ARCHITECTURAL RECORD

Building Types Study: Apartments

Four Current Projects by Rudolph

Industrial Buildings

Full Contents on Pages 4 & 5
Textured Quarry Tile by Summitville is unique in the ceramic field. No other product offers such a combination of sparkling color, pattern and texture, long wear and versatility. Easy-to-clean textured quarry tiles are available in 10 designs...a choice to complement any architectural style. Twelve color combinations provide a selection to harmonize with any color scheme.

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DESIGN—Clean, modern, practical with coved corners and dished bottoms makes them highly functional and attractive plus blending with all laboratory furniture.

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

WIDE SELECTION—Table sinks, end sinks, drainboard-sink units, double compartment sinks, cylindrical sinks, cup sinks.

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

LOWER COST—Besides lower initial cost, there are savings on freight and installation.

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

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

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

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

To prove ruggedness of Durcon Laboratory Sinks, one laboratory conducted a test, admittedly unusual, in which steel horseshoes were pitched at and into the sink from a distance of thirty feet. The sink survived with only a few scratches which were quickly smoothed out with emery paper and an oily cloth.

Of course, seldom will horseshoe pitching be practiced in laboratories, but this is only one of a wide range of tests that have proven that Durcon Lab Sinks, made of epoxy resin modified by the Duriron Company, will provide years of service. No cracking, no spalling nor other forms of mechanical failure.

Why not take a look at the many other good reasons why you should specify Durcon Lab Sinks. For further information and prices, contact your Laboratory Furniture Manufacturer, or write for new Bulletin PF/5a.

THE DURIRON COMPANY, INC.
DAYTON, OHIO
The Loeb Drama Center, Harvard University


Theater lighting, stage equipment and electro-mechanics: George C. Izenour.

Rotary Rising Stages installed by Stanley Elevator Company, Nashua, N. H.

**Hydraulic Stage Lifts built by Rotary**

Four massive stage sections which travel vertically on smooth, quiet hydraulic plungers are the key to the most flexible theater yet built.

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

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

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

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

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

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** Rotary**

Oildraulic® Elevating Equipment

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**INDUSTRIAL LIFTING EQUIPMENT**

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Dover Corporation
Rotary Lift Division
1002 Kentucky, Memphis 2, Tenn.

Please send information on Rotary Rising Stages to:

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DOVER CORPORATION

ROTARY LIFT DIVISION

Memphis, Tenn., Chatham, Ontario
help create Harvard’s “Automatic Theater”

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

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

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

Hydraulic jacks which move and support the stage sections are shown here. There are two jacks per section, equalized by a cable-and-strut system which insures perfectly level surface at any point of travel. Each lift has its own Rotary Hydraulic electric pumping unit, controlled through Mr. Izennour’s analogue console to permit interlocking and operational flexibility.
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BACK BAY CENTER HALL 200 For this Boston high-rise, Hugh Stubbins gives the apartment building an interesting, three-dimensional, Beacon Street twist

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DOWN UNDER HIGH RISE 204 An unusual exterior gallery pattern results from Architect Seidler's answer to legal exit requirements for a 10-story block

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LUXURY SUITES ON A SLOPING SITE 208 Atlanta apartments by Richard Abeck designed to provide the convenience of a well-planned house

8 FOREIGN APARTMENTS 209 A selected group of significant designs from abroad, presented through the courtesy of L'Architecture d'Aujourd'hui
Coming in the Record

JAPAN’S NEW ARCHITECTURAL GENERATION

Continuing his peripatetic critical journeying for the RECORD, John Bur­chard writes a long and provocative essay embodying the architectural observations of his recent trip to Japan. There are new stirrings in Japanese architectural circles, and next month’s article will be illustrated with some of the significant architectural results to date.

BUILDING TYPES STUDY: SPECIAL SCHOOLS

The special problems of special kinds of schools make the theme for this study; and the architects of nine different types of schools have contributed their testimony as to the problems involved and their own solutions. The schools involved will, of course, be shown—a state correctional school, a day care center for the underprivileged, a school for the gifted, one for the deaf, another for mentally retarded children, one for handicapped children and three for various religious denominations.

ON EDUCATING THE COMPLETE ARCHITECT

An important contribution to the "Image of the Architect" series is made in an article by Richard Llewellyn Davies, who has recently gone from his years of research at England’s Nuffield Foundation to the headship of the Bartlett School of Architecture at University College, London. Professor Davies argues that patterns of architectural education must be revised to enable it to prepare today’s architects for today’s responsibilities: with decent attention to the science as well as the art of architecture.
Wherever you build with block

Dur-o-wal is available

Fancy claims aside, this is the significant fact about Dur-o-wal: It is more widely wanted than any other type of masonry wall reinforcement.

Consequently, Dur-o-wal is more widely distributed—the only nationally distributed brand. Eight strategically located Dur-o-wal factories serve more than 8000 dealers who in turn serve every part of the United States. Wherever you build a masonry wall, you can get Dur-o-wal! All this, of course, because Dur-o-wal—with its trussed design, butt-welded construction, scientifically deformed rods—obviously does the job. Standard Dur-o-wal used every second course adds 71 per cent flexural strength to a masonry wall. Get test facts from any of the Dur-o-wal locations below. See us in Sweet's Catalog.

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- Dur-O-wal Div., Frontier Mfg. Co., Box 49, PHOENIX, ARIZ.
- Dur-O-wal Prod., Inc., 4500 E. LOMBARD St., BALTIMORE, MD
- Dur-O-wal Ltd., 352 Mac Nab St. North, Postal Station B, HAMILTON, ONTARIO, CANADA

Two engineered products that meet a need. Dur-o-wal reinforcement, shown above, and Rapid Control Joint, below. Weatherproof neoprene flanges on the latter flex with the joint, simplify the caulking problem.
Casting new light (daylight) on interior design... Kalwall translucent Skyroofs

You can let soft, shadowless daylight into the deepest interior — with Kalwall Translucent Skyroofs. Kalwall transmits diffused, natural light without glare or "hot spots" — offers you these other advantages, as well:

- Lightweight (1.5 lbs./sq ft)
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- Shatterproof
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- Excellent Insulator (best of any light-transmitting material)

Available in Kalwall Skyroof panels, or in preassembled, ready-to-install skylight units. Variety of colors and patterns.

Write for details on this remarkable new basic building material.

KALWALL CORPORATION
Dept. B-31, 43 Union Street, Manchester, N. H.
"A Precise Language of Visual Communication"

As one who follows, with deep conviction, the star labeled "Communication," this observer has been known to speak out, sometimes gratuitously, in favor of more attention to this necessity of our world. I boggle, however, at one recent push in the general direction of communication.

It came from a release issued by Southern Illinois University, dealing with that new institution's design program:

"McHale (London 'visual designer and critic') whose primary concern is communication, cultural attitudes and 'understanding' among people all over the earth, has made his senior and graduate level students design three-dimensional constructions whose purpose is to present themselves—the real 'me'—in any terms they choose. The object, he says, is to 'make them engage their most complex selves, to give them a new awareness of their own identities. All designers need a true sense of self in order to understand others.' Understanding the peoples and cultures of other lands, he says, has become an urgent necessity for the complete designer, whose chief concern is with humanity and its universal requirements."

One student's visual production described a kiss in medical terms with the use of culture-laden petri dishes. Understands humanity, that boy.

Another summed up his self with a four-section pyramid whose various facets depicted stages of his life and mental development with photos and montages. Best communication device I can think of at this point is the cockney expression "Coo!"

"After the self-identification project," continues the release, "McHale challenged the students to take any object or act and run it through a descriptive process involving five different disciplines. The five might be medicine, music, sociology, mathematics and geography."

Would you just run that one through again for us, professor; something wrong with the communication, perhaps at this end.

But the communicative effort goes on, turning finally to methodology, if that is the word I want:

"McHale's final assignment will be a two-week long survey of mass communication, a re-appraisal of American television, magazines, newspapers, and other media 'as though it were a part of an alien culture.' The students will also comb foreign publications, particularly Russian ones, to try and find out how certain kinds of images are used in different cultures. McHale believes modern culture is carried in many channels outside the traditional ones of fine arts, literature and so on. To span the thorny barriers of languages, he says, "we must study the vast proliferation of new images—comic strips, popular entertainment heroes, and anything else that will give us clues for ways of building a precise language of visual communication."

Two weeks? Don't strain yourselves, fellows, in another year they'll have a computer that will do it for you in 45 minutes.

A precise language of visual communication? The world is waiting, lads, and the objective is worth more than two weeks. And I'll be ready to applaud any visible visual progress.

Emerson Goble
Speaking of Architecture

PIETRO BELLUSCHI INTERVIEWED BY ARCHITECTURAL STUDENT JONATHAN BARNETT

A serious architect is not searching for style but searching for answers. . . . Variety does not need to be confusion. . . . The great tool of the modern age is teamwork. . . . Style will come when society itself will have acquired spiritual greatness. . . .

Dean Belluschi, I wonder if you could begin by telling me a bit about how your architectural practice is organized.

My architectural practice is something that is very much my own, and I'm not sure that I would recommend it to anyone else. I suppose that I am most at home in the world of ideas. Although I was in active practice on the West Coast for 26 years, my chief interest is in discovering solutions to architectural problems. I am not so good at going out to the site and saying that this is wrong and that should be thus and so. Today I am a consultant, working with a number of architects on a great variety of different problems.

Do you feel that each building that you work on should be approached within its own frame of reference, or do you find a particular set of principles consistently applied will always produce the right answer? The central point is to synthesize the many elements of the problem until you have a chemical crystal form that is typical for that solution.

Although methods of approach may be similar, I don't believe that the results will be uniform. After all, the individual is what he is.

Then you do not look to modern architecture for a uniform set of solutions that would form the basis of an architectural style?

To search for style is a foolish thing; a serious architect is not searching for style but searching for answers.

I am in complete disagreement with people like Philip Johnson who believe that the choice of form comes first.

Style is the result of searching very honestly for good answers. Of course they must have a spiritual content. That is a most important part of the question to be answered. But you cannot impose a form a priori, and you cannot be arbitrary about it.

Architecture must not be a search similar to that which produced automobile fins, jukeboxes or sculptural knickknacks.

If there cannot be stylistic uniformity, the relationship of one building to another must become the conscious concern of the architect.

I would certainly accept that conclusion. We are a pluralistic society. It is necessary to start from the back yard, as it were, by seeing what goes on around you. You bring a certain amount of variety to your approach in order to interpret the many aspects of today's society. Variety does not need to be confusion. There are various conditions of building just as there are different conditions of climate and soil. You wouldn't find a palm tree in the pine country.

Do you think that historical precedent in a particular building type is one of the conditions to be taken into account?

I believe that there is a continuity in human affairs. Sometimes one may jump too many at a time, as in a revolution, and break a leg. At other times we go along more smoothly.

There is always some precedent which may serve as a guide line. We cannot really create without knowing the past. The trouble with the nineteenth century was that it was overly preoccupied with the past.

With the superficial aspects of the past, at least.

That is still true today. Too many architects are preoccupied with the superficial aspects of things.

I noticed that in your introduction to the exhibition called The Form Givers you warned against merely transferring our attention from the historic styles to the more recent past.

Mies has long been searching for significant forms, and he is always consistent and never superficial. Others are fashion seekers. A fancy new package will draw attention . . . but then one can throw away a package but not a building.

Our age is not a disciplined one. There is of course danger in a discipline that is imposed from without. But I believe that a true sense of discipline will in the end prove the solution and keep us from going in all directions at once.

How does one go about teaching architects, or architectural students, a sense of discipline?

Maybe Mies has a point: the architect should be trained in precise thinking, and let the imagination be subordinated to this process, at least at the early stages. The student definitely should not be allowed to start with the form without a logic to back it.

I don't want to be quoted as saying that form follows function. That is not only corny, but too easy a thing to say. Let us say that the student should learn to produce a defensible design, one that can be explained and understood in precise and logical terms, then he will have the conditions from which his esthetics will emerge. In a mature architect all these phases are simultaneous and indivisible.

continued on page 347
Copper batten seam roofing on the new Senate Office Building, Washington, D. C.

New Senate Office Building has copper roofing for enduring protection

Approximately 75,000 pounds of Anaconda copper were used for the batten seam portion of the roof and the deep, boxed concealed gutter on the new Senate Office Building. In the nation’s capital and in cities throughout the country, copper roofs are establishing records of long service and low maintenance costs.

A realistic comparison of roofing costs requires the inclusion of two important factors—estimated maintenance costs over the years, and estimated serviceable life of the roofing material. Copper has proved its economy. Performance records covering many years of service show that expected long life and minimum upkeep are based on fact, not guesswork. Here is an example:

When the 47-year-old Grand Central Terminal Building was razed recently to make way for the huge new Pan-American Building, more than 150 tons of sheet copper were removed from the roof. The copper was still sound and beautifully colored by nature’s patina. It is also worthy of note that the scrap value of the removed metal was considerably higher than the price for ingot copper prevailing when the roof was installed in 1913.

FOR MORE INFORMATION on Anaconda Sheet Copper for building construction, see your Sweet's File or write for Publication C3-SA. Also, if you do not have your copy, ask for our "Modern Sheet Copper Practices," 109 pages of drawings, specifications, and general information. Address: Anaconda American Brass Company, Waterbury 20, Conn.

The roof was fabricated and erected by the Overly Manufacturing Company, Greensburg, Pa. A modified "Overly" batten was formed from copper strip. Roofing sheets were formed from 20-ounce cold-rolled copper. Architect of the Capitol, J. G. Stewart. Architects: Eggers and Higgins, New York City. General Contractor: George Hyman Construction Co., Washington, D.C.
For the 13th consecutive year, the American Institute of Architects has singled out for honors recently completed buildings in the annual Honor Awards Program. This year seven buildings received the top Honor Awards. They are shown on these pages. The Jury said they “went far beyond mere competence and achieved true significance.”

In addition to the Honor Awards, the jury selected eleven Awards of Merit. Photographs of these buildings are shown on the following pages.

Chairman of the all-architect jury was Morris Ketchum, Jr., F.A.I.A. of New York. Serving with him were Fred Bassetti of Seattle; Richard D. Butterfield, West Hartford, Conn.; Arthur Q. Davis, F.A.I.A. of New Orleans and William L. Pereira, F.A.I.A. of Los Angeles.

Two hundred and seventy submissions were received from every region of the United States including Hawaii. Represented was almost every building type—residences, apartments, restaurants, recreation buildings, churches, schools, colleges, museums, stores and shopping centers, office buildings, industrial buildings, governmental buildings and large urban renewal housing projects. The Jury “was well pleased with the overall quality of the entries.”

“Today’s architecture, after a hundred years of progress, is still vigorously explaining new materials, new structural methods and aesthetic solutions in every field of building,” their report added. “The Jury hopes and believes that the projects selected for awards exemplify some of the best results of this imaginative process towards architectural maturity.”

Certificates will be presented to the architects and owners of all awarded buildings at an Awards Luncheon during the A.I.A. Annual Convention in Philadelphia on April 26, and also plaques for awarded buildings.

Established to encourage the appreciation of excellence in architecture and to afford recognition of exceptional merit in recently completed buildings, the A.I.A. Honor Awards Program is open to any registered architect practicing professionally in the United States. Buildings entered, which may be anywhere in the United States or abroad, must have been completed within the past five years.


Summer House, Northville, Michigan. Architects: Birkerts & Straub. Owner: Mr. and Mrs. Alan Schwartz. Contractor: William Gruenwald

The Unitarian Church, Concord, New Hampshire.
Architects: Hugh Stubbins and Associates.
Owner: The Second Congregational Society (Unitarian).
Contractor: A. Taylor Corporation

Chapel, Moline Public Hospital, Moline, Illinois.
Architects: Henry Hill and John W. Krphp Associate. Structural Engineer: Isadore Thompson. Owner: Moline Public Hospital
Contractor: Ericson Construction Comp

Office & Warehouse, The Coppertone Corporation, Miami, Florida.
Contractor: Edward J. Gerrits, Inc.

Contractor: Haas and Haynie

Marin Bay Display Pavilion, San Rafael, California.


ARCHITECTURAL RECORD March 1961 15
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Whether your design calls for gray, white or tinted, plain or waterproofed concrete or concrete units; white or colored mortar to harmonize with certain brick, block, or stone, each use is best met by specifying one of the eleven Medusa Portland Cements listed at the right.

Medusa manufactures more different types of special cements than any other cement manufacturer. An understanding of these cements and their uses enables you to make specifications that assure beautiful, reliable concrete and masonry. Write today for A.I.A. Literature including specifications for any of these Medusa Portland Cements.
Aluminum eyelids.

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Construction Cost Indexes

Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boekh & Assoc. Inc.

Labor and Materials: U.S. average 1926-1929 = 100

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Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.: index for city A = 110

index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

\[
\frac{110 - 95}{95} = 0.158
\]

Conversely: costs in B are approximately 14 per cent lower than in A.

\[
\frac{110 - 95}{110} = 0.136
\]

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.
New Architectural Uses for Aluminum Grating

Here... new applications for aluminum grating... exacting installations where quality equal only to BORDEN'S will do:

1 This shows BORDEN aluminum grating used in a system of drain trenches throughout Mellon Square Park, Pittsburgh, Pennsylvania.  
   Architects: Mitchell and Ritchey, Pittsburgh, Pennsylvania

2 BORDEN pressure-locked type grating, of gold-anodized aluminum, forms the facade of this dramatic new structure. The Congregation Beth El Synagogue, South Orange, New Jersey.  
   Architects: Davis, Brody and Wisniewski, New York, New York

3 BORDEN pressure-locked aluminum grating fabricated as foot scrapers for use at a school in East Orange, New Jersey.  
   Architect: Emil A. Schmidlin, East Orange, New Jersey

4 BORDEN pressure-locked aluminum grating used for maintenance-free fencing at J. L. Hudson's Northland Shopping Center, Detroit Michigan.  
   Architect: Victor Gruen & Associates, Detroit, Michigan

5 Sunshades of BORDEN pressure-locked aluminum grating permit passage of light and air while screening strong sunlight at the Lone Star Gas Company Office Building, Dallas, Texas.  
   Architect: George L. Dahl, Dallas, Texas

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IN THIS SPACE last month, we guessed, on the basis of incomplete figures, that a sudden upsurge in construction contracts toward the end of the year put 1960 "very close to the record level of 1959." The final figures confirmed this, and a little more: to everyone's surprise, the 1960 total actually exceeded 1959 by a hair. Historians will note that the phenomenal postwar rise in dollar volume of contracts remained unbroken; an increase every year from 1947 on. It seems well to repeat what we have said before: in this time of economic uncertainty, the construction outlook is the brightest spot in the picture. Construction is by far the nation's largest fabricating industry, and it will be providing an upward push to business in general.

NOT ALL parts of the industry will be booming. But apartments, subject of this month's Building Types Study, promise to furnish one of the more active sectors. Despite the general decline in residential contracts in 1960, multi-family buildings did very well indeed. The contracts for apartments in 1960 covered 231,783 dwelling units, by far the highest figure reached in the postwar period. (Earlier data are not comparable, but it is possible that a larger number of apartment units was built in the mid-1920's, during the great multi-family building boom of that era. Not since then, however, have we seen anything like the 1960 activity.) In 1960, apartments accounted for nearly 21 per cent of all new dwelling units; this compares with 17 per cent in the two preceding years, and much smaller percentages in the years before that. The number of new apartment units in 1960 was more than double the total reported as recently as 1956.

WHY SHOULD apartments be booming now? There are several reasons. One is that they have been relatively neglected for more than 30 years. For the first half of those thirty years, all housing fared poorly; and for the second half, the emphasis has been overwhelmingly on suburban single-family units. Some would argue that disillusionment with Suburbia has caused many families to look longingly on city life. Perhaps so; but more likely as an explanation is the changing age structure of the adult population. There has been rapid growth in the number of elderly persons whose space needs are less and whose desire to cope with lawn-mowing and snow-shoveling has diminished. For the next several years, the most rapid growth in our adult population will be among the elderly, and among young adults, in their twenties. Families in both these age groups are likely to need, want and be able to afford smaller units, which by their very nature are likely to exist as apartments, rather than as single family homes.

GEORGE CLINE SMITH
Vice president and chief economist
F. W. Dodge Corporation
Three new automatic gas-fired swimming pool heaters have been added to Burkay's already wide line. They're *priced to meet any competition* in ratings of 120,000 ... 160,000 ... and 200,000 Btu/hr input. Now—more than ever—there's a Burkay heater with the right capacity and price to fit any pool specifications.

The three heaters—models 12F, 16F, and 21F—provide four other advantages for specifiers:

- **Smaller size**—compact units easily fit small utility rooms, other tight places.
- **Center-aerated burner**—the latest design—develops most efficient combustion to date.
- **Extra-tough finish**—baked enamel on a Bonderized undercoat—increases protection from rust and corrosion.
- **Modern styling**—new jacket, two-tone green finish improves appearance.

The new heaters also incorporate traditional Burkay advantages: fully automatic operation . . . positive-action flow switch eliminating pressure-control . . . rust- and corrosion-resistant copper construction (all water ways are copper, brass or bronze) . . . unique, economical fin-and-tube heat exchanger . . . fast, easy deliming.

For more information, return the coupon below.

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Please send me information on Burkay gas-fired water heaters and water heating systems for swimming pools.

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ARCHITECTURAL RECORD March 1961 21
It is significant that for the beautiful Crestwood Bank Building, Frank Adam electrical equipment was selected—both proven symbols of integrity, dependability and safety.

You too can insure that your clients, whatever the size and complexity of their projects, will also get the last word in reliable performance and safety by specifying—and insisting on—Frank Adam electrical equipment.

From coast to coast, experienced engineering representatives are at your service to help on every problem of secondary power distribution and control.
Meetings and Miscellany

A.I.A. Lists 46 New Fellows

Forty six members of the American Institute of Architects will be advanced to Fellowship in the traditional investiture ceremonies at this year's national convention of the A.I.A. in Philadelphia. The ceremony will be held on Wednesday, April 26, at the Philadelphia Museum of Art and will be followed by the President's Reception. The 1961 Fellows are as follows:

Richard L. Ack, Atlanta—Design.
Franklin S. Busch, Jacksonville—Service to the Institute and Public Service.
Richard D. Butterfield, West Hartford, Conn.—Design.
Arcangelo Cascieri, Lexington, Mass.—Education.
Bartlett Cocke, Cambridge, Mass.—Design and Science.
Olindo Grossi, New York—Education.
Paul S. Reynolds, New Canaan, Conn.—Design.

Richard W. E. Perrin, Milwaukee—Education and Public Service.
Charles E. Peterson, Philadelphia—Education and Literature.
George F. Pierce Jr., Houston—Service to the Institute.
Frederic H. Porter Sr., Cheyenne, Wyo.—Service to the Institute.
Russell S. Potter, Cincinnati—Education.
Beryl Price, Philadelphia—Service to the Institute.
Ludwig Mies van der Rohe, Chicago—Design.
Miss Eleanor Raymond, Boston—Design.
Edwin T. Reeder, Miami—Public Service.
Moreland G. Smith, Montgomery, Ala.—Design.
Herbert H. Swinburne, Philadelphia—Service to the Institute.
Harry M. Weese, Chicago—Design.
William B. Wiener, Shreveport, La.—Design.
Leonard Wolf, Ames, Iowa—Education.
Worley K. Wong, San Francisco—Design.

Mies Awarded Kimbrough Medal

Ludwig Mies van der Rohe has become the first architect to receive the J. Lloyd Kimbrough Medal, an honor conferred upon him by the American Institute of Steel Construction, Inc. for his "integrity of design and his dedication to the honest expression of structure." The award was made at the February meeting of the Chicago chapter of the American Institute of Architects.

The A.I.S.C. Committee on Awards stated that "he had done more to further public awareness and appreciation of the aesthetic possibilities of exposed structural steel than any other architect."

Established in memory of the A.I.S.C.'s first president in 1938, the Kimbrough Award is granted to an individual who has made an outstanding contribution to the structural steel industry in the design or construction of structures in steel. In its 22-year history, the medal has been conferred on: Hon. Robert Moses, Commissioner of Parks for New York City in 1941; Dr. David B. Steinman, civil engineer and bridge designer, in 1957; and Gen. Lief J. Sverdrup, bridge engineer and builder, in 1959.

Reynolds Award Jury Picked

Members of the 1961 R. S. Reynolds Memorial Award jury have been announced by Edmund R. Purves, Executive Director of the American Institute of Architects, which administers the $25,000 annual international award for "a significant work of architecture, in the creation of which aluminum has been an important factor." They are: Paul Thiry, F.A.I.A., Seattle; Minoru Yamasaki, A.I.A., winner of the A.I.A. First Honor Award in 1959, Birmingham, Mich.; Samuel T. Hurst, dean of Alabama Polytechnic Institute's School of Architecture and the Arts, Auburn, Ala.; Hugh Stubbins Jr., F.A.I.A., Cambridge, Mass.; and Henrique E. Mindlin, Honorary F.A.I.A., architectural editor of the magazine Brasil — Architecture Contemporâney. The jury meets in Washington in early March. The Award will be presented during the A.I.A. convention in Philadelphia, April 24-28.

continued on page 39
LEVERETT HOUSE LIBRARY, HARVARD UNIVERSITY. Each pillar-supported roof section is surrounded by ribbons of daylight — evenly diffused, glare-free. This achieves airy openness above, naturally illuminated privacy below. Execution of this concept was made possible with Wasco custom-designed continuous triangular Skydomes — molded of acrylic, the shatter-proof, weathering plastic. Wasco welcomes other opportunities to combine daylighting with advanced architectural ideas. Write Custom Engineering Department, Wasco Products, Inc., 5 Bay State Road, Cambridge 38, Mass.
New indicator system pin points trouble spots

Pilot lights greatly simplify normal maintenance. Just a glance tells if oil or evaporator pressures are too low, condenser pressure is too high, chilled-water temperature is too low, or if motor is overloaded. Other lights show whether cooling switch, crankcase heater, and liquid-line solenoid valve are on. The new Versare liquid chiller is built into a structural-steel base that protects vital parts . . . slips through 36" door openings . . . has capacities from 22 to 67 tons. Write for Bulletin 3926: American-Standard Industrial Division, Detroit 32, Michigan. In Canada: American-Standard Products (Canada) Ltd., Toronto, Ontario.

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ARCHITECTURAL RECORD March 1961 25
LOCATION: Foremost Dairies, Seattle
ARCHITECTS AND ENGINEERS: Mandeville & Berge, Seattle
PROJECT - DESIGN: Architect: Duane H. Box
new approaches to structural design with fir plywood

The graceful, repetitively curved roof of this loading dock translates an ancient architectural shape—the arch—into today's idiom with modern lightweight fir plywood components.

The floating, airy profile is deceptive. Actually, the roof has extremely high resistance to vertical loading. Construction went fast because of the large size of prefabricated plywood components, and in-place cost was substantially less than thin-shell concrete or a conventionally framed flat roof with the same span.

Capitalizing on fir plywood's high strength and workability, the vaulted roof system offers wide design flexibility through variations in radius, span and number of arches. The distinctive roofline is appearing on more and more schools, commercial buildings and homes.

In this application, 12 bays, 20 x 40 ft., and two half bays shelter 48 loading stations along a 260-ft. conveyor platform. Vault supports are beams and steel columns. Roof components are 4 x 13-ft. curved stressed skin fir plywood panels, used in pairs (spline jointed at midpoint of the vault) to form an arch with a 16-ft. radius and a 2½-ft. rise.

For basic design data on fir plywood or information about fir plywood components, write to Douglas Fir Plywood Association, Tacoma 2, Washington. (Offer good USA only.)
The ceiling fixtures in the lobby of this history-making edifice came right out of our new Litecontrol catalog. The "special" character of this equipment is that it delivers high intensity illumination without glare at a budget-controlling, in-stock cost. Your money can't buy better. Yes, and as you can see, these fixtures are handsome too ... they blend beautifully into this modern interior.

The post office may be experimental but this Litecontrol lighting has been proved in service. Fixtures are 4 foot square, have eight 40 watt lamps and use Holophane No. 6025 acrylic prismatic lenses. For commercial lighting that looks good in a ceiling and looks good in a budget — call on Litecontrol.
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COPE STANDARD UNDERFLOOR DUCT for use in conventional slab construction in commercial buildings. Ductwork, junction boxes and conduit are installed over rough concrete... covered with concrete and the finished floor.

Formerly distributed as SPANG Underfloor Distribution Systems... now manufactured by COPE, for many years leaders in the field of supporting systems for power and control cables. The Cope line now includes THREE integrated underfloor duct systems... Standard, Double Capacity and Headerduct... to provide the most modern method of wiring distribution. New Cope Underfloor Duct Systems offer advantages never before possible for power, telephone and intercom wiring installations.
COPE HEADERDUCT is specially designed for coordination with cellular floor construction. "Headers" running at right angles to the floor cells feed wiring into cells at all parts of the floor area.

There's a Cope underfloor duct system that will provide efficient, economical wiring distribution for your installation. For details on the systems illustrated here, or for the name of the Cope representative in your area . . . write direct to T. J. Cope Division, Rome Cable Corporation, Collegeville, Pa. (Dept. O). Complete catalog information available free on request.

COPE DOUBLE CAPACITY UNDERFLOOR DUCT is furnished 7⅛" wide to provide greater wiring capacity. May be combined with Standard Duct to meet diverse distribution requirements throughout the building.

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- Installation flexibility provides for present and future distribution needs.
- Galvanized welded steel straight sections, cast elbows assure extra durability . . . lightweight aluminum alloy junction boxes are strong and easy to handle.
- Cope’s safety coat anti-corrosive finish resists chemicals, humidity, salt spray and abrasion—its yellow color gives maximum visibility, preventing job-site accidents.
- Interchangeable parts permit integration of all Cope systems to meet specific requirements . . . minimizes parts inventories.
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No, that's not a space age automobile...it's the Arkla-Servel Sun Valley All-Year gas air conditioner, as it compares to conventional electric central system air conditioners.

Building this kind of satisfaction into your homes is the best way we know of assuring future sales and stopping profit-robbing recalls at the same time.

If you find the comparisons above a bit hard to believe, we respectfully invite you to talk to your local gas company, or write Arkla Air Conditioning Corporation.
GLASS... WINS HONORS IN SCHOOLS OLD and NEW

Architects favor extensive use of glass for school modernization or in new modern buildings. New construction like Donner Hall, men's dormitory at Carnegie Institute, employs Mississippi Coolite, Heat Absorbing, Glare Reduced glass to brighten rooms with daylight without the discomfort resulting from excess solar heat. Coolite complements interior and exterior appearance, makes rooms seem larger, more restful and cheerful.

In existing structures such as Carnegie Institute and Library, skylighting has been used to flood interiors with eye-easy daylight. In this impressive installation, translucent, light diffusing Smooth Rough MISCO Wire Glass provides shadowless, natural illumination, otherwise impossible with the building's existing vertical glazing.

When you build or remodel your schools, make modern daylighting part of your plans. Specify glass by Mississippi. Available in a wide range of patterns and surface finishes to meet every requirement and budget need.

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ARCHITECTURAL RECORD March 1961 33
From Armstrong: a giant step in fire-retardant ceilings

Now, for libraries: **two types**
of Acoustical Fire Guard—12” x 12” tiles

and new lay-in units

The main ceiling of the library on the left has the new Acoustical Fire Guard lay-in ceiling. The first floor ceiling, which you see just below the mezzanine, is of Acoustical Fire Guard tile.

This was the first time-design-rated acoustical tile. Since it was first introduced by Armstrong two years ago, millions of feet have been installed.

The new lay-in system is another great advance in fire-retardant ceilings. Here’s why.

**Unique New Suspension System**

Because of a new type of suspension system, the Armstrong Acoustical Fire Guard lay-in ceiling combines the advantages of an exposed grid system—economy and fast installation—with those of a time-design-rated acoustical ceiling. Here’s how the lay-in units work with the specially designed Fire Guard Grid Suspension System* to protect the structural components of a building.

**Ceiling Withstands 2000 Degrees**

The lay-in unit—because of its composition—can withstand exposure to flames and 2,000-degree heat. The new grid system, designed exclusively to support these units, will resist this same intense heat by allowing its members to expand, thus holding the lay-in units firmly in place. This suspension system is the first to be combined with a lay-in ceiling unit to offer rated fire protection. Both the lay-in unit and the grid system carry the U.L. label.

Underwriters’ Laboratories, Inc., has given the Fire Guard lay-in ceiling system a beam protection rating of three hours. Floor-ceiling assemblies combining it with bar joist and slab, as well as with beam and steel floor construction, earned two-hour ratings. In areas which require more protection, Acoustical Fire Guard tile can be used. It has U.L. ratings of up to four hours.

**Cost Low, Savings High**

In most cases, the new lay-in ceiling will cost even less than ordinary plaster ceilings on metal lath. And like tile, the new ceiling can save builders up to two months’ construction time. This means that a building like this library may open two months earlier.

**A Choice of Design**

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

For more information about either Acoustical Fire Guard tile or lay-in units, call your Armstrong Acoustical Contractor (he’s in the Yellow Pages under “Acoustical Ceilings”) or your nearest Armstrong District Office. Or write to Armstrong Cork Company, 4203 Rock Street, Lancaster, Pennsylvania.

* Patent pending

Architectural design and rendering by Helmut Jacoby

ARCHITECTURAL RECORD  March 1981  35
LACLEDE 34' OPEN WEB STEEL JOISTS
cut time and cost in new school construction

Ladue Junior High School in suburban St. Louis is an excellent example of the way economy and style can be blended in today's school construction. Cost saving was a pre-eminent factor in architect William B. Ittner's design of this low-flung structure, with its long straight runs, free of costly jogs and bends. Further economy was achieved by allowing the rolling terrain to fall away from the single continuous ridgeline, rather than to follow the contours of the ground with multi-level roofs.

This design concept was based on the selection of open web steel joists as a versatile, economical structural material. Laclede 34' joists, with special shallow-depth ends, were used to provide an unbroken slope from ridgeline to cantilevered overhang, two joists replacing the five structural elements formerly required in this type of roof construction.

General contractor on the project was Kloster Company. Neal J. Campbell was consulting engineer.
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ARCHITECTURAL RECORD March 1961 37
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Meetings and Miscellany

S.H.C.—B.R.C. Advises Diversification for Builders

Two hundred and twenty-three architects, builders, lumber dealers and contractors from 12 states attended the 16th Annual Short Course in Residential Construction January 18-19 at the University of Illinois Urbana campus. Conducted by the University's Small Homes Council—Building Research Council in cooperation with the University Extension Division, the course reports on current research conducted by the S.H.C.-B.R.C. and summarizes latest practices in construction and management for the home builder.

In view of the new house market slump, special sessions were devoted to remodeling and land planning for multiple-family or apartment-type housing. Builders were urged to diversify operations to include these and other markets outside the conventional single-family house.

In the opening address, Rudard A. Jones, director of the S.H.C.-B.R.C., reported an increase in the Boeckh index of residential construction costs of 37.4 points from the 1949 level, while the increase in the cost of living index is only 24.5 in that period. "The consumer's costs for a new house will take a bigger share of his dollar . . . Buyers seem to have sensed this, and no longer is the whole story told in down payments and monthly payments; they are looking at total costs and value."

"Where has the increased cost come from? The index for all construction materials reached an all-time high in 1959 of 134.6. In the Champaign-Urbana area labor costs have increased 63 per cent over the 1947-49 level. We want to see families earning more so they can spend more for housing and other products, but at the same time we don't want to see these added labor costs increase the cost of the product unduly. There can be only one answer—more efficient production."

Mr. Jones foresaw no revolutionary change in housebuilding, but an evolutionary one, with more work being done in the shop, the use of new materials.

Course proceedings are available for $2.50 from the Small Homes Council—Building Research Council, University of Illinois, Urbana, Ill.

more news on page 48
AMERICA'S BEST KNOWN WINDOWS SOLVE PROBLEMS IN ANY TYPE OF LIGHT CONSTRUCTION
The Andersen Window that solved two problems in this Michigan Motel

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

To take advantage of the view without sacrificing natural ventilation, Architect George Lytle selected Andersen Gliders—the picture windows that glide open sideways. But, Andersen Gliders also helped solve the heat loss problem. Each unit is electrically heated—controlled in the unit and from a master control panel in the office. Temperatures in each unit can be lowered as guests leave, raised as guests arrive—all from the office. Saves on the heating bills. And, Andersen Windows, with the natural insulating qualities of wood plus their weathertightness (about 5 times industry standards) serve perfectly.

Andersen Windows offer you maximum design flexibility for any light construction project: 7 kinds of windows, 30 different types, 685 cataloged sizes. Check Sweet's File or write for Detail catalog and Tracing detail files. Andersen Windows are available from lumber and millwork dealers throughout the United States and Canada.

