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* For a given set of materials and water-cement ratio, unit water content (water required per cubic yard of concrete) is the most important basic factor affecting the quality of concrete. A.C.I., Committee 613, 1944 Report, Page 655. Bureau of Reclamation Concrete Manual, 5th edition, Page 120.

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*For complete story on this project see Engineering News-Record, July 28, 1955, Pages 34-37.
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October 1955

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The illustration above shows Mahon Wide-flange Double Rib Steel Deck installed over bowstring trusses of a new roller skating rink. Year after year, Steel Deck roofs a greater percentage of new construction... and, it will continue to do so, because it weighs less and it costs less than any other type of permanent roof construction. Mahon Steel Deck is now available in the five Sections shown at left. The Long Span M-Deck Sections can be employed either with flat plate up or flat plate down... they span from beam to beam, eliminating roof purlins, and, when installed with flat plate up, they produce an attractive beamed ceiling effect. In either position, the bottom metal can be perforated and sound absorbing material inserted in the Cel-Beams to provide a highly effective acoustical ceiling. See Sweet's files for information, or write for Mahon Catalogs D-56 and M-56.
It's the Law by Bernard Tomson

P/A Office Practice column on the legal aspects of architecture and engineering. This month's column supplements Tomson's Architectural & Engineering Law (Reinhold, 1951) by reporting summaries of cases decided since publication of the book.

PART IV.
The Decision or Certificate of the Architect or Engineer

Chapter 16—Architect or Engineer Not Permitted to Construe Contract
California. Stein v. Drake, 254 P. 2d 613 (1953). A clause in a building contract which provided that "all questions as to the rights and obligations of the parties arising under the terms of the contract, the plans and specifications are subject to arbitration" was held to be sufficiently enforceable and was irrevocable to the extent defined under the California statute. However, the Court reversed the decision of a lower Court, confirming the arbitrator's award, on the ground that it invaded the defendant's right first to have determination, on the ground that it invaded the defendant's right first to have determined by a Court that a valid and enforceable contract existed.

PART V.
Rights of Architects and Engineers: Compensation

Chapter 20—Right to Compensation
Washington. Jones v. Briabin, 247 P. 2d 891 (1952). In a suit for services rendered where the Architect offered advice, suggested changes, and furnished other services and the Owner failed to reject the offered services but took the benefit of them under circumstances which would lead a reasonable man to believe they were offered for compensation, an implied contract arises and the Architect is entitled to be compensated.

Ohio. Burton, Inc. v. Durkee, 106 N.E. 2d 313 (1951). The building contract was on a cost-plus-fee basis. Before the job was completed, a dispute arose as to the amount then due, and, because of the nonpayment of bills, the Contractor refused to proceed further and withdrew from the job. It was held that, if the Contractor's withdrawal was legally justified upon the facts, the Owner was liable for the actual cost incurred to the date of the termination of the agreement, together with the fee provided for in the contract, if that was a definite amount, provided the Contractor had not been guilty of malfeasance, extravagance, wastefulness, negligence, or laxity.

Ohio. Dougherty v. Iredale, 108 N.E. 2d 754 (1952). In an action by the guardian of an incompetent against the Building Contractor, the Court held that where the construction contract called for work to be done on a time and materials basis, the Contractor was excluded from charging any overhead expenses and from adding any percentage of profits, as is customary in a cost plus contract.

Ohio. Charles A. Burton, Inc. v. Durkee, 109 N.E. 2d 650 (1952). A Contractor sued for the unpaid balance of a construction contract which he claimed was to be on a cost-plus-fee basis. The Owners claimed that compensation was to be on a fixed fee basis only. The Court held that the evidence indicated a cost plus a fixed fee basis and that the Owners were entitled to offset against such costs the damages suffered by them by reason of any malfeasance, extravagance, wastefulness, or negligence in the execution of the work.

Missouri. Tatez v. Groff, 253 S.W. 2d 824 (1953). In a suit based on a contract which provided that compensation would be based on a percentage of the building cost, the Court held that the many changes and additions which were made and which increased the final cost did not effect abandonment of the original contract on the part of the Owners. The Contractor had based his suit, not on the contract, but on the theory of recovering for the reasonable value of services rendered. The Court said that the Contractor's recovery could not exceed the contract price. Furthermore, where the Contractor obtained certain items at wholesale he was not entitled to a percentage above the reasonable market value of the items, but was restricted to the actual cost to him as the basis of computing his compensation.

Florida. Ungaro v. West Palm Beach Biltmore Apartments, 61 S. 2d 442 (1952). An Architect entered into a contract to draw plans and prepare specifications for a project and to secure a loan from the FHA as sponsor, and to make certain loans as working capital, if and when needed, for completion of the project. For these services he was to receive architectural fees and commissions. The Court found that, in the absence of a surplus remaining after completion of the project, the sums owed did not become due and payable under the contract until the net revenue from the project should permit.

October 1955
The Cincinnati Gas and Electric Company has provided for future as well as present efficiency in the use of space throughout its new building. Space Control has been accomplished by forming the attractive interiors with Mills Movable Walls. Whenever changing space requirements make new layouts advisable, these walls can be rearranged —quickly, easily and at very low cost—without dust, debris, commotion or interruption of normal space usage. Mills Walls combine this efficient flexibility with distinctive architectural design and structural stability. They are fully insulated and soundproofed, and require no maintenance whatever except occasional washing to keep them looking always their efficient best.

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Mechanical Engineering Critique by William J. McGuinness

William J. McGuinness, author of this new monthly column concerned with mechanical and electrical design and equipment, is well qualified for his assignment. McGuinness is entering his 15th year as Professor of Architecture at Pratt Institute in Brooklyn, has had wide experience with his own firm of McGuinness & Duncan, Engineers, and is co-author of the recent edition of Mechanical and Electrical Equipment for Buildings written by Gay, Facett, and McGuinness. He will also be remembered by many P/A readers as a frequent contributor over the past seven years.

HTHW Central Heating

Those of us who would like to know more about the actual working of high-temperature, hot-water central heating (known familiarly as HTHW) can learn much from studying a recent Air Force installation at McGuire Field, Wrightstown, New Jersey. HTHW is growing in popularity and this $4-million system is one of the largest installed anywhere in the world. Seventy-five buildings are heated by this closed-circuit system from a 6000-hp central boiler plant which supplies water through three zones (one now a standby for future expansion).

Heating exchangers at the individual buildings operate low-temperature (200 F), low-pressure, forced-circulation hot-water systems. Thus, comparisons can be made, in studying this plant, with conventional high-pressure steam distribution and with low-pressure, forced hot-water systems that operate so well within the limits of a building.

Heating Plant: Four radiant-type boilers, with no baffles, produce the total required horsepower and the walls of these tall, box-like units are virtually unlined with coiled water tubes. Water within the tubes is pumped upward, following the fire, and is heated more by the direct radiant effect of the fire than by the convective effect of flame travel. The steam plant is not exceeded. Coal is charged into the furnace from a hopper and combustion takes place in the air; the ashes fall to a traveling grate. Beside the fact that coal is a dependable source in case oil becomes scarce, coal was chosen because of the proximity of supply and cheapness. (Oil has been chosen for other bases, however.) Stack temperature and a record of the combustion efficiency are automatically tabulated; drafts and other adjustments are regulated automatically from a mechanical examination of the flue gases.

Distribution mains: Water is circulated to all buildings at 400 F, 285-psi pressure, and under full-heating load it is returned at 200 F. The temperature drop in the full length of the supply main is 10 F and the line losses are about one-half of one percent. Losses in a comparable steam system, on the other hand, might be three or four percent and could occasionally run as high as 10 percent. Supply and return mains in water systems are the same size because all of the water returns. The size of main in a typical zone is 12 in.; a steam zone of equal capacity might require a 24-in. diameter main. Such small sizes were achieved by selecting a greater than normal water velocity.

Insulation and pipe expansion: To achieve such a transmission economy, all mains are imbedded in lightweight insulating concrete. A corrugated-paper slip joint between the pipes and the concrete accommodates pipe expansion. Both supply and return mains are cordian-like assemblies with alternating anchor points and expansion loops spaced about 100 ft apart. Except for a few small-size pipes in the boiler room, all piping is welded and tested for 500 psi; therefore, the only points of possible leakage are at valves, pumps, air vents, and drains.

Control, venting, and drainage: Following the route of supply-and-return pairs of pipe is a compressed-air main supplied with air from the main boiler house. This air is used to operate valves and other controls in the mains and at the buildings. A steam main must pitch uniformly in the direction of steam flow and be dripped by a trap wherever it rises to a higher level. Water mains, however, can follow the contour of the ground and, thus, save a lot of excavation. Manholes are provided at high points for air venting, at low points for drainage, and at locations of valve branches to future mains. Because steam is used as a cushion rather than air, the small amount of air trapped within the system actually is reduced with use. Check-up crews making monthly visits to air-vent points usually find little to do.

Secondary circuits within buildings: At points of demand, high-temperature water is taken from the supply main, passed through a heat exchanger, and circulated (cooler) to the return main. The branch pipes and heat exchangers are surprisingly small. For instance, an operations building and a maintenance building are served jointly by 1/4-in. supply and return branches of primary, high-temperature water. The heat exchanger is four in. in diameter and three ft long to supply these buildings. The exchanges heat low-pressure hot water for heating within the buildings. A certain number of unit heaters are supplied directly by the high-temperature water; however, units must first be checked for their ability to withstand pressure of the primary water.

Maintenance and operation: Because of the continual reuse of water with little leakage, the corrosive action of the water is negligible and losses are made up from a small supply of treated water. One may use ordinary, schedule-40, black-iron pipe, such as that used in small steam systems for houses. The absence of pressure-reducing valves, steam traps, and other fittings common to steam systems makes the policing of pipe lines very easy. The efficiency of the automatic controls lightens operational problems and permits operation of the plant for long periods without the direct attention of a resident operating engineer.

Speed of installation: By detailing all parts in advance and prefabricating expansion joints and all other possible assemblies, the entire installation was completed in 13 months—proving that a HTHW system can be installed as fast as other types with which the mechanics are familiar through years of practice.

The system was designed by American Hydratherm Corporation in collaboration with the Army Corps of Engineers, Paul Gelringer, Chief Engineer for American Hydratherm, was in charge of design and Al Sage, Chief Engineer for Charles Simkin & Sons, Inc., was in charge of the installation. Architects for the job were Adache & Case.
Little Drops of Water (Condensation)

Ruined a Fine Home
Cost over a Million Dollars to an Apartment Development

The owners of a path-breaking apartment development had to pay a repair bill of over a MILLION DOLLARS for ripping out condensation-soaked insulation and replacing damaged plaster walls.

It was necessary to move a fine country home to a new site—the state highway was coming through. It could not be done. The sills of the house had rotted on account of condensation in the walls.

Today’s tightly built, high-humidity houses create vapor problems. Vapor, which is a gas, has 1/205,000 the density of water at 32° F; about one millionth the density at 0° F. Sometimes there is excessive flow of vapor THROUGH walls and ceilings into cold building spaces. This enhances the formation of destructive condensation, especially where an adequate vapor barrier is lacking, or where there is one with too many breaks, or which while waterproof is not sufficiently vapor-proof.

METALS ARE THE BEST VAPOR BARRIERS

There is now a new*, multiple aluminum, which forms a continuous, edge-to-edge “blanket” of uniform depth between studs or joists, giving the entire area maximum protection against vapor-flow and condensation formation as well as against heat loss or intrusion.

The aluminum sheets, 375 ft. to 750 ft. long are almost impervious to water vapor. Infiltration under the flat stapled flanges is slight. Condensation formation, on or within this type of insulation is minimized because of the scientific construction of multiple layers of aluminum, fiber, and air spaces.

The surfaces of this aluminum have high heat ray reflectivity (97%); low absorptivity (3%); and low emissivity (3%). Conduction is slight because of preponderant air spaces of low density. Aluminum and fiber layers retard convection, outer and inner. It is available, prefabricated, as Infra Type 6 or Type 4.

The U.S. NATIONAL BUREAU OF STANDARDS has published an informative booklet describing the destruction that condensation can cause and means of prevention. It is entitled “Moisture Condensation in Building Walls.” Send us coupon for a FREE copy.

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*Patent applied for.
The Architect as a Government Contractor

by Robley D. Stevens

P/A Office Practice article on the payroll, record-keeping, and other requirements for architects on Federal Government contracts.

Architectural firms doing work for agencies of the United States Government have an interest in the Walsh-Healey Public Contracts Act.

If you have a contract with the Atomic Energy Commission, with the Department of Defense—Army, Navy, or Air Force—or are doing work under a government contract with one of the other federal agencies, it is essential to know and understand the labor provisions resulting from this monumental labor law, in order to protect yourself against unwitting violations.

When this writer was a law-enforcement agent of the Wage-Hour & Public Contracts Divisions, U.S. Department of Labor, he checked several architectural organizations and in some instances found them to be in noncompliance. In any event, it will be good judgment on your part to consult with your own lawyer in order that he may give you the interpretation, guidance, and corrective action you may need.

The Walsh-Healey Public Contracts Act applies to “any contract made and entered into by any executive department, independent establishment, or other agency or instrumentalities of the United States, for the manufacturing or furnishing of materials, supplies, articles, or equipment in any amount exceeding $10,000.” The architectural (government) contractor should take care not to confuse the minimum wage and other provisions of the Walsh-Healey Act with the corresponding provisions of that other major federal labor law—the Fair Labor Standards Act—which applies to employees engaged in interstate commerce or in the production of goods for interstate commerce. However, practically all architectural organizations who must observe the Walsh-Healey Act’s requirements also operate under the provisions of this other labor law.

Among the categories of employees held to be employees engaged in or connected with the performance of the Government contract (unless they meet the qualifications of executive, administrative, or professional workers as defined in Section 13(a) (1) of the Federal Wage-Hour Law) are the following: technical workers closely associated with the productive processes involved; laboratory technicians engaged in the testing of materials used in the productive processes, necessary to the products or services supplied to the government; draftsmen engaged in the preparation of drawings; operators of blueprint machines engaged in making blueprints, required to be supplied to the government; tool designers who actually design on paper the tools and instruments to be used in the performance of the government contract; time-study men who set the standard times and piece-work operations performed on the government contract; dispatchers and trouble shooters whose duties are to expedite parts and materials to the place and at the times needed for continuance of productive operations on the government contract. In other words, architectural organizations should observe that not all their employees are affected by the provisions of the Walsh-Healey Act.

minimum wages and overtime

The minimum pay required under the Walsh-Healey Act is not fixed by statute itself; the Secretary of Labor is authorized to issue a minimum wage determination. But in the case of the Fair Labor Standards Amendments, Section 6 provides for a minimum wage rate at 75 cents per hour.

The Walsh-Healey Act sets no limit on the number of hours in which employees of your architectural firm may work by the day or week. However, the overtime pay requirements of this Act provide for the payment of not less than one and one-half times the employee’s basic rate for all hours worked in excess of 8 hours in any one day or 40 in the week, whichever yields the greater amount to the worker.

Suppose several of the employees in your architectural firm covered by the Walsh-Healey Act work 10 hours a day for six days in a workweek. Their hours of work in excess of eight in a day would be twelve, for that week. But since they worked a total of 60 hours in the workweek, their hours of work in excess of 40 in the workweek would be 20. Thus they should be paid at the overtime
One of the five First Honor Awards in the American Institute of Architects' 7th Annual Competition for Outstanding American Architecture goes this year to the office building of the General Telephone Company of the Southwest, San Angelo, Texas.

Fittingly, the job of distributing air throughout the building has been entrusted to Kno-Draft Adjustable Air Diffusers.

In Kno-Draft you have true functional beauty — clean, simple lines in spun aluminum, handsome in its own right or when painted to blend into the ceiling — combined with a high diffusion efficiency that means ideal comfort.

And with Kno-Draft, the volume and pattern of air flow can be accurately adjusted after installation — assuring uniform temperature without drafts throughout the area and saving a lot of preliminary slide-rule figuring.

There are round, square and slot-type Kno-Draft Air Diffusers to meet all architectural requirements. For complete specifications, send for the Kno-Draft Data Book. Connor Engineering Corporation, Dept. N-105, Danbury, Connecticut.
rate—time and one-half—for the 20 hours. On the other hand, suppose an employe in your architectural firm works nine hours a day for only three days per week while your architectural firm is a government contractor. In this case, the employe so covered would be entitled to overtime for each hour in excess of eight in the workday—or for three hours per week.

An increase in the rate of pay after the beginning of work on a government contract subject to the Walsh-Healey Act should not be considered as payment in lieu of overtime pay. In general, time worked during another day or week in order to make up for time lost on a holiday, or in anticipation thereof, should be included as hours worked in the day or week in which the work is actually performed, according to the rulings of the Wage-Hour & Public Contracts Divisions. Architectural firms will be able to avoid unintentional violations of the overtime-pay requirements of the Walsh-Healey Act if they will remember that these provisions apply to an employe in any workday or workweek during which he performs any work on a government contract, let subject to the Walsh-Healey Act.

requirements and enforcement
A government contract is a complex legal document containing many highly technical provisions. When an architect fails to read and understand them completely, the result may be misunderstanding, financial loss, or even court action. For instance, every government contract let under the Walsh-Healey Act contains a stipulation that the work must not be performed under conditions which are insanitary or dangerous for the employes.

In the case of one architectural-engineering firm (Case No. PC-480, July 25, 1952) the Court stated: "The respondents are charged in a complaint signed by the Secretary of Labor with failure to pay their required minimum and overtime performance of contracts subject to the Act. Respondents also are charged with requiring employees engaged in the performance of the contracts to work surrounding and under conditions which are insanitary, hazardous, and dangerous to the health and safety of said employees. Upon the entire record, it hereby is ordered that the respondent pay to the United States of America, the sum of $13,306.59, as shown by the attached schedule as liquidated damages resulting from the failure to pay the required minimum and overtime wages; and it is recommended that the Secretary of Labor take appropriate action to relieve respondents of the penalty provided by Section 3 of the Act, upon payment of the damages herein found to be due to the United States."

In addition to liquidated damages assessable as a result of contract violations, an architectural firm guilty of nonfulfillment of statutory requirements may find itself involved in a cancellation of the contract; it may be barred from further government contracts for three years from the date the Secretary of Labor determines such a breach to have occurred; or it may be subject to fines or costly suits by the government to recover unpaid minimum or overtime compensation from amounts due under the government contract.

records
Once your architectural firm accepts a Walsh-Healey Contract it will have to comply with the basic labor standards provided. Make sure that you know what architectural workers are covered, what workers must be paid overtime, and under what conditions. But further than that, be sure to audit your payroll records and tie both in with the requirements. These records must be available for inspection purposes. They should present no undue burden. No special form or order is prescribed. The usual record-keeping data should suffice if they contain the following information.

1. Name of employe working on Government contract.
2. Home address.
3. Occupation in which employed.
4. Date of birth if under 19 years of age.
5. Rate of pay.
6. Amount paid each pay period.
7. Hours worked each day and each week.
8. Period during which each employe was engaged on government contract.
9. Date of payment and period covered by payment.
10. All additions and deductions from wages paid.
11. Total wages paid each pay period.
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The couplings are fortified by the same Sherardizing process of dry galvanizing that provides lifetime protection for Sherarduct conduit. Sherardizing actually alloys pure zinc with the steel wall of the conduit (including the hills and valleys of every thread), providing a permanent barrier to corrosives.

During the Sherardizing process, the steel conduit is normalized by gradual heating and cooling. Thus the conduit can be easily bent and formed on the job without springback or deformation.

After Sherardizing, a special clear acid-resistant coating, called Shera-enamel, is baked on inside and out. This completes the protection of all surfaces from corrosion, and produces a smooth raceway for fast, easy fishing of conductors.

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convention assessed

Dear Editor: Your reactions to the recent AIA Convention (P.S., August 1955 P/A) will parallel those of most thoughtful observers. Sometimes the AIA insists on behaving more like a trade association than a professional society, and the Friday session was one of those occasions. But the fault lies with the membership rather than the structure or function of the organization.

I was appalled by the large number of younger men who voted against the resolution on competitions for public work, despite the fact that younger men would have been the beneficiaries. When the fantastic resolution that AIA withdraw from UNESCO was brought forth, it was disposed of with adroit parliamentary maneuvering; but the convention did not take a forthright stand against this added piece of Legion-backed foolishness.

Whether or not the AIA should have entered into the controversy regarding the Air Academy was a moot question. There was very little discussion on the floor. Once the decision was made, however, the responsibility was abruptly shifted to the Executive Secretary.

It is not at all certain that we have heard the end of the problem which a wit in the Journal recently referred to as "The Face on the Drafting Room Floor."

The technical seminars were enlightening for those at the front who could hear, but too much of the sound and fury in the Junior Ball Room penetrated the velvet hangings of the Main Ball Room for studious appraisal. I thought the attendance on Friday was quite good, considering that it was the fifth day in town for most of the delegates.

JAMES ARKIN
Chicago, Ill.

and demand for the further education of the practicing architect. I believe his suggestions as to method come very close to the bull's-eye. GEORGE F. PIERCE, JR.

Houston, Tex.

analysis (continued)

Dear Editor: Let me add a bit in reply to Kaestner's answer to my "critique" of the pleasant school building in Porterville, California (views, August 1955 P/A).

1. The AISC Specification which applies to the flange-less cantilever is Section 15(a)—(3). In setting up in this case, should not "I" be doubled, because the outer end is not restrained against transverse rotation (the web, that is)? And who shall say what "d" and "t" shall be? If "t" is taken at 1/2 in. then "f" for the 10 WF 33 of the upper overhand figures something like 5300 psi, and for the 10 WF 25-6500 psi, which is undoubtedly adequate for this roof with no threat of snow or high wind.

