ARCHITECTURAL RECORD

3 March 1962 Building Types Study: Hospitals Three Projects by Marcel Breuer New Way to Build a Shell Full Contents on Pages 4 & 5





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Architectural Engineering

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ARCHITECTURE FOR THE CAMPUS

Of all building types, it may be that college buildings have offered the most varied and most notable opportunities for contemporary architectural talents —and especially where the most creative of these are challenged by surroundings already rich in buildings cherished in tradition if not themselves architecturally significant. Next month's Building Types Study will show some highly relevant examples of current architectural accomplishment in this field, with a special article on the architectural program at Yale, where an enlightened administration challenges the best efforts of architects.

"THE CASE AGAINST 'MODERN ARCHITECTURE' "

Lewis Mumford has written a major critique of the present state of contemporary architecture and implications for the future inherent in it—an analysis of accomplishment and potential against the goals of "order and consensus" that seemed so attainable in the early days of "modern architecture." A renewed and important call for a renewed and richer humanism.

ARCHITECTURAL DESIGN FOR THE CITY

One of the most important urban renewal projects to be completed so far important above all as an architectural concept of city living—is the Hyde Park Redevelopment Project in Chicago for which I. M. Pei, Harry Weese and Loewenburg & Loewenberg were associated architects. The development combines high- and low-rise buildings and has its own shopping center, creates a group of little neighborhoods scaled to their older surroundings.

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Too Many People

An architect, oldtimer variety, asked me the other day if I wasn't distressed at the apartment projects which appeared in our January Building Types Study on Apartments. He mentioned something about "rabbit warrens," by which I gathered he meant that the densities of land use were too high.

No, I replied, I wasn't distressed; I had thought them good, particularly good, in fact, and I had been especially pleased about the article by William J. Conklin, called "Clouds over Radiant City."

My friend was not to be diverted by my reference to the city planning discussion; he just thought the projects illustrated would crowd too many people in the same block, and that's all there was to it. I asked him where he proposed to put the people and he said somewhere else. I reminded him about the population explosion, but he stood fast. There were too many people in the blocks as illustrated in our study, and we ought to put some in some other place, unspecified.

I am afraid that this is where we are, in the year 1962. We must make some decisions about where the people are to be put. Broad Acres was a pretty idea; so was Garden City; and Radiant City. Wright or Howard or Le Corbusier. No one of them had any idea of how many people were to be accommodated in our countryside, suburbs, or city. Perhaps we have to revise some ideas of what is reasonable population density.

My friend didn't know it, but I had just been reading a story in *The New York Times* headlined "'Slurbs' Assailed by Californians." "Slurbs" were defined as "our sloppy, sleazy, slovenly, slipshod semi-cities."

The term was credited to a report issued recently by California Tomorrow, a non-profit organization dedicated to the idea of a state plan which would offer some pattern for logical growth of outlying communities.

Eventually we must choose—cities or slurbs.

The slanderous title "slurbs" reminds us that suburbia today is something short of Utopia. California's good agricultural land is rapidly being bulldozed for new housing developments in "small, unself-sufficient subdivisions." And this growth is a far cry from the old idea of a few self-contained, idyllic suburbs surrounding a large city, where a relatively small proportion of the urban population finds true small-town living. Along with the uncontained growth of southern California have come a host of problems, not the least of which is transportation. Highway problems alone are plenty of demonstration that just going farther and farther away from the heart of the city is not the answer to all planning and living problems.

As for the city, the country is now embarked on a program of urban renewal, a nation-wide effort to renew, rebuild, redevelop our urban areas in good sized chunks. Architects will play the central role in the planning of the redevelopment projects as well as in the design of the buildings. The density problem will arise.

Let us not make the mistake then of giving too much weight to density; let us not believe that some prescribed density will make for pleasant city living. Specified density and low land coverage did not make our mammoth housing developments attractive. Low density as such will not make our new projects appealing enough to keep people content in town. This should be the true objective of renewal of cities. They must be made attractive enough, on this cycle, or we are really in for chaotic conditions out in those slurbs.

And that is why I was pleased with the apartment projects we had in our January study. The article by Conklin contained three suggestions for new types of city housing developments, and the other projects shown had the look of improving the chances for downtown.

-Emerson Goble



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HOW BUILDING COSTS MIGHT INCREASE IF FIVE-HOUR WORK DAY SET PATTERN

The five-hour work day won by New York's Local 3, International Brotherhood of Electrical Workers, is not generally expected to be followed by any immediate trend to so short a work day in the construction industry or industry generally. But there has been a good deal of speculation as to the impact on building costs of such a trend if it should develop.

One authority on building costs, Myron Matthews of F. W. Dodge Corporation's Dow Building Cost Calculator, has estimated that if the New York settlement did set off a chain reaction throughout industry the result could be 1967 building costs 25 per cent higher than in 1962.

Such a result could occur, Mr. Matthews believes, if the normal anticipated labor and material cost increases of three to four per cent annually were to be swelled by additional increases stemming from general adoption of the shorter day by construction and related industries.

Labor Hails "Breakthrough"

The January strike of New York's 9000 construction electrical workers was a local dispute, but its national implications have been widely recognized. Labor leaders across the nation hailed the electricians' achievement of a basic 25-hour work week as a "historic breakthrough" and the first round in labor's battle against the implications of automation. Industry leaders considered it an equally historic victory for the featherbedding philosophy: "This puts labor," said one, "where management was in the days of the sweatshop." President Kennedy said it violated his basic admonition to management and labor to hold the line on prices and wages.

What Local 3 Got

The story of what happened in New York and its implications for construction costs is recounted by Mr. Matthews as follows:

"In December New York electricians, with a contract expiring at the end of the year, demanded seven hours' pay for four hours' work—35 hours' pay for 20 hours' work. Their 35-hour pay was \$165, plus \$49.50 in various fringe benefits. This made their cost to the electrical contractor \$214.50 per week, an average of \$6.13 per hour.

"When we asked the top spokesman for the contractors for his analysis of the union's demand, he said it amounted to a labor increase of 112 per cent. Pressed for details, he said in the first place it would not be possible from a building project organization and management point of view to have electricians working four hours while the other trades worked mostly seven and eight hours. . . Either work the electricians seven with three hours' overtime or cut the work day for every one to four hours! Another possibility-put more electricians on the job-was out because. there is a shortage of men. Except. for bricklayers with a contract expiring May 31 this year, and plasterers, expiring June 30, most of the others run till June 30, 1963. This precludes general adoption of a shorter work day, even if it could be agreed upon, until some future time. Therefore, he said the only practical way to regard the effect of the electricians' demand was in the manner of a pay hike.

"Other inquiries produced identical comments. Calculated on this basis, i.e., four hours at straight time and three at overtime, plus the 30 per cent fringe benefits, the electrician's average hourly pay would zoom from \$6.13 to \$13.03, or \$456.05 per week. Such an increase, one trade by itself, would increase the cost of New York multi-story office buildings by about six to seven per cent. If the 'asking price' demand were allowed and subsequently adopted, trade by trade, the ultimate effect of it regardless of other en route increases would be to increase overall building costs by about 43 per cent or more.

"Fortunately, the New York electricians finally became convinced that what they were asking was economically unfeasible. Even a 50-50 compromise settlement was impossible. The settlement was for a five-hour day at \$4.96 per hour, effective July 1 —the old contract provisions and rates extended to then, giving a rate increase postponement to work in progress, and time in other matters to negotiate adjustments. "On a seven-hour basis the new rate will produce an average hourly cost of \$7.37 including benefits, an hourly increase of \$1.24—18 per cent of the \$6.90 asked. The labor increase to the electrical contractor is 20 per cent; 112 per cent was asked. The settlement puts the contractor's price for a given basket of work up from eight to 10 per cent. Its impact ups the cost of a New York multistory office building about 1.2 per cent."

Outlook for Industry

Implications of Local 3's victory, as Mr. Matthews sees them:

"The same settlement pattern, if eventually adopted by the entire New York building construction industry, will, of itself, increase total cost to build by eight to ten per cent. It is not likely that this will occur in one bite or that it will slowly accrue in any great substance much before the second half of 1963 or 1964. But considering the long-term projections required in some appraisal reports (*Ed. note*: and in some architectural cost estimates) perhaps it is not untimely now to take such potentialities into account.

"Completely apart from the eventual adoption of the shorter work day by construction and by other industries, other normal labor rate increases will come about both before and after it. While this is happening, prices for building materials, equipment, products, appliances and services cannot be expected to remain unchanged. Combining normal labor and material increases we have long since predicted that these will average nationally about three to four per cent annually. Inject the influence of the shorter work day into this picture and in five years we may, in retrospect, be able to say, with accuracy. building costs are 25 per cent higher than in '62.

"This entire article, however informative, is both 'iffy' and conjectural. Its objective is to alert readers to the very real potential of a shorter work day possibly just over the horizon. Though the current stage setting is New York, there is, in our opinion, no reason to believe that it will long remain New York's problem."





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FIRST HONOR AWARD

Foothill College, Los Altos Hills, Calif. Architect: Ernest J. Kump and Masten & Hurd, Architects Associated, Palo Alto and San Francisco. Structural engineers: Huber & Knapik and Earl & Wright, Inc.; mechanical and electrical engineers: Keller & Gannon; landscape architect: Sasaki, Walker & Associates. Owner: Foothill Junior College District, Los Altos Hills. Gen. contractor: William & B&rrows, Inc., O. E. Anderson, Inc., Carl N. Swenson Co.

EIGHT HONORED IN A.I.A. 1962 HONOR PROGRAM

In the 14th annual Honor Awards Program, the American Institute of Architects selected eight recently completed buildings for citation. This year one building received the top Honor Award and seven received Awards of Merit. They are shown on these pages.

Members of the jury were: Arthur Gould Odell Jr., F.A.I.A., chairman; Charles R. Colbert, Dean, Columbia University School of Architecture; Paul M. Heffernan, Director, Georgia Institute of Technology School of Architecture; Karl Kamrath, F.A.I.A.; and Paul Hayden Kirk, F.A.I.A.

The jury report read as follows: "The Jury, in selecting only eight of 382 designs, hopes that it can bring to the attention of the profession a concern for the present condition of our physical environment. It is the Jury's opinion that fundamental logic so basic to architecture was often ignored. Superficiality, the patent solution, and the lack of individuality and artistic expression were strikingly obvious. We call for our colleagues to re-examine the basic doctrine of simplicity and human need, and to strive through their works to give a greater essence to the environment they create."



A.I.A. Honor Awards Jury: (from left) Karl Kamrath, Paul M. Heffernan, A. G. Odell Jr., Paul Hayden Kirk, and Charles R. Colbert

AWARDS OF MERIT



New Sarasota High School, Sarasota, Fla. Architect: Paul Rudolph, New Haven, Conn. Engineer: Sydney L. Barker; mechanical engineer: Charles T. Healy. Owner: Board of Education, Sarasota, Fla. General contractor: Coe Construction Company



Residence for a Developer, La Jolla, Calif. Architects: Killingsworth—Brady-Smith, Long Beach. Owner: Amatea Corp. and Arts and Architecture magazine. Contractor: Amatea Const. Corp. Landscape coordinator: William Nugent. Decorator: Stan Yourg—for Frank Brothers

Buildings in the News



Housing Group, Berkeley, Calif. Architects: Roger Lee Associates, Berkeley. Owner and developer: Roger Lee. General contractor: A. L. Muzzini



Convent of the Immaculate Conception, Washington, Pa. Architects: Deeter & Ritchey Architects, Pittsburgh. Owner: Convent of the Immaculate Conception. Contractor: H. & M. Construction Co.

Tennis Pavilion, Princeton University, Princeton, N.J. Architects: Ballard, Todd and Snibbe, New York. Consulting engineer: Peter W. Bruder. Owner: Princeton University. Gen. contractor: Matthews Construction Company





Shin Koyama

St. John's Abbey Church, St. John's Abbey, Collegeville, Minn. Architects: Marcel Breuer and Associates, New York. Structural engineers: Weisenfeld, Hayward & Leon; mechanical engineers: Gausman and Moore. Owner: St. John's Abbey. General contractors: McGough Construction Company



Towers Residence, Essex, Conn. Architect: Ulrich Franzen, New York. Owners: Mr. and Mrs. Henry Deen Towers. General contractor: Wilfred Sevigny



Banco del Atlantico office building, Mexico City, 1957

Interior, Mexico Golf Club, Tlalpam, D.F., 1958



Hector Mejia Arriaga



Main façade, Banco Comercial Building, Mexico City, 1961

PAN-PACIFIC CITATION AWARDE TO MESTRE

Hector Mestre of Mexico City, one of Mexico's leading architects, has received the 1961 Pan-Pacific Architectural Citation from the Hawaii Chapter, American Institute of Architects.



The fourth annual award to an architect from a nation bordering on the Pacific, and the first from Latin America, Mr. Mestre's citation was not for a single building, but for "consistent excellence of design." The photos on this page show examples of his work.

Mr. Mestre, a member of the Sociedad de Arquitectos Mexicanos and Colegio Nacional de Arquitectos, has represented Mexico at many architectural conferences throughout the world since 1948.

Previous winners of the Pan-Pacific Architectural Citation have been Kenzo Tange, Tokyo, Japan; Grounds, Romberg & Boyd, Melbourne, Australia; and Leandro Locsin, Manila, Philippines.

FIVE HONOR AWARDS NAMED BY BELL SYSTEM

Five Honor Awards and 34 Merit Awards have been made by the Bell Telephone System in its recent architectural competition whose criterion was "good building designs at reasonable cost."

More than 370 buildings from the 2000 erected for the Bell System by private architects and Bell personnel during the past two years were entered in the competition. The Honor Awards are shown on this page.

Judges were former presidents of the American Institute of Architects: Leon Chatelain Jr., Douglas Orr and John N. Richards. All of the judges, who have done a considerable amount of work for Bell companies, "were selected for their knowledge of the problems involved in designing telephone buildings."



Pacific Telephone and Telegraph Co., San Mateo Addition, Burlingame, Calif. Architect: Clarence O. Peterson



American Telephone and Telegraph Co., Long Lines Electronic Data Processing Center, Mt. Kisco, N.Y. Architects: Office of Alfred Easton Poor



Michigan Bell Telephone Co., Utica Central Office, Utica, Mich. Architects: Smith, Hinchman & Grylls



Bell Telephone Company of Canada, Ajax-Pickering Central Office, Pickering, Ont. Architects: Gordon S. Adamson & Associates



New York Telephone Co., Southampton Central Office, Southhampton, N.Y. Architect: Voorhees Walker Smith & Haines

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6 SIZES 200 cfm • 300 cfm • 400 cfm 600 cfm • 800 cfm • 1200 cfm 7 DECORATOR COLORS The new Lo-Line Seasonmaker is the most quiet air conditioning unit available and combines expected McQuay dependability with an exciting new design. The Lo-Line is little —just 121/2" deep and 141/2" high in flush wall model or free standing model that permits drapery behind it and is used with glass wall construction. But it's big in features—permanent split capacitor motor, slide out fan deck assembly, motor disconnect plug, large access doors and piping compartments, 1" vinyl coated insulation, finished rear panel and air filter removal without front panel removal. Wall to wall cabinet extensions are available for flush wall models. For more information, see your McQuay representative, or write to Mc-Quay, Inc., 1605 Broadway N.E., Minneapolis 13, Minnesota.



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Current Trends in Construction



Total contracts include residential, nonresidential, heavy engineering contracts





HOSPITALS REGISTER SHARP GAINS

ONCE AGAIN the building business has set a new record, for the sixteenth postwar year in a row. The final figure for total 1961 contract awards in the 48 states was \$37,135,367,000, slightly more than two per cent above the previous highmark in 1960. This was achieved with a hefty assist from the closing months of last year. In December, the seasonally adjusted Dodge index of construction contracts, which had been rising somewhat irregularly during most of the year, shot to its second highest reading ever recorded for any month. Such a strong finish, of course, guarantees a substantial amount of actual construction activity in the months to come.

IF THE CONTINUING string of record construction years seems a bit monotonous, remember that the over-all total usually has masked quite diverse movements in the various parts of our largest fabricating industry. Last year was no exception. Significantly, two of the three big sectors of construction—nonresidential building and heavy engineering—experienced small declines in contract valuation from their 1960 levels. Residential building, on the other hand, showed surprising strength, especially in the second half.

AS HOUSING is overwhelmingly a private affair, the proportion of all contracts accounted for by privately-owned projects rose slightly from 65 per cent in 1960 to 66 per cent in 1961. This upsurge in the private sector occurred during the immediate aftermath of our fourth postwar recession. Unlike the 1958 experience, we did not lean so heavily on government-sponsored projects to achieve year-to-year gains.

SOME OTHER HIGHLIGHTS of the 1961 contract performance were as follows:

• Apartment contracts pushed ahead strongly all through 1961, and by the end of the year had accumulated a 32 per cent gain over 1960. The dollar increase in multi-family housing contracts almost equaled the *total* dollar increase for all construction categories combined.

• Unquestionably, the star of the nonresidential building show was the subject of this month's building types study—hospitals. This vital construction category scored an 18 per cent advance in 1961, which represented the largest percentage gain and greatest dollar increase of any nonresidential building type.

• The biggest disappointment was manufacturing building, which dropped 14 per cent. Although some decline was to be expected during the recession, the 1961 slump in industrial construction was particularly disturbing because it followed a rather weak and incomplete recovery in 1959 and 1960.

TOTAL CONTRACTS for residential buildings in 1961 amounted to \$16,123,436,000, up seven per cent from 1960, while nonresidential building contracts dropped one per cent to \$12,115,122,000. Heavy engineering contracts, at \$8,896,809,000, were also down one per cent. While construction as a whole fared moderately well in 1961, the industry can look forward to even better things this year. Total contracts should crack the \$40 billion barrier for the first time. We shall discuss some details of this enormous market in future issues.

> EDWARD A. SFRAGUE, Economist F.W.Dodge Corporation A McGraw-Hill Company

for Seattle's Century 21 "Space Needle"... doorware design by **russwin**



Architects: John Graham & Co., Seattle and New York Contractor: Howard S. Wright, Contractors, Inc., Seattle, Wash. Hardware Distributor: United Hardware Corporation, Seattle Doorware: Russwin Turbo Design Unilocs, 500 Door Closers, 59 Door Closers

Construction Cost Indexes

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

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

NEW YORK

ATLANTA

	RESID	ENTIAL	APTS., HOTELS, OFFICE BLDGS. Brick and	COMMERC FACTORY Brick and	IAL AND BLDGS. Brick and	RESID	ENTIAL	APTS., HOTELS OFFICE BLDGS. Brick and	COMMERC FACTORY Brick	BLDGS. Brick
PERIOD	Brick	Frame	Concrete	Concrete	Steel	Brick	Frame	Concrete	Concrete	Steel
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1949	243.7	240.8	242.8	246.6	240.0	189,3	189.9	180.6	180.8	177.5
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0
1951	273.2	271.3	263.7	274.9	271.8	212.8	214.6	204.2	202.8	205.0
1952	278.2	274.8	271.9	265.2	262.2	218.8	221.0	212.8	210.1	214.3
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.4
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5	231.8
1956	310.8	302.2	320.1	328.6	324.5	237.2	235.7	241.7	244.4	246.4
1957	318.5	308.3	333.1	345.2	339.8	241.2	239.0	248.7	252.1	254.7
1958	328.0	315.1	348.6	365.4	357.3	243.9	239.8	255.7	261.9	262.0
1959	342.7	329.0	367.7	386.8	374.1	252.2	247.7	266.1	272.7	273.1
1960	351.6	337.2	377.7	395.8	380.6	259.2	253.3	274.7	282.5	278.8
October 1961	364.8	343.1	405.4	431.5	403.6	256.0	249.1	276.1	284.7	274.0
November 1961	364.8	343.1	405.4	431.5	403.6	257.3	250.8	276.0	284.4	274.3
December 1961	364.1	342.2	405.3	431.4	403.4	257.3	250.8	276.0	284.4	274.3
December 1961	194.8	179.6	6 increase over 19 210.1	223.4	210.1	198.1	% 201.8	ingrease over 193	19	189.6

ST. LOUIS

SAN FRANCISCO

1930	108.9	108.3	112.4	115.3	111.3	90.8	86.8	100.6	104.9	100.4
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1949	221.4	220.7	212.8	215.7	213.6	213.0	207.1	214.0	219.8	216.1
1950	232.8	230.7	221.9	225.3	222.8	227.0	223.1	222.4	224.5	222.6
1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1	243.1
1952	259.1	253.2	249.7	255.0	249.6	250.2	245.0	245.6	248.7	249.6
1953	263.4	256.4	259.0	267.0	259.2	255.2	257.2	256.6	261.0	259.7
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5	267.2
1955	273.3	266.5	272.2	281.3	276.5	268.0	259.0	275.0	284.4	279.6
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6	295.8
1957	292.0	283.4	295.2	307.1	302.9	286.3	274.4	302.9	315.2	310.7
1958	297.0	278.9	304.9	318.4	313.8	289.8	274.9	311.5	326.7	320.8
1959	305.4	296.4	315.0	329.8	323.9	299.2	284.4	322.7	338.1	330.1
1960	311.4	301.0	322.2	337.2	329.2	305.5	288.9	335.3	352.2	342.3
October 1961	314.9	301.1	329.8	347.9	332.1	311.5	292.3	350.5	368.4	354.2
November 1961	313.5	299.3	329.5	347.7	331.7	311.5	292.3	350.5	368.4	354.2
December 1961	317.8	304.1	334.8	352.7	336.4	310.8	291.4	350.4	368.2	354.0
		%	increase over	1939			% i	crease over 1	939	
December 1961	188.4	184.2	182.0	1 194.4	182.7	194.3	193.4	198.5	202.0	203.9

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.

The McKinleys chose a hillside





But they didn't want to bulldoze away the charm of their property, high on a hill overlooking Seattle. In designing his own home, David McKinley, an architect, decided on *steel* for the framework that carries the entire living area on a single level. Steel provided strong framing that could be left exposed for what McKinley calls "its sculptural beauty." See how attractive it looks in combination with wood paneling and decking.

Living and family rooms, three bedrooms, 1½ baths, music room, kitchen, and open decks are all on one level. Carport, and McKinley's quiet study are below. Steelwork by Seidelhuber Iron Works. Contractors for an addition to the house were Charles Tuttle and Atlas Iron Works. All are of Seattle.

The McKnews are on the beach





These are just two examples of steel-framed homes. Steel is equally suitable for more conventional houses. With steel you can build on that "impossible" lot, and build a house that will stand forever.

The cost need not exceed that of a house of conventional construction and comparable quality —



for Strength ... Economy ... Versatility And what a house for enjoying the out-of-doors! Architect Jock McKay designed it with huge window-walls, a sheltered court for sunning, and a unique, "folded-plate" roof. Let the wild winds blow—this house is framed with *steel*. The same design in conventional stud-wall construction would have cost considerably more.

Spacious living room of the twelve-sided home. Three bedrooms, two baths, kitchen, utility area, and enclosed court. Steelwork by Lambrix & Son, San Rafael; structural engineer was David Hammond, Palo Alto; contractor: Bain Construction Co., Larkspur.

and when steel is used you can do so much more!

We would be happy to send you a free copy of "The Steel-Framed House," an attractive booklet describing architect-designed homes from coast to coast. Please address your request to Publications Div., Bethlehem Steel Company, Bethlehem, Pa.





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foundation. You can specify 14 types of flashings including copper-fabric, copper-asphalt, copper-lead, fabric, plastic and aluminum. For exceptional flashing problems, you are invited to consult the Cyanamid Engineering staff. For full product details, see Sweet's Architectural File 8g/Wa.

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Meetings and Miscellany



-Drawn for the RECORD by Alan Dunn

"That's technology for you-prestressed adobe!"

A.I.A. Gold Medal Winners Named

The American Institute of Architects has named the following recipients of Gold Medals: Fine Arts, Stuart Davis, painter and muralist, New York; Industrial Arts, Sundberg-Ferar, Inc., industrial designers, Southfield, Mich.; Architectural Photography, Ernst Haas, Australia and New York; Allied Professions, Ammann & Whitney, consulting engineers, New York.

Lewis Mumford, author and architectural critic, was awarded the A.I.A. Citation of Honor for his book "The City in History."

The awards will be presented at the A.I.A. Dallas Convention. They were voted by the A.I.A. Board of Directors on nomination of the Committee on Fine Arts Awards, whose members are L. Bancel LaFarge, F.A.I.A., chairman, Gordon Bunshaft, F.A.I.A., and G. E. Kidder Smith, F.A.I.A.

Other awards for presentation at the convention are: Architectural Firm Award, Skidmore, Owings and Merrill, New York; Kemper Award, Harry D. Payne, A.I.A., chairman of the Institute's Committee on Professional Insurance.

Honorary memberships will be awarded to: Edith Brazewell Evans, editor of *Living for Young Homemakers* magazine; Dr. Arnold C. Tjomsland of Washington State University, College of Education; Perry Prentice, editor and publisher of House & Home; A.I.A. librarian George E. Pettengill; Polly Shackleton, head of the A.I.A. Department of Legislative Affairs; and Wolf Von Eckardt, former head of the A.I.A. Department of Public Information and Journal art director.

It was announced last month (AR, Feb., p. 10) that the 1962 A.I.A. Gold Medal would be awarded posthumously to Eero Saarinen.

Boston City Hall Design Finalists Announced

From a total of 256 entries by architects from all over the U.S., eight preliminary designs for Boston's new City Hall have been selected for final competitive judgment in May.

The eight architects and architectural firms are: Joseph T. Schiffer, Concord; James B. Zwack, Wilbert O. Ruster, Lloyd Gadau, Appleton, Wis.; F. Frederick Bruck, Ervin Y. Galantay, Cambridge; Mitchell and Giurgela, Philadelphia; Edward F. Knowles, R. M. McKinnell, G. M. Kallmann, New York; Y. C. Wong, T. C. Chang, Gertrude Kerbis, Otto Stark, S. Chan Sit, Chicago; Arthur G. Waterman, Tsiung, Johnson and Ruffing of Waterman, Page and Associates, Inc., Boston; George Rafferty of Progressive Design Associates, St. Paul, Minn.

Jury members are: William W. Wurster, Wurster, Bernardi and Emmons, San Francisco; Walter A. Netsch, Skidmore, Owings and Merrill, Chicago; Ralph Rapson, head of the University of Minnesota School of Architecture; Pietro Belluschi, dean of the School of Architecture and Planning of M.I.T.; Harold D. Hodgkinson, chairman of the Board, Wm. Filene's Sons, Boston.

California Seeks Architect In Nationwide Search

The State of California is conducting a nation-wide program to recruit a new state architect who will succeed Anson Boyd who retires in the spring. The California State Architect administers the State Division of Architecture, one of the largest architectural organizations in the country. The Division has been responsible for over 100 million dollars in construction annually. Top salary is expected to be \$20,500.

Selection of candidates will be made by a Qualifications Review Committee and Interview Board and finally by interview with Robert B. Bradford, director of Public Works.

The following have agreed to advise in the selection of the State Architect: architects, Welton Becket, Mario Ciampi, Wayne Hertzka, Frank L. Hope; John A. Blume, structural engineer; Alf E. Brandon, vice president of business affairs. Stanford University.

Candidates must have broad and extensive architectural and administration experience and be eligible for professional registration in California. For further information concontinued on page 28



by the sm revolutio Arkla Gas



VISIT THE ARKLA GAS AIR-CONDITIONED SPACE NEEDLE AT THE CENTURY 21 SEATTLE WORLD'S FAIR.

Arkla's new 25-ton Gas Chiller-Heater-the DF-3000-has come to Phoenix in offices, churches and apartments. Reasons for its popularity: • Heats or cools automatically—no boiler, no compressor • Sealed for life, requires no lubrication • Keeps same capacity for life of the unit • No moving parts—no friction—in the heating and cooling cycle • First large tonnage absorption air conditioner that also heats . For the whole story on the Arkla 25-ton DF-3000, call your local GAS company. Or write Arkla Air Conditioning Co., General Sales Office, 812 Main St., Little

Rock, Ark. • American Gas Association. For Cooling & Heating...Gas is Good Business

Meetings and Miscellany

continued from page 25

tact John F. Fisher, executive officer, State Personnel Board, 801 Capital Ave., Sacramento 14, Calif.

Landry and Canty Assume New Duties with A.I.A.

Two major appointments have been made in the American Institute of Architects' headquarters offices in Washington, D. C. Baton Rouge architect Kenneth C. Landry, A.I.A., has been appointed head of the Department of Institute Relations. Donald J. Canty of Berkeley, Calif., has been appointed head of the Department of Information Services and assistant editor of the A.I.A. Journal.

A.I.A. Executive Director William H. Scheick said Mr. Landry, who assumes his new duties April 1, would have extensive responsibilities involving A.I.A.'s national and state legislative programs and relations with other segments of the construction industry.

A partner in the firm of Bodman, Murrell, Landry & Webb, Architects and Engineers, Mr. Landry will terminate active participation in partnership affairs after April 1, but will be available to the firm as a consultant.

Mr. Canty has been associate editor of the Daily Pacific Builder, the F. W. Dodge construction industry newspaper for northern and central California, executive assistant to the California Council of the A.I.A., and, most recently, executive editor of the McGraw-Hill magazine Western Architect and Engineer, which in January was consolidated with the Western Section of the RECORD, a publication of F. W. Dodge Corporation, a McGraw-Hill company.

Mr. Canty replaces Wolf Von Eckardt who has been A.I.A.'s public information officer and art director of the *Journal* since 1958. Mr. Van Eckardt, recently elected an Honorary Member of the A.I.A., resigned to free lance as architectural writer and critic. He will continue as *Journal* art director.

Bacon To Speak at Harvard Urban Design Conference

Edmund Bacon, executive director of the Philadelphia City Planning Commission, will talk on the subject "What Happens Between Buildings" at the Sixth Urban Design Conference to be held at Harvard University, April 14. The conference, sponsored by the Harvard Graduate School of Design and its Alumni Association, will also feature a report on the previous day's panel discussions on "Designing Inter City Growth" by panel moderator Frederick Gutheim, president of the Washington Center for Metropolitan Studies.



Jon H. Starnes, fifth year student at the University of Texas, (center), is winner of the \$5000 second annual Reynolds Aluminum Prize for Architectural Students. Reviewing Mr. Starnes' model of a "Warped Space Frame Component" are Philip D. Creer (left), director of the Univ. of Texas School of Architecture, and R. Gommel Roessner, chairman of the school's Design Committee

Gropius and Two Sculptors Elected to National Institute

Walter Gropius was one among eleven creative artists elected new members in the National Institute of Arts and Letters, the highest honor society of the arts in the country.

Also elected new members in the Institute, which limits its membership to 250 native or naturalized citizens qualified by notable achievements in art, literature or music, were sculptors Isamu Noguchi and Alexander Archipenko.

Chermayeff Accepts Appointment at Yale

Serge Chermayeff, Russian-born architect and artist now on the Harvard architecture faculty, has been appointed new professor of Architectural Design at Yale University.

Mr. Chermayeff will resign from Harvard where he has been professor of Architecture since 1953, to accept his new appointment in the School of Art and Architecture at Yale, effective next July 1.

Plans for A.I.A. Dallas Convention Announced

"New Dimensions of Architectural Practice" will be the subject of the American Institute of Architects' 1962 Convention, May 8-11, in Dallas, President Philip Will Jr. has announced.

Keynote speaker will be Dean Charles R. Colbert of the Columbia University school of architecture. Following Dean Colbert will be Jane Jacobs, associate editor of Architectural Forum and author of "The Death and Life of Great American Cities," and Mayor Ben West of Nashville, Tenn.

The three other general sessions will be led by editors Emerson Goble of ARCHITECTURAL RECORD, Douglas Haskell of Architectural Forum and Thomas Creighton of Progressive Architecture.

Chairman of the Dallas A.I.A. Host Chapter Committee is Roscoe DeWitt, F.A.I.A. The Central Committee, composed of the chairmen of all subcommittees, the several liaison officers and the Chapter president. will consist of: John Harold Box, Guide Book; Thomas D. Broad, Transportation and Tours; Ralph Bryan, Chapter president; Jack Corgan, Reception and Registration; George L. Dahl, A.I.A. Board Dinner; Grayson Gill, Preregistration; Temple Phinney, Printing; George E. Harrell, Chapter Party and Party Entertainment; Harris Kemp, Women's Affairs; Howard R. Meyer, Budget and Finance; Enslie O. Oglesby Jr., Public Relations and Publicity; Max M. Sandfield, Architectural Exhibit; George W. Shupee. Student and School Affairs; Herbert M. Tatum, Fellowship Dinner; Downing A. Thomas, Museum Affairs.

Dean Gordon Leaves Post At Oregon University

Walter Gordon, dean of the University of Oregon School of Architecture and Allied Arts, will return to private practice in Portland and a visiting professorship at Reed College.

Dean Gordon's resignation will be effective July 1 and his Reed duties as visiting professor of art and design will begin in September. His successor was not immediately announced.



HOW MUCH AUTOMATION IS PRACTICAL FOR YOUR BUILDINGS?

Latest advances mean that today, even in buildings of modest size, the right <u>degree</u> of automated control of temperature, fire, security and other systems may pay off for your clients in as little as 3 to 5 years.

This report from Honeywell shows why and how.

Today's building more and more a machine

The next 6 minutes could be worth thousands of dollars to every client trying to hold down running expenses of a building in the face of the relentless cost-price squeeze.

Whether a public or private building —office, store, factory, school, college, hospital or hotel—it's a machine almost as much as a structure, with mechanical and electrical systems representing up to 50% of its cost.

As a machine, it can now be automated far more, and far more profitably, than most people realize—especially those who have to pay the bills for its operation and maintenance.

New: Automation for optimum results

Today your clients can have the benefit of automation concepts that a few years ago were too costly or unavailable.

Chief of these is automating a building for *optimum* results—wringing *maximum* efficiency from equipment to cut a surprising waste in manhours, plug needless leaks in other costs including power and fuel, and assure the utmost in comfort, safety, and efficient working conditions.

Here's what we mean by automating a building

A simple central control panel is, of course, a big step forward in automating a building. You can centralize control of any or all systems such as air conditioning; fire detection and alarm; security against intrusion and theft; clock systems; equipment surveillance; similar functions. And you can coordinate and integrate them for vastly higher efficiency.

Today you can also start power-consuming equipment such as compressors in just the right sequence and loading combinations for optimum efficiency at any demand. The following graph suggests the savings this can make for a client. It shows the efficiency increase estimated for an actual building by automating control of 3 compressors for the most efficient performance under any load.



Imagine what such a boost in efficiency would do for a client's building. Even if it's much smaller and less complex than this one, automation could well offer extraordinary savings.

The only question today is how much automation is most profitable. And today's decision may differ sharply from that of a few years ago.

Simpler systems for small

buildings, robots for big ones Five years have seen great advances new techniques, new equipment, new miniaturization and new knowledge gained in hundreds of installations across the nation.

For smaller buildings, there are new and simpler central-control systems; for large buildings, computer-guided robots.

Such a robot can analyze scores of variables including weather, internal load, fuel costs—and instantly allocate the load to equipment for the desired cooling at least expense. So new developments make more automation practical for buildings of all sizes—new or being modernized.

Often pays for itself in as little as 3 to 5 years

By cutting costs and boosting efficiency, automated central control often pays for itself so swiftly, in as little as 3 to 5 years, that it's almost unbelievable.

Yet many reports to Honeywell confirm it and show why. For one thing, it's now simpler to automate only the systems your client needs, in any combination. Some of the functions you can automate include:

Temperature, humidity: Monitored constantly. Remote adjustment possible for hundreds of points or just a few.

Equipment surveillance: Automatic pinpointing of off-normal conditions eliminates human error. Includes monitoring of steam and water pressures, etc.

Building security, fire alarm systems: New electronic, sonic and other detectors that see and hear in the dark or far away; spot even a wisp of the smoke that portends a fire; or feel the presence of an intruder even approaching a security zone.

Clock systems and programming: Startstop of equipment at the proper time, in the proper sequence. Built-in memories to do the right thing after power failure.

System analysis: Instrumentation to enable operation of systems at optimum.

Automatic data logging: Typed records for system analysis, for costing-billing.

