NOVEMBER 1955

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NOVEMBER 1955

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- Five times since 1850 exciting news has come from Wausau, Wisconsin—county seat of Marathon County. Preceded by four county office buildings, beginning with a simple one-room structure, the doors to the new 2-million dollar courthouse were officially opened early this year. Located on a beautifully terraced and landscaped site, it was built of Indiana Limestone, Marathon County Red Granite, Face Brick and Glazed Tile. It houses 21 departments having a total of 106 rooms—all planned for maximum efficiency—and 6 large capacity vaults to preserve irreplaceable records. In heating, lighting, acoustical treatment and other equipment, including provision for air conditioning, the building is deserving of ultramodern rating. Throughout the courthouse are evidences of a striving for the "plus" that assures superior service to the public and best facilities for employees. Here, as in thousands of other fine buildings, are Sloan Flush Valves, famous everywhere for efficiency, durability, economy.

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NAHRO convention: unrest grows over renewal program procedural snarls

Frustration over Washington administration of all aspects of the federal public housing and urban renewal and rehabilitation program was the predominant feeling at last month's convention of the National Association of Housing and Redevelopment Officials in Cleveland.

In contrast to the let's-wait-and-see attitude of last year's convention toward the urban renewal program, the conviction was growing among local public housing and renewal officials that complicated rules and procedures of three federal agencies—PHA, HHFA, URA—and increasing domination by a fourth—PHA—were keeping the government's highly publicized renewal campaign from getting off dead center.

Most NAHRO leaders did not doubt the administration's intentions, but were simply convinced there was too much red tape. The feeling of frustration was reflected in panel discussions on renewal and was formalized in some resolutions.

Three of the resolutions amounted to a NAHRO definition of trouble spots in the program. They called for:

- A more realistic attitude toward private builders' profits in urban redevelopment and rehabilitation. The housing act of 1954 allows a maximum of 10% profit. NAHRO felt the profit should not be held down by administrative ruling, and registered its objection to allowing a smaller profit percentage on big projects than on small ones.

- Reversal of an "accelerating trend" toward federal domination of local public housing programs. NAHRO members have been increasingly rankled by use of a new, stiffer annual contributions contract. They said NAHRO, ties a local office to PHA regulations; then the local office finds that PHA rewrites its rule book. Toughening of the contracts to increase federal authority, said NAHRO, "contravenes the spirit and intent" of the Taft-Ellender-Wagner Act that set up PHA. Local officials who are also handling renewal and redevelopment projects feared that if PHA wins the battle for domination of local programs, HHFA's division of slum clearance and URA will get tougher and tougher to deal with.

- Yearly construction of public housing units amounting to 10% of the number of private dwelling units constructed. If starts this year total 1.3 million, NAHRO would like to see Congress ask for 130,000 public housing units in 1956. Net effect is the local responsibility by issuing directives, manual releases and requirements that take away all local initiative and responsibility of action . . . the legislation (T-E-W) says that the federal government's role shall be limited to financial assistance and advice—but not domination . . . the federal agency is more concerned about writing regulations than about serving the people."

Washington run-around. Confusion over top level urban renewal procedures was evident as local officials badgered federal experts and each other with questions at renewal panel discussions. Again and again local agency members commented on the difficulty of trying to work up projects to conform with the federal rules, and the frustration in trying to get plans adjusted and approved by HHFA, FHA and URA.

At one peculiarly Orwellian session several hundred local officials clustered before a raised platform on which sat half a dozen top federal experts, clad in dark gray suits. The federal men coolly dispensed their rules and procedures. They talked of top-level cooperation among URA, FHA and HHFA, of passing municipal applications and plans back and forth, until one local official with, perhaps, a redevelopment project or two being passed around, jumped up and said:

"We don't care what FHA tells HHFA, or HHFA tells URA. Please, fellas, just tell us, and tell us once."

Next day a voice from the top offered soothing, if somewhat contradictory advice. Urban Renewal Commissioner James W. Follin told the conventionees: "Get going as soon as possible on each of your program phases. Don't wait for all the answers. You can develop answers as you go."

North Harlem deal set-up. Some of the answers were indeed being worked out. North Harlem, the first big Title I project of eight in New York City to receive an FHA Sec. 220 commitment, was dissected for the local officials, and the anatomy of the deal looked very much like mortgaging out.

Big New York developers have been holding their breath for three years, waiting for a favorable deal. With the first one made—and the others said to be due soon—the local renewal officials at the NAHRO convention began to see how they might entice reluctant sponsors.

The North Harlem sponsor, it was said, was able to borrow his supposed "equity" from the mortgagee on non-negotiable notes, payable out of early earnings of the big middle-income rental project. Builder's fee: 7%. Density was adjusted from 357 persons per acre to 417—because FHA agreed with the sponsor that the land cost (including tenant relocation and slum demolition) had been too high.

"Frankly," one of the Washington experts told the NAHRO delegates, "the problem was to work out a setup acceptable to the sponsor, so he would go ahead."

Cole defends renewal. The convention gave moderate applause to HHFA Administrator Albert Cole who talked of the promise of urban renewal. He criticized communities
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that looked upon public housing as “some­thing apart and separate from urban re­newal—apparently without realizing that the new public housing operation of today is tomorrow's slum or blighted neighbor­hood unless the entire area is systemati­cally de­

Later Cole told FORUM he viewed public housing mainly as relocation housing for families displaced by slum clearance. “But Sec. 220, 221 and rehabilitation will take care of most of those displaced,” he said. A year ago, he told the press at the NAHRO convention that the then new Congress­ional requirement that further public housing could be approved only if intended for persons displaced by government ac­tion was “too limited.” Then he thought this might cause “unnecessary restric­tions” in helping people in slums that are not being cleared, but who deserve help in obtaining better housing.

Cole denied the administration has de­layed the urban renewal program unnec­essarily. “Anyone who would examine the evidence honestly would find urban re­newal is working,” he said. “Rehabilitation and renewal will in two or three years far exceed what low-income housing could do.”

New president (1955-56) is Robert D. Sipprell, executive director of the Buffalo municipal housing authority. Slight, quiet Sipprell, 43, has been with the Buffalo authority (4,500 housing units in opera­tion, 2,300 more scheduled) for 17 years.

Rains committee begins probing urban renewal, ‘delays’ on Sec. 220 loans

HHFA’s urban renewal program and FHA’s apartment insurance mortgage ac­tivities were early starters last month as issues in the 1960 national elections. To construction industry observers the po­litical undertones were clear and strong when the housing subcommittee of the House banking and currency committee, starting out on a national probing tour, held a three-day hearing in New York.

Subcommittee chairman was Rep. Albert Rains (D, Ala.). At a prehearing press conference he explained that all federal housing legislation expires next year. The committee intends to study “the whole field of housing,” so it can complete a compre­hensive report early next year covering all phases of federal housing action that ought to be expanded, eliminated or revised when the laws come up for re-enactment.

Typical of most congressional hearings, little that went into the record gave anyone or any program approbation. There was little doubt the committee’s final report would furnish considerable material for Democratic platform writers and cam­paigners next year to support a theme: the housing agencies grooved on almost every­thing during the past four years; our party should be put in charge again to straighten out everything.

Critical of credit curbs. At NAHR’s Na­tional Housing Center dedication just be­fore committee hearings began, Rains said the recent FHA and VA mortgage tight­ening might trigger an economic slump, and the administration had “failed to consider the chain reaction” these curbs might set off in reducing employment.

At his New York press conference Rains said his hearings would try to discover why FHA’s Sec. 213 cooperative and Sec. 220 urban renewal mort­gage programs were “sad and bitter dis­appointments.” He said he felt quite sure the first Sec. 220 com­mitment ever issued (13 months after the program became law) was approved by the New York FHA office only because the hous­ing committee was about to start its probe. But the committee could not afford to visit every city just to spur local FHA officials to action, he added. Until questioned, he made no reference to the liberalization adopted by Congress only last August, which now allows Sec. 220 mortgages at 90% of “replacement” cost instead of “valu­ation”—a factor that made builders rather than the FHA the laggards in expediting any commitment application until two months ago.

Bad for US, good for N.Y. Democratic­appointed New York State Housing Com­missioner Joseph P. McMurray catalogued ten builder complaints against FHA proc­essing procedures on Sec. 220 apartment applications. One of them: “FHA allow­ances for overhead, profit and architectural fees are inadequate and unrealistic. Until recently the builder was allowed 3% for overhead and profit, 2% for architectural fees. Recently this was revised to 7% for overhead and profit, and architects fees reduced to 1½%.” But a little later, de­scribing a new state and city loan, and local tax abatement, program being developed in New York state under McMurray’s super­vision, he reported this would probably be set up with “a reasonable limitation of 5% to 7½% for builder’s profit.”

In its own reply to the committee answer­ing McMurray, the New York FHA office called his builders’ profit remarks “in­correct.” Fees and overhead are calculated on size of project, it said, and range from 5 to 10% for profit, 1 to 3% for overhead, and 1 to 3% for architect fees. The build­er’s profit allowance on the first $6.4 million Sec. 220 commitment issued on the so-called North Harlem project (see details on builder’s financing setup for this project in NAHR convention story, p. 9) report­edly was 7%.

FHA now “realistic” on 608 sales; losses, $4.6 million

Cautious Washington FHA officials gave a broad definition last month of their stepped-up program for getting rid of the distressed Sec. 608 apartment buildings they have acquired—at latest count 156 developments.

Their policy is now “realistic liquidation without needless dumping.” This means sales as expeditiously as possible in which FHA will take the losses if necessary. But it will not unload at prices out of line with current local values, if there is a reason­able prospect of obtaining a better price without undue waiting, or if there is any prospect of a local price decline or market change that might only require FHA to take the property back a second time from its new owner before long.

Under this policy FHA has now dis­posed of 66 properties, has sales contracts awaiting closing on ten more. Last year it bailed out from 43 projects, since Jan. 1 another 18. Total losses on liquidated projects have risen from $2.5 million last Jan. 31 to $4.6 million. Offsetting this, however, reserves on all other Title VI rental and war emergency sale housing totaled $183 million on June 30.

Of the 80 projects still on its hands, four were offered for sale in recent months but drew no bids. These are the Shreveport, La.; Junction City, Kan.; Jackson, Miss., and Springdale, Ark. Five others are now being advertised with bid closing dates this month or next.

Hilton headquarters designed for Italian villa atmosphere

This three-story $400,000 world headquarters for Hilton Hotels Corp. about to be erected in Beverly Hills, Calif. from Perlea & Luckman plans is intended “to express the warmth and character of an Italian villa set in a sunken garden,” according to Hotelman Conrad N. Hilton. Just inside its 30 black garden wall will be two fountain pools containing Italian sculpture pieces. The lobby floor will be white terrazzo with a set of black marble fins at the end. The third floor will have a large reception lobby, offices for top corporation officers, a board room and Hilton’s private office. The last two will have outdoor patios covered with top and side grillage (front left). The two upper floors, encased in a series of broad con­crete fins, will be cantilevered on all four sides.
AGC survey predicts higher prices, but bids unchanged

Competition may be rough, labor and material prices rising, but members of the Associated General Contractors of America have no fears about an adequate volume of building to keep them engaged during the next six months. In a national telegraphic survey of officers and chapters for the mid-year board meeting in Minneapolis a month ago, 85% reported they expected as much or more building through February as during the past six months. The average predictions for building volume expectations: an increase, 52%; no change, 33%; decrease, 15%.

On material, 70% expected a "good" supply picture, except possibly for delays or scarcities on structural steel and cement; 74% anticipated higher material prices.

Colleges rush to apply for 2 3/4% loans under greatly liberalized HHFA program

Smart colleges soon discovered the attraction for them in the housing act amendment signed by the President Aug. 11: Cut-rate HHFA loans for as long as 50 years not only for student and faculty housing, but also dining halls, cafeterias, student unions and other related facilities.

Previously colleges could borrow from HHFA for up to 40 years at 3 1/2%, provided they could not obtain private financing for housing for 3 1/2% or less. The amendments eliminated the requirement to accept private financing at any rate at all, and set the maximum HHFA rate at no more than 2 1/2% or 3 1/2% more than the Treasury would charge HHFA for funds for the program, whichever is higher.

Somewhat embarrassed to be seriously undercutting normal money market rates, HHFA accepted 46 applications for loans in the July to September quarter, most of them filed after the new law became effective. The volume ranged from $84,000 sought by Caron College in Price, Utah, to $5.5 million requested by Syracuse University. In addition, HHFA last month renegotiated 72 loans totaling $49 million for 2 1/2%, in place of rates ranging from 3.01 to 5.5%, covering the full amount of all loans not fully disbursed before the new rules became effective.

Need set at $3 billion. The vastly liberalized law also upped the total authorization for this program from $300 million to $500 million, which John C. Hazeltine, director of the program as head of HHFA's executive branch, doubled when he testified before the Senate banking and currency committee Chairman J. W. Fulbright (D., Ark.). HHFA is trying to divert at least part of this financing to the private investment field; it will allow borrowers to offer as a "package" the first 15 years of serial bonds for these loans (at the full 2 1/2% interest rate), rather than the first 20 years, as previously.

Wide range of design. In describing the program last spring, Hazeltine suggested to college executives that they try to match the achievements of Utah Agricultural College, which borrowed for facilities that averaged $1,250 a bed, the University of Maryland, $1,750, and Cornell University, $2,400. But the program puts no ceilings on unit costs; approved applications have averaged from $5,000 a bed, for a $3.5 million Yeshiva University dormitory in New York, to $10,000 each for quarters for 40 married students and 40 faculty members in ten apartment buildings to be erected in Kingston by Rhode Island University.

On construction bid prices, 20% said they anticipated increases, 54% "no change," and 26% predicted decreases (combined number expecting "no change" or decreases, 74%). In this connection Vice President Frank J. Rooney, of Miami, and building division Chairman James W. Cawdrey, of Seattle, both reported declining profit margins among builders. "In this record year," said Rooney, "the competition is the worst ever, and the bidding is brutal." Said Cawdrey: "The profit margin is as low as I have seen in 20 years."

Rooney was nominated for AGC president for 1956, and Lester C. Rogers of Chicago for vice president. Rooney's building firm has erected many hotels, stores, office buildings and commercial structures in Miami and southern Florida. He is a former building division chairman. Rogers heads Bates & Rogers Construction Corp.

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Thirty years ago a Harvard business school dean said: “Atlanta is likely to become the center of the first metropolitan region in the South.”

Atlanta has, and no one knows it better than its own citizens. The city and its suburbs have followed—in a more spectacular way than most American cities—the pattern of urban explosion that has characterized postwar America.

Some figures and facts about Atlanta:

- Population of the federally designated three-county “metropolitan area” last April was 813,632, according to an updating of the 1960 US census by the Atlanta Metropolitan Planning Commission. This was 21% more than the 671,797 population of 1950. Growth is accelerating; the gain in the past five years equaled that from 1940 to 1950. If the present rate continues—and few Atlantians think it will slow down—the million-person mark may be reached by 1960, certainly by 1965.

- According to the planning commission, 47,495 housing units have been built in the past five years to handle the area's great gain in residents.

- Since World War II, metropolitan Atlanta has doubled its industrial output, wholesale and retail sales, bank clearings, postal receipts, telephones, automobiles, commercial air traffic, gas and electric meters, property values, manufacturing plants and number of employed persons—nearly all of the measures of urban pace.

- Atlanta has 857 more industrial plants than it had in 1946, adding 30,698 new jobs paying a total of $88 million annually. More than 14 million sq. ft. of manufacturing space were added since 1946.

- Within the city itself building permits have been soaring year after year. In 1953 the totaled $80.9 million. Last year they
Atlanta faces up to tasks

City and county officials work together on metropolitan area problems; transit system passenger loss trend is reversed

For whom the horn blows. Atlanta's street pattern, until a recent flutter of expressway construction, was about as unsuited to modern traffic as that of any American city. Streets followed ridges haphazardly, radiating from downtown like the twisted spokes of a dilapidated wheel. In 1945, a survey showed, an average of 101,468 motor vehicles entered the downtown section daily; this year the average was 189,355. Traffic was jammed in 1945; today it is almost stopped, approaching New York City standards. The Metropolitan Planning Commission estimates that congestion costs Atlanta $65 million a year.

Relief is on the way, however. Thirteen miles of a north-south expressway have been completed, and five more miles are under contract, financed by city, county, state and federal funds. Maximum efficiency from the freeway will be reached in about three years, when a downtown connector section—an expensive 2-mi. link with traffic interchanges—is completed. East-west expressways are being planned.

City parking postponed. Traffic's companion problem, parking, is far from solved in Atlanta. Private parking operators have staved off municipal action, and have built containers and new buildings since World War II. They have five new projects from the freeway will be reached in about three years, when a downtown connector section—an expensive 2-mi. link with traffic interchanges—is completed. East-west expressways are being planned.

In the biggest civic effort since the city was rebuilt after General William Tecumseh Sherman destroyed it by fire during the Civil War, Atlanta has planned and launched a number of major programs to keep the city growing strong and vigorously.
Producers of famous POLYSAR chemical rubber...

Find modern
metlwal
movable partitions
adaptable... economical

At Polymer Corporation Limited, Sarnia, Canada, standard metlwal movable partitions meet the completely different floor-plan needs of three major departments. Such tailored efficiency, for each quiet, tasteful office, was possible at low cost, because of metlwal's flexibility. Metlwal movable partitions are designed for quick, permanent installation, yet permit overnight floor-plan changes. Their attractive, lifetime finishes—in wood-grain or decorator colors—won't crack or craze. Whether used in new or modernized buildings, metlwals reflect quality in every detail!

Architect: Gordon S. Adamson, Toronto
General Contractor: Foundation Company of Canada, Toronto
Sub-Contractor: James F. Gillanders Company Limited, Toronto

FREE-STANDING PARTITIONS AT LOW COST
Quickly provides fully private or semi-private offices. Also a distinctive space divider. Easily installed—and changed. Write for brochure.

PROOF OF EXTRA QUIET AND PRIVACY—WITH metlwal
Complete test results on sound transmission loss—made by an independent research organization—are available to you. They prove the advantages of metlwal's exclusive double-wall, double-insulated construction. Write for your copy.

MARTIN-PARRY CORPORATION
SINCE 1878
BOX 964, TOLEDO 1, OHIO
IN CANADA: MARTIN-PARRY (CANADA) LTD. 82 DUNDAS STREET LONDON, ONTARIO
THIS IS IT... the revolutionary new autotransformer-type light control!

NEW
LUXTROL
LIGHT CONTROL

easy to install as an ordinary wallswitch...

1. Attach wallbox to studs... feed input and output load BX through knockouts.

2. Screw control assembly to wallbox.

3. Connect circuit leads to color-identified control leads.

4. Screw on face plate, attach dial, insert fuse... and new LUXTROL is ready for operation!

Here's the new light control that's making the wall-switch obsolete—not only in homes but in non-residential applications, too!

LUXTROL Light Control is an entirely new idea in modern interior lighting. It's an autotransformer-type light control. It produces at the turn of a dial any level of light from dark to full-bright... the perfect level of light for every occasion, every purpose.

LUXTROL is a soundly engineered, compact unit with brush and winding in constant contact. It has both fuse and thermal overload protection. It controls not only incandescent lighting but fluorescent and cold-cathode as well. It operates smoothly, silently, safely... is approved by Underwriters' Laboratories.

And most important to you, LUXTROL requires no complex wiring. It replaces ordinary wallswitches, is just as easy to install!

See new LUXTROL for yourself. Mail the coupon. We'll send you full descriptive literature and give you the name of the nearest distributor.

THE SUPERIOR ELECTRIC COMPANY
7115 Demers Ave., Bristol, Conn.

Please send me full technical data on new LUXTROL Light Control.

NAME__________

STREET__________________________

CITY______ZONE____STATE_______
Since World War II, the city's water department has spent $1 million a year on capital improvements, another $1.5 million to extend mains to serve an average of 10,000 more persons a year.

Water. Since World War II, the city's water department has spent $1 million a year on capital improvements, another $1.5 million to extend mains to serve an average of 10,000 more persons a year.

Schools. The city and its component counties have spent heavily to keep up with the increasing school enrollments. For example, the city alone spent $26 million on school construction last year.

Hospitals. In the past decade two big new hospitals have been built, additions have been made to two others, and a third new one is under construction. Biggest of the new hospitals is the $22 million Grady Memorial. The US public Health Service plans a big communicable disease center.

Airport. About $5 million has been spent since the war on runways, taxiways, high-intensity lighting and navigational aids at the busy (242 scheduled flights daily) municipal airport. Another $8 million has been proposed for a new passenger terminal and more parking and loading space.

The planners. Supplementing and advising local planning and zoning boards is the Metropolitan Planning Commission, set up in 1947 and supported by the governments of Atlanta's component counties, Fulton and DeKalb. The hard-headed, well-staffed commission has kept well within the bounds of realistic planning in its "Now-for-Tomorrow" program. Because the plan is an orderly projection of the realities of the growth that already has occurred in the metropolitan area, most Atlanta observers give it a good chance of being followed closely as a guide to future development of subdivisions, schools, factories, parks, trucking terminals and streets.

Growing pains of big and little cities everywhere, and more and more complex metropolitan areas everywhere, caused a record migration to Montreal for the combined convention of the American Society of Planning Officials and the Community Planning Assn. of Canada.

This late September meeting turned out to be the biggest community planning conference ever held in North America. Instead of the 1,000 delegates who were anticipated, 1,300 earnest city planners, architects, engineers, traffic specialists, clergymen, harbor experts and government officials registered, some coming from as far as Israel and Japan.

Metropolitan government? Daily the realization becomes more widespread that many problems today transcend town or city boundaries, and are area or regional problems. Observed a Kansas City Star editorial last month: "Breaking down or crossing arbitrary city and county barriers presents one of the great civic challenges of the second half of this century."

At the ASPO convention there was a panel discussion of the question "Can Metropolitan Government Work?" Two Canadians said emphatically, yes. Fred G. Gardiner, chairman of the two-year-old Council of the Municipality of Metropolitan Toronto declared: "The Toronto experiment (AF, Dec. '53) has proved it is a practical and feasible form of government. Not only will a metropolitan form of government work but it is probably the only answer to the problem of supplying metropolitan cities with the metropolitan services they require."

Dr. Keith Callard, McGill University political scientist, declared: "The sanctity of municipal boundaries must go" if burgeoning cities are to provide adequate services. "Otherwise the rich municipalities will get richer and the poor get poorer." Because rich municipalities cannot be expected to surrender their favored positions voluntarily, he added, provincial or state governments will have to step in to make the necessary structural changes. "If it's no good saying democracy begins at the local level if democracy does not produce there. The province, or the state, with a wider sphere of responsibility, must take a hand."

[A week later at a Regional Plan Assn. conference in New York the governors of New York, New Jersey and Connecticut agreed on the need for tristate metropolitan area planning, but differed on the steps that should be taken to make it a reality. While favoring planning, New York Governor Harriman rejected the idea for the organization of a single supergovernment for the area.]

More income, more traffic. During a discussion of the traffic snarl Gordon B. Sharpe, US Commerce Dept. highway transport research engineer, spotlighted the problem by pointing out that the US now has 9 million more cars than families and is in a growing trend to "two-car families."

F. Stuart Chapin Jr., of North Carolina University, proposed improved methods of gauging the future traffic flow to and from downtown employment centers.

F. Houston Wynn, New Haven consulting engineer, reported on studies that show urban residents prefer to use their own autos instead of public transportation if

Decorative aluminum front screens Richmond department store's old, odd façades

As part of a $2.5 million expansion and modernization program particularly intended to demonstrate its faith in central downtown shopping areas, Thalhimer's department store, in Richmond, has donned a sleek aluminum coat so its block full of odd-size, odd-height, odd-age buildings now looks like one large, impressive modern structure. Said store President William B. Thalhimer Jr. last month at ceremonies marking completion of the modernization project: "Contrary to the current trends toward expansion through suburban stores, we feel that the urban population is still the life blood of the city, and the downtown area provides the most complete shopping center, since it caters to both urban and suburban customers."

Thalhimer's and the Reynolds Metals Co. developed the idea for the store's new aluminum jacket; the design was handled by Copeland, Novak & Associates, New York architects. Each 24'-wide rectangular unit of the lightweight cover consists of a broad sawtooth arrangement of interlocking, fluted gray aluminum panels 3' wide and about 16' high. These panels and the thin, satin finish horizontal mullions are extruded aluminum. The vertical mullions are of formed aluminum sheets. Installed cost was about $3.50 psf.

As part of the modernization program, the smaller buildings on the corner (see cut) were torn down and replaced with an 80,000 sq. ft. addition that raised the store's total floor area to 450,000 sq. ft. Extensive interior remodeling included installation of a new restaurant and a large expansion of the quality department.
San Francisco finally will get central airlines terminal

In 1946, San Francisco's City Planning Commission recommended a central airlines bus terminal for the downtown area. Up to 1953 nothing happened, so that year, to force the airlines to action, the city barred airport buses from Union Square, where most lines maintained separate ticket and check-in offices. This summer principal lines finally agreed on plans for a central terminal at the southeast corner of O'Farrell and Taylor Sts., opposite parking facilities are adequate. Wynn noted that in most cities low income and high density go hand in hand, with density decreasing and income increasing with greater distance from the central business district. Car ownership also increases with income and distance. His point: there is increasing evidence of auto ownership "saturation" on the fringes of cities, and the approach of this saturation closer and closer to the business districts.

Renewal and politics. At another session, Executive Director Martin A. Meyerson of the American Council to Improve Our Neighborhoods (ACTION), said many cities hesitate to push urban renewal programs because they are loaded with political dynamite. One trouble, he said, is that it "is hard for an honest mayor or other elected officials to have to trade a loss of votes and a loss of campaign funds for successful enforcement of a housing code." Another headache: "People just don't like to be displaced, and they show their resentment at the polls."

Award for Clarence Stein. Architect Clarence S. Stein, planner for Radburn, N.J., Baldwin Hills Village, near Los Angeles, several Greenbelt towns and more recently Kitimat, British Columbia, was given the 1955 ASPO award. His citation in part: "Pioneering toward new towns for America, Clarence Stein profoundly influenced community living. His ideas and experiments in the planning of urban environment, and in planning and housing economics, have rendered an inestimable service not only to his contemporaries but to future generations. "The new forms in community building that he demonstrated in the twenties and thirties were based on principles of esthetics, spaciousness, safety, neighborliness and convenience that have since become accepted elements in urban design." ASPO gratefully acknowledged a debt to a man whose creativeness established precedents not only for the planning world, but for a new plan for living."

Lab director predicts glass to rival structural steel

Within ten years glass should be available with twice its present tensile strength, and within a generation its strength should rival that of structural steel, according to Oscar G. Burch, vice president for engineering and research for Owens-Illinois Glass Co.

In the last ten years O-I spent $60 million on engineering and research for new uses for glass. Last month 500 members of its research staff were settling down in their new 200,000 sq. ft. technical center in Toledo (see cut), which cost $5.5 million including equipment. During the dedication program, Burch observed that glass is only about one-third as heavy as steel, and as made today has a tensile strength of about 10,000 psi. But laboratory scientists have prepared glass fibers with a tensile strength of 50,000 psi, twice that of the strongest steel wire, he reported.

The secret to producing high tensile strength glass commercially lies in two things, said Burch: the bulk structure or composition of its interior atoms, and its surface discontinuities or irregularities. O-I and other large companies, he disclosed, are already investigating these factors, using X-ray and neutron diffraction, infrared transmission and nuclear radiation. "We have learned that we can influence structure by thermal history and environment. When we learn to harness and control it, glass will really come into its own as a structural material."

In the insulation field, Burch announced a new O-I hydrous silicate pipe covering for the oil refining, chemical and power industries that can withstand heat to 1,800° F, compared with present material good to 1,200°. It will be produced in thicknesses and diameters for pipe sizes from ½ to 39", he said, and also could be adapted as a substitute for concrete insulation over structural steel.

SIDELIGHTS

Russians veer to Wright

The delegation of Russian housing administrators triumphantly touring the US under NAHB auspices stopped at Taliesin to consult briefly with Frank Lloyd Wright last month. When they reached Madison, Wis., Delegate A. V. Vlasov, head of the Soviet Academy of Architecture, said of Wright, through an interpreter: "He has developed a special type of architecture. For that he has the wonder and respect of all Russian architects. He is known because of his strong individualism." Later, Wright said Vlasov had arranged for translation of three of Wright's books into Russian, and had invited him to send an exhibit of his work to Russia. Commented Wright: "I deplore their politics. But, then, I deplore most of our own."

Designers redesign name

As the Society of Industrial Designers began its annual meeting and design conference in Washington last month, President Peter Muller-Munk announced the society had voted to change its name to American Society of Industrial Designers. New president elected during the conference: Arthur N. Beevar, 43, manager of industrial design for GE's major appliance division in Louisville, Ky.

Prefab churches, motels

At the dedication of its large Tyler, Tex., plant last month, President James R. Price disclosed the creation by National Homes Corp. of a new nonresidential and special projects division to study production of prefabricated churches, motels and even shopping centers. Architect Charles M. Goodman, continued on p. 25
Universal Corporation Engineers, Fabricates, and Erects Colored Alcoa Aluminum Facade for PENNSYLVANIA STATE OFFICE BUILDING

The new Pennsylvania State Office Building adds an outstanding example of Alcoa Architectural Colors to the Pittsburgh redevelopment scene. Universal Corporation, subcontractor for the aluminum and glass facade, is well qualified for this exacting task.

One of the oldest completely integrated fabricators and erectors of aluminum curtain walls, Universal has used Alcoa Aluminum in many multistoried buildings. Sealuxe products used in the State Office Building are Mullions, Model 92-A reversible windows, interior mullion covers, horizontal fins, soffits and coping.

For complete information on aluminum curtain walls, Alcoa Architectural Colors, and qualified architectural metals fabricators, contact your local Alcoa sales office. Or write: ALUMINUM COMPANY OF AMERICA, 1887-L Alcoa Building, Pittsburgh 19, Pennsylvania.

AIRCOMB DECKHOUSE SAVES TOPSIDE WEIGHT AT SEA

Now in use is a unique sea cabin made of Douglas Aircomb faced with fibreglass laminate. Because Aircomb gives 17 times more insulation than an equal thickness of concrete and is 16 times more rigid than an equal weight of steel, its use saves two thirds of the normal topside weight of the sea cabin.

Douglas Aircomb can be faced with fibreglass to make strong, lightweight hulls for boats. A similar lamination makes molds, jigs.

FOR ITS WEIGHT THE STRONGEST MATERIAL MADE

Aircomb is a honeycomb core of Kraft paper impregnated with a phenolic resin. A patented machine process and rigid quality controls insure uniform cell structure that give it consistent over-all strength and integrity against heat, cold or dampness. Can be sandwiched between wood, plywood, aluminum, magnesium, steel, paper, glass laminates, masonite, porcelain enameled sheets, marble, concrete, and other materials. It is shipped pre-cut in any thickness up to 6" and is guaranteed by Douglas to have uniform strength and rigidity.

This seaworthy 2000 lb. replacement for a conventional 6000 lb. sea cabin proves Aircomb's exceptional strength and environmental qualities.

and other plastic tools lighter and less expensive. In more and more varied applications, Douglas Aircomb is helping to expand markets by reducing transportation and handling cost. Plan to see Aircomb's display at the World Plastics Show. It may suggest competitive opportunities for you.

A PRODUCT OF
DOUGLAS AIRCRAFT COMPANY, INC.
SANTA MONICA, CALIFORNIA
who designed National Homes' new prefab schools, will be in charge of planning. Builder Wallace Johnson has taken the National Homes distributorship in Memphis, and was reported interested in adapting its prefab houses for use in his expanding Holiday Inn motel chain. Each motel would use about 50 prefab house units.

Lease-purchase deal ceilings

Lease-purchase financing adaptations scored a new high. In Chicago, Luminous Ceilings, Inc. announced it had instituted a plan for modernizing older buildings by the installation of complete acoustic-luminous ceilings on lease-purchase deals that would allow owners to charge off the entire cost over a five-year period as maintenance expenses before income taxes. To qualify for this advantage, the building owner would make a five-year "rental" and maintenance agreement with the lighting firm. If purchased outright, the same modernization would have to be treated as a capital improvement and be paid for with earnings after taxes, and probably subject to a much longer amortization period.

Promotion outlays tallied

After a survey of 64 manufacturers of building materials, the Producers Council found there was apparently no relation and "little consistency" among them in preparing advertising and sales promotion budgets. Average spending was 2.8% of sales, but ranged all the way from 0.5% to 7.5% of sales.

Architect advertising: panel approves 'group' action; not sure on publicity

At the California Council of Architects' convention in Santa Barbara last month, the session that drew the largest audience was a lively 2 1/2-hour discussion by a panel of leading architects, advertising and public relations experts—"Should Architects Advertise?" Council Secretary and Panel Moderator Cornelius Deasy of Los Angeles said the subject would have been taboo 20 years ago, but was programmed now "because of an increasing amount of controversy and confusion about advertising and public relations in the profession."

Two subparts of the question arose repeatedly without being resolved. One was whether the AIA ethics code should be revised to permit members to advertise, in view of the fact some competitors not subject to such restriction advertise freely. The second was whether individual public relations programs are a form of paid advertising (or very different in principle from it) and should also be banned by the ethics code? Consensus of the panel seemed to be that advertising by individuals would tend to lower the profession toward the level of the most blatant used-car hawkers, but chapter or "group advertising" could enhance the profession's reputation and boost its collective business. Specific comments by panelists:

Charles Luckman, of Pereira & Luckman—"The problem involves public relations, not advertising. The public assumes architects can design, make working drawings, write specifications, supervise construction. But no one assumes an architect can stay within a prescribed budget! Most bad publicity comes from our failures in this regard. Architects do not have a legal responsibility, but we do have a moral responsibility. . . . If we continue in failing to exercise our moral responsibility [in this regard] before long we will be involved in legal responsibilities. . . . The FTC controls and restrains advertisers to the use of basic truths. The product must be as good as a claim. Architects must be in the same position, with reference to costs and budgets. Group advertising by AIA chapters could establish a platform for individual architects by telling what they do and how they do it. Even if they wanted to, architects are not yet ready for individual advertising."

William Wurster, Los Angeles architect—"The services of the architect are not intelligently understood by the public for whom he works. A public relations effort to create an atmosphere of understanding, and sustain an appreciation for the things good architecture can contribute to our life, would be desirable. A program based on personalities, or aimed at glorifying the individual, would be of questionable taste, of doubtful value to the profession, and should be shunned."

Walter Mergronigle, AIA public relations council—"Individual advertising is not the way to sell architectural services. It would not benefit the individual, and it would be very unfair. The AIA ethics code allows group advertising in the professional and public interest."

Hermon C. Light, Los Angeles architect—"The question is really whether the profession should continue to advertise, and how? Almost all architects advertise now, some by dress or appearance, others by hiring public relations counsel to produce "news releases." A "controlled" form of professional advertising should be permitted to combat competitors who are free to advertise. But group advertising probably would help only architects who are already well known."

J. P. Cohn, San Francisco advertising executive—"If I were offered the best architectural firm in the country as a client, I wouldn't touch it with tongs. . . . The question should be 'Can Architects Advertise?' There doesn't seem to be any way to find out whom they would hope to reach, who the prospects are. Until this is determined, it is certain that architects could advertise."

William Latta, Los Angeles public relations executive—"Paid advertising is as important to the professional future of the ethical architect as it is to the manufacturer and distributor of other essentials. . . . Lack of public understanding of the important role of the architect can only result in gradual lessening of appreciation of his services [and less use of his services]. . . . There is sound reasoning to bar the doctor or lawyer from advertising. The doctor, playing upon natural fears, might create a demand for his services where no actual need exists. The lawyer, by glib persuasion, might conceivably lure a client into filing an unnecessary action. How is the architects' case against advertising expressed in similar terms of public interest? There is no similarity. Prohibition of advertising by architects serves no useful purpose—it protects no one—it denies all except the most popular an opportunity to justify the importance of a profession and to explain the public need it satisfies.
cabinets and towels bring efficiency, convenience, fine appearance to new bank building

Why did the Republic National Bank of Dallas choose Nibroc Recessed Combination Dispensers and Waste Receptacles—and Nibroc Towels—for the washrooms of its magnificent new building? To provide employees and customers alike the best in washroom service, to make towels convenient for users, to provide easily accessible receptacles, to save floor space, and to enhance washroom appearance.

