOLD.

Every inch becomes more active, and you are freed of needless design restrictions caused by old-fashioned hinged doors.

Foremost among manufacturers of folding doors is MODERNFOLD. Among your friends in the profession, you will be certain to find many who have used MODERNFOLD in residential, commercial and institutional installations. They will surely vouch for MODERNFOLD's beauty, utility and longevity.

Or if you want the full story, why not call your nearest MODERNFOLD distributor? You and he together will no doubt discover many unique applications for these folding doors.

modernfold doors have no equal

MODERNFOLD distributors are listed under "Doors" in city classified telephone directories.

© 1951, NEW CASTLE PRODUCTS, INC.

NEW CASTLE PRODUCTS, INC., New Castle, Indiana • In Canada: New Castle Products, Ltd., Montreal 28 • In Germany: New Castle Products, GMBH, Stuttgart
How soon can you read a million words?

Do you have the time now — or ever — to read all the new printed matter that's being issued on all the new electric products for buildings? We venture that if you added up all the words in all the current catalogs, bulletins and spec sheets, they'd total well into seven digits. Yes, new developments in electric products and wiring techniques are coming thick and fast. It's quite a job for anyone to keep up with all of them.

Check electrical details early with...

“John Watts” (any qualified electrical contractor) devotes all his time to the electrical side of building construction, so it's only natural that he's up to date on developments in wiring, lighting, signaling, power apparatus, and supplies. As an installation specialist, he knows all the “angles” that may affect your plans. He's familiar with local codes and ordinances, labor conditions, product availability, installation costs.

So, when you check with John Watts in the early stages of design, you make sure that your electrical plans will be fully practicable. And, that's one of the most important factors in getting your projects completed on time.

You make sure, too, of getting the newest and best in everything electrical — when and where you want it — because the “John Watts” everywhere obtain electrical supplies and tools via Graybar.
(16) **Flexible polyester chalkboard**
Combining the abrasion resistance, washability, and easy application of its Conolite countertop, Continental Can is now making a green chalkboard of a similar polyester lamination in 3' wide rolls 30' long. The plastic surface is reported to have excellent write-on quality and erasability and will resist chemical stains. It costs about 50¢ per sq. ft. and can be applied directly to a flat wall surface. It is also furnished with a backup sheet of hardboard.

(17) **Vinyl coated steel**
In a series of hot and cold steps, US Steel is producing a tough-skinned decorative steel sheet. In the manufacturing process the metal is treated with a special adhesive, topped with a coating of vinyl plastic and embossed with various textures. Supplied in any color, the new sheet is suitable for furniture, appliances, and wall panel surfacing. It is being produced in 18- to 28-gauge sheets 2' to 4'-4" wide. One production feature: the sheets can be stacked by a magnetic plier. Price: 16¢ a sq. ft.

(18) **Copper faced aluminum**
A copper clad aluminum sheet, Alcupal, combines the electrical and chemical resistant properties of copper with the light weight of aluminum.
ENDURING

A Fiberglas® Built-Up Roof embodies the construction principle of enduring, rot-proof materials.

This great new advance in built-up roofing makes the layered, bulky construction of old-fashioned rag-and-paper felts a thing of the past. Light, inorganic fibers of glass in Fiberglas Built-Up Roofing won't rot, won't wick-out essential bitumen oils—roofs resist drying out and cracking. And the bitumen is permanently reinforced—in a single monolithic sheath—by the same super-strong, enduring glass fibers used in Fiberglas-reinforced fishing rods and boat hulls.

Because Fiberglas Built-Up Roofing is reinforced this new way, 40%, more bitumen can be applied without risk of cracking—giving 40%, more weather and water protection! Proved in use for nine years in more than 6 million square feet of roofing, Fiberglas materials can outlast the bitumen itself! Under any weather conditions, Owens-Corning will bond your roof for up to 20 years! And with Fiberglas Roof Insulation under a Fiberglas Built-Up Roof, you have a quality roof from top to bottom. It's amazing the difference Fiberglas makes!

SEND FOR FREE SPECIFICATION BOOK—Reinforced Built-Up Roofs—containing 32 pages of technical and design data later than current Sweet's Files. Address Owens-Corning Fiberglas Corporation, Dept. 171-J, Toledo 1, Ohio.
DOOR CONTROLS

Concealed-in-the-Floor

for contemporary entrances

DOR-O-MATIC

NOW AVAILABLE IN 2 MODELS

If your plans call for completely automatic door controls, specify the Invisible Dor-Man... in carpet-actuated or handle-actuated models. Either type will open your doors quickly, quietly, automatically.