For towering skyscrapers





In Chase Manhattan bank, New York, two Honeywell Selectographic DataCenters supervise air conditioning, many another function. An 11th floor center handles lower part of building, a 31st floor center the rest of the 64 stories. One man in 11th floor center can view any of 17 floor plans, 37 systems; stop any of 71 fans, 16 pumps; check temperatures in 400 areas, raise or lower them in 200; make a continuous record of any 20 of 732 key temperatures. A conventional panel for the same duties would be 70 ft. long. This Honeywell setup is less than 17 ft., including 732-station recorder and other panels. In many smaller buildings, Honeywell's Supervisory DataCenter panels of more conventional design are a practical choice for automation.

These are only a few of Honeywell's automation capabilities. Only an analysis of each building will show which a client can most profitably use, and how.

Savings may be greater than you expect. One of America's best known building managers says: "Many of us would be shocked at costs we're footing—if we only stopped to analyze and find the leaks."

Where do leaks occur? Here's one spot. In buildings without an automated control center, Honeywell studies repeatedly show air conditioning and other costly equipment running 2 to 4 hours overtime a day needlessly. It takes operators that long to start and stop all the machinery.

This wastes power and fuel, shortens equipment life, takes manhours better spent on preventive maintenance.

Starting air conditioning the old way and the new

Take a typical case. Without central control, Operator John Doe tramps 165 ft. to Equipment Room B-1 where it takes 30 minutes to start 6 fan systems, 4 exhaust fans, and check things over.

Five minutes and 760 feet later, he's in B-2 plodding through a similar chore. Then to 5 more systems, using 2 hours for a job he could have done in 5 minutes in a 5' x 20' control room.

Here, glancing at simple graphic layouts of each system, he could start the machinery, listen to it on an audio system, note pressures and temperatures, and know that if anything went wrong, alarms would pinpoint the trouble automatically.

Electronic signals quicker than footsteps, cost less

Although electronic signals move faster than John Doe, and cost less, his is still the wasteful routine in thousands of buildings. Many of these are due to be modernized. It could be costly to modernize in other ways without exploring more automation. And you won't want to base this year's decision on outdated information.

Even new buildings hit by "hidden" costs

Despite swift progress in *equipment* for automation, 3 out of 4 commercial buildings going up today lack automated controls such as Honeywell offers.

While automated control may be added later, it will then cost more, plus the loss meanwhile in "hidden" costs such as:

 Wasted manhours in walking tours, adjusting equipment, logging data.

• Lost time avoidable by preventive maintenance made easier by central control.

• Time lost by maintenance on a guesswork scheme instead of an optimum. (Made possible by system analysis that spots a drop in efficiency, warns when it's time for a checkup, helps avoid breakdowns.)

• Lost hours caring for complaints that are minimized by modern automation.

Modern equipment also can instantly locate remote trouble sources that otherwise might take hours or days to find.

Thus, in many an existing building, the owner is *paying* for automation whether he has it or not. And actually paying more if he doesn't have it.

New test: How much will it cost NOT to automate?

More and more, this is becoming the test question on automation. Recent building practices have speeded this trend. Curtain walls are so sensitive to weather changes that only automated controls can maintain the utmost comfort for occupants with least supervision at lowest cost.

In fact, automatic control actually stems from a Honeywell invention to keep you comfortable in your home.

Building automation began with this thermostat

Familiar as you are with this thermostat, the Honeywell Round, it may never have occurred to you that the first Honeywell thermostat was the real ancestor of building automa-



tion. But it is. Its principle is basic to automating industrial processes, space guidance systems, or buildings.

And you can expect Honeywell, as an automation pioneer, to provide your clients with the *right* control systems, *properly integrated* for best results. Here's why.

Only Honeywell designs, builds, installs, maintains all these control systems

Only Honeywell devotes an entire factory to making central control panels, one evidence of its leadership.

Only Honeywell manufactures the panel and all equipment used on it.

Only Honeywell makes all 3 types of control systems—electronic, electric and pneumatic. So you know that when Honeywell automation specialists advise any type or combination, it's because they feel it's best for your client, not just because it's the type Honeywell makes.

Honeywell miniaturization now saves costly space

Honeywell appreciates your problem in space utilization. Some panels have been space hogs. But Honeywell miniaturization now makes huge panels unnecessary.

Honeywell's Selectographic* DataCenter takes little more space than a desk. From this console, one man can supervise air

*Trademark

For sprawling offices in Suburbia



Fire and security systems are automated, as well as air conditioning, at Pure Oil Company suburban offices in Palatine, III. Located behind a corridor picture-window, the center reminds employees and visitors of company's concern for their comfort. Fire detection-alarm system covers 37 zones, color-keyed on a graphic panel for instant identification. In case of fire, alarm also sounds at village hall. One man at console controls 22 fan systems including 39 fans, 19 spray pumps, 17 exhaust fans, in rooms up to 400 ft. away; also controls 3 doors where entrance or exit is possible after hours. Honeywell offers practical automation systems for every type of building, including schools, colleges, hospitals, hotels, motels, stores.





For smaller buildings

This compact Honeywell control panel makes it simple to adapt air conditioning to changing needs in Fred Harvey restaurant, NW Tollway, near Chicago. This type is often ideal for smaller buildings such as offices, clinics, clubs. It can include fire and security systems, other functions.

conditioning of a 40-story building.

On its TV-like screen, he sees all its fan systems or floor plans by pushing buttons. Graphic plans, rear-projected from 35 mm slides, rivet his attention on the system he's inspecting, saving time and confusion.

Of course you can tie in modules for other functions including fire, security and clock systems. All are designed by Honeywell to give your control center a custom job at production-line prices.

Floor space for panel cut from 1,200 to 200 sq. ft.

In a typical large building where conventional panels would need about 1,200 sq. ft., the Selectographic uses only 200.

At building costs of \$15-\$30 a sq. ft., space for a conventional panel would cost \$15,000-\$30,000 more than it would for the Honeywell Selectographic. At a \$3-\$8 rental value, it saves space worth \$3,000-\$8,000 a year or \$120,000-\$320,000 over the building's 40-year life.

Other Honeywell advances slash wiring costs. In a typical building, Honeywell's Multiplexer relay system reduced the number of wires needed by 79%.

Another Honeywell contribution, the ScanAlarm*, checks 100 points in 3 seconds, reports anything off-normal. How fast could a man do it?

If you need continuous indication of variables, Honeywell has it. Automatic data logging? Honeywell has it. System analyzers? Honeywell has them. A leasepurchase plan? Honeywell has it. And if a client wants a definite maintenance cost with no surprises to upset his budget, Honeywell offers that, too.

Automation simplified by single responsibility

Honeywell will work with you, your engineer or client to analyze what services you may want to automate, what will pay off quickly, what services are on the fringe or beyond it.

We're ready to help in the design; we'll manufacture the equipment, install it, supervise start-up. And then contract with the owner to maintain it in a package including periodic inspection, emergency service, parts and replacement.

All guaranteed by Honeywell, with one company accepting total responsibility!

Ask about an automation analysis of your building

How do you start? Honeywell engineers will work with you to make a documented

analysis of a building if a preliminary check indicates further automation may be profitable for a client.

Whether he is building or modernizing, call on Honeywell for assistance, without



assistance, without obligation. Phone your nearest Honeywell office, check coupon, or write W. N. Wray, Honeywell, Dept. AR3-49, Minneapolis 8, Minn. (In Canada, write Honeywell Controls, Ltd., Toronto 17, Ont.)

Here is one more opportunity for you to make each building even more a model of efficiency—combining architectural and mechanical excellence.

May we contribute to that end? Delay can be costly, for profitable automation is here now—in the degree your clients need.

The earlier we're called in, the more certain a lower first cost—with greater savings over a building's lifetime.

*Trademark

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ARCHITECTURAL RECORD

Western Section[®]

including Western Architect and Engineer WESTERN SECTION EDITOR: Elisabeth Kendall Thompson, A.I.A. 2877 Shasta Road, Berkeley 8, California

The TV in the Tokonoma

For centuries the *tokonoma* has been the place of honor in the Japanese home, an invitation to contemplation and repose, a place where beauty was. At the back of the *tokonoma* (a recess in the wall at the side of the living room) there hangs, by tradition, a *kakemono* or picture scroll; some beautiful object—a bowl, a vase, a small piece of sculpture—or a flower arrangement is its only other adornment.

For centuries this was the *tokonoma*. But things change—as who should know better than we in this country? The *tokonoma*, once a sacred place, then a place of beauty, has been usurped. Beside the flower arrangement, under the scroll, stands the TV in the *tokonoma*—as unlikely a pairing of symbols as could be conjured anywhere.

But this is not the only change, nor the first, in Japan. What began long ago when Japan was opened to the West has continued straight along; but the pace is quicker now. Emperor Hirohito has a new palace; he has just moved into it and is reported very happy with it. Does it reflect the centuries of Japanese culture, the beauty of its art, the canons of its taste? Alas, the report is that it looks more like "a rambling ranch type house of the kind found in Southern California" than a residence for the emperor of a country with the rich and colorful history and culture that are Japan's.

Two other developments are about to hit Japan, and who can guess the result of their impact? Shopping centers based on Southern California's Lakewood center are being planned for the outlying districts of Tokyo and other large cities. By the middle of 1963 the first of these, near Tokyo, is expected to be in operation.

And as of now Japan's biggest chain of department stores is purveying "American designed, Western style, made-in-Japan furniture": sofas and chairs, of pleasant (and somewhat Scandinavian) line and look, the kind a Westerner would happily sink into because chairs are for his way of sitting. But for a Japanese? His house is scaled to a different posture. Even the height of the *kakemono* in the *tokonoma* is determined by the line of vision from the traditional seat on the floor. Simplicity and complete lack of clutter have been fundamentals of the Japanese esthetic. What happens to them when the sofa and the chair which no wall cupboard can accommodate as it does the bed and other accourtements of Japanese living, come into the living room to stay?

Perhaps in time the Japanese will solve this esthetic dilemma. It is a debatable question whether the West in thousands of years has truly assimilated its furnishings. The problems of the shopping center and the television set and their impact on the human environment are as yet too new for the kind of awareness needed for solution. As for the ranch-style house—we have had it long enough, but what do we do with it?

What these bits and pieces seem to show is that progress is a sometimeeven, perhaps, a somehow-thing, and that, wherever you are, it takes more than moving the Chesterfield onto the *tatami*, the TV into the *tokonoma*, to maintain a standard that rings true in a changing world. E. K. T.



U. S. National Bank of Portland 17th and Oak Branch, Eugene, Oregon Wilmsen, Endicott & Unthank, architects Eugene Bennett, artist



U. S. National Bank of Portland Eugene Branch, Eugene, Oregon Wilmsen, Endicott & Unthank, architects James Bartell, artist

SOUTHWEST OREGON

SOUTHWEST OREGON AND HAWAII CHAPTERS, A.I.A. AWARD HONORS

Honor award programs by A.I.A. chapters, increasingly popular in the last decade, have proved more than a means to valid publicity: they are an effective program of public education in good architecture. Some Western chapters make awards annually; others use the program less frequently. But each has its own particular feature. For the last three years the Hawaii chapter has presented a Pan-Pacific Architectural Citation to an architect from a "Pacific rim" country and an Architectural Art award to an Islands artist. For the Southwest Oregon chapter's second program only occupied buildings were eligible. Awards in both programs are shown here.

HONOR AWARDS (left)

MERIT AWARDS (below)



Low Rent Housing Project Springfield, Oregon Lutes and Amundsen, architects



River Road Medical Group Building Eugene, Oregon Lutes and Amundsen, architects



Peace Presbyterian Chapel Eugene, Oregon John E. Stafford, Kenneth Morin & James C. Longwood, architects



Standard Insurance Building Medford, Oregon Wilmsen, Endicott & Unthank, architects Eugene Bennett, artist


Residence of Harold Y. Ishii Honolulu Bradley and Wong, architects

HAWAII



Residence for Blanche M. Hill Honolulu Vladimir Ossipoff, architect



Residence for Richard K. Tam Honolulu Edward Sullam, architect



Chinese Consulate General Building Honolulu Howard Wong, architect



Bishop Museum Planetarium and Observatory Honolulu Merrill, Simms & Roehrig, architects



Aina Haina Branch, First National Bank Aina Haina, Oahu Law & Wilson, architects



McKinley High School Cafeteria Building Honolulu Takashi Anbe, architect

Williams Photoarc.

-



FAMILY CLUB MASTER-PLANNED FOR DEVELOPMENT BY STAGES

Situated in a grove of cottonwood trees beside a creek in one of the canyons of the Wasatch Mountain Range which borders Salt Lake City, the Cottonwood Club provides a pleasant recreation spot within easy access of the city and the communities to its south. The club is still being developed according to the master plan drawn up for it six years ago when a five-acre site was acquired. First of the buildings to be constructed was a part of the locker house, beside the swimming pool; two tennis courts, parking and remodeling of the stable followed. The clubhouse, terrace and the second half of the locker house represent stage three. More tennis courts, riding facilities and parking have since been added (and will be expanded in the future), landscaping is in, and the site has been increased by four acres on the south and east. An ice rink and a teen-age building are scheduled for the future. The buildings are of solid laminate wood construction; the vaulted roof of the locker house, repeated on the clubhouse, is designed on a four-foot module. Despite the summer heat in this area, the clubhouse needs no air conditioning ; its waterside location and the tall cottonwoods keep it cool. Cost of the clubhouse was \$125,000; over-all cost will be between \$275,000 and \$325,000.

32-4

The Cottonwood Club LOCATION: Salt Lake City, Utah ARCHITECT: Stephen L. MacDonald LANDSCAPE ARCHITECTS: Royston, Hanamoto & Mayes DECORATOR: Noel L. Betts CONTRACTORS: Cannon Construction Company Culp Construction Company Knowlton Building Company





Locker House was first building on site



Club house and deck with vaulted roof



Covered deck leads from lounge to patio and terrace

Decks off lounge areas shelter lower terrace



"Orthotropic" design: in some German bridges of this design, the steel deck is one-half inch thick, asphalt topping is two inches thick, laid directly on the steel plate. Hayward-San Mateo bridge, shown here, will be "light and graceful"



Original design: a double-deck, steel truss bridge labeled "erector set" by newspaper articles

"ORTHOTROPIC" DESIGN TO GIVE S.F. BAY A GOOD-LOOKING BRIDGE



First orthotropic bridge in North America is under construction across the Mississippi at St. Louis

A vigorous campaign by a San Francisco newspaper for a "beautiful bridge" instead of the design proposed by the State of California's Toll Bridge Authority has had two good results: a consulting architect—William Stephen Allen of Anshen & Allen, San Francisco architects—was appointed to pass on the bridge design, and a new design has been prepared.

The new proposal, based on a method of bridge design well-known in Europe but used only once so far in the United States (at St. Louis), is a single deck steel bridge with a slender profile. The method by which it is being designed is called orthotropic (from German engineer Cornelius' orthogonal-anisotropic theory of deck design). In this method, the deck is a steel plate which acts as the top flange of the main longitudinal girders and floor beams, and as a loadcarrying element between stringers. Stringers and floor beams are welded to the bottom surface of the orthotropic plate. The top surface is covered with a thin layer of road topping. The method makes possible considerable weightsaving over conventional designs for comparable spans, and thinner sections.

The original design for the San Francisco Bay crossing between Hayward, in Alameda County, and San Mateo on the San Francisco side of the Bay, was for a steel truss, double-deck bridge to be built at an estimated cost of \$65 million. (This figure did not include the approaches, which are already under construction.) Criticism of this design caused the California governor to review the proposal, and to promise that there "would not be anything more around here like the Richmond-San Rafael bridge" at the Bay's north end.

The orthotropic design will cost an estimated \$5 million more than the original design. But no one seems to mind the additional cost. And all factions seem pleased with the design: architects because, although it may not be the greatest design in the world, it is simple and more graceful than the original proposal; engineers because the method promises an interesting experience and meets the conditions of the job; and the public because it has been told that the new bridge will be better looking than the earlier design.

The controversy has had an even more important result. The Hayward-San Mateo bridge is near the southern end of the Bay, where it lacks the dramatic setting of the bridges at the central part of the Bay. But this bridge is just one of several that the state wants to build. Two others—one the long-discussed Southern Crossing below San Francisco, the other a bridge from the city to Angel Island and Tiburon in Marin County—are much in the news. The Hayward bridge design has aroused professionals to the real threat to the Bay's beauty: more bridges near San Francisco in strategic locations for being looked at by millions of eyes. The Richmond and Hayward bridges have been a lesson; architects are beginning to learn that, if they want a finer environment, they will have to cross their bridges before they come to them.

Controversial part is high level section over navigation channel. Long approaches from each side are already under construction



Arena for hockey and boxing at left; stadium at right

JAKLAND PLANS STADIUM COMPLEX FOR BASEBALL TEAM

ARCHITECTS: Skidmore, Owings & Merrill CONSULTING ENGINEERS: Ammann and Whitney

This handsome design for a complex of three structures is proposed for construction in Oakland, Calif., a city often looked upon by San Francisco, its neighbor across the Bay, as something of a "country cousin." With this design, however, it seems clear that Oakland, the third California city to back a baseball team with a new stadium, will have a stadium complex that is by far the most sophisticated, architecturally and structurally, of the three new structures.

It will also be versatile. The 48,500-seat stadium can be used with the normal seating-to-field relationship for either baseball or football, thanks to movable seating of special design at field level and in the bleacher section (under the eucalyptus trees which shield an unsightly outlook on the northeast). Under the grandstand are concessions, toilet rooms and, at grade, an exhibition hall. The link structure, between stadium and arena, provides meeting rooms, restaurant, team rooms and service facilities. The glass-enclosed arena provides seating (10,000 for hockey, 13,500 for boxing) in a structure of dramatic concept: a concrete shell of catenary form which stands free of the enclosure.



Grandstand seating at one side of arena gives seating stand an asymetrical curve



Stadium is entered at mid point from parking area level



Arena roof, 420 ft in diameter, is of precast concrete T's placed in three rings

WESTERN SECTION



TWO WAYS TO PROVIDE FALLOUT SHELTERS

Should fallout shelters at public schools be built into school buildings or adjacent to them? Should classrooms be built underground, with enough earth and concrete to make them adequate radiation shelters? Two answers to these questions, faced by school administrators and architects alike, are presented here. One of these is a "prototype school," one of nine schools being built with federal aid under sponsorship of the Office of Defense Mobilization. The other is a proposed solution to the problem which places the shelter under a football field. Currently under construction at Abo, N. M., is a third answer: an elementary school built completely underground.

1. Integral with the School Building

OCDM-sponsored demonstration school, North Arvada, Colo., Harold R. Carver, architect: Minimum window area and gym locker rooms located, for the most part, below grade are features most directly related to radiation protection. Locker rooms are protected along exterior wall by earth berm; other walls are interior. These are intended for emergency use as dormitories; gyms and music rooms on same level would be activity spaces during emergency use. Entrances are baffled two or three times. School and shelter are designed for school's present 750-pupil enrollment. Protection factor of shelter is between 250 and 500 (depending on location), or "good" by OCDM standards. Additional cost for shelter was \$35,000



2. Separate from the School Building

Proposed underground shelter adjacent to school, Falk & Booth, architect and engineer: Located under a playfield, this shelter is similar in design to U.S. Naval Radiation Defense Laboratory-type shelter. It uses 10 ga galvanized multi-plate steel arches, concrete bulkheads at openings and either three ft of earth for fallout protection, or 10 ft for blast (and fallout) protection. Entrance is down steps to a steel tube and thence to shelter where 2400 persons from school and neighboring area (200 in each arched unit) could be accomodated. Cost of playing field with fallout shelter is estimated at \$201,663 (\$84 per person); with blast shelter, \$218,290 (\$90 per person), exclusive of land cost, fuel storage, generators, toilets, water supply and drainage



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10th YEAR-1962

Western Construction Trends

(For analysis of construction trends nationwide, see page 20)



AS REPORTED in last month's issue, construction contracts in the 11 Western States easily reached an alltime high last year. The final figure for total contract valuation was \$8,541,751,000, up 10 per cent from 1960. This compares with only a two per cent increase for the 48 states as a whole.

All three major sectors of construction contributed to the 1961 advance in the West, and here is a quick rundown on how some of the individual categories fared:

RESIDENTIAL BUILDINGS: In the West, as well as the nation, apartment building stole the show in this sector. Apartment contracts, at \$853 million, rose an impressive 37 per cent over 1960 and apartment units were up 34 per cent. Much of last year's heady rise in multi-family housing was concentrated in Southern California, but for the 11 states together, new apartment units accounted for a startling 33 per cent of all new dwelling units—considerably above their national share of 25 per cent. One- and two-family housing finished the year with a four per cent gain in contract valuation to the \$3.0 billion level. However, the number of new one- and two-family units dropped slightly below last year. Total residential building contracts amounted to \$4,071,940,000, up 11 per cent.

NONRESIDENTIAL BUILDING: Unlike the national pattern, there was considerable strength throughout this sector in the West. The largest nonresidential building category —commercial building—rose nine per cent in contract valuation. Manufacturing building contracts were up two per cent (compared to a 14 per cent *decline* for the country as a whole); schools rose 11 per cent; public buildings were up 27 per cent; and churches up eight per cent. Only contracts for hospital buildings and recreational buildings declined, by six and 18 per cent respectively. To-tal Western nonresidential building contracts were valued at \$2,374,093,000, an increase of seven per cent from 1960.

HEAVY ENGINEERING: Modest gains in highway contracts and sewer systems and large increases in contracts for water supply systems and other utility construction moved total heavy engineering construction ahead by 11 per cent in the West. Contracts in this part amounted to \$2,095,718,000.

> EDWARD A. SPRAGUE, Economist F. W. Dodge Corporation A McGraw-Hill Company



³²⁻¹⁰ ARCHITECTURAL RECORD March 1962

ARE YOU PUZZLED?

Architects and specification writers know that there are Roofing Asphalts available to fit the requirements of all climates and roof deck slopes-but may be puzzled by the selection of proper type because wide local variation in climate is typical of the West.

THIS SHOULD HELP:

Asphalt and gravel built-up roofs may be specified for any climate and for any roof slope from "deadlevel" to 3" per foot. Maximum service life may be expected if the Asphalt used is of the lowest possible Softening Point (i.e., the softest), consistent with roof deck slope and climate. Simply stated, this means that the Asphalt should be soft enough so that any tiny cracks which may develop through thermal expansion and contraction in the deck, or through building settlement, will tend to flow together, or "heal," during warm weather; but should not be so soft that it will flow down the roof during a hot spell.

Selection of Asphalt Softening Point may often be done on the basis of local experience. Where such experience records are meager, the following table will serve as a guide for your selection and specification of roofing Asphalt type:

DECK SLOPE	NORMAL ¹ CLIMATE	HOT ² CLIMATE	1 Not more than an occasional day with air tem perature over 95°F.
0"-1/2"	dead-level	dead-level	2 Extended periods with day-time air temperature over 95°F, with clear sky, bright sun.
$\begin{array}{c} \gamma_2 - 1 \\ 1'' - 1 \gamma_2'' \\ 1 \gamma_2'' - 2'' \\ 2'' - 2 \gamma_2^{1''} \\ 2 \gamma_2'' - 3'' \end{array}$	flat flat steep steep	steep steep special steep special steep	Note: Typical Softening Points are: dead-level,

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LOS ANGELES

			APTS., HOTELS OFFICE BLDGS.	COMMERC	IAL AND BLDGS.			APTS., HOTELS OFFICE BLDGS.	FACTORY	BLDGS.
	-	-	Brick	Brick	Brick	DECID	ThIT AT	Brick	Brick	Brick
REDIOD	RESID	ENTIAL	and	and	and	Brick	Frame	Concrete	Concrete	Steel
PERIOD	Brick	rrume	Concrete	Concrete	51001	Drick	00.4	100.7	TOTO	104.0
1939	112.0	112.1	110.1	117.8	117.0	97.2	93.0	103.7	104.9	100.2
1948	217.8	218.1	202.7	207.0	206.7	215.9	216.5	205.8	210.0	209.8
1949	215.8	212.9	211.0	215.3	214.6	207.0	203.2	209.9	212.4	210.2
1950	230.0	228.2	218.8	221.3	221.2	224.1	222.8	217.4	219.0	217.5
1951	249.7	246.6	236.5	237.2	238.9	241.0	239.5	235.1	236.9	236.6
1952	253.6	249.4	243.4	245.1	245.6	243.8	241.7	239.8	242.6	241.5
1953	259.6	254.0	255.0	260.9	258.1	250.5	246.5	252.3	258.2	255.3
1954	258.9	252.0	259.1	266.2	263.4	251.0	245.3	257.7	265.7	261.8
1955	266.6	260.9	266.3	273.2	271.7	262.1	256.6	269.3	278.0	273.9
1956	274.9	269.3	275.8	282.3	285.1	272.6	266.7	282.9	292.9	289.3
1957	281.3	272.2	285.4	293.1	296.4	275.4	267.9	292.8	303.3	303.7
1958	282.2	272.0	288.1	295.9	298.8	277.9	286.6	302.6	314.5	316.4
1959	288.7	278.9	295.2	302.9	304.8	288.7	279.1	314.9	326.9	327.6
1960	292.2	282.7	301.3	309.0	310.0	299.8	287.7	329.1	342.7	339.6
Oct. 1961	295.8	285.4	311.9	320.8	314.2	304.8	288.5	343.1	359.4	350.0
Nov. 1961	295.8	285.4	311.9	320.8	314.2	164.1	154.6	168.6	172.3	168.5
December 1961	295.8	285.4	311.9	320.8	314.2	305.7	389.9	342.5	358.2	350.0
1	1.	9	6 Increase over 193	39		1.1.1.1	%	Increase over 193	9	
December 1961	164.1	154.6	168.6	172.3	168.5	214.5	209.7	215.1	241.5	229.6

SAN FRANCISCO

SEATTLE

1939	105.6	99.3	117.4	1 121.9	116.5	104.4	96.7	119.2	125.3	118.7
1948	218.9	216.6	208.3	214.7	211.1	216.3	211.4	211.5	216.6	216.9
1040	213.0	207.1	214.0	219.8	216.1	214.2	203.9	220.7	228.5	225.3
1050	207.0	207.1	214.0	217.0	200.4	214.2	010.4	220.7	224.5	000.0
1950	227.0	223.1	222.4	224.0	222.0	224.1	213.0	227.1	234.5	230.3
1951	245.2	240.4	239.6	243.1	243.1	245.1	232.7	247.7	255.8	251.0
1952	250.2	245.0	245.6	248.7	249.6	254.3	239.8	258.8	267.7	263.8
1953	255.2	257.2	256.6	261.0	259.7	254.8	239.0	262.7	273.6	269.5
1954	257.4	249.2	264.1	272.5	267.2	253.3	236.1	266.6	279.1	274.0
1955	268.0	259.0	275.0	284.4	279.6	260.6	243.3	273.7	287.3	282.4
1956	279.0	270.0	288.9	298.6	295.8	273.5	254.0	288.5	303.4	299.0
1957	286.3	274,4	302.9	315.2	310.7	275.6	254.0	298.2	313.1	311.2
1958	289.8	274.9	311.5	326.7	320.8	279.9	256.4	306.0	324.0	320.8
1959	299.2	284.4	322.7	338.1	330.1	291.5	267.8	318.8	336.9	331.8
1960	305.5	288.9	335.3	352.2	342.3	298.9	272.4	330.5	351.2	342.9
Oct. 1961	311.5	292.3	350.5	368.4	354.2	297.4	268.7	336.8	359.7	346.3
Nov. 1961	311.5	292.3	350.5	368.4	354.2	195.0	194.4	198.5	202.2	204.0
December 1961	310.8	291.4	350.4	368.2	354.0	297.4	268.7	336.8	359.7	346.3
		%	Increase over 1	939			% 1	crease over 19	39	
December 1961	194.3	193.4	198.5	202.0	203.9	184.9	177.9	182.5	187.1	191.7

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).

32-12 ARCHITECTURAL RECORD March 1962

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. The past and the future coordinated with

M2Sai.

Natural granite aggregates, taken from the same quarry as the stone for the original State Capitol, take on the new modern form of Mo-Sai precast concrete curtain walls. The contemporary lightweight units on the new Utah State Office Building allow for the expression of new ideas and yet maintain the timelessness demanded to harmonize with the State Capitol constructed in 1916.

Architects: Scott & Beecher, Salt Lake City, Utah



MO-SAI WESTERN REGIONAL MEMBERS

OTTO BUEHNER & COMPANY

640 Wilmington Avenue, Salt Lake City, Utah WAILES PRECAST CONCRETE CORPORATION 11240 Peoria Street, Sun Valley, California

OLYMPIAN STONE COMPANY

1415 N. W. Ballard Way, Seattle 7, Wash. P. GRASSI-AMERICAN TERRAZZO COMPANY 111 South Maple Avenue South San Francisco, California

36 Wood Street San Francisco 18, California

Estimator's Guide: DENVER and the MOUNTAIN STATES

The Estimator's Guide alternates monthly among four Western areas. The prices below are compiled from average quotations received by LeRoy Construction Services for commercial work of approximately \$100,000-\$250,000

EXCAVATION
MACHINE WORK IN COMMON GROUND Large basement
Large pits & trenchesCY 6.00-10.00 Small pits & trimmingCY 8.00-12.00 Hard clay or shale, 2 times above rates
SEWER PIPE MATERIALS
Standard 4" LF .30 Standard 6" LF .41 Standard 8" LF .59 Standard 12" LF 1.11 Standard 24" LF 4.78 CLAY DRAIN PIPE LF 1.78
Standard 6"
CONCRETE & AGGREGATES
GRAVEL, all sizes
1/4" to 3/4"
SAND (#1 & 2)
Small quantities
Concrete Mix
Clear, 5-gal drums
STEEL MATERIALS
SHEETS Hot RolledLB .12 Cold RolledLB .13
Galvanized
BARS Hot Rolled
Reinforcing
6 x 6" #6 x #6
STRUCTURAL STEEL
\$350.00 and up per tan erected when out of mill \$370.00 and up per tan erected when out of stock
All Prices-FOR Plant
COMMON BRICK
Select 21/2 x 33/4 x 81/4"
Roman
12 x 12 x 3"
MANTEL FIRE BRICK 21/2 x 91/2 x 41/2"
GLAZED STRUCTURAL UNITS 2 x 6 x 12" Furring
4 x 0 x 12" I side
4 x 6 x 12" 2 sidesSF 1.00 Add for color

AGGREGATE	
ClaliteCY 5.75 MODULAR FLUE LINER	
8" x 8"LF .50 8" x 12"LF .70	
12" x 12"LF .95	
12" x 16" LF 1.30 16" x 16" LF 1.55	
20" x 20"LF 2.15	
24" x 24"LF 4.50	
BRICKWORK & MASONRY	
COMMON BRICKWORK, reinforced	
12" walls	
SELECT COMMON, reinforced	
8" walls	
CONCRETE BLOCK, reinforced	
8" walls	
12" wallsSF 1.25	
4" Select CommonSF 1.55	
4" Roman	
4" NormanSF 1.50	
BUILDING PAPERS & FELTS	
BUILDING PAPER	
2 ply per 1,000-ft roll	
3 ply per 1,000-ft roll	
SHEATHING PAPERS	
Asphalt sheathing, 15-lb roll	
Dampcourse, 216-ft roll	
FELT PAPERS	
44-lb, 50-ft roll	
1-lb, 50-ft roll2.45 Asphalt roofing felt.	
15-lb 300 SF2.10	
ROOFING PAPERS	
Standard grade, smooth surface	
light, 45-lb	
Medium, 55-lb	
Mineral Surfaced	
LUMBER	
DOUGLAS FIR	
Construction	
Utility	
Economy	
Clear, kiln dried MBM 200.00 Clear, kiln dried MBM 230.00	
REDWOOD	
Construction HeartMBM 175.00	
A Grade	
PLYWOOD (DOUGLAS FIR)	
1/4" ABMSF 120.00	
1/4" Ext. waterproofMSF 120.00	
3/4" ABMSF 145.00	
3's" CDMSF 95.00	
1/2" AB	
1/2" CD	
5/8" ABMSF 220.00	
5/8" CDMSF 145.00	
3/4" AB	
34" CDMSF 170.00	
9/8" Plyform	
Cedar #1	
SHAKES	
Cedar 1/2" to 3/2" but	
3/4" to 11/4" butt Source 21 00 22 00	

total value. Except as otherwise noted, prices are for work installed including all labor, material, taxes, overhead and subcontractors' profit. Material prices include local delivery except as noted, but no state or local taxes.