First wet strength towel—and still the finest—Nibroc Towels are super-absorbent, strong, sanitary, soft textured. They speed washroom traffic... stop waste because one towel dries both hands.

Architects specify Nibroc Multifold Cabinets widely—they hold 50% more, require less servicing, cut maintenance costs. Available in 3 models—wall, floor, and recessed. Wall cabinets in durable white enamel (with or without mirror) and easy-to-clean chromium plate or stainless steel.

For utmost, trouble-free service, the new, improved recessed dispenser with waste receptacle loads faster, holds far more towels for heavy traffic. 22-gauge stainless steel in stunning design. Dispenser and waste receptacle come separately if desired for staggered installation.

Choose the best—Nibroc Towels and Cabinets! See "Nibroc" in your classified directory for name of your distributor, or write Dept. NU-11, our Boston office.
Facilities for quantity production of LURA-LITE panels at our Havre de Grace plant.

LURA-LITE® LOUVERED PANELS

LURA-LITE panels are formed sheets of Plexiglas® combining opaque and light transmitting louvers in one continuous surface. Each panel is flanged for easy weather tight installation.
LURA-LITE panels...
• Distribute sunlight evenly to all parts of any large room or production area improving work or study conditions.
• Reduce solar heat gain by reflecting a high portion of the direct sunlight striking the window area.
• Are available in standard sizes or can be custom-made to fit any type and size window.
• Last a lifetime, always stay attractive.

WRITE FOR BULLETIN GIVING STANDARD SIZES, TECHNICAL DETAILS, AND OTHER INFORMATION.

LURIA-COURNAND, INC.
HAVRE DE GRACE, MARYLAND

Specialists in the Design, Engineering, and Fabrication of Plastics and Bonded Materials.

*Trade mark of Luria-Cournand, Inc.
†Trade mark of Rohm & Haas Co., Phila., Pa.
Aluminum, Alodized with Architectural Alodine®,
needs no painting, retains its finish for life

This modern food processing plant in Chamblee, Ga., has decorative aluminum panels of deep green. Their Alodized finish will retain its new look for life. That's because this revolutionary new chemical process converts aluminum surfaces to an amorphous phosphate. And because it produces a finish that adds years to the already long life of aluminum. Colors range from gray green to a deep green resembling the patina of copper.

Alodizing with Architectural Alodine offers two other advantages, too. It reduces the reflectivity of untreated aluminum by 30% or more. It is much less expensive to use than the more complex anodizing process—takes less time, requires smaller, simpler and less costly equipment.

Since the use of Alodized Architectural Aluminum is spreading rapidly—in the construction of industrial plants, commercial buildings and dwellings—you will want complete information about its possibilities. Write for data—of course without obligation. Or see our literature in Sweet's Architectural File.

Specify Alodized Architectural Aluminum for greatest protection and least maintenance

AMERICAN CHEMICAL PAINT COMPANY, Ambler 23, Pa.
DETROIT, MICHIGAN NILES, CALIFORNIA WINDSOR, ONTARIO
BERTOIA AND DALLAS LIBRARY METAL MURAL

On a prededication inspection of Dallas' new $2.5 million library last June, Mayor R. L. Thornton and his councilmen reacted violently when they saw upon a 10' x 24' metal screen mural by Sculptor Harry Bertoia. It was similar to one Bertoia had made for the Manufacturers Trust all-glass bank in New York (AF, Dec. '54), for General Motors' new Technical Center glass bank in New York (AF, Dec. '54), looks to me just like a bunch of junk painted red, Thornton scornfully commented: "It was similar to ones Bertoia had made for the Manufacturers Trust all-glass bank in New York, as chief consultants to a new Cuban National Planning Commission and the Minister of Public Works, with responsibility for drafting regional and master plans for Havana and other cities; John W. James, research vice president of McDonnell & Miller, Inc., of Chicago, nominated as president of ASH & A-CE.

Yale University reorganized its arts division, changing the name of its School of Fine Arts to the School of Architecture and Design, which will cover architecture, city planning, painting, sculpture and the graphic arts, coordinated with undergraduate instruction in these fields in Yale College and the graduate Engineering. Fine Arts dean, Charles H. Sawyer, will be dean of the new architecture and design school, with Professors Paul Schweikher and Josef Albers holding chairmanships in architecture and design.

In its September article on the Berlin conference hall to be donated to Germany by the US, FORUM inadvertently called it a special project of Mrs. Allen D. Dulles. But this was a case of mistaken identity. The credit belonged to Mrs. Dulles' sister-in-law, Eleanor Lansing Dulles, sister of the OSS director and the Secretary of State. Miss Dulles is now special assistant to the State Dept. 's director of German affairs. In a long government career in both the US and abroad, she was finance division chief of the Social Security Board, 1936 to '42; a US delegate to the Bretton Woods talks, and financial attaché in Vienna, 1945 to '49.

While in Cuba on a business trip, Designer Hans G. Knoll, 41, pioneer in the creation and production of contemporary furniture and textiles, was killed by a wild truck hitting his parked car on Oct. 8. Born in Stuttgart, Knoll came to the US in 1947, established a furniture company in New York in 1958, and formed Knoll Associates in 1946. This soon grew into a world-wide organization with factories in Belgium, Canada, Cuba, France, Germany, Switzerland, Sweden. It will now be directed by (Mrs.) Florence S. Knoll, who was planning director for the organization. Knoll received admiration as a design statesman and affection as a friend from the many top designers whose individual authorship of furniture and textiles was acknowledged in promotion. Among them: Mies van der Rohe, Eero Saarinen, Isamu Noguchi, Harry Bertoia, Le Corbusier in France, Finland's Ilamari Taapiovara, Italy's Franco Albini. He was also behind the scenes the leading spirit in catalyzing such creative events as the US State Dept.'s modern foreign building program.

"He made a lasting cultural contribution to America . . . achieved world-wide influence bringing the best of modern design into institutional, commercial, public buildings."—Eero and Aline Saarinen.

"It was Knoll's taste, standards, choice of designers, energy and ability, that gave the leadership necessary for the success of the entire modern movement in American furniture."—Philip Johnson.

"A leader in new designs, new techniques of manufacture and in designed service to architects for their new created spaces."—Louis I. Kahn.

"He pioneered new forms with fresh, brilliant colors, with airy spaces. All modern architects will miss him."—William Lescaze.

OTHER OBITUARIES: Rear Admiral John Richard Perry, 56, chief of the Bureau of Yards and Docks since 1953 and organizer of the Navy's Seabees (Construction Battalions) in World War II, Sept. 25 in Washington; Major General Philip B. Fleming, 67, former head of the Federal Works Agency and supervisor of the White House renovations for President Truman, Oct. 6 in Washington; Ernest Payson Goodrich, 81, former president of the American Institute of Consulting Engineers, former director of the American Institute of Planning, Oct. 7 in Brooklyn, N.Y.
NEW WAY TO BUILD SCHOOLS... FASTER!

Fenestra TROFFER-ACOUSTICAL Panels combine concrete joist forms, built-in acoustical ceilings and recessed lighting troffers

Now you can have better-looking, better-lighted classrooms with fireproof construction and save both time and money. The NEW Fenestra* Troffer-Acoustical Panels—TAC Panels, for short—are designed to wrap up 3 expensive building materials in one economical, quickly erected building unit. They permit you to have acoustical treatment and recessed lighting—features that usually require extra time and labor—built right in the structure itself!

Here's how it works. As you can see in the photo above, the TAC Panels—either for troffer lighting or metal pan acoustical ceilings—are long-span units. Placed in position on the formwork for the main beams, they provide the forms for the concrete joists and floor slabs. Temporary supports at mid-span while pouring concrete are all the additional shoring required. After the concrete is cured, the panels stay in place and function as the finished ceiling—complete with built-in acoustical treatment—and as lighting troffers. Only painting and lighting fixture installation are needed to complete the room.

And TAC Panel ceilings are easier to maintain year after year. They can be washed or repainted as often as needed, without affecting the acoustical treatment. There is no hanging ceiling or "stuck on" acoustical material to be damaged or replaced.

Even if your plans are now on the drawing board, they can easily be adapted to use Fenestra TAC Panels. Ask your architect to investigate this new building method, now, or write for a copy of Fenestra TAC Panel System that gives you complete details. Detroit Steel Products Co., Dept. AF-11, 2296 E. Grand Blvd., Detroit 11, Michigan.

*Trademark

Architectural, Residential and Industrial Windows • Metal Building Panels
Electrifloor • Roof Deck • Hollow Metal Swing and Slide Doors
Here's a simple and economical solution to the problem of exposed or uncarpeted areas of drab, colorless concrete. It's called Colorundum. And the fused-color concrete floor it provides lends a dramatic and practical accent to patios, walkways, and service floors. Colorundum cuts air conditioning costs, too, because its color properties keep sunlit areas substantially cooler than ordinary concrete. Yet its cost is just a fraction of that of tile floors.

Colorundum is far more resistant to traffic than ordinary concrete floors. It is a balanced formulation of nonslip aggregate (next to the diamond in hardness), water-repellent compounds, and durable colors. It contains no silica, quartz, or sand. It is easy to keep clean, and since it contains no metal, it will not rust or stain.

Colorundum is available in eleven decorator colors.
Government study says big construction volume sent material prices up more than average, 21.5% vs. 12.9%, since 1950

Wholesale prices advanced more sharply for building materials than for most other commodities during the five and a half years from Jan. '50 to June '55, according to a study in the Commerce and Labor Dept.'s Construction Review for September. While average prices for all commodities (including building supplies) rose 12.9% in this period, the average for all building materials advanced 21.5%.

This study attributes the greater increase in building materials costs to "sustained demand" created by the huge postwar construction boom. Discounting minor effects from recent FHA and VA regulations temporarily tightening residential mortgage credit, it forecasts continued heavy demand for new construction of all types, and therefore "continuing pressure" on materials prices.

Changes in price indexes for selected materials included in the study:

<table>
<thead>
<tr>
<th>(1937-19 equals 100)</th>
<th>Jan. '55</th>
<th>June '55 Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>All building materials</td>
<td>102.1</td>
<td>124.1</td>
</tr>
<tr>
<td>All lumber, wood products</td>
<td>106.8</td>
<td>123.6</td>
</tr>
<tr>
<td>Douglas fir</td>
<td>95.0</td>
<td>131.9</td>
</tr>
<tr>
<td>Millwork</td>
<td>108.1</td>
<td>128.3</td>
</tr>
<tr>
<td>Softwood plywood</td>
<td>102.1</td>
<td>110.5</td>
</tr>
<tr>
<td>All heating equipment</td>
<td>101.6</td>
<td>113.5</td>
</tr>
<tr>
<td>Boilers, radiators</td>
<td>106.3</td>
<td>120.0</td>
</tr>
<tr>
<td>Water heaters</td>
<td>105.2</td>
<td>107.4</td>
</tr>
<tr>
<td>Metal sash</td>
<td>102.8</td>
<td>133.2</td>
</tr>
<tr>
<td>Building wire</td>
<td>77.5</td>
<td>118.6</td>
</tr>
<tr>
<td>Steel structural shapes</td>
<td>120.4</td>
<td>146.2</td>
</tr>
<tr>
<td>Cement</td>
<td>106.6</td>
<td>131.4</td>
</tr>
<tr>
<td>Concrete block</td>
<td>101.4</td>
<td>112.0</td>
</tr>
<tr>
<td>Asphalt roofing</td>
<td>101.7</td>
<td>106.7</td>
</tr>
<tr>
<td>Brick</td>
<td>106.6</td>
<td>124.2</td>
</tr>
<tr>
<td>Window glass</td>
<td>103.9</td>
<td>138.8</td>
</tr>
</tbody>
</table>

BUILDING MATERIALS PRICES advanced another 0.7% from August to September, when they reached 128.4 on the BLS average wholesale price index. (This was 3.4% above the June index of 124.1 used in the five-year prices study reported in the adjoining column.) The September increase was caused mainly by advances of 0.5 index points for lumber, 0.4 points for plywood, 1.7 points for heating equipment, and 0.7 points for concrete and for structural clay products.

Record September building outlays pass $4 billion mark

BUILDING COSTS for nonresidential structures continued their uprend from August to September, when they reached 266.7, compared with 265.3 a month earlier, on the national index of E. H. Boeckh & Associates. For six months, March to September, the Boeckh index rose 3.3%. This was in line with a 3% average increase in the same period in 122 cities recorded by the Dow Service. Locally, however, Dow reported cost declines of 4% in Miami, 2% in Houston, 1% in Los Angeles and Tulsa, and increases as high as 15% in El Paso, 8% in Boise, 6% in Memphis.

TOTAL CONSTRUCTION expenditures reached the $4 billion mark in September for the first time in history. Among new monthly records in separate categories, outlays for commercial construction went over $300 million for the first time, private industrial and church building hit peaks of $210 million and $70 million, respectively. Within the commercial category, September spending for stores, restaurants and garages totaled $207 million, for the first nine months of this year was 48% ahead of the same period last year. Declining seasonally, nonfarm housing starts dropped to 113,000 in September, a seasonally adjusted rate of 1,230,000 annually.

* Table shows major components of the national index of prices.
A new high in HIGH VELOCITY

The photograph above shows main banking floor of the First National Bank in Dallas. Note how straight line All-Air High Velocity units blend perfectly into the architectural design. See next page for detail.

The All-Air High Velocity system also provides draftless comfort throughout the bank as well as in the second floor executive offices (shown at left). See next page for detail.

Architect: George L. Dahl
Consulting Engineer: Landauer, Guerrero & Shafer
Contractor: C. Wallace Plumbing Co.
Main banking floor

Sketch of photograph on preceding page shows the installation of twenty-four Anemostat 36-inch HPSL-100 High Velocity units, each supplying 200 cfm. A total of 4800 cfm is delivered to the main banking floor.

These pages illustrate the use of the Anemostat All-Air High Velocity distribution system in a modern air-conditioned bank. Anemostat High Velocity units are also being used throughout the country in many other applications such as hospitals, schools, department stores, office buildings and plants. Here are some of the important architectural and engineering advantages of the Anemostat All-Air High Velocity distribution system. It can be used with smaller than conventional ducts. It can be installed faster and at less cost. It requires no coils, thus eliminates leakage, clogging and odors. Anemostat round, square and straight line diffusers with high velocity units are adaptable to a wide variety of architectural designs.

For latest data on Anemostat All-Air High Velocity units, write on your business letterhead for new Selection Manual 50.

Second floor executive offices

Diagrammatic ceiling view of offices on preceding page. This shows the installation of five Anemostat HPCM-1-100 High Velocity units, each supplying 125 cfm.
This new hood gives complete protection to the awning and awning fixtures. The outer face, modern and unusual in design, creates a smart and pleasing accent at the head of the opening. It is beautifully finished like all Pittco mouldings. For complete details, see your Pittco Store Front Metal Representative.
Architect Rogers designed the new Hospital for Special Surgery for a site with only one open exposure—toward New York's East River. Existing buildings blocked light from all other directions. To expose as many rooms as possible to natural light, and the river view, the building was designed in the shape of a broad "V". As a result, patients in both wings benefit from a bright, cheerful atmosphere.

Another aid to patients' comfort is the extensive use of Armstrong acoustical ceilings. To help provide quiet, beauty, and extra fire safety throughout the hospital's twenty floors, the architect selected ceilings of Armstrong Travertone and Arrestone.

Travertone's combination of noise-absorbing efficiency, handsome appearance, and incombustibility made it a logical choice for corridors, nurses' stations, offices, clinic, cafeteria, and patients' lounges. Its high acoustical efficiency soaks up as much as 80% of the noise that strikes its surface. Travertone's handsomely fissured, white-painted surface also adds beauty to the decor, and its mineral wool composition meets the most rigid fire-safety codes.

Devoted exclusively to orthopedics, this hospital puts its hydrotherapy department to great use. Due to high moisture conditions in the pool room, the architect selected an acoustical ceiling of Armstrong aluminum Arrestone—a rustproof metal-pan type material. In addition to providing moisture resistance, Arrestone is unusually high in acoustical efficiency, absorbing 85% of distracting noise that strikes it.


Moisture can't damage the Armstrong Arrestone ceiling in this therapeutic pool room. The bare mill finish of the aluminum pan is rustproof, and moisture has no harmful effect on the mineral wool pad backing. Arrestone is also easy to clean. It's incombustible, too.
Concentration is aided during conference room discussions by this Travertone ceiling. It soaks up distracting sounds before they become noise. The attractive appearance of Travertone contributes to the pleasant atmosphere of the carefully styled room. And the ceiling will stay smart looking and clean for years with an occasional washing.

Noise from busy nurses' stations won’t spread to patients' rooms. The ringing of telephones, rattling of carts and bottles are absorbed by the Travertone ceiling before they can build into disturbing racket. Easy to clean, Travertone can be washed or repainted without noticeably affecting its efficiency.

Made of fireproof mineral wool, Travertone is rated incombustible and acts as an effective fire-stop. It can be quickly installed by cementing or conventional suspension systems. Easy to handle, Travertone can be scored and cut to fit around ceiling fixtures.

Plenty of light, as well as quiet, is found in the patients' lounge. In addition to absorbing noise, Travertone’s two-coat white paint finish provides high light reflection, without annoying glare.
These "commercials" are rugged Ro-Way overhead type doors. And they especially prove their inherent mettle on multiple installations.

Many doors usually mean heavy traffic. Repeated daily wear and tear. But Ro-Way doors stand up. They’re precision-made from selected west coast lumber and heavy-gauge, Parkerized steel hardware. Have mortise and tenon joints, water-proof glued and steel-pinned. That’s why Ro-Ways give year after year of smooth, quiet, dependable service.

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SHWAYDER BROS., INC., CLASSROOM FURNITURE DIVISION. Dept. Q-12, Detroit 29, Mich. Also makers of famous Samsonite Luggage and Card Tables and Chairs for the Home.
The new Flexalum Twi-Nighter blind shuts so tight, it keeps out six times more daylight than a fully-closed conventional blind, according to independent laboratory tests.* Makes rooms not just dim, but dark. In apartment houses and homes, it lets residents sleep later in the morning, helps along baby’s afternoon nap, assures privacy from any angle. In hospital rooms, it is more conducive to daytime resting. Yet amazingly enough, the Flexalum Twi-Nighter costs the same as any other established leading custom-built venetian blind. Also features wipe-clean plastic tapes, snap-back aluminum slats, nylon cords, non-slip tilt control and other famous Flexalum features that mean longer life, lower maintenance costs and smoother operation.

A modified Butler steel building is not basically different from the United Nations building, or any other example of practical, modern architecture. The structure of the building is steel. Imagination and architectural inventiveness have transformed the cold, skeletal steel framework into a structure of grace and beauty—and permanence.

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If you would like more information about Butler steel buildings, write to the Butler office nearest you. Ask for the Butler Architect's Brochure—A.I.A. file number 14i. For prompt reply, address office nearest you.

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to heighten

accent its modernism

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When you specify grade-trademarked fir plywood, you're sure of material manufactured under the rigid industry quality control program and independently quality-tested by DFPA* to protect the buyer. Here are grades expressly made for form work:

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*DFPA—Douglas Fir Plywood Association, Tacoma, Wash., is a non-profit industry organization devoted to product research, promotion and quality maintenance.

DATES


Mortgage Bankers Assn. of America, annual convention, Oct. 31–Nov. 3, Statler and Biltmore Hotels, Los Angeles.


AIA, regional convention, Texas Society of Architects, Nov. 2–4, Shamrock Hotel, Houston.

National Assn. of Real Estate Boards, annual convention, Nov. 6–10, Hotel Commodore, New York City.


Florida Assn. of Architects, AIA, annual convention, Nov. 16–20, Princess Issena Hotel, Daytona Beach.


American Municipal Assn., annual conference, Nov. 27–30, McAllister Hotel, Miami.

American Institute of Steel Construction, annual convention, Nov. 20–Dec. 1, Boca Raton Club and Hotel, Boca Raton, Fla.

Air Conditioning and Refrigeration Institute, industrial equipment exposition, Nov. 28–Dec. 1, Municipal Auditorium, Atlantic City.

American Society of Refrigerating Engineers, annual meeting, Dec. 1–3, Hotel Traymore, Atlantic City.

Porcelain Enamel Design competition closes Dec. 12.

Nuclear Engineering and Science Congress, coordinated for ASME, ASCE and other sponsoring groups by the Engineers Joint Council, Dec. 12–16, Public Auditorium, Cleveland. Program will include papers on reactor design and construction, effects of radiation on structural materials, concurrent Atomic Exposition, Dec. 10–16, sponsored by American Institute of Chemical Engineers.


Plant Maintenance and Engineering Show, Jan. 23–26, Convention Hall, Philadelphia.
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The trend to water as both the heating and cooling medium in modern buildings establishes a positive requirement which must be met by the circulating equipment. Quiet operation of the pumps is all essential!

The B&G Universal Pump is specifically designed and built to meet this prime requirement of liquid heating and cooling systems. It is not an ordinary commercial centrifugal pump! No special vibration eliminators or flexible connections to the piping are needed... noise and vibration have been engineered out! You have to touch a B&G Universal to tell if it is running!

In the building illustrated above, B&G Universal Pumps are used to circulate all water, including that in the chiller and cooling tower circuits. The same piping system is used to circulate hot water in winter and cooled water in summer. ConvectorS with adjustable speed fans act as room distributing units. Water for the heating system is heated with steam in a B&G Type "SU" Heat Exchanger.
Battery of B&G Universal Pumps for circulating hot and cooled water through system.

Circulation from chiller to cooling tower is handled by B&G Universal Pumps.

For quiet operation...
the B&G Universal Pump

In every detail, the B&G Universal Pump is designed for silent, vibrationless operation. The motor is specially constructed, tested and hand-picked for quietness. Sleeve bearings in both pump and motor suspension in ring-type rubber mountings and flexible spring couplers, all contribute to quiet operation. Other features include the leak-proof "Remite" Seal, oil lubrication and hydraulically balanced impeller. The removable bearing frame permits servicing without breaking pipe connections—all the advantages of split case design!

Send the coupon for complete data.

B&G Type "SU" Heat Exchanger
For steam to water heat transfer, generous heat transfer surface heats water instantly as required. Wide capacity range meets all water heating requirements.
In the retail grocery business—or in any business where pennies count—one way to cut maintenance expense is to specify Terrazzo. Traffic can't hurt it, dirt can't get a foothold in its smooth, jointless surface. Upkeep is minimized; sales are stimulated by its inviting surface and traffic-directing patterns. Specify low-annual-cost Terrazzo for floors, wainscots, walls and stairways—wherever long life is required. See our catalog in Sweet's. Use coupon for free AIA kit.

**THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION, INC.**

Room 404
711 14th St., N.W. Washington 5, D.C.

**Send free AIA Kit to**

Name
Firm
Street Address
City Zone State

It was inevitable that someone would accuse Le Corbusier of an irreligious attitude in the new chapel of Notre-Dame-du-Haut he designed for the French Dominicans (above and AF, Sept. '55). Another accusation we have heard is that Corbu was guilty of structural exhibitionism. Well, perhaps, but if so, he has good religious precedent for it, in the lovely bonnets worn by the French Sisters of Charity. These graceful cantilevers in cloth, called cornettes, were worn commonly in the 14th Century in Europe, by both men and women. Cornette's architectural definition: "a roof poured full circle into tension like a horn."

E. C. Lecker, Ellwood Irish and Sun Chien Hsiao of the Unistrut Corp. recently inspected a school in Michigan which, like a few others throughout the country, has replaced conventional partitions between classrooms with low visual barriers, "space dividers," which do not reach all the way.
to the ceiling. They liked it, and the children liked it; the teachers were not so sure.

Part of the inspectors' report:

"...we observed the classrooms and talked with the second- and third-grade teachers. Their most severe criticism was the lack of sound control. The level of the noise in the classroom was quite high. The teachers felt this imposed too much of a limitation on the teaching program. However, they agreed the sound problem did not seem to affect the children in any way. The second-grade teacher offered that the results of achievements tests at the end of the year were better than she had expected even though she had many times felt she'd been talking and had not been heard. One of her pupils one day remarked that she knew how to spell all the words the adjacent third-grade pupils had been learning. The second-grade teacher also felt when she received the present first-grade class for instruction next year the change would be less noticed by the pupils than in the individual classroom scheme."

(\textit{NATURE})

Sooner or later, if you manufacture something strong, you have an elephant stand on it to demonstrate this. There are professional elephants who do nothing else. To wit, three recent press releases:

"New York, N. Y. ... If you want to prove the structural strength of a product, place a 3,000-lb. elephant atop of it. That's what Climate Control, Inc., of Sarasota, Fla., did with the 'Monostructure' panel which they use for both roofs and walls in their prefabricated houses.

"What made this stunt unique is the fact that this plywood-faced panel has a paper honeycomb core. Union Bag & Paper Corp., who makes the honeycomb, reports that the concentrated load of the elephant caused only a very small deflection, with full recovery.

"Hollywood, Calif. ... Sawhorses assembled in a matter of seconds using the new Chesney "Speed Clamps" are so sturdy they can support tremendous loads of dead weight. In a recent demonstration two such sawhorses easily supported the tonnage of a full-grown elephant.

"St. Louis, Mo. ... HOLD IT! Hundreds of pounds of prancing elephant, yet ¾" plywood does hold it. That's because plywood is many wood panels, with grain of alternating sheets criss-crossed for added strength! Panels are bonded permanently together with Monsanto adhesives. Douglas fir plywood offers all of wood's warmth and beauty, is twice as strong as lumber but no heavier. Easy to saw, finish, paint."

After a hard day before the cameras, Mr. Barrymore relaxes.

($$$)

Like opera singers, baseball players, meat-packers, and dance teams, some architects and engineers have consultant business managers, whose purpose is to see that they play their cards right, not paying everything out in taxes—instead piling up something for a rainy decade. One method that many of these experts favor is some kind of incorporation.

Speaking before the Wisconsin Architects Assn. early this year, Edward T. Bardwell, an Equitable Life Assurance agent, indicated a way of gleaning the benefits of incorporation even in those states which, strictly speaking, prohibit it.

"... It is quite a simple matter to accept the job as an individual architect; allow the corporation to do all the drawings and technical work; and have the corporation bill you for all services rendered and thereby circumvent a possible adverse situation. Perhaps the greatest opponent you will have is your own personal stigma based on the time-worn theory that the professions should not be incorporated. This theory, I fear, has long since outlived its usefulness.

"Perhaps the best way to understand the effect of taxation and its application to the partnership versus the corporation is to set up a typical situation. Let us assume that we have a partnership with two partners, each having a 50% interest; the partnership employs ten other people. It has a net earned income, including the partnership drawing accounts, of $70,000 per year. The effect on the two partners would be...

\begin{tabular}{|l|c|}
\hline
\textbf{PARTNERS A \& B} & \\
\hline
\textbf{Annual income} & $35,000 \\
Federal tax & 10,760 \\
State tax & 1,937 \\
Soc. sec. tax & 84 \\
Self-emp. tax & 60 (average) \\
\hline
Total tax & 12,841 \\
\hline
Net income & 22,159 \\
\hline
\end{tabular}

continued on p. 66
The SECOND NATIONAL BANK BUILDING, now being completed at Houston, Texas is another of America's outstanding buildings with aluminum curtain walls and aluminum windows by General Bronze. This new, 24-story building will not only be Houston's largest and most modern building but will also be its first all-aluminum building.

As the pioneer in aluminum curtain wall construction and the foremost fabricator of fine aluminum windows, General Bronze has a world of practical experience to offer architects. This experience, gained from such well-known jobs as the Alcoa Building in Pittsburgh, the U.N. Building, Lever House, 99 and 460 Park Avenue Buildings in New York City, The Equitable Life Assurance Society Building in Milwaukee, the Texaco Building in New Orleans and others is at your service. Why not call in the General Bronze representative as you plan new buildings. He can be of real assistance to you. Our catalogs are filed in Sweet's.
During the last decade, ceramic tile has played an increasingly important role in American architecture.

Each year, more and more residential and commercial designers have found in tile the drama, color, flexibility, and service shared by no other building material.

And, as architects have turned to tile, so they have turned to Stylon Ceramic Tile.

Why? Because Stylon offers eighteen lovely wall colors, and matching or contrasting floor tiles in literally thousands of imaginative combinations.

Because Stylon, with its ingenious, “Sure-Space” device, assures impeccably straight lines and uniform joints.

Because Stylon, made in three of the world’s most modern plants, has set new standards in quality control, color beauty and timeless durability.

Join the thousands of architects who have looked into loveliness — with Stylon Tile.

Look into timely Loveliness... with

**Stylon**

**CERAMIC TILE**

Beautiful • Enduring • Economical

See our insert “Harmonies in Color” in Sweets.

---

Gentlemen: I am interested in the Stylon Ceramic Tile Story. Please send me complete details.

Name: ___________________ Position: ___________________

Firm Name: ___________________

Address: ___________________

City: ___________________ State: ___________________

STYLOM CORPORATION
Milford, Mass. • Florence, Ala.
30 miles of Acoustimetal Ceilings hide utilities at Mile High Center

23-STORY MILE HIGH CENTER BUILDING IN DENVER, COLORADO

Gold Bond Acoustical Contractor: Reeves-Ryan & Co., Denver, Colorado;
Architects: Kohn & Jacobs, New York;
Associate Architect: G. Meredith Musick, Denver, Colorado.

Modern acoustical treatment gives this executive office a ceiling that always keeps its smart, clean appearance.

The Acoustimetal panels that form the ceiling of this modern reception room instantly snap out for fast servicing of utilities.

Wherever Gold Bond Acoustimetal is specified, you’re adding these seven important benefits to your building designs:

1. ACCESSIBILITY—Lightweight Acoustimetal panels snap in and out easily and quickly for simple servicing of ducts, wiring, piping and other overhead utilities.

2. FIRE SAFETY—Each perforated metal panel is fireproof, adding extra safety to any building you design.

3. EASY MAINTENANCE—Washing is simple...panels are wiped clean with a damp sponge or cloth.

4. GOOD LOOKS—Acoustimetal’s handsome white baked enamel finish lends a quiet, dignified appearance wherever you install it.

5. REDECORATE—Acoustimetal may be repainted for variation of color schemes, without affecting sound absorption efficiency.

6. FAST INSTALLATION—Often, it takes only a single day to put up a complete Gold Bond Acoustimetal ceiling.

7. EXCELLENT ACOUSTICS—Acoustimetal, when backed with fireproof Acoustipads, assures a noise reduction coefficient in the .80 to .90 range.

On a big job like Mile High, or on any other job, Gold Bond keeps you on schedule from delivery of materials to finished ceiling. Include a good looking Acoustimetal ceiling in your designs. For full details on Gold Bond Acoustimetal and other Gold Bond Acoustical products, refer to your Sweet’s Catalog, or write to Acoustical Division, Dept. AF-115.

NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK

Build better with Gold Bond

LATH, PLASTER AND LIME
GYPSUM BOARD PRODUCTS
INSULATION BOARDS
ROCK WOOL INSULATION
PAINTS AND TEXTURES
ACOUSTICAL TILES
ASBESTOS ROOFING AND SIDING

...ACOUSTICAL PRODUCTS
BRIGHTEN DARK CORNERS AND NEAR-WALL AREAS WITH INCANDESCENT

APPLICATIONS GALORE!
... in barber shops; fitting rooms; over hospital beds, chalk boards, mirrors; for desks near walls; along ceiling beams ... and many other spots that are difficult to light efficiently with conventional fixtures.

GUTH BRACKETS
(YOU NAME IT... WE MAKE IT!)

FLUORESCENT

20 WATT HALF-PERLITE* with GroteLite® Louver-Diffuser — center reflector — up and down light

HALF-PERLITE— one or two lights

2-IN-1—with GroteLite Louver-Diffuser — an indirect cove — or a louvered down-lite. Just turn it over!

DOWN-LITE-BRAC with GroteLite

ANGLED-GLASS BED LITE — 2-20W — up and down light

WRITE ON YOUR LETTERHEAD FOR BULLETIN 929-E TODAY.
THE EDWIN F. GUTH CO. • ST. LOUIS 3, MO.

*Trademark Registered

NAME IN LIGHTING SINCE 1902

Guth
TRUSTED NAME IN LIGHTING SINCE 1902

architectural FORUM / November 1955 63
One material — Carey Thermo-Bord structural insulation panels — does work of three at this Standard Oil Co. (Ky.) warehouse. Combines roof deck, insulation and interior ceiling finish.

Ease and speed of erecting exterior sidewalls of Careystone Corrugated helped Superior Foundry Company, Cleveland, Ohio build new 60,000 sq. ft. plant in six weeks — economically!

2 ways out of the building cost squeeze

You can help solve your clients’ cost problems in new construction and modernization with Careystone Corrugated and Carey Thermo-Bord. Careystone Corrugated has numerous advantages for exterior sidewalls and roofing. It is economical in cost; easy to apply over wood or steel framing; strong and rigid. Made of asbestos and cement, it is maintenance-free ... won’t burn, rust, rot, corrode. No painting or preservative treatment is ever needed.

Great savings in material and labor can be made by using Carey Thermo-Bord 4' x 12' Structural Insulating Panels for roof deck construction. Thermo-Bord combines structural deck, insulation and interior ceiling finish in one rigid unit. And its light weight means lighter-weight structural members can be used to gain more dollar savings. Made by bonding tough asbestos-cement board to a specially processed insulation core, Thermo-Bord is also recommended for low-cost insulated outside walls and partitions.

Get the facts on these Carey cost-savers. Write for free descriptive literature today. Or, ask your Carey Industrial Sales Engineer to pay you a visit. Address Dep’t. AF-11.

The Philip Carey Mfg. Company

Serving Industry, Farm & Home since 1873 ...

Lockland, Cincinnati 15, Ohio
In Canada: The Philip Carey Co., Ltd.
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ARCHITECTS: YOU CAN PLAN BETTER LIGHTING WITHIN PRICE LIMITS OF LOW-COST SYSTEMS

WHEN YOU CHOOSE THE GIBSON

ORTHO-77®

10 MODELS IN ORTHO-77 LINE


Rule-of-thumb shows that fixtures represent about 50% of the total cost of a lighting system. The other 50% goes for installation and materials. That is why Gibson designed its Ortho fixtures and exclusive Uni-Race.

Because the Uni-Race is so simple and quickly assembled on the floor... and because Gibson Ortho fixtures can be installed so fast... actual savings in labor and materials on installation are as high as 50%.

This means that better lighting is possible within the limits of low-cost installations and restricted budgets.

Get full details and specifications on the Ortho-77 and Uni-Race from your Gibson representative, or write direct.

THE EXCLUSIVE GIBSON UNI-RACE*

This rigid channel wireway has a shock-proof outlet for each fixture, providing a permanent anchor and fixed power source. The Uni-Race can be easily and quickly assembled into sections up to 48 feet long, wired complete on the floor, then raised and hung as a unit—directly to the ceiling, stems, or I-Beam and Bulb-Ts through the use of special clamps. Alignment and spacing for fixtures are automatic. Fixtures can be hung by two men, without tools, at the rate of 45 to 55 per hour—in continuous rows or at any interval of 4, 8, 12 or more feet. Spacing can be changed, more units added, repairs made at any time without additional electrical work and without interrupting service to other fixtures on the circuit. The Uni-Race saves on conduit, receptacles, accessories; eliminates aligning extras. It can be shipped in advance of fixtures and outlets used to plug in temporary lighting during final construction and painting. Ortho-77 fixtures are as easy to change as a light bulb—anyone can do it, no tools or special skills needed.

GIBSON MANUFACTURING CO.

1919 Piedmont Circle, N.E., Emerson-2591, Atlanta 5, Georgia

architectural FORUM / November 1955
PARENTHESES

continued from p. 59

“(We have assumed each is filing joint return with two children.)