SEND FOR ILLUSTRATED BROCHURES TODAY

Choose from 31 Models...
there's one for every type door
... in any type building

Specify Dor-O-Matic for metal, glass, or wood doors. Installed with any one of them, Dor-O-Matic gives uniform opening control and produces a positive, 2-speed, door closing action... yet your door retains a clean, eye-appealing appearance. There is no unsightly surface-applied closer to mar entrance design. Special Dor-O-Matic features include a positive back-stop and built-in hold-open device (optional). Finest construction and simple, safe design assure long, trouble-free service... just a few reasons why Dor-O-Matic is best for contemporary entrances.

Only DOR-O-MATIC provides these 10 service advantages

1. Positive uniform control  6. Two-speed closing action
3. No accidental hold-open  8. Permanent oil seal at spindle
4. Positive centering of door  9. No seasonal adjustment
5. Positive back-stop  10. Easy installation

DIVISION OF REPUBLIC INDUSTRIES, INC.
7356 West Wilson Ave. • Chicago 31, Illinois

IN CANADA: Dor-O-Matic of Canada, 550 Hopewell Ave., Toronto 10, Ont.
EXPORT REPRESENTATIVES: Consultants International, 11 W. 42nd St., New York 36
A PRACTICAL SOLUTION to
Multiple-use of
gymnasiums, halls, classrooms

Mitchell
TABLES and
BENCHES
SET-IN-WALL OR AGAINST-WALL INSTALLATION
Versatile, Safe, Mobile units that can be used attached or detached from cabinet. Tops of Linoleum, Resilyte or Formica plastics. Tubular steel legs. Table tops 13' 10" x 30". Benches 13' 10" x 12". Also made with one or two tables only or two tables and four benches.

MITCHELL MANUFACTURING COMPANY
2736 S. 34th STREET
MILWAUKEE 46, WISCONSIN
MFRS. of MITCHELL FOLD-O-LEG TABLES, BAND AND CHORAL STANDS, SEATING RISERS

Dur-O-wal preserves beauty, adds structural soundness and prevents cracking.

Trussed Design
Butt Weld • Deformed Rods
DUR-O-WAL
the Backbone of Steel for EVERY masonry wall


ALUMILINE
EXTRUDED ALUMILITE* ALUMINUM PRODUCTS
Specified by Leading Architects for:
Hospitals • Schools • Religious Buildings • Banks
Store Fronts • Office Buildings • Industrial Plants
Housing Projects • Shopping Centers
Also Finished in the New, Non-Fading Gold Lite, Black Lite and Blue Lite

Send for these Catalogs "Alumiline" Store Front Construction and "Alumiline" Entrances and Doors

THE ALUMILINE CORPORATION
DUNNELL LANE
PAWTUCKET, R.I.

*Trademark Aluminum Company of America

architectural FORUM / October 1956
DU PONT INTRODUCES

TONTINE® flame-resistant vinyl drapery material
for darkening and decorating classrooms

Now you can specify an opaque drapery material that complements the décor of rooms used for audio-visual work. "Tontine" flame-resistant vinyl drapery material comes in a selection of attractive patterns and colors on its textured side (see diagram) and in neutral beige on the smooth side facing the window. Soft and pliable, drapes of this new fabric gracefully draw up into minimum space after use. And there's no "boardiness" in low temperatures, or "tackiness" in high.

EXCELLENT SERVICE ADVANTAGES

Although Du Pont "Tontine" is of a weight and softness designed to drape gracefully over large expanses, it withstands rough handling and possesses balanced resistance to deterioration, discoloration, shrinking and stretching. Its flame-resistant characteristic is equal to that of "Tontine" triplex window shade cloth, which has passed every governmental test it has undergone.

For free samples and specifications, mail coupon below.

Du Pont TONTINE®
Flame-Resistant Vinyl Drapery Material

E. I. du Pont de Nemours & Co. (Inc.)
Fabrics Division, Dept. AF-610, Wilmington 98, Del.

Please send me free samples and specifications about new "Tontine" drapery material.

Name ____________________________________________

Firm __________________________ Title ____________________________

Address ____________________________________________

City __________________________ State ____________________________

[Diagram of drapery material]

Base fabric is high-grade cotton, coated with virgin vinyl resins formulated to impart permanent flame resistance. Black pigmented vinyl gives opacity. Vinyl coat on one side has embossed textile design.
now, Crucible low nickel stainless steels that meet many of your needs...

Here are two new Crucible grades, Rezistal type 201 and 202 that are similar in quality and properties to types 301 and 302... but with desirable features all their own.

