ARCHITECTURAL RECORD

DECEMBER 1963 • TWO DOLLARS PER COPY

BUILDING TYPES STUDY: INDUSTRIAL BUILDINGS

NORTH DAKOTA PRIORY BY MARCEL BREUER

TWO PROJECTS BY YAMASAKI

SEMI-ANNUAL INDEX • FULL CONTENTS ON PAGES 4 & 5
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Architectural Engineering

UTILITIES SET ON THE ROOF OF PHOENIX SHOPPING CENTER
Warm, dry climate permits the use of exposed package air conditioners and electrical distribution

TYPHOOON-PROOF LOUVERS SCREEN TROPICAL SUN
Aluminum sun blades were carefully detailed to withstand wind, rain and wind-blown sand

RETRACTABLE HOUSING OPENS POOL IN SUMMER
Quarter-circle segments of insulated structure for a Hershey sports center ride on wheels

APARTMENT HEATING COSTS CUT BY MULTIPLE-BOILER SYSTEM
Eighteen small boilers operate in groups of three to meet varying loads

BUILDING COMPONENTS: DRAINAGE DETAILS FOR BUILDINGS USING STANDARD STEEL COMPONENTS

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ARCHITECTURE OF QUALITY

In the inevitable stimulus and excitement of the innovative in architecture, and perhaps in the discouraging prevalence of the dreary in non-architecture, it may be too easy to forget how many clients are being served these days at a very high level with buildings of the highest architectural quality for quite ordinary needs and how important a contribution to our architectural environment such buildings are. A group of small banks to be featured next month makes an impressive reminder.

BUILDING TYPES STUDY: APARTMENTS

With the volume of multi-family housing construction continuing to promise increasing opportunities for architects in this building type, next month's study will provide a look at current accomplishments in projects of varied size and scope, together with a review of the recently selected award-winners in the first annual design competition sponsored by the Federal Housing Administration. Architects will be interested in the results of this awards program as an evidence of the developing effort in FHA to put itself on the side of good design.


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Concrete panels—precast with Incor—featured in new Lipton plant

How to combine architectural distinction and rugged practicality? More often than not, modern concrete is the answer. For proof, consider Lipton's new $1.5-million Wish-Bone Salad Dressing Plant at Independence, Missouri.

The use of precast concrete panels offered decided advantages—speed of construction, economy, beauty, durability, fire-safety and a minimum of maintenance. And, to meet future expansion requirements, one side of the plant can be removed by lifting the panels out of their flanged frames and extended outward as far as desired.

All 260 panels in the Lipton plant were precast using "Incor"—America's first high early strength portland cement.

LONE STAR CEMENT CORPORATION, N. Y. 17, N. Y.

Reinforced concrete slabs—each 8 feet 4 inches high, 20 feet wide and 8 inches thick—are used for walls of manufacturing and warehouse sections. Slabs are laid horizontally tongue-and-groove fashion to form wall sections 25 feet high by 20 feet wide.

Complete plant, including offices, manufacturing and warehouse sections, covers 100,000 square feet of floor space.
The beauty of this vinyl asbestos tile lasts and lasts—because tile design flows through and through the entire thickness!

Architectural Marbles: a vinyl asbestos tile that's as practical as it's handsome. Because the marble design goes tile-deep, it can't wear away. Light and dark shadings, subtly blended into each tile, create a pleasing random effect...one sure to harmonize with any available décor. All this value—at no extra cost! Colors: 8. Thicknesses: 3/32" and 1/8". Check your Kentile® Representative.
Hard World Department

Since we argued recently (this department, October) with Philip Johnson as to whether or not his was a "bad, bad world" for the artist, we have heard about two interesting efforts to guide the architectural student toward a congenial meeting with the world of work.

Gregory Ain was in the office last summer, on his way to become dean of the architecture school at Penn State. This California practitioner, his hair as gray as mine, was clearly entranced with the challenge of preparing the student to improve this vale of tears, and he spoke at some length of the attitude of the young graduate. He had seen so many, he said, a few years out of school, bitter, disillusioned, downhearted. Surely there must be something wrong with an educational system which sends young men out with so little knowledge of what is facing them. "If they were only prepared for what the world is really like."

One of the things he isn't prepared for, continued Ain, is the lack of interest of the world in his ego. "The free ego chatter is all right for their psychiatrists and their wives, but nobody else is interested in their emotional problems." One supposes (self speaking now) that the early artists who drew animals on the walls of the caves, felt themselves different from their fellows, and so started the business of ego analysis. Ain feels, in any case, that the school must lead the artist away from his feeling of isolation, or whatever it is, so that he at least suffers no worse disillusionment than do other college youths who charge out into the world.

Or, more positively, "If they're really assuming an adult responsibility they are expressing themselves. They have to realize that the glory of architecture is going to be in the real problems of the next 40 years. They will find the real meaning of architecture in a living community."

Hear, hear!

Another effort in the same direction comes from a presentation of the graduate program of the University of California, from a paper by Joseph Esherick, Sami Hassad and Charles Moore:

"We are determined, at least for now, that the graduate program will be not a continuation of an undergraduate design sequence, but an antidote to it. This determination is based on a strong dissatisfaction with most of the architectural education we know about, which seems to drift along on 'expression' (at worst) or 'craft' (at best), allowing and even encouraging students to look to their own psyches and to rely on their whims for decisions which are certainly susceptible to rational analysis, to knowledge of human behavior and physical fact. It appears to some of us that the usual architecture curriculum is an elaborate framework of playing architect; it supplies the student with the notion that he is in charge of all sorts of factors he scarcely knows about, and develops therefore arrogance in lieu of responsibility. Our present efforts with our undergraduate curriculum are mostly toward a more responsible identification of the problems of the physical environment and the development of the tools for their solution, with a heavy reliance on discernible fact. We do not shy away from theory; indeed we believe that only with the development of a coherent body of transmittable theory based on verifiable information (not dogma) will it be possible for the architect to make a really responsible and necessary contribution to the society."

Arrogance in lieu of responsibility. Or, responsibility in lieu of disillusionment.

—Emerson Goble
TAPIOLA, FINLAND,
SEEN IN EXHIBIT

Tapiola, a Finnish new town of 17,500, is the subject of a major exhibition which had its premiere at the Architectural League of New York in October and November.

Begun in 1952 by Asuntosaatio, a private nonprofit corporation, Tapiola has attracted the attention of planners and critics because of its sensitive treatment of a beautiful site on the Gulf of Finland, and its economic and social integration of population. Residents, 90 per cent of whom own their houses, may live in high- or low-rise apartments or in row houses.

The plan provides for neighborhood units—the Eastern and Western Neighborhoods are completed, the Northern is under construction—separated from each other and from the Town Center by green belts.

The exhibition will be on view at the National Housing Center in Washington until December 29.
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Yep. We're kind of proud. Across and up and down the continent, ours is by far the most used brand of reinforcement for all sorts of masonry walls. Every once in a while, however, somebody tries to sneak in a substitute. So when you say Dur-o-wal, make sure you really get Dur-o-wal: (A) look for the truss design. And (B) look for the Dur-o-wal end-wrap shown above. That way you'll know you've got the quality reinforcement that increases horizontal flexural strength of 8-inch block walls up to a proved 135 per cent, does better than brick headers for the compressive strength of composite masonry walls. Want the facts? Write for Dur-o-wal Data File.

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- Aurora, Ill., 260 S. Highland Ave.
- Seattle, Wash., 3310 Wallingford Ave.
- Minneapolis, Minn., 2653 37th Ave. So.
- Hamilton, Ont., Canada, 789 Woodward Ave.

For more data, circle 4 on Inquiry Card
Every facet has a function

The many facets of Pittsburgh’s new IBM Building reflect the changing light of day, as well as a dramatic change in the concept of structure for high-rise buildings.

Rejecting traditional post and beam concepts, the IBM Building’s designers made full and creative use of the strength levels of USS Structural Steels by placing the building’s strength, structural support, and beauty in its walls. These steel-truss walls, supported at only eight ground points, share the loads of the long-spanned floor framing with the central service core—providing spacious and column-free interiors.

New, higher yield strength steels made this design practical. It is the world’s first building to combine three strength levels of steel in its structure—USS “T-1” and “T-1” type A Steels (100,000 psi minimum yield strength) for the heavily stressed piers and lower wall elements, USS TRI-TEN Steel (A441) (50,000 psi minimum yield point) for less heavily stressed elements, and A36 steel (36,000 psi minimum yield point) where stresses were still lower and more uniformly distributed. This concept required 250 tons less steel than traditional skeleton frame construction.

The symmetrical, diamond grid exterior is sheathed with lustrous, textured USS Type 302 Stainless Steel, which contrasts with gray glass spandrels and tinted windows to provide an intriguing over-all texture and interplay of light and shadow on each facade.

Used imaginatively, steel has unlimited aesthetic potential. For full details, write United States Steel, Room 6921, 525 William Penn Place, Pittsburgh, Pennsylvania 15230.

USS, “T-1” and TRI-TEN are registered trademarks.

Princeton: Architecture

Princeton's architectural students, housed since the school's founding in 1919 in a wing of McCormick Hall, moved this fall into the new Architecture Building. The new facilities include a drafting studio 165 feet long, 60 feet wide and 20 feet high. The studio is divided into graduate and undergraduate sections by a student common room and a jury room. Model building shops are on the mezzanine, and a casting shop for sculptors on the ground floor. The structure is poured concrete with post-stressed beams. The architect was Charles H. Richter, of Fisher, Nes, Campbell and Partners, Baltimore. Turner Construction Company was the general contractor.

Northwestern: Architecture

The Rebecca Crown Memorial Center will house Northwestern University's administration offices, now scattered about the Evanston campus. It will also house Hardin Hall, a conference area, to be used for trustees' meetings, receptions and other official university functions. The building will be faced with limestone, to conform with existing buildings on the campus. Construction, to cost an estimated $2.5 million, will begin in the spring of 1964 and is scheduled to take 16 months. Skidmore, Owings & Merrill are the architects.

Atomedic Hospital

Atomedic Hospital is a design estimated to save half the usual costs of hospital construction and operation. Its equipment includes telemetry (electronic reporting of such data as pulse and respiration), automated food system, and television monitoring of patients. Structure is extruded aluminum columns and beams on three concrete footings. Exterior walls are aluminum panels bonded to foamed plastic core. The design is the brainchild of Dr. Hugh C. MacGuire, concerned with the needs of satellite hospitals and neighborhood clinics. Paul Gilmore was the architect, aided by Alcoa's engineering staff. Prototype is in use at Montgomery, Alabama; a second hospital will be flown to the New York World's Fair.

First at the Fair

The New York World's Fair had its first real beginning with the dedication in October of the Top of the Fair, exhibition building of the Port of New York Authority. The top floor contains a 1,100-seat dining room with views of the fair, Flushing and, in the distance, Manhattan. Called by the Port Authority the "aerial gateway" to the fair, the building provides a roof-top heliport which will accommodate shuttle services from the airports and Manhattan. The exhibit will be on the ground floor. The building was designed by the Port Authority's staff. Foundation contractor was M. Parisi & Son; builders were W. J. Barney Corporation.
Art and Architecture at Yale

Yale's new Art and Architecture Building, designed by Paul Rudolph, received a gala welcome last month, when more than 2,000 alumni and friends turned out for its dedication. The $4 million building, lastest in Yale's expansion program, is concrete with a "rippled" aggregate finish. Though apparently a nine-story building, its interior offers great spatial diversity, with 36-levels varying in height from 7 feet to 28 feet. In addition to facilities for teaching architecture, city planning, painting, sculpture, printmaking and graphic design, the building houses an art library and a penthouse apartment for visiting critics. The general contractor was the George B. H. Macomber Company.
New “lite” on sound control

Glass for sound control is not new to architecture. ACOUSTA-PANE, an acoustical glass, is new. It is of particular interest because of two unique characteristics:

1. ACOUSTA-PANE is a single glazing unit, fabricated in fraction-of-an-inch thicknesses which permit standard installation procedures and standard frames.

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Graph shows comparative reduction in sound transmission of ACOUSTA-PANE compared to 

\[
\begin{align*}
\text{TRANSMISSION LOSS} & \quad \text{FREQUENCY—CPS} \\
\text{1/4” ACOUSTA-PANE} & \quad \text{2000} \\
\text{PLATE GLASS} & \quad \text{3000} \\
\end{align*}
\]

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Write for descriptive brochures on Acousta-Pane.
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it twists...it bends...it curves...

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ARCHITECTURAL RECORD December 1963 17
Capital expenditures for new plants and equipment are basic to economic growth. Aside from the fact that investment directly adds to the nation's total economic output (Gross National Product), it also sets the stage for future growth in the output of goods and services by increasing our productive capacity.

Manufacturing industries went on a plant and equipment spending binge in 1956 and 1957 which culminated in the latter year's record level of outlays—almost $16 billion. But a hangover followed the next year as capital outlays dropped nearly 30 per cent. From 1959 through 1962, capital spending fluctuated between $12 and $14.7 billion; this year, it is estimated that manufacturing companies will spend more than $15.5 billion, which would be a 6 per cent increase over last year's total. The outlook for 1964 looks pretty good since McGraw-Hill's Fall Capital Spending Survey indicates that, right now, all manufacturing industries plan to spend 8 per cent more for plants and equipment in 1964, than they did in 1963. In recent years, just under one-fifth of all manufacturing plant and equipment expenditures has gone to new construction.

Dodge contract data for industrial buildings followed a somewhat similar course during the time period covered above. After postwar highs were reached during the Korean conflict in 1951 and 1952, the yearly total value of manufacturing plants contracts dropped sharply in 1954 because of the recession. During the recovery, contract value climbed to $2.4 billion in 1956, and then traced a jagged course around the $2 billion mark until this year. F. W. Dodge Corporation estimates that when 1963's complete data are posted the total value of manufacturing buildings contracts will be about 10 per cent higher than last year, and forecasts another 10 per cent increase in 1964.

Although many factors determine how much business invests in plants and equipment, anticipated profits and what per cent of capacity industries are operating at are among the more important. Relatively stable profits, but declining profit margins over the decade of the 50's, and lower than preferred operating rates in recent years, reduced the incentives of business to invest and was reflected in the sluggishness of the capital expenditure series. Profits have finally broken out of their straitjacket this year, as manufacturers set an earnings record in the second quarter; and there are indications that the third quarter was even better. The operating rate for all manufacturing companies has also improved, going from 77 per cent in 1960 to 85 per cent in September of this year, according to the McGraw-Hill Survey.

The outlook for industrial buildings looks bright when the above buoyant factors are added to the possibility that Congress will finally pass the tax cut bill next year. On top of this, corporations will not be hampered by the lack of the wherewithal to invest because cash flow, which had been climbing slowly, jumped in 1962 when the accelerated depreciation guidelines became effective and has continued rising this year.
The mellow charm of brick

Silaneal® protects it from
dirt, efflorescence, leakage

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Keeps Brick Clean Many brick, particularly light and pastel shades, have high suction rates and offer little resistance to water penetration. Water carries dirt into the brick, causing discoloration; water leaches soluble salts out of the brick, causing efflorescence. Factory-applied Silaneal makes brick water repellent so dirt stays on the outside, where it's easily washed away by rain, and efflorescence due to water leaching is minimized.

Controls Water Absorption High suction brick absorb water from fresh mortar so rapidly that improper hydration and mortar shrinkage may occur. As a result of poor bond between brick and mortar, hairline cracks may develop to allow leakage. But Silaneal controls water absorption; proper hydration of mortar is assured for maximum bond, less leakage.

Proven By Tests Hundreds of transverse pressure tests — and tests simulating wind-driven rain — have demonstrated that wall sections built of Silaneal-treated high suction brick prove stronger and resist leakage better than similar untreated brick.

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For brochure and list of sources, address your letterhead to Dept. C124, Chemical Products Division, Dow Corning Corporation, Midland, Michigan.
Building Construction Costs

By Myron L. Matthews
Manager-Editor, Dow Building Cost Calculator, an F. W. Dodge service

The information presented here permits quick approximations of building construction costs in 21 leading cities and their suburban areas (within a 25-mile radius). The tables and charts can be used independently, or in combination as a system of complementary cost indicators. Information is included on past and present costs, and future cost can be projected by analysis of cost trends.

A. CURRENT BUILDING COST INDEXES—NOVEMBER 1963

1964 Average for each city: 100.0

<table>
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<th>Metropolitan Area</th>
<th>Cost Differential</th>
<th>Current Dow Index</th>
<th>Residential Nonresidential RS. &amp; Nonrs.</th>
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</table>

B. HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES

1961 average for each city: 100.0

<table>
<thead>
<tr>
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<tr>
<td>U.S. AVERAGE—21 Cities</td>
<td>165.9</td>
<td>218.5</td>
<td>244.1</td>
<td>248.9</td>
<td>255.0</td>
<td>250.2</td>
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<tr>
<td>Atlanta</td>
<td>190.0</td>
<td>228.5</td>
<td>256.9</td>
<td>277.7</td>
<td>282.8</td>
<td>289.0</td>
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<tr>
<td>Baltimore</td>
<td>181.0</td>
<td>213.3</td>
<td>249.4</td>
<td>261.9</td>
<td>264.5</td>
<td>272.6</td>
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<tr>
<td>Birmingham</td>
<td>175.0</td>
<td>268.1</td>
<td>283.6</td>
<td>283.3</td>
<td>283.2</td>
<td>280.2</td>
</tr>
<tr>
<td>Boston</td>
<td>187.5</td>
<td>199.9</td>
<td>254.0</td>
<td>260.5</td>
<td>256.0</td>
<td>232.8</td>
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<tr>
<td>Chicago</td>
<td>182.0</td>
<td>231.2</td>
<td>287.8</td>
<td>273.2</td>
<td>278.6</td>
<td>274.2</td>
</tr>
<tr>
<td>Cincinnati</td>
<td>178.0</td>
<td>267.7</td>
<td>246.1</td>
<td>250.0</td>
<td>256.0</td>
<td>255.0</td>
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<tr>
<td>Cleveland</td>
<td>178.9</td>
<td>220.7</td>
<td>258.0</td>
<td>267.9</td>
<td>260.5</td>
<td>268.1</td>
</tr>
<tr>
<td>Dallas</td>
<td>250.2</td>
<td>221.9</td>
<td>225.4</td>
<td>230.5</td>
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<td>259.9</td>
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<tr>
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<td>248.6</td>
<td>242.8</td>
<td>237.5</td>
<td>237.9</td>
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<tr>
<td>Detroit</td>
<td>185.8</td>
<td>197.8</td>
<td>237.4</td>
<td>238.8</td>
<td>239.4</td>
<td>239.5</td>
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<tr>
<td>Kansas City</td>
<td>172.0</td>
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<td>235.0</td>
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<tr>
<td>Los Angeles</td>
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<td>248.4</td>
<td>238.4</td>
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<td>254.6</td>
<td>260.0</td>
<td>267.9</td>
</tr>
<tr>
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<td>238.1</td>
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<tr>
<td>New York</td>
<td>181.0</td>
<td>270.4</td>
<td>247.4</td>
<td>247.6</td>
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<td>256.4</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>299.6</td>
<td>222.3</td>
<td>255.0</td>
<td>267.4</td>
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<td>262.8</td>
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<tr>
<td>Pittsburgh</td>
<td>191.0</td>
<td>264.9</td>
<td>254.1</td>
<td>236.4</td>
<td>241.1</td>
<td>243.5</td>
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<tr>
<td>St. Louis</td>
<td>191.0</td>
<td>213.8</td>
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<td>236.7</td>
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<td>251.9</td>
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<tr>
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<td>248.0</td>
<td>266.4</td>
<td>292.5</td>
<td>265.8</td>
<td>292.1</td>
<td>237.5</td>
</tr>
<tr>
<td>Seattle</td>
<td>170.6</td>
<td>191.8</td>
<td>221.4</td>
<td>228.5</td>
<td>232.7</td>
<td>237.4</td>
</tr>
</tbody>
</table>

HOW TO USE TABLES AND CHARTS: Building costs may be directly compared to costs in the 1941 base year in tables A and B: an index of 156.3 for a given city for a certain period means that costs in that city for that period are 56.3 times 1941 costs, an increase of 156.3% over 1941 costs.

TABLE A. Differences in costs between two cities may be compared by dividing the cost differential figure of one city by that of a second; e.g., the cost differential of one city (10.0) divided by that of a second (8.0) equals 125%, then costs in first city are 25% higher than costs in second. Also, comparisons between costs in second city are 80% of those in first (8.0 × 10.0 = 80%) or 25% lower in the second city.

TABLE B. Costs in a given city for a certain period may be compared with costs in another period by dividing index into the other: if index for a city for one period (250.0) divided by index for a second period (150.0) equals 166.7%, the costs in the one period are 66.7% higher than those of the other. Also, second period costs are 15.0% of those of the other date (150.0 ÷ 250.0 = 60%) or 25% lower in the second period. CHART 1. Building materials indexes reflect prices paid by builders for quantity purchases delivered at construction sites. CHART 2. The $1.20 per hour gap between skilled and unskilled labor has remained fairly constant. CHART 3. Barometric business indicators that reflect variations in the state of the money market.
Borden Architectural Decor Panels are highly adaptable for nearly unlimited application as facades, dividers, grilles, etc. in the field of modern architecture. The handsome, lightweight aluminum panels are both sturdy and practical, providing access for light and air in conjunction with safety and a long maintenance-free life.

Borden offers many types of Decor Panel—each type amenable to tremendous variation to fit most completely the architect’s purpose, as seen in the use of Borden Deca-Grid for the new Miami, Florida elementary school illustrated above.

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For more data, circle 9 on Inquiry Card
U.I.A. SESSIONS MEET IN HAVANA AND MEXICO

Speeches and proposals show international concern with the architect's role in a period of increasing urbanization, industrialization and population

The following report of the U.I.A. sessions in Havana and Mexico City is based on dispatches sent to the RECORD from Wes Perry, of McGraw-Hill World News. Mr. Perry, the only American journalist covering the Havana sessions, was unfortunate enough to attract the attentions of the Cuban secret police. His offense, as nearly as he could gather, was conversation with a "counter-revolutionary" duly enrolled at the congress. He was subjected to a five-hour interrogation, personal and room searches, 24-hour room arrest, and confiscation of his papers. An apology was later tendered; his papers, except for passport, were not returned.

This year's biennial meeting of the Union Internationale des Architectes was held in two sessions. The first, held in Havana, September 28 through October 3, was the VII Congress of the U.I.A. The United States was not represented there, following a decision by the American Institute of Architects not to participate because of the break in diplomatic relations between the United States and Cuba. The second session, held in Mexico City, was the International Symposium on Architecture, and the meeting of the U.I.A. assembly; i.e., the official meeting of the full membership. A delegation from the United States attended.

Havana

The Havana session was unfortunately marred by an infusion of political propaganda into what was to have been an architectural discussion.

The work sessions of the meeting were divided into four categories: regional planning, housing, building techniques and neighborhood units. The emphasis was on relating these points to the economies of underdeveloped countries. But despite continued exhortation from many of the delegates not to stray from the discussion of architecture, the sessions were largely dominated by speakers expounding the superiority of socialist countries in understanding and solving the problems of housing their citizens.

Neither was Sir Robert Matthew, president of the U.I.A., able to bring the meeting into focus, though he issued sharp, if tactful, reminders of the business at hand.

Commenting on the First International Meeting of Professors and Students, at which architectural discussion was overwhelmed by socialist polemic, Sir Robert said: "We have come here to talk about the problems of architecture and urban planning, not politics. We are grateful to the Cuban architects, the Cuban president and to Premier Fidel..."
Why the pioneer in sound-control is your ablest helper today

△ In the 20th century, sound control is your responsibility. When quiet happens in modern buildings, it is made to happen...and the process begins at the drafting-table.

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△ The 361st reason is a comfort to many a harassed architect. This is the huge body of experience—the lengthiest and most varied in the field—that the Celotex Corporation and Acousti-Celotex distributors have built up in solving acoustical-esthetic ceiling problems. This experience is yours for the asking. For free ceiling consultation service, specifications, samples, find your Acousti-Celotex distributor in the Yellow Pages—then call him.

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Castro for clarifying this point well. The major part of the students have come from very far to discuss the urgent problems of preparing and training architects and to inter-change experiences and ideas, but few have had an opportunity to do so. Precious time was employed to utilize the speaker’s platform for political speeches. There are many platforms for politics, but there are very few, almost none at the international level, for architecture, and we ought to take advantage of all those that are available to us. We cannot, nor will we, associate the name of the International Union of Architects in any way with political resolutions. . . .”

There was, nonetheless, an unauthorized attempt to associate the U.I.A. with political resolutions. A mimeographed document purporting to be the general conclusions of the Havana meeting was distributed to the delegates by the Cuban organizing committee. These conclusions were to be submitted for approval to the assembly in Mexico City. There, however, a Canadian architect rose to object to two of the included clauses. The first, under housing resolutions, called for “the abolition of land speculation by means of public ownership of land.” The second, under construction technique resolutions, called for “public ownership of, or effective democratic control over, all the fundamental means of production.” The executive committee had not, as a matter of fact, approved either of these clauses for submission to the assembly. Sir Robert did say that the other conclusions reported in this document, most of them concerning the obligations of the modern architect to his society, were substantially those which would have been submitted.