“The same situation on a corporation basis with same net profit, but having a qualified pension plan to siphon off $15,000 a year of the profit of which two thirds is going to the two stockholders:

PARTNERS A & B

<table>
<thead>
<tr>
<th>Annual income</th>
<th>$27,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal tax</td>
<td>6,500</td>
</tr>
<tr>
<td>State tax</td>
<td>1,445</td>
</tr>
<tr>
<td>Soc. sec. tax</td>
<td>42</td>
</tr>
<tr>
<td>Total tax</td>
<td>7,787</td>
</tr>
<tr>
<td>Net income</td>
<td>$19,713</td>
</tr>
<tr>
<td>Pension contribution</td>
<td>5,000</td>
</tr>
<tr>
<td>Total tax-free value</td>
<td></td>
</tr>
<tr>
<td>Received from corporation</td>
<td>24,713</td>
</tr>
</tbody>
</table>

But subsequent suggestions in Congress may permit professionals and other unincorporated businessmen to plow a portion of their profits into a pension fund. And for more immediate tax relief, Representative Thomas B. Curtis (R) of Missouri, a member of the House Ways and Means committee, introduced a motion in the closing days of this year’s session which should elate anyone whose income fluctuates widely from year to year, as some architects’ reputedly do. Representative Curtis’ idea is to permit the taxpayer who, in one year makes 150% of what he has made the previous five years, to spread the bonanza over the whole six-year tax period. It is expected that the Bureau of Internal Revenue will take a dim, penurious view of this, but Congressman Curtis, as a member of the powerful Ways and Means Committee, should be able to get his proposal good consideration, if well supported. He should

Whether you need a functional school communications system... a fine high fidelity music system for a luxurious motel... a modern intercom system for a new office building... or a rugged speaker network for an arena, your local Stromberg-Carlson sound specialist will give you dependable advice with no cost or obligation.

He can help you plan a custom-engineered system that fits your needs exactly, selecting sound communications equipment built by America’s oldest and most experienced manufacturer in the field. He’ll also explain how your client can lease a Stromberg-Carlson system without a penny of capital investment.

Take advantage of his service—find his name in our section of “Sweet’s Architectural File.” Or write us.

STROMBERG-CARLSON CO.
A DIVISION OF GENERAL DYNAMICS CORPORATION

Sound Equipment Division

1237 Clifford Ave., Rochester 21, N. Y.
Faulty chimney flashing probably causes more trouble and repair expense than any other detail in roof construction. Leaks often appear soon after completion, and tempers flare. The owner and contractors wrangle over who is to blame.

Protect your clients and your reputation by making sure of two things: first, use the right flashing design and second, specify the right metal.

The through-to-flue flashing designs indicated in drawings on this page will prevent all water, including that which has been absorbed by the masonry, from seeping downward into the interior of the building.

Copper by Anaconda combines advantages offered by no other commonly used flashing material. It is, of course, rust-proof. It is not affected by mortar. It is easily soldered, assuring you that the flashing you design will have permanently tight joints.

Stop leaks before they start with Anaconda through-to-flue copper flashing

FREE FILE OF DETAIL DRAWINGS—Designs developed by Anaconda building specialists to provide maximum protection of building against weather, with most economical use of sheet copper. Entire series of drawings printed on individual 8½" x 11" sheets for quick-reference filing. For FREE portfolios, address: The American Brass Company, Waterbury 20, Connecticut.

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SHEET COPPER
FROM COAST TO COAST.

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IN THIS COUNTRY

THE SCOPE
Foundations . . . Marine Structures . . .

OF RAYMOND'S
Heavy Construction . . . Soil Investigations.

ACTIVITIES

OUTSIDE THE UNITED STATES
Complete service for all types of construction.

DEPARTMENT OF COMMERCE BUILDING
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FORT HAMILTON VETERANS HOSPITAL
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NEWARK AIRPORT PASSENGER TERMINAL
Newark, New Jersey

JOHN HANCOCK MUTUAL LIFE INSURANCE COMPANY
Boston, Mass.

THOMAS JEFFERSON MEMORIAL
Washington, D.C.

DETROIT'S CITY-COUNTY BUILDING
Detroit, Michigan

68
Here are a few of the structures that rest on Raymond foundations. These buildings represent an impressive testimony to the over half a century of confidence placed in us by the architects, engineers, contractors and business executives of this country.

If you're contemplating any type of construction—large or small, we'll be happy to discuss your foundation problems with you.
Automatic door openings make it easy and pleasant to do business with this laundry. It gives it an edge over competition.

The clients for whom you design stores, banks, restaurants, hotels, and other commercial buildings, will appreciate this automatic, functional feature that makes buildings more profitable for owner and tenant.

Improve property values and increase utility of buildings by providing for Stanley Magic Door Controls in construction plans and specifications.

Without obligation, call in the Stanley Representative nearest you to make recommendations for your next business building. Mail coupon for informational literature on the Magic Carpet* Control and the Magic Eye** Control (photoelectric).

*PATENTED U.S.A. AND CANADA
U.S. PAT. NO. 2775505

ARCHITECT:
Bruce Boswell, Grassold-Johnson & Associates, Milwaukee, Wisconsin

INSTALLATION CONTRACTOR:
Jed Products, Royal Oak, Michigan

Albert B. Adelman, president of the Adelman Laundry (above), Milwaukee, Wisconsin, says of his establishment's Stanley Magic Carpet Controls: "...the comments from our customers have been most pleasing. The convenience...as well as the safety are other important factors."

THE STANLEY WORKS, MAGIC DOOR DIVISION
69N-M Lake Street, New Britain, Conn.

Gentlemen: Please send me complete information about Stanley Magic Door Controls.

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Firm
Address
City_Zone_State

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS • STANLEY STEEL STRAPPING • STANLEY STEEL

PARENTHESES
continued from p. 68

(TIME)

When Sculptor Lorado Taft executed the "Fountain of Time" to stand at the end of the midway in Washington Park, Chicago, 32 years ago, his inspiration for the group of melancholy figures was drawn from lines by the English poet, Austin Dobson:

"Time goes, you say—ah no:

Alas, Time stays, we go."

According to the Chicago Daily News, Taft wanted his enormous 120'-long creation to weather quickly, attaining "a rich soft tone which stone acquires only after generations of exposure." So instead of marble he used a new process, casting the sculpture in a softer concrete composition made in part from Potomac River pebbles.

Here is a detail of one of the figures in 1922, perhaps about to say "Time goes, you say? My God!"

His worn, worried expression was authentic. Below is a recent closeup of the same figure, only 32 years old, but like the rest of the statuary, sadly pitted and crumbled.

Alas. Time stayed, he weathered.

—W. McQ.
Rejects hot summer sun—This diagram shows how the 80-F block reflects a major portion of the light from the sun at the critical 45° angle, thus reducing brightness and solar heat transmission during hot weather.

Uniform light transmission—Prismatic design is selective and controls the amount of light transmitted from various sun positions, thereby providing uniform light transmission all day long.

Transmits ground-reflected light—This diagram shows how the 80-F transmits the cool light reflected from the ground. This feature is especially important when the sun is not on the fenestration.

Owens-Illinois' new solar-selecting Glass Block No. 80-F is superior to earlier light-directing glass block because:
1. It has a surface brightness less than half that of earlier types.
2. It transmits less solar heat and has a lower inside surface temperature during hot weather.
3. It is an efficient transmitter of ground-reflected light.

Illumination surveys show that maximum illumination on vertical surfaces occurs when the sun is at an altitude near 45°. It is this sun altitude position which produces maximum solar heat and brightness conditions on vertical windows or panels. Prisms within the 80-F block are designed to reflect a major portion of this maximum illumination.

For non-sun exposure, a companion block, the No. 80, is recommended. This block is identical to the 80-F, except that it does not have a fiber glass screen. Therefore, it transmits a higher percentage of light.

Complete information available. Send for the free, technical bulletin that gives the details. Just write "No. 480F" on your letterhead and mail to Kimble Glass Company, subsidiary of Owens-Illinois, Department AF-11, Box 1035, Toledo 1, Ohio.

OWENS-Illinois' NEW SOLAR-SELECTING GLASS BLOCK
No. 80-F COOLER IN HOT WEATHER
Seaman's Bank for Savings...
First entire building in New York City to use double duct mixing plenum high pressure system features complete flexibility of heating/cooling zone control.

Architects: Halsey, McCormack & Helmer
Consulting Engineer: Edward E. Ashley
General Contractor: William L. Crow Construction Co.
Air Conditioning Contractor: Alvord & Swift

Photograph taken during construction of Seaman's Bank for Savings showing installation of Tuttle & Bailey Type MPW Double Duct Mixing Plenum Wall Units.

Typical view of a general office area in Seaman's Bank for Savings showing how Tuttle & Bailey Type MPW Units blend with modern architectural design and decorative scheme.

ENGINEERED PRODUCTS FOR AIR CONDITIONING,
& BAILEY
Pressure Units

give SEAMAN'S BANK for SAVINGS
indoor weather that satisfies everybody!

IN THIS modern twelve-story addition to Manhattan's financial district, Tuttle & Bailey High Pressure Units will provide efficient, economical year-around heating and cooling comfort... Type MPW Wall Units are located under all windows throughout the building, in banking areas and private offices... Type MFD Ceiling Units are installed in the dining areas.

Operating on an all-air system, these double duct units mix and discharge varying proportions of heated and cooled air to provide a constant volume at the exact temperature desired in individual areas. This flexibility means one area can be heated while another is cooled regardless of time of day or season.

Savings in overall building and installation costs were effected by the use of conduit risers and branches which reduced floor-to-floor dimensions... a single primary equipment room resulted in more usable space... and the need for supplementary equipment required for the operation of other types of systems was eliminated. In addition, utilization of 100% outside air for cooling when temperature permits will save the cost of operating compressors, pumps, and cooling tower during such periods.

For complete information on the advantages of a high pressure air distribution system in new construction — or for remodeling — get in touch with your nearest Tuttle & Bailey Representative or write for Catalog No. 109 and Bulletin No. 110.

VENTILATING AND HEATING

TUTTLE & BAILEY INC
NEW BRITAIN, CONN.

architectural FORUM / November 1955 73
Money Talks
...AND TALKS BACK, TOO!

When budgets are figured close, the pipe that "talks" less money initially is usually heard above the pipe that quietly says, "durability." Unfortunately, the pipe with the low-first-cost talk has a habit of talking back, too. You know this story too well if you've watched a pipe repair job where low-first-cost pipe has failed prematurely. The initial "savings" can be wiped out many times in labor costs.

You can save yourself a lot of headache, a lot of expense if you investigate longer-lasting wrought iron pipe. Write Department Z for our booklet, Proof by Performance.

WROUGHT IRON PIPE

A. M. BYERS COMPANY
Established 1864
Clark Building • Pittsburgh 22, Pa.

LETTERS

CORBU'S CHURCH

Forum:
Regarding Notre-Dame-du-Haut (AF, Sept. '55), architecture may be sculpture if it functions as architecture first. Corbu showed us this admirably at Marseille.

But now he has contradicted himself. The chapel cannot be explained away as further development; it is a very personal hunk of sculpture. It functions as architecture afterward.

R. P. HARLOW
Cambridge, Mass.

Forum:
At first glance, your layout on "Corbu Builds a Church" carries the viewer back to Holland and its wooden shoes. The depth of LeCorbusier's perception is immense, I suppose, and he can see beauty in his type of church design that eludes the common man. For atmosphere in worship, give me the old Gothic, as awkward as it is to many. Perhaps the newest chapel of Notre-Dame-du-Haut is as remarkable as its lofty site, as your well-done story says, but it seems that a windmill might be more apropos in such surroundings than a church. Your story does not convince me that here is a chapel conducive to reverent worship by pilgrims.

LESLIE G. ELMES
Richmond, Va.

WINDOW WALLS

Forum:
Your analysis of air conditioning and the impact of fenestration (AF, July '55) is an excellent and thoughtful study clearly showing that arbitrary and doctrinaire solutions are not proper, that many factors will, if thoughtfully applied, produce varied solutions.

MAX ABRAMOVITZ
Harrison & Abramowitz, architects
New York, N.Y.

Forum:
One of the most interesting articles I have read in FORUM is "What's Next in Window Walls?" This gives considerable

continued on p. 78
SURE, it's beautiful to look at . . . in grain and figure, in warm, light, modern color. Glamorous rotary-cut Gold Coast Cherry is the new beauty star in flush doors.

More good news! Gold Coast Cherry cuts finishing costs; its beautiful color makes stain unnecessary — its smooth, close texture requires no filler.

Price? Actually lower than many domestic hardwoods!

That's Mengel rotary-cut Gold Coast Cherry — eye-appeal, buy-appeal — any way you look at it.

See for yourself: order an inspection lot from your distributor. Why not phone or write him . . . this very profitable minute?

Door Department, THE MENGEL CO., Louisville 1, Ky.
World's Largest Manufacturer of Hardwood Products
(Mengel Permanized Furniture, Doors, Kitchen Cabinets, Wall Closets)
a new dimension in school design
with Movable Hauserman Interiors

To architects, school board members, teachers and maintenance personnel, Movable Hauserman Steel Interiors provide economical, efficient and easily-maintained school interiors for the life of the building. These outstanding features of Hauserman Interiors assure completely functional, yet clean, fresh, modern school rooms year after year.

COMPLETE FLEXIBILITY—Provides the means of keeping pace with changing space requirements as the crest of student population moves from primary levels through secondary and into advanced levels. Available in various widths, Hauserman panels can be fitted to most modular plans permitting interiors to be rearranged without changing heating, lighting and ventilating systems. Hauserman design also makes wiring easily accessible for adding or relocating outlets.

EARLIER OCCUPANCY—Hauserman skilled erection crews, available throughout the country on short notice, assure fast, clean and expert installation. Completion time is speeded because with Hauserman Interiors there’s no waiting for plaster and paint to dry, little cleanup needed, and lay-in wiring facilities and accessories are built in.

SOUND-CONDITIONED SPACE DIVISION—A standard Movable Hauserman Wall (2 3/8" thick) will stop more sound than a 5 1/2" thick tile-and-plaster wall. And special Hauserman acoustical ceilings may be specified for particularly noisy areas.

VERSATILE SURFACES—Movable Hauserman Interiors, fitted with special hooks, hangers and magnetic thumbtacks present boundless possibilities for display areas. Hauserman accessories also include chalk boards, peg boards, bookcases, shelves and closets to provide "working walls."

FIRE SAFETY—Only steel- and mineral-wool insulation—both totally incombustible materials—are used in the fabrication of Hauserman Interiors.

LOW MAINTENANCE COST—An exclusive, lifetime, baked-enameling finish requires only routine soap-and-water washing to maintain its "fresh from the factory" look. Hauserman Interiors never require repainting.

INTEGRATED ENGINEERING SERVICE—Hauserman engineers work closely with the architectural team to provide detailed working drawings. Further, with Movable Hauserman Interiors, field supervision is cut to a minimum because there is just one source of supply eliminating the need to coordinate the activities of several trades.

FLEXIBILITY IN THE COORDINATED CLASSROOM
An objective, comprehensive report prepared by Darell Boyd Harmon and Associates for The E. F. Hauserman Company is available for you. The subject of school interior flexibility and its impact on psychological and physical environment of children is discussed and the solution to achieve permanent flexibility through application of Movable Hauserman Interiors is covered. Send for your free copy today.

See the Hauserman display in the Producers Council Caravan scheduled to visit these cities in November:

- Washington, 3-5
- Boston, 20-23
- Philadelphia, 8-11
- Newark, 27-29
- New York, 14-18
- Buffalo, 30-Dec. 3

THE E. F. HAUSERMAN COMPANY
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These new corrosion-resistant valves and pipe fittings are molded of rigid polyvinyl chloride.

They round out complete lines of Walworth Valves and Fittings of Steel, Stainless Steel, Bronze, Iron, and Special Alloys. A brochure explaining the complete Walworth PVC product story has been prepared for your information. Just send us your name and address. Walworth Company, General Offices, 60 East 42nd Street, New York 17, New York.
Let's talk "SILLS and STOOLS"

— that are both durable and attractive.

Alberene Stone—the natural silicate stone—is weatherproof. Its low absorbency prevents spalling and splitting in freezing temperatures. Its all-silicate mineral components resist chemical attack, staining and loss of surface polish. It requires no maintenance.

Alberene Stone is supplied in two grades: Regular grade is medium hard, durable and economical. It has high chemical, weather resistance. And a pleasing bluish gray color. Serpentine grade is very hard with even higher resistance and durability. It takes a high hone finish that is bluish black; also a polished finish that is jet black. Since there is a substantial difference between the two grades, it is important that the proper grade be clearly stated in the specifications.

That's why Alberene Stone window stools have recently been shipped to many of the finest new hospitals in the country including: Providence Hospital, Washington, D. C.; Baptist Memorial Hospital, Memphis, Tenn.; Coney Island Hospital, New York; and the Grady Hospital, Atlanta, Ga.

For information and technical assistance, address: Alberene Stone Corporation, 419 Fourth Avenue, New York 16, N. Y.

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provides LOW ABSORBENCY protection
New way to control Sun Glare—use daylight louver panels of PLEXIGLAS

Daylight Louver Panels, formed from PLEXIGLAS acrylic plastic, provide nearly optimum visual environment in daylighting systems. As shown in the cross-section drawing at the right, they combine opaque louver slats, light transmission and weather closure in one continuous surface. The design results in—

- Effective shielding from sun and sky glare.
- Improved distribution of daylight—an "indirect daylighting" system for evenly distributed diffused daylight.
- Reduction of solar heat gain inside buildings through reflection of a high proportion of direct sunlight striking the window area.

The daylight louver panel system is based on the formability, strength and weather-resistance of PLEXIGLAS, and was developed at the Daylighting Laboratory of Rohm & Haas Company. The names of suppliers of stock and custom-formed panels, and our new brochure—"Daylight Control with PLEXIGLAS"—containing data and recommendations on the use of daylight louver panels, are available on request.

Cross-section of a daylight louver panel, and close-up of one louver.
The 76-foot-long member which connects the top ridge of the cantilever to the top of the inner column is designed to act either in tension or compression—supports weight of roof loading, and withstands 30 psf uplift from wind under roof.

Ingenious hangar

Vertical clearance rises to 45 feet inside the three tail housings which open at the edge of the overhanging roof to admit the tails of these Boeing Stratocruisers.

The unique hangar was designed and constructed by the Erwin-Newman Co., of Houston, Texas, under their design patent No. 2,687,102.
The hangar is designed for 25 psf roof load and 15 psf horizontal wind force. Rear columns are bolted to deep concrete piers since they must withstand a pull of 14 tons per column from the weight of the cantilevered roof structure, which amounts to only 11.8 psf.

has no columns...
cantilever construction spans 120 ft.
at cost of only $2.40 per sq. ft.

The hangar area of this efficiently-designed building of Temco Aircraft Corporation at Greenville, Texas, is completely unobstructed by supporting columns. The clear area measures 120 ft. deep x 432 ft. long x 30 ft. high. The roof is carried on 120 ft. steel truss cantilevers, connected by means of rocker joints to 56 ft. tall inner columns, which in turn are joined to 19 ft. outer columns placed 40 feet farther back. The space between the two rows of columns is conveniently used for workshops, parts storage, and offices.

The prefabricated Structural Steel framework for this hangar was bolted together in only six working days. The framing cost $2.40 per sq. ft. Framing and roofing cost $3.26, and the complete building including services, foundations, and 32,400 sq. ft. of concrete apron totaled $5.06 per sq. ft. Approximately 1,000 tons of Structural Steel were used in the building framework. Speedy construction was an important factor in holding down costs.

Where economy of construction is coupled with dramatic design, that's where you'll find versatile Structural Steel. Moneywise, Structural Steel is the most economical of load carrying materials. Also, it's the strongest and most versatile. It will withstand more abuse than other structural materials, effectively resisting tension, torsion, compression and shear. Once enclosed in buildings, it lasts indefinitely. No maintenance required.

Structural Steel may be riveted, bolted or welded, and may be erected in any weather in which men can work. Since steel members are fabricated indoors, weather can have no effect on the quality of workmanship.

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UNITED STATES STEEL
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Because the strength of custom-designed Harvey Extrusions actually exceed specification requirements, doors built from them rarely need maintenance or repair ... a feature which sells itself.

Send today for our latest brochure, "Aluminum Extrusions."


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For the name of the manufacturer of this sliding glass door, write to our Sales Department.

Harvey is a leading independent producer of aluminum extrusions in all alloys and all sizes, special extrusions, press forgings, hollow sections, structural, rod and bar, forgings stock, pipe, tube, impact extrusions, aluminum screw machine products and related products. Also similar products in alloy steel and titanium on application.

LETTERS

Continued from p. 78

WHAT PRICE DEMOUNTABILITY

Forum:
The work done on the Unistrut structural system (AF, July '55) is extremely interesting. I am particularly struck with the idea of the standard space gusset plate.

However, I am not quite sure about the usefulness of the system. The whole problem of standardization is a very vexed one.

The advantages of standardization are, of course, the reduced cost due to mass production, and the availability of components. The disadvantage is the very greatly increased weight of construction, which has to deal with much larger spans than are required in every single case and to allow for the worst possible ground which only occurs in a few instances.

Complete demountability is, of course, possible, but is it really wanted? Here in England we have had a rather interesting development in schools during the last few years which, although on a much more modest scale, seems to indicate that flexibility is not now considered so important as it was a few years ago. Immediately after the war it was an almost universal ruling that internal cross walls should be avoided in classroom blocks, so that the size and number of classrooms could be changed at will. Today this stipulation is almost completely given up, certainly for primary and secondary schools, and a number of schools are now being erected with cross wall construction, which is much cheaper.

The development suggested by Unistrut is almost exactly opposite, and very much more ambitious than any of the early schemes have been. A doubt may therefore be expressed as to whether its cost might not outweigh the advantages.

FELIX J. SAMUELY, consulting engineer
London, England

S. 1644

Forum:
Forum carried in its Aug. '55 issue (pp. 21-25) a report of the Federal Construction Contract Act (S. 1644)—a measure that has been supported by the National Electrical Contractors Assn.

It is the first thoroughly objective account that we have seen in the general business press. Your correspondent and your editors did a creditable job.

GEORGE B. ROSCOE, director of public relations
National Electrical Contractors Assn.
Washington, D.C.

continued on p. 86
THE WORLD'S FIRST FISSURED WOODFIBER ACOUSTICAL TILE

Now costs no more than 5/8" and 3/4" perforated tile

Forestone® is economical in its original 3/4" thickness. Now the new 9/16" thickness puts it in the price range of the popular types of perforated tile. Yet in either thickness Forestone has a warm textured beauty equal, or even superior, to that of luxurious fissured mineral tile. It is ideal for installations where beauty and economy are important in addition to effective sound conditioning. Note its attractive appearance in this restaurant. Its flame-resistant finish is washable and paintable.

Illustrated: 9/16" Forestone Deseret Inn, Salt Lake City

Call the Simpson Certified Acoustical Contractor nearest you, or write Simpson Logging Co., 1010 White Bldg., Seattle 1, Washington, for full information.

Available only through these Simpson Acoustical Contractors

FIRST CHRISTIAN CHURCH Designed by Thorshov & Cerny, Architects, Minneapolis

into this striking Architectural Design

In many churches across the nation employing modern ecclesiastical design—General doors have provided the versatility demanded by the architects' specifications. The doors used in this installation are General's African Ribbon Striped Mahogany solid core doors. Besides their ability to blend beautifully into this striking modern design, they are constructed to take the hard usage which doors in any public building must absorb. The heart of the General solid core door is its edge glued staggered stave lumber core construction which guarantees the greatest rigidity and stability possible.

For beauty, versatility, and service, specify General Doors on your next job!

MATCHING EDGE BANDS
Three-quarter inch matching hardwood edge bands on both vertical edges provide ample trim area.

EDGE-GLUED CORE BLOCKS
Three dimensional stability is obtained through the use of core blocks of varying length, edge-glued to each other in a staggered pattern, and to the frame, under extreme heat and pressure.

SEVEN-PLY CONSTRUCTION
Absolute flatness of surface is insured through the use of heavy 3-ply panels bonded to rigid edge-grain blocks that have been selected for uniformity, and dried evenly.

GREATER BEAUTY
The smooth, hard cabinet-maker's finish is produced by an extra sanding operation on huge belt sanders. Faster and finer finishing on the job.

A. The three doors shown above open into the church's gymnasium. Beauty and structural strength were the requirements here.
B. It's hard to find the General door in this fluted partition. Adaptability to design was the problem in this instance.

OVER 50 YEARS IN HARDWOOD PLYWOOD
"On this large school

New-Design Steel Joists
saved us time and money

AND WE GOT STRONGER, SAFER, MORE MODERN BUILDINGS, TOO!"

- The new Richland Junior-Senior High School plant in Richland Township, Allegheny County, Pa., is as handsome and modern as you'll find anywhere.

Built solidly on and around a strong frame of structural steel, fabricated and erected by American Bridge, it bids fair to become a model for similar light occupancy structures.

Contributing to the strength and safety of the buildings are AmBridge steel joists, which are used throughout for all roof and floor supports.

105 tons of new-design AmBridge standard steel joists, and accessories, and 60 tons of AmBridge long span steel joists and accessories were used for the roof supports of the 72' x 154' auditorium; for the floor and roof supports of the 61' x 325' classroom area; and for the roof supports of the 120' x 124' gymnasium.

In the words of the contractor: "On this large school, these new-design AmBridge steel joists saved us time and money, and we got stronger, safer, more modern buildings, too."

For further information about the time-and-labor saving advantages of new-design AmBridge steel joists, contact the nearest sales office, or write.

FREE BOOKLET FOR YOU: If you design or build light occupancy structures, this free booklet points the way to faster, simpler, better, more profitable construction...and make more profit out of future jobs. WRITE FOR YOUR FREE COPY!

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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

architectural FORUM / November 1955
For whisper-quiet operation on schools, hospitals. The all-new Centrifugal Roof Ventilator runs at low speeds, moves large volumes of air efficiently against static pressures.

For oil or grease laden air. The newly redesigned Vertical Discharge Roof Ventilator exhausts air straight up at high velocity. It keeps harmful residue off the roof . . . prolongs roof life.

Low in silhouette . . . distinctively profiled . . . these units blend well with modern architecture. What's more, they deliver all the air you pay for. All performance ratings are the output of the completely assembled unit . . . obtained from wind tunnel tests as per Standard Test Code for Power Roof Ventilators . . . conform to U. S. Department of Commerce Standard 178-51. Capacities up to 40,900 CFM. Send for catalogs today.

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For normal industrial air. The Power-Flow Roof Ventilator is a ruggedly built unit in an aerodynamically correct, weatherproof housing. Most popular of all on modern factories.

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- All three ventilators

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EAST MOLINE, ILLINOIS

LETTERS

Continued from p. 82

INDUSTRY EDUCATION

Forum:
Your editorial in the August issue expresses what needs to be said to architects all over the country.

Too many engaged in building regard the building as an end in itself rather than a tool for the use and service of those occupying the building when completed.

I regret to note that the conference on industry-wide education called by the AIA did not invite the National Association of Building Owners & Managers. I believe they could offer information on many matters which would be of value in the design and construction of commercial buildings.

JOSEPH B. BEHAN, manager
Building Department
Central National Bank
Cleveland, Ohio

Forum:
With great interest I have read your article on unified education for the total process of building. This is water for my mill. You will remember my “Appraisal of the Architect as a Master Builder” (AF, May ’52). Such a general educational plan, as you suggest, could bring the urgently necessary integration of the building field. In your list of services to be integrated, I missed skilled labor. The problem of educating the workmen properly for building does belong, in my opinion, to the whole scheme though certainly the main teaching will be in the field. I have found that also the architect should at least get a whiff of the manual process of building and have that made part of his education. In Harvard I made it a requirement that every student, before he got a degree, had to give evidence that for at least three or four months in the summer he had been with a contractor, acting as the assistant to the clerk of the works or to the supervisor.

WALTER GROPIUS, architect
The Architects Collaborative
Cambridge, Mass.

GLASS PRICES

Forum:
In the April FORUM an article and chart using 1947-’49 as a base left an impression that glass prices have increased substantially since 1947 as compared with prices of other building materials. Your article and chart do not tell the whole story, and for this reason may be misleading.

An index of prices using 1935 as a base shows that building materials increased 55%, window glass 20% and plate glass 15% during the period from 1935 to 1946 (before price controls were removed). From 1935 to 1954, building material prices increased 166%, window glass 112% and plate glass 84%.

Another index using 1946 as the base continued on p. 90
solve your interior door control problems with GLYNN·JOHNSON quality-proven hardware

...designed and built for the hard, continuous usage of public buildings

suggestion no. 1:
Foot operated door holders with TAMPER PROOF concave knob bumper
GJ 1153 (aluminum) and GJ 1154 (bronze or brass) plunger action door holders. Contact and spring release by foot. Exceptionally durable. Available in all finishes. "Sure hold" rubber shoe.
GJ 4 lever action door holder. Highest quality bronze in various sizes and finishes. For lower budgets, GJ 44 and GJ 444. All have "sure hold" rubber shoe.
GJ WB 60 concave knob bumper. Cannot be removed by unauthorized persons. Truly TAMPER PROOF. For wood screw, machine screw or expansion shield mounting. Quality bronze, brass or aluminum.

suggestion no. 2:
Combination bumper and automatic door holder
GJ F 40 (floor installed) or GJ W 40 (wall installed). Holders and bumpers with push-pull hold and release. Fool proof. Engage on contact, release by firm pull. Contour prevents any "standing" on holder. Quality bronze, brass or aluminum.

suggestion no. 3:
Door bumper only
GJ FB 13 floor installed dome type. Used to stop doors before reaching wall. Shallow, rounded top. GJ FB 14 for doors passing over thresholds.
GJ WB 35 extended wall type bumper with sloping top. Installed to meet top or bottom of door. Quality bronze, brass or aluminum.

When you specify GJ you specify quality

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REINFORCED

Fontainebleau Hotel
Miami Beach, Florida

Morris Lapidus, Architect
Miami Beach, Florida

Oboler & Clarke, Structural Engineers
Miami Beach, Florida

Taylor Construction Company
General Contractor
Miami Beach, Florida

Compare...
YOU'LL SAVE WITH
REINFORCED CONCRETE
Six Months with CONCRETE

—says Mr. M. Lapidus, architect for the magnificent Fontainebleau Resort Hotel in Miami Beach, Florida, and added:

• "... it was possible to start erection ... as soon as plans were sufficiently advanced ..."

• "... reinforced concrete also gave us elegance, lightness, and grace throughout the entire complex structure ..."

• "... lower budget estimates with reinforced concrete throughout"

• "... concrete and reinforcing steel were immediately available ... there was never a question of delivery of any special framing and materials ..."

• "... reinforced concrete proved to be the most flexible medium"

There are many reasons why an architect chooses reinforced concrete. But none is more important than those that mean savings in time. In the case of the Fontainebleau Hotel, reinforced concrete permitted construction to begin before the structural drawings were finished. The months saved with reinforced concrete resulted in earlier occupancy, providing extra rental income that could amount to many thousands of dollars. Furthermore, reinforced concrete offered a lower over-all cost, rugged strength, rigidity, and flexibility of design found in no other method of construction. On your next job ... design for reinforced concrete!

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Naturally, you have to satisfy the lady! You can, by installing LOMA LOOM carpet... over cement, plywood, tile, sub-flooring... it makes a complete flooring without nailing or underlay. And LOMA LOOM is just as easy to maintain. Burns and stains can be cut out and invisibly replaced! Because of the built-in sponge-rubber cushion, LOMA LOOM is shockproof, noiseproof and actually insulates! LOMA LOOM is the smartest answer to every decorating and maintenance problem. Write to our Sales Agents today for samples and details.

Loma Loom makes the perfect finished wall-to-wall carpet floor under the new F. H. A. ruling.

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31 East 32nd Street, New York 16, N. Y.

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ONE PARK AVENUE, NEW YORK 16, N. Y.

LETTERS

Continued from p. 86

shows that window glass prices increased approximately the same as other building materials with plate glass prices increasing at a substantially lower rate.

The index charted by FORUM, using 1947-'49 as the base, tends to show plate and window glass prices at a disadvantage for the reason that other building materials had advanced more rapidly during the year 1946 and also during the first part of the base period.

Thus you can see that depending upon the base period selected, entirely different results appear. It is our feeling that the index using 1936 as a base presents a fairer picture because it compares prices over a longer period of time.

In discussing glass price increases your article stated: “Manufacturers cited no special causes such as an exceptional rise in labor costs or the price of their raw materials.” However, using the base period 1947-'49 labor costs have increased 65%, soda ash (one of the basic raw materials of glass) has increased 45%, while plate and window glass prices have increased some 32-33%.

P. A. KETCHUM, assistant to the president
Pittsburgh Plate Glass Co.
Pittsburgh, Pa.

• For the chart was based on data from the Bureau of Labor Statistics, which uses 1937-39 as the base for its statistical series. 46.

FIRE!

Forum:
Your organization should be commended for your excellent presentation of fire protection (AF, Aug. '55). However, I believe that roof venting has been overemphasized.

The means of controlling the spread of fire should be listed in order of their importance. Complete automatic sprinkler protection is the primary means. This is a time-proven method which is not hindered by heat or smoke density. Adequate first-aid firefighting equipment should of course be provided along with the sprinklers.

Next in importance is area subdivision to prevent the spread of fire in case of sprinkler impairment or depletion of the water supply. The only proven method for this subdivision is by story-height fire walls. In spite of the needs of production lines, when the potential fire hazard and loss in production are recognized by management, arrangements can frequently be made for full-height walls with properly protected openings. When not possible, draft curtains and roof venting are the only alternative. We know of no research or tests which have conclusively shown that the combination of draft curtains and roof vents, although recognized as effective to a degree, is the equivalent of a fire barrier or have established proper venting ratios to reasonably assure a minimum of fire spread. The recent tests by the Factory Mutual Laboratory on draft curtains and roof vents showed they had merit but the tests were not of suf-

continued on p. 94
"The Client saved $150,000," says Architect Everett...

"Plus 3 valuable months of construction time...

when we designed around LURIA STEEL FRAMES"

More and more—Architects are combining the creative scope of CUSTOM DESIGNING with the HIGH SPEED and LOW COST of LURIA STANDARDIZED STRUCTURES

Because the Luria "System of Standardization" permits practically unlimited freedom of building design and architectural treatment . . . because Luria provides the topnotch engineering, thus providing the architect more creative time . . . because designing around Luria standard structures results in substantial client savings—America's leading architects are investigating, then specifying "LURIA."

LURIA ENGINEERING Company

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THE NEW HONEYWELL
PNEUMATIC ROUND

for individual space control of offices, industries, apartments, hospitals, schools, hotels, motels.

NEW THERMOSTAT BEAUTY AND
EFFICIENCY—EASIER INSTALLATION

Here's the first completely new pneumatic thermostat since 1939. And one that blends beautifully into the contemporary interiors of modern commercial architecture. Henry Dreyfuss, world-famous industrial designer, was design consultant.

The Honeywell Pneumatic Round is as easy to use as it is pleasing to look at. But its most revolutionary features are not on the outside—but inside the removable metal case. New concepts and materials provide extraordinary sensitivity, precise modulation and instant response. So you get ideal comfort no matter what the building conditions or outside temperature might be. Eight major engineering improvements facilitate installation and maintenance. Yet the Pneumatic Round is rugged enough to withstand shock and tampering.

It's easy and it's inexpensive to replace old-fashioned thermostats with the Pneumatic Round when you modernize or decorate.

For present and proposed commercial buildings, for individual apartment or office temperature control, Honeywell's new Pneumatic Round offers the utmost in comfort, convenience and beauty—at the same price as ordinary pneumatic thermostats.
So precise and sensitive

The Pneumatic Round borrows the force-balance principle from precision industrial instruments to provide an automatic self-check on every change in the signal. It introduces a tiny new low-mass bimetal element so sensitive that it responds almost instantly to temperature changes. The result is the most precise modulation, the fastest response of any pneumatic thermostat on the market. And this means efficient working and living temperatures.

So beautiful, so easy to decorate

The simplicity and beauty of the new Pneumatic Round complement all modern interiors. The bronze-colored metal cover may be lifted off and painted to blend with the color of walls or furnishings. Setting and reading are simplified by one easy-to-read scale which serves both the thermometer and the setting indicator. Adjustable stops inside allow your client to limit the temperature range or lock the desired setting in place if he wishes.