2. Having a flange added to the bottom edge of the upper projection would make an interrupted mullion necessary at the frame, but little light would be lost. Hav-

(Continued on page 14)

Editor's note: "Anon," "Indignant Reader," and others with acid comments on the P/A editorial efforts have been sending us letters again! We regret that such letters are not signed by the readers so that they might be published in the magazine. It must be obvious to all who have followed the views section that the P/A Editors do not hesitate to report the brickbats as well as the kind words. Aside from the nature of the comments, we feel that there is something unfriendly about any furtive, unsigned letter.

Too bad some lively ones have to go into the wastebasket! C. M.
ing the upper edge of the glass tight to the ceiling is an architectural matter.

3. If another section was used for the stunt at the column, perhaps it was kept clear of the wood deck.

4. & 5. Climate, environment, and the scale and shape of a building are important in its weathering. RALPH E. BRADDON

Cleveland, Ohio

Dear Editor: As a subscriber to P/A and a persistent reader of SPEC SMALL TALK, and with a background of over 20 years in specification writing, purchasing, and subcontracting, I can vouch for the truth of some of John A. Boland's statements and sympathize with his plaint (SPEC SMALL TALK, July 1955 P/A). I am not familiar with his vapor barrier, but that is not germane to the major issue.

Every purchasing agent of experience has learned long ago that the qualified sales representative is his best friend. It is high time that the architect and engineer should begin regarding these gentlemen with equal respect. The specification writer must, if he expects to stay in business; and I think most of them do value their contacts with sales people who really know their products. Personally, I endeavor to afford time to see every sales representative whose materials or processes have any bearing on the work at hand, and others are given courteous hearing before being dismissed. These contacts have enabled me to initiate quite a few ideas which proved of value to the designing architects and engineers, making the little extra effort well worth while.

GEORGE CLARK
Bechtel Corporation
San Francisco, Calif.

In this spacious Connecticut school, the architects and school officials have planned with comfort and convenience well in mind! That's why Halsey Taylor coolers were specified throughout, for no drinking-water fixtures so successfully combine maximum utility with minimum maintenance!

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The Halsey W. Taylor Co.
Warren, Ohio

Dear Editor: It is good to read about Cocke, Bowman & York (June 1955 P/A) of Harlingen, Texas, and to see the good, fresh, functional architecture designed by them. They are performing a real service for their community and deserve the gratitude of the profession as a whole.

WILLIAM F. R. BALLARD
New York, N.Y.

Dear Editor: In a current issue of a business weekly magazine, it is reported that constant flexing by traffic of the structure of the San Francisco Golden Gate Bridge has caused its rivets to work loose. One by one these rivets are being replaced with bolts.

Other bridges and riveted structures have had the same difficulty with loose rivets. If these bridges had been built with welded construction, which is the simplest way to fabricate steel structures, this extremely expensive procedure of replacing rivets would never be necessary. Furthermore, leading structural authorities state that welded bridges can be and are built with at least 20 percent savings in the amount of steel used.

(Continued on page 16)
MATICO Confetti®
meets every hospital flooring need
— with the rare “plus” of cheerful styling

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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).

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 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 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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European countries have had a long, successful experience of saving steel with not only welded bridges of long spans but also all types of steel structures. For almost 20 years, highway and railroad bridges built in Sweden have been welded.

Why, with the evidence before us proving the advantages of welded construction, we in the United States are slow to take this step of progress is difficult to understand. Some states have adopted policies of using welded construction and others are presently considering it. Nevertheless, our educators, schools, highway officials, and the people who design and make bridges and other steel structures have a responsibility to make this progress as rapidly as possible.

The country is undertaking a gigantic road-building program which will entail the building of many bridges with public funds. Will these bridges be obsolete before they are built? CHARLES G. HERBRUCK
The Lincoln Electric Company
Cleveland, Ohio

one visitor approves

Dear Editor: On a recent trip to America, I was confined to the study of buildings recently erected in the Northeast of the country.

I was exceedingly impressed by much of the work which I saw, particularly in the field of preplanning and the organization of contract work.

I should also like to express my appreciation of the uniform friendliness and courtesy with which I was greeted and the help which I received from all ranks of the profession and the building industry.

I returned home stimulated and excited by my visit. JAMES F. MUNCE
Belfast, Northern Ireland

educational centers

Dear Editor: As a fairly recent subscriber to PROGRESSIVE ARCHITECTURE, I would like to let you know how much a complete amateur enjoys your magazine. Ever since the March 1955 issue published those fascinating plans for elementary schools, I have been caught in a thought-cycle from which some interesting (I believe) ideas have emerged.

In Detroit, we have been investigating and re-evaluating our educational methods, procedures, etc., and I have discovered that there seems to be a deep change occurring in our basic concepts of education. Because of this, I believe that the school building, as such, is about to undergo a great change in its role as a functional building.

I was curious to know whether some societally interested architect had felt this change and envisioned (as I have) a new “educational center” as the hub of the surrounding residential area. The “center,” laid out campus-wise or perhaps in

(Raw text continues on page 19)
the style of our new shopping center, “Northland,” might include housing facilities for community activities as well as public school activities. It seems possible that a district, the size of four present elementary school districts, would find these facilities within easy reach and thus the building of one large center would be perhaps more economical than the building of four additions to existing school buildings as well as needed recreation and community buildings. It would then result in release of space used for these activities in existing school buildings, which could be converted into additional classrooms.

It has long seemed a considerable waste of facilities and manpower for a community to support two separate groups of buildings and staffs, one for general community use and one exclusively for the public schools, neither of which would be used to capacity. With some degree of co-operation between commercially run and publically financed buildings, a satisfactory arrangement for the renting or allocating of space for private, public, and school activities should be possible.

The following are a few details as to what the center would include. I see it as a large building with adequate parking space surrounding it. Playgrounds and athletic fields would lie on all four sides. The ground floor of the “center” would house two small-to-medium auditoriums, one at either end of the building. Doors at the back of these would open into small music rooms, suitable for individual or small group instruction.

To the left and right of the auditoriums and groups of music rooms, along the outer walls, would be arranged small lounges which could be made available to the schools or general public for club meetings, special classrooms, or lounges. Separating these two complete units, a hall would run from one outer wall to the other, lined with show-cases so that this could be used as an exhibition hall for art, handicraft, and hobby shows. Since these three units would be complete and separate, three different groups presenting three different programs might be utilizing the ground floor at the same time. In the basement, would be found the gymnasiums, swimming pools, etc., while the second story would contain a cafeteria with adjoining rooms, in which home economics could be taught, as well as a library with small reading rooms. The third floor would provide a workshop, and many large rooms necessary for the enjoyment and teaching of many hobbies. It has become increasingly apparent that education is imparted through many and various media and teachers, and with some sort of community center where these facilities were available, I believe that a great deal of the tax load could be lightened.

I hope I have caught the fancy of some architect who will also enjoy playing with the idea for something new in public educational facilities. Syliva Rindfuss

Detroit, Mich.
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Pictured here is the State of New York's new Department of Civil Service Building which with its companion Department of Commerce Building will use 231,359 square feet of Milcor Celluflor.

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Research at Abbott's has paid off in an unbroken dividend record, numerous stock dividends and splits. Many of their famous products such as Nembutal, Pentothal, Erythrocin, Iberol, Vi-Daylin, Selsun and Sucaryl have been developed in laboratories equipped with Powers control.

Versatility of Powers control used at Abbott's is indicated by some of the applications shown here and in the following installations: Air conditioning control systems for auditorium with 900 seating capacity, executive offices and dining room, cafeteria and animal rooms; also controls for tablet machines, demineralized water heaters, autoclaves and many other applications.

When you need automatic control for temperature, humidity or pressure, call your nearest Powers office or write us direct. An experienced Powers engineer will gladly help you select the right type of control for your requirements.
There is a new pattern for family living in America — more children, better health and hygiene, more personal grooming, greater luxury and convenience. All these add up to the need for two bathrooms.

Home designs can be made more desirable and livable with two bathrooms. Home sales can be made much more readily. And installation is so fast, easy and economical with modern, engineered fixtures.

Exceptionally pleasing pastel colors, surfaces hard as glass, exclusive safety and utility features, trouble-free fittings, time-saving installation, realistic prices — these are only a few of the many reasons why Briggs Beautyware is first choice for an ever increasing number of two-bathroom homes.
TWO BATHROOMS—COLONIAL STYLE

Today's living has created the need for two bathrooms, and Beautyware fixtures have made this plan practical in every home. In a colonial residence, you may prefer a bathroom on both floors. You can have them in your choice of five rich, glistening Beautyware colors, or white—in a wide variety of modern contour-styled models—and for much less cost than you may think.

TWO BATHROOMS—RANCH STYLE

For your ranch home, you can have two widely separated bathrooms—each a blend of luxury and utility. For example, Beautyware surfaces are hard as glass, stain resistant, and so easy to keep clean. Beautyware tubs have an exclusive safety bottom. Closets are whisper-quiet. Lavatories are deep-contoured, handsome. In every detail, Beautyware fixtures are smart, durable and practical.

TWO BATHROOMS—CONTEMPORARY STYLE

In a contemporary dwelling, you may prefer a split level floor plan with two adjacent Briggs Beautyware bathrooms. Like all Beautyware two-bathroom plans, this is extremely practical, for Beautyware's matchless quality actually costs less. Better homes everywhere are featuring the practical luxury and convenience of two Beautyware bathrooms for today's modern living.

SPECIFY BEAUTYWARE—TWICE; a product of BRIGGS Manufacturing Company, Detroit 26, Michigan
Gate City’s New “Type H” Wood Awning Window contains Important *asked-for features!

*The development of the new "Type H" unit was based on day-to-day suggestions from architects, builders, dealers and home owners; and concluded by extensive study and research.

NEW SIZES—New, more popular sizes—13 stock sizes—will be stocked for immediate shipment. (48 other sizes available on order.)

CARTON PACKAGING—All stock units are carton packed, 2 per carton. Carton includes screens, extension jambs, cranks and escutcheons. Windows completely assembled and glazed.

ENCLOSED HARDWARE—Redwood covers enclose hardware in jambs and sill. Offers proven advantages of Gate City’s sturdy dual-action hardware PLUS beauty.

WOOD GLAZING BEAD—Glass is bedded in putty with wood bead exterior glazing. Completely eliminates all putty problems.

REDWOOD EXPOSED PARTS—All exposed parts are made of Redwood for superior durability and workability. Available in matched, heart Redwood at slight extra cost when specified.

REMOVABLE DOUBLE GLAZING—Aluminum framed individual storm sash easily applied to each vent. Provides efficient double glazing when desired.

THERMOPANE RABBETING—Standard sash rabbeting will take Thermopane glass, which can easily be installed with wood glass mold.

EXTENSION JAMB GROOVING—Backside of window jambs are grooved to take extension jambs. Tongued extension jambs are furnished with each unit.

In addition to the above features, the new “Type H” window embodies all the qualities, all the advantages that have made Gate City the standard of the awning window industry—fixed hinge operation; simple, sturdy dual-action hardware, inside screens, Perma-Treated wood. With more than 40 years’ experience as window craftsmen, it’s easy to see why more architects, builders and contractors specify Gate City with confidence.

"Push-Button Ventilation" is here! Gate City’s electrically-operated Aluminum Awning Window opens and closes with the flick of a switch. There’s nothing like it for clerestory or otherwise inaccessible installations, and for all openings in your better projects. This superior new Aluminum Awning Window is also available in crank-operated models.

GATE CITY SASH & DOOR CO., DEPT. PA-10
P. O. Box 901, Fort Lauderdale, Florida

Gentlemen: I would like complete information on
- Gate City’s New “Type H” WOOD Awning Window.
- The Gate City "Push-Button" ALUMINUM Awning Window.

Name ____________________________________________
Address ____________________________________________
City ___________________________ Zone __________ State __________

Progressive Architecture

Build it Faster with a Lupton Curtain-Wall

With the new Lupton Simplified Curtain-Wall Systems, buildings can be completed much sooner than with conventional construction. The Lupton Curtain-Walls can be ready for installation even before the building framework is finished, and installed in days. There's no delay because of weather, either . . . installation is done from within the building.

The Lupton Simplified Curtain-Wall Systems offer many features — unusual freedom in design . . . variations in panel sizes, material, texture and color — savings in labor . . . faster building completion — proven dependability . . . completed installations in buildings throughout the country, in all climates — developed in collaboration with leading architects, backed by Lupton’s fifty years' experience in manufacturing Lupton Metal Windows — fewer problems for architects and owners . . . Lupton Curtain-Walls are fabricated and installed by experienced Lupton Craftsmen.

If you are designing a single or multi-story building, add the advantages of modern Lupton Curtain-Walls. Write or wire for data — and help.

MICHAEL FLYNN MANUFACTURING COMPANY
NEW YORK: 51 E. 42nd St., New York 17, N.Y.
LOS ANGELES: 672 S. Lafayette Pk. Place, Los Angeles 57, Cal.
Sales Offices and Representatives in Other Principal Cities
AMCOLENS, an advanced concept in lighting, is the ultimate for the improved illumination of tomorrow.

The precision engineering of AMCOLENS clear prismatic glass lens offers you the lighting of the future with all these unique advantages:

- Crystal clarity
- Undiminished light transmission efficiency
- Unaltered white lamp light transmittance
- Precise light direction control
- Predetermined light distributions
- Minimum brightness in glare zone
- Edge-light on ceiling for contrast relief

AMCOLENS are the result of original ART METAL lens research and are available only in ART METAL complete lighting equipments.

AMCOLENSES ARE ANOTHER Lighting Research DEVELOPMENT OF ART METAL

This enlarged segment of Amcolens illustrates prism detail. AMCOLENS utilizes clear glass prisms, the most exact means known to science for controlling the direction of light.

A cross section of a typical Amcolens shows control of light. Precision engineering achieves multiplied useful light utilization below 60° with minimized glare zone brightness.
18 AMCOLENSES
are precision engineered
for specific lighting applications.

**DEEP ASYMMETRIC**
One Size:
10½" Sq.

**CONVEX**
One Size:
7½" Dia.

**TWO-LIGHT DEEP ASYMMETRIC**
One Size:
9½" x 16½"

**LENSDRUM**
Three Sizes:
9½", 11½", 13½" Dia.

**DEEP SYMMETRIC**
Three Sizes:
6½", 10½", 12" Sq.

**AREALENS**
One Size:
7½" Dia.

**WALLENS**
One Size:
11½" Length

---

**May we send the new catalog?**

ART METAL Catalog 255, dedicated to the advancement of incandescent lighting through original research development, provides detailed information on Amcolens, plus factual data on all ART METAL lighting equipment with unbiased test data on lighting performance, evaluated by Electrical Testing Laboratories, Inc.

*Write to:*

The **ART METAL** Company
CLEVELAND 3, OHIO
Which is the best way to air condition a HOUSE?

WITH A HEATING AND COOLING UNIT ALL-IN-ONE? The Carrier Year-round Weathermaker fits in only 10 sq. ft. of floor space. It burns gas or oil, cools electrically. It is suitable for installation in attic, basement or closet. It is ideal for new homes. Or it may be used to replace an antiquated furnace in a home which is being modernized. Air-cooled models are available.

WITH COOLING ADDED TO A TOP-DELIVERY FURNACE? This Carrier Conversion Weathermaker adds on to the top of any standard warm air furnace. It's ideal for a basement installation like the one illustrated. The section on top of the furnace contains a cooling coil. Small refrigerant lines run from it to an air-cooled refrigeration section located anywhere outdoors.
WITH COOLING ADDED TO A COUNTER-FLOW FURNACE?
This Carrier Conversion Weathermaker fits under any counter-flow furnace. Naturally, it’s ideal for any warm air perimeter system... particularly when the ducts are in the floor slab itself. A separate, compact refrigeration section needs no water for cooling and it may be located in the yard, the garage or carport.

WITH COOLING ADDED TO A HORIZONTAL FURNACE?
This Carrier Conversion Weathermaker pairs happily with any horizontal heater or will fit in a horizontal supply air duct. It may be installed in the crawl space, as shown, or in the basement or attic, as you prefer. With the air-cooled refrigeration section located outdoors, Conversion Weathermakers are notably quiet.

Carrier is the quickest way to the right answer

JUST 1-2 AND THE JOB IS THROUGH!

Carrier has all the ways to air condition any job—and all Carrier equipment is engineered to the same uniform standard. So short-cut hours of selection by (1) using the Carrier line as your shopping guide and then (2) comparing values.

Get in touch with your Carrier dealer or distributor. He’s listed in the Classified Telephone Directory. Or write to us directly. Carrier Corporation, Syracuse, New York.
Vina-Lux floors...fashioned for fifth avenue

Upper bracket stores throughout the country are finding Vina-Lux Reinforced Vinyl Tile the perfect answer to their flooring problems. Its beauty of color, smooth, easy-to-clean surface, and foot-safe resilience qualify it without question as a superior sales back-drop for top-level merchandise.

Vina-Lux matches its own brilliant beauty with outstanding performance day-in and day-out. Regular cleaning and dry buffing enhance its lustrous built-in surface...without the use of costly waxes or floor finishes. Customers like its sure-footed comfort... and sales clerks find a welcome lessening of leg and foot fatigue at the end of the day’s work.

Vina-Lux can help solve your clients’ flooring problems. Why not ask us to have a qualified representative present the full story to you on America’s leading vinyl-asbestos tile?

Vina-Lux

REINFORCED Vinyl Tile

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MAKERS OF VINA-LUX • AZROCK • DURACO • AZPHLEX

Sak’s Fifth Avenue, White Plains, New York • Kuhn & Jacobs, Architects, New York City, N. Y.
Experts say every fingerprint is different—and we say Medusa StoneseT Mortar Cement is as distinctive as fingerprints! It’s the only white masonry cement made from world-famed Medusa White Portland Cement. As a result of this difference . . . this whiteness . . . wonderful things happen to masonry when you specify Medusa StoneseT White Masonry Cement. The unstained, uniformly white mortar joints give your masonry units a far more beautiful appearance. And Medusa StoneseT properly tinted makes mortar that harmonizes perfectly with the exact color of the face brick, stone, marble or glass block units you are using.

But the best part is, you can absolutely depend upon Medusa StoneseT . . . Thousands of buildings—some twenty to twenty-five years old—stand as living testimony of its dependability. For mortar work that is different, insist upon StoneseT.

MEDUSA STONESET
White Masonry Cement

North Oshawa Public School, Oshawa, Canada
How much have you been missing
by not using JAMISON'S extra services?

You may already know of the efficient performance of Jamison Cold Storage Doors... their ease of opening... their low maintenance. But do you know that Jamison also offers four valuable services unmatched in the industry?

JAMISON DESIGNS AND BUILDS ALL KINDS OF SPECIAL DOORS

A full-time research and engineering staff enables Jamison to design and build doors for practically any special requirement. Many times, all that's needed is to modify a standard door. Whatever the need, Jamison is equipped and prepared to build any door to your order.

JAMISON HELPS CONTRACTORS TO QUOTE ON DOORS

Upon request, a Jamison representative will call upon the architect, and take off the door specifications the insulation contractor needs to quote on a job. He'll then help to interpret specifications and supply the contractor with quotations on the specified doors and any alternates that can be offered.

JAMISON ASSISTS ARCHITECTS IN PREPARING LAYOUTS

Jamison field representatives throughout the country are always available to work with architects in preparing layouts. They will help with the specifications to insure that the right door is used as well as the one most economical for the job.

JAMISON HELPS CONTRACTORS ON UNUSUAL SERVICE PROBLEMS

Jamison representatives work with contractors to provide the user the best possible service. Advice and suggestions on installing doors can frequently save service cost and trouble. Help is also available on unusual service problems.

You can depend on Jamison for both a quality product and technical service. Jamison Doors have been the standard of comparison for nearly 50 years. Jamison field service can save you time, money and worry. JAMISON COLD STORAGE DOOR COMPANY, HAGERSTOWN, MD., U.S.A.
The Mirabeau B. Lamar Junior High School in Laredo, Texas, is unusual in several respects. It was built at the amazing low cost of only $10 per square foot. It incorporated several new design features which have attracted national attention. Using one of the most economical forms of Rilco Laminated Wood Arches, the architects have achieved an unusually interesting, attractive and practical result.

Architects Caudill, Rowlett, Scott & Associates, Bryan, Texas, and A. A. Leyendecker (Associate Architect, Laredo, Texas) are to be complimented on their fresh approach to the ever-present problem ... low-cost building for maximum efficiency and attractiveness.

The Rilco Glued Laminated Wood Arches used in the construction of the combination auditorium and gymnasium of the school helped keep costs down because of: 1) low original cost; 2) ease of erection, pre-cut and drilled for connection hardware; 3) erected with local labor and equipment.

Rilco Arches are made of selected West Coast Douglas Fir. They are manufactured with modern precision equipment under rigid factory control, and wrapped in heavy water-resistant paper for shipping.

Rilco experienced engineers will be glad to consult with you about your requirements and give "on the job" cooperation. Write now for complete information on Rilco for your jobs.
LONGSPAN JOISTS PROVIDE PLENTY OF ELBOW ROOM IN NEW CANADA DRY BOTTLING PLANT

The new bottling plant of Canada Dry Ginger Ale, Inc., at Maspeth, Queens, New York City, is one of 260 such production units throughout the world. The Maspeth building houses a complete production area, extensive warehouse facilities, garage, water-treatment and boiler rooms and offices in a 201,000 sq ft area.