In any event, the official list of general conclusions, which were to have been shipped from Havana, did not arrive in Mexico City, and no vote was taken on the results of the first session.

Mexico City
The meetings in Mexico City were more firmly fixed on architecture, though no less concerned with the relationship of the architect and contemporary life. Speeches and committee reports displayed a striking recurrence of such words as “crisis,” “urbanization,” “industrialization,” and “population explosion.”

Sigfried Giedion, speaking on “Continuity and Change in the Vocation of the Architect,” suggested a desirable architectural response: “To recreate a universal outlook, it is necessary to restore something fundamental to the architect’s vocation: the change away from specialization to an awareness of the over-all pattern. . . . [The new type of specialist] must have at his disposal both the microscope and the aerial photograph.”

Constantino Doxiadis considered the architect the logical, if not the perfect, person to attack contemporary problems of planning and housing. Logical because of his early recognition of the problems, because of his courage in facing them at all, and because he is trained to “conceptualize new solutions.” Mr. Doxiadis indicated that before the architect can assume the responsibility of dealing with these matters, there are many areas of knowledge with which he must familiarize himself. He may even have to reorganize his profession. Mr. Doxiadis proposed a 10-year program of study and action by the U.I.A. for mobilizing its membership to: “(1) participate in the proper conception of problems and programs for the universal city; (2) redefine the role of his own profession; (3) train himself for this new role; (4) educate as many others as necessary; (5) create a special class of assistants, as the task is too big for him; (6) establish a pyramid of experts to take over this great task.”

Vladimir Kaspé put forward a proposal in behalf of the Mexican delegation: “The establishment of an international institute for promotion, study and experimentation in procedures, techniques and building materials.” The Mexican delegation further suggested that such an institute might be associated with, or sponsored by, the United Nations or UNESCO.

This proposal reflected a concern, often expressed at both sessions, for international exchange of information, particularly for the benefit of underdeveloped countries short of both architects and researchers. The concern was reflected also in the suggestion of R. Buckminster Fuller, first introduced by him at the London U.I.A. meeting in 1961, for the establishment of a world design data center. The center would accumulate and organize statistics on population and production.

Balloting
Costas Kitsikis of Greece was elected to the only vacancy on the executive board: the vice presidency which had been held by Carlos Ramos of Portugal, whose term had expired.

Delegates approved the continuance of Pierre Vago as secretary general “by unanimous applause.”

Delegates also selected Prague as the site of the 1967 congress. The U.I.A. will meet in Paris in 1965.
Four proven ways to make your public telephone installations both distinctive and functional

GET FREE EXPERT HELP. Just call the Public Telephone Consultant in the area where your building is to be erected. He's helpful, thorough, and loaded with ideas to help you make a design asset out of this important public service.

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Your golden opportunity—we'll get to the fake in a moment—lies in the fact that our new Ramset fastener is made with a new, austempered steel called Ramaloy.™

Ramaloy gives our new fastener 60,000 psi more tensile strength than our old fastener (up to now the strongest fastener on the market) and also gives it surer penetration.

If you don't think you need our new fastener's extra hardness and ductility, you've nothing to lose by using it anyway—it doesn't cost any more than our old fastener.

Now, about that gold-colored coating: it's chromate, a corrosion-resistant finishing touch we added to the corrosion-resistant zinc plate. We did it to reflect the glow we get from topping ourselves.

(See if that glow doesn't rub off on you the first time you use our shining example of a fastener.)
BOOK LIST FOR WHITE HOUSE INCLUDES ARCHITECTURE

At the request of the First Lady, a list of books to fill the shelves of the White House library has been compiled by a committee headed by James T. Babb, librarian of Yale University. All of the titles, 1,760 of them, have been chosen for their contribution to an "understanding of the American national experience." All but a few are by American authors. The remaining few are commentaries on American life as seen by authors from abroad.

The library will serve as a working reference source for the President, his family and members of the Cabinet. The collection will remain in the White House.

Although the largest category by far is general history, 76 of the titles selected fall in the list headed Art and Architecture.

The White House library, at the time the list was announced, already owned 400 of the suggested books. The remainder, Mr. Babb says, will be acquired by donation, both of volumes and of funds. Gifts of money should be made to The White House Historical Association, Inc., and may be sent to William V. Elder III, Curator, The White House, Washington, D.C. Each book will be given a bookplate bearing the name of the donor.

Gifts of money will be applied to the purchase of specific books, and the donor's name placed in these. Gifts are tax deductible.

Because the list is not entirely final, being subject to change both as to title and particularly as to edition, Mr. Babb has asked that books not be sent directly to the White House. "All communications about the gift of books should be addressed to me. Please do not send any books until I have written you that they are needed. We want only the exact editions listed and the volume must be in fine physical condition." (Mr. Babb's italics.) Inquiries may be directed to James T. Babb, Box 1604A Yale Station, New Haven, Conn.

The Art and Architecture titles follow.


Huewhite sunscreens work 24 hours a day

As the major design element in this dramatic bank headquarters, broad sunscreens of ASG's Huewhite not only reduce sun and sky glare but turn the building after dark into a glowing advertisement for itself.

To achieve these effects in the new American Savings and Loan Association building in Whittier, California, Architect Kurt Meyer, AIA, took imaginative advantage of Huewhite's ability to transmit as well as diffuse light.

Huewhite panels, measuring 4' by 6' are set at the edge of the floor slabs, 4½' out from the main window wall and covering the upper half of the windows on the floor below. Huewhite gently diffuses virtually all entering light, yet allows occupants an unobstructed view of neighboring hills and the distant Pacific coast.

Huewhite's heat-reflecting qualities reduce the burden on the air conditioning system, while its ability to cut glare makes blinds and drapes unnecessary except for decoration.

After sunset, a special lighting system illuminates the sunscreens from within, girdling the building with bands of mellow light that make it a local landmark.

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"When my department put together the specifications for our new Tetra Pak paper plant," explains Chief Engineer Russell Bush, "we needed a design that would give us both construction savings and operating economy, and would also allow us to make provision for any future expansion. We found total electric space conditioning to be the best answer.

"For example, by installing a total electric heating and cooling system, we were able to save approximately $7000 in initial costs alone. And as far as maintenance is concerned, we haven't put in a single hour on it since our plant opened last year!

"In addition, the plastic-coated paper we manufacture here for food packaging is a new product which we expect to catch on fast. When it does, we'll have to expand. And this, of course, will be much simpler for us because our electric heating and cooling system permits complete flexibility and easy installation at a lower cost."

For architects and consulting engineers, total electric space conditioning is the modern method of combining heating, cooling, and lighting into one efficient operation with a single source of energy. In many cases, for example, recommended lighting levels can provide a substantial part of the heat as well, and thus reduce the size and cost of heating equipment.

If you want to know how total electric space conditioning can help you in the design of industrial and commercial buildings, contact your local electric utility company. They will welcome the opportunity to work with you.

BUILD BETTER ELECTRICALLY
Edison Electric Institute, 750 Third Avenue, New York 17

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White House Library continued from page 29

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$200 PER SQUARE FOOT
Cost of hospital wall system of new Keystone Spraywall
This new construction method utilizes a simple system of metal studs, Keymesh® Paperbacked Lath and spray-on exterior wall. It is the most meaningful breakthrough in curtain wall construction since glass and metal.

Keystone Spraywall is low cost, of course. (This hospital addition was done for $2.00 a square foot, from the plastering on the inside to the Botticini Marblecrete finish on the outside.)

Its hourly fire ratings are excellent. (The rating on this building is 2 hours.) But more than that, Spraywall's design possibilities are endless, because of its plasticity. Using Keystone Spraywall, you can sculpt the walls; curve them, create hyperbolic paraboloids, shape them in any way you can imagine. Then finish them to meet your design requirement in any color, any texture, with or without embedding stones.

Keystone's new Keymesh Paperbacked Lath is the product that makes Spraywall possible.

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The new look of elegance in fire exit bolts...
The City


Mr. Chermayeff and Mr. Alexander are concerned, as are so many others, with the modern assault on man’s senses, and ultimately soul, committed by the modern city. The assault, they maintain, is not merely psychic, but physical, and they cite noise, smell and physical contact as the malefactors. In their opening chapters, they catalog the failures of the 20th century in a litany familiar to any reader of recent books about our cities and our culture: the lack of civic form, dispersed planning, the disappearing wilderness, the automobile’s presumptuous use of space, and finally, man’s loss of privacy. It is this last problem to which they address themselves.

Seeing the automobile and noise as civilized man’s most menacing bêtes noires, they conclude that “only physical isolation against the dangers and pain of invasion—interruption by people, traffic and noise—can inhibit chaos and confusion.” Physical isolation, they say, can be achieved even in crowded cities. It could be achieved by following two general rules of urban design.

First, the strict preservation of functional zones, “domains,” ranging from “Urban-Public” to “Individual-Private.” Second, control of the points at which these zones join.

The authors have illustrated this approach by considering the “Group-Public” zone, where public roads and services join residential neighborhoods, and “Family-Private,” where group demands meet those of the individual. They have provided, further, a suggested method of analysis of these interactions, and a neighborhood design which emerged from the application of this method.

It should be said, in fairness to the prospective reader, that Mr. Chermayeff and Mr. Alexander use a rather special vocabulary in writing this valuable study. But valuable it certainly is. The authors speak plainly enough when they say, “The hour is late.”

New York

NEW YORK LANDMARKS. Edited by Alan Burnham. Wesleyan University Press, Middletown, Conn. 430 pp., illus. $12.50.

Mr. Burnham’s collection is based on the Municipal Art Society’s list of New York’s architecturally notable structures and buildings, which should be preserved in either the national or the municipal interest.

Like all such lists, this one, too, is bound to disappoint on occasion. For one thing, none of the landmarks included were built after 1930. Since the society’s battle is for preservation, however, this is fair enough. New buildings are not in danger; older buildings are. At least one of the buildings listed—the Pennsylvania Station—is even now being demolished. Others are threatened.

It might happen, sadly, that “New York Landmarks” will turn out to be a memory book rather than a preservation guide.

Candela


Mr. Faber, a British architect working in Felix Candela’s office, has collected and commented on most of the important thin shells designed and constructed by Candela since his first, built in 1949. Such a collection comprises a great many thin shells...
Here is safety at its elegant best! In the Exiter by Russwin, you get sure touch-and-go action and the built-in dependability of Russwin engineering combined with a distinctive new styling concept. This creative achievement satisfies both the modern taste for smart design... and the need for sound design... in fire exit bolts. You get new versatility, too: the Exiter is completely reversible in all but the two-cylinder types. And, you get these safety-designed Russwin features...

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ARCHITECTURAL RECORD December 1963

Required Reading

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indeed—vaults, slabs, cones, and especially hyperbolic paraboloids. Mr. Faber has provided illustrations in abundance, with photographs, drawings and plans. He has also provided architectural comment, structural descriptions, and a number of engineering analyses of specific shells.

Architecturally, the implications of Candela's shells are somewhat disturbing, as Ove Arup gently points out in his otherwise sympathetic foreword. Candela's engineering and Candela's (or other's) architecture are not always happily married. Mr. Faber allows that the "magic" of the shells disappears "after 'architecture' has been added." And, in fact, the most impressive photographs shown here are construction shots.

Architectural doubts aside, thin shells are exciting, as form and as structure. And here they are handled by an acknowledged master of the genre.

The structural information, while unlikely to interest the sophisticated engineer, may be of help to students.

Latin America


The author's intention was to show the Latin American fusion of a vigorous art with contemporary architecture. The book is beautifully illustrated by more than 400 photographs, including 16 in color. It is a companion volume to "Art in European Architecture."

Following a preface by Oscar Niemeyer, who discusses the synthesis of the arts, the book is organized into two sections:

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ARCHITECTURAL RECORD December 1963 59
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Required Reading

continued from page 50

Sullivan


In these two books, Sullivan the architect appears in a new role, as social thinker.

Mr. Paul, in a careful study of all Sullivan's writings, has placed him in an intellectual context which includes his contemporaries Whitman, Veblen and William James. While not claiming that Sullivan's impact on social thought was as manifest as that of these others, he does claim for him a place of honor. More importantly, he suggests, it was as an artist that Sullivan reached the matters which in one way or another concerned all these men. It was as an architect (and poet, as Sullivan would insist) that he viewed democracy and democracy's meaning for creative man. Says Mr. Paul: "No American architect has written so cogently or so well, compelling attention as a thinker and literary artist; none has a better claim to a permanent place in our intellectual history."

Mr. English, in his anthology of Sullivan's writings, agrees with Mr. Paul's views of the importance and power of Sullivan's thought. As a poet, he disagrees about the quality of Sullivan's expressive powers. In addition, then, to serving as an introduction to Sullivan's writings, this anthology allows modern readers to grasp the essentials of his thought without encountering all the difficulties of his verbose and flamboyant style.

Among the writings included are selections from "Democracy: A Man-Search," speeches hitherto scattered in the pages of early Midwestern architectural journals, and the previously unpublished essay, "Natural Thinking."
a story worth remembering by bradley washfountain

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Speaking of color... as you can see in the photograph above, Last-O-Roof wears it beautifully. Gone are the days when color choice is limited to black.


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Grandstand act
The cover grandstand and combination clubhouse at the Washington Trotting Association's new Race Track, the Meadows near Washington, Pennsylvania, was designed by Harding H. Thayer & Associates, Architects of New Castle, Pa. They selected 30-foot sections of Hollow Structural Tubing for use as mullions in the clubhouse area. The tubing, framing large glass areas, presents a finished appearance when painted. Placement of the glass is simplified by the attachment of glazing stops directly to the structural mullions. Clean straight lines result in little obstruction to the spectators' view.
A steel house

Here's a large contemporary house in Baltimore where USS National Hollow Structural Tubing is used for columns and beams. The architects, Tatar and Kelly, and the structural engineers, Perry & Lamprecht, Baltimore, Maryland, specified structural steel tubing because of its attractive appearance, easy maintenance and the ease with which it can be joined to other materials. Structural steel tubing was fabricated by the Maryland Steel Products Company.

And one for the girls

In the three-story Quincy College Women's Dormitory all the perimeter columns are square Hollow Structural Tubing. Frank W. Horn A.I.A., & Associates, Architects in Quincy, Illinois, specified tubing to support the floors and roof. The structural steel fabrication was done by Michaelmann Steel Construction Company of Quincy. Angle brackets were shop welded to the columns for easy connection with the beams and girders. Full height tube columns will be exposed on the exterior of the building and painted to express the structural frame between curtain wall panels.
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LARGE COMPONENTS SYSTEMS DISCUSSED AT CONVENTION OF THE PRODUCERS' COUNCIL

Large building components occupied the attention of both a producer speaker and an architect speaker at the Producers' Council annual convention, meeting September 17-20 in Washington.

W. W. Sproul, general manager of the Construction Group of Westinghouse Electric Corporation, indicated the growing interest in "the systems approach," the over-all design of electrical distribution systems, transportation systems, lighting systems, and heating, ventilating and air-conditioning systems. He cited particularly California's program for designing school components (November 1963, page 38). "From the standpoint of the architects and consultants in this school program," he said, "the time which is currently spent on choosing structural and mechanical systems, and detail design, can now be devoted to programing, more detailed preliminary design, and other work of more immediate value to their clients." If producers are to keep up with the industry, he suggested, they must think in these terms.

Mr. Sproul's reading of the situation was confirmed by Francis D. Lethbridge, A.I.A. Representing the architects, Mr. Lethbridge said, "We need more industrialization, greater economy, increased standardization and continued development of larger and more efficient components of building construction." And he added that "these components must be developed and designed with an understanding of how they will best fit into the total context of planning and architectural design." He assured the producers that the architect had nothing to fear from the systems approach: "He'll still have to assemble the components."


The council also elected two new members of the board of directors: Del Wakeman, Thomas Industries, Inc., Louisville, Ky., for a two-year term; and Robert E. Polson, Dow Chemical Co., Midland, Mich., for one year.


Comprehensive brochure on request—no obligation or see Sweet's '63, Section 19e/LC

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When Standard Waterproofing Corp. of New York City was handed orders a few years back to button up the Pentagon against severe attack from the elements, Hornflex LP-32 Thio- kol Sealant was picked to mount the guard. Work involved caulking expansion joints between concrete sections as well as joints between concrete and stone. Open flanks of giant, five-sided structure are exposed to both baking heat and biting cold. The exceptional squeeze-stretch range of Hornflex solved the problem readily. For this cold-applied, self-vulcanizing synthetic rubber compound provides an absolutely watertight seal all the way from conditions of 50% compression to 100% expansion.

Horn caulking works both sides of Chicago street

Vulcatex re-specified for 93-year-old Water Tower landmark. Historic survivor of 1871 Chicago fire, this famous landmark was caulked with Vulcatex when age began to show in 1933. On its 29-year performance record, Vulcatex was picked again for rehabilitation work begun in 1962. 300 gallons were used for tuckpointing limestone joints. Tough, rubbery Vulcatex made application easy. It will not stain or turn sticky. And its exclusive vulcanizing feature assures long service life.

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ARCHITECTURAL RECORD  December 1963  85
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"Roundel": clear, green, yellow, amber

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NORTH DAKOTA COMMUNITY FOR THE BENEDICTINE SISTERS

Priory of the Annunciation, by architect Marcel Breuer, is notable for effective use of form and material.
Of the 100-foot-high, cantilevered bell tower, which serves as symbol, landmark and belfry, architect Breuer says: "From afar the bell tower makes a distinctive silhouette in the otherwise fairly empty landscape, and from nearby marks the approach to the chapel. Its bronze bells strike the hours and announce the daily offices. Its form—generated by straight lines connecting two oppositely placed shapes—lends itself readily to the technology of wood formwork and concrete." The view (above) shows the nature of the site.
The problem was to design a convent and girls' preparatory school appropriate to a site characterized by a great sense of space and distance. The master plan at left explains the arrangement of the four principal elements, which are disposed on a great platform raised slightly above the terrain. These elements are connected by covered and open walkways which serve to pull them into unity, and also act to define courtyard spaces and give the entire scheme a proper human scale. The dramatic bell tower rises above the other construction to make a striking landmark, visible for miles.

In the plan at left D is the convent wing and E the sisters' living room and porch; C the main chapel; G the small chapel, flanked by sisters' dining and student dining rooms; H is the school wing, containing classrooms and dormitories. Locating the two residential wings as outside elements makes expansion possible.
The sisters' community hall, which contains their living room, is a glass enclosure set within a larger concrete square pierced with openings to the landscape beyond, as shown in the photos (above). The spaces between the inner and outer enclosures become gallery-porches. The concrete pattern was motivated by recessed control joints which reduce the long walls to panels, or were located at the corners of openings where stresses are concentrated. Form-boarding patterns were varied in direction for surface texture.
The photo above, taken from the courtyard between convent wing and church, shows an interesting juxtaposition of forms, patterns, textures and materials. The convent wing—in the background—is a rectilinear pattern of projecting slabs and columns of white-painted concrete, which casts sharp shadows into the infilling panels. These are alternately of black shade-screening for windows, or of a light buff colored local brick which combines pleasingly with concrete.

The projecting form at right is a small “green-house” niche for altar flowers, which is cantilevered from the cloistered passageway connecting the convent wing to the main chapel. It is interesting to note that concrete is used in four ways in this project: as a white-painted modulation of the building plane; as a sculptural material for fireplaces and stairs—bush-hammered to reveal aggregate; as a patterned natural surface of controlled texture and recessed lines; and as an expression of generating geometry, as in the bell tower.
The main chapel can be seen in the two photos (above). The exterior buttresses of rough concrete take the lateral thrust of the chapel roof, composed of four half-hyperbolic-paraboloid shells. The high edges of these shells conjoin along a central axis, leaving the interior space free of supports. The concrete roof and fieldstone walls are painted white inside; the reredos screen is gold leafed; the baldachino is lacquered primary blue; the floor is polished black brick; the pews are of dark-stained oak.
The photo above shows the glass-in-concrete windows, designed by the architect. These lights replace the traditional transept as a means of separating choir and nave. The west window is in hues predominantly amber in color; the east window predominantly brown-pink. The plaster screen wall at the right of the photo—one of a pair flanking the altar—permits aged and infirm sisters to attend the services in privacy.

Materials selected for the priory were possessed of such qualities that applied finishes were not necessary. The factor of availability in the sparsely settled region was important; local fieldstone and buff brick were used, as well as black brick, natural quarry tile and concrete block. Local workmen are familiar with these materials and handle them well. A further and perhaps the most important consideration revolved around the idea of using materials that would have the character of permanence and would age gracefully.
Priory of the Annunciation, Bismarck, North Dakota

ARCHITECTS: Marcel Breuer; Hamilton Smith, associate
ASSOCIATED LOCAL ARCHITECTS: Traynor and Hermanson
STRUCTURAL ENGINEERS: Johnson-Sahlin Company
Paul Weidlinger, consultant for chapel roof system
MECHANICAL ENGINEERS: Gausman and Moore
GENERAL CONTRACTORS: Meisner Anderson Company, first stage
Anderson, Guthrie and Carlson, second stage
STRUCTURE PLAYS LEADING ROLE IN LATEST YAMASAKI DESIGNS

Concern with the beautiful expression of structure determined the forms and details of a new Seattle office building and a new Princeton University building.
UNUSUAL STRUCTURAL WALL FOR IBM IN SEATTLE

IBM Office Building
Seattle, Washington

FINANCING AND OPERATION: University Properties

ASSOCIATED ARCHITECTS:
Naramore, Bain, Brady & Johanson
Minoru Yamasaki and Associates

STRUCTURAL ENGINEERS: Worthington, Skilling, Helle & Jackson

MECHANICAL AND ELECTRICAL ENGINEERS:
Bouillon, Griffith, Christoferson & Schairer

CONSULTING ENGINEERS: Jaros, Baum & Bolles

GENERAL CONTRACTOR: Howard S. Wright Construction Company

The design for this 19-story IBM building, now under construction in Seattle, makes a notable mark in the evolution of the American skyscraper. For the reappearance of the “bearing wall” in new guise—now composed of structural members rather than masonry—is the newest trend in tall building design, of which this is a distinguished example. Smaller in scale than Saarinen’s handsome, faceted CBS building in New York, and more attuned to the nature of the building’s occupancy than the diamond latticework of the IBM building in Pittsburgh by Curtis and Davis, Yamasaki’s structural wall makes a striking vertical pattern that suppresses but does not deny the span­drels, and provides maximum flexibility of partitioning due to its small module.

Yamasaki explains: “The wall consists of 4½-inch high-strength steel pipes, spaced 2 feet 4 inches on centers, acting as bearing studs. The pipes are encased in aggregate-surfaced precast elements with a 15-inch reveal. The floor slab spans from outer wall to central core, providing completely column-free office space. The gray glass, which is 19 inches wide, is held in surrounds of bronze-colored, hard anodic coated aluminum, also the material of the span­drels. The combination of light and dark will make a strong vertical pattern, and its scale will provide great flexibility of office arrangement.

“The first floor columns had to be arranged to accommodate the garage below, so the upper wall was brought down upon a series of marble clad steel arches 37 feet 4 inches on centers, set 18 feet 8 inches from the cor­ners. The first floor glass is recessed, and we are suggesting a scheme in which the first floor becomes a plaza extending out to the sidewalk. Such a design will fit into a plaza-type com­plex—such as Rockefeller Center—which the owners of the adjacent property hope to develop. John Skil­ling, our structural engineer, made this design possible; we could not have done it without him.”
The structural wall for IBM in Seattle is shown in detail on these two pages, reproduced directly from the architects’ working drawings. Note that the precast covers for the structural pipes have a 4-inch outer face and then broaden to an 8½-inch width at the rear, where they become the interior finish of the wall. Note also the manner in which the “corner is turned,” so the interior space makes a clean right angle. The only element that takes any interior space is the induction heating unit enclosure, which acts also as a sill for the glass, 14 inches above the floor. The building is now under construction and will be finished in July, 1964.
This design for the handsome, new School of Public and International Affairs at Princeton can be described as restrained but not dull; dignified but not stuffy. It will make a strong statement on the Princeton campus, but will speak in a refined—almost classic—voice.

Architect Yamasaki says: “Our scheme consists of a series of 60 columns which are the primary support for the upper floor of faculty offices. This floor is a 3-foot 6-inch-deep waffle slab, which spans the 90 feet from outside column to outside column in the width of the building. This structural scheme allows us to have non-bearing walls for the high ground floor, except for those around stair and elevator cores, etc., which are used to provide lateral stiffness. I believe this is the first time that such a structural scheme has been used. The first floor is devoted to a library with double mezzanine, a bowl room (auditorium) for 200 and a dining room. The below-grade floor houses conference and seminar rooms, four smaller bowl rooms and the usual service areas.

“With the 28-foot-high first floor and its exposed and orderly colonnade, we were able to gain a rich quality for the building with complete structural validity. The central hall will be topped by a skylight and will become the lounge-reception area for the school, with access to either the plaza or the street.