So mechanically superior in detail

1. New flexible plug-in tubes will not crimp or collapse.
2. Quick calibration by simply turning screw with screwdriver.
3. Easily adjusted throttling range.
4. Simple plug-in gauge easily tests branch line air pressure.
5. Bronze-colored cover may be lifted off and painted to blend with walls.
6. Tight filter keeps air clean.
7. Simpler construction with fewer parts.
8. Flush or surface mounting. For modernization, a special adaptor plate covers hole left by old thermostat.

Honeywell

First in Controls

112 offices across the nation
Recessed Luminaires

featuring one-piece plastic shield

in 2' x 2', 2' x 4' and 4' x 4' units

In this series Garcy offers the highest quality lighting with a choice of three types of shielding ... all in hinged frames:

Plexiglas shield — The unique dis-formed contour gives uniform low brightness and provides the rigidity which permits a one-piece diffuser to be used even in the large 4' x 4' unit.

Louver shield — Lightweight, completely framed and tab-locked into a one-piece assembly for convenient maintenance, superior appearance and greater durability.

Glass shield — Standard is Corning Alba-Lite, fine-ribbed translucent opal glass, an excellent diffusing medium. Other types of glass are available as desired.

Sturdy, rigid frames provide secure mounting, and are designed to prevent light leaks around edges.

Send for Bulletin 552-L

GARCY
Quality by Design


in Canada: Garcy Co. of Canada, Ltd., 191 Niagara St., Toronto

LETTERS

Continued from p. 90

ficient scope to develop standards for their use.

The third factor is the reduction of combustibles.

J. A. WILSON, engineer
Factory Mutual Engineering Division
Norwood, Mass.

Forum:

... We are pleased to see it.

E. W. FOWLER, director of codes and standards
National Board of Fire Underwriters
New York, N.Y.

Forum:

The article is well prepared and should be helpful in pointing the way to better fire protection for warehouses and industrial plants.

It is unfortunate that "... water damage of building contents, a major factor in fire losses ..." has been linked with automatic sprinkler protection. The fact remains that automatic sprinklers, in relation to their effectiveness in controlling fires, cause less water damage than hose streams. And it must be realized also that without some water damage the fire damage is usually total.

The blow torch test, such as that shown in the article, can be deceptive. Relatively few of the so-called fire retardant paints offer protection comparable with their cost. Those giving a thick vesicular coat when subjected to heat are doubtless the more effective ones.

In mentioning fibrous insulating and acoustic boards you have not differentiated between the noncombustible and combustible varieties. The latter can contribute to rapid spread of fire and the "fireproofed" varieties should certainly be considered with due caution "where the fire hazard is critical."

NOLAN D. MITCHELL, consultant
Washington, D.C.

continued on p. 99
Quiet dining assured. In the Hillcrest Country Club, Oklahoma City, sound is kept under control by a ceiling of Sprayed "Limpet" Asbestos. Architects: Hudgins-Thompson-Ball & Associates. General Contractor: E. V. Cox Construction Co. Acoustical Contractor: Acoustical Products Co. All are Oklahoma City firms.

Clients get less noise, more heat when you specify

Sprayed "Limpet" Asbestos

In dining room or courtroom, hospital, office or plant, Sprayed "Limpet" Asbestos does four big jobs—produces results that make really satisfied clients.

1. It controls sound two ways. The insulation's surface yields with sound waves, reduces their intensity. And the sound waves themselves are trapped and dissipated by being absorbed in the millions of Sprayed "Limpet" Asbestos pores.

2. It saves heating expenses. Applied on thin, single-layer roofs, it has produced savings as high as 50%.

3. It controls condensation. Water vapor is absorbed—surfaces are left free from moisture. There's no "sweating" effect.

4. It's highly fire-resistant. Under tests by recognized laboratories, its fire resistance was rated up to four hours.

Ideal for irregular surfaces. As this material is sprayed on, it makes no difference how uneven or curved the surface is. No cutting, fitting, clipping or nailing is needed.

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A flick of the switch on the central control is all that's necessary to adjust for changes in time.

These are only a few of the advantages available — for more information about Edwards Clock & Program Systems write Dept. MH-11.
LETTERS

Continued from p. 94

BROOKLYN BRIDGE

Forum:
Thank you for your article "What Happened to the Brooklyn Bridge" in the April FORUM (also AF, Aug. '55). We humans are too often foolish in allowing our lovely views to be obliterated. Usually it is by undergrowth along our highways. On Brooklyn Bridge by thoughtless renovations—and the view used to be grand. Let's get it back; here is how:

Erect, on the present structure, a new hollow, square sightseeing platform. This platform to be accessible by steps from the present footwalk. To be located above the present electric wires and lights, over the traffic lanes, but below the Roebling structural cables—near enough to the extreme bridge sides so as to have a good sightline of the panorama (see sketches below). Cost? Insignificant!

GREGORY COOPER, architect and engineer
Wayland, Mass.

PHILADELPHIA'S REDEVELOPMENT

Forum:
your article on Philadelphia's Redevelopment (AF, July '55) is a magnificent report, not only in its content but in its presentation.

I would like to get 50 copies of this report, two copies per senator and every other member of the Philadelphia City Council, and urge that this article be read and the views expressed thereupon be considered. The city has a property problem, but it is more than that. It is part of the great social and economic problem of the city. Each plan and vision expressed in this article is important.

Thank you for your exciting article the real meaning of Philadelphia's renaissance.

ROBERT T. McCracken, president
Greater Philadelphia Movement
GREAT NEWS!

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For beauty, for life-long economy of operation, and for sales—Gimbels has installed HONEYLITE luminous ceilings throughout its new Cheltenham, Philadelphia store. In the luxuriant, shadow-free light of a HONEYLITE ceiling, merchandise moves faster because it looks better. But there's more to HONEYLITE than meets the eye! Its thousands of hexagonal, aluminum honeycomb cells break up sound so effectively that a HONEYLITE ceiling has a noise reduction coefficient of .46! This means a luminous ceiling of uninterrupted beauty—a ceiling that minimizes the need for separate acoustical installations that add to cost and detract from appearance. Before you build or redecorate, find out more about HONEYLITE, the UL approved, all-metal ceiling that transmits light with 95%-plus efficiency...permits free circulation of air around lighting units...leaves sprinkler heads unblocked for immediate operation in case of fire. Additional information upon request.
Judges of 1955 SIGNIFICANT PLANT AWARDS say:

“Quite a roof! . . . No painting involved either inside or out”

Among the 1955 winners of FACTORY MANAGEMENT AND MAINTENANCE's Significant Plant Awards is Sunstrand Machine Tool Co. of Belvidere, Ill. This modern plant received a special award going to "plants that are outstanding in some one respect, or in which there is an unusual feature of broad significance."

Sunstrand is cited for its installation of Ingersoll Roof Deck. Here are some of the words used by FACTORY to describe the installation:

"Quite a Roof! . . . This construction provides high rigidity and strength with 8-ft. purlin spacing. This despite the fact that the panels have full freedom for expansion and contraction . . . high reflective property of aluminum cuts summer heat. No painting involved either inside or out."

The Ingersoll Roof Deck used in the new Sunstrand plant is a system of full-floating panels that simply clip to galvanized steel sub-purlins which are precision spaced and welded to the building purlins. No field or maintenance painting is necessary . . . erection is fast and easy. The permanently bright surface of the panels improves plant lighting.

Available in aluminum and porcelain enamel
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ADAPTABLE five-way air return. Where plan calls for ductwork, air returns through bottom or back of unit. Or matching return air intake base can be added so air returns at front or sides.

PRE-WIRED electrical center. Unit is pre-wired at the factory. All connections are made in one outlet box on left side of unit. Accessories can be wired to special terminal block eliminating complicated internal electrical work.

EXCLUSIVE solid front panel. No return air openings mar its appearance. You can locate furniture directly in front of unit without danger of dirt or drafts. Snap locks release panel.

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ALTERNATE fan discharge. L-shaped fan platform easily inverted for rear discharge where headroom is low. This saves costly alteration of the cabinet. Saves space and ductwork, too.

BUILT-IN PROVISION for heating coil. Unit need not be altered to add matching heating coil inside the unit. Coils use steam or hot water to heat same area cooled by unit. Can be thermostatically controlled.
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You don't have to protect a glass block panel against sunlight and the weather—and thereby spoil the function and appearance. You don't have to clutter the facade with overhangs—functional glass blocks have built in daylighting control. Your client will not be concerned with maintenance problems—glass blocks require no maintenance.

The school building in the picture is an interesting example of imaginative design. Notice the neat flush panels of PC Glass Blocks. Then notice the deeply recessed vision strips that are self-shading for high sun angles. The total effect is striking!

In the last few years, the PC Glass Block line has been expanded until you can now choose a block for every conceivable application. You can think in terms of either 8" or 12" functional blocks, including the new Suntrol Blocks for high brightness areas. Why not think seriously about using this versatile product when planning your next project? See our catalog in Sweet's or write Pittsburgh Corning Corporation, Dept. AC-115, One Gateway Center, Pittsburgh 22, Pa. In Canada: 57 Bloor St. W., Toronto, Ontario.

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... in stores, offices and banks,
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ELECTRICAL CONTRACTOR: Joseph S. Miller, Philadelphia, Penna.
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CEILING HEIGHT: 10' 0"
SPACING: 9' 0" on centers, Public Area; 7' 0" on centers, Work Area
FINISHES: Walls, light green. Ceiling, matt white
INTENSITY: On counter deal plate, 57-60 footcandles
Teller's counter, 58 footcandles
General area, 48 footcandles

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The top photograph of the AL Stainless Steel-surfaced concourse that connects the Chicago Daily News building with the North Western station was taken about 1939-40. The lower picture was made early in 1955. There's no discernible change. Another 30 years—50 years—100 years—the bridge's stainless shell will still be just as good as new. No one knows how long AL Stainless actually will last, but it could be for centuries, if required. And all the time it requires no particular maintenance, no painting or refinishing—just occasional washing to remove the grime that isn't carried away naturally by wind and rain.

No other architectural metal can match stainless steel in these properties. Not one can last as long, cost as little to maintain, and prove as economical in the long run.

Use AL Stainless in your projects, for maximum service and lasting beauty, both in exteriors and interiors. Ask us for any help you need. Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh 22, Pa.
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Cross section at the meeting rail of the Peelle Freight Elevator Door showing the Peelle Safety Seal Astragal—a flexible tube of neoprene and asbestos. This eliminates the dangerous shear hazard of an overlapping steel astragal.

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Peelle Freight Elevator Doors, equipped with Peelle Safety Seal Astragals, are now being used by Eastman Kodak Company, Aluminum Company of America, United States Rubber Company, American Cyanimid Company, Goodrich Tire & Rubber Company, General Analyte & Film Company, the Consolidated Edison Company and many others.

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meets every hospital flooring need—with the rare "plus" of cheerful styling

Upper Manhattan Medical Group, Health Insurance Plan Clinic New York, N. Y.
Associated Architects: George Nemery, Abraham W. Geller, Basil Yurchenko
General Contractor: Adson Builders, Inc.
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Widely acclaimed, New York's Upper Manhattan Medical Group Clinic integrates the highest standards of architecture, function and decor in an ideal union ... in which MATICO Confetti tile is an essential specified element.

It's easy to see why more and more architects are specifying MATICO Confetti Tile Flooring for hospital projects. Basically, it's because Confetti satisfies every need, every rigid requirement of the modern hospital. First, it is sanitary, durable and quietly resilient. But more than that, it is also fire-resistant and low in cost for both installation and maintenance. And, in addition to all these utility values, Confetti's gay dots-of-color styling lends new charm and cheer where past custom dictated hygienic coldness.

— Good reasons, all, why you can specify Confetti tile flooring not only with confidence, but with justifiable enthusiasm, in your next hospital project as well as other types of projects.

In consultation rooms for doctors and patients Confetti was specified also — this time in black with white mottle. (In addition, Confetti is also available in nine other color combinations).

In these light and lifting circulation areas the Confetti floor of white with black mottle contributes to the air of buoyancy and lightness. Even under heavy traffic conditions Confetti's bright colors last and last.

In consultation rooms for doctors and patients Confetti was specified also — this time in black with white mottle. (In addition, Confetti is also available in nine other color combinations).

Architects planned the pharmacy as a "display piece" near the Clinic's entrance, where it can be seen through a wall of glass. Here, too, Confetti in white with black mottle was specified.

In this intimate waiting room, the decor is one of colorful furnishings, restful lighting and more of MATICO'S airy, bright Confetti flooring.

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architectural FORUM / November 1955
The plane of light seen from the outside of this building is a good example of Wakefield Geometrics in action. Here is a critical appraisal area where optimum viewing conditions are obtained by sloping the ceiling at a $6^\circ$ angle from window to back wall. This ceiling is an adaptation of Wakefield Sigma. Our Architects' Development Department is prepared to modify Wakefield Geometrics to meet your special needs. Write for your copy of Catalog Number 55. Case Study Five in a Series.

The Wakefield Company, Vermilion, Ohio
Building fine furniture for the office has been the honored task of Steelcase for 44 years. By featuring furniture which is a combination of functional design, space-saving engineering and outstanding beauty, Steelcase has compiled a Library of Famous Users which, as a cross-section of successful American business, is unsurpassed in the entire industry. As a matter of fact, whenever more than price is a factor... when quality, efficiency, convenience and styling are of major importance... Steelcase is consistently first choice.

Men behind the blueprints in this month's FORUM

ARCHITECT: I. M. Pei has dedicated himself to raising the design standards of speculative building. For this purpose he could not have allied himself with a more receptive, more productive client: he works exclusively for Realty Tycoon William Zeckendorf, one of the industry's biggest thinkers and one of architecture's most active patrons. The latest product of their imaginative teamwork is the striking cluster of commercial buildings in Denver known as Mile High Center (p. 128).

CLIENT: Frank H. Neely (top left) and Richard H. Rich both joined up in 1924 with an Atlanta institution, Rich's, Inc., the great department store of Richard's Uncle Walter. Smart people said that the company's then-new store was in the wrong place, too far from Atlanta's newer uptown shopping section. But standing pat where they were, the vigorous new heads of Rich's attracted Atlanta to them, plus the shopping of a large surrounding area. When they decided to build a branch store in Knoxville, Tenn. they picked another out-of-the-way site and formed a team of architects and consultants to devise a building that would draw the crowds (p. 132). By now, respect is given the unorthodox planning of these two men whose indefatigable work in civic affairs and whose habit of guiding educational, eleemosynary, and hospital organizations puts them close to people.

LIGHTING CONSULTANT: Abe Feder is best known for his stage lighting successes on Broadway (his biggest: Sonja Henie's Ice Review; his latest: "Inherit the Wind"), but he has also had an important part in lighting many buildings. His biggest: the UN headquarters in New York; his latest, Rich's Department Store in Knoxville. At Rich's he used theatrical techniques to focus the city's attention on the store's off-beat location and to spotlight its colorful walls of glazed brick and porcelain enamel steel. To maintain a lively interest in the architect's use of new materials, Feder put tinted filters in his spots by which he can change the building's colors at the flick of a switch.
THE MANUFACTURER'S ROLE

Chemistry has changed his materials, technology has revolutionized his production, but his complicated distribution system is still based on hydra-headed customers hard to reach, hard to align.

Granite helped build the great halls of Egypt; brick shaped the ziggurat cities of the Euphrates; colored glazed tile flashed back the sun from the later Persian masonry domes; marble cast shadows from the Hellenic sun of the Parthenon; concrete held together the vaults of Roman baths; and French sandstone accepted the intricate carving of figures of saints fronting the cathedrals. It is impossible to think of an architecture without its characteristic materials, whose manufacturer is in the most intimate way a participant in design.

In many ways the building industry manufacturer resembles other manufacturers, but there are important differences as to his basic materials. A building producer is habitually most conservative in choosing them. Yet even he is no longer content with the simple and the natural, and increasingly he "designs" his basic materials to specifications, producing synthetic ones.

When a British scientist asks "what single molecular structure would best serve all the purposes of a wall," he puts the modern attitude in its radical form. That is the way chemical technology works, no matter what industry it works for. We shall see that this transformation, coming belatedly in the building field, is not without major friction (p. 119).

When it comes to the actual fabrication (i.e., pre-assembly) of building parts, differences between building and other industries—especially our typical mass production consumer industries—stand forth.

First, this is because the building enterprise is so big and complex that no single manufacturer produces large buildings complete. Not even the "package builders" who take an order for a complete chemical plant dominate their suppliers of parts the way General Motors first dominated and finally absorbed makers of batteries, magnetos, motors, wheels, transmissions. At a time when buildings themselves are ever more complex and have to be closely integrated, the manufacturer is still part of a federation, not a combine; he fits in his piece with pieces by other independent producers, each of whom makes what pleases him and in his own good time.

Second, each building enterprise is separate and individual. One might say simply that this is a "capital goods" industry; but it is not so reducible to mass production principles as some of these have been. For example, in Diesel locomotives, General Motors was able some years ago to effect a radical simplification—and cost reduction—by insisting that every railroad buy the identical model, no modifications allowed. At one stroke this put traditional steam locomotives out of business and the railroads on their feet. GM could do this because the locomotive, intricate in its make-up, was nonetheless simple in purpose. Buildings are complicated in both.

Third, the building project is complicated still further by esthetics and emotion. In other objects that they use, most people are content to choose within a limited range of up-to-date styles and models; but the places they live and work in are deeply personal, and architecture is an art.

Fourth, and equally obvious, the final assembly line...
Traditional materials producers have tended to go along with traditional architecture; but marble has begun to adapt itself to the future too.

Clay kilns in Midvale, Ohio turn out sewer pipe. In their basic processes these industries go back into time immemorial. They have a close responsible knowledge of architectural problems.
for the building product is not in the shop but under the sky, scattered among thousands of different sites. Not only is the final assembly out of the manufacturer's control, but it is beset by whole armies of local barons. Each citadel he seeks to conquer has its own client, architect, engineer and lender, who at least join in wanting a building; but on top of that each site has also its own code authorities, labor bosses and building inspectors who hold pistols to his head, throw sand in his gears, and make him load his product with useless baggage.

The basic materials war

Among suppliers of building's basic materials, a definite evolution is on the way, as we have said, from simple, natural, traditional materials toward complex synthetic materials man-designed and man-made. At the moment this divides producers into two parties, "traditional" and "modern," with a hot rivalry between the two. The traditional ones are mainly the quarrymen and kiln masters whose materials our story started off with. One strong characteristic is that these producers belong to the building industry all alone and by itself. (Nobody uses a brick for anything but building.) Their intimate contact with building goes back in some cases literally millions of years. A safe working knowledge of good construction is in their bones, along with some historical inkling of what architecture is all about. They care about building, it is their whole job.

The current battle over materials to be used in the Air Academy has brought to light other important characteristics of these producers. The reason masonry interests were able to make so strong a political maneuver was partly that they and their trade unions—numerous in membership and votes—work hand in glove. Fascinatingly enough, they were not content with arguments based on coststhey stood forth boldly for the idea of traditional architectural style. (In such a style the use of their materials would be assured.)

In this contest many were surprised that the rivals of traditional masonry, the suppliers of the modern synthetic materials of steel and glass, remained so silent; but reasons are not hard to find. One is that bulk producers using complicated processes of heat and chemistry have to be, by nature, "Mr. Big"—and Mr. Big must always proceed politically with great care. The other reason reaches deeper: these producers do not belong to the building industry alone. Building takes only 16% of the output of steel. As recently as 1938 giant Alcoa sent to building only 8% of its aluminum—significantly the proportion had risen close to 25% by 1955. Plastics serve every conceivable industry beside building (acknowledgedly building's share is growing fast).

An anecdote illustrates the difference in psychology involved. Glass-loving Architect Mies van der Rohe tells how he had long been hounding plate glass manufacturers for a product more closely tailored to certain building requirements. Finally this year a big maker talked with Mies about a metal-infused gray colored plate that would retard heat (and sky glare, too) far more than any plate made today. But, said the maker, "Where do we go from here? Your 38-story building will take just two days' production." The architect cracked back, "Must I solve your marketing problems, too?" Nonetheless, this manufacturer's problem is real for, believe it or not, even though this is the "glass architecture" age, the proportion of current plate glass output that goes into building is not more than 10%. Some 70% goes into mass-produced cars. Consequently for building to command the same interest, the same research, the same participation from such a multi-industry supplier as mass industries receive, the powers of a Mies would have to be multiplied many, many times. There is no sign that the architectural profession, the only group whose design interest goes all across the board, has yet dreamed of organizing itself to exercise such influence.

The fact that the new synthetic materials are not so organically tied in with building helps to account also for one of the characteristics of modern architecture most often criticized: its tendency to get prematurely shabby. Where modern materials are used in modern design there is lacking that traditional wisdom about a structure which must stand against heat and cold, sun, storm, sleet and snow. Relying on theory and calculation, and with frequent change, the architect and his materials producer must somehow put more care, more planning, into the result—and, one must add, more heart.

Returning to the traditional basic materials of building, chiefly masonry, even there the conservative attitude now controls only one wing; for another wing has decided to move with, not against, the age. They want to serve modern architecture and not only traditional. So the marble producers have begun to promote their own "thin curtain wall" and the Structural Clay Products Institute has its new research under Robert Taylor devising new, lighter structural products more quickly assembled and with less labor. Even cut stone may well come to be put together, in the shop, in major panels like prefabricated concrete. The point is not that nature's own built-in furnaces may prove to be pretty good and cheap after all (stone is naturally

* 13.7% to be exact, according to Standard & Poor's.
Cement, as old as Rome and as modern as tomorrow, was first made as "Portland" cement in dome kilns (left) of David O. Saylor in Coplay, Pa., in 1871. Modern rotary kilns in California are longer than football field. "Today even natural materials must be handled like synthetic ones."

fused by heat and pressure as the structural bones of the earth itself) but that every basic material of building must increasingly be shaped and constituted to meet performance specifications, thought out in advance. Even "natural" materials must be handled like synthetic ones.

The situation of the makers of parts

So much for the building industry’s basic supplies.

What now about manufacturers who make building parts out of these, parts like wall and floor coverings, or doors and windows, or air conditioners, or lighting systems?

In three important ways these manufacturers are in a situation that goes against prevailing trends among those US mass industries that are pointed exclusively to consumers. First, although the building industry is very big—it produces roughly $25 billion annually in manufactured elements—the individual corporate units are not among the nation’s largest. Second, against the trend toward elimination and consolidation of corporate units elsewhere building manufacturers are rapidly on the increase. And third, their profit margin is not growing, but slowly decreasing.

Despite the magnitude of building as a whole, the size of individual building manufacturers shows up as medium on such lists as FORTUNE’s "The 500 Largest US Corporations." As one might expect, only the big suppliers of basic materials and those whose equipment, like refrigerators or bathtubs, goes largely into the consumer market, come in the front rank, among the first 100: US Steel, GE, DuPont, Westinghouse, Union Carbide, Alcoa, Pittsburgh Plate Glass. As we have said, they supply materials in abundance to the American builder but they supply other industries, too. Of the two connected in the first instance with the business of building, Owens-Illinois Glass is No. 89, American Radiator Standard & Sanitary is exactly No. 100. (The criteria: 1954 dollar volume of sales.)
This is all comprehensible; for, counting out makers of materials or equipment for the consumer market—paints, floor and wall coverings, plumbing goods, kitchen equipment and the like—a building parts manufacturer is a specialist and his manufacturing runs are often short.

The multiplication in producers reflects the obvious fact that building is getting more complex, has more different kinds of things to make, more different kinds of users to please, more special demands to meet. William Gillett, president of Detroit Steel Products,* once counted up all the metal windows listed in manufacturers' catalogues. Gillett's count: 651 varieties—or something in the neighborhood of 1,500 if one allows for deviations in size and detail.

The third fact about the manufacture of building materials and parts will perhaps come as something of a surprise. During this, the greatest boom in its history, its profit margins have gone almost steadily down. Again the source is Mr. Gillett, who has assembled the relevant figures of 50 typical firms for the years 1950 to '54 inclusive. Their collective profit margins declined without a break from 8.48% in 1950 to 5.48% in 1953, then rallied just a trifle to reach 6.05% in 1954. A reasonable assumption is that the mounting wages of the period, the greater complexity of carrying on under mounting numbers of rules and regulations, put a premium on production in big quantity and long runs, under simplified methods of selling and moving goods, whereas it has put a penalty on the opposite. And these advantages the manufacturer in the building field simply did not have.

The complex distribution pattern

High among his troubles is a distribution-and-sales pattern of almost medieval complexity; but the blame for this cannot be placed solely on the manufacturer. He usually has to sell to eight different kinds of people in a row, only one of whom actually lays down the cash. The eight kinds: clients, code officials, architects, engineers and other technicians (lighting, acoustics), contractors, subcontractors, dealers—and even labor organizers. Within each bracket there are further subdivisions. Thus "client" may include all of the members of a school or hospital board, and a few of the friends and relatives of same, not to mention miscellaneous politicians in the middle distance. Architects may include specifications writers, engineers and consultants. Subcontractors may include anything from soup to nuts.

The result is the kind of highly organized chaos that may best perhaps be defined by example. Here, in brief, are a few specific samples of individual distribution sys-

* And current President of Producers' Council.

tems, some revered, some detested, by those who live by them:

Company A (roofings and sidings): 14 sales districts in US, some 400 salesmen all in all. Each man has from 50 to 500 accounts; that means company probably has over 100,000 total outlets. These are jobbers, applicators, dealers—but dealers are for most part merely small lumber yards and the like. Sometimes a dealer will order big lots in endeavor to jump to jobber status and get lower wholesale price. This usually starts price war. Home office has new architectural department to work directly with builders and architects.

Company B (structural steel): Normal distribution is direct to contractor, at least on larger jobs. But in Texas, Los Angeles, and throughout the South it is handled through distributors and dealers. "In fact—" long pause—"it's all mixed up." And what if whole thing could be wiped out overnight, for a fresh start? "That would be... ideal. But it would only get back to the same mess all over again."

Company C (plate glass): "In our business we are the manufacturer, the contact man, the middle man, the retail man, though we do also have three or four big jobbers who sell to glass and glazing contractors. We police what they do very closely, and won't book an order which gives a hint of coming misuse."

Company D (plastic ceilings): Deals exclusively through electrical wholesalers. Huge muddle. What about wiping it all out, etc.? "Wait a minute, let me think." Very long pause. Finally: "No, I wouldn't. The system is fundamentally sound. The function of the distributor in the electrical line is to stock the product. But he can't do that with plastic ceilings, so instead he helps to install it—and in outlying territories, to sell it. In the outlying territories we couldn't live without him. We've built our New York branch, however, around the concept of selling to architects. In Chicago, on the other hand, we sell more to the consumers."

Company E (air conditioning): Has five major distribution departments—one for equipment less than 100 tons, one for 100 tons and up, one for special products ("they're searching to see what they can get into"), a marine division, and a division just to handle a few huge national accounts. The small stuff all goes through dealers, the rest is sold in any of three different ways.

1. F.O.B. to building contractor, who installs equipment for himself.
2. "Installed-equipment basis"—company furnishes equipment, installs it on request.
3. "Installed complete"—company acts as subcontractor to contractor on whole deal. Is doing less and less of this as contractors become educated to newer equipment.

For the people at the design end of things—skipping
all those in between—materials distribution is an impenetrable jungle waiting for a bulldozer that will probably never come. If you do not believe it is that much of a jungle, ask any ten manufacturers just how much they know about where their product is actually going, at the far end, and how it is being used. Eight out of ten will grin and tell you they frankly do not know; and the other two will say: “Of course we know—I mean on the large orders.”

Before going on to the next problem of the manufacturer, the problem of his research, it may be well to pause and mention that the “chaos” of the industry is not without compensations, for those seeking excellence in design. A fine disorderly freedom has at least prevented what critics have called “premature standardization.” It means that an owner or architect dissatisfied with the product of his habitual supplier can shop around, specify something else: he is not bound, like the automobile maker, to his own subsidiaries. Disliking household hardware a designer can find ready and waiting for him something in a hospital line; air conditioning has been transferred to buildings from ships; stock millwork can be supplanted with custom details.

The problem of research

The condition is not so happy in research, where a splintered industry faces a comprehensive problem that is unusually complex.

Because building and architecture are so intensely human in aim, smart manufacturing always has a dual research assignment. On top of the usual research on materials and methods that any industry gets into, the building manufacturer must find out important things about people—about their eyes and ears and skin pores, for example, not to mention anything more. And the plain fact is that the financial burden of such research falls in the end on manufacturers. So GE for example carries on its great research establishment at Nela Park, where Matthew Luckiesh presided for years as one of the authorities on human seeing. On questions of hearing, luckily building shares the interests of the telephone industry and the results of its Bell Laboratories. Where heating and cooling and ventilating has been studied by the Pierce Foundation, support has come heavily from manufacturers like American Radiator.

Unhappily this leaves unmatched by any single manufacturer’s interest some of the most searching and basic problems in the field. Biggest example: the greatest “luxury” of architecture, as Henry Luce has said, is space—and indeed space is architecture’s basic commodity; yet nobody is trying to subsidize that Einstein of psychology who will tell us how it is that we apprehend space. For lack of sound knowledge on this apparently so simple matter architecture is floundering, and thousands of architects fall back on the eloquence of a 1914 writer, Geoffrey Scott, whose Architecture of Humanism was based on hypotheses of Wundt and other turn-of-the-century scientists. Today these hypotheses are largely untenable. Before such fundamental questions can be truly researched the building industry as a whole must get together; to get together it must have a leader; the only
possible leader is a revitalized architectural profession, because it alone has an interest in the whole field.

For a manufacturer to grasp the importance to himself of mere space, of sheer "emptiness," will of course require some sophistication; but with a little time and effort the architects should be able to make clear that space awareness means as much to building as combustion means to producers of motor fuels. After that, the building industry may look for allies among other industries similarly interested, as it has found allies among the communication industries in the field of sound and illumination.

Another whole field of research applies to working standards. Some 120 organizations have developed these; 278 commercial laboratories and 86 universities or colleges issue reports on materials and products under various kinds of testing, and manufacturers are tightly dependent on the outcome. In this field the procedures are of course set up by the American Society for Testing Materials and manufacturers have recourse to the US Bureau of Standards in addition to the private testing labs such as Armour Institute's acoustical labs at Riverside, Illinois. In a brief summary the one most useful criticism that can be made of a great deal of such research is that despite the good conscience that goes into the work, the assumptions that underlie it are sheer balderdash. This is because so much relates to mere performance under codes—codes that in themselves are the result of political compromise. In the case of fire codes, for example, such patently arbitrary tests as "two-hour" or "four-hour" ratings would not command the respect of any scientist of standing; and the result of routine adherence to them is simply to penalize the manufacturers of lighter, more efficient, more economical new materials. (See "Codes vs. Progress." AF, Dec. '50.) In case anyone thinks this is entirely a problem of rivalries within the building industry, we must recall the fundamental fact that competition today is not carried on within industries only but between different industries, and that any industry which is costly and inefficient as a whole loses public favor and position.

Then there is yet another major field of research, research in building correlation and new invention. It is in this field that today's quarrels between manufacturers and architects should be replaced—and often are—by closer cooperation. With some justice, today's manufacturer sees the architects as ambitious impractical fellows. "They want us to rip apart our production lines, cool our vats, stop working, every time one of them gets a brainstorm for a new product, a new shape, a new size, a new gimmick. Or to put color into something we don't know how to put color into . . . And what are we to do with the architect's new wider panel once we get it out for the one building for which he wants it? —Or says he wants it? A lot of risk he is taking!" To which the architect replies, "Industrialists! Why, there aren't a dozen of them who have ever taken a chance with anything in their lives! Imagination, change, progress cost money, and that is the one thing these guys won't let loose of. Let me tell you a secret: in this field it is I and my clients who have to do the experimenting. If I find a shortcut and the client is willing to take the risk of
paying for it and testing it in his building, the manufacturer will pick it up fast enough—provided it has been successful. And I get no royalty even if he copies it straight off my drawings, and puts it on the market.”

To such bickering there have been some resplendent individual replies in the field of action, where for example Kawneer, making store fronts, enormously advanced its design and styling through a long association with several leading architects as design consultants. There have been some significant—but not resplendent—joint efforts, like the long joint enterprise of the AIA and the industry on modular coordination. And there has, above all, been one brilliant generic answer: the work, now 30 years old, of Walter Gropius in Germany at the Bauhaus.

The Bauhaus is worth reminding ourselves of, because Gropius there made a statement of radical importance to architecture and building. He sharpened the statement with which this story begins, that “the manufacturer is in the most intimate way a participant in design,” by pointing out that the design of our building parts must be made in the factory. Architecture in an industrial age is no longer an art built on handicraft. It deals with an assembly of ready-made manufactured products. How the individual product has been designed determines the character of the assembly. The connection between architect and manufacturer must therefore be more intimate than ever, since architectural design must move back into the factory. And this in turn means that the profession must take a radically different attitude toward those of its members who work directly for and with manufacturers, sometimes as employees. These are stepchildren today, in professional societies such as the AIA, which promotes first of all the interests of the “independent, professional practitioner.” Yet, if an individual, with architectural training, were looking for a fulcrum point, a place where he could most decisively influence tomorrow’s architecture, he might well attach himself to an enlightened manufacturer. And in due time his own profession must honor those who do so.

In brief, more and more of the design of architecture, the architect’s traditional province, has moved back from the drawing board into the factory, and back from the drawing board into the test tube. A radical disencumbrance of architecture from meaningless codes and local impositions awaits a common push by architects and manufacturers. The richness of the field gives architecture a chance to stay individualized and escape the sheeplike uniformity that pervades consumer fields in mass manufacture. Yet the basic research badly needed for the field as a whole will not be done until a new kind of architectural leadership organizes and demands it—through the industry. And design will not much improve until that architect is honored who works in the manufacturing end of the industry. To paraphrase Le Corbusier, the manufacturing end of building can be the very seat of imagination.

Architecture’s new dimension:

VIVID COLOR

Not since the Persians put polychrome pottery all over their palaces have the outsides of new buildings blazed with such brilliant colors. Old materials like brick are hiding their traditionally dull browns behind shiny red and blue glazes (right). Stones of many colors are reassembled in huge mosaics to cover entire building walls (p. 126). The use of colored glass in religious buildings is being revived—but on a grander scale than ever before—p. 127. With the aid of the anodizing and enameling processes, relatively new materials like aluminum and steel are colored glass in religious buildings now wearing color (p. 128).

Thanks to advances in postwar chemistry, the architect’s palette is no longer limited to the dull monochromes found in natural facing materials. Today he can render his actual buildings in almost any color he can put on paper. And in a physical sense the prospect for a brighter world of tomorrow is brighter than ever.

COLORED BRICK at General Motors Technical Center is nowhere seen in its usual earthy hues. Instead, ten glowing colors—brighten the end walls of the 20-odd buildings, add a lively variety to the 3,000’ sweep of the huge project. Colorfast and highly glossy, the glaze is added to common brick which is then fired for a second time. (Side walls are of porcelain enameled steel—mostly grays and tans—and green-blue heat-absorbing glass.) Architects: Saarinen, Saarinen & Associates and Smith, Hinchman & Grylls, Inc.

* Red, dark red, tangerine, orange, yellow, light blue, dark blue, gray and black.
COLORED STONE, some 7½ million small pieces arranged in a huge mosaic, forms a veneer for the four windowless walls of the library stack at the new University of Mexico. The stone chips are of roughly 2" face and are of ten colors ranging from obsidian black to marble white. (Blue, not found in stone, is supplied by pieces of glass cullet.) The colors are soft but seem to become brighter as the building ages; and their intensity steps up considerably, of course, when wetted by rain. The mosaic treatment is repeated on three other surfaces: 1) in the upper part of the big reading room window which consists of squares of translucent Tehali marble, 2) in the terrace retaining wall which is volcanic rock carved with Indian themes, and 3) in the concrete sidewalks which are enlivened with colorful stone patterns. The mural's artist is also the building's architect: Juan O'Gorman. As a result of his daring use of the stone mosaic, Mexico City today is ablaze with colorful imitations.
COLORED GLASS has been part of religious architecture for centuries. But whereas it was once used only for windows, it is now used for entire walls. The four upper floors of the synagogue annex above are faced with 1,200 sq. ft. of glass divided into 91 panels. One-third of the area is devoted to abstract stained glass “paintings” portraying Jewish holidays and traditions. The balance is made up of tinted diamond-shaped panes. To create the effect of an all-glass wall, spandrels and visible floor construction are reduced to the 2½” thickness of the aluminum mullions. A somewhat similar effect is obtained in the church below with large pieces of flat-hued glass. The detail at the right shows the inside of the narthex wall.
COLORED METAL—dark gray anodized cast aluminum and buff porcelain enameled steel—create the interlacing pattern woven across the face of the Mile High Center's office tower. The buff-colored steel covers (and expresses) the underwindow air-conditioning units and their risers; the gray aluminum sheaths (and expresses) the building frame. To the right of the tower is the plaza and the curved roof of the transportation building; beyond them, the Center's remodeled bank building.
A new kind of office building challenges accepted standards. Its thesis: that high style and public plazas are a good long-term investment, and that businessmen will pay for them.