Over a framework of Bethlehem structural steel is a roof structure of Bethlehem Longspan Steel Joists, varying from 40 ft to 50 ft in length. Bethlehem Longspans were chosen because they allow plenty of column-free space below, besides providing non-warping, fire-resistant construction.

To the Canada Dry operation, column-free floor space is invaluable. Long conveyor-system bottle-washing and filling operations require uninterrupted space in the production area of the building. Stockpiles of soft-drink cases, 56 to the pallet, handled by fork-lift trucks, fill the warehouse. And a roomy garage houses the company’s large fleet of delivery trucks serving the Manhattan and Long Island areas of the city.

In addition to their other advantages, Bethlehem Longspans were delivered to the job site ready for placing, with no delays to the production schedule. They required only field welding to secure them firmly, and to provide, with the structural steel framing, a rigid, permanent construction.
Canvas solves the sun problem in

House Beautiful’s 1955 Pace Setter House

Shading walls from heat and glare of the summer sun can be more than a smart move to reduce capacity requirements and operating costs of cooling equipment. As the editors of House Beautiful discovered in their choice of canvas sunshades, it can be an exciting adventure in imaginative design.

The problem here was how to shade east walls under a roof overhang that provided little or no protection from the early morning sun. By 8 A.M., even in late summer, the outside of these walls was too hot to touch. Such a crucial source of heat intake can mean trouble for the occupants, with or without air conditioning.

With custom-designed white canvas sunshades, the whole wall of wide glass areas is provided with complete protection and the ability to reflect away heat.

Because of its easy flexibility, its simplicity of fabrication, and its smart appearance, you’ll find canvas the best solution to your sun problems. Talk over your design ideas with the canvas goods manufacturer in your locality. He’ll gladly discuss specifications and costs without obligation. Look for him listed under “Awnings” in the yellow pages of your phone book.

See our catalog 181/Ca in Sweet’s Architectural File or write for a free copy. It contains original and practical ideas, plus helpful instructions for specifying canvas.

Canvas Awnings Institute, Inc.
and National Cotton Council

P. O. Box 1851 • Memphis, Tennessee

October 1955
PARTITION-ette*† and OFFICE-ette††
components of wood or steel will
I adapt themselves to any floor
or space. Good design plus unli
mited flexibility do the trick

OFFICE-ettes and PARTITION-ettes are products of
AETNA STEEL PRODUCTS CORPORATION
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Design Ideas —
Yours for the asking in the award-winning booklet, *Ideas for Wall Patterns with Concrete Masonry*. Ask any NCMA member for your copy.

Concrete masonry offers many advantages for the interior walls, too. Exposed concrete block interior walls provide a dramatic and pleasing textured backdrop for store merchandise, a functional wall design for offices. These same walls *absorb sound*, making both stores and offices quieter... at the same time saving on interior finishing costs.

National Concrete Masonry Association
38 South Dearborn St. Chicago 3, Illinois
Johns-Manville Permacoustic tile provides a ceiling that lends textured beauty and restful quiet to the pleasant atmosphere of this automobile showroom.

Permacoustic is available with either a textured or fissured surface. These random-textured finishes increase its high sound-absorbing qualities, and provide design and decorative interest.

Made of baked mineral wool fibres, Permacoustic is rated incombustible. It is easy to install on existing ceilings or slabs, or by suspension using a spline system of erection.

Send for your free copy of the new brochure about Permacoustic tile. Write Johns-Manville, Box 158, New York 16, New York. In Canada, write 565 Lakeshore Road East, Port Credit, Ontario.

INFORMATIONAL DATA ON PERMACOUSTIC

<table>
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<th>Thickness 1/2”</th>
<th>Color: white</th>
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ACOUSTICAL EFFICIENCY

Test No. A55-88

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<tr>
<th>cycles per second</th>
<th>cemented to plaster board (mounting No. 1)</th>
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</tr>
</tbody>
</table>

noise reduction coefficient: .70 .85

weight per sq. ft.: 1.3 1.2

Also available in 3/8” thickness
A winner in "Progressive Architecture Design Program—1954," this pale blue panelled building combines inspired design with sound, economical construction.

High on the list of outstanding features are its Cupples aluminum curtain walls, composed of a series of horizontal and vertical tubular mullions and double weather-stripped projected windows which clean from the inside. Open aluminum grill work on lower level, also by Cupples. Entire grill and curtain wall in alumilite finish.

A pace-setter in the curtain wall field, Cupples also is one of the nation's largest manufacturers of commercial and residential aluminum windows, doors, and Alumi-Coustic grid systems for suspended ceilings. Cupples' products always meet or exceed the most rigid requirements without premium costs. Our catalogs are filed in Sweet's.
“Perimaheat”

Baseboard Convectors by YOUNG

easy to stock...

easy to install-

Flat lightweight packages. Weed blocks with round cutouts retain tube at ends of packages, and hold element and cabinet in positive position during all stages of handling.

One-piece back and top make for easy installation ... eliminate air leakage and streaking. Simply pierce back at stud locations and nail.

Install hanger wires and slip in heating element. Make pipe connection, snap-on front cover, joint covers, and caps. Damper or splitter (optional) snap-in place at any time.

Sturdy, lightweight packages are easy to inventory.

Place back to wall and nail to studs.

Snap-on front cover, joint covers, corners and end caps.

Jobbers find compact PERIMAHEAT Baseboard packages easy to handle, easy to stock. Heating contractors prefer the simplified installation created by perfectly fitting parts and PERIMAHEAT snap-on features.

PERIMAHEAT is manufactured by Young Radiator Company, specialists in heat transfer for over 28 years. This combination of compact packaging, simplified installation and the manufacturer’s reputation for quality heating products creates product demand.

Mail coupon today for complete PERIMAHEAT Baseboard details ... or see the Young Representative listed in the yellow pages of your telephone directory.

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Creative HEAT TRANSFER ENGINEERS FOR INDUSTRY

Heat Transfer Products for Automotive, Heating, Cooling, Air Conditioning Products, Aviation and Industrial Applications, for Home and Industry.

Executive Office: Racine, Wisconsin, Plants at Racine, Wisconsin, Mattoon, Illinois
UNBEATABLE!

TRADE-WIND

HOOD/VENTILATOR COMBINATION

300 CFM VENTILATOR
SOLID CLAD
COPPER HOOD

BOTH FOR ONLY
$82.65 LIST

WITH GENUINE STAINLESS STEEL HOOD $71.65 LIST

FOR LARGER KITCHENS USE THIS 425 CFM MODEL 2501 VENTILATOR.

TRADE-WIND'S SUPER CLIPPER WITH TWIN INLETS, BUILT-IN FILTERS AND 550 CFM IS STILL TOPS. Here it is shown with the functional Fold-Under Hood in stainless steel only. 39” or 42” lengths.

With the efficient 300 CFM Trade-Wind Model 1501 Ventilator and the stunning copper Stationary Hood you get top Trade-Wind performance and quality at a bargain price.

The hood is available in 30”, 36”, 39”, 42” or 48” lengths — at the same price.

The Trade-Wind Filter Kit and Under-Hood Light can be added at slight extra cost.

Demand this unbeatable Trade-Wind value or any of the 15 other outstanding Trade-Wind combinations.

Trade-Wind Motorfans, Inc.
7755 Paramount Blvd., Dept. PA, Rivera, Calif.
The right windows make a REAL DIFFERENCE . . .

Ask the school custodian!

He'll tell you how easy it is to screen and clean Fenestra® Intermediate Steel Windows safely—and economically—from the inside, without ladders or scaffolds. He knows, too, that your school will save on maintenance. Every window member is steel—for strength. Sturdy hardware stays firmly attached. And if you specify Super Hot-Dip Galvanizing, you'll save additional thousands of dollars in painting costs every few years.

Create Ideal "Learning Atmosphere"
These beautiful steel windows let in more daylight because the steel window members are rugged, yet slender. So you get more glass area and clear vision view per window opening.

They give you better ventilation, too. Tilt-in vents bring in plenty of fresh air, without drafts . . . shed rain to the outside. Other vents project out to form weather-protective canopies over their openings.

For further information, call your Fenestra Representative. He's listed in the yellow pages of your phone book. Ask for your authoritative booklet, called Better Classroom Daylighting. Or write Detroit Steel Products Company, Dept. PA-10, 3409 Griffin Street Detroit 11, Michigan.

Fenestra | INTERMEDIATE STEEL WINDOWS
Architectural, Residential and Industrial Windows • Metal Building Panels
Electrifloor® • Roof Deck • Hollow Metal Swing and Slide Doors


Since the introduction of the Benjamin Porcenell Surface, it has become evident that here is a new concept in modern chalkboards. Teachers, principals, custodians, purchasing agents and architects alike want to know the full story behind the Better Visibility, Greater Damage Resistance and many other advancements in better seeing and instruction made possible by Porcenell. This new brochure is published to answer that demand.

**NEW BENJAMIN PORCENELL CHALKBOARDS!**

**this FREE Brochure brings you the FACTS** (including laboratory test data)

every architect and educator should know about this

newest advancement for Better Visual Education.

Send Coupon Today!

Send now for your free copy of this revealing 8-page brochure—all about the lifetime chalkboard, Porcenell. Go behind the scenes to see how Porcenell was developed, after 15 years and $1/4 million dollars of research.* Watch the exacting manufacturing methods and latest processes that give Porcenell chalkboards a new high in visibility. Read and see why this remarkable surface has many times the damage resistance of ordinary boards. Study the many ways in which Porcenell makes possible better, more modern learning. See how Porcenell licks the high cost of installation. It's all here—in eight fact-packed pages that will make fascinating reading to everyone who is interested in the Visual Welfare of Young America!

*Porcenell is a patented, vitreous process developed by Vitreco, Inc., a research organization jointly owned by Youngstown Sheet and Tube Co. and Poor and Co.

Benjamin Electric Mfg. Co., Dept. PA
Des Plaines, Illinois

Please send me a copy of your new brochure "Porcenell Chalkboards . . . for the Visual Welfare of Young America". I understand there is no cost or obligation.

NAME

ADDRESS

CITY _______ ZONE _______ STATE _______

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Distributed by: Beckley-Cardy Co., 1900 N. Narragansett, Chicago 39, Ill. and Educational Equipment, Inc., 2623 Woodhill Road, Cleveland 4, Ohio.
CERTAIN-TEED GYPSTEEL® PLANK ROOF DECK

CUTS CONSTRUCTION COSTS, MAINTENANCE COSTS, AND OFTEN INSURANCE COSTS AS WELL

CERTAIN-TEED GYPSTEEL PLANK is a pre-cast gypsum slab (2' x 15' x 10'') reinforced with steel wire mesh and poured in a galvanized steel frame electrically welded at the corners for maximum rigidity. It combines great strength, light weight, and high fire resistance. It offers important advantages—in faster, easier construction and reduced costs—over any other type roof decking you can use today.

CUTS CONSTRUCTION COSTS
Gypsteel Plank comes all ready to apply—no special equipment required. Planks are tongued and grooved—assembled quickly and cleanly—may be sawed, drilled or nailed like lumber. Their light weight reduces the dead load—permits an important saving in substructural steel.

CUTS MAINTENANCE COSTS
Gypsteel Plank needs no painting to prevent deterioration. Undersurface requires no decoration. It provides good light reflection, and there are no ribs or flanges to collect dust and dirt. Gypsteel Plank is as permanent as the building it covers. It is not affected by normal changes in temperature or atmospheric conditions, and because gypsum is inert, expansion and contraction are never a problem, and the danger of a cracked roof covering is minimized.

OFTEN CUTS INSURANCE COSTS
Gypsum is rock—it can't burn or support combustion. Gypsteel Plank is rated as incombustible by insurance companies and under building codes—and therefore gives the lowest insurance rate possible. This is a benefit your clients enjoy for the life of the building!

See your Sweet's Catalog for detailed information and nearest district office. Your local Certain-teed Sales Engineer will be glad to be of assistance to you at any time.

CERTAIN-TEED PRODUCTS CORPORATION
ARDMORE, PENNSYLVANIA
EXPORT DEPARTMENT: 100 EAST 42ND ST., NEW YORK 17, N.Y.

District Sales Offices in: ATLANTA, GA. • CHICAGO, ILL. • CLEVELAND, OHIO • DALLAS, TEXAS • DES MOINES, IOWA • DETROIT, MICH. • EAST ST. LOUIS, ILL. • JACKSON, MISS. • KANSAS CITY, MO. • MINNEAPOLIS, MINN. • NIAGARA FALLS, N.Y. • PHILADELPHIA, PA. • RICHMOND, CALIF. • SALT LAKE CITY, UTAH • TACOMA, WASH.

Note the unique way the steel binding is welded at the corners to form a one-piece frame. This gives more rigidity and greater strength.

TECHNICAL DATA
Gypsteel Plank can be used economically on almost any roof design—flat, sloping, sawtooth, and some curved or warped roofs (long radius). It's recommended for spans up to and including 7 ft. Weight: approx. 12 lb. per sq. ft. Safe load: 75 lb. per sq. ft., with safety factor of 4. Meets Federal Specification SS-S-439. Planks can be used over either steel or wood purlins. End joints need not come over purlin supports. Thermal insulation is very good. "U" Factors (air to air) including roof covering: no insulation, .528; ½" Certain-teed Fiberglas Insulation, .26; 1" Certain-teed Fiberglas Insulation, .17. Insulation value is equal to 9 to 10 in. of concrete or an 8 in. brick wall. Roof coverings may be nailed right onto Gypsteel Plank when necessary.
Hallmark Cards cared enough to put on the very best...

One of the Midwest’s outstanding buildings is the new Hallmark Cards building in Kansas City, Missouri, home of the famous manufacturer of greeting cards for those “who care enough to send the very best”.

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Pre-assembly at the shop is quicker, more efficient—costs less. Because Anaconda Tubes and Fittings are about \( \frac{1}{4} \) the weight of their equivalents in ferrous materials, you can prefabricate whole assemblies like this.

The real cost of using COPPER for sanitary drainage systems—including savings in construction, faster completions, and easier sales—can be much lower than you think.

The savings are there because of the unique advantages of Anaconda Copper Tubes:

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Within the past few years, many state and local sanitary plumbing codes have been modernized to include approval of the use of copper tube and solder-type fittings. Others are in process of revision. The recently issued American Standard National Plumbing Code (ASA A40.8-1955), published by the American Society of Mechanical Engineers, lists copper tube as approved material for sanitary drainage systems.

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They have all the rugged strength, weather-resistance and durability you demand, plus welcome economies in both application and painting.

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Completely drainable and easily cleaned, Aerofin Type “R” coils are specially designed for installations where frequent mechanical cleaning of the inside of the tubes is required.

The use of \( \frac{3}{8} \) O. D. tubes permits the coil to drain completely through the water and drain connections and, in installations where sediment is a problem, the coil can be pitched in either direction. The simple removal of a single gasketed plate at each end of the coil exposes every tube, and makes thorough cleaning possible from either end.

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Modern note in
Rest Room Planning

Simplified Open Expanse design
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With a minimum of simple maintenance, the room above will look just as neat and clean twenty or more years from now as you see it here. Its modern appearance is virtually ageless! For the durable, easy-to-keep-clean wall-type plumbing fixtures by American-Standard will retain their smooth, spotless good looks many extra years. And the expansive fixture-free floor permits quick, easy cleaning of the room—from wall to wall.

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If you would like to know more about American-Standard wall-type plumbing fixtures and the Zurn System, we will be pleased to send you two booklets which contain interesting information on these essential products. Just ask for the American-Standard "Better Rest Room Guide" and the Zurn booklet, "You Can Build It For Less A New Way."

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Our pioneering efforts in the field of curtain wall construction during the past ten years have given General Bronze a wealth of practical experience in dealing with all types of buildings and with all types of materials, — experience that can help eliminate headaches for architects and contractors, and save time and money for clients.

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LIMA, PERU, Aug. 30—Presently nearing completion here is the new hospital developed under the auspices of Gen. Manuel A. Odria, President of the Republic of Peru, and planned in cooperation with the US Public Health Service (Hospital Facilities Division). It will serve 75,000 white-collar members of this country’s social security system. Complex requirements calling for a 500-bed general hospital as well as 350-bed maternity hospital, each with outpatient departments, have been smoothly and handsomely resolved by Architects Edward D. Stone (New York) and A. L. Aydelott (Memphis, Tenn.), associated on this project. Local Supervising Architect is Richard Malachowski. Maternity, medical, and surgical facilities have been combined in the tall structure (above)—chapel in foreground is yet unglazed. Nurses quarters occupy separate wing visible in background, right.
Rich's Knoxville Store Opens

KNOXVILLE, TENN., Sept. 2—This week a small capsule containing radioactive-controlled energy severed the ribbon and officially opened an $8-millions branch department store for Rich's Atlanta here. This fine piece of architecture, set into attractively landscaped gardens, will lend great impetus to the revitalization of the downtown district of this city. Stevens & Wilkinson, Atlanta, were architects for the colorful building, of which end walls are of bright-red enameled brick. Blue-green glass walls expose handsome stairs and spacious interiors designed by Raymond Loewy Associates. Parking facilities are provided in a new four-story garage directly across the street, linked to the store by underground passage.

P/A Design Awards Jury Meets

PROGRESSIVE ARCHITECTURE's third annual Design Awards Program reached the stage of Jury consideration on September 16. Jury Members (left to right) Paul Weidlinger, Engineer, New York and Washington; Robert Alexander, Los Angeles; William Lescaze, New York; Dean Pietro Belluschi, M.I.T., and Alfred L. Aydelott, Memphis, Tenn., spent long hours going over the more than 600 entries. Award and Citation winners have been notified; formal announcement and publication of the top designs will be in January 1956 P/A. The Jury commented: "It was a tough judgment. Quality of work submitted was very high. Architects should be proud of the measure of design ability demonstrated by the work."
NEW CANAAN, CONN., Sept. 19—Architect Philip Johnson is well known for his many distinguished private residences, including the widely published house with all four walls of glass that he designed for himself. Now, for the first time, he has built a speculative house (shown here) for the Wiley Development Corporation of New Canaan. Emphasis is on large glass areas that face away from the street. To obtain living privacy—as well as providing usable outdoor extensions of the main living rooms—the architect incorporated fencing and wing-wall extensions in the design. Strategic planting further enhances indoor-outdoor relationships. Construction is primarily of wood. Windows from floor to ceiling are of the horizontal-sliding type. Heat is supplied by a warm-air system. Sales price of the house is $45,000.

REYNOLDS GETS NEW OFFICES

RICHLAND, VA., Sept. 7—Ground was broken here today for this new executive office building for the Reynolds Metals Company. Planned to accommodate 1000 employees, the building is designed around a landscaped court. Cost, including the 40-acre site and landscaping, will come to approximately $10 millions. Ebasco Services, Inc., will be responsible for the space planning, engineering design, and construction management of the project. Skidmore, Owings & Merrill, Architects.

Most notable design elements are the vari-colored, vertical aluminum louvers on the east and west walls of the building. These will open and shut automatically as the sun moves in its orbit. Further light control will derive from a 6-ft horizontal aluminum sunshade above the windows, at each floor level.
News Bulletins

• World Symposium on Applied Solar Energy is scheduled for November 1-5 in Phoenix, Arizona. In addition to discussions on residential uses of solar energy, conference will also include an exhibit of the latest in machines and equipment. . . . "Man, the Atom, and the Future," an exposition of the peacetime uses of atomic energy, will be held at Carnegie Endowment International Center, New York, October 20-November 3. . . . 42nd Annual Convention of the National Warm Air Heating and Air Conditioning Association will take place in New York City, November 30 and December 1. . . . Air Conditioning and Refrigeration Exposition will be held in Atlantic City, November 28-December 1.

• Society of Industrial Designers will now be known as American Society of Industrial Designers, announced Society's President, Peter Muller-Munk, at the Annual Meeting in Washington, October 6-8.

• Various units in the huge new building program of the combined Hilton-Statler hotel chain are being completed. Recently opened with Hollywood fanfare was the Beverly Hilton in Los Angeles, designed by Welton Becket & Associates. Nearing completion in Dallas, Texas, is the new Statler, for which William B. Tabler is Architect.

• New officers of American Society of Landscape Architects, elected for two-year term, are: President, Leon Zach; Vice-President, Arthur G. Barton; Secretary, Hubert B. Owens; and Treasurer, Norman T. Newton.

• AIA Committee on Advancement of the Profession met recently to elect Thomas H. Locraft as Permanent Chairman and Howard Eichenbaum, Vice-Chairman. Twelve-man group, representing each AIA region, will study and analyze: preparation for practice; architectural practice; organization of profession; and impact of profession on society and economy.

• First prize in competition to choose an architect for Civic Auditorium, Vancouver, B. C., was awarded to five-man team: D. Fred Lebensold, Guy Desbarats, Raymond T. Affleck, Jean Michaud, and Hazen Sise, from Montreal and Quebec.

• Volume of construction put in place during August set a new record for that month and contributed to peak record for first eight-months period. Construction outlays for August totaled $4 billions; expenditures since January soared to $27.1 billions, 13% above 1954 levels. Slight dip in private residential construction, off about 2% from July, was more than offset by unusually sharp increase in commercial building activity.

• Carl Milles, 80, died at his home in Sweden, September 19. Sculptor of many celebrated fountain commissions, including one to be soon installed in New York's Metropolitan Museum of Art, Milles served on the faculty of Cranbrook Academy.