“The maximum potential of the site was made possible by moving the present existing building for the school; carried out at the suggestion of the consulting architect to the University, Douglas William Orr. The plaza which provides a setting for the new building—and the old building as well—also serves to connect, with a pleasant pause, McCosh Walk on the one side and the walk extending on to the engineering buildings on the other. It is hoped that the school, by opening significant new avenues of professional education, will help raise both the caliber and the prestige of government service.”
The columns, which will be of white precast concrete, will be 28 feet high and 10 feet square, cast in one piece and gracefully shaped. The second floor window wall, which is curved to give sun shade to the glass areas, will also be precast. The walls behind will be travertine, with the windows framed with a bronze-colored aluminum. The plaza steps and retaining wall will be of gray mankato stone. Construction of the building was begun in August of 1963.
MODERN HOUSE ECHOES TRADITION

H. Seymour Howard Jr. designs his own home to express continuity with the past in a fresh, contemporary manner.
A simple, forthright philosophy has been advanced by Seymour Howard in planning this house for his own family: “This design evolved by a logical process from the requirements of the problem and the choice of materials. When a scheme makes sense, there is no point thrashing about in a desperate search for pseudo-originality. Harmony and repose are artistic essentials for a home; they will be felt if the spaces are clearly defined. If the forms evoke memories of similar problems in other places and other epochs, so much the better. A sense of continuity is also part of aesthetics.”

The planning problem was a typical one: privacy inside and out, controlled sunlight, and a realistic organization of spaces for a couple with three children. The site offered a nice view of the nearby bay to the southeast. An L-shaped plan was organized to orient a large terrace and most rooms to this pleasant outlook. Living spaces were divided into two areas: a living-music room and a kitchen-dining room. The garage was incorporated into the house between these elements. Upstairs are three children’s bedrooms and laundry-bath on one side, and a large parents’ bedroom-study, bath and dressing closet on the other.

The exterior walls are of 8-inch masonry block and reinforced concrete lintels; finished with white stucco on the outside, furred and plastered inside. The second floor and roof have conventional wood framing. Colors throughout are kept simple: white walls, dark stained wood, yellow gravel, red quarry tile and black slate counters.

Residence in Oyster Bay, New York
ARCHITECT AND OWNER: H. Seymour Howard Jr.
CONTRACTOR: R. M. Stanco & Son
A "Mediterranean flavor" has been given to the Howard house by such devices as wooden balconies off most bedrooms and operable shutters on all the windows. The architect, who is also an associate professor of architecture at Pratt Institute, Brooklyn, states that the shutters "have been put back to work here as the least expensive and most straightforward method of achieving privacy plus control of light, sun and summer heat." A wide overhang protects the whole structure. Gutters were omitted, with the rain simply draining off onto the gravel terrace below.

Copper tubing in the slab provides radiant heating for the lower floor. The upper floor has baseboard heating, as can be noted in the photo (bottom left) on the master bedroom. Ceilings are red cedar plank.
INDUSTRIAL BUILDINGS

Architecture for industry deals with infinite variation of program, purpose, image and locale, as witness the five fallout shelter projects developed at Rice University and the buildings large and small which follow.

BUILDING TYPES STUDY 327

RICE UNIVERSITY CONFERENCE DEVELOPS FIVE FACTORY PROJECTS

Five practicing architects from diverse regions lived and worked for 10 busy days in June at Rice University in Houston completing fully programmed designs and models for five different plants for light industries. The occasion was the second annual “Rice Design Fete,” June 3 through 14, conducted this year with the aid of a research grant from the Office of Civil Defense. Each architect was assigned a detailed program and a team of six students (from Rice and nine other universities) to act as office staff. The single requirement common to all programs was the provision of dual-use space for community fallout shelters.

Purpose of the gathering was a two-fold venture in education. First, it was to allow students to participate in a working situation comparable to actual practice. Second, it was to demonstrate to both students and architects the simple, low-cost practicalities of shelter design—where the shelter is a requirement of the architect’s initial program. It was definitely not the purpose of the conference to reflect any state of alarm or even any trend of opinion about the possibility of nuclear warfare.

Indeed, it was just that demonstration of basic simplicity which served to remove the whole question of dual-use, multiple-occupancy fallout shelters from the realm of emotional and ethical opinion to the realm of simple prudence. “From skeptic to convert in 10 hectic days,” is about the way one of the participating architects described his own reaction to the exercise. It was found that OCD ground rules for reasonable protection could be incorporated unobtrusively and inexpensively into industrial plant designs without restricting any of the basic program requirements for production, flexibility, expansibility or amenity. And there are as many ways to accomplish shelter designs as there are plants.
PROJECT A—George Vernon Russell's solution is an embodiment of his observation that: "Esoteric architecture applied to industry seems out of place to me. It is much more important to have a reasonable structural system instead of one that is exciting today and boring in five years... a modular plan that allows change, growth and flexibility... to have pleasant surroundings and careful landscaping... to bring order from chaos and add a little art in the doing. I hope my plan is unpretentious, efficient—and unmonumental."

Translating these precepts into a solution for his plant, Russell proceeded to design the building as a workable tool for the production of nuclear detection devices, and as an attractive asset to its community.

Plan of the plant is based on a 5-foot modular system. Structure is predominantly concrete. The ground floor level is 18 inches above finished grade. Flat roof is designed for a 40 pounds per square foot snow load.

The fallout shelter of Plant A serves as the employee recreation room during normal operation of the plant. It is located in the basement below the lunch room and kitchen and is equi-distant from the production and administration-engineering areas. Russell was concerned that any space designated for fallout shelter would be usurped by other plant functions, and his choice of the recreation room seemed to solve that problem since it would not be involved in the engineering or production process. Its location enables the moderately protected kitchen to resume service to shelter occupants soon after peak fallout activity has subsided. Shelter placement below grade makes it very easy to meet the required minimum fallout protection factor of 100.

The shelter accommodates 200 inhabitants, and it can be expanded in the future to handle twice that number by linking it to another identical unit through the extension of the mechanical tunnel.

Variety, in fact, was an essential characteristic of the conference. It was provided not only in the sizes, processes and locations of the plants, but also in the individual differences of interpretation that might be expected to evolve from such a gathering of architectural talents. Each architect accepted as his first task the fulfillment of a realistic and detailed program. The five solutions were presented by the architects on the 10th day of the conference and evaluated in general terms but not judged competitively. Each made his own provisions for growth potential, flexibility, cost control, structure, landscaping, community aspect and space for dual-use fallout shelter.
PROJECT B—William Hajjar has succeeded in bringing unity to four design determinants: location in a residential community, a work force predominantly women, complete flexibility and a silk screening process requiring special mechanical systems and a degree of isolation. To draw young married workers, a nursery for pre-school age children is provided as the separate, gate-house structure shown in plans for two expansion stages (right).

The central first floor core of Plant B is the dual-use fallout shelter. It is also the silk screening room and very few special structural and mechanical considerations were required to make this room serve both purposes. The wall barrier is created by the enclosure of this space by toilets and storage rooms. Protection above is furnished by attic space which contains mechanical equipment and is sufficiently large to store water, bunks, food, etc., for emergency use. Additional protection from ground direct radiation and skyshine is gained by the mounding of the earth in landscaping around the building and by the large factory space surrounding the core.

<table>
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The technology of protection against radioactive fallout has been detailed in many publications (including two articles in the January, 1962 issue of ARCHITECTURAL RECORD). Basic facts pertaining to shelter design are these: (1) all matter, including air, water, glass and all construction materials, offers some barrier to fallout radiation, but only in proportion to the total weight per unit area of the barrier. Thus, an 18-inch wall of concrete will transmit only 1/100 of the intensity of rays incident on one side, providing thereby what is called a protection factor of 100. So will 25 inches of earth. So will about 200 pounds weight per square foot of any material; (2) ray intensity diminishes also with dis-
PROJECT C—George T. Heery insists: "The architect for industry who fails to provide for both growth and flexibility fails in his task."

The architecture of this metal furniture plant is compatible with both these aims, and it accomplishes them with a wary eye toward cost without sacrificing appearance. In its final stage of growth as presented here, the building consists of a large production area with two adjunctive buildings; one of these, for administration, is located at the front entrance. The other, a paint shop, is segregated to eliminate the need for a firewall within the factory. The administrative wing treatment—concrete and brick in a special pattern and custom interior furnishings—makes this space a point of emphasis against the backdrop of repetitive patterns in the facade of the plant.

Steel structural system of the plant supports wall panels and roof joists of pre-stressed, precast concrete units. Concrete roof T-joists span 60 feet and allow large column-free spaces. Ceiling height 2 feet clear beyond that presently required is another provision against obsolescence.

Within the plant production space are two cores. These cores contain employe lockers, toilets and lounges. This space is dual-use space for a fallout shelter in time of emergency. Directly above each of the cores is a water storage tank that projects high above the roof line in dramatic silhouette.

Heery’s fallout shelters for Plant C will accommodate 200 people in each core. Cores contain three levels: (1) basement, the locker and toilet area; (2) ground level, the vending machine lunchroom; and (3) the upper level, the storage and mechanical equipment area. A tunnel connects the basement of the two fallout shelters and serves as a dormitory for both. The occupants are protected by the earth fill and concrete walls at the lower level, by the thickness of the exterior and core walls, and by the distance between the two upper levels.

tance from the source; (3) sources to be reckoned with are fallout dust on the roof and ground and skyshine by diffraction from atoms in the air. Hence shelter design incorporates geometry and barrier shielding.

Minimum requirements established by OCD for the Rice conference were: a protection factor of 100; dual purpose shelter space for twice the daytime employment roster; 65 cubic feet per person and not less than 10 square feet of floor per person; at least one access per 200 occupants and not less than two per shelter; permanent storage space for kits, food and water of at least 1.5 cubic feet per person.

Program and cost summaries are given in tables.
PROJECT D—Fred Bassetti's Plant D consists of two buildings, one for administration and one for production. The factory building is built of precast concrete columns, beams, roof units, and wall panels, all to be fabricated on site. Basic roof module is a 20-foot-square pyramid. Sun shades of redwood slats rest between pyramids. The office building is a load-bearing wall system on two levels. The first floor (plan at right) is raised 4 feet above grade with central access (1) to shelter-basement with a strip window at one end and a full glass wall at the other end looking out on a reflection pool; (2) also below grade. Pitched roof is of precast panels supported by brick exterior walls and central load bearing partitions.

Bassetti's shelter is in the employe lunchroom in the basement of the administration building overlooking the reflection pool. Skyshine radiation in this space is limited by an oversized spandrel beam above the glass. Direct ground radiation is limited by the retaining wall around the pool. Fallout in the pool settles, and the depth of water provides an effective barrier.

### TABLE 2: SHELTER COST ANALYSIS

<table>
<thead>
<tr>
<th>Item</th>
<th>Plant A</th>
<th>Plant B</th>
<th>Plant C</th>
<th>Plant D</th>
<th>Plant E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs in dollars</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural system</td>
<td>217,000.00</td>
<td>183,000.00</td>
<td>552,000.00</td>
<td>472,000.00</td>
<td>708,000.00</td>
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<tr>
<td>General construction</td>
<td>231,000.00</td>
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<td>185,000.00</td>
<td>251,000.00</td>
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<td>Mechanical and electrical</td>
<td>98,000.00</td>
<td>78,000.00</td>
<td>272,000.00</td>
<td>165,000.00</td>
<td>222,000.00</td>
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<tr>
<td>Total plant cost</td>
<td>546,000.00</td>
<td>380,000.00</td>
<td>1,009,000.00</td>
<td>888,000.00</td>
<td>1,138,000.00</td>
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<tr>
<td>Plant cost without fallout provision</td>
<td>534,000.00</td>
<td>366,000.00</td>
<td>959,000.00</td>
<td>883,000.00</td>
<td>1,129,000.00</td>
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<tr>
<td>Sq ft cost with shelter</td>
<td>17.00</td>
<td>12.22</td>
<td>9.73</td>
<td>14.20</td>
<td>13.66</td>
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<tr>
<td>Over-all plant area fallout cost per sq ft</td>
<td>.37</td>
<td>.56</td>
<td>.33</td>
<td>.08</td>
<td>.11</td>
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<tr>
<td>Incremental cost per sq ft of shelter area</td>
<td>2.85</td>
<td>2.86</td>
<td>4.33</td>
<td>1.52</td>
<td>1.56</td>
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<tr>
<td>Shelter area, sq ft</td>
<td>4,210</td>
<td>2,300</td>
<td>11,840</td>
<td>6,500</td>
<td>5,700</td>
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<tr>
<td>Over-all plant area, sq ft</td>
<td>32,100</td>
<td>31,100</td>
<td>103,700</td>
<td>62,500</td>
<td>83,300</td>
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<tr>
<td>Employees</td>
<td>200</td>
<td>115</td>
<td>200</td>
<td>55</td>
<td>85</td>
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</tbody>
</table>

Coordinating architect, Harry S. Ranson; project estimator, R. C. Partch; mechanical engineer, C. W. Ellis; fallout and structural consultant, A. A. Orr

ARCHITECTURAL RECORD December 1968
PROJECT E—Don M. Hisaka solves the problems of this molded plastics plant with an appearance of simplicity that disguises its ingenuity. Planning on a modular system of concrete, post-and-beam bays 50 feet square, permits an asymmetrical composition of elements that adheres to the production flow. Through use of this system, it is possible for the plant to grow freely without a rigidly established pattern.

Segregation, but not separation, of the administrative portion of the plant is made by projecting two of the modular bays to the front—one enclosing the offices, the other acting as an open entrance pavilion. Two levels of administrative offices are housed in a single bay around an open light well. This same well supplies light to a sub-grade cafeteria court with a fountain. Employees enter the plant at the basement level where lockers and cafeteria are located.

This area below grade is the dual-use space which doubles as a fallout shelter. Although located below grade, it is a pleasant area facing onto an enclosed landscaped court lighted by an air well. Occupants of this space will be protected from roof contribution by a total of nearly 25 inches of concrete in the floors and roof (see section) as well as the distance factor from the roof to the shelter area.

The remainder of the shelter area is in an adjoining locker and toilet room, accessible from the parking lot by a ground level entrance. This space achieves its protection by use of a 12-inch concrete slab roof with 2 feet of earth fill above for plantings at the upper level.

"To provide adequate fallout protection for the entire population of the Nation in the event of a nuclear attack, the National Shelter Program must include a certain number of shelter spaces built by private capital. Every segment of American enterprise should be encouraged to participate in this phase of the program. This can be accomplished through the development of dual-use space at little expense without adversely affecting the functional requirements or esthetic appeal.

"The objective of the Second Rice Design Fete was to prove that such design can be achieved in one important facet of our economy—industry.

"The results show conclusively that efficient, attractive, industrial buildings can be designed to include protection from the effects of fallout gamma radiation as an integral program element. Each solution provides shelter unobtrusively in a pleasant environment in accordance with minimum OCD requirements. This can be done not only in industrial buildings but in other types as well.

"The five architects, their teams and the staff of the Department of Architecture of Rice University are congratulated for the results of their imagination and creative skill as applied to a vital area in the over-all defense effort."

Steuart L. Pittman
Assistant Secretary of Defense
for Civil Defense
CAMPUS PLAN FOR A MOUNTAIN-TOP RESEARCH COMPLEX

Homer Research Laboratories, Bethlehem, Pennsylvania
OWNER: Bethlehem Steel Company
ARCHITECTS: Voorhees Walker Smith Smith & Haines
SANITARY ENGINEERS: E. T. Killman, Associates
LANDSCAPE ARCHITECTS: Clarke and Rapuano
ACOUSTICAL ENGINEERS: Bolt, Beranek & Newman, Inc.
FOOD SERVICE CONSULTANTS: Office of Howard Post
CONTRACTOR: Turner Construction Company

This campus-plan research complex for Bethlehem Steel Company is situated on a 1,000-acre hilltop site overlooking Bethlehem's manufacturing facilities along the Lehigh River and makes itself a compatible neighbor to the campus of Lehigh University. The range of company activities brought together from dispersed locations to this site is reflected in the six main buildings of the complex. Dominating the hilltop is the administration and
bend laboratory building with a six-floor tower overlooking the city and countryside for miles around. Directly across a large round cooling pond is a high-bay facility providing three separate wings for process metallurgy, mechanical metallurgy and other pilot plant operations. Also flanking the pond is a large two-story building housing shops and warehouses. Down the slope of the hill from these three buildings are the boiler house, photography building and chemistry laboratory. The structures are all framed in structural steel and faced with random ashlar and Indiana limestone and granite. Floor area of more than half a million square feet is provided in this $35 million complex.

The administration and bench laboratory building provides office space for engineers from all research divisions as well as for the technical information division, service division and patent department. The tower lounge, library and second-level, glass-enclosed cafeteria form a striking change of pace and massing as a separate wing attached at the base of an essentially U-shaped, three-story building. The base of the U accommodates the entrance lobby with offices above. One leg of the U houses executive and technical offices, while the other, with a second wing attached at about mid-length, is occupied by laboratories.

Mechanical services for the laboratories, are distributed from a penthouse through enclosed vertical wells spaced along center-line corridors to serve each pair of laboratory modules.

Bench laboratories are built on 10-foot modules. Each lab has a service enclosure, with a chain for a safety shower. Even the smallest lab has two ways of getting out in case of emergency. Normally a single 10-foot module is occupied by only one man. The service closet for each lab supplies special gases, fluids and electrical energy. Wide doors to labs permit large objects to be moved in and out.

Laboratories in this building serve four general categories of research: measurement and control, physical metallurgy, chemistry and chemical engineering. In each there are special processes. For example, metallurgy in-
cludes metallography in which X-ray diffraction, an electron microscope, high vacuum equipment, and bench-scale melting and coating facilities are contained. This building also contains a fully equipped dispensary and a large glass-blowing shop.

Offices are laid out on the basis of 5- by 15-foot modules with movable steel partitions. An office for a senior staff member, for example, consists of three modules, or a room 15 by 15 feet.

Perhaps the most unusual building of the complex is the shops and warehouse building, in which the ground floor is warehouse space and the second floor contains machine shops and some additional laboratories. Outstanding feature of the building is its roof which is 245 feet long and is spanned by 11 96-foot welded pipe trusses 12 feet deep at the center and 6 feet deep at the ends. In combination with the bracing used between them, these trusses constitute space frames that are stiff and strong yet afford a light and open appearance to the interior of the building.

The resulting roof has a ridge-type outline over the trusses and an arch shape along the center of each bay. There are two drainage valleys in each bay where ridge and arch roof elements intersect. And these valleys diverge from the center of the building outward because of the conical shape of the arch portion of the roof. The roof is covered with copper sheeting on steel decking, except where it is interrupted by skylights.

The pilot plant building is laid out in a three-finger plan, each finger or wing housing various research activities on a single high-bay floor. All are tied together across the front by a two-story office and laboratory section. Office laboratory space is comparable to that in the main building.

Each wing is 56 feet wide in the high-bay area, 215 feet long and 45 feet high from the floor to the underside of the roof trusses. An overhead crane spans between girders, bracketed to the wall columns. The columns are exposed on the outside of the building where they form a part of the wall pattern, which includes limestone panels and top-hung, steel casement windows.

The space framing in each 20-foot bay between trusses is made up of inclined pipe struts, their lower ends attached at the bottom chord panel points of the truss while their upper ends are joined to arch-shaped structural members disposed along the center line of the bay. The lengths of these arch-shaped members progressively diminish from the wall line to the centerline of the building, so that in total they constitute a section of a cone with its apex at the building centerline. To complete the bay framing, inclined structural members span between the arched members and the top chords of the trusses.
Engineering and pilot plant building provides three high-bay wings with 45-foot clearance from floor to trusses. Each wing is equipped to handle production size metalworking processes. Facilities include melting furnaces and controlled atmosphere test chambers.
MACHINE FACTORY WITH A WOODLAND SETTING

Faced with the need to expand from a tight complex of new and old construction on a downtown New England river front, The Torrington Manufacturing Company purchased a densely wooded, sloping site of about 60 acres on the outer edge of its home city. The preservation of trees and rocky landmarks was part of the program from the outset. The setting has been further enhanced by the addition of shade trees in the midst of the 160-car parking lot, picnic tables and boccei courts in a nearby clearing.

Siting 72,000 square feet of single-level factory space on the gentle slope provides for a possible future expansion by three times the original size with minimum earthwork and tree destruction. A large maneuvering yard is provided adjacent to one long side of the factory from which trailer trucks are able to choose between semi-sheltered dock delivery or complete pit entry under a crane with truck bed and factory floor at the same level, or entry at grade onto the floor itself, primarily for fork-lift trucks.

The structure is completely of rolled steel members with height, 19 feet 5 inches under the lowest girder, dictated by the required hook height of 10-ton cranes allowing free movement of large machinery in all required directions. All those spaces which do not require the factory height are grouped together under a lower roof along the front edge of the building.

White porcelain enameled aluminum siding provides maximum contrast to the dark colors of the forest. Wherever openings were required, they are complete—exposing the painted steel structure in combination with black brick, gray cement-asbestos board, aluminum sash and trim. Roof-mounted mechanical equipment is canary yellow, a brilliant contrast to blue sky.

Within the factory, against a sombre background of black structural steel, gray machines and concrete, there is a disciplined rainbow of yellow cranes, red moving machine parts and varicolored utility lines. There are no windows as such in the factory itself, but a few panels of glass over pass-doors serve as a weather-check for the staff.

The office is lit by large north windows with a view into the woods and by fluorescent units mounted in a wooden grid suspended below air-conditioning ducts, drain and other utility pipes and conduit. Office partitions, whether full or half-height, are friction-bracketed between floor and grid.
Precision Laboratory in an Industrial Park

Laucks Laboratories, Inc.
Overlake Industrial Park
Seattle, Washington

Architects:
Naramore, Bain, Brady & Johanson

Landscape Architects:
Puget Planners, Inc.

Mechanical Engineer:
Alvin A. Morris

Structural Engineers:
Worthington, Skilling, Helle & Jackson

Flexibility of arrangement in assembly and work areas, and a structural system allowing easy future expansion were primary requirements for this small plant. In addition, it was to suitably house the corporate headquarters of a manufacturer of highly specialized electronic devices for measuring and recording moisture content of forest products during their manufacture. The plant is located on a landscaped one and a half acre in Overlake Industrial Park, just east of Bellevue near Seattle.

Office and reception areas are set forward from the basically square assembly area and acquire a studio character by virtue of their steel post and laminated wood beam construction carried through at both sides to sheltered terraces overlooking gardens and pool. Curtain wall of glass and wood panels is framed in wood. Work areas are tailored to a strict budget, but are well lighted and comfortable.

The building is of steel and timber construction with liberal use of exposed wood adding warmth and character throughout. Glass and wood paneling of the office and reception area are in sharp contrast to the pumice block walls of the manufacturing area. The warmth of wood, however, is carried through to the manufacturing area by laminated wood beams and joists supported by tubular steel columns. Ceiling of this area is also exposed wood roof decking from which lighting and utility piping are suspended.

The floor is concrete slab on gravel, treated with sealer in manufacturing area and with vinyl asbestos tile or carpeting in office and reception areas. Total contemplated area in three stages of expansion is 12,000 square feet. Present first stage is 4,900 square feet.
Charles R. Pearson

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Program for this trucking transfer terminal was to provide facilities consisting of general home offices, dock area and maintenance garage on a seven-acre site with access from two highways. The function of the dock area is to accommodate unloading and transfer of freight. The office building is a two story and basement arrangement with general office space on the first floor, employees' lounge and record storage in the basement, and sleeping quarters on the second floor for drivers who are on stopovers from other terminals. A maintenance garage is housed in a separate building to service the truck fleet. Other elements of the program included weighing scales and scale house, gas pumps, parking area and exterior yard lighting for night operations.

The design solution is a T-shaped dock and office building with all the dock traffic assigned to one long arm of the T away from general office space. The garage building is located near the docking area so that loaded trucks can move out through a preventive maintenance lane along the side of the garage to the scales and from there to the highway. Dock and driver personnel are segregated from the administrative section except through an operations control point which has visual control of the dock area.

The architectural design directive was to achieve a simple exterior, clean in line and detail, denoting efficiency and reliability of the client.

The office and dock building is constructed of reinforced concrete beams with precast roof and joist sections. Matte glazed exterior brick was used in company colors which are black and white. The garage was constructed of preassembled panels of block with channel sides. Clear span steel joists support proprietary roof decking.
Industrial Buildings

DOCK

GARAGE

SCALES

OFFICE

Bradford LaRiviere, Inc. photos
Jel Sert's new plant, winner of one of Factory magazine's "Top Ten" awards for 1963, was designed to assert the identity and permit the expansion of an independent food packaging company. The company specializes in production of flavored drink mixes; its expansion rate has been about 30 per cent annually.

The plant was completed in August 1962 on a five-acre site near Chicago. Rail and truck transportation are conveniently nearby. The neighborhood is residential-industrial, and provides a ready labor force of high quality.

Program requirements were: (1) emphasis upon manufacturing and material handling efficiency; (2) a building that would favorably reflect the company's character; (3) a pleasant, clean, stimulating environment.

The plant occupies about half of its corner plot. The manufacturing portion occupies about 60,000 square feet, and is laid out in a two-level scheme for efficient flow of materials. Raw materials (dextrose and sucrose) are delivered in tank trailers and stored in silos two stories high. Screw conveyors transport sugars from the silos to an upper mixing room where they are automatically weighed and proportioned before discharge into mixing machines. Mixed product is fed by gravity to packaging machines on the lower level. From packaging, the product proceeds to storage space which adjoins both rail and truck loading areas.

Offices are on the second story level directly over employee facilities, including lunchrooms and locker rooms. The main entry, adjacent to a shelter for executive cars, leads directly into a three-story stair well with reception area on a mezzanine overlooking the entry.