Redwood 34" to 11/4" buttSquare 22.00-25.00
INSULATION & WALL BOARD
FOB Warehouse Per M SF
11/2" thick
21/4" thick
SOFTBOARDS-wood fiber
3/8" thick
1/2" thick
35# Kraft paper with alum foil
1 side only
2 sides
3/8" thick
1/2" thick
%" thick
1/8" thick, sheathing
3/16" thick, sheathing
1/4" thick, sheathing
3/16" thick, tempered
1/4" thick, tempered
CEMENT ASBESTOS BOARD
3/16" flat sheets
1/4" flat sheets
ROUGH CARPENTRY
ERAMING
Floors
WallsBM .3035
Ceilings
Furring & blocking BM 32-52
Bolted framing, Add 50%
SHEATHING
1 x 8" straight
5/16" plyscord
5%" plywood CCSF .2631
SIDING
1 x 4" V-rustic
DAMPPROOFING & WATERPROOFING
MEMBRANE
4 layers dampcourse
Hot Coat wallsSQ 8.50
Konset added to concretePer Gal 2.45
Anti-nyaro addea to concretePer Gal 2.43
ROOFING
STANDARD TAR & GRAVEL Per Square
4-ply
White gravel finish add 2.00-4.00
Asphalt Compo. shingles
Cedar shingles
Cedar shakes
Clay tiles
SHEET METAL
ROOF FLASHINGS
18 ga galv steel
26 ga galv steelSF ,4585
18 ga aluminumSF 1.05-1.5
22 go aluminum
16 oz copper
20 oz copperSF 1.70-2.2
24 oz copper
26 gg ggly steel
Mitres & DropsEA 2.00-4.0
CHIMNIEVS DATENIT
CHIMINELD, FAIEINI
8"LF 1.4
10" LF 2.8.
12"LF 3.4
Rates for 10-50 LF

 Add for color
 .25

 CONCRETE BLOCKS
 .24

 4 x 8 x 16"
 .24

 8 x 8 x 16"
 .24

 12 x 8 x 16"
 .24

 12 x 8 x 16"
 .24

 .25 Add for color
 .25

MILLWORK
All Prices FOB Mill
D.F., clear, air dried S45MBM 240.00-265.00
D.F., kiln dried \$45MBM 250.00-300.00
DOOR FRAMES & TRIM
Residential entrance
nterior room entrance 8.00 & up
DOORS
198" hollow core 8.00 & up
136" Birch ballow core
13/4" Birch solid core 22.00 & up
WOOD SASH
D/H in pairs (2 lts)SF .55
Casement (1 lt)SF .65
WOOD CABINETS
44" D.F. plywood with 1/4" plywood backs
Wall hung LF 12.00-18.00
CounterLF 14.00-20.00
Fascia & molds
ENTRANCE DOORS & FRAMES
Single 60.00 & up
Double
INTERIOR DOORS & FRAMES
Singles
Pocket sliding
Llosef sliding (Pr.)
D/H rath & framer SE 2.00 8 um
Casement sash & frames SF 2.25 & up
SHELVING
1 x 12 S45BM .4060
3/4" plywoodSF .4565
STAIRS
Oak Steps, DF risers
Under 36" wideRiser 14.00
Under 60" wideRiser 19.00
WOOD CASES & CARINETS
D.F. wall hung
D.F. counters LF 21.00-30.00
HARDWOOD FLOOPING MATERIALS
DAK SILE" - 2"
Clear 4 2/500
Select
#1 Common
Oak 5/16" RANDOM PLANK
Select & Better
#1 Common
OAK 25/32" x 21/4" T&G
#1 Common
#1 Grade
#2 Grade
#3 Grade
NAILS: 1" floor bradsKeg 18.00
HARDWOOD FLOORS
SELECT OAK
Filled, sanded, stained and varnished
5/16" x 21/4" strip SF .4855
5/10" random plantSF .5358
40/32 x 21/4" 1&GSF .8595
Filled sanded stained & secretaria
25/32" x 21/2" T&G
Wax finish-Add
RESILIENT FLOORING MATERIALS
Harborn and all strange
Linoleum, standard gage

Linoleum, standard gageSY	2.75-2.95	
Linoleum, battleshipSY	3.10-3.30	
1/8" Asphalt Tile, darkSF	.1012	
1/8" Asphalt Tile, lightSF	.1418	
1/8" Rubber TileSF	.4450	
.080 Vinyl TileSF	.6770	
.080 Vinyl Asbestos TileSF	.2230	
1/8" Vinyl Asbestos TileSF	.3239	
4" Base, blackLF	.1213	
4" Base, coloredLF	.2228	
Rubber TreadsLF	1.60-2.30	
Linoleum Paste	.7590	
Above rates based on quantities of 1,000 per job.	-5,000 SF	

FLOORS

Va" Asphalt Tile, dark colorsSF	.2530
1/8" Asphalt Tile, light colorsSF	.3035
1/8" Rubber TileSF	.6070
.080 Vinly Asbestos TileSF	.4045
.080 Vinyl TileSF	.8595
Linoleum, standard gageSY	3.75-4.25
Linoleum, battleshipSY	5.25-5.75
4" Rubber Base, blackLF	.3545
Dubber Cista Transfer	0 05 0 76

Above rates based on quantities of 1,000 to 5,000 S.F. per job. ED MATEDIALC

ATH	& PLASIER MATERIALS	
TAL	LATH	
6	1 2 All Course barrier	

service and applied bodying the traiter ter ter
Ribbed 3.4# Copper-bearing
ROCK LATH
%" thick
METAL
3/4" standard channelLF .047
11/2" standard channelLF .065
31/4" steel studsLF 1.12
4" steel studs LF 1.22
Stud shoesEA .03
PLASTER
Browning, HardwallSack 1.35
Finish, HardwallSack 1.35
Stucco

LATH & PLASTER WORK

CHANNEL FURRING	
Suspended ceilingsSY	2.70-3.00
WallsSY	2.80-3.10
METAL STUD PARTITIONS	
31/4" studsSY	3.00-3.30
4" studsSY	3.15-3.45
Over 10' high, AddSY	.2535
3.4# METAL LATH & PLASTER	
Ceilings	3.95-4.45
WallsSY	4.10-4.60
Keene's cement finish, AddSY	.4565
ROCK LATH & PLASTER	
CeilingsSY	2.95-3.45
WallsSY	3.05-3.55
WIRE MESH & 7/8" STUCCO	
WallsSY	4.20-4.80
STUCCO ON CONCRETE	
WallsSY	3.05-3.40
Metal accessoriesLF	.2555

TILE MATERIALS

FOB Warehouse CERAMIC TILE

41/4" x 41/4" glozedSF	.72	
41/4" x 41/4" hard glazedSF	.74	
Random, unglazedSF	.72	
6" x 2" copEA	.19	
6" cove baseEA	.31	
1/4"-round beadLF	.10	
QUARRY TILE		
6 x 6 x 1/2" redSF	.51	
6 x 6 x 3/4" redSF	.53	
9 x 9 x 3/4" redSF	.65	
6 x 6 rove hase FA	23	

TILE & TERRAZZO WORK

CERAMIC TILE, stock colors	
FloorsSF	1.85-2.25
WallsSF	1.90-2.40
Cove baseLF	1.00-1.25
QUARRY TILE	
6" x 6" x 1/2" floorsSF	1.70-2.10
9" x 9" x 3/4" floorsSF	1.85-2.25
TERRAZZO	
Terrazzo floorsSF	2.15-2.65
Cond. Terrazzo floorsSF	2.30-2.80
Precast treads & risersLF	3.60-4.60
Precast landing slabs SF	3.00-4.10

WINDOWS

STEEL SASH	
Under 10 SF	SF 2.55 & up
Under 15 SF	SF 2.10 & up
Under 20 SF	
Under 30 SF	SF 1.05 & up
ALUMINUM	SASH
Under 10 SF	
Under 15 SF	SF 2.30 & up
Under 20 SF	SF 1.85 & up
Under 30 SF	SF 1.35 & up
Above rates	are for standard sections and stock
sizes, FOB W	arehouse

GLASS-CUT TO SIZE

FOB Warehouse	
SSB Clear, aver 4 SFSF	.17
DSB Clear, aver 7 SFSF	.28
Crystal, aver 16 SFSF	.35
1/4" Polished Plate, aver 50 SFSF	.90
Va" Obscure, over 7 SFSF	.55
1/8" Ribbed, aver 7 SFSF	.68
Ve" Rough, aver 7 SFSF	.68
1/4" Wire Plate, clear, over 40 SFSF	1.90
1/4" Wire Plate, rough, aver 40 SFSF	.90
1/8" Heat Absorbing, aver 7 SFSF	.90
1/4" Tempered Plate, aver 40 SFSF	3.60
1/47 Tempered Blate aver ID CE CE	× 10

GLASS BLOCKS

6"	į				,	ŝ		i,				.,	4		4			,							.,	.,		EA.	.70	
8"	2		9	è	•			ŝ		6			ų		÷	i.				ú		÷		 .,		ç	í	.EA	1.15	
12"		÷	ŝ	2		5	ċ.	è.	4	1	÷	J		5	÷	÷.	2	2	1		5			1		5	i.	FA	3 10	

GLASS & GLAZING

SSB ClearSF .d	50
DSB ClearSF 3	75
CrystalSF .S	20
1/4" PlateSF 1.5	15
Va" ObscureSF	15
Va" Heat AbsorbingSF 1.3	35
1/4" Tempered PlateSF 4.5	50
1/2" Tempered PlateSF 8.0	00
1/4" Wire Plate, clearSF 2.8	30
1/4" Wire Plate, roughSF 1.4	10

PAINT MATERIALS

All	prices	FOB	Warehous
-----	--------	-----	----------

Thinners 5-100 gal	.63
Turpentine 5-100 gal	1.59
Linseed Oil, rawGal	2.36
Linseed Oil, boiledGal	2.43
Primer-sealerGal	3.12
Enamel Undercoaters	5.54
Enamel	5.58
White Lead in OilLB	.36
Red Lead in OilLB	.36
Litherana In	00

PAINTING

F	x	τ	F	D	1	n	D	
	~			n		9	п.	

Stucco wash, 1 coat	.40
2 coats	.64
Lead & Oil, 2 coatsSY	.96
3 coats	1.35
INTERIOR	1100
Primer-sealerSY	.42
Wall paint, 1 coatSY	.54
2 coatsSY	.98
Enamel, 1 coatSY	.62
2 coatsSY	1.14
Doors & trimEA	13.00
Sash & IrimEA	15.00
Base & moldsLF	.15

Old work, Add 15-30%

PLUMBING

Lavatories	.EA 150.00-200.00
Toilets	.EA 200.00-300.00
Both Tubs	.EA 250.00-350.00
Stall Shower	.EA 125.00-175.00
Sinks	.EA 150.00-200.00
Laundry Trays	.EA 100.00-150.00
Water Heaters	.EA 100.00-300.00
Prices based on average r commercial work, Special	esidential and fixtures and

excessive piping not included.

HEATING

	Furnaces-G	as-Fired,	Average	Job
FIOOD	FURNIACE			

FLOOR FURNACE
25,000 BTU
35,000 BTU
45,000 BTU
Automatic Control, add
DUAL WALL FURNACE
25,000 BTU
35,000 BTU
50,000 BTU
Automatic Control, add
GRAVITY FURNACE
75,000 BTU
85,000 BTU
95,000 BTU
Forced Air Furnace, add 80.00-135.00
Automatic Control, add 20.00- 30.00
HEAT REGISTERS
Outlet

ELECTRIC WORK

Per Outlet

Knob & Tub	e	i.	÷	ł	÷	•	a)	,	÷	÷		i,	4	÷		ç	ŝ,	Ģ,	÷	÷	4					, EA	10.00
Armor		÷	ŝ	÷		ŝ	÷				ŝ		2			ĥ	á	4	ie		ç	1		4	Ĭ,	.EA	17.00
Conduit		÷,		÷		į												ì			÷	÷	2		ų	.EA	21.00
110-V Circu	it	÷	÷	2			÷		×		ì			è							2				ļ	.EA	26.00
220-V Circu	it		ï			ŝ	ŝ	ì		ć			2	ļ	ć	ŝ		i	Ĵ,	2	6	-		í	ĩ	.EA	98.00

ELEVATORS & ESCALATORS

Prices vary according to capacity, speed and type.

Consult elevator companies.

Slow speed apartment house elevator including doors and trim about \$4,000 per floor.

CONSTRUCTION COST CONTROL

All construction is a result of the combined efforts of a building owner or client, an architect (or engineer) and a contractor. Each of these is aided by specialists.

The client is advised by an attorney, a realtor and possibly by a market analyst.

The architect is assisted by consulting engineers for structural, mechanical and electrical work as well as by landscape architects and interior decorators.

The contractor sub-contracts most of the work to specialists in the various trades.

The contractor and each of his sub-contractors employ estimators because they are required to contract to perform their work at fixed lump sum prices. During the planning stage however the client expects his architect to know what these prices are likely to be and often demands that the architect shall design to meet a budget. Yet frequently neither the client nor the architect employ an estimator or a consultant on construction costs.

An independent professional QUANTITY SURVEYOR is a specialist in construction cost estimating and can provide the following services to a client or architect:

- 1. Initial comparative costs of alternate schemes.
- 2. Preliminary or budget estimates of adopted scheme.
- 3. Advice on alternate materials and methods.
- 4. Quantity surveys for F.H.A. loan insurance.
- 5. Final cost estimates.
- Check on final drawings and specifications to decrease possibility of addenda or change orders.
- 7. Negotiation of target contracts.
- Bills of quantities on which bids for lump sum, firm price contracts can be based.
- 9. Measurement and valuation of change orders.

Reliable estimates before bidding, negotiation or before making any financial arrangements will save clients and architects time and money.

LeROY CONSTRUCTION SERVICES

Quantity Surveyors and Estimators

768 Brannan Street, San Francisco 3 • UN 1-2483

Professional News

A.I.A. Chapter Awards

Monterey Bay: William V. Shaw, president; John A. Taras, vice-president; George Kuska, secretary; Edward H. Duerr, treasurer.

East Bay: Mitchell Van Bourg, president; Roger Y. Lee, vice-president; Rollo S. Wheeler, secretary; Charles N. Dougherty, treasurer.

Coast Valleys: David F. Potter, president; Peter G. Wuss, vice-president; John C. Worsley, secretary; Wilfred E. Blessing, treasurer; Morgan Stedman and Allan M. Walter, directors.

Central Valley: Whitson W. Cox, president; Ken Kaestner, vice-president; Tod Hart, secretary; Silvio Barovetto, treasurer; Dean Unger, Robert Oliver and Richard A. Patrick, directors.

Central Arizona: Lester H. Laraway, president; Charles Hickman, president-elect and vice-president; John Schotanus, secretary; Henry M. Arnold, treasurer; Francis W. Bricker, Kemper Goodwin, and Max Kaufman, directors.

Southern Arizona: Robert J. Ambrose, president; Bernard J. Friedman and Sydney W. Little, vice-presidents; James Wares, secretary; William Goldblatt, treasurer; Nick Sakellar, Frederick M. Edson, Arthur Darton, Carl LeMar John, and David Swanson, directors.

Hawaii: Gordon W. Bradley, president; George V. Whisenand, vicepresident; Paul D. Jones, secretary; Gordon Potter, treasurer; Clifford F. Young, Vladimir Ossipoff and Edwin L. Bauer, directors.

Firm Changes

Page-Werner & Associates, architects, is the new name of the former firm of Page & Werner. Offices are at Thisted Center, Great Falls, Mont.

Howard L. Cook and George J. Wimberly of the firm of Wimberly & Cook, architects, of Honolulu, have dissolved their firm. Howard L. Cook has established his own office. George Wimberly will continue his present practice with offices at 315 Royal Hawaiian Ave., Honolulu.

more news on page 32-21



HERE'S WHY: Light weight saves freight and other costs. Gives higher strength per pound than other structural shapes. Easy to bend, weld, punch or drill. Easy to join with other steel parts or attach to other materials. Provides enclosed area to conceal moving parts or wires. Surfaces are easy to maintain.

TEX-TUBE MECHANICAL TUBING AND PIPE have applications in hundreds of uses—building columns, railings, beams, window frames, sashes, ornamental duct work, scaffolds, fire escapes, catwalks, grills, machinery frames and bases, furniture, fixtures, appliances, trailers, tail pipes, fencing, sign supports, storage racks.

TEX-TUBE TYPES & SIZES Round Mechanical 1" OD to 5" OD

Squares

Round Structural 1" OD to 6%" OD



1" OD to 4" OD **Rectangles** 1¼" x 2" to 2" x 4" (6 sizes)



(6 sizes) Elliptical

4" Nom. (3½" x 5¾") 6" Nom. (4½" x 8") Ask about sizes and special shapes not shown here. Check with your nearest Tex-Tube representative or write—



Professional News

continued from page 32-16

The partnership of Bomberger & Abst, architects, has been dissolved. John W. Bomberger is continuing his practice at 1505-10th Street, Modesto, Calif., and Ray C. Abst at 1022 McHenry Avenue, Modesto, Calif.

Shell & Hoyt have dissolved their partnership and will return to separate practice. *Frank Lawrence Shell* has offices now at 4725 S. W. Canterbury Lane, Oswego, Ore., and *Charles Ditter Hoyt* at 515-5th Street, Oswego, Ore.

The partnership of Holzinger, Schropfer & Associates has been dissolved. *R. M. Holzinger* has new offices at 2301 Oxford Lane, Casper, Wyo., and *R. W. Schropfer* at 1915 Oxford Lane, Casper, Wyo.

Thomas E. Moore, architect, has dissolved his company, Shell Structures, Inc., and has returned to the practice of architecture with offices at 2801 E. Colfax Avenue, Denver.

Elections and Appointments

Lawrence Livingston Jr., San Francisco, has been appointed to the Governor's Advisory Commission on Housing for the State of California.

New president of the California State Board of Architectural Examiners is Joseph L. Johnson, Los Angeles, who replaces Howard Friedman of San Francisco. Worley K. Wong, San Francisco, is secretary.

James L. Stratta, structural engineer, San Francisco, is the 1962 president of the Structural Engineers Association of Northern California.

Robert R. Ferens, architect and associate professor of architect at the University of Oregon, is on a oneyear leave of absence from the University to serve as supervising architect of the Volta Dam in Ghana.

Mario J. Ciampi, San Francisco architect, has been elected to life membership as a Fellow in the International Institute of Arts and Letters, Kreuzlingen, Switzerland.

FIFTH EDITION—Just Published 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.

YOU CAN FIGURE

Quickly and Accurately

For laymen or experts, the most comprehensive and quick method yet published, over 100,000 individual unit costs, more than 300 buildings with hundreds of variations, all easily convertible to local conditions through "Building Costs!"

BUILDING COSTS

A comprehensive monthly supplementary service giving you up to the minute news and analysis of market conditions, plus the latest cost indexes for the major metropolitan areas of America and Canada to convert the estimating Manual to local cost conditions.

SEND TODAY FOR BROCHURE TO

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E. H. BOECKH & ASSOCIATES Consulting Valuation Engineers 1406 M Street, N. W. Washington 5. D. C. Please send me full descriptive literature on your estimating and cost planning services.



Alondra Junior High School • Architects: Killingsworth, Brady, Smith & Associates. General Contractor: Flowers, Shirley and R. C. Allen Construction Co. Tile Contractor: Continental Tile & Marble Co.

You need uniformity!



You need it in color. And you need it in dimensions. And you get it from GMcB.

Pronounced variations in the color of the tile you set can spoil your job's appearance. So can sixteenth-inch deviations in dimensions. You'll appreciate the uniformity of both color and dimensions in Franciscan Hermosa Tile. They help you avoid unsatisfactory jobs.

Colors match with unusual perfection. And you have the most extensive palette available from which to choose. Precision-pressing in steel dies makes "six inches" mean just that. No more. No less. Tru-Joint design helps assure accurate spacing and alignment. And over 85 years' experience with architects' and builders' problems results in construction-conscious service.

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*You know them — they supply you with Ceramic Veneer, Solar Screen, Glazed Brick, Roof Tile, Contour CV, Quarry Tile, Ceramic Mosaics . . . as well as Franciscan Hermosa Tile. GREATEST GREATEST GREATEST

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In all phases of fluorescent lighting, Sylvania Fixtures have made tremendous strides in recent years. For full information, write for your copy of Sylvania's Fixture Catalog. SYLVANIA LIGHTING PRODUCTS

A Division of SYLVANIA ELECTRIC PRODUCTS INC. One 48th Street, Wheeling, West Virginia

See page 297 of this issue for an example of new Sylvania lighting fixture developments.





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Totally designed and engineered steel modules that can be integrated into your architect's or engineer's design to help you achieve a custom structure efficiently. Or, a system that can be developed into a complete

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Waste Space

Student Visitors

It's the time of year when George Hasslein, head of the Department of Architectural Engineering at California Polytechnic College in San Luis Obispo, takes his junior and senior students on field trips to the Los Angeles and San Francisco areas. They go to each place by bus for three days, absorbing enough architecture to make them dizzy.

Here's what they see in the San Francisco area: the Knoll and Herman Miller showrooms and Doro's restaurant: Golden Gate Park and the San Francisco Mortuary (near the Mint); Maiden Lane and the V. C. Morris shop; the International, John Hancock and Crown Zellerbach buildings; Willis Polk's glass-front building on Sutter Street: the Stanford (including the new bookstore and post office) and University of California (especially the new student center) campuses and departments of architecture; Ed Stone's Library and Hospital in Palo Alto; Maybeck's Christian Science Church; the Marin County Civic Center, under the guidance of Aaron Green, San Francisco architect who represents the FLLW Foundation; Warren Callister's Christian Science Church in Belvedere and the Reid office's Greek Church of the Ascension in Oakland: a Sausalito houseboat and Henry Hill's house; the Eichler houses in Palo Alto; the offices of John Lyon Reid, Henry Hill, Raphael Soriano, Aaron Green, S.O.M.

That's just what they did during the day. If there was anything left of them by nightfall—and some were hardy—they took in some of the foreign movies that the Bay Area gets and San Luis doesn't.

Quite a schedule. But that's youth. It's also George Hasslein's determination that his students shall experience architecture as they learn its theory.

Discord Jingle Jangle

Musical discord—real discord, not innovative variant on harmony—is unbearable to most people. But visual discord seems to bother only a few. And alas, even the visually trained too often tolerate it. And so, the visually aware need not "send to know for whom the bell tolls." It tolls for them. Hoist by their own petard. *Moral*: One good damn is worth a ton of softheaded tolerance. E.K.T.

High on a Hill in Bel Air



Fire scarred residential area surrounds unscathed home roofed with fire resistant Ludowici tile.

* "THE TILE ROOF SAVE IT"

During the recent disastrous fire in the Bel Air section of Los Angeles, this Ludowici-Celadon roofed home, on the east side of Chantilly Road, was the only house left standing on its block. As one fire official stated, "It is commonly known that tile roofs just do not burn or melt."

Although inherent fire resistance qualities of Ludowici tile saved this home, tile was originally chosen for its unique texture, color and beauty.

A multitude of colors, sizes, styles and textures are at your disposal. Write for the name of our consultant in your area, he's ready and willing to serve you.

* From Variety, Nov. 8, 1961

LUDOWICI-CELADON CO. 75 East Wacker Drive, Chicago 1, Illinois

Rain Bird Rotor Pop-Ups at Glendora High School athletic field

concealed turf sprinklers



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Write for new catalog.

Calendar of Western Events

• March 12-15: American Concrete Institution national convention, Brown Palace Hotel, Denver

• March 15-17: American Institute of Real Estate Appraisers regional meeting, Sheraton Palace Hotel, San Francisco

• April 5-7: American Society of Civil Engineers Pacific-Southwest Council convention, El Cortez Hotel, San Diego

• April 18-21: Western Psychological Association regional meeting, Sheraton Palace Hotel, San Francisco

• April 20-24: American Institute of Decorators national convention, Sheraton Palace Hotel, San Francisco

• April 21: Opening of Century 21, Seattle's World's Fair

• April 30-May 4: Joint Computer Conference national meeting, Fairmont Hotel, San Francisco

• May 1-June 15: "Chinese Art Treasures," special travelling exhibition, M. H. DeYoung Memorial Museum, Golden Gate Park, San Francisco

• Through May 22: "Principles of Shelter Design and Evaluation," series of 15 classes (began February 13) presented by University Extension, University of California, Berkeley

WESTERN SECTION

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a Architectural File (green)

A

ic Industrial Construction (blue) lc Light Construction File (yellow)

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Western advertising offices: LOS ANGELES, Wettstein, Nowell & Johnson, Inc., 672 S. Lafayette Park Pl.; PORTLAND, Wettstein, Nowell & Johnson, Inc., 921 S. W. Washington St.; SAN FRANCISCO, Wettstein, Nowell & Johnson, Inc., 417 Market St.



The Princess phone adorns study area and dressing table in a teen-age girl's room. For help in telephone-planning your homes, call your local Bell Telephone Business Office and ask for a Communications Consultant. See Sweet's Light Construction File, 11c/Be, for other residential telephone installation ideas.



SPECIFY built-in telephone outlets and wiring concealed within the walls. When you do, you provide flexible telephone service, and protect the interior beauty of the home...you make homes more livable, more salable. Bell Telephone System

PMF-104A Post-mounted Fluorescent Luminaire (12-20' mtg. hgt.)

New lighting efficiency

P-400 Mercury Powerflood luminoire, also P-1000 size (25:35' mg. hgt.)

town is

Take a new look at shopping centers, motels, and parks . . . industrial plants and commercial buildings . . . recreational areas, funspots, and country clubs. Today, wherever Americans work and play, modern outdoor area lighting is being used to complement the daytime beauty of modern facilities and to enhance their appeal and usefulness at night.

To help you meet this new trend, here is part of the spectacular new General Electric arealighting line—combining smart appearance design and highly efficient lighting performance.

New, style-leading G-E area lighting features the futuristic PMF-104A fluorescent unit and the ultra-modern PMA-115 mercury post-top unitboth in a choice of decorator colors—for entrance roads, walkways, and malls. Other frontrunners include the compact Powerflood mercury unit and Quartz-Flood unit for quartz lamps—used in sports, recreation, and industrial lighting.

Choose from dozens of fixtures, in a full range of ratings and sizes, and a complete line of poles, mountings and hardware. They're all shown in a *new* G-E "Designer's and Buyer's Guide for Area Lighting" (Publication GEA-7223). The new 1962 edition includes application data, guide-form specifications, plus easy-to-use ordering information. Everything is at hand to help the architect-consultant-contractor team serve clients promptly and efficiently.

500 Quartz-flood Luminaire, QF-500 size (25-35' mtg. hgt.)





triking beauty day and night

Products, service, and copies of this Area ghting Guide are available locally from your E Sales Engineer or Area Lighting Agent. If a prefer, write for your Guide to Sect. 460-17, neral Electric Company, Schenectady, N. Y. tdoor Lighting Dept., Hendersonville, N. C.

UR G-E AREA LIGHTING AGENT—backed by rr G-E Sales Engineer—offers prompt shipment from al stocks, and valuable local service. Ask them but America's newest, most complete area-lighting line d your copy of the "Designer's and Buyer's Guide."



Progress Is Our Most Important Product GENERAL BEBECTRIC



CRISP LINES, CLEAR VIEW, COMMON SE FLUSH MOUNTED LOCKING UNITS FOR SLIDING GLASS DOORS

The wide acceptance of the sliding glass door results from its visual depth and spaciousness. Hardware which impairs the view or prevents the door from fully opening defeats the purpose. The Adams Rite 4189 and 4190 flush mounted locksets are the first to offer unobtrusive beauty and freedom of movement for these doors. Screens can be by-passed, doors can be "stacked" in pockets, and inside drapes or blinds will not be torn by catching on surface hardware.

The pull escutcheons are designed to accent the narrow vertical lines of the aluminum door frame.

Deeply recessed finger pulls provide exceptional control of door movement. Slide-button operator actuates locking mechanism from inside with simple up or down movement. Key control is provided on 4190 unit by 5-pin cylinder lock in outside escutcheon.





Simple and Symbolic

The star form, created by Architect William W. Landsberg and Design Consultant Marcel Breuer in a simple bearing wall for the Westchester Reform Temple, Scarsdale, N. Y., becomes a religious symbol, expresses the building's function, and creates private exterior spaces in a residential neighborhood. Material for symbolism, function, privacy, and beauty: *brick*.

Structural Clay Products Institute 1520 18th St., N.W. Washington, D.C.

This is the new, wider, aluminum louvered vertical Flexalum's new, wider (33/8") louvers are in perfect harmony with today's large glass areas. Because they have the reflective properties of aluminum, Flexalum Wide-Louver Verticals solve problems of sun and thermal control. As a year-round thermal curtain, they cut heating and air-conditioning costs. Closed, they assure privacy; open, they admit adjustable, glare-free light. Their baked enamel finish and perpendicular position make them practically dust-proof. Flexalum Verticals are available with both center or side pull. Completely integrated mechanism and hardware are guaranteed to give you years of maintenance-free service.

Write to Bridgeport Brass Company, Hunter Douglas Division, 30 Grand Street, Bridgeport 2, Conn. for descriptive literature and specifications, engineering assistance or cost estimates. See our insert in Sweet's Architectural File.





This pad is all it takes to polish Goodyear DeLuxe True Vinyl Floor

This homogeneous vinyl floor is so tough and wearresistant—it doesn't require waxing. You can count on continued good looks with simple polishing brush or buffer pad.

And DeLuxe True Vinyl sells now at a new low price - the lowest ever for a homogeneous vinyl floor. The solid quality and the beautiful patterns go all the way through. Their lasting good looks and low maintenance cost will be testimony to your good judgment.

DeLuxe True Vinyl is available in new multicolored marbleized colors. In ¹/₁₆" gauge for residential use and ¹/₈" for commercial and heavy traffic use, both in 9" x 9" tiles. For specifications, see your nearest Goodyear Floors Distributor, or write: Goodyear, Flooring Dept., Akron 16, Ohio.



something <u>different</u> in Anodized Aluminum

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From every angle this Haws drinking fountain breathes distinction that matches your own distinctive ideas. It's cast aluminum, hard anodized to a permanent, abrasion-resistant, muted bronze color — with new push-button valve and sanitary angle stream bubbler. If you desire interior (or exterior) fixtures that do credit to your project, look to Haws! We'll send you specs on Model 7J: write us now.



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Lo Cooper Theatre, Denver. Architect/Richard J. Crowther and Associates, Denver. Designer/Melvin C. Glatz, Lakewood, Colorado.



Gladding McBean Co., warehouse, San Francisco, California.



Waialae Bowl, Honolulu, Hawaii. Richitect/Takashi Anbe, A.I.A., Honolulu, Hawaii.



International Instruments, Orange, Connecticut. So Architects/Pedersen and Tilney, New Haven, Connecticut.

Can you pick the Butler buildings in this group?

1. This is the first theatre of its type, designed and constructed in the round, specifically for showing Cinerama productions. No, it is not a Butler building. However, the rotunda is sheathed in Butler Monopanl, insulated curtain wall. One-foot width modules and permanent, self-sealing joints were part of the reason.

2. No single photograph could convey the ingenious design treatment throughout this bowling lane by Takashi Anbe. Here, the steel structural and roof systems are by Butler.

3. This warehouse is essentially a pre-engineered Butler building, all but the façade on the street side. This is faced with masonry, and a decorative tile product manufactured by the owners.

4. Everything in sight on these two buildings is by Butler...roof, curtain walls and structural systems.

Butler's two finest, insulated curtain walls are used throughout. These precision-fabricated structures bear the closest scrutiny for materials, fabrication, detailing and appearance.

Actually, there are no "Butler buildings" in this group. That is the point. In each, there are other materials in greater or lesser proportion, and the role of the architect is paramount. Butler offers you not a "packaged building"—but a pre-engineered, modular system, useful on the one hand as one or several components—or on the other, as an integral total approach to design and materials.

This system...in part or in toto...is sometimes the best solution. See what 32 architects and architectural firms have done recently with the Butler Building System. Ask your nearby Butler Builder to show you the sound-strip film, "Facing the Public." Or write direct requesting further information.

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You may even save your clients a few dollars—with refrigeration equipment from one source, cooling and heating coils from another and fans from somewhere else.

But each added source of supply multiplies your clients' problems by dividing responsibility.

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needs attention? Where will they turn for service? The answers come easily when you specify equipment from one responsible supplier of major components—able to keep the equipment in first-class operating condition.

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silently absorbing the shock of violent openings. HOLD THE

DOOR ... hold-

open engages silently . . . holds firmly . . . releases easily.



The Far-Flung Former Empire

NEW BUILDINGS IN THE COMMON-WEALTH. Edited by J. M. Richards. Frederick A. Praeger, Inc., 64 University Place, New York 3. 240 pp., illus. \$14.50.

The British Commonwealth is, culturally speaking, an almost indefinable thing. It includes a great many of those names which used to (and probably still do) thrill the ears and hearts of fourth-graders: Kuala Lumpur, Auckland, Malacca, Barbados, Calgary, Gold Coast, Peshawar. Its trade still includes tea, spices, camphor and gold, and now adds oil and uranium. Its population includes virtually every human race; its topology includes mountains (snow-capped and volcanic), rain forests, plains and deserts. Its several countries seem to have nothing in common but their diversity-geographical, cultural and even political. Yet, despite the departure of the British Army and the colonials (and the Union of South Africa). it hangs together. Whether and in what fashion it will continue to, as these nations begin to find themselves, it is too early to tell.

The architecture of the Commonwealth countries appears to reflect both this diversity and this groping.

Architecture in Africa is in some ways the most interesting in the Commonwealth. Here the climate and the limited funds make function impossible to ignore. The buildings are well-designed and unmistakably modern, but have, so far, escaped the vulgarities sometimes committed by architects with more time and money on their hands. The ingenuity with which African architects cope with their weather, in a climate which defeats air conditioning, is impressive.

In the East, modern architecture had to fight rear-guard actions against both British and local traditions, but there is no doubt it is winning. Chandigarh is already beginning to have visible effect on Indian architecture.

Canada, Australia and New Zealand, judged by their new buildings, would seem almost home to Americans, though not many of us come from cities as attractive as Vancouver.

Mr. Richards and the other contributors have elected, wisely as it seems, to forego any broad judgments or predictions of the state of architecture in the Commonwealth. They have presented an excellent, straight-forward journalistic report on the way it is now. Each of the Commonwealth countries is described, and many buildings are illustrated, all adequately captioned, many with plans.

In lieu of a trip around the world, this book will serve nicely.

Urban America

THE FUTURE OF OUR CITIES. By Robert A. Futterman. Doubleday & Company, Inc., Garden City, N.Y. 360 pp., illus. \$4.95.

It has been said that a good accountant can describe a man's professional character and private personality by an examination of his check stubs and tax returns. Judging from Mr. Futterman's performance, it would appear that a good realtor can so describe a city by an examination of its planning and buildings. It would also seem that the requirements for a good realtor include a general's eye for topography, an historian's grasp of cause and effect, an economist's understanding of trade and commerce, and the optimism of-well, a realtor.

It is in his analyses of several American cities that Mr. Futterman makes most of his best points. He indicates that statistics bore him. What interests him is history: when was the city founded, and why; does it have more than one or two basic industries (one-industry towns tend to be, as Mr. Futterman would put it, bad bets), and what are they; where was the Underground Railway Station (that is where the modern Negro slum is likely to be); what is the character of its government and business leaders.

Some of Mr. Futterman's comments include: "Chicago is still America in microcosm. Perhaps in Chicago we will find the answer to the question of whether America will use its unique resources to create a greater civilization-or will condemn itself to a meaningless, proliferation soul-destroying of goods, comforts and waste." "Dallas, thanks largely to its leaders' willingness to risk their money in their own city, suffers relatively few of the horrors which boom has brought to its contemporaries." "In the years right after the war, it seemed likely that Louisville would replace Cincinnati as the dominant Ohio River City . . . but you can't ignore humanity. Because leadership is so important a natural asset of a city, Cincinnati will remain the Queen." "Despite the charm of the place, I know no more hopeless downtown than Boston's." "San Francisco's conservatism has served the city well, maintaining a much more human ambiance than any other American city can display."

The Allied Arts

THE SPANISH ARTS OF LATIN AMER-ICA. By François Cali. The Viking Press, Inc., 625 Madison Ave., New York 22, 300 pp., illus. \$12.50.

From the age of the Conquistadors through the 18th century, Latin America's art was, like its history, highly religious and rather gory. But even the most squeamish North American cannot deny that at the same time it had enormous vitality and remarkable flashes of genius. Mr. Cali's readable and sympathetic text is illustrated by a great many very fine photographs of Latin American art and architecture. *continued on page 57*

48 ARCHITECTURAL RECORD March 1962



New! Kentile Architectural Marbles—the vinyl asbestos tile with through-and-through mottle ... at no extra cost! Perfect for heavy traffic areas. 8 muted colors fit any and all commercial décors.

VINYL



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We are dead certain that our new 37 sash will amaze you, because, quite frankly, it amazes even us. Here's why. It is low enough in price to compete with any sash on the market. Yet with its economy, it is so convenient to install: snaps in parallel to glass; will not pop off. Naturally, 37 sash has the incomparable Amarlite finish that says "quality" in architectural aluminum. Specify Amarlite 37 Sash . . . and be sure of economy and quality.

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Cleveland Institute of Music building, Cleveland, Ohio. Architects: Schafer, Flynn & Williams, Cleveland. Contractor: Hunkin-Conkey Construction Company, Cleveland. Structural Engineers: Barber, Magee & Hoffman, Cleveland. Precast Concrete Panel Manufacturer: "Marzaic" by Marietta Concrete Division, Martin Marietta Corporation, Marietta, Ohio.

SCHAFER, FLYNN & WILLIAMS specified reinforced, precast white concrete for the

graceful structural columns of this new music building in Cleveland. Made of ATLAS WHITE portland cement and exposed quartz aggregate, the shaped columns, with haunch, support both the roof and second floor. The 5-inch-thick insulated spandrel panels are also precast exposed aggregate white concrete, attached with bolts to the structural concrete frame. \Box More architects are recognizing the structural as well as the decorative qualities of precast white concrete. It can be cast in a variety of sizes, shapes, colors and textures. Installation is fast, simple, economical. Maintenance costs are low. \Box For specific information, consult your local precast concrete manufacturer. For a 32-page brochure titled "White Concrete in Architecture," describing properties and

installation details, write to Universal Atlas, 100 Park Ave., New York 17, New York.





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★ Illustrated above is Midtown Tower, the new office-hotel building which anchors the south portion of Midtown Plaza covering 7½ acres in the heart of downtown Rochester. The Plaza includes 1,000,000 sq. ft. of retail floor space, 3-level sub-surface municipal parking garage and air-conditioned central mall.

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2" x 12 FEET=2 SQ. FT.



Write today for Catalog S-361

55



ARCHITECTURAL RECORD March 1962



LAKEVIEW MEMORIAL HOSPITAL, Stillwater, Minn. ARCHITECTS: Ellerbe & Company. CONTRACTORS: C. H. Peterson Construction Co.

Mechanized dish handling simplifies food service at new "cloverleaf" hospital

The first general acute hospital in the United States to use the new "cloverleaf" design, Lakeview Memorial Hospital at Stillwater, Minn., is a marvel of planned functional efficiency.

Three circular wings extend from a rectangular center section. Rooms with 67 beds are at the outer edges of the circles with nurses stations in the centers. Nurses never lose visual contact with patients... are never more than 20 feet from them.

Food service, too, is ultramodern. A STANDARD CONVEYOR *Traylift* (right) carries trays of food from kitchen to serving areas, carries soiled dishes down again—swiftly, silently and safely. In the ground floor kitchen a STANDARD CONVEYOR *Traybelt* (below) simplifies make up of individual food trays and speeds them to the *Traylift*.

As the modern way to efficient food service, STANDARD CONVEYOR mechanized dish handling systems offer many advantages.