• American Academy in Rome is offering several fellowships for independent work in architecture, landscape architecture, and classical studies for year beginning October 1, 1956. Applications and submissions of work, in prescribed form, must be received before December 30, 1955, by Executive Secretary, American Academy in Rome, 101 Park Ave., New York 17. . . . Beaux-Arts competition program for 1955-56 school year has recently been announced. For complete information write: Beaux-Arts Institute of Design, 115 E. 40th St., New York 16. . . . International competition for design of Sanctuary of the Madonna delle Lacrime (Syracuse, Italy) and adjoining buildings is open to all registered architects. Closing date for competition, awarding first prize of approximately $12,600, is April 30, 1956. For details, address: Committee of Sanctuary of the Madonna delle Lacrime, Viale Cadorna 1, Syracuse, Italy.

• Seven-man permanent design team has been appointed to produce site plan for Miami's $100-millions Inter-American Cultural and Trade Center. Group, composed entirely of Architects, includes: Chairman, Robert Fitch Smith, Maurice H. Connell, Russell T. Pancoast, Alfred Browning Parker, John Edwin Petersen, Edwin T. Reeder, and Robert Law Weed.

• James Herbert Gailey, partner in the firm of Bush-Brown, Gailey & Heffernan, has retired from the staff of Georgia Tech's School of Architecture after serving as a faculty member for 43 years.

• Fiberglas Fabrics Shop employs interesting techniques for display and sale of glass-fiber fabrics. Adjustable bars, hanging from ceiling, are for draping of materials; fabric-covered sliding frames show effect of front or rear lighting. Shop, located in street floor of Fiberglas Building, New York, was designed by Maria Bergson Associates.

84 Progressive Architecture
Caracas
Builds and Builds

CARACAS, VENEZUELA, Sept. 15—Symbols of the most rapidly expanding South American city are these multi-story apartment houses which are helping to alleviate an acute housing shortage. Cerro Piloto slum clearance project (right), recently dedicated by Col. Marcos Pérez Jiménez, President of Venezuela (below), is only one of many similar new housing developments. Apartments in these buildings range from $9 to $25 monthly. Keeping pace with residential growth are hospitals, roads, etc.

Old Building Quickly Sheathed

RICHMOND, VA., Sept. 15—Thalhimer's department store, consisting of old and new buildings of various heights, has just been sheathed with aluminum so that it now appears to be a single structure of uniform height.

Aluminum's light weight made it possible for the designers to use a girt supporting system for the panels. The façade is made up of three-ft wide vertical, fluted, anodized-aluminum panels set at a 30-degree angle to each other in a sawtooth pattern. Each fluted spandrel area is framed in a box-type grid, approximately 16 ft x 24 ft, made up of extruded sections with a natural aluminum finish.

Architects for this first aluminum-clad department store were Copeland, Novak & Associates; engineers and builders, The Austin Company. Reynolds Metals Company developed and supplied the special alloys used for the façade.
Financial News
by William Hurd Hillyer

Demand for good design through the medium of architectural services increases with sophisticated prosperity and with the growing complexity of modern living. Furthermore, design itself is profoundly influenced by a wheel-borne majority, as current news indicates. Jackson, Mississippi, for example, now claims to possess the world's only round bank. The recently completed Meadowbrook branch office of the Jackson-Hinds banking institution looks like a huge glass-sided drum. This unusual shape was chosen as providing best accommodation for the increasing proportion of drive-up and drive-in customers. Their cars can circle the building in a tight curve and thus eliminate parking areas.

With banks, as well as many commercial structures, reaching out into new suburban communities where car-riding customers are already cramped for space, the architect's ingenuity will doubtless breed many novel creations. In fact, the vast expansion of purchase-travel ability fostered by consumer credit, to say nothing of improved technology, is producing totally new design requirements.

Possibilities of home remodeling have been overlooked by the construction industry, declares Director Cyrus B. Sweet of FHA Home Improvement Division. He says that 700 out of 1000 new homeowners do some sort of work on their houses during the first year's occupancy. Exploring this area, construction men met in Washington recently to work out a "package" home remodeling plan, under which one prime contractor would be responsible for the entire remodeling job. He would hire all subcontractors and arrange the financing. Attending contractors hailed package remodeling as a prayer-answer for thousands of homeowners who want to modernize their dwellings but must "shift for themselves." Under such a plan, the integrating services of an architect seem to be peculiarly necessary.

The excess of newly started homes over newly formed families is much less than earlier official reports indicated. Comparison between the two totals, using Census figures just released, is made by First National City Bank of New York: 1.3 million homes for 844,000 new households during year ended April '55. This still leaves a 456-million-home excess which, however, is narrowed by half when demolished, condemned, or otherwise eliminated units are taken into account. Informed observers interpret the effects of tighter credit as squeezing out only marginal buyers and builders. Housing officials further note that the current small decrease in "nonfarm" home starts "probably reflects some voluntary adjustment of mortgage credit" due to a shrinking money supply.

Monetary flow in general often portends changes that may affect planning and building. Significant, but not publicized, is New York City's bank check lag, as compared with the rest of the country. For years, the metropolis has had a larger checking volume than all the other Dun & Bradstreet reporting cities put together. Of late, the relative positions have been reversed. New York's total was $8.7 billions for the week ended August 31, while the outside cities were rolling up $9.3 billions. They gained 8.9% over last year's comparable week while New York went down 3.4%. This phenomenon, now standard behavior, reflects the increased decentralizing tempo that has marked recent months. Architectural practice and design, in turn, will be influenced.

A pronounced trend toward home ownership is noted and evaluated by the Federal Reserve System in its current study of consumers' housing arrangements. The most striking up-curve in home-owning families is among those headed by persons 35 to 44 years old, many of whom were formerly unable to build or purchase, because of depression or war. This age group, though enjoying the greatest income rise during the subject period, at present trails behind those aged 45 and over, in percentage of home ownership, in number of rooms per person, and in proportion of mortgage paid off. Such a state of affairs augurs busy drafting boards, thumbtacked with plans of roomier houses for prosperous families. However, as Federal Reserve also reveals, the proportion of owner-occupied houses that are mortgaged has gone up from 45%, to 54% and the median size of mortgage has grown from $3000 to $4700. Furthermore, "mortgages have increased in size more rapidly than have values," due chiefly to smaller down payments and slower real estate increment.

Federal Reserve Bank of Chicago reflects widespread optimism as the nation's business continues to gather strength. Upward pressure from both consumer and business is noted behind the momentum, reinforced with augmented production. Cited are automobiles, chemicals, paper products, metals ferrous and nonferrous, trucks, coal, apparel, electrical apparatus, furniture and fixtures, industrial and farm machinery as being produced in constantly mounting quantities since mid-'54 and as still climbing for fresh highs. Indicating even greater future production and expansion into new fields is the amount of research being done in established industries. A number of large producers are actually building new plants for research purposes; Pittsburgh Plate Glass Company, for example, recently announced plans for a multimillion dollar research center (acrosspage).

Some concern is felt, in official and unofficial quarters, over the dwindling tide of mortgages and consumer debt generally. Particularly thought-provoking is the fact that private debt has increased from 77% of national income to 114% since 1945, as figured by Boston's First National Bank. That institution sees the $112 billion of consumer and home mortgage borrowings as the chief factor in such an imbalance. The Federal Reserve Banks have inched up their "rediscount" rates to 2 1/4% in an effort to discourage borrowing, but no appreciable business slowdown is currently reported. However, as this page goes to press it is heartening to hear New York's biggest national bank voicing no "apprehensions that money might not be available to finance autumn expansion."
Unistrut Develops Flexible Partition System

Newest use of Unistrut adjustable framing is for single-panel partitions. A fresh idea in space dividing—known as the Attwood system—these low-cost movable walls are not only simply and quickly erected but are also 100% reusable. The system is flexible enough to permit almost any arrangement or number of panel units—either horizontally or vertically.

All framing members are connected with the same kind of lock nut and bolt (Detail 1). The patented nut has grooves with hard, sharp edges that bite into the turned flanges of the steel channel. Once the nut is tightened, it cannot slip. The square depressed areas in the fitting adjust snugly in the channel and positively prevent rotation or loosening of the fitting. A cross connection for a window, door, or other panel can be made at any location along the channel slot without welding or drilling.

An easily attached molding strip grips the panel material and no fasteners, screws, or bolts are needed to hold it in place. The molding, made of flexible steel, slips over the edge of the panel and should come to within 1/4" of each corner. The panel-molding assembly is then easily snapped into the framing channel with the aid of a putty knife (Detail 2). Panels may be plywood, hardboard, plastic, glass, expanded metal, or other material. Although a 3/8" thickness of paneling is recommended, the molding will accommodate any thickness from 1/4" to 1/2".

When the panels are in place, all that is required to finish the framing is to screw cover plates into the corners of the panel frames (Detail 3). There are no exposed edges to catch dust or dirt. Typical installations using these Unistrut space dividers are illustrated. Cubicle-type walls with shelf provisions were erected in the research building of the University of Michigan's Department of Architecture (top left). Single-panel partitions make good office enclosures. Frames containing a combination of glass and hardboard produce a temporary factory office (above top). When a new section of the plant is constructed, such an office can be easily removed to another location. Partitions containing expanded metal are useful in protecting workers from high-voltage electrical equipment (above center). Where it is necessary to screen out factory noise, floor to ceiling partitions are appropriate (above).

Pittsburgh Plate Glass Company Announces New Research Center

PITTSBURGH, PA., Sept. 19—Construction has commenced on Pittsburgh Plate Glass Company's Glass Research Center in Hamar Township near Pittsburgh. The Center, designed by Architects Skidmore, Owings & Merrill, will consist of two separate buildings. First to be constructed is the development and product-control building, a single-story structure covering an area 480' x 260'. The basic research building to be erected later will be six stories high, covering 70,000 sq. ft. of floor space, and containing chemical, physical, and analytical laboratories plus administrative offices and library.
The typical Washington building of the decade since the war is a labor union or a national association headquarters. These office buildings, usually generous in scale and faced with marble to emphasize their similarity to the buildings of Government itself, are conceived as symbols of their business or activity in the national capital. The seat of Government has long contained such representative groups. Castigated as lobbies or pressure groups, the public has difficulty in forming an impression of just what they do. Unfortunately, a false monumentalism has obstructed the kind of understanding which architecture might have furthered if given a freer and more imaginative direction. Few of these new buildings invite the public in, show informative exhibits, or help explain why they exist and what they do. Instead they aspire to a dreary pomposity. To the extent that a quasi-public character is attempted in such buildings, there is a real danger that a bad precedent for future public architecture will be established if it is tuned to these false notes.

Dave Beck’s Teamsters Union sets the pace for union headquarters buildings. Facing the Capitol and Senate Office Buildings, this recently occupied white marble structure houses the International Brotherhood of Teamsters, Chauffeurs, Warehousemen, and Helpers Union—if I may succumb at once to the irresistible pressure to give the Union its whole name. But if you didn’t know, you might mistake the building housing it [designed by Holabird & Root & Burgee] for a Federal Reserve Bank. It cost about $5 million and I am sure the teamsters don’t regret a penny of it. Their publication commented, “Congressmen in the Capital and Senators in their offices will be able to look out their windows and admire its beauty shining beyond the dancing fountains on the Capitol grounds.” This is sheer hyperbole, of course, but it illustrates the architectural motive. The connotations of permanence, continuity, great financial resources, organizational solidarity, and political orientation are all valid architectural elements. They are as valued by a union as by a bank. So, too, is the rather princely expression of the contemporary union leader, well represented by Beck, whose followers delight to know he can hob-nob and make deals on good terms with high Government officials as well as business leaders. The rank-and-file union member still cherishes a naive belief in big deals and sharp angles. He thinks in terms of the strong-arm and the fast buck. Hence the marble and bronze of the casket designer.

Other major Washington buildings are under construction for the American Federation of Labor, the International Union of Operating Engineers, the International Brotherhood of Electrical Workers, the International Association of Machinists; and sites have been acquired by the Bakers and Confectionary Workers Union and the United Steel Workers. These are by no means as lavish as the teamsters’. They are more apt to conform to office-building norms, with curtain-wall construction and flexible interiors. But the accent is the same, and the choice of a good address and the architectural emphasis reflect it.

Among the headquarters buildings for trade and professional associations, the outstanding one is the National Association of Home Builders, opened this summer, designed by Aubin, Edwards & Beery. It has a boldly chosen location in a shabby block on L street, midway between the Mayflower and Statler Hotels, but should trigger an upgrading of this strategic block. This project seems to have been conceived by Frank Cortright, NAHB’s first executive director, and it has been tailored to fit that mushrooming organization’s special needs and opportunities. It aspires to become a housing center of national and international importance; to fly the housing flag, so to speak, in the nation’s Capitol. You don’t see much evidence of this in the rather plain few feet of architecture that are veneered with red marble and face the street; but it is clear from the working elements of the building and from its program. The National Housing Center starts with a street-level housing display and three levels of exhibition space of frankly commercial products, a more specialized and smaller version of the Architects Samples Corporation showrooms at 101 Park Avenue. It contains what will become the largest private library of reference materials on housing, from which a stream of information will serve special needs of homebuilders throughout the country. And it houses, of course, the working staff of NAHB, occupying two entire floors of flexibly divided working space, with appropriate reception areas.

If the exterior is rather negative, except for a hospitable window display, the interior of this building is sternly functional. Continuous, prefabricated ceilings contain air conditioning, illumination, and acoustical treatment. Utilities are ranged along a single wall to provide maximum flexibility. Metal-and-glass partitions divide working spaces. Reception areas are specially planned and decorated.

The major significance of the NAHB building is organizational and economic. It has been built and is owned by a nonprofit subsidiary of NAHB, which receives rent from NAHB and other tenants, will charge for research and reference services it renders, and will plow any profits it makes back into housing research. NAHB has been wise to engage Neil Hardy, an imaginative and talented government housing executive, to direct its Housing Center, and the program he is developing will be watched closely not merely by building and housing groups but also by associations generally. Since these groups, in the aggregate, now comprise one of the largest economic activities in Washington, and were recently found to be the element in the city with the greatest developmental prospects, the influence of the Housing Center ought to be a broad one.
Leak-free joints made easily with torch and solder.

Section of system ready for paving.

Milwaukee Gas Light Company

MAKES SNOW GO

with Chase Copper Water Tube!

Blizzard snows and freezing rain don't stand a chance around 626 East Wisconsin, in Milwaukee! The Milwaukee Gas Light Company's sidewalks are always free of snow and ice—thanks to an efficient snow removal system of Chase copper tube!

The contractor, John S. Jung, used both Chase Type L copper tube and Chase copper solder-joint fittings in the installation. This combination is unsurpassed for easy, fast installation plus trouble-free performance over the years! You see, corrosion-resistant Chase copper tube comes in long lengths that are easily bent into position and require fewer joints. Tube and fittings are made for each other, so leakproof solder-joints are assured. They expand and contract as one unit with temperature changes!

Snow everywhere... but not around Milwaukee Gas Light Co. building!

Chase

BRASS & COPPER CO.

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION
Another Adlake aluminum window installation

Gibraltar Life Insurance Company Building, Dallas, Texas.
Architects: Thomas, Jameson & Merrill
General Contractor: J. W. Bateson Construction Co.
Equipped with Adlake Double Hung Aluminum Window

- Minimum air infiltration
- Finger-tip control
- No painting or maintenance
- No warp, rot, rattle, stick or swell
- Guaranteed non-metallic weatherstripping
  (patented serrated guides on double hung windows)

Adlake
PROVEN QUALITY WINDOW

the Adams & Westlake company
ELKHART, INDIANA • Chicago • New York • Established 1857
p/a presents:

GENERAL PRACTICE

“...Most practitioners are concerned with every sort of building that needs designing in their communities, and with buildings of all sizes.”
Church

location | Linwood, Pennsylvania
architects | Carroll, Grisdale & Van Alen
architect-in-charge | Joseph C. Didinger
This new place of worship, seating 250 persons, adjoins an earlier Sunday-school building to which direct access was desired. Hence the new sanctuary was brought to the level of the existing auditorium, and wood folding doors were installed at the juncture of the two structures. An imposing portico serves as entrance for the sanctuary as well as the Sunday school. Behind the finely proportioned façade of wood and glass, steps lead up to the level of the main sanctuary or down to an assembly room and additional Sunday school classrooms in the basement. Parts of the present clear glass, now employed at the entrance wall, will later be replaced by stained glass, which will make an even more dramatic foil for the free-standing mahogany cross. Sidewalls of rough stone were originally buttressed to support laminated roof arches. Later, for economy, laminated arches were replaced by 8" x 18" wood members, which made tie rods necessary. Roof is composed of planks, left exposed on the underside and surfaced on top with black slate. The main floor employs concrete beams and slabs. A. Ernest D'Ambly was Consulting Engineer; William H. Gill, Jr., General Contractor.
Wood baffle (below) placed near the rear of the great nave (bottom) screens worshipers from the entrance. Focal point of the chancel wall (right and across-page) is floor to ceiling grill of mahogany (see selected detail). Organ and exhaust fans are located behind this pierced wall. Gold-leafed walnut cross, hung from truss above, is spotlighted at night. Ceiling-suspended, semi-indirect lighting fixtures of brushed brass provide night lighting for the sanctuary. Gold-tinted skylight, of corrugated actinic glass, supplies dramatic as well as effective natural light. All millwork is of African mahogany and pews are of black walnut.

Photos: Lawrence S. Williams
The chapel (top) seating 125 is a separate building, joined to the main building (left of photo across page) by a covered passage. The future chapel will accommodate 250; and, for very large funerals, the two chapels may be joined by using the intermediate garden.

The reception lobby (above) has soft beige terrazzo floor, and both redwood and plaster are used for the wall surfaces.

As in all public areas, the office wing (right) has a garden area immediately adjoining. Photos: Morley Barr

<table>
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<tr>
<th>location</th>
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<tr>
<td>architects</td>
<td>A. Quincy Jones &amp; Frederick E. Emmons</td>
</tr>
<tr>
<td>associate architect</td>
<td>Emiel Becsky</td>
</tr>
<tr>
<td>consulting architect</td>
<td>Harvey P. Clarkson</td>
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<tr>
<td>structural engineer</td>
<td>Edgardo Contini</td>
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Few building types have received less architectural attention than the funeral home. As a rule, this activity is housed in some commodious old residence in a once-fashionable residential part of town.

In the case of the San Francisco mortuary shown here, not only was the scheme developed from scratch, but the site is an entire city block in extent (180' x 260'). Furthermore, it is a steeply sloping site, with a drop of 25 ft from north to south on the long sides of the property.

Requirements were for an integrated organization of three basic functions: the conducting of funeral arrangements; the preparation of the deceased for burial; and the conducting of the ceremony. Two conditioning factors were that the three functions should be as visually separated as possible, and the client's expressed wish for a "feeling of repose, without melancholy, and a general air of quiet efficiency."

The plan solution, organized on three levels, exploits the site slope and provides access at grade to each level. Public areas all occur at the intermediate level, entered from a porte-cochere formed by the extension of the upper floor over the approach drive. On the upper floor are a casket-display room; mortuary work rooms; and quarters for a caretaker. A basement (not shown) containing a garage for 25 cars and storage and mechanical rooms is entered at grade from the lower end of the east side of the property. Service ramps connect the three floors.

The basement is reinforced concrete; the superstructure, steel frame with wood joists and rafters. Exterior materials are brick or redwood siding. Flooring includes asphalt tile, terrazzo, cork, and carpeting. Sash are steel, and the building is heated by a hot-water radiant system, with copper tubing in both floor and ceilings.
The present chapel (this page and acrosspage, bottom) has one wall of glass overlooking the screened garden. Along the other wall, an indoor planting bed, under a skylight, further implements the design wish to include nature wherever possible.
The slumber rooms (above) are arranged in pairs that can be thrown together to form one large room. Outside the glass wall of each of the rooms is a peaceful private garden (right).

Vertical circulation is handled on ramps. Here is the ramp leading up from the main floor to the casket-display room on the upper floor.
4-unit apartment house

location | Los Angeles, California
designer | Craig Ellwood
An exceptionally adroit design, providing four duplex, 2-bedroom apartments on a typical 50' x 110' city lot, this residential unit received top award in the apartment-house category at the 1954 International Exposition of Architecture, at São Paulo, Brazil. The distinguished Jury particularly applauded the compactness of the solution; the handling of the entrance court, providing both privacy and a wind screen; and the fortunate interrelation of interior and exterior space. Contributing to the building's success were Mackintosh & Mackintosh, Consulting Engineers; Jocelyn Domela, Landscape Architect; and Henry Salzman, Contractor.

Essentially square in plan, the building is framed in steel with hollow clay block used for side walls and intermediate partition. Plumbing, duct work, and venting is economically centralized, and fireplaces are hung back to back on the central wall. The steel frames at each open end of the structure are left exposed as an important part of the design. Panels between truss members are asbestos-cement board. Each apartment has two, automatically controlled, gas unit heaters. The building was constructed within a budget of $10 per sq ft.
4-unit apartment house
One of the most ingenious elements of the design is the arrangement of fencing and translucent panels separating the common motor court, to the west, from the apartment patios and entrances.

Photo: Marvin Rand
4-unit apartment house

Continuation of the masonry walls beyond the wall of sliding glass panels, and use of room height for the patio fence and obscure-glazed panels contribute much to the integration of indoor and outdoor areas. Interior flooring throughout is gray asphalt tile.
The natural clay color of the masonry side walls establishes a rich, textured background for each apartment. To assist the sense of space within so compact a plan, the lower stair treads and landing (right) are designed as open cantilevers.