DENVER'S MILE HIGH CENTER

The big gray and tan ribbed structure dominating Denver's growing skyline is something new in downtown architecture: a speculative office building, built at low cost and rented for profit, that looks as if it had been built for a first-class institution.

In their Mile High Center, Realtor William Zeckendorf, Architect Ieoh Ming Pei and Builders George A. Fuller & Co. have pooled talents to attack the inertia of codes, costs and conservatism that holds back much urban design. Their building has no ugly wedding-cake setbacks copied from New York, no naked party wall, no dark back side with airshaft office space. Pulled back from the street and adjacent buildings on a corner lot, it rises free and four-sided for its full 23 stories, in its own pleasant setting of fountain-pools and plazas. Around its base the owners (Zeckendorf's Webb & Knapp and the Fuller Co. each hold 42 1/2%, other interests 15%) have given up stores, protecting their office tenants from the pasted-window disorder of average shopfronts. Instead, they have placed shops and restaurants in the basement concourse of their low adjoining building, where they still thrive. Office tenants gain prestige, and pedestrians gain the leisurely space of open arcades at street level (p. 130).

Denverites call Mile High the "New York building," built by New Yorkers charging New York rents—$6 to $6.50 against Denver's average of just over $3—and introducing year-round air conditioning to a high, dry town that "didn't need it." The building opened officially this summer; to date its 369,540 net sq. ft. are 58% occupied, largely by big companies setting up new or expanded headquarters in the Rocky Mountain Empire.

Neither Zeckendorf nor Arthur Rydstrom, Webb & Knapp's local vice president, are concerned about lack of tenants. Sixty per cent occupancy covers operating expenses, taxes and amortization, largely because the building was completed nearly $1 million under budget (Construction costs, including air conditioning, were $7.8 million: $17 per gross sq. ft. or $1.32 per gross cu. ft.).

Moreover, Denver is fast becoming the capital of a vast area rich in oil and uranium with the big added attractions of brisk, sunny climate, sports and scenery. (Even before
Eisenhower started going there it was called "the second Washington," can now boast some 30 federal agencies including the AEC and the new Air Force Academy.) Mile High, cream of the city's office space, should attract its share of the new business, especially as firms find themselves competing for personnel. Teamed with Zeckendorf's still bigger hotel, department store and transportation center planned for nearby Courthouse Square, it might even shift the whole downtown center of gravity.
Entrance canopy is a free-standing structure of black-painted steel, roofed with 30 glass-block toplights each $3'-2\frac{1}{2}''\times 6'-2''$. Fixtures under cross members bathe entrance in a pool of light at night. Seen through arcade at left is remodeled building which forms one side of lower plaza.

Woven pattern clearly expresses “gray for structure, tan for cooling”—first full articulation of both on building façade. Unlike some curtain walls, this accurately silhouettes against office lights, allows building to “read” same at night. Windows are washed from inexpensive “spider” staging seen on roof at right.

Entrance arcade, across Broadway from Denver’s Brown Palace Hotel, is set well back from street behind spots of planting. Lobby is still farther back, giving wide covered place for strolling or sitting. Soft gray finish of anodized aluminum columns is set off by white of plaster ceiling, luster of travertine wall.

ARCHITECTS: I. M. Pei & Associates;
Kahn & Jacobs and G. Meredith Musick
CONSULTING ENGINEERS: Jaros, Baum & Bolles;
Severud-Elstad-Krueger
CONTRACTORS: Geo. A. Fuller Co., general
Kerbey Saunders, Inc., mechanical
Fishback & Moore, electrical
FINANCING: Equitable Life Assurance Society
Mile High's plazas: the lure of sun and sparkling water
Upper plaza leads in from sidewalk between remodeled bank building and new exposition hall shown at left. Latter's curved concrete roof on bents acts as foil in both shape and materials for tall rectilinear office tower. Designed as downtown airlines terminal, it will be rented instead to business exhibitors. Terminal facilities will go in another project.

Colonnade behind main lobby is linked to restaurant opposite by covered passage depressed between two fountain pools. Seated diners can look out level with water and spray jets which are lighted from beneath at night. Paving is dense aggregate etched out with acid to give nonskid, nonreflective surface with pebbled outdoor character. Panels in two shades of buff surround red circles.

Lower plaza leads back to glassy basement housing shops entered from central passage inside; second basement has more shops, services and cafeteria. Mile High's open spaces, intended to be more than spatial setting for proud new building, are as much used as those of its bigger predecessor, Rockefeller Center. Music and fountains are kept playing until midnight for evening strollers. General atmosphere, plus some big ash receivers by benches, keeps fountains free of butts and candy wrappers.
Lobby, seen from main entrance, has office directory in sculptural, freestanding structure that catches visitor's eye immediately on entering. Arcade and lower plaza may be glimpsed through glass at far left. Upper part of lobby is enclosed with panels of blue-green, cellular glass.

Formal composition of semicircular directory, benches and potted shrubs, as seen from plaza outside. Patterned paving is carried through from exterior. At right is elevator hall with luminous ceiling (note knockout slab in typical floor plan below for a future freight elevator between stairwells).
Floating radiators, and windows for the mice

Mile High's office floors get a lot of use out of the total square footage enclosed. Since the building is freestanding and covers less than 25% of its lot, offices can have almost equal light and air on four sides from ground to top floor, with no second-grade space and less than the usual disparity between lower and tower floors. An economically squarish plan (127' x 152', see left) reduced construction and maintenance of outside wall area. The core is off center so full-floor tenants can have bulk clerical space 75' deep on one side, private executive offices and corridor along the other. On lower floors, 17,830 sq. ft. or 91% of the 19,304 sq. ft. is rentable; where one bank of elevators drops out on upper floors, net space increases to 18,050 sq. ft., or a high 93%.

All glass in Mile High is fixed for year-round air conditioning. The 12' strip windows at floor level, double-glazed against floor drafts, give outside offices an unusual sense of space (photo above). Some tenants grumbled about "paying rent for space under the radiators"; Webb & Knapp showed them two typical small offices, one with the floor windows blanked out by a piece of cardboard, and sold the idea. (The windows do present a slight washing problem, and cleaning women have stuck vacuum cleaners through a few.)

Working with air-conditioning engineers, the architects squeezed down the bulky casing around standard induction units, lifted them up off the floor and kept them flat against the windows. (Said one: "If we could have gotten them down to the size of a slim guard rail we would have been even happier.") Space more than 16' in from the windows, and all return air, is handled from ducts in the core. In Denver's high climate, one side of the building often has to be cooled while the other is heated; the induction units have proved responsive to quick changes. Another wrinkle: a solar thermostat on the roof which anticipates the movement of the sun, turning on the cooling system on each side before the sun hits it.
Wall details

Mile High's compact window units (photo and detail, top) take high velocity air from small circular ducts in the window mullions, hot or chilled water from pipes cased in the structural columns. Cooled or warmed air is blown from slots in the front and top of the units to condition the building's exterior zone (interior zone is handled by ceiling diffusers). Units are faced on the exterior with 1 1/4"-thick sandwich panels: porcelain steel outer face, plain steel inner face to equalize expansion. Mullions are faced with similar but thinner panels.

To avoid the wavy surface of many sheet metal skins, the architects went to aluminum castings for the first time in a major building, had a castings manufacturer fabricate 1/4"-thick dark anodized panels with stiffening inner ribs for their column and spandrel facing. Splotches due to uneven cooling have largely weathered out in place and the castings are now turning uniform gray.

Passers-by on three sides crane to see if they can spot mountain trout darting through the long, shallow pools (which are chilled to mountain-trout temperatures, aerated by the fountains). In the background is one of Denver's bigger hotels; at far left, one of two other big rental office buildings recently built in Denver.
Office building in Milan features columnless space inside, a superblock redevelopment outside.

This tall slab of concrete, glass, aluminum and ceramics may amaze a good many modern Americans just as it has amazed the people of Milan. The most surprising fact about the Pirelli building is that it will be a wall-bearing structure of reinforced concrete. Six and a half feet thick at the bottom, the transverse concrete partition walls taper to become light columns less than 1' wide on the upper floors. Architect Gio Ponti says that this is "an expression of lightness, an actual condition of the construction; not an expression of force, which is a condition of ancient construction." The tower will be built for the Pirelli Co., Italy's largest maker of tires and other rubber products.

Ponti points out that it is not just high land values that have caused Pirelli to build high and have inspired a whole complex of tall buildings in Milan. The theory of building upward has been advanced a notch since the development in America of the skyscraper district. "No longer must one set tall buildings in a row, as has been done in New York, thus adding to traffic density. One must space them out to create room for parking."

The tower covers only about 1/7th of its site; the balance is left for a private cross street and an elevated parking plaza. Under the lower building there will be parking space for cars and motor scooters.

The Pirelli building is the heart of a big urban renewal project involving 250 acres of central Milan. It is to become the "Rockefeller Center" of Europe—but it will stand against a strikingly different background. The second largest city in Italy, Milan has always worn a heavy mantle of tradition. Until recently, for instance, an unwritten law kept any building from going higher than the Madonna, the gilded statue of the Virgin which stands atop a dome 356' above the floor of the Milan Cathedral. But Milan's postwar industrial and business ferment has been too strong to stay mantled; Milan is the richest, busiest city in all of resurgent Italy, eager to express its material power, and already one skyscraper has been built 374' high. The Pirelli will be 407'.

Milan's center, heavily bombed in war, is proposed site for redevelopment.
The three men at the left met in Chicago last month at FORUM's request to
discuss the eight Chicago apartment projects—five built, two building, one
proposed—presented on the following pages.

Although Yamasaki represented the architect’s point of view, Aldis the
realtor’s, and Spencer the builder’s, all three talked informally about all
facets of the buildings under consideration, proving once again that archi­
tectural design, construction and economics are an indissoluble trio. The con­
clusion that emerged from the conversation was this: Apartment house
design is in a rather uncertain stage at present but it has vitality. It is recep­
tive to experimentation, and more experimentation should be welcomed.
Meanwhile, the time has come to start seriously solving problems that ex­
perimentation has already raised.

Plainly, no apartment house is an island. Again and again, stimulated by
some point in the individual building under review, the talk veered to the
apartment house as a genus or, say, the glass wall as a species.

Character proved to be one side of all
apartment problems: the wall problem, the
site problem, the values problem, and what
might be called the Mies problem. (The
huge success of Architect Mies van der
Rohe's 860 Lakeshore Dr.—AF, Nov. '52—
has induced an incredible rash of imitations
and vulgarizations.)

Nobody thought very well of the charac­
ter of imitation-Mies. Spencer does not like
authentic Mies much either. “Too boxy, too
institutional; no domesticity; they might
be office buildings.” Aldis feels the severity
of line of the Mies school is overdone.

YAMASAKI: “Mies’s buildings have integri­
ty, ground space and great beauty. His con­
tribution is tremendous. Questions such as
the all-glass apartment house wall, with its
inherent thermal and privacy weaknesses,
must be judged in relation to the great
beauty attained by the glass wall.

“Unfortunately Mies is copied without
understanding him or the details that make
his buildings so successful. If I were an
apartment architect in Chicago I would not
try to outdo Mies at Mies's game. I would
concentrate instead on improving livability.
I would try to make my apartments the
very nicest to live in.”

ALDIS: “A lot of the new apartments look
to me like veterans' hospitals. Also, so often
walls seem to be either blank or have so
many windows you can't control them.”

YAMASAKI: “We are facing an adjustment
to the industrial age. I agree apartments
should look like apartments. If all the north
side of Chicago begins to look like the down­
town of Chicago, that is poor. Variation
among the kinds of things that go on in
buildings is what makes our cities interest­
ing. And there is a need for richness, a
psychological need for ornament which has
been ignored too much. We are too prone to
do things because they are ‘functional.’
“We have much more freedom today in
how we can build than anybody in times
gone by. We must use it.”

Skin walls, Yamasaki and Spencer agreed,
are a sorely vexing problem. They leak.
Chicago is a good test. Wind and rain off
Lake Michigan can blow not in gusts but
in vicious ten-minute crescendos; then walls
leak like the devil. This is a problem that
will have to be solved, the discussers agreed,
because we must live with the skin wall.
“We can't go on backing up everything
with 8" of block.”* There are only two
theories of water protection so far as walls
are concerned, Spencer remarked: Either
keep the water out of the joints or recog­
nize that it may get in and give it a way to
get out; designers and builders of skins are
trying the first method and it does not work.
One reason why not: skin walls do not pro­
vide properly for expansion.

Said Yamasaki: “We often try for a skin
150' long without an expansion joint. And
so we get a cumulative expansion that
knocks the calking out.” (Some Chicago
apartments have to be recalked after every
tree storms!) “Masonry provides an ex­
pansion joint every time there is a window.
We ought to take the expansion up in the
vertical mullion. It is easy when you think
of it. All you need is a slipjoint.”

Inside kitchens and bathrooms, oddly
enough, are another reason why walls leak.

* But masonry is beginning to produce its own skin
walls—Ed.
said Spencer. The exhaust ventilation from these rooms is commonly not balanced by intake ventilation, and the negative pressure inside the buildings literally sucks the water in through the wall. “Sometimes you can stop the leaking by going over and opening a window in the opposite wall.” The water finds its way around cement asbestos or porcelain enameled sheets, the same as around fixed glass or movable sash; the problem remains the same whatever the panel material.

It was agreed there should be more testing, possibly in wind tunnels, of total wall assemblies, not just of wall parts or materials. The idea of buildings worth millions of dollars going up without such tests is fundamentally ridiculous, Aldis pointed out.

Spencer: “God puts the water in; man must help get it out.”

The plan feature most criticized was inside kitchens, not only because they aggravate the negative pressure problem, but because their ventilation ducts, unless very carefully treated, make runways of sound from one apartment to another. And unlike inside bathrooms, they are occupied for long periods of time; whether the shut-in is maid or wife, a windowless room is no place for her.

The inside kitchen was cited as an example of “cliché economy.” Savings made in the perimeter wall are probably canceled out by what proper ventilation (including balance of negative pressure) and duct treatment add in cost.

Economy and skimping were agreed to be separate matters, and skimping was condemned as the source of endless troubles. An example cited was paring the steel, not enough to jeopardize strength but so there is just not quite enough to distribute the stresses, so the plaster cracks. Said Spencer: “Of course the builder is blamed. He is given a minimum design and then the architect and owner want perfection where it is impossible. I have to hatch the egg, but I don’t put the embryo in the egg. I’ll hatch it but I can’t be responsible for it being a pink, blue or yellow chicken. If the architect’s designs were followed, the buildings would behave very well in most respects. But the owner wants to squeeze out a last nickel from the $1.25 cubic cost. That nickel makes the trouble. He squeezes it out where people won’t see it, instead of making the bathroom less showy—and that is bad.”

Public ignorance of values is at the root of this trouble and many others, the three agreed. For 15 years, through depression and war, housing construction was almost at a standstill, Aldis remarked, and many people are just not aware of what a good apartment—or house—is. They have been educated mostly from advertising, which stresses gadgets. Enough space, the chief necessity, and ample space, the chief luxury, get sacrificed in favor of gimmicks. Livability values may count in the success of projects in the long run, but now they are less important than location. “You could rent an outhouse if it was on Michigan Ave.”

PARKING brought up the question of first floor and site use. Whether to put parking within the first floor perimeter may be resolved by comparing probable income from parking and probable income from shops, Aldis pointed out. But is it good living to use the unbuilt grounds for parking cars? It was agreed that rooftop terraces are no substitute for an honest-to-goodness piece of land to look down on and that the best place for parking is out of sight—say in the basement or underground. Yamashaki, especially, felt strongly that apartment dwellers who want to come down on the ground and sit for an hour should be able to do so. “It should be a moral responsibility of the developer. Public housing has this; shouldn’t the most expensive private housing have it?”

Their comment on individual projects

LAKE MEADOWS (Skidmore, Owings & Merrill, architects):
These buildings have trouble reconciling end and side walls, a common problem. “Perforations seem to be the only way to fenestrate end walls of slabs, in spite of the poor relation to the glass walls, interior or exterior.” The plan (p. 143) looks well solved although the hall must be gloomy and most apartments have no cross ventilation. Balconies are really usable. Yamashaki: “They have made the same mistake we made on our St. Louis apartments by using slab buildings opposite each other. I find in our

St. Louis public housing that though we have 180° to 200° between our slab buildings, from the lower half of the building the view is almost 100% brick and glass—no sky. This is what happens with this type of grouping although it looks so nice in site planning. Seeing sky is so important it cannot be emphasized too often, I believe.”

COMMONWEALTH PROMENADE and 900 Esplanade (Ludwig Mies van der Rohe, architect): Less verticality of design than Mies’s existing 860 Lakeshore Dr., and perhaps not quite so pleasing because of this. Relationship between buildings at 860 Lakeshore is perhaps also more satisfying than the new group of four. Excellent use of ground space, with parking properly put underground. That feature is a fine thing for others to copy. Use of such large pre-assembled wall panel units (21’ x 9’) is most interesting. If these work out and if the gray tinted glass works well for sun, heat and glare control, these features will be influential on apartment building. One of the commentators felt that two Mies buildings together, or even three widely spaced as in the IIT housing, are satisfactory but that four is too concentrated a dose of such disciplined design.
on the exterior and the chance for more interesting interiors than those of the much earlier building in the group by other architects. But the Mies change in size of columns on the exterior, interesting as an expression of structure, can leave a poor horizontal exposure of concrete at the setbacks, said Spencer.

1000 LAKESHORE DR. (Sidney H. Morris & Associates, architects):
Like Lake Meadows, the difference in treatment between end and side walls shows an indecision as to whether to go to a masonry or a glass building, and the building loses integrity. There is a laudable attempt here to provide some fun in the design, but it is not very well carried through. The balconies are too small for balconies and their almost solid end walls interrupt and frustrate the view of the lake from the building’s window walls. This brings up a defect in orientation too; the narrow, more closed end of the slab is oriented toward the lake. “If you believe in balconies, you should build them so they can be used. There is something wrong about considering balconies primarily as ornamentation.” The first floor decoration, for instance the wall that is primarily a big lighting fixture, probably fills a need. It is not really well done, but let’s have a few stunts.

THE EVANSTONIAN (Ralph Harris, architect):
Most of the windows look or will eventually look across a very narrow space at the wall of adjoining apartment buildings. Either the building is too large for the site, or the site is too small for the building. This makes the cross ventilation, very well achieved in the plan, of small purpose. “Frames are better around fine paintings than around apartment windows and walls.”

PROPOSED “X” BUILDING (Bertrand Goldberg Associates, architects):
Alternating apartment floors with office floors, and renting apartment and office as a duplex is a cute idea. But it has disadvantages. The cross shape, so good for an office, is poor for apartments because tenants can look too easily into one another’s windows. Optimum ceiling heights differ; 8’-6” is good for apartment ceilings; offices ought to be 11’ high. Tying the size of office to the size of apartment does not necessarily fit actual needs; it makes things so inflexible for the tenant who may need to expand his office space or may need one of the larger apartments but little office room. In short, there is an artificial relationship assumed between the two spaces. Apartment houses should not look like office buildings and vice versa. This one is both—or in character, neither. The idea of never really getting away from the office when you go home is rather appalling, although it might be desirable for people whose home life is very much mixed up with business entertaining.

Nevertheless, building one such building would be a legitimate experiment. In a city of 3½ million, surely there are at least 50 people who want just such an arrangement. It should be tried. If it did not pan out, offices could easily be converted to apartments. The cost of $1.30 per cu. ft. is probably going to be the chief obstacle even though cost is justified by low maintenance.

320 OAKDALE (Milton M. Schwartz, architect):
Esthetically, the ledges create a strange and awkward relationship between strong horizontals and verticality. They make no sense as sun protection except on the south face. They might make some sense as glare protection. However, they make very good sense as water protection. Rain must be blown almost horizontally to pile up a head against this building side. “Rain and wind cannot abuse this wall.” The lobby is nicely and simply done. “A lobby is a most baffling thing, too. When you come down to what it is, it is one man’s dream. The more experimenting with lobbies, the better,” said Aldis.
1. MIDDLE-INCOME REDEVELOPMENT

The five 12-story buildings in this group, with 595 apartments, represent the first stage of New York Life's huge South Chicago redevelopment investment. (Also completed is a neighborhood shopping center; under construction or contemplated are an additional 1,280 housing units.)

The 10.3-acre group completed (photo above) and the 55 acres of housing to come will have a density of only 119 persons per acre, a land coverage of only 9%. The site, once one of the city's worst decayed slums, was bought and cleared by the Chicago Land Commission at about $3 per sq. ft., sold at 50¢ per sq. ft. Buildings are not tax exempt. The land sale price (based on use value, not cost) together with taxability of improvements encouraged the admirable density figures.

Apartments (2 to 4½ rooms) rent for an average of $28.50 per room. The balconies on the south face have proved so popular and are so much used by tenants that two 21-story buildings now under construction on another part of the site will include balconies on both north and south faces.

The reinforced concrete structure is flat slab, permitted by the lightweight skin wall which is formed of story-high, no-maintenance, galvanized and bonderized steel frames with asbestos cement board spandrel panels. Costs will not be released until remaining residential work is complete. New York Life plans on a 4% annual return from its complete project investment.

LAKE MEADOWS, Chicago
ARCHITECTS AND ENGINEERS:
Skidmore, Owings & Merrill
GENERAL CONTRACTOR:
Turner Construction Co. (four buildings)
S. N. Nielsen Co. (one building)
On the two largest apartment sites remaining to Chicago’s “Gold Coast,” the foundations are started for what will surely become two of the twentieth century’s most famous apartment groups. Aside from splendidly exemplifying Mies’s refinement and discipline, these towers contain startling innovations. Prefabricated aluminum skin frames are a story high, a bay wide (9’ x 21’); Developer Greenwald says they will prove the fastest and cheapest skin technique yet developed. The crystal walls will be daringly tinted gray (reputed to be the best heat retardant yet). With 28 and 29 stories, these will be the tallest flat-slab construction in the US, possibly the world.

Commonwealth Promenade (below), with 750 apartments and parking for 770 cars, mostly underground on the 137,000 sq. ft. site, will have natural anodized aluminum frames. The 900 Esplanade group (above) with 333 apartments and basement parking for 400 cars, will have black aluminum. These two towers will adjoin the black steel and glass towers at 860 Lakeshore (AF Nov. ’52). Unlike 860 Lakeshore, these new projects will not be cooperatives. Rentals will average $55 to $60 per room. Apartments will be air conditioned, corridors pressurized. Cost estimates (Greenwald acts as his own general contractor) are not yet available but will be low.

ARCHITECTS: Ludwig Mies van der Rohe
Friedman, Alschuler & Sincere
4. MIES WITH COLUMNS OUTSIDE

With their satisfying proportions, their pleasant arrangement on the site, their rectangular (rather than thin slab) shape, their glass lobbies set behind stilts, these apartments for faculty and married college students show direct kinship to Mies’s upper-bracket Lake Shore apartments (opposite). Here all these hallmarks are handled in as masterly fashion with brick masonry and exposed concrete as with the glass and metal of the Lake Shore work.

The first building of Mies’s IIT housing group (left foreground) was completed two years ago, the other two (background) were finished this year. (Building at far right is 1949 apartment house by Skidmore, Owings & Merrill.)

Rentals range from $75 and $80 for one room to $165 and $180 for five rooms.

Construction is flat slab with cavity block spandrels, faced with brick inside and out. Sash is aluminum. Construction cost, including fees, averaged $13.02 per sq. ft. for the three buildings. Financing was under the HHFA college housing program.

Complaint: rectangular grid of sidewalks, which gives nice pattern from above, is aggravatingly roundabout to walk on.
Balcony patterns in England: Three apartment blocks on a 17-acre housing estate at Paddington show variety of decorative uses of balconies that are pre-eminently useful. Theory of these façades ("a filter between inhabitants and observers") is antithesis of glass tower. Designed by Tecton.
To get an unmistakable apartment house character, and incorporate decorative treatment in a façade, there is nothing like the balcony. But here, as in so much else, function and form must be wedded for success. Dinky balconies make timid decoration. Contrast, for example, the generous and forthright English examples of decorative balconies (left) with the relatively half-hearted Chicago example (opp. p., right). And now that the inevitable rash of window air-conditioning units has broken out (not shown in photo), the Chicago balcony pattern appears still weaker. This might be chalked up as a good intention that did not go far enough.

The plan of this slab building is interesting for its division into two separate foyers with the center apartment extending through the building.

The first 11 of the 23 stories use a composite column design of both structural and reinforcing steel to minimize column size; thereafter columns are reinforced concrete. Spandrels on the north-south walls are green tinted structural glass set in an aluminum frame and backed with insulation and block and then plastered. “Eyebrows” are cantilevered portions of floor slabs. Slabs incorporate copper radiant heating coils.

The building has 187 apartments, in one-, two- and three-bedroom units and garage space for 135 cars. Rentals average $65 per room. Cost was $3,500,000 including fees, or $13 per sq. ft., financed on a long term mortgage shared by an insurance company, realty company and mortgage company.

1000 LAKESHORE DRIVE, Chicago
SPONSOR: Harold L. Perlman
ARCHITECT: Sidney H. Morris & Associates
CONSULTING ARCHITECTS: Shaw, Metz & Dolio
LANDSCAPE ARCHITECT: Arthur Fitzgerald
STRUCTURAL ENGINEER: Frank J. Kornacker
MECHANICAL AND ELECTRICAL ENGINEER: William Goodman
GENERAL CONTRACTOR: Loftus Contracting

6. COOPERATIVE FOR A CONSERVATIVE SUBURB

The developers’ instructions to the architect of this 32-unit cooperative were to make fullest use of the 99’ x 200’ site. The building does literally just that. Ironically, this suburban building is crowded closer to its neighbors than most new apartments going up in Chicago proper.

Architect Ralph Harris has some informative words about completing a cooperative: “The last phase is extremely painful. As apartments are sold, it is necessary for someone to arrange with each purchaser for his decorating, floor finish, minor changes, special lighting, optional equipment, etc. The architect cannot possibly charge an over-all fee large enough even to include his expenses for this service, let alone make a profit. However, he must furnish it as a moral obligation to the promoter, his client. So we arrange, at the time we are commissioned, to charge each purchaser a fee based on percentage of changes and additions. We then become the architect for the purchaser and handle him exactly as any other client. Thus we represent a lot of clients in addition to our original one. After the routine is established, the service is not difficult until 30 or 40 families all want to move in at once, and then, having moved in, all find the minor defects and want them corrected immediately. This is not the most pleasant thing, but if an architect wants to do cooperatives he must resign himself to it.”

Cost of this concrete frame, brick cavity wall building was $995,744 including fees; $15.60 per sq. ft. Sales price of three-bedroom (six-room) units: $33,600 to $47,000; 60% down; monthly carrying charges $186 to $260 for the same units.

THE EVANSTONIAN, Evanston, Ill.
DEVELOPERS: Harold V. Snyder and James A. Henderson
ARCHITECT: Ralph C. Harris
STRUCTURAL ENGINEER: Henry Miller
MECHANICAL AND ELECTRICAL ENGINEER: Norman E. Beuter
GENERAL CONTRACTOR: Carl E. Erickson
7. OFFICE-APARTMENT "SANDWICH" BUILDING

This proposed combination office building-apartment house, for which Promotor Arthur Rubloff expects to break ground next spring, goes back to the tradition of "living over the store." It contains 12 floors of 48 duplexes, each consisting of an apartment with an office below, connected by interior stair. The idea came out of an observation that many old residences in Chicago's Near North Side are being converted for joint work-living. (For another office-apartment building, the Price Tower by Frank Lloyd Wright, see News.)

The ground floor will have office and apartment services (stationery and photostat, laundry, valet, barber, restaurant, etc.); second floor, which covers the entire 15,000 sq. ft. site, will have parking for 65 cars; 15th floor will have separate offices. There is no basement.

Office floors of the duplexes will rent at $2.31 and $2.80 per sq. ft., apartments at $85 and $97.50 per month. These low rentals are possible, the architect reports, because 87% of the building is rentable space (against the usual 75 to 80%); tenants will provide their own gas heat, cooling, and hot water from individual units; only three instead of the usual ten employees will be needed. Annual expenses, including 5% management allowance, are estimated at $75,600 per year. Rubloff calls it a "vertical taxpayer."

Construction will be slip-form reinforced concrete, eliminating conventional columns and beams (AF, Nov. '52). The shallow 15½' bays will give the building about 1 sq. ft. of glass to each 3 sq. ft. of floor. The exterior will be exposed concrete with aluminum sash. Floors above the second are 9' high, a compromise between apartment and office heights.

Cost is estimated at $1,353,000 excluding fees; $11 per sq. ft. Financing is now in negotiation for a first mortgage of $1,135,000 to be amortized at 7½% constant.

THE "X" BUILDING, Chicago
SPONSOR: Frank Katzin
PROMOTER: Arthur Rubloff
ARCHITECT AND ENGINEER: Bertrand Goldberg Associates
CONSULTING ARCHITECTS: Pace Associates
SLIP-FORM CONTRACTOR: B. M. Heede Co.
8. NINETEEN GLASS TIERS SITTING ON A CANTILEVER

Each floor of this cooperative apartment is surrounded by a 3'-4" cantilevered ledge. Moreover, the entire ledged tower, from the third floor up, is cantilevered out over the lobby stilts (as shown in the diagram above). This rather outlandish underpinning pulls in the lower floor sufficiently so that covered peripheral parking can be provided at ground level. The scheme makes a much better impression at close range than from a distance and is at its best from the inside looking out—either at ground level or above.

To reduce weight, lightweight concrete block fillers were used between the 8½"-deep concrete floor joists; ceilings are plaster applied directly to the bottom of joists and filler. Windows are sliding aluminum sash above fixed panes and 6" spandrel. To counteract wind stresses the horizontal mullion has an aluminum stiffener. The effect from the apartments is a satisfying combination of openness and security. The building is air conditioned; hot or chilled water is circulated to individual apartment or room units.

A surprise to the developers was the big demand for three-bedroom units (about half the total of 57 apartments), and the small demand for two bedrooms (about a quarter, no more than the demand for one bedroom).

Cost was $1,450,000 including fees; $10.46 per sq. ft.; financed with a 20-year mortgage for $800,000 at 5%. Two-bedroom (5½-room) apartments sold for $32,500 to $34,200; three-bedroom (6½-room) apartments for $36,850 to $38,550; 60% downpayment. Monthly assessments are in the neighborhood of $200, will drop $30 in five years.

320 OAKDALE COOPERATIVE, Chicago
OWNER: Northcenter Realty Co.
ARCHITECT: Milton M. Schwartz
STRUCTURAL ENGINEER: Henry Miller
MECHANICAL ENGINEERING ASSOCIATE: A. H. Schwartz
New York office boom

Excerpts from a statement by Clinton W. Blume, president of the New York Real Estate Board

The prosperous condition of our economy is making itself felt in Manhattan office buildings with 8,652,500 sq. ft.; 18 are non-competitive of the national economy. Since the end of World War II 50 new structures have been completed containing 11,643,500 sq. ft. of rentable space: 32 are competitive buildings with 8,652,500 sq. ft.; 18 are non-competitive with 2,991,000 sq. ft.

In addition 13,993,200 sq. ft. more are projected. Of this, about 5,065,000 sq. ft., or 14 buildings, are actually under construction. Plans have been filed for 14 buildings with 5,001,900 sq. ft. more, and an additional 3,925,000 sq. ft. have been announced in the newspapers in ten new buildings.

The annual Competitive Office Building Occupancy Survey of May 1, '55, which included the 32 new competitive buildings, showed all except 55,135 sq. ft.—0.6%—had been rented. The greater part of the vacant space, 887,560 sq. ft., was among the 346 prewar buildings. The current vacancy rate in these old buildings is 1.39.

These statements are based on statistics yielded by a survey made under the supervision of Dr. Gordon D. MacDonald, director of the Real Estate Board's Research Dept. Included this year were 378 competitive office buildings containing 75,079,099 sq. ft. of rentable area that showed on May 1st a vacancy of 942,695 sq. ft., or 1.3%. Last year 363 buildings, with 71,542,767 sq. ft., reported a vacancy of 1,215,247 sq. ft., or 1.7%. Of the total vacant space reported for this year, 856,589 sq. ft. was in the above-grade area. In 1954 the comparable area was 1,127,693 sq. ft.

The above-grade vacant space of 836,589 sq. ft. was found in 155 buildings, or 41%, of the 378 buildings surveyed. The vacant space ranged from 100 to 1,500 sq. ft.; 57 buildings, or 37%, from 1,500 to 5,000; 28 buildings or 17% from 5,000 to 10,000; 18 buildings, or 12%, from 10,000 to 20,000; 4 buildings, or 2%, from 20,000 to 40,000; and 2 buildings, or 1%, with vacancy of over 40,000 sq. ft. The space vacant may be in small units or the total rentable area of one or more floors.

While representing only 32.5% of the total number of office buildings, the 378 buildings surveyed are nevertheless assessed at $1,437,489,000, or close to 77.2% of the total assessed valuation of all office buildings in Manhattan. (Manhattan has 1,164 office buildings assessed at $1,862,725,000.)

The 32 competitive buildings completed 1947-1955 represent approximately 11.5% of the space surveyed.

Air Academy chapel

Excerpts from an editorial by Ian C. MacCallum in the Report of the Baltimore AIA Chapter

The Air Academy is to be a "factory for birdmen." Of course it is. Where in the language of Webster or of the poets could a more exact definition be found? Yet these three words, said sneeringly, did more to damn an idea than volumes of prose could ever do. The tragedy of those words lies, now that the controversy has lessened, not in any serious harm to the architect's central idea for the academy itself but in the dubious future of his chapel. Here, in the chapel, the central idea could really come clear, if not to the public then certainly to a few in the profession. But its omission, for the moment we hope, is the price of compromising a controversy.

Here was a design done in the true heritage of the American fighting man. The chapel was a campaign tent set up on the field of battle for communion, with helmet off and rifle in readiness. None of your stained cathedral glass, swinging censers and Gregorian chants but a chapel to the God of Moses on the March, to the God of Washington kneeling in the snows of Valley Forge. One could almost see the light of a candle through canvas. No airman cadet could enter it without sensing his dedication to the fighting for which he was being prepared. The stripped starkness of the moments before a hundred beaches of Normandy and of the Pacific were expressed there for him to feel.
Modern engineering practice

Excerpts from a paper presented at the annual convention of the American Society of Civil Engineers by Raymond A. Hill, chairman of the ASCE committee on professional practice and a member of the Los Angeles firm of Leeds, Hill & Jewett

The competition for new engineering contracts has been much more intense during the past ten years than ever before in the history of our profession. Many of my friends have created Frankenstein's in the form of very large staffs; they must feed these Frankenstein's new business every month or else themselves destroyed. Payrolls of $50,000 or $100,000 or $200,000 per month cannot be met without constantly obtaining new contracts for engineering services. Not many firms can obtain the requisite amount of new work month after month purely on the basis of the professional qualifications of the principals and the key men of the organization.

The premium necessarily placed on quantity production of plans and specifications during the war is still having its effect, although the necessity no longer exists. For example, most of the engineering firms in this country have been asked from time to time by federal and other governmental agencies to submit their qualifications by filling out elaborate questionnaires. Almost invariably these questionnaires are directed to the size of the firm's organization. The questions asked are:

One-way business streets

Excerpts from the answers to seven out of 15 questions analyzed in a 16-page booklet of the same title by the Chamber of Commerce of the US (25¢ per copy)

HOW MUCH DO ONE-WAY STREETS INCREASE STREET CAPACITY?
The following table shows capacity of one-way and two-way streets of varying characteristics. These data are based on the Highway Capacity Manual of the Highway Research Board and apply to downtown business street where 5 to 15% of the total traffic is commercial vehicles, 20% of traffic turns right and left at intersections, there are far-side bus stops, and the signal system provides a "go" indication 60% of the time.