Andersen Windows
America's most wanted windows

ANDERSEN CORPORATION · BAYPORT, MINNESOTA
$25,000 Mastic Competition
Theme: Medical Planning

For the third year, the Rubberoid Company, Mastic Tile Division, is sponsoring a $25,000 design competition. The two past competitions having dealt with adequate housing and educational and recreational facilities for middle-income families of a fast-growing satellite city on the fringe of a major metropolis, the present one has as its theme: adequate medical facilities.

The 1961 program “assumes that health and hospital accommodations of the parent city have been extended and developed to a point of congestion. The regional hospital council has recommended that future efforts be directed to developing a coordinated hospital system on the general framework formulated by the U. S. Public Health Service. Consolidation of the community clinic with the rural hospital to form a suburban general hospital which, in turn, will be expanded into a larger district hospital with full complement of specialty services and staff teaching programs has been proposed. The competition seeks to stimulate the architectural profession to apply its experience and training in achieving a workable solution.”

The competition, which has the endorsement of the Committee on Competitions of the American Institute of Architects and of the National Institute for Architectural Education, is open to all registered architects, architectural assistants and students of schools which are members or associate members of the Association of Collegiate Schools of Architecture. All contestants will be eligible for the $10,000 grand prize, a $5000 second prize and a $3000 third prize. Special awards totaling $4500 will be made to students not successful in the general competition.


Awards will be based on the greatest contribution to medical planning including feasibility for change as medical advances are made, architectural quality of physical expression and feasibility of construction within reasonable economic range.

Registrations with contest details are available from the Rubberoid Company, Mastic Tile Division, 500 5th Ave., New York 36, N. Y. or from its sales representatives or distributors. All entries are to be in the hands of the Architectural League of New York City no later than June 30, 1961.

Oberlin Round-table Marks
Aluminum’s 75th Birthday

The 75th anniversary of Charles Martin Hall’s discovery of the electrolytic process for separating aluminum from its ore was marked last month by a celebration arranged by the Aluminum Association and held on the Oberlin College campus, Oberlin, Ohio.

Philip Will Jr., president of the American Institute of Architects, was one of three panelists in a “Round-table of Tomorrow.” Others were Philip Sporn, president of the American Electric Power Company, and Dr. William A. Pennington, president of the American Society for Metals and professor of Metallurgy at the University of Maryland.

Mr. Will said, “We must think in unconventional terms . . . a successful aluminum wall system will require that every part do double or triple duty, mechanical or electrical as well as structural. I can imagine, for example, an exterior skin which would be stressed in tension, serve as the appearance surface and also, like the human skin, sweat a little to cool the building in summer. Interior surfaces can have permanent vinyl coatings, incorporate radiant heating and cooling and convenience wiring plus luminescent panels for lighting. The structure would be assembled with glue, factory applied along panel edges and temporarily protected against premature setting by removable strips of tape.”

Mr. Sporn predicted that use of aluminum by electric-power generators might increase in the neighborhood of 140 per cent in the next 19 years.

Dr. Pennington discussed metallurgical characteristics of aluminum.

N.A.H.R.O. Meeting Outlines Goals,
Seeks Ways to Achieve Them

About 1550 people from 41 states, the District of Columbia, Puerto Rico, the Virgin Islands, Canada, Germany and Japan attended the National Association of Housing and Redevelopment Officials’ 27th Annual Conference, held in October in Detroit. It was a busy “work” conference with several general sessions and more than 20 special interest sessions.

The Program Resolution adopted at the annual business meeting saw three immediate problems: 1) the need to relate the public housing program to the total housing market 2) the need to understand more fully the social problems of poverty, disease and crime and 3) the need for a cabinet level federal department of housing and community development.

The Resolution charged N.A.H.R.O.’s membership to support recommendations relating to the three new divisions that will carry out the organization’s job: Housing, Renewal and Codes. It also charged members to support recommendations relating to four general programs: a more productive use of citizen participation; a more humane handling of displaced families and businesses relocation; the development of a training program to assure a pool of expert workers; the initiation of a study of relationship of tax policies to urban renewal.

Sessions generally were geared to cover these four goals with panels and discussions, films and slide talks.

At the conference opener, speakers were Walter P. Reuther, president of United Automobile, Aircraft and Agricultural Implement Workers of America (AFL-CIO) and Home Finance Agency Administrator Norman P. Mason. Mr. Reuther looked to “What’s Ahead in the 60’s,” finding the picture not pretty . . . unless America puts some muscle in its drive to solve urban problems. He declared that, in connection with the national housing program, a strong “public policy” must replace the current “public relations policy,” if cities are to be saved. One of the points he made was that, in terms of the national housing effort, “there has been more concern for money-lenders than for people who need housing.” 

continued on page 343
"DESIGNER PALETTE" AND "ANTIQUE MARBLE"

Coordinated styles in solid vinyl tile

"Designer Palette"... a series of striking, plain modern colors ideal for bold designs, accents or feature strips.

"Antique Marble"... an unusual tile that reproduces the look, the wear of marble at surprisingly low cost.

These two styles in Kentile® Solid Vinyl Tile offer limitless design possibilities. Ideal for all fine installations—on walls as well as floors. Call your Kentile Representative or consult Sweet's File.

SPECIFICATIONS:

Sizes: 9"x9", 12"x12". Thicknesses: .080" (Standard Gauge) and 1/8".

Colors: Eight "Designer Palette," six "Antique Marble." Use: Below, on or above grade.

"Designer Palette" Feature Strips: 1/8", 1/4", 1/2" and 1" widths in 36" lengths. Thicknesses: .080", 1/8" (also available in 1/16" for use with Vinyl Asbestos Tile).

Visit Kentile's Showrooms in these cities: New York, Philadelphia, Cleveland, Atlanta, Kansas City, Torrance, Cal.
We don't know what noise annoys an oyster...

... but we do know plenty about eliminating industrial noise. Koppers Aircoustat is the pioneer product for controlling duct-transmitted noise in air handling systems ... and Koppers has the longest, broadest experience in the whole field of industrial sound control, from air conditioning to aircraft engines.

Aircoustat® is the quality standard in its field. Its pioneer engineering is matched by premium construction that features heavier gauge metal than competitive units. It is assembled with care to give the quality performance promised by its original design. And Aircoustat provides guaranteed attenuation certified in the laboratories of independent research organizations.

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When mounted in luminous rows, Wakefield Photometrics provide a continuous shaft of light; there is no opaque metal between units to create distracting contrasts. Available in 4' and 8' units with injection molded 4' refractors of acrylic or styrene (actual overall depth less than 4''), Photometrics are finely engineered luminaires with off-the-shelf availability and price. In stock at leading distributors in the United States and Canada.
Philip E. Langley, Devoe & Raynolds’ Architectural Representative, Atlanta, describing the new Library of Colors system

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(3) Tool is operated. Jaws pull back, Rivet is set. Mandrel breaks and falls free.
The Record Reports

Nebraska Architects Association Honors Six Buildings

The 1960 Honor Awards Program sponsored by the Nebraska Architects Association honored six Nebraska buildings, all of them designed by Omaha architectural firms. At the annual meeting of the state association, the two honor awards went to the M. J. Ford Home in Omaha, designed by Stanley J. How & Associates, and the Leo A. Daly company office in Omaha, designed by the Leo A. Daly Company.

The jury was composed of chairman Clarence Kivett, senior partner in Kivett & Myers & McCallum, Kansas City architectural firm; Emerson Goble, editor of Architectural Record; and Dr. Leonard Wolf, head of the department of architecture for Iowa State University, Ames, Iowa. In making their report, the judges paid tribute to the "many fine submissions which did not receive awards" and added that the panel was impressed with the improved character of work in the state as a whole as evidenced by the entries submitted.

The jury's comments on the Ford home were: "... unusually well-done residence with excellent unity of composition, proportions and materials... executed on a difficult (sloping) site. Demonstrates that contemporary domestic architecture need not be dogmatic in its statement."

On the Leo A. Daly company office, they said: "... fortunate setting which establishes pleasant design environment, opening out to vistas of West Omaha. Strong spirit of unity established by clearly defined, rhythmic composition... very well scaled for its use with good proportion, space organization and relationships."

Four Mention Awards were given the following: the Boystown Orientation Center, Boystown, designed by the Leo A. Daly Company; Hinky Dinky store no. 59, Lincoln, designed by Steele, Sandham & Weinstein; St. John the Apostle Church and School, Lincoln, designed by Boyer Biskup & Widstrom; and St. Peters School, Fullerton, designed by Steele, Sandham & Weinstein.

more news on page 57
The 1961 annual meeting of the Society of Architectural Historians was held in Minneapolis January 26-28. Several new areas of interest were explored by the general sessions. Most closely associated were "Aspects of Canadian Architectural History" and "The Architecture of Minnesota and Her Neighbors." Canadian developments were followed right up to the present from 1945 by John Parkinson, architect of Toronto. Especially noteworthy in this Canadian series of papers was the color slide material presented with comments in French by Jean-Paul Morisset from the Inventaire des Oeuvres d'Art de la Province de Quebec. It encouraged the realization among the audience that the earliest architectural history of the great midwestern river basins might be written entirely in terms of French settlement from Quebec to New Orleans.

The Minnesota regional session had talks which further analyzed both French and Yankee influences. More surprising, however, was the exposition of the rich cultural heritage of Wisconsin by Richard W. E. Perrin, director of the Housing Authority of Milwaukee. This was in part represented by Norwegian farmhouses and Finnish churches with their chaste handling in wood. Cornish stone houses and Bohemian barns were similarly shown. The biggest category Mr. Perrin discussed was the German "fachwerk" buildings of exposed oak frames with brick panels and proverbs, or "haus-sprüche," written over the front door, complete with construction dates. The handsomest of these German structures was a huge barn with brick and timber walls which had once been covered with a thatch roof. Other striking textural effects were achieved by sprinkling pieces of coal throughout a stone wall and, in one case, piling short logs up like firewood in mortar so that the sides of the house gave the effect of an unruly mob of polka dots. Mr. Perrin hopes to bring a number of the best examples of these ethnic types together in a future Wisconsin park similar to the Scandinavian collections of folk architecture.

The pleasure of recognizing the range of the American cultural tradition which comes more and more often to the American historian as research advances was next heightened by a visit to the Metropolitan Building in downtown Minneapolis. This was built in 1888-90 and designed by E. Townsend Mix. It is centered around a huge hall illuminated from above. Balconies of glass project out on knife-edge brackets. Several members of the Society of Architectural Historians spent the time before the preservation box lunch mounting to the twelfth story in the open cage elevators and then walking slowly down. Finally one member was led to observe what several had already been thinking, that here was a prototype for Wright's Guggenheim Museum. Prodigious in its waste of floor space, interpolating raw structure with glass walls, equally bumptious and over-weening on the outside, it exhibits all the basic characteristics regarded seventy years later in the New York museum as largely without precedent except within the work of Wright himself. This experience also contained the germ of the intense feeling one obtains everywhere in the Midwest of a countryside suffused with the traditional building wisdom of the farmers of half the world around giant, self-centered cities, put up and torn down with incredible speed, boldness and naivete. The Metropolitan Building is about to be demolished by urban redevelopment order for a parking lot.

The Hitchcock Award for the best book of the year went to Professor David Coffin of Princeton University for his monograph on the Villa d'Este at Tivoli. The present slate of officers was reelected for another year, Barbara Wriston of the Boston Museum as president, John Forbes of the University of Virginia as vice president, Alan Gowans of the University of Delaware as secretary and Robert M. Walker of Swarthmore College as treasurer. New directors are Allen Brooks, University of Toronto, Edward DeZurko, Rice University, William Jordy, Brown University, Thomas McCormick, Vassar College, Carroll Meeks, Yale and Charles Peterson, Natl. Park Service.

C.S.I. PLANS FIFTH ANNUAL CONVENTION

The Construction Specifications Institute will hold its Fifth Annual Convention at the Commodore Hotel in New York City May 22-24, with the program centering on a wide variety of technical activities.

One of the major portions of the program will be a presentation by C.S.I.'s Specification Methods Committee in which the Committee will propose a completely new outline arrangement for specifications for use throughout the country. Sample copies of this outline will be distributed.

The Institute's Technical Committee will present a thoroughly detailed and up-to-date version of the functions and operating procedures of the entire technical program at both the national and chapter levels.

The Philadelphia Chapter will present a program called "Coordinated Responsibilities of Suppliers and Specification Writers." A panel of specification writers and building products manufacturers will discuss the relationships between the active (professional) and associate (manufacturer's representative) members of C.S.I. and the responsibilities of a producer of quality products and a writer of intelligent specifications.

C.S.I. reports membership as of February 1 at 4612, compared with 3750 a year ago. Four new chapters will join C.S.I.'s present 50 soon.
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This ad, in current issues of Better Homes & Gardens, American Home, Sunset and Living, emphasizes the joy of owning a home sided with beautiful, durable Masonite exterior products.

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ARCHITECTURAL RECORD March 1961 65
Thorshov & Cerny, noted Minneapolis firm of architects, designed this approach to a modern, high-traffic jet airport terminal. Spaciousness, appealing modern design and long-range economy via minimum maintenance requirements—all these elements were part of the plan.

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The Record Reports
continued from page 60

new partnership will be known as Johnson-Roy, Landscape Architects and Site Planners, with offices at 106 E. Liberty, Ann Arbor.

Arthur C. Lucas, Jr., Architect, announces the appointment of John D. Peck as associate and a move to Suite 900 Alworth Building, Duluth, Minn.

Josiah H. Child has retired from the firm of Child, Lawrence & Shannon, Architects & Engineers. A new partner has joined the firm, Bayard Underwood. The firm name is now Lawrence, Shannon & Underwood.

Wadsworth & Boston, Architects and Engineers of Portland, Me., announce the appointment of three new members: Donald L. Dimick, Raymond J. Mercer and Robert H. Weatherill.

Herbert Pomerantz, P.E., has been made an associate of S. W. Brown, Consulting Engineers, New York City. He was formerly the firm’s project manager.

Richard G. Stein, after 14 years a partner with Katz Waisman Blumenkrantz Stein Weber, Architects Associated, has terminated his partnership to establish his own practice. His new office is at 441 Madison Ave., New York City 22.

The Consulting Engineering firm of W. T. Collings, Milwaukee, Wis., has announced that W. D. Kimmel is a member of the staff, serving as liaison engineer between the principals of the firm and their clients.

Oliver J. Bryan Jr. and William C. Haldeman announce their association in the practice of architecture under the name of Bryan and Haldeman, Architects, 525 East Ohio Ave., Denver 9, Colo.

Upon the retirement of William B. Coffin and S. Winthrop St. Clair from Sturgis Associates Incorporated, Architects and Engineers of Boston, Mass., the following have been elected as directors and officers of the corporation: William Bradford Sprout Jr., Perry D. Lord and Maarten D. Den Hartog. New consultants are William B. Coffin, William Stanley Parker and J. F. Den Hartog, professor mechanical engineering.

The new name of Ginocchio, Cromwell & Associates is Ginocchio, Cromwell, Carter, Dees & Neyland, Architects & Engineers. The firm will be continued on page 80

...a successful mall by day— a “spectacular” at night!

Gardens, fountains and lighting are now an integral part of the building plan...from the start. Lincoln Road Mall in Miami Beach was designed by the internationally known architect, Morris Lapidus, with lighting by Abe Feder. Eleven 60 foot Pylons replace the normal concept of street poles, providing target beams of light that emphasize plant shelters, playing fountains and Mall walks. The night drawing power provided by the exterior lighting dazzles large crowds of sightseers — and many remain to become Mall customers. This new concept is showing a marked influence on the development of similar areas throughout the country.

The Radiant 1000 watt Mercury Reflector Lamps, with “Pyrex” brand glass envelopes specified by Mr. Feder, are also the perfect solution for many other lighting problems. Buildings, ball parks and airports throughout the country are turning toward the use of Radiant Incandescent and Mercury Vapor Lamps in lighting systems. Radiant Lamps are weather-proof, better in their lasting brilliancy, cheaper in any regular replacement program, and what’s more, a joy for the designer to work with. For information about modern outdoor lighting, write or phone Les Deutsch at Bigelow 3-6850.
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Why carpet for a shoe department should be specified by the "feet"...
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No interference here. This window washer does not interfere with activities on this busy highway or with people within the building—nor do they interfere with him. He can travel from window to window with no loss of time.

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For Further Information
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Cleveland Tramrail Window Washing Equipment enables a man to reach all windows from a special cage suspended from an overhead carrier that travels on a track attached to the building. The cage is readily raised or lowered by the washer in the cage. If the equipment is motorized, lifting and traveling are done simply by pushing control buttons.

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ARCHITECTURAL RECORD March 1961
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Doors swing from rugged steel grid core—not face. Heavier gauge steel.

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All styles available as complete package—including door, frame and hardware.

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Architects, as well as building owners, appreciate the decorative and money-saving features of precast A-M Wall Panels as part of an all-concrete element structure. Plain concrete or exposed aggregate panels, of load bearing or curtain type, speed construction and add unique beauty to industrial buildings and warehouses, schools, offices and apartment buildings.

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The new Amana "Curtain Wall" Room Air Conditioner... slim, compact, designed to easily and quickly slip into a ventilating cabinet beneath a window... makes possible self-contained air conditioning in a structurally integrated interior wall cabinet.

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**NEW ECONOMY AND CONVENIENCE**... Amana "Curtain Wall" Air Conditioners add new design possibilities... Help keep initial building costs down. They also eliminate costly maintenance while providing greater versatility to owners and tenants. Amana's heritage of craftsmanship is proof of the quality, performance, dependability and value!

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ARCHITECTURAL RECORD March 1961 87
"The 14-inch J&L Light Beam was the most economical member we could use for the spans," say Robert and Company Associates of Atlanta, the designers.

New Atlanta Airport Terminal...Designed

Air traffic comes in, all at once, in Atlanta, Georgia. Often there are as many as 60 planes in the terminal, all loading and unloading. Atlanta is one of the most important airlines transfer points in the country. Everyone wants to hold lay-over times to a minimum, so heavy traffic peaks are unavoidable.

The problem was to design a new terminal that would make life easy for passengers and airlines people. And do it as inexpensively as possible.

That's why the compact, 11-story central terminal building (with control tower on top) was conceived—with six long concourses splayed out like fingers to provide plenty of parking space for planes—with easy access everywhere for passengers and airlines personnel—with 8 special second-story "jetways" that telescope out from above the concourses to let jet passengers on and off with no stair climbing, high and dry out of the weather — and with underpasses beneath each concourse for baggage trains to run, safely separated from passenger walks.

Design Economy was gained in concourse construction and in stair stringer fabrication by selecting J&L lightweight structurals—14-inch J&L Light Beams for concourse and main terminal roof purlins—10-inch J&L Junior Channels for stair stringers. Because they are easy to adapt, you can use J&L lightweight structurals in a wide variety of architectural designs. They reduce the steel tonnage you'll require. And because they're easy to fabricate, raise, and position, they cut labor costs.

To find out more about J&L lightweight structurals, call or write direct to Jones & Laughlin Steel Corporation, 3 Gateway Center, Pittsburgh 30, Pennsylvania.

Jones & Laughlin Steel Corporation
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Key factor in concourse design was use of J&L 14-inch Light Beams as purlins. Span between rigid bents varies from 19' 7" to 24' 0". Formed metal decking, which supports insulation and built-up roofing material, is welded to the purlins. Purlins and girders also support a maze of concealed piping.

for the Jet Age with J&L Light Beams

J&L 14-inch Light Beams and J&L 10-inch Junior Channels were used extensively throughout the new "Jet Age" Atlanta Airport Terminal. J&L 10-inch Junior Channels were used as stair stringers. J&L 14-inch Light Beams are purlins, mainly in two-story concourse sections.
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College enrollment explosion is creating a new style of architecture

In 1945, Michigan State University had an enrollment of 5,622 students. Today, 21,000. By 1965, the prediction is 30,000. The only fitting description for such growth is explosion.

As students continue to seek admission, the problem is: how can the University put up new buildings, almost overnight, that will still be functional and up to date for years to come?

We decided to travel to East Lansing, Michigan, to find out.

Ralph R. Calder, AIA, of Detroit, who designed the new buildings shown in these pages, and the University's supervising architect, Donald Ross, met us. We toured the buildings and asked questions.

The new buildings, like the curricula and teaching methods here, reflect
the changes since the college was founded in 1855. They provide an up-to-date environment for learning.

Question: How long have you been designing buildings for Michigan State, Mr. Calder?

Mr. Calder: It has been my privilege for a number of years to have planned with President John A. Hannah buildings which reflect his vision for growth and academic achievement.

Question: Why did you break away from the traditional style of architecture seen in so many buildings here?

Mr. Calder: We are establishing new traditions here—traditions which will reflect for tomorrow the philosophy of this University.

Question: And how have you accomplished this?

Mr. Calder: The new tradition is one of efficiency—which means efficiency of space—maximum utilization of the physical plant. Technological development in materials and fabrication has advanced this goal; for example, the use of modular construction with insulated glass and spandrels packed with efficient insulating materials.
Student Services Building, completed in July, 1958, cost $18.75 per sq. ft. Windows in this building are also glazed with Thermopane for heating and (proposed) air-conditioning economies.

Question: Can you be more specific about the use of insulating glass?
Mr. Ross: We wanted large areas of glass because we like an "open world" feeling. We have one of the most attractively landscaped campuses in the country—plantings of more than 3,200 different species of trees, vines and shrubs—naturally we want to enjoy them even when we're inside the buildings. Daylight is free, so why not make use of it to help light our interiors?

With all that glass, we figured insulating glass would pay for itself over the years. It cuts down heat loss through windows in winter, lightens the load on our central heating plant, and reduces heat gain in summer. We hope eventually to air condition these buildings. They're designed for it.

Mr. Calder: I might add that we get more utilization of floor space with insulating glass. In the Library, for example, you'll see students at desks right next to the windows. They're comfortable there because double glazing reduces downdrafts.

Question: How do you control sky glare?
Mr. Ross: We have drapes in the Library and Venetian blinds in the other new buildings. And the outer pane in the double glazing (in south and west elevations) is heat absorbing glass. It not only helps reduce sky glare, but makes the insulating glass even more efficient.

Question: Does all this glass impair the use of visual aids?
Mr. Ross: Not at all. In fact, all new classrooms are equipped for use of visual aids and closed-circuit television. Blinds and drapes are sufficient to subdue the daylight.

Question: How do the students and faculty like the new buildings?
Mr. Calder: Their enthusiastic use of the buildings demonstrates this.
THERMOPANE®—For maximum comfort and for heating and air-conditioning economy, use Thermopane insulating glass in windows. Heat loss is cut in half, compared to single glazing. Drafts near windows are reduced. Outside noises are muffled. Thermopane is available with either a metal-to-glass Bondermetic Seal® and enclosed in an edge-protecting aluminum frame, or with a glass seal. GlasSeal® Thermopane is ideal for preglazed sash.

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Recommended for gymnasiums, entrance doors and sidelights, areas facing playgrounds...any area where students and missiles are in rapid motion.

THREE KINDS OF PLATE GLASS—To achieve clear vision from inside and a richer appearance on the outside, use twin-ground Parallel-O-Plate® Glass in windows. For control of sun heat and glare, use Parallel-O-Grey® or Heat Absorbing Plate. Parallel-O-Grey is neutral grey in color. Heat Absorbing Plate is pale bluish-green. Both effectively reduce transmission of sun heat to keep interiors cooler, but Parallel-O-Grey is more effective in reducing glare.

MIRROPANE®—Wherever it is desirable to observe people without their knowledge, Mirropane, the “see-thru” mirror, is the answer. On the brighter side it’s a mirror that reflects objects in the room. From the darkened observation room, it’s a window you can see through, but you won’t be seen. Mirropane can now be made of Parallel-O-Grey to provide “see-thru” vision with light differentials as low as 3 to 1 between rooms.

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For information on these L·O·F products, refer to Sweet’s Architectural File 26-A, or call your L·O·F Distributor or Dealer (listed under “Glass” in the Yellow Pages). Or write to Libbey-Owens-Ford Glass Co., 811 Madison Ave., Toledo 1, Ohio.
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By designing the building with air conditioning in mind, you often
can save enough to pay for the difference in cost.
Talk with a Nesbitt man, or send for Publication SP-1060.
"City in the sky" will be heated and air conditioned with the help of some 2000 tons of Bethlehem Steel Pipe

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**Atlas Masonry Cement provides the right mortar**

A sculptured stone look is produced with decorative "Hi-Lite" concrete block here in single half-pyramid design. In exposed masonry construction, the projected face of this unit creates unusual highlights and shadows, pyramids, prisms, diamonds, gables. For laying up "Hi-Lite" block, as with other masonry units, ATLAS MASONRY CEMENT continues to be the preferred cement for mortar. It produces a smooth, workable mix, provides a strong bond, gives weathertight joints that are uniform in color. And ATLAS MASONRY CEMENT complies fully with ASTM and Federal Specifications. For information on masonry cement write: Universal Atlas, Dept. M, 100 Park Avenue, New York 17, N. Y.

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FULL ADJUSTMENT CONTROL PANEL  
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spring tension adjustment
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"On-Off" hold-open selector
screw for setting at either automatic hold-open or non-
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complete, EXACT adjustment of every control

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When specified, furnished with automatic hold-open. Door
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When specified, furnished with on-off selector screw. When the selector
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ARCHITECTURAL RECORD March 1961  105
Plumbing Fixtures and Fittings by

KOHLER of KOHLER

The three and a half million dollar court house in Waukesha, Wisconsin is a symbol of growth and achievement. Kohler Fixtures and All-Brass Fittings match its high standards of quality and design.

The installation includes Juneau lavatories with extra wall-bearing surface for strain-resistant anchorage; efficient, siphon-jet Kingston closets; Branham urinals with positive flow control; Glenbrook drinking fountains; and Bannon service sinks. The county jail, within the building, also has Kohler Fixtures.

Kohler Fittings are All-Brass. This gives them the utmost wear-and-corrosion resistance, assures longest chrome-finish life. The VALVET interchangeable valve units keep maintenance costs down.

Kohler quality in public building installations means distinguished contemporary styling, together with maximum durability and economical maintenance.

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KOHLER, WIS.
The location happens to be Houston, Texas and the building is the First City National Bank, but wherever it may be the story follows a familiar ring—"Curtain Walls are by General Bronze."

Whenever architects want to make sure their most important jobs will be soundly engineered, precision fabricated and carefully erected, they turn to General Bronze. Our many years' experience in this highly specialized method of building enables us to assure not only the architect, but the contractor and owner as well, of complete satisfaction in every regard on every job.

To combine beauty of design with practical functionalism, the architects Skidmore, Owings & Merrill used fixed aluminum sash, set in approximately 5'6" from the outside perimeter of the building. This not only uses each floor as an effective sunshade but also provides a convenient and safe area for window washers. Access to the outside is through two door units on each floor. Another interesting feature of the building is the effective use of gasket glazing throughout.

For your next job, whether it be large or small, specify "Curtain Walls by General Bronze." You'll be glad you did. The GB sales representative in your area is anxious to be of service. Call him in before your plans get too far along. Our catalogs are filed in Sweet's.
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Lennox solution: Ten Lennox LANDMARK® units provide individually controlled heating and cooling for each zone. The main floor, with six rooms, is supplied a total of 23,300 CFM and 60 1/2-tons cooling. Four mezzanine rooms are served by three 10-ton LANDMARK® units. The basement area utilizes the same equipment used on the 1st floor and mezzanine. Air-cooled condenser-compressor units are located on concrete pads outside the central equipment room.

Now, Lennox offers you a complete line of warm air heating and air conditioning equipment ... all from one central source. Huge-capacity industrial heaters with up to 2,000,000 Btuh capacities ... unit and duct heaters ... COMFORT CURTAIN® systems for schools ... air conditioning equipment for every size job ... all designed, tested and manufactured in our own factories. You deal with one company, represented by one man. He's a professional heating and air conditioning technician, ready to become a part of your team. He'll relieve you of bothersome details and red tape, and make sure you have the right equipment on the job, when you need it. For more complete information on the Lennox line of heating and air conditioning equipment, write LENNOX, 516 S. 12th Ave., Marshalltown, Iowa, or phone your nearest Lennox office listed on the facing page and ask a technical representative to call.
**PROBLEM:** RAISE THE TEMPERATURE OF CRUDE RUBBER STORED IN BOXCARS, FROM OUTSIDE TEMPERATURES TO 120° F.

**Lennox solution:** 500,000 Btuh unit heaters are connected by canvas ducts to incoming boxcars loaded with crude rubber. When the load is heated, the canvas ducts are easily disconnected and another boxcar is brought into position. The Lennox units are designed to provide the high discharge air temperatures required for this type of process without affecting their efficiency and long life. Lennox direct-fired heaters, ranging in capacities up to 2,000,000 Btuh, are used extensively in industry for heating, cooling, ventilating, make-up air and process application.

**PROBLEM:** HEAT, FRESH-AIR COOL AND VENTILATE A 12-CLASS-ROOM SCHOOL FOR LESS THAN $1.25 PER SQ. FT.

**Lennox solution:** A Lennox Comfort Curtain® system that provides individual room-controlled fresh-air, cooling, ventilating and heating installed for only $1.07 per sq. ft. Gas fired heating sources, in approved construction heater rooms, are located on exterior walls between each two classrooms. An air processing unit in each room meters precise amounts of fresh, heated or return air through functional bookshelf duct sections across the full length of each classroom exterior wall. Minimum structural requirements and ease of installation reduced both initial cost and over-all expenditures.

---

**Don't be satisfied with less than LENNOX**

**HEATS • COOLS • TREATS • AND MOVES AIR**

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WILL THIS BANK BE OBSOLETE BEFORE IT'S BUILT?

Not with proper planning by three experts. The banker for objectives and supervision. You for construction and decor. And a LeFebure representative for record keeping and cash handling systems. For complete information on LeFebure's free Architects Service Division, write today to the LeFebure Corporation, Cedar Rapids, Iowa.

LeFebure is a subsidiary of Craig Systems, Incorporated
Look for the label that assures weather resistance... high strength... pleasing appearance

This label on a glass-fiber reinforced panel is your assurance of unmatched weatherability. It appears only on panels made with PARAPLEX® P-444 acrylic-polyester resin. Extensive laboratory and field tests have proved that the proper combination of acrylic and polyester resins produces the best weather resistance in reinforced panels. This combination is found only in PARAPLEX P-444, made by Rohm & Haas. The resin also imparts pleasing appearance, high strength, excellent light transmission, and ease of installation. Write for the names of panel manufacturers who use PARAPLEX P-444.
an ideal specification for silent, efficient PATIENT ROOM DOOR CONTROL

This ideal specification for patient room doors is used in such outstanding hospitals as:

Kaiser Foundation Hospital, Los Angeles, Calif.
Wolff & Phillips, Portland, Oregon — architects

Oak Park Hospital, Oak Park, Illinois
Shaw, Metz and Dælo, Chicago — architects

Providence Hospital, Washington, D.C.
Faulkner, Kingsbury & Stenhouse, Washington, D.C. — architects

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Shepley Bulfinch Richardson & Abbott, Boston, Mass. — architects

All above hardware can be quickly installed on existing patient room doors.

"shall have GLYNN-JOHNSON . . .

GJ 300 series CONCEALED (or surface mounted) OVERHEAD FRICITION TYPE DOOR HOLDER." (Nurse may set door at any desired degree of opening for ventilation or privacy. Door cannot slam open or shut.)

"GJ KH 1 COMBINATION HAND AND ARM PULLS to be mounted back to back as a pair." (Convenient for opening door from either side with sterile hands or when carrying loaded trays.)

"GJ 30 ROLLER LATCH." (Eliminates disturbing latch "clicking" sound. Replaceable rubber roller silently engages dirt-free strike. Latching pressure adjustable.)

"THREE GJ 64 for metal frame (or GJ 65 for wood frame) RUBBER SILENCERS." (Form pneumatic air pockets to absorb shock or noise of closing and create constant latch tension . . . no door rattling.)

write for HOSPITAL DOOR CONTROL brochure E-4

GLYNN-JOHNSON CORPORATION
4422 n. ravenswood ave. chicago 40, illinois
Now—there's no place to hide...

TODAY it is hard for termites to find a "hearty meal" in newly constructed homes. That's because up-to-date architects and builders are using aldrin insecticide to knock out termites before they cause damage.

Aldrin is an alkali-stable, F.H.A. approved insecticide for use on all types of home construction—slab—basement—and crawl space.

New projects can be treated without interrupting normal construction work and builders can safely give home owners a guarantee... confident that aldrin protection will last for years.

For full information on aldrin termite protection for new construction see your local Pest Control Operator or write to:

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FOR PRECONSTRUCTION TERMITE CONTROL
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110 West 51st Street, New York 20, New York
ATLANTA • NEW ORLEANS • ST. LOUIS • SAN FRANCISCO

ARCHITECTURAL RECORD  March 1961  118
Designed for Architects • Engineers • Contractors

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

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

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

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

For more information write for technical catalog ES-105

AIR DEVICES INC.
185 MADISON AVENUE • NEW YORK 16, N.Y.

BETTER PRODUCTS FOR
AIR DISTRIBUTION • AIR CLEANING • AIR EXHAUST
To keep pace with the latest architectural designs, Kimberly-Clark has styled a brand new recessed dispenser for Kotex feminine napkins for rest room use in schools, offices, stores; industrial and public buildings. This unobtrusive, built-in vendor holds 63 individually boxed napkins. 33 vend from a single loading, 30 are held in storage.

These streamlined, sturdy, pilfer-proof vendors add a much appreciated service to any public building. They are available with either a five-cent or ten-cent coin mechanism.

Available in durable white enamel, satin chrome, gleaming polished chrome and stainless steel. Matching frame for recessed installation. (Other vendors that can be surface mounted are also available.)

**RECESSED DISPENSER FOR KLEENEX TISSUES**

Holds full box of Kleenex 200's. Dispenses one tissue at a time. Mirror-chrome finish. Holes in back and side make it easy to fasten to studing.

For further details on how these attractive new recessed dispensers for Kotex napkins and Kleenex tissues can fit into your plans, see Sweet’s Architectural File Cat., Section 27e/Kl. or write to Kimberly-Clark Corp., Dept. AR-31, Neenah, Wisconsin.

KOTEX and KLEENEX are trademarks of KIMBERLY-CLARK CORPORATION

**KIMBERLY-CLARK CORPORATION NEENAH, WISCONSIN**
A handsome steel frame for “Salt Headquarters”

Entrance from parking lot. Note unusual effect achieved by hanging roofs on the lower flange of the roof beams, instead of the upper flange.

Balcony of the lounge-cafeteria wing overlooks a beautiful valley. All columns and beams supporting this balcony are left exposed and painted red.

Wherever you look at the new administrative headquarters of International Salt Company, you see steel—exposed structural steel framing, steel roof deck, porcelain-enamed steel panels outside, steel wall partitions inside. This attractive building dominates a hilltop in a country setting outside Scranton, Pa. Great expanses of glass, glazed to slender steel columns, bring the surrounding countryside inside to join the brightly painted interior. Blue porcelain-enamed steel panels complete the curtain-wall construction, and provide a striking contrast to the exposed steel frame which is painted red. International Salt wanted a flexible building. And they got it, thanks to steel construction. It will be a simple matter to add a new steel frame to the existing one if expansion becomes necessary. The interior steel wall partitions are easy to take down and re-erect, and make possible many variations in room arrangement.

**BETHLEHEM STEEL**

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

Structural frame is exposed inside, too. Here it lends beauty to the employee lounge and cafeteria (rear), and emphasizes the sturdiness of the structure.

Steel wall partitions throughout the building provide complete interior flexibility.
ADAMS RITE's exclusive MS lock more than doubles security for narrow stile doors, making forced entry impossible without the complete destruction of the door channel. This double security is made possible by linking the stile and jamb together with a counterbalanced laminated steel bolt—measuring a full 1\(\frac{3}{8}\)" from a backset as short as 3\(\frac{3}{8}\); and unlike standard locks, the MAXIMUM SECURITY retains as much of the bolt within the locking stile as is projected.

Compare the Adams Rite MS lock—with its protective long bolt—with ordinary locks and you'll see the double protection of MAXIMUM SECURITY.

Write today for complete specifications and information.

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"Guessing games" are out-of-place in today's busy laboratories. So it's wise to bear these important facts in mind when you consider laboratory sinks: There is no question of which sink takes which corrosive (weak, mixed or concentrated) when you install "U. S." Chemical Porcelain Laboratory Sinks. One "U. S." sink handles 'em all, hot or cold! Even hydrofluoric acid and hot caustics can be safely handled with normal routine rinsing. No "chemical resistance" tables required. No chance for error and costly damage.