In the annealed condition, for example, Rezistal 201 and 202 have about 10% higher strength than 301 and 302, yet maintain almost identical ductility. This means that these grades can be fabricated with ease equal to their counterparts. In addition, their mill finishes and corrosion resistance to a wide variation of media compare most favorably with 301 and 302.

To sum up: Rezistal 201 and 202 have practically all the desirable properties of 301 and 302, plus some of their own. And they're available promptly in all forms. Write now for data sheets fully covering the properties of these new stainless grades. Crucible Steel Company of America, Dept. AAF, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.

Crucible Steel Company of America

Canadian Distributor—Railway & Power Engineering Corp., Ltd.

first name in special purpose steels
ACOUSTICAL MATERIALS

AIR PURIFICATION

ALUMINUM

CABLES

CHURCH EQUIPMENT

COMBUSTION CONTROL

COMMUNICATION SYSTEMS

CRANES

ELECTRICAL EQUIPMENT

FANS

HARDWARE
Dual-Purpose Sliding Door Hardware. The Stanley Works, New Britain, Conn. 8 pp.

HEATING AND AIR CONDITIONING

continued on p. 280
From a WHITE ELEPHANT To a MODERN BUILDING with

SEAPORCLAD

LAMINATED-INSULATED CURTAIN WALL PANELS

SEAPORCLAD transformed the thirty year old Newark Center Building, long-known as a “White Elephant” into New Jersey’s most modern office building at about half the cost for a new structure.

The two-inch thick colorful curtain wall of insulated-laminated panels gives the building the advantages of simplicity of design plus such important characteristics as (1) extreme toughness, (2) impact strength, (3) lightness of weight, (4) weather and fire resistance, (5) thermal and sound insulation and (6) color fastness.

Write For Brochure No. 106

for some job somewhere you can use... Seaporcel

SEAPORCE METALS, INC., 2800 Borden Avenue, Long Island City 1, New York — Member: Porcelain Enamel Institute, A.F. of L. Metal Fabricating & Enameling Plant — In Canada: Seaporcel is manufactured by General Steel Wares, Ltd., London and Toronto, Ontario. Complete erection and engineering departments.
“A result no other way obtainable”

unusual design
produced economically
with Rilco beams and arches

"Although the economy was not the prime factor in the use of (Rilco Laminated Beams) it was, of course, a natural result and particularly welcomed when you thereby achieve a result no other way obtainable." The parentheses and underlining are ours, but the comment is direct from the user.

Often Rilco Glued Laminated Arches, Beams and Deck are selected because of their economy. In the case of the Katz Drug Store in Kirkwood, Missouri, however, they offered the architectural effect desired plus the warmth and beauty of wood — economy was a welcome plus.

You, too, will find that Rilco welcome plus values fit into many types of construction — churches, schools, industrial and commercial buildings. Fire safe, Rilco laminated wood members span large areas gracefully and economically.

Rilco engineers will gladly work with you on your requirements and give on-the-job cooperation. There’s a cost saving Rilco member for every type of structure, precision built to meet your needs.

Rilco fire safe Laminated Beams are delivered on the job, machine finished, wrapped for protection.

RILCO LAMINATED PRODUCTS, INC.
2524 1st National Bank Bldg., SAINT PAUL 1, MINNESOTA
District Offices: Wilkes-Barre, Pa.; Fort Wayne, Ind.; Tacoma, Wash.

See Rilco in
Sweets or
write for free
24 page Catalog
...the finest structures rest on RAYMOND FOUNDATIONS

FORD CENTRAL OFFICE BUILDING
The American Road • Dearborn, Michigan

THE SCOPE OF RAYMOND'S ACTIVITIES...

IN THIS COUNTRY
FOUNDATIONS . . . MARINE STRUCTURES . . .
HEAVY CONSTRUCTION . . . SOIL INVESTIGATIONS

OUTSIDE THE UNITED STATES
COMPLETE SERVICES FOR ALL TYPES OF CONSTRUCTION,

RAYMOND CONCRETE PILE CO.
140 Cedar Street • New York 6, N.Y.

Branch Offices in principal cities of the United States,
Canada, Central and South America.
The PETRO package includes an oil or gas burner (or combined gas-oil); a factory-wired control panel; forced draft air supply and a built-in fuel system—ALL IN A SINGLE INTEGRATED UNIT

This is not a simple conversion burner—it's a complete combustion system. Everything that goes into an ultra-modern firing system is right here, mounted on a rigid steel frame and ready to go. All of the intricate wiring and electrical controls are factory assembled, installed, and tested. Every component is engineered for the job, in the proper size, capacity, and type. Nothing is left to on-the-job improvising.