The two-story office wing is joined to a taller manufacturing area by the reception lobby and stair well which forms a narrow link emphasized by full height tinted glass facade. Vertical emphasis is further enhanced by exterior columns and irregularly spaced windows set between tall piers. Colors are light and bright throughout, except for the jet black staircase which is in contrast to white glazed brick carried in from the exterior.
Industrial Buildings

Robert Howell Ward photos

GROUND FLOOR

SECOND FLOOR

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President’s office (top) overlooking Japanese garden is furnished with dark woods and contrasting red and yellow upholstery against white glazed brick walls and white draperies. Executive chair is white leather. Stairwell (left) in entrance area is jet black against white brick. Exterior columns and piers on side street facade (below) provide vertical texture to approaches to first-floor employees’ lounge and second-floor offices.
Minimum Cost Design

"In the conventional approach to design of structures, there are innumerable solutions to almost every design problem, but no way to determine the most economical solution," says Ralph B. Barnett, research engineer for Illinois Institute of Technology's Research Institute. "In a new approach, called minimum cost design, one expects a unique solution—one design which will carry the load and which is demonstrably more economical than any alternative."

Construction costs can be cut to an absolute minimum, Barnett states, by formulating the design problem as a classical mathematical problem in maxima and minima. Barnett suggests that minimum cost design can be best explained as follows: in conventional design, the non-arbitrary structural parameters, such as the depth to width ratio of a concrete girder, the span-to-rise ratio for an arch, or the inclination of the diagonal in a truss, are decided arbitrarily by rules of thumb. The result, therefore, is one workable solution out of an infinity of workable solutions. In minimum cost design, however, these parameters are treated as independent variables, making it possible to find a unique design which satisfies all pertinent requirements in the most economical way.

One important advantage of the minimum cost approach is the investigation of the entire complex of a structure simultaneously. When a designer writes a cost equation, he is in a position to evaluate the importance of certain details in relation to the entire cost. He might turn his attention, for instance, to the effect of a code requirement governing the minimum slenderness of a bending member, and might perceive that a 10 per cent modification in the code would produce a 50 per cent improvement in the cost of the whole structure.

The immediate application of minimum cost design appears to lie in mass-produced, or mass-designed, structures. Design optimization according to the above procedures would usually be too costly for only one structure. Barnett's full discussion of minimum cost design appears in the summer, 1963 issue of Frontier, published by IIT Research Institute.

The increasing number of tall buildings being constructed in Canadian cities, which may be subjected to certain wind related problems not previously encountered, has stimulated the interest of engineers and scientists in wind research. Tall, slender buildings, often clad in lightweight curtain wall panels, may for example present problems of dynamic response to gusts, rain leakage caused by wind-induced differential pressures across walls, and high suction forces acting on individual wall panels. Although much research has already been done in the laboratory and in the field, information is needed on actual pressures and suction occurring on full-scale buildings in the field. Too little attention has been paid in the past to field measurements, say Canadian building researchers, but now activity is beginning in several countries to serve this need.

Among the varied aspects of research being carried out in Canadian laboratories are: (1) establishing the relationship—usually in the form of "pressure coefficients"—between wind speed and the pressures or suction that result on different types of buildings; (2) analyzing the "structure" of the wind to determine the distribution of gust energy according to the size and duration of the gust; and (3) the effect of wind on snow drifting. Efforts are being made to assist and coordinate these activities through periodic meetings such as the first International Conference on Wind Effect on Buildings and Structures held in June, 1963, in England. These studies were discussed in Building Research News, July 1963, issued by the Division of Building Research, National Research Council, Ottawa.

**Predicting Wind Effects**

**This Month's AE Section**

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**TYPHOON-PROOF LOUVERS SCREEN TROPICAL SUN**, page 139.

**RETRACTABLE HOUSING OPENS POOL IN SUMMER**, page 142.

**APARTMENT HEATING COSTS CUT BY MULTIPLE-BOILER SYSTEM**, page 144.

**BUILDING COMPONENTS**: Drainage Details for Buildings Using Standard Steel Components, page 149.

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Two large stores in Thomas Mall have air-conditioning equipment in penthouses. Packaged units for mall and smaller stores are concealed behind masonry screen. Air-conditioners indicated on plan are for the mall.

Engineer Sidney Barbanel took advantage of the warm, dry weather of Phoenix to expose all air-conditioning apparatus and electrical bus on the roof for Thomas Mall Shopping Center. This arrangement not only saved cubage in the stores proper and in the air-conditioned mall, but permitted sizing and placement of air-conditioning equipment when leases were let, long after the structure had been designed. And later on, if stores change, new air-conditioning units
Above left and right: high end of mall adjacent Diamond’s store gets daylight from clerestory on one side, skylight at top of store wall on the other. Above center: at night, continuous strip of fluorescent fixtures “wash” wall (detail, bottom left); downlights illuminate floor. Below: center of mall with 22-ft-high ceiling has clerestories on both sides. Two strips of concealed fluorescent fixtures bounce light off ceiling. Outer row of fixtures has aperture in top of light roof overhang. Small photo shows center mall during the day. Mall is punctuated by pools and illuminated fountains.

Can be added on the roof or resized. The packaged air-conditioning units which serve the enclosed mall and all stores except for the two “anchor” stores of Diamond’s and Montgomery Ward, range in capacity from 5 to 25 tons. A decorative screen on the roof not only shields these units from view, but also carries the main electrical feeders, gas piping and meters. The two large stores have air-conditioning equipment enclosed in penthouses.

All maintenance on air-conditioning equipment can be performed outside. Special stairways give maintenance men access to the roof.

Lighting has been skillfully employed in the mall to give an “outside” feeling and to identify the two large stores at either end of the mall.

The 1,100-ft main mall is 22 ft high except at the ends next to Diamond’s and Montgomery Ward where it is 35 ft and 30 ft respectively.

The 22-ft-high section of the main mall, which has exposed precast concrete double T’s for roof structure, is daylighted by clerestories. At night and on dull days the ceiling is indirectly lighted by high output fluorescent fixtures set inside the clerestories and concealed by planting.

At the ends of the mall, the walls of the two large stores are illuminated by long, narrow skylights during the day and by hidden fluores-
All air-conditioning equipment and ductwork for the mall is exposed, but concealed from view by means of a block wall. The block wall serves also to carry electrical bus, gas piping and meters. Insulated enclosure around lateral supply duct is used to return air to the conditioning unit. Source of conditioned air is concealed on the inside by planting. The small amount of heating required is supplied by electricity through the precast concrete roof structure. Air is supplied to stores through diffusers in hung ceilings.

The air-conditioning units will be cooling most of the time. When occasional heating is required, this is provided by electric heating coils in the ductwork.

Electric power is brought in from the utility in a primary underground loop to six transformer vaults, one for each “block” in the center. The developer picks up the current at the vaults, well within property lines, and distributes it to individual meters and tenants. Meters, mounted on the backs of the roof screen are always accessible.

Architects, Copeland, Novak & Israel; associate architect, Allan Grossman; associate architect, John Schotanus Jr.; mechanical and electrical engineer, Sidney W. Barbanel; structural engineers, Frank Foltz & Associate; developer, Winston-Muss Corporation.
Expansion joints eliminate creaking when temperature changes sharply. Adjacent to Philippine American Life Insurance Company building is an auditorium with acoustics designed for company and community use.

Protection against the hot summer sun in Manila, located near the equator, was an inherent design condition for the Philippine American Life Insurance office building. Relief from a humid summer's average 92°F at midday procured through air-conditioning alone would have been quite costly, so the architects decided to use a sunscreen. Early calculations indicated that its use reduced the air-conditioning load by at least 50 per cent.

Designing these screens and the curtain wall panels of the building to withstand severe weather conditions, including 130 mph typhoon winds carrying driving rains, an average yearly rainfall of 82 in., and a 17 degree drop in temperature at night, called for several unique engineering solutions.

Technical requirements, moreover, were handsomely incorporated into the building design. (This is true not only of the five-story office building but of the company’s separate multi-purpose auditorium, discussed later in this article.) The multi-tiered sun-screen, for example, underscores the horizontal lines of the office building and enhances its facade. Projecting 6 ft out, the screen goes around the entire building and allows an unlimited lateral view of Corregidor and the sweep of Manila Bay.

Aluminum blades were selected over concrete to avoid the problem of heat transfer into the structure and re-radiation within the building. These blades, which are used on floors beyond the second, are constructed of anodized aluminum and are 4 ft wide. They are supported by means of 3 in. O.D. high strength aluminum tubes which hang from the roof overhang. By suspending the blades free of the building wall, the only contact is a tie bar at each floor, which gives lateral support to the tubes and carries the catwalk for window washers. The screen itself is cooled by natural air movement.

Sealing the edges of the glass areas so securely that a typhoon could not force water through or blow out any lights, was another successfully handled problem, as evidenced by the building's excellent weathering of a major typhoon. A neoprene gasketing system was chosen because it also protects against temperature and weather extremes. U-channel gaskets...
Sun louvers are supported by cradle consisting of two channels back to back which are attached to the 3-in. aluminum pipes by means of clamping shells. Channels at end of 10-ft louver sections slip between cover plates. Neoprene permits expansion.

Tie bar carries catwalk, stiffens 3-in pipes.

gaskets are used to prevent thermal expansion noises and metal to metal exposure where tie bar brackets are attached to the Mullions.

Auditorium Design

The Manila Times acclaimed the acoustics of the Philamlife Auditorium: "At long last Manila has a concert hall that does justice to the musical profession. The auditorium is a magnificently resonant box... and is well insulated against outside noises. It is especially flattering to the human voice..."

This auditorium, seating just over 700 people, was designed to serve the many needs of the Philippine American Life Insurance Company as well as those of the entire community.
While its primary function is to provide good hearing conditions for large meetings and conferences where speech originates both on the platform and in the audience, this facility also serves as a concert hall for chamber music and for larger groups. Its use as a theater is limited as a fly gallery was not included.

The audience is arranged on one floor with a good slope for both hearing and seeing. The plan and section shapes were worked out to provide an optimum distribution of sound and to achieve a reverberation time appropriate for a multi-use room of this sort. The upper side wall surfaces are finished in wood for sound reflection, and the ceiling over the major portion of the auditorium is made of translucent acrylic plastic set in a saw-tooth pattern. This “corrugated” design provides the luminous ceiling the architects wanted as well as adequate sound diffusion for good acoustics.

The only sound absorbing materials used are on the rear wall and at the lower side walls. A glass fiber blanket behind the very open horizontal wood slats of the rear wall controls echo very well. To provide a slight additional amount of reverberation control, and most especially to prevent cross-room echoes when members of the audience stand up to speak, sound absorbing material was introduced behind the openings in the native wood carving which forms the lower side walls of the auditorium.

Over the platform area a sound-reflecting ceiling of plaster, faceted for sound diffusion, was installed to provide good projection of sound from the platform area, and to enable musicians performing in a group on the platform to hear each other and get a good sense of blending.

The reverberation time in the auditorium at mid-frequencies is just over 1.3 seconds, making it ideal for the many speech uses and for chamber music. It could be a little more “live” for symphonic performances, but the auditorium is really too small to be a successful symphony hall, according to Robert B. Newman of Bolt, Beranek and Newman, Inc.

Architects, Carlos D. Argulies & Associates; architects, Anderson, Beckwith and Haible; structural engineers, Severud-Elstad-Krueger; acoustical consultants, Bolt, Beranek and Newman, Inc.
How can a swimming pool be designed for contact with the outdoors and at the same time be comfortable for cold weather usage? Architects Lawrie & Green, in designing an outdoor club for a community sports center in Hershey, Pennsylvania, have provided for year-round pool operation through means of a fully-retractable pool housing.

Mounted on railroad trucks which roll on steel rails, the two slightly larger quarters of the roughly circular building move back, around and over the stationary half of the building. Geared-down electric motors located within the retractable housing turn the wheels. A double seal around the movable areas is provided by specially manufactured inflatable rubber gaskets.

The pool housing had to be a lightweight structure, for ease of movement. Also, thermal insulation of the housing had to be sufficient to prevent discomfort and at the same time be unaffected by the pool area's high humidity. Solution for the housing was a T-iron and cellular glass insulation covering over a steel rigid frame structure.

The pool area is lighted from fixtures attached to a fixed canopy.

Alternating blue and white aluminum panels placed in zig-zag fashion cover the cellular glass insulation on the walls, and white-colored aluminum batten panels protect the sloping roof—the shape and colors giving a “circus tent” aspect to the building.

Although a number of cold storage warehouses have used T-iron roof construction, the Hershey pool structure is the first known “normal-temperature” application, employed for walls as well as roof. Insulation thickness is 6 in. For the roof deck, 4-in.-thick cellular glass blocks are fitted in T-irons on 24-in. centers. A tape sealant on flanges of the T's provides adhesion and some cushioning. A second layer of 2-in. blocks is set in hot asphalt, followed by a built-up roof. Wall insulating blocks are installed in a similar manner.
Two retractable segments have rigid-frame structure with walls and roofs of cellular glass insulation set in T-irons, a system frequently used in cold storage warehouses. Segments turn about hubs (above left) enclosed in canopy and ride on motorized wheels (above right). Rear half of building enclosing an all-purpose room is fixed. Inflatable gaskets seal spaces between fixed and retractable sections at roof and along walls, also space between retractable walls and sills (detail, right).
Apartment Heating Costs Cut by Multiple-Boiler System

Natural gas is fuel for 18 small boilers, which operate in groups of three to meet varying loads, and for two gas-engine driven chillers. Gas-engine exhaust heats domestic water.

The mechanical engineers for the new 87-unit Executive House apartments in Worcester, Massachusetts, have found that substantial flexibility and economy in operation can be achieved by using a greater number of boilers and chillers of smaller capacity in the heating and air-conditioning systems.

Instead of one large boiler to provide full input requirements (5,400,000 Btu including a maximum of 833,000 Btu for hot water supply) plus a stand-by boiler of two-thirds capacity, 18 natural gas fired boilers in batteries of three, each of 300,000 Btu input, were installed. This bank of boilers meeting full design input makes it unnecessary to have two-thirds excess stand-by capacity—up to six of the small boilers can be shut down and there is still sufficient stand-by capacity to meet legal requirements. Moreover, only the minimum number of boilers needed to meet different heat loads under varying weather conditions are used.

A similar flexibility and economy is achieved in the air-conditioning system. Two 75-ton natural gas engine driven chillers rather than one 150-ton unit carry the full cooling load. When the load is low, only one unit will operate. In addition, each unit can modulate down to a load of 15 tons. Thus, for minimum load, the system can operate at only 10 per cent of full capacity, permitting significant savings in operating costs.

Another important economy is achieved by utilizing the engine jacket water and exhaust heat of the gas engines for heating domestic water during the cooling season. If this heat supply exceeds the hot-water requirements, the engine cooling water automatically bypasses the hot water tank and goes to the 200-ton cooling tower on the roof. When engine heat is insufficient for hot water requirements, one or more of the heating boilers go on automatically. In winter domestic hot water is provided by the hot water boilers.

The apartment's water distribution system has an interesting reverse feed and reverse return feature. Hot and chilled water is pumped through a two-pipe system. To avoid air pockets, the system feeds as it goes up, starting with the first floor. The return flow is also up, starting with the first floor and reaching a return main on the roof. Switchover from heating to cooling or vice versa takes about eight hours.

Each room has a thermostatically controlled fan-coil unit recessed in the wall. And each unit has an aquastat on the supply pipe which automatically switches the thermostat from heating to cooling or vice versa.

Architect is Fred Lenox; mechanical engineers, Jarvis Engineering Company.
How to Select a Stand-by Electric Plant

Buy the Kohler "Check List" Way

"Check list" buying gets you behind the sales claims to the real merit of an electric plant.

Take the Kohler check list, keep in mind your own specific need, and the fact that Kohler will stand behind both the engine and the generator—and then compare. Are the options you want available? Which plant offers you the most useful and durable features? For a starter, examine the partial check list shown here. It points the way to getting your money's worth.

From 500 to 175,000 Watts, Kohler Electric Plants offer a combination of engineering experience, quality and features that make it possible to urge you to buy the "check list" method. For complete information see your Kohler Distributor or write Dept. EP3-512, Kohler Co., Kohler, Wis.

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ARCHITECTURAL RECORD December 1963 145
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INTEGRATED MOVABLE WALL SYSTEMS TO FIT ANY BUSINESS, ANY BUDGET

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Hauserman DELINEATOR provides quiet elegance and distinction to executive and reception areas. SIGNATURE, companion product to DELINEATOR, lets you create modern, attractive offices that provide the ultimate in function and long range economy. And now, new Hauserman CO-ORDINATOR DOUBLE-WALL, the first practical metal movable wall at low initial cost, makes the advantages of metal walls available at any budget level.

All systems in the complete Hauserman line are design-coordinated—may be combined with each other to provide exactly the kind of space division you need for a particular area—from the low initial cost of Vaughan® Movable Walls—to the ultimate in flexibility, function and long range economy.

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Gentlemen: Please send me complete information on the Hauserman Total Interior Concept, and Hauserman products and services.

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For more data, circle 75 on Inquiry Card
NEW YORK STATE RAISES THE ROOF

Largest suspended roof in the World crowns N. Y. State pavilion at World's Fair. Named the "Tent of Tomorrow," this dramatic structure embodies a significant number of engineering advances. The 55,000 sq. ft. (350 ft. by 250 ft.) oval suspended roof, hydraulically raised to final 100 ft. high position, uses 96 Roebling-built suspension cables and provides an obstruction-free area. Its weight, 9 lbs. per sq. ft., is 71 lbs. per sq. ft. lighter than conventional steel construction, resulting in lighter and more economical foundation requirements.

Of primary interest is the construction feature that eliminates temporary scaffolding. This is made possible because of the lightness of the cables; they can be easily strung over large areas without temporary supports. The above are but a few of the advantages that are inherent in the suspended roof. As an early advocate of suspended roof construction, Roebling has accumulated valuable data and experience on design and procedures. We welcome inquiries of any nature on suspended roof construction, whether it relates to plants, warehouses, auditoriums, arenas, transportation terminals, or other types of installations. Just write or call Colorado Fuel & Iron Corporation, Roebling Bridge Div., Trenton 2, N. J.

For more data, circle 76 on Inquiry Card

148 ARCHITECTURAL RECORD December 1968
DRAINAGE DETAILS FOR BUILDINGS USING STANDARD STEEL COMPONENTS

Steel component structure visually sits atop masonry wall for auditorium-gymnasium addition to Sherman School in Middletown, Ohio, tying it in with existing school. Downspout comes down through overhang of steel structure and is left exposed in front of masonry wall. Standard rigid-frame structure supports roof and a curved metal-pan ceiling. Column of rigid frame is left exposed. *Architects, H. W. Goetz Associates*

Canopy framing serves as conduit for rainwater in Medical Arts Center, Middletown. Framing is of standard C-channels welded to form tubular units. Standard metal panels provide finished underside of canopy and support plywood roof sheathing covered by built-up roof. Canopy frame is blocked off inside behind the gutter. *Architect, Brandenburg & Switzer*
Series of three rigid frames permitted flexibility in location of interior partitions for Elks Country Club in Hamilton, Ohio. Split-system heating and air-conditioning package units are hung from this frame. Column portion of rigid frame is left fully exposed on end walls to break up expanse of wall. Gutter at valleys and edges of roof are concealed by standard steel panels. Downspouts are provided at each frame and are left exposed on short ends of building. Architect, Edward E. Loewe

Tie-rod braced rigid frame supports roof and canopy of laboratory for Geo-1 instrument company in Dallas, Texas. Downspouts are placed in front of columns to minimize distraction. Masonry screen shields west wall from sun. Rigid frame is completely exposed inside and out. Roof is aluminized steel for corrosion resistance. Standard steel components provide roof framing. Architects, Prinz & Brooks
ELECTRIC ELEVATOR PERMITS LOW ROOF LINES

Engineered to permit low roof lines, the new “low overhead” fully automatic passenger elevators introduced by Otis Elevator Company for moderate-height buildings have electric traction driving machines.

These elevators retain the inherent operating and safety characteristics of this type of electrical equipment, but eliminate the penthouse machine room of conventional traction elevators. Instead, the compact driving machine may be located alongside the hoistway at the lower landing (below). The elevators also simplify building structural requirements in much the same way as plunger elevators, but don’t require a hole for a hydraulic plunger.

One arrangement, with an under-slung car, requires a total height of as little as 12 ft 11 in. above the top floor. A second arrangement, with overhead suspension, requires slightly more height. In either case, the hoistway roof will not usually project above the building roof or parapet.

The new elevators are available at speeds up to 300 fpm. Otis Elevator Company, 260-11th Ave., New York 1, N.Y.

CIRCLE 300 ON INQUIRY CARD

NEW FURNITURE GROUP EMPLOYS CATENARY SUSPENSION SYSTEM

The Catenary group of furniture designed by George Nelson for Herman Miller Inc.—a reception room chair, ottoman and table—all have identical polished chrome-plated steel bases.

The chair’s upholstered cushions are suspended on concealed cables which hang from the frame in a downward curve (a catenary curve). This produces a flexible, resilient seat. If a single cushion is damaged, it can be replaced individually.

The identical steel parts create a family resemblance in the group but form different structures in each piece. The same elements produce both a flexible base for the seating and a rigid base for the table.

The steel parts are connected by means of epoxy adhesive, an innovation in furniture construction. The epoxy joint provides an invisible connection which is exceptionally strong.

The seating is upholstered in leather or a selection of fabrics; the coffee table top is of 3/4-in. clear plate glass or clear glass laminated to an amber-tinted plastic core. Herman Miller Inc., 305 E. 63 St., N.Y. 21, N.Y.

CIRCLE 301 ON INQUIRY CARD

more products on page 158
STRESS-RELIEVED STRAND FOR PRESTRESSED CONCRETE
Excerpts from a comprehensive article, "Flexible Bond Tests of Pretensioned Prestressed Beams" by Norman W. Hanson and Paul H. Karr are included in a 23-page reference manual on the manufacture, characteristics and uses of stress-relieved strand for prestressed concrete. Bethlehem Steel, Bethlehem, Pa.*
CIRCLE 400 ON INQUIRY CARD

ACOUSTICAL CEILING CATALOG
Several hundred varieties of acoustical products, ranging from the most common perforated tiles to the advanced integrated acoustical-ventilating-luminous ceiling systems, are listed in the company's 1964 catalog. Complete data is given on sound absorption, sound attenuation, light reflectance, and fire ratings of each product. An entire section is devoted to "privacy of speech" products and components. Products are also rated for ease of maintenance, limitation of use, cost and other practical selection consideration. Elof Hansson, Inc., Acoustical Division, 711 Third Ave., New York, N.Y.*
CIRCLE 401 ON INQUIRY CARD

SOUND CONTROL UNITS
"Geocoustic" explains how this three-dimensional product achieves improved sound absorption. A sound absorption chart, design information and illustrations, information on where and why such control is needed, and application data and specifications are then presented. Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Pa.*
CIRCLE 402 ON INQUIRY CARD

CEILING INSTALLATION
The three basic methods of installing ceilings and the particular conditions under which each method should be used, are explained in a 24-page illustrated booklet. Tips on cementing tile directly to a ceiling, stapling tile to furring strips, or installing a suspended ceiling are also given. Armstrong Cork Company, Dept. PI, Lancaster, Pa.*
CIRCLE 403 ON INQUIRY CARD

SEAMLESS DOORS AND DOOR AND FRAME UNDERLAY
A new four-page brochure devoted to 1¾-in. metal seamless doors listing standard heights of 6 ft 8 in., 7 ft, 7 ft 2 in. and 8 ft, shows 34 designs produced for use in schools, motels, apartments, factories and office buildings. Complete specifications, together with a chart on standard door glass sizes and detailed drawings of a new 2-in. face frame line, complete the brochure. In addition, a free tracing underlay of durable parchment paper for steel doors and frames in the standard heights listed above is available upon request. Anweld Building Products, Niles, Ohio*
CIRCLE 404 ON INQUIRY CARD

HONEYCOMB ALUMINUM CEILING SYSTEM
A 4-page color brochure describes functional and design applications for Honeylite, luminous ceiling systems of expanded aluminum honeycomb panels. The booklet discusses the technical aspects of Honeylite as an open ventilation screen, radio frequency shield, and lighting louvers. Charts and graphs are used to provide specifications working data. Nova Industries, Inc., 699 Castro St., P.O. Box 831, San Leandro, Calif.*
CIRCLE 405 ON INQUIRY CARD

MICROPHONE CATALOG
The "Shure Audio Catalog for Sound System Specialists" is an expanded catalog containing 44 pages of detailed technical information on over 75 microphones and audio products manufactured by the company. Shure Brothers, Inc., 222 Hartrey Ave., Evanston, Ill.*
CIRCLE 406 ON INQUIRY CARD

CHALKBOARD, TACKBOARD SELECTOR GUIDE
A new condensed guide for the evaluation, selection and specification of chalkboards and tackboards gives data on structure of various types, colors, sizes, mounting arrangements, trim and accessories. Installation and rough-in drawings are also provided. Weber Coatello, Chicago Heights, Ill.*
CIRCLE 407 ON INQUIRY CARD

STEEL COLUMN MANUAL
A new steel column manual which incorporates load tables and design data based on new AISC A-36 steel specifications is one of the first published references containing tables which reflect the increased load bearing capacities possible with the new steel and the only one devoted exclusively to steel columns of all types. It also includes complete specifications for Fire-Trol prefabricated fireproofed steel columns. Fire-Trol Corporation, 9001 S. Western Ave., Chicago 29, Ill.*
CIRCLE 408 ON INQUIRY CARD

METAL DOORS, WINDOWS AND CURTAIN WALLS
Three 1964 catalogs on the company's line of metal doors, windows and curtain walls include specifications, features, detailed diagrams and installation photos. The door catalog shows 14 of many possible combinations of the manufacturer's balanced doors. Hupp Corporation, Flour City Architectural Metals Division, 2637 27th Ave. South, Minneapolis 6, Minn.*
CIRCLE 409 ON INQUIRY CARD

OFFICE FURNITURE
A new full-color brochure covers the complete line of Tempic-9 desks, credenzas, tables, and secretarial and modular work stations as well as a newly designed line of harmonizing contemporary-styled file cabinets. Yauman & Erbe, Rochester 3, N.Y.
CIRCLE 410 ON INQUIRY CARD

VINYL WALLCOVERING
A revised edition of a guide for the specification, selection and use of Vortex vinyl wallcoverings gives detailed information on such physical characteristics as weights, thicknesses, tensile and tear strengths. There is full data on UL ratings and fire hazards too. L. E. Carpenter & Co., Empire State Bldg., New York 1, N.Y.*
CIRCLE 411 ON INQUIRY CARD

*Additional product information in Sweet's Architectural File
250,000 Kicks... and Still Swinging Smoothly!