It is evident that traffic volume capacity on such one-way streets is about 10 to 20% greater than on two-way streets where curb parking is allowed, and about 20 to 40% greater where one-way movement is instituted on streets with prohibited curb parking.

How do businessmen regard one-way streets?

Businessmen generally oppose the conversion to one-way movement in front of their places of business. However, such opposition usually disappears after the one-way rule has been adopted and given a trial period.

These conclusions are based on a special continued on p. 188
While other stores chase the customers to the suburbs, Rich's attracts them downtown with a gaily colored building, a verdant plaza, an attached garage and, to help compete with the discount houses, a built-in warehouse.

**A DOWNTOWN STORE FOR TODAY**

The new Rich's, in Knoxville, is as vivid and verdant and easy to shop as a breezy suburban store—yet it is not built in a suburb. Rich's managers have put it squarely downtown—not on the "100%" merchandizing corner but four blocks away, where they can make the better corner for tomorrow. Here they show how the city center can offer the same lure as the suburbs—and draw a tremendous sidewalk trade besides.

Land was enough cheaper off the main shopping focus to allow some relaxation in its use (such as the pools and planting strips shown on these pages). The land slopes, but smart planning has turned this into an advantage to complement another advantage: an adjoining major traffic artery in and out of town. At the low end of their lot Rich's built a parking building to accommodate customers motoring to the department store, with an underground passage and elevators to the main building. But they did not forget that 60 or 65% of their customers would be city pedestrians. Their garage parks 450 cars; this provides 2700 customers per day at a maximum estimate; the number of customers they need is more like 25,000.

To get this crucial trade in from the city sidewalks they put the major entrance to their store on the corner pointed at the heart of the city. Rich's "impulse" selling area, the sharpest arrow in any department store's quiver, is also pointed toward pedestrians, on the level of the main entrance, right there where people will walk into it and be tempted to buy that pretty extra something.

(Bill Snaith, Loewy designer in charge, says, however, that the usual shopper only looks at impulse merchandise on the way in to get something else; he does not buy the impulse item until he's on the way out of the store.)

**Gardens and pools** are Rich's contribution to neighborhood uplifting in downtown Knoxville. Façade is faced with green glazed tile with glass panels. Ends of building are red glazed brick.

*Photos: Cottner-Schliecher*
Sloping site helps integrate store, garage and warehouse

The hillside site permitted an advantage in planning; the usual basement shop of the department store here has the respectability of a street-level entrance on the downhill side. There is an advantage in the plan in warehousing too (see section). Under both garage and store proper is the storage area—served by trucks at the garage end, and by automatic conveyors throughout. To take advantage of this, the planners put the housewares department on the basement level, a location which permits salesmen to give buyers such items as toasters to carry home with them rather than ordering by number for delivery from a distant warehouse (at a profit-eating cost to management). The floor samples are for sale here on the take-with-basis because they can be replaced from stocks a few feet away.

This detail is a small one, but it is illustrative of the way Rich's and other bright new department stores are being girded to fight the discount houses. Although most big, old department stores have been succeeding with suburban offspring, many of the midtown bases still have been worrying the experts, who have been pointing out that the downtown stores may be holding their own, but they have not been getting their share of the increasing spendable income of the nation's customers. It is so expensive for many of the big boys to operate that they simply cannot compete profitably with smaller stores offering fewer services. Snaith points out that the enormous volume of department stores has never been their real merchandising edge anyway. What has marked the big, successful stores in the past, he says, is the reliance of their customers on them as "editors" or selectors of merchandise, and as guarantors of its quality. But today, more and more buyers are looking past the retailer. Customers are being guided by national advertising, and goods are also being guaranteed by the manufacturer, not the storekeeper. In this selling situation it is hard to make a canny shopper pay the larger profit necessary for the department store's carpeted overhead; he buys at a dirty-floor discount house.

Department stores can still prosper, Snaith argues, but only by becoming much more efficient merchandisers, as well as redramatizing their position as arbiters of taste, to compete with the national magazines and TV. Rich's is a store which has realized this.

Rich's moves its stock about four times a year, devotes about 20% of its space to backup, so the renewing of floor stocks is a continual process; a conveyor system moves stock in fairly easily, and coddles the automobile shopper by carrying his packages back out to the garage for him, to be picked up as he drives out.

The store asserts itself in the community at night with towers bearing new-type floodlights which pour on about 50,000 w. of tinted illumination as dark comes on.

Facade of brick is framed in glass and accented by long, corrugated canopy of concrete
Garage entrance is directly across street from store's rear, "basement" shop entrance (left). Shoppers park their cars, descend to tunnel level in elevators, walk under street to store block, and ascend again in elevators to shop. Conveyor system carries their packages back over to garage, to be picked up upon leaving. Garage serves also as receiving depot for incoming shipments of merchandise and as dispatching post for deliveries by truck. These two functions are performed at lower end of depot, but, again, are on separate levels. In effect, warehouse stretches under both garage and store—a long set of conveyors to keep shelves full.
Selling floor is designed to pull customers in

**Selling floor:** Three possible layouts of main floor were considered, but first two were discarded quickly, although they have been successful in other stores. First solution, with central entrance, was not good because visibility of entrance would have been poor from two main traffic approaches (side streets). This afforded easy penetration of store, with simple access to vertical transportation, but shopper contact with main floor departments was not good.

Second proposal featured U-shaped aisle, with very good “depth of contact” to various departments, but designers felt it lacked feeling of high fashion; it was graceless.

Final solution kept advantages of both discarded schemes. U-aisle was bent into horseshoe, keeping maximum interior display but pulling entrances to ends of building. Say the designers, “You start walking before you start shopping. It’s more gracious.”
Selling spaces are kept open, with departments divided by floating display boards rather than partitions. Ceiling access is simple: panels simply push up in their frames. From left to right: foyer of beauty shop, men’s wear department, snack bar (there is also a larger restaurant), main floor aisle, fur department, upper floor aisle.

Nightlighting of exterior by Abe Feder, of Broadway fame (see p. 115), is done with banks of self-contained reflector lamps on slender, graceful posts. Reflector lamps are new type, 500 watts each, with projection beam of 120°. About 100 of them are used on this job. Their color can be adjusted easily to fit seasonal moods.
An alert metropolis circles its downtown problems with a ring highway, then tackles them with a three-pronged rebuilding program: parking garages, office buildings and apartments.
The problem facing Kansas City is the problem that sooner or later faces towns everywhere: middle-aged spread and a weakening heart. But where some towns have reached a crisis, Kansas City is at work on a bold solution to avoid it: a whole new set of arteries before the old ones harden, plus some vital surgery to keep its core alive. Other cities will want to watch closely as Kansas City builds its unique ring road (this page), completes a big underground garage and a parking project right through "skid row" (p. 160), and uses new laws to replace its semislums with apartments and with office buildings designed on a new and highly interesting three-way expansion grid (p. 163.)

As it swelled from a trading post on the banks of the Missouri into a hustling metropolis at the very center of the US, Kansas City was forced by natural and political boundaries to build south. Some of these suburbs, spurred by Newspaperman William Rockhill Nelson and Developer J. C. Nichols, are now famous examples of early planning: parks, boulevards and shopping centers graced with trees, fountains and sculpture.

Today some of this foresight and civic energy has turned back north. A sprawling 20 sq. mi. area across the river finally has been annexed as Kansas City North, partly balancing the city's lopsided growth, and now planners are trying to stabilize it, too, with neighborhood parks and playgrounds.

But in between lies an even bigger job: bolstering a central district that is losing business to the suburbs and fading around its edges into a typical collar of slums. Kansas City's answer is one that other cities will want to study closely. It is a giant web of expressways knitting center and suburbs together and spidering out into the new national highway system. Girding the core will be a close-in "ring road" (photo opposite), a huge coronary artery to pump customers and commuters into new peripheral parking, to by-pass the 40% of through-traffic now clotting downtown streets, and to frame the heart's dying outer cells for piece-by-piece renewal.

Based on an exhaustive study by City Planning Engineer Philip Geissal and his staff, the $150 million program calls for 35 mi. of metropolitan superhighways over the next 20 years.

Photos: Massei—Missouri Resources Div.; Dale Miller

New Paseo Bridge is third linking Kansas City with growing northern suburbs. Fourth is under way.

New West Freeway, first leg in metropolitan highway program, brings traffic in from expanding southwest.
1. Quality Hill: private redevelopment started with five 10-story towers of 100 apartments each bordering park. Office buildings are next.

3. Underground garage for 1,500 cars nears completion opposite Municipal Auditorium. Sketch shows west entrance under formal park.
**2. Northside Parking:**
V-shaped area cut out of city's "skid row" is being rebuilt as 1,850-car project connecting with new InterCity Expressway.

**Within Kansas City's ring of roads,**

a ring of redevelopment

As the parkway ring is pieced together, it will work hand-in-glove with other new improvements just inside its boundaries.

On the west, it will run between the stockyards and the base of Quality Hill, site of new apartment towers and office buildings (see following pages).

On the north, the typical downtown "skid row" of flophouses, saloons and dingy stores, which was once the center of town, has been carved away for the 1,850-car Northside Parking Project that connects with the ring's northern link. (Part of this area classifiable as mainly residential was prepared under Title I for resale to the Downtown Redevelopment Corp., a group of 98 businessmen under the leadership of Banker James Kemper. The remainder was acquired directly by the corporation under state and city redevelopment laws providing condemnation powers and 25-year tax relief.)

On the south, opposite Municipal Auditorium, the city is finishing a three-level, 1,500-car garage under a park, much like San Francisco's Union Square; proceeds from private operation will retire $4 million in revenue bonds used for construction. The ring road is planned close enough in so that still more parking may be developed along the south within a two- or three-block walk of the center of town.

On the east, slums almost in the shadow of City Hall will be acquired under Title I for resale and controlled private development of light industry, commercial and parking areas. Outside the ring, land is being publicly cleared for private redevelopment as apartments (sketch left) and four other areas are being studied. Under public housing, three projects totaling 1,148 units are built, three more of 388 units underway.

**4. Housing project:**
slums will be cleared under Title I, land sold for private redevelopment as garden apartments for 725 middle-income families.
1. Apartment houses are planned for areas marked (1) in photo below. Exteriors are porcelain enameled steel. Architects: Kivett & Meyers.

View from northwest shows (l. to r.): existing River Club, apartment towers, Hereford headquarters, with new project areas behind. Big auditorium garage is in center background.

2. New Baptist Church will incorporate existing building, center, new lift-slab classrooms, right. Architects: Kivett & Meyers.

Quality Hill: Kansas City's biggest project moves ahead under private capital, public help

Completed project, as it should look in 1966, from same viewpoint as aerial photo at left. Area is four- or five-block walk from heart of downtown Kansas City.

A blighted area just west of Kansas City's central business district is becoming one of the first places in the country where condemnation powers and tax relief have made large-scale private redevelopment possible. Quality Hill is a short walk from the center of town and commands a magnificent view of the river and the city. But the mansions first built there by early cattle barons and bankers had slowly turned into boarding houses, shacks and parking lots as the land values moved to new suburbs in the south.

Then, with the passage of new state and city redevelopment laws in 1947, Realtor Lewis Kitchen and Banker William T. Kemper Jr. saw what could be done.

Their project started in 1950 with five ten-story apartment buildings, an exclusive businessmen's club and a new headquarters building for the American Hereford Assn. Now the city has approved Kitchen's $11.5 million expansion plan: seven single-occupancy office buildings, a larger ten-story apartment building and a 173-room motor hotel. Three more apartment buildings and a new church may be added in the future.

Under Missouri's Urban Redevelopment Corp. Act and Kansas City's implementing ordinance, private redevelopers may be helped by condemnation power (Kitchen did not need it on the first phase, expects it will be necessary on only 10% of the second phase where he must buy 50-odd parcels costing over $1 million). Then for 10 years the private redevelopment corporation, or corporations, set up for the purpose carry only the original tax on the land (a mere $694 last year for the expansion project area). During the following 15 years the corporation, whose profit is limited to 8% of costs, pays 50% of the regular tax rate on the new buildings, and in the 26th year goes to the full 100% rate.

Estimates show the city will collect some $1.3 million in taxes over the 25-year abatement period—compared with some $160,000 if the land were not redeveloped—and about $160,000 a year thereafter.
Quality Hill office and parking project can expand on a “jungle-gym” grid

In the seven office buildings planned for the downtown edge of Quality Hill, Architects Kivett & Myers and Associate Angus McCallum have designed a uniquely flexible package with which Promoter-Operator Kitchen can meet the varying demands of different corporate tenants. Intended for single occupancy, each building will have its own parking and recessed entrance on the downhill side, toward the business district. Self-service elevators, stairs and washrooms are grouped in front and to one side to leave floor areas open and flexible. In addition, parking and garden areas outside the buildings are on the same horizontal and vertical module as the floors themselves, with floor heights lining up from building to building. This means that space can not only be added on top of buildings but bridged across from building to building to throw two of them together for a single large tenant. The slope below is neatly used to yield added multiple-deck parking when and if desired.

On the uphill side, the office buildings will present landscaped open areas to neighboring apartment houses of the same maximum height, hiding their own busy fronts and parking lots from residential view.

Large ribbon windows used in earlier studies have been reduced to small pivoting aluminum sash to cut glare and air-conditioning loads in Kansas City's summer sun, to reduce maintenance and leave enough height for filing cabinets below the sills. Exterior siding above and below the windows will be formed aluminum panels; the modular “jungle-gym” structure will be partly expressed in exposed verticals (and completely revealed for a glimpse, as in the roof terrace of the center building).

**Wall section** proposed for new office buildings: formed aluminum panels, small horizontal windows (2'-6" high by 4'-9" wide) with vertical-pivoting aluminum sash.
THE FLATTENED-OUT HOSPITAL

It puts 86 beds and the complete medical core on one floor

This hospital is notable because its medical core has been completely released from the strait-jacket of the nursing wing and the tyranny of elevator circulation. By separating the core completely from nursing and by keeping it all on one story, the architects gained unusual freedom to plan rationally.

Some of the results: A central sterile supply that is truly central; clearly defined main hospital corridor and main visitors' corridor, both well related to the nursing wing; a self-contained maternity-obstetrics unit which is also immediately adjacent to all core facilities (this is eating your cake and having it too, in hospital planning); swift and easy consultation among personnel of different departments; great savings from elimination of repetitious multi-story circulation. Only the pharmacy, in the basement of the nursing wing, has strayed off the reservation; this would be inadvisable if the hospital offered outpatient services.

With this scheme, too, the architects were freed from the limitation of a 40- or 50-bed nursing floor. The big nursing unit is usually denied medium-sized hospitals simply because it is too long to house the medium-sized lower-floor core facilities rationally. They get too strung out. In this scheme, the architects also made a very pleasant feature of the connection between the two separated units.

In its first stage of construction, the hospital will have 86 beds, all on one floor; later a second 66-bed nursing floor will bring the total to 154 beds. The conventional 150-bed hospital would have three stories of 40-odd beds, a maternity-obstetrics floor, one (more likely two) floors of surgical, medical, cafeteria, and administrative facilities, plus a basement, for a total of six or seven levels. Circulation and elevator savings of this flat scheme are obvious. Also obvious is the requirement of sufficient land; this hospital's 10½-acre site was a gift.

Too much economy? The Belleville plan, in accordance with the general trend, attempts to squeeze out every waste inch. While this aim produces such pioneering advances as the improved and tightened core shown here, maybe the process is going too far. This 66-bed nursing floor, for instance, may prove to be too economical. Patients' rooms, each with its own toilet, are sufficiently large, but dayroom and service facilities are minimum.

The Rosenfields say that the 12' x 22' dayroom is large enough because they have observed, in visiting many hospitals, that patients and visitors seldom use the dayrooms provided. This would seem to indicate that hospital people need to restudy the whole question of why they want dayrooms and what a dayroom should do and be if it is desirable at all.

Utility rooms, say the Rosenfields, usually provide too much storage, some of which, in time, is appropriated for personal effects. (Nurses do not like lockers distant from their working stations.) Substations or auxiliary supply points toward the ends of the unit are omitted here not to save space but for another type of economy. They imply team nursing.
Team nursing, it was feared, would reduce flexibility in shifting staff because nurses become fond of their posts, and also at some future time it may occur to nurses manning substations to claim supervisory duties and put in for more pay.

The nurses' and female employees' lounges, in this wing, are small interior basement rooms. The reasoning: nurses seldom use the lounge because, like the lockers with which it is associated, it is distant from the work area. Where then do nurses go to let down for a minute or grab a smoke? Into the utility room. But now utility rooms have no place for a person to stand without being in the way.

Belleville is no more skimpy in these respects than many other new hospitals, and that is why criticism of these points is important. A rationale of employee comfort and convenience that is accepted in department stores, factories and typist pools (whose employees work no harder than nurses) has not penetrated the hospital and now even the makeshifts by which nurses circumvent the plan are lost.

**Structure:** Steel columns set in brick panels in most cases; floor and roof framed with bar joists. Skin panels, porcelain enamel over metal studs, insulated with lightweight concrete sprayed on inside face, finished with metal lath and plaster. Air conditioning includes patients' rooms which have individual underwindow fan units using circulating hot water in winter, chilled water in summer.

**Costs:** Architects' estimate of total construction, including Group I equipment and fees: $1,800,000; $26.30 per sq. ft.

Estimate on the building's ventilating-heating-cooling system (included in total): $375,000.

**MEMORIAL HOSPITAL,** Belleville, Ill.

**ARCHITECTS:** Isadore and Zachary Rosenfield, Hellmuth, Obata & Kassabaum; Charles E. King, associate

**STRUCTURAL ENGINEER:** John P. Nix

**MECHANICAL AND ELECTRICAL ENGINEER:** John D. Falvey

**UTILITY ENGINEERS:** Horner & Shiffrin

**KITCHEN CONSULTANT:** Frank T. Hilliker
THE FLATTENED OUT PLAN ALSO MAKES SENSE FOR KING-SIZE HOSPITALS

For years it has been assumed a really big general hospital must be a tower built around vertical supply and travel.

Engaged to make a hospital study for the city of Palo Alto and Stanford University (diagram 1), Consultants Isadore and Zachary Rosenfeld* decided to question this assumption. A compact flat form had worked beautifully for the core of 154-bed Belleville (p. 166); a still more thorough-going flat scheme appeared feasible for a proposed 334-bed institution (scheme 2). Could the principle be applied to a giant 1,000-bed hospital like that contemplated for Palo Alto?

The Rosenfields' conclusion—revolutionary to hospital dogma—is that the flat plan gives the giant hospital proportionately gigantic dividends in efficiency, clinical convenience and construction saving.* Then figure it can save the 1,000-bed hospital $1.14 million in elevators and elevator space alone.

Comparing a putative Palo Alto 18-story tower (basement, two-story base, 14 70-bed nursing floors, one obstetrical floor—the conventional scheme) with a putative Palo Alto pancake (partial basement, two full stories, partial third story for obstetrics), the Rosenfields made this analysis:

The tower would require at least ten elevators. (It should have more but the hospital tower with adequate elevators has yet to be built because of cost.) The pancake would need four elevators (giving much more adequate service than ten in the tower, say the Rosenfields). Difference in cost of elevators and their machinery: $865,000.

In addition, a hospital elevator shaft represents about 100 sq. ft. per floor. The tower would lose 18,000 sq. ft. to elevators against 1,600 sq. ft. for the pancake. This difference represents about $300,000 in construction cost, not including the difference in repetitive elevator, lobby, stair and circulation space.

Circulation savings contribute to low square-foot-per-bed figures: for Palo Alto, 474 sq. ft. at the first 432-bed stage, 402 sq. ft. at the 1,000-bed stage; for similar Pima County (scheme 3) 498 sq. ft. at 500 beds, 422 sq. ft. at 1,000.

Even if a pancake and a tower cost the same, the Rosenfields think the pancake would be preferable because of time savings in horizontal transportation as against vertical, because of horizontal relationship of half the nursing beds to all clinical services and, most important, because of greater ease of interdepartmental face-to-face consultation (e.g. among surgeon, radiologist, pathologist).

As for travel distances, two factors are involved: time and steps. (Note that travel within the nursing unit is not affected by this scheme.) Vertical travel commonly takes three or four times as long as equivalent horizontal traffic because of time spent waiting for and riding in notoriously slow hospital elevators. And for most people, time spent standing is more tiring than time spent walking. These truths have begun to dawn on a number of hospital consultants and architects other than the Rosenfields. In the wind now are several schemes for automatic horizontal transportation of supplies and food. This is bound to be one of the big future developments in hospital equipment and plan.

The pancake plan

Planning the pancake hospital is just as tricky as planning the tower, maybe more so. But it is more gratifying because

*Architect will be Edward D. Stone.
Plans for proposed 1,000-bed (500 beds in Stage 1) hospital for Pima County, Ariz. Architects, Isadore and Zachary Rosenfield, and Scholer, Sakellar & Fuller.

for once all the clinical departments can be reasonably near each other.

In Scheme 2, for a proposed 334-bed hospital, *everything* is on one floor, but the core lacks (at the client's request) expansion provisions. This would be inadvisable in most cases. Note the well-defined circulation and also the maternity wing which gives each room access to a patio and arranges nurseries for optional rooming-in.

Scheme 3 for Pima County, Ariz. (bond issue soon to come up for vote) is similar to the study made for Palo Alto. It has admirable expansion provision, department by department. Ancillary services and administration are on the ground floor; the entire medical and surgical core is on the second; maternity and obstetrics are self-contained in a roof-top unit. Surgical and acute medical patients will go to the second floor of the two-story nursing wings. These wings adapt the double-corridor to a large nursing unit.
The form sketched here and the sweeping roof on the opposite page are alike in one interesting respect—although both are doubly curved surfaces, both contain straight line elements. This means that the roof, which was built in North Carolina a year ago, and has already achieved a wide fame with both avant-garde aestheticians and with building technicians, can be composed entirely with straight members.

This is significant on a thoroughly practical basis, although it also has the intrinsic delight of a simple solution to a trick mathematical problem.

By now most US building-designers—both architects and engineers—are thoroughly familiar with the paper-hat structures of folded or arched concrete which can be built, and are being built in other countries. Like eggs, their strength is in their shape, not their bulk. Foreign designers, using large forces of poorly paid workmen to build intricate forms and place reinforcing precisely, have achieved marvelous shapes with an economy of materials which remains only theoretical in the high-payroll US. Many US designers have yearned to cast their structures in these exciting structural forms, but as yet only a few can do it (and then almost always in special structures like vast, vaulted airplane hangars, where the formwork can be moved and reused). The barrier: The US, in mastering a building technology, has been mastered by its geometry. With our huge steel mills, we have enclosed billions of cubic feet of space with straight-line, two-dimensional structural elements, not because our concepts are rigid but because standard steel sections are rolled that way.

But if the designer of this curved roof had wanted to, he could have framed it in steel sections instead of making it a foil of bent timber planking, which is what it is. But in steel, the result would have been different. Instead of behaving as a continuous structure, spanning 90’ with a constant foil thickness of 2 1/4", it would have been only a heavy rigid form with a thickness of 3"—more a decorative shape than a real structural form. The most logical material for this form is reinforced concrete.

There is nothing new about this warped shape, except its structural scale. Engineers have been building little models of the hyperbolic paraboloid since before World War I. Eduardo Catalano, who teaches at the School of Design at North Carolina State College, built this one (with the advisory assistance of Structural Engineer Atilio Gallo) as a life-sized demonstration of the US practicality of his theories, a real argument that this is the most practical and efficient thin-shell spanning structure for US designers to adopt.

The graceful roof is appropriate, he points out, for railroad stations, filling stations, gymnasiuins, shopping centers, churches, theaters, factories, libraries, and other buildings with sizable single-story spans. He says it is the most efficient spanning structure because all stresses on it are equal (it has no bending moment), because it is doubly curved and thus very rigid, because it produces probably the thinnest concrete shell, and because it is very economical. Based on Catalano’s estimates, an area of about 15,000 sq. ft. covered by this structure and supported by four exterior columns (one midway in each side) could be framed in concrete, including slab, foundation and shell, for $4.00 per sq. ft. There is a further fact about this hyperbolic paraboloid which engineers will find significant: the designer holds that the stresses in this form are calculable.

Catalano himself is making good use of his demonstration roof; he lives under it. For more details about the particular shell over his house, see below and p. 172; for information on the evolution, characteristics, and calculations behind the shape, see p. 174; for a look at the future of the hyperbolic paraboloid, see p. 176.

Catalano’s warped-plane roof in Raleigh

Photo (left): © Eva Staller

architectural FORUM / November 1955
A NEW WAY TO SPAN SPACE

covers an area of about 4,000 sq. ft., with a diagonal span of almost 90'. No interior vertical supports were necessary to carry the load—it flows into a pair of buttresses at the down corners of the big handkerchieflike shelter. (The two struts near the other corners are anchors to prevent wind action from upsetting the shell.)

The roof was built in three layers of 1/2" x 3" T&G planking, which was simply bent into place over a formwork of straight 2 x 4's as shown in the photograph below. To hold the shape of the shell after it was released from the formwork, the direction of adjoining layers of the planking was reversed. The bottom and top layers follow the direction of the compression stresses; the middle layer follows the direction of the tensile stresses. The layers are simply nailed together. Tangential stresses are taken care of by a steel frame bolted through the shell and welded at the low vertices to 2" plate hinges, and the horizontal stress tending to deform the warp of the roof is met by three 1" diameter cables located inside a post-tensioned underground horizontal beam. (Stresses applied to the cables in the post-tensioning operation were about two-thirds of the total anticipated tensile stress.)

Weight of the roof: 9 lb. per sq. ft.; calculated ultimate loading: 30 lb. per sq. ft.; cost including foundations: $2.50 per sq. ft. Reception: sensational.
WARPED WOOD PLANE

1. Diagonal section of the roof, showing parabolic arch and concrete buttresses connected underground by tension ties.
2. Top view of shell showing the direction of the three laminations of the shell.
3. Detail of buttress showing ends of stressed cables and hinge.
4. Low vertex of shell at buttress point. Note that glass partitions meet the curved shell at straight lines.
5. Detail of hinge connecting steel frame of shell to buttress.
6. Ends of the three stressed cables.
7. Formwork over which planks were bent to shape warped plane; note that all timbers themselves in this frame are straight.
A NEW WAY TO SPAN SPACE

BASIC GEOMETRICAL PROPERTIES OF HYPERBOLIC PARABOLOIDS

Hyperbolic paraboloid is warped double-curved surface, saddle shaped, generated by straight line that slides along two straight line directrices not in same plane and remains parallel to plane director.

Any intersection of surface with vertical plane parallel to its diagonals produces parabolic curves.

Although it is double-curved surface, its intersection with vertical plane parallel to edges of surface produces straight lines. Only central lines are horizontal.

It is called hyperbolic paraboloid because any intersection of surface

If hyperbolic paraboloid is tilted, horizontal lines displace edgeward.

Synthesis of sections between surface and horizontal and vertical planes.
Parabolas in direction of low corners are subject to compression; and in direction of high corners are subject to tension.

A rough idea of the actual strength of the warped plane can be grasped at a glance in the photo, above, of a test underway. A model made of Balsa wood resisted a uniformly distributed load of 50 times its weight. It did not fail or bend out of design.

Engineers will like to know that the formulas which Catalano uses for designing hyperbolic paraboloids were developed by the French engineer, Almond, after he had analyzed the structural behavior of the warped planes. In the first steps of his analysis he observed:

- That the hyperbolic paraboloid is a surface with equal structural behavior for uniform loads parallel to its Z axis.
- That on every point of the surface the internal stresses (R1, tension stresses; R2, compression stresses) are equal and constant; and that every section parallel to AC is a parabola subject to simple compression, and that every section parallel to BD is a parabola subject to tension.
- That stresses of tension and compression are composed as tangential stresses along the edges; that the nature of the tangential stresses depends on the position of the supports; that compressed edges result from supports at the low vertices, and tensile stresses result from supports at the high.
- That the thrust to the void on the straight edges is null.

**FORMULAS:**

To calculate tension, compression, or shear at any point of the surface:

\[ R = R_1 = R_2 = \frac{w \cdot a \cdot b}{2f} \]

w = dead and live load

a, b = half of length of edges

f = fleche, or height of central point

**tangential stresses developed at the edges**

E = t.1

**compound stress from pair of meeting edges at the low vertices**

T = E. 1.4142

**cancellation of stress T**

vertical \( T_v = T \cos \alpha \) to be resisted by soil

horizontal \( T_h = T \sin \alpha \) to be equilibrated by tension ties

**thickness of the shell**

\[ S = x \cdot 12'' = \frac{t}{M/C} \]

x = thickness of shell

M/C = resistance of material affected by C

(To calculate the edge, use formulas for tensioned or compressed members.)
WARPED SURFACES IN COMBINATION

At their most efficient, these warped shells do not grow bigger, but multiply, repeating like molecules on a schoolboy's science chart of the elements. One reason for this can be seen readily by comparing a connected quartet of the shells with Catalano's single-shell house roof. Unlike the house the quartet would need no auxiliary anchoring against wind stress; its base automatically has four supports. In the top photo (right) is shown a simple way in which a square area of any given dimension can be roofed by a combination of four units. Below it is a roof of three units. In concrete construction this might also allow a repetitive use of formwork, and in some cases—according to Catalano—might improve the condition of the edges. The pair of meeting surfaces forms a V-shaped beam, with an increased moment of inertia; this condition, however, does not always occur at the required place. Prefabrication is also a possibility using precast concrete units (see model photo, right).

Three hyperbolic paraboloids is the minimum number which can be combined to form an efficient structure, providing three legs as wind insurance: one such combination is shown middle right. The quality of the spaces created by the grouping of units changes according to the position of the supports, leaving a great deal to the designer. Limitless combinations and variations are possible in building these shells over an extended area.

The other diagrams illustrate a few of these variations, made by varying the relationship between the length of edges, angles between the two sets of generatrices, curvature, etc. To open a clerestory between roofs, it is possible sometimes merely to turn one of the hyperbolic paraboloids upside-down, without disturbing the structural rhythm. Below is a unit of six cantilevered surfaces from a central support, with two of the warped surfaces overturned to form clerestories. The hexagonal plan of this plantlike structural form allows for easy, endless extension. In this structure, according to Catalano, a span of 60' between units could be built with an average thickness of 3" of reinforced concrete. Needed: good soil, good engineering.
Square plan roofed with one warped plane plus four segments

Square plan roofed with five complete units

Hexagonal plan roofed with nine complete units

Hexagonal plan roofed with 12 complete units

Hexagonal plan roofed with 12 complete units, pitched differently
You would scarcely expect juvenile delinquency to be cured by building but perhaps building can help. The more one thinks about it the more certain one becomes that some kinds of building could really help. The kind most worth talking about is least in the public print—building done by youths themselves.

"Impossible" is the quick answer but supposing one switched for a moment to the question of what it is, anyway, that makes a teen-ager delinquent. The experts disagree on many things but on one they agree heartily: delinquents are most frequently found where adolescents are least busy and feel least needed. Busy newsboys, who were once the sociologist's chief concern, have for example proved to be one of the least delinquent classes of adolescents, running to less than 1%. Needy they may be, but they are doing useful work. It is work like the work of adults.

They therefore feel needed.

Most adolescents, by contrast, belong today to a completely separate nation, a nation in some ways more isolated from us adults than Indo-China is. They choose their own heroes and set their own standards and have their own customs and language. This isolation is strictly a recent thing in human history. It occurs because we simply do not allow adolescents, who are still set to one side and "preparing to live," to engage with adults in useful work or needed activity. The most primitive of peoples, the Hottentots or the Comanche Indians, were far better pals to their youngsters than we can be. As soon as one of their youths achieved puberty he underwent an elaborate initiation which put childhood behind him and joined him to the adult group—though as a junior member; for example he did the more simple jobs of hunting. Half a century ago a majority of our youngsters were still fully needed on the farm, again as junior members of the responsible adult group. Today they are not even needed to wash the dishes.

So they join groups that appreciate their gifts and make them feel needed with excited importance. If we were smarter we could find constructive outlets through an education less wholly "academic."

**BUILDING SCHOOL**

Yet in our high schools as they are now built and operated, the one thing no adolescent is allowed to do is to add anything important to the environment he finds ready for him. Even his attempts to carve or paint his initials in out-of-the-way places are cleverly thwarted, by adults who bog the chance to do everything, and forbid all others. Only children going to summer camps have the chance to do useful things for their own community including some youthful building.

This is not to suggest that the youngsters themselves should build the walls and roof of a high school! The required standards of accuracy and finish would be far beyond them, and the setup would be a false one. And yet in a school with anything like adequate grounds there should clearly be outdoor places where the pupils could help do grading for play areas, and build simple retaining walls and amphitheaters and shelters. An acquaintance who went at age 11 to a simple little German school still tells with pride how he helped build a bridge across a drainage ditch; every boy was allowed one stone carved and painted with his own initials. At the age of 55 that man is still profoundly grateful because the initials still showed when he came back 30 years later.

To allow such natural and useful participation by adolescents, school plants would have to be planned with some features, especially out of doors, left incomplete for further building and landscaping by the adolescent community.

Since the school itself could hardly give scope for such additions by generation after generation of adolescents, the principle must spread to other places besides, such as recreation centers. Recreation facilities, like schools, should have provision somewhere in them for junior builders.

**BUILDING COMMUNITY**

If even this proves inadequate in scope, perhaps the community can remember other needed jobs that nobody is doing. For example, there is the needed job of community cleanup and painting. This is to be sure not in itself appetizing to youth, except maybe the painting. But has the adult community forgotten what it does in its own behalf where jobs are unappetizing? It supplies an incentive. Money is the best known, but the most ardent jobs are done by adults not for money but for recognition. Sometimes the two are coupled in the form of prizes. At a time when radio and TV chains are outwitting one another to give prizes for thoroughly useless performances, they might try for a change crowning the most conspicuous neighborhood cleanup by competing groups of adolescents, with views on the screen "before" and "after."

These innovations might seem too disgustingly healthy at first, at a time when no vast prize is considered well given unless the performance that wins it is thoroughly meaningless. But with time we might cure ourselves of our love of a shameful thing, of seeing vast sums given away for nothing at all, and we might even revert to our earlier simple customs. This might incidentally help make our parks safer for an adult to frequent after dark. And American cities might well get rid of the well-earned reputation of being the most filthy in the Western world, while cleanup committees wring their hands in helplessness because adults will not take the job of policing them.

Leaders for the proposed corps of youthful builders will at first be indeed hard to find, since the delinquent adolescent community has its elders thoroughly scared of it. Police-men who find half a hundred youths ready for a fight with broken bottles herd them to court, from which they are promptly released for lack of space in reform institutions, instead of holding them at the vacant lot for disposition of the court and police, into the vacant lot itself, into the trash pile of the vacant lot, from which they can throw the bottles, clearing the lot as a playground, getting up a good sweat in the process. Later on, these youths might be appointed auxiliary policemen who will turn in, for a fine in court, the next adult who throws on another bottle to make a big dump out of his own city.

Douglas Haskell
The Seeburg Custom Unit mounted on sliding metal tracks for simple, compact, built-in installations.

There's a place in your plans for Seeburg Music

Whether your plans are for a new or remodeled factory or bank... an office building or shopping center... a hospital or apartment building, it's easy, and inexpensive to include a Seeburg Background Music System.

Seeburg Music goes anywhere. This simply means that regardless of location of the building—large city, suburb or small town—you can give it the benefits of a modern Seeburg Background Music System.

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Quality Hill Towers, West Terrace Park, Kansas City, Missouri. "Downtown Homes with a Viewpoint." Shown here are two of the five 10-story, modern, fireproof, apartment buildings—conveniently located on Kansas City's scenic point overlooking the Missouri River.

Consulting Engineer: Walter Gillham, Kansas City, Missouri.