The spandrel area beneath the windows of upstairs bedrooms (below) consists of plywood finish broken by exposed, diagonal, steel-truss members.
"marineland"

location | Palos Verdes, California
planners-architects-engineers | Periara & Luckman
This remarkable group—"Marineland of the Pacific"—is constructed on a lofty promontory overlooking the ocean. The three main elements are a zoo for fish and other marine creatures; a bar and restaurant; and an inn. Key unit is the fish zoo—or Oceanarium, as it is called.

Basically, the Oceanarium consists of two huge steel salt-water tanks, one round (80' in diameter), the other, oval (50' x 100'). Continuous, double-glazed viewing windows of heat-tempered polished plate glass occur around the sides of the tanks at three levels of their 22-ft height. Visitors reach the various levels by any one of four exterior ramps that wind around wing partitions. This novel scheme, involving several trips in and out of doors, also allows great variety, depending on which ramp is used. Furthermore, at each turning point as the visitor rounds the ramp partition, a view of the spectacular surroundings bursts upon him from a fresh angle. On the rooftop, one looks down into the fish tanks, and a grandstand beside the round pool allows leisurely observation.
"marineland"

In addition to the two enormous tanks, there are numerous smaller aquaria or "jewel" tanks, at various locations, for specimens requiring special conditions. Even in the big tanks, different environmental conditions are provided. In the round tank that holds 600,000 gallons of sea water, drawn fresh from the ocean by pumps through a specially filtered source, the water temperature is left to fluctuate with the weather, to accommodate fish and marine life native to the region. In the oval tank (500,000 gallons) water will be maintained at 72° F at constant temperature by means of a hot water heat exchanger immersed in a supply tank adjacent to sand filters located at the rear of the building. Thus marine life of a migratory nature are made happy the year round. For octopi and fish accustomed to lower temperatures, special tanks are served by refrigerating equipment.

The sea water supply is obtained by means of a subterranean collecting drain. A perforated cement-asbestos pipe, buried in the beach below the tide level, empties into a sump where it is pumped up the hill to the tanks. The collection pipe is about 2500 ft from the Oceanarium building, and the water is lifted 125 ft by two, 100-hp pumps.

After the sand-filtering process and a chemical treatment to retard growth of algae and other plant life, the water is introduced into the large tanks at the bottom through four jets that cause the water to rotate in the tank at velocities adequate to provide self cleaning.

From the rooftop (left and below), visitors not only can peer down at the marine life within the tanks but also enjoy the vast seascape, which, on clear days, includes a view of Catalina and the Santa Barbara Islands. Three of the five approach ramps terminate at the 1500-seat, semicircular stadium, where one may sit and watch some of the mammals, such as the porpoises, being fed and playing.
“Probably the most difficult task,” report the architects, “was the selection of materials that would resist corrosion from the salt water and the corrosive soil. Cement-asbestos pipe was used for all fresh- and salt-water pipes buried in the ground. The large salt-water lines inside the building are plastic, and special metals were used in the valves, pumps, and heat exchangers.”

N. C. Ebaugh was Mechanical Consultant for the Oceanarium; George A. Fuller Company, the General Contractor.
"marineland"

The restaurant and bar at Marineland crown one of the most dramatic headlands, with unhindered views of the Pacific and adjacent coastline. Basically, the plan consists of two separate circular buildings linked by a lobby and coffee shop. Within the radial framing stemming from central columns, are air-conditioning ducts, wiring, and roof-drainage piping. Webb Coleman was Interior Decorator.

Materials & Methods

Construction


Equipment

Specialized equipment: public-address system—Webster-Chicago Corporation; turnstiles—Perey Turnstile Company; aquarium equipment: filters, flow meters, and controls—Builders-Providence, Inc.; temperature-recording equipment for salt water—Minneapolis-Honeywell Regulator Company; alarm system for water tanks—Spetri Faraday, Inc.; pumping equipment—Ball & Gossett Company, nonmetallic pipe and expansion joints for salt water—Uskon Division of United States Rubber Company, salt-water valves—Chapman Valve Man-
The first unit of the Marineland Inn—which eventually will include several similar structures stepping down the contours of the cliff—adjoins the restaurant building and shares the spectacular view. Projecting wing walls provide private porches for each of the rental units.
SHOPPING CENTER
for International Basic Economy Corporation

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<tr>
<th>location</th>
<th>Caracas, Venezuela</th>
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<tr>
<td>architects</td>
<td>Oficina Don Hatch</td>
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<tr>
<td>engineer</td>
<td>Claudio Creamer</td>
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In spite of a limited lot size, the shopping center offers diverse and pleasant vistas. Landscaping helps to create an atmosphere in harmony with the surrounding residential district. Colors of exterior wall surfaces are keyed to the natural setting—roof fascia is arctic white, steel store fronts and metal wall panels are lacquered Forest Green or chartreuse, and accents are orange-red.

Photos: Luis T. Laffer & Inn Bornhorst
The need for one-stop shopping facilities is just as urgent in the rapidly expanding cities of South America as it is here in the U.S. While the development of such centers south of the Rio Grande has been impeded largely by lack of funds as well as tradition, money has become available in enough instances to prove the economic feasibility and popular acceptance of these facilities. A striking example is the center in Las Mercedes, a suburb east of Caracas. As in most North American cities, soaring land prices and outdated zoning restrictions have determined a limited site—in this case a triangular area measuring 85,000 sq ft and bounded on three sides by streets. However, in spite of the limited site, the all-under-one-roof shopping center provides all necessary facilities—a supermarket, a "bargain basement," bank, shops, and offices. Terraces, pool, and landscaping make for a pleasant and restful atmosphere in keeping with the surrounding residential section. Even the parking spaces for 130 cars are interspersed with small planted and night-lighted islands of flowers and trees. Planting also extends into two malls—one running east-west, bisecting the structure, and an arcade which connects directly with a terrace and pool at the north end of the building. Malls are covered to give shoppers protection from heavy rains and the hot sun. A 115' x 115' area within the 115' x 245' structure is devoted to a supermarket.
with cold-storage, meat- and fish-processing facilities. Two gradual ramps lead up to the market. Beneath, partially visible from the east-west mall, is a basement for the sale of household equipment and furnishings. At the opposite end of the ground floor, small shops and a bank line both sides of the north-south arcade. Offices above the shops have windows overlooking the arcade. To provide clear and uninterrupted space for the supermarket and the second floor offices, the roof framing is composed of 115' steel trusses placed 23' on centers. Insulated steel decking and built-up roofing is supported on steel joists spanning between trusses. For exterior walls insulated steel panels are welded to steel frame. Insulated steel panels, horizontally grooved, are also used to surface the wide fascia line. All steel panels and steel frames for store fronts are lacquered. Floors throughout are of terrazzo; shopping mall floors, ramps, and stair treads use a nonslip aggregate. A pattern of plastic-eggcrate lighting fixtures, ventilation diffusers, and acoustical plaster extends over supermarket, shopping malls, and second floor offices. The entire structure is mechanically ventilated. Shops on ground floor have provision for individual air-conditioning units, to be purchased and operated by the tenants.
Exterior of supermarket (above) is marked by almost windowless façade. Two six-percent ramps (left and across page) provide access to the market from the wide center mall and give shoppers fine views over malls. Terrazzo floors of shops, supermarket, and shopping malls are a checkerboard of black and white with flecks of orange-red chips. One entire wall in the supermarket (below) is surfaced with locally manufactured tiles.
Slope of ramps and wide stairwell opening permits view into basement where home-furnishings and household equipment are sold.
Faculty Houses

location Cambridge, Massachusetts
architects Hugh Stubbins Associates
These new faculty houses are “at home” among their older neighbors—only an extensive garden separates them from the Craigie-Longfellow house (1759). Two additional faculty houses of the same design, also quarters for married students, will complete the composition. Photos: Guttescho-Schleissner
Despite stringent budget limitations, these houses for Episcopal Theological School provide adequate space for faculty members and their families, frequent official guests, and visiting students. A spacious two-story entry hall (photo overpage) leads directly to all parts of the house. A secondary entrance provides access to the kitchen and the study, which is also used for student seminars. For reasons of economy the houses were planned as compactly as possible, employing standard wood-frame construction, and a pitched roof with eaves lines close to the second-floor level, a feature which the architect had previously found practical and inexpensive. The pitched roofs also keep these houses in harmony with the surrounding older buildings of the characteristic New England landscape. Major exterior wall materials are: brick—clearly expressed as veneer—plywood, and cedar clapboards. Interior wall materials are plaster and hazelwood or walnut plywood paneling on wood studs. Floors in the living areas are of oak; linoleum was used in kitchen and baths. The houses are heated by forced warm air. A separate exhaust system located under the roof affords summer comfort. Chambers & Morice are the Landscape Architects associated on this project; Custance Brothers, Inc., the General Contractor.
Sliding, steel-framed glass doors open onto terraces off both living room (left and across page) and dining room (below). For complete privacy, gardens are protected by high fences.
Window areas at both gable ends are protected by sunshades made of 2" x 6" wood members. Master bedroom (above and right) is directly above study.
air conditioning: industrial buildings, part I
by Tyler Hicks*

Today, one of the biggest problems faced during the initial design stages of an industrial plant is: Should this structure be air conditioned? If the answer is yes, a second problem immediately arises: How much of the structure should be air conditioned? An additional problem which often arises, usually during appropriation or budget discussions, is: A controlled atmosphere is needed in this structure, but can it be obtained at lower cost by mechanical ventilation? Or is complete air conditioning justified?

While many other questions can and do occur during planning, the three above encompass the major elements in almost every planning decision related to controlling atmosphere in an industrial structure. There are no quick and easy answers to these questions because each structure is a unique problem. But correct answers are of extreme importance to architects and engineers, today, because so many factors in plant operation are influenced by the decision to provide a controlled atmosphere—product quality, employee efficiency and health, labor-union relations, plant cleanliness, safety, labor supply, etc. While application of generalities to specific design problems can lead to errors, there is much to be gained by study of past experience in similar industries and structures. This article attempts, in the space allotted, to answer these three questions for architects and engineers engaged in industrial-plant design.

plant types
From the standpoint of controlling atmospheric conditions in industrial plants, at least two types of manufacturing operations must be considered: mass production and precision. While the first immediately brings to mind automobile- and aircraft-assembly lines, the general requirements of mass-production operations as related to air conditioning are of a comfort nature and have little effect on the properties of the product—except as they are influenced by employee efficiency. The air-conditioning system provides more comfortable working conditions, cleaner work areas, eliminates hot spots, dust, fumes, etc.

Precision operations, on the other hand, require air at a certain temperature or humidity, or both, to ensure a satisfactory product. Typical examples include precision machining and assembly as well as operations involving hygroscopic materials. In general, it is far easier to justify air conditioning for precision operations than it is for mass-production operations because the product quality of the former is a direct function of temperature or humidity or both.

mass-production operations
Every year sees more new and existing industrial structures turning to air conditioning to improve employee comfort during working hours. While dollars-and-cents proof of the effect of comfort air conditioning on plant output is difficult to assemble in a given industry, the American Management Association found that worker absenteeism was reduced by better than 25 percent in air-conditioned plants. Typical reductions include:
- auto and related manufacturing: 27%
- soap and cosmetics: 27%
- newspaper publishing: 30%
- electric utility: 29%

Estimates of the effect of heat and humidity on the reduction of productive efficiency in mass-production types of industries vary widely—from a low of 10 percent to a high of 30 percent. But engineers, physicians, and psychologists all agree on one point; there is a definite reduction in worker efficiency, where heavy physical tasks are involved, when the temperature and humidity of the work area exceed optimum levels. This is true in all areas of the U. S.—geographical location having little effect other than reducing the duration of the hot spells during which worker output is lower. The reduction is not quite so marked where little physical effort is involved or output is machine paced.

heat loads
An important fact often overlooked in general discussions of comfort air conditioning for the industrial plant is the increase in internal-heat loads resulting from newer concepts of architectural design and the greater mechanization of manufacturing operations. Extensive glass areas, greater use of concrete, higher lighting levels, and replacement of workers by machines having one or more motors, transformers, and other heat-producing devices are a few of the factors contributing to the sharp rise in the internal-heat load of industrial structures. Today, it is not uncommon to find 75 percent of the heat load on an industrial air-conditioning system originating within the building. The balance is from external sources—sun, air, etc.

Today, new plants often have lighting loads of three to five w per sq ft of floor area, compared with about one w per sq ft 30 years ago. Lights are commonly used throughout the day, regardless of how much natural illumination is available. Each industrial worker is now backed by over 16,000 kwhr of electric energy per year, a sharp rise from the 9780 kwhr per year per industrial worker of 1943. Today, each worker uses over seven kwhr of electricity per man-hour; in 1920 it was 1.2 kwhr per man-hour.

Windowless industrial structures, introduced during World War II, did not remain in vogue for long. The end of the war saw a complete turnaround to extensive glass areas, increasing the sun load on the building's air supply. While shades and special window designs can reduce the amount of heat resulting from the sun's rays, the modern, extensively glazed structure is likely to be warmer in summer than its predecessor having less glass and more wall.

cleanliness
Where only natural ventilation is available in an industrial plant, windows are opened at will in summer to provide whatever relief can be had. Dust, dirt, fumes, and other contamination may enter the work areas. Cleaning costs increase, machines may wear more rapidly, and the product may be damaged. Control of the atmosphere by this means is seldom satisfactory because sash is generally located on the basis of lighting and esthetic

* Associate Editor, Power Magazine.
reasons—not for purely ventilating purposes.

Air-conditioned plants housing mass-production type operations usually have somewhat less glass area to reduce the sun load on the conditioning system. Thus, fewer and smaller skylights are generally used. With the internal atmosphere carefully controlled, there is no need or reason for opening windows in summer or winter. Less dirt, dust, and fumes enter the structure, making cleaning easier. Where high-cost, close-tolerance machinery is used as part of the mass-production process, the reduction in maintenance costs resulting from air conditioning may be enough to justify its use in new structures. With fewer windows to clean, as when less sky-light area is used, building cleaning costs are reduced. In a typical industrial plant today, reglazing of broken windows and window washing cost about two cents per sq ft of floor area per year.

In metropolitan areas having heavy dust loads, maintenance of product cleanliness can be a costly item during the summer when windows are opened to ventilate the structure. One plant, manufacturing cosmetics, installed extensive vacuum-cleaning apparatus to remove dust and soot from packaged products before they left the shipping room. The vacuum cleaners were used only during the summer when dust and soot loads were heavy. Money spent for this equipment could have been invested in an air-conditioning system, improving employee comfort and reducing the manufacturing cost of the product.

**employe fringe benefits**

Besides increasing employe health, morale, efficiency, and productive capacity, air-conditioned work areas make it easier to attract and hold the more desirable type of personnel. Though records are not available, many plants report a reduction in labor turnover after air conditioning is installed. This cuts training and other associated costs. And in dealing with labor unions, the fact that work areas are air-conditioned is often a strong bargaining point.

Comfort air conditioning, sometimes regarded by management as an additional unnecessary expense, has proved a money-making investment in hundreds of mass-production type plants. Just on the basis of eliminating poor workmanship and errors attributable to high temperatures and humidities, comfort air conditioning often pays for itself long before its useful life has ended. Typical rooms and areas in which comfort air conditioning is used in modern plants are itemized (Table 1).

**hot spots**

Certain industries, like steel, founding, etc., use processes in which radiant heat is given off. Radiant heat is transmitted as waves in accordance with Stefan's fourth-power law. It is unaffected by air motion. As a result, relief for workers must be supplied by means other than ventilation or air conditioning. The best means available at present is a shield placed between the heat source and the man. The shield either intercepts or impedes the radiant-heat rays, reducing the amount of heat reaching the man. Today, shields are commonly made of aluminum foil or corrugated sheets, though sheet iron, asbestos paper, and others are also used. Aluminum is generally conceded to be best because it closely approaches a perfect reflector and undergoes little temperature rise.

Hot spots occur in other industries, too, with or without radiant heat as the cause. When radiant heat is not the cause, local-exhaust ventilation applied either to the particular work area or the body of the worker, or both, is usually the most satisfactory solution. However, since such hot spots are generally limited in number in a given plant, they do not interfere with comfort air conditioning for mass-production areas in the building. Hoods, roof ventilators, man-cooling fans, air jets, and other units are typical devices used to provide localized relief in hot spots.

**ventilation v. air conditioning**

When budgets for new or modernized buildings are restricted, mechanical or natural ventilation is often proposed in place of comfort air conditioning. This is usually more the case in northern areas than in southern. While mechanical ventilation has its place in certain industries, as does natural ventilation, today there is a definite preference for full air conditioning in mass-production industries. In general, this preference grows out of the inherent advantages of comfort air conditioning, most of which were detailed earlier.

While comparative-cost data of a general nature are not too readily available, studies of typical industrial structures show that where the internal-heat load or gain exceeds five Btu per hr per sq ft of floor area (one ton per 2400 sq ft), the initial cost of a ventilation system having sufficient capacity to keep 75 percent of the employes in the ventilated area comfortable during 50 percent of summer, daylight, working hours exceeds the initial cost of an air-conditioning system which will keep more than 90 percent of the employes comfortable during all working hours. When heat loads rise to 20 Btu per hr per sq ft (one ton per 600 sq ft), savings in operating costs of the ventilating system over the air-conditioning system are only about six percent on the extra investment in ventilation. This means that about 16 years will be required for the extra investment in ventilating equipment to pay out. While some industries may be satisfied with this rate of return, it is more common to find management seeking a faster return, if possible. Also, it must be recognized that the values given are subject to some variation, depending on a number of factors. These can be determined only by a complete study of the conditions existing in a given plant or proposed structure.

This, in brief, is the case for comfort air-conditioning of the modern industrial structure used for mass-production types of operation. Often a touch-and-go decision, many of the advantages of the investment for air-conditioning equipment are not too readily apparent. But wise study of the complete comfort-conditioning problem will usually show that air conditioning can be justified under most circumstances. Design conditions, type of equipment, initial costs, and operating costs are discussed later in this article.

**precision manufacturing**

In general, the problem of air conditioning in precision manufacturing or assembly involves close control of one or more of the following factors in the raw material or product itself: (1) tolerance or dimensional accuracy; (2) surface finish; (3) hygroscopic phenomena; and (4) dirt, dust, lint, etc. The desired control of the product is secured by maintaining suitable temperature, humidity, and cleanliness conditions within the structure or in the areas where precision manufacturing or assembly occurs. While at first glance the real need for careful control of one or more of these factors may not be seen, an example of a typical problem...
met in one industry (described below) will help show the results achieved by well-designed air-conditioning systems in precision manufacturing. Typical precision operations in which air conditioning has proved helpful are listed (Table II).

**tolerances**

In precision machining the question of tolerance always arises because the plant product value is measured by how many acceptable parts are turned out during a given period; the acceptability of a given part is measured by how closely it conforms to tolerances set up in the specifications for the part. Related problems involve dimensional accuracy, fits, allowances, gaging, and manufacturing limits.

Assume a plant is producing machined-bronze parts which are six in. long and are required to be within zero and 0.001 in. of the required length. During the summer, when room air temperature may rise from 65 to 100 F in a plant without air conditioning, this part would expand from an initial length of 6.00 in. at 65 F to a length of 6.0022 in. at 100 F. The part would have to be rejected because it does not come within the desired dimensional allowance when the temperature is 100 F. In an air-conditioned plant, the temperature could be held at one level at all times.

Also affected by air-temperature rise in summer are gages, jigs, fixtures, gage blocks, and other devices used to check the size of manufactured parts. Where the gage and part are made of the same material, the effect of expansion may not be of too much importance; where the two are of different materials, there may be serious errors in measurements. While it is possible to compute the effect of temperature rise on various parts, the amount of labor involved for such a task may be tremendous.

**surface finish**

Many manufactured items are extremely sensitive to humidity before, during, or after being worked on. One of the best examples of this occurs in the manufacture of ball bearings. Small amounts of moisture, either from the atmosphere or the hands of personnel working on the bearings, can attack the highly finished surfaces and start corrosion within a very short time. The same is true for certain polished or drawn raw materials like iron, steel, silver, and copper.

Before the introduction of air conditioning in precision manufacturing, it was common for manufacturers to coat ball-bearing parts with oil or grease at the end of the working period. The protective coating was left on the parts until the next shift began work. It had to be completely removed before actual production could resume. Today, in air-conditioned, ball-bearing factories, this procedure is no longer necessary because the correct humidity and temperature can be maintained at all times.

Where high-quality surface finishes are required in precision manufacturing, humidity and temperature control are prime factors in the success of operations. Close control of humidity and temperature can be secured only by properly designed air-conditioning systems. It also insures cleanliness at all times.

**hygroscopic materials**

Many materials used in producing finished products are hygroscopic, i.e., their moisture content is variable, depending on the humidity of the surrounding air. When ambient humidity is low, the material loses moisture and weight; when ambient humidity is high, the material absorbs moisture and gains weight. Besides affecting the weight, the moisture content may affect the appearance, strength, and quality of the material. All these may have a direct bearing on the production rate and quality of the finished product.

To achieve maximum production economy, the moisture content of a hygroscopic material must be maintained at a value giving ease of handling and working. Materials which may require careful control of humidity and temperature in the production areas include natural textile fibers, rayons, paper, leather, rubber, wood, soap, tobacco, foodstuffs, asbestos fiber, etc.