Abuse centers on the hinges of all toilet compartment doors. And Mills laboratory tests prove conclusively that after more than 250,000 slam cycles—or "kicks"—Mills toilet compartment doors still swing smoothly, because they're supported by Mills super-strong, wear-resistant, corrosion-proof fittings—

Mills Top Hinges — sturdy stainless steel pintle — rigidly supported at 3 points, locked to a channel reinforcement, welded to inside of door. Suspension arm of hinge bracket rides on this shaft, protected by pressure-fitted, life-time Molybdenum Nylon bushing.

Mills Lower Hinges — cam-to-follower true gravity type; adjustable; factory-installed; concealed within door. Top follower: square-locked, secured to welded steel reinforcement. Lower cam: molded to knurled, hardened stainless steel shaft which axially aligns cam and follower. Both are naturally-lubricated, life-time Molybdenum Nylon.

All exposed parts of Mills hinges are non-ferrous, polished, and chrome-plated. All working parts are stainless steel; or corrosion-proof Molybdenum Nylon — heat-resistant and almost friction-free — eliminating the troublesome periodic adjustment required by miniature metal cams, rollers and bearings, and springs.

Mills Company toilet compartments are available in 20 decorator colors; in porcelain and baked-on enamel finishes, and plastic laminate.

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PLUMBING SPECIALTIES

Picking the right fixture for the right spot in an industrial or institutional building plan makes the plumbing installation operate the way you designed it. T&S offers the widest range of quality plumbing specialties to choose from for every job in the building... and all the working tools architects and specifiers need to make plans easy, foolproof, quality controlled.

Complete Line Of Fixtures. The T&S complete line of "stream-mated" plumbing specialties simplifies the planner's task of unit integration and quality controlled performance throughout his specifications. A full complement of quality-built T&S fixtures and service outlets for every purpose helps him to select the most suitable units for each location... Food Service, Drinking and Filling, Sanitation and Maintenance, Laboratories, and other specialized areas. When you specify T&S, you have positive insurance of reliability and service harmony "all-through-the-house".

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No. 77...

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For classic beauty . . . for structural brawn, design for round columns of concrete, and specify forming with low-cost SONOTUBE Fibre Forms. They place, brace, pour, and strip quicker to save contractors time, labor, and materials. For lower overall job costs, call for SONOTUBE Fibre Forms whenever round concrete columns are designed into the structure. Five types, sizes 6” to 48” I. D., in standard 18’ lengths or as ordered.

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Creative use of lighting control in new Wichita church shows... How G-E do dramatic

Down the center of the huge fish-shaped ceiling slab of the First Methodist Church of Wichita, a row of nine spotlights points directly toward the floor. At the touch of a button a G-E Motor Master turns on the lights in sequence from the rear to the chancel. A second Motor Master turns them off. Additional 12-circuit Master-Selector Switches permit laying down a path of light just ahead of processions and then picking it up right behind them.
Remote-Control Wiring can help you
new things with mood lighting

The First Methodist Church of
Wichita is one of the nation's truly
magnificent contemporary sanctuaries.
One reason for this: the power and majesty
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convenient with General Electric Remote-
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Simple remote-control stations in the
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at the touch of a push button. The change
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As Mr. Carl Green of Carl Green &
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The last contact of this second Motor
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Churches . . . country clubs . . . night­
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ing engineers. General Electric Company,
Wiring Device Department, Providence,
Rhode Island 02907.

Architects: Glenn E. Benedick, AIA, Wichita
Consultant: Harold E. Wagener, AIA, Philadelphia
Electrical Contractor: Wichita Electric Co., Inc., Wichita
Consulting Electrical Engineers: Carl Green & Associates, Wichita

The sanctuary building uses 100 relays for lighting
and a total of 14 General Electric Motor Masters.

While the entire system may be controlled from this con­
trol room overlooking the sanctuary, other switches are
placed throughout the church for the convenience of the
minister, ushers, the organist, and the sound technician.

Progress Is Our Most Important Product

GENERAL ELECTRIC

For more data, circle 80 on Inquiry Card
CLASSROOM DOORS

New school classroom doors are surfaced with low-maintenance Micarta plastic laminate in patterns which make no attempt to simulate wood. Unlike wood finishes, the door surfaces do not require repainting and can be wiped clean with a damp cloth.

Westinghouse Electric Corporation, Micarta Division, Hampton, S.C.

CIRCLE 302 ON INQUIRY CARD

METAL PROTECTION

A new four-way metal protector called LPS is guaranteed by the manufacturer to stop rust and corrosion, displace water, and lubricate and penetrate the metal as well. LPS is an inorganic metal preservative compound that sprays a micro-thin, non- greasy, non-gummy film on any metal surface. It is effective at any temperature and will not oxidize. LPS Research Laboratories, 8701 Wils- shire Blvd., Beverly Hills, Calif.

CIRCLE 303 ON INQUIRY CARD

MARBLE PATTERNED WALL TILE

The subdued new texture and pattern of Ceratile, a glazed wall tile, is particularly effective when used to create unusual color panels, inserts or background feature walls. It is also suitable for light-duty horizontal areas in bathrooms and kitchens such as vanities and counter tops. Colors are produced on a background of white in soft shades of green, beige, sand, gray, pink, blue, azure, gold and lilac. Ceratile Marble Colors are produced in 4%- by 4%-in. flat tiles. The Cambridge Tile Mfg. Co., P.O. Box 15071, Cincinnati 15, Ohio.

CIRCLE 304 ON INQUIRY CARD

HEAVY-DUTY SWITCHES

A new line of heavy-duty AC switches, cataloged as the Series 700, includes over 80 different mod- els ranging from single pole, double pole, three- and four-way, locking, lighted handle and momentary con- tact switches. They are available in 15-a and 20-a, 120-277-volt AC rat- ings. All switches feature a choice of side or side and back wiring. Slater Electric, Inc., 45 Sea Cliff Ave., Glen Cove, N.Y.

CIRCLE 305 ON INQUIRY CARD

SMALL PARTS CABINETS

Standard-width modular cabinets with drawers of various sizes for small parts storage have been de- signed with drawers whose size and number are completely flexible for function and need. Modular storage combinations of welded steel frames with transparent drawers which are the standard "building blocks," will stand, stack, hang on the wall or fit existing shelving. Akro-Mils, Box 989, Akron, Ohio, 44309

CIRCLE 306 ON INQUIRY CARD

For more products on page 164
If you take this pre-heat lamp and stick it in a pre-heat fixture, it works swell. But just try it in a rapid-start, and you know what you'll get. Same with the old rapid-start: in a rapid-start fixture, it does what it's supposed to. But in a pre-heat?

Same old story. Which means, of course, you need both kinds and in your inventory. Unless you buy the Champion F-40, most versatile 40-watt fluorescent on the market.

It works equally well here, or here, as a pre-heat. Other nice things about the F-40? Well, for one thing it comes in 15 different colors; and its specifications invite comparison with those of any other leading manufacturer in America, bar none.

The F-40 is versatile enough for 99% of commercial and industrial installations. If you're in that group, we are the people to talk with.

If you're not, may we suggest one of these?

For more data, circle 83 on Inquiry Card

The Gold Bond difference:

Sprayolite simplifies a complex ceiling

Hundreds of passers-by weekly stop to admire the exterior of this beautiful contemporary New Orleans building. Just what the owners wanted. And the interior is just as attractive. The arched ceiling—which follows the contour of the exterior motif—was formed with metal lath, channels, and Gold Bond Sprayolite Plaster. Sprayolite was the ideal product for this plastering job; it is sound-absorbing, non-combustible, and is exceptionally white for high reflectivity. Application was no problem. The base coat and the first coat of Sprayolite were hand-troweled. Then the finish coat was machine-sprayed. Ask your Gold Bond® Representative for technical information on Sprayolite. Or write Dept. AR-123, National Gypsum Co., Buffalo 25, N.Y.

Gold Bond materials and methods make the difference in modern building

For more data, circle 84 on Inquiry Card
Versatility to meet design requirements

CEILING HIGH FRAME AND TRANSOM PANEL...

All Steelcraft doors and frames are available in a wide range of standard sizes...providing versatility such as the use of matching flush transom panels or 8' high doors.

This is another of the many advantages gained from the use of Steelcraft metal doors and frames. Write for other ideas... and the name of your technically trained Steelcraft distributor.

The Steelcraft Manufacturing Company, 9017 Blue Ash Road, Cincinnati 42, Ohio, U.S.A.

For more data, circle 85 on Inquiry Card
Haws complete line of fountains and coolers fits every school area. When Johnny wants a drink in classroom, corridor, cafeteria or outdoors, there's a Haws fountain to suit the situation. To protect Johnny, all Haws fountains have sanitary design. To protect the fountains, they're cast in hi-strength Tenzaloy, stainless steel, bronze, vitreous china, fiberglass and enameled iron. Vandal-proofing keeps Haws fountains working smoothly and looking sharp. Multiple bubbler models meet "rush hour" demands; color and design provide decoration. There's a Haws fountain to fit your "specs." Write for the new Haws catalog.

Insist on HAWS — a quality product!

Product Reports
continued from page 158

PACKAGED AIR-CONDITIONERS
The newly designed three- and five-ton packaged air-conditioning units for air and water cooled applications are adaptable for heating as well as cooling. The units can be used in offices, hotels, and many other types of commercial and industrial buildings. An improved cabinet combines attractiveness in appearance with compactness. Cabinet panels are 18-gauge steel finished in gray enamel. Components consist of a heavy duty hermetic compressor balanced with a 3-row cooling coil; a centrifugal type blower; motor; water cooled or matched air cooled condenser; replaceable low velocity filters; plenum and adjustable air foil grill assembly. Curtis Manufacturing Company, 1905 Kienlen Ave., St. Louis, Mo.

CIRCLE 307 ON INQUIRY CARD

FLOOR SMOKING STAND
A floor smoker in the form of a rectangular walnut column has a top of solid cast aluminum with heavy stainless steel blades supported by stainless steel bearing plates. The tip action top empties debris into an extra large capacity removable alu-
A way to improve multiple story construction
(and reduce its costs)

Build a tall building, or a single-story, with less wasted space, more economically. It can be done with an exciting new system developed, tested and proved by one of America's best known structural steel fabricators — Macomber Incorporated, a Subsidiary of Sharon Steel Corporation.

It's called the Macomber Composite System, because it combines steel and concrete into a structural member which functions integrally, utilizing the strength of open-web joists with the capacity of a concrete slab. The inter-action of the joists and slab provides a more rigid unit than steel and concrete acting independently. Developed around a special open-web joist, the system permits longer spans with shallower depths, reducing height per floor. More efficient use of materials with a reduction in total dead weight and labor costs, result in decreased building costs.

The Macomber Composite System is another new custom steel product from the expanding world of Sharon Steel. For technical brochure write Macomber Inc., Subsidiary of Sharon Steel Corp., Canton 1, Ohio.
Tree and house demonstrate wood's naturally wonderful way with a site. Planked siding and decking, exposed overhangs, and weathered shingle roofing all contribute to this home's friendly feel for its rustic surroundings. Architects: Burde, Shaw & Associates, Carmel, California.
For domestic comfort in exciting form
use WOOD . . . and your imagination

Be different with wood in structures for living. Work freely with its flexibility. Take advantage of its economies. Plan new daring with its versatility in roofing, siding, paneling, and flooring. Depend on its natural suitability to any site.

Outside, changing seasons treat wood beautifully. Inside, wood treats changing moods warmly. Its inherent sound-subduing qualities, insulating characteristics, and resilient strength all contribute to generations of comfortable residence. Wood's infinite grains, tones, and textures invite the use of other materials . . . make a house even more to come home to. For additional information on designing with wood, write:

NATIONAL LUMBER MANUFACTURERS ASSOCIATION
Wood Information Center, 1619 Massachusetts Ave., N.W., Washington 6, D.C.

Latticed walls, square columns, and arched and criss-crossing members of wood overhead form a sunny welcome for a walkway entrance to this contemporary home; show still more of wood's wealth of uses.

A dining room of wood creates a tasteful setting with paneled walls, plank and beam ceiling, and complementing Spanish-style furniture. Note, too, the lattice-like wood doors for airy privacy.

For more data, circle 88 on Inquiry Card
NEEDED FOR YEARS... to prevent perplexing predicaments in the bathroom... AND HERE IT IS

**CONCEAL-A-ROLL**

by HALL-MACK

A NEW BATHROOM CONVENIENCE Just a cover-opening away is the spare...insurance against embarrassment. Closed it's one of the most attractive accessories a modern bathroom can have. Beautifully chromed and precisely made in every detail, it combines a new and original idea with Hall-Mack's fine styling.

The smoothly operating door which conceals the extra roll is a sparkling, chrome plated brass panel—compact and flush with the wall—that blends pleasingly with any decor.

For new homes or remodeling, you’re sure to make friends and influence new customers when you specify, sell or install built-in features by Hall-Mack—especially Conceal-A-Roll with the “spare” compartment that solves a delicate problem.

DOOR WEATHERSTRIP

A new Adjust-a-matic door weatherstrip utilizes an expansion principle that permits quick adjustment of the weatherstrip to compensate for door variations caused by warp, distortion or poor fit. Concealed springs in the two-part extruded aluminum body automatically force the wool-pile sealer against the door by a light loosening of the attaching screws whenever additional sealing is required. The aluminum body may be surface mounted to existing wood or hollow metal door jambs, or integrally flush applied on mill order wood frames. Sun Screen Products, Inc., Seal-Draft Weatherstrip Division, 2220 N. Division St., Spokane, Wash. 99205

CIRCLE 309 ON INQUIRY CARD

PRESTRESSED CONCRETE WALL PANELS

Conwall panels are prestressed concrete wall panels which form the wall of buildings when placed on top of one another in a horizontal position between vertical structural steel columns. Standard panels can be manufactured in any length up to 25 ft 6 in. and are tongue and grooved along their horizontal edges forming a locking seal when placed in position. Future building expansion is easy because existing panels can be lifted out and, when additional steel framing has been installed, can be set into place again to form the new wall. Steeline Engineering Company, York, Pa.

CIRCLE 310 ON INQUIRY CARD

For more data, circle 89 on Inquiry Card

108 ARCHITECTURAL RECORD December 1962
Great new things are shaping up in concrete block

Conventional masonry goes original. Imaginative use of standard concrete masonry units leads to rich "custom" effects of texture and pattern at low cost. Here, standard 8x8x16 blocks are laid in running bond, with 2x8x12 slab block projecting 3" at each joint. (The slab block also projects 1" at back to provide a design for the interior wall surface.) Vertical joints are filled flush; horizontal joints are tooled to a depth of 3/8". Ask your local block manufacturer.

To lay up concrete block in new, imaginative effects, ATLAS MASONRY CEMENT provides the right mortar. It gives weather-tight joints that are uniform in color. Complies with ASTM and Federal Specifications. For information on masonry cement, write Universal Atlas, 100 Park Avenue, New York 17, N. Y.
the most exciting ideas take shape in plywood
This parasol-like plywood folded plate roof, suspended beneath slender reinforced concrete beams, is another prime example of how modern materials and engineering systems can be combined to create a new architecture, free of traditional restraints. The plywood canopy is so nearly self-sustaining that each folded plate needs only two beam connections. The result is a large clear-span structure of remarkable harmony and simplicity. Construction was efficient and economical. Components were site-fabricated with plywood and light lumber framing, and crane-lifted into place. As in so many of today's new architectural forms, only plywood had the requisite design flexibility coupled with adequate structural and appearance values. For more information, write (USA only) Douglas Fir Plywood Association, Tacoma 2, Wash.
Big news from Halsey Taylor

**CAPACITIES INCREASED**
on popular models of Halsey Taylor coolers

WITH NO INCREASE IN COST

Here's another extra from the makers of Halsey Taylor Coolers, first in their field in styling, dependability and sanitation. Now, due to advanced engineering, you get increased capacities without any increase in cost!

In our three popular series, the Wall-Mount, the Wall-Tite and the Free-Standing Models, all coolers formerly 6 and 11 gallons in capacity are now increased to 8 and 14 gallons. Thus Halsey Taylor gives you far greater convenience, by serving more people at less cost!

Ask for latest catalog, or see Sweet's or the Yellow Pages

The Halsey W. Taylor Co., Warren, Ohio

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**_product reports**

**DROP FRONT FILES**

A new line of drop-front files features a new unitized card holder and handle mounted flush with the door front. The front of each tier drops forward giving easy access to a row of filed material nearly 3 ft in width. The over-all dimensions of the Montana 400 are 37 3/8 in. wide, 39 3/4 in. high with a 4-in. base, and 15 3/4 in. deep. Browne-Morse Company, Muskegon, Mich.

**CORRIDOR LIGHTING**

Louverglo, designed specifically for corridor applications, is only 3 3/4 in. deep and 4 in. wide, making it especially suitable for low ceilings. Its injection-molded louver/diffuser combines the diffusing qualities of white acrylic or styrene with the shielding ability of closely spaced lateral louvers. Diffuser sections between louver blades screens the lamp from direct view. Louverglo is available in one or two lamp tandem, 40-watt Rapid Start units, in 4-, 5-, 8- or 9-ft lengths, for individual, continuous row or pattern mounting, Dept. L, Silvray Lighting, Inc., 1270 Avenue of the Americas, New York 20, N.Y.

**EXPOSED AGGREGATE PANEL SEALER**

A transparent, permanent sealant which strengthens and preserves the beauty of exposed aggregate surfaces of concrete panels called EAC-Seal has undergone continuous weathering tests for five years without noticeable deterioration, the manufacturer reports. It is applied easily by brush, spray or roller at the factory before a panel is delivered to the construction site. According to the developer, the coating preserves...
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FOR HIGH STRENGTH OPEN WEB STEEL JOISTS

INCLUDING:

J-SERIES joists made from 36,000 PSI minimum yield strength steel.

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LA-SERIES longspan joists compatible with the J-Series.

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Here's all the information you need for fast and accurate specification of joists to carry uniform loads on spans up to 96 feet. Send coupon today for your copy of this practical, up-to-the-minute, 36-page reference manual from the Steel Joist Institute.

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STEEL JOIST INSTITUTE
DuPont Circle Bldg., Washington, D.C. 20036

Please send me a complimentary copy of the 1964 Edition of Specifications and Load Tables

NAME
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For more data, circle 92 on Inquiry Card

ARCHITECTURAL RECORD December 1964
Honeywell's at Harvard...controlling temperature

Just two men at two Honeywell Selectographic Control Centers supervise the whole job in Cambridge! One man at each centralized control panel can check and change temperature...start, stop and monitor fans, heating and air conditioning equipment. He can even operate steam valves and monitor flood valves...all from a console about the size of an ordinary desk.

Three years ago, an analysis showed "an inordinate amount of time" needed for operating men to go from building to building to perform routine functions. Harvard was ready for automated control.

The Harvard campus poses some interesting problems for an automated control system. For one thing, it's big...both in area and in number of buildings. For another, the buildings themselves differ greatly in age, size, design and requirements. Finally, Harvard is growing fast. They had to have a system that could handle the expansion they plan in the years ahead. Working with Honeywell engineers, they decided the best solution was two centrally-located Honeywell Selectographic Data Centers.

As the map shows, one center controls 67 campus buildings north of the Harvard Yard. Another, in Holyoke Center, will control 40 buildings south of the Yard.

As an indication of the capability of these systems, one man at the north Data Center can:

1. view 37 schematic diagrams (projected from slides) representing systems for the 67 buildings.
2. start, stop, or listen to 42 fans up to ½ mile away.
3. operate 32 steam valves.
4. check temperatures at 100 points.
5. get immediate warning of humidity changes in steam tunnels or library...
To Divinity Hall

Divinity Hall, landmark on campus since 1826. Drawn and supervised by Tomas W. Sumner.

and equipment in 107 buildings, all sizes, all ages

areas (which include, among other treasures, priceless Oriental manuscripts).

Reports indicate that savings from this automatic control program will amortize the investment in two years, besides improving service. And, Harvard has a modern control system that can accommodate new facilities as they’re built.

Automated control is an important part of any modern building program... any expansion plan. The booklets offered at right are designed to help you in the planning stages of your newest project. And, whether it involves new or old buildings, one building or hundreds, Honeywell has the systems and the know-how to survey, plan, install and service any job efficiently and economically. 112 offices in the U.S.... others in all principal cities of the world.

Mail coupon for project analysis, planning guides.
Honeywell, Dept. AR12-82, Minneapolis 8, Minn.

Send me the following free planning guides:
☐ Security and Surveillance
☐ Clock Programming Systems
☐ Automatic Fire Protection
☐ Temperature Control
☐ Automation Techniques
☐ Preventive Maintenance Programs

FIRST IN CONTROL SYSTEMS

Honeywell

For more data, circle 93 on Inquiry Card
PROFESSIONALS IN SOUND
(WESTERN ELECTRIC FOR ONE)
PREFER SOUND SYSTEMS BY ALTEC

Three independently functioning sound systems were required to serve Western's public areas, meeting rooms, and music room. The systems selected had to meet the high standards offered and demanded by Western Electric Company.

In every respect—from reliability to sound quality, from sophistication of design to ease of operation—Altec met Western's standards. Altec sound systems were selected to provide paging, public address, and background music. And, in Western's music room, famous Altec studio playback components provide superb stereo reproduction.

Investigate the solutions Altec offers your sound problems. For the endless variety of services a modern sound system can contribute to most projects, call the nearest Altec Sound Contractor (listed in your Yellow Pages) or write Dept. AR12.

The Western Electric Building at 222 Broadway is one of New York City's newest skyscrapers. Housed here are Western Electric Company's general offices.

See Sweet's: Architectural File 33a/AL • Industrial File 17f/AL

Product Reports
continued from page 172

the freshly polished appearance and beauty of the aggregates and prevents dulling and weathering. Because it seals moisture and acids from the porous concrete, it prevents defacing rust stains and soiling. The sealing action also minimizes damage from freeze-thaw cycles, undermining of the concrete base and subsequent loosening of the aggregates. Preco Chemical Corp., 580 Main St., Westbury, N.Y.

CIRCLE 313 ON INQUIRY CARD

CLIMATE-CONTROL UNITS
Two new gas heating and electric cooling forced air units have been introduced by Worthington. With the Climatrol 750 forced-air units, tenants have complete individual control over their indoor environment the year 'round. The compact unit measures about 2 ft wide, 2 ft deep and less than 5 ft high. It is available in gas heating inputs from 37,500 to 75,000 Btuh and cooling capacities from 16,000 to 22,000 Btuh. The single package Climatrol 760 roof top gas heating/electric cooling unit is the lowest profiled unit of its type, states the manufacturer. Mueller Climatrol, 2065 W. Oklahoma Ave., Milwaukee 4, Wis.

CIRCLE 314 ON INQUIRY CARD

HEAVY DUTY PLATE GLASS
Libbey-Owens-Ford has announced a substantial increase in the maximum sizes available for heavy duty plate glass in thicknesses of more than 5/8 in. to provide greater flexibility in building design, and has added 3/4-in.-thick plate glass to its line. The more products on page 188

For more data, circle 94 on Inquiry Card

For more data, circle 95 on Inquiry Card
North, east, south, west, all over the nation, you'll see Smith Walls on factories, warehouses, offices, schools, hangars, power plants, shopping centers, each with its own individuality. The wide range of color and configurations of Smith metal wall panels are in harmony with any architectural styling and compatible and enhancing in combination with other wall components of masonry and glass.

Smith metal walls are functional, too, as well as decorative. Their light weight, thin wall construction, adequately insulated, permits economical erection and more efficient use of interior space. The rich baked-on enamel finish, protected by a strippable plastic coating until erected, assures lasting beauty and low maintenance.

Best of all, when you buy Smith Walls you deal with the single Smith responsibility for engineering, manufacture, transportation and erection. This single responsibility saves you money, details and worry.