"at Quality Hill towers

we know you can depend on Dunham Vari-Vac"
Spacious Quality Hill Towers living rooms—each with an outside view—each heated comfortably and economically by a sturdy, attractive Dunham Convect, specially designed for METRO piping.

Ample Bedroom Space for Quality Hill homeowners. Note Dunham Convectors, specially designed for METRO piping, used in bedrooms to counteract heat loss of corner windows.

Dunham VARI-VAC Controls in Quality Hill Towers provide centralized, one-man operating station for all adjustments, settings and remote control readings for 100 apartments.

Dunham Vacuum Heating Pump—the heart of the fuel-saving Dunham VARI-VAC system. Keeps subatmospheric steam circulating under vacuum and produces pressure differential between supply and return METRO piping to assure quick, complete steam circulation to all radiation.

We know that Dunham VARI-VAC Heating works 'as advertised;' says Lewis Kitchen, President of Lewis Kitchen Realty Company, Kansas City, Mo., 'because it has heated all five Quality Hill Towers most satisfactorily for the past four years.

'By satisfactorily I mean that tenant complaints have been far and few between, that maintenance costs are minimum, and that operating costs are low enough to be a big help to us.'

Like many others, Mr. Kitchen has found that VARI-VAC—Dunham's fully automatic precision temperature control system combined with METRO method of piping—keeps heat supply and demand in perfect balance, cuts original costs and effects substantial fuel savings.

For further information about versatile Dunham VARI-VAC Heating with METRO piping—regardless of the type of building you're designing—write for Bulletin AF-11; C. A. Dunham Company, 400 W. Madison Street, Chicago 6, Illinois.
Benson's experience in the fabrication of metals to minute tolerances goes back almost 50 years. We offer one source, one responsibility in the supply of complete metal wall systems including panels, mullions, spandrels—of aluminum or stainless steel—and extruded aluminum windows, doors, entrances.

We are one of a few with substantial press capacity in the home plant, for forming and deep drawing of large metal wall panels in a wide range of stamped geometric designs.

Benson Engineering and Planning Service works closely with the architect to develop or adapt designs and solve design problems.

We invite you to write our Architectural Division.

THIS DRAMATIC NEW BUILDING which will house IBM's Kansas City District offices, incorporates Benson-designed and Benson-fabricated stamped aluminum wall panels, mullions, and windows. Windows are in-swinging for cleaning on both sides from interior.

Architects: WAT. B. FULLERTON, JR. and EARL C. MCCAMIS, Associate
Built for: MAX PHILLIPSON & CO., INC.
Principal Contractor: IBM CORPORATION

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chicago, ill..........................wm. a. klafl, 210 circle ave., forest park, ill.
downers grove, ill............................h. g. neise, 5616 aubrey terrace
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LIGHTING LEVEL UP 600%...

MITCHELL LIGHTS ANOTHER SCHOOL
Sixth Ward School
Washington, Pennsylvania

Electrical Contractor: Glenn Yoder, Hollsopple, Pa.

INSTALLATION:
Approximately 200 MITCHELL "Low Brightness" Luminaires (Model 3245), flush-mounted in continuous rows throughout. Foot-candles before relighting: 10. Foot-candles after modernization with MITCHELL "Low Brightness" Luminaires: 60. Increase in lighting level: 600%.

once-abandoned school restored to complete usefulness

A remarkable difference...the renovation program of this 60 year old school cost less with MITCHELL "Low Brightness" fluorescents which have increased the overall lighting level by 600%. More than any other factor, the new lighting imparts the effect of pleasing modernity.

MITCHELL Low Brightness Lighting makes the modernization complete: The exclusive MITCHELL Elliptical Reflector, utilizing Low Brightness lamps, delivers a maximum of glare-free light to all work surfaces. The resulting freedom from harsh contrasts and disturbing shadows creates ideal classroom lighting conditions. Finally, the MITCHELL Low Brightness Luminaire provides the advantages of beautiful appearance, practical design, high efficiency and simplicity of maintenance at a most reasonable cost.

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How Kewanee creates “safe weather” for fish...

Water temperature is like weather to fish and sudden variations of only a few degrees can be fatal. The problem at Marineland, world’s largest oceanarium, Los Angeles County, California, is to meticulously maintain temperatures so its priceless deep sea specimens are not endangered. That’s where Kewanee Boilers came in. Cold water from the sea is brought in at the rate of 2,000 gallons per minute. It is vital that boilers offer unfailing service so the inside water temperatures remain constant despite the ceaseless flow of water from the outside. Architects Pereira & Luckman specified Kewanee Reserve Plus Rated Boilers with 50% extra power built-in to take care of fluctuating demands. Only with reserve power could Marineland be sure its rare collection would be protected. And only boilers rated on nominal capacity with built-in reserve could meet the changing demands. So, if your problem is one of maintaining heat against as sharply a defined need as a few degrees change in temperature, or the broad problem of assuring sufficient power when expansion comes, choose Kewanee. You can be sure of unflattering service.
"HUMAN" BENEFITS SPELL SUCCESS OF Thermopane®
AT NEW PARKER PEN PLANT

Recognized as an outstanding industrial building, The Parker Pen Co. at Janesville, Wisconsin, is an excellent example of designing for the combined benefits of operating efficiency and well being of building occupants.

For instance: Thermopane insulating glass was used to aid heating and cooling. To further reduce air-conditioning load, the outer panes of the Thermopane units are Heat Absorbing Plate Glass. Beauty and diffusion of incoming daylight were considered, too—for the inner panes are Blue Ridge Louvrex glass.

Results? After two years of occupancy, both management and employees are pleased. Workers close to the windows are more comfortable in winter due to Thermopane's insulation. Less summer sun heat is admitted by Thermopane made with heat absorbing glass. The excellent working conditions have reduced absenteeism, and the insulated windows are considered a factor in that record. Management specified quiet interiors so the entire plant is acoustically treated. And because Thermopane deadens outside noise, it helps keep interiors quieter. Even buses operating alongside the windows can hardly be heard.

Heat savings and air conditioning efficiency add economic dividends to the "human" benefits of Thermopane.

If you wish data on the insulating qualities of Thermopane, the heat reduction qualities of Heat Absorbing Plate Glass, or any other information on glass, call your L-O-F Distributor or Dealer listed under "Glass" in the phone book's yellow pages. Great demand has created a temporary shortage of Thermopane. See that your contractor places your order with your L-O-F Glass Distributor or Dealer as soon as your building plans are set. It may avoid construction delay. Libbey-Owens-Ford Glass Company, 608 Madison Ave., Toledo 3, Ohio.

DATA ON PARKER PEN PLANT
Architects:
John J. Flad & Associates,
Madison, Wis.
212,500 sq. ft. plant is completely air conditioned and sound conditioned.

Thermopane insulating glass:
4680 sq. ft. on west elevation
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336 sq. ft. on north and on south elevations.
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The dramatic Otis Electronic Touch Button—which makes AUTOTRONIC®
elevators respond to your floor calls—is now available for car operating
panels. Signaling for the floor you want is an exciting and somewhat
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touch excites the tube and lights it to show that your call has been reg­
istered. Then as the car arrives at your floor, the call is cancelled; the
tube stops conducting and goes dark. Simple—and dramatic AUTO­
TRONIC elevating!

passengers take over 100%

How successful are completely automatic without attendant AUTOTRONIC
elevators for busy buildings? Here’s the record. The first AUTOTRONIC
without attendant elevators were installed by Otis in the Atlantic Refining
Company Building in Dallas, Texas in 1950. At the end of July, 1955,
Otis had sold 711 new without attendant elevators for installation in 178
buildings and had contracted to convert 495 elevators in 109 existing
buildings to completely automatic operation. This includes a second order
from the Atlantic Refining Company for its Philadelphia building. Today,
almost all new buildings are being planned on the basis of passenger
operated elevators!

race track owners play “comfort to win”

Horse racing fans walk an average of three miles a day at the track.
They’re constantly on the move to and from the saddling paddock, the
mutuel windows, the track rail and the points of refreshment during an
eight race program. With patron comfort in mind, many of the leading
tracks have installed Otis Escalators to eliminate all stair climbing. Fans
will find Otis Escalators adding to their enjoyment at Arlington and Wash­
ington Parks in Illinois, Hialeah and Gulfstream Parks in Florida, Laurel
Park in Maryland, and Monmouth and Garden State Parks in New Jersey.

FREE BOOKLET! hydraulic freight elevators

You’ll find a complete description of the NEW Otis Plunger Electric Freight
Elevators in Booklet A-414. It lists typical sizes from a light duty type with
2,500 lbs. capacity and manually operated car gates up to 20,000 lbs.
power truck elevators with time saving, power operated doors. It details
the new Otis compact, self-contained power unit that makes possible
smooth starts and stops and automatic levelling within 1/8 of floor level. It
shows how the Otis Plunger Electric Freight Elevators, which require no
penthouse, keep all direct heavy vertical loads off the building structure
and simplify the hoistway construction. There’s no real limit to the size,
capacity or use of the Plunger Electric elevators described in Booklet A-414.

“SAFETY” is an important elevator word

“The most important word in the mind of anyone responsible for the
operation of an elevator system is SAFETY,” says Harry E. Wells. “It’s
important here at the Union Commerce Building in Cleveland where we
have a fixed population of 5,500 people and 43,000 elevator riders daily.
We handle traffic with 29 Otis elevators (19 are AUTOTRONIC without­
attendant operation) which are kept at peak performance with ‘Engi­
neered Maintenance’ by Otis. We’re interested in the guarantee of Otis’
high standards of safety. Especially, the checking and replacing of all
wearing parts to assure uninterrupted peak safety performance.”

OTIS ELEVATOR COMPANY, 260 11th Ave., New York 1, N. Y.
OFFICES AND SERVICE IN 255 CITIES ACROSS THE U. S. AND CANADA
survey made by the Chamber of Commerce of the US and covering 134 communities where business district streets had been converted to one-way operation.

In 90 cities businessmen were against the idea, but such opposition disappeared in 62 of these cities after a trial period. In three cases there was no opposition until after the one-way was installed. In 41 cases no opposition existed either before or after the one-way was installed. In 41 cases no opposition existed either before or after.

All but nine of the one-way plans were retained. In these nine cases, all or part of the system was changed back to two-way operation due to opposition of affected businessmen.

How do one-way streets affect retail sales and property values?

There has been little research as to the effects, if any, on retail sales and property values when one-way movement is instituted. However, all findings point toward the conclusion that over-all business activity is enhanced and there is general agreement by businessmen on this point.

A study in the city of Sacramento (pop. 158,747) by the California Division of Highways before and after 16th St. was made one-way proved that retail business on this street increased 26.7%, a 5% greater increase than the average throughout the area.

Do one-way streets ever hurt business?

In some cases individual businesses may suffer because traffic flow from one direction past their location is cut off. Usually such effect is temporary. These occurrences involve principally those industries that cater to traffic from a particular direction and include parking lots or garages, food stores, service stations and drive-in establishments. In some cases, too, public transit companies have reported ill effects from one-way operation. Only seven (5%) of the 134 cities in the US Chamber survey reported any real hardships to business houses and these involved only a few cases in each city.

How do one-way streets affect motor vehicle traffic?

When two-way streets are converted to one-way operations, almost invariably the daily volumes increase, average speed is greater, delays are fewer and accident frequency drops. As pointed out elsewhere, the effect on local transit has not been good in some cities. Yet the opposite has

continued on p. 194
COMMONWEALTH PROMENADE APARTMENTS
(pictured below)
and 900 ESPLANADE APARTMENTS, CHICAGO.

BUILDERS AND DEVELOPERS:
Herbert S. Greenwald and Samuel N. Katzin

ARCHITECT:
Ludwig Mies van der Rohe, Chicago

ASSOCIATE ARCHITECTS AND ENGINEERS:
Friedman, Alschuler & Sincere, Chicago

ARCHITECTURAL METAL FABRICATOR-ERECTORS:
David Architectural Iron Works, Chicago

SUBCONTRACTORS:
Sumner Sollitt Company, Chicago
**New concept in multi-story exteriors**

Chicago's newest lake front developments, the Commonwealth Promenade Apartments and the 900 Esplanade Apartments, present a unique advance in modern glass-and-aluminum exteriors for multi-story buildings. On the four 28-story and the two 29-story structures, the skin is made up of large grids prefabricated to nominal 9' x 21' sizes from Reynolds Aluminum extrusions. These grids are anodized in complete units, using Reynolds newly expanded anodizing facilities—largest in the industry. A typical grid unit is indicated by the white panel on facing page. Basic joints in the grids are welded. Installation of these large units is expected to set new construction records. And the use of these large elements, eliminating as many field-erection joints as possible, assures maximum weatherproof protection.

**REYNOLDS ALUMINUM SERVICE TO ARCHITECTS**

Reynolds Architect Service Representatives offer specialized assistance on aluminum design problems, standard mill products applications and commercially fabricated aluminum building products. They can help coordinate varied aluminum needs for procurement efficiency and economy.

Address inquiries to

Architect Service, Reynolds Metals Company, Louisville 1, Ky.

**REYNOLDS ALUMINUM**

Reynolds Metals Company, Louisville 1, Ky.
LEVITTOWN STANDARDIZES ON CTA-11, NEW 3M CLAY TILE ADHESIVE

Levitt gives nod to the "new method" for all clay tile applications in giant project

MANUFACTURER CITES BENEFITS OF EASE, SPEED, ECONOMY, STRENGTH

The new adhesive method of installing clay tile has hit the "big time". Levitt and Sons have specified CTA-11, the clay tile adhesive made by Minnesota Mining & Manufacturing Company, for all clay tile installations in Levittown, Pennsylvania. The huge planned community, upon completion, will house a population of over 70,000 —forming a new city of 17,000 homes.

In Levittown, the tile on every bathroom wall will be put up with an easy-to-use adhesive, unlike anything most builders have ever seen before. For new CTA-11 can be spread right out of the can. No premixing is necessary and a trowel is the only tool needed. Almost any plumb surface will do—plaster, plywood, metal, cement block, "dry wall". The operator spreads the adhesive, sets up the tiles and finishes the job by grouting in the usual manner. Rooms can be occupied inside of 24 hours.

With CTA-11, the job is easier, faster and more economical. Savings in total installation costs run steadily around 20%. Superiorities in finished job quality are also claimed: 1) Tiles do not crack with settling ... the adhesive "gives" enough to adjust to settling. 2) The adhesive has a shear strength of over a ton per tile. 3) Installation is moisture-proof.

For further details on CTA-11, interested architects, builders and tile contractors are advised to consult a building supply dealer or write to 3M, Department 1811, 417 Piquette, Detroit 2, Mich.
In Hazardous or Coded Areas
Specify RESOLITE FIRE-SNUF
The Only Fiberglass Panel
Labeled by Underwriters'®

Fire-Snuf Panels are the first and only translucent, fiberglass-reinforced panels to be listed by Underwriters' Laboratories, Inc. They carry the UL label as evidence that they have and are continuing to meet Underwriters' rigid specifications.

They should be specified for skylights, sidewalls, partitions and glazing where fire hazards are unusual or codes call for a flame spread rating of below 75. This rating is equivalent to the Building Officials Conference of America (BOCA) classification of “slow burning” or “fire retardant.” These panels are self-extinguishing and will not support combustion.

Made with fire-retardant Hetron® polyester resin, Fire-Snuf panels retain all the best features of standard Resolite—shatterproof safety, strength, translucence, stability and load bearing characteristics.

Fire-Snuf is molded in flat panes for glazing and in all standard Resolite corrugations in lengths up to 13 feet and widths up to 42 inches. For additional information consult your distributor or contact RESOLITE Corp., Box 523, Zelienople, Pa.

EXCERPTS
Continued from p. 188

been reported in other cases. However, all other motor vehicle traffic benefits greatly.

What are major advantages of one-way streets?

Traffic carrying capacity under one-way operation is higher than with two-way operation largely because of less conflict and delay from turning movements at intersections. Another cause is the way in which the entire street width is used more efficiently in cases where there is an odd number of lanes for moving traffic and where overtaking and passing is simplified in case streetcar, bus or heavy truck operations are involved.

Due to increased capacity, traffic is attracted from nearby two-way streets which generally is an advantage to businesses along the one-way streets.

Average speed is higher on a one-way street because of the reduced number of possible conflicts in traffic movement and the greater ease in overtaking and passing slow vehicles. Also assisting in this regard, traffic signals can be timed easily for one-way progressive movement without interruptions in a platoon's smooth progression down the street whereas with two-way operation this is much more difficult, often impossible, to achieve.

The conversion to one-way movement may postpone the removal of curb parking. Where it is necessary to expand the capacity of a street and where the supply of parking is very small in relation to demand, the increase in capacity may be achieved through the one-way treatment instead of parking restriction.

Conversion from two-way to one-way operation will usually reduce vehicle and pedestrian accidents and injuries.

One-way street operation is one of the simplest and cheapest methods of obtaining additional speed, capacity and safety in existing streets.

Pedestrian travel is benefited since conflicts between turning vehicles and pedestrians in intersection crosswalks are decreased. One crosswalk parallel to the one-way street is always free from such conflicts. Pedestrians have fewer turning movements to watch for.

Is curb parking prohibition preferable to the one-way rule?

From the standpoint of street traffic congestion relief alone, prohibition of curb parking is much to be preferred. Institution of one-way movement increases capacity about 10 to 20% (see above table) while prohibition of curb parking boosts capacity by 75 to 100%.
The Knoll Planning Unit, design consultants to the architect, has won major recognition for its work in a wide variety of installations: offices, banks and embassies—colleges and libraries—marine and industrial projects.

An illustrated brochure on the Knoll approach to the architect's problems is available on request.

See our Catalog in Sweet's Architectural File, 22o/Kn.
Always Specify Truscon-Engineered Building Products — Including:

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Functional in design, handsome in appearance, and economical to maintain, Truscon Steel Windows are especially adaptable to modern school requirements. Rigid, heavy frame sections insure long, satisfactory service. Solid bronze hardware will not rust or corrode. And you can choose from an almost endless variety of sizes and types, when you specify Truscon—the foremost line of metal windows available anywhere.

Many designs have combined varieties of Truscon Steel Windows to achieve beautiful as well as functional architectural effects. The Truscon line includes casement and awning windows in both steel and aluminum, picture, double-hung, ranch, basement, Donovan, detention, and an unexcelled choice of variations.

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GENERAL CONTRACTOR: The Baton Construction Corp.


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November 14 to 18, 1955

W. M. Watson Company, Topeka, Kansas, General Contractor.

Effective Beauty...
in business buildings!

new type... CURTAIN WALL WINDOWS

The curtain wall system, as illustrated in the architect's sketch above, is fast becoming popular throughout the country. Although the First National Bank Building, Colorado Springs, Colorado is the first type of curtain wall of this particular construction that MARMET has developed, MARMET has been in the "curtain-wall" construction field since its inception. The "Curtain-Wall"...mode of aluminum...to receive any type single or insulated glass up to 1/8" is "factory fit", unglazed and ready for installation...permanent and requires minimum maintenance. MARMET Curtain Wall offers architects a unit with which new ideas and design can be achieved...as illustrated in the above architect's sketch. MARMET Series 600 Curtain Wall has been developed as a "building block" for the aluminum window field. Write for complete specifications and details.

for information on MARMET Aluminum Church Windows, Ribbon Windows, Projected Sash, 400 and 500 Series, Stock Size Ribbon Windows, Glass Block Ventilators, Wall of Windows...MARMET Aluminum Doors, both extruded and aluminum covered doors and door frames, and extruded aluminum screen doors...complete specifications and details without obligation.

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of WAUSAU, WISCONSIN
IN SCHOOLS, THEY CALL IT

"CHILDPROOF" PLEXTONE

and no wonder! This new multicolored paint is stain-mar-grease-scratch-chip resistant!

Never before a paint for school interiors like amazing, rugged Color-flecked PLEXTONE. It's revolutionary . . . two or three different colors (sprayed at ONE time from ONE gun WITHOUT SPRAY DUST) which form a multicolored, textured pattern. SCHOOL AUTHORITIES find this new multicolored decorator finish easy on the budget. It resists wear, soil . . . and rambunctious youngsters. SCHOOL ARCHITECTS find that PLEXTONE's uniform coverage on different types of low-cost surface materials gives them new styling resources . . . and new design possibilities because of its high light reflectivity and durability. PAINTING CONTRACTORS say PLEXTONE goes on easier, WITHOUT SPRAY DUST, makes possible neater, cleaner jobs. And MAINTENANCE MEN find it unmatched for ease and low cost of upkeep.

SO RUGGED! Color-flecked PLEXTONE resists staining by crayon, ink, candy, grease, and other forms of soil. Its harder, thicker paint film cannot easily be scraped or scratched. It can be washed, scrubbed, scouried — even sandpapered — without marring. And touch-ups, if ever needed, defy detection!

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Write today for FREE color chips and Color-flecked PLEXTONE application data.
BUILDING, PLANNING AND DESIGN STANDARDS. By Harold R. Sleeper. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y. 331 pp. 9 1/2" x 13 3/4". $12

Architectural Graphic Standards, the most thumbed book on drafting room shelves, has a new sister—half as big but twice as attractive, and a lot more interesting than its long title indicates. It is by the same Author-Architect: Harold R. Sleeper.

The new book is a graphic analysis of 23 building types ranging in size from small homes to air terminals, from motels to football stadia.* For each type there is a separate chapter on program data, spatial relationships, area requirements, typical plans, basic data on furniture, fixtures and equipment concluded by a handy bibliography on the building type. For example, the 15 pp. on office buildings, one of the smaller chapters, is subdivided under these headings: "functional relationships, site considerations, financial considerations, floor heights and bay spacing, office area requirements, general office clearances, movable partitions, desk-office units, office furniture." (It also contains a special five-page section on architects' offices.)

The purpose of Design Standards is to provide in one handy package the basic information necessary to make a design program and preliminary drawings for any one of the 23 building types. This it does well. Dean Pietro Belluschi, of MIT's School of Architecture and Planning, speaks for the architectural profession and its clients when, in the book's foreword, he says: "It will be of extreme usefulness to architectural and engineering offices, to schools and to all businesses related to the building industry. The need for such a body of technical information has long been felt."

This book got its start when FORUM asked Harold Sleeper to prepare a series of plates called "Forum Design Standards and Data." Their publication began in the Oct. '53 issue of FORUM and was concluded with the series on trucking in the March '55 issue. The new book reprints the 52 FORUM plates and adds some 250 new ones.

More attractively presented and more easily read than the hand-lettered Graphic Standards, Design Standards is printed from varitype, and its index is positioned for quick and frequent use: inside both the front and back covers.

NEW FURNITURE. Edited by John Peter. Published by George Wittenborn Inc., 38 E. 57th St., New York 22, N.Y. 173 pp. 8 1/4" x 12". Illus. $8.50

This is the third annual graphic presentation of the design work in 15 countries—an exhibition of the best new furniture produced last year throughout the world.

IDEA 55. Edited by John Peter. Published by George Wittenborn Inc., 38 E. 57th St., New York 22, N.Y. 157 pp. 8 1/4" x 12". Illus. $8.50

Idea is the international yearbook of industrial design in the fields of appliances and consumers' goods. Over 410 examples have been selected by international experts for this third annual edition.
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Four big reasons why these Fenestra Hollow Metal Door units can give you this tremendous saving on every single door opening in your next building!

1. Fenestra® Hollow Metal Doors cost you less at the very start, because you get production-line economy—not custom job costs. They are mass produced on special jigs that avoid expensive time and labor.

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There's a door for every purpose in the Fenestra line: Entrance Doors, Flush or Regular Interior Doors with glass or metal panels, Doors with the Underwriters' B Label. For photos and details, write the Detroit Steel Products Company, Dept. AF-11, 2296 East Grand Boulevard, Detroit 11, Michigan.

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Architectural, Residential and Industrial Windows • Metal Building Panels • Electrifloor® • Roof Deck • Hollow Metal Swing and Slide Doors
Perforated structural roof deck doubles as acoustical ceiling face

In its 5" depth, from rooftop to ceiling underside, Structur Acoustic integrates a low-cost, fire-resistant roof with effective acoustic and thermal insulation. The corrugated panel of high tensile steel underlying the system serves both as a supporting deck, spanning up to 8', and a presentable hard face for the sound-absorbent batts above. It is fabricated in 2½'-wide sheets of galvanized, tempered steel and punched with 5/32" holes. These perforations, big enough to let noise travel through efficiently, are spaced ½" apart so as not to subtract materially from the strength of the panel. Having a noise reduction coefficient of .65 and a U factor of .14 with a 2½" slab, Structur-Acoustic system consists, from bottom up, of the corrugated deck laid over junior steel beams, concrete or timber beams. Over this is placed a phenolic membrane and a 1"-thick semirigid board of glass-fiber board. (The membrane prevents any fine glass particles from filtering down through the holes in the panel.) A slab of lightweight insulating concrete reinforced with wire mesh and fire-resistant concrete topping is poured over the acoustic board and a built-up tar and gravel roof laid down. The entire ceiling roof weighs under 8 lb. per sq. ft. yet can carry 150 lb. per sq. ft. on a 6½' span.

continued on p. 206
"We heard Cleaver-Brooks Boilers were OK"

... and what an understatement that proved to be for a Milwaukee petroleum marketer*

Cleaver-Brooks 500-hp boiler is used for processing petroleum products — heating kettles, tanks — and for drum washing.

Look at the record:

350 gallons of fuel oil saved per day!

On an annual basis — that's more than 90,000 gallons of oil saved.

Complete shutdown flexibility with the assurance of fast steaming from a cold start is the key to these remarkable savings for a petroleum processor and marketer in Milwaukee, Wisconsin. Now, a Cleaver-Brooks 500-hp boiler operates 10 hours a day, 5 days a week, where formerly two 150-hp units operated continuously 24 hours a day, 7 days a week. Fewer boiler working hours also saves up to $11,000 yearly in maintenance.

By replacing outmoded equipment, this petroleum processor also enjoys the benefits of guaranteed 80% operating efficiency, four-pass design, forced draft, 5 sq. ft. of heating surface per boiler-hp and fully-automatic firing. Cleaver-Brooks Company, Dept. M, 337 E. Keefe Ave., Milwaukee 12, Wisconsin — Cable Address: CLEBRO — Milwaukee — all codes.

*Name supplied upon request.

Let us help you beat the penalties of boiler obsolescence — with a modern Cleaver-Brooks installation. Sizes from 15 to 600 hp, 15 to 250 psi — steam or hot water — for heating or processing. Write for catalog.

Cleaver-Brooks

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For maintenance-free exterior walls and roofs, plus protection from fire, rot and weather

YOU SAVE MONEY on construction and maintenance when you build with Johns-Manville Corrugated Transite®. Corrugated Transite comes in large sheets that require a minimum of framing... permits fast economical construction of industrial, commercial, institutional and agricultural buildings.

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See "MEET THE PRESS" on NBC-TV, sponsored on alternate Sundays by Johns-Manville

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- Easy to nail to wood
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Johns-Manville

204
NOW G-E CEILING-MOUNTED PACKAGED AIR CONDITIONERS HELP YOU

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1 SPACE
Now your scope of design can include the finest air conditioning without using a foot of vital floor space. Because new G-E Packaged Air Conditioners are fastened to the ceiling—or can be mounted on a shelf. And these trim units enhance any modern scheme. They're compact, self-contained—with no exterior parts. Motor, compressor and condenser are all sealed inside.

2 WATER
Where water restrictions present a serious problem, specify G-E ceiling-mounted units in air-cooled models available in 3 and 5 ton capacities. These models use no water—require only air and electricity. Water-cooled models also available in 3, 5 and 7½ ton capacities. For year-round comfort, all new G-E ceiling-mounted units may be equipped with coils for winter heating.

And, remember! G-E is the only complete packaged air conditioning line on the market. You can specify both floor- and ceiling-mounted models from a single manufacturer. For free booklet, "What Every Businessman Should Know About Weather Reflex", write General Electric Company, Commercial and Industrial Air Conditioning Department, Bloomfield, New Jersey.

Packaged AIR CONDITIONERS
Progress Is Our Most Important Product

GENERAL ELECTRIC
PRODUCTS

Continued from p. 202

Particularly aimed at school and shopping-center construction, and other one-story buildings where fire resistance and price are important factors, the Structur-Acoustic system installs complete for about $1 to $1.10 per sq. ft. An additional, less obvious economy the 5' roof makes possible is the saving of 13" to 19" of wall height that would be taken up by hanging a separate acoustical ceiling. Standard light troffers can be nested with the Structur-Acoustic panels.

Manufacturer: Granco Steel Products Co., Subsidiary of Granite City Steel Co., Granite City, Ill.

EGG-CRATE FIXTURE mixes fluorescent and incandescent light

Easy on air-conditioning loads and electricity, fluorescent lamps well deserve their popularity for general lighting. Store designers and owners who know how crucial light is to sales and customer comfort often use fluorescents for soft diffused illumination, but supplement them with separate accent lights to play up merchandise. Century's 4' square white-louvered egg-crate fixture combines both kinds of light in a single recessed unit. While it is not designed to substitute for the drama of spots and floods, it does, however, make up for the color shortcomings of fluorescents and offset their flat light with its own 200-w. or 300-w. incandescent bulb. Its six 40-w. warm white fluorescents provide 65 to 75% of the fixture's illumination. A square clear-backed prismatic reflector behind the incandescent bulb directs most of its light down but lets a portion through to mix with the general light. From eye level it is hard to detect any borderline between the two sources. Ballasts, sockets and transformers are all U. L. approved. Price is about $165 a fixture.

Manufacturer: Century Lighting Inc., 521 W. 43 St., New York 36, N.Y.

HONEYCOMB SANDWICHES made in matching door and wall panels

In manufacturing both its door and wall panels, Panelfab Products, Inc. pressure-heat-bonds a resin-impregnated fibrous honeycomb between sheets of aluminum. Made in modular sizes, the fixed panels and doors can provide a complete low-cost curtain wall suitable for schools and one-story office buildings. In addition to marketing the lightweight sandwich panels in single...

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At right, Radio-TV Station WBT, Charlotte, North Carolina; Davidson Architectural Porcelain with Vitrock backing used on building facade, coping and canopy. J. N. Pease & Co., Engineers and Architects, Charlotte, North Carolina.

**Selected**

for appeal  
for economy  
for durability

These factors—complete freedom of choice in panel shapes, sizes and colors, plus construction speed and economy—are resulting in specification of Davidson Architectural Porcelain for the finest buildings. Whether used for new construction or modernization, this modern building material adapts to any structural system and can be counted on for long-lasting, "new" appearance without maintenance.

Write for Architects Fact File, showing types of panels available and suggested curtain-wall, window-wall and facia applications.

At left, Bel-Park Medical Building, Youngstown, Ohio, now under construction. Davidson Panels are assembled to window frames, then hoisted into place. Approximate time to install complete unit into building structure: two minutes. Architect, P. Arthur D'Orazio, Youngstown, Ohio. Contractor, Emanuel Katzman & Company, Youngstown, Ohio.

---

Notice to All Ferro Porcelain Design Competition Participants—Write to Davidson for latest literature, including details showing the application of porcelain enamel for curtain-wall construction.
A mechanical method of suspending Tongue and Groove Acoustical Tile

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1/2" CHANNEL, NOT OVER 4'-0" O.C.

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That’s because Chase copper tube resists corrosion—can’t clog with rust! Diameter for diameter, this copper tube passes higher water volume than lines of rustable metal! Its smoother inside surface cuts friction to a minimum, assuring fast and efficient discharge of fixtures.

Chase copper tube is easier to handle. Can be quickly cut to the required length with ordinary tools. Rugged, leakproof solder joints are made without time-consuming threading. Long lengths are available; require fewer joints.

Specify Chase copper water tube for hot and cold water lines. Add extra quality at little or no extra cost!
PRODUCTS

Continued from p. 206

units, Panelfab assembles them in small prefabricated structures. The 6'-long, 3½'-wide utility shelter pictured (right) sells for $600 complete with jalousie windows. It could serve as a factory guard station or as a portable field house for a contractor. Electrical outlets and fixtures are installed to specification. The panel's hardy construction resists extreme climate conditions as well as fire, rodents and vermin; and its rigid honeycomb core prevents any surface deflection or waviness in the metal facings. Selling for about $1.50 to $3.00 per sq. ft., the panels and doors may be ordered with smooth or embossed aluminum facings in an anodized finish, or prepared for paint coat. Wall panels also are obtainable with porcelain enameled skins. Doors are available in sliding, pivot and fold-up styles. Insulation value of a 3" thick Panelfab wall, weighing only 1½ lb. per sq. ft., is reported to equal that of an 8" brick or 12" concrete wall.


VINYL CLOSURE STRIPS come in color

Formed to fit the 2½" x ¾" undulations of corrugated acrylic and reinforced plastics, flexible H-P Closure Strips also correspond in color with the popular translucent sheeting. The closures are available in 34½" horizontal end strips at $1.10 and 36" side pieces at $1.96. H-P's are fastened in place with nails, bolts or screws. Molded of resilient vinyl they hug the paneling, making a watertight airtight seal, and are said to take up expansions and contractions of the plastic sheeting.

Manufacturer: Hanszen Plastics Co., 885 S. Good Latimer Expressway, Dallas, Tex.

continued on p. 218
PERMALITE perlite aggregate plaster, used to fireproof structural members, provides 4-hour fire rating.

PERMALITE lightweight insulating concrete, applied 4" thick on an exterior curtain wall, provides 1650 psi minimum compressive strength, achieved by carefully designed mix ratio and pressure application by E-Z-On spray gun.

PERMALITE used in modern lightweight construction increases the ratio of pay-load to dead-load and makes possible substantial savings in structural steel.

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PLASTERING CONTRACTOR
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APPLICATOR: storbeck
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The end objective of any construction project can be posed by this simple question: "How can building be done at less cost?" There is a way, for business buildings—and that’s with R/C Duct Floors provided by Ceco-Meyer Reinforced Concrete Joist Construction. Extensive use of automatic office machines makes conveniently placed electrical outlets a necessity today. The best way to achieve electrical flexibility is with R/C Duct Floors. They provide a network of underfloor electrical ducts buried in rigid structural concrete. Capped outlets every two feet along the ducts are easy to open without drilling into the floor. They afford ample connections for all business machines, telephones and intercom... eliminate tangled extension cords. And this is done at a saving, too, because studies prove R/C Duct Floors cost approximately 19% less than cellular steel floors. An example of this improved, less costly way of building is the Cafritz Office Building, Washington, D.C. Before building, consult Ceco Engineers in the pre-planning stage. They can show you how to save with rigid reinforced electrified concrete floors.


Standard electrical distribution ducts are buried in the monolithic structural concrete. No additional fill or expensive topping is needed. Electrical connections are provided as close as every 2 feet along the ducts.

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Ragnar Benson, Inc.

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Hoffman and Crumpton, A.I.A.
Leland W. Cook, Structural Engineer

Structural Steelwork by:
AMERICAN BRIDGE
Building is 6 levels, 120' wide x 220' long.

Using high tensile bolts for field connections,
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The Parking Authority of the City of Pittsburgh is answering the demand for new and better parking facilities by building one of the most unusual structures of its type to be found anywhere.

And by using steel-frame construction field connected with high strength bolts, the job is being handled so speedily and so quietly that folks on the street and in neighboring buildings are scarcely aware that a big new building is being constructed in their midst.

Erection started February 4, 1955 and was completed March 11, 1955 — an elapsed time of just 5 weeks!

Located on the corner of the broad Boulevard of the Allies and busy Smithfield Street in the heart of the Golden Triangle, the new garage is 120' wide x 220' long with six levels for drive-in parking. The slightly tilted floors do away entirely with ordinary ramps. It is designed with a center section 120' x 125' on slope and two level end sections 120' x 47.6'. All connections were made with high tensile bolts. The 700 tons of structural steel framework was fabricated and erected by American Bridge.

The fast, uninterrupted and unusually quiet erection of this modern parking garage provides another strong argument in favor of steel-frame construction and bolted field connections for buildings of any type and size. For American Bridge crews can make tight connections with high-strength bolts as efficiently and speedily as less skilled personnel can handle the more common methods.

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7 Balanced Doors in the entrances to Sun Life Building.