Sinks made of solid, non-porous chemical porcelain also have the other features you want. Attractive appearance. Time-tested durability. Superb heat-shock resistance. Smooth glazed surfaces, rounded corners for easy cleaning. Non-staining, non-absorbent, no maintenance problems.

See the wide range of standard types and sizes at your Laboratory Furniture Dealer. Or write direct for new Bulletin L-8R.

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U. S. STONEWARE
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Now!

NEVER BEFORE
SO MANY OUTSTANDING

Yes, here is industrial lighting that lifts light levels to new highs. The answer to demands for more and better lighting from each fixture, without added cost. Now, Benjamin has custom-engineered an entire line to meet the varied requirements of modern industry. Only Benjamin could bring you RLM quality at such a truly economical price.

Examine the complete Benjamin lines of • POWER GROOVE • SHO-VHO units • SLIMLINE • 40-WATT and 800 ma. RAPID-START UNITS. See how Benjamin gives you extra value for your lighting dollar. Call your Benjamin representative today to plan the correct custom-engineered fixtures for your use.

NEW PROTECTED FLUORESCENT UNITS available with completely corrosion-resistant monel metal lampholders, porcelain frames, stainless steel spring clips, in addition to the famous Benjamin one-piece housing.
BREAKS THE LIGHT BARRIER IN

**Fluorescent Lighting**

**RLM** Quality at a New Low Price

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**FEATURES**

1. **New SNAPLOX LAMPHOLDER**
   Snaps into wiring channel and locks in position, assuring rigid, trouble-free mounting.

2. **New CONCEALED COUPLER**
   Slides inside wiring channel, allowing units to butt snugly together for easier continuous row installation.

3. **New TWIST-LOCK THUMB LATCH**
   Simplified thumb latch offers new ease in reflector installation.

4. **New DOUBLE EMBOSSED REFLECTORS**
   Extra rigidity is added by vertical embossed ribs and horizontal ridges. Gives extra strength and assures rattle free installation.

5. **New EXTRA STRENGTH WIRING CHANNEL**
   Reinforced ribs insure rigidity, serve as a holding element for all Benjamin sliding hanger suspensions.

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Write for Bulletin F — new 20-page technical and specification bulletin on Benjamin Industrial Fluorescent lighting. Address Benjamin Division, Thomas Industries, Inc., 207 E. Broadway, Louisville 2, Ky., Dept. BAR-361

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THOMAS INDUSTRIES INC.

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ADDRESS__________________________
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With Homasote Board-and-Batten you save $220 or more on the exterior walls of a 3-bedroom house 26' x 36'. You save this on the materials costs alone. You save still more money because you cover 1,000 sq. ft. with only eleven 8' x 12' panels.

Homasote Products help you cut your costs—because of the many sizes (up to 8' x 14') in which they are available—and by their weatherproofness. They lend themselves to many uses other materials do not.

The major facts about each product are presented in briefest terms—on a colorful Nutshell Card (as pictured at left). Handy reference tables—such as board feet content—are included. Ask your Lumber Dealer—or write us—for a set of these cards. Each shows you where you can save money at some point of construction—and still give the home owner higher quality, finer appearance and more lasting satisfaction. And—be sure you always have available a copy of the latest edition of the 72-page Homasote Handbook. Kindly address Department C-4.

HOMASOTE BOARD-AND-BATTEN saves you $220 or more on your exterior walls

TO WIDEN YOUR MARKET... get the full facts about Vacation and Small Homes, Farm and Utility Buildings constructed by the new Versitruss-Panel System. Also—ask about Homasote's Vacation and Small Home Financing Plan.

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TRENTON 3, NEW JERSEY
Homasote of Canada, Ltd. • 224 Merton Street • Toronto 7, Ontario
"THE ENTIRE HEATING, COOLING AND PLUMBING SYSTEM IS DEPENDENT UPON B&G® PUMPS"

The dual-temperature heating and cooling system of this history-making high-rise is designed around the circulation of hot or chilled water to various room air handling units. This water is circulated by two B&G U-13T Universal Pumps.

Says Albert Weiss, president of General Piping, the mechanical contractors: "The entire heating, cooling and plumbing system is dependent upon B&G Pumps—a total of 12, including two High-Velocity Boosters and two Universal Pumps.

"After the system was put into initial operation and all minor adjustments and servicing performed, we have had no service call-backs to date.

"This freedom from maintenance problems on all water circulation, as well as quietness of operation, are the main reasons why B&G Pumps were specified and why the contractor enjoys installing them."

B&G Pumps are designed and built specifically for heating and cooling systems. That explains why, in mass housing projects or single dwellings, over 3,000,000 are in service in such systems today.
"Don't send a pony to do a horse's job"

A conversation you might hear around any good raceway.

Man with necktie: "WOW! It seems a lot higher once you're up here. Okay. Let's get this over with. Tell me. Why steel conduit instead of . . .?"

White shirt: "Mainly because steel is stronger and gives us excellent protection against damage to conductors."

Work shirt: "It's easy to install. You can thread with regular dies, and you don't need special lubricants."

Necktie: "Well, that ought to do it. I just wanted a few facts to put in a report I'm making. Let's go back down and . . ."

Work shirt: "You don't have to baby steel conduit. You can bend it without worrying about it flattening out or crinkling."

Necktie: "Fine. Okay, let's get down off . . ."

White shirt: "Steel conduit can be installed in all atmospheric conditions and hazardous locations."

Necktie: "Well, that wraps 'er up. Let's go down and . . ."

Work shirt: "You don't have to give steel any special coating for concrete installations."

Necktie: "I've never been up on one of these things before . . . feel a little shaky . . ."

White shirt: "Steel conduit provides a grounded metallic system; induced currents are drained off without danger."

Necktie: "Let's go down."

Work shirt: "Steel conduit has a smooth interior . . . makes it easy to pull and fish wires. Saves time and money."

Necktie: "Let's go down."

White shirt: "We wouldn't use anything but steel conduit here. You know . . . don't send a pony to do a horse's job. Okay. Want to go down?"

Necktie: "Yes . . . yes . . . steel conduit . . . certainly!"

*America's leading steel pipe manufacturer supplying America's foremost conduit manufacturers.*

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This mark tells you a product is made of modern, dependable Steel.

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
United States Steel Export Company, New York

ARCHITECTURAL RECORD March 1961 125
Mr. Simpson in front of Pittsburgh building where G-E Remote-Control Wiring saves $700-$800 a year.

"G-E Remote Control Switching solved a 33-story problem for us!"

... Mr. T. J. Simpson, Assistant Superintendent Grant Building, Pittsburgh, Pa.

"Control of corridor lighting used to cost us too much money," says Mr. Simpson "because of a floor-by-floor manual switching system.

"A man had to make as many as four 33-floor trips a day to turn lights ON and OFF. Even at that, lights were ON overtime.

"Then we discovered G-E Remote-Control switching. You can say it solved a 33-story problem for us!

"We installed two 24-volt switches on the first floor to control G-E relays, bridged across corridor light switches, on thirty-three floors. Pressing one or both of these General Electric switches instantly turns lights ON or OFF on every floor.

"The 24-volt control circuit runs in an old conduit; we didn't have to tear up the place. It was the only practical way to do this job. Easy and inexpensive!"

General Electric Company, Wiring Device Department, Providence 7, Rhode Island.

Each corridor has two sets of controlled lights — one ON every day — one near windows, ON when its dark outside.

Old system controlling corridor lights required manual operation of panel switches on 33 floors. A half-hour job!

New General Electric Remote-Control switches control selected lights on all 33 floors at once, from one spot.

Progress Is Our Most Important Product

GENERAL ELECTRIC

ARCHITECTURAL RECORD March 1961
Genuine Walnut . . . the warmth and rich natural beauty of the real wood. Also available in genuine oak and cherry . . . or, if your client prefers, fine birch in Tawny or Fruitwood finish.

Platinum . . . a new St. Charles custom color on steel . . . combined here with genuine walnut to harmonize style and texture. One example of the wide range of color-texture combinations available to you and your clients in Custom Kitchens by St. Charles. Even your own special colors can be reproduced by St. Charles.

Classic . . . elegant in its simplicity . . . one of several St. Charles custom styles . . . available plain, or with decorative panels. There is the right style to fit your design.

These are just a few of the almost limitless possibilities at your command when you specify St. Charles Custom Kitchens. Full freedom in layout, style, color, materials, features . . . because a St. Charles Kitchen is custom built after you plan it . . . not before!

Write for the award-winning St. Charles kitchen planning booklet featuring new custom kitchen ideas, and detailed information and specs on St. Charles' units.

St. Charles Manufacturing Company
Dept. ARK-3
St. Charles, Illinois
Imagination
You can do exciting things with plaster. Design possibilities are almost unlimited in plaster today. You can have acoustical plaster sprayed on where complex ceiling shapes are called for (left). Or you can choose from hundreds of ingenious construction systems inspired by plaster, like the space-saving partition (right) that reduces sound transmission by 42 decibels, yet finishes to only 2⅞" thickness. You can even design your own decorative plaster plaques (below) to be cast by master craftsmen and set in plaster walls.

To see what plaster can do for you, send for your copy of "Imagination in Plaster", Dept. AR-31.

NATIONAL GYPSUM COMPANY, BUFFALO 13, NEW YORK
In the new offices of the Bankers Trust Company at 529 Fifth Avenue, New York, customers and employees enjoy complete air conditioned comfort with Anemostat Air Diffusers. In the banking area, over 1500 feet of Anemostat Straight Line Air Diffusers draftlessly distribute the conditioned air.

Write for ANEMOSTAT Selection Manual 70 containing data on wide-range ANEMOSTAT line.
For more decorative interiors and exteriors everywhere...

**specify ANOTEC**

ANOTEC is being used with outstanding success in the new construction and modernization of...

- Banks
- Churches
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- Residences
- Bus Terminals
- Hospitals
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Decorative and structural applications of ANOTEC include use as...

- Ceilings
- Column Facings
- Curtain Walls
- Fences
- Gates
- Grilles
- Louvers
- Parapet Railings
- Stair Railings
- Terrace Railings
- Partitions
- Room Dividers
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- Sliding Doors
- Solar Screens
- Spandrels
- Swimming Pool Enclosures
- Walkways
- Wall Panels

ANOTEC is available in Circular, Diamond, Hexagonal and Rectangular patterns, in a wide choice of standard and custom dimensions.

ANOTEC architectural colors include Gold, Blue, Brass, Green, Red, Black and Clear Anodized.

For almost limitless variety of uses, applications, patterns, dimensions and colors—for more freedom in design—specify ANOTEC!

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McLean County Bank, Bloomington, Illinois

This particular installation features the use of ANOTEC Architectural Anodized Aluminum Grilles as a decorative solar screen.

Spectacular in appearance both day and night, this application of ANOTEC is also perfectly suited to client, site and function, and completely practical in terms of utility, permanence and maintenance.

McLean County Bank Building Installation, Bloomington, Illinois

Architects: Schaeffer, Wilson & Evans, Bloomington, Illinois

General Contractors: Felmley-Dickerson Company, Bloomington, Illinois

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Complete information and specifications available on request. Write today.
Abolite uplight fixtures shield against glare, wash out ceiling shadows—There are 43 footcandles of light (average) throughout that gymnasium, yet there's practically no glare to bother spectators or players. This easy-on-the-eyes lighting is made possible by the unique design of Abolite fixtures. Notice how both vertical and horizontal surfaces are lighted evenly without any deep shadows and how the light directed upward through the open top of fixtures eliminates sharp contrasts by washing out dark background shadows. 35° lamp shielding virtually eliminates glare.

Abolite's modern air-swept design also reduces maintenance costs. Air circulating through the fixtures sweeps them clean of dulling dust.

Although in this installation Abolite fixtures are used with incandescent lamps, they can also be used with color-improved mercury lamps. There are 18" and 24" diameter Alzak aluminum fixtures for use with 400 and 1000 watt mercury and 14" and 18" diameter fixtures for 300-500 watt incandescent lamps. Abolite Lighting Division, The Jones Metal Products Company, West Lafayette, Ohio.

Abolite Lighting
The Jones Metal Products Company
West Lafayette, Ohio
The friendly appeal and air of hospitality created through the use of West Coast Lumber readily adapts this bank building to its suburban location. A rustic, rough sawn texture in timbers and sidewall paneling brings an atmosphere of strength, providing a comforting feeling of security for bank customers. Among the design objectives was expandability, answered perfectly here by completing a full-size roof structure, then enclosing only a center section. The covered areas enhance the appearance and lengthen the building line and may be enclosed at any time at minimum cost.

The West Coast Douglas fir timbers add visually to the impression of strength—10" x 12" ridge beams, 6" x 12" rafters and 8" x 12" plates. The rafters are cantilevered 6-feet beyond the wall to support a post-free covered walk. The 2" x 6" tongue and groove roof decking and 1" x 12" interior and exterior wall paneling is rough sawn Western red cedar.

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save WITH STAINLESS STEEL

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

see YOUR STEEL SERVICE CENTER

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

specify MicroRold® STAINLESS STEEL SHEET & STRIP

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

WASHINGTON STEEL CORPORATION

3-E WOODLAND AVENUE
WASHINGTON, PA.

ARCHITECTURAL RECORD  March 1961
The Art of Controlling Sunlight

PRC Toplite teaches a great new lesson in lighting control. The prismatic, hollow, evacuated glass blocks assure satin-soft natural light that illuminates virtually every inch of working space without apparent shadow. These scientifically engineered prisms reject the direct, harsh light of high summer sun but accept the indirect rays of low winter sun.

For complete technical and distributor information on PRC Toplite, please direct your inquiry to Products Research Company, Toplite Division, 2919 Empire Avenue, Burbank, California.
Certified* to shut out sounds
other partitions let through

New! Steel-Walled Modernfold

First in sound reduction . . . first in heavy-duty design. The greater the weight, density and rigidity . . . the better a wall shuts out sound. That's why Modernfold designed the new Soundmaster 240 with twin walls of 24-gauge steel panels . . . and why this new partition leads the industry by a full five decibels in sound reduction. This sound superiority is unflagging, because Modernfold custom trims all eight horizontal edge seals on the job. Each partition fits its opening exactly—up to 25'0" high and any width.

In addition, no other partition matches Modernfold heavy-duty construction . . . the massive steel and fabric strength that pays you a dividend of longer, trouble-free service. With no maintenance cost. But compare the facts for yourself. The chart at the right shows construction and sound ratings (in decibels) for the best model offered by each of the four largest partition manufacturers. Just look:

<table>
<thead>
<tr>
<th>Partition</th>
<th>&quot;240&quot;</th>
<th>&quot;A&quot;</th>
<th>&quot;B&quot;</th>
<th>&quot;C&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound Reduction</td>
<td>125-4000 cps av.</td>
<td>37.4</td>
<td>32.4</td>
<td>31.8</td>
</tr>
<tr>
<td>354-4000 cps av. (Industry Standard)</td>
<td>41.8</td>
<td>35.8</td>
<td>36.4</td>
<td>33.0</td>
</tr>
<tr>
<td>Acoustic Panels</td>
<td>steel 5½&quot; wide, wt. 1 lb./sq. ft.</td>
<td>uses cardboard</td>
<td>steel 2½&quot; wide, wt. ½ lb./sq. ft.</td>
<td>uses cardboard</td>
</tr>
<tr>
<td>Sealer Strips</td>
<td>8</td>
<td>8</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Foam-Lined Jamb-Seal</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Air Release</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Pull-In Latch</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Best Fabric Weight—Outside Covering Only</td>
<td>45 oz. per lin. yd.</td>
<td>45 oz. per lin. yd.</td>
<td>18 oz. per lin. yd.</td>
<td>22 oz. per lin. yd.</td>
</tr>
<tr>
<td>Top Row Horizontal Hinge Plate Depth</td>
<td>8½&quot;</td>
<td>3&quot; (vertical)</td>
<td>1½&quot;</td>
<td></td>
</tr>
</tbody>
</table>

*Decibel ratings by Geiger & Hamme Laboratories per ASTM E90-55

NEW CASTLE PRODUCTS, INC.
NEW CASTLE, IND.

ARCHITECTURAL RECORD March 1961
A seven level beach house in Florida

FOUR CURRENT PROJECTS BY RUDOLPH

New rules or no rules? Rudolph has called his work of the last several years “the new freedom”. Is this a freedom to charge off in any direction as some accuse Rudolph of doing, or is it a new discipline of itself? The buildings which follow, a beach house, married student housing for Yale, a motor lodge and an urban parking garage, have a coherence as a group which indicate that Rudolph's new freedom is developing rules of its own.

ARCHITECTURAL RECORD  MARCH 1961
Rudolph's new schemes force the floor and ceiling planes to become more active as space definers. Space interpenetrates on varying levels in a more complex way than in the plans of Mies or Wright. In the Milam beach house, essentially a series of platforms, the floor plane drops to form an extended conversation pit in the living area, rises to create a platform for dining, and four risers higher becomes an inglenook defined by a low parapet. The second floor plane is continuous as a floor but is interrupted to permit more than half of the living space below to extend to the roof. A mezzanine overlooking the living-dining area adds a pleasant spatial complication as does the dropped roof deck which creates a lowered ceiling over the inglenook to make a cozy group around the fire even cozier. A separate living area for children is on the lowest level and its position behind the thick chimney core suggests that their noise will go unnoticed by parents and guests.

The chimney is the heart of this house, as in the domestic work of Wright, and the snug low ceilinged chimney corner overlooking a great space which is both broad and high and extends across a mezzanine shares its domestic quality with the best of Wright's work. According to Rudolph, in this house one locates oneself according to mood. "The inglenook offers a nest, the two storey portion of the living-dining space provides a goldfish bowl, and the far end of the living area is a cave."

A deliberate effort was made to make furniture less obtrusive. The only portable furniture in the large and informal living-dining space are the dining room table and chairs. Storage is built in. Cushions can be arranged on the ledge around the living area in a flexible way to seat thirty people or six. A fireplace occurs at every level along the chimney wall and an ingenious arrangement of openings causes the flames from a fire at one level to reflect on the ceiling of another level.

The house is being built high on the sand dunes overlooking the Atlantic, 45 ft above mean tide. Constructed of beige concrete block, its precise geometry contrasts with the uncultivated natural site, but its color matches the sand. This is Rudolph's first house in which a structural system of regular bays has not been used. No modular system has been applied except that of the concrete block units. Rudolph states that "modules are not necessarily applicable to houses...the modular building concept is applied many times where it doesn't have much meaning." The house is completely air conditioned and the brise-soleils reduce glare. Natural lighting effects have been carefully studied. Note additional narrow vertical windows in plans.
LOCATION: St. John's County, Jacksonville, Fla.
ARCHITECT: Paul Rudolph
STRUCTURAL ENGINEER: Herman D. J. Spiegel
MECHANICAL ENGINEER: Frank B. Wilder & Associates
ARCHITECTURAL SUPERVISION: Robert Ernest
OWNER: Mr. and Mrs. Arthur W. Milam
Married Student Dormitories for Yale
Planned Like an Italian Hill Town

NAME: Yale Married Student Dormitory
LOCATION: New Haven, Conn.
ARCHITECT: Paul Rudolph
STRUCTURAL ENGINEER: Henry Pfisterer
MECHANICAL ENGINEER: vanZelm, Haywood & Shadford
OWNER: Yale University

In describing this low rise, medium density housing complex for Yale, Rudolph said: "It should look like a village, not housing . . . though parts are repeated they don't look it. Traditional housing has used repeated housing units, but it doesn't bore. We too must repeat, but not bore. Spaces in between the units are important . . . courtyards and terraces, and paths and entrances."

Although Rudolph frees himself from the module in the beach house on the preceding pages, he acknowledges its necessity in a project of this type, but refuses to let it become monotonously assertive. In a necessarily far more complex manner than in the beach house he provides for an infinite variety of spatial experience at a multitude of levels. Entrances are approached through narrow pedestrian alleys that recall the old quarters of old towns, one student family's roof is the next family's terrace, a path between two walls suddenly opens into a court planned to surround a fine existing tree.

Fifty-one units are planned for a gently sloping wooded hillside plot approximately 250 ft by 250 ft or an acre and a half, in a residential section within easy walking distance of the university. All but six of the units have a courtyard surrounded by 7 ft walls, or a terrace. Although all fifty-one units could have been placed in a single high rise building which
All drawings were made under the direct supervision of Paul Rudolph. The drawing below was executed by John Fowler.

The building complex slopes in two directions, following the slope of the site from the northwest corner at the top of the hill to the southeast corner at the street. Stair towers are dominant verticals.
would have utilized a much smaller percentage of the site, Rudolph deliberately chose a low rise solution. It consists of a series of one, two and three storey units, with the one storey units at the bottom of the lot on the street, the two storey in the middle and the three storey at the top, thus exaggerating the appearance of a rising hill.

Construction is based on a completely precast concrete aesthetic. Almost all precast units in addition to the concrete block are standard parts. All load bearing walls will be of cavity construction using 4 in. thick blocks with a 2½ in. air space between. The heavy masonry will have a sound deadening effect important in a building where studying must be done in the midst of one’s own and other’s noisy family life. Floors will be black asphalt tile, the ceilings unpainted plaster. Terraces will be macadam.
As in the beach house and to a far greater degree like the Yale student housing, this motor lodge is fractured into separate, but interlocking and interpenetrating components. Like the Yale building, the structural module is not easily read. The elements which repeat do so subtly in an irregular rhythm.

It will be constructed of poured in place concrete expressed as such with light brown brick walls. Balconies will be of poured concrete with concrete tables and seats an integral part of the form. Each room will have a balcony and can link with others to form interconnecting suites. All storage will be built in. Brick walls will be exposed on the interior, floors will be carpeted and ceilings will be covered with acoustic plaster.
Overall plan. Entrance and control unit extends across road at top of plan.
Each individual room is expressed on the exterior. To be built on a barren, sculptured rock outcropping on a mountainside which overlooks a river valley 200 ft below and can be seen from thirty miles away, the lodge is designed to create a strong image from a distance.
Interlocking units create terraces. Note poured in place concrete tables and seats on projecting concrete balconies.
In the housing on the preceding pages Rudolph attempts to create the proper ambience for people, in the Temple street parking garage he endeavors to hit the right note for cars. Said he: "Most parking garages look like office buildings with glass. I wanted to make it look like it belonged to the automobile and its movement . . . a system of bridges . . . of large open spans." Unlike the beach house, the Yale dormitories and the motor lodge, the structure of Rudolph's parking garage is clearly expressed and clearly modular. The structure itself, rather than a pattern of projecting and receding units, establishes the basic rhythm of the building. Floor levels are staggered (see section, page 154) but this is common practice in parking garages. This parking garage, however, reflects the same basic architectural approach found in the housing, an approach which never permits preconceptions about expression of
structure and module to interfere with the search for appropriate form.

This garage, a part of the Church Street Redevelopment Project in the New Haven Urban Renewal Program spearheaded by Mayor Richard C. Lee, will stretch for 726 ft spanning two city blocks in the central business district near New Haven Green. There will be three half levels underground and eight half levels above ground with shopping at the street level. Now under construction, the reinforced concrete structure is made of two dimensional curves formed by strips of wood 2 in. wide. Form marks will show. Double columns are 10 ft apart and each pair of them is 30 ft apart. One car may be parked between the double columns and three between each pair. The double columns provide a needed vertical emphasis in the horizontal length of the facade. The approximate cost will be $4,700,000 without shops.
Garage is located near New Haven’s Oak Street connector which links New Haven’s shopping and commercial district with the Connecticut turnpike. Perspective shows garage spanning major traffic artery, section shows staggered levels for economical use of space.
PRACTICE: COSTS

Two of the main problems in architectural practice today are concerned with costs—how to keep them under control, and how to explain them to clients. In order to control costs, it is necessary to obtain reliable cost information, analyze it, and establish the basic relationships between different cost items. When this has been done, the information necessary for explanations to clients will be at hand. In the following pages, some highly successful methods for keeping costs in their place, understanding them, and graphically demonstrating them are discussed.

PERSONNEL DENSITY

A New Measure of Construction Costs

By Frank L. Whitney, Architect, Vice President of Engineering, Walter Kidde Constructors, Inc.

Your building seems identical to the one next door, yet it will cost three times as much as its neighbor. How does this happen? And how can you explain it to clients? The answers are simple. Determine the true causes of price variations. Present this data to clients in understandable form. For example, people have a dramatic effect on construction costs. The higher the personnel density, the greater the requirements for increased facilities needed to maintain worker efficiency and productivity.

An appreciation of this relationship helps to sharpen the understanding of the major factors that influence the price of building construction today. To reduce costs, too many owners immediately want to axe the glazing on the brick walls or lower the quality of the wall construction. Yet the price of these items is insignificant compared to the cost of air conditioning, cafeterias, washrooms, parking area, heating—all of which are determined and sized largely by density of plant personnel.

The impact of this relationship was brought home to us in a study we made for one of our clients, who was interested in analyzing cost breakdowns of typical industrial structures. For the study, we chose a 500,000 square-foot single-story building as a basic plant. We estimated its cost as a warehouse, without manufacturing operations. We provided for a minimum number of people; twenty men in the warehouse and three men and five women in the office. This gave us a low personnel density factor of one person per 8000 sq. ft. We included minimum railroad sidings, site grading, fire protection, roads, and parking. Interior lighting was set at 10 foot-candles in the warehouse, and 50 foot-candles in the office. Warehouse was heated to 55 deg. F. by direct-fired units, and the office was heated to 70 deg. F. by convectors.

Cost per square foot of this minimum basic structure not including the cost of design and an allowance for contingencies, was established at an index of 100.

The next step was to change the scope of the structure. Without altering its size or shape, we made it a light manufacturing building with 700 employees, or a personnel density of about one person per 285 sq. ft. To accommodate the increased population, we added a lunch room, more toilet and locker room facilities, first aid and personnel offices. Lighting had to be increased to 40 foot-candles in the manufacturing area, and fluorescent fixtures replaced incandescents. We also added electrical substations, bus ducts, power distribution facilities. Mechanical ventilation was added, which in turn required pent houses and roof openings—and heavier foundations and framing to support them.

Higher personnel density also demanded a change from unit heaters to a central boiler-plant system, of a capacity large enough to maintain a 70 deg. F. temperature throughout the entire building. Air conditioning was added to the enlarged office area. We increased the bay size to 40 x 40 ft., enlarged parking lots to handle 500 cars, added metallic hardener to floors to lower maintenance costs by minimizing dust formation. Also increased were sanitary facilities, waste treatment, landscaping and laboratory facilities.

Although this new manufacturing building actually was the original basic structure, with only a few changes, the cost more than doubled to a new index of 254.4, without professional fees and contingency allowance. The only major changes in the basic structure were increased bay spacing, enlarging of framing and foundations, and slightly more expensive entrance and exterior walls. So the bulk of the cost increase went for additional mechanical, electrical, and site work. All of these relate directly to the personnel density of the building.

To obtain further cost information, we carried the study one step further. The number of people was raised from 600 to 1000, or a personnel density of about one person per 200 square feet—a figure not at all uncommon for a plant where, for example, small components are manufactured mostly by bench work.

What changes were made to accommodate the additional 400 people? Some were obvious. We replaced the lunch room with a kitchen and cafeteria. Parking had to be increased to handle 850 cars. And because of the nature of the manufacturing, lighting had to be jumped to 50 foot-candles. We increased toilet facilities, locker rooms and partitions.

Since worker production in such a high-density plant is of paramount importance, full air conditioning was economically justified. So was vinyl asbestos floor tile instead of concrete. The exterior treatment and site work were also upgraded. We have found it good business economy to provide attractive surroundings for employees in a plant of this sort.

Despite the fact that the building remained—essentially—the original basic structure, the cost jumped to an index of almost 340, exclusive of fees and contingencies. The modifications required to make the plant a high-density personnel manufacturing facility again were largely in mechanical and site work, rather than architectural or structural. The cost had now more than tripled that of the basic structure—clear proof that people have impact on the cost of manufacturing facilities.

ARCHITECTURAL RECORD  March 1961  155
BASIC BUILDING—1 person/8000 sq ft

With necessary modifications, information and charts such as those shown in these pages could be developed for almost any building type. Information of this sort should be of help in controlling building construction costs, understanding them, and explaining them to clients. For the building shown here, the costs are based on an index of 100 for the complete building, plus professional fees and a 10 per cent contingency allowance. The building, on which these costs are figured, is a single-story warehouse, 200,000 ft. in area, with 25 employees and a personnel density of only 1 person per 8000 sq ft

### BASIC STRUCTURE

| Section                  | Description                                                                 | Cost
|--------------------------|-----------------------------------------------------------------------------|------
| ROOF                     | 20 year bonded roof, steel roof deck, 1 in. insulation.                     | 18.3 |
| FRAMING                  | 16 ft clear height columns, girders, purlins. 20 by 40 ft bays.             | 19.3 |
| WALLS                    | 10 in. concrete block, painted on exterior with cement paint.               | 4.2  |
| WINDOWS                  | Commercial grade projected steel sash with loose lintels, poured in place concrete sills. | 2.1  |
| FLOORS                   | 5 in. concrete slab on grade, with 6 by 6, #6/6 mesh reinforcing and liquid hardener. | 12.8 |
| FOUNDATIONS              | Reinforced concrete spread footings and grade beams.                       | 3.6  |
| PARTITIONS               | Cinder block.                                                              | 0.4  |
| ADDED FACILITIES         |                                                                            |      |
| ENTRANCE                 | Allowance                                                                  | 0.5  |
| ELECTRICAL               | Offices—50 F.C., fluorescent fixtures. Plant—10 F.C., incandescent fixtures. | 4.8  |
| HEATING, VENTILATION, AIR CONDITIONING | Office heated 70 deg. F. with hot water convection. Plant heated to 55 deg. F. with direct fired heaters. | 9.4  |
| PLUMBING                 | Toilet facilities for 20 men in plant, 3 men and 5 women in office. Roof drains. | 3.9  |
| FIRE PROTECTION          | Hose cabinets throughout building. Sprinklers in plant area only.          | 4.3  |
| SITE WORK                | Bituminous concrete surfaced road and parking area for 20 cars, concrete curbs, sidewalks, landscaping. Railroad siding, sanitary disposal system, elevated water storage tank, and sprinkler loop. | 16.4 |
| PROVISION FOR FUTURE EXPANSION |                                                                            |      |
| TOTAL COST, BUILDING AND SITE WORK |                                                                            | 100.0 |
| PROFESSIONAL FEES—6%     |                                                                            | 6.0  |
| CONTINGENCY—10%          |                                                                            | 10.6 |
| TOTAL PROJECT COST       |                                                                            | 116.6|
MODIFIED BUILDING NO. 1—1 person/285 sq ft

In this modification, the basic warehouse building shown on page 156 was changed to accommodate 700 employees who would be required in a light manufacturing operation. The area remains the same as that of the warehouse, but the personnel density has risen to 28 times that of the basic building. Extra costs of this building, most of them made necessary by the larger number of people, raise the total price to almost 3 times that of the warehouse. Many details of the added costs, such as the factor of only 1.8 for adding continuous windows as opposed to 50.5 for additional site work, should be revealing and informative.

<table>
<thead>
<tr>
<th>MODIFIED BUILDING NO. 1</th>
<th>BASIC STRUCTURE</th>
<th>ADDITION NO. 1</th>
<th>BASIC STRUCTURE PLUS ADDITION NO. 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20 year bonded roof, steel roof deck, 1 in. insulation.</td>
<td>18.3</td>
<td>1.5</td>
</tr>
<tr>
<td>FRAMING</td>
<td>Additional roof openings, flashings, deckboards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WALLS</td>
<td>16 ft clear height columns, girders, purlins, 20 by 40 ft bays.</td>
<td>19.3</td>
<td>20.8</td>
</tr>
<tr>
<td></td>
<td>Bay sizes increased to 40 by 40 ft. Live loads increased 6 psf for future monorails.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional penthouses and roof openings for process exhausts. Allowance for process piping increased.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WINDOWS</td>
<td>Commercial grade project sheets with loose lintels, poured in place concrete sills.</td>
<td>2.1</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>Continuous sash added in plant and office areas. Venetian blinds in offices, shades in plant area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLOORS</td>
<td>5 in. concrete slab on grade, with 6 by 6, 6/8 in. mesh reinforcing and liquid hardener. Changed to 6 in. slab on parapet fill with metallic hardener.</td>
<td>12.8</td>
<td>7.0</td>
</tr>
<tr>
<td>FOUNDATIONS</td>
<td>Reinforced concrete spread footings and grade beams. Sizes increased to allow for additional loads of penthouses, etc.</td>
<td>3.6</td>
<td>2.6</td>
</tr>
<tr>
<td>PARTITIONS</td>
<td>Cinder block.</td>
<td>0.4</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>Amount of partitioning increases.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADDITIONAL FACILITIES</td>
<td>Additional office areas, first aid room, personnel office, locker room, lunch room. Penthouses for air conditioning and ventilation, minimum laboratory, telephone equipment and switchboard rooms, loading dock and dock elevators.</td>
<td>9.7</td>
<td>9.7</td>
</tr>
<tr>
<td>ENTRANCE</td>
<td>Allowance</td>
<td>0.5</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>Increase in allowance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELECTRICAL</td>
<td>Office—50 F.C., fluorescent fixtures. Plant—10 F.C., incandescent fixtures.</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plant lighting increased to 40 F.C., fluorescent. Primary service facilities increased to 2000 KVA cap.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional substations, bus ducts, power distribution, call systems, telephones, utility outlets, docks, etc. Underfloor ducts added in offices.</td>
<td>19.8</td>
<td>24.6</td>
</tr>
<tr>
<td>HEATING, VENTILATION, AIR CONDITIONING</td>
<td>Office heated 70 deg. F. with hot water convection. Plant heated to 55 deg. F. with direct fired heaters. Heating for plant increased to 70 deg. F. capacity; direct fired heaters eliminated. Mechanical supply and exhaust, providing 6 air changes per hour in summer, 3 to 3 in winter, added in plant. Air conditioning added in office areas. Perimeter radiation added.</td>
<td>9.4</td>
<td>24.9</td>
</tr>
<tr>
<td>PLUMBING</td>
<td>Toilet facilities for 20 men in plant, 2 men and 5 women in office. Roof drains.</td>
<td>3.9</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>Toilet facilities increased to accommodate 450 men and 250 women. Compressed air and gas systems added.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIRE PROTECTION</td>
<td>Hose cabinets throughout building. Sprinklers in plant area only.</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>SITE WORK</td>
<td>Bituminous concrete surfaced road and parking area for 20 cars, concrete curbs, sidewalks, landscaping.</td>
<td>16.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Railroad siding, sanitary disposal system, elevated water storage tank, and sprinkler loop. Plant parking increased to 500 cars. All other facilities listed above increased. Fencing, seeding, storm drainage, yard and parking lot lighting, visitors' parking added. Heavy duty bituminous concrete road and boiler plant with required heating capacity added.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROVISION FOR FUTURE EXPANSION</td>
<td>Allowance</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>TOTAL COST, BUILDING AND SITE WORK</td>
<td>100.0</td>
<td>154.4</td>
<td>254.4</td>
</tr>
<tr>
<td>PROFESSIONAL FEES—5%</td>
<td>6.0</td>
<td>9.2</td>
<td>15.3</td>
</tr>
<tr>
<td>CONTINGENCY—10%</td>
<td>10.6</td>
<td>16.4</td>
<td>27.0</td>
</tr>
<tr>
<td>TOTAL PROJECT COST</td>
<td>116.6</td>
<td>180.1</td>
<td>396.7</td>
</tr>
</tbody>
</table>
MODIFIED BUILDING NO. 2—1 person/200 sq ft

The example, shown on this page, might be a plant for the assembly of precise and intricate electronic machines. It provides facilities for 1000 people in a 200,000 sq. ft. area. The cost of this modification of the plants shown on the preceding pages follows the same patterns as they—added people equal added costs. If the size of this building were doubled, a number of construction items would not require increase or duplication. Therefore, the additional 200,000 sq ft could be built for an index of approximately 78, compared to the 100 of the original basic building.
PLANT DESIGNED FOR NEW PRODUCTS, NEW METHODS

Fuller Brush Company Plant and Offices

LOCATION:
East Hartford, Connecticut

DESIGNERS AND BUILDERS:
Walter Kidde Constructors, Inc.

The major objectives achieved in this plant were the housing of almost the entire company operations—production, research, engineering, advertising, sales, warehousing, distribution, and administration—in one building while maintaining the extreme flexibility required by rapidly changing products and methods of manufacturing them.