By providing a fast and economical way to transport trays, they let you locate kitchen and dish washing areas remote from dining areas. They allow planning for efficient service with reduced personnel requirements. They provide faster food service with reduced dish breakage. And best of all, they pay for themselves fast out of operational savings.



Standard Trayliff makes quick work of carrying soiled dishes down from first-floor serving area (above) to ground-floor dishwashing room (below). Reversible model also allows up-service for food trays from kitchen to patient floor. Other models featuring simultaneous up-and-down service, pushbutton selection for serving more than two floors, and completely automatic loading and unloading are also available.





Standard Traybelt speeds make up of food trays, carries them safely to the Traylift. Many other models are available to meet a wide variety of food service requirements.

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If you have a project pending where you'd like to give your client the benefits of streamlined dish and tray handling, Bulletin 120 can help you to determine models needed and general structural requirements. Write today for your free copy. Or, if you prefer, simply clip this ad to your business letterhead and mail it . . Your AIA File 35-C-13 is not complete without it!



Required Reading

continued from page 48

The Allied . . .

JEWISH ART. Edited by Cecil Roth. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36. 485 pp., illus. \$1.4.95.

This collection of papers, contributed by a number of scholars, show clearly that there have been some remarkable Jewish artists and architects, but that there is very little which could be called a Jewish art. From prehistory to the present, the Jews, however separated religiously and socially, artistically reflected their times—sometimes most impressively, as in the 20th century.

THE SCULPTURE OF THE HELLENISTIC AGE. By Margarete Bieber. Columbia University Press, 2960 Broadway, New York 27. 259 pp., plus 818 figs. \$27.

A revised edition of an earlier work, Dr. Bieber's coverage of Hellenistic sculpture is thorough, her erudition exhaustive. Though important to the serious scholar, the study is likely to prove too weighty for the casually curious.

VASARI ON TECHNIQUE. By Giorgio Vasari; trans. by Louisa S. Maclehose; intro. and notes by G. Baldwin Brown. Dover Publications, Inc., 180 Varick St., New York 14. \$28 pp., illus. \$2 (paperbound).

First published in 1907, this translation of Vasari's introduction to his *Lives* shows him, if not at his most sparkling, at his most practical as he gives no-nonsense descriptions of Renaissance materials and techniques for architecture, sculpture and painting.

Technical Books

MATERIALS FOR ARCHITECTURE. An Encyclopedic Guide. By Caleb Hornbostel. Reinhold Publishing Corporation, 480 Park Ave., New York 22. 610 pp., illus. \$20.

This book, as its subtitle indicates, is an encyclopedia which describes the characteristics of materials used continued on page 66



WOODGRAIN PATTERNS FOR DESIGN REALISM

American Elm, Fireside Cherry, Brazilian Rosewood, Oriental Teak and Dusky Walnut (clockwise), are some of the authentic Textolite woodgrain patterns available for your creative application. Color uniformity and natural grain, captured in practical plastic laminate, open new vistas for design of furniture, fixtures or paneling. Specify conventional or glare-reducing textured finish. Write for samples.

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MULTI-VENT IS THE TRUE COMBINATION LIGHT AND AIR SYSTEM

THE MULTI-VENT IDEA WAS ORIGINATED AND DEVELOPED BY:

THE PYLE-NATIONAL COMPANY, 1334 N. KOSTNER AVE., CHICAGO 51, II

n an exciting new idea comes along—an idea that has every indication soleting many long-cherished concepts and a good many longblished products—certain things always happen. One of the most ictable is that as out-flanked and out-engineered manufacturers rush imb on the bandwagon, some strange and confusing statements be made.

ainly the idea of combining lighting and air diffusing equipment in fixture is exciting. Architects and designers throughout the country enthusiastically recognized the advantages offered by a combination: ced ceiling clutter . . . increased flexibility in partitioning.

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re are a number of other "combinations" where troffer and diffuser upy the same space—none where they work together!

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LTI-VENT means far and away the lowest total cost.

e's why: The union-approved installation procedure is simpler and er because there are fewer parts. Maintenance is kept at a minimum ause straight-down low-velocity diffusion prevents ceiling or wall Idging—reduces cleaning and decorating costs. Operating costs are er because just as excessive heat affects lamp performance, it increases m loads. By removing the heat with the return air, troffers, duct sizes fan sizes are reduced.

roduct or an idea is as good as the company it keeps.

ee of the world's leading manufacturers of lighting equipmentumbia Lighting, The Miller Company and Sylvania Electric Products e adopted the MULTI-VENT principle, employ it in their own individually igned fixtures ... back it with their long-established reputations!



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The difference between a brilliant and a so-so sound system is often in the microphone. Not just the *kind* of microphone, but the number. Today's most popular form of meeting—the open discussion—simply can't be held in a single-microphone room. Shure Total Communications sound system planning calls for the strategic placement of the correct number and kinds of microphones to do the job properly. Everyone who should be heard CAN be heard without shouting, without confusion.

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Shure has prepared a special 8 page booklet on Total Communications multiple microphone placement. Also, technical data sheets and catalogs on the world's finest family of public address system microphones are available for your own use. Ask your sound consultant or write on your letterhead to:

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With walls of Ceramic Veneer,

OLD AGE & SURVIVORS INSURANCE BUILDING BALTIMORE, MARYLAND Meyer & Ayers—Architects Fischer-Nes-Campbell & Associates—Architects McCloskey & Company—Contractors Ceramic Veneer in units 20" x 24" x 114" was specified for cafeterias, dining areas, serving lines, lobbies and vestibules. Colors selected are gray, yellow, coral, blue-gray and blue.



color and cleanliness are "designed-in" for generations

Time, traffic, dirt and grime have little effect on the fire-glazed finish of Ceramic Veneer. Interiors of this modern architectural terra cotta require only soap-and-water washings to retain their original richness and beauty indefinitely. Exterior treatments — plain surfaces, polychrome panels or sculpture need only normal rainfall to keep clean and colorful. Besides minimum maintenance, Ceramic Veneer provides other important advantages — moderate initial cost, proved permanence and unrivalled versatility of color, form and texture. Whatever your specifications, every unit, large or small, is custom-made and faithfully reproduced by Federal Seaboard craftsmen. For complete information including new solar screen and color guide brochures, write us today. Without charge we will gladly furnish construction detail, data, advice and estimates on preliminary sketches involving Ceramic Veneer.





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LoTran 12.5 is the only glare control window glass that conforms to the specification of the National Council on Schoolhouse Construction. LoTran is a product of Houze, America's oldest and largest producer of sunglass lenses. LoTran's 12.5 light transmission rating falls well within the control factor required of the very best sunglass lenses.

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Glare control and "brightness balance" is achieved when you specify LoTran 12.5 neutral grey window glass into your school designs. Years of glass research has afforded Houze LoTran 12.5 unique properties which absorb and reflect solar energy. Yet LoTran 12.5 admits abundant natural daylight so that students see better, work better, feel better. LoTran 12.5 is specified in schools to reduce the contrast between outdoor and indoor brightness to create a decent physical environment. This elimination of glare and the provision for "balanced brightness" provides visual comfort and increases efficiency in classroom tasks. There is no distortion of outside colors when viewing through LoTran because its neutral grey tint actually defines colors.

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Due to its growing acceptance throughout the nation, LoTran 12.5 window glass now costs 30% less than any other grey glass of comparable density. In fact, LoTran 12.5 gives more effective glare control and solar energy reduction per dollar than any other window glass today. The increasing use of LoTran in more and more school installations demonstrates that its lower transmission of light and solar heat holds down costs in additional fenestration fixtures and in the initial cost and operation of air conditioning.





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... insist on SJI Approved "J" & "H" Series high strength steel joists

In January 1962 the Steel Joist Institute issued new specifications and load tables to provide architects, engineers and owners with a means to check full section, full weight, standard types of high strength open web steel joists: "J" series based on a design stress in tension of 22,000 psi; and "H" series based on yield strength of 50,000 psi.

To qualify under these requirements, extensive testing and engineering studies must be made by the Institute before approval is granted.

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63

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At Seattle's Century 21 World's Fair

Space Age meets neo-Gothic in a pavilion of prestressed concrete!

Soaring 100 feet above Seattle's 1962 space age world's fair, 5 modern Gothic arches of concrete give visual focus to the buildings of the United States Science Pavilion.

Here again, concrete effects striking beauty, as well as an advanced building technique. All the major components of the buildings are of concrete that has been precast and prestressed.

The T-unit roof beams reach spans of up to 112 feet. And exposed aggregate concrete wall panels rise as high as 52 feet. On two sides of the buildings, repeating the Gothic motif, they serve as load bearing stud walls. With their facing of white cement and quartzite, the panels give the entire complex a look of gleaming freshness.

Concrete was chosen for most of the Exposition's permanent buildings . . . added recognition of its practicality and design versatility.

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete



The newest forms of concrete everywhere mark the Exposition. Typical are the petunia-petaled roofs of shell concrete for the International Exhibits buildings.



Space age monorail is concrete! Elevated trains, straddling precast concrete beams 3 ft. wide, 5 ft. deep, rush passengers the mile from downtown Seattle to the Fair.



U.S. Science Pavilion comprises 6 buildings. Architects: Minoru Yamasaki & Associates, Detroit, Mich., with Naramore, Bain, Brady & Johanson, Seattle, Wash. Engineers: Worthington, Skilling, Helle & Jackson, Seattle, Wash. Precast and prestressed concrete: Associated Sand & Gravel Co., Inc., Everett, Wash. General contractor: Purvis Construction Co., Spokane, Wash.

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This is the most versatile aid to education since the blackboard. Playground activities, fire drills, announcements, music, current events . . . these are just some of the sound sources you can distribute through BOGEN's new School Console. From a central location, channel programs to any or all classrooms, gym, cafeteria, library or study hall. Handsomely styled and precision crafted, the BOGEN School Console includes powerful amplifier, high fidelity AM/FM tuner, superb 4-speed record player, intercom/auxiliary channel, selection and control unit for programming or communications, one or more switchbanks for room speaker selection, and exclusive BOGEN "Expand-As-You-Grow" engineering features. The new School Console from BOGEN—for 30 years the world's leading designer/producer of quality sound products.



A DIVISION OF THE SIEGLER CORPORATION DESK AR-3, PARAMUS, N.J.

Required Reading

continued from page 57

Technical . . .

in and affecting buildings. It is no a collection of graphic details, as in the familiar *Time-Saver Standard*. and *Graphic Standards*. It does help to fill the existing need for readily obtained basic information, edited for the architect, on materials a they relate to building.

The book is not without its faults Tied to an alphabetical order, i often requires the researcher to lool in several places for a complete an swer. In an effort to make the bool look neat (which it does), the editors have illustrated it with white line drawings on gray tone, somewhat impairing their readability.

Nonetheless, it should be a very useful reference to have around the office.

PRINCIPLES OF MODERN BUILDING Vol. II. Department of Scientific and Industrial Research (Building Re search Station); dist. in U.S. by British Information Services, 45 Rockefeller Plaza, New York 20. 188 pp., illus. \$3.30.

Another useful office reference in the field of basic, as opposed to how to, building information is available in Volume II of *Principles of Modern Building*, compiled by the British Building Research Station from the fruits of its research. It is subtitled "Floors and Walls." (Volume I, issued two years ago, covered the functional performance of the building as a whole, and walls.) It will probably be most helpful to students, but both its content and its reasonable cost recommend it to the office reference shelf.

MOMENT DISTRIBUTION. A rapid method of analysis of rigid-jointed structures. By Edgar Lightfoot John Wiley & Sons, Inc., 440 Park Ave. South, New York 16. 363 pp. illus. \$11.

This text serves, as the author says in his preface, "to explain several new design procedures as a continuation of the work of Cross and Morgan, and also to show some of the various modifications required to allow for different structural effects." T sting a Leviton switch subjects it to the ivalent of 20 years of heavy usage. It es on and off 30,100 times under 4 2 pes of loads. Periodic destructive tests up to 3,000,000 cycles to check relibility. 17 separate laboratory tests evalte both the finished switch and all its ponents. Leviton maintains one of the rgest wiring device testing labs in the untry to bring you the safest possibl

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At the Seattle World's Fair





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Switches and outlets can be located wherever needed, in General Electric Flexway Wiring. Devices fit onto a base channel, and the spaces between them are closed with raceway covers, easily cut to length with a special tool.



Outlets can be added or moved at any time, without cutting or stripping wires! G-E Flexway Wiring outlets have insulation-piercing, clamp-type terminals that make automatic "loop" connections anywhere along insulated wires.



An offset screwdriver lays any part of the system open, quickly, for replacements or additions. Write for details on new G-E Flexway Wiring, to: General Electric Company, Wiring Device Department, Providence 7, Rhode Island.

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"business must help win the battle for higher education"

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"Our scientific, cultural and economic growth—and our political strength—will depend largely upon the educational facilities we make available to our youth. We owe it to ourselves as a nation; we owe it to our young people who will inherit this nation to provide the financial aid that will make our institutions of higher learning second to none in the world. This is of vital importance to our business community.

"Business must put its support on the line to help win the battle for higher education." Today many of our colleges are overcrowded. In ten years, applications will have doubled and we will be faced with an even more serious crisis in our institutions of higher learning. We will need more and better college classrooms, many more well-equipped college laboratories and thousands more of the most dedicated and well-trained professors.

Only increased financial aid will provide our young people with the best college facilities. Only increased financial aid will keep our finest minds from leaving the teaching profession.

For additional information on the crisis faced by higher education write to: Higher Education, Box 36, Times Square Station, New York 36, N. Y.



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Jamison *ELECTROGLIDE®* doors for Cooler, Freezer and Industrial use now carry the UL marker



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ANOTHER JAMISON FIRST

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"A PITTSBURGH HILLSIDE" is the subject of this colorful, symbolic mural-wall created through the imaginative use of ceramic glazed Natco Vitritile.

HOW A PITTSBURGH HILLSIDE INSPIRED A NATCO VITRITILE WALL DESIGN

When the advertising agency of Ketchum, MacLeod and Grove, Inc. recently moved its headquarters into the new Gateway Four Building in Pittsburgh, Pennsylvania, managing art director Ed Hall was given the assignment of designing the employees' canteen.

On one of the walls Mr. Hall used a colorful selection of ceramic glazed Natco Vitritile units as an "art medium" to symbolize a typical Pittsburgh scene... the town houses which appear to be haphazardly stacked along the city's steep hillsides.

The pleasing result of the Vitritile mural-wall is shown in the photograph above.

Ceramic glazed Natco Vitritile is a *genuine*, loadbearing clay tile product that will always retain its original "new look." Vitritile—available in 44 standard and accent colors—offers an unlimited choice of modern color combinations.

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Left: Quaint, varicolored town houses stacked along a hillside is a familar Pittsburgh scene.

Right: $3\frac{3}{4}$ " x $5\frac{1}{16}$ " x $11\frac{3}{4}$ " ceramic-glazed Vitritile unit similar to those used in the KM&G mural-wall.





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A dramatic texture in glass has been captured in Mississippi's new HERRINGBONE. A linear pattern of jewel-like radiance, its contrasting light and dark stripes and arresting diagonal configuration combine with perfection of finish to provide freshness, individuality and charm . . . all the attributes you want in translucent, light diffusing glass of highest quality.



HERI ING ONE* GLASS...

New Decorative F Itern by Mississippi sets the pace for the Smartest Interiors

Architects, designers and decorators will discover in the warm, glowing beauty of Herringbone a versatile glass that never loses its individuality. Recommended for use in partitions, separation of living areas in the modern home, commercial installations and wherever else transmitted light should become a vibrant, interesting part of the decorating scheme.

For beauty, utility and variety unmatched by any other glazing medium, specify Mississippi Glass. Available in a wide variety of patterns wired and unwired at better distributors everywhere.



Thickness	Approx. Light Transmission	Weight Unpacked Lbs. sq. ft.	Maximum Sizes
1/8″	84.5%	2.0	48 x 132
7/32"	82.0%	2.8	60 x 132



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Ramset WINCHESTER-WESTERN DIVISION Clin 301-C Winchester Ave., New Haven 4, Conn.

Struct al I forics V 3



New NABISCO Building, Chicago, Illinois. Engineers and General Contractors were Ragnar Benson, Inc., Chicago. Consulting Structural Engineers: Paul Rogers & Associates, Inc., Chicago.



t o mint

Hot ovens hundreds of feet long cause serious expansion problems in the floors of large bakeries. In the new NABISCO plant in Chicago, about 540 feet of the building had to be built without any expansion joints. This was necessary for two reasons. First, expansion joints are undesirable within the length of the ovens. Second, the joints are unsanitary in a food plant.

To assure a safe and stable structure, all temperature stresses had to be taken up internally. This was done by reinforcing the floors top and bottom with high-tensile USS American Structural Wire Fabric.

Installation costs were reduced because the reinforcing steel was placed in large sheets, eliminating tedious piece-by-piece tying. Sheets were generally 8'10" cc of longitudinal wires, by 23'6" tip to tip. Longitudinal wires were 0.4615" in diameter and transverse wires were 0.3625" diameter and spaced 6" on centers.

CO

The cold drawn wire in USS American Structural Wire Fabric has a minimum yield strength of 60,000 psi which permits a design stress of 30,000 psi and gives a substantial safety factor against possible overloads. The amount of reinforcing steel required is reduced by almost 30% compared to conventional reinforcing bars. If you are not already receiving our technical bulletins on Structural Wire Fabric, write on your letterhead to American Steel and Wire, Dept. 2147, Rockefeller Bldg., Cleveland 13, Ohio. USS and American are registered trademarks

Innovators in Wire

ant



American Steel and Wire Division of United States Steel

One sheet of fabric, typically 8'10" x 23'6" for the entire positive steel of a span, is handled and placed as a unit. Weight about 450 lbs.

Two layers of steel fabric on 6" centers help keep expansion and contraction to a minimum in heated floors.



GROPIUS ASKS CREATIVE EDUCATION FOR PUBLIC AND ARTIST ALIKE



In a speech accepting the \$20,000 Kaufmann International Design Award in January, Walter Gropius asked, "Can we . . . supply the young generation with the resilience, the independent judgment and the moral stamina which would enable them to rise above the cloud of fake values which is smothering us?"

"You may say that I am repeating



■ No longer is a concrete foundation required under a Troy WX® Washer-Extractor. These highly-efficient units can now be installed on any type of floor strong enough to support them. First, second or twenty-second floor it makes no difference.

The reason: 1) The Troy WX extracts at a moderate R.P.M. because live steam is introduced in order to raise load temperatures and reduce moisture retention to an optimum 42%. 2) Troy's heavy back-plate on the cylinder serves as a balancing wheel. 3) The WX distributes its load evenly just prior to extraction by means of a special intermediate speed during drainage of water. 4) Troy's exclusive torsion bar suspension is also available to positively eliminate special vibration problems.

The significance: Troy designs power laundry equipment with interesting advantages. Complete planning service is available. For specific information write directly to Troy . . . call your Troy representative . . . see the Troy catalog in Sweet's.



EAST MOLINE, ILLINOIS

more intensified education. We cannot hope, at this point, to regain lost ground by expecting gradual improvement to come from the slowmoving, natural adjustment of human nature to the impact of events events have a tendency these days to run us down faster than we can respond to them unless we manage to make education into a force that does not only sharpen and illuminate the mind, but also forms the sensibilities and guides eye and hand as well. This kind of education we had until now reserved for the artist, but, if we can not give at least its foundations to everybody, the gulf between him and the people will remain unbridged. It we congratulate ourselves today or the strides that have been made in releasing the young artist from the bondage in which he was formerly held by having to follow the methods and recipes of his teacher, we must realize that the greater part of the task is still before us: namely, to give to the average young person, right from the beginning of his schooling a visual training based on objective principles, i.e., on the laws of nature and the psychology of man. Standing on such a sound foundation, the gift ed individual will find his personal in terpretation, but artists and public alike must start out from the same premises of universal validity, only then will creativity of the maker find the response of the user."

myself when my answer is again:

Beranek Receives Award from Acoustical Society

Dr. Leo L. Beranek, president of Bolt Beranek and Newman, Inc. Cambridge, Mass., has received the Wallace Clement Sabine Award of the Acoustical Society of America for his "internationally recognized achievements in all phases of architectural acoustics."

The Sabine Award citation read "For twenty years he has brillianth served his field as scientist, teache and supervisor of student research author of outstanding books an consultant to architects. His pub lished works include major contributions on acoustical measurements anechoic chambers, acoustic mate *continued on page 10*



Not only does this roof have the magnificent slate look traditionally associated with churches, but it is heavy, protective, and safe. The Bird 18" King-Tab Architect Shingle in the famous Gothic Slate Blende color conforms perfectly to the most exacting concepts of church design.

UNIFORMITY OF SURFACING in even distribution of jumbo granules is controlled in manufacture, so there is no unsightly application on the site.

GREATER SAFETY, TRIPLE PROTECTION: 300 lbs. per square, thick as standard slate; and 3 full layers of protection at every point, with 5" exposure.

SAFE FOR LOW SLOPE ROOFS TOO: roofs pitched as low as 2'' in 12'' are completely safe with this coverage.

SAINT POLYCARP CHURCH, CARMI, ILL., Rev. Clement P. Dirler, pastor. R. F. Rodriquez, designer; J. C. McEwen, architect; V. O. Prouart Construction Co., Pinckneyville, III., builder. BIRD

FOR EXTRA WIND PROTECTION SPECIFY THE NEW BIRD 300 LB. SEAL KING

Architect Shingles®

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or write BIRD & SON, INC. BOX AR-32, East Walpole, Mass. Charleston, S. C. • Shreveport, La. Chicago, III.

New woodfiber acoustical
tile that can't spread fire





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Underwriters' Laboratories, Inc., inspects and labels Simpson PCP ceiling tiles. Like mineral tile, Simpson PCP has a Type 1 flame spread rating of less than 25.

In many ceiling installations PCP woodfiber tiles are now replacing mineral tiles that cost up to 50% more.

Pyro-Chem Protection is an exclusive Simpson process. Not just a surface treatment, every fiber throughout the tile is impregnated with special PCP fire-proofing chemicals.

Simpson PCP Acoustical tiles are not only safe and economical, they are acoustically efficient: NRC ratings up to 70. Room-to-room attenuation factors average 37.6-41.5 db. Available in 4 beautiful Forestone[®] sculptured textures and 2 perforated designs.

Check the Yellow Pages under "Acoustical" for your nearest Simpson Certified Contractor. Or write today for PCP samples and detailed information.



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World-famous Kellogg cereals are produced under conditions of incredibly strict cleanliness and quality control. To maintain its reputation for excellence built over more than half a century, Kellogg demands the highest standards of construction and performance from the equipment in its many plants at home and overseas.

The Marlo central station air conditioning units chosen for the Kellogg plants at Battle Creek, Memphis and Omaha were, of course, no exception. These gleaming white units, in sizes up to 40,000 cfm each, are serving in production areas and quality control laboratories. Quietly and efficiently, they provide automatically regulated cooling in summer and heating in winter.

The Marlo representative in your area, or the home office in St. Louis, can supply complete information on the broad line of Marlo products for comfort and process air conditioning and heat transfer.

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New Buensod dual-panels, a dramatic advance in underwindow enclosure panels and sills, meet your architectural requirements. Each panel is a sandwich of two sheets of metal over a honeycomb core. The front surface can be given practically any finish desired. Standard treatments include striking wood veneers, brushed stainless steel, anodized aluminum or prime coated ready for paint. These can be combined to match or contrast with sill

modules in handsome fashion. Dual-panels fit flush and are held in place by hidden magnetic locks—no knobs, keys, bolts, screws or slots. Removal is accomplished by the momentary application of a suction cup (as shown). Consider lightweight, easy-to-install dual-panels and sills for your next enclosure installation. For complete details and specifications, write for free, illustrated, full-color brochure #MP-10.

BUENSOD-STACEY CORP. Manufactured Products Division 45 West 18th St., New York 11, N.Y. Subsidiary of Aeronca Manufacturing Corporation





Pittsburgh's gleaming new Auditorium, with its movable Stainless Steel roof, is now open. The world famous Ice Capades were the first attraction, and professional hockey returned to the city to cavort on the Auditorium's ice rink, which has some 11½ miles of USS National Pipe underneath.

For quick freezing of the ice, temperatures will go down around -42° F., although specifications called for a temperature of "only" -16° F. The system uses a calcium chloride brine solution with 1.25 specific gravity, and it is a 25.9% solution. The steel pipe used in the coils was $1\frac{1}{4}$ " standard and extra strong; the reverse header pipe

11½ miles of steel pipe ... and every inch has to be right



Architect: Mitchell & Ritchey, Pittsburgh, Pa. Mechanical Contractor: Limbach Company, Pittsburgh, Pa. Supply House: Crane Supply Company, Pittsburgh, Pa.

consisted of over 600 feet of 4" through 10" pipe. In a big commercial operation like this, the pipe has to be dependable or the show doesn't go on. That's one good reason they specified USS National Pipe. If you need top-quality steel pipe for ice skating rinks, snow melting and radiantneating installations, or for any type of building or industrial application, be sure you get USS National Pipe. For further information, or assistance with any pipe problem, write National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania. USS and National are registered trademarks.



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RIMCO WOOD WINDOWS offer greater design freedom in the homes you create. A wide range of styles and sizes complement your most imaginative architectural requirements. Complete harmonization with various materials is possible, too, when you plan with RIMCO windows of wood. See for yourself! For complete details and specifications, check Sweet's Light Construction File, send for new stimulating "Accent on Windows" booklet by



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The Record Reports

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rials, building structures, noise control, psychoacoustic criteria, sound systems, broadcast studies, assembly rooms and the world's great concert halls. As leader of men, he had directed laboratories in two of America's famous universities and heads a research and consulting firm.

The firm which Dr. Beranek heads is comprised of a group of scientists and engineers engaged in research, consultation and product development in acoustics and many other areas of pure and applied science.

Recipient of the Doctor of Science degree in physics from Harvard, he served as Director of the Harvard Electro - Acoustic Laboratory from 1940 to 1946 and organized studies on airborne acoustics during World War II. He also formed the Systems Research Laboratory at Harvard during the war to combat the threat from Japanese Kamikaze planes. He was Technical Director of the Acoustics Laboratory at M.I.T. from 1947 to 1954.

He was an instructor and assistant professor at Harvard, held the rank of associate professor at M.I.T., where he is now a lecturer, and was a visiting professor at the University of Buenos Aires. He has lectured on acoustics in London, Zurich, Prague, Warsaw, Moscow, Finland and Switzerland, and for several summers directed a special program on noise reduction at M.I.T.

Architects Develop Pilot Plan for Jamaica, N.Y.

A Pilot Plan, designed to serve as a conceptual guide to the future development in Jamaica, N.Y. during the next 20 years has been completed by the firm of Brown and Guenther-Candeub and Fleissig, Planning Consultants.

The initial concept of the plan was developed by the Jamaica Chamber of Commerce, which raised the necessary funds to pay for the study. Responsible for the development of the plan were the Jamaica Urban Renewel Steering Committee, sponsored by the Jamaica Chamber of Commerce, Inc., the Jamaica Merchants Bureau and the Jamaica Real *continued on page 112*



Regional design award winner, 1961 Concrete Industries Horizon Homes Program. Architect: Peters and Fields, AIA

In this snug desert home in Odessa, Texas, the architect has demonstrated the ability of concrete to fit the needs of design and locale. Patterned concrete masonry walls of the house itself are extended to enfold outdoor living areas. Protection is achieved with high decorative interest.

Used alone or blended with other materials, concrete offers today's architects structural efficiency and unlimited design opportunity. Readily formed, textured, colored, patterned to structural and decorative ideas, concrete is infinitely versatile . . . truly, the material of modern construction. *Plan to enter the 1962 Concrete Industries Horizon Homes Program.*



Exposed aggregate concrete fireplace adds drama to high-peaked living room. The distinctive detailing of interior walls is repeated with variations in outdoor areas.

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

LOS ANGELES INTERNATIONAL AIRPORT

CHARLES LUCKMAN ASSOCIATES planning architecture engineering • coordinating architects WELTON BECKET & ASSOCIATES architects-engineers

PAUL R. WILLIAMS architect

Square D--whei ver

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at Los Angeles International Airport, rising 135 feet above the center of the complex, will contain a restaurant, cocktail lounge and observation deck

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Now in operation by Standard Oil Company of California, Western Operations, Inc., this pipeline network, direct to flight lines, was designed to serve the special needs of the new International Airport's widespread complex of jet terminal buildings. Planes are fueled from sub-surface hydrants which are supplied by Standard's new underground "tank farm" of twenty 39,000-gallon tanks.

Heart of this installation is a Square D **NORPAK** static control center which automatically controls line pressures, flow rates and fueling sequences.



Atright • The **NORpak** static switching unit continuously monitors and controls all functions of the fueling system.

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A great deal of discussion continues throughout the steel partition industry concerning finishes and coatings. This is as it should be because these elements control the appearance,

quality and useful life of the installation. ■ Many fabricators recommend a specification for electrolytic type steel coatings. Within this specification your steel protection could range from .000025" to .000150" in thickness. ■ Sanymetal recommends and supplies, whenever specified, hot-dipped galvanizing which supplies .000750" to .00100" coating thickness (see chart at right)... better finish, longer life, lowest maintenance. Specify Sanymetal quality first... to last. Write for full story.





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This makes for reinforcement that exceeds accepted standards. Dur-o-wal increases the flexural strength of a masonry wall 71 to 261 per cent, depending on weight Dur-o-wal used, type of mortar, number of courses.

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For a truly smooth, weather resistant siding for homes, schools, motels and apartments you can't beat the new Evanite prime-painted medium density overlay plywoods. *Harborite* and CreZon* are both prime-painted at the factory with the Evanite *exclusive two-coat process*.

The prime-painting of Evanite plywoods is controlled at the factory under ideal conditions for a long-lasting job. Completely eliminates hair line checking and resists grain raise with the *combination* of overlay and the velvet smooth, dove grey prime-coat... one finish coat on the job site is all that is required.

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Surface of the plywood is initially pressurerolled with the first coat of oil-based paint which fills the pores of the wood or overlay material. Then, the reverse roller of the automatic paint machine uniformly seals the surface. This first coat protects the surface and blends completely with the second coat.

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Proceeding along on a perfectly timed belt system the panel is then sprayed with a newly developed airless spray to insure a uniform paint coverage before the paint is baked onto the surface. The paint primecoat is a velvet-smooth dove grey finish that requires no sanding, filling or sealing. Ideal for the finish coat on job site.

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NO ARCING WHEN PLUGGING OR UNPLUGGING. Outlet is electrically "dead" until plug is inserted and rotated 22-25°. Reverse turn disconnects current before plug is removed. Spring pressure and keyed construction prevent accidental disconnection.



TWO SAFETY CHAMBERS IN WALL OUTLET. Gastight chamber No. 1 (bronze and aluminum castings) contains and seals off switching mechanism. Cast iron chamber No. 2 keeps minor internal explosions from spreading to room.



NO AIR SPACES INSIDE PLUG TO COLLECT GAS OR MOISTURE. After plug is wired to cord, electrician pours a self-hardening insulating resin into all air spaces. Interior of plug becomes solid, water-tight, vapor-tight mass.



PLUG CAN BE WASHED WITHOUT DISMANTLING AND REWIRING. Operating room soilage quickly and easily removed by washing. When moisture is wiped off, plug can be used immediately. Water cannot penetrate to wiring.

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The Hubbellock Explosion-Proof Receptacle and Plug prevent arcing when electrical connections are made or broken in explosive atmospheres. No special wiring is required for installation in new or existing structures.

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EXPLOSION

PROOF

side a vapor-sealed safety chamber of heavy bronze and aluminum castings. Any 20-ampere, 125-volt, 60 cycle A.C. appliance may be operated from the receptacle by substituting the Hubbellock Explosion-Proof plug for the present plug. Appliances equipped with the Explosion-Proof plug will also operate in conventional 3-wire Hubbellock receptacles.

Plug and receptacle are listed by Underwriters' Laboratories and are described by the National Fire Protection Association for use in Class I, Group C or D, explosive atmospheres. They are ideal for hazardous industrial areas and for hospital operating and delivery rooms.

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The Record Reports

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Estate Board, Inc. and the Action Committee formed by the Jamaica Chamber of Commerce.

The plan envisions the area as a major urban center serving the entire Long Island portion of the New York Metropolitan Region. It sees the heart of this urban center continuing to be the retail activities of the shopping center. To realize Jamaica's role as a subregional center, the plan proposes that three new centers be developed—civic, office and industrial. The plan sees these centers as strengthening the present commercial center.

Specific Objectives

More specific objectives of the Pilot Plan are: (1) a comprehensive land development plan, which includes the simultaneous preparation of all elements such as traffic and land use, after determining the relationship of these elements to each other; designation of specific areas for particular land uses and the elimination of areas of mixed land uses where such mixture is detrimental to healthy growth; preparation of an urban renewal program which will be in accordance with the land use plan and which will enhance the orderly development of the plan (2) development of the economic base. which includes intensification of commercial-retail growth within the existing shopping center; introduction of new and complementary economic activities; designation of a general site for a future civic center (3) development of an integrated vehicular and pedestrian circulation system, which includes a one and two-way street system organized so as to ease access into and circulation within the study area; elimination of through-traffic by diverting it to streets which bypass the area or shopping center; provision of traffic engineering devices such as progressive light signals, corner realignments and sidewalk arcades; comprehensive long-range program of terminal facilities for autos and busses; development of a pedestrian circulation system consisting of shoppers malls and widened sidewalks.

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different ways (count EM) to move 2000

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CHRYNICR CR

It's a free-standing unit. Or, if you want to save floor space, hang it on the wall, or suspend it from the ceiling. And if you want supplementary heating, simply add electric resistance units, or a steam coil . . . or use it as the indoor section of a heat pump. In all combinations, you've got 96 different ways to move 2000 C.F.M. Perhaps you're thinking that any unit used so many ways will be complicated to install. Nothing could be further from the truth. The new Chrysler 1456 is completely factory-assembled. You don't waste time or money putting it together on the site. And once it's going, you have to strain to hear it. The blower is that quiet. If your curiosity is whetted, send for folder LL-513. Another "first" from Bethlehem!

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high-strength stee

for construction

and general purpose !



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• New V Steels extend higher yield points to thicknesses as great as $1\frac{1}{2}$ inches for plates, and to the full range of structural shapes—at much lower prices than previously available.

• Greatest cost savings are in thinner plates and lighter structural sections where the advantages of higher strengths are most applicable.

• New V Steels can replace more expensive hot-rolled, high-strength steels.

• New V Steels are based on Bethlehem's manganese-vanadium steel, which has been used extensively for high-strength applications, particularly where welding was required.

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120 ARCHITECTURAL RECORD March 1962 The RU : Co 733 Third Avenue, New York 17, N.Y.



NEW PROJECTS: MARCEL BREUER

It is notable that architect Marcel Breuer—who began his design career 42 years ago at the Bauhaus, and can surely be ranked as a distinguished senior member of the profession—has not fallen into the all too easy trap of a repetitive "style", but continues his imaginative search for expressive form and space. He points out that he regards each new project as an experiment—not in the sense of experimenting with the client's money—but as a challenge to create a new kind of formal expression which will do three things: fulfill the required function; provide a pleasing and significant geometry of space enclosure; and make clear visually the structural means of support.

In the designs for the projects that follow, one can see those ideas expressed. The open-ended piazza of the Flaine ski resort becomes the focus of a town; concern with the shape, definition, semienclosure, and direction of this space—as well as its relationship to the town and the whole valley—is the key to the design. The square Sanctuary space of the synagogue is enclosed by a nearly traditional tent-like form of radial, folded concrete arches; the Catholic church shape is at one and the same time appropriate enclosure of compact space, structure at work, and symbolic banner bearing a cross. The texture and modulations of the concrete are provided, as the architect explains, so the buildings will age well.