**control of cleanliness**

While industrial air-conditioning systems are seldom installed for the sole purpose of cleanliness control, there are many manufacturing operations where the possibility of better control of plant cleanliness is the deciding factor in the choice of air conditioning over ventilation or no conditioning at all. Though not every precision-manufacturing operation requires extreme cleanliness, the usual plant can operate more efficiently and more economically when the atmosphere is free of dust, dirt, lint, and similar

---

**Table I: Industrial Rooms and Areas Using Air Conditioning**

| Individual offices | Large office areas | Conference rooms | Rest rooms | First-aid stations | Control rooms | Assembly areas | Drafting rooms | Cafeterias | Dining rooms | Test rooms | Research laboratories | Reception rooms | Photo laboratories | Record vaults | Crane cabs | Telephone exchanges | Machine record rooms | Tabulating rooms | Classrooms | Blueprint rooms | Printing-press rooms | Paint shops | Engineering departments |
|--------------------|--------------------|-----------------|------------|-------------------|---------------|---------------|---------------|-------------|--------------|------------|-------------------|-----------------|-----------------|----------------|-------------|----------------|---------------------|----------------|----------------|---------------------|----------------|---------------------|------------------|------------------|
| **Table II: Typical Precision Operations Using Air Conditioning** |
| Precision machining and grinding | Tool and gage rooms | Aviation and automotive assembly | Abrasives manufacture | Electrical-equipment manufacture | Perishable-material storage | Food processing | Candy making | Citrus-fruit storage | Yeast manufacture | Tobacco | Pharmaceuticals | Baking | Chemical processing | Film manufacture and storage | Plastics | Optical manufacture and assembly | Laboratories | Printing and publishing | Synthetic-fiber processing | Textiles | Fur storage | Leather storage and manufacture |
particles. In addition to contributing to better product quality, cleanliness, as mentioned earlier, can reduce plant-cleaning costs.

Besides the four factors discussed above, control of the rate of chemical or biological reactions are two more elements sometimes arising in precision manufacturing. Where they occur, air conditioning is usually the only suitable solution for accurate control of atmospheric conditions within the plant work areas.

**atmospheric contaminants**

In addition to air conditioning, control of atmospheric contaminants is often required in industrial plants. Three types of systems are commonly used for this service: dilution, local exhaust, or a combination of exhaust and dilution.

Dilution-type systems are generally used where contaminants originate at a number of different points throughout the working area. Outside air, introduced into the working area, dilutes the inside air to reduce the concentration of the contaminants to a safe level. It is essential in the design of any dilution-type system that the sources of contamination be accurately known, otherwise the air-supply equipment cannot be properly sized for maximum safety and economy. Undersize equipment can lead to dangerous atmospheric conditions while oversize units will prove uneconomical over a long period of time.

Local-exhaust systems are used for mists, dusts, fumes, gases, and vapors originating in relatively small areas within the plant. Hoods, booths, or canopies of various designs are used to "capture" the contaminant so that it can be drawn from the area and exhausted to a safe area outside the plant.

To reduce the cost of dilution-type systems, local exhaust is often used in combination with dilution. Fumes, vapors, gases, etc., are exhausted where they occur. The particular work area is then diluted with outdoor air to reduce the concentration of any other contaminants that may be in the plant atmosphere.

**design conditions**

Four categories are usually assigned to design conditions for industrial air-conditioning systems—employee comfort, storage of material prior to manufacture, manufacturing, and development and research.

Typical indoor-design conditions found suitable in a large number of industries are given (Table III). While specific circumstances may require that these conditions be altered, they are satisfactory for the majority of industrial plants.

**air-conditioning equipment**

Two general types of air conditioning apparatus are available for industrial plants — central systems and unit systems. Both find use, depending on the specific requirements of a given plant.

Central systems usually serve several

---

### Table III: Typical Indoor Temperature and Humidity for Industrial Air-Conditioning Systems*

<table>
<thead>
<tr>
<th>Classification</th>
<th>Materials, location, or process</th>
<th>Temperature (°F)</th>
<th>Relative humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees efficiency</td>
<td>General machine-shop work</td>
<td>78-80</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Drafting rooms</td>
<td>78-80</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Offices</td>
<td>78-80</td>
<td>50</td>
</tr>
<tr>
<td>Storage prior to manufacturing</td>
<td>Rough castings</td>
<td>80</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Ceramic materials</td>
<td>60-80</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Pharmaceutical powders</td>
<td>70-80</td>
<td>15-35</td>
</tr>
<tr>
<td></td>
<td>Sugar</td>
<td>80</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Paper</td>
<td>75-80</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Electrical goods</td>
<td>60-80</td>
<td>35-50</td>
</tr>
<tr>
<td></td>
<td>Flour</td>
<td>60-75</td>
<td>55-65</td>
</tr>
<tr>
<td></td>
<td>Rubber</td>
<td>60-75</td>
<td>40-50</td>
</tr>
<tr>
<td></td>
<td>Grains</td>
<td>60</td>
<td>30-45</td>
</tr>
<tr>
<td></td>
<td>Hardened aluminum alloys</td>
<td>0 to -30</td>
<td></td>
</tr>
<tr>
<td>Manufacturing process</td>
<td>Machine-tool oil cooling</td>
<td>70-90</td>
<td>40-55</td>
</tr>
<tr>
<td></td>
<td>Precision-parts honing machinery</td>
<td>75-80</td>
<td>40-55</td>
</tr>
<tr>
<td></td>
<td>Ceramic molding</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Manufacturing of electrical wiring</td>
<td>60-80</td>
<td>35-50</td>
</tr>
<tr>
<td></td>
<td>Assembly line</td>
<td>65-80</td>
<td>40-50</td>
</tr>
<tr>
<td></td>
<td>Gage rooms</td>
<td>78</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Instrument calibration</td>
<td>68</td>
<td>50-50</td>
</tr>
<tr>
<td></td>
<td>Match manufacturing</td>
<td>72-74</td>
<td>50</td>
</tr>
<tr>
<td>Research and development</td>
<td>Paper-testing laboratory</td>
<td>60-80</td>
<td>55-65</td>
</tr>
<tr>
<td></td>
<td>Textile-testing laboratory</td>
<td>70</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Special process temperature boxes</td>
<td>-100 to +170</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemical laboratories</td>
<td>78</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Fibers and plastics</td>
<td>70-75</td>
<td>50-65</td>
</tr>
<tr>
<td></td>
<td>Drafting</td>
<td>78-80</td>
<td>45-50</td>
</tr>
<tr>
<td></td>
<td>Temperature-shock tests</td>
<td>-80 to +150</td>
<td></td>
</tr>
</tbody>
</table>

different rooms or areas—the fans, filters, heating and cooling coils, and casing being located outside the rooms or areas served. The investment cost for a central system is often lower than for a unit system when the cooling load is large enough to justify the central-type apparatus. Equipment for a central system can be located in the building basement, truss space, attic, or other area having little use for production or occupancy. Maintenance of equipment in a central system is generally easier because more space is available and access is simpler.

Unit systems generally serve one room or area or, at most, a relatively small number of rooms or areas. Self-contained, they are characterized by compactness, portability, and freedom from noise. Usually, they must be placed in the area served or very close to it. Central systems, on the other hand, may be far from the area served, if necessary. Maintenance of unit systems may sometimes be more expensive than central systems because access to various parts is more difficult.

**initial and maintenance costs**

The cost of air-conditioning equipment varies considerably with unit size, capacity, load served, degree of control required, and a large number of other factors. One ASHACE survey shows that refrigeration-equipment costs for a typical central system—complete with heating and cooling coils, controls, fans, ducts, etc.—were $250 per ton for a 25-ton installation but only $158 per ton for a $500-ton installation. Air-handling equipment for these same installations, including ducts, fans, coils, etc., costs $1.05 per cu ft of air per min and $0.82 per cu ft of air per min, respectively.

Operating costs vary considerably, depending on the duration of the operating period, type of equipment, geographical location, degree of control required, etc. In general, it is difficult to give values applicable to all classes of installations; the same is true of maintenance costs. However, various surveys show that the annual over-all operating costs for central-type systems, serving summer and winter loads, run between a low of 15 cents per sq ft of floor area served to a high of 50 cents per sq ft of floor area. These figures include routine maintenance of the equipment.

**the future**

The air-conditioned industrial plant is here to stay—of that there is no doubt. Architects and engineers designing today’s and tomorrow’s plants must be more ready than ever before to meet the requirements of industry for a controlled atmosphere in the majority of plants. The wide variations in requirements from one plant to the next prevent any simple rule-of-thumb solutions to design problems. Considered judgment, careful study, and thorough design provide the only sure means of satisfying industrial air-conditioning needs.
curtain walls of stainless steel

Just completed is Curtain Walls of Stainless Steel—a study prepared by Princeton University’s School of Architecture for the Committee of Stainless Steel Producers of American Iron and Steel Institute. Although the full report is now available1 and must be considered an essential addition to the architectural library, the following discussion should highlight the contents sufficiently to indicate the character and value of the study as well as be of some immediate use.

At the outset, the project staff agreed for its own purposes that a curtain wall is one that is made up of thin-sheet materials in large panels. Actually, their study includes an extensive examination of metal curtain-wall construction—stainless steel, aluminum, porcelain-enamed steel, and carbon steel. Particular emphasis for this report, naturally, was placed on determining how stainless steel might be designed most effectively. Stainless steel combines two fundamental and highly desirable qualities: these are strength and durability. The metal, however, is expensive in that the cost per pound is high in relation to most other materials. It is obligatory, therefore, that the reduction of weight be exploited, through intelligent design, in order to render stainless steel competitive in cost with other materials—even those having shorter life or higher maintenance cost. As the researchers brought together the various aspects of their study there was no attempt to design prototype curtain walls, but rather an effort to help establish a foundation on which others can design and build.

This research is unusual in that it was conducted entirely by architects whose sole objective was to develop use-

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1 Architects and engineers may obtain free copies by writing on firm letterhead and mailing request to Richard E. Paret, Committee of Stainless Steel Producers, AISI, 350 Fifth Avenue, New York, N. Y.
ful information for the architectural designer. Contrary to the nature of "reports" which normally are not classified as "good reading," this study is critically written and the findings are presented in a manner that is attractive to the architect.

The project staff included the following members of Princeton's School of Architecture: John Hancock Callender, Henry A. Jandl, Robert W. McLaughlin (Director of the School), and James C. Ritchie. Technical assistants were: Leon Barth, Alfred E. De Vido, Theodore William Kleinsasser, Jr., William H. Roehl, and Arthur N. Tuttle, Jr. These men were assisted by consultants from other departments of the University, an advisory committee of distinguished practicing architects and engineers, and by an advisory committee of the AISI.

**changing concepts of the wall**

Today's walls should be able to exclude or admit, to keep out or let in, as desired, light, air, heat, cold, wind, vision, odors, sounds, and certain animals and people. Or as James M. Fitch observed the modern wall should be thought of not as a barrier but rather as a filter. *(Table I lists characteristics of the ideal curtain wall.)* Such a wall obviously requires a new form of architectural expression. Walls of thin-sheet materials, even if backed up by masonry, should not look like masonry walls. Analysis of advanced structures both in the U. S. and abroad has revealed two basically different concepts: (1) the relatively smooth facade—characteristic of most work in this country; (2) facades with considerable depth resulting from the use of sun shades or balconies or both—more prevalent in Latin America. Within these broad groups, various subdivisions also exist. Such a rigid categorization of curtain walls might lead some critics to register a concern that the development of curtain walls will bring buildings that all look alike. The project staff for this report points out with candor that should such a situation arise, it will be from the architects' choice and

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**Table I—Characteristics of the Ideal Curtain Wall**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Durability</strong></td>
<td>Life 100 years (minimum 40)</td>
</tr>
<tr>
<td><strong>Thickness</strong></td>
<td>2&quot; (maximum 5&quot;)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>5 psf (maximum 15)</td>
</tr>
<tr>
<td><strong>Insulation</strong></td>
<td>U = 0.05 Btu (maximum 0.15)</td>
</tr>
<tr>
<td><strong>Fire resistance</strong></td>
<td>Incombustible (2 hr where required)</td>
</tr>
<tr>
<td><strong>Strength</strong></td>
<td>Resist 150 mph wind (minimum 100 mph)</td>
</tr>
<tr>
<td><strong>Weatherproof</strong></td>
<td>On outer face</td>
</tr>
<tr>
<td><strong>Vapor proof</strong></td>
<td>On inner face</td>
</tr>
<tr>
<td><strong>Ventilated and drained</strong></td>
<td>For control of internal moisture, whether from condensation or from wind-driven rain</td>
</tr>
<tr>
<td><strong>Ventilated</strong></td>
<td>For summer cooling</td>
</tr>
<tr>
<td><strong>Flexible</strong></td>
<td>Provide for expansion and contraction and building movement</td>
</tr>
<tr>
<td><strong>Removable</strong></td>
<td>Panels easily removable for repair or replacement</td>
</tr>
<tr>
<td><strong>Sound transmission</strong></td>
<td>Reduction 50 db (minimum 25)</td>
</tr>
<tr>
<td><strong>Sound-deadened</strong></td>
<td>Against impact of rain and wind</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>Large units, 25 to 100 sq ft (minimum 10 sq ft)</td>
</tr>
<tr>
<td><strong>Adaptable</strong></td>
<td>To all types of building framing—steel or reinforced concrete, simple or cantilevered</td>
</tr>
<tr>
<td><strong>Erection</strong></td>
<td>Installed from inside the building—no outside scaffolding required</td>
</tr>
<tr>
<td><strong>Attachment</strong></td>
<td>To building simple and positive—adjustable in three dimensions</td>
</tr>
<tr>
<td><strong>Handling</strong></td>
<td>Easy, preferably by manpower only</td>
</tr>
<tr>
<td><strong>Shipping</strong></td>
<td>Easy, by standard transportation</td>
</tr>
<tr>
<td><strong>Fabrication</strong></td>
<td>Simple—can be done in any reasonably well equipped fabrication shop</td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td>Attractive—no waviness, not too reflective, wide variety of textures and colors, weathers uniformly, self-cleaning</td>
</tr>
<tr>
<td><strong>Maintenance</strong></td>
<td>None required—no painting, calcining or refinishing—cleaning not required for durability or appearance—cleaning easy if desired</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>Moderate—competitive with conventional construction—maximum $5 per sq ft in place</td>
</tr>
</tbody>
</table>

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*American Building (Boston: Houghton Mifflin Co., 1948).*
not from any technical necessity. Research has led the staff to predict that façades with depth will increase in importance in the U.S. during the coming decade. The report also reminds the reader that stainless steel has certain characteristics that make it particularly well suited to the fabrication of shading devices.

**survey of buildings**

More than two dozen metal curtain walls of all types were critically surveyed. Purpose of the survey was to appraise the over-all appearance of the building façade as an architectural expression of curtain-wall construction and to appraise specifically the design of the curtain wall employed in each case. Illustrated with text, photos, and detail drawings, this section of the study represents an excellent documentation of the outstanding metal curtain-wall structures that have been erected during the last five years. Included are: General Electric Turbine Building, General Motors Technical Center, 525 William Penn Place, Alcoa Building, E. F. Hauserman Plant, Westinghouse Research Laboratory, 99 Park Avenue Building, Mile High Center, Dallas Statler Hilton Hotel, the Socony Mobil Building, and many others. All commercially available metal panels are also shown in detail drawings.

**design data**

Chromium-nickel alloys are the best known, the most corrosion resistant, and are characterized by very high strengths (Table II). These alloys are heavier than carbon steel and, posing an additional consideration for the designer, they have a higher coefficient of thermal expansion. Significantly, however, they retain a remarkable amount of strength at high temperatures. Type 302 is the general-purpose stainless steel and the one most often used—especially for outdoor applications. Where exposure to salt spray poses a particular problem, Type 316 (containing 2.5 percent molybdenum) is to be recommended. Type

![Figure 2.](image_url)

**TABLE II—Typical Properties of Stainless Steel Alloys**

<table>
<thead>
<tr>
<th>Material</th>
<th>Chemical composition percent</th>
<th>Melting range°F</th>
<th>Density lb/cu ft</th>
<th>Mean coeff. of thermal expansion in/in/°F x 10^-6 (32-212°F)</th>
<th>Yield strength psi (annealed)</th>
<th>Ultimate strength psi (annealed)</th>
<th>Elongation percent in 2&quot;</th>
<th>Mod. of elasticity psi \times 10^6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 301</td>
<td>Cr 16.0-18.0, Ni 6.0-8.0</td>
<td>2550—2590</td>
<td>501</td>
<td>9.4</td>
<td>40,000</td>
<td>110,000</td>
<td>60</td>
<td>28.0</td>
</tr>
<tr>
<td>Type 302</td>
<td>Cr 17.0-19.0, Ni 8.0-10.0</td>
<td>2550—2590</td>
<td>501</td>
<td>9.6</td>
<td>40,000</td>
<td>90,000</td>
<td>50</td>
<td>28.0</td>
</tr>
<tr>
<td>Type 316</td>
<td>Cr 16.0-18.0, Ni 10.0-14.0, Mo 2.0-3.0</td>
<td>2500—2550</td>
<td>501</td>
<td>8.9</td>
<td>40,000</td>
<td>90,000</td>
<td>50</td>
<td>28.0</td>
</tr>
<tr>
<td>Type 430</td>
<td>Cr 14.0-18.0</td>
<td>2600—2600</td>
<td>484</td>
<td>5.8</td>
<td>45,000</td>
<td>75,000</td>
<td>25</td>
<td>29.0</td>
</tr>
<tr>
<td>Type 442</td>
<td>Cr 18.0-23.0</td>
<td>2600—2600</td>
<td>484</td>
<td>5.7</td>
<td>45,000</td>
<td>80,000</td>
<td>25</td>
<td>29.0</td>
</tr>
</tbody>
</table>
430 (containing no nickel) is the straight-chromium stainless steel most used in building work. Nickel-bearing stainless steels differ from carbon steels, and some other metals, in having no clearly defined yield point (Figure 2). The yield point has been arbitrarily taken as the point at which the curve intersects a straight line parallel to the lower (straight) part of the curve and .2 percent offset from it.

Stainless steel is available from the mill in coil stock or in cut sheets. Maximum widths that are available vary with gage: the thinner the gage the narrower the sheet (Table III). Stainless sheet-steel can be roll-formed, pressed, bent, sheared, welded, and soldered. Tooling costs for rolls and dies are considerable and therefore these processes are economical for mass production only. For a single building or a group of buildings, brake forming is the most economical fabricating method. All types of welding can be performed on stainless steel. A welded joint develops the full strength of the joined material and is fully corrosion resistant. Welds can be ground down and the adjacent area refinished to make the joint invisible.

### finishes

Finishes No. 2D and 2B are standard mill finishes available at no extra cost while finishes No. 4 and 6 cost from 20 to 59 percent more (Table IV). For curtain walls that are designed to cover an entire façade or a structure, luxury finishes are unnecessary and finishes 2D and 2B are reported to be entirely satisfactory. It is recommended that a 2D finish should be used for flat sheets and a 2B finish for textured sheets. Finish No. 4 exhibits a remarkable property of reflecting any light source, regardless of its shape, as a brilliant straight line (Figure 3). On a city building, surrounded by street lights, traffic lights, and moving auto lights, this reflective effect can be very disturbing.

### texture

A wide range of textures is available to the designer of stainless-steel curtain walls. Textured sheets can be rolled with patterns ranging in depth from .005 to 1½" and in width from ½" to 8". Patterns are of two general types—all-over and one-directional. The shallower patterns are referred to as embossed and the somewhat deeper ones are often called “rigidized”—also a trade name. “Textured” has been used in this report to designate both types. Patterns are available in sheets up to 36" in width. It should be pointed out, however, that the designer must use caution with the deeper all-over patterns since they present joint problems—particularly vertical ones that are difficult to make tight.

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**TABLE III—Maximum Widths for Gages**

<table>
<thead>
<tr>
<th>Gage</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 (.078&quot;)</td>
<td>72&quot;</td>
</tr>
<tr>
<td>16 (.063&quot;)</td>
<td>72&quot;</td>
</tr>
<tr>
<td>18 (.050&quot;)</td>
<td>72&quot;</td>
</tr>
<tr>
<td>20 (.038&quot;)</td>
<td>72&quot;</td>
</tr>
<tr>
<td>22 (.031&quot;)</td>
<td>66&quot;</td>
</tr>
<tr>
<td>24 (.025&quot;)</td>
<td>60&quot;</td>
</tr>
<tr>
<td>26 (.019&quot;)</td>
<td>49&quot;</td>
</tr>
<tr>
<td>28 (.016&quot;)</td>
<td>48&quot;</td>
</tr>
<tr>
<td>30 (.013&quot;)</td>
<td>38&quot;</td>
</tr>
<tr>
<td>32 (.010&quot;)</td>
<td>36&quot;</td>
</tr>
</tbody>
</table>

**TABLE IV—Standard Stainless Steel Finishes**

- **No. 2D** (Dull cold rolled) suitable where a nonreflective effect is desired.
- **No. 2B** (Bright cold rolled) somewhat brighter than 2D but not as high a luster as a polished finish.
- **No. 4** (Polished) this is the finish most used for architectural trim. It can be matched in blending welds and covering fabrication markings. It is bright but not extremely reflective.
- **No. 6** (Polished and tampico brushed) this is a No. 4 finish brushed with tampico fiber. The finish is conservative, soft, and of low reflectivity.

*Figure 3—reflectivity of stainless-steel finishes.*
One suggestion is to stop the pattern short of the edges of the sheet which remain flat; they then can be formed as desired. Or, the edges of the textured sheet can be reflatened and then formed.