"Smitty builds walls for keeps"
Over an acre of 
Bigelow Carpet 
in Martin Company's new Executive Office Building

It's Bigelow by the acre in the spacious Baltimore headquarters of the Martin Marietta Corporation's aerospace division. 6,000 square yards of Gropoint Director Cushionlok, sturdy tweed, famed for color, texture, beauty, service, plus special areas custom-carpeted by Carpets, Inc., a Bigelow subsidiary.

Bigelow Carpet is selected by leading designers for their most important hotel and motel installations. Reasonable price, long economical service, and top performance under traffic—as well as beauty—are prime considerations in every Bigelow Carpet designed for use in public areas. Special designs, colors and textures available. If you plan an installation, consult Bigelow's Carpet specialists concerning colors, patterns, weaves, at prices you can afford. No charge for this service. Contact Bigelow through the nearest sales office by writing or telephoning the Bigelow Contract Dept., 140 Madison Ave., N.Y. 16, N.Y.

PEOPLE WHO KNOW...BUY Bigelow RUGS - CARPETS SINCE 1825

For more data, circle 98 on Inquiry Card
IT'S A COMFORTABLE FEELING...

to know that your DuKane Franchised Distributor can provide you with a total communications system designed to meet your specific needs.

Everyone relies on experience . . . so why labor yourself with designing or planning a communications system . . . eliminate the costly design time frustrations. Your burden is our specialty. Your local, factory-trained DuKane Franchised Distributor is a communications specialist. Depth of line . . . depth of experience and depth of service support this claim.

He can point with pride to literally thousands of Dukane Communications installations second to none in performance, flexibility, low maintenance, rugged dependability, and quality.

His proven “know-how” has established him as a communications expert in schools, hospitals, business offices, industrial plants, institutions, churches, hotels, motels, recreation centers, shopping centers, sports areas, etc. Service-wise, he’s “Johnny-on-the-spot” for planning, installation, and follow-up service. To him, service and satisfaction are synonymous. It’s a comfortable feeling to rely on his DuKane credentials. Call your local DuKane Distributor for an evaluation of your communications systems needs.

To the right are a few of the many DuKane communications systems.

For more data, circle 100 on Inquiry Card.
"For many years I have used masonry cement for stucco and cement plaster work with excellent results."

30 years a plastering contractor, John W. Thomson, Jr. now heads the firm founded by his father in 1918. He is president of CPLIA (Contracting Plasterers and Lathers International Association) and past president of the Contractors and Plasterers Association of Southern Florida. John W. Thomson & Son, Inc. is well known for expert work throughout the state.


For uniform results and highest quality, more and more architects and contractors are choosing masonry cement for all exterior plaster and stucco jobs. With masonry cement, everything except the sand and water comes in one bag. Portland cement, air-entraining agents, plasticizers, water repellents come scientifically proportioned and interground. Because no other materials are added, inspection and job quality control are easier. Uniformity of color and strength is assured.

And because of its controlled ingredients and air entrainment, masonry cement plaster provides improved workability and durability. There is better water retention and less segregation of materials. Plastic shrinkage and cracking are minimized.

All masonry cement made by member companies of the Portland Cement Association meets high specifications and is produced under rigid laboratory and production controls. For more information, write for free literature. (U.S. and Canada only.)

**Portland Cement Association**

Dept. A12-8, 33 West Grand Ave., Chicago, Illinois 60610

An organization to improve and extend the uses of Portland cement and concrete

For more data, circle 101 on Inquiry Card
In a toilet compartment? You’d think so... with the absence of banging and clatter when doors close... or open. Quiet... Privacy... Peace... Designed that way. Doors, panels, AND pilasters are insulated. Unlike others. Heavy chrome door stop has gasketed rubber bumper. No metal-to-metal contact. (It’s theft-proof, too.) Door action is smooth... floated in Nylon or Delrin... soundly silent... the surest sign of distinct Sanymetal quality.

New, full-color catalog tells the complete story. Write for yours today. THE SANYMETAL PRODUCTS COMPANY, 1701 Urbana Road, Cleveland, Ohio 44112.
YOU CAN SAFELY INSTALL RESILIENT FLOORING OVER CONCRETE ON GRADE OR BELOW GRADE

WHEN THE FLOOR SLAB IS PROTECTED BY THE ORIGINAL TRUE VAPOR SEAL, PREMOULDED MEMBRANE WITH PLASMATIC CORE

In the past, there has been a justifiable hesitation on the part of many architects and contractors to specify and install resilient floors of asphalt, cork and vinyl tile and linoleum directly over concrete slabs on-grade or below grade. Justifiable because moisture migration into the slab, caused a deterioration of the adhesive that bonded the resilient flooring to the concrete. However, many forward thinking architects and contractors first protected the slab from excessive moisture by installing PREMOULDED MEMBRANE Vapor Seal and the resilient flooring has functioned effectively for years. Protect your flooring application and the entire structure by first installing the best vapor seal available—PREMOULDED MEMBRANE with PLASMATIC Core.

PREMOULDED MEMBRANE with PLASMATIC CORE...the only vapor seal offering all these features...

- Water and vapor proof...WVT rating only 0.0048 grains per square foot per hour
- Durable, flexible and strong...will not rupture or tear under normal installation traffic and handling
- Monolithic when installed to expand and contract in direct ratio with the concrete without breaking bond
- Available in 4' x 8' sheets and rolls 4' wide to 50' long
- Lightweight, easy to handle and install

FOR COMPLETE INFORMATION REQUEST CATALOG NO. 753.

OUTDOOR TELEPHONE EXTENSION UNIT

A new, private telephone service unit for use in apartment house patio, sundeck, or pool areas allows tenants to bring their own telephone and plug it in. Besides the normal ring, a flashing light on each compartment also indicates an incoming call. JENSEN INDUSTRIES, 1946 E. 46 St., Los Angeles 58, Calif.

CIRCLE 316 ON INQUIRY CARD

HOSPITAL BED

A new, fully automatic electric hospital bed, featuring a unique power and transmission package and priced as much as 25 per cent less than comparable beds, has been introduced by American Seating Company. Known as Lectra-Care, the new bed represents the first use of the rack-and-pinion power system in the electric bed field. Custom-styling is an additional feature of this bed. Choice of headboard designs helps to eliminate the "institutional look." AMERICAN SEATING, Grand Rapids 2, Mich.

CIRCLE 317 ON INQUIRY CARD

HOSPITAL CABINET

In designing a special cabinet for private or semi-private hospital rooms, Bobrick had in mind the convenience of both ambulatory and wheel chair patients. Although the cabinet door is mirrored, another mirror has been set just above the stainless steel shelf for wheel chair patients. The liquid soap dispenser valve can be furnished at center, right or left of the soap vessel as a further wheel chair convenience. Five hundred paper towels and 100 standard 3-oz cups are fitted inside the cabinet, which takes a rough wall

Product Reports continued from page 175

new sizes reach a maximum length of 25 ft. Libbey-Owens-Ford Glass Company, 811 Madison Ave., Toledo 2, Ohio

CIRCLE 315 ON INQUIRY CARD

For more data, circle 103 on Inquiry Card
Where quality counts, there is no substitute for Silent Gliss, the one best investment in drapery track! Only Silent Gliss gives silent operation, free of annoying "echo chamber" roller noise. Only Silent Gliss, with its patented system of separated, semi-enclosed cord channels, gives such foolproof operation, such all-time freedom from maintenance. And only Silent Gliss offers 14 track styles to choose from • 9 hand traversing models • 5 cord traversing models (2 with separated carrier channels for maximum overlap) • 4 recessed models • 8 surface mounted models • 4 flange mounted models • a model for bracket mounting • 4 models for cubicle or other heavy duty use — suspended, surface mounted, or recessed • tracks for curving ... both single and compound. Silent Gliss is the track with everything. Write today.

Send for free illustrated catalog. Find out why you can buy less expensive tracks, but never make a better track investment than Silent Gliss! Address Dept. AR-12.

SILENT GLISS, INC., FREEPORT, ILLINOIS
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THREE OF THE Newell COMPANIES
Manufacturer of Quality Drapery Hardware Since 1

For more data, circle 104 on Inquiry Cord
STRENGTH WITH MINIMUM COST:

Republic Type 304 ENDURO Stainless Steel was used for escalator interior panels, deck and skirt boards at the new Pan Am Building in New York. Architects: Emery Roth & Sons. General contractors: Diesel Construction Company. Stainless fabricated by Flour City Architectural Iron Company, Minneapolis, Minnesota.

LASTING BEAUTY WITH MINIMUM MAINTENANCE

Rely on time-proven stainless steel to guard the beauty and elegance of your designs year after year.

With excellent resistance to impact, abrasion, scratching, discoloration, and chemical attack, stainless steel delivers lowest possible maintenance costs. Stainless eliminates the need for paint or special finishes. Costly scouring is never required because dirt won't cling. Stainless steel is exceptionally smooth and nonporous, washes bright as new with simple soap and water cleaning.

Leading producer of stainless and alloy steels, Republic will help you select the stainless steel types and finishes best suited to requirements. Republic produces 45 standard types of ENDURO® Stainless Steel, tailors other types to meet special customer requirements.

Republic produces continuous rolled ENDURO Stainless Steel Sheet in widths to 60 inches, special wide sheets in widths to 72 inches. Mill rolled finishes 1, 2B, and 2D are available in coils and cut lengths; mill polished finishes 3, 4, 6, 7, and 8 in cut lengths.

There is also exclusive new TEXTURE-STAINLESS® Steel—with a three-dimensional, nonrepetitive texture. Supplied in the natural color of the stainless or with depressed pattern areas colored. Sheets to 36 inches in width, 10 feet in length.

For information on Republic Stainless Steels, contact your nearest Republic representative or send the coupon.

Republic Type 304 ENDURO Stainless Steel was used for escalator interior panels, deck and skirt boards at the new Pan Am Building in New York. Architects: Emery Roth & Sons. General contractors: Diesel Construction Company. Stainless fabricated by Flour City Architectural Iron Company, Minneapolis, Minnesota.

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Leading producer of stainless and alloy steels, Republic will help you select the stainless steel types and finishes best suited to requirements. Republic produces 45 standard types of ENDURO® Stainless Steel, tailors other types to meet special customer requirements.

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For information on Republic Stainless Steels, contact your nearest Republic representative or send the coupon.

Republic Steel
CLEVELAND, OHIO 44101

*®A Trademark of Republic Steel Corporation
An Affinity for Striking Design and Practicality

Where the finest flooring is wanted, Ludowici's special shapes tile is used. It was chosen for Glenn Ford's home not only because it combines unsurpassed elegance and adaptability, but because it is in every way as practical as it is decorative.

Its textured surface reduces skids in areas that get wet. Maintenance is simple. Its non-fading, non-discoloring beauty endures. It pays for itself in extra years of service.

The practical advantages in Ludowici's genuine quarry tile make it attractive to even the most cost-conscious clients.

Available in red or fire-flashed colors; brushed or smooth texture.

WEST COAST REPRESENTATIVES:
International Pipe & Ceramics Corporation, Los Angeles

HAWAII REPRESENTATIVES:
Lewers & Cooke, Ltd., Honolulu

For additional information, write Dept. R

LUDOWICI-CELADON CO.
75 E. WACKER DRIVE, CHICAGO, ILL. 60601

Manufacturers of quarry tile, the nation's largest producer of roofing tile and NAILON Facing Brick

The architectural application of tile creates a magnificent pool and patio area...makes the kitchen inviting...provides the delight of the unexpected on the stairway—all in the home of movie actor, Glenn Ford.

ARCHITECT:
Mathew Leizer, A.I.A.

TILE by LUDOWICI:
Rich, red Provence tile used in pool and patio area; on stair treads and lower level garden area. Rectangular, red quarry tile in kitchen.

MEMBER:
Tile Council of America

TILE CONTRACTOR:
Fleishman Tile Co.

For more data, circle 106 on Inquiry Card
PLASTIC LAMINATED PEWS
The new Plas-A-Lam line of maintenance-free, high-pressure plastic laminated pews is reported the first of its kind manufactured. The pews are available in a choice of 27 long-lasting wood grain patterns with a variety of pew ends and bodies. James Cabinet Corporation, 1532 North Elk Grove Ave., Chicago 22, Ill.

PRINT PROCUREMENT
Architects desiring to furnish buildings with artwork can obtain prints, lithographs, woodcuts, silkscreens and other original art work of moderate cost through Tanglewood Gallery. The gallery will also arrange for the framing and hanging of these prints by well-known artists. Tanglewood Gallery, 4 E. 95 St., New York, N.Y.

DATA PROCESSING STORAGE
A new “short-depth” Datacenter, Model 7235, an auxiliary unit to provide increased working and storage space in data processing departments, is basically the same size as an earlier model, except the depth has been reduced to 19 3/4 in. from 34 in. The unit provides island-top working surfaces while housing forms, cards, disk packs, control panels and CRAM cartridges on flat shelves. Steelcase Inc., 1120 36 St. S.E., Grand Rapids 8, Mich.

This installation provides another excellent example of how R-W can “fill-the-opening” whenever you want more than just a standard door or have a tough door problem to answer. The above R-W No. 900 Insulated, Aluminum Faced Doors were segmented to meet the curvature of the wall. The doors are automatically operated by a special tractor-type, R-W Electric Operator ... openings are 28’ wide by 14’ high. In addition to the curved doors, R-W also supplied electrically operated, straight sliding, angle frame doors with corrugated faces that match the pattern of the wall. Architects, Bertrand Goldberg Associates.

The design and construction of custom industrial and commercial doors with allied hardware and electric operators to meet your aesthetic and functional requirements is a specialty with R-W. Your local R-W APPLICATION ENGINEER is an expert in this field—he would appreciate the opportunity of consulting with you in regard to your door problems.

YOU PROVIDE THE OPENING...
R-W WILL FILL IT!

For additional information request Catalog No. A-410.
NATIONAL WINNER OF BOTH DESIGN AND MERCHANDISING AWARDS is this Horizon Home in Tampa, Florida. Architect Mark Hampton, A.I. A. designed the house chosen by a distinguished panel of architects for its many excellent design features. His prize: a trip for two to any place in the world.

1963 AWARD WINNERS
CONCRETE INDUSTRIES
HORIZON HOMES
PROGRAM

Crisp, clean lines of the interior reflect the spirit that characterizes the exterior of this award-winning home.

Once again, the annual Horizon Homes Program has been an outstanding success. Visitors by the thousands have toured the 1963 model Horizon Homes and have been impressed with the beauty and livability of modern concrete. Across the country the imaginative uses of concrete in and around these homes are creating enthusiasm and tremendous buyer interest. Everywhere, architects and builders report the effectiveness of the wide publicity and promotional support—the dramatic response accorded the Horizon Homes.

REGIONAL DESIGN AWARDS
Western Region: Riverside, California.
Architect: Ruhnau, Evans, Brown & Steinmann

Rocky Mt. Region: Englewood, Colorado.
Architect: Langdon Morris

South Central Region: Fort Smith, Arkansas.
Architect: Robert Wanslow

Midwestern Region: Indianapolis, Indiana.
Architect: Fran E. Schroeder & Assoc.


Eastern Region: South Hadley, Massachusetts.
CONCRETE IDEA CENTER shows versatility of modern concrete, created added interest in the Tampa Horizon Home. The special merchandising awards jury selected the home as receiving the most effective selling support. Prize to Sunstate Builders, Inc.: a trip for two to any place in the world.

Crowds of people were attracted to this unusual home. Many expressed lively interest in the charm of modern concrete.

Again in 1964 architects and builders are offered a big opportunity to team up and share in nationwide programs developed expressly to showcase the freshest ideas in concrete and help sell more homes.

Literature detailing the new program will be available for the asking at the PCA booth at the NAHB convention. Stop by for your copy!

PORTLAND CEMENT ASSOCIATION
An organization to improve and extend the uses of concrete

REGIONAL MERCHANDISING AWARDS

**Western Region:** Riverside, California.
Builder: Harry C. Marsh & Co.

**Rocky Mt. Region:** Englewood, Colorado.
Builder: Better Built Homes

**South Central Region:** Houston, Texas.
Builder: Pace Setter Imperial Homes

**Midwestern Region:** Marion, Indiana.
Builder: H. W. Wilkins & Son

**Southeastern Region:** Mt. Airy, North Carolina.
Builder: Blue Ridge Enterprises, Inc.

**Eastern Region:** South Hadley, Massachusetts.
Builder: Desrosiers & Son, Inc.

For more data, circle 108 on Inquiry Card

ARCHITECTURAL RECORD December 1963 195
REPAIRS WITH ADHESIVES
Over 40 typical industrial repair jobs calling for cements or adhesives of epoxies and polysulfides are described and illustrated in an eight-page repair handbook designated Bulletin IM. Smooth-On Manufacturing Company, 572 Communipaw Ave., Jersey City 4, N.J.
CIRCLE 412 ON INQUIRY CARD

WARBLE TONE AND NARROW-BAND RANDOM NOISE
Technical Review 462 is a 28-page technical handbook on the use of warble tone and random noise for acoustical measurement purposes such as reverberation-decay time in rooms. It also describes techniques for feedback control of narrow-band random noise. The handbook is based on two papers which were presented by the authors, Jens T. Broch and P. E. Miller Petersen, at the fourth International Congress on Acoustics in Copenhagen, Denmark. B & K Instruments, Inc., 3014 W. 106 St., Cleveland 11, Ohio
CIRCLE 413 ON INQUIRY CARD

SLIDING WINDOWS
CIRCLE 414 ON INQUIRY CARD

DOOR CLOSERS
The new door closer "Selector Manual" gives easy-to-find door closer selection and sizing information on the complete line of Norton closers, including complete specifications for each type. A second manual (N-2) provides detailed information, installation photographs, and sizing data on Series 700 and 7000 closers. Norton Door Closer Company, Division of The Yale & Towne Manufacturing Co., 372 Meyer Rd., Bensenville, Ill.
CIRCLE 415 ON INQUIRY CARD

SLIDING GRILLES
Aluminum or steel sliding grills which are vinyl coated in four possible colors are the subject of bulletin SG 6. Cornell Iron Works, 36th Ave. and 13th St., Long Island City, N.Y.
CIRCLE 416 ON INQUIRY CARD

COPPER FOIL
Booklet D-8P containing data on building applications for Electro-Sheet copper foil includes information on the use of the laminated products for head and sill flashing, membrane waterproofing, curtain-wall waterproofing, damp coursing, and shower stall and moisture pans. Another feature is a section on copper foil used as radio frequency interference (R.F.I.) shielding. Anaconda American Brass Company, Ansonia Division, Ansonia, Conn.
CIRCLE 417 ON INQUIRY CARD

LITERATURE REQUESTED
Fire in the offices of Oliver and Smith, architects, 333 W. Freemason St., Norfolk, Va., destroyed their file of manufacturers' samples and catalogs. They will appreciate new ones from the various manufacturers.
*Additional product information in Sweet's Architectural File

For more data, circle 109 on Inquiry Card

For more data, circle 110 on Inquiry Card
AN ARCHITECT LOOKS AT TERNE: Percival Goodman, one of the foremost living designers of ecclesiastical buildings, has this to say of the eighty thousand square feet of Terne metal roofing recently installed on Shaarey Zedek, the world’s largest synagogue: “To be entirely frank, we had originally wanted to use a considerably more expensive material than Follansbee Terne. Now that the latter is in place, however, we are satisfied that no better choice could have been made. Terne not only afforded the widest possible latitude in form and color along with time-tested functional integrity, but it did all this at a figure well below preliminary estimates for a metal roof.”
Zonolite prototype building #4: A Single Tenant Office Building
The concept derives from point tower block; the practicality is provided by Zonolite Masonry Fill Insulation in the cavities.


The practicality of the building is improved in several ways by the use of Zonolite Masonry Fill Insulation in the cavities.

It forms a permanent, clean, dense barrier which cuts heat costs 17.29% in this particular installation. Cooling costs are cut 5%. In addition to a reduction in heating and cooling costs of $490 per year, a proportionately smaller heating unit can be used (see chart). Note, too, in the smaller diagram, how interior wall surfaces maintain a more comfortable temperature.

Initial construction costs are further reduced because wall surfaces do not require the finishing necessary when conventional insulation is used on the inside. Moreover, Zonolite Masonry Fill Insulation is water repellent. Interior walls stay dry.

In multiple-room buildings, the sound dampening qualities of this material greatly contribute to the overall desirability of your project. You can expect at least a 20% to 31% reduction in loudness of sound transmission through the walls.

At an installed cost of approximately 10c per square foot in cavities of this type, obviously the use of Zonolite Masonry Fill Insulation is more than justified. The installed cost is so low mainly because the material is simply poured out of the bag into the cavities.

Our Bulletin MF-83 contains additional facts you will want to consider. Write Department AR-123, Zonolite Division, 135 South LaSalle Street, Chicago 3, Illinois.

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Table: Design Conditions

<table>
<thead>
<tr>
<th>Design Conditions</th>
<th>Winter Heat Losses in Btu/Hr</th>
<th>Summer Heat Gain in Btu/Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without Masonry Fill</td>
<td>With Masonry Fill</td>
</tr>
<tr>
<td>Wall</td>
<td>4&quot; Face Brick Air Space</td>
<td>390,000</td>
</tr>
<tr>
<td></td>
<td>4&quot; Face Brick</td>
<td>386,800</td>
</tr>
<tr>
<td>Solar and</td>
<td>Overhang 4&quot; Batt</td>
<td>386,800</td>
</tr>
<tr>
<td>Transmission</td>
<td>Glass-Heat Absorbing</td>
<td>386,800</td>
</tr>
<tr>
<td>Roof 3&quot; Insulation</td>
<td>and Regular Plate</td>
<td>610,000</td>
</tr>
<tr>
<td>Infiltration Ventilation</td>
<td>6,000 CFM F.A.</td>
<td>610,000</td>
</tr>
<tr>
<td>Lights</td>
<td>-</td>
<td>240,000</td>
</tr>
<tr>
<td>People</td>
<td>-</td>
<td>81,000</td>
</tr>
<tr>
<td>Total</td>
<td>1,386,800 Btu/Hr</td>
<td>1,147,800 Btu/Hr</td>
</tr>
</tbody>
</table>

Percent Savings with Masonry Fill: 17.2% = 5.5%

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For more data, circle 111 on Inquiry Card.

ARCHITECTURAL RECORD December 1963 199
White House Library

continued from page 36


There is an exquisite lock set by Best to complement any decor you create. Luxurious escutcheons and knobs are artist-designed, and tooled from solid brass for the finest quality.

Every type and style can be masterkeyed into one system which expands with future growth of your building. And, each Best lock contains the famous interchangebale core which permits instant change of pin-tumbler combinations.

At no obligation, a Best security analyst will design the masterkeyed system for your needs.

LOCKING SYSTEMS

THAT
ADD
TO
DECOR

For more data, circle 113 on Inquiry Card
IDEAL TEACHING AND LEARNING ENVIRONMENT

Fast-acting Burgess-Manning/Inland radiant ceiling heating keeps classrooms comfortable and draft-free, even next to large window areas. Students are more receptive and teachers more effective when classrooms are free from “cold spots” and “hot spots.” Burgess-Manning/Inland Radiant-Acoustic Ceilings are providing quick, uniform and silent heating—and in many cases, also cooling—in scores of new schools across the nation. Administrators appreciate their trouble-free efficiency and low maintenance requirements. Architects find them attractive and flexible in layout and adaptation to lighting. For a description of radiant heating and cooling principles, along with performance curves, design procedure and acoustical data, see Sweet’s Architectural File, section 11a/In, or write for Catalog 250.

Inland Steel Products Company  Engineered Products Division

4113 WEST BURNHAM STREET, MILWAUKEE 1, WISCONSIN
"It's either my eyes or that light, but I'm having trouble reading this suggestion."

"It's the light, Mr. Templeton. It's gotten yellow. Here, I'll read it!"

"I'd hate to think it was me."

"It says install lighting shields of crystal clear LUCITE and you'll have NO YELLOWING PROBLEM."

"I have to admit, Mr. Templeton, it was my suggestion."

"What a coincidence. We were just talking about the light."

And here's our suggestion. For a free lighting booklet and more information on acrylic lighting shields made from LUCITE, write: Du Pont Company, Dept. AR12, Room 2507L, Wilmington 98, Delaware. (Du Pont does not make or sell lighting shields, but supplies LUCITE acrylic resin, or acrylic monomer to manufacturers of quality diffusers.)
The good nature of Red Cedar Shingles

Imaginative application comes naturally to this unique material, and the beauty is more than skin-deep. Red Cedar Shingles are light-weight and strong. They offer superior wind and weather resistance, insulation and durability. Maintenance free, a roof of Red Cedar ages gracefully and gains character with the years. For complete information about applications or specifications: write Red Cedar Shingle Bureau, 5510 White Building, Seattle, Washington. (In Canada: 550 Burrard Street, Vancouver 1, B. C.) RED CEDAR SHINGLES

For more data, circle 116 on Inquiry Card
1. Make air behave... beautifully
You can combine the superior air distribution performance of Barber-Colman Uni-Flo sidewall diffusers with any one of a wide variety of attractive, extruded aluminum frame styles to make air behave beautifully—in more ways than one. Each frame style is functionally designed to blend inconspicuously with room decor.

Adjustable Uni-Flo core creates a controlled turbulence that thoroughly (and quietly) diffuses the conditioned air before it reaches the occupancy zone. This principle completely eliminates drafts associated with "streamlined" diffusers which can drop masses of cold air onto people in the room.