MARCH 1962





FLAINE—A NEW RESORT TOWN IN THE MOUNTAINS OF HAUTE SAVOIE, FRANCE

In the French Alps, 42 miles southeast of Geneva, construction of a new resort town of 5000—Flaine will begin this summer. Set in a beautiful valley hitherto inaccessible due to its rugged approaches, the new resort can now be reached by a new road that descends from the west along the face of the terraced cliffs. By happy coincidence, ski country lies to the north, south and east; so the automobile approach will not conflict with slopes and lifts. To avoid any confusion of cars and pedestrians, all automobile traffic is banned from the town center and serves hotels and apartments only by secondary dead-end roads. Major parking is but a short walk from the center.

Buildings are placed on three plateaus which interrupt the otherwise abrupt rise of the southern slopes. The town center—in the form of a plaza opening east to the lifts—is located on the largest of the natural plateaus. Buildings will in many cases rest on open columns to minimize foundation work and avoid the piling up of snow around their bases.

SITE PLAN (Left page): 1. Hotels, 2. Apartments, 3. Row Houses, 4. Chalets, 5. Town Hall & Post Office, 6. Shops, 7. Funicular, 8. Secial Hall & Movie, 9. Chapel, 10. Skating Rink, 11. Ice Hockey & Tennis (Bus Station Below), 12. Ski Lifts, 13. Ski Tow, 14. Fire House, 15. Road Maintenance, 16. School, 17. Ski Jump, 18. Parking; 400 cars, 19. Swimming Pool MASTER PLAN: Architects: Marcel Breuer, Herbert Beckhard, Laurent Chappis, Andre Gaillard, Atelier d'Architecture a Courchevel, Gerard Chervaz, Bureau des Organisations Urbaines



3 New Projects by Marcel Breuer





Flaine—A New Reson THE TOWN CENTER





The town center, shown above and by study model plan at left, consists of a piazza space defined by hotels, apartments, town hall, chapel, shops, etc., which opens at its eastern end to the ski lifts. The piazza will contain a circular skating rink for winter and a pool for summer (left). The small plan at right shows typical hotel rooms; note how wardrobe closets are used as an insulating buffer—in addition, all outside doors and windows will be double glazed.

Since the weather limits actual building to four months each year, the resort will be constructed on precast and standardized concrete parts, shipped to the site by a freight-carrying teleferique from casting plant 2½ miles away.









Flaine—A New Resort FENESTRATION PATTERNS

Elevations of various of the hotel and apartment buildings—shown on this and the preceding page—point up the variety of pattern and wall modulation that will typify the structures in the resort. The faceted planes respect the characteristics of precast forms; a variety of aggregates will be used for surface texture. The effects of weather and sunlight will enrich the sculptural quality of the façades as the buildings age.

Breuer's office in New York is at present working on drawings of three hotels and three apartments—modest, medium, and deluxe in class—plus a series of shops at the town center. His European associates are working on the ski lifts, the lift station, and other service facilities





TEMPLE B'NAI JESHURUN SHORT HILLS, NEW JERSEY

This religious and community center—located on a 21-acre tract of rolling, wooded countryside—consists of four main elements: a Sanctuary; a threestory school; a chapel; and a two-story assembly building. The group of free-standing structures dominated by the 70 ft high Sanctuary of folded plate concrete construction—is tied together at the main ground floor level by an enclosed connecting link. The plan incorporates two courtyards which separate Sanctuary and school on one side and chapel and assembly building on the other.

The Sanctuary dominates the complex by height and by its plastic expression of structure. The idea of useful interior courtyards connects with the tradition of the Temple of Solomon, while the trapezoidal silhouette of the Sanctuary is reminiscent of early temples built in the manner of the Babylonian Ziggurat. The caretaker's cottage is located near the road, much as a gatehouse, in order to maintain surveillance over the group. Marcel Breuer, Architect Herbert Beckhard, Associate Paul Weidlinger, Structural Consultant

SITE PLAN: 1. School, 2. Sanctuary, 3. Chapel, 4. Assembly Building, 5. Caretaker's House





Temple B'nai Jeshurun THE SCHEME

The front elevation of the enclosed connecting link forms a strong horizontal of fieldstone which acts visually to tie all the elements together. It is pierced only at the center by the main entrance with its slightly raised roof, and by the two lesser entries to school (left) and chapel and assembly building (right). The inside face of the connecting corridor is entirely of glass, offering views of, and access to, the courtyards. Additional entrance to the school is provided from a driveway loop (top of plan); the assembly building can also be entered from the parking lot (at right); has a separate stage and service entrance (at top of plan).

The sanctuary is square in plan, and has finished walls and ceiling consisting of the exposed structural system of radial concrete folded plate arches of varying depth. The two balconies in the sanctuary stand completely free of the walls, and are each supported on two columns. Curtains mounted on the bottom of the balcony follow the lines of the diagonal aisles, and can be drawn to reduce the seating to one-third of total, and serve also as acoustical absorbent to replace the people otherwise occupying the screened-off seats.

The compact plan of the Sanctuary—which seats a total of 2488—is designed to bring the maximum number of the congregation within a favorable distance of the pulpit; the greatest distance for any seat in this case is 120 ft





UPPER SANCTUARY: 1. Upper Sanctuary, 2. Balconies (558), 3. Choir Robing Room, 4. Organ Loft

GROUND FLOOR (Left page): 1. Main Lobby, 2. Sanctuary (Center 896, Sides 830), 3. Bimah, 4. Bimah Seats (144), 5. Rabbi's Anteroom, 6. Organ, 7. Chapel (180), 8. Retiring Room, 9. Storage, 10. East Court, 11. Social Hall (265), 12. Stage, 13. Storage & Work, 14. Green Room, 15. Dressing—Women, 16. Entry—Lounge, 17. Rabbi, Sccretary, 19. General Office, 20. Ass't Rabbi, 21. Cantor, 22. Check room, 23. Kitchen, 24. Storage, 25. Main Corridor, 26. West Court, 27. 8 Primary Classes, 28. 2 Kindergarten Weekday Nursery, 29. 2 Kindergarten, 30. School Office, 31. Mimeo Room, 32. School Director, 33. First Aid




Temple B'nai Jeshurun THE SANCTUARY The main sanctuary space is formed by a radial system of folded plate arches of varying depth, which meet in a ceiling area—70 ft above the floor—which is punctured by twelve skylights, symbolic of the twelve tribes of Israel. Finished walls and ceiling have the form and rhythmic pattern of the structure, and serve acoustically also. The tent-like feeling of the enclosure is reminiscent of the earliest places of Jewish worship.

The large sculptural form within the structure, symbollic of the tablets of the law, provides a monumental frame for the raised bimah, properly making it the focal point of the entire Sanctuary space







³ New Projects by Marcel Breuer



ST. FRANCIS DE SALES CHURCH MUSKEGON, MICHIGAN Marcel Breuer, Architect Herbert Beckhard, Associate Paul Weidlinger, Structural Consultant Rutherford B. Stinard, Mechanical Consultant







SITE PLAN: 1. Atrium, 2. Narthex, 3. Church (1203 seats), 4. Rectory

Model photos: Ben Schnall

s one approaches, the dominant form of this Cathlic church is a crisp and incisive banner rising 75 t above the ground. This form evolves from the enlosure of a rectangular base (plan) by means of evolving the side walls, as they rise, about inwardloping centers to describe hyperbolic paraboloids. The space thus generated is wide at the rear and arrows to the sanctuary, calling for concentration t the altar. The front and rear walls of the church re simple flat planes leaned against the paraboloids, which are self supporting and serve to stabilize the structure.

The church is surmounted by a concrete inverted trough, which contains equipment for the ventilating system, and also houses the suspended bells, visible from below. There are two lower lying elements—an entrance narthex and a rectory enclosing a patio—that complete the complex. Their disposition and relationship to the main building can be seen in the plot plan and photograph above.





3 New Projects by Marcel Breuer





The plans and elevations on these two pages show the disposition and interrelationship of the elements. Approach is through an atrium court surrounded by 5 ft 6 in. high walls, and entrance through the narthex. Then follows the axial succession of baptistry flanked by confessionals, center aisle, and altar.

St. Francis de Sales

The nave has 972 seats; the balcony 231. Maximum distance from back pews to altar is 108 ft. In accordance with newer liturgical procedure, communion tables are suggested rather than a railing.

An unusual feature of the sanctuary is the elevated chapel for the Blessed Sacrament. Special lighting and screening make it possible to focus the attention of the congregation on either altar or chapel. The obtaining of and the return of the sacrament to the chapel symbolizes the burial and the resurrection





IAIN FLOOR PLAN (Left page): 1. Atrium Court, 2. Baptistry,
Confessionals, 4. Ushers, 5. Nave (972), 6. Sanctuary, 7. Choir,
Organ Loft, 9. Work Sacristy, 10. Priest's Sacristy, 11. Boy's Sa-

cristy, 12. Offices, 13. General Office, 14. Lobby; waiting, 15. Meeting Room, 16. Courtyard, 17. Priests' Quarters, 18. Common Room, 19. Kitchen, 20. Housekeeper, 21. 2 Guest Rooms



Exterior surfaces will be architectural concrete or limestone facing—chosen for its su tle relationship to concrete. Form-board patterns will emphasize pouring joints ar create richly textured surfaces.

The church interior will combine concrete with textured white planks of wood fiber used as form boards for the paraboloidal side walls and left in place. Front and rea walls will have an insulating cavity between limestone and concrete. Other materia for interiors: screen walls and pews of dark stained oak; waxed brick floors; rector walls will be plastered; rectory floors of dark oak—ceilings of exposed concrete, painter

St. Francis de Sales



INTERNATIONAL BUILDING

Structural and air conditioning considerations important in shaping San Francisco's new skyscraper

International Building, St. Mary's Square, San Francisco; OWNER: Natomas Company; ARCHITECTS: Anshen & Allen; STRUCTURAL ENGINEERS: Gould & Degenkolb and Robert Dewell; MECHANICAL AND ELECTRICAL ENGINEERS: Eagleson Engineers (Charles Krieger, E.E.); ENGINEERS FOR SOILS INVESTIGATION: Brewer and Associates; LANDSCAPE ARCHITECTS: Royston, Hanamoto and Mayes; GENERAL CONTRACTORS: Dinwiddie Construction Company

6. Four models constructed as part of a research project on the use of hyperbolic paraboloids in architecture. 6a. Plastic model of hyperbolic paraboloid shell with shallow edge beams. Loads were applied with brass weights, deflections were measured with dial gauges, and strains with electric resistance gauges. 6b. Fiberglass model of hyperbolic paraboloid shell used as a band-stand. The light bulbs represent the various parts of the orchestra, and the reflection of light from the white reflecting and black absorbing surfaces can be tested for each light bulb in turn. 6c. Plastic model of hyperbolic paraboloid shell for investigating wind loading. The model was placed in a wind-tunnel and the wind suction (or pressure) was determined by connecting each pin hole in the surface through a tube to a water gauge

standing who is experienced in laboratory work and research methods, and preferably some junior staff with similar experience. At least one technician capable of making laboratory equipment and of working wood and metals is needed, since most of the equipment cannot be bought. A small workshop can be set up for approximately \$2,500, and this can be used to make most of the laboratory equipment over a period of a few years. A small room is needed for the workshop, and one or two larger rooms with suitable benches for the laboratory. If the laboratory classes extend over five years, and the classes are subdivided to reduce the number of students in the laboratory at one time, the rooms will be in almost daily use throughout the session.

It is very desirable that the laboratory should also be used for postgraduate research. It is difficult for scientific teaching staff to keep in touch with the latest ideas unless some original work is in progress which goes beyond the level of comparatively routine undergraduate instruction. The postgraduate program helps to train a small number of architects in research methods, who will in time form a research-minded nucleus of trained architects, able to apply the latest scientific ideas to professional practice. The results of the research may well make a notable contribution to new knowledge. even though a small university laboratory cannot hope to achieve results comparable with those of a major research organization. Research students will also be able to assist with the running of laboratory classes.

In all but the largest schools postgraduate research is likely to be restricted to one or two narrow fields. Unlike the undergraduate laboratory classes, this work needs precision equipment and expert knowledge. However, it is reasonable to assume that the work in different schools would cover a range of subjects, so that this specialization is not unduly restrictive.

Although scientific research is not ordinarily a field for postgraduate architectural study, there are many topics in architectural science to which useful









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7h





7. Three models constructed as part of a research project on the use of shallow corrugated domes in architecture. 7a. Perspex model of complete dome. The dome was freely supported on rollers, and the circular prestress applied over pulleys with a nylon cord. 7b. Perspex model of one segment of the dome, for investigating stresses during erection. 7c. Paper model of complete building for investigating daylight in a large solarscope. 8. Architectural and structural model of a folded plate dome. This investigation was undertaken by Department for a firm of architects with the aid of the research students

> contributions are more likely to come from architects, because of their broad training, than from scientists or engineers. We have selected the study of architectural structures for our present postgraduate program. General information on the behavior of new structural forms is obtained by means of experimental stress analysis, and this is correlated with other architectural problems to yield information on architectural potentialities of the structure. The Department has at present three candidates for the degree of Master of Architecture, and three candidates for the degree of Doctor of Philosophy.

> It is the most important function of the architectural science laboratory to impart a feeling of realism to architectural science teaching, and to demonstrate its essential unity. Taking again structures as an example, there is at present a clear cut distinction between the simple structures which the student can calculate but finds uninteresting and the more complex structural types which he likes to employ in his designs but whose theory he does not understand. The structural model will demonstrate the physical concepts of these structures, and the essential similarity of structural solutions of widely varying mathematical complexity.

Acknowledgment:

The equipment illustrated was made in the workshop of the Department of Architectural Science and the photographs were taken by the Department of Illustration of the University of Sydney.







ECONOMIC STRUCTURE, DIRECTLY EXPRESSED, LOWERS COST OF SYNAGOGUE ADDITION



NAME: Temple Emanuel OWNER: Temple Emanuel Jewish Community of Westwood, New Jersey LOCATION: Westwood, New Jersey ARCHITECTS: Davis, Brody and Wisniewski STRUCTURAL ENGINEERS: Wiesenfeld, Hayward & Leon MECHANICAL AND ELECTRICAL ENGINEERS: Wald & Zigas LANDSCAPE CONSULTANTS: Coffey & Levine CONTRACTOR: Edmund M. Cheval

This multipurpose hall and classroom unit which has been added to a small plot which still contains a small sanctuary for daily worship is designed to seat approximately 600 persons for the Jewish high holidays and to provide social and recreational facilities. The new unit will eventually be connected to the existing sanctuary.

Since the code calls for fireproof construction for the classroom areas at the lower level, a precast, prestressed concrete structural floor system has been used. The cored slabs are set over masonry bearing walls, thus creating a fireproof floor and ceiling. The cores within the slabs are utilized for conducting warm air to the glass areas at the upper level, giving a partial radiant effect that works both upward and downward.

The multipurpose hall at the upper level is of heavy timber construction, employing laminated wood arches with 4 in. tongue and groove decking over. Glazed areas are shielded by means of vertical laminated redwood sun louvers. Exterior siding is redwood also. Total cost, including stage platform, kitchen, classrooms, library, offices and service facilities, but not including landscaping and furniture was \$150,785.





Multipurpose hall. Center panel of glazed wall is a continuous strip of richly colored glass with dark red predominating. *Below:* view toward platform which serves as the bema on high holidays. Platform area was incomplete when photograph was made









Joseph W. Molitor

A HOUSE THAT MAGNIFIES A BIG SITE

Matsumoto's "square dough-nut" scheme exploits a forested site by long vistas through the house

ARCHITECT: George Matsumoto OWNERS: Mr. and Mrs. Edward Thrower LOCATION: Sedgefield, North Carolina CONTRACTOR: Superior Construction Corp. LANDSCAPE ARCHITECT: Edwin G. Thurlow INTERIOR DESIGNER: Jack Cartwright









Private Corner Suites Permit Expansive Living Areas

Spatial grandeur is (and almost always has) been largely achieved by directing the eye along desired paths or vistas. The concept has been remarkably carried through in this handsome house. By placing all areas requiring a degree of privacy in the corners of the plan, Matsumoto has cleared big vistas through the house from outside terrace through to the woodlands beyond the house on any side. And in a climate ideal for outdoor living most of the year, the terraces and central court more than double the already generous living spaces inside the house.

The owners frequently entertain very large groups of people, and require a guest suite for their children and their families or for visiting business associates. As owner of a furniture company, the client also wished the house to be a simple backdrop for showing off furniture to best advantage. As can be easily seen from the accompanying plan and photos, the house serves these aims extremely well.

The house is constructed of split block concrete masonry on reinforced concrete footings; the exterior is surfaced with hard pressed brick. The interiors are finished with plaster and plywood, or exposed brick. Roofing is 5-ply tar and gravel. Floors are oak in major rooms, ceramic tile in service areas. Fixed glass in the house is double glazed; sliding doors and outswinging projected windows have aluminum frames.





Handsome, Simple Details Highlight All Parts of House

As can be noted in the photo (top) of the master bedroom, detailing of all items is kept simple, and is very well executed. Their simplicity adds to the function of the house to show furniture to its best advantage.

The kitchen and breakfast areas (right) are separated by a change in flooring (oak and tile), but finishes and details are at the same high level as the rest of the house.

The entrance hall (below) gains elegance and space through an architectural handling of console and cabinets making a modern carpet the focus of interest



Joseph W. Molitor



BUILDING TYPES STUDY 304

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HOSPITALS

Progressive Patient Care Two General Hospitals Private Patient Pavilion Orthopedic Hospital Osteopathic Hospital

PROGRESSIVE PATIENT CARE PRINCIPLES

Progressive Patient Care is a system of organizing nursing and hospital facilities that attempts to provide each patient with the exact degree of care and supervision that he needs according to the degree of his illness. PPC is practiced by grouping patients according to their needs and the severity of their illnesses. Special staffs care for each patient group. Patient areas and hospital facilities are designed to meet the exact requirements of each group.

To the patient, PPC promises better, more efficient nursing and medical care, at lower costs. To the medical and nursing staff, the concept is thought to be an answer to the growing shortage of trained personnel, and should make it possible to use the available staff to better advantage. To the architect, involved in hospital design, Progressive Patient Care holds promise of better design for healing.

BETTER CARE AT LOWER COSTS

For some years, it has been evident that hospitals are enmeshed in an ever-tightening web of increasing costs and decreasing numbers of trained personnel. At the same time, medical knowledge has been rapidly expanding. At the present time, far better, more efficient patient care is possible, if only the high costs and scarcity of personnel can be beaten. Progressive Patient Care seems to promise an answer to the cost-personnel problem, and at the same time to provide a means of improving patient care. This is not to say that every individual concerned with hospital design and administration is completely sold on PPC. There are many who are extremely skeptical and remain to be convinced of the merits of the system. On the other hand, numerous knowledgeable hospital architects, consultants, and administrators believe that the principles of PPC will eventually be widely accepted and may well revolutionize medical and nursing care in hospitals.

A number of hospitals have been designed and constructed with provisions for at least partial PPC services. An even greater number are now on the boards. The large amount of interest and activity in PPC must indicate merit in the system. In any case, every architect who does hospitals should be informed on the subject.

PATIENTS GROUPED ACCORDING TO NEED

The basic fundamental of the Progressive Patient Care system is classification of patients' illnesses according to whether they are acute, chronic, disabling, ambulatory, or the like. On the strength of such classifications, patients are assigned to specialized nursing units of the hospital. At the present time, these units are ordinarily divided into four major categories—Intensive Care, Intermediate Care, Self-Care, and Long-Term Care. A fifth category extends the concept of nursing into the home through provisions for professional supervision of Home Care.

There is some tendency to further subdivide care within the major categories and to provide for even greater specialization of types of units. For example, Long-Term nursing units may be subdivided into those intended for geriatric patients, ones for pa-





TEN BED INTENSIVE CARE UNIT. Typical Intensive Care unit with ten beds, three of which are separated from main nursing area by partition. The nurses' station is centrally located and a small supply room is provided. Suction and oxygen outlets are provided at each bed. More highly developed versions of Intensive Care units would ordinarily have larger space for storage and an area for consultation



EL CAMINO HOSPITAL, EL CAMINO, CALIF. STONE, MARRICINI & PATTERSON, ARCHITECTS. Intensive Care unit for general hospital of 307 beds. Unit has space for ten beds in main area, with two additional isolation beds separated from others by folding partitions. Also provided: nurses station and work area, ample storage for drugs and equipment, doctors' conference and waiting rooms



ST. FRANCIS XAVIER CABRINI HOSPITAL, MON-TREAL. De SINA & PELLEGRINO, ARCHITECTS. Intensive Care unit in a 173 bed general hospital. One unit is located on each of the three round nursing floors, each unit containing six beds. No provisions are made for isolation of patients in this plan. An advantage of the scheme is the location of the main nurses' station adjacent to the unit, with a window between allowing control of the unit by both the Intensive Care nurse inside and regular duty nurses

tients with chronic illnesses, and those for patients requiring long-term psychiatric care.

ADVANTAGES OF PPC

Through PPC, each patient, theoretically, will get exactly the type and degree of care he needs—no more, no less. If this degree of efficiency of care can be attained, obviously the nursing and medical staffs can tailor their functions more closely to the actual requirements of the patients, with a resulting increase in staff efficiency. This can lead to reduced hospital operating costs, and possibly to decreased construction costs.

Trained nurses will be able to devote more of their time to nursing and less to housekeeping functions. Nurses may be assigned to their duties on the basis of the level of skill required. And nursing teams can specialize, rather than suffering from the divisive effect on their time of general nursing duties on a wide variety of cases. Most importantly, nursing care can be planned and administered on the basis of patient progress toward recovery, starting with the acute phase and progressing toward home care or complete recovery.

Costs of hospitalization to patients may actually be reduced through the PPC system, or at least tailored to the amount of care received.

ARCHITECTURAL IMPLICATIONS

If a Progressive Patient Care program is to fit the nursing and medical needs of individual patients, certainly the hospital that contains the functions must be quite different from those of the past. Specialized treatment of patients requires specialized facilities. If the architect is to plan a PPC hospital or even one containing only one PPC element such as intensive care, he will find it necessary to take a new look at the functions of the hospital and the element. The specific type of care to be administered will dictate—to some degree—the plan of the unit in which the functions are to be performed.

Planning for PPC affects many of the ancillary departments of the hospital. For example, the feeding problems in Intensive Care Units will be concerned almost exclusively with soft diets and tube or intravenous feeding, while those of Self-Care Units may be concerned only with self-service feeding or cafeterias. Planning for PPC necessitates a restudy of the relationships between the patient care areas and the various other facilities of the hospital. Some overlapping between the units of PPC tends to exist; this may lead to a need for greater flexibility of design of patient units and a greater number of multiuse areas. Automation of many of the hospital services is a growing trend. The combination of PPC and automation can produce some sticky design problems.



SELF-CARE UNITS

NORTH CAROLINA BAPTIST HOSPITAL, WINSTON SALEM, N.C. LARSON & LARSON, ARCHITECTS. The Self-Care wing of the North Carolina Baptist hospital, shown in the plan, has rooms that resemble those in a hotel. All have closets and private baths and are furnished in a hotel-like manner. Most are double rooms, in which a member of his family can join the patient during his stay. A patient lounge is provided on each floor. No nursing stations are located on the Self-Care floors of this hospital. This is general practice in Self-Care units, though some plans provide for offices to be used for administration in the units



Perhaps the most striking architectural implications in Progressive Patient Care are those having to do with the design of the Intensive Care and Self-Care Units. Intermediate Care Units tend to resemble rather closely the traditional general nursing unit. Long-Term Units are similar, in many respects, to nursing homes. The Intensive Care Units are something else again. The high degree of nursing care required, the acutely ill patients who require life-saving care, the need for almost constant surveillance and control of the patients. These factors add up to a type of nursing unit which has little in common with those of the past, in design and use.

The Self-Care Unit is different too, in its own way. Here are housed patients who are convalescent, ambulatory. Proximity to hospital facilities for treatment or observation is required but the patients do not need the amount of nursing care usually provided in hospitals or more than the smallest degree of supervision. Accordingly, Self-Care Units are beginning to resemble hotels or motels more than hospitals. Their patient rooms are more like private hotel rooms than those in a conventional nursing unit.

INTENSIVE CARE UNITS

For a small percentage-perhaps ten per cent-of hospital patients, those who are critically or acutely ill, who are suffering from heart attacks, severe burns, stroke, or the like, nursing units must be provided in which almost constant skilled nursing care can be provided. The Intensive Care Unit performs this function. In addition, it must allow direct audio and visual control of patients. Drugs and life-saving equipment must be in close proximity. Such systems as oxygen and suction must be readily available. The unit must be designed with adequate space for efficient and rapid use of bulky equipment such as oxygen tents. Facilities for laboratory tests and diagnostic procedures must be provided for, in or near the unit. Rapid and dependable communications are a necessity.

INTERMEDIATE CARE UNITS

Closely resembling the conventional nursing unit, the Intermediate Care Unit provides facilities for patients who are sufficiently recovered not to need the facilities of intensive care, but who cannot yet be moved to a Self-Care Unit. These patients are on the road to recovery. They require nursing care on a level with the usual general nursing patient. Emergency equipment and systems such as oxygen-suction outlets will not ordinarily be required.

SELF-CARE UNITS

In the hotel-like Self-Care Unit, the patients are ambulatory and virtually self-sufficient. These patients must be in close proximity to the hospital facilities only for observation, tests, or treatment. Provisions are required for the patients' recreation and exercise. Most of the patients will be able to walk to a cafeteria for meals. A not inconsiderable part of their treatment is the attempt to have these patients live during their hospital stay in a manner as closely approximating their lives at home as possible. In Self-Care Units in some hospitals, a member of the patient's family may stay in a patient's room. Because of the nature of the treatment of Self-Care Unit patients, consulting and examining rooms and laboratories may be required near the units.

LONG-TERM CARE UNITS

There is a growing trend in general hospitals toward the provision of one or more types of Long-Term Care Units to be occupied by those who need hospital services over a longer period of time than is practical in the other nursing units of the hospital or in the home. Such patients include those with chronid illnesses, the aged with physical disabilities, and psychiatric patients. The general requirement for these patients is the provision of home-like but efficient facilities, with an environment conducive to emotional as well as physical well-being. Day areas recreational facilities, and community dining areas are usually required. Planning should provide for ease of use by patients in wheelchairs and those with physical disabilities.

PATIENT PROGRESS THROUGH PPC

Some indication of the relationships between various units of a Progressive Patient Care hospital may be gained by tracing the progress of a case through the entire system. Admittance to the Intensive Care Unit will usually be from the post-operative recovery room, from emergency, or as a result of critica illness.

When the patient has recovered to a point where his condition is no longer considered critical, he may be removed to the Intermediate Care Unit. When the patient's convalescence advances to a stage where he can take care of all or most of his own needs, he can progress to the Self-Care Unit. Here he will be ambulatory, and ordinarily will have only casual supervision, along with scheduled tests, treat ment, or observation. To all of these, he walks, as he does to recreation and meals.

Certain cases, of course, become chronic. These patients may go from the Intermediate Unit to the Long-Term Unit. The last stage of treatment migh be Home Care, under the supervision of the hospita staff, possibly using equipment furnished by the hos pital. Many patients will, of course, be admitted to and discharged from one Progressive Patient Car-Unit without having to go through the other stages



SIMPLIFIED PLAN FOR EFFICIENT CIRCULATION

With a simple T-shaped plan and double corridor nursing units, the architects of this 250 bed general hospital have overcome one of the pressing problems of today's hospitals, the loss of time and resulting confusion that comes from complicated circulation. Hospital Administrator William E. Claypool says of its design, "Because of the hospital's simple form, there will be few manhours lost by disoriented employes. Travel to supporting areas can be accomplished easily."

The simplicity of the plan concept is reflected in the form of the building. An unusual expansion feature of the hospital is that the eight-story main tower was originally constructed with the sixth and seventh floors unfinished. These floors, when finished at a later date, will bring the hospital capacity to a total of 400 beds.

NAME: West Allis Memorial Hospital LOCATION: West Allis, Wisconsin ARCHITECTS & ENGINEERS: Darby, Bogner & Assoc., Inc. HOSPITAL CONSULTANTS: Norby-Hatfield Assoc. HEATING & VENTILATING ENGINEERS: Holland & Beseke ELECTRICAL ENGINEERS: Trester Engineering Co. PLUMBING CONSULTANTS: Lubenow & Gobster LANDSCAPE ARCHITECT: Fran Lipp CONTRACTOR: Jezo Construction Co., Inc.





Hospitals



West Allis Memorial Hospital

The basic T-shaped plan of the hospital has the leg of the T truncated above the second floor. The leg contains the operating suite on the first floor, delivery on the second. Above this level, the truncated leg of the T is mainly used for vertical circulation and waiting rooms on each floor. The bar of the T encloses business offices and the cafeteria on the first floor and is used for nursing units on the upper levels. Below the main floor, in a partially above grade basement area, are located emergency and out-patient areas, mechanical equipment rooms, laundry, and other ancillary facilities. The unfinished sixth and seventh floors are used for storage, but will eventually become nursing floors when needed.

Nursing floors include obstetrics on the second floor, general medical and surgical on the third and on half of the fourth and fifth. Half of the fourth floor is used for pediatrics; half of the fifth for a specialized psychiatric unit. Completely equipped acute care units of four beds each, for critically ill patients, are located directly across from the nurses' stations on the third and fourth floors. Most patient rooms are semi-private, but there are a few single rooms and four-bed wards.



Surgical Recovery Room

West Allis Memorial Hospital

In addition to the surgical recovery room shown above, the hospital has an obstetrical recovery room, which the hospital authorities believe allows the best use of nursing time and provides for the necessary final degree of observation during the recovery period. Psychiatric patients are provided with their own dining and recreation rooms, as shown, separated from the other patients. In the psychiatric area, provisions are made for the necessary degree of security. From the nurses' stations and their chart area, nurses have a clear view of the acute care units across the hall, and must pass the unit each time they leave or return to their stations.

Quiet is maintained in patient rooms by elimination of voice call system for doctors. In its place, doctors carry in their pockets small electronic devices that indicate to them that they should call the switchboard. Another control feature of the hospital is the central data center, from which the building engineer controls room temperatures, operation and cut-off cycles of equipment, pressures, liquid levels of hydraulic and pressurized equipment. If doctors or other personnel require changes in room temperatures or other systems, a call to the data center gives the information to the engineer. He can then check his indicators and make the change.

The building structure is steel frame with concrete joist and slab floors and roof. Exterior walls are aluminum and porcelain enamel curtain walls and brick. Costs of the hospital were: total cost including equipment—\$6,640,552, or \$26,562 per bed. Figures include cost of two unfinished floors that will eventually contain an additional 150 beds

Central Supply Area





Psychiatric Dining and Recreation



Nurses' Station and Charting Area



Typical Two-Bed Patient Room



HOSPITAL ADDITION ERECTED QUICKLY WITH PREFAB UNITS

To offer as little disturbance as possible to patients in the existing hospital, this 40-bed private patient wing was designed of concrete pre-cast elements. Field erection of the units will be like building a house of cards and is expected to be simple and fast.

One of the factors in the design of the pavilion was the need for maximum instructional opportunities in the patient rooms. Accordingly, each floor will contain 13 private rooms, each with private toilet room. The double-loaded corridor floors will connect with the existing building at one end, where bathing facilities, solarium, and storage will be located. New nurses' stations will be built within the existing hospital to serve the new unit.

NAME: Peter Bent Brigham Hospital Private Patient Pavilion Addition LOCATION: Boston, Massachusetts ARCHITECT: The Architects Collaborative; partners-in-charge John C. Harkness and Jean B. Fletcher; job captain Robert T. Eskridge CONSULTING STRUCTURAL ENGINEERS: Souza and True MECHANICAL ENGINEERS: Reardon & Turner ELECTRICAL ENGINEER: John F. Maguire





PRECAST CONCRETE STRUCTURAL-MECHANICAL DIAGRAM

Peter Bent Brigham Hospital

The prefabricated structural and wall units of the private patient pavilion were designed to be made as large as erection procedures would allow, to minimize the number of joints and attendant problems. A typical wall panel is two rooms wide and one story high. Within the monolithic wall unit will be contained fixed glass for daylight and view and a fan-coil unit for cooling and heating. Units are deep enough to form sun shields for the glazed areas. The wall contains the structural columns that carry the loads. Prestressed girders will span the 40 feet between bearing elements and will support precast floor and roof planks. The entire structure will be tied together with steel rods, post-stressed to tie the building into a structural whole



¹⁶⁴ ARCHITECTURAL RECORD March 1962



SMALL GENERAL HOSPITAL TURNS IN ON CENTRAL COURT

The architects of this small, 60-bed hospital, turned the plan in on itself in order to create a relief from the barren and almost vegetation-less surroundings. For the same reason, the exterior was treated as a crisp, simple mass contrasting with the dull and drab area outside.

The initial capacity of the hospital may be immediately expanded to 69 beds by use of the solarium and converting single rooms to semi-private. All facilities were designed for expansion to a total of 120 beds through the addition of a second floor. Structure of the building is reinforced concrete with partially exposed charcoal-gray concrete frame, white brick veneer panels and aluminum sash. Total gross floor area is 43,200 sq ft.

NAME: West Shoshone General Hospital LOCATION: Kellogg, Idaho ARCHITECTS: Skidmore, Owings & Merrill STRUCTURAL ENGINEERS: Cooper & Rosé & Assoc. MECHANICAL ENGINEERS: J. Donald Kroeker & Assoc. ELECTRICAL ENGINEER: Grant Kelley



Photographs by Dearborn-Massan



Typical Operating Room

West Shoshone General Hospital

Trained personnel are even scarcer in this area than elsewhere. For this reason, the central nurses' station in this hospital was designed not only for the usual nursing supervision but to become the main control center of the entire building after regular daytime working hours. Therefore, the main nurses' station has a direct relationship with the lobby and front entrance as indicated in the plan. Wherever possible, rooms are oriented to the south toward the open end of the gulch in which the building is located, allowing view toward mountains in distance



Scrub Area Between Operating Rooms



Typical Patient Room





COMPLEX ELEMENTS NTEGRATED THROUGH MASTER PLANNING

Advance master planning integrated the complex and specialized needs of medical-surgical-emergency functions, orthopaedic-pediatrics, adult orthopaedics, treatment, and rehabilitation in this diversified orthopaedic hospital. The result is a simplified plan, which manages to meet the needs efficiently and comfortably in spite of the diversity of functional requirements.

All of the specialized facilities required for orthopaedics are provided in this 157 bed hospital. This presented its architects with a somewhat unique opportunity, not usually found in planning general hospitals, for close study of the planning requirements for this specialty. The result is a building that is something of a model of the relationships between orthopaedic activities.

NAME: Los Angeles Orthopaedic Hospital LOCATION: Los Angeles, California RCHITECTS & ENGINEERS: Albert C. Martin & Assoc. ANDSCAPE ARCHITECTS: Cornell, Bridgers and Troller CONTRACTOR: William Simpson Construction Co.





Bridge at Rear Connects Main and Auxiliary Buildings

Los Angeles Orthopaedic Hospital

In addition to central supply, dining areas, storage and the like, the operating, recovery, and emergency areas of this hospital are in the basement, partially below grade. Complete service facilities are also provided underground, allowing trucks to enter and unload on that level. Tunnels connect the main building to the laundry, boiler house, and other buildings. In this way, activities that are most disturbing to patients are removed from the patient areas. The main floor is occupied by the administrative offices, a lecture room, coffee and gift shop, laboratories, x-ray and fluoroscopy, and plaster rooms. Two rehabilitation pools with equipment for treatment are located near the main building





TYPICAL NURSING FLOOR PLAN



GROUND FLOOR PLAN



ecture Room



Rehabilitation Pool for Therapy



Typical Nursing Floor Waiting Room

Los Angeles Orthopaedic Hospital

Attached to the main structure is a shop where braces and other orthopaedic mechanical aids are manufactured and fitted. Children's areas, such as patient rooms and the waiting room shown above, have murals and mobiles provided by Walt Disney. A self-contained closed-circuit television system is installed in the building for use in teaching. One use made of the system is for the projection of surgical operations on a screen in the lecture room from cameras in the operating rooms. University of Southern California medical students meet in this room to observe the operating procedures.