Operational layouts were carefully studied in order to achieve the highest possible efficiency in the manufacture of between 300 and 400 different types and sizes of brooms, as well as a large number of other products.

During its 55 year history, the firm has occupied eight plants, each larger than that preceding it. In the new plant, provisions for expansion have been built in. The present facilities are considered adequate for about five years; after that, expansion will be possible, not through increased space, but through improved machinery and automation applications when increased production justifies such change-overs. Further, the site—84 acres and suburban—will allow additional physical expansion when the need arises in the future.
Fuller Brush Plant

All plant facilities including the offices are located on one level. However, the extreme grade of the site influenced the placement of the entrance lobby at a level one-half story below the main floor. Mezzanines are provided where needed for employee locker and toilet rooms and two plant operation offices. There is no basement.

Operations within the manufacturing area are channeled through five major departments. The broom department assembles fillers, handles, and accessories; the filler materials department receives, sorts, and assembles bristles, hair, acetates, plastic fibers, and the like; the brush department forms, twists, closes, and performs similar operations; the cotton department manufactures mops and related consumer products; the plastics department injection molds plastic products and components. The flow through these operations is indicated on the plan across-page.

Plant construction consists of concrete foundations and floors with under floor ducts. The structure is steel frame, with a metal roof deck. Office roof has 2 in. insulation, factory 1 in. Manufacturing area has 42 by 42 ft bays and 17 ft clear height to underside of girders. Roof construction is double cantilever steel frame.

Shown on the left are some of the more important elements involved in the manufacturing processes. At the top is an exterior view of the receiving dock. In the background may be seen the large dust collectors which exhaust dust, lint, and other minute waste from the process areas of the plant. The second illustration shows the mop and cotton area of the plant; the third view the main manufacturing area. In both views may be seen the process exhaust ducts which connect with the dust collectors shown above. The fourth illustration shows a portion of the warehouse, with supplies and stores loaded on stacked pallets.

Across-page are shown some of the auxiliary production areas of the plant. These are of great importance in the manufacturing operations, though less directly involved in the processes than main production areas. At the top are views of the research lab on the left and the machine shop. The rather large area devoted to research and engineering reflects company interest in the improvement of its products and development of new ones. In addition to tool and gage work, the machine shop has facilities for electrical, mechanical, and machine maintenance. The two lower illustrations show the complete injection plastics section left, and the printing shop.
The views on this page show some of the office areas of the plant. All of these are located in an L-shaped wing which wraps around the main production area at one corner. At the left, top is a view of the general office showing the acoustical ceilings used and the recessed fluorescent fixtures. General offices, such as that shown are illuminated with 50 to 60 F.C., while areas where detailed work is done, such as the engineering department shown in the third illustration, receive 75 to 80 F.C. Production area illumination is at similar levels, the exact amount being determined by the nature of the work performed.

The second illustration from the top shows an executive private office. Partitions here are plastered concrete block; elsewhere in the office wing, movable partitions are used. Third from the top is the engineering department located adjacent to research. At the bottom is a view of the complete medical and health office, which is staffed by two full-time nurses and a part-time doctor. Bay sizes in the office wing are 28 by 30 ft or 24 by 28 ft; office ceiling heights are ten ft.

Fuller Brush Plant

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A SMALL PUBLIC LIBRARY

Designed by Carl Koch to house 80,000 books for the citizens of Wellesley, Massachusetts, this library has a good efficient plan, a rich and colorful exterior, and an interesting lighting scheme.
In the plan, reading and work areas surround a central three-level core of book stacks, giving readers easy access to books from all directions. The main floor of the library is at the middle level, and the top floor of the stack has been conceived as an open mezzanine. Two separate stairs connect all three floors. The main stair is adjacent to the control desk permitting easy supervision. Both the main entrance and the rear entrance porch which provides access from the parking lot are on axis with the control desk. Outdoor entrances have been provided for the staff lounge and meeting room in the basement for access at hours when the rest of the library is closed. The garage shelters the book mobile which has its own stack and work space.

The building is steel frame with a sloping hipped roof supported by bar joists. The main floor is of concrete on pan forms. A series of dormer windows help light the upper stack area. Placed in the steel frame between the windows are porcelain enamel panels designed and executed by Gyorgy Kepes. These are a great success. Warm, subtle earth colors have been combined in textures as smooth as porcelain enamel can be or as rough as sand can make it. Spots of brilliant color handled in a painterly fashion contrast with these dark tones. Each panel is a separate painting in itself, but there is careful harmony among them. The steel canopy at the entrance has been faced with porcelain enamel murals by Juliet Kepes and she is also responsible for the owls on the main entrance door (see photographs on preceding page).

The lighting system shown in the photographs at the right is the first indoor application of VHO fluorescent tubes of the type which are used for airport runway lights. These uniformly light the continuous white ceiling which in turn reflects light of the proper intensity on the surfaces of the work tables.
The reflectors shown at left and below are of aluminum coated with a special plastic which mirrors aluminum and intensifies the single VHO lamp in each reflector. They have been faced with wooden slats. They were made as large as possible to increase their efficiency, but their size had to be kept within reason to avoid a clumsy look. Since the Wellesley lighting system was engineered, a new lamp has been developed which is 338 per cent brighter than the VHO lamps at Wellesley which are twice as strong as fluorescents. This newest lamp could have achieved the same intensity of light on the ceiling in a reflector one third as large.
Reading lounge areas are provided among the stacks

Control desk, reflectors, mezzanine and dormered ceiling
Weymouth needed a branch library of minimum size to be manned by a small staff. The budget was low. A simple unpretentious solution was called for and carried out. The plan affords complete supervision from the control desk adjoining the main entrance. A secondary entrance is provided for staff members and leads directly to their work area, but can also be used by members of the community attending meetings in the space which can be converted for this use.

The roof is constructed of bar joists on structural steel bents. Walls are of stud construction faced with water struck brick on porcelain enamel.

NAME: The Tufts Library—North Branch
OWNER: Town of Weymouth, Massachusetts
ARCHITECTS: Carl Koch & Associates
STRUCTURAL ENGINEERS: Souza & True
MECHANICAL ENGINEER: R. G. Vanderweil
DESIGN AND EXECUTION OF PORCELAIN ENAMEL PANELS: Gyorgy Kepes
CONTRACTOR: Russell Brundage, Inc.
Main entrance and control desk

Adult area

Reference space
OFFICE BUILDING WITH SWIMMING POOL

OWNERS: The McCarthy Company
LOCATION: Pasadena, California
ARCHITECTS: Smith and Williams
PROJECT ARCHITECT: Philip C. Patterson
STRUCTURAL ENGINEER: John Kariotis
INTERIOR CONSULTANT: Selje and Bond
LANDSCAPE ARCHITECTS: Courtland Paul
GENERAL CONTRACTOR: Myers Bros. Construction Co., Inc.
POOL CONTRACTOR: Perry and Associates

The domestic scale and character of these new offices for a land development company in Pasadena, Calif., are due only partially to the residential neighborhood in which the building is located. A primary requirement of the building's design was that it should provide a completely different working environment from that which the client's company had previously occupied in a downtown office building. The architects achieved this different environment by arranging offices around a large patio with a swimming pool, by effective but sparing use of planting in the patio, and by giving prominence to the "lanai," a glass-walled pavilion designed for informal entertaining of visitors. The slight slope of the corner lot had special advantages: entrance to the patio and offices is from a parking area at the high end of the lot, through a wide breezeway whose roof connects office wing and lanai. The service entrance is around the corner on the low side of the lot and opens off a secondary street. With all business activity confined to the patio and screened from the street by the building's walls, the building makes a pleasant and appropriate addition to its residential surroundings without disguising its real function.
The McCarthy Company

Opposite: the detached "lanai" and pool complex provides an agreeable entertainment pavilion for visitors, as well as a view from the inside considerably more pleasant than that enjoyed by many secretaries. At right: the entryway as seen from the reception room.
PARKING NEEDS, MACHINE ACCOUNTING DETERMINE BANK DESIGN

Kapiolani Branch, Bishop National Bank
LOCATION: Honolulu, Hawaii
ARCHITECTS: Wimberly & Cook; Gerald Allison and Gregory Tong, Associates
LANDSCAPE ARCHITECT: George Walters
ARTISTS: Ben Norris (murals); Malcolm Brownlee (sgraffito wall)

Since most customers of Honolulu's Kapiolani Boulevard business district come by car, the Bishop National Bank required a large enough site for its new branch in that area to provide not only an easily accessible group of tellers' drive-up windows but parking for a large number of cars. Vacant lots of such size being nonexistent in the area, the bank bought a one-time garden supply building which could be remodelled and whose site would permit an addition of almost equal size. The original building became the banking room, its low height camouflaged by a continuous translucent ceiling, its columns—more numerous than if the structure had been new—faced with beige marble and its floor covered with golden beige terrazzo. The addition along Kapiolani Boulevard provides for the officers' platform and consumer credit department, a large operation at this branch. This portion of the building was designed to take eight additional floors, and when these are added a double-deck parking structure will be built on the present parking area. Eventually the second floor will house the entire machine accounting system for the bank, making this the central clearing house for all such bank work. To tie together the existing and new sections, a concrete screen has been used on both sides of the building at the second floor level.

Entrances on boulevard and parking area are of equal importance. Drive-up banking windows are in a wing extending from the main banking room into the parking area. The curving screen behind tellers' counters in the main banking room with its collage mural in gold tones, done with Japanese rice paper, makes a handsome backdrop to tellers' activities and cuts off the view of other office operations.
Despite their narrow street frontage, the new offices for Air France in downtown San Francisco make advantageous use of their location on the city's famous Union Square, opening up the lobby with an all-glass wall that faces the Square with its trees and lawns and permits a view of the venerable landmark, the St. Francis Hotel, on the opposite side. To increase the apparent size of the ticket lobby, which is entered directly from the street, the floor, walls and ceilings are white; color is used only in such decorative accents as the stained glass screen (designed by the architect) at the back of the lobby and the mural at the side showing the air line's route. The strong blues and reds used in these give vitality to the interior at night as well as by day. Behind the lobby is the reservations office with its "lazy Susan" desk. Upstairs are reception room and offices for the district manager. Ceilings in this area are low but a consistent use of white for walls and ceilings and ample illumination offset this small dimension. Here, as in the lobby, the careful handling of color, furnishings and space relationships is the clue to well-maintained scale.
OFFICES GROUPED AROUND A COURT

The four one-story units of the Lenart Building form a pleasant landscaped court onto which open the offices which make up the building's facilities. Although the units are separated by a wide entranceway they are connected by the continuous roof so that entranceways, like the walks in the court and along the street side, are protected from the sun, and the group achieves a visual unity. Situated in what is now an undeveloped area (but which will probably not long remain open, considering the rapid growth of the Phoenix-Scottsdale district) the building has a strong affinity for its desert site through both its color—desert tan—and the materials used—slump block on filler walls, cast stone on fascia and columns. Simple textures and native and tropical planting further reflect the region. The building was built at a cost of $13.76 per sq ft.

The Lenart Building
LOCATION:
Phoenix, Arizona
ARCHITECTS AND ENGINEERS:
Edward L. Varney Associates
STRUCTURAL ENGINEER:
Charles Magadini
MECHANICAL ENGINEER:
Robert Lockerby
CONTRACTORS:
Kitchel-Phillips Contractors Inc
DEBATING THE FDR MEMORIAL

A Plea for Relevance

By John Ely Burchard

Called to the lists by a fanfare of hostile critical trumpets, the knights of controversy are burnishing their shields, adding weight to their maces and occasionally sharpening their spears. Unless too many tragic world events keep demanding our attention we can expect a mêlée over the winning design for the Franklin Delano Roosevelt Memorial Competition; beside it the Congressional arguments over the Air Force Academy chapel are likely to seem calm and sane. In the mêlée many will be jousting with each other rather than the accoladed champion: scoring all sorts of irrelevant points and hollow victories; and in this general slashing about the public is likely to have more amusement than illumination: while some delicate and important crockery may, unfortunately, be smashed.

This is too bad. Debates about esthetics are not only inevitable but desirable. More than one intelligent Roman deprecated Bramante and his patron Julius II, saying they destroyed more than they built and were the “makers of ruins.” Raphael found it difficult to praise the new marvels of Rome, knowing as he did that they were born in the fires that calcined the ancient marbles. Many Florentines who admired regularity were unhappy that Michelangelo’s scheme to project the motif of the open arcades of the Loggia dei Lanzi all around the Seignory Square was not adopted. Indeed this most celebrated of Renaissance squares was not achieved in a single thrust but rather accumulated over centuries by the work of such different (and tempestuous) men as Arnolfo di Cambio, whose palace started it off, Orcagna, Donatello, Michelangelo, Bandinelli, Cellini, and Ammanati. Not a statue was moved, not a new one installed without an intense fight, and the blows and cuts were not always limited to words.

Artists no doubt still feel these matters intensely, do not really like each others’ work, but they are half house broken, today keep their most brilliant
A Pejorative Overture

Even before it begins, the terms of the discussion are shrill. To insist as one juror did that there would always be controversy in the arts (hopefully, true) and to conclude from that that the jury's judgment was sound was a brilliantly irrational non-sequitur. To name the winning steles as "instant Stonehenge" was neither descriptive nor helpful. The winner can scarcely recall Stonehenge in any serious way to anyone who has seen the old complex and the implication that the project is therefore Druidical, savage, and thus inappropriate is most unfair, whether or not intended. It was not helpful to compare it with Karnak, which it resembles even less either physically or in its necrological connotations. But there are also less spectacular and equally pejorative terms that have worked their way into the overture. If you want to court favor with artists simply call their enemies "verbal," "literary," "cerebral," "intellectual." By doing this you have made it clear that the real boys are inarticulate, ignorant about history and think with their guts. "Literary" has an additional bad connotation in writing about architecture because it also suggests that the sources of inspiration are associational: e.g., that reviving Gothic is done mostly with an eye to ephemeral Gothic history rather than to eternal Gothic verity. So when you call the new memorial design "literary" you have really smeared it in the minds or sentiments of a good many thoroughly respectable afficionados. But if you stop feeling and think for a while you will realize that a memorial is by definition and in the largest sense literary; and also in the literal sense, for the makers of memorials to any one save the deities have never quite dared trust to the fragility of human memory. Thus statues, even photographic ones, of Napoleon and Washington are at least labeled with a name and often places and events as well; the Lincoln Memorial is plastered with the famous words of the hero and it is hard to say whether in the end the words or the statue are the most moving, though the third component, the Baconian Greek temple, is clearly not the main thing. So as memorials become more and more ab-
tract and less and less certain to communicate the generally same idea to all people, why should the words not increase in importance? I expect that when you decide to build a memorial to a hero it is your intention that the acts and the life of that hero are to be recalled, and quite spontaneously, to the memory of those who follow. If a memorial is but a pretext to provide sculpture in a park, then the whole idea is dishonest, no matter how great the sculpture. If there is to be a memorial to one of the greatest of American heroes, Franklin Delano Roosevelt, then it should speak about him and not about hollow men or birds in flight. FDR was an exceptionally verbal man and, like Churchill, he moved people to perform beyond their strength; and he did this not by his taste in architecture—which was conventional and ill-developed, though positive—not by his painting or his music, but by the words he used, the quality of his voice, the impression of sincerity he conveyed, his manifest concern for the underprivileged and the weak, and his towering personal and public courage, so that the greatest of all his utterances turn around freedom from fear, or enjoin us that we have nothing to fear save fear itself. All this is pretty verbal and pretty literary and so I would tend to regard such appellations as complimentary; it would be an illiterate monument I would worry about. I suppose this is the time to say for what it is worth (and it is worth very little) that in my opinion the winning design, if executed, has a chance of being very good. But that is not really involved among the things that concern me about the impending debate, although the merits of the design will be the ostensible subject of all the talk, projected mostly by people who have seen a single photograph and who have not, in their lives, demonstrated any particular competence (as the jury for example had) at visualizing what a three dimensional complex presented in model form will seem like to a human being who is walking in it at full size. This by no means implies that we should accept the awesome authority of the jury as final; but it does ask that we should demand to see the credentials of those who debate; and if any choose to debate anonymously one has to say they have presented no credentials at all.

Perils of Irrelevance

What kinds of credentials may we expect to be offered? A motley lot, no doubt. Among those who seem to be talking about the merits of the design there will be those who are really expressing the doubt that "that man" should be memorialized at all. Such people are by no means all dead though most of the time now they whisper to each other or coddle their remembrances of things past. In the next echelon will be those

SOME OF THE 22 HONORABLE MENTIONS

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MORE OF THE HONORABLE MENTIONS


who admired or even loved FDR but solely on specific New Deal lines and who fundamentally find the idea of a monumental memorial to be immoral when the same funds could produce something "useful" for the living, especially the living poor. This is of course a perennial and significant question and it deserved much more public discussion than it got when the Commission announced against hospitals, libraries, swimming baths or other conventional "living memorials". Perhaps it should be debated more in deciding what memorial should finally be built; but it is irrelevant, incompetent and immaterial to the issue of whether the winning design should have been the winner.

One step nearer to relevance but not much nearer will be those defenders of the public purse who continue to believe, and earnestly, that the United States became great through prudent parsimony, that nations which save capital will succeed while those who squander it on art and luxury will die. It was the view held by John Adams, who suggested we postpone the arts until we were farther along in other things. The idea is heard in different decades—it may even turn up in the defense a motor company president recently made of fins and annual model changes, insisting that “personal” goods were intrinsically more important than “social” goods (e.g. public art), implying that fins were somehow the unpuritanical, the “American” way. The idea is that bureaucrats define public art but that those who define fins are free from bureaucracy. On this line of argument the people of the United States are still reluctant supporters of art through the public or even the quasi-public purse and this reluctance will show through what many seem to be saying about the specific work.

The Problem of Identity

Then we will come nearer to those who do care primarily about memorial or esthetic considerations. Of these the memorial considerations will inevitably be elusive. The memories, the personal memories, of FDR are still green as they were not for Lincoln and Jefferson when their memorials were under consideration. The character of FDR was itself Protean and the interpretations individuals made of this character were still more Protean. He was not a man to be taken or left alone. You loved him or you hated him and there was not much middle ground. When he died many people wept, but they were weeping about different things. It is hard to conceive of any design that could manage to say to each person who loved the memory "you see this memorial clearly recalls exactly the traits you admired and loved most."

On the esthetic side there will be infighting too before talk about the merits begins. We must look for those who would like really to scotch any mod-
ern design and replace it with work by the contemporary Bernini who, alas (perhaps alas), does not exist. Despite the manifest general acceptance of contemporary work the old guard dies but never surrenders, as the recent tussle over the Gugler proposals showed. Opposition to the winner may therefore veil a much more general opposition. There will be a little of this among artists and architects and critics and considerably more in the halls of Congress. The men still sit there who condemned the Air Force Academy chapel as “atheistic.” Though President Kennedy may not flush red when he sees a modern design, as President Eisenhower is said to have done, we do not know what his taste or his interest may be. Liberals have not in general been more or less sensitive to the currents of art than conservatives. A number of artists of the right names were invited to the Inauguration, but nobody knows who picked them.

President Kennedy is unlikely to want to emulate Calvin Coolidge in anything. He will not reject Cezanne’s offered to the White House; he will not decline to send contemporary American paintings abroad; Mrs. Kennedy is said to have some interest in the contemporary arts. Their own ways of life and their domestic esthetics are conventional, which is their privilege. But they are not Carrie Jacobs Bond types and are not likely to offer obstinate roadblocks to contemporary arguments. We are lucky to be able to say so much. There is no reason in American Presidential history to look with hope to the White House for taste or leadership in these particular matters and in these times it might even be inappropriate.

As to the Congress, the critics of the country ought perhaps to form a “truth squad” to correct the wild statements that so many Congressmen will make, quite outweighing the intelligence and sensitivity of a few: an inevitable few, since sensitivity to the arts is by no means a major qualification for legislative statesmanship and might even be a barrier to election from some communities, were it widely known.

A Vote for Honest Criticism

The risk of overstatement from the right is generally understood these days but the risk from the avant garde is less often explored. Many who defend the winner will be doing so not because they really think it to be good but because they think that to do less would be somehow to “betray” the modern movement. I do not see how the modern movement today can be regarded as a tender plant still to be shielded from criticism of its excesses or failures on the ground of “treachery.” The time has long passed when this is tenable. If the design is not a good design let it be said by serious critics who still support contemporary ideas and who are
Debating the FDR Memorial

The Big Questions

As the debate is conducted it is probably unfortunate though certainly inevitable that major questions will be lost in the argument about the particular design. These questions are perhaps philosophical and theoretical but not less important thereby.

Is it possible in these days to memorialize anybody in a significant way through artifacts? If it is possible is a monumental artifact possible? Do we know how to make one? Do artists have their hearts in the job when they try? If a monumental artifact is possible how can artists who work at the highest level of individuality and personal abstraction the world has ever known find a way to produce something that cannot be personal but must be general, that cannot be a success at all unless it communicates widely?

After these questions there comes the question of the urbanism of Washington, less whether the new monument will do any harm to the existing vistas, which it probably will not, than whether it will add anything important to the roster of place-identifiers which great cities have to have.

None of these, it is safe to regret, will occupy much attention.

In discussing the design there are two different questions. The first is: was it the best of those offered and therefore deserving of the prize? This the jury (and a good jury) has said it is. If this is the point of discussion, then comparison with other submissions is of the essence—attacks on the winner alone are meaningless. Such a discussion serves some useful purpose, regardless of whether it endorses or repudiates the jury, which does not matter, for it calls public attention to questions of design.

Indeed that is all discussion at this level is likely to produce. The Chicago Tribune competition, it is true, brought the second place winner, Eliel Saarinen, to our country and thus added to our architectural stature. But such an event is unlikely here. At best it can only publicize an American unknown since, regrettably, the terms of the competition excluded foreign talent—regrettably because many foreigners loved, admired and understood FDR as well as Americans and because an enormous reservoir of talent was left untapped. But the purpose of comparison should not be to demonstrate that the jury was incompetent, because the jury was very competent, individually and collectively, probably more so than most of the discussants who have or will enter the lists. It would help in such a discussion if we could all know whether the jury was unanimous. Dissenting opinions have been found valuable in the law and they would be valuable in assessing esthetic judgments—incidentally, they would improve the role of any chairman, unless he should be the kind of person who regarded harmony as the only pearl beyond price.

The wider question is not whether the design should have won the competition but whether it should be built. It is too bad that juries so seldom have the courage to make no award at all. I hasten to say that I do not imply that the winner in this case did not deserve an award.

In this competition the jury was categorically authorized to make no award if it felt no proposal sufficiently fine; by implication we have to assume the jury did decide the award was earned. But such refusals to award take a lot of spunk—and their rarity even when permitted makes all jury judgments a little suspect. Given our mores, if a jury really thinks a winning design deserves to be built it ought to say so in ringing, unequivocal and convincing terms; it has said so once but this needs to be repeated over and over; and when the sniping begins it should be redoubtable in the defense of its conclusions. I hope that will happen here; I hope all the extraneous reasons for opposing the winner will be disregarded; that the irrelevant arguments will not be adduced; and I hope also that the debate will be vigorous, noisy, but fair and to the point.

Let an Informed Public Participate

I hope more than this. I hope the public will participate and to this end I hope an excellent model, big enough to be understood by laymen, will be built and circulated through the country while the discussion is going on. San Francisco has given a recent notable example of public scrutiny in a competition and the Roosevelt Memorial is much more important to the nation than the Golden Gate Project.

All this I hope: but I am too old to go about confusing hopes with expectations.
A LOT OF HOUSE FOR A LOW BUDGET

OWNER: William H. Kessler
LOCATION: Grosse Pointe, Michigan
ARCHITECTS: Meathe, Kessler and Associates
ENGINEER: R. H. McClurg
CONTRACTOR: H. C. Smith
Kessler House

An unusual amount of comfort, privacy, spaciousness and style are found in this budget house built by Kessler for his own family. And the plan affords a degree of "zoning" seldom found in a small square house: the parents' bedroom, living area and garden are at the front; childrens' play and sleeping areas, and a yard for play are at the back; bedrooms can be isolated from all living areas for entertaining; the two big living areas can be used separately or together, along with their adjoining outdoor spaces.

Total cost of the house and its typical city lot was about $30,000. Economies were made by the nearly square shape (about 39 by 42 ft), and by ganging all utilities into a central core. The bath and kitchen in this core have skylights and vent fans (see photo bottom center). The structure is light steel frame with a wood deck roof left exposed for the ceiling. The steel frame also serves as members to secure the glass.

The lot is surrounded by typical neighborhood houses, and a hospital is across the street at front. For privacy, the brick side walls are almost completely blank, and the front is shielded by a high brick wall.

Interior partitions are painted drywall construction. Floors are plywood surfaced with carpet, vinyl or ceramic tile.
Kessler House

In spite of the set-back requirements of the site, outdoor living areas were provided for the major rooms at the front of the house by creating a garden court screened by a textured brick wall. (The court is seen from a corner of the living room above.) The brick pattern and accordion roof provide a more ornamental facade than often found in houses where the front is blanked off.

A pleasant entrance is provided at the side, with a roof connecting to a storage room. A carport will be added adjoining this as indicated on the plot plan on the first page. The house is heated by a package gas-fired air furnace with thermostat controls. Kitchen equipment is all electric.
JAPANESE IDIOMS ARE ADAPTED FOR A PRACTICAL HOUSE
Houses

Fischer House

A mixture of reminiscent Japanese forms and American practicalities has been brought off with considerable verve in this comfortable city house. The owners lived for a year in Japan, grew to admire the architecture, and frankly decided they wanted a similar environment in their new home in Washington, D. C. The architects thus used many forms and devices "for their mnemonic value" (shojis, a modular panel system, a gravel garden, a walled-in lot), and managed by using them, to gain a degree of spaciousness and privacy unusual in a town house.

Explicitly planned for extensive indoor entertaining of "shoe-wearing guests", the plan makes deft use of the shojis. Gallery, game, living and dining rooms can all be opened together to create a really big space for major functions. Glass walls and the gardens add to this sense of space, and the 7-ft high garden wall gives privacy.

A frame of red wood and fir was constructed to hold panels of cement plaster, wood and glass. The interior walls are white-painted plaster, walnut paneling or grasscloth. Floors are surfaced with mosaic tile or carpet. A modular measure was used throughout.

All materials and finishes were chosen for the greatest possible ease of maintenance, including the garden. The ground is covered with polyethylene under white gravel to obviate the need of lawn mowing or weeding. Rocks and water play as important a landscape role as plants.

A sharp drop in the site (note in photo far right) was used to give access to a carport at basement level and give daylight to the recreation room. The big basement storage room, as well as ample closets throughout add much to the livability.
Card parties are provided for in a special long, narrow room (photo at top). The room can be opened completely to the gallery and living room by sliding back the shojis.

The gardens are designed to add close-range vistas on the city lot to supplement the longer range ones commanded by the rise of the site. The wall is of sufficient height to give complete privacy from the adjoining streets.

Four year-round combination furnace systems are used in the house for zoning. Kitchen equipment is all electric.

Fischer House
Some Suggestions
For Urban Housing

Formula will not solve the urban housing problem. Indeed, application of formulae has been a principal factor in creating the problem. Consider the urban tenement, which crowds many humans into noisy, airless, confusing spaces, far removed from parks and recreation areas. Traffic functions (car movement and car parking) are intermixed; ground areas are cluttered with service entrances, garbage cans, driveways, alleys. Obtaining visual enrichment in such a situation is difficult to impossible; and many high-rise apartment projects are as vulnerable in this regard as older slum tenements.
Suburban sprawl—an equally destructive formu­lary “solution”—gains light and air (at the cost of much unnecessary utility and road development) but often leads to a widespread, dreary sameness. Confusion of spaces still prevails; with play areas interrupted by driveways, and picture windows looking out over “front yards” to traffic laden streets. The proper articulation of public spaces (streets, parks, plazas, etc.) and private spaces (dwellings, gardens, courts, etc.) is missing, and its lack is both esthetically disquieting and sometimes—in this motor age—downright dangerous. Ten­ement housing preserves unity in undesirable ways; suburban sprawl destroys unity, becomes amorphous.

Our urban housing problem stems in part from our history. Land was plentiful and the population small in early America; a tight urban pattern was not necessary, as in Europe. Most housing needs were met by single-family houses on separate plots, with resulting densities of from two to four houses per acre. With industrialization, America was un­prepared to deal thoughtfully with the need to house more people on less ground. Amenable precedents, such as Boston’s Louisburg Square, or Georgetown (near Washington) were ignored. The tenement resulted. Later, with the mobility lent by the automo-
bile, the subdivision emerged as the “to every man a castle” reaction. But the subdivision often fails to give sufficient attention to a humane and considered relationship of streets, yards, and houses—despite its quantitative growth. The New York Regional Plan Commission estimated several years ago that the New York-Connecticut-New Jersey metropolitan region then containing 15.5 million people in 1100 square miles would expand 25 percent in population but 64 percent in area by 1975, primarily because of subdivision type growth at densities reverting to the two to four units per acre of 100 years ago. Undoubtedly this pattern will be repeated in many other areas, scattering large numbers of families in separate houses on separate plots. Why not correct the faults of the typical subdivision and create a well ordered environment that uses less land?

We offer three architectural suggestions. First, revert to horizontally connected units (row houses, semi-detached houses, etc.) or to vertically connected units (high-rise apartments, duplexes, maisonnettes, etc.)—in both cases supplemented by small gardens, courts, secluded yards, and private balconies. Ground space saved may be pooled as common area, and densities of 10 to 15 units per acre for row houses, or up to 100 for high-rise apartments may be realized without harm. Second, differentiate spaces by function: the car in motion vs. the car at rest, etc. Third, provide for use sequence of spaces, so that one is conscious of moving from public street to semi-public parking to semi-private entrance court or entry to private space for living. At Marseilles, Corbu emphasized the transition from corridor to apartment by painting the windowless corridor black, in contrast to the lightness within the living areas.

For each project, particular conditions determine the particular character the project will assume. These include density and unit types, required areas or units and rooms, possible orientation, provisions for parking, selection of structural and mechanical systems, and choice of materials. In considering these we must bear in mind that each choice must perforce relate to the total expression; that each solution for a detailed problem must point towards a strong total unity.

First, programming. Densities, unit numbers, room sizes, and unit apportionment are usually suggested by the owner, consultant, or government agency. Nevertheless it is the architect’s duty to examine these requirements in the light of his own experience and, if necessary, revise them to reflect his evaluation of human needs. In respect to density, the architect may be the only one who can define,
in adequate terms, the relationship between height, building requirements, and ground usage. When one is able to vary height and coverage, models will be found useful in studying this problem.

Budget usually determines size, and the architect seldom has any control over the budget sum—but he is still obliged to give the owner the maximum possible space and quality for the money. In order to stay within budget bounds, we make several cost estimates during design study and the development of working drawings.

Since structural considerations affect cost and may seriously inhibit room planning and arrangement, extra thought should be given to the choice of structural systems. For high-rise apartments, we are making increasing use of concrete systems, which are economical. With a concrete flat-slab system, ceilings can be finished by painting the slab itself or by a V/s in. plaster skim, avoiding suspended ceiling costs. Flat-slab floors also allow flexibility in moving columns to suit the plan. In addition, such a system allows exploration of possibilities for exposing the structural frame with column spacings other than one-to-one for the exterior expression. Moreover, the problems and costs of fireproofing are avoided.

As for mechanical systems, our experience indicates advantages in using fan coil water systems for heating and cooling. Normally, such systems coordinate well with structure and architecture, and offer considerable thermostatic control.

If possible, adequate sunlight should be brought to each apartment unit. But solar orientation is not the only answer in siting the building or in placing rooms, since surrounding structures and existing land conditions will affect both. In a high-rise building the largest apartment units should ideally go in the corners, for two-way orientation. In low-rise developments, cars should be parked only on the entry side; and rooms in which light is relatively less important (baths, service areas, and sometimes bedrooms) can be located on the entrance side so the other portions of the apartment can open out into park-like areas free of automobiles.

As for choice of materials, we believe unity can be achieved by using only a few materials that weather well. For exteriors, we frequently use concrete which has been poured in plastic-coated plywood forms, and finished with a plastic coating. Such a material is economical, weather well, and helps in architectural expression.

After examining various possible design concepts, the architect is required to come up with a scheme that fuses all of the foregoing considerations into a strong, meaningful unity. The important word here is meaningful. We must ask ourselves: do our assumptions really relate to human needs? have all the needs been brought into focus? The ultimate evaluation must be made in terms of needs, amenities, and meaning for the future residents.

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### PROJECT TABLE I

<table>
<thead>
<tr>
<th>No. of Units</th>
<th>PHA</th>
<th>PHA (Revised, April 1960)</th>
<th>Place</th>
<th>St. Louis Hills Towers</th>
<th>Wernaker (Final stage)</th>
<th>Steinman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No. of Units</td>
<td>1,090</td>
<td>912</td>
<td>480</td>
<td>234</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Parking Spaces</td>
<td>845</td>
<td>915</td>
<td>960</td>
<td>236</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Land Area</td>
<td>5.0 acres</td>
<td>12.3 acres</td>
<td>87.75 acres</td>
<td>11.3 acres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density—Units/acre</td>
<td>218/acre</td>
<td>74/acre</td>
<td>6/acre</td>
<td>21/acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% building coverage to total land area</td>
<td>28%</td>
<td>8%</td>
<td>10%</td>
<td>17%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% parking and streets to total land area</td>
<td>27%</td>
<td>34%</td>
<td>23%</td>
<td>24%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% open land space to total land area</td>
<td>45%</td>
<td>58%</td>
<td>67%</td>
<td>59%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% building service areas to total building area</td>
<td>19%</td>
<td>18%</td>
<td>23%</td>
<td>13%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% service area/floor to total area/floor</td>
<td>13%</td>
<td>11%</td>
<td>—</td>
<td>—</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Plaza acreage does not include property owned by two churches which are actually a part of the scheme.

### PROJECT TABLE II

<table>
<thead>
<tr>
<th>Eff.</th>
<th>No. of Units</th>
<th>% of Total</th>
<th>PHA</th>
<th>PHA (Revised, April 1960)</th>
<th>Place</th>
<th>St. Louis Hills Towers</th>
<th>Wernaker (Final stage)</th>
<th>Steinman</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bdrm.</td>
<td>No. of Units</td>
<td>% of Total</td>
<td>334</td>
<td>30%</td>
<td>304</td>
<td>331%</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>2 Bdrm.</td>
<td>No. of Units</td>
<td>% of Total</td>
<td>600</td>
<td>55%</td>
<td>304</td>
<td>331%</td>
<td>16%</td>
<td>8%</td>
</tr>
<tr>
<td>3 Bdrm.</td>
<td>No. of Units</td>
<td>% of Total</td>
<td>158</td>
<td>15%</td>
<td>304</td>
<td>331%</td>
<td>40</td>
<td>186</td>
</tr>
</tbody>
</table>

| Total area (balcony @ % area) | 544 | 478 | 544 |
| Living-bedroom (full area) | 70 | 80 | 70 |
| Balcony (full area) | 80 | 80 | 80 |
| Total area (balcony @ % area) | 192 | 216 | 192 |
| Living-Dining | 316 | 316 | 316 |
| Master Bedroom | 134 | 134 | 134 |
| Bedroom | 124 | 124 | 124 |
| Balcony (full area) | 145 | 145 | 145 |
HOUSING FOR A METROPOLITAN SUB-CENTER

St. Louis Hills Towers, Near St. Louis, Mo.

Located seven miles southwest of St. Louis' central core in an older, built-up section contiguous to a commercial area, this project capitalizes on the opportunity to symbolize the site's sub-center character by playing tall buildings against a surrounding low pattern. The surrounding low buildings, unimpressive from nearby ground level, fuse into a textural pattern from a height. The Webb & Knapp organization and their St. Louis associates, G. J. Nooney & Co., conceived and sponsored the development. About 900 rental units were called for, divided equally between efficiencies and one- and two-bedroom types.

The design calls for four 20-story, square buildings, staggered on two city blocks, with 100 percent parking (surface and garage). Since the two-story first floor of each building is used for non-living areas, the relatively large extent of surface parking should not affect the outlook seriously.

Point block rather than slab buildings were designed since the ratio of service to apartment area per floor is more favorable when a sufficient number of typical units are grouped on one floor. The concrete flat-slab system made possible the expression of columns with varied spacing on the exterior. The elongated exterior columns serve as wind bracing; while freely placed elongated interior columns are wall segments that fall (with one exception) within an 18 ft block spacing. A systematic wall pattern for the exterior stems from the 6- and 12-ft column spacings. Bedrooms have a 6 ft glazed bay and a blank 12 ft bay; while living rooms and balconies reverse that arrangement. All closed exterior walls house chases for hot and cold water to serve peripheral heating and cooling units.