One-directional patterns—usually referred to as "ribbed" or "fluted" and having rectangular, V-shaped, or curved sections—are widely used and are familiar to all. At least one reason for their popularity is that when used vertically (almost universal practice) they present no joint problems.

Textured sheets have special advantages in that they can be used to increase rigidity, to break up reflections, and to conceal unevenness and other minor defects in the wall. Further, texture not only lends visual interest and character to a wall but also helps to give scale to the building as a whole. For very important structures, the architect may elect to design and specify his own choice of texture.

color
Although stainless steel has a distinctive color of its own which can be varied by the use of different finishes and textures, naturally there are occasions when other or additional color may be desired. The most practical process for adding another color to stainless steel involves glazing. The project staff prefers to use the word glazing rather than enameling. This position has been taken because of the desirability of keeping in view as much of stainless steel's natural metallic quality as possible, rather than burying the metal under an opaque enamel. Stainless steel has certain advantages as a basis for vitreous finish: (1) A wall panel can be fabricated and glazed applied to those areas where color is desired, leaving the remainder in its natural state. This is not done with other metals because of the danger of deterioration in unprotected parts and possible induced enamel spalling. (2) Only the exterior face of exterior wall units need be glazed—leaving the backs in their natural state. No warpage has been observed in stainless steel fired at a temperature of 1000 F with glazed applied to one side only. (3) Stainless-steel sheets need not be glazed completely. This characteristic allows the stainless steel to show through intermittently, lending sparkle to the applied color glaze. (4) Only one coating is sufficient for stainless steel. (5) Small flaws, not considered objectionable on visual grounds, do not appear to be important in glaze on stainless steel, whereas they become focuses of corrosion and spalling on other metals.

Three desirable characteristics of glazes on stainless steel are: (1) The glaze is most effective when translucent rather than opaque, permitting the quality of the metal to show through. (2) On patterned stainless steel, high points can be left uncoated (Figure 1). The clean metal must be polished after firing since the metal surface changes to a brown color at firing temperatures. (3) On flat surfaces effective results can be obtained with spattered finishes using one or more colors and exposing substantial areas of metal. Discontinuous glazes minimize the problem of difference in coefficient of expansion between glaze and metal.

economy
As mentioned before, since stainless steel costs substantially more per pound than most other materials, it must be used economically if it is to compete with other materials. Obviously, stainless steel cannot be treated as a precious metal if it is to be used for the facing of entire buildings. For maximum economy, stainless steel should be used in thin sheets (26 gage or thinner), have No. 2 finish, and should be textured, ribbed, or continuously backed with a minimum of fabrication. Since texture, ribbing, and back-up all cost something, this expense must be balanced against a saving in the cost of the metal (Table V).

preventing waviness
When used in large flat panels, all sheet metals have a tendency toward waviness. This characteristic, when excessive, is generally considered very objectionable. Most important in the definition of visual flatness is not the height nor the number of waves in a sheet of metal, but the steepness of the slope. If a 1/16" deviation were to occur in the center of a 4' sheet with a gradual rise from each edge, the slope would be very slight (.0625 ÷ 24 = .0026) and the sheet would appear to be flat. From a survey conducted by the project staff, it was found that slopes of less than one percent were rarely visible and in no case considered objectionable, regardless of finish. Slopes of more than two percent were always visible and objectionable, except in the case of heavily-textured metal. Slopes as great as three percent were found to be acceptable in heavily and irregularly textured finishes. To prevent waviness, maximum slopes should not exceed one percent for No. 2B and No. 4 finishes, 1.25 percent for No. 2D and No. 6 finishes, and two percent for heavily-textured metal.

Causes of waviness were found to be: (1) minor production variations; (2) sheets not flat when shipped from the mill; (3) unequal stresses resulting from fabrication; (4) stresses resulting from erection; (5) expansion due to temperature rise; (6) shrinkage of backing; (7) movement of building frame.

In order to eliminate as much waviness as possible, the following recommendations should be followed: (1) Avoid the use of large flat panels. (2) Avoid the use of reflective finishes. (3) Specify stretcher-leveled sheets. (4) Use embossed or textured sheets. (5) Specify a system of attachment to the building that puts no strain on the panel and allows no movement. (6) Specify that the face of the panel as installed on the building shall be flat within limits prescribed. (7) Use continuous backing behind the metal skin, either by laminating it to a flat, board-like material or by pouring a cementitious material directly behind the metal face. (8) If the metal face is not backed continuously, the distance between stiffening members should not exceed those recommended.

Research developed that a lamination of thin stainless steel (.010" to .020") to asbestos-cement board, gypsum board, or calcium-silicate board appears to be feasible. Further study is needed, however, before the method can be recommended for general use. Adhesives of either the
curtain walls of stainless steel

synthetic rubber or the epoxy-resin type appear to be suitable for this purpose. The epoxy resin seems to be somewhat superior to the rubber type, but costs about twice as much. Laminating should be done at low pressures. Although it is feasible to back up panels with formed edges, it is obviously much simpler and less expensive to laminate panels with flat, unformed edges.

bond

Tests indicate that the natural bond between stainless steel and high-quality stone concrete is capable of resisting the forces of shrinkage in the concrete and the thermal expansion of the steel. Natural bond between stainless steel and lightweight-aggregate insulating concrete, however, can not be depended upon to resist the force of the shrinkage in concrete. Use of an adhesive on stainless steel improves its bond to lightweight-aggregate insulating concrete sufficiently to enable it to resist the forces of shrinkage and expansion. Sandwich panels with stainless-steel faces appear to be practical with any of the following core materials: fireproof, precast insulating concrete; incombustible, cement and excelsior board; combustible, fiber insulating board with asbestos-cement faces.

strength

Curtain walls are by definition nonstructural, but they do have to be strong enough to support themselves between floors and to resist the force of the wind as well as occasional impacts. Of these factors, wind is the most important. In most cases, a wall designed to resist wind load will have adequate strength for all other needs. The majority of codes specify wind loads of 20 to 30 psf and this agrees with the recommendations of leading authorities on the subject.

attachment

Unfortunately, there does not exist in steel-frame or reinforced-concrete construction the same dimensional precision in placement that is required for attachment of wall panels. It is necessary, therefore, that an intermediate element be introduced between the wall panel and the structural frame to provide the re-

---

**TABLE V—Index of Relative Costs/Sq Ft of Stainless Steel Sheets**

<table>
<thead>
<tr>
<th>Gage</th>
<th>Thickness</th>
<th>Weight</th>
<th>Width</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>In.</td>
<td>psf</td>
<td>36&quot;</td>
<td>48&quot;</td>
</tr>
<tr>
<td>14</td>
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<tr>
<td>16</td>
<td>.063</td>
<td>2.625</td>
<td>.82</td>
<td>.84</td>
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<td>1.050</td>
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<td>.013</td>
<td>.656</td>
<td>.25</td>
<td>.29</td>
</tr>
<tr>
<td>32</td>
<td>.010</td>
<td>.525</td>
<td>.24</td>
<td></td>
</tr>
</tbody>
</table>

*Based on a unit of Type 302 No. 2D or 2B finish sheets in lengths of 60 to 120 in., paper wrapped, quantities of 10,000 lb. and over, as determined by the producer as of July 6, 1955. Factor of 1.00 arbitrarily assigned.
quired adjustment. Components of attachment devices that may be used with the various systems of curtain-wall attachment are shown (Figure 4).

**joints**

Every joint between panels or wall units is potentially a weak point for the eventual penetration of water and air. The best method of designing a joint is first, to make it as weathertight as humanly possible, and second, to assume that it will nevertheless leak and provide positive means for conducting the moisture out of the wall. A number of successful joint methods are illustrated (Figure 5).

**suggested designs**

Three basic systems are suggested for curtain walls of stainless steel: general purpose system—primarily for one-, two-, or three-story buildings, such as schools, small office buildings, etc. (Figure 6A); multi-story system—essentially for elevator structures such as office buildings, apartment buildings, etc. (Figure 6B); industrial system—primarily for walls of buildings such as factories where large areas must be enclosed usually without openings (Figure 6C).

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**Figure 5—joints.** Good joints must prevent air and water leakage, have flexibility, control moisture, and permit no through conductivity of metal. Tongue-and-groove joints simplify erection and speed up installation. Spline joints allow flexibility for replacement, removal, and expansion. Mullion window-stop joints can be used without change for materials of various thicknesses. Easily assembled from store-front sections. Interlocking joints are widely used on large expanses of walls. Batten joints have flexibility and offer a wide variety of possibilities in design.
curtain walls of stainless steel

Figure 6—Joint details for three basic systems.

interlocking

interior panel - 18 ga. galvanized steel
3/16" x 1/2" steel box 4'-0" o.c.
2" insulation
clinch lock 2'-0" o.c.
exterior panel - 20 ga. s.s.

AMERICAN PAN-L-WALL - AP

1/4" x 1" steel bar 4'-0" o.c.
2" insulation
exterior panel - 20 ga. s.s.

MAHON

interior panel - 18 ga. metal-coated steel
caulk
1 1/2" insulation
exterior panel - 20 ga. s.s.

ROBERTSON - Q-PANEL - TYPE A

interior panel - 18 ga. galvanized steel
caulk
3" insulation
exterior panel - 18 ga. s.s.

STEELCRAFT

interior panel - 18 ga. galvanized steel
caulk
1" insulation
exterior panel - 18 ga. s.s.

ARMCO STEELOK

interior panel - 18 ga. s.s.
1/4" x 1" steel bar 4'-0" o.c.
1 1/2" insulation
exterior panel - 20 ga. s.s.

WALCON D' PANEL

batten

interior panel - 20 ga. galvanized steel
caulk
1/4" x 1" steel box 4'-0" o.c.
20 ga. s.s. stamped panel
14 ga. s.s. cover plate
chrome lock bolt

SOCO NY MOBIL BUILDING NEW YORK, N.Y.

interior panel - 20 ga. galvanized steel
caulk
1" insulation
12 ga. steel subframes
16 ga. stainless steel

KNAPP BROTHERS

interior panel - 18 ga. metal-coated steel
caulk
1/8" V channel
20 ga. porcelain enamel panel
2" cellular glass

TRUSCON STEEL COMPANY

interior panel - 18 ga. galvanized steel
caulk
1" insulation
vinyl gasket
extruded aluminum mullion
porcelain enamel panel on 4/4" aluminum honeycomb

FORD RESEARCH CENTER OLDBORN, MICHIGAN

interior panel - 18 ga. galvanized steel
caulk
1/8" air space
18 ga. corrugated porcelain enamel steel
24 ga. s.s.

RCA VICTOR OFFICE BUILDING CAMDEN, N.J.

interior panel - 18 ga. s.s.
1/8" "U" channel
24 ga. s.s.
"U" tensioner

LINDSAY STRUCTURES INC.

Sketches (above) show three basic systems suggested for stainless-steel curtain-wall design: A—general purpose; B—multistory; C—industrial. Corresponding joint details are illustrated (top of page).
Univ. of Maryland
New Main Gymnasium and Arena—Architects: Hall, Border & Donaldson, Baltimore

This Beautiful New MARYLAND FLOOR with the HILLYARD FINISH for Champions invites play by the nation's top-ranking teams. At the same time, the superb toughness of the floor finish is more than adequate to take the punishment of every activity planned for this giant new arena.

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• Takes heavy wear years longer
• Will not flake nor crack
• Will not rubber burn nor yellow with age
• Is non-skid and no-glare for faster safer big-time play.

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HILLYARD CHEMICAL CO.
St. Joseph, Mo.

Please have a Hillyard Maintaineer consult with me on the finish or treatment for floors.

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Institution ________________________________
Address ________________________________
City ___________________ State ________

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works clerks

In the event some 2 o’clock in the afternoon Mr. I. Rate Client telephones to inquire what in blazes is a “Clerk-of-the-Works and since I’m paying for the bloke what does he do?” you up and say to him, “Hold the wire a minute please, I’ll read it to you, or better still, I’ll write comprehensively, clearly, and concisely (Lord love their streamlined little hearts). These guide specifications cover a full line of resilient flooring materials. For the Federal Specifications addicts there are appropriate numbers wherever applicable, but here is what makes these spex most unusual. In the “gutter space” to the left and right of the copy (which contains the usual parenthetical multiple choices), there are informal comments which make you feel there is an unobtrusive Kentile technician in the room advising you all the way. This unseen adviser kibitzes on composition, care, colors, costs, and what-all. Thank you, Kentile, for saving us much trouble and time. Ask ‘em for a copy—what am I saying?—ten copies.

(c) Work subject to a Change Order shall be checked carefully for quantities and compliance with terms of Proceed Order or Change Order.
(d) Unapproved deviations from Contract Documents which Contractor refuses to correct shall be reported immediately in writing to Architect.
(e) In cases where building, utilities or site work is endangered by action of Contractor or the elements, Clerk-of-the-Works shall give instructions to safeguard work; notify Architect immediately of instructions given.
(f) Clerk-of-the-Works shall not interpret Contract Documents for Contractors. If there are any questions or conflicts, Architect shall be consulted for a ruling.
(g) Clerk-of-the-Works shall keep field notes for following:
   (1.) Log book or diary with weather and narrative report of operations.
   (2.) Records and sketches regarding extras or credit of quantities where Unit Prices are involved or where cost cannot be determined in advance.
   (3.) Record of boulders or rock, giving size, when and where found.
   (4.) Progress for payments.
   (5.) Progress for Reports.

Partial Payment

(a) Contractor’s accepted cost breakdown and any necessary sub-breakdowns will be utilized in calculating partial monthly payments to Contractor.
(b) Progress shall be noted on job site by Clerk-of-the-Works at end of each month for partial payment purposes. This progress shall tie in with Contractor’s approved cost breakdown or sub-breakdowns.
(c) Careful checking is imperative to avoid overpayments.
(d) Preliminary pencil copies shall be prepared by Contractor and submitted to Clerk-of-the-Works for checking prior to Contractor preparing required typewritten forms. (This may be done at any time around first of month.)
(e) Material delivered and stored on site may be certified for payment provided paid invoices are furnished by Contractor. Invoices shall be checked against partial payment request for correctness of quantity, price. Clerk-of-the-Works shall ascertain that materials are on job.

Proceed Orders and Change Orders

(a) Changes in Work which involve increase or decrease in Contract Price shall be subject to a Proceed or Change Order in forms prescribed by Architect.
(b) Change Orders shall be accompanied by signed itemized Proposal and other necessary data furnished by Contractor. Six copies of Change Orders are required.
(c) Proceed Order is indicated when definite quantities cannot be ascertained such as in latent soil conditions. Proceed Orders shall be limited to specific sum for work to be done. If sum proves insufficient, additional Proceed Order shall be issued.
(d) Basic principle of Proceed or Change Orders is that all parties involved are agreed that work is required and price is equitable before change in work is ordered, and Proceed or Change Order made up.
(e) Proceed and Change Orders shall be checked carefully for quantities, prices, clarity.

4. “As Built” Drawings

(a) “As Built” drawings when required by Specifications shall be prepared by Contractor. It is duty of Clerk-of-the-Works to see that the necessary measurements are taken before the work is covered up.

5. Job Meetings

(a) Clerk-of-the-Works shall:
   (1.) Approve previous Job Meeting reports.
   (2.) Avoid possibility of delay due to shortages of materials or labor, or failure of Contractors to expedite work satisfactorily.
   (3.) See that shop drawings are submitted promptly. Request list of required shop drawings and dates to be submitted. See that shop drawings are checked promptly.
   (4.) Resolve Contractors’ problems.
   (5.) Report for record Contractors’ anticipated progress; obtain dates.
   (6.) See that the Progress Chart is kept up-to-date; report any failure to adhere to same.

6. General

(a) Clerk-of-the-Works shall:
   (1.) Keep daily log (Copy to Construction Division of Office.)
   (2.) Prepare weekly report, in duplicate, for Construction Division. (Copy to Clerk-of-the-Works.)
   (3.) Prepare pencil copy, for Supervisor, of Certificate of Payment. Check quantities for Certificate of Payment. (Files shall contain method used for checking.)
   (4.) Prepare Change orders for Supervisor’s signature. (Files shall contain method used for checking, including breakdown.)
   (5.) Conduct Weekly Job Meetings in absence of Supervisor. Submit pencil draft covering meeting for editing, typing, distribution.
CORRIDOR STORAGE WALL

ELEMENTARY SCHOOL, Darien, Conn.
Ketchum, Ginâ & Sharp, Architects

October 1955 139
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Oak Cliff Savings and Loan Building, Dallas, Texas. Lighted throughout by recessed fluorescent luminaires with diffusers of Plexiglas. Architects: Prinz and Brooks.

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The architect’s versatility, imagination, and professional knowledge—together with his personal sensitivity to the humanities—are newly called upon to meet the design needs of today’s “friendly” banking policies. With the fairly recent realization on the part of bankers that they—the same as merchants, industrialists, and manufacturers—have something to sell, bank design or redesign has taken on a completely different character. Gone is the desire to awe, to overwhelm, to belittle the depositor or loan-seeker. In its place is now the “customer” concept, with a warm, friendly atmosphere, a feeling of intimacy, a strong sense of service, all blending to extend a welcoming invitation.

Branch banking, in or near residential and shopping centers, has of course been a factor in this new approach. The woman shopper becomes a new bank customer, and it is for her that a fear-free, homelike atmosphere is designed, as well as for the thousands whose fuller pay envelopes demand previously unneeded banking facilities.

In the six bank interiors that we show on the following pages, each architect has given distinctive expression to this new banking approach. Solidity and dependability are suggested through rich materials, skillfully applied in their natural beauty, rather than through an excess of “decoration.” Customers are wooed to confidence by bankers who convey the up-to-dateness of their financial know-how via the modernity of their design taste. Vaults are displayed, not hidden. Tellers are screened, not caged. Openness is the keynote of the bank interior, with separate areas indicated only through color or texture contrasts. Lighting is not merely functional; it is brilliant, decorative, even gay—contributing most importantly to the invitational aspect.

That the new look is producing new business is underlined by Roy B. Blass, who says of his Western Savings & Loan Association (September 1955 P/A, page 110), “The alteration has been successful, since deposits increased approximately 100 percent in one year.”
banks

Design Theory: Use of rich, contrasting marble and limestone for texture, color, pattern. Walls from floor to ceiling are of imported Vaurion limestone from France. In contrast are six large matched panels of Rouge-Neuville (Belgian marble). The counter screen is in a brighter tone of Rosso Merlino marble. The mosaic floor is of the same marble as the wall panels.

cabinetwork
All Cabinetwork: Henry Tannhauser & Sons, 32-26 10 St., Long Island City, N.Y.

doors and windows
Doors: Pioneer Fireproof Door Co., 811 S. Fulton Ave., Mt. Vernon, N.Y.
Windows: Superb Bronze Co., 3064 Atlantic Ave., Brooklyn, N.Y.

equipment
Bank Equipment: Art Metal Co., 1814 E. 40 St., Cleveland 3, Ohio.

furniture and fabrics
Desks, Chairs: Jens Risom Design, Inc., 49 E. 53 St., New York 22, N.Y.
Drapery: Jack Lenor Larsen, Inc., 60 E. 58 St., New York, N.Y.

lighting
Fixtures: Gotham Lighting Co., 37-01 JI St., Long Island City, N.Y.
Design Theory: To obtain a sense of monumentality in a small structure, simple building materials were used broadly: brick, inside and out; structural-steel framing members exposed; mosaic-tile floors; walnut fixtures and paneling; acoustical-plaster ceiling.

Color Plan: Background colors in bland, natural tones—beige brick, natural linen drapery, beige-and-gold textured fabric, grey carpeting, grey tile floor, natural-walnut paneling and tellers’ cages. Strong accents are charcoal-grey structural members and white Formica desk and table tops. Further color accents are provided by paintings and accessories, with upholstery colors keyed to the paintings (charcoal gray, yellow-green).

doors and windows
Interior Walnut Doors: The Mengel Co., Fourth St. & Colorado Ave., Louisville, Ky.
Shades: “Lettishade”/ Columbia Mills, Inc., 120 W. Onondaga St., Syracuse 2, N. Y.

equipment
Check-Writing Counter: architect-designed/ Wade Mfg. Corp.
Vault Door: Herring-Hall-Marvin Safe Co., 1500 Grand Blvd., Hamilton, Ohio.

furniture and fabrics
End-Tables, Chairs, Conference Table: Knoll Associates, 578 Madison Ave., New York 22, N. Y.
Drapery at Window: Hill Brown Corp., 29 W. 30 St., New York, N. Y.
Drapery at Mezzanine: Kandell, Inc., 261 Fifth Ave., New York 16, N. Y.

lighting
Installed: Century Lighting, Inc., 521 W. 43 St., New York, N. Y.; Art Metal Co., 1814 E. 42 St., Cleveland 3, Ohio.

client Union Bank & Trust Company
location Capitol Heights Branch
architects Sherlock, Smith & Adams
partner-in-charge Charles M. Kelley
furnishings/equipment co-ordination Mercantile Paper Co.
Design Theory: The problem was the remodeling of the main banking floor, formerly rococo. The new design is basically a simplification of the existing structure, with emphasis placed on durable and beautiful materials selected to express the feeling of a forward-thinking organization. A complete study of the bank’s working methods preceded the redesigning, resulting in certain area changes. In accordance with the bank’s policy, there are now no closed areas or private offices. The L-shaped interior lends itself to natural area divisions. Concentration of wattage in working area and lower intensity over general public sections was accomplished by combined use of incandescent and R40 spots. (Interior was winner of National Hardwoods Association award, 1955.)