The hospital complex is supplied with oxygen, nitrogen, gas, air conditioning, and heat, through an underground system, from the engineering building. Patient rooms are wired for AM-FM radio and the hospital has a complete remote tape-recording system, intercom, nurses call system, and paging



Recovery Room



Children's Recreation and Class Room



Operating and Scrub Rooms in Basement



SEPARATION INTO TWO UNITS HELPS ORGANIZE HOSPITAL

By dividing this osteopathic hospital into two elements, one containing only nursing units, the other all of the ancillary services, the architects were able to increase the efficiency and effectiveness of the nursing care. Traffic through nursing units is decreased. Patients have more privacy and quiet.

The original size of this complete hospital is 232 beds. It was planned for the addition of 150 convalescentchronic beds in another unit, with provisions for expansion of the ancillary unit to take care of the increased patient load. Color has been used very effectively throughout the hospital, not only for its psychological effects, but also to indicate directions of circulation. For example, green doors lead to surgery, white to obstetrics, blue to laboratories.

NAME: Flint Osteopathic Hospital LOCATION: Flint, Michigan ARCHITECTS & ENGINEERS: Smith, Hinchman & Grylls, Assoc., Inc. HOSPITAL CONSULTANT: Forst R. Ostrander





¹⁷² ARCHITECTURAL RECORD March 1962



Operating Room



Recovery Room



Central Sterile Supply

Flint Osteopathic Hospital

The layout of the ancillary portion of the hospital daces all related services within a few steps of each ther. Radiology and pathology are near the surgery rea. Central supply and the pharmacy are adjacent o operating and delivery rooms. The emergency deartment was placed near the physio-therapy area, o that they could be used together for emergencies f needed. The surgical recovery room nearby can lso be used for emergency if required. The laboraory, x-ray, emergency, and physio-therapy departnents are arranged so they share a common lobby, hus effectively reducing the number of personnel eeded in this area after normal hours.

The double corridor nursing unit scheme, with entral nurses' stations and related facilities, reuces the length of the nursing wings and gives paients privacy. Nurses' stations on the first and secnd floors are placed near each other, and are so rranged that either station can care for the patients ssigned to the other. The nursing unit wing conains laundry, lecture rooms, mechanical equipment, lining rooms, and similar areas on the ground level. Ploors above contain general, pediatrics, and obstetical nursing units. The third floor has an intensive are unit. All patient rooms are provided with toilets



Central Sterile Supply



Typical Nurses Station

Flint Osteopathic Hospital

Nurses' stations are located as shown between the double corridors of the nursing units. Two stations per floor are provided. Patient room entrances are recessed from the corridors to give individual patients more privacy and allow more efficient servicing of the rooms without interference with general corridor circulation. Toilet rooms and closets are adjacent to the recessed area. The central sterile supply was planned by the architects with Keith Bowker, administrator of the hospital. It was located as near the geographical center of activities in the ancillary wing as possible.

Structure of the nursing building is reinforced concrete, while that of the ancillary building is steel frame with a steel pan roof. Both buildings are completely air conditioned. Costs, including architects' fees and equipment were: total cost \$3,448,182 or \$14,862 per bed



Recessed Patient Room Entrances



Lobby and Reception Desk

Architectural Engineering

Report on the Hartford Hospital Fire The Hartford Hospital built in 1948 appeared to most people to be immune to the ravages of fire. It was called "fireproof"—a loose term and a faulty concept. Nevertheless a tragic fire did occur on the ninth floor of the 13-story structure. Why did it happen? Reasons given by the National Fire Protection Association in the latest *NFPA Quarterly*, January 1962 were: 1) delayed alarm, 2) hazardous rubbish handling chute, 3) combustible ceiling tile in the corridors, 4) undivided ceiling space, 5) partial sprinkler protection and 6) manual-closing smoke barriers.

The following paragraphs contain a brief summary of the report: Fire started in a 22-in. diameter metal rubbish chute which had one 165 F sprinkler at the top; aluminum doors opened directly from the chute into the corridors at each floor. Trash in the chute had caught fire before, but usually was put out by hospital personnel. The fire department was called for one fire which caused a small amount of damage and filled upper floors with smoke. (The present NFPA Standard for Incinerators and Rubbish Handling requires service openings to be equipped with self-closing fire doors, and that each service opening be located in a room or compartment cut off from the rest of the floor by fire walls or partitions.)

Fire was discovered first by the employe who handled dumping of rubbish, sometime after he returned from lunch. He sprayed water on the rubbish from a standpipe hose on the first floor. First alarm was turned in by a nurse on the 12th floor at 2:39 who saw black smoke seeping out from around the chute door. Two minutes later a blast occurred in the chute, blowing off the door on the ninth floor. The blast ignited the combustible ceiling tile in the corridor and flames roared down the hallway.

Metal-clad, wood-core, smoke-stop doors in metal frames were provided at each end of the center section corridor. They were of the manual-closing, single-swing type. The door on the north side was closed immediately following the blast and kept closed. The south door was closed as smoke filled the floor, but for some unknown reason was opened at the height of the fire.

The corridor ceiling was of combustible acoustical tile mounted by adhesive to suspended gypsum lath. Samples of this tile flown to Underwriters' Laboratories, Inc. were found to have a flame spread rating of 180. The present NFPA Building Exits Code calls for interior finish in hospital corridors to have a flame spread of 25 or less. There was a non-firestopped open space between the ceiling and the concrete floor above. This space extended over the corridor and over the smoke doors, in effect short-circuiting them.

Those people on the ninth floor who stayed behind closed doors, stopped up by damp cloths, survived. Those who didn't perished. The toll, 16 lives: seven patients, four employes and five visitors, all in the south wing.

Design Tool A and For Determining tio Acoustical Privacy ing

A new design tool called the Speech Privacy Analyzer developed by Bolt Beranek and Newman Inc. under the sponsorship of Owens-Corning Fiberglas Corporation provides an accurate, easy-to-use method for determining the degree of speech privacy required for any given room situation, and for selecting the building components that will provide the necessary sound isolation. The principal elements of the analyzer are a privacy requirement estimating sheet, a component selection and data cards on ceilings, partitions, doors and corridors, and duct systems. Up-to-date acoustical data on pertinent products will be a continuing service of Owens-Corning to owners of the analyzer. It is available from: Speech Privacy Analyzer, Owens-Corning Fiberglas Corp., 717 Fifth Avenue, New York 22, N. Y. Cost is \$18.00.

This Month's AE Section NEW WAY TO BUILD A SHELL: ROOF IS WELDED STEEL DECK, p. 176. WHAT'S HAPPENING IN POLARIZED LIGHTING, p. 179. HOSPITAL COM-MUNICATIONS, p. 181. BUILDING COMPONENTS: Hospital Communications, p. 189, Products, p. 193, Literature, p. 194.






NEW WAY TO BUILD A SHELL: ROOF IS WELDED STEEL DECK

Two layers of metal decking are crisscrossed to form a four-quadrant hyperbolic paraboloid

by Harry T. Graham, Truman P. Young Associates, Cincinnati

One of the top award winners in the James F. Lincoln Arc Welding Foundation competition was this structure for a Cincinnati restaurant. Program requirements called for striking appearance, square-shaped floor plan, and reasonable cost. A metal-deck hyperbolic paraboloid easily matched these requirements.

Size and Shape

The structure consists of four paraboloids, each 33 ft 6 in, square, having a common column in the center of the structure and four exterior corner columns, giving a basic building 67 ft sq. For the sake of appearance overhangs were added on each of the four sides in the form of triangles. Since the basic paraboloid is square, this overhang complicated the design. The analysis considered first the basic square paraboloid, and then the overhang as a simple span supported on the outside edge beam and the fascia member. The edge beam is a straight line, thus the fascia member necessarily is a curve.

Roof Membrane

The main problem in using a membrane of laminated sheet metal was fastening the two sheets together. Riveting and bolting as well as welding were considered. Of the three methods, only welding with the semiautomatic gun gave a reliable connection that was economically feasible.

The dead load was 22 psf and the live load was assumed to be 25 psf for a total load of 47 psf. Using 20 ga deck for both top and bottom sheets, the stresses were all within the allowable range. However, for ease in welding it was decided to use an 18 ga lower layer and 20 ga upper layer with flutes at right angles to each other, and the panels of decking parallel to the edge members. This made all lines of stress at 45 degrees to the decking, but it was felt that using two layers at right angles would make for easier and faster erection, as each sheet would be essentially a straight line between members with only a slight warp in the 2-ft width. The top and bottom layers were welded at each intersection by a series of plugwelds, having a maximum stress of 1190 lb per weld.

The pattern of welds is shown at top of the page along with the special



RIDGE AND EDGE BEAMS



EDGE BEAM WELDING

Edge beams are straight. Roof cantil fascia. Ridge beams slope down to 10





F PLAN



ATION at angle shown above



CANTILEVER SECTION OF ROOF



DIMENSIONS OF STEEL DECKING



18-ga. lower layer, 20-ga. upper layer

The doubly-curved hyperbolic paraboloid can be constructed geometrically by means of straight lines. Thus it was possible to build a steel-surfaced hyperbolic paraboloid using 2-ft. wide sheets of fluted metal decking; there is only slight warping across each sheet. The shape of one quadrant of the hyperbolic paraboloid is shown in the elevation, left.



curving "Warp" of roof can be seen in this photo. Note plugwelds r column which fasten upper 20-ga sheets to lower 18-ga sheets



Peak is $18\frac{1}{2}$ -ft high sloping down to $4\frac{1}{2}$ ft at corners. Interio is free except for center column which is $10\frac{1}{2}$ -ft high





CORNER COLUMN DETAILS

STRUCTURAL ENGINEERS: Hanly and Young (now Truman P. Young & Associates)

ARCHITECTS: Woodie Garber & Associates

roof deck section used. This section is a standard shape without the edge bends, made by lifting the rolls that form the edges. The flat edges then overlapped by varying amounts and were practically unnoticable.

Edge Beams

The basic stress in the edge members is compression and for that reason a box section was used giving the best "r" (radius of gyration) for the amount of metal used. The approximate sizes were dictated by architectural reasons, so a section composed of channels and plates was chosen. In addition to the compression and horizontal bending in the edge members, the overhang introduces vertical bending.

The most difficult problem was the method of connecting the membrane to the edge beams. After much experimentation on the drawing board, it was decided to use a small pipe for the bottom and a half pipe for the top. By using these shapes, a contact for welding was always made, regardless of the angle of the deck. The fascia member, being on a parabolic curve, became a catenary. The member could have been a bar which would have draped very readily. However, to obtain a fascia, a 6 in.-channel was used; and, to get enough web thickness to prevent buckling, a heavy 13 lb section was needed. The corner columns were quite short, so presented little difficulty in taking the 100,000 lb horizontal thrust. These steel columns rest on heavy concrete piers, which are tied diagonally across the building just below the floor with four No. 11 reinforcing rods in concrete. Since the center forms a pocket, a roof drain had to

The stub corner columns are cut off at an angle to receive drain scuppers



be placed at this point. The drain was located directly over the column, a copper downspout was placed down through the boxed angle column and out the side of the footing. Details of the columns are shown at left.

An unusual cut was required on the ends of the edge beams to connect them to ridge beams. This was made very well in the shop, and as a result there was perfect fit in the field. The metal deck was placed following the erection of the beams. Three lines of wooden shores were used at quarter points of the 33ft span. These consisted of a 2 by 8 full length of a quadrant supported on single 2 by 4 posts. The lower layer of deck was placed on the edge members and the wooden supports. The sixteen sheets were equally spaced allowing the side laps to vary across the span. The ends of the sheets were trimmed as necessary and welded to the pipe on the side of the edge members. After the entire lower layer was in place, the upper layer was laid at right angles. The ends were welded to the edge beams as each sheet was placed. After all top sheets were laid, the interior spot welds were made by one man, using a welding gun. After one quadrant was completed, the procedure was repeated on the diagonally opposite.

Cost

Cost of completed roof structure, deck, insulation and roofing (built-up with marble chips) ran slightly over \$3.00 per sq ft.

Following this project, three other structures were built, similar in principle but somewhat different in shape. Cost of these has been reduced to just above two dollars per sq ft.

Half-round pipes on edge beams are used for welding attachment of roof



Steel skeleton for the h.p. Posts under edge beams are for shoring purposes



WHAT'S HAPPENING IN POLARIZED LIGHTING?

New materials have been developed for lighting fixtures to reduce reflected glare. Here is how they work and what can be expected of them

Light polarizing panels suitable for lighting fixtures, luminous ceilings and for daylighting applications are being offered to cut down reflected glare on seeing tasks, and in this way improve visibility.

While polarizing materials are familiar to the public as used in sun glasses and camera filters, these materials haven't been applied to building lighting for at least two reasons. First, the materials used in sun glasses are poor light transmitterssome lose about 60 per cent of incident light in absorption. Second, even if more efficient materials had been available, there wasn't any method or standard for rating their over-all efficiency.

Recently, however, new materials called multi-layer polarizers were made available (since 1958), and within the last year, new types of panels were introduced with improved efficiencies. Cost of multilayer polarizer sheet materials is in line with common plastic diffusing media in use today.

The second deterrent mentioned has been overcome by a new research study made by Dr. H. Richard Blackwell, Director of the Institute for Research in Vision, The Ohio State University.

This study was presented at the Illuminating Engineering Society National Conference in St. Louis last September. In essence this report: 1) demonstrates via tables and graphs the capabilities of polarizing panels (plus some other light controlling panels) in reducing reflected glare, and 2) proposes a method for evaluating the efficiency of any polarizing or light control medium in relation to reflected glare. This evaluation compares the increase in contrast, which is a "plus", with the reduction in light output of the luminaire (for multi-layer polarizers), which is a "minus." The evaluation then indicates whether or not over-all improvement in viewing efficiency is

eportin eportin Lighting Handbook, 3rd Edition ortin eport

Veiling glare makes it harder for a person to see a task; this is caused by specular (mirror-like) reflections of the light source. These photos show the effect of different directions of non-polarized light. Viewing angle is 25 degrees. Top left: 90 degree incident light (perpendicular to paper); top right: 40 degree incident light (50 degrees from perpendicular); lower left: 65 degree incident light; lower right: 5 degrees incident light

possible. Blackwell's tests indicate that the efficacy of multi-layer polarizers is significant for viewing angles of 40 degrees and above.

What is Reflected Glare?

Glare is of two kinds-direct and reflected. Examples of direct glare are excessively bright (or large area of) lighting fixtures in one's field of view, or bright light from a window. Reflected glare, on the other hand, is light from a given source which strikes the surface one is looking at and bounces up, as from a mirror, right into his eyes. People are usually aware of this happening with glossy paper, glass table tops and show windows. Surprisingly, even matte surfaces can be mirror-like in reflecting unwanted light. Some of the fibers of a matte paper or cloth can be oriented so that they reflect light from an overhead source. In lighting terminology this is called broad band specularity, as distinguished from narrow band specularity of naturally shiny surfaces.

Everyone has had the experience of tilting glossy pages of reading matter under a desk lamp or fixtured ceiling in order to get rid of annoying glare. Without realizing it, the person doing this is actually changing the angle of viewing so that the reflected glare is turned away from his eves.

Tom

Contrast is the phenomenon that makes small objects stand out. Black ink on white paper is better than black ink on gray paper. Contrast can be defined as the difference in the brightness of critical detail (such as printed type) and brightness of the background.

Loss of contrast has to be made up by increased illumination to restore visual performance to its original state. Dr. Blackwell has said that a seven per cent improvement in contrast is as good as 100 per cent increase in luminance.

Dr. Blackwell's earlier, and now famous, report (1958) dealt with the quantities of light required for a wide variety of tasks to achieve maximum practical accuracy of seeing. This study showed that quantities of illumination might vary from 1.13 footcandles for 8 point text type to 590 ftc for a poor copy print. These figures, of course, were based on a completely glare-free luminous environment, and would have to be jumped considerably if there were bad glare situations-either direct glare from windows or lighting fixtures, or reflected glare from over-

Background on Polarization



A loss in contrast between an object being viewed (say a pencil mark) and its surround (the paper) must be made up by increased illumination for equivalent no-glare visibility. This chart shows that a reduction in contrast from 0.7 to 0.6 due to glare (14 per cent loss in contrast) is compensated by a 300 per cent increase in brightness of the task

> Visual effectiveness can be improved by increasing either the contrast of the task or the amount of illumination (above). Angles of glare are shown above, right. Theory of multi-layer polarizers is given below



Drawing left depicts a dark image and a light surround being struck by unpolarized light rays. Part of each ray is reflected, partially polarized (a,c). The other part is refracted into the pigment and re-reflected diffusely (b,d). Rays a,c partially mask b,d which reflect true colors. Drawing right shows polarized rays striking the same task. There is no direct reflection at this angle of incidence. Instead all of the light is refracted into the pigments from where it is re-reflected diffusely, thus indicating only the true contrasts and colors of the light and the dark





Area of desk taken in by various viewing angles (from 1961 Blackwell report)



Multi-layer polarizer, enclosure and fluorescent tube. Vertical ray from tube does not become polarized. Other ray directly transmits 45 per cent of its light polarized. Eventually, according to Marks, 71 per cent of this ray becomes polarized by reflection and refraction

head or local lighting units.

There are three ways by which reflected glare can be minimized: 1) by lighting fixture (luminaire) layout, 2) by control of light distribution from individual lighting fixtures, and 3) by polarization.

The location of luminaires in a particular room can be chosen so that reflected glare will be overcome or neutralized. This will happen if there is a sufficiently large component of illumination from outside the reflected glare zone. This zone exists angularly from a perpendicular to the light source to 45 degrees away from the perpendicular. With a luminous ceiling, the light comes from every angle from the ceiling. Blackwell states in his study that the luminous works particularly well at a viewing angle of 25 degrees.

The second method for reducing glare (or, to say it another way, to increase contrast) is the use of a light controlling device such as a lens, a panel made up of a lot of little lenses, or a reflector to send the light out only within a restricted angle, cutting out those components that would cause either reflected glare or direct glare (a "bright" fixture). The final method for reducing reflected glare is polarized light which currently is making headlines in engineering and architectural circles.

How Polarization Cuts Glare

Knowledge of the effects of polarized light is as old as the artist's easel. Instinctively, artists preferred north light because reflected glare is less than with light from other directions, and the reason for this is that sky light from the direction opposite the sun is partially polarized.

The purpose of polarized filters for continued on page 198

HOSPITAL COMMUNICATIONS

New electronic aids to flexibility and variety in hospital design, to lower costs, and to better patient care

Advances in electronics are helping to solve hospital design problems in two ways. (1) By speeding communications they permit the medical staff to give more patients better care, and the administrative staff to apply modern business and supply techniques. This means larger nursing units, more medical services per staff member, more attention to traffic flow. (2) By making use of transistors, printed circuits, memory systems, and other developments, making equipment more compact and more versatile, they are saving precious space and at the same time permitting design of larger medical establishments of greater operational efficiency. Both of these effects mean lower costs.

Some of the basic hospital communications systems are illustrated on this page. A few others, such as closed circuit television, alarm, and monitoring systems appear in installations and equipment shown on pages which follow. They are familiar in principle and have developed out of long-felt needs. With cost-saving refinement and diversity has come increased complexity which calls for careful planning.

In a recent talk at the Engineering Institute of the University of Wisconsin, a DuKane Corp. executive made the following points concerning hospital planning:

Constructing or modifying a hospital requires the coordination of the entire program including communications equipment. During the basic planning period, the specialized knowledge of manufacturers' experts can help in reaching early decisions as to what type of equipment will meet the particular needs of each section of the hospital. This should not be based on anyone's personal preference nor limited to consideration of only one manufacturer.

Unfortunately, no blanket set of rules exists to guide the planners. Each hospital presents unique problems that will require the best thinking of everyone involved.

Four basic factors affecting cost should be considered:

(1) Evaluate standard manufactured items as against custom-built wherever possible.

(2) Investigate equipment reliability through previous users.

(3) Be sure preventive maintenance and service are available.

(4) Each system should have future expansibility built in without excessive first cost.

Specifications should not be restrictively written. Many architects and engineers prefer a separate bid for communications such as those for elevators or x-ray equipment. This allows the electrical contractor to provide conduit, boxes, etc., but allows the manufacturer to make the actual hookup. Separate bids allow the owner and architect to receive quotations from several manufacturers.

(Below) Nursing supervisor can check and adjust temperature in any operating room at Memphis Methodist Hospital from remote control center. Operating surgeon can signal by floor button and request adjustment without interrupting surgery





Nursing station at Huntington Memorial Hospital, Pasadena, Calif., centralizes, l. to r. on counter, nurse-patient intercom, telephone, pneumatic tube dispatch, departmental intercom. Photo, Lamson Corp.



Pigeonholes below clock in doctors' lounge at West Allis Hospital (see page 159) combine inout register and paging. When doctor removes pocket radio, a light shows operator he is in



(Above) Telautograph transmits facsimile of written orders. (Below) Patients records found in seconds by pushbutton system are relayed by phone-intercom









Nurse-patient intercom and TV control in patient's room, above, is similar to that described in the text

Plan, above: Carroll County General Hospital, Westminster, Maryland;^{*} Architects: Edward H. Noakes & Associates, in association with B. E. Starr; Hospital Consultants: Gordon A. Friesen Associates

Integrating Communications and Supply

"You simply cannot separate problems of communications and supply in any rational approach to the design of a modern hospital." So proclaims Gordon A. Friesen, Washington, D. C. hospital consultant. And with characteristic zeal he tells you why:

In the average hospital today, a considerable portion of the nurses' time is spent gathering supplies for patient care. The moment a patient is admitted, a message to central supply can dispatch prepackaged sets of basic supplies and, according to his diagnosis, special equipment to be ready when he gets to his room. His diet and medications, everything relating to his care, must be ordered by communications and delivered to his room by supply techniques which give the nursing staff maximum time at his bedside.

Carroll County General Hospital, Westminster, Md., is described in a recent report by Jess Kaufman of Executone, Inc., as an outstanding example of a hospital equipped with a complete, integrated network of communication and supply systems. Here, the patient signals the floor nurse by pressing a button in a pillow unit. The call is registered by lights both over his door and at the nursing station. The pillow unit also serves as a remote tuner and volume control for a television set. Through the same unit the patient hears the TV sound without disturbing other patients in the room. When his nurse call is answered, two-way voice communication takes place through a microphonespeaker built into the wall.

Near the door to each room is a service unit consisting of paired supply closets which open to both the room side and corridor side of the corridor wall. One closet contains clean supplies for the room. The other holds soiled linen and utensils ready for collection from the corridor. On the room side of these closets is a call station to a central supply area on each floor.

The nursing floor is divided into zones, with five rooms in each zone. As the nurse makes her rounds, she may find that she needs some supplies. She places a call to central supply and goes on with her work. She may move from room to room in her zone before her call is answered. Supply call stations within each zone are wired in parallel so that, when supply answers her call, she can pick up the nearest handset and order the supplies she needs. Her duty time is thus spent in direct patient care.

* Architectural study published in ARCHI-TECTURAL RECORD, April, 1960 Electronic Network with an Eye to the Future

Closed circuit television is not considered a luxury at the new Alexandria Hospital. According to Charles M. Goff, administrator, it is a natural adjunct of an audio-visual network planned for expanding services to patients and staff. A single TV camera can be plugged in at any of several locations including operating rooms, chapel, lobby, or conference rooms. Portable monitors can be plugged in at many points including nursing stations for night monitoring of critically ill patients or in conference rooms for close-up viewing of operations. A chapel service or babycare lecture, for instance, can be seen on any or all patients' room TV receivers. A child visitor in the lobby can be seen by his mother in her room while she talks to him on the telephone. Mr. Goff plans to use the system extensively to improve training and efficiency of his staff.

The nurse call system at Alexandria uses a hand microphone-speaker at each bed. A button on this unit can call the nursing station. If the doctor sets a bedside switch, the call will supersede calls from other units. A compact electronic memory system flashes the bed numbers of callers on a console in the order of their calls. An emergency switch in each bathroom supersedes all calls and its continuous light and sound signal cannot be turned off except by going to the indicated room. The patient's microphone speaker doubles as TV and radio tuner and private sound source.

Radio paging of doctors and key personnel is used at Alexandria. When a doctor "dials in" on a coded in-out registry, he picks up an individual pocket radio receiver. The telephone operator can then press a button which induces a beep signal in his receiver and no other. The doctor presses a button on the top of his receiver and listens to a voice message from the operator. A loop antenna built into the perimeter of the building assures that there will be no dead spots of poor reception anywhere on the premises.



Alexandria Hospital, Alexandria, Virginia; Architects: Saunders & Pearson; Consultants: Frank C. Sutton, M. D. and Christopher G. Parnall, M. D.



Radio paging, closed circuit TV, and two-way nurse-patient intercom increase effectiveness of staff duty time at Alexandria Hospital.



Hospital Communications

After a century of building at Grasslands, there are now five medical care buildings recently linked by electronic communications



(Left) Dial-in station over reception desk of main hospital building at Grasslands. Panel at top, a paging adjunct to the dial-in system, flashes numerals. (Right) Operator dials to see whether doctor is in, sets flasher if message is waiting. Photos courtesy Auth Electric Co., Inc.



Electronic memory and paging switches in central brain of registry system. "Books" of 100name printed circuits are added by plug-in

Electronic Register Checks Huge Staff In an Out of Many Doors

The trouble at Grasslands, milesquare campus for the Westchester County, N. Y., medical and correctional center, was old age and proliferation. The present main hospital building, about a quarter mile from tip to tip, was built in the '70's as a county home for the aged poor. It has many doors, which have posed a staff checking problem ever since the building was converted to a hospital during World War I. The problem was temporarily solved by a lighted nameplate registry near the main entry through which staff doctors were urged to pass.

With the years, more buildings were added, and more staff. Eventually there were five medical buildings, some of them with main entrances a quarter mile from the nameplate registry. The staff increased, and the registry panel grew until the next expansion would have carried it around a corner of the hallway. Long before that, doctors stationed in distant buildings had ceased to use it.

This year, electronics and its new techniques of miniaturization, are making it possible for each member of a staff of several hundred doctors to enter any of the five buildings, dial a three-digit personal code number on a wall-mounted unit less than a foot square, and be centrally registered as "in." If there is a message for him, the wall unit flashes a signal. If someone calls while he is in, the telephone operator dials his code number on a unit near her switchboard which signals whether he is in or out so that she knows whether to initiate paging. When he leaves the complex, he dials out at any station.

Photo by Architectural Photo Service

Central brain of the system is a compact arrangement of transistors and printed circuits in a cabinet about head high and three feet square in cross section. Circuits are assembled in book-size modules, each of which is an encoded memory system for 100 registrants. To add capacity up to 1000 names, it is only necessary to plug in another "book" for each 100 names.

R. G. Gould, director of facilities and services for Grasslands, describes the system as a long sought solution to the problem of outfitting a complex of older buildings with a means of centrally registering a very large staff, many of whom are relatively infrequent visitors to the hospital campus.



the know-how



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the product



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ARCHITECTURAL RECORD March 1962 185

ways to improve patient care and hospital efficiency

... through the functional use of communications and sound

2. Raise nurses' productivity; improve bed-patient care

Well-planned Executone sound-communication systems can perform heroic labors in the hospital. More than 30 different applications have been designed. Seven broad areas are detailed here. They are capable of lifting many burdens that high costs and personnel shortages impose on patients, administrators and staff.

1. Provide for instant command-response in surgery



Lives can be saved by immediate response to doctors' commands in the Surgical Suite. It is vital that a surgeon obtain assistance from remote departments with as much dispatch as he receives an instrument from his Operating Nurse. He may, for instance, have to suspend an operation until a report on a specimen can be obtained from Pathology ... until Blood Bank or Sterile Surgical Supply can fill an unforeseen need.

Executone's intercom systems put these services at the surgeon's immediate disposal. They fulfill special requirements of the Operating Room—explosionproofing...foot-operation...extremely well-modulated voice reproduction. They can, in addition, be used to transmit 2-way voice communication between the surgeon and students.

In other than surgical areas where urgent situations arise, action can almost always be expedited by properly-specified Executone communications.



Time and motion studies have proved that nurses' foot travel can be reduced by as much as 65%. At the same time, more duties can be assumed by orderlies, aides and Practical Nurses. The source of these skilled-labor-savings is the Executone audio-visual nurse call system. It can make a reduced nursing staff more responsive to the patients' needs.

In most cases, it can be installed using existing nurse call wiring. An effective audio-visual system will incorporate the following factors:

a. ability of patients, including those unable to move or speak normally, to use the system effortlessly.

b. operation of the system with all its advantages regardless of the location of

... in new and existing hospitals

nurses at any given moment, or the number of calls registered.

c, provisions to avoid a patient's being unable to signal.

d. psychological reassurances – of the proper registration of a patient's call, and the maintenance of his privacy.

e. foolproof, urgent-priority call registration from bathroom stations.

f. use of the system to monitor sounds in post-operative cases, polio or seclusion wards, nurseries, etc.

A demonstration of Executone's advanced nurse call equipment will showyou how all these functions and safeguards can be implemented, and a system designed for any set of requirements.



In-out registration and message collection duties are so burdensome to doctors that many frequently neglect these essentials. Confusion and delays result. Executone, however, makes available a variety of systems designed to relieve this condition. One notable advance is Executone's simplified, one-stop registerand-message facility.

This facility is made available to the doctor at all habitually used entrances. Each register is tied in to a central compact "memory" unit at the hospital message center. The doctor need only punch

his own 3-number code into the nearest register and indicate whether he is entering or leaving. This information is stored in the "memory" unit and is instantly available at any register. If there are messages for a doctor when he uses a register, a blinking light alerts him, and he may speak to the message center by 2-way intercom. The use of a central "memory" unit makes possible significant economies in wiring.

4. Increase the versatility of doctor-paging systems 📝



The paging facilities in today's hospital can offer a far greater range of service-thanks to Executone's multi-purpose systems. Not only does this equipment make possible a variety of interchangeable paging methods, but it will accommodate background music and alarm functions as well.

In addition to the conventional allhospital page, the Executone-equipped paging center may use:

zoned paging. A sequence of zoned pages will usually locate a doctor without disturbing the entire hospital. A typical sequence might be: obstetrical suite ... maternity ward ... doctors' lounges and dining rooms.

localized paging. This system operates as above-with this exception: On floors or wards served by nurses' stations, paging is restricted to the duty area. The nurse completes the page by selective use of the nurse call system. This method gives maximum quiet in patient areas.

5. Make the hospital environment more congenial

Sound can be genuinely therapeutic. Leading administrators attach great importance to its use for diversion and entertainment. They favor the availability of music-in wards and labor rooms, for example, as well as waiting rooms and visitors' facilities. Chapel services can be transmitted to the rooms of patients who so desire.

Executone's versatile paging and nurse call systems readily handle these additional functions. For example, each patient can be supplied with an Executone Pillow Speaker and controls. This

6. Speed internal action; keep telephone lines free



Reliance on the telephone for internal communication in the hospital often results in delay and switchboard congestion. Efficiency requires a channel of communication independent of the tele-

7. Expedite out-patient, clinic and emergency service

Traffic can be made to flow smoothly, and doctors' time conserved, by effecfive communications in departments serving ambulatory patients. Emergency admissions, too, can be handled with efficiency . . . day and night.

Executone intercommunication - between nurses' stations and the medical facilities they serve - is the key to im-



remarkably compact instrument is a high quality sound reproducer . . . radio station and TV channel selector . . . volume control . . . and nurse call cord set-all in one. No radios are needed in the rooms. Programs-and records or tapes -originate at a central control rack.

phone . . . in order that administrators may have direct contact with heads of departments . . . that related departments be in instant touch with one another . . . that there be adequate intercom facilities within departments.

Executone's intercom systems have proved their worth in hundreds of hospitals - in terms of increased staff productivity, time savings, and freeing switchboards for rapid response to emergency calls.



proved operation in these areas. An ambulance entrance which is not reqularly staffed at night can be made functional around the clock—by the use of an outdoor Executone ambulance intercom station to summon proper personnel upon arrival of an emergency case.

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Building Components Application and Specification of Materials and Equipment

NURSING STATION UNITS

HOSPITAL COMMUNICATIONS EQUIPMENT

Characteristics and appearance of some of the visible components of intra-hospital systems

NURSE-PATIENT INTERCOM

In hospitals today, a single nursing station may administer care to as many as 50 patients in private and semi-private accommodations. The considerable desk work involved in care of each patient (charting, writing reports, requisitions, etc.) requires each nurse to spend some time at the central nursing station. It is also necessary that patients' needs be known and fulfilled with minimum delay. Merely by knowing ahead of time what the patient wants, the nurse can save about 50 per cent of her walking time, according to studies for the Army Surgeon General's Office and U.S. Public Health Service reported in Producers Council Technical Bulletin 90. The nursing station units shown here reflect developments adding two-way voice intercom to refinements of the audible and visible signals which have been in use for many years.

Some nursing station units announce the degree of urgency of the different calls. The doctor, by flipping a switch in the patient's room, can give that patient's call priority over others. Priority can be shown visually on the central station unit by different colored lights and/or audibly by buzzing signals. Some systems show all calls that are coming in simultaneously. Others use electronic memory storage devices which put calls through one at a time in the order of patients' signals superseded by the order of priority.

Most nursing station units produce especially urgent signals for emergency calls, usually from buttons or pull switches in bathrooms. These signals cannot be answered by voice or turned off except at the source itself. A similar system can be used, with pressure actuated switches, to inform the nurse that a bed-confined patient is trying to get out of bed.







Dictograph Products



S. H. Couch



DuKane

Executone



Hospital Communications



International Meditronix



Motorola/Dahlberg

DUTY STATIONS



Auth Electric



Auth Electric



DuKane

PATIENTS' ROOM STATIONS







DUTY STATIONS

Obviously, the primary function of the nursing staff cannot be accomplished at a desk, regardless of electronic advances. Any system which immobilizes nursing personnel in a monitoring or exclusively communications function is, to that extent, defeating its own purpose. Effective systems, therefore, are designed and staffed so that patient service calls can be either received or initiated from duty stations at various strategic locations on the nursing floor. This is accomplished in two ways. (1) A floor clerk may be detailed to answer calls at the nursing station console and relay messages to nursing personnel through simple duty stations. (2) More elaborate duty stations permit nurses at various corridor locations to observe when any call is active at the nursing station console, note whether it is being answered, answer it if it is not being handled elsewhere, or initiate a call by dial or other means if it seems necessary.

PATIENTS' ROOM STATIONS

The arrangements in patients' rooms are basically push-buttons for signaling when some sort of care is desired. A light signal, either on the wall or on a TV set panel (as at Alexandria Hospital previously described). shows when the call is initiated and. by changing color, when the nurse is answering. When the call is answered, the patient can talk in normal tones through either a wallmounted-speaker-microphone or, in some makes, through a hand-held microphone unit. Some of the latter can remotely control radio and television tuning and serve as pillow speakers for entertainment sound.

With the resolution of jurisdictional trade disputes, bedside consoles are now being made which combine basic communications wall units with service electric and telephone outlets, vacuum and oxygen piping, special lighting arrangements, and so forth. The Auth unit, left, is an example.

An important feature of many patient room units is an arrangement that assures the patient's privacy. A signal, either audible or visible, tells when the nurse is monitoring the room. If the patient desires privacy for any reason, he can press a button, turn a dial, or merely ask the nurse to refrain from monitoring.



DuKane

S. H. Couch

Building Components

DOCTORS' IN AND OUT REGISTRY

Systems for signaling when individual doctors are on the hospital premises vary in complexity. Where the staff is relatively small and enters through a single door which is visible to the telephone operator, a simple panel of name plates lighted by individual toggle switches may do the job. Doctors flip the switches on and off as they pass in and out, and the operator merely looks at the board to see who is in. First complication is when the operator is not near the entrance. It is quite easy then to install a duplicate panel near her switchboard with an arrangement for automatic flashing at the check-in board when there is a message waiting for the doctor's arrival. Duplicate panels can also be installed at more than one entrance with circuits such that checking in or out at any station operates all panels.

The physical limits of convenient size for registry panels pose no problem for the newer, coded, digital systems. With these, each doctor is assigned a permanent code number, usually three digits for staffs of less than 1000 doctors. A doctor simply dials or presses numbered buttons for his code number and presses an "in" or "out" button. To be sure he has entered the right number, he checks a lighted panel. One such system is described on page 184.