5 ways you can profit

2. Provide complete air control
Barber-Colman Control-Line air diffusers give you everything the name implies—built-in control of air volume and pattern, plus linear design distinction to meet all architectural requirements, including the latest integrated ceilings.

These diffusers are available in single- or multi-slot designs to fit all capacity requirements. Air pattern is fixed or adjustable from vertical to horizontal throw, depending on model.

Construction is extruded aluminum—easy to handle, simple to install in ceiling, sidewall, or soffits. Mechanical interlocking permits assembly in continuous lengths.

3. Cut costly call-backs
You make air go where you want it to with Barber-Colman perforated-face ceiling diffusers. Accurate selection data plus simple on-the-job adjustment avoids expensive call-backs. Patented design assures draft-free comfort at very low noise levels.

Vertical or horizontal deflection or one-, two-, three-, or four-way air discharge pattern can be set on the job—without altering the exterior appearance. Engineered air flow minimizes ceiling smudging—another plus benefit for your customers.

Available in recessed- or surface-type units for all types of acoustical, plastered, or metal pan ceilings.

Get the facts! For more information on the profitable advantages of these and other quality engineered air distribution products, consult your nearby Barber-Colman field office.
4. Simplify diffuser installation

Now, Barber-Colman diffusers are available mounted integrally with perforated metal ceiling panels in modular sizes to fit modern integrated ceilings.

Installation is easier, costs less . . . no cutting or fitting is required. Modular units drop easily into place and are supported by the ceiling grid. Perforated panel face blends in with ceiling panels. One-, two-, three-, or four-way discharge can be provided without altering the outward appearance.

Modular panels from 12" x 12" to 48" x 48" are available in both supply and return models, with or without fiber glass insulation.

5. Combine air distribution and lighting

Here's the practical way to provide efficient lighting and air distribution without detracting from integrated ceiling design.

New Clymatron 5-way air/light diffuser that lights, diffuses air, returns air, extracts heat . . . and acts as an air exchanger. The combination of functions it performs can be easily altered at any time to quickly meet changes in room or zone requirements.

What's more, the heat extractor function prevents lamp heat from entering the room . . . enables you to install more light, reduce air quantity requirements, and even integrate a thermostat in the fixture design.
Twenty-one colors specially blended to enhance modern masonry are yours for the asking. And when you specify RUSCO windows, you assure your client the strength and permanence only top quality fabricated tubular steel can give — galvanized, banderized, epoxy-enameled, tough baked, felt-pile weather-stripped and guaranteed!

RUSCO employs the modular principle in window dimensions, affording infinite mulling and stacking design variety. Here you see just three of the many possibilities in RUSCO windows. Write today for the new RUSCO catalog. Then, phone your local RUSCO representative for free consultation.

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Serving the architectural, building and home improvement field in the United States and Canada since 1935

CURRENT COMPETITIONS: LIBRARY DESIGN AWARDS

The American Institute of Architects, the American Library Association and the National Book Committee are co-sponsors of the Second Library Building Award Program. The competition is open to any library built in this country since January 1, 1959, and designed by an American architect. The deadline for entry slips and fees is December 16; for submission of entries, January 24, 1964. Judgment will be made in February by a jury of three architects and a representative each of the A.I.A. and the National Book Committee. In addition, three librarians, representing three categories of libraries, will help in the judging.

Inquiries should be directed to Library Buildings Award Program, The American Institute of Architects, 1735 New York Avenue, N.W., Washington 6, D.C.

A.I.A. Honor Awards
The American Institute of Architects has announced its 16th annual program of National Honor Awards. Any registered architect is eligible to enter a building, or a group of buildings, completed since January 1, 1959.

The deadline for preliminary submission was November 29. Entries must be received at the Octagon by January 10, 1964.

Fallout Shelter Competition


James B. Roembe, director of the Architectural and Engineering Development Division, Office of Civil Defense, will serve the jury as its technical adviser.

Reynolds Student Prize

Three architects have been appointed as jurors in the fourth annual Reynolds Aluminum Prize for Architectural Students. They are Joseph D. Murphy, F.A.I.A., of Murphy and Mackey, St. Louis; Sam T. Hurst, A.I.A., dean of the School of Architecture, University of Southern California; and W. G. Lyles, A.I.A., of Lyles, Bissett, Carlisle & Wolff, Columbia, S. C.

The competition begins with a competition held in 30 schools, awarding each winner $200. The jury will consider these designs and select a finalist, who will receive $2,500 for himself and another $2,500 for his school.
NEW POST-TENSIONING APPLICATIONS SHOW

Here's one of the most efficient and versatile methods of structural framing available to you—cast-in-place or precast concrete post-tensioned by the Ryerson BBRV system.

This system permits longer spans at economical cost, provides good deflection control and often effects savings by reducing structural depth. And when you specify Ryerson post-tensioning you deal with one of the nation's largest suppliers of construction steels—a company with the resources and facilities to provide a complete service package. This includes:

Services for architects and engineers: Ryerson assists in feasibility studies on use of post-tensioning in specific projects. Provides preliminary cost data. Shares experience in structural design and layout. Furnishes details and specifications.

Services for contractors: Ryerson delivers shop-fabricated tendons, completely assembled and ready for placement. Also provided: equipment for stressing and grouting, technical job-site assistance, architect-approved drawings, stressing data and reliable labor estimates.

If you would like more information or help on a current project, call Ryerson or write to Box 8000-A, Chicago 80, Ill.
HIGH SCHOOL, CORONA DEL MAR, CALIFORNIA

All six major buildings in the complex making up this new school use Ryerson post-tensioning to achieve structures that are functional, esthetically pleasing and economical. The two flat-roofed buildings in the center (see model below) are one-story lift-slab structures with post tensioned flat slab roofs of 10% lightweight concrete. The larger slab measures 335' x 195' and was lifted in four sections. Bay size in both buildings is 34' x 28'. A third post-tensioned lift-slab structure (U shape at top center) uses 8½' lightweight concrete supported by WF steel columns. The three other buildings have sawtooth roofs formed by precast post-tensioned wing tees. (See photo at right.)

ARCHITECT: Blurock, Ellerbroek & Associates, William E. Blurock, Architect
ENGINEER: John Martin & Associates
CONTRACTOR: Nylin Hurd Construction Co.

ELEVEN TEES FORM THE ROOF OF THE GYMNASIUM
—each is 20-ft. wide, 101-ft. long, post-tensioned with two 40-wire tendons. Stem dimensions: 15' x 42'. Here one of the units is lifted into place. 1-in. pour strips tie the tees together.

POST-TENSIONING TENDONS IN ONE OF THE TWO-WAY FLAT SLABS
—note wide tendon spacing and minimum of auxiliary reinforcing. This simplifies placement of utilities and pouring of concrete.

VERSATILITY OF RYERSON BBRV SYSTEM

N. Y. WORLD'S FAIR PAVILION FOR EQUITABLE LIFE ASSURANCE SOCIETY

Comparative cost studies on post-tensioning vs. conventional reinforcing in this structure showed the advantages of post-tensioning would cost no more. The 116' 6" longitudinal girders over the supporting columns are each post-tensioned with five Ryerson BBRV tendons-three 40-wire units, two with 28 wires. These girders span 61-ft. center to center of columns, leaving a 27' 9" cantilever at each end. They are L-shaped to support 13 T-beams which form the roof structure. The 94' tees combine pretensioning with post-tensioning by Ryerson. The pavilion exhibits will highlight population growth. A 45' map will record births and deaths as they occur in each state, and a huge illuminated sign will keep a running tally on total U.S. population.

ARCHITECT: Skidmore, Owings & Merrill
ENGINEER: Weiskopf & Pickworth
CONTRACTOR: Humphreys & Harding, Inc.

ARCHITECTURAL RECORD December 1963 209
STOP BURNING SAND...
with the WHITE Model "60"
Sand or Aggregate Steamer.

Burned sand does not set properly in mortar. During
freezing weather protect the sand from disintegrat­
ing from overheating by specifying use of a White
Sand Steamer on your jobs. The White Model "60"
is simple to operate, and gives maximum steam per
gas consumption. Has a 60-gallon capacity—can
handle up to 10 yards of sand at a time . . . gives
steam in 40 minutes from a cold start, heavy duty
construction. Recommended by architects and con­
tractors.

Suggested specification—"To assure proper mixture
of sand with cement in freezing weather, the sand
or aggregate shall be heated throughout by steam
with a White Sand Steamer or approved equal."

Write for Descriptive folder and Prices
L. B. WHITE CO., INC.
3235 GEORGE STREET, LA CROSSE, WISCONSIN

VAN helps serve
3000 at John Carroll
Van was privileged to collaborate with the architect
and Saga Food Service Company, Oberlin, in the
planning of the food service facilities of John Car­
roll University, Cleveland. The trays of 3,000 students
and faculty daily slide along the above-illustrated
gleaming stainless cafeteria counter. Saga Food
Service says that the kitchen engineering was excel­
 lent . . . that there was good flow . . . the equip­
ment is well spaced . . . and the Van-designed-
and-fabricated equipment has been properly chosen
for each function. No matter what you have on the
boards . . . if food service is involved . . . new, expan­
sion, modernization, Van can help with its century of
experience.

assembly line idea
When you recommend to clients equipment to save
motions and steps, you are on solid ground. Con­
voyer systems, custom-made for the particular in­
stitution, have proven their worth. Where space is at
a premium, have our kitchen engineers help you use
a conveyor system. Write THE JOHN VAN RANGE
CO., 429 Culvert Street, Cincinnati 2, Ohio.

New 5' wide Marlite Murals
for walls with a custom-decorated look!
These strikingly new 5' wide pictorial panels feature original
scenes and designs to add a dramatic new dimension to any
room. Crafted in luxurious gold on white, Marlite Murals fea­
ture Marlite's exclusive baked plastic finish that seals out
grease, stains, moisture. Choose from nine different Marlite
Murals, plus a wide choice of distinctive colors, patterns, and
Trendwood® reproductions. Send your building materials dealer,
consult Sweet's Files, or write Marlite Division of Masonite
Corporation, Dept. 1205, Dover, Ohio.

New! FREE!
Send for full-color architect's catalog
ANOTHER QUALITY PRODUCT OF MASONITE® RESEARCH

For more data, circle 122 on Inquiry Card
For more data, circle 124 on Inquiry Card
Why Atlanta Towers went total-electric... by General Electric

The new 120-unit Atlanta Towers is the latest total-electric Gold Medallion project of developer A. B. Simms, and is equipped by General Electric from its zone-electric heating and cooling units to its modern electric kitchens.

Mr. Simms gives the following reasons for building Atlanta Towers to Gold Medallion standards and selecting General Electric’s equipment and program:

1. Reasonable initial investment.
2. Economical operating costs.
3. Flexibility in performing maintenance.
4. Individual room control for heating and cooling.
5. Wide range of equipment and appliances which can be included as standard equipment in each apartment.
6. Valuable electrical system design counsel.
7. Promotional support to speed rentals.

“We feel that on the basis of economics, tenant appeal and dependability of performance, the decision to go all-electric was a sound business decision, and we are enthusiastic with the results.”

Find out how General Electric’s engineering and design assistance and customized promotional programs can be of service in your total-electric projects by writing: Construction Market Development Operation, General Electric Company, Appliance Park, 6-230, Louisville, Kentucky.

A. B. Simms, the developer of Atlanta Towers, is now building Bay Shore Towers in Tampa, Florida, another total-electric Gold Medallion high-rise apartment equipped by General Electric.
Today, raceways under concrete floors can be readily designed for maximum versatility. One method, a pyramidal feed system, that provides adequate capacity for future utility requirements as well as changing plant or office layouts is shown at left.

Fig. 1 shows the distribution ducts and the floor inserts. All inserts for the service fittings will be flush with the finished concrete floor. One duct is for power, one for telephone wiring. Fig. 2 shows the installation in progress. The two-level system allows feeder ducts to pass under distribution ducts. Fig. 3 shows the placing of concrete after reinforcement and ducts have been carefully set. Fig. 4 shows a typical completed installation.

In addition to the basic power and telephone services, many modern buildings may require additional raceways for other uses. These include, for example, panelboard feeders with voltages up to 600V, low potential signal services, intercoms, T.V. and programming. Designers should estimate future requirements as generously as possible.

Write for additional free information. (U.S. and Canada only.)
What's wrong with this new washroom? Scott found 4 big design mistakes.

At first glance it looks great. Neat, clean, up-to-date. But there's more to a washroom than handsome fixtures. Scott's trained consultants found four planning errors in this layout:

- Mirrors are best located away from washbasins. That way people don't brush loose hair into sinks, and clog them. And successive users aren't kept waiting.
- The Scott towel dispenser should be located between the sink and the exit for a more efficient traffic pattern.
- The waste receptacle should be located between the towel dispenser and the exit, so people aren't kept waiting while each user dries his hands.
- Uncovered wall-hung waste receptacles increase maintenance efficiency, discourage litter, speed traffic flow.

For the washrooms in your buildings, remember: 1) Scott fixtures give your clients years of value, dispensing the nation's finest paper products; 2) Scott's unique Washroom Advisory Service is always available to you, free of charge. Write for our 16-page washroom planning booklet, or call your local Scott office. Scott Paper Company, Philadelphia 13, Pennsylvania.

SCOTT MAKES IT BETTER FOR YOU

For more data, circle 126 on Inquiry Card
Tempo With Style:
Boston Bank Opens
At Government Center

Boston's Government Center acquired its first private building with the dedication in July of the National Shawmut Bank.

The branch bank is technically a temporary building. It is built in the middle of a site earmarked on the center's master plan for park space. The problem, therefore, was a contradiction in terms: an impermanent bank.

In response, architects Imre and Anthony Halasz designed a "pavilion"—self-effacing in scale, self-assured in form.

The plan of the main banking room resembles a snail shell. The bank's clients, entering 2 feet below grade, are led in a curve past desks and teller's counters and eventually out the door they came in. Two other intersecting cylinders house offices and conference space.

The exterior is of "overbaked" brick, conforming in appearance to materials used in near-by buildings.

Tredennick-Billings Company of Boston was the general contractor.

No. 4 Penn Center
Extends
Philadelphia Renewal

Still another building is in process of being added to Penn Center, part of Philadelphia's ambitious downtown redevelopment.

Four Penn Center, now under construction, will provide 500,000 square feet of office space at a cost of $15 million. It is scheduled for July 1964 occupancy.

The building's curtain wall will have limestone spandrels and bronze-colored aluminum mullions.

Emery Roth & Sons are the architects. The general contractor is the Carlyle Construction Company.
HERE'S THE WAY TO BUILD!

Lighter!
Rigid urethane foam at 1 1/2 pcf, sandwiched between layers of pre-finished steel, provides at least twice the insulation value of conventional materials.

Stronger!
The urethane foam core is permanently bonded as an integral part of the panel unit; high strength adds firm structural support plus good dimensional stability.

Faster!
In just 12 minutes, a 5-ft. by 20-ft. factory-engineered panel is raised, positioned, interlocked and anchored into place—for speediest construction yet.

Cheaper!
The low cost of curtain wall construction has made it first choice in commercial building design. Improved isocyanates by Mobay now add new economies.

Urethane foam puts the BIG PLUS in curtain wall construction
Rigid urethane can be foamed in place on the job site or delivered in the form of pre-sized panels ready to be fitted into place. Walls go up faster, require little or no maintenance, and give up to 5% more usable interior space. Insulation qualities of rigid urethane foam are excellent and it makes an efficient acoustical, thermo and vapor barrier. For more specific data on rigid urethane for insulating, void-filling and structural reinforcement, write Mobay Chemical Company, Code AR-4, Pittsburgh 5, Pennsylvania.

MOBAY CHEMICAL COMPANY
For more data, circle 128 on Inquiry Card
"...complements the design, safeguards the tenants..."

says E. Wolman of the Jerry Wolman Construction Company, Silver Spring, Maryland.

"Anchor's All-Aluminum Picket Railing protects nine levels of balconies around Summit Hill Apartments in Silver Spring. We chose it for its elegance and attractive appearance, the way it complements the design and safeguards the tenants."

Consider new Anchor All-Aluminum Picket Railing for your choice, too... whenever its lasting beauty and positive protection are compatible with your building design. Pickets, posts, and handrail are all bright, rust-proof Reynolds Aluminum. And Anchor's national network of skilled erectors provides quick and efficient installation.

For detailed information, call your local Anchor office or write: ANCHOR POST PRODUCTS, INC., 6691 Eastern Avenue, Baltimore 24, Maryland.

"Anchor's All-Aluminum Picket Railing protects nine levels of balconies around Summit Hill Apartments in Silver Spring. We chose it for its elegance and attractive appearance, the way it complements the design and safeguards the tenants."

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For detailed information, call your local Anchor office or write: ANCHOR POST PRODUCTS, INC., 6691 Eastern Avenue, Baltimore 24, Maryland.

"Anchor's All-Aluminum Picket Railing protects nine levels of balconies around Summit Hill Apartments in Silver Spring. We chose it for its elegance and attractive appearance, the way it complements the design and safeguards the tenants."

Consider new Anchor All-Aluminum Picket Railing for your choice, too... whenever its lasting beauty and positive protection are compatible with your building design. Pickets, posts, and handrail are all bright, rust-proof Reynolds Aluminum. And Anchor's national network of skilled erectors provides quick and efficient installation.

For detailed information, call your local Anchor office or write: ANCHOR POST PRODUCTS, INC., 6691 Eastern Avenue, Baltimore 24, Maryland.
Mail room clerk sends basket to designated floor simply by pushing a button. Each tote box carries up to 32 lbs. of payload...the conveyor accepts up to 12 loads a minute.

At proper floor, the box is automatically shunted off vertical conveyor. "Magnetic memory" control system has no moving parts, levers, or between-station wiring...nothing to wear out.

New Michigan Consolidated Gas Co. Building features

28-story Recordlift mail conveying system

A recent publication from the U. S. Post Office Department* recommends that "in the large office building the owner and his architect should assure that proper consideration has been given to the mail collection and delivery needs of tenants." It suggests further that the use of vertical tray conveyors is "most effective."

An outstanding supplier of this type of high-speed mail distribution equipment is Standard Conveyor Company...and Standard's Recordlift system in Detroit's new 28-story Consolidated Gas Company Building is an outstanding recent installation.

Mail can be sent from any floor to any other floor on the system in a matter of minutes—simply by pushing the proper address button. During rush hours, the Recordlift can deliver 384 lbs. of mail a minute to or from the mail room.

A complete Recordlift Data File can prove most useful in designing your next multi-story building. Request one today.

*POD Publication 55, Office of Research & Engineering, U. S. Post Office Department—July, 1963

Other typical Standard Conveyor Recordlift Installations

- Kaiser Center Office Building
  Oakland, California
- Western Electric Co., New York, N.Y.
- Atlantic Coast Line Railroad Company
  Jacksonville, Florida
- Ontario Hospital Services Commission
  Toronto, Ontario, Canada
- Bank of America Service Center Bldg.
  San Francisco, California
- Bankers Life Company
  Des Moines, Iowa
- State of Oregon, Salem, Oregon
- First National Bank
  Minneapolis, Minn.
- Lincoln National Life Insurance Co.
  Fort Wayne, Indiana
- Time-Life Building, New York, N.Y.
- Mutual Service Insurance Company
  St. Paul, Minnesota
- State of Texas Employment Comm.
  Austin, Texas
- Ohio Oil Company
  Findlay, Ohio
- California State Teachers Association
  Burlingame, California
- Los Angeles County Hospital
  Los Angeles, California
- Zurich Insurance Co.
  Chicago, Illinois
- Seattle First National Bank
  Seattle, Washington
- Public Library Division
  City of Minneapolis, Minnesota

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Standard Conveyor Company

312-M Second St., North St. Paul, Minn. 55109

For more data, circle 131 on Inquiry Card

ARCHITECTURAL RECORD December 1963 217
A NEW
COMFORT HEATING CONCEPT
for Industrial and
Commercial Buildings

WHY PAY TO
HEAT THE ROOF?

SPACE-RAY
INFRA-RED
GAS HEATERS

DIRECTLY HEATS PEOPLE, FLOORS
AND EQUIPMENT FIRST...NOT THE AIR

Space Ray, like the sun, directs its infra-red heat rays downward from above; these rays travel through the air without warming it ...turn into heat only upon striking people, objects, and surfaces below. No fans or blowers to create air movement - clean, draftless sunshine warmth continually blankets the entire lower working area — fuel costs are greatly reduced.

Save up to 50% the costs of ordinary heating systems. Initial cost of heaters is low. Space-Ray requires no ducts or vents, no in-plant wiring; installation is simple, inexpensive. Space-Ray is being installed in a wide variety of size and type buildings, all over the country, for 25c per sq. ft. — and less. No moving parts; little or no maintenance. A.S.A. approved. Operates on Natural, L.P., Manufactured or Mixed Gases. Each unit 40,000 BTU.

SPACE-RAY CORPORATION
306 W. TREMONT AVE., CHARLOTTE 3, N. C.

For more data, circle 132 on Inquiry Card

On the Calendar

December
9-10 White House Conference on Community Development—Sheraton Park Hotel, Washington, D.C.
11-15 20th Annual Convention-Exposition, National Association of Home Builders—McCormick Place, Chicago

January 1964

February 1964
3-7 International Conference on Materials, sponsored by the American Society for Testing Materials—Sheraton Hotel, Philadelphia
15-19 1964 National Convention, American Association of School Administrators—Atlantic City, N.J.

Office Notes

Offices Opened
Joseph J Oshiver, Architect, has opened offices in the Lathrop Building, 1005 Grand Ave., Kansas City, Mo., 64106.
Laurence L. Rubin, Architect, has announced the opening of his office at 6 Long Wharf, Boston, Mass.

New Firms, Firm Changes
Ballard Todd Associates, Architects, of New York City, have announced the appointment of Frank G. Lopez, A.I.A., as an associate in the firm.
Brock, Johnson and Romanowitz, Architects, is the new designation of the former firm Brock and Johnson, Architects. The partners, Ernst V. Johnson, A.I.A., Byron F. Romanowitz, A.I.A., and John Boyer Moore, A.I.A., practice at 159 Barr St., Lexington, Ky., 40507.
Migdal, Layne & Sachs, Inc., Consulting Engineers, is the new firm established by the association of Migdal & Layne, Consulting Eng.
continued on page 222

how to be sure
you get
VICRTEX
when you specify
VICRTEX Vinyl
Wallcoverings

Occasionally, an architect wanting VICRTEX quality discovers that through misinterpretation of specifications a different, less desirable wall covering has been installed. With tighter specs this might never have happened. The wall covering installed would have been VICRTEX with its full beauty of color; distinctive textures and patterns; permanent wall protection; low, low, maintenance; and tested and proven fire safety.

To be sure you get VICRTEX quality when you specify vinyl wall coverings:

1. specify by weight and thread count a bleached, pre-shrink, mildew-inhibited cotton fabric backing sufficient to give a blemish free, dimensionally stable, easily applied wall covering.
2. specify by weight, adhesion to backing and abrasion resistance a vinyl coating compounded of top grade ingredients and electronically fined to the fabric.
3. specify a low fire hazard classification continually maintained and confirmed by an independent laboratory; and delivery of the wall fabric to the job site in containers bearing the inspection label of that laboratory.
4. require subcontractor to submit with his bid the manufacturer's name and product quality on which his bid is based.

Write for our booklet "A Practical Guide to Specification, Selection and Use of Vinyl Wallcoverings." Do it today!

L.E. CARPENTER & COMPANY
Empire State Building, New York 1
(212) Longacre 4-0080

For more data, circle 133 on Inquiry Card
FBB179: Equal to the best in the hinge industry!

THE STANLEY BB600: Even finer, in quality and design! Has no equal outside the Stanley lines!

BB1600: The finest available... for jobs that call for the ultimate in hinge quality and styling!

STANLEY HARDWARE Division of The Stanley Works Lake Street, New Britain, Connecticut

Please send me your new Architectural Hinge Fact File

NAME

POSITION

FIRM

STREET

CITY ZONE STATE

If you are requesting this file with a specific project in mind would you please identify:

For more data, circle 134 on Inquiry Card
some feats are impossible without steel

Steel has the most favorable strength-weight-cost combination of any building material. Because of its strength, flexibility of fabrication methods, and wide range of available structural shapes, steel makes possible esthetic and space-saving achievements unattainable with other materials. Steel can be designed as a beam, rigid frame, continuously, compositely, plastically, orthotropically. Steel can be erected in any season, can be handled more roughly than other material. Because there are so many grades of structural steel of varying strength levels, it is never necessary to over-design.

Only steel columns could bear the load. The 30-story Michigan Consolidated Gas Company Building in Detroit is the world's tallest all-welded building for a reason: integrated architectural design prohibited use of columns larger than 2 ft., 4 inches square. Reinforced concrete columns that size couldn't carry the required 6½ million pounds. Connections were welded to eliminate bulkiness and achieve smooth right angles between beams and columns. Heavy columns for lower stories are four plates welded into a rectangular box section. Where extra strength was needed a fifth interior plate was added. Lighter upper columns are regular rolled sections. The field-welded wind-resisting system contains the equivalent of 40 miles of Vn-inch fillet welds. American Bridge Division fabricated and erected 5,700 tons of steel, inspected welds by radiographic and dry powder magnetic particle techniques. Architects: Minoru Yamasaki—Smith, Hinckman & Gylls, Associated Architects & Engineers. Contractor: Bryant & Detwiller Co.