ARCHITECTS & ENGINEERS: Hellmuth, Obata & Kassabaum
STRUCTURAL ENGINEER: Albert Alper

ARCHITECTURAL RECORD March 1961 195
HOUSING IN THE CITY CORE

Plaza Square Apartments, St. Louis, Mo.

This project provides approximately 1000 apartments in six 12-story buildings in downtown St. Louis, close to the main business section. The site was formerly a run-down commercial area now cleared and redeveloped under the sponsorship of a state authorized, local redevelopment corporation. Two landmark churches that had to be preserved imposed a design limitation, as did the busy street bisecting the site longitudinally.

The apartments are divided into 30 percent efficiencies, 55 percent one-bedroom, and 15 percent two-bedroom types; are housed in 12-story, flat-slab buildings with double-loaded corridors, oriented east and west. A native limestone grid covering the structural frame is accented on the long elevations by colored porcelain panels. The height is economical for elevator service and relates to the scale of nearby downtown office buildings. The orientation permits sunlight in all living rooms and bedrooms and in the open spaces between buildings. The between-buildings spaces are important to the concept; through landscaping, patio patterns and the quality of the old churches were designed to express a semi-public character appropriate as transition between public streets and the private spaces within the buildings.

Parking is provided in both an underground garage and on the surface. That constructed underground was separated from the apartment buildings to avoid conflict with the structural pattern of the apartment buildings. Bays appropriate to automobile parking would have required changing the bays of the apartment buildings, which would have been possible, but only with unseeming effects on apartment planning. Since total underground parking was not possible under the budget, and the available site area was limited, a combination of semi-depressed, landscape screened parking plus an underground garage appeared as the best solution to the problem of handling the automobile at rest.

ARCHITECTS: Helmut, Obata & Kassabaum and Harris Armstrong
ENGINEERS: John D. Falvey, Mechanical; William C. E. Becker, Structural; Horner & Shifrin, Utility
CONTRACTORS: Paul Tishman and Fruin-Colnon
"The question of spatial ordering and sequence related directly to a consideration of the pattern of views both approaching the project and within the project. From public street approaches one proceeds to semi-public between-buildings spaces to the semi-privacy of entries and corridors to the privacy of the apartment. From there a new set of views relate to the spaces between the buildings, the other buildings, the streets, the two park areas across bounding streets, and the downtown areas beyond"
THE DEVELOPMENT RESTATED

The Burt M. Wenneker Project, Near St. Louis, Mo.

Located on flat land near an industrial area and zoned for single family residences, this 92-acre tract for 440 families might have become another example of suburban sprawl, except that the County Planning Commission, concerned with the growing monotony of mushrooming subdivisions, pointed out a statute permitting apartments in such areas—provided over-all density does not exceed that of single family residences on separate plots. The developer was also aware of a market for rental housing.

Minimum access points to the street system will encourage moderate speed driving; the driver will be concerned mainly with the road, and only secondarily with the dwelling clusters and their forecourts. The parking areas are tightly walled-in spaces, there being little use in devoting space to other than car parking and human circulation needs. Joining the houses effects considerable utility savings.

The dwellings—varied in plan—are each individually expressed and strive to capture a character too often missing in subdivision housing. Entrance is through a small, private courtyard, transitional between the nearby parking space and the dwelling. Kitchen and service elements are located on the entrance side, so that living areas can look out over a courtyard to pleasant garden areas.

A certain amount of risk enters into programming unit types and room sizes for a project such as this, but economic surveys and analyses, plus the experience of developer and architects, led to a scheme with approximately 15 percent one-bedroom apartments, 75 percent two-bedroom, and 10 percent three-bedroom. However, since the project will be built in stages during a three year period, these ratios may be changed for the later stages in the light of experience gained. Regarding square footage, the architects (who regard PHA and FHA requirements as minimal) have made an effort in this project to provide living rooms at least 17 ft wide, and bedrooms 11 to 12 ft wide, in order to permit a degree of flexibility in arranging furniture.

ARCHITECTS: Hellmuth, Obata & Kassabaum
ENGINEERS: Harold P. Brehm, Mechanical; Albert Alper, Structural
HOUSING AS PART OF A NEIGHBORHOOD

The Siteman Development, St. Louis, Mo.

This project consists of a shopping area integrated with about 250 apartment units, divided in the ratio of 75 percent two-bedroom and 25 percent one-bedroom and three-bedroom units. The site lies on a major loop highway around St. Louis; zones for commercial use over a 350 ft depth, and for residential use through the next 700 ft, with a height restriction of three stories.

Since the site consists of a valley hemmed in by higher ground at the perimeter, rough models and site plan sketches were used to examine the relationship of housing to commercial area; housing units to contours; and to check the number of units. The final plan consists of apartment “chains” generally parallel to the contours, stepped down the slopes, leaving the valley open as a community area that flows into the shopping center. This arrangement should increase the use of stores by residents, since pedestrian travel to them can be made attractive by judicious landscaping. Access roads at the perimeter never cut across the site; there is a clean-cut separation of automobile and foot traffic.

From across the road, the project appears as a textural pattern because of the changes in level. From within the project, however, a freely interwoven space pattern formed by the buildings becomes apparent, but with spaces ordered according to their uses. Entrance from parking areas, always on the higher side, is at mid-level between the first and second floors of the three-story units. Bedrooms, where less window area is desirable, are on the entrance side, permitting living areas and balconies (on the downhill side) to look out over the community area. Each group of six apartments is handled as one mass, staggered either horizontally or vertically from its neighbors, and marked visually by the pulled-out stair towers.

ARCHITECTS & ENGINEERS: Hellmuth, Obata & Kassabaum
UTILITY ENGINEERS: Horner & Shifrin
Apartments

This recently completed 17-story structure—the first large, privately financed apartment building to be built in Boston in 27 years—features an unusual plan in which all living rooms look out over a balcony to a view of the Charles River Basin, and in which nearly every apartment extends through the width of the building for cross ventilation. Circulation, storage, and service elements are centrally concentrated in the plan, with the result that no room suffers from traffic, and each apartment becomes, in essence, a modernized, one-story version of the old Back Bay center hall house.

Living and dining spaces and their balconies are grouped on the river side of the building (top photo at left), while bedrooms are all on the opposite Beacon Street side (bottom photo, left, and top photo, right page). The unusual bedroom fenestration—reminiscent of the Beacon Street bay windows on all sides—consists of a projecting prow-shaped bay with one side glazed and one side blank, a scheme that brings one forward into the life of the street, yet cuts off the view into adjacent apartments. Since each bedroom is spacious enough to provide a sitting area, both view and privacy are important considerations.

ARCHITECTS: Hugh Stubbins & Associates
ASSOCIATES IN CHARGE: Norman Paterson, Douglas Cole Smith; John Wacker, Landscape
STRUCTURAL ENGINEERS: Goldberg & LeMessurier & Associates
MECHANICAL ENGINEER: Fred S. Dubin & Associates
CONTRACTORS: Turner Construction Co.
Above: an elevation view of the interesting three-dimensional pattern created by the modernized bay-windows on the Beacon Street facade.

Left: three typical floor plans showing the various types of apartment units; note how apartments typically run through the width of the building, except for the duplex 4-bedroom unit.

Below: the marble, terrazzo, and wood-paneled lobby, which was designed and furnished by TAC's Design Research, Inc.
330 Beacon Apartments:

Left: the view in two directions from a typical balcony, which looks out over the Charles River Basin and Cambridge. Below: living-dining area of a typical apartment.

Project data: 78 apartments plus 3 penthouse units; 17 stories plus a 3-level garage that provides parking space for every apartment; the building's 155 ft high reinforced concrete structural frame rests on steel-clad piles that reach down 200 ft to bedrock; exterior walls are face brick, insulated and plastered inside; partitions are plaster on steel studs; typical ceilings are of sprayed-on acoustical paint; floor finishes are variously cork tile, vinyl tile, carpeting, or ceramic tile; the sash are painted steel, glazed with 1/4 in. plate; the building is centrally air-conditioned, with individual unit controls.
Area and financial data: gross area is 3,763 sq ft; total cost (including landscaping, terraces, walks, kitchen range, disposal unit, laundry washer and dryer, but exclusive of the architects' fee) was $37,754, which breaks down to $12,585 per dwelling unit, or $10.03 per sq ft. Due to fire-resistant construction, insurance rate is one-third that for frame buildings in the area. The project has so far not experienced a vacancy, despite two-year lease requirements.

SUBURBAN TOWN HOUSES

Isabella Town Homes, Evanston, Illinois

These three, two-story town houses are an ingenious, attractive, and financially successful scheme for dealing with a difficult building plot. The irregularly shaped site had required setbacks in all four directions, so the units (identical but transposed in direction) were composed to conform roughly to the buildable area. Fenestration was carefully arranged to give an orderly exterior appearance and to provide living-dining areas opening to terraces and gardens.

The fire-resistant construction consists of 8 in. masonry walls which support the precast second floor and roof decking. Floors and roofs bear on exterior or dividing walls without interior support. The sash are aluminum; the baths have plastic skylights; the units are individually heated by forced warm air systems, with provision made for future cooling.

ARCHITECTS & ENGINEERS: Yost & Taylor
LANDSCAPE ARCHITECT: George E. Treichel

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This 10-story block of 40 apartments is built on a site sloping towards Sydney Harbor's Elizabeth Bay. Each living unit faces the view, and provides a balcony overlooking the scenic harbor. Apartments are reached in pairs by means of two elevator and fire-stair towers, one in each half of the building. To comply with regulations requiring alternate means of exit, the landing levels of the stairs are connected by an outside gallery at every second floor. Located between floor levels, galleries do not interfere with either fenestration or privacy.

All apartments are identical in size (950 sq ft) and arrangement. The living-dining area, recessed balcony, and main bedroom face the view; kitchen, bath, and second bedroom are on the street side of the building.

The structural frame is reinforced concrete, with 9½ in. flat-plate slabs free of beam drops. Infilling panels are 11 in. cavity walls of cream colored brick; the projecting awning-type sunbreakers and the balcony railings are of aluminum, as are the double hung sash.

ARCHITECT: Harry Seidler
STRUCTURAL ENGINEERS: P. O. Miller, Milston & Ferris
Pipes are contained in four stacks located between kitchens and baths; electric and gas meters are located in an enclosure off the fire stair, as are the incinerators. Two communal laundries are provided at roof level, and are equipped with automatic washers and dryers. Sheltered car parking is provided beneath the building and under an adjacent carport.

Below are shown four photos of architect Harry Seidler's apartment, a typical unit on the top floor of the building. The main bedroom features special lighting, built-in wardrobe and bedside units, and a custom storage and dressing table built-in under the windows. Living room clutter is eliminated by an "equipment wall" that incorporates TV, stereophonic Hi-Fi, a bar, record storage, and bookshelves. In the kitchen, all mechanical equipment (oven, cooking top, sink, and dishwasher) is grouped on one side; the other side is devoted to refrigerator, food storage, and food preparation.
FOR THE YOUNG AND THE AGED

Lyndale Homes, Minneapolis, Minn.

The twofold objective in this 10-acre project—sponsored by the Minneapolis Housing & Redevelopment Authority—was to rehabilitate an old, blighted section in Minneapolis and to provide pleasant, economical housing for low income families; and in doing so to create a balanced residential community of childless retired couples and individuals, as well as families of all sizes and ages. Accommodations vary through a wide range from the 5-bedroom row house units to the one-bedroom and efficiency units in the high-rise building. There are a total of 192 living units in the development, which was cited for good design by the Minnesota Society of Architects in 1960, and also by the 12th Annual Conference on Aging at the University of Michigan.

The 12-story building (photo left, plans right) is devoted to elderly retirees, is served by elevators, and contains 88 apartments split equally between single bedroom and efficiency types. The ground floor provides spaces for common resident use such as a crafts shop and multi-purpose community room, equipped with a kitchenette. Defined by low walls and landscaping materials, the largest open area of the project surrounds the high-rise building. This space is devoted to recreation and contains sitting areas, play apparatus, sandboxes, etc.

ARCHITECTS & ENGINEERS: The Cerny Associates
ENGINEERS & LANDSCAPE ARCHITECTS: Nason-Law-Wehrman & Knight
CONTRACTOR: Johnson, Drake & Piper
Study of the plot plan and pictures of row house units will point out the manner in which these units are grouped about and loosely define a series of quiet, protected courtyards which provide a varied outlook for the residents. These courtyards are carefully separated from access and service spaces by consistently orienting each living unit inwards.

Visual control of the impedimentia of family life—clotheslines, trash cans, baby carriages, bikes, milk bottles, etc.—is accomplished by providing each living unit with a hard-surfaced service yard, enclosed on all sides by a pierced screen wall of concrete block. Variation of color for the screen walls helps individual identity; and the screens' undulating pattern against the entrance street serves as partial screening for the parked cars of the residents.
This U-shaped, 5-story building is placed with the two stems of the U parallel to the street, and with entrance and lobby at street (or 3rd floor) level, from which the ground drops off sharply so that two floors below are above grade (lower photo). The bottom level houses a dining room and parking; there are 44 apartments and a pent-house suite on the four floors above.

All apartments are planned so that an entrance foyer offers access to living room, kitchen, and bedroom hall. Each apartment has a balcony and a separated dining room. The intent was to avoid the criss-cross traffic, minimal facility apartment, and provide instead the ease of circulation and amenity typical of a well planned house.

ARCHITECTS: Aeck Associates
ENGINEERS: Drake & Funsten, Structural; Donald Lindstrom & Associates, Mechanical; Charles F. Howe, Electrical
LANDSCAPE ARCHITECT: Edward L. Daugherty
CONTRACTOR: Bickerstaff Construction Co.
FOREIGN APARTMENTS

Selected from the special issue, HABITAT, of L'Architecture d'Aujourd'hui, No. 87, 1960; assembled and edited by Alexandre Persitz in collaboration with Danielle Valeix. These photographs and drawings are presented through the courtesy of the editors of L'Architecture d'Aujourd'hui.

This 9-story apartment building contains 260 studio units for bachelors, oriented east and west. The apartments are reached by way of a double-loaded corridor, which is served by a stair tower and two elevators which stop at intermediate levels. Each unit includes a studio room and balcony, a foyer, a kitchenette, a storage room and bath. Transverse shear walls support the building, and gain rigidity by their connection with the angled, square, balcony setbacks; which create also an interesting façade pattern.

ARCHITECTURAL RECORD March 1961 209
This apartment group, located near the University City of Otaniemi—which is the Polytechnic School of Helsinki—was built to provide apartment homes for alumni of the school. The buildings are pleasantly situated in a wooded setting—which was left natural—and the group is completed by a small shopping center. Construction consists of the assemblage of prefabricated wooden elements; an experimental process which was tried for the first time in Finland for this project, and was instrumental in reducing the cost of this group.

To overcome the twin problems of necessary winter protection and a too strong summer sun (and also to permit neighboring apartment buildings to open out to and enjoy the view) this 60-apartment building is designed in an arc-like shape, and incorporates balconies which are cut into the mass of the building’s shape, and which face southwest to the view. The building is constructed of reinforced concrete and infilling panels of precast concrete with a rough-textured surface. The solid walls separating the glazed, angular surfaces are picked out in bright colors.
50 APARTMENTS
IN A PARK NEAR PARIS

ARCHITECTS
Henry Pottier & Jean Tessier

Located in a five-acre wooded re­serve, this 54-apartment project con­sists of two elements, as the plot plan below will reveal. The buildings are supported by brick shear walls that run transversely through their width to support the floor and roof slabs, and which are expressed architectu­rally on the long elevations. Balcony railings are white metal; spandrel panels are of blue ceramic glazed brick. The wood sash and frames are enameled white; the stair tower grilles are of natural clay tile. Public corridors have floors of Fumay slate; the footbridges (lower photo) have railings consisting of metal frames protected by nylon.
5 LUXURY COOP IN MEXICO CITY
ARCHITECT: Vladimir Kaspé

Built in a high class residential area, this 7-apartment luxury building incorporates several planning ideas new to the area: a covered veranda off the dining room, which can serve either for outdoor dining or to enlarge the dining room for big parties; each bedroom includes a dressing room-boudoir in addition to a bath; the study (opening from the living room) can be changed readily into a fourth bedroom for guests. The construction consists of reinforced hollow concrete block walls, and floor slabs of in-site concrete.

6 APARTMENT GROUP IN TAPIOLA, FINLAND
ARCHITECT: Viljo Revell

Notable for its carefully studied and well-proportioned balcony façade, this apartment group near Helsinki is composed entirely of three-room apartments on four floors, with balconies provided for each living room. The dwelling units are reached by means of center stairways serving pairs of apartments at each floor level. Typical apartments can readily be divided into smaller units of the bachelor type by the addition of longitudinal walls through the center of the apartment. The exterior is composed of concrete, brick, aluminum and wood.
7 APARTMENT GROUP
AT PALAISEAU,
NEAR PARIS

ARCHITECTS:
A. G. Heaume and A. Persitz

This group of 84 apartments—on sloping terrain bordering a communal park—was built by the Central Interprofessional Housing Office of the Paris Region. The sloping site suggested a series of steps, which were carried out in both elevation and plan. These breaks serve also to ameliorate the length of the group and give it a more appropriately domestic scale. The façades opening to the park consist of a series of continuous balconies, in which concrete grills and prefabricated concrete railings, together with the variety of color on the infilling wall panels, combine to make a lively pattern. The end walls are constructed of heavy ashlar in random pattern.
The Nuclear Energy Center in Belgium is devoted to the study and development of peacetime applications of atomic power; comprises a technical group, an administrative and social group, and a residential quarter, shown in the plot plan above. Living quarters consist of 15 villas, 40 rowhouses, 2 buildings of 12 apartments each, 2 dormitory buildings for bachelors, a high-rise building containing 48 studios, and a building housing 24 apartments for young married couples. The bachelor dormitory includes only living rooms, baths, and ground floor parking, since occupants take their meals at the Center canteen.
The Many Dimensions of Light

Interest in the largely untapped potentialities of lighting as a basic ingredient of architecture seems to be gaining momentum, judging from reactions ARCHITECTURAL RECORD is getting to its four-part series, “Lighting for Architecture,” by William M. C. Lam, concluded in January. The series is being reprinted in stiff cover for $1.00; discounts on quantity orders. Address: Lighting Reprint, Architectural Record, 119 W. 40th St., New York 18, N. Y.

The first article stressed that the goal of lighting design is not simply to provide enough light to see by, but to create mood, focus attention, indicate intended use, complement structure and enhance the space itself. The second article pointed out that in order to program lighting, the designer must understand the many dimensions of light—quantity and quality of illumination; brightness and its effect on visibility, visual comfort and the appearance and character of the space. The third article gave a “common sense” understanding of the relationships between light sources and room surfaces. The fourth article tied the package together by showing how a lighting program was developed for an actual case.

Handling lighting more effectively has loomed so large as one of the problems of contemporary building technology, that we are surprised now and then to find expressions of concern a number of years back. Writing in the November 1918 ARCHITECTURAL RECORD on “The Expressiveness of Light,” Matthew Luckiesh, lighting scientist and author, commented, “In lighting, attention has been too generally directed toward the artistic grace of fixtures instead of visualizing the light effect upon the room as a whole. If the attention is focused upon effect at all, it is usually upon the purely utilitarian result. Light may be considered as a medium similar to pigments... a similar expressiveness, but far superior in potentiality; for not only may a certain desired mood be realized, but with appropriate fixtures and controls, this mood may be altered in a moment.”

As an idea of what could be done in the home, Luckiesh suggested a hallway illuminated by a combination of lattice and indirect lighting; mentioned the possibility of artificially lighted windows; described an oval dining room skylight, artificially lighted, utilizing red, green and blue lights installed in separate circuits and controlled by rheostats. He also showed sympathy for the “old fashioned” lighting dome that once hung over the dining table but was “out of style” in 1918. There is, he averred, “something conducive of cheerfulness in the distribution of light, as the semi-darkness hems in the diners and concentrates their attention upon each other and upon the festive board.”

“Expressiveness” of light in the home obviously had made little headway by 1951 when the authors of a report on Construction and Equipment of the Home, issued by the Committee on Hygiene of Housing of the American Public Health Association observed, “Little attention has been given to the effects on the emotions of the lighting in dwellings. The straining ‘cheeriness’ of the professional decorator is probably no more conducive to peace of mind than the amateur’s little pools of jaundiced (incandescent) or pallid (fluorescent) subfulgence in a Stygian surrounding. The matter deserves careful investigation...”

From what wellspring do ideas come to the great talents in the architectural world? Wallace K. Harrison while in Italy on a reconnaissance trip for the new Metropolitan Opera asked Nervi how he had ever built the unique and inspired buildings that he had produced in the last decade. “He looked at me,” reports Harrison, “and said simply, ‘It is hard.’”—from an article “Steps to the Opera House” in Opera News.

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APARTMENT BUILDING
AIR CONDITIONING

Characteristics of central systems and how they affect apartment layout and space for ducts, pipes and equipment

by Alfred Greenberg, P. E., Syska & Hennessy, Inc. Engineers

While no two apartment houses are exactly the same, there are sufficient similarities in occupancies and planning to indicate the characteristics required for central air conditioning systems. Conversely, the nature of each of the systems available will affect the space required for ducts, pipes and equipment, and will determine whether or not the architect must provide for openings in the outside walls, space for air conditioning units within the rooms, or, possibly, space for equipment rooms within the apartments.

Air conditioning in apartment houses has the following characteristics:
1. Occupancy seven days per week, perhaps 24 hours per day.
2. Generally low loads due to people and lights.
3. Generally non-occupancy of bedrooms during the day.
4. Heavy appliance load in the kitchen.
5. Possible heavy occupancy load in dining and living rooms.
6. Occasional large, concentrated cooling and ventilating loads due to parties or meetings. (Requires large amounts of outside air to eliminate odors and smoke.)
7. Interior toilets and kitchens must have exhaust ventilation. Exterior kitchens should have exhaust ventilation, if not air conditioning.

Because of the variable and shifting load careful attention must be given the air conditioning design to achieve as close to optimum comfort conditions as the particular system will provide.

Types of Systems
Central air conditioning systems for apartment buildings can be classified as:
1. Dual duct, all-air.
2. Three-pipe, perimeter induction fan-coil.
3. Single duct with reheat coils.
4. Two-pipe, perimeter induction or fan-coil.
5. Through-the-wall fan coil units.
6. Recirculating-type fan-coil units; fresh air from interior ducts.

The first three systems—dual duct, single duct with reheat and the three-pipe—have the greatest potential for flexibility of control. However, dual duct and single duct with reheat require the most space for ductwork and generally are more expensive to install. In the dual duct system one duct carries hot air, the other cold. In single duct with reheat, air is supplied at the coldest temperature required for any one space and reheated by hot water coils or electric heaters to suit the requirements of the other spaces. In the three-pipe system, one pipe carries cold water, the second hot water and the third serves as a common return.

Until recently, the most commonly installed type of central system for apartment buildings has been the through-the-wall fan-coil unit with perimeter vertical pipe distribution.

The familiar induction system which uses a combination of air and water to furnish heating and cooling, with a high degree of temperature and humidity control, has become a popular type of central system for large apartment buildings. The induction system follows dual duct and single duct with reheat in the amount of space required for ducts, but these are generally run vertically in chases at the perimeter of the building.

Temperature Control
In all perimeter-type central systems described above (1, 2, 4, 5), it is possible, if desired, to eliminate thermostats from the walls. The thermostats can be located in the return air openings of the units, but this may cause some sacrifice of optimum room conditions. Self-contained automatic control valves are available for perimeter units.

For economy, on many installations of fan-coil units no thermostats or automatic control valves are used. Regulation is obtained by adjusting the three speed motor position and opening or closing the outdoor air damper. Usually, fan-coil motors are connected to the apartment's electric meter, if metering is done separately.

Duct, Equipment Space
Whether ductwork and piping is run at the perimeter or at the interior the architect will be concerned with the amount of space required for these mechanical services and where this occurs.

When piping and ductwork is run vertically along the perimeter, chases will be required, and space will have to be allotted for the air conditioning unit, whether induction or fan-coil, along the outer wall, unless, in the case of the induction unit, it is set flush with the floor. If a fan coil sys-
tem is selected and the architect does not want exterior wall louvers, interior duct shafts will be required to provide outside air.

When distribution is from the interior, there may be horizontal ductwork and piping that will require either dropped ceilings or soffits or both.

By lowering the ceiling in such areas as corridors, foyers, closets, kitchens and bathrooms—where floor to ceiling height is not so important—the disadvantage of this arrangement is minimized.

Most of these interior distribution systems will require an equipment closet or space facing the main or service corridor for maintenance. If the apartment is small enough, fan-coil units are sometimes suspended above a soffit at the entrance or at the top of a closet.

If, however, a full-height equipment room is required, this will affect the apartment layout.

Fresh Air

Purging of odors and smoke calls for large quantities of outside air, although the problem can be mitigated in various degrees by filtration and electronic precipitation. Dual duct systems have relatively high air quantities. The induction system has less capacity for purging odors than an "all-air" system because it uses less primary air. Through-the-wall fan coil units are furnished with multispeed motors so that low speed can be used for night operation, medium speed for normal use and high speed for high air circulation and peak loads.

For all systems, sufficient outside air should be furnished to take care of all the exhaust air requirements. The exterior rooms should be pressurized in order to minimize infiltration. Interior corridors should be pressurized to prevent possible transmission of odors.

In some apartment buildings, outside air is dumped into the corridors and supplied to the individual apartments through undercut doors or doors with louvers. In either case noise transmission between apartments may be a problem. This can be avoided by supplying air through stub-ducts, insulated against sound, which are installed at the ceiling and are attached to a grilled opening on the corridor wall.

As apartment buildings get taller (usually above 20 stories) use of through-the-wall units becomes increasingly risky due to stack effect. This is difficult to determine for a given building. The units have to be sealed and the air balances accurately calculated.

Stack effect can also cause difficulties in the interior toilet ducts and corridor ducts of tall buildings. The New York City code requires that no toilet exhaust be over 250-ft high from the first to the last outlet. While this increases the duct shaft requirements, it minimizes the possibility of drafts. The same criteria should apply for supply ductwork.

If the client wants the ultimate in thermal control, and air supply at the outer wall is not desired, then a suggested system is central air handling for each apartment plus perimeter radiation (to counteract cold radiant effect of walls and drafts from windows).

With such a system the proportion of outside air can be varied from 0-100 per cent and may come from exterior wall louvers or a central shaft in the interior.

The ductwork should be zoned with central hot water or electric reheat coils or with dampers to maintain temperature or air flow as called for by each zone. Return ductwork will usually be required.

**CENTRAL SYSTEM FOR A PROPOSED LUXURY APARTMENT BUILDING**

1. Individual apartment air handling units are located in fan rooms, accessible from service corridors. These package units contain cleanable filters, chilled-hot water coils, and circulating fans. 2. Separate room control is provided by means of hot water coils (small shaded rectangles) located at the ends of branch discharge ductwork (broken lines). Coils reheat cooled air to temperature called for by room thermostat. 3. Outside (primary) air units at the rooftop furnish approximately 25 per cent of building air requirements and consist of electrostatic filters, hot water preheat coils, pre-cooling coils, supply fans and dampers. 4. Between the primary air shaft and the apartment air handling units are maximum (100 per cent) and minimum (25 per cent) dampers. Maximum damper opens only when switched on in an apartment to purge excessive smoke, odors and heat. 5. Exhaust systems are provided in toilets, (TX) kitchens (KS). PHS is public hall supply. 6. Corridors have separate supply and exhaust systems.
Three Buildings, Three Different Systems

The three large apartment houses shown here, all presently being built within a one-mile radius in Kansas City, Missouri, present some interesting similarities and differences in approach to central air conditioning.

Parkway Towers
The most noteworthy feature here is the fact that every apartment has its choice of either heating or cooling at any instant. Each apartment has its own fan and heating-cooling coil installed in a special utility room. Through two separate supply pipe systems, either hot water at 180°F or chilled water at 44°F is available. There is one return line for both hot and chilled water. The switch from one supply to the other is made automatically by a thermostat-controlled, three-way valve.

One of the interesting features is that the hot steam condensate from the absorption unit is used to preheat the domestic hot water.

Depending on the size of the apartments, one of three different sizes of fan and coil units are used—500 cfm, 1000 cfm, or 1500 cfm capacity. Duct work distributes the conditioned air from the utility room to the various other rooms of the apartment. Make-up air is supplied to the utility rooms through louvers from the corridors. A ventilating system with a large heating and cooling unit on the roof provides 100 per cent fresh air with controlled humidity to the corridors at about 72°F. Fresh air supply in the apartments is 10 per cent, with 90 per cent recirculated. Each apartment has an exhaust system.

Oak Hall
Each apartment has its own heating and cooling system consisting of an air handling unit with filters, blower, hot-chilled water coil and controls, and ducted air distribution.

Chilled water is provided by a 400-ton steam absorption unit. Heat for air conditioning and heating systems is generated in natural gas-fired steam boilers. The apartment heating system is further served by a steam to hot water converter with outside air temperature reset control.

A central year around fresh air ventilation system serves the entire building and supplies heated or cooled fresh air to each apartment continuously. Conditioned fresh air is also supplied to all corridors for comfort and for cooking odor control. All fresh air supplied to the building is humidified or dehumidified to maintain optimum comfort conditions. A continuously operated exhaust system balances fresh air supply. Steam is utilized for fresh air heating to provide positive control and to minimize freezing danger in winter.

Regency House
The air conditioning and heating system utilizes 457 fan-coil units on the outside walls of the 20-story building, a 300-ton absorption water chiller and two 9,000,000 Btu per hour steam boilers. Individual fan-coil units in each room of the apartments are supplied with either hot or cold water (winter or summer). Simple changeover valves are provided on first floor. Each room has its own thermostat control. Fan-coil units have 3-speed fan switches with on-off control.

Fourteen sets of risers distribute the hot or chilled water at regular intervals through the 20 stories of the building. A small apartment of about 800 sq ft has two fan-coil units, while the largest apartment of about 1800 sq ft has four, permitting separate zone control in each apartment. The system at Regency House can be

ARCHITECTURAL RECORD March 1961
OAK HALL: FAN-COIL SYSTEM (INTERIOR)
Description: 165 units, 12-story building. Each apartment has air handling unit with filters, blower, hot-chilled water coil. Operation: Fresh, conditioned air supplied to the corridor is ducted to the air handling unit, cooled or heated and transmitted to the rooms as indicated. Architect: Alonzo H. Gentry. Consulting Mechanical Engineer: Massaglia and Associates.

REGENCY HOUSE: FAN-COIL SYSTEM (EXTERIOR WALL)
COMPOSITE CONSTRUCTION BEEFS UP OLD FLOORS

One of the principal advantages of composite construction, the fact that it often permits the use of lighter steel, has been given a new twist in the modernization of an existing school building in New York City. In this case the “lighter” steel was already present, but the addition of a composite slab enabled it to carry much heavier loads.

The building was the old Bronx High School of Science, which was built in 1914 for a design live load of only 60 psf. When it was turned over to the Bronx Community College in 1958, the extensive alteration program required included the conversion of several areas into shops and laboratories. These new occupancies demanded a floor system capable of supporting a minimum live load of 100 psf overall, plus several larger load concentrations where heavier machines were to be installed.

The existing floor construction consisted of 4-in. thick, short span cinder concrete slabs spanning between fireproofed steel girders spaced on 7-ft centers and framed in most cases to masonry bearing walls. The slabs were reinforced with wire mesh draped over the top flange of the girders. Set level with the top flanges, the rough slabs were topped with a 4½-in. thickness of light cinder concrete fill and cement finish or wood flooring set into cinder fill. In most cases, the floor finish was in poor condition.

To provide a new floor finish while reinforcing the existing slabs and girders for the increased loadings, composite construction was used to link a new slab to the old substructure in such a way that the floor deforms as a unit.

To do this, the existing fill and finish was stripped off the top of the rough slab, exposing the top flanges of the girders. Stud shear connectors ¾ in. in diameter and 3½ in. high were then welded to the tops of the beams with a manually-operated stud welding gun. This done, a new 4½-in. lightweight concrete slab, reinforced to support the increased loading, was poured over the existing rough slabs and finished monolithically so that it became the wearing surface for the new floors. No formwork was necessary for the new slab except where old shafts were being enclosed, but some shores were placed under the rough slabs to prevent possible damage during construction.

The composite action of the old slab and girders and the new “cover plate” slab strengthened the floor enough to accommodate the added loads. Still further loading capacity could have been obtained by welding cover plates to the bottom flanges of the girders. This, however, would have required considerable cutting and patching of the fireproofing.

Architects for the building modernization were Perkins & Will, White Plains, N. Y.; the structural engineers were Garfinkel & Marenberg, New York City; and the general contractor was Mars Associates and Normal Construction Company, also of New York City.
AIR CONDITIONING "ON TAP" DOWNTOWN

Although central plants have often been used for year round air conditioning of such large building complexes as manufacturing plants and shopping centers, and public utilities in several cities sell steam for winter heating, completion of the Hartford (Conn.) Gas Company's new central plant and distribution system will mark the first time a large downtown area has been supplied with both heating and cooling through a public utility. The air conditioning service will be sold in much the same way that utilities presently distribute gas and electricity, with meters to determine the amount of steam and chilled water used by each building's mechanical system.

The system will initially serve Constitution Plaza, a building cluster being constructed as the first step in Hartford's huge downtown redevelopment plan, and several existing buildings nearby. Later it will be expanded to serve other redevelopment projects, and other new and existing buildings in the area. (See shaded aerial perspective at left above.)

The central plant, which will be completed next year, will have an initial capacity of 6500 tons of refrigeration and 150,000 pounds of steam distributed by underground supply and return lines extending some 3600 ft from the plant. By 1964, steam capacity is expected to be increased to 225,000 pounds and cooling capacity to 10,000 tons.

Located near the Connecticut River so that river water can be used to cool the condensers and eliminate the need for cooling towers, the building designed by Hartford architect Charles DuBose will consist of two units connected by a passageway. (See rendering above.) The circular building will house offices, dispatch center and control room; the other will contain the boilers and refrigeration equipment.

Obviously the project was not undertaken by the utility as a philanthropic gesture but to add to the efficiency of its own operation by balancing the heavy use of gas for winter heating with steam-generated cooling during the summer months. According to system designers Seeley, Stevenson, Value and Knecht, however, the central station approach does present a number of advantages to the user, foremost among them being the elimination of the need for duplicate equipment in each building. In addition, a central plant cuts first cost per ton for cooling equipment, can lower fuel costs through quantity discount, frees building space for more useful purposes, relieves the building owner of some of his capital investment and operating responsibilities, and permits better smoke control.

The chief disadvantage, the need for expensive external distribution lines, is greatly influenced by local conditions and should be carefully studied. In urban redevelopments like Hartford's, where air conditioning requirements are concentrated in one area and extensive construction is taking place in any case, this disadvantage may be largely overcome.
LIGHTING CREATES NEW NIGHTSCAPE FOR SHOPPERS

The rapid proliferation of pedestrian shopping malls has made the design of "city streets" an increasingly common architectural problem. One of the more recent examples is Miami Beach's Lincoln Road Mall, a newly refurbished downtown shopping district that offers, among other things, some pointers for moving architectural lighting out-of-doors.

GENERAL LIGHTING: For the overall lighting of the Lincoln Road Mall, luminaires were set as high as possible (60 ft in this hurricane territory) on poles spaced at 250-ft intervals down the middle of the "street." At this height and spacing, they spread a blanket of light that modulates down from a high at the center, visually separating the mall from surrounding areas. The luminaires themselves house 1000W, R-80 mercury vapor lamps with integral reflectors. The powerful beam from these bulbs is further intensified and controlled by a special reflector housing, so that the fixtures can also be used to spotlight points of architectural interest, lighting them to levels as high as 60 to 90 f.c.

UNDERWATER LIGHTING: The fountains, pools and other "water-forms" that dot the mall are all lighted by PAR-64 incandescent underwater fixtures. A yoke assembly on the cast bronze housing and cover permits horizontal and vertical adjustments so that the light from the fixtures could be focused as desired before the fixtures were permanently locked in place. The accuracy of this "targetting" is demonstrated in the photo above. The concrete structure shown is lighted, with no spill, by an underwater fixture in the pool. Another innovation was the use of plexiglass color filters which are relatively inexpensive and are expected to last longer than the cinemoid filters usually used.