PAGING

Newest development in doctor paging systems is the vest-pocket size, individually tuned radio. When a doctor enters the hospital, he picks up one of these units. The telephone operator, by pressing a button, can generate a "beep" signal in his assigned unit and no other. He presses a button on the unit and listens to a voice message. So far, pocket size units don't let him talk back except by telephone.

The pick-up of radios can be linked to check-in systems. Units can be permanently assigned or, to save initial cost of equipping a large staff, units can be assigned daily and by shift. The familiar coded light and bell systems are still first choice in some hospitals and some new equipment is improving their effectiveness.

CLOSED CIRCUIT TV

Some uses of these systems are described in the report on Alexandria





Motorola/Dahlberg

DOCTORS' IN AND OUT REGISTRY



Auth Electric



Auth Electric



Edwards





PAGING



Dictograph Products











Multitone Electronics

CLOSED-CIRCUIT TV





Dage



Motorola/Dahlberg



Grover



RECORD INTERCOM

Lamson



Telautograph

SPECIAL TELEPHONE



Automatic Electric



Automatic Electric

Hospital on page 183. Photos, left, show black and white and color cameras and a bed patient watching and talking to her child who is in the hospital lobby.

RECORD INTERCOM

Pneumatic tube systems provide rapid transmittal of written material and small items such as drugs and lab samples. Size and turning radius of tubes require some attention to chases and ceiling suspensions. Telautograph can transmit facsimiles of written messages simultaneously to any number of stations.

SPECIAL TELEPHONE

While all telephone companies can supply essentially the same services, differences in equipment may affect planning. Outside telephone service for the staff may be provided through an automatic dial switchboard with a small attendant cabinet. (See illustration, bottom left.) Outside calls are made by dialing a single digit and then the outside number. Indialing facilities permit outside callers to dial an extension directly.

New equipment for automatically recording patients' dialed outside calls for billing purposes includes a central bank of meters shown at bottom right.

ACKNOWLEDGEMENTS

The following companies have contributed photographs and background information on the communications components shown on these pages:

- Auth Electric Co., Inc., Long Island City 1, N.Y.
- Automatic Electric Co., 400 N. Wolf Road, Northlake, Ill. Blonder-Tongue, 9 Alling St., Newark,
- N.J.
- S. H. Couch Co., Inc., 3 Arlington St., North Quincy 71, Mass.
- Dage Div., Thompson Ramo Wooldridge Inc., 455 Sheridan Ave., Michigan City, Ind.
- Dictograph Products, Inc., 95-25 149th St., Jamaica 35, N.Y.
- DuKane Corp., St. Charles, Ill. Edwards Co., Inc., Norwalk, Conn.
- Executone Inc., 415 Lexington Ave.,
- N.Y. 17, N.Y.
- The Grover Co., 25525 W. Eight Mile Road, Detroit 40, Mich. International Meditronix, Inc., 16809
- Hawthorne Blvd., Lawndale, Cal.
- Lamson Corp., Syracuse 1, N.Y. Motorola/Dahlberg, 4501 W. Augusta Blvd., Chicago 51, Ill.
- Multitone Electronics Ltd., 130 Merton St., Toronto 7, Ontario.
- Telautograph Corp., 8700 Bellanca Ave., Los Angeles 45, Cal.

SIGHTSEEING ALL THE WAY UP IN GLASS WALL ELEVATOR

A glass-walled elevator running in an open shaft provides a view of San Francisco and the harbor as it goes 29 stories non-stop to the cocktail lounge on the top of the new tower addition to the Fairmont Hotel. The tower, designed by Mario Gaidano, is the highest public observation point in San Francisco.

Walls of half-inch thick safety glass extend $3\frac{1}{2}$ ft out from the face of the building. The *Skylift* elevator is of water-proof, wind-resistant construction with weather-proof operating equipment, such as in ship elevators.

Traveling cables connecting the controls in the car to machinery in the building are enclosed in a metal trough covered by porcelain panels.

The automatically controlled eleva-



tor has three speeds and can hold 30 people, although somewhat fewer is needed to allow full sightseeing. Otis Elevator Co., 260 11th Ave., New York 1, N.Y.



DRY MIX DELIVERIES CONTROL QUALITY, CUT WASTE

Just Add Water to Make Mortar

Quality control in masonry is possible with a pre-blended cement mix containing all mortar ingredients which is delivered to the construction site in specially designed bulk trucks.

A screw conveyor is used to load the dry mix into storage silos which are installed directly over the mortarmixer. Water is then added to produce a mortar mix which always has the same proportion of ingredients.

The process eliminates inaccurate



hand shoveling, separate deliveries of materials, time lost in thawing sand piles, and the need to protect materials from the elements. *Instant Crete Corp., Linden, N.J.*

Packaged Concrete Mixed on Site

Large compartmentalized rubber batch bags for concrete can be stored at a building site, and mixed when needed, thus eliminating the mixer trucks which frequently get slowed down in traffic.

The cement is contained in a rubber core of the sausage-like bags, completely sealed off from moisture, with aggregate and water in a surrounding outside compartment. With this protection, the bags can stand almost indefinitely. Capacity of the bags is $1\frac{1}{2}$ cu yds, and they can be used up to 1000 times before replacement.

When needed on the job, the bags can be lifted to the mixer by any lifting device with $3\frac{1}{2}$ ton capacity by a ring built into the opposite end from the dumping neck.

This new method assures addition of the exact amount of water required for the desired strength and eliminates over-mixing. Rodeffer Industries, Inc., 965 North Fair Oaks Ave., Pasadena, Calif.

more products on page 220



People Heating

"People Heating With Infrared Lamps" is a 16-page booklet which describes the principles of heating with infrared lamps and gives illustrations of typical indoor and outdoor heating installations. Inquiry Bureau, Dept. TP-103, General Electric Co., Nela Park, Cleveland 12, Ohio.

Ceiling Suspension Systems

(A.I.A. 39-B-1) An eight-page brochure gives details of *Rigid Grid* acoustical ceiling suspension systems which feature a positive-locking device. Also discussed are the two-hour fire rated ceiling system and a concealed direct suspension system that is free from furring channels. *Flangeklamp Corp.*, 1971 Abbott Road, Buffalo 18, N.Y.

Aluminum Building Materials

(A.I.A. 12-C) Detailed information on aluminum products for commercial and industrial building is given in a 16-page booklet. Load span tables, flashing details and examples of stock colors are all illustrated. Available on letterhead request. *Reynolds Metals Co., Dept. PRD 66, Richmond* 18, Va.*

Color Chips

A color manual shows a separate color on each of 138 pages which are perforated to allow for 14 tear-off chips of each color. There is a cross reference index for easily locating of colors. The individual chips show the mixing formulas. Luminall Paints Div., National Chemical & Mfg. Co., 3617 S. May St., Chicago 9, Ill.

Concrete Fasteners

A 96-page report gives details of a year of testing by the New Haven Testing Laboratories of *Ramset* and *Shure-Set* fasteners in concrete. *Ramset Fastening System*, Olin Mathieson Chemical Corp., New Haven 4, Conn.*

Radiation Shielding Concrete

A research report by the Atomic Energy Commission on concrete mixes for radiation shielding is available for \$1.50. "Barytes Concrete for Radiation Shielding: Mix Criteria and Attenuation Characteristics" Order ORNL-3130 from OTS, U.S. Dept. of Commerce, Washington 25, D.C.

Porcelain Enameled Chalkboards

A new line of Visionell porcelain enameled chalkboards is described in a booklet which gives specifications and details on types of installations. The chalkboards have an acid-resistant matte surface which is easy to clean. They come with a variety of backings, in five colors and three gages. Benjamin Porcelain Enameling Div., Thomas Industries, Inc., 207 E. Broadway, Louisville, Ky.

Patterned Glass

(A.I.A. 26a-3-5-6) Catalog No. 62 has 16 pages covering the complete line of glass patterns for industrial, school, church, institutional, and residential structures. Pictures of individual patterns are accompanied by light distribution charts and transmission data. Typical installations are included. *Mississippi Glass Co.*, 88 Angelica St., St. Louis 7, Mo.*

Propeller Fan Cooling Towers

Bulletin 310 describes low horsepower, multi-stage propeller fan cooling towers and evaporative condensers. Baltimore Aircoil Co., Inc., P.O. Box 7322, Baltimore 27, Md.

Rubber Flooring Specifications

(A.I.A, 23-G) A four-page folder gives the new specifications for rubber flooring as adopted last year by the Flooring Division of the Rubber Manufacturers Assoc. These replace specifications which were adopted in 1956. Rubber Manufacturers Assoc., 444 Madison Ave., New York, N.Y.

Vapor Barriers, Insulation

A loose-leaf manual contains detailed information on vapor barriers, insulation, flashing and waterproofing, and concrete curing. In addition to technical data, an 8½- by 11-in. sample of each product is included. American Sisalkraft, St. Regis Paper Co., 60 Starkey Ave., Attleboro, Mass.

Stainless Steel Plates

Pictures of manufacturing processes provide a background design for information on plate finishes and detailed tolerance charts. *Eastern Stainless Steel Corp.*, *Public Relations Dept.*, *Baltimore 3*, *Md*.

*Additional product information in Sweet's Architectural File more literature on page 244



"walls of light"

Translucent Walls

(A.I.A. 17-A, A.I.A. 12-J) Two brochures give data on translucent walls, skylights, and roofs. The units are made of glass fiber plastic faces bonded to an aluminum grid core. Kalwall Corp., 43 Union St., Manchester, N.H.*



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Shoes are murder.

Stiletto-like high heeled slippers. Dress shoes. Work shoes. Day in and day out, they'll pound any flooring you specify . . . grinding in abrasive dust, dirt, even gravel . . . robbing it of its appearance and condition . . . leaving behind the scars of time and traffic.

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Whatever the architectural specifications, the slimtrim 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.

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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



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IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

STATE

Polarized Lighting continued from page 180

cameras and in sun glasses is to screen out bothersome reflections which kill true color and texture of objects, and make seeing difficult. The reflected glare, naturally, is the same color as the source—the sky, a lighting fixture, etc.

Non-polarized light from any source which is specularly reflected (mirror reflection) from glossy surfaces such as glass, shiny paint and water becomes partially polarized in a plane parallel to the reflecting surface. Sun glasses have a polarizing material mounted in them so that the plane of polarization is perpendicular to the plane of the reflecting surface. Thus the specular reflection is absorbed and the desired light parallel to the plane of polarization of the sun glasses passes through.

The new breed of polarizing media for use in lighting fixtures, multilayer polarizers, was proposed several years ago by an inventor named Alvin Marks.

In a technical paper in Illuminating Engineering, February 1959, Marks showed theoretically how he could get 71 per cent of the light out in a polarized form which is useful for cutting reflected glare by using a reflecting enclosure around a fluorescent lamp. Marks used a multi-layer plastic sheet in which the plastic is also a polarizer.

The first multi-layer polarizer on the market consisted of glass flakes arranged in layers in plastic sheet. It was introduced by Owens-Corning Fiberglas Corp., in 1958 under a license from Polarized Lighting International, Inc.

Other multi-layer polarizing panels have been developed by Polrized Panel Corporation which employ thin layers of vinyl, styrene or acrylic plastics laminated into panel form. These panels have been marketed only recently and currently are being used for lighting fixtures by Sylvania Lighting Products and by Westinghouse Electric Corp., Lighting Division. Besides the original glass flake polarizing panel, another is reported to have been developed by Owens-Corning with greatly improved polarizing efficiency.

Daylighting panels are being marketed by Structoglas, Inc.

Blackwell's research shows that the largest improvements in contrast can be experienced for viewing angles of from 40 degrees to 60 degrees. At 40 degrees the improvement in contrast more than compensates for the reduced total light output (due to absorbtion by polarizer). At 60 degrees improvements in contrast are strikingly large, but at 25 degrees they are rather small. The reason for this is that the peak of polarization efficiency for multi-layer polarizers occurs at 60 degrees. Viewing angle is the angle made with the perpendicular to the surface (which is assumed to be zero degrees).

An illustration in Blackwell's recent report shows that when a person is sitting head-down at a desk, a 25 degree viewing angle puts his eye 6 in. from the edge of the desk; 40 degrees, 11 in. from the edge and 60 degrees, 22 in. from the edge.

This briefly is how multi-layer polarizers reduce glare: The most efficient of them emit a considerably continued on page 210



CONSTRUCTION DETAILS

for LCN Overhead Concealed Door Closer Shown on Opposite Page The LCN Series 200 Closer's Main Points:

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- 2. Mechanism entirely concealed; arm disappears into door stop on closing
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- 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 Complete Catalog on Request—No Obligation or See Sweet's 1962, Sec. 19e/Lc

LCN CLOSERS, PRINCETON, ILLINOIS A Division of Schlage Lock Company

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Modern Door Control by Closers Concealed in Head Frame CITY HALL, NEW ORLEANS, LOUISIANA Associated Architects: Goldstein, Parham & Labouisse Favrot, Reed, Mathes & Bergman

> LCN CLOSERS, PRINCETON, ILLINOIS Construction Details on Opposite Page

ew York's Summit Hotel

Creative esign in onolithic einforced Concrete



New York's first new hotel in 30 years The Summit, Lexington Avenue and 51st Street / Owners & Operators: Loew's Hotels, Inc. / Architect: Morris Lapidus—Harle, Liebman. New York City / Structural Engineers: Farkas & Barron, New York City / Contractors: Diesel Construction Company, New York City

Monolithic reinforced concrete helped achieve this dramatic, 21-story—800-room, contemporary addition to Manhattan's hotel scene. By utilizing this versatile construction method, the architects were able to create the unusual S shaped facade and provide greater room flexibility. For every type of building, monolithic reinforced concrete offers unlimited structural advantages. On your next project, utilize the superior design features of this extremely creative material.

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John Noble Richards FALA. designs a school that embraces the Open World and air conditioning, too

The surge of interest in air-conditioned schools has scarcely begun. For years $L \cdot O \cdot F$ has studied the technical aspects of providing the benefits of well daylighted, open-view schools and air conditioning at the same time. Technically, and economically, it's not only feasible but practical.



•. To approach the problem from the architect's viewpoint, we asked John Noble Richards of Bellman, Gillett & Richards, Toledo, Ohio, for his opinion. He said: "I'm opposed to the idea of

putting children, especially smaller ones, in an industrial or commercial atmosphere. Pupils of all ages need to see the trees, the grass, the sky





around them at school just as much as at home. Large window areas and air conditioning can live together

economically. It's a matter of designing with both of them in mind."

To give Mr. Richards the opportunity to prove his point, $L \cdot O \cdot F$ commissioned him to design an air-conditioned, 16-classroom elementary school with a capacity of 500 students. He chose a semiwooded, northwestern Ohio area as the site for his project. The sketches show how carefully the design was evolved. And the result: an exciting school. Exciting to approach as a circus tent. And stimulating to be in. With large, unhindered views of the "open world" from every classroom.

But . . . most important . . . an extremely practical school, too! Areas are flexible to meet changing educational patterns and activities. Adjoining





classrooms can be thrown together whenever desired. And the school can be built, and air conditioned

year 'round, economically.

Window walls are oriented to permit sun heat to penetrate deep into the classrooms in winter to supplement heating. In summer, 5' roof overhangs exclude direct sun rays from the interior to reduce the air-conditioning load. Polished grey plate glass is recommended for all window areas to further control sun heat and sky glare. The neutral grey color provides eye comfort, since it reduces glare and brightness. Colors of objects seen through grey plate retain their true values. There are two types for schools $-\frac{1}{4}$ " Parallel-O-Grey[®], twin ground for maximum clarity, and $\frac{1}{4}$ " Polished Grey Plate. Parallel-O-Grey excludes 40.4% of the sun's solar energy



air-conditioning failure. Spandrels of *Vitrolux*[®], heat-strengthened plate glass, were placed below the window walls to add color and to keep ex-

terior building maintenance at a minimum.

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Architect: HOWARD LEONARD GLAZER, A. I. A. in association with DOUGAN & HEIMS, A. I. A.



With the future in mind, this tax-supported district hospital in Bandon, Oregon is designed to grow with the communities it serves.

The heating plant, storage rooms and ambulance entrance are grouped along the street and parking area. This section also serves as a sound barrier. The surgery, laboratory, x-ray and other service rooms are located between the street side area and the 20-bed wing that extends 177' along the bluff above the ocean, affording a spectacular view for the patients. The main entrance to the waiting room and administrative offices is reached via a covered walkway through the court from the street.

Since the building is subjected to constant salt air spray, low maintenance was a materials selection factor. The architect specified $1'' \ge 4''$ tongue and groove Western Red Cedar siding applied vertically. A bleaching agent was used as an exterior finish to accelerate the natural weathering of red cedar to a silvery gray color.

Framing for the entire hospital is West Coast Douglas Fir in sizes of $2'' \ge 4''$, $2'' \ge 6''$, $2'' \ge 8''$ and $2'' \ge 10''$. The roof is $1'' \ge 8''$ fir shiplap applied diagonally on $2'' \ge 10''$ joists.

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MEMORIAL AUDITORIUM-COLISEUM, Knoxville, Tennessee, contains three separate but connected buildings under one roof. This six-story high civic center includes a 2,500-seat auditorium, a 7,000spectator indoor coliseum, an 11,000 square foot exhibition hall — a total of nearly one quarter million square feet.

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Events as dissimilar as symphonies, horse shows, trade exhibits can take place simultaneously in the various facilities of the civic center. To contribute effectively, the sound system selected had to span a gamut of strict audio requirements: highest fidelity for voice and music under ideal acoustical conditions of the auditorium; capability of overcoming spectator noise in the coliseum; crisp, clear speech reinforcement regardless of surrounding noise in the exhibition hall.

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Polarized Lighting continued from page 198

larger percentage of vertically polarized rays than horizontally polarized rays. Vertically polarized light rays have the characteristic that at one particular angle of incidence to a surface, no direct reflection occurs. Rather, this light is refracted into the surface and thereupon is diffusely reflected back out again. It is this diffuse reflection that gives the true color of the pigments that make up the surface. At other angles of incidence than this special one, vertical polarized light will be directly reflected in various amounts, always less than non-polarized or horizontally polarized light. It follows, then, that multi-layer polarizers with a large output of vertically polarized light will produce very favorable contrast situations at those angles where polarization is most efficient.

One particular aspect of the second Blackwell report being seriously discussed concerns the numerical values given for the Blackwell single efficiency rating. Called the Coefficient of Overall Visual Efficiency (COVE), it is intended to be an index for efficiency of the lighting material with respect both to the quantity of illumination and to the reflected glare aspects of illumination quality. The ratings in the report were determined by averaging the effective luminances of four different tasks at three different angles 25, 40 and 60 degrees, and multiplying them times the coefficient of utilization of each lighting unit (CU = Total light output of the fixture/light input by the lamp). This has the effect of averaging contrasts at the three angles, and obviously these are quite different in magnitude-at 60 degrees, large; at 25 degrees, small.

According to some engineers, if the polarized light could be issued from the fixture at an angle closer to 25 degrees, say, than 60, the improvement in contrast would be considerably more favorable for common desk tasks.

It should also be kept in mind that polarized light will cut down reflected glare to some extent for room surfaces—walls, floors—and help render them more in their true colors and textures.

Architects: Painter, Weeks & McCarly; Morton & Sweetser Altec Sound Contractor: R. J. Coker Co., Knoxville, Tennessee

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The photos demonstrate why W. E. Broady & Sons, Inc. insisted on Keywall reinforcement for all tile work on their Indianapolis project. Elsewhere, on cement block and other types of masonry work, galvanized Keywall keeps buildings looking young and strong by lapping at corners without thickening joints . . . by assuring full embedment and a complete bond . . . by curving to form a continuous reinforcement throughout unusual contours. There are few reinforcement jobs Keywall can't do-at bid-winning cost. Prove it to yourself on the next project.

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Peoria, Illinois



Baltimore office, International Business Machines Corp. Architect: Pedersen and Tilney Contractor: Kirby and McGuire



Detroit office, Reynolds Metals Company Architect: Minoru Yamasaki and Associates General Contractor: Darin and Armstrong, Inc.





Libbey • Owens • Ford Office Building, Toledo, Ohio Architect: Skidmore, Owings & Merrill Contractor: George A. Fuller Company

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Sweets Architectural file 3f

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write for your personal copy: The Cookson Company, 700 Pennsylvania Ave., San Francisco 7, Calif. Sales and service in principal cities.



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Product Reports

continued from page 193

Built-Up Roof System

A simplified system for laying insulated built-up roofs uses conventional roofing material, but changes the sequence of installation. *Roofmate FR* insulating foam is installed, then



covered with a coated base sheet. The roof is completed by mopping top of coated base sheet with asphalt and placing standard roofing felt in conventional manner. The insulating foam is light weight and is manufactured in two by four ft lengths in five thicknesses. Dow Chemica Co., Midland, Mich.

Lower Cost, High-Strength Steels

A series of five low-priced, high strength steels are available in a wide range of structural shapes and plates. The manganese vanadium steels are designed V45, V50, V55 V60, and V65. Two existing high strength steels, ASTM, A441 and A440 have been reduced in price Bethlehem Steel Co., Bethlehem, Pa

Patterned Acoustic Panels

Six patterned panels have been added the Celotex's line of incombustible glass fiber acoustic panels. Also intro



duced is a vinyl-faced panel for in stallations requiring easy washing The panels are available in 24 in. s and 24 by 48 in. The Celotex Corp 120 S. LaSalle St., Chicago 3, Ill. more products on page 22 **WHY IS A WALL?** Who made it? Was it meant to separate windows? To hold up pictures? To sit against? It can stop rain and snow from coming in. My ball bounces off it. Does it keep chairs from falling over backward?

The child's mind is full of inquiry, question, wonderment as she grows. In our special way we constantly ask questions about our own products, pursue research to make them better, more effective, more easily used, of greater benefit.

For us a Wall of Bestwall glass fibered Gypsum Lath and Plaster can protect against fire, add strength to the house, insulate, insure against excessive noise, offer the base for all kinds of decorative treatment. The use of glass fibers with gypsum is further evidence that we are constantly seeking to improve our quality products as we anticipate new uses and techniques from inquiring minds. Bestwall Gypsum Company, Ardmore / Pennsylvania.



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SOLARGRAY PLATE GLASS

This sketch of the interior court illustrates the wide use of SOLARGRAY in the Brotherhood Mutual Life Building, SOLARGRAY is a heat-absorbing and glare-reducing plate glass. Its soft gray tint absorbs about 50% of the sun's heat and reduces sun glare. Yet it permits plenty of light to come through, allowing a proper balance of natural and artificial lighting without creating color problems.

TWINDOW INSULATING GLASS

This view of the interior court illustrates the extensive use of TWINDOW in the Brotherhood building. TWINDOW is constructed of two panes of glass with a dry air space hermetically sealed in between. TWINDOW provides effective insulation all-year round. It reduces the amount of heat transferred through the window area . . . saves on heating and cooling costs, minimizes condensation and chilly downdrafts.



Architect: Orus Eash, Fort Wayne, Indiana Contractor: Civilian Building & Supply Inc., Fort Wayne, Indiana

The Brotherhood Mutual Life Insurance Company Building, Fort Wayne, Indiana

Sunlight or snow...hot or cold-

this building with 258 units of SOLARGRAY® TWINDO provides ideal all-year-round comfort

In this building, Architect Orus Eash combined PPG SOLARGRAY Plate Glass and TWINDOW Insulating Glass ... providing an ideal combination of glass products for year-round working comfort. SOLARGRAY, a heat-absorbing and glare-reducing plate glass, transmits less than 50% of the sun's heat and reduces unpleasant glare from the sun.

TWINDOW Insulating Glass, which

is actually two panes of glass with an air space between, helps to maintain desired temperatures and humidity levels . . . adds to interior comfort, summer and winter.

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Product Reports

continued from page 220

Wireless Intercom

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as paging, both general and selective. Talk-A-Phone Co., 5013 N. Kedzie Ave., Chicago 25, Ill.

Stronger Structural Tubing

An increase in the physical properties of Republic's structural tubing allows a given strength to be achieved with one-third less wall thickness, without sacrificing ductility. Sizes of the new tubing range from one-inch square to five-inch square or equivalent rectangles. Round tubes are available from $1\frac{1}{4}$ in. to six in. Republic Steel Corp., 224 E. 131st St., Cleveland 8, Ohio

Strong Stock Door

New components and improved construction techniques are used to make a strong stock door, the *Narrow Stile* 190. Features include a weathered



adjustable astragal and adjustable pivots. It is available with a number of hardware options. *Kawneer Co.*, *Niles*, *Mich*.

more products on page 228

ADVANCE In-warranty Labor Insurance compensates for normal ballast replacement labor cost



The ADVANCE TRANSFORMER CO. ILLI (In-warranty Labor Insurance) Program is designed to reimburse the Electrical Contractor for normal labor costs incurred in replacing ADVANCE In-warranty High Power Factor Fluorescent Lamp Ballasts.

ILI permits the Contractor to guarantee both labor and ballasts in fluorescent lighting installations. It gives fast and more efficient service for lighting equipment manufacturers' products if an ADVANCE Ballast becomes inoperative within the two-year warranty period.

Here's how ILI works

The Electrical Contractor contacts his ADVANCE Representative when he experiences an ADVANCE in-warranty ballast failure. The ADVANCE Representative will qualify the job and issue an (In-warranty Labor Insurance) ILI number.





The Electrical Contractor takes the inoperative ballast together with the (Inwarranty Labor Insurance) ILI number to any ADVANCE Service-Stocking Distributor. The Distributor supplies the Contractor with new ADVANCE Ballasts at no charge and gives the Electrical Contractor an ILI form.

The Contractor completes and sends the form to ADVANCE TRANSFORMER CO., 2950 N. Western Avenue, Chicago 18, III. He receives a non-negotiable check for replacement labor cost which will be redeemable in merchandise at any ADVANCE Service-Stocking Distributor.

WRITE FOR COMPLETE ILI BROCHURE





NOW-SHEFFIELD IS THE SOURCE FOR A COMPLETE LINE OF S.J.I. APPROVED JOISTS



All Approved Standard and High Strength Steel Joists Are Now Available to Meet Every Building Requirement

Short span, long span or extra long span—whatever the clear span requirement, Sheffield has the right open web steel joist for your project. And, you can be sure of the correct safe load it will carry.

Sheffield designs and the special steels used—not only conform to the exacting requirements of the Steel Joist Institute, but also to Sheffield's own quality control of the steel from furnace to finished product.

Sheffield Joists are formed by the newest electronically controlled, precision equipment. Fabrication is assured to extremely close tolerances that result in the highest possible quality under the Steel Joist Institute standards. HERE'S WHAT THIS MEANS TO YOU. These modern manufacturing methods result in earlier shipments to meet construction schedules. You have a better selection. You have lower inventory carrying costs.

FIND OUT MORE. Get in touch with your Sheffield representative. He'll prove to you that in tests to destruction, Sheffield Joists equal or exceed Steel Joist Institute standards. He'll be glad to arrange for personalized engineering service for standard design or the new high strength joists. Or write direct to Sheffield Division, Armco Steel Corporation, Sheffield Station, Kansas City 25, Missouri.





*Lightness



















Aluminum and Fiberglas Garage Doors

Weighs 1/3 that of wood sectional doors . . . embraces entire garage in soft, pleasant daylight . . . maintenance-free, never needs painting.

Raylon Doors for Residential and Commercial Installations

RAYNOR MFG. CO., Dixon, Illinois

Hammonton, New Jersey

Product Reports

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Ventilating Fans

Ventilating fans with airfoil blades are designed for use with high velocity air conditioning systems where low sound level is important. The 12 blades per wheel result in a higher frequency, more controllable sound. A sloping, curved metal cutoff at the fan outlet gives more uniform velocity distribution. The Trane Co., La Crosse, Wis.

Siding with Baked Epoxy Coating

An epoxy coating using Shell Chemical's *Epon* resin is available in eight opaque and four transparent colors



on aluminum and galvanized and stainless steels. The coating has a 9-H hardness and provides good protection against scratching and pitting. Expected life is eight years, and repainting by spraying can be done. Insulated back-up panels offer thermal protection. It can be installed during any season, and 15 different



shapes are available. Elwin G. Smith Co., Williams St., Emsworth, Pittsburgh 2, Pa.

Stainless Steel Store Fronts

A fixed-window moulding system employing 17 basic standard stainless steel sections and a packaged door and door-framing unit have been de veloped for use in constructing storand building fronts. The glass molding system and the door unit can be used separately or in combina tion. Schacht Assoc., Inc., 1175 E 156th St., New York 59, N.Y.

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more products on page 232

Another of today's trend-setting designs-crafted and clad by GENERAL BRONZE



NIAGARA POWER PROJECT'S STAIN-LESS TOWERS SHOW GB'S SKILL WITH PATTERNED CURTAIN WALLS



These monumental intake gate structures are new landmarks on the Niagara River. The functional severity of the two 100-foot towers has been softened and humanized by brilliant stainless steel curtain wall envelopes, accentuated by black enameled aluminum columns. The structures were designed by Uhl, Hall and Rich—Engineers and Architects for the N.Y. State Power Authority. Contractor: Merritt-Chapman & Scott Corp.

In these unusual towers, many recurring problems in curtain wall treatment were amplified. Corrosive atmospheres were present. Harsh reflections and "oilcanning" in the all-metal facades had to be avoided with extreme care. Maintenance had to be held to a minimum. General Bronze helped solve these problems by applying the skills of a half-century in architectural metalwork...16 years in curtain wall construction.

For information or assistance on your own design problems, consult your Sweet's files . . . call in the General Bronze representative nearest you . . . or write to: GENERAL BRONZE CORPORATION, Garden City, New York. • Sales Office: 100 Park Avenue, New York, New York.



What's he hiding?

Cost or saving?

At the crucial moment the roofer lays the felts over the insulation, he covers up future cost or constant saving for your client. If the insulation is FOAMGLAS-BOARD, savings start the minute it goes down. Anything else's a gamble. **Nothing but FOAMGLAS-BOARD** gives the as-



sured insulation permanence of *inorganic cellular glass* in a 2' x 4' x $1\frac{1}{2}$ " roofing board. Since the $1\frac{1}{2}$ " thickness lowers the cost of FOAMGLAS Insulation's known quality, savings begin with the specification. Fast, low-cost installation, because of the new, larger unit **PITTSBURGH**

size, adds to the saving. The real economy is its constant insulating efficiency . . . it can't absorb moisture. FOAMGLAS assures savings in heating and air conditioning costs. Our Building Insulation Catalog contains complete data. For a copy, write Pittsburgh Corning Corporation, Department B -32, One Gateway Center, Pittsburgh 22, Pennsylvania.



CONCEALED MULLIONS GIVE TRUE TAILORED APPEARANCE... ONE OF MANY ADVANCED FEATURES OF GENEVA HOSPITAL CASEWORK



Blood Grouping

Pharmacy



El Camino Hospital Mountain View, California Architects: Stone, Marraccini and Patterson San Francisco, California

FLUSH CABINET INTERIOR-standard construction feature (no price penalty), simplifies cleaning, reduces breakage.

CONCEALED MULLIONS AND STILES – give a smooth tailored appearance to the installation. Easiest to clean.

DIE FORMED – assures precision manufacturing . . . eliminates need for corner welds

GENEVA HOSPITAL CASEWORK is designed specifically to meet the exacting requirements of hospital service. The following are but a few of the many advanced features.

on door or drawer fronts.

WIDE SELECTION - in color . . . with stainless door face . . . stainless door face and lining . . . or in all stainless steel.

ADDED QUALITY FEATURES—door and drawer fronts painted inside and out ... smooth gliding drawers ... adjustable shelves ... fine quality hardware.

Make-up Room



For the full story on Geneva's hospital line, ask to have a Geneva field engineer call – or write factory.



GENEVA HOSPITAL CASEWORK DIVISION OF ACME STEEL COMPANY Geneva, Illinois

What's so fresh about outside air?



It's about time we stopped talking about outside air as being "fresh." Air pollution in most of our urban and industrial areas is so great you can introduce more problems than you solve by bringing in 25% or 35% outside air. The day may come when building codes read, "... no more than x% outside air" rather than "... no less than."

Air brought in through particulate then activated charcoal filters is delivered clean and odorless—fresher than any outside air. And by recirculating inside air through the activated charcoal filters you can design as close to 100% recirculation as you wish. An added bonus you can cut the initial investment and the operating costs of your heating and cooling equipment.

Give us the details of your application and we will supply specific data and samples – or write for Literature Group T-397

Barnebey-Cheney, Columbus 19, Ohio.

activated charcoal air purification



Product Reports

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Aluminum Awning Window

Model 49 is a heavy-duty aluminum awning window designed for commercial and industrial applications. An automatic locking system pulls



in and secures all four corners of each vent without moving latches of extra operating mechanism. Viny weatherstripping vinyl is around al vents. Interchangeable screens and storm panels are available. Stanley Bldg. Specialties Div., The Stanley Works, P. O. Box 3757, Miami 1, Fla

Sound Insulating Louver Door

A sound barrier is incorporated into custom hollow metal doors, reducing sound transmission by as much as 32 decibels while allowing air flow. *Pi* oneer Fireproof Door Co., Pioneen Industries, Inc., Carlstadt, N.J.

Hotel Towel Holder

A new method of holding towels in hotels, motels, etc., means greater



convenience for guests and large profits from longer towel life fo owners. Plaza Towel Holder Co., 201 N. Broadway, Wichita 14, Kan. more products on page 23

REDWOOD-200,000 board feet of it-GIVES A UNIFYING THEME TO THIS CHARMING SHOPPING CENTER

There were sound dollars-and-cents reasons for the choice of redwood for this imaginatively designed suburban shopping center. Buildings with a warm, inviting look invariably attract more customers than those with an appearance that is coldly institutional. Another practical reason for using CRA Certified Kiln Dried redwood for buildings of this type is redwood's exceptional durability and easy, economical maintenance. In short, redwood is not only a naturally beautiful wood; it is a sound investment.

> ictor G.Wandmayer, A.I.A.

CRA

d in redwood

MMERCIAL STRUCTU

ALIFORNIA REDWOOD ASSOCIATION • 576 SACRAMENTO STREET • SAN FRANCISCO 11 CRA-TRADEMARKED CERTIFIED KILN DRIED REDWOOD

All the wonde.

REDWOOD CO

e California Redwood Association coordinates the research, forest management and consumer service antivities of these member milits: THE PACIFIC LUMBER CO. MPSON TIMBER CO. • UNION LUMBER COMPANY • WILLITS REDWOOD PRODUCTS CO. • ARCATA REDWOOD COMPANY • GEORGIA-PACIFIC CORPORATION

Vitra-Tile TILE-LIKE BEAUTY AND PROTECTION

On interior walls of masonry, concrete, wood, metal, plaster or gypsum board, Vitra-Tile produces a hard, smooth coating closely resembling ceramic tile *at a fraction of the cost*.

Vitra-Tile may be applied over new or old walls by brush, roller or spray. Its self-baking finish becomes extremely hard, is non-porous and resistant to abrasion and chemicals. It creates a continuous, hard surface in single color or decorated effects for great beauty at low cost.

For corridors...lavatories...operating rooms...laboratories ...classrooms...super markets, etc. Send for color brochure illustrating and describing Vitra-Tile and its application, or ask your P & L representative. Pratt & Lambert-Inc., 75 Tonawanda St., Buffalo 7, N.Y.



A Dependable Name In Paint Since 1849 NEW YORK • BUFFALO • CHICAGO • FORT ERIE, ONTARIO





FIND THESE CAREY BUILDING PRODUCTS FAST IN YOUR NEW 1962 SWEET'S CATALOG FILES

CAREY PRODUCT CATALOG	IND. CONST. FILE	ARCH. FILE	SWEET'S INDEX
Fire-Chex Shingles		V	8c Ca
Built-Up Roofing	V	V	8a Ca
Thermo-Bord Panels	V	V	8b Car
Corrugated A/C Sheets	V	V	8b Ca
Elastite Highway Products		V	9 Cae
Bathroom Cabinets/Accessories	· · · · · · · ·	V	26d Mi
Access Doors		V	16k Mi
Industrial Insulation	V		10b Ca

For additional copies of any of the Carey Product Catalogs listed above, write: Dept. AR-362 • The Philip Carey Mfg. Company • Cincinnati 15, O.







w Air Force Academy Got New Buildings Under Cover Quickly





The Bachelor Officers' Quarters and Visiting Officers' Quarters at the new Air Force Academy have precast Flexicore floor and roof decks because they provided fast erection, a fireproof structure and a reasonable cost.