And best of all from your standpoint, a single unit means single responsibility. It's a Petro job from beginning to end and Petro is proud to back it up. It has all the sturdy qualities that have made Petro famous for DEPENDABILITY.

The Petro forced draft burner is suitable for firing all types of boilers, or can be purchased as a complete boiler-burner unit with matched Scotch type Titusville or Kewanee boiler.

Coupon will bring full information and specifications.

PETRO

284
Jean Vafiades of Marseilles, France, is respected throughout Europe as an outstanding artist in floor design and installation. One of his best known achievements is this exquisite wood parquet floor in the reception room, prefecture of the administrative district of the Rhone Delta.

After installation, M. Vafiades carefully chose treatments which would bring out the floor's beauty and preserve it under heavy foot traffic — such as you would expect in any local government building. He selected Hillyard Wood Primer and Hillyard Star Wood Finish. As a special treatment, he then applied Hillyard Super Onex-Seal for a high natural finish, and buffed it to add depth and richness.

M. Vafiades is official Hillyard representative and distributor for Hillyard products in Southern France.

SEND FOR INFORMATION TODAY!

HILLYARD St. Joseph Mo.

Please have your nearby Hillyard Maintainer give me a complete set of AIA numbered files on the proper Hillyard treatment for each type of floor.

Name

Firm

Address

City | State

ST. JOSEPH, MISSOURI

San Jose, Calif. Passaic, N. J.

Branches in Principal Cities
PRODUCTS cont'd.

Air Conditioners—Complete Summer Cooling Systems. The Majestic Co., Inc., Huntington, Ind. 8 pp.


Water Coil Selection Method. Drayer-Hanson

HENRY END, A. I. D.

designs SUITE SIXTEEN

for the Schine Hotels

All exposed surfaces:
Parkwood cigarette-and-liquor-proof plastic laminates.

Hardware solid Plen-aston aluminum.

Mortice & tenon con-
struction

Dovetailed drawers 1½”
solid ash, dust-proof and
center-guided.

Knock down construc-
tion for easy shipment & installation.

Manufactured by
Beauty Craft Furniture Mfg. Co.
Miami, Florida.

of course it's surfaced with

Parkwood Rotowood

in brilliant new

MACASSAR EBONY

Designing to meet exacting requirements of duty and beauty, Henry End chose this brilliant new Parkwood pattern, which reproduces with complete fidelity the grain, color and luxurious quality of this rare and beautiful wood... yet, like all Parkwood Rotowoods, Genuwoods and Decoratives, is protected for life by lamination with genuine Melamine.

Why not write today for detailed literature and samples?

REACH FOR THE
PARKWOOD CHAIN

— an inspiring collection of over 80 in-stock patterns, solid colors and Genewoods.

Yours for the asking.

Parkwood Laminates INC.

30 Water St., Wakefield, Mass.

INC., 3301 Medford St., Los Angeles 63, Calif. 4 pp.

INPLANT FEEDING


INSULATION


LAUNDRY EQUIPMENT


LIGHTING


Lighting Fixture Guide. General Electric Large Lamp Div., Nela Park, Cleveland, Ohio 40 pp. 50¢


School Lighting Plan. The Art Metal Co., Cleveland, Ohio


LIGHTNING PROTECTION


MATERIALS HANDLING

Hi-Lo Fully Automatic Dockboards. The Kelley Co., 576 E. Silver Spring Dr., Milwaukee 17, Wis. 4 pp.

MAINTENANCE


PARTITIONS


PROTECTIVE COATINGS


continued on p. 290
here's a system
of lighting support
that doubles as
a raceway*

*Approved by Underwriters' Laboratories, Inc.

KINDORF
a basic material

A PRODUCT OF STEEL CITY ELECTRIC COMPANY

Send for our product bulletin G-1

PITTSBURGH 33, PA.
"We must reach everybody concerned with the sale"
says Herbert B. Luria, President
LURIA ENGINEERING Company

Although Herbert Luria doesn’t talk about the building team, he sells it. Like every successful building product salesman, he knows that Luria Engineering must reach every influential and decision-making member of the building team before a sale can be made. He knows that the sound construction, permanence and adaptability of his buildings must be demonstrated to everybody who has an influence on the buying decision. That is why Luria sales require the constant support of a major advertising campaign in Architectural FORUM. More than any other magazine FORUM delivers the highest concentration of building team members: not only architects, engineers and contractors but also decision-making clients who are actively building new buildings, modernizing old buildings.