Steel dome saves Syracuse University $193,500. Fabricated and erected by American Bridge, the low-profile dome of the Syracuse University field house has a rise of only 32 ft. and a diameter of 300 ft. Because there are no interior supports, all of the 80,000-sq.-ft. floor is usable. Seating capacity is over 4,000 with room enough for basketball, track and field meets, or a 70-yd. football practice field. There are over 700 tons of structural steel in the dome and canopy. In a competitive bid with the alternate concrete design, steel saved $193,500. Architect: King and King. Engineer: Eckerlin and Kleper. Contractor: R. A. Culotti Construction Company.

High-rise truss walls—now possible with unique design and the "combination of steels." Through a new building design concept using four different steels of varying strengths, designers trimmed 200 tons of steel (and saved $300,000) from the skeleton of Pittsburgh's IBM Building, first high-rise building with truss walls. External framework is a diagonal, criss-crossing truss system. Only interior vertical supports are the six columns of the central service core. Outer truss walls direct all wind, wall and most floor loads down to two ground contacts on each side of the building. Using different strength steels (from 33,000 to 100,000 psi) engineers accommodated stress levels much as bridge designers have done in the past. This principle also kept truss members a near-uniform size from top to bottom regardless of stresses, and permitted American Bridge use of time-saving modular fabrication and erection.

SEALED POWER CORP. ENJOYS THE BIG DIFFERENCE IN PROJECTION

with a DA-LITE ELECTROL® SCREEN

Contributing to the success of the Research and Engineering Center of Sealed Power Corp. (Muskegon, Mich.) is the use of audio-visual equipment in the presentation of engineering data to customers and during inter-departmental meetings. Everything from micro-photographs of individual parts to data on complete machine tools is projected on a Da-Lite Jr. Electrol® electrically operated screen.

Recessed in the conference room ceiling, the screen is completely out of view when not in use. When it’s needed—an average of three times a week—it automatically lowers into position at the flick of a switch. Closing is automatic, too. Pictures shown on the Electrol have exceptional clarity and brilliance because of Da-Lite’s unique White Magic® Chemi-Cote® beaded surface.

There’s a Da-Lite electrically operated screen to suit the needs of your business—

neers, and Donald J. Sachs. Offices are at 10150 W. Nine Mile Rd., Oak Park 37, Mich.

Ross W. Pursifull has been made head of the architectural and research department of Smith, Hinchman & Grylls Associates, Inc., Detroit architects.

Carl A. Giffels has been named president of Giffels & Rossetti, Inc., Architects-Engineers, Marquette Building, Detroit 26, Mich. Other management appointments are Merrill M. Bush, executive vice president; Bertram Giffels, treasurer; A. M. Entenman Jr. and S. A. Littmann, vice presidents.

Robert D. Guss Jr. and Dellas H. Harder have joined with Ted Granzow to form Granzow, Guss and Harder, Architects, located in the Brinker Building, 1857 Northwest Blvd., Columbus 12, Ohio.

Harley, Ellington, Cowin and Stirton, Inc., 153 E. Elizabeth St., Detroit 1, has opened a new housing and urban development department. Jack D. Cronk is head.

Huddleston, Satterfield, Evans & Lillie, Architects and Engineers, 1215 West Tharpe St., Tallahassee, Fla., is the successor to the firm Prentiss Huddleston and Associates.

Leo Kornblath Associates, a New York architectural firm with offices in Washington, D. C. and San Juan, Puerto Rico, have announced the formation of Leo Kornblath Interiors, Inc., with David Kaplan as head of the organization. Harry Katz has been appointed controller of the parent firm.

Morris Lapidus, Liebman & Associates, an architectural firm at 139 E. 56th St., New York City, has announced the appointment of George D. Wechsler as treasurer.

Otto H. Kilian has been promoted to vice president and assistant general manager of Charles Luckman Associates, 9220 Sunset Blvd., Los Angeles 69, Calif.

Maloney, Harrington, Feesz and Lund, Architects, 754 Central Building, Seattle 4, Wash., is the successor to the firm John W. Maloney, Architect, A.I.A. New partners are Arthur Harrington, A.I.A.,

continued from page 218

continued on page 226

NEW METHODS
SPEED BIG CITY JOB

Erecting basement and sub-basement walls for a 45-story office building with over-all dimensions of 274' x 200' in mid-Manhattan created serious material storage problems for Civetta Construction Co.

UNOPPOSED FORMING
To solve these problems, concrete was placed against an existing surface. With tie locations pre-determined, ties were placed and connected as the forms were set horizontally. Drilled 2 x 4s, placed between the forms, allowed ties to pass through for connection.

GANG FORMING
For conventional forming Symons Steel-Ply Forms were assembled in five basic sizes, ranging from 20' x 16' to 14' x 6', backed by doubled 2 x 6 walers and strongbacks as illustrated above.

Wall heights ranged from 15' to 40'. For the high walls, the contractor set a line of 20' x 16' gangs, placed concrete to a height of 14½'. The top 4' of the gang was detached from the lower section and left in place, while the crane picked up the lower 12' and re-set it above, using the 4' sections as a sill.

Complete, illustrated story on request, Symons Forms can be rented with purchase option.
Ordinary Microfilm

Unit Gamma Microfilm

Improved Unit Gamma

21.5 hours in Fade-O-Meter

Compare! New GAF Microline diazo microfilm offers 300% more useful density retention.

That's right! Three times more useful density retention than any other diazo microfilm you can buy.

This means really important savings to you. You save time. One Unit Gamma duplicate does the work of three ordinary diazo films. Equipment and personnel can be used more productively, with less time spent replacing faded duplicates. You save on film. Since new Unit Gamma microfilm retains a useful working image three times longer than any other, you use less.

But savings aren't all you get with new Unit Gamma microfilm. Most important, it provides better blowbacks with strong, sharp images. And it takes the punishment of day-to-day handling; resists humidity, fungus and offsetting, too.

Don't just take it from us. See for yourself. Compare new GAF Microline Unit Gamma diazo microfilm against your present film in any fade test you wish. For instance, tape them both on a window, leave exposed to daylight...and watch the difference grow! You'll clearly see why it will pay you to use new Unit Gamma microfilm. Contact your GAF Microline Representative today. Or for more information write: General Aniline & Film Corporation, Dept. HH-5, Binghamton, New York.
PARKWAY APARTMENTS
Niagara Falls, New York

Architect: Aaron Colish of Philadelphia
Gypsum Drywall Construction: Interior Finishes, Inc. of Buffalo, N. Y.

BETWEEN ROOMS—SEMI-SOLID PARTITIONS

1. Nail face layer to ceiling and floor runners
2. Apply adhesive-coated gypsum studs
3. Secure gypsum studs with nails or screws
4. Apply back face layer to runners and studs

The Gold Bond difference:
Gypsum drywall methods that help sound-condition $3,500,000 Parkway Apts.
...two ways

Quiet conditioning will be a fast-renting feature at the Parkway... Niagara Falls' new 144-suite apartment building. Part of the "quiet" feature: two Gold Bond gypsum drywall partition systems. Actual construction is shown in these on-site photographs. For other ways with walls, see Sweet's File 12 C/NA.
A. Install metal floor and ceiling runners

B. Space is left for utilities to pass through double walls

C. Attach 1"-thick gypsum coreboard to each side

D. Apply adhesive to back of gypsum face layer

E. Screw face panels to gypsum coreboard on each side of double-wall partitions

BETWEEN ROOMS, privacy is achieved with low-cost, Gold Bond semi-solid drywall partitions. These non-bearing walls were constructed around metal door frames with two faces of gypsum wallboard laminated to gypsum studs. Either 2\(\frac{1}{4}\) or 2\(\frac{5}{8}\)" thick, these walls go up fast and save valuable floor space. They will withstand normal wall abuse for the lifetime of the building. And when ½" Fire-Shield wallboard is used, the walls earn a one-hour fire rating.

BETWEEN APARTMENTS, sound transfer is reduced with double-wall, solid-laminated partitions. This system delivers sound-transmission loss ratings up to 45 db. Permits simple enclosure of utilities, including plumbing, heating, and air-conditioning ducts. Call your Gold Bond representative. Or write to Dept. AR-123, National Gypsum Company, Buffalo 25, New York.

Gold Bond materials and methods make the difference in modern building

For more data, circle 139 on Inquiry Card
New medical research center installed

Vulcatheine®

for low-cost, long life, acid-proof drainage

Vulcatheine—the corrosion-proof, shatter-proof, clog-proof drainage system, made of virgin polyethylene throughout. The new Wearn Building uses over a mile and a half of pipe, 700 traps, 500 sinks, 11,000 fittings.

Vulcatheine installs in a fraction of the time—at half the cost—of other drainage systems. Patented Polyfusion® method makes leak-proof joints in seconds! Find out more about Vulcatheine.

Look for our catalog in Sweet’s Files.


Neuhaus and Taylor, an architectural firm at 3221 W. Alabama St., Houston 6, Tex., has named Benjamin E. Brewster Jr. as associate partner and James R. Goodrum as associate.

Roy S. Tanaka has been appointed vice president of Irving D. Shapiro & Associates, an architectural and land planning firm at 447 S. Robertson Blvd., Beverly Hills, Calif.

Robert A. Heller has joined the consulting structural engineering firm of Schupack and Zollman, of Stamford, Conn., and Newton Square, Pa.

Sigmund F. Blum, A.I.A., has been appointed vice president in charge of architectural design and a member of the board of directors of Smith, Hinchman and Grylls Associates, Inc., 3107 W. Grand Blvd., Detroit 2, Mich.

Jordan M. Brown has been named business coordinator for Freidin-Studley Associates’ New York City office at 342 Madison Ave.

Charles E. Nolan Jr., has joined the firm of Voll & Buffington, Architects, to form the new firm of Voll, Buffington & Nolan, Architects. Offices are in Roswell, N.Mex., and Alamogordo, N.Mex.

New Addresses


Ralph Stoetzel, Inc., Architects-Engineers, 1 E. Wacker Dr., Chicago, Ill., 60601.

Barrows, Parks, Morin, Hall and Brennan, a Rochester, N.Y., architectural firm, have opened a branch office at 21 N. Lemon Ave., Sarasota, Fla. John Piercy, of Sarasota, will be associated with the branch office.

Schupack and Zollman, consulting structural engineers, 1707 Summer St., Stamford, Conn.


For more data, circle 140 on Inquiry Card

For more data, circle 141 on Inquiry Card
It just doesn’t make sense to use fireproof insulation only to cover it with a combustible material that can contribute to the spread of accidental fire from welding sparks or other causes. Pyro-Kure vapor barriers are laminations of kraft papers, aluminum foil or plastic film which are permanently flame resistant. Reinforced for protection against tear or puncture, Pyro-Kure is now being used by the major insulation manufacturers (frequently under their own brand names) as a facing on commercial insulation, as a jacket over pipe insulation and as a liner on air-conditioning ducts. You can specify Pyro-Kure by name or merely insist upon a vapor barrier with a U/L flame spread rating of 25 or below.

We will be glad to send you, without obligation, detailed information, physical property data including permeance values and samples. Write to: American Sisalkraft Company, 58 Starkey Ave., Attleboro, Mass. Division of St. Regis Paper Company.

PYRO-KURE
NON-COMBUSTIBLE VAPOR BARRIERS
FOR INSULATION FACING AND JACKETING

For more data, circle 142 on Inquiry Card
From its hilltop setting, the Foothill College gymnasium overlooks the beautiful 122 acre campus that received the American Institute of Architects First Honor Award for 1962. Architects for the project were Ernest J. Kump and Masten & Hurd, Architects Associated. Telescoping gym seats (below) were supplied by Safway Steel Products, Inc.

Versatile Safway gym seats make best use of space at

AWARD-WINNING FOOTHILL COLLEGE

One of the most active buildings on the campus of Foothill College is the gymnasium — center not only for student athletics, but for such community activities as concerts by the San Francisco Symphony Orchestra.

To provide maximum space utility, the gym was equipped with 20 rows of Safway Telescoping Gym Seats. Closed, they form an unbroken panelled wall on each side of the gym. Each bank projects only 36”, making 7,832 sq. ft. of floor space available for athletic practice or recreational activities. Fully extended, they provide safe, comfortable seats for 2,254 spectators. For smaller crowds, any number of rows can be extended or closed, with each row automatically locked securely in place by Safway’s exclusive Row-Locks.

SAFWAY MEETS ALL REQUIREMENTS

In specifying gymnasium seating, the Architects looked for the following factors:
- Vertical front and compactness when nested.
- Even distribution of weight to floor through many small wheels, instead of a few large wheels, for ease of operation.
- Simple construction, minimum moving parts.
- Approval of California Division of Architecture as meeting structural requirements for direct load and earthquake resistance.

Before you buy or specify gymnasium seating, get the facts on Safway telescoping seats. Our experienced engineers will provide detailed recommendations on request. Write for Bulletin 165X.

SAFWAY STEEL PRODUCTS, INC. / 6228 W. State St., Milwaukee 13, Wis.

For more data, circle 143 on Inquiry Card

These Nickel Stainless Steel doors take a beating at 3 o'clock every afternoon and look like new every morning

These are the doors of a large senior high school, and they are assaulted by hundreds of stampeding teenagers every day. You couldn't ask doors to take more punishment. That's why the architect specified nickel stainless steel.

Stainless steel stands up to years of day-in, day-out wear and tear. Because it's stronger and tougher than other architectural metals. Because it resists abrasion and denting and won't crack or chip.

But a stainless steel door has more than superior durability to recommend it. Its bright, modern finish adds to the beauty of any building. And its corrosion-resistant surfaces stay beautiful with a minimum of care. Ordinary washing is all it needs. Stainless steel is economical, too—because it costs so little to maintain and because it lasts so long.

These are the highly practical reasons why more and more architects are specifying nickel stainless steel for commercial and institutional building entrances—for swinging, sliding, rolling or revolving doors that will last the life of the building. For more information on the many advantages of stainless steel, write for the 32-page booklet, "Architectural Uses of the Stainless Steels."

For more data, circle 144 on Inquiry Card

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N.Y.

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BIG CAPACITY
IN SMALL SPACE

AEROFIN Smooth-Fin
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High ratio of surface area
to face area
High air velocities without excessive
friction or turbulence

Write for Bulletin 5-55

AEROFIN CORPORATION
101 Greenway Ave., Syracuse 3, N.Y.

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the one dependable source for all your store
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Architectural METAL WORK
by Fiske
Aluminum, Bronze
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For over 100 years, Architects have relied upon Fiske
for the widest choice of artistic designs, materials,
craftsmanship and dependability. Now, more than
ever, Architectural Metal Work by Fiske... in
Aluminum, Bronze, Stainless Steel and Iron... represents the finest
obtainable.

Write for our catalog of
designs or send blueprints
for quotations.

For more data, circle 146 on Inquiry Card
For more data, circle 147 on Inquiry Card
HOLOPHANE introduces
Prismpack
The Mercury Luminaire
that is Installed Instantly

PRISMPACK ends the complications of ballast, fixture, lamp and holding devices...Holophane engineers produced this all-in-one luminaire to make installation of mercury lighting as simple as A, B, C: A: Lift luminaire out of carton...B: Hang it on ceiling...C: Connect two line wires...And in a matter of minutes, unit is ready for operation!

This new luminaire, with its integrated ballast mounted in a special housing, has many basic advantages...The prismatic reflector delivers highest utilization of light; it provides a sharp cut off (above 45°) with wide spread illumination; it shields the light source, minimizes glare; airflow through open top and bottom keeps unit clean. Moreover it is economical to install and maintain...From every viewpoint, PRISMPACK is superior to any mercury luminaire ever offered. Write for engineering data.

HOLOPHANE COMPANY Inc.
Lighting Authorities Since 1898
1120 Avenue of the Americas, New York 36, N. Y.
The Holophane Co., Ltd., 418 Kipling Ave., Toronto 18, Ont.

For solution of your lighting problems...Visit the Holophane Light & Vision Institute

For more data, circle 148 on Inquiry Card
When one top advertising value you’re on the track of the leader

Editorial Superiority
The Record publishes more editorial pages than any other architectural magazine. Moreover, its content is continuously attuned to the current activity and interests of architects and engineers with the aid of Dodge Reports and the most intensive audience research in the field.

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The Record delivers the largest architect and engineer paid audience of any architectural magazine in the four primary building markets: (1) architectural firms (2) consulting engineering firms (3) commercial, industrial and institutional organizations and (4) government.
leads to another... and another...

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For seventeen years in a row more building product advertisers have placed more advertising pages in Architectural Record than in any other architectural magazine. The Record's margin of leadership over magazine two: 72 per cent. (eight months, 1963.)

ARCHITECTURAL RECORD

330 West 42nd Street
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ARCHITECTURAL RECORD December 1963 231
"CONSTRUCTION DUST" TEST PROVES MONO-LASTO-MERIC®
(1-PART ACRYLIC TERPOLYMER)
MOST POWERFULLY-ADHESIVE CONSTRUCTION JOINT SEALANT KNOWN!

Mono-Lasto-Meric placed on a metal plate, allowed to set a few minutes to skin over, then sprinkled lightly with "construction dust" to form a typical deterrent to good construction joint sealing.

Glass plate gently placed on top of dusted Mono-Lasto-Meric, which quickly and visibly "bites" its way through to glass.

After a few minutes, when metal and glass are pulled apart, there is no loss of adhesion to either surface.

This test proves that the extreme adhesion of Mono-Lasto-Meric can eliminate many causes of sealant failure and provide a greater factor of safety on every construction job. All other types of sealants fail in this critical test.

FEATURES: Factory mixed; eliminates high cost and hazards of job-site mixing • exceptional adhesion and flexibility • Ability to reseal if by chance a sealing bond is not achieved initially on application because of moisture, dust or other deterrent • Non-staining without primer on all types of masonry • Proved by over 4 years of actual use in hundreds of buildings of every type • Wide range of colors. Any color can be matched • Life expectancy — 20 year minimum • Available in cartridge or bulk

THE TREMCO MANUFACTURING COMPANY
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Send Additional Mono-Lasto-Meric data
Have Tremco Field Advisor call

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Company __________________________ Address __________________________
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Skuttle solves the problem of large humidity requirements

NEW DESIGN — ASSURES HIGH CAPACITY... POSITIVE OUTPUT
Dry, winter air has always been a problem during the heating season. Now, from SKUTTLE, comes the most efficient, economical method of supplying adequate humidification to large residences and commercial buildings... the SKUTTLE Model 160 DRAMATIC Humidifier.

The 160 is mounted in the warm air stream of the furnace. It utilizes a polyurethane evaporator pad on a motor-driven, spoked drum which rotates in a pan of water. Warm air is circulated through the rotating pad where it is moisturized and then forced through the duct system.

The water level in the pan is automatically maintained by Skuttle's single pivot float valve. The unit uses a 115 volt, moisture-sealed motor with graphite bearings to assure long trouble-free service. The usual water pump and drain have been eliminated, and there are no moving parts to wear or require servicing.

The Model 160 DRAMATIC humidifier is also designed to eliminate mineral dust in the air. Deposits form on the evaporator pad and, when filled, it can be easily cleaned or replaced. All "in-water" parts are stainless steel and the cabinet,Incoming, non-corrosive, easy to clean, galvanized steel.

The Model 160 DRAMATIC humidifier is designed to supply from 2.5 to 7.0 gallons of water per hour.  • Maximum output requires a 100,000 BTU output furnace capable of 950 CFM @ 0.5 S. P.

Skuttle manufactures DRAMATIC humidifiers with capacities from 1/2 gallon to 7 gallons per hour.

SKUTTLE MANUFACTURING COMPANY
MILFORD MICHIGAN

In Canada: Wait-Skuttle Co., Oakville, Ontario

For more data, circle 150 on Inquiry Card

New 5' wide Marlite Murals for walls with a custom-decorated look!

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How the Dodge Reporter helped erect this modern air terminal

Memphis, Tennessee, is a spot where mid-continent air routes converge. Because it is served both by large airlines and smaller feeder lines, many passengers make flight connections at Memphis, adding their numbers to the passengers beginning or ending flights there. Clearly, Memphis needed an air terminal in which this traffic could circulate smoothly, without congestion.

The new Metropolitan Airport Terminal, designed by architects Mann & Harrover, answers this need. Its multi-level layout enables deplaning passengers to exit at ground level, and emplaning passengers to enter main terminal facilities on the second floor via an elevated roadway. The third level consists of a mezzanine and observation deck. A Y-shaped concourse extending from the main terminal leads to plane gates.

"The Dodge Reporter helped us greatly by transmitting our needs to contractors and suppliers," said Partner Roy Harrover. "This way, suppliers came prepared to make helpful suggestions concerning materials and products. Also, we were able to review work loads of available contractors, so bid dates could be scheduled with a minimum of conflict."

Metropolitan Airport Terminal, Memphis, Tennessee
Architects: Mann & Harrover
Contractor: J. A. Jones Construction Company

To a person approaching the terminal building, the most noticeable and striking element is its soaring roof. A hyperbolic paraboloid roof design was chosen to impart scale, dignity and symbolic visual impact to the building. Its subtle lightness relates the building to the air above. An equally important relationship of building to ground is achieved by the horizontal concrete and masonry masses of the concourse and two lower floors. These masonry walls, with their absence of windows, plus the reinforced concrete structure, insulate the building against jet blast and noise.
1. DON'T BUY "HALF-A-DOOR"
Any industrial door worth having is part of a "package" which MUST include after-service to keep the door in good, safe working condition through the many years that a good door lasts. Any door without assured competent after-service is only "half-a-door" and lands you in trouble every time a truck nudges it out of commission. Every Crawford Door is backed by a factory-trained local service crew. Many of the service trucks are radio-dispatched. You're safe with Crawford.

2. ELECTRIC OPERATORS and CONTROL SYSTEMS CUT COSTS 3 WAYS
a) IN MANPOWER, by ending need for man to stop work, open door, wait for vehicle, close door, walk back to work and go all through it again when the vehicle leaves. Often, man-hours saved in a single year could pay for the operator.
b) IN HEAT AND PROCESSED AIR. Manually operated doors often are left open needlessly. A power-operated door and one of the many available Crawford Control Systems ends this waste. c) IN EQUIPMENT. Manually operated doors are, often, literally "banged to pieces" involving needless service costs. But, an operator "gentles" the door; never shoots it up or slams it down. Like good service, an operator is "life-insurance" for any door.

3. DON'T LET PROFITS BLOW AWAY THROUGH UNSEALED DOORS
Introduction of Crawford Dor-Seal revealed an amazing need for these resilient pads which surround a dock door opening, shut out weather and contamination and seal in heat, processed air, employee comfort and—profits. Also, by cushioning the truck or trailer rear end, eliminate damage to doors and hinges, save costly delays and repairs. Easily installed on any door, adjustable, and save their small cost very quickly.

4. MOVABLE MULLIONS CAN CUT DOOR COSTS AND SPEED UP TRAFFIC MOVEMENT
Crawford Removable Mullions (Patented) give big, unobstructed openings by using batteries of smaller doors with these removable posts between. This combination is practically always the least costly way to get wide, clear-span openings for free and easy traffic movement and yet have a good, substantial closure instantly available. Mullions weigh only 2 1/2 lbs. per foot, are easily handled; lock into place, lift out in a jiffy. For literature on any or all of these cost-cutters, call your local Crawford Door Distributor, listed under DOORS in the Yellow Pages or write direct.

CRAWFORD DOOR CO., 20263-58 Hoover Rd., Detroit 5, Michigan

For more data, circle 152 on Inquiry Card.
Readers using the index will find buildings, with architect's name, owner's name, and by building type (apartments, hospitals, schools, etc.) Still other categories cover the special subjects dealt with in the magazine such as prefabrication, etc.

AABBREVIATIONS: BTS—Building Types Study; AE—Architectural Engineering; TSS—Time-Saver Standards; BC—Building Components.

A


Airports. See Transportation Buildings.


B


Steel for Flashing—Nov. 1963, BC, pp. 201-202

Phillips Academy, Addison Art Gallery, Art and Science Center, Andover, Mass.; Sava-temper Memorial Chapel, Copley Addition to Oliver Wendell Holmes Library, Dormitories, and Childcare Center—Sept. 1963, BC, pp. 140-146.

Raymond, Antonin, and L. L. Rado, archts.—Sept. 1963, BTS, pp. 198-199


R


Assembly Hall, University of Illinois, Urbana; I. M. Pei, Benjamin Thompson, archts.—June 1963, p. 111-116.

Sarasota County Beach Facility, Fla.; Edward J. Seibert, archt.—Aug. 1963, pp. 144-149.


S


Smith, Joseph N., archt.; Key Biscayne Presbyterian Church, Miami, Fla.—July 1963, BTS, pp. 173-174.

SOUTHERN ILLINOIS UNIVERSITY, EDWARDSVILLE CAMPUS; HELMHUT, OBATA & KASSABAUM, archts.—Am. Architect, Apr. 1963, p. 147.


Tapiola, Finland. Seen in Exhibit”—Dec. 1963, BTS, pp. 121-125. See also Koden Pavillon.


3 facts you should know

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2. Paper and cloth hand drying in washrooms costs nine times more than modern electric drying.

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