SHELTER LIGHTING: A major problem in lighting the nine low, open concrete structures that shelter exhibits, displays—and people—was providing a light source that would be warm enough for good color rendition, but would not appear "dirty" by contrast with the cool mercury vapor lighting outside. For six of the shelters, the answer proved to be a new "natural" fluorescent lamp which will be marketed by Sylvania in the near future. Although it appears cool enough to blend well with the outdoor lighting, it distorts the colors of objects and skin tones as little as do warm white fluorescents, an effect produced by strengthening the lamp's red and green tones and depressing the blue. Housed in indirect reflector troffers mounted from the walls like spokes, the lamps bathe the ceilings of the shelters with light that is then reflected down to the floors.

CREDITS: Architect: Morris Lapidus, Kornbluth, Harle & Liebman; Lighting Designer: Lighting by Feder; Fixtures: Simes Company

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ARCHITECTURAL RECORD March 1961
SPRINKLER SYSTEMS FOR FIRE PROTECTION: 3
by Howard P. Vermilya, A.I.A.

Temperature Rating of Sprinkler Heads
The heat-responsive element activating the head may be solder (eutectic alloy) or non-solder (fragile bulb or chemical) with sharp melting points.

Location of Sprinklers (Ordinary hazards only)
1. Position: Upright at or near ceiling (generally preferred).
   Pendant from ceiling; used where piping is concealed for appearance; To avoid danger of accumulation of sediment in piping where suction supply may be unclean, sprinklers may be required to be connected to the top of branch piping by an inverted "U" head.

Sidewall, not over 14 in. below ceiling; for special occupancies where appearance is a factor. One line of sidewall sprinklers will protect an area 10 ft from the wall. If the room is over 20-ft wide, ceiling sprinklers will be required.

2. Deflectors should be parallel to ceilings, pitched roofs, or incline of stairs; horizontal at peak of pitched roofs.

3. Clear space below deflectors—minimum 18 in.; increase to 3 ft for high piled storage (combustible material piled on pallets or racks over 12-ft high or closely packed piles in cartons, cases or bales over 15-ft high even when considered an ordinary hazard occupancy.)

4. Maximum Protection Area for any type construction—130 sq ft; decrease to 100 sq ft for high piled storage.

5. Maximum Distance Between Sprinklers on branch lines or between lines—15 ft. Decrease to 12 ft for high piled storage.

6. Stagger sprinklers on alternate lines if distance between sprinklers on branch lines exceeds 12 ft; also where wood or steel beams are spaced 3—71/2 ft apart.

7. Distance from Wall, to end sprinklers—not greater than 1/2 distance between sprinklers on branch lines; to end branch lines—not greater than 1/2 distance between branch lines.

8. Clearance Between Sprinklers and Obstructions—Location of sprinkler should permit minimum interference with discharge pattern.

Location of Branch Lines
Related to spacing and types of structural members. Uniform spacing of lines is desirable. Direction in which branch lines are usually run is given in Table 3.

Sprinkler Alarms
A signalling device to indicate flow of water in sprinkler system equal to or greater than that of one automatic sprinkler. They should be installed where contents are susceptible to serious water damage and prompt discovery of fire is essential. They are recommended for all systems. The basic types are as follows:

1. A local system giving audible alarm signal on the premises. This may also be connected to the fire department alarm system. It requires constant attendance. It is desirable in large industrial properties and serves to supplement the usual watchman's service. A central station system consisting of a protective service for sprinkler water flow alarms, air pressure in dry pipe systems, operation of sprinkler control valves, etc., designed to transmit coded signals to and record them in an approved central station having constant attendance. Desirable particularly in multi-tenant properties. This system usually provides for regular maintenance and testing of the sprinkler system.

References
6. Underwriters Laboratories, Inc. Chicago, Ill. Fire Protection Equipment List (Published Annually with Bi-Monthly Supplement)

TABLE 3: BRANCH LINES

<table>
<thead>
<tr>
<th>Type of Ceiling</th>
<th>Location of Branch Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smooth Continuous:</td>
<td>Either direction</td>
</tr>
<tr>
<td>Concrete mushroom</td>
<td>Parallel to beams</td>
</tr>
<tr>
<td>Concrete pan or flat slab</td>
<td></td>
</tr>
<tr>
<td>Sheathed (ceiling attached to beams or joists)</td>
<td>Across beams or joists</td>
</tr>
<tr>
<td>Girders beneath sheathing</td>
<td>Whichever direction facilitates hanging</td>
</tr>
<tr>
<td>No girders beneath sheathing</td>
<td></td>
</tr>
<tr>
<td>Bays more than 71/2 ft wide</td>
<td>Parallel to beams</td>
</tr>
<tr>
<td>Beams supported on columns</td>
<td>Across beams or in bays above girders or trusses</td>
</tr>
<tr>
<td>Beams on girders or trusses</td>
<td>Parallel to girders</td>
</tr>
<tr>
<td>Supported directly on girders</td>
<td>Parallel to or through trusses</td>
</tr>
</tbody>
</table>

Beam and Girder

<table>
<thead>
<tr>
<th>Beams and Girder</th>
<th>Location of Branch Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood or steel beams spaced 3 to 71/2 ft apart</td>
<td>Across beams</td>
</tr>
<tr>
<td>Open Bar Joist or Light Steel Trusses</td>
<td>Across the joists or trusses and either through or under them</td>
</tr>
<tr>
<td>Open Joists (wood or concrete)</td>
<td>Across joists</td>
</tr>
</tbody>
</table>
SPRINKLER SYSTEMS FOR FIRE PROTECTIONS: 4 (Conclusion)

by Howard P. Vermilya, A.I.A.

Fig. 2 SPRINKLER LAYOUTS

Notes:
1. L not over 15 ft; S not over 15 ft; L X S = 130 sq ft or less
2. Sprinklers on alternate lines are staggered when S is over 12 ft; also for beam and girder construction

Open Wood Joist Construction

Where joists are framed into girders, the girders may be disregarded in the spacing of branch lines if they do not obstruct the sprinkler discharge pattern

Smooth Continuous Ceiling

Beam and Girder Construction

Sprinklers spaced without regard to beam spacing. Adaptable when sprinklers, located under beams or in bays, are at proper distances below beams and ceiling, and their discharge is unobstructed by beams.

Adaptable when depth of beams is suitable for sprinklers to be placed under them.

Adaptable when beams permit unobstructed discharge from the sprinklers

Drawings from Installing Sprinkler Equipment, Factory Mutual Engineering Division, Associated Factory Mutual Fire Insurance Companies.
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Part 1

Renewed interest in "bronze" as an architectural metal has prompted Anaconda American Brass Company to institute an educational program designed to give architects and engineers basic technical information on the architectural uses of copper and copper-base alloys. Since 1959, the program has included a series of meetings held in cooperation with local A.I.A. chapters across the country. Listed below, with answers by Anaconda’s architectural experts, are thirty questions on design considerations, finishes, fabrication and costs that are repeatedly asked by architects and engineers.

DESIGN

1. We understand that architectural bronze, red brass and Muntz metal are the three most commonly used “yellow metals” in architectural designs. Why three?

In order to produce a complete range of materials for architectural use, three alloys—architectural bronze, red brass and Muntz metal—are required. Extruded shapes are fabricated from architectural bronze. Muntz metal and red brass are used for most sheet applications because of their good color match with architectural bronze. Tubular shapes cannot be extruded: they are supplied as a rolled product in red brass. Where all three metals are employed in an architectural composition, the red brass is given a bichromate dip in order to produce an acceptable color match.

2. What is the composition of silicon bronze? For what architectural applications is it recommended, and why?

Wrought silicon bronze used in architectural applications has a nominal composition of 95.8 per cent copper, 3.1 per cent silicon, and 1.1 per cent manganese. Although this material is frequently extruded into simple structural shapes (angles, channels, tees) it is most often employed architecturally in sheet form. It is selected primarily because of its rich, reddish old-gold color, and is used mainly in applications where its natural beauty can be emphasized. Fireplace hoods and wall paneling are often formed from silicon bronze sheet, and because of its relatively high strength and good working properties, silicon bronze strip has recently been roll-formed to produce window sash and frame members at lower cost than bronze extrusions.

3. If copper alloys are in contact with dissimilar metals, is there a problem of galvanic action? If so, how is it solved?

Under exterior conditions where moisture is present, copper alloys in contact with dissimilar metals higher in the electromotive series (for example iron, aluminum or zinc) may cause galvanic corrosion of the dissimilar metal. In most cases, the problem can be overcome by painting the contact surfaces with either an asphalt base or a zinc chromate primer.

4. Can bronze and aluminum or bronze and stainless steel be combined for either interior or exterior work?

Bronze and aluminum can be combined safely for interior work where moisture conditions are not prevalent. They should never be combined for exterior work, since severe corrosion and eventual failure of the aluminum as a result of galvanic action will occur under exterior exposure condi-
Building Components

...tions. As an example, the wash of copper salts from a copper valley is sufficient to eat out an aluminum gutter.

With stainless steel the situation is much less critical, but under exterior conditions it is wise to isolate the two metals with a good primer.

5. In wrapping a copper alloy metal around steel, is there any chance of galvanic corrosion?

The problem is not acute, but it is a good idea on all exterior work to paint the steel with either an asphalt base or zinc chromate primer to insure isolation of the two metals.

6. Can staining of masonry from bronze work be controlled?

Yes. Where the bronze work abuts light-colored masonry, a drip edge should be provided to conduct the wash from the bronze away from the face of the masonry. In the case of face-mounted bronze letters, tablets, and so forth, staining can be minimized by mounting the letters or tablets about ⅜-in. from the face of the wall.

7. Are all the copper-alloy architectural metals available in all standard forms—sheet, rod, tubes, etc.?

No. For example, architectural bronze is available only in extruded shapes and rod. As mentioned before, Muntz metal sheet or red brass sheet and tube are used to complete an architectural composition which includes architectural bronze extrusions. A similar situation exists when nickel silver is incorporated in a design. Of the principal architectural metals, only copper and silicon bronze are produced in all forms. In both metals, however, extruded forms are limited to simple balanced shapes.

8. If a design incorporates rectangular or square tubes, angles, channels, bars and so forth, is there a wide range of standard sizes available?

A wide variety of standard shapes, both extruded and drawn, are available in the principal architectural metals, and can often be utilized almost exclusively in the development of original designs.

9. Is there a maximum size of extruded bronze shapes?

Extruded shapes are generally limited in maximum size to a cross section which can be enclosed within a circumscribed circle 6 in. in diameter. The largest shape extruded commercially is an I-beam with a maximum diagonal dimension of 7½ inches. A balanced cross section and a relatively heavy gage aid in the production of this shape.

10. Does bronze present the same problem of expansion and contraction as aluminum in panels and curtain walls?

In the design of all-metal curtain walls, regardless of the metal used, the panels should be able to expand and contract freely in order to avoid buckling or rippling of the metal. Because the yield strength of the copper alloys is, in most instances, higher than that of aluminum alloys used for similar applications, the copper alloys provide greater resistance to permanent deformation. Thus, the magnitude of the problem is reduced.

11. Has relatively thin-gage copper-alloy sheet metal been successfully bonded to steel, to plywood, to cement-asbestos board?

Yes. Copper-alloy sheet in gages up to .060 in. has been successfully bonded to sheet steel in order to provide increased rigidity. Electroformed copper (.0028 in. to .0098 in. gage) has been laminated, with good results, to both plywood and cement-asbestos board. To insure good adhesion, the base material of the surface be smooth and free of defects. In the case of cement-asbestos board, a micro-sanded finish is specified. Regardless of the backing material, the bonding is done under pressures approaching 1000 psi. Elevated temperatures may also be employed.

12. In using bronze castings with wrought bronze, how can we specify the casting composition to be sure of good color match?

If the casting alloy is specified as follows: copper 81 to 85 per cent, tin 2 to 3 per cent, lead 1.5 to 2.5 per cent, nickel 0.25 to 0.75 per cent, iron 0.35 per cent maximum, other elements 0.50 per cent maximum, zinc remainder, the color match with the wrought alloys should be acceptable.

FINISHES

13. Where would you use: (a) a polished finish, (b) a satin finish, (c) a scratch brush finish?

Because of the critical reflections produced by a polished surface, highly polished finishes in an architectural composition should be limited to highlights or used to accent small areas.

A satin finish is unquestionably the principal finish used on architectural metals. Its soft sheen is both pleasing to the eye and simple to maintain. It is used extensively on doors, windows, wall panels, and other applications which are close to the eye and thus undergo constant inspection.

A scratch brush finish is, like the polished finish, used chiefly as an accent.

14. Which material is best suited for exterior use from the standpoint of color and finish stability—Muntz metal or red brass?

Colorwise, for exterior use, red brass is favored over Muntz metal. Red brass, when allowed to weather naturally, attains a distinctive gray, blue-green patina. The Muntz metal on the other hand would tend to develop the characteristic deep gray-green patina associated with weathered statutory bronze.

Where color match is critical, Muntz metal in combination with architectural bronze would be best from the standpoint of color stability. Where protective coatings such as lacquers are applied, Muntz metal and red brass are equally stable.

15. What are your recommended specifications for developing an artificial patina on copper alloys? Also on pure copper such as roofing.

At present, two suggested methods for producing an artificial patina on copper have been published. These are commonly identified as the ammonium sulfate and the ammonium chloride processes. The ammonium sulfate process was developed during the 1930's in the laboratories of Anaconda American Brass Company. Frank Lloyd Wright employed the ammonium chloride process to produce the initial patina on much of the copper work incorporated in his designs. A third process utilizing a solution containing salts of arsenic and copper is proving successful, particularly in producing an artificial patina on weathered or oxidized copper.

Red brass, architectural bronze, and Muntz metal may also be artificially patinated using the same procedures as outlined for copper.

16. What effect does artificial coloring of bronze by acids have on the life of the metal?

The life of copper or copper alloys continued on page 282
New Advances in Insulating Plastic Foams

A new Styrofoam insulation board, which is self-extinguishing by ASTM D1692-59T (see photo far right), is expected to replace other forms of Styrofoam in many comfort and low temperature insulation applications. In addition to improved flame retardance, the new blue foam is said to exhibit better light stability and higher heat distortion than Styrofoam 33, Dow's previous flame-retardant polystyrene foam, which was sold at a slight premium. The new foam's properties and price will be competitive with "standard" Styrofoam 22. It will come in boards 9-ft long, 16-in. wide and 1, 1½, 2, 3 and 4-in. thick, and in the form of Scorboard, pre-scored perimeter insulation board. A 24-in. wide board will also be sold, but at a slightly higher cost.

A second recently-announced advance in insulating plastic foams is Thurane, a rigid urethane foam with high solvent resistance, high heat distortion, and low thermal conductivity. (The permanent "K" factor, its stability established by testing samples aged at 140°F for more than 700 days, is .16 to .17 at 70°F.) Because of this low thermal conductivity, thin sections of the new unicellular foam will provide the same thermal insulation as a greater thickness of conventional insulation. It can be used for both low and high temperature applications (see photo above), and has good resistance to water penetration and water vapor transmission. Dow Chemical Co., Midland, Mich.

Explosion-Proof Outlet and Plug for Hazardous Areas

Explosion and fire caused by sparks from electrical wiring devices can be prevented with a new Hubbellock plug-and-outlet that prevents arcing when connections are made or broken.

The plug is insulated with a self-hardening epoxy resin poured in when the cord is fastened to the terminals. Since the terminals and wires are thus embedded in a solid, watertight, vaportight mass, connections cannot loosen to cause sparking. And since no water can reach the wires or terminals, the plug and cord are impervious to moisture and can safely be washed when removed from the outlet.

The receptacle features a switch mechanism so keyed that electrical contact can be established only by the explosion-proof plug. The switches themselves are isolated in a safety chamber formed by the receptacle shell and a heavy casting.

The device is UL-approved for use in Class I, Group C and D, explosive atmospheres in industrial plants and hospital operating rooms. Harvey Hubbell, Inc., Bridgeport 2, Conn.

"Cook-It-Yourself" Electronic Cafeteria

Electronic ovens are whittling down in-plant feeding costs by making it possible for employers to provide a choice of three or four hot meals daily in a "cook-it-yourself" cafeteria with no kitchen, cooking utensils, or even steam tables.

Employees select from a refrigerated display case pre-cooked, frozen meals prepared by an outside commissary. The patron then places the meal on its disposable tray-dish into a Radarange microwave oven, and sets an automatic timer which has color-coded buttons to match the colored tape that seals the dinner into its transparent envelope. The average time required to heat a meal is about 60 seconds.

In addition to its obvious advantages to employees and cafeteria concessionaires, the "cook-it-yourself" system offers plant management reduced cafeteria space requirements, and reduced maintenance and utility costs. Radarange Dept., Raytheon Co., Waltham 54, Mass.

more products on page 236

ARCHITECTURAL RECORD March 1961 231
Manual of Lathing and Plastering
by John R. Diehl, A. I. A., is perhaps the most definitive work on the subject to date. Topics covered include: basic plastering materials, lathing and preparation for plastering, the application of plaster, an analysis of the various wall and ceiling systems and assemblies, functions and quality of plaster work, economics of lathing and plaster (with a basic cost index), acoustical and thermal characteristics, radiant heating, and fire resistance. Extensive photographs and detailed drawings, and more than 50 tables on such subjects as decibel ratings and fire ratings are also included. Mr. John K. Buster, Executive Director, National Bureau for Lathing and Plastering, 2000 K St., N. W., Washington 6, D. C.

Structural Aluminum Design
Hard cover edition includes tables of properties; applications and specifications; tables of maximum allowable stress values; high and low temperature properties; alloy data sheets; weight tables; and other pertinent information on load-carrying aluminum sections. 232 pp. Reynolds Metals Co., Dept. PR-42, Richmond 18, Va. *

High-Strength Bolting
Fall-Winter issue of Fasteners is devoted to high-strength bolting; covers bolting practice in the field, a new redesigned bolt, examples of successful applications in structural erection, shop fabrication, and specifications for structural joints using ASTM A325 bolts. 40 pp., §1. Industrial Fasteners Institute, 1517 Terminal Tower, Cleveland 13, Ohio

Toilet Compartment Catalog
Cutler Metal Products Co., Camden 3, N. J. *

Gabriel Loire Stained Glass
Illustrates designs in thick, sculptured colored glass set in reinforced concrete, executed by contemporary French stained glass artist Gabriel Loire. 20 pp. Loire Imports, Inc., 150 East 55th St., New York 16, N. Y.

Mercury Vapor Lamps
Describes, illustrates, and gives technical and photometric data on Wide-Lite line of mercury vapor lamps for interior and exterior use. Wide-Lite Corp., 4114 Gulf Freeway, Houston, Texas

Prestressed Roof Deck
(A.I.A. 4-K) Describes appearance of Flex-Tee prestressed, single stem roof deck; gives technical data on casting details, structural qualities and limits; describes placement; and shows representative uses of the member. 8 pp. Flexiforma, Inc., 1445 W. Quincy, Englewood, Colo.

Mississippi Glass

Standard Steel Specifications
Two new standard steel specifications, Specification and Loading Tables for Open Web Steel Joists (Longspan or L-Series) and Specification for Architecturally Exposed Structural Steel, have been released by the American Institute of Steel Construction, 101 Park Ave., New York 17, N. Y.

Operating Room Equipment
(A.I.A. 35-K-6) Catalogs, with illustrations and descriptions of construction features of each unit, a complete line of stainless steel operating room equipment. 20 pp. S. Bieker, Inc., 536 Gregory Ave., Weehawken, N. J.

Metal Curtain Wall Manual
Revised edition contains new sections on design principles, design data, testing, and installation in addition to updated reference standards and specifications. $3.50. National Assn. of Architectural Metal Manufacturers, 228 N. LaSalle St., Chicago 1, Ill.

Hot Water for Industrial Plants
Gives complete sizing data and installation instructions for water heating systems, and tips on estimating hot water requirements for plant cafeterias, laboratories, processes and laboratories. Specifications and application data on Smith line of industrial water heaters are also included. Manual CH-110, 100 pp. Permaglas Div., A. O. Smith Corp., Kankakee, Ill. *

Terrazzo and Mosaics
(A.I.A. 23-E) Information kit gives data and specifications on standard terrazzo and mosaic, conductive terrazzo, outside terrazzo, monolithic terrazzo, terrazzo over radiant heating installations and terrazzo maintenance; information on divider strip location; methods of restoring conductive terrazzo; resiliency test findings; and an NTMA membership list. National Terrazzo and Mosaic Association, 2000 K St., N.W., Washington 6, D. C.
*Additional product information in Sweets Architectural File more literature on page 270
**WHATEVER YOUR CABINET OR CASEWORK REQUIREMENTS...**

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Bonus Line
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DESIGNED TO...

- eliminate hazards to people and property
- eliminate need for individual ballast fusing
- eliminate leakage
- provide longer ballast life
- be interchangeable with standard models

WITH NO SACRIFICE IN SOUND PERFORMANCE!
General Electric proudly announces new Bonus Line fluorescent ballasts, designed to offer you—for the first time—full protection against the hazards sometimes associated with ballast end-of-life failure.

This new ballast design, available in most popular ratings for indoor commercial and industrial applications, features two outstanding new General Electric developments that make it safer than standard ballast designs:

1. A new Thermal Protector has been developed and tested for several years in General Electric laboratories. The Thermal Protector de-energizes the ballast before it reaches the critical internal temperatures at end of life that cause ballast filling compound to soften or melt. This non-resetting Thermal Protector completely eliminates any need for individual ballast fusing.

2. A newly developed, two-way improved General Electric capacitor features a unique Thermal Link designed to overcome capacitor rupture and leakage which sometimes occur at end of life. Also, the new capacitor has a new bushing assembly which contributes to longer ballast life.

New Bonus Line ballasts are dimensionally, thermally, and electrically interchangeable with standard General Electric ballasts of same ratings. They meet—and, in certain respects, exceed—all appropriate industry standards. And you get all these ballast added values without sacrifice in sound performance. General Electric ballasts are still the quietest ballasts available!

In short, new G-E Bonus Line ballasts give you added years of safe, reliable, quiet performance. They're engineered to eliminate leakage, smoke—even the more violent conditions which sometimes occur at end of normal ballast life.

Your General Electric ballast sales engineer will be proud to give you full information on new G-E Bonus Line ballasts for your lighting applications. Contact your nearby G-E sales office or write for Bulletin GEA-6912 to Section 463-01, General Electric Co., Danville, Illinois.
Italian Wall and Floor Tile
A complete line of ceramic wall and floor tiles, made by Richard-Ginori of Milan and now being distributed in this country at prices competitive with conventional tile, includes embossed glazed tiles, and hand screen-printed glazed and matte tiles and special panels. The embossed tiles feature subtle “architectural” patterns and transparent colors; the printed tiles, screen-printed under glaze and hand-blocked, feature a variety of patterns in permanent colors and finish. The special panels are “mural prints” made up of hand-painted, hand-finished tiles. Theodore Bialek & Co., Inc., 350 Fifth Ave., New York 1, N. Y.

Compact Diesel Electric Sets
Three new Cat diesel electric sets offer high standby generating capacity for emergency power supplies from a small package. A turbocharger, standard equipment on all three models, increases power output, and to pull still more horsepower from the same package, the engines are also available with optional aftercoolers. Smallest of the three new “compacts” is the D320 Series A, which measures 40 in. long by 28 in. wide by 35 in. high and produces 50KW. The larger models are the 70KW D330 which measures 45 by 31 by 39 in., and the 100KW D333 which measures 58 by 31 by 39 in. Engine Div., Caterpillar Tractor Co., Peoria, Ill.

Decorative Luminous Ceiling
A new decorative treatment for luminous ceilings consists of a grid suspended from “sky hooks,” and Ply-Grilles made up of wooden grills backed by plastic. The grill is installed by screwing the “sky hooks” into transverse moldings, nailing the other end of the sky hook directly into the ceiling beams, and dropping longitudinal sections of molding into the transverse grid members. The Ply-Grilles, which come in 15 1/2-in. widths and 23 1/2, 48 or 72-in. lengths, are then set in place above the completed grid. They may be suspended from 1 to 7 in., depending on the type of lamps used. Jaffre Products Co., 189 First St., Brooklyn 15, N. Y.

CONSTRUCTION DETAILS
for LCN Overhead Concealed Door Closer Shown on Opposite Page
The LCN Series 200 Closer’s Main Points:
1. Efficient, full rack-and-pinion, two-speed control of the door
2. Mechanism entirely concealed; arm disappears into door stop on closing
3. Hydraulic back-check prevents door’s being thrown open violently to damage walls, furniture, door, hinges, etc. Door may open 180°, jamb permitting
4. Hold-open (optional) set at any one of following points: 85°, 90°, 100° or 110°
5. Easy to regulate without removing any part
6. Used with either wood or metal doors and frames

LCN CLOSERS, INC., PRINCETON, ILLINOIS
Canada: LCN Closers of Canada, Ltd., P. O. Box 100, Port Credit, Ontario
Modern Door Control by LCN
Closer Concealed in Head Frame

GREAT LAKES REGIONAL SALES HEADQUARTERS
BUILDING, REYNOLDS METALS COMPANY
DETROIT, MICHIGAN

Minoru Yamasaki & Associates, Architects

LCN CLOSERS, INC., PRINCETON, ILLINOIS

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

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

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

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

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ARCHITECTURAL RECORD  March 1961  239
We expect these diffusers cast of Du Pont MONOCITE to keep their beauty for the life of the fixtures

Says Roy Duncan, superintendent of New York's new Deering Milliken Building. "The assignment was to get the 'most exciting ceiling in New York' for our first three floors. So the architects designed the checkerboard layout and specified diffusers that are cast from Du Pont MONOCITE.

"These panels were selected because they diffuse the light perfectly, maintaining maximum efficiency for years. They disguise the presence of fluorescent tubes and can be used in larger areas than other types.

"Also, they're extremely durable and easily cleaned, which keeps our maintenance problems at a minimum. We expect these diffusers**, cast by The Polycast Corp. of Stamford, Conn., to last the life of the fixtures. It's obvious why we recommend them highly."

It will pay you to find out how Du Pont's customers are using Du Pont MONOCITE to produce lighting-fixture shields that will give you outstanding service with a minimum of maintenance. For more information, write: E. I. du Pont de Nemours & Co. (Inc.), Dept. AR-3, Room 2507 M, Nemours Bldg., Wilmington 98, Delaware.

*Trademark for Du Pont's methacrylate monomer
**Flat Polycast acrylic sheets
SPECIAL ALLOY STEEL spring hinges run horizontally and are spaced 14-7/10" apart. Panels come together quietly, flat and compact.

Prospective tenants welcome the textural warmth PELLA WOOD FOLDING DOORS impart to brick, tile, glass and plaster surfaces. Installed as space dividers in apartments, motels and hotels, these fine doors combine privacy-at-will with the natural beauty of 6 rich wood veneers. You may specify PELLA FOLDING DOORS factory finished or unfinished. Patented "live action" steel spring hinging assures dependable, effortless operation for even the largest units. Solid wood "Lamicor" construction prevents warping. Available for any width and in heights up to 12' 1", PELLA WOOD FOLDING DOORS arrive factory assembled. Full specifications can be found in sweet's Architectural Catalogs. Consult the classified telephone directory for name of your nearest U.S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.

6 FINE WOOD VENEERS • AMERICAN WALNUT • PHILIPPINE MAHOGANY • WHITE ASH • BIRCH • OAK • PINE

PELLA ALSO MAKES QUALITY WOOD FOLDING PARTITIONS, CASEMENT AND MULTI-PURPOSE WINDOWS, ROLSCREENS AND WOOD SLIDING GLASS DOORS
Design for beauty and utility with an eye to economy, too...

Check the benefits your clients get when your design includes cloth towel cabinets in all washrooms.
☐ An end to litter, storage and disposal problems.
☐ Reduced maintenance and janitorial costs.
☐ Fewer plumbing repairs.
☐ Elimination of fire hazard.

One of your local Linen Suppliers will gladly install and service these units at modest cost. And, from then on, each washroom will be kept supplied with fresh, clean cotton toweling automatically. And, remember—your specification does not obligate your client to any particular service.

For complete information, write to Linen Supply Association on your letterhead for this free Planning-for-Cloth Kit. Fully illustrated, it includes specifications for all continuous cloth towel cabinets.

A typical recessed cabinet is this handsome model in 22 gauge, satin-finished stainless steel. It has continuous piano hinges, tumbler locks and ample storage space.


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One of your local Linen Suppliers will gladly install and service these units at modest cost. And, from then on, each washroom will be kept supplied with fresh, clean cotton toweling automatically. And, remember—your specification does not obligate your client to any particular service.

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For complete information, write to Linen Supply Association on your letterhead for this free Planning-for-Cloth Kit. Fully illustrated, it includes specifications for all continuous cloth towel cabinets.
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PELLA ALSO MAKES QUALITY WOOD CASEMENT WINDOWS, WOOD FOLDING DOORS AND PARTITIONS, ROLSCREENS AND WOOD SLIDING GLASS DOORS

ARCHITECTURAL RECORD  March 1961  243
In many locations, the use of regular terrazzo for floors, stairs and ramps is impractical because water or other liquids may cause the walking surface to become slippery and dangerous.

But you can safely use terrazzo indoors or out — and at the same time provide permanent walking safety — by specifying an ample quantity of Norton ALUNDUM Aggregate in the terrazzo mix. The resulting surface is non-slip, wet or dry, retains its initial beauty indefinitely and is exceptionally resistant to wear.

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- largest, most lavish co-operative apartment west of Chicago
- occupying an entire square block on plush San Francisco Nob Hill
- LUMA-SHEEN will add the finishing touch of refinement to the Comstock's elegant decor.

Initiated with the largest loan in San Francisco building history...16 levels...193 apartments, almost all of them balconied with panoramic vistas to the Golden Gate, San Francisco Bay and wooded hills beyond...a garden-lobby with porte-cochere...a tree-shaded garden sundeck high above city streets...all possible mechanical and personal conveniences...five penthouses surrounded by five tree-shaded terraces. This is luxury where EVERYTHING HINGES ON HAGER!

Hager LUMA-SHEEN hinges are specified. The original permanized aluminum-colored finish, that matches perfectly the modern aluminum door hardware and trim.

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Developed by: ALBERT-LOVETT CO., San Francisco
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Hardware: California Builders Hdwe Co., San Francisco.

Luma-Sheen finish
Available...on Brass or Steel Butts-Specify LS

Comstock recognition of the beauty and permanence of LUMA-SHEEN finish, caps the climax of 6 years of nation-wide acceptance.

Its electrolytic finish has the true aluminum color...permanized. It's been proved in practically every conceivable situation.

When you want it to stand up to the test of time—specify Hager LUMA-SHEEN (symbol LS) on that next job!

C. HAGER & SONS HINGE MANUFACTURING COMPANY, ST. LOUIS 4, MO.
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Put COLOR in WALLS... not on them!

18 standard and 26 accent colors of SPECTRA-GLAZE on standard concrete block shapes give you the most economical method of building beauty and permanence into your walls. The aesthetic touch of random patterns or murals go into the wall as it's laid, whether partition or loadbearing. The new ¼" thick face, resulting from 12 years of Burns & Russell research, retains its colorful and maintenance-free properties from the satin surface deep into pores of the block.

To designers, this combination of properties means:

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VERSATILITY modular dimensions; many standard shapes, some of which are shown below; thicknesses 2" to 12" for partitions and loadbearing walls without back-up.

AVAILABILITY 27 licensed manufacturers with distributors in principal metropolitan areas.

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

Glazed concrete masonry units

THE BURNS & RUSSELL COMPANY, Box 6063, Baltimore 31, Maryland

Manufactured in 27 cities and distributed throughout the U. S., Canada and England

* Registered trademark for the product of THE BURNS & RUSSELL COMPANY
Box 6063, Baltimore 31, Maryland
Concrete folded plates in new Florida school

Precast concrete folded plates gave the State of Florida something new in school construction. The simplicity of this pleasing geometric concrete design made it possible to complete the project in the 10 months allowed and to stay within the school district budget. The result is a sturdy fireproof structure for some 600 pupils, that will require little or no maintenance.

In the manufacture of the precast folded plates and supporting columns, Concrete Structures, Inc. used Lehigh Early Strength Cement for maximum production efficiency. Units were removed and forms were ready for reuse in less than half the time required with normal cement.

For modern concrete construction, either precast or cast-in-place, chances are Lehigh Early Strength Cement can save time and money.


Owner: Dade County Board of Public Instruction
Architects: Robert B. Browne
George F. Reed, Associate
Design Engineer: Walter C. Harry
Consulting Engineer: H. J. Ross Associates
Contractor: Stobs Brothers Construction Co.
All of Miami, Florida
Precast Concrete: Concrete Structures, Inc., North Miami, Florida
Announcing the breakthrough in floor tile that will shake the flooring world... now there is no "or equal"

Turn the page...
Through Research... A Technological Triumph...
Matico Polymerite™...A New Concept in Floor Tile

**Grease Resistant...Stain Resistant...Flame Retardant...Priced Competitively**

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

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

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

12 REASONS...

WHY IT PAYS YOU TO SPECIFY CINCINNATI CLOCK AND PROGRAM SYSTEMS

Only Cincinnati Time Recorder offers you all these features. It pays to compare...but it pays more to specify Cincinnati Clock and Program Systems because you get:

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6. 12 hour spring reserve power...for continuous operation throughout line power failure.

7. Plenty of power...controls an unlimited number of secondary clocks.

8. Engineered simplicity...for lower installation cost and minimum service.

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10. All switches enclosed (dust and moisture free) snap-action type rated at 15 amps.

11. Rugged, U.L. Approved Construction...for safe, long life.

12. Nationwide service...more than 150 service locations.

Call your Cincinnati representative for a discussion of your particular application. Or, write for our Time Systems Handbook...an easy reading guide to good equipment.
The secret's in the resin! Here's a new, invisible protective shield for wood doors. A shield that resists scuffs, stains, hard wear—and enhances the beauty of the wood itself. It's called Tigaclad.

A special thermosetting sheet, impregnated with a unique new resin, is bonded by heat and pressure to the door faces. The process is dry. The resin actually fuses with the wood, becomes part of it.

Tigaclad meets or exceeds N.E.M.A. standards for decorative laminates—wear, scrubbing, boiling water, stains, even cigarette burns!

Best of all, Roddis Tigaclad Doors cost less than high-pressure laminated doors! And you get genuine wood veneers, not wood grain prints.

Tigaclad Paneling! You can specify beautiful Roddis genuine wood panelings Tigaclad protected, too—in all the most popular woods. Send coupon for details on Roddis Tigaclad products.
These diffusers have

- Narrow-flange model for side-wall, soffit, or sill installation.
- Wide-flange model for floor installation—with adjustable core.
- Standard models include choice of 5° or 15° air deflection—can be installed to deflect air up or down.
- Horizontal adjustment of air pattern to right or left is optional in wide-flange model.
beauty plus “brains”

... only Barber-Colman continuous-line air diffusers have the exclusive Uni-Flo engineered core that provides truly controlled air distribution.

A continuous-line diffuser has to do more than attractively cover the air duct opening in a sidewall, soffit, sill, or floor. Correct air diffusion involves control of aspiration, pattern, direction, and sound.

The exclusive core design of Barber-Colman Uni-Flo continuous-line diffusers assures rapid diffusion and high rate of aspiration. It eliminates the drafts and discomfort which can result from grilles which simply “pour” a stream of air into the room. Barber-Colman diffusers are guaranteed to perform in accordance with published laboratory performance data and to deliver results that meet human comfort requirements.

The diffusers are available with attractive narrow- or wide-flange aluminum frames in anodized or baked enamel finishes. Either aluminum or steel cores are available.

The Model ST narrow-flange model, especially suited to under-the-window installations, and Model STW wide-flange model for sill, sidewall, soffit, or floor installations are both available in 1½” through 6” heights in increments of ¼”. Model STWA wide-flange diffusers with adjustable core are supplied in heights from 2” to 12” in increments of 1”.

Complete information and prices upon request. Consult your Barber-Colman Air Distribution field office or write direct.

Barber-Colman Company
Dept. C, 1104 Rock Street, Rockford, Illinois

ARCHITECTURAL RECORD March 1961 255
with the magic "wonder bar"

presto! .. reverse "wonder bar" and you have 20% extra capacity

HERE is garment-checking at its very best. Borroughs "Century" Check Racks offer many outstanding features including the exclusive, suspended "wonder bar" which can be used on the reverse side, or the top, to increase hanger capacities. "Century" Check Racks come in a choice of starting units, double-face units, add-on units and wall models. And Borroughs' special numbering system adds ease and speed to safe, uncluttered garment-checking.

Borroughs Manufacturing Company
A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT
3082 North Burdick St. Kalamazoo, Michigan

Send for literature
See Sweet's Catalog—23d-BO

Sanitary! Strong! Efficient! You can assemble any size cooler, freezer or combination in any shape from standard sections. Add sections to increase size as your requirements grow. Easy to disassemble for relocation.