"I don't believe any two sales are made in exactly the same way—or, in most cases, to exactly the same kinds of people. However, at all times, our salesmen have to get to the man who approves the specifications."

"In addition, of course, our salesmen have to talk with the consulting engineers, the architects and the contractors. In varying degrees these men, too, exercise a considerable influence on the buying decision."

"In most cases, this is a company president, vice president, or resident engineer in charge of a building program. Sometimes he is a behind-the-scenes financial man. And when he makes the decision, everybody follows!"

"So, because one never knows in advance the organization of each sale, we must reach everybody concerned with it. That is why we advertise extensively in FORUM. FORUM is read by the men who are important to us."


architectural FORUM
the magazine of building
THE MAJOR INFLUENCE IN AMERICAN BUILDING
And now! Another GOLDEN DOWEL lifetime masterpiece

Roddiscraft announces

first all-wood B-Label fire door

Once again, Roddiscraft makes history with doors. Cutaway model illustrates this dramatic new development — a one-hour flush veneered fire door (B-Label) in which the core is composed of millions of fireproofed wood particles... bonded forever with phenolic adhesives under heat and pressure. This all-wood fire door is fully approved by Underwriters’ Laboratories, Factory Mutual and the New York Board of Standards and Appeals.

This new core construction is significant in terms of both present function and future promise — because it offers a sure, new way to tailor door characteristics to particular applications.

HIGH-DENSITY CORE — EXTR A STRENGTH —
Weighs about 50% more than conventional mineral-core fire doors. Core assures exceptional screw-holding power. Asbestos lock block position indicated on rail with golden dowel.

ONE-HOUR FIRE RETARDANT — UL tests show unexposed surface temperatures at end of 30 minutes average 153°F. Heat radiation temperatures at 12 inches average only 80°F — considerably lower than those of mineral-core fire doors.

LIFETIME GUARANTEE IN WRITING — Owners of new Golden Dowel One-Hour Fire Doors are fully indemnified against loss for the life of the installation — by a policy with one of the nation’s leading insurance underwriters.

Contact your nearest Roddiscraft warehouse for full details. Or write Roddis Plywood Corporation, Marshfield, Wisconsin. When in New York, visit the Roddiscraft Rockefeller Center Showroom, 620 Fifth Ave.
The only sure way to "eliminate" the ravages of destructive moisture is with the installation of "Premoulded Membrane" during the original construction...all other methods are merely temporary "slop-gaps." When specifying or installing a vapor seal, be sure it meets these Sealtight standards of quality: permeance rating of only 0.066 grains per square foot...resistant to rot, mold and termites...expandable...quickly, easily and permanently installed...ONLY "Premoulded Membrane" meets them all.

Eliminates

- EXCESSIVE WINDOW CONDENSATION
- EXCESSIVE BASEMENT DAMPNESS—RUSTING OF TOOLS
- BLISTERING OF EXTERIOR PAINT
- DETERIORATION OF INSULATION VALUES
- DETERIORATION BY MILDEW OF RUGS, FURNISHINGS, SHOES AND CLOTHING

IDEAL FOR ALL TYPES OF CONSTRUCTION

SLAB-ON-GRADE

This illustration shows how the installation of Premoulded and Corktite removes all danger of condensation and oxidation of metal installations in the crawl space area...eliminates the need for ventilation.

CRAWL SPACE

BASEMENT

The proper installation of Premoulded Membrane and Corktite completely isolates the slab and superstructure from soil moisture.

The proper installation of Premoulded Membrane to the exterior of the basement walls as well as beneath the floor slab insures a permanently warm and dry basement.

ARCHITECTS, BUILDERS, DEALERS...

WRITE TODAY for complete information that tells you where, why and how to use Sealtight Premoulded Membrane, the only true vapor seal and Corktite, the resilient, impermeable perimeter insulation.

"Guardian of the Home"

W. R. MEADOWS, INC.

6 KIMBALL ST. • ELGIN, ILLINOIS

PRODUCTS cont'd.

PUMPS

Submersible Multipurpose Utility Pump. Ken- nco Pump Div., American Crucible Products Co., 1305 Oberlin Ave., Lorain, Ohio. 2 pp

REFRIGERATION


TILE


TREADS


VALVES


VERTICAL TRANSPORTATION


VIBRATION CONTROL


WATERPROOFING


WINDOWS AND DOORS


Silent Hydro-Door. Hydro-Door Sales, 1346 S. Broadway, Santa Ana, Calif., 4 pp.


Standard Steel Doors and Frames. Steel Door Institute, 2130 Keith Bldg., Cleveland 15, Ohio, 8 pp.


WIRE


WOOD