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SWIMMING POOL molded in quarters of plastic and glass fiber

Probably the biggest item currently mass-produced of reinforced plastics is Paddock's 30' x 15' Cinderella swimming pool. Taking full advantage of the simple molding procedures possible with polyester resins, and of the high impact and flexural strengths of the glass-fiber plastic laminate, the Californian swimming pool manufacturer is making the 10,000 gal. pool in four matched shell sections. Designed for either oven curing or cold layup fabrication with self-curing resins, and weighing under 900 lb., the four pool sections can...
Duriron is the one quality high silicon iron pipe specified for more than 30 years by architects and engineers for corrosive waste disposal systems. Specify Duriron. Insist on Duriron for resistance to practically all commercial acids and other corrosive solutions. It generally outlasts the building. A complete line of Duriron pipe and fittings is stocked by leading wholesalers throughout the country. Free Bulletin PF/4.

The Duriron Company, Inc., Dayton, Ohio
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Superb beauty of real wood paneling

STORAGE CLOSETS use matching sliding doors to carry out over-all "wood-paneled look." These Weldwood walnut sliding doors have Novoply® cores.

PRIVATE OFFICE at General Dynamics Corporation shows how beautiful walnut Weldwood Partitions accent the atmosphere of quiet elegance and good taste.
PARTITIONS ARE INSTALLED without costly interruption of regular office routine. Workman is shown installing section of Weldwood Movable Partition; completed corridor is shown at left.

BEAUTIFULLY GRAINED WALNUT Weldwood Movable Partitions and matching Weldwood Doors with Weldrok cores are used for the executive offices of General Dynamics Corporation, New York City. Interior planning: Ethel Pihon Warren and Joseph W. Rogers, Jr. Distributor: Nuroco Woodwork, Inc.

plus overnight movability

Here’s proof that offices needn’t be dull and institutional-looking simply because they must be planned for frequent rearrangement.

The Weldwood Movable Partitions you see here have all the warm, natural beauty of wood paneling, yet can actually be rearranged completely in a few hours!

With Weldwood exclusive metal key construction, panels are locked together like a solid wall; yet they can be easily dismantled and set up in a new location at any time.

Save up to 50% in installation costs because Weldwood Movable Partitions are easy to install. Because they have so few parts, they can be installed by relatively unskilled maintenance crews (complete installation service is also available).

Only Weldwood has the Weldrok® core that’s both fire-resistant and acts as a sound barrier; it’s twice as efficient in cutting down office noises as a 2 x 4 stud partition with metal lath and plaster on both sides.

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Send coupon for specifications and installation data or visit any of the 87 United States Plywood showrooms in principal cities.

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architectural FORUM / November 1955
Air conditioning existing buildings may be easier than you think...

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Consult the classified section of the phone book for your Modine representative. Contact him or mail the handy coupon for illustrated booklet.

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WITH West Coast Hemlock SIDING

Because Hemlock is so beautiful, the architect designing this modern home selected Hemlock siding for the interior. Its light, warm color mellows with age. Its straight grain and fine, even texture are pleasing to the eye. These characteristics, plus light weight, stiffness, and high nail-holding power, make Weyerhaeuser 4-Square West Coast Hemlock ideal for a wide range of uses. Freedom from pitch, loose knots, and splinters adds to its workability. Natural finishes or paints go on beautifully, and hold very well.

That's why this species often is called the "Ability Wood." For framing and sheathing, siding, molding, flooring, paneling, and scores of other uses, West Coast Hemlock has few equals.

More and more architects are specifying this versatile Weyerhaeuser 4-Square West Coast Hemlock. Write for descriptive literature.

Weyerhaeuser Sales Company

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be shipped anywhere in the country and in­
stalled complete with filter plant, trim and
coping for about $2,000—about one-third
less than a gunite or concrete pool of com­
parable size. On the site, the four sections
are fitted with neoprene gaskets and
bolted together. The current model has a
maximum depth of 5' and minimum depth
of 3' and is suitable for small community
playgrounds and grammar schools. More

significant architecturally than the pool
itself, perhaps, is the size in which the
plastic laminate is being handled. Not so
long ago, a polyester car body and a bath­
tub were news. Now, a swimming pool.

Next?
Manufacturer: Paddock of Californía, Los
Angeles, Calif.

FIREPROOF SANDWICH WALL comes
shop assembled or knockdown

Pan-L-Wall offers two answers to the prob­
lem of providing trim, easily maintained,
insulated walls for warehouse and manu­
factoring plants at moderate price. One,
Panel A series, is a packaged sandwich
which comes ready to hang on the framing.
The second, D series, is delivered with fac­
ings and insulation knockdown for field as­
sembly. Ranging in span from 6'-0" to
11'-6", and in length from 12'-0" to 25'-0",
both field and shop fabricated panels com­
prise two layers of sheet metal fastened
around a core of 1½"-thick glass fiber.
The interior sheets are flat 18- to 24-ga.
galvanized steel and the exterior are steel
or mill-finished aluminum corrugated in a
wide variety of patterns. End walls, para­
pets and corners are easily assembled and
continued on p. 230
Engineered Air Distribution

High velocity air distribution one of advanced features in Manhattan "glass-box" bank

Photos by Ezra Stoller

Uni-Flo Rectangular Diffusers are so inconspicuous they are practically invisible in this third-floor office. Mounted in aluminum strip, diffusers lead directly from air valves installed above luminous ceiling panels. Individually adjustable diffusers simplify system balancing.

No fixed teller positions is a new idea in commercial banking. During busy hours, tellers roll mobile currency buses along the line to make room for extra help. Uni-Flo Rectangular Ceiling Diffusers blend with modern luminous ceiling construction providing inconspicuous air distribution.

Like a modern showcase, the interior of Manufacturers Trust Company's office gleams with light on a rainy night. Huge 10x22 foot panes of plate glass face the second floor mezzanine. Unusual air conditioning problems posed by the glass walls were solved satisfactorily.

One Uni-Flo High Velocity Valve can serve several diffusers when installed at a low velocity branch duct take-off from a high velocity trunk duct. Or a "package" is available, consisting of an air valve, sound control chamber, and single diffuser.

Phone nearby Field Office or write us for your copy of Uni-Flo High Velocity Catalog No. 6598. Fully illustrated manual on high velocity applications and techniques.

Barber-Colman Company

DEPT. W, 1135 ROCK ST., ROCKFORD, ILLINOIS, U.S.A.

Field Offices in Principal Cities

Air Distribution Products • Automatic Controls • Industrial Instruments • Aircraft Controls • Small Motors • Ovens and Operators • Molded Products • Metal Cutting Tools • Machine Tools • Textile Machinery.

"A showcase for banking" is a vivid picture phrase describing this unusual new Fifth Avenue Office of Manufacturers Trust Company in New York City. Skilled professional craftsmanship has created a structure unlike any other financial institution in the world. In its creation, the designers have employed most recent developments in structural and operational techniques. Among them is the space-saving high velocity air distribution system, using the Uni-Flo High Velocity Air Valves to supply conditioned air quietly, effectively for comfort of patrons and employees.

Architects: SKIDMORE, OWINGS & MERRILL. Mechanical Engineers: SYREK & HENNESSY. Air Conditioning Contractor: BAKER SMITH, INC. Interior Design Consultant: ELEANOR LEMAIRE.

... get reliable information and performance data from the pioneer in high velocity systems!
This too is "HOLLOW METAL."

Once again, SUPERIOR FIREPROOF DOOR & SASH COMPANY, INC., has been chosen to furnish the "HOLLOW METAL" for an outstanding project.

This time, THE EDSEL FORD SENIOR HIGH SCHOOL.

Doors and frames constitute only a portion of "HOLLOW METAL." Arched openings as shown in the above view, 104 feet long, and multi-unit interior and exterior borrowed lite units are the mark of a true Hollow Metal Man.

"HOLLOW METAL" is the mark of a trade that has the ability to coordinate and fabricate many related sheet steel products.

It is not an afterthought of manufacturing a few more items. Rather it is the experience of having made these specific related products over a long period of time.

Thirty-five years of experience in manufacturing "HOLLOW METAL" has given us the ability to combine planning and production with economy into a service for the construction industry.

As Hollow Metal Men, we are proud to have provided the products starred (*) for the Edsel Ford Senior High School.
Consult an engineering firm

Designing and building hundreds of heating and power installations a year, qualified engineering firms can bring you the latest knowledge of fuel costs and equipment. If you are planning the construction of new heating or power facilities—or the remodeling of an existing installation—one of these concerns will work closely with your own engineering department to effect substantial savings not only in efficiency but in fuel economy over the years.

**facts you should know about coal**

In most industrial areas, bituminous coal is the lowest-cost fuel available. * Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar. * Automatic coal and ash handling systems can cut your labor cost to a minimum. Coal is the safest fuel to store and use. * No smoke or dust problems when coal is burned with modern equipment. * Between America’s vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

Pinehurst cuts fuel costs over 33% burning coal the modern way

The central power plant at the famous golfing resort of Pinehurst, N.C., has to furnish a reliable supply of steam to three hotels and seven other buildings. When Pinehurst recently decided to modernize power facilities, the consulting firm of Wiley and Wilson, Richmond, Va., was called in to study the situation. Since coal cost approximately 40% less than the next cheapest fuel, the final decision called for burning coal the modern way. Today two new automatic stoker-fired boilers (only one of which is operated at a time) replace four 150-hp hand-fired boilers. Combustion control is automatic; coal and ash handling is greatly simplified. And now, according to management, “the cost of generating steam is 33.4% less than with the old plant.” For further information or additional case histories showing how other plants have saved money burning coal, write to the address below.

NATIONAL COAL ASSOCIATION
Southern Building, Washington 5, D. C.
Harrison & Abramovitz, architects—John B. Peterkin, associate
John W. Galbreath Corporation, owner
Turner Construction Company, builder
Stainless Steel skin 
largest metal-clad building in the world!

The next time you hit New York City, take special note of the bright new Socony Mobil Building at 42nd and Lexington, because this building is going to make history.

It's the 6th largest office structure in the world; and is completely clad with low maintenance Type 302 Stainless Steel. Directly across the street is the Chrysler Building, the first building to make major use of Stainless Steel for an exterior. Although it was erected in 1928, the Stainless on the Chrysler Building is still free from corrosion.

Stainless Steel sections can be thin, because it is so very strong, and no allowance for corrosion is necessary. Stainless Steel has such a high melting point that it will meet fire test requirements from inside and outside the building.

The Stainless Steel skin requires no maintenance. But if it is desirable to clean it simply for appearance' sake, it's an easy job. Best of all, Stainless Steel exteriors give fine service for the entire projected life of the building.

As the producer of USS Stainless Steel, we have worked closely with the fabricators of Stainless Steel panels for curtain-wall construction. We'll be glad to send you further information and put you in touch with these fabricators. Write to United States Steel, Room 4601, 525 William Penn Place, Pittsburgh 30, Pa.
offer no weatherproofing difficulties. With sill flashing, the panels may be used with stock steel or aluminum framed window units. Prices run $2 to $2.50 per sq. ft. for A series panels. Bi-yearly painting is the only maintenance required for either type of Pan-L-Wall.


BROAD, FLAT TROFFERS with translucent sides cut brightness contrasts

Engineered for effective general illumination Lightolier's broad yet shallow Louvrons fixtures are easily assimilated into a contemporary office interior, school, library or store. Side panels of the new troffers are fabricated of pin-holed steel coated with clear plastic so that each perforation becomes a tiny lens, directing soft light out through the sides of the fixtures to modify brightness contrasts against a dark ceiling. Flat surfaced top and bottom, the 4' and 8' Louvrons units are easily mounted directly against the ceiling or on stems. Lower edges of the end plates are as thin as the louvers so that when the fixtures are hung in rows the impression is that of one, unbroken grid pattern.

The housing is die-formed of heavy-gauge steel in channel sections. Seen from beneath, the nipped-in shape gives the fixtures a lean delicate line that belies their sturdiness. Accessory top reflectors and unperforated steel side panels are available where more downlight is required. For fuller light diffusion, side panels may be ordered of ribbed white polystyrene. In installation, a slide clamp hanger can be moved anywhere along the length of the fixture. Hook-on stems swivel up to 25° to compensate for uneven ceilings. Adjustments can be made after hanging simply by turning the stem.

Available for rapid start or slimline 40-w. fluorescents, Louvrons come in 13"-wide two lamp and 21"-wide four lamp models priced from about $25 to $90. Both are 4-5/16" deep. For servicing or relamping, the louvers snap out under fingertip
Write- for these free books from Robertson's technical library

1. Acoustical Data on Q-Deck: It has long been known that the fluted underside of steel deck provides some acoustical value, yet demand for more has led to this new low-cost method. Application details and test data are included.

2. An Analysis of Industrial Roof Construction: This valuable booklet compares all the better-known roof types (flat, monitor, bow-string, high-low bay, saw tooth) on the basis of structural steel, volume, roofing, sash area, flashing, ventilation and daylighting.

3. Design and Cost Factors of Structural Floor Wiring: This study compares Q-Floor with other conventional floor systems using underfloor duct. Based upon a typical multi-story building, the book is replete with charts and cost analyses of all structural components.

4. Daylighting Cost Analysis: This new and unusual study contains a questionnaire, which when properly filled out will reveal how quickly scientifically planned natural daylighting will pay for itself in a structure through savings in electricity. All data are substantiated.

5. New Composite Q-Floor Catalog: This newly revised catalog contains many examples of the latest Q-Floor buildings and a full exposition of Q-Floor advantages. Structural details and specifications are more complete than ever before.

6. New M-Type Q-Panel Catalog: Recent newcomer to the Robertson product family is the M-Type Q-Panel which possesses unique advantages over other types of modern curtain wall construction. The book contains 3 pages of structural details plus complete specifications.

7. New Long-Span Q-Deck Catalog: Another new Robertson product is this sturdy, yet exceptionally long-span deck. Easy to handle and erect despite its length up to 32 feet, it is especially designed for schools and supermarkets and other structures in which unbroken spans and a saving of structural steel is beneficial.

8. Ventilation Engineering Booklet: More than a ventilator catalog, this booklet not only describes products, but contains detailed tables of exhaust capacities, based upon average wind velocities, temperature differences and height above intake. Use the coupon below.

Robertson Products for modern buildings

H. H. Robertson Company
2403 Farmers Bank Building, Pittsburgh 22, Pa.
In England: Robertson Thoms Ltd., Elyseeare Port, Cheshire
In Canada: Robertson-Irwin Ltd., Hamilton, Ontario

Please send the free data book(s) I have circled below.

NAME
FIRM
ADDRESS

231
But where will you connect Miss Foster?

Whether you're planning or building offices for your own use or for rental to others, you'll need electrical circuit connections throughout the floor area—to efficiently utilize every square foot of space. You can't crowd all desks around wall outlets and it's dangerous and unsightly to run exposed raceways across floors. How then can you obtain maximum electrical adequacy plus space flexibility? The answer is General Electric Q-Floor wiring, the system that provides complete electrical availability for typewriters, dictating machines, calculators, telephones, intercoms, lighting, postal machines, and other electrically operated equipment.

The General Electric Q-Floor wiring system is designed for installation in cellular steel subflooring, and makes every square foot of floor space available for outlets. Every cell is a raceway for present and future circuit requirements. No costly alterations, no litter, no tie-up of space, no matter how often or how much your electrical requirements change. And it is doing a job in office buildings like famed Lever House in New York City, and in industrial buildings and institutions across the country.

For more information on General Electric Q-Floor wiring, call your G-E Construction Materials district office, or write to Section 49-114 Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

Progress Is Our Most Important Product

GENERAL ELECTRIC
Large city HOSPITAL or community MEDICAL CENTER

Medical Center, Athens, Ga.
Architect: Clarence Wilmer Henry
Contractor: Mathis Construction Co.

Lankenau Hospital, Philadelphia, Pa.
Architect: Vincent G. Kling
Contractor: Work & Co.

It doesn't make any difference whether you're building a large 320 bed hospital like the beautiful new Lankenau Hospital shown above or a small, community medical center, you help save important maintenance dollars when you insist on "Quality-Approved" aluminum windows.

Experience has clearly demonstrated that aluminum windows are the only practical, reasonably-priced windows that never require painting that cannot rust or rot, warp or swell that retain their trim, modern-looking appearance for the life of the building.

"Quality-Approved" aluminum windows are available through many manufacturers in sizes and styles (awning, casement, double-hung, projected and sliding) to fit any design treatment. Only those that carry the "Quality-Approved" Seal have been tested by the independent Pittsburgh Testing Laboratory and approved for quality of materials, construction, strength of sections, and minimum air infiltration.

For our latest Window Specifications Book consult any manufacturer listed below, see Sweet's (16a/ALU) or address Dept. AF-511.

Aluminum Window Manufacturers Association
75 West Street, New York 6, N. Y.
for clean, true edges

and richer texture

...concrete block made with DURAPLASTIC*

Over ninety-eight thousand concrete blocks went into the building of Waco’s Heart O’ Texas Coliseum. The job was a big one, calling for good looks on a large scale. That’s why concrete block made with Atlas Duraplastic air-entraining portland cement were used.

A good choice, too. Because Duraplastic makes a more compact, more cleanly formed block with greater resistance to the passage of water. For outstanding durability and good appearance, use Duraplastic-made block on your next project.


UNIVERSAL ATLAS CEMENT COMPANY

AIR-ENTRAINING PORTLAND

Atlas® Duraplastic® Cement

MAKES BETTER CONCRETE AT NO EXTRA COST

UNITED STATES STEEL HOUR—Televised alternate Wednesdays—See your newspaper for time and station.
This abundance of daylight...

is filtered through Frosted Aklo® Glass to reduce glare and sun heat

Aklo is widely used in factories, offices and many other buildings. Better selling, greater comfort for occupants... better workmanship... better employee relations are all worth-while benefits.

PHONE FOR THIS TEST.
A call will bring a radiometer demonstration kit to your desk. It shows you how Aklo Glass reduces glare and sun heat. Call your L'O-F Glass Distributor or Dealer listed under “Glass” in the yellow pages of your phone book. Or write to Libbey-Owens-Ford Glass Company, 608 Madison Avenue, Toledo 3, Ohio.
pressure and are suspended on safety chains or may be completely removed. Manufacturer: Lightolier, Inc., Jersey City 5, N.J.

**FLUSH DOOR clad in colored vinyl**

By laminating colored, textured vinyl to an aluminum sheet and backing this combination with hardboard, Kawneer has produced an attractive yet tough facing for its rugged honeycomb-core flush door. Locked into the mitered frame, the skins will not peel, and the entire door is designed to withstand most of the dampness, dirt, heat, liquids, pressures or abrasions that store, school or office use would impose on them. (However, Kawneer points out that the facing is vulnerable to sharp instruments.) Decorative as well as durable, the door comes in seven colors, some with an interesting fabric finish and one in a leather-like saddle-tan. Two types are suitable for exterior use. Standard heights are 6'-8" and 7' and widths run from 2'-6" up to 3'-4". Prices range from $150 to $175 installed.


**LEVER LATCH opens door at finger flick**

Soss, the hardware company renowned for its invisible hinge, is now making a knobless latch for interior doors. A simple beveled box, the Lev-R-Latch is 3 3/4" high, 4" long and extends out from the door ½". Delivered in three parts, the assembly is quickly installed by boring a hole for the bolt and one for the latch, positioning the bolt and screw-fastening the two outside plates. In operation, a finger inserted under the back part of the latch releases the bolt to let the door swing open. The Lev-R-Latch retails for $3.05; with a locking mechanism, $3.40. Its zinc alloy face plates are plated in various finishes.

Comfortable Water Temperature in Swimming Pools is obtained with Powers thermostatic Regulators for water heaters. Fuel Economy also results from eliminating OVER-heated water.

Comfortable Air Temperature in Pool Area and Locker Room is assured with Powers control of temperature, humidity and proper ventilation.

Greater Comfort and SAFER Showers with Powers double protection against scalding. Temperature remains constant wherever the bather wants it regardless of pressure or temperature changes in water supply lines.

Zone Showers with straddle rail, often used in connection with swimming pools require the dependable temperature control supplied by the four Powers thermostatic controllers above.

To insure utmost COMFORT in Swimming Pools, Locker Rooms and Showers Specify and Install POWERS THERMOSTATIC CONTROL

In the world’s largest indoor swimming pool at Great Lakes Naval Training Station and in thousands of other famous pools from coast to coast, Powers control provides water and atmospheric comfort.

Quality Controls and Nationwide Service plus more than 60 years of know how in the proper application of a complete line of products... are important advantages offered by Powers.

Only a few of our many controls are shown here. Others are available for whirlpool arm and leg baths and many other types of hydrotherapy.

Consult Powers on Thermostatic Control for swimming pools, locker rooms and showers. An experienced engineer in Powers nearest office will gladly help you select the right type of control for your requirements.

THE POWERS REGULATOR COMPANY
SKOKIE, ILLINOIS Offices in chief cities in U.S.A., Canada and Mexico

Over 60 years of Automatic Temperature and Humidity Control

Nicholson Metal Partitions
better built... for lasting service

Only time will tell... whether or not the average toilet compartment will deliver long life and real serviceability. But Nicholson compartments give you “full” assurance right from the start—full gauge metals... full width partitions... full final finish. Nicholsons' are built to stand up and still stand out... even after years of steady service.

- heavier gauge steel: panels—full 20 gauge
  pilasters—full 16 gauge
  headrail and tubing—full 16 gauge
  stainless steel plinth—full 20 gauge
- thicker partitions: doors and panels—full 1" thick
  pilasters—full 1 1/4" thick
- extra protective coats: galvanized, bonderized coatings
  zinc chromate primer
  2 coats of synthetic baked enamel

Specify for lasting service. Specify Nicholson.

Available in the following types—and wide selection of colors:
Type A—floor braced
Type AR—overhead braced
Type B—flush type
Type AC—ceiling hung
Type ARP—panel type
Type BP—panel type
the new look in industrial lighting starts here! Write for your copy of new Wheeler bulletin No. 97 today!

Wheeler BI-FLO UPLITER

28% upright — low cost.

WHEELER REFLECTOR COMPANY
275 Congress Street Boston 10, Mass.
Distributed Exclusively through Electrical Wholesalers
School design can be simplified with Kawneer's Sun-Control and weather protection products. You have great flexibility with the prefabricated sections enabling you to cover almost every glass opening and passageway to design specifications. The advantages far exceed the relatively low cost. Both products are made of heavy-gauge anodized aluminum which means long, maintenance-free life. The reflective surface assures cool areas. The unique shapes such as the "W" of the canopy sections provide and encourage ventilation, yet protect from rain and snow. The quick and easy erection means a faster completion date and fewer labor hours. Fill out the coupon below to learn more about Kawneer Sun-Control and Weather Protection products, and how they can be adapted to your school plans.
Economically applied on heating and cooling ducts,

L·O·F Super·Fine reduces heat transfer, increases cooling efficiency

Architect Louis A. Redstone, and Allan G. Agree, associate architect, specified ½-pound, 1-inch L·O·F Super-Fine to insulate concealed combination heating and cooling ducts at the new Northwood Shopping Center, Royal Oak, Michigan. Low thermal conductivity, and speed and ease of application were important considerations.

You get high insulating efficiency when you specify L·O·F Super-Fine. Its fine glass fibers form millions of dead air cells, which effectively reduce heat loss or gain. And Super-Fine keeps its insulating efficiency indefinitely. Inorganic glass fibers will not support combustion, absorb moisture, rot or decay.

You get lower application costs with L·O·F Super-Fine. The lightweight blankets are pleasant to handle, cut easily with an ordinary knife. Application is fast, with no precision measuring or fitting required. Super-Fine’s strong resilient blankets readily fill irregular and hard-to-reach places.

SEND FOR FREE FOLDER giving performance data and specifications on L·O·F Super-Fine duct wrap and liner.

Write: L·O·F Glass Fibers Company, Department 40-115, 1810 Madison Avenue, Toledo 1, Ohio.
PRODUCTS

Continued from p. 230

SO MANY APPLICATIONS FOR

...the very best in high pressure

PLASTIC LAMINATES

It's good planning... a sound investment ... to take advantage of Farlite's many superior functional features for fabricating table tops... counter, desk, sink, bar, and soda fountain tops... partitions and paneling... decorative interior treatments... a host of other applications. Its glass-smooth, non-porous surface is sanitary, easy to clean, permanently beautiful... resists heat and burning cigarettes... is not affected by alcohol, grease, fruit acids, mild cleaning solutions... will not chip or fade. Available in a wide range of more than 50 Farlite colors and patterns, including beautiful wood grains, in 1/16" thick sheets as well as complete warp-resistant tops and panels 13/16" and 1-1/4" thick... can also be made to your specifications. Write for descriptive folder and name of nearest distributor...

242
Every inch of Floor and Wall Space is usable...

with “invisible” radiant panel heating

As the song says, “little things mean a lot”... to a woman.

She chooses an automobile by its color, selects a television set for its cabinet... and may insist on a radiant panel heating system solely because it gives her complete freedom of decoration in her home. The only heating system that does, because every inch of floor and wall space remains usable. Why should a mere man object to her whims as long as there’s horsepower under the hood, a clear picture from the T.V. set, and the heating system gives clean, healthful, draft-free comfort!

It is a fact that women have helped make radiant panel heating increasingly popular for individual homes, multiple dwellings and housing developments... up significantly last year among wet heat installations.

And, as in other wet heat systems, the men who design, specify and install, know that reliable steel pipe is first choice for heat transmission. Time tested through more than 60 years of hot water and steam applications, it also has the qualities of economy, durability, weldability and formability required for successful “invisible” radiant panel heating. In fact it’s the most widely used pipe in the world!

Write for the free 48 page color booklet “Radiant Panel Heating with Steel Pipe” and 32 page companion booklet “Steel Pipe Snow Melting and Ice Removal Systems.”

Committee on STEEL PIPE RESEARCH

AMERICAN IRON AND STEEL INSTITUTE

350 FIFTH AVENUE, NEW YORK 1, N.Y.
PAINTING ANALYSIS

Learn how new Glidden painting service can help you cut costs!

New Formula NEV-A-RUST dries to a sparkling, high gloss; has greater resistance to rust, acid, gases, fumes. Ideal for structural steel, iron fences, grillwork, smokestacks, metal roofs and all metal surfaces.

Four-Year Exposure Test of bricks above shows superior durability of SPRED GLIDE-ON — new exterior masonry finish for stucco, brick and asbestos shingles. Brick at left painted with SPRED GLIDE-ON did not peel, chip or flake in four years.

New catalog includes complete specifications and product guide, selector charts, color chips, information on special finishes of all types — this book is a must for reference; training of personnel; purchasing guide.

Now Glidden offers a no-cost, no-obligation analysis of any commercial and institutional painting problem. This new service can be as comprehensive as you wish—anything from stain for a paneled office to special paint formulations to end corrosion on a water tower. A Glidden Painting Analysis can help you train personnel, work out safety markings, make color efficiency tests or work out complete office and plant redecoration!

Pictures at left show a few of the ways a Glidden Painting Analysis can help you. For more information or for specific helps, fill in coupon below.

Glidden Professional Finishes
The Glidden Company
Maintenance Finishes Division
Cleveland 2, Ohio

Fill in and mail to The Glidden Co., Dept. AF-1155
11001 Madison Ave., Cleveland 2, Ohio

[ ] I am interested in complete details of Glidden Painting Analysis.
[ ] I am particularly interested in:
  [ ] NEV-A-RUST; other anti-corrosion finishes.
  [ ] Product demonstrations for training purposes.
  [ ] Color Studio Service
  [ ] SPRED GLIDE-ON
  [ ] New Glidden complete-line catalog

Name ____________________________
Title ____________________________
Company _________________________
Address __________________________
City _____________________________ Zone ______ State ______
There’s extra bustle, these days, in busy midtown Manhattan. It’s caused by the construction of a new 42-story, 45-million dollar Socony-Vacuum Building... New York’s largest in 25 years.

Most distinctive architectural feature of this robust giant will be its stainless steel skin. An armor of 0.037” thick 18-8 chromium-nickel stainless, type 302, was chosen for very practical reasons. Not only will stainless walls mean lasting beauty, but they’ll save many tons of excess weight. For the stainless skin will weigh only 1½ lbs. per sq. ft., as compared to 48 lbs. per sq. ft., for a 4” brick exterior wall.

Crucible is one of several leading producers who are supplying the stainless steel for this skyscraper. When completed it will be the largest metal-sheathed office building in the world. In planning your next project consider the advantages of stainless. For helpful suggestions, write for your copy of “A Guide to Future Uses of Stainless Steel in Architecture and Building.” Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 30, Pa.
Here's the world's first commercially successful SPEEDWALK in operation at an eastern railroad terminal. In less than two years it has handled almost 2 million passengers. By eliminating a fatiguing uphill climb the moving sidewalk has increased commuter travel 4½%, countering a downward trend in revenue.

Carrying visitors to and from an elevated display at a midwestern exposition, two SPEEDWALK units eliminated the hazardous and fatiguing effort of climbing stairs. Fifty-two feet long, the passenger conveyors operated on a 14½ degree slope. Total attendance at the exposition ran over 3 million people.

**It's Here Now!**

**Speedwalk**

MINIMIZES TRAFFIC CONGESTION AND PEDESTRIAN

SPEEDWALK passenger conveyors are operating now! . . . and have been since 1952! Backed by intensive research and testing, these passenger-proven Stephens-Adamson systems are making pedestrian travel easier, quicker and safer.

Wherever large crowds must be moved, whether inside or out, the SPEEDWALK has an important contribution to make . . . at a cost well within the budget limitations of most projects. Since the weight of SPEEDWALK systems on a per square foot basis is relatively low, they can be incorporated easily into existing structures.

The Stephens-Adamson SPEEDWALK is backed by over fifty years in the field of engineered conveyor systems. It is this experience, coupled with intensive physiological and psychological research on people, which has already made the SPEEDWALK an acceptable mode of travel to thousands of passengers now using it daily.

Stephens-Adamson engineers welcome the opportunity to discuss your transportation problems with you. Your inquiry will receive prompt attention.

**WHERE YOU CAN USE THE SPEEDWALK:**

- Railroad Terminals
- Airports
- Industrial Plants
- Department Stores
- Parking Lots
- Shopping Centers
- Bus Terminals
- Stadiums
- Congested Metropolitan Areas
- WHEREVER LARGE CROWDS CONGREGATE
At this Ohio industrial plant, employees are carried up an incline to the plant gates in an effortless and orderly flow. By regulating the pedestrian traffic pattern, this SPEEDWALK eliminates jostling and crowding. Other SPEEDWALK installations in industry are underway to boost employee morale and promote safer working conditions.

A Chicago museum is the site for this SPEEDWALK installation. It began operation in November of 1952 and has carried thousands of adults and children past a colorful industrial display. Visitors pass through the area at a measured speed which enables them to devote complete attention to the exhibit.

The passenger-proven moving sidewalk system

FATIGUE...WITH INCREASED SPEED AND SAFETY

Get all the facts

write for detailed information concerning S-A SPEEDWALK passenger conveyor systems. A colorful illustrated brochure is available for the asking.

27 Ridgeway Ave., Aurora, Illinois

Gentlemen:
Kindly send me detailed data on S-A SPEEDWALK systems.

Name: ____________________________
Title: ____________________________
Company: _________________________
Address: __________________________
City: __________________ Zone: ____ State: ______

* A Registered Trade Name

SPEEDWALK

STEWEN’S-ADAMSON

AURORA, ILLINOIS  LOS ANGELES, CALIF.
BELLEVILLE, ONTARIO, CANADA
MORTAR JOINT REINFORCING doubles stress resistance of masonry wall

Corner and stretcher sections of heavy-duty mortar joint reinforcement for 4" to 12" brick and concrete block walls are now being produced by Adrian Peerless in addition to the firm's standard weight Wal-Lok reinforcing. The new Superstandard grade, with knurled and serrated 3/16" stretcher bars of 100,000-lb. tensile-strength steel and cross bars of 9-ga. steel, offsets wall strains brought on by changes in masonry moisture content, and differences in inside and outside temperatures. It is also reported to give the masonry wall twice the resistance to stresses caused by foundation failures and water or wind pressures. For efficient mortar anchorage, the welded cross bars are designed to project but are galvanized to prevent any corrosion should they be exposed. (If the stretcher bars were galvanized they would slip, so they are not treated.)

In tests conducted by the University of Toledo's Research Foundation, two 3'-4" x 9'-4" panels were made up of 8"-high cin-
Handles All Inside Calls
...and does it handsomely

ARCHITECTS:
Dealer Consultation — Kellogg franchised representatives, located in all principal cities in the U.S. and Canada, are trained and experienced in intercommunications. They're qualified to give you valuable assistance in all stages of planning for internal communication.

Automatic SELECT-O-PHONE goes direct — requires no operator — gives you instant "priority service" between two, three or more parties. Conversations are always private. All stations call each other at the quick flick of a dial. New SELECT-O-PHONE INSTRUMENT is handsome evidence of continued progress and leadership by Kellogg Intercommunication Systems! Completely new — features instant-action dial and ringing button — complimentary brown finish enhances any desk.

SYSTEM REGISTRATION — Under Kellogg's exclusive Registration Warranty, your client's system is always assured of proper maintenance and service.

FAST! ... AUTOMATIC! ... GUARANTEED! KELLOGG INTERCOMMUNICATION SYSTEMS FOR ANY BUSINESS, ANY BUDGET.

KELLOGG SELECT-O-PHONE (illustrated above) — Recommended for systems of up through 55 stations.
KELLOGG RELAYMATIC for systems requiring more than 55 stations. Provides for any future expansion!
SELECT-O-PHONE EXECUTIVE STATION, especially designed for Executive use, puts key men at your fingertips! No buttons to hold — leaves both hands free.

Kellogg Switchboard and Supply Company
Commercial Products Dept. 76K
79 West Monroe Street, Chicago 2, Illinois
Send me your free INTERCOMMUNICATIONS ARCHITECTURAL PLANNING KIT.

Send for FREE INTERCOMMUNICATIONS ARCHITECTURAL PLANNING KIT.

"FINELINE", the outstanding new veneer development in years, guarantees rich wood paneling with UNIFORM beauty! In addition, plywood panels made of "FINELINE", save the architect time and bother; they save the client money!

Because "FINELINE" is a manufactured wood veneer, produced through an exclusive new process developed by Williamson, there is no need for the architect to spend long hours seeking matching wood panels! "FINELINE" panels are made to match!

"FINELINE" has been tested in leading laboratories for durability and finish under all conditions. Panels of "FINELINE" have added unusual beauty to architectural jobs in hotels, public buildings, banks, and homes (details supplied on request).

Write or call either of firms below for sample kits of "FINELINE".

The WILLIAMSON VENEER COMPANY
Manufacturers of "FINELINE" VENEERS
Cockeysville, Maryland
Phone: Cockeysville 750

OLD DOMINION PLYWOOD CORPORATION
Manufacturers of "FINELINE" PANELING
Bristol, Virginia
Phone: North 1096
Another Acousti-Celotex Exclusive!

**STEELACOUSTIC PANELS**
new, economical sound conditioning material and suspension system

Note these Outstanding STEELACOUSTIC Features:

- **Incombustible**—In accordance with requirements of Federal Specification SS-A-118b, Class A Incombustible, as tested and reported by the Acoustical Materials Association.
- **High Sound Absorption**—.70 noise reduction coefficient for less noise, better hearing. Linear openings in the face of each panel permit sound to pass through to a sound-absorbing element laminated to the back.
- **Easy Maintenance**—Maximum washability of baked enamel finish on all exposed surfaces. Panels may also be repainted without loss of sound absorption.
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Manufacturer: Tubular Structures Corp. of America, 2960 Marsh St., Los Angeles 39, Calif.

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See St. Regis Panelyte in SWEET'S Architectural File.¹²

*Performance standards set for the industry by the National Electrical Manufacturers' Association for thermo-setting decorative laminates.

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To help sell your clients on this modern mode in rest room design, write for our free booklet, "Behind Closed Doors." 110-3

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See our catalog in Sweet's Architectural File and Industrial Construction File.

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PRODUCTS
Continued from p. 260

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Lighting Fixture Guide. General Electric Co., Nela Park, Cleveland 12, Ohio. 50 pp. 50a

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Alcoa Architectural Aluminum: Care During Construction and Maintenance. Two booklets. Aluminum Co. of America, 700 Alcoa Building, Pittsburgh 19, Pa.

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