ARCHITECTS: see 8 pages of engineering data in Sect. 26/A of Sweet's Catalog.

Bally Case and Cooler, Inc., Bally, Pa.
Get details—write Dept. AR #3 for FREE book

NEW! x-acto
ARCHITECT'S KNIFE

* Famous X-acto "Interchangeable Blade" Knife Features! Just "twist the chuck" and insert new blade. Takes 3 styles of blades.
* So Safe! "SEE-THRU" reveals the blade.
* Convenience! Clips to pocket. Carry it with you.
* Easy To Use! As maneuverable as a ball point pen.
* Always Sharp! Low cost X-acto "Refill Blades" keep your X-acto always sharp... always ready.

Available at art supply, stationery and hobby stores. Write for literature on complete line of knives and blades.

HANDICRAFT TOOLS, INC.: Division of X-acto, Inc.
48-413 Von Dam Street, Long Island City 1, N. Y.
CREATE TIMELESS BEAUTY
AT LOW COST with Stainless Steel

This unique light diffuser is typical of the effective use of stainless steels in contemporary architecture.

The luster of stainless harmoniously contributes to the richness and dignity of the unit as well as the surroundings. Strength of stainless steel permits design of large and complicated components without encumbering mass. Hardness and unexcelled corrosion resistance of stainless steel assure low maintenance and durability of the beauty you create. And stainless steel is economically formed by modern fabricating methods.

Throughout the buildings you design — for exterior and interior applications, for standard building components or custom units — consider the architectural advantages of Armco Stainless Steel. Write us for your free copy of "Armco Stainless Steels/for Architecture," a design and specification manual helpful in making most effective use of stainless at least cost. Armco Division, Armco Steel Corporation, 1491 Curtis Street, Middletown, Ohio.
A new concept of convention center elevatoring for magnificent COBO HALL

Convention hall elevatoring has its own special problems. And for Detroit's vast new Cobo Hall, where it is said no foreseen convention is too large to handle, there were some special special problems.

Here's how they were solved by a specialized system of Haughton electronically controlled elevators.

Designers knew that before and after scheduled events, building traffic would mean a heavy demand for elevator service between parking areas (basement, first and roof floors) and second floor. At other times, comparatively light traffic could be expected between all floors.

Five Haughton automatic units were installed. Cars are big—six feet deep and eight feet wide. A bank of three serves basement, first, second and roof levels. Two cars serve first, second and third floors for lesser traffic needs. All units are motivated by an amazing "electronic brain" that anticipates service needs and dispatches cars at proper time and in proper sequence.

The complete reliability of Haughton vertical transportation is thoroughly recognized by building professionals and owners. We will be glad to provide you with complete information on Haughton design, modernization and maintenance capabilities.

*Haughton's advanced program in elevator systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance.
Only the thermostat on the wall senses temperature the way people do

The famous Honeywell Round is so sensitive, it reacts to changes in temperature before people do—so accurate it calls for just the right amount of heating or cooling needed to maintain the temperature selected. Conveniently located on the wall, it is easier to read and adjust.

Whatever your temperature control needs, Honeywell can satisfy them best, because only Honeywell offers all three types of control systems—pneumatic, electric and electronic. For details, call your nearest Honeywell office. Or write Honeywell, Minneapolis 8, Minnesota.
In any doorway, Kinnear provides an unbeatable combination of lower door costs, extra protection and higher efficiency. Kinnear's upward-acting curtain of interlocking slats (originated by Kinnear!) coils compactly above the opening. All space around doorways is fully usable at all times. The curtain opens completely out of the way, closes to give you a rugged all-metal curtain of protection against wind, weather, fire, and vandals. 50 years and more of continuous, daily, low-maintenance service have been recorded for many Kinnear Rolling Doors. They're also REGISTERED — all parts of every Kinnear door can always be accurately duplicated from master details kept permanently in fireproof vaults. Get all these Kinnear Rolling Door benefits and more; write for this new 1961 catalog.

The KINNEAR Manufacturing Co.
FACTORIES: 1860-80 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, California
Offices and Agents in All Principal Cities

Your New 1961 Data on...

Kinnear Rolling Doors

Pipe Railing System
Connectorail, a complete system of wrought aluminum fittings, permits economical construction of flush-type pipe railings without welds or exposed fasteners. Easier assembly and greater economy are achieved through the elimination of welding operations. All components for the system are available both for 1¼-in. and 1½-in. pipe, and are furnished with smooth mill finish or etched and anodized. Julius Blum & Co., Inc., Carlstadt, N. J.

Translucent Curtain-Wall Panel
A prefabricated, translucent, insulating curtain-wall panel provides U-factors ranging from .19 to .26. The Condo-lux panels consist of fiberglass reinforced skins with an air-insulating core. Ribs in the exterior skins are fluted; interior ribs are V-type, spaced to match exterior ribs. Fiberglass boards are used as structural shear members between the skins and are bonded to the inner surfaces at the ribs. The panels are easy to handle and installation is accomplished with simple hand tools. They are adaptable to all types of building framing and are available in a variety of colors. Dresser-Ideco Co., 875 Michigan Ave., Columbus 15, Ohio
This unit ventilator brings air conditioning within reach of almost any school budget!

Schools in every section of the U.S. — more than 661 of them — are now equipped with Herman Nelson HerNel-Cool “now or later” year-round air conditioning systems.

Construction costs for these schools have ranged all the way from $8.00 per sq. ft. to $21.00 per sq. ft.

For the most part, construction costs in these same areas were as high or higher for schools not equipped with Herman Nelson “now or later” systems! And now turn the page to see one of the many schools equipped with year-round Nelson air conditioning.

*HerNel-Cool III Unit Ventilator. Classic architectural styling. Efficient engineering design.*
Parents' reaction to school air conditioning: “We love it!”

Mothers' Club President
Gilson Brown Elementary School
Alton, Illinois

According to Dr. J. B. Johnson, Superintendent of Schools (see inset), air conditioning has created a better working atmosphere for teachers and students at Gilson Brown School. He feels there is less lost motion and a much improved learning situation.

In 1960, before the American Association of School Administrators, Dr. Johnson had this to say about his experience with school air conditioning: “I have reached the following conclusions concerning (school) air conditioning in the Midwest:

1. Teachers and students expend less nervous energy in an air conditioned room and are capable of doing better academic work. This is not a result of mathematical calculation, it is a matter of professional judgment.

2. Teachers are capable of doing better teaching. There are fewer disciplinary problems.

3. Student enrollment for summer school has doubled. This is a voluntary tuition course. If the opinions of the pupils, parents, and teachers are to be respected, we may assume that they are confident that they can do satisfactory work during the summer months.”
School officials and parents in Alton, Illinois are enthusiastic about school air conditioning. They’ve witnessed the encouraging effects of a Herman Nelson year-round system on students, teachers, and the city’s educational program.

And now they know that the cost of installing and operating air conditioning is greatly minimized when a school is designed expressly for it. The cost of this beautiful, completely air conditioned school: 32,000 square feet at only $13.51 per square foot. What’s more, air conditioning, heating, and ventilating costs were just $2.17 per square foot, or less than many “heat only” schools in this same area!

Air conditioning permitted Alton architects Keeney and Stolze to plan a more compact school with many cost-saving design variations. However, design economies didn’t reduce working space or detract from its beauty. There are 13 classrooms, two kindergarten rooms, administration suite, health room, counseling room, multi-purpose room with stage, four large ceramic-tiled rest rooms and a teachers’ lounge. Exterior finish is brick and ceramic tile facing.

Gilson Brown School is kept at maximum comfort levels throughout the year by a Herman Nelson HerNel-Cool unit ventilator system. Classroom air conditioning unit ventilators, packaged liquid chiller, and related refrigeration equipment are reliable Herman Nelson products.

"We love it."
"People now are really proud to say, 'That’s where my child goes to school.'"

These comments were made by Mothers’ Club officials at the completely air conditioned Gilson Brown Elementary School. Sensitive year-round room temperature control is provided on a room-by-room basis by Herman Nelson HerNel-Cool Unit Ventilators. In the winter, HerNel-Cool Units provide heating and fresh-air ventilation as classroom conditions require, and in the summer these same units provide accurate cooling and humidity control.

Principal F. W. Pivoda says air conditioning has proved to be a meaningful “fringe” benefit to teachers. In fact, several teachers have requested transfers to Gilson Brown School. Mr. Pivoda also feels that the cleanliness (no dust or stoker dirt) is responsible for a “custodianship pride” about the school. Even students ask to stay indoors during play periods on warm September and October days. Air conditioning permits teachers to keep windows closed, thus eliminating dirt, odors, and distracting outdoor noises.

For more information on school air conditioning write: Herman Nelson School Air Systems Division, American Air Filter Company, Inc., 215 Central Ave., Louisville, Ky.
EFFECTIVE USE OF SPACE AND TIME

as practiced at VAN KEUREN, DAVIS & COMPANY, Architects and Engineers, Birmingham, Alabama

The studied utilization of space in the offices of Van Keuren, Davis & Co. reflects a concern for economy and simplicity of design which has been a key factor in the success of this noted Birmingham firm. Clients are impressed by the smoothly functioning office, which relies on its Dodge Reporter to help maintain an efficient communications network so necessary to uninterrupted work flow.

Van Keuren, Davis & Co. considers Dodge Reports the most effective and economical way of "getting the word around" to contractors and suppliers, and are impressed by the attention they command throughout the industry.

Competent bidders are informed at just the right time by this daily construction news service . . . helping to eliminate costs of additional publicity and extra administrative work on the architect's part. Dodge-informed salesmen are better prepared to discuss specific projects of current interest . . . are often able to offer timely suggestions on new products and services.

Together with plans and specifications filed in Dodge Plan Rooms nearest construction sites, the Reports help establish a broader bidding and quoting base . . . expedite contract awards, buying decisions and building.

Van Keuren, Davis & Co. sums up a profitable relationship by saying: "The Dodge Reporter is always welcome here" . . . further confirmation that DODGE REPORTS ARE A VALUABLE COMMUNICATIONS LINK BETWEEN THE ARCHITECT AND THOSE WHO SERVE HIM.
Raypak hot water system for apartment houses

All three, or any combination of two, from a single Raypak money-saving package to meet every hot water requirement.

In today's compact planning, space for major equipment is at a premium, but now, all your hot water heating requirements can emanate from one compact package, purchased from one source, with less initial cost than a separate water heater, pool heater and central heating boiler.

- 1 Gas Line instead of 3
- 1 Vent instead of 3
- Pool Heater at 1/2 normal cost
- Saves 30% floor space
- Less piping
- Less BTU capacity to do the job

This is why the Raypak "All-In-One" system has received such enthusiastic welcome among apartment house owners. It consists of one Raypak boiler, one Raypak glass lined 10 year warranty A.S.M.E. Storage Tank, one copper immersion coil for tank and one lifelong indirect water heater . . . a single, indirect package system.

In addition to outstanding overall economy, the Raypak package system is unequalled in quality. It includes the latest engineering advances, requires less maintenance and gives longer life because of its indirect heating design.

Raypak COMPANY, INC.
Engineers-Manufacturers
P. O. BOX 41 - EL MONTE, CALIFORNIA

MEMBER BHC
BETTER HEATING - COOLING COUNCIL

ARCHITECTURAL RECORD March 1961 267
For practical as well as esthetic reasons, more and more architects are turning to redwood for public buildings. Redwood's warm, inviting appearance gives no hint of its other exceptional qualities—its high insulating value and its indifference to the elements, for example. In this suburban civic center popular saw-textured redwood is judiciously used both outside and in.

Write to Dept. A-2 for your copy of "REDWOOD HOMES—Ideas from Architects' Own Homes."

The California Redwood Association coordinates the research, forest management, grading and consumer service activities of these member mills: UNION LUMBER COMPANY
All the wonderful warmth of wood is best expressed in redwood.
MR. ARCHITECT:
Add a Valuable Man to Your Staff . . .
Your Raynor Distributor . . .
Offers You NATIONWIDE
Consultation...Installation...Service

CONSULTATION
Your Raynor Distributor will help you in
writing specifications, providing complete
details for closing any opening, as well as
assisting in any design, mechanical or
construction problem.

INSTALLATION
Factory trained installation men . . . craftsmen who are
specialists in the installation of
overhead type doors, assuring lasting
satisfaction to you and your client.

SERVICE
A nationwide organization that
works together . . . your guarantee
of fast, dependable service, no matter where
the location may be.

. . . Of utmost importance, with RAYNOR
DOORS, you have a quality product that will
provide a lifetime of continuous dependability.

RAYNOR SECTIONAL OVERHEAD TYPE DOORS
Wood • Aluminum • Steel • Electronic Operators

RAYNOR MFG. CO.
Dixon, Illinois Hammonton, New Jersey
Builders of A Complete Line of Residential,
Commercial and Industrial Type Doors

Office Literature

Weatherstripping by Zero
(A.I.A. 35-P-6) Presents full-size il-
lications, installation details, and
ifications on Zero line of extruded
uminum and bronze weatherstripp-
ing. 28 pp. Zero Weather Stripping
Co., Inc., 459 East 136th St., New
York 54, N. Y.∗

Mercury Lamps
Contains information on light output,
life ratings, and electrical and physical characteristics of mercury
vapor lamps; and describes lamp con-
struction, designations, color rendi-
tion and necessary auxiliary equip-
ment. 28 pp. Lamp Div., Westing-
house Electric Corp., Bloomfield,
N. J.∗

Glass for Construction
(A.I.A. 26-A) Covers complete line of
plate and sheet glass, insulating
glass, and patterned glass for use in
building. Complete selection and
specifying information is included.
32 pp. Libby-Owens-Ford Glass Co.,
811 Madison Ave., Toledo 3, Ohio∗

Rilco Laminated Wood Products
(A.I.A. 19-B-3) Gives technical data,
tables of dimensions, connection de-
tails and installation photos on such
laminated wood members as arches,
beams and purlins, trusses, deck,
formwork and special products. 20
pp. Weyerhaeuser Co., Rilco Lami-
nated Products Div., W-818 First Na-
tional Bank Bldg., St. Paul 1, Minn.∗

Movable Interior Walls
(A.I.A. 35-H-6) Brochures on Signa-
ture and Delineator movable wall sys-
tems contain complete product details
and specifications, suggested applica-
tions and installation photos. E. F.
Hauserman Co., Advg. Dept., 5711
Grant Ave., Cleveland 5, Ohio∗

Davidson Architectural Porcelain—
. . . the Modern Building Material
shows examples of decorative uses of
architectural porcelain, and the spe-
cial effects obtainable with color,
surface texture and embossed de-
signs. 12 pp. Davidson Enamel Prod-
ucts, Inc., 1104 East Kibby St., Lima,
Ohio∗

∗Additional product information in
Sweets Architectural File
more literature on page 274
Completed in 1951, this Alcoa building was the first in the world to use Adlake reversible aluminum windows. Now, ten years later, it stands as a monument to the good judgment of the men who insisted on Adlake economy of quality. All 2,136 of the Adlake windows supplied revolve effortlessly. Weather seals are still tight. Appearance remains like new in all respects. Cost of maintenance—except for routine cleaning—has been nil. (Even this expense is small due to the nature of the fenestration.) And, because all window-cleaning has been done from inside the building, excessive insurance rates for window cleaners have been eliminated.

To assure economy of quality for your clients, specify Adlake. Insist upon Adlake. For further information, contact your nearby Adlake representative or write The Adams and Westlake Company, Department L-2103 Elkhart, Indiana.
New general offices of Swanson Brothers in Omaha, Nebraska. Air-conditioned efficiently and economically by gas-operated Carrier absorption refrigeration. Architects and Engineers: Leo A. Daly Company. Mechanical Contractor: J. J. Hanighen Company, Both of Omaha, Nebraska.
Swanson insures low operating costs with GAS and CARRIER absorption refrigeration

Swanson Brothers — nationally known in the foods industry — chose gas-operated Carrier absorption refrigeration to air-condition their beautiful new general office building in Omaha, Nebraska.

The basis for their choice was lower operating costs, with the unbeatable fuel economy of gas and the simplicity and trouble-free operation of the Carrier absorption unit. With no major moving parts, it quietly and efficiently uses steam from a gas-fired boiler to provide chilled water for cooling.

Carrier has solved the problem of sustained efficiency at partial loads in absorption cooling. An exclusive Carrier solution-capacity-control gives partial load efficiency unsurpassed by any other type of cooling system.

You can keep air conditioning costs low and efficiency high, with gas-operated Carrier absorption refrigeration. For details call your local Gas Company, or write Carrier Air Conditioning Company, Syracuse 1, New York. American Gas Association

FOR HEATING & COOLING GAS IS GOOD BUSINESS!

Trouble-free is the word for this 140-ton capacity gas-operated Carrier absorption unit at Swanson building. Says Wendell Mitchell, Building Engineer, “I really think this system is great. All I have to do is check it now and then. Never a bit of trouble.”
EGSCO® Metal Panels with COLORGARD adorn the pictured suburban department store in three applications.

**THE ARCHED MARQUEE**

attractive in its simplicity is also a low cost architectural feature because the aluminum panels, protected and finished with durable, stable Colorgard, are factory-curved to conform to the architect’s design. They are quickly erected securely in place, requiring few man-hours.

**THE PENTHOUSE CURTAIN WALLS**

are EGSCO Shadowall® insulated panels with bold, vertical architectural lines on the exterior, flat surface interior, both finished with Colorgard, in colors specified. EGSCO Wall Panels are designed for fast, low man-hour erection without visible fasteners or laps to mar their inherent architectural beauty.

**THE LOUVERED AIR CONDITIONER SCREEN**

is formed of uninsulated Shadowall Panels, blending smoothly with the architectural motif.

Architects & Engineers:
Thalheimer & Weitz, Philadelphia
General Contractors:
McCullough-Howard, Inc., Philadelphia

COLORGARD is baked-on epoxy enamel of superior automobile finish quality. It is weather-enduring and color-stabilized. It cleans and retains its shimmering newness year after year. If desired in later years, it may be repainted with a new color without further priming. EGSCO Panels in Colorgard are protected during transit and erection by PEELCOTE a strippable plastic coating.

For complete information see Sweet’s Architectural file 3a/Sm, or contact the nearest EGSCO office.

**Office Literature**

**Geyser Grid System**

(A.I.A. 17-A) Gives recommended design procedure, detail on all principal sections, panel data and specifications on Geyser Grid System for windows and curtain walls. Information on new neoprene gasket sealing system is also included. 16 pp. E. K. Geyser Co., 915 McArdle Rdwy., Pittsburgh 3, Pa.*

**Air Conditioned Schools**

You Can Air Condition Your New School—And Cut Building Costs compares plans of air conditioned and conventional schools; discusses costs, advantages and design considerations. 20 pp. Commercial Div., Minneapolis-Honeywell, 2747 S. Fourth Ave., Minneapolis 8, Minn.*

**Building Code Requirements**


**Sound Absorption Coefficients**

... of Architectural Acoustical Materials lists data on noise reduction coefficients, recommended specification range, surface appearance, size, weight, thickness, mounting requirements, flame resistance and light reflection qualities for all acoustical materials offered by members of the Acoustical Materials Assn., 335 East 45th St., New York 17, N. Y.

**Waterproof Concealed Flashing**


**Ceramic Tile for Schools**

**MARS vs MARS** — You need neither lawyer nor judge. Let your own preference decide in favor of one MARS over another. For whether you pick one of the wood-cased Lumographs or one of the Technicos you'll be using the very finest.

Among the famous imported Mars drafting products are: the Mars-Technico push-button lead holders (with adjustable degree indicator*, with specific degree imprint*, the economy model*); Mars-Lumograph drawing leads, 18 degrees, EXB to 9H; Mars-Lumograph drawing pencils*, 19 degrees, EXEB to 9H; Mars-Duralar pencils and leads for drafting on Mylar®-base drafting film — 3 special degrees, A to S; Mars-Duralar Technicos with adjustable degree indicator; Mars-Lumochrom colored drawing pencils, 24 shades. Also: Mars Pocket-Technico for field use; Mars pencil and lead sharpeners; Mars-Non-Print pencils and leads; Mars-Duralar erasers. Mars products are available at better engineering and drafting material suppliers everywhere.


—the pencil that’s as good as it looks

**MARS**

J.S. STAEDTLER, INC.

HACKENSACK, NEW JERSEY

ARCHITECTURAL RECORD  March 1961  275
NEWS from Dow Corning

SILANEAL Reduces Water

Tests Prove: SILANEAL Helps Prevent Leaks and Improve Bond Of High Suction Brick

Both brick test tanks above were built by the same mason, using full head and bed joints from the same batch of mortar and the same type of high suction rate brick. The only difference: tank at right was built of brick which were treated at the brick plant with Silaneal®. Just before the photo was snapped, this tank was filled with 8 inches of water. No leakage occurred. The other tank developed leaks even as it was being filled.

Now, look at the photo at right. It shows the same two tanks five minutes later. Note how the one built of brick treated with Silaneal still shows no sign of water penetration. The one built of untreated brick shows severe leakage at the mortar-brick interface.

Specify

SILANEAL®
keeps brick clean

Dow Corning
Penetration Of Brick Walls

Why Silaneal makes the difference
A chief cause of leaky brick walls is mortar shrinkage which results in minute cracks at the interface of the mortar and brick. Reason for shrinkage: when a high suction rate brick is placed on fresh mortar, the brick immediately sucks considerable water out of the mortar. Thus, the mortar dries too quickly and shrinks, leaving a hairline crack.

Of course, in order for the Silaneal treatment to be effective, high quality workmanship in the laying of the brick is a must.

Silaneal treatment reduces initial water absorption of high suction rate brick. By applying Silaneal to the bedding surfaces of such brick, the brick manufacturer can control the suction rate, and thereby eliminate this cause of mortar shrinkage.

Until Silaneal, the recommended method for controlling this problem on high suction brick was to soak the brick. The difficulty: How long to soak? Too much absorbed water causes "floating". Too little absorption is ineffective. The common practice of spraying the brick pile also results in varying suction rates throughout the pile. Only Silaneal assures proper mortar hydration with high suction rate brick.

A better bond, a stronger wall!
Obviously, without hairline cracks at the interface of the mortar and brick, you have a better bond . . . a stronger wall. That's another good reason for specifying Silaneal treatment!

Other important Silaneal features
• Keeps brick clean
• Minimizes efflorescence
• Speeds construction

Get full information about Silaneal today. Write Department 0815.

Exhaustive tests, simulating wind-driven rain, have shown repeatedly: No leakage through wall panels built of high suction rate brick treated with Silaneal; Serious leakage through hairline mortar cracks in panels built of high suction brick without Silaneal treatment.

<table>
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<tr>
<th>TYPE OF BRICK</th>
<th>UNTREATED SUCTION RATE</th>
<th>SUCTION RATE AFTER SILANEAL TREATMENT</th>
<th>MILLILITERS WATER LEAKAGE AFTER 400 MINUTES</th>
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<tr>
<td>SOFT MUD</td>
<td>77</td>
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<td>28,145</td>
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<td>EXTRUDED</td>
<td>43</td>
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<td>DRY PRESSED</td>
<td>148</td>
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<td>1500</td>
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RōWAY Doors

GIVE HOME-GARAGE CONVENIENCE TO COMMERCIAL BUILDINGS

Raising even a large RoWay Overhead Commercial Door is virtually as easy as opening a residential garage door. This important advantage comes from “Power-Metered” springs — a RoWay exclusive. Every door is exactly counterbalanced with a custom-wound spring, a process made possible by RoWay’s all-under-one-roof fabrication system. The manufacturing of all components in the RoWay plant also assures you of strict quality control. Mechanical perfection goes hand in hand with the modern proportions of RoWay doors and the durability of lifetime-guaranteed Masonite Dorlux panels. For year 'round functional convenience, RoWay Doors are completely weathertight to seal out snow, rain and dust. Motor operators are available for all RoWay Doors. On your next industrial or commercial job, put quality into action with RoWay Overhead Doors.

there's a RoWay for every Doorway!

RESIDENTIAL • INDUSTRIAL • COMMERCIAL

ROWE MANUFACTURING COMPANY
1025 Holton Street • Galesburg, Illinois
Sylvania’s Sylva-Flo Troffer with Multi-Vent provides you with more than the convenience and economy of combining Lighting and Air Distribution in one efficient unit. It actually increases the quantity and improves the quality of the lighting system. Here’s how . . .

Temperature affects the lighting efficiency of a fluorescent lamp. And the heat that builds up in a conventional troffer (or in a combination unit that isolates lamps from the air flow) reduces the light output of the lamps by as much as 20%. This heat build-up also has other effects. It shortens the life of the ballasts. It also affects the phosphors in the lamps, causing some variation from their designed color.

Now look at the illustration of Sylvania’s Sylva-Flo Troffer using Pyle-National Company’s Multi-Vent System of low-velocity air distribution. As the air passes through the fixture, it clings to the sides and flows out of the openings into the room area. As this air is directed through the fixture, the heat generated by the lamps is drawn into the air stream. The removal of this heat cools the lamp chamber.

The cooler temperature within the lamp chamber resulting from this heat removal . . .

. . . increases the light output of the fluorescent lamps as much as 20% (as compared to a troffer without air flow or to a combination unit with isolated lamp chamber) because the lamps are operating nearer their peak efficiency.

. . . adds appreciably to the life of the ballasts.

. . . permits the lamps to operate nearer their intended color.

In an installation where all fixtures handle air, as recommended, these benefits result from both the “supply” and “return” troffers.

In addition, the air passing through the “return” units prevents a large percentage of fixture heat from reaching the room area and minimizes dirt collection. In most installations, this lowers initial, operating and maintenance costs.

Sylvania’s Sylva-Flo Troffer using the Multi-Vent System features a coalescent air stream which brings a continual, comfortable, gentle flow of fresh, conditioned air down into the occupied area. This low-velocity system provides many distinct advantages over other air distribution methods.

Because of these outstanding features, you should investigate Sylvania’s Sylva-Flo Troffer with Multi-Vent fully before specifying. To obtain full detailed information, see your Sylvania representative or write for our new 20-page booklet.
Choice of 4 Models!

Corner Cadet (Model 28) pictured above is free standing, also available for building-in (28B). Shown at right is the Square Cadet (27B) built-in. Also available free standing (Model 27). The Cadet line comes in white and choice of colors to match other fixtures.

Note of luxury at low cost: Add a FIAT quality door.
SAVES ½*
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The Halsey W. Taylor Co., Warren, Ohio

Building Components

What Architects Want to Know About Bronze

continued from page 230

is not significantly affected by the action of acids used in various coloring processes. In La Jolla, California, where salt spray and heavy dew combine to create corrosive conditions which equal or exceed those encountered in artificial coloring processes, test measurements indicate that the corrosion rate on copper averages less than .00008 in. per year under constant exposure to the corrosive media. Thus, the few hours the patina-producing solution is active would not cause a measurable amount of thinning in the metal.

17. How long does it take for copper to acquire the blue-green patina?

In seacoast and industrial atmospheres, copper attains its characteristic patina in from 5 to 7 years. From 10 to 12 years is normally required for full coloration in rural atmospheres. In extremely dry atmospheres, the patina may take more than 25 years to develop or it may not develop at all. Regardless of the atmosphere, the natural patina develops slowest on vertical surfaces.

18. What can be done to restore neglected bronze to its original appearance?

Heavy encrustations of oxide can be loosened with a solution of sodium bisulfate after the metal has been washed to remove collected dust and grime. The oxide is then removed with fine steel wool. A final cleaning with metal polish restores the luster.

19. How about the color of architectural bronze after about 10 years?

If allowed to weather naturally without periodic "oiling", architectural bronze, after about 10 years' exposure, will develop the characteristic deep gray-green patina associated with bronze statuary.

20. Please compare weathering of stainless steel and bronze or red brass.

All metals, under conditions of exterior exposure, weather to deeper shades. In the case of aluminum and stainless they eventually turn deep gray or black. Bronze and red brass continued on page 290
The true hand-made character of this exclusive development lends itself to any desired design concept. The rich, brilliant color is double-burned to withstand the elements for the life of the structure. It is unique... and gives wings to imagination.

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*For job site or yard use with many structure types, the Prescon System of post-tensioning offers savings and design flexibility using readily available materials.

Other parking garages using Prescon System: Dalton, Dallas; 1st Nat'l Motor Bank, Longview, Texas; Major Oil Company, downtown, Houston; Beverly Hills, (Calif.); Am. Nat'l Bank, Denver; 6d. of Trade, Kansas City; Hollywood Legion Bowling, (Calif.); Remington-Rand and Baldwin Chevrolet, Los Angeles.

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cuts thermal conduction up to 63%
through aluminum curtain wall grid section

Now, exclusively from MARMET Corporation...a new aluminum curtain wall system containing a hidden thermal barrier between exterior and interior wall metal. Independent laboratory tests prove it cuts thermal conduction through the metal by up to 63%.
The special insulator material is permanently bonded (with an epoxy resin) and pinned into the mullion and sash extrusions...providing identically fast erection methods to MARMET 6442-43 grid panel (non-insulated) series on the job site. INSU-WALL requires no tedious and costly sub-component assembly on the building. In this respect there is no comparable insulated curtain wall on the market today!

And now at last, aluminum’s lightness and permanence of finish are adapted to the severest winter’s cold and the most searing summer’s heat. INSU-WALL has a lower U factor 408 than 1” insulated glass. We quote from “Becher-Hoppe” (consulting engineer’s) test report: “...any attempt to increase the insulating value of the curtain wall (Insu-Wall) would have to include an improvement of the insulating value of the glass and banding”... The tests showed that condensation and frost will form on the insulated glass before forming on the metal! THEREFORE, Insu-Wall can be used in connection with one inch insulated glass with complete assurance that if condensation and frost are not a problem on the glass, they will be no problem on the curtain wall metal.

Four Key advantages in INSU-WALL
Reduces heat loss through curtain wall metal in severe winter cold. Because the condensation problem does not exist with Insu-Wall, perimeter heating may be replaced with less expensive systems.
Licks the problem of condensation forming on interior curtain wall metal... with attendant possible damage to plaster, wall paneling, carpeting, drapes and furnishings.
Reduces air conditioning load by preventing heat transfer into building through sun heated curtain wall framing in warm climates or summer temperatures.
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INSU-WALL’s many advantages in performance, design features, erection methods and types of building application are so extensive, that space does not allow fully covering them here. We strongly suggest you send the convenient coupon below for full information, including the independent laboratory test report.

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For additional information on the complete line of MARMET products—consult Sweet’s Catalog File No. 3a or write to MARMET for catalog. Mar
New chalkboard idea booklet shows advanced classroom

Your imagination can lead to exciting new ideas in classroom design when you use J-M Colorlith chalkboard. This versatile and unusual asbestos-cement material makes possible many novel construction features...such as partitions, doors, wardrobe panels, movable storage units, convertible and easel-reversible units. Yet for all its structural strength and integral color, J-M Colorlith costs less than other quality boards!

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and install. No special wall treatment is required. Colorlith offers good "tooth" without "drag," so chalk glides smoothly over the surface in a full, unbroken line of greater intensity. Colorlith chalkboards are easy to clean, and because their background is clear and dark, erasure leaves no "ghosts." Boards require no chalking-in. In any of its colors, Colorlith meets "American Standard Practice for Schools" reflectance recommendations of AIA and the Illuminating Engineering Society. For details mail coupon. In Canada, address Canadian Johns-Manville, Ltd., Port Credit, Ontario. Cable address: Johnmanvil.
Building Components

What Architects Want to Know About Bronze

continued from page 282

also deepen in color upon weathering, going successively from a chocolate brown to a deep brown to black, but the final color is the gray-green patina which rises out of the black phase.

21. Will a statuary finish on exposed bronze keep its color without frequent "oiling"?

Yes. In fact a yearly oiling—well rubbed on and then vigorously rubbed off—will retain the color quite well. The yearly oilings should be interspersed with periodic washings with a solution of "Sollax" or similar household cleaner and water to remove accumulated dust and dirt.

22. How can the natural color of bronze be retained in outdoor applications?

The natural color of bronze can best be maintained under exterior conditions by the application of a clear organic coating. Either natural or synthetic resins may be used, although synthetic resins predominate. Because only small items such as hardware lend themselves to baking, most clear organic coatings for architectural applications are of the air-dry type. The acrylics and the butyrates are two families of synthetic resins which have proved reasonably durable when applied as clear coatings, but at present even the best clear organic coatings must be stripped and reapplied periodically on all exterior bronze work in order to maintain a bright finish.

23. Is there a possibility that the colors of standard alloys made by different manufacturers might vary?

The possibility is quite remote that the basic color of standard alloys of the same composition produced by different manufacturers would differ. This is not to say that the finished metal made by one manufacturer will match other makes in color since operations such as pickling and cleaning may vary. Conceivably, metal from one mill might require either more or less finishing in the fabricator's shop in order to achieve a close color match with metal of the same alloy obtained from a different source.
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Now a dominant structure in the city of Toledo, this glass-sheathed building is both functional and beautiful. Every detail harmonizes with its surroundings, and with the whole. Interior textures are coordinated, and colors blend with and complement each other. Over 2,000 gallons of Pratt & Lambert paints were used, including Lyt-all Flowing Flat, Vitralite Enamel Eggshell and Vapex Wall Primer.

For complete information on professional-level color planning services by experienced P & L representatives, write: Pratt & Lambert Architectural Service Department, 3301 38th Avenue, Long Island City 1, N.Y.; 4900 S. Kilbourn Ave., Chicago 32, Ill.; 75 Tonawanda St., Buffalo 7, N.Y.; 254 Courtwright St., Fort Erie, Ontario.

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Natural fissured PROTECTONE® Mineral Fiber Tile. Butt edge, 12" x 12", kerfed for concealed H & T suspension system. One of the family of Celotex fire-rated acoustical products.


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The drive-in Union National Bank
in Little Rock, Arkansas was com­
pleted last year. Its circular design
was predicated by convenience to
banking customers and the most ef­
fective use of available land. Archi­
tects were Ginocchio-Cromwell &
Associates of Little Rock.

The bank’s roof is made of rein­
forced translucent flat plastic panels,
with a thickness of .060 in. and
weighing eight ounces per sq ft. The
roofing rests on two by two
wood strips that radiate outward
from the center and rest on five in.
I-beams. These beams are supported
by one in. diameter cables strung
from a compression ring which is 85
feet in diameter. The concrete com­
pression ring, supported on eight
reinforced concrete columns, is 36
in. wide with a maximum depth of
12 in. Concrete in ring develops 5000
pounds per sq in.

The roof drains through the cen­
ter. The floor is of structural rein­
forced concrete.

The cost of the entire drive-in
facility was about $52,000. Site work
and flooring accounted for $22,300;
construction above the grade, for
$29,600.

General contractor was E. E. Arm­
brust of North Little Rock, Ark.

more news on page 298
**UNLIMITED DESIGN POSSIBILITIES**

**HONEYCOMB CORE**—a “first” in the standard industry. Cutaway shows this new jet-age material—sandwiched, permanently bonded to both steel surfaces.

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Countless are the ways you can achieve the modern, airy look in high-rise apartments with LUPTON aluminum curtain walls ... a look that spells much easier rentability.

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Little wonder that the trend nationwide is to LUPTON aluminum curtain walls. For example, in Kansas City alone, 4 out of 5 new high-rise apartment buildings have turned to LUPTON. Another example is New York's Manhattan Island, where you can scarcely take a walk without passing a LUPTON aluminum curtain-walled building. Other examples can be found throughout the country.

You'll find the LUPTON Curtain Wall and Window catalog in Sweet's (Sections 3 and 17). Then, talk with your local LUPTON man, or write to us for details.

OTHER LUPTON PRODUCTS THAT MAY SOLVE PROBLEMS FOR YOU ARE:

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Engineered Windows. LUPTON "Master" windows in double-hung, projected or casement types—used in curtain walls or equally well in masonry construction. Weatherstripping optional for all types.

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L.A.A. Convention Panel Examines Architects Education

The responsibilities of architects, schools and licensing boards in the education of architects was the subject of the featured two-hour panel discussion at the recent Louisiana Architects Association convention in Baton Rouge.

Some 200 architects and wives attended the convention—one of the "first steps" taken by the organization since the new full-time state office in Baton Rouge was set up by the L.A.A. last August.

Panel moderator was Buford L. Pickens, Director of Planning at Washington University, St. Louis. Panel members were Dean Samuel T. Hurst of Auburn University; Dean John W. Lawrence of Tulane; Seymour Van Os of Shreveport, secretary of the State Board of Architectural Examiners; and O. J. Baker, head of L.S.U. Architectural School.