For more information on this project, ask for Flexicore Facts 84. Write The Flexicore Co., Inc., Dayton, Ohio, Flexicore Manufacturers Association, 297 S. High St., Columbus 15, Ohio, or look under "Flexicore" in the white pages of your telephone book.



positive overhead door control that's hidden from view



HEADLINER is completely hidden and enclosed in the head jamb or transom bar

13/4" x 41/2" Jamb

advanced design-HEADLINER Center Pivoted Double Acting Overhead Door Control is built in . . , and performs out of sight, even when doors move to the full-open position. No visible hinges, closers, arms,

or holders interrupt the beauty and clean lines of doors and frames. Here is highly efficient door control concealed in any head jamb or transom bar as slim as $1\frac{3}{4}$ " x $4\frac{1}{2}$ ". HEADLINER sets the scene for good doorway design ... entrance, vestibule, interior ... in any building and at lower cost than with many other types of door closers.

performance—The advanced new HEADLINER Overhead Door Control operates smoothly and quietly. Cushioned positive back stop and optional hold-open may be obtained at either 90° or 105°. HEADLINER also features positive centering and no accidental hold-open. The HEADLINER provides positive control ... throughout opening and closing cycles for double or single acting doors. Simple, accessible two-speed closing and spring force adjustments are provided.

installation—The HEADLINER is designed for packaged unit construction so the complete doorway—frame with pre-installed HEADLINER and door—is quickly installed. Gone is the usual time-consuming preparation. One trip completes the installation... the door is securely set in the frame in seconds with the HEADLINER Fast-Set Arm and Pivot.

For the full story, write to Dor-O-Matic today for HEADLINER literature.



Product Reports

continued from page 232

Plastic Panels for Showers and Tubs Rigid, high-impact styrene plastic is shatter resistant and unaffected by soaps and hot water. Locked in the plastic are metallic yarns, mother-of-



pearl flakes, leaves and butterflies to make patterns in the translucent panels. *Polyplastex United*, *Inc.*, 870 Springfield Rd., Union, N. J.

Double Dome Skylights

Acrylic double dome skylights have a durable frame of polyvinyl chloride which is flexible enough to adjust to rough well-openings which may vary



up to $\frac{1}{4}$ in. from specified dimensions. The domes are delivered and installed as one unit. Compatible thermal coefficients of materials used eliminates cracks and separation due to thermal expansion and contraction. Johns-Manville, 40 E. 16th St., N.Y, 16, N.Y.

Low Friction Ball Bearing Hinge

The Griffiin 1197 and 4197 "frictionfree" hinge has a ball bearing in one knuckle of each hinge leaf, with the



load equally distributed on both bearings. This is said to eliminate any increase of friction due to wear. *Grif*fin Mfg. Co., Erie, Pa.

more products on page 240

the classic magnificence of ancient stone captured in modern, everlasting

V.E.F.

ATEX

vinyl wallcoverings

TRAVATEX... another product of L. E. Carpenter's designing skill and integrated manufacturing ingenuity in Vinyl Wallcoverings

Endowed with nature's delicately changing tones and distinctive texture . . . the life-like strata and random pebble formations . . . the noble complexion for which stone is so admired. TRAVATEX . . . in practical, modern Vicrtex vinyl wallcoverings. Care-free as stone, yet will not stain, chip, fade or crack. The newest tri-dimensional Vicrtex Original Pattern . . . in 14 refreshing colors.







Motorola Western Military Electronics Center, Phoenix, Arizona Architect: Edward L. Varney—Associates, Phoenix, Arizona Contractor: T.G.K. Construction Co., Inc., Phoenix, Arizona



Manchester Savings Bank, Manchester, N. H. Architect: W. G. Knoebel, AIA, St. Louis, Missouri—Associate, John D. Betley, AIA, Manchester, New Hampshire Consultant & Contractor: Bank Building & Equipment Corporation of America, St. Louis. Mo.

PITTCO 82-X

Weep-vent system and flexible, metal joint sealing compound assures leak-proof construction. Prefabricated components shrink on-site installation costs.

A. 1/4" SPANDRELITE B. Clear glass C. Setting Block D. 1/4 " SPANDRELITE

E. Leveling shims F. Flashing G. Sectional aluminum s

G

в

C

D

H. Drainage and ventilat

Gibraltar Savings & Loan Association, Houston, Texas Architects: Greacen & Brogniez, Houston, Texas Assoc. Architect: J. Victor Neuhaus III, Houston, Texas General Contractor: Marshall Construction Co., Houston, Texas





mullions and muntins mean greater design high-rise, as well as, low-rise buildings. Clean, simple lines of sections add good looks to durability.

PITTCO[®] curtain wall systems offer you design flexibility plus reliability

Whether the plan you have in mind is a large project or a small one, you will find a greater degree of design flexibility when you use PITTCO Architectural Metal. Here's why:

First of all, you can work with several curtain wall framing systems-82X, 25X, "900" series and the new 670-they're all precisely engineered to meet the most rigid architectural requirements.

You'll find the widest variety of rolled and extruded components-sash, jambs, sills, facing moldings, division bars-to suit any architectural style. When your plans call for double-glazing, the PITTCO 25X provides a framing system especially designed to accommodate TWINDOW[®] Insulating Glass.

The related components of the 82X and 25X systems come in aluminum, bronze or stainless steel. The all-aluminum mullions and muntins of the "900" series are interchangeable.

Every PITTCO curtain wall has the unique weep-vent system that drains water condensation. And the rigid construction of these PITTCO curtain walls stands up to high wind loads.

All these PITTCO curtain wall features give you greater design flexibility . . . mean more opportunities to make your design ideas materialize.

What's more, PPG will assume full responsibility for providing a complete curtain wall job-from your design to job completion.



Paints . Glass . Chemicals . Fiber Glass In Canada: Canadian Pittsburgh Industries Limited

A. 1/4" SPANDRELITE B. 1/8" to 1/4" thick clear glass

C. Setting block

D. Leveling shims E. Neoprene glazing inserts F. Continuous flashing G. Weeping and drainage

THE CLIENT IS PLEASED



Planters Peanuts / (A Division of Standard Brands Incorporated) Long Island Warehouse Engr./Bidr. - Brown & Matthews, Inc.



Since 1954 huge quantities of Planters products have moved through this warehouse into the Metropolitan New York area. Balfour Rolling Steel Doors have been giving dependable service on the loading docks during this entire period.



WALTER BALFOUR & CO. INC.

doc-port® doors steel service doors automatic fire doors pygmee® counter doors steel grilles

Brooklyn 22, N.Y.

26

Product Reports

continued from page 2

Acoustic Panel with Fabric Finis Acousti-Core ceiling board has a lat inated construction with a glass fib core. The high density board giv effective sound control in both lo and high frequency ranges. Specia



woven glass cloth gives a nubby fa ric finish. Also available are whi finish panels with a non-bridgin paint. Sizes range from 24 in. sq 24 by 48 in. Forty-Eight Insulation Aurora, Ill.

Insulated Porcelain Enamel Panel

A panel with a two-hour fire ration has a front and back of porcela enamel on steel, with a fire-resista



core at both front and back su rounding an interior core of gla fiber. Over-all thickness is 21/8 i Ingram-Richardson Mfg. Co., Beav Falls, Pa.

Linen Fabrics

Eleven new designs form the "Co mopolite Collection" by Pipsan Saa



inen Swanson. Fabrics include an e clusive rayon-backed linen. Edu Raphael Co., Inc., Holland, Mich.

NEW FROM AMERICAN-STANDARD PUSH-PULL FAUCETS

on the new PUSH-PULL. A twist to the left releases hot water...to the right, cold...a push turns it off. Soapy water from wet hands drips into the bowl, not onto the faucet. It stays clean longer. The new PUSH-PULL with use-tested Hyseal valves is washerless...won't drip, leak or cause expensive service calls. All brass and stainless steel. Specify the newest...specify the PUSH-PULL.
For more details, contact your nearest American-Standard sales office, or write: AMERICAN-STANDARD, PLUMBING AND HEATING DIVISION, 40 W. 40th St., New York 18, N.Y.

...COMBINE FUNCTIONAL SIMPLICITY WITH EYE APPEAL! A pull turns



BATH AND SHOWER FITTING

ARCHITECTURAL RECORD March 1962 241

Fectum ... growin



This section of a beautiful steel Lamella arch frame has an exposed 2½" Tectum roof deck. Building: Dearborn Youth Center; Architect: Harley, Ellington & Day, Detroit.



A beautiful section of a folded plate roof deck using 2" and $2\frac{1}{2}$ " Tectum. Building: Grace Episcopal Church, Detroit; Architect: Nathan Johnson, Detroit.

Under construction, this beautiful chapel incorporates 24,000 square feet of 3" Tectum roof deck plank. The planks are installed parallel to the wooden joists. Beams are laminated wood. Building: Shrine Chapel of Our Lady of Orchard Lake; Architect: Walter J. Rozycki, A.I.A. Detroit.

n preference for the nation's

newest building designs





Precast concrete sections, poured at the job site on Tectum Form Plank forms, are lifted by crane to the roof level. Building: Coliseum for State of Mississippi, Jackson; Architect: Jones & Haas, Jackson.

When Tectum is used for a roof deck, form plank, wall or acoustical ceiling, the designer has three mighty important things going for him: (1) a structural wood fiber material, Tectum offers a beautifully textured surface that normally needs no painting. Its natural, off-white color extends throughout the board. It's made differently. (2) Tectum is uniform both in quality and appearance. Machined edges assure a neat, firm joint. The entire shipment looks good. (3) Tectum is light, easy to handle and may be worked with ordinary tools. That's why versatile Tectum is so practical for the many new shapes and unusual framing designs. It can be easily cut to any requirement on the job site.

Tectum continues to grow in preference for all types of buildings. You can rely on the fact that though much, much lighter, Tectum is safer, more uniform, has a better finished appearance and greater acceptance. More and more architects and contractors are deciding, "*There is no equal for Tectum* — only alternates."

Send for complete information on Tectum's many product applications or see Sweet's Architectural and Industrial Files. Tectum Corporation, 535 E. Broad St., Columbus 15, Ohio.





... cutting time and installation costs. For narrow stile doors, specify SLIM LINE for *style*, performance, quality and dependability. Drop us a card for further information, *and* we



SARGENT & GREENLEAF, INC.

ROCHESTER 21, NEW YORK

Office Literature

continued from page 194

Roof Ventilator

Bulletin 311-L describes a dual-baffle roof ventilator which provides weather protection while remaining compact in size. It is available in aluminum and galvanized steel. Leigh Building Products, Division of Air Control Products, Inc., Coopersville, Mich.

Textured Metal

Actual samples of *RIGID-Tex* textured metals are included in a fourpage folder describing five new patterns. Some samples are colored to show the effects obtainable. *Rigidized Metals Corp.*, 685 Ohio St., *Buffalo*, N.Y.*

Moving Sidewalks and Ramps

(A.I.A. 33-J) Case histories of moving ramps and sidewalks throughout the country are given in a 16-page booklet which has drawings and charts to show the general arrangements and capacities of various units. Bulletin 1060. Stephens-Adamson Mfg. Co., Aurora, Ill.

Fastenings for Wood Structures

(A.I.A. 19-B) A 12-page catalog gives technical details and brief specifications of wood anchors, joist and beam hangers, metal bridging, etc. Timber Engineering Co., 1619 Massachusetts Ave., NW, Washington 6, D.C.*

Vinyl Asbestos and Asphalt Tiles Color charts, uses and installation, light reflectance values, and brief specifications for Vina-Lux vinyl asbestos tile and Azrock asphalt tile flooring are included in a 12-page catalog, No. LC-202. Azrock Floor Products Div., Uvalde Rock Asphala Co., Box 531, San Antonio 6, Tex.*

Multi-Room Air Conditioning

An illustrated 20-page booklet considers multi-room air conditioning from the standpoints of the building owner, the building manager, and the occupants. Included are cost data equipment performance data and methods of control. Remington Air Conditioning, Remington Corpora tion, Auburn, N.Y.

*Additional product information in Sweet's Architectural File more literature on page 255

AIA File No. 27-C

SEE OUR



dynamic material for a dynamic architecture



Glass is the most stable, most permanent of building materials. Yet its qualities are never fixed or frozen. Properly selected, it's a means for strict environmental control. Yet it has a life of its own expressive, always changing. It *responds* to its environment. Unlike passive plane surfaces, glass has a flair for drama, subtlety . . . and surprise! These pages are an invitation to explore the dynamic possibilities in glass by AMERICAN-SAINT GOBAIN.





Controlled response to changing points of view. A-SG Lustragray[®] glare-reducing sheet glass increases reflectivity from the side of greater brightness...permits full, glare-free visibility from the other side. This effect contributes to privacy and clean exterior detailing, produces attractive night-time illumination.

Even 'security' glass offers striking visual dynamics. Wired glass used to be specified only out of necessity—when structural or fire-retarding properties were more important than appearance. Today A-SG offers a broad range of wired glasses as attractive as they are practical. Shown here: Nuweld[®] Ribbed—a clean, linear wired pattern enlivened by an expressive diffusing surface design.





Cool, restful light-tailored to any climate. Aklo* heat-absorbing glass by A-SG often permits major savings in lighting and airconditioning capacity. At the same time, it adds color, texture and interest-especially to large-area glazing. Aklo is available in a variety of relief patterns... wired or unwired, clear or frosted. *Reg. T.M.-Lic. by Corning Glass Works

> Subtle color modulations. Tinted Plate Glasses and Plate Blanks by A-SG produce restrained, yet striking color effects-while controlling light balance and radiant transmission. Shown here: Plate Blanks in smoked topaz, steel gray, and light blue-three of eight standard colors. These glasses (also available polished) meet today's highest standards.





Curtain walls can have a rich, functional vitality. A-SG Huetex® insulating glass spandrels offer a full spectrum of architectural color. Surfaces gleam richly, while harsh reflections are subdued. These tempered glass panels have a permanently bonded ceramic enamel backing, protected by a layer of insulating aluminum. Maintenance, of course, is minimal.





Material of 1000 moods. A-SG Huewhi diffusing glass shows the range of its sponse to changing light conditions. (/ see Page 1 of this ad.) This rich, opalesc glass can be used where maximum privac desired. Yet it maintains a sense of spacic ness...adds interest through textu low-key reflection and transmitted co

Sparkling patterns produce a lively play of light. Each of the dozens of A-SG patterns has its own repertoire of lighting effects —and light-controlling uses. Shown here: Beadex[®], an unusually lively design of tiny relief droplets in informal rows. It diffuses light without dulling or flattening it ... accents color and movement.

A-SG...a complete source of dynamic, functional glass for the creative architect

American-Saint Gobain offers every important type of architectural flat glass—sheet, patterned and plate—produced to high optical and mechanical standards. Special products include: spandrels and facing materials...tempered glass doors...radiant glass heater panels...corrugate and laminated glasses...bent shapes, etc. Have you reviewed the A-SG line lately? Your local glass jobber or A-SG representative will gladly provide you with samples and data. For additional information, check your Sweet's files...call the A-SG sales office nearest you...or write: American-Saint Gobain Corporation, Dept. AR-3, Kingsport, Tennessee.

AMERICAN-SAINT GOBAIN CORPORATION

SALES OFFICES: Atlanta, Boston, Chicago, Dallas, Detroit, Kansas City, Los Angeles, New York, Pittsburgh, San Francisco, Sea PLANTS: Kingsport and Greenland, Kingsport, Tennessee; Jeannette, Arnold, and Ellwood City. Pennsylvania: Okmulgee. Oklabo

Owner: City of St. Louis. Architects: Hellmuth, Obata & Kassabaum, Inc. (St. Louis). Consulting Engineers: Albert Alper (St. Louis), Ketchum, Konkel & Hastings (Denver). General Contractor: Gamble Construction Co., Inc. (St. Louis).

PRESCON SYSTEM* OF POST-TENSIONING CONTRIBUTES TO PLANETARIUM UNIQUE DESIGN

The unique and new design of the St. Louis Planetarium—a hyperboloid of one sheet—combines the advantages of a domed and a flat roof. The ring beam and hyperboloid were monolithically placed, with the beam posttensioned by the Prescon System of prestressing. Pilasters formed in the ring beam, and positioned over each of the twelve support columns provided for post-tensioning.

Thirty-six tendons of the grouted type, were stressed from each end after the concrete reached a minimum compressive strength of 3200 psi. A group of three tendons terminated at each side of each pilaster.

After stressing and grouting, a 4-foot, non-structural, extension of the ring beam and the hyperboloid was cast outside the beam covering all hardware and the pilasters.

If you design or engineer structures—apartments, offices, schools, warehouses, shopping centers, parking garages, or bridges—you can offer clients improved structures in prestressed concrete, post-tensioned by the Prescon System. Benefits in addition to design flexibility often gained with Prescon over conventional construction will include: (1) greater useable floor space within a given building volume, (2) more economical construction in money and time, (3) less expensive finishing costs.

*The Prescon System consists of these components: (1) high carbon steel wires with cold-formed button-heads for positive end anchorage, encased in (2) slippage sheathing, and (3) threaded thru end anchorages (steel spread plate at fixed end and stressing washer and bearing plate at stressing end) plus shims for maintaining tension.



THE PRESCON CORPORATION

P. O. Box 4186 • Corpus Christi, Texas Albany • Atlanta • Memphis • Dallas • Denver • Los Angeles St. Louis • San Francisco • Seattle

MEMBER OF PRESTRESSED CONCRETE INSTITUTE



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Office Literature

continued from page 244

Exterior Marble Specifications

(A.I.A. 8-B-1) Newly revised standard specifications for exterior marble veneer are available on letterhead request. Marble Institute of America, Inc., 32 South Fifth Avenue, Mount Vernon, N.Y.

Financial Furniture

(A.I.A. 35-S) Drawings and a brochure show an expanded line of modular furniture for financial institutions. Twelve basic structural units, including counters, cabinets and partitions for tellers' stations, can be combined in different designs to fit the installation. *APF Industries*, *Inc.*, 100 Leroy Ave., Buffalo 17, N.Y.

Porcelain Enamel

(A.I.A. 15M-1) Illustrations and specification details for using architectural porcelain enamel are given in a four-page folder. Davidson Enamel Products, Inc., 1104 E. Kibby St., Lima, Ohio*

Vertical Lift Equipment

Vertical lift equipment is listed in a 12-page catalog which illustrates engineering, construction, and operation features of each unit. D. A. Matot, Inc., 1533 W. Altgeld St., Chicago 14, Ill.*

Plastic-Finished Paneling

(A.I.A. 23-L) Booklet gives complete product information about *Marlite*, a paneling with a washable plastic surface that is fused to tempered hardboard base. *Marsh Wall Products*, *Inc.*, *Dover*, *Ohio.**

Concrete Void Forms

Uses of Voidcrete inflatable rubber void forms in concrete construction are given in a 16-page booklet. Elgood Concrete Services, 242 Randolph St., Brooklyn 37, N.Y.

Wooden Windows

(A.I.A. 16L) Details of seven types of Andersen Windowalls are given in a 48-page catalog. Tracing detail file is also available. Andersen Corp., Bayport, Minn.*

*Additional product information in Sweet's Architectural File

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more literature on page 256

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Office Literature

continued from page 25

Classroom Storage, Sink Cabinets (A.I.A. 29-H-6 and 35-B-4) Complete descriptions and detailed illus trations of steel classroom storag and sink cabinets are in a six-pag booklet. Grade-Aid Corp., 46 Bridg St., Nashua, N.H.*

Colored Glass Block

(A.I.A. 10-F) Special feature of 16-page catalog of glass blocks is series of block where color is adde to the glass itself or applied as ceramic coating. Installation detail and physical data are included *Owens-Illinois, Toledo 1, Ohio.**

Area Lighting

Bulletin GET-3100 has 16 pages de scribing area lighting for profession al applications. Included is a discus sion of economic consideration for design selection, along with technica standards by which to measure prop er choices. General Electric Con Schenectady 5, N.Y.

Space-Saving Garage Doors

Bulletin RI-100 describes electrically operated garage doors for residentia and industrial installations which have interlocking steel panels that run on heavy-gauge steel tracks and nest compactly above the opening Panel-Lift Door Corp., Standard Toor Industries, Inc., 1724 Chestnut Ste Philadelphia 3, Pa.

House and Commercial Furniture

(A.I.A. 35-H-5) Catalog R-33 in cludes a new line of contemporal furniture and accessories, includin three upholstered metal chairs that have been awarded design patent Frederic Weinberg Co., 145 W. C. lumbia Ave., Philadelphia 22, Pa.

Copper Alloy Extrusions

An eight-page illustrated bookl gives details on properties and desig characteristics of 15 copper alloy ex trusions. An index aids in selectir an alloy for a particular extruded se tion. Anaconda American Brass Co Waterbury 20, Conn.

Annunciator System

A two-color folder describes a di gramatic annunciator system for u with control panels to locate troub spots visually. *Graphics, Inc., 5. Belleville Turnpike, Kearny, N.J.*

*Additional product information Sweet's Architectural File



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Third Sculpture Presented To U.N. by Art Council

The third of three contemporary sculptures presented to the United Nations by the National Council of U.S. Art and approved by the late Secretary-General, Dag Hammarskjold, has been completed and is now in place on the outside of the east wall of the General Assembly Building.



The work of United States artist Ezio Martinelli, the piece is a 30 by 17 ft abstract sculpture in goldand bronze-anodized aluminum. The artist describes his work as "an aspirational piece of sculpture"; an abstract design conceived in close relation to its architectural setting.

The other two pieces are a bronze by Robert Cronbach, which stands opposite the entrance to the Meditation Room in the Assembly Building, and a polished bronze bas-relief by Jose de Rivera, which was placed in Mr. Hammarskjold's office. Both were presented in March 1960.

The National Council is an association of private citizens, formed in 1953 for the purpose of securing the representation of the fine arts of the United States at the Headquarters of the U.N. Interestingly enough, all the works of art at the U.N. have been official donations by member nations, whereas these three pieces of sculpture have been presented by private individuals interested in contemporary art in this country.

In choosing the sites for the three sculptures, Mr. Hammarskjold acted in conjunction with Wallace K. Harrison, chief architect for the U.N. Headquarters building.

more news on page 270

Indoor Climate... Controlled for Museum

Light and heat problems solved with PRC Toplite



Low silhouette Toplite Roof Panels are available in a variety of sizes for easy installation on most roofs. Panels are furnished with light controlling prisms at 45° or 90° to the perimeter, for complete flexibility in any building orientation.

City Architect, San Francisco Bureau of Architecture – Charles Griffith; Project Architect – Clement A. Mullins, A.I.A.; Supplier – Paige Structural Glass Co. In the galleries of San Francisco's famous M. H. De Young Memorial Museum, light distribution through old-fashioned skylights varied with the position of the sun. Installation of prefabricated PRC Toplite Roof Panels reduced heat build-up and resulted in the glare-free illumination pictured above.

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SPACE MODULATOR: STUDENT PROBLEM AT KANSAS STATE

To initiate students of architecture into spacial design at Kansas State University, Manhattan, James Miller, assistant professor of architecture, assigns a problem called a "space modulator". He says it perhaps could be called "space sculpture," but it is intended to be architectural in nature rather than artistic.

The only limiting factor given the

second year students in this first three dimensional project is the size of the block of space they are to define and give character to. Students use wire screen, plastic, silk, nylon thread, sheet metal, burlap, paper and balsa wood. "They like to use rich warm woods and metals, like walnut and copper," says Miller.

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and usually spend from 50 to 100 hours on them.



Shown from left with their finished space modulators are: Steve Winslow, New Cambria; John Wulfmeyer, Wichita; Wayne Clendening, Salina; and the instructor, James Miller.

Boston Arch. Center Has New Dean's Assistant

Mayhew D. Seavey, R.A., of Bedar and Alpers, Architects, has been appointed assistant to the dean of the School of Architecture of the Boston Architectural Center.

Rhode Island Design School Makes Appointment

James A. Howell, assistant professor of architecture at the Rhode Island School of Design, is now acting head of the Department of Interior Architecture at the college.

Washington U. Students Win In Parking Garage Contest

Five senior students of the Washington University School of Architecture, St. Louis, were recently awarded cash prizes for their winning designs of a 1000-car public parking garage. The design contest, which represented the first stage of the new downtown St. Louis Stadium project, was sponsored by the Missouri Association of Prestressed Concrete. Advisers were Dean Joseph Passoneau and Professor Roger Montgomery.

First place winner was Jerry Carroll, Independence, Mo. Honorable mention winners were: Jerry Breakstone and Larry Sauer, Memphis; David Malan and Richard Rothman, St. Louis.



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The Record Reports

On the Calendar

March____

- 3-4 Second Annual Conference, U.S. Institute for Theater Technology—New York City
- 8-9 Meeting of the Executive Committee of the American Institute of Architects—The Octagon, Washington, D.C.
- 11-14 Second Annual Conference on Revenue Producing Facilities, sponsored by the American Institute of Park Executives— Oglebay Park, Wheeling, W. Va.
- 12-15 58th Annual Convention, American Concrete Institute-Brown Palace Hotel, Denver
- 14-15 Reynolds Awards Jury Meeting—The Octagon, Washington, D.C.
- 20-22 1962 Annual Conference on Church Architecture, sponsored by the Church Architectural Guild of America and the Department of Church Building and Architecture of the National Council of Churches —Sheraton-Cleveland Hotel, Cleveland
- 28-30 48th Annual Convention, Michigan Society of Architects—Sheraton-Cadillac Hotel, Detroit

April_

- 9-13 43rd Annual Convention and Welding Exposition, the American Welding Society—Sheraton-Cleveland Hotel and Cleveland Public Auditorium, Cleveland
- 12-13 14th Annual National Engineering Conference, sponsored by the American Institute of Steel Construction—Deshler-Hilton Hotel, Columbus, Ohio
- 13-14 Sixth Urban Design Conference, sponsored by the Harvard Graduate School of Design and its Alumni Association; theme: "Designing Inter-City Growth"—Harvard University, Boston
- 23-25 Sixth Annual Convention, Construction Specifications Institute—Biltmore Hotel, Atlanta
- 24-26 Building Research Industry 1962 Spring Conferences—

continued on page 284



[#]792

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278 ARCHITECTURAL RECORD March 1962

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Concrete framing, masonry and the folded plates in just-completed condition before painting. Placing the plates required about 1 hour of labor per unit. Plates were anchored with weld plates and then tied together with poured concrete joints.

50 Foot Cantilever with Concrete Folded Plates

Cantilevered nearly half their 103' length, giant precast concrete folded plates dominate Mackey Airlines' new service facilities at Broward Air Terminal. They provide unobstructed inside floor area as well as a large support-free canopy for outside aircraft maintenance.

In the manufacture of the folded plates, R. H. Wright, Inc., used Lehigh Early Strength Cement. Consistent use of this cement in their precasting operations helps them attain maximum production efficiency through early removal of units and quick re-use of forms.

This is typical of the advantages of Lehigh Early Strength Cement in modern concrete construction. Lehigh Portland Cement Company, Allentown, Pa.



There is a total of 25 plates in the two buildings. Each plate measures $103' \log_{10} 8' 1\frac{1}{2}''$ wide, and $3' 9\frac{1}{8}''$ deep. Note plane being serviced under canopy of far building.

A single mobile crane places one of the folded plates. The plates were cast at R. H. Wright's Deerfield plant and trucked to the job site. The concrete frames visible in this picture were cast at the site and raised into place. Beams between frames were cast in place.

Architect: George Storrs Engineer: Walter C. Harry & Associates Manufacturer of Folded Plates: R. H. Wright, Inc., A Subsidiary of Houdaille Industries Erection of Folded Plates: Erectors of Florida, Inc. Concrete Units: Gillis Supply, Inc. All of Ft. Lauderdale, Florida Contractor: John B. Orr, Inc., Miami, Florida





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The Record Reports

continued from page 277

Shoreham Hotel, Washington, D.C.

- 27ff 31st Annual Conference. American Institute of Decorators; through May 1-Jack Tar Hotel, San Francisco
- 27-28 Conference on Architectural Acoustics, presented by the University Extension Division Engineering Institutes-University of Wisconsin, Madison
- 30ff Design Engineering Show and Conference, sponsored by the machine design division of the American Society of Mechanical Engineers; through May 3 -McCormick Place Lakefront Exposition Center, Chicago

May_

- 5-7 Annual convention, Association of Collegiate Schools of Architecture - Sheraton-Dallas Hotel, Dallas
- 8-11 National Convention, American Institute of Architects-Dallas
- 10-12 1962 annual meeting, Consulting Engineers Council-Royal Orleans Hotel, New Orleans
- 21-25 66th annual meeting, National Fire Protection Association-Sheraton Hotel, Philadelphia
- 22-24 13th Annual Convention, Wisconsin Chapter, American Institute of Architects; theme: "Architects in Action"-Lake LawnLodge, Delavan, Wis.
- 30ff Annual Assembly, Royal Architectural Institute of Canada; through June 2-Bayshore Inn, Vancouver

Office Notes

Offices Opened_

Warren R. Richardson, A.I.A., has opened an office for the practice of architecture and engineering at 57 East Washington Blvd., Lombard. **III**.

An office has been opened by Francis A. Pisani, A.I.A., for the practice of architecture. The address is 50 E. 42nd St., New York 17.

John W. Jickling and William Lyman have opened an office for the practice of architecture and plancontinued on page 288



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The Record Reports

continued from page 284

ning under the name of Jickling and Lyman Architects, 261 Daines, Birmingham, Mich.

Edwin T. Pawlowski, Architect, announces the opening of his new office at 804 First National Bank Bldg., Johnstown, Pa.

Charles O. Quade, P.E., has opened his own office in the Interurban Building, Dallas, as a private consultant in civil, structural engineering.

New Firms, Firm Changes_

The firm of Ketchum and Sharp, Architects, has been dissolved. Morris Ketchum Jr., F.A.I.A., will continue the practice of architecture as Morris Ketchum Jr. and Associates, Architects; and J. Stanley Sharp, A.I.A., will continue his practice as J. Stanley Sharp, A.I.A., Architect. The address for the two firms is 227 E. 44th St., New York 17.

The firm name of Arnold L. Larsen, Architect, 901 Hillgrove Ave., La Grange, Ill., has been changed to Larsen-Wulff & Associates Inc., Architects.

Simonds and Simonds, Pittsburgh Landscape Architects-Planners, announce the following appointments: Paul Dorr Wolfe, member in charge of office management; R. Jackson Seay Jr., member in charge of planning; and Robert Lewis Mann, member in charge of parks and recreation.

Gibbs, Tomblinson and Harburn is the new name of the firm of architects formerly known as Gibbs & Tomblinson. Offices are located at 5227 South Dort Highway, Flint 7, Mich.

Charles W. Lentz Jr. has been named an associate of Samborn, Steketee, Otis and Evans, Toledo, in charge of the steel detailing department.

William Eric Lindstrom has joined the store planning division of Burke, Kober & Nicolais, Los Angeles architectural and engineering firm.

The name of the firm of Law and Wilson has been changed to Wilson Associates, Architects-Engineers. The firm's new office is located in Suite 1616, Ala Moana Bldg., 1441 Kapiolani Blvd., Honolulu.

Herbert R. Smith has been apcontinued on page 292

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- Comparative Cost Calculator—enabling readers to approximate th cost of constructing the 20 award-winning houses locally.
- 4. Architecture for the Millions-five examples of architect-builde collaboration pointing the way to the wider use of architectura skills in the design of tract houses.
- 5. Progress in Products—a roundup of the best new products for residential architecture.

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House for Mr. & Mrs. Irving Castle, New London, Conn. Architects: Ulrich Franzen & Assocs. Photographer: Ezra Stoller.

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Record Houses of 1962

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Architectural Record





The Record Reports

continued from page 288

pointed new project engineer with the Valley Engineering Company, Consultants, Glenside, Pa.

Architects Robert E. Millsap Jr., Gustav H. Ullner and C. Robert Farnsworth have been appointed associates of Albert C. Martin and Associates, Architects and Engineers, Los Angeles.

Irwin J. Speyer, P.E., is now engaged in the practice of consulting engineering with offices at 370 Lexington Ave., New York 17.

Adolph Goldberg and Herbert Epstein announce that Karl R. Greenfield has become an associate, and the firm name has been changed to Goldberg-Epstein Associates. The address is 164 Montague St., Brooklyn 1, N.Y.

For the first time in its 20-year history, the architectural firm of Morris Lapidus, Harle and Liebman has made several of its foremost employees associates. They are: Eli Jack Held, Leo Komarin, Arthur E. Leibell, Norman M. Liebman, Jerome Rubin and Arnold Teitelbaum.

James T. Skibinski has been elected vice president and Robert J. Giombetti has been named treasurer of the Gilboy Company, engineering consultants, Clark Summit, Pa. The Gilboy Company is the engineering division of the Norristown-based architectural, engineering and city planning firm of Everett, Alvare, Harkins & Gilboy.

Robert S. Lundberg and Frank J. Waehler were made **pa**rtners in the New York firm of Voorhees Walker Smith Smith & Haines. Other appointments are: Harry Taylor Gherardi, senior associate; and Alonzo Clark and Roger G. Spross, associates.

Aaro J. Annala, C. Dino Gavras and Edgar E. Parks have been elected associates in Albert Kahn Associated Architects and Engineers, Inc., Detroit.

Leon Brand has been appointed an associate in the firm of Frederick G. Frost Jr. & Associates, Architects, 30 E. 42nd St., New York 17.

The name of the firm of Walford & Wright, Architects, of Richmond and Portsmouth, Va., has been changed to Wright, Jones & Wilkerson, Architects.

Herbert Wettstein has become an continued on page 300



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Shallow, attractive surface-mounted units with clean, rectangular lines. One and two foot widths . . . four and eight foot lengths. High efficiency. Perfect for low ceilings.

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Combines lighting and air-handling in one efficient unit. Offers outstanding lighting and mechanical qualities of Sylvania Troffers integrated with Multi-Vent system of low-velocity air diffusion.

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The Record Reports

continued from page 292

associate of the New York and Washington, D.C. architectural firm of Office of Alfred Easton Poor.

The Milwaukee architectural firm of Zarse Associates, Inc., announces that its name has been changed to the former corporate name of Zarse & Zarse, Inc., A.I.A. Principals are Alfred H. Zarse and Leigh Bryant Zarse.

Robert Allan Class has become a partner of the Philadelphia firm of Martin, Stewart & Noble. The firm name has been changed to Martin, Stewart, Noble & Class, Architects. New associates are Frederick A. Long Jr., William M. Mirenda and Ralph J. Reynolds.

New Addresses_

M. Milton Glass, A.I.A., Architect & Planner, 31 Union Square, W. New York 3, N.Y.

Pratt Holds 11th High School Day Competition

Two hundred students from New York, New Jersey, Connecticut and Pennsylvania recently participated in Pratt Institute's 11th contest designed to encourage high school students interested in architecture as a future profession.

The first competition was a problem of designing a suburban railroad station. The \$25 first prize went to Albert Birch, Newark, N.J.; second prize, to Howard Glickman, New York; third prize, to Paul Snibbe, New York.

A second contest in architectural sketching brought a \$20 first prize to Hugh Shadduck, Huntington, L.I. Roger Borgemeier, Bronx, won second prize.

Addendum

In the article "More Strength, Less Weight in Prestressed Steel" (AR, Jan., p. 144), credit for the design of the Port Authority Bus Terminal was given the wrong engineer. The Port Authority has its own engineering department responsible for design and supervision of construction. Chief engineer is John Kyle Jr.; the engineer of design for terminals is Joseph Fabian.





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To produce the architectural concrete desired a Type 1, 3500 PSI concrete was used. All of the concrete was air entrained by an additive for greater freeze and thaw resistance.

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CLOSED FRONT MODELS with same options as above. Both models provide choice of six hinge types. **PRICE** can never substitute for judgment. The intrinsic value built into the product ... the design, the manufacturing skill, the base material ... must be evaluated along with the integrity of the maker to determine true value. This process precedes good specifications. At Beneke similar thoroughness precedes production of the complete line of seats that merit your specifications. May we prove it?

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