Dean Hurst began with a broad look at architectural education, asking if education could rise to its challenge of increased enrollment, higher costs and new developments. He named the A.I.A., the Association of Collegiate Schools of Architecture, the National Architectural Accrediting Board and the National Council of Architectural Registration Boards as agencies interested in the advancement of architectural education in the United States.

Discussing the architectural program at L.S.U. Mr. Baker said the architectural engineering plans established 11 years ago had evolved into a strictly architectural program with a five-year curriculum. Future plans include a graduate school and a separate school of architecture in lieu of a department of architecture in the school of engineering.

Dean Lawrence covered the program at Tulane, the state's only private non-tax-supported institution offering architecture. He said private universities are increasing enrollment while taking a smaller but more select percentage of the college population, and due to strict entrance requirements, Tulane more and more draws on the nation as a whole for its students and faculty.

Mr. Van Os, discussing the role of the N.C.A.R.B. in the development of architects, cited the group's sponsorship of annual exams given students with diplomas from accredited schools.

Mr. Pickens surmised that the addition of required practical experience, in the school curriculum or following graduation would probably increase the percentage of applicants passing the exam (now between 30 and 32 per cent), but more important give the newly licensed architect a better-rounded education before he begins his practice.

He emphasized that even if state laws were changed to require practical experience, in the school curriculum or following graduation would probably increase the percentage of applicants passing the exam (now between 30 and 32 per cent), but more important give the newly licensed architect a better-rounded education before he begins his practice.

He emphasized that even if state laws were changed to require practical experience, N.C.A.R.B. exams should not be thought of as the last hurdle. Practitioners should continue to do research and to further the education of younger architects in their offices. Then architectural schools and practitioners would be mutually helpful.

The 11th Annual Gulf States Regional Conference will be held in Louisiana in the fall of 1961.
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ARCHITECTURAL RECORD March 1961 299
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232 pages, 9½ x 12¼" over 250 photographs and line drawings $14.75

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Emphasizing changing trends and their implications for the future, the author devotes one entire chapter to automation, and another to industrial parks. In other chapters he discusses in detail the requirements of heavy industry, light industry, the process industries, and the utility industries. Specific sections on structure, materials, and design techniques include The Fabric of the Factory, Factory Services, Fire Protection, and Factory Heating and Ventilation.

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The Record Reports

Loeb Center Gets Sculpture
By Nakian at N.Y.U.

To grace the 45-by-28 ft brick surface of the Eisner and Lubin Auditorium of New York University's Loeb Student Center on Washington Square is this sculpture by Reuben Nakian. It was commissioned by New York University and selected among five commissioned models submitted by American sculptors.

The Nakian design was chosen by a committee composed of chairman, Professor Howard S. Conant, head of NYU's art education department; Max Abramovitz, the building's architect; Mrs. Alan Kempner, Loeb Student Center donor; Professor Craig H. Smyth, director of NYU's Institute of Fine Arts; Dr. Robert J. Goldwater, professor of fine arts at NYU; and Professor Horst W. Janson, chairman of the department of fine arts at the University's Washington Square College of Arts and Science.

Commenting on the choice, Professor Conant said, "New York University's decision to commission a leading sculptor to design a major work of art for its campus is one of the most professionally gratifying experiences of my college teaching career. To me it is a tangible and resounding endorsement of the vital role a modern university should play in shaping, rather than reflecting, contemporary civilization."

Sculptor Nakian says the inspiration for his design came both from his conception of the nature of a university and from the building's location across the street from Washington Square Park. "I conceive of the university as a nest," he says. "The student are fledglings, and once they are educated and civilized they fly away. Education is the freeing of the spirit."

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TRUSCON TRU-DIAMOND METAL LATH AND ACCESSORIES provide the basis for the finest plaster wall construction—sound deadened, fire resistant, vermin proof. Easy to work and shape for arch, stairway, and column structure. Write for information.
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designed for multistoried air conditioned buildings

Truscon Aluminum Top-Hung Inswing Windows, Series 900-TH, and Vertically Pivoted Aluminum Windows, Series 55-A, are specifically designed for use in multistoried air conditioned buildings. Double vinyl weatherstripping around the entire perimeter assures a tight seal to hold controlled air in, keep weather out.

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To learn more about the advantages of Truscon’s Aluminum Windows for air conditioned buildings—see details and specifications in Sweet’s Architectural File 3d/TR. Or, send coupon below.

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Please have your sales engineer call. Please send me your new free catalog of MOE Light Recessed Fixtures.
David Eggers, of the New York architectural firm of Eggers and Higgins, says: "In our daily design and specifying functions, we are constantly dependent on up-to-date manufacturers' catalogs to help us select building materials. We at Eggers and Higgins regard the Sweet's Files in our office as our silent partners, because of the invaluable service they perform in meeting the basic catalog needs of all the members of our firm."

The real credit for the completeness and usefulness of the Sweet's Files in your office belongs to the manufacturers who make their catalogs instantly accessible in the File. They have earned your consideration.
"FIRESTOPPER" Poured-in-Place Gypsum Roof Decks

Versatility is one of the most important advantages of Bestwall "Firestopper" Poured-in-Place Gypsum Roof Decks. They can be used on curved, pitched, warped, saw-tooth and other types of irregular roofs as well as flat decks.

Many different types of form boards can be used to provide additional fire protection, sound conditioning and thermal insulation qualities when required.

Welded sub-purlins and the reinforced Bestwall "Metro-Mix" gypsum slab add rigidity to the primary framing steel on which they bear and will provide uplift resistance.

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Scale of U. S. Housing Impresses Japanese Visitors

To gather information on ways and means of developing new communities and improving living conditions in existing areas in their country, a group of twelve Japanese housing officials recently visited the United States for six weeks.

The visitors consulted with Federal and local officials of housing agencies and organizations, planning commissions, financing organizations, and various other private groups associated with housing and city and regional planning in a program sponsored by the International Cooperation Administration and planned by H.H.F.A.'s Office of International Housing headed by assistant administrator, Dan R. Hamady.

Although a more conclusive report on the tour is to come, two preliminary reports have been published. They reveal some of the interesting first impressions of the Japanese team.

Pointing up the differences between the two countries in the basic factors on which housing programs are based, they remarked that the accumulation of capital is much larger in the U.S. than in Japan, making the amount of investment for housing projects out of comparison, but accounting for the longer terms of loans and lower interest rates here. They felt we have less technical difficulties in building homes since Japan must contend with earthquake hazards. And they agreed that in the U.S., Federal, State and city governments extensively and positively implement a policy to promote housing projects.

The Japanese were impressed with the gigantic scale in which a great number of housing and community development projects are being built; the democratic methods of approach in implementing projects; the U.S., spending more than half of the gross national investment on building private homes; the great amount of available land here; the elasticity of city or regional planning, despite its being both practical and concrete; active government participation in city and regional planning; the variety of projects in urban renewal tailored to the needs of different cities; the various types of effective home credit; and the activities of home builders, real estate appraisers, and title and trust companies.

The Japanese team believed that while in the U.S., rent determination of public housing units was based on the applicant's ability to pay, in Japan such a criterion would "produce marked inferiority complex in the minds of tenants."

New Visitors Committee Aids Foreign Engineers

Following a survey which disclosed that foreign engineers on tour of this country have long lamented their inability to see anything in New York other than the Empire State Building or the United Nations, the Metropolitan Section of the American Society of Civil Engineers

continued on page 318
HAS ADDED VERSATILITY —

TO MODERN FLOOR AND
ROOF CONSTRUCTION

*joist-ol'ogy, n. (As Webster should have defined it) The art or science of designing and building more economical structures through the use of open web steel joists.

Architects and engineers have found that steel joists have given them practically a free hand in the design and construction of today's buildings. These lightweight, space-saving structural members have been adapted to virtually every size and style of building, whether it's one story or twenty, ultra-modern or ultra-conservative.

Steel joists have done more than provide high-strength support for floors and roofs. They lend themselves so handily, and so economically, to the incorporation of overhung roofs, cornices, balconies and other architectural embellishments into building design.

With material costs and erection time figuring so prominently in construction plans these days, steel joists still offer the practical answer to the need for economical, versatile, easy-to-handle structural materials.

Another in a series of advertisements placed in the public interest by the STEEL JOIST INSTITUTE. DuPont Circle Bldg., Washington 6, D.C.
Striking effects achieved with

The new Pittsburgh Hilton Hotel is one of the most outstanding buildings in Pittsburgh's Renaissance Program. Located at the point of the Golden Triangle, it is the first building that bursts into view when you enter the downtown area from the west.

The striking appearance was obtained by using glass from PPG. The window glass is PPG PENNVERNON® GRAYLITE®61, a glare-reducing heavy sheet glass that shuts out about 26% of the sun's heat. Because of the neutral gray tint the outdoor colors remain true. The opaque areas, which you only notice by looking closely, are Charcoal Gray SPANDRELITE®. This is a heat-strengthened glass with ceramic color fused on the back. The color lasts. SPANDRELITE comes in 18 colors or the custom color of your choice. Its shade doesn't vary from panel to panel and it can be matched years later.

In the main lobby, large panes of PPG SOLARGRAY® Polished Plate Glass give a wide-open view allowing plenty of light to come through. SOLARGRAY reduces the sun's glare. It absorbs about 50% of the sun's heat.

The main and private dining rooms are kept warmer in the winter and cooler in the summer by 1" SOLARGRAY TWINDOW®. These TWINDOW units are metal edged, with two panes of PPG Plate Glass enclosing a ½" sealed air space. Store front areas are glazed with Polished Plate Glass for clear, true vision, and HIGH-FIDELITY® Mirrors, made of twin-ground Pittsburgh Plate Glass, are used throughout the building.

Your Pittsburgh Plate Glass architectural representative will give you specific data on any of these products. Or check the Pittsburgh Glass Products Catalog in Sweet's.
The Finest Fixture You Can Specify...  
Case One-Piece Water Closets

The new Model 3000 wall-hung Case one-piece closet provides the same unique operating features and time-tested fittings as other Case floor models. Case "E-Z" mount carriers make possible an easy and quick installation in any type of construction.

Only Case one-piece water closets offer positive protection against overflow of the bowl, plus quiet flushing and positive performance. All models are available in glistening white and 45 colors that correspond to or complement fixtures of other manufacturers.

Send for catalog and color chip chart of the distinctive Case vitreous china line, including Water Closets, built-in Lavatories, Urinals and Drinking Fountains.

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Imperial House

This spacious 30-story New York City luxury apartment contains over 900 non-overflow Case one-piece water closets.

"Another user example: 300 Beacon, Boston, Mass., featured in this issue."

Open up walls to new beauty with totally new HAND-PRINTED SCENICS VOL. III

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MASONRY CEMENT

Bring out the best in your wall designs. Specify mortar made with masonry cement. Precision-made, masonry cement encourages good workmanship. It takes the guesswork out of making mortar as specified, makes tighter joints with uniform color and good bond strength. Simplifies and speeds work because everything except sand and water is delivered in one bag... and no special skills are needed for mixing. Masonry cement has excellent workability and high water retentivity thus assuring good wall performance. More and more architects are specifying mortar made with masonry cement for use with the newer forms of concrete masonry, as well as brick, tile, stone and glass.

PORTLAND CEMENT ASSOCIATION... A national organization to improve and extend the uses of portland cement and concrete
"How can you afford Terrazzo classroom floors like these?" ask visiting schoolmen.

The answer: Manpower-and-maintenance savings.
Most officials and architects connected with school construction agree on the desirability of Terrazzo for classrooms as well as for corridors and lobbies. Some, however, overly concerned with first cost, specify other kinds of flooring.

The experience of Henrico County proves the value of looking to ultimate cost as the major criterion. As Mr. J. Henley Walker, architect for the 30-classroom Maybury Elementary, and Fairfield Junior High says, "Our monolithic Terrazzo floors cost more initially—about 30¢ a sq. ft. more. Our determination was that reduced maintenance costs would pay for Terrazzo in five years. The facts are that Terrazzo floors have paid for themselves in less than two years—and have permitted manpower reductions of one man each in the three junior high schools built on the campus plan. Savings in the smaller elementary schools have been comparable."

Further proof of maintenance economy comes from Mr. George R. Grubbs, custodial supervisor for Henrico schools. He notes, "Men can now do one-third more work on campus school Terrazzo floors (than on resilient floors in conventional schools). We have eliminated a night man in each campus junior high because of the new floors. We damp mop Terrazzo twice a week, sweep daily. We use plain water or a neutral cleaner, scrub only once a year. Wax for resilient floors costs $200 annually, plus application and removal costs. Materials for Terrazzo maintenance are a negligible item."

Terrazzo withstands heavy traffic in library areas. Retains gleaming beauty—is easy and economical to maintain.

Terrazzo classroom floors like these (left) are used in 14 schools in the Henrico County, Virginia school system. The number is being expanded as new schools are built.

Laboratories (below), as well as classrooms, benefit from Terrazzo floors.

Terrazzo floors are clean and sanitary. All told, there are approximately 834,000 sq. ft. of Terrazzo in the Henrico County schools with more to come.

Terrazzo satisfies the most demanding requirements. Specify it—for classroom, corridor, walls, stairs, wainscots. Savings multiply, appearance and stamina remain constant. Free AIA kit upon request. Field representatives available for consultation. Catalogued in Sweet's.

Member Producers' Council
THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION
2000 K Street, N.W., Washington 6, D. C.
The Record Reports
continued from page 310

has recently organized an “Engineering Visitors Committee.”

The committee will act as a central referral service to arrange trips to local projects. “Its services,” says Michael N. Salgo, the section’s president, “are available without charge as a professional courtesy to fellow engineers, for it is one of the basic tenets of the A.S.C.E. that today’s experiences and achievements be made available to other engineers and to future generations.”

Through the new committee’s chairman, A. Edward Dembitz, arrangements can be made to inspect projects which include waterfront facilities, concrete plants, subways, waste treatment plants, tunnels, complex foundation work, and airports.

For the present the committee confines its activities to arranging for tours and visits. An engineering representative of the project to be visited will act as host. Eventually the committee plans to expand its services to furnish bilingual volunteer guides from the rolls of the Metropolitan Section.

Through the survey have come useful clues as to the habits, interests, and categories of visitors. Embassies, public agencies, and magazine editors who were queried say that foreign engineers come to the New York area in increasing numbers. India, Japan, Italy, Russia, England, and South and Central America are well represented. Most of the men—for women engineers are as rare abroad as they are here—come singly or in small groups, rather than in large delegations. Few bring their families; the trips are strictly business. Whether their destination be Waco or Washington, however, they seldom leave the country without pausing in Manhattan.

In any case, the Engineering Visiting Committee will provide one more means of facilitating the exchange between nations of non-military technical information—much of it vital to the improvement of general living conditions.

A “Visitors Committee” has been a part of the New York Chapter of the American Institute of Architects for several years. Possibly the future will see the A.I.A. and the A.S.C.E. joined in this valuable project.

Public Library Gets $1000 From Colorado Architects

The Colorado State Board of Examiners of Architects has appropriated $1000 for the Denver Public Library’s purchase of technical books in the field of architectural design. The books will be placed in the Art and Music Department of the main library.

The funds for the gift, according to Eugene D. Sternberg, president of the Board of Examiners, came primarily from renewal fees of architects practicing in Colorado. This use by the Board of Architects of surplus funds is permitted under state law, and similar gifts have been made to the Denver Public Library in the past.
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A convincing reason why...

Whirling electrostatic atomizers apply prime and finish coats at an exact, uniform thickness over the entire area. Panels move by conveyor through a controlled atmosphere, air filtered paint department. This insures a continuous smooth film, unbroken by dust or foreign particles which absorb moisture and promote rust. Infrared heat gives panels a uniformly hard, durable finish.

Weis belongs where toilet compartments really take a beating.

In a signed, printed Certificate Weis clearly "spells out" the application and quality of finish used on baked enamel compartments. The promise behind this certification assures years of lustrous beauty and lasting protection. A finish that withstands constant usage, constant cleaning—even the continuous attack of moisture in hot, humid, oceanside climates. The Weis Certification will be sent upon request.
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BOECKH’S MANUAL OF APPRAISALS

If advance cost planning is a part of your architectural problem, then this book and its supplement service "Building Costs" should be part of your "Kit of Tools." Here is a service program that has been helping architects and builders develop costs of proposed projects for more than a quarter of a century.

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320 ARCHITECTURAL RECORD March 1961
The fascination of real wood paneling's grain patterns and color variations makes other decoration superfluous on Parke, Davis and Company's board room walls. Nothing artificial or superimposed here, just the tree-grown beauty of Brazilian rosewood in Weldwood® Architectural blueprint-matched panels, Algoma-made.

Weldwood paneling makes each wall you design an original masterpiece

Because no other wall material can give the one-of-a-kind beauty and warmth of real wood, each Weldwood paneling installation you specify results in an original and incomparable design—as unique as the tree that grew the wood.

In Weldwood Algoma-made paneling, you have at your disposal the "world's largest library of fine woods." You may choose either from stock panels, or from panels matched to your own blueprint and finished to your own specifications.

WELDWOOD REAL WOOD PANELING
Product of United States Plywood
136 showrooms in United States and Canada

Prestige and a wood paneled office go together. A handsome example is the President's Office of Parke, Davis in Detroit, paneled in honey-colored matched teak of Weldwood Algoma-made Architectural panels. Architects: Marr & Marr, Detroit.

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Please send me free descriptive illustrated booklets and technical data on:
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FIRE PROTECTION means more than just stopping flame spread. Weldwood wood-faced Fire Doors do that, and they also greatly reduce destructive heat transmission. Underwriters' Laboratories, Inc., rates and labels these doors for fire resistance and assured maximum protection against heat transmission (350°F, maximum on cool side after exposure for 30 minutes to 1700°F on hot side) in both Class "B" (vertical shaft) and Class "C" (room and corridor) openings.

EXTRA-WIDE residential entrance doors have special demands placed on their construction. Weldwood Stay-Strate® Doors have warp-proof Weldrok® mineral cores and hardwood edges that provide the strength and stability necessary in doors up to 4 feet wide. The wide range of beautiful hardwood faces, with matching edges, lets you give continuity to luxurious wood paneled interiors.

FROM FIT TO FINISH, WELDWOOD DOORS COME TAILORED TO YOUR DESIGN

Now you can specify any Weldwood® Algoma-made Door cut to fit your openings, machined to take your hardware, and finished to meet your requirements. Included among these custom-made doors are new Permagard™ Doors for interior use—surfaced at the factory with a thin, tough, invisible plastic resin film for unprecedented beauty and wear-resistance.

Weldwood's custom door service eliminates costly on-site labor, drastically reduces handling, and provides the installer with precision-assured satisfaction. Weldwood Doors are available in a wide range of sizes and constructions to meet each installation's requirements for fire protection, sound resistance, ruggedness, and low maintenance beauty.

THE WELDWOOD DOOR GUARANTEE

United States Plywood unconditionally guarantees Weldwood Stay-Strate, Fire, and Acoustical Doors against warping, twisting, or manufacturing defects for the life of the installation, when accorded treatment considered good practice as far as storage, installation, and maintenance are concerned. If any of these doors fails to meet these standards, United States Plywood will replace it without charge, including all labor costs of handling and refinishing.

SEE OUR CATALOG IN SWEET'S, OR MAIL THE COUPON ON THE OTHER SIDE OF THIS PAGE.

WELDWOOD ALGOMA-MADE DOORS
Products of United States Plywood

SOUND CONTROL with beautiful wood-faced Weldwood Acoustical Doors is both economical and effective. Based on current testing standards (ASTM E-90-55) for 1¾" soundproof doors, Weldwood Acoustical Doors achieved an assured decibel rating of 35 db.
White and tan exposed natural aggregates in varying sizes were used on the Mo-Sai facing panels to achieve enduring color and texture on Seattle's new Public Library. The Mo-Sai panels on the east and west facades were anchored to concrete walls. Precast vertical Mo-Sai fins perform dual functions as sun shades and window sash supports on the north and south exposures. The textured fins have integrally cast anchor straps that are welded directly to the structural floor slabs.

The Mo-Sai panels form a pleasant backdrop for artistic landscaping.

Western Members MO-SAI INSTITUTE, INC.

OLYMPIAN STONE COMPANY 1415 Ballard Way • Seattle, Washington

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P. GRASSI-AMERICAN TERRAZZO
111 South Maple Avenue • South San Francisco
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WAILES PRECAST CONCRETE CORP. 11240 Peoria Street • Sun Valley, California

Architects: Bindon & Wright; Decker, Christensen & Kitchin
General Contractors: Johnson-Morrison-Knudsen
The plans for Delta College, now under construction in the “Golden Triangle” area of central Michigan, call for the most modern educational facilities and best construction methods. That’s why masonry joints on the Delta College buildings are being reinforced with Keywall for added strength, greater crack resistance. The contractor on the job, states: “Delta College is being constructed of the finest materials available and we feel that one of the better crack-resisting reinforcement products on the market is Keywall.”
Located in a fast-growing, industrialized section bordered by Bay City, Saginaw, and Midland, the Delta College is one of the first in the U.S. to be financed by a multiple county tax program. One of its many unique features is a closed-circuit TV studio which will originate educational programs throughout the school and neighboring communities.

For buildings that stay young throughout the years, rely on Keywall galvanized masonry reinforcement. Masons find Keywall easy to handle, easy to adapt to a wide range of applications. It can be lapped at corners without adding thickness to joints. Full embedment and complete bond assure effective reinforcement. Comes in 4", 6", 8", 10", and 12" sizes.
U.S. City Planners Design Master Plan for Agadir

Harland Bartholomew and Associates, city planning consulting firm of St. Louis, Missouri, has been engaged by the United States International Cooperation Administration to prepare a master plan for the recently devastated city of Agadir, Morocco. The Government of Morocco requested the ICA to provide assistance in establishing a city plan for the rehabilitation and reconstruction of Agadir, which was devastated by an earthquake in February 1960.

In July King Mohammed V laid the foundation stones for the first new building. Scheduled for early construction are housing projects, a hospital, administrative building, a market, a mosque and a radio station. It was anticipated that the plan for the new city of Agadir would require six months for completion.

The MACKENZIE BUILDING

The newest and finest government office building in Toronto, was recently opened by the Canadian Government. The $12,500,000 ultra modern Federal building is a panorama of fine construction and appointments. SG-5300 SERIES EXIT DEVICES were used in the new building. Important features of SG-5300 SERIES EXIT DEVICES include added security, less maintenance and assurance of safe exit at all times. Strength and durability of SARGENT & GREENLEAF EXIT DEVICES are further complemented by clean, modern design.

NUTS and BOLTS Make Burning Bush

An abstraction in metal based on the Biblical story of the Burning Bush has been designed by Egon Weiner, professor in sculpture at the Chicago Art Institute. The six ft high work, executed directly in steel, using only nuts and bolts welded together, will be used as an identity symbol by the Chicago firm, Heads and Threads Inc. The artist says, "Since bolts and nuts are the main support of our modern industry, I took the Biblical title of the ever active Burning Bush as a symbol for the always active industry fed by these small but vital elements."

Management Group Surveys Aspects of Office Design

"Physiological Factors Governing Office Environment" was the title of a recent survey by the National Office Management Association. Participating in the study were more than 1900 business, industrial and service organizations in Canada and the United States, of which 87 per cent were located in urban areas.

Some results of the survey: paint on walls—94 per cent (pastel colors—77 per cent); Composition flooring—90 per cent; fluorescent lighting—83 per cent; sound control—75 per cent; air conditioning—72 per cent; NOMA's standard N7.2 (space allocation of 60 to 80 sq ft per person)—62 per cent; Wood furniture in private offices—55 per cent; metal furniture in general offices—45 per cent.

more news on page 330
"My Architect said so..."

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5. Low-cost inside-outside walls.
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Asbestone Panels in H & B and other standard framing systems combine low cost materials with low erection cost. Panel surfaces are 1/8" Asbestos-Cement sheets; core is asphalt-impregnated insulation board. Standard panel sizes, 1 1/8", 1 1/4", 1 1/2", 2" thick. For samples and technical details: Dept. AR-31.

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FOLDING WALLS HELP INCREASE CONVENTION BUSINESS AT ATLANTA'S BILTMORE

Atlanta's explosive growth as a convention city is responsible for the all-new 10th floor of the Biltmore. 7 of 11 meeting rooms, designed for conferences or private dining, are connected with Unitfold Folding Walls. These areas can be varied to serve groups from 25 to 160 persons.

In the example above, Unitfold is faced with the same paper as the permanent walls (photo 1). Photo 2 shows Unitfold withdrawn and entirely hidden in the pockets at right; contrasting pocket doors add interest to room decor. Photo 3 demonstrates that there are actually two walls, separated by air space. All the Biltmore walls are of this type — one of the Fairhurst features that means the highest sound retardance known in movable walls. Note close clearance at column. This is Unitfold — solid, rigid, with all the characteristics of a permanent wall.

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The Record Reports

Cronbach Work Commissioned For United Nations

A recent addition to the art works at the United Nations is a piece by Robert Cronbach, sculptor and assistant professor in the Art Department of Adelphi College, Garden City, New York. It was commissioned by the National Council for U. S. Art, Inc., an organization whose aim is to place the work of contemporary painters and sculptors in the U.N., so making it a center of cultural as well as political importance.

Made of hammered and welded bronze, brass and stainless steel, the sculpture is placed on the wall of the Meditation Room Lobby. The space in the room is intimate, serious. Looking back at the problem posed, Mr. Cronbach said the sculpture had to be a general symbol, not specific; applicable to no religion in particular, yet religious.

According to Cronbach, his design expresses a hope in the future, a confidence inherent in the United Nations itself. “Most people,” Mr. Cronbach says, “look on the work as a ship. And I don’t mind a bit. Although a more concrete symbol, a ship in its forging forward is hope.”

“I’ve asked the guards about visitors’ reactions, interpretations of my sculpture, and they tell me that I’m winning about 70 to 30!”

The idea for the National Council for U. S. Art, Inc. was conceived by the late Mrs. Samuel A. Lewisohn of New York, a founder of the group. Individuals and groups throughout the United States interested in the fine arts have responded to the project and donated the necessary funds.

Officers of the Council are: Roland L. Redmond, New York, president; Nathaniel Saltonstall, Boston, vice president; Henry Billings, New York secretary; and Joshua B. Cahn, New York, legal counsel.

more news on page 335
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Architect: Alfred D. Reid & Associates; Electrical Engineer: J. G. Stauffer.

Award-winning hospital design adapts Day-Brite lighting to area function

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by Warwick Smith

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The heart of the hospital is its surgical suite. Because of its critical functions, the operating room and its environs must be designed to work efficiently under all conditions. This is a fact recognized by all administrators and designers of hospitals. Equally recognized is the difficulty involved in developing a truly efficient and flexible plan for a surgical suite.

Much time and money has been wasted in building and remodeling surgical suites. The inherent flaws are soon revealed in a suite design which did not consider all of its required functions. Consequently, within weeks of its occupation, it is often found necessary to remodel or improvise upon the original design.

PLANNING THE SURGICAL SUITE is aimed directly at this problem. This unique guide explains how the intended functions of a surgical suite affect its organization and design, and describes the methods of translating these into actual facilities. With the aid of tables, charts, and checklists, it provides for a complete analysis of the function and design of the operating room complex.

Architects, engineers, hospital administrators — anyone planning a new hospital or new facilities for an existing building — will find PLANNING THE SURGICAL SUITE of vital interest.

About the author . . .

Warwick Smith has made an intensive, twelve-year study of hospital design, with special emphasis on the surgical suite.

Although a native Australian, Smith has designed hospitals and medical facilities while working for architectural firms in England, Sweden, and the United States. An associate of the Royal Institute of British Architects and the Royal Australian Institute of Architects, the author was awarded the Henry Saxon Snell Prize in 1954 for research in hospital architecture.
The Record Reports

Kitt Peak Solar Telescope
Is World’s Largest

Construction of the world’s largest solar telescope has begun at Kitt Peak National Observatory, Tucson, Arizona, and completion is expected in approximately two years. "When completed," says Dr. Alan T. Waterman, Director of the National Science Foundation, "this huge instrument will give solar researchers more revealing views of the sun than have ever been possible from earth. Such observations will increase substantially man’s meager knowledge of the star that keeps our planet alive."

The National Science Foundation has granted $4 million for the Kitt Peak Solar program in which the huge sun telescope plays a major role. The instrument will have a focal length of 300 ft and will form images of the sun several times larger and more brilliantly illuminated than are attainable with any other solar telescope. It will be made up of three large reflecting surfaces combined in a system requiring a supporting structure about the size of a 10 story office building.

Architects for the building which is itself a telescope are Skidmore, Owings & Merrill of Chicago, who are working with Dr. Keith Pierce, Associate Director for Solar Astronomy at Kitt Peak Observatory. The structure will stand 110 ft high; the diagonal shaft will be 480 ft long, of which 280 ft is underground. The observing room is underground.

The observatory is a national research center available to all qualified astronomers, maintained by the National Science Foundation and operated by the Association of Universities for Research in Astronomy, Inc., under contract with NSF.

The $1,938,800 building contract was awarded to Western Knapp Engineering Company of San Francisco.
Functional, clean lines of the Providence Post Office exterior are highlighted by Westinghouse OV-25 parking area luminaires, assuring 24-hour maximum security operation. The luminaires' horizontal housing and tilted optical system are completely sealed against dirt, moisture and bugs for years of low maintenance, high efficiency operation.
The nation's first automated post office, labeled "Project Turnkey," is operating now in Providence, R.I. It represents the first step in the government's plan to make the complexity of mail handling completely automatic to insure 24-hour delivery of mail to any part of the country.

Behind the architectural beauty of this $20,000,000 facility is a vital electrical nervous system. And it's the sure, steady performance of Westinghouse electrical apparatus that keeps this marvel humming.

From dependable, maintenance-free outdoor luminaires that light the 14-acre site to 69 power and lighting panelboards that feed sensitive letter sorters, facing and cancelling machines, parcel post machine and conveyor system, Westinghouse products coordinate for the high degree

(continued on next page)
of service so important to this "Post Office of Tomorrow." It is estimated that 10,250,000 kilowatt hours of electrical energy will be required annually for the 24-hour operation of the plant.

The Gilbane Building Company, Providence, erected the structure for Intelex, a subsidiary of International Telephone & Telegraph, who will lease it and its mechanized mail processing equipment to the government for 20 years. Design was by Charles A. Maguire and Associates, Providence. Westinghouse personnel worked closely with the consulting engineer from design stages through completion. Experience and the completeness of the Westinghouse line earned this working role in mail handling history.

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(Below) Reviewing drawings during the construction of Project Turnkey are, left to right: Arthur A. Watson, General Foreman, Brady Electrical Co., Inc.; A. I. Israel, Charles A. Maguire and Associates; E. Howard Rohrbach, Project Manager, Intelex Systems; Richard F. Martin, Project Manager, Gilbane Building Company; R. W. MacArthur, Westinghouse; and Walter W. Botts, Manager WESCO, Providence.
Israel operates remote circuit breaker control panel for 15 kv outdoor metal clad switchgear as R. W. MacArthur looks on. Switchgear furnishes incoming power safely and efficiently to Westinghouse 500 kva power center serving post office auxiliaries. Compact design permitted location in minimum space, freeing valuable footage for work areas.

A. I. Israel, left, and W. W. Botts discuss operation of electrical system in mechanical building. In foreground is a 60 hp, 208 volt drip-proof Westinghouse motor, driving a chilled water pump. 400 amp safety switch on wall feeds an autotransformer reduced voltage starter which cushions inrush current to assure smooth pump start-up.

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N.A.H.R.O. Meeting
continued from page 42

Differing with him on this issue, Mr. Mason took the view that home buyers in America are getting just about all they can from F.H.A. "We have gone about as far as we can go with liberalization of credit terms." He believes the better break for home buyers must come largely from the home building industry in the form of technological innovations, new materials, methods, improved marketing practices.

The two opening speakers stressed a viewpoint shared by the speaker of the final conference event, the annual banquet, Philip M. Klutznick, a private developer in the Chicago area. The viewpoint was that housing and renewal can no longer be seen as isolated programs but, rather, must be seen in relationship to the whole complex of metropolitan problems.

"Bold ideas" took the spotlight in two sessions, one on public housing, the other on urban renewal. In the first, the five speakers were: Ira S. Robbins of the New York City Housing Authority; Thomas J. McCoy, director of the Philadelphia Housing Authority; A. C. Edgecombe, administrator of the Beaver County, Pennsylvania Authority; Robert D. Sipprell, executive director of the Buffalo Municipal Housing Authority; and Olive Swinney, community services adviser of the National Capital Housing Authority. The experiments discussed were conversions, scattered site public housing, serving a wider income range and help for "problem" families.

At the urban renewal session on "bold" ideas were O. O. McCracken, executive director of St. Louis' Civic Center Redevelopment Corporation; Stephen G. Thompson, associate editor of Architectural Forum; Howard J. Wharton, Urban Renewal Administration's assistant commissioner for redevelopment; and George M. Raymond, chairman of the planning department at Pratt Institute and partner in Raymond and May Associates, planning and renewal consultants. Under discussion was Mr. Raymond's idea of "continuous renewal," modification of personal income tax to give renters the same tax breaks available to owners, inclusion of the profit motive in redevelopment, federal assistance for mass transportation planning.

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BELLUSCHI INTERVIEW
continued from page 10

You wouldn't, however, advocate Mies' curriculum.
At I.I.T. precision is emphasized in terms of technique. This is valuable training: but perhaps there are not enough years in one lifetime to learn architecture this way.

Perhaps a type of natural selection occurs when the client seeks out an architect. If you were looking for pure form, there would be certain people to whom you would go.
Yes: For example, one wouldn't go to SOM to have a small house designed. In fact when Skidmore retired a few years ago and wanted to build a house, he ended by coming to me. Rather like one doctor going to another for an operation.

As the function of the building becomes more and more complicated, how best should an architect coordinate the services of the various specialists with whom he must work? That is a good question and a difficult one.

The great tool of the modern age is team work. The atomic developments and the airplane have been possible only through the collective effort of many people.

There has to be a leader of the team, of course, but all must be willing and able to work together, and each must recognize the other's as well as his own limitations.

The architect is naturally closer to the structural engineer than to the mechanical engineer, as a good architect thinks first of all in terms of structure. But he must learn to work with the mechanical and acoustical engineer, and the planner and landscape architect as well.

It is not impossible when each knows his own field best and there is no conflict of personalities.

You mention the planner. What would you say were the architect's responsibilities to the context in which he works?

Some architects believe that they should design the most beautiful building possible and their responsibility ends there. I feel that the architect should take into account both sitting and environment. Material, height, color should all be
Twenty of the most exciting and significant houses ever assembled by Architectural Record editors await publication in “Record Houses of 1961.”

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by William H. Connolly

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The author, a practicing engineer, approaches the problem of selecting the cross-section in a logical, straight-forward manner. He places major emphasis on elastic design for bending, gives consideration to prestress losses, shear, and ultimate flexural strength, and uses the report of ACI-ASCE Joint Committee 323 “Tentative Recommendations for Prestressed Concrete” as a guide in considering these factors.

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THE AUTHOR

William H. Connolly holds a B.S. degree in Building Engineering and Construction from the Massachusetts Institute of Technology. He has been chief engineer for a precast concrete plant and a research associate at M.I.T. Currently, he is a structural engineer with Wm. J. LeMessurier and Associates, Consulting Engineers, Boston, Mass.

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BELLSCHI INTERVIEW

continued from page 347

considered as part of a visual whole.
To place a building among trees, on Park Avenue, or among a group of low structures, each requires a different solution. This is a necessary first step to get cities to count as texture.
I am, as you know, associated with the new Grand Central Office Building. We have been criticized, perhaps justly, for dropping too big a building into too small a slot. But, after all, that is New York, and there are certain advantages to it. If you are looking for the country, that area is just not the place to look.

Are you not a bit uneasy about what is happening to the country-side itself?
There is a widespread lack of respect for conditions. You never achieve all the advantages of both the country and the city. You spoil the country and have its disadvantages as well.
I hope that one day soon we may again have smaller communities where the right degree of interaction exists.

How does one go about achieving this—short of government ownership of land?
The first problem that has to be licked is certainly the political problem. The greenbelt towns offered a marvelous example of what could be done. I think there are new attempts now in two or three projects, some of which I am involved in. The Golden Gateway project, in particular, if all goes well, I think may be a significant one and a turning point.

In the absence of a unified architectural style, do you think there is a basis for architectural criticism today?
Yes. What we need is a critic with a philosophical mind, an optimistic mind, a young mind to see light even in the darkness.
Some architects will say anything and compromise anything, but if a building has integrity and consistency it will be meaningful and will endure. Style will come when society itself will have acquired spiritual greatness. Obviously we are a long way off, but we cannot afford to act pessimistically.
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