Color Plan: Basic color is walnut, with warm beige marble and warm earth colors. Accents brass, terra cotta.

cabinetwork
Tellers’ Counters: custom-designed/walnut, beige Carrara glass, beige Formica, brushed brass.

doors and windows

walls and flooring
Walnut Paneling: United States Plywood Corp., 55 W. 44 St., New York, N. Y.
Wall Paint: Martin-Senour, 2520 S. Quarry, Chicago 8, Ill.
Public Area Flooring: marble.

custom-designed check-writing desk
Design Theory: The problem was to create an open, spacious branch bank interior out of space formerly cut up into a store, restaurant, and kitchen. Interior was gutted to bare steel and masonry walls, and all new mechanical requisites were installed. Since there was no natural lighting except at entrance, lighting layout was a prime consideration.


cabinetwork

lighting
Incandescent Downlights: Century Lighting, 521 W. 43 St., New York, N. Y.

walls, ceiling, flooring
Ceilings: acoustical tile/ Johns-Manville, 22 E. 40 St., New York, N. Y.

coustical tile ceiling

October 1955
Design Theory: Since this small institution is located in a neighborhood business section, directly adjoining a residential area, a homelike atmosphere was desired. Three small stores formerly occupied the quarters. Use of carpeting, soft colors and lighting scheme, residential character of design and materials, provided the desired atmosphere. Open type of tellers' cage permits personal contact with depositors. Currency exchange section in bullet-proof enclosure.


cabinetwork
Tellers' Cages, Counter Work, Check Desks, Railings: LaSalle Cabinet Co., 112 W. Superior, Chicago, Ill.
Currency Exchange Section: Chicago Bullet-Proof Co., 3312 S. Western, Chicago, Ill.

partitions

equipment
Fire-Proof Ledger Tube: Remington-Rand, Inc., 315 Fourth Ave., New York, N. Y.

furniture and fabrics
Upholstery Materials: Gilford Leather Co., 515 Madison Ave., New York, N. Y.

lighting
Chandeliers, Wall Brackets: Gotham Lighting Corp., 37-01 31 St., Long Island City, N. Y.
Downlights: Curtis Lighting, Inc., 6135 W. 66 St., Chicago 38, Ill.

walls, ceiling, flooring
Private Office Walls: Gilford Leather Co.
Stone: Crab Orchard.
Permacoustic Ceiling Tile: Johns-Manville, 22 E. 40 St., New York, N. Y.

accessories
Design Theory: This bank, located on the fringe of a residential area, is a branch of a downtown bank. The entire front wall of glass invites customers to enter. Inside, a friendly, open effect is achieved by low counter screens before tellers, instead of cages. An informal waiting area is separated from main banking area by change of floor from terrazzo to carpet. The vault, separated by only a glass partition, is accented by contrasting color. Office areas provide pleasant, restful atmosphere through efficient layouts, careful lighting, attractive furnishings.

Color Plan: Predominant color is medium warm-yellow, with contrasting colors of gray-green, dark blue, and dark red. Floor blends tan and brown; carpet, dusty brown.

cabinetwork
Counterscreen: John Langenbacher Co., Inc., 550 Barry St., New York 59, N. Y.

Door, Partitions, Windows
Kalamazoo: Empire Door Co., 431 Southern Blvd., New York 56, N. Y.
Partitions: wood and glass/ John Langenbacher Co., Inc.
Windows: Kawneer Co.

equipment
Vault Equipment: The Mosler Safe Co., 320 Fifth Ave., New York 1, N. Y.

lighting

furniture and fabrics
Draperies: Ben Rose, 235 E. 58 St., New York, N. Y.
Upholstery: Herman Miller Furniture Co.

walls, ceiling, flooring
Plaster: Colonial Art Decorators, Inc., 13 E. 40 St., New York, N. Y.
Paint: Colonial Art Decorators, Inc., 13 E. 40 St., New York, N. Y.
Flooring: terrazzo/ Del Turco Bros., Inc., 25 Verona Ave., Newark, N. J.
Carpet: Thomas L. Leonco, 295 Fifth Ave., New York, N. Y.

Asphalt Tile: Kentile, Inc., 58 Second Ave., Brooklyn 15, N. Y.

accessories
Desks, Inc., 71 Fifth Ave., New York, N. Y.; Winters Stamp Co., 71 W. Jersey St., Elizabeth, N. J.
“California Designed” exhibit at M. H. de Young Memorial Museum, San Francisco, showed more than 250 jury-selected examples of furnishings new on the market this year. Products were displayed in settings designed by Campbell & Wong. Deep-blue-stained floors, dark green wall panels, set off vivid contrasting colors in the new furnishings. Oriental, Mexican, Scandinavian influences contributed to the “soft, warm” look, a growing design trend.

Setting Above: Upholstered Furniture: designed by Folke Ohlsson; Dux, Inc., 390 Ninth St., San Francisco/ Two-Drawer Chest: designed by Pacifica Designs; A. Brandt & Co., P. O. Box 391, Fort Worth, Tex./ Terra-Cotta Candle-Holders: Mary Erckenbrack, 1310 1/2 Montgomery, San Francisco/ Cotton-Orion Casement Cloth: John Dunn, 5445 Sylvia, Tarzana, Calif.


Here’s Inlaid Linoleum at its beautiful best—

GOLD SEAL “SEQUIN”

Gold Seal Sequin® is fast becoming America’s favorite Inlaid Linoleum . . . thanks to its distinctive beauty and to mass promotions in Life, Better Homes & Gardens, and Sunset.

The trend to basic, smooth-surface, virtually seamless flooring throughout the house is unmistakable. Here are just a few reasons why you are so safe in specifying Gold Seal “Sequin” Inlaid Linoleum.

Ease of maintenance . . . resists dirt, grime and dulling film. Cuts cleaning time and costs to a minimum.

Resilient . . . deadens floor noise. Resists permanent indentation from furniture.

Quiet and comfortable . . . eliminates noisy clatter common with hard floors.

Beautiful . . . suggest hundreds of smart, special designs . . . wide range of colors to harmonize with any decorative scheme.

Stays beautiful . . . colors are inlaid for long-lasting beauty.

Economical . . . initial costs can be amortized over a long period of time. Lasts longer than lower-cost floors.

Guaranteed . . . Gold Seal Inlaid Linoleum gives you the famous Gold Seal guarantee . . . satisfaction or your money back.

Specifications: 16 patterns. Standard gauge. 6 ft. wide by-the-yard. Install over suspended concrete or wood sub-floors. Exclusive SuperFlex® backing allows direct application . . . needs no extra lining felt. For details write: Architects Service Department.

FOR HOME OR BUSINESS YOU GET THE FINEST CHOICE OF ALL IN . . .

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GREAT NEWS!

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toiling doors for ever need
from one complete line
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Only fabric-covered door with "Multi-V" construction
for lifetime ease of operation—without "air bellows."
Types and sizes to solve every space problem—large
or small. Motor-driven or manual, providing maximum
space-saving flexibility in any design. Widest choice
of colors and vinyl-fabric textures. Track always con-
cealed—with or without cornice. See Sweet's File or
your FOLDOOR distributor for details.

First in the moderate-cost field with: Truss-embossed
hinges top and bottom; rigid "Multi-V" construction
assures pantograph action throughout. Cornice, nylon
trolley wheels, metal hardware, textured vinyl fabric.
Specify for homes, institutions, hotels, apartments,
schools, industrial or commercial projects. Eleven
dizes: five widths, 2'-0" to 4'-0"; three heights, 6'6",
6'8½" and 8'0". See distributor or write.

Quality leader in the economy field. Approved and favored by leading home
builders. Three widths, 2'8", 3'0", 4'0", and two heights, 6'6", 6'8½". Vinyl
fabric in three decorator colors. See your FOLDOOR-FOL-BAK distributor.

Holcomb & Hoke Manufacturing Company
1545 Van Buren Street, Indianapolis, Indiana • In CANADA: FOLDOOR of Canada, Montreal 26, Quebec

INSTALLING DISTRIBUTORS IN ALL PRINCIPAL CITIES
Global Lamps: (above) #1010G Table Lamp/ opal glass, chrome or brass prongs/ 10” diameter/ retail: $24; Table #T-4141/ solid walnut top, oil finish, brass legs/ 41” diameter, 13” high/ retail: $200; (right) #10TT Table Lamp/ opal glass, chrome base/ 10” diameter, 21½" high/ retail: $35/ designed by Paul Mayen/ Habitat Associates, 235 E. 58 St., New York 22, N. Y.

Recessed Dome: circular light source to relieve ceiling and wall rectangular lines/ light-weight plastic diffusing panel with 87 degree light transmission, very low brightness/ detachable yoke construction reduces installation time/ separate plaster ring, built-in splice box for simplified wiring/ #63353, 24½” diameter/ #63354, 31½” diameter/ designed around the lighting characteristics of the silver-bowl lamp for glare-free illumination/ Kurt Versen Lamps, Inc., 4 Slocum Ave., Englewood, N. J.

Desk Lamp: "Ledu" lamp/ imported from Sweden, special reflector design/ engineered for movement in any direction/ bracket "A" clamps to any surface/ 8½” diameter reflector/ bracket "B" for wall fastening/ in oyster white, black, terra cotta/ retail: 40”, $24/ 32”, $23.50/ Nessen Studio, Inc., 5 University Pl., New York 3, N. Y.
Horizontal panels of Patterned Glass add a distinctive treatment to this office, make an interesting wall for the reception room, and provide privacy for the adjoining executive office. There is a feeling of openness that only glass can lend to a comparatively small area.

Similar panels may be adapted for use in homes, stores and institutions to lighten a stairway . . . flank a door for an inviting entrance . . . or create other unusual effects. Give your imagination full play and then choose from the variety of patterns by Blue Ridge. You'll be pleased at the number of situations where Patterned Glass can be used dramatically and for practical purposes, too.

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Stacking Base Chair: new tubular steel base for Eames molded plastic chairs permits ceiling-high stacking without top-heaviness/ patented side hook permits chairs to be joined in long rows for audience use/ seating shell is weather-resistant/ metal-tipped self-leveling domes on legs compensate for ground or floor unevenness/ Herman Miller Furniture Co., Zeeland, Mich.

Fiberglas School Furniture: (above) desk top, seat back of molded Fiberglas-reinforced plastic/ tubular steel base/ colors include green, gray, buff, pink, brown, black/ material provides resiliency, low light reflection, easy cleanability/ designed by William James Bargen/ General School Equipment Co., St. Paul, Ill.

Hospital Furniture: of wood, for warmer, more homelike look/ tops surfaced in Formica for protection in use/ woods finished to match in natural maple, walnut, gray, black/ legs of laminated wood or plastic-coated steel/ line includes bed, over-bed table, bedside cabinet, bedside chair, dresser, table desk, easy chair/ Thonet Industries, Inc., 1 Park Ave., New York 16, N. Y.

Arms for Folding Chairs: (left) Model #60 with folding armrests that fold automatically when seat is folded/ deep-upholstered, spring-arch seat construction; (right) Model #53, with folding tablet arm of plywood, finished in natural birch/ tablet arm folds independently of chair permitting comfortable ingress and egress/ all-steel folding arms now optional on all of this company's folding chairs/ American Seating Co., 901 Broadway N. W., Grand Rapids 4, Mich.
HERE IS STRENGTH AS ENGINEERED BY MACOMBER FOR EACH LOAD AND SPAN TO 96'

From the Designer's Standpoint—Macomber

gives you not only the six standard types of parallel and sloping chord Longspans in underslung and square end designs but ADAPTABILITY to all framing conditions.

You may want top chords extended for an eave overhang or bottom chord extended for ceiling attachment, square ends punched or fitted with bearing plates. Look to Macomber for a more economical solution...

Longspans completely flexible to the designer's needs.

PLEASE FORWARD LONGSPAN CATALOG 55-L TO:

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ENGINEERING • FABRICATING AND ERECTING
New Laminate Colors: two new colors added to "Textolite" wall and counter surfacing: True White, #TX-1400, a white White resulting from advances in laminating technique; Flame, #TX-1422, a red developed as a result of consumer research indicating demand for surfacing material resists heat, stains, scratches, detergents, alkalis, cigarette burns; available in more than 70 patterns and colors. Laminated and Insulating Products Department, General Electric Company, Coshocton, Ohio.

Lighting Fixture with Concealed Reel: pull-down fixture lowers to 53" from ceiling, reels up 33" to serve as ceiling light. 18" circular hood, finished in brass, copper, pink, white, black, is decorated with perforations that also dissipate heat; three 60-watt lamps are shielded by a frosted glass diffuser; reel is concealed in canopy instead of in a globe midway on cord; coiled black cord obscures thin cable. John C. Virden Co., 6103 Longfellow Ave., Cleveland, Ohio.


Exterior Masonry Paint: "Durasite Acrylic," flexible plastic emulsion paint, new formulation for color retention, flow, and leveling qualities, providing uniform non-glossy finish; flexibility aids resistance to cracking and aging on concrete, stucco, asbestos, brick, aggregate block surfaces; fast-drying; all-weather; in ready-mixed colors and pastel tint base for use with 40 tube colors. Wesco Water-Paint Co., division of National Gypsum Co., 742 Grayson St., Berkeley 10, Calif.

Concrete Finishes: "Kwik-Color Seal" and "Kwik-Color Wax," formulated from an emulsified plastic resin, odorless, noninflammable. Seal dries hard to touch in 20 minutes, develops water resistance in 14-20 days after application; during "curing" interval, Wax is applied for protection; Wax contains colored emulsified plastic resin, gives high gloss finish; is waterproof; both available in tile red, light gray. Seal covers approximately 800 sq ft per gal; Wax covers approximately 1000 sq ft per gal. Multi-Clean Products, Inc., 2277 Ford Pky., St. Paul, Minn.

Built-In Wall Safe: "Secure-All," fits in standard 4" wall, old or new construction; heavy gage steel with thick high-temperature thermal insulation on all sides; flush pin tumbler locking mechanism; easily concealed; projects less than 1/2" from wall; designed to mount between standard studs centered 16" apart; 16 7/16" wide, 17 11/16" high, 4 3/4" deep; shipping wt. 40 lb; full door length covered hinge, and double interlocking edges. Kwik-set Locks, Inc., Anaheim, Calif.

Combination Home Bar: "Scotsman Super-Bar," manufactures ice cubes, provides dry, cold storage for beverages, dehumidifies room air, stores liquor in locked compartment; cube freezer makes 108 ice cubes every two hours; stainless steel storage compartment cools four cases of bottled drinks; locked liquor storage drawer holds 11/2 cases of fifth-size bottles, also bar accessories; in two models, with or without dehumidifier; with or without casters; requires 6 ft of floor space; cuppertonie finish, stainless steel and chrome trim. American Gas Machine Co., Div. Queen Stove Works, Inc., Albert Lea, Minn.

Plastic Laminate File: four-color information file on "Lamin-Art," "Catalina" pattern in 8 colors; "Coronado" pattern in 4 colors. File contains samples; information on sizes, colors, specifications, availability in standard and full form covering stock. Fabrlcon Products, Whittier, Calif.
Editors’ Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their content, to the conciseness and clarity with which information is presented, or to some other factor which makes them especially valuable.

**air and temperature control**

1-54. Absorption Refrigerating Machines, AIA 30-F-22, 36-p. catalog describing refrigerating machines which produce large-capacity cooling from steam. Explains operation of complex refrigeration cycle in four simple steps; illustrates important features of absorption machines. Includes engineering-data tables; diagrams of electrical wiring and control systems. Carrier Corp., Syracuse, N. Y.

1-55. Electronic Controls for Heating, Ventilating, and Air Conditioning (SA-2418), 46-p. reference guide presenting up-to-date information on electronic equipment for architects and engineers. Contains data on component parts of control systems; gives diagrams of 17 typical layouts. Also provides data sheets explaining control panels; specifications. Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

1-56. Sarcofin Finned-Tube Radiation (1650), 32-p. bulletin on finned-tube heating elements. Tables give information on ratings, dimensions, and specifications; drawings show installation with top-louvered, sloping-top, or expanded-metal covers. Provides data for design with steam or forced hot-water systems. Sarcotherm Controls, Inc., Empire State Bldg., New York 1, N. Y.

1-57. Propeller-Fan Unit Heaters, AIA 30-D-31 (B-1720), 24-p. publication describing new line of unit heaters suitable for use with steam or hot water. Illustrates features of construction with exploded drawings; gives instructions for selection and application of heaters. Wiring diagrams; piping layouts; specifications. Warren Webster & Co., Camden 5, N. J.

2-84. In the Market for a Quality Roof Deck (1102-A), 5-p. pamphlet answering questions most asked about wood-fiber roof deck. Explains uses, advantages, and properties of material; gives data on strength, moisture resistance, fire rating, and insulating qualities. Includes cost comparison with other types of roof deck. Teetum Div., The Alliance Mfg. Co., 165 S. Sixth St., Newark, Ohio.

2-85. Finishes for Alcoa Aluminum, 52-p. booklet illustrating variety of colors and textures available in aluminum. Outlines finishing methods — mechanical, chemical, electrochemical, lacquer, and enamel — in order to explain potentialities of aluminum as well as its limitations. Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa.

2-86. American Cellular Subflooring, 4-p. folder containing information for selection of floor-panel sections. Gives tables of safe loads and section properties for three types of steel flooring; also includes erection details and welding specifications. Building Products Div., American Steel Band Co., P. O. Box 565, Pittsburgh 30, Pa.

2-87. Architectural Woodwork: Cabinet Construction Data, AIA 19-E (6), most recent booklet in series on architectural woodwork. Features outstanding group of details of custom-designed cabinets and casework chosen from P/A selected details; shows classroom storage units, office furniture, residential storage walls, and kitchen cabinets. Also outlines advantages of custom woodwork. Architectural Woodwork Inst., 332 S. Michigan Ave., Chicago 4, Ill.

2-88. Extruded-Aluminum Louvers, AIA 14-B-4, 12-p. pamphlet containing information on aluminum louvers designed to shed water even under extreme wind conditions. Provides details and specifications for stationary or adjustable louvers; illustrates several types of motor-driven and chain-and-furlable-link operators for louvers. Also describes louvered sun shades as well as prefab, louvered penthouses for air intake or exhaust. Construction Specialties, Inc., 261 Jelliff Ave., Newark 8, N. J.

2-89. Erie Porcelain-Enamel Color Selector, AIA 17-A, 4-p. color chart for porcelain enamel. Contains actual color chips of 50 standard colors and stipped combinations to suggest 900 various finishes obtainable. Describes weather-resistant properties of porcelain enamel in addition to color-memory system which permits rematching of any shade. The Erie Enameling Co., 1498 W. 20 St., Erie, Pa.


2-91. V-Lok Steel-Framing Design Details (55-V), 40-p. reference manual for architects and engineers containing typical details for interlocking, steel structural members. Photos and drawings illustrate several recent projects; framing plans show typical layouts for industrial buildings and schools. Macomber Inc., Canton, Ohio.

2-92. National Design Specifications for Stress-Grade Lumber and Its Fastenings, AIA 19-B-1, 75-p. guide to assist in design of more efficient, economical structures. Gives general specifications for stress-grade lumber in addition to detailed requirements on allowable unit stresses, design loads, recommended construction practices, and connections. Also contains information on glue-laminated structural members. Timber Engineering Co., 1319 18 St, N.W., Washington 6, D. C.
2-93. Unistrut Metal Framing, AIA 14-G (700), 78-p. catalog describing metal-framing system. Outlines procedure for design of beams and columns; illustrates standard channel sections and special connectors. Drawings show use of framing for pipe supports, lighting-fixture hangers, and shelving; tables give electrical and piping symbols as well as pipe sizes. Unistrut Products Co., 1013 Washington Blvd., Chicago 7, Ill.


2-96. Manual and Details of Woodwork, AIA 19-E, 178-p. loose-leaf notebook prepared as guide to sound and practical methods of millwork production. Chapters containing technical information and production standards, suggest species, grades, and finishes of wood for typical uses; comprehensive section on detailing covers recommended practice for frames, sash, doors, and casework. Also gives guide for preparing millwork specifications. Price of manual is $10.5 Woodwork Inst. of California, 681 Market St., San Francisco, Calif.

doors and windows


3-59. Hardware for Hospitals, AIA 27, 20-p. booklet containing up-to-date recommendations on hardware for hospitals of all types. Outlines basic requirements for hardware; gives hardware schedules for general purpose areas in addition to labs, radiographic suite, nursing unit, psychiatric ward, operating suite, and nursery. National Builders' Hardware Assn., 515 Madison Ave., New York 22, N. Y.


electrical equipment, lighting


Heats... Cools... Melts Snow
... Provides Hot Water

B & G Hydro-Flo System

The B&G Hydro-Flo System, using mechanically circulated water, offers an amazing variety of ways in which to create the ultimate in modern living comfort.

The sketch above illustrates the complete versatility of a water system. The heating in this home is with modern, inconspicuous baseboard panels. Cooling is achieved by circulating chilled water to a fan coil unit installed in a plenum formed by a dropped ceiling in the hall. Cool, de-humidified air is distributed through high grilles into the various rooms.

Snow melting coils under the sidewalk and driveway are circulated with an anti-freeze solution heated in an exchanger connected to the boiler. For domestic hot water, an indirect heater supplies the ample volumes demanded by modern labor-saving devices.

For the last word in year-round comfort, convenience and health protection, backed by long-lived, trouble-free equipment, get the facts on the B&G Hydro-Flo System.

"Water is the most efficient and economical medium for conveying a BTU"

BELL & GOSSETT COMPANY
Dept. EB-37 Morton Grove, Illinois

158 Progressive Architecture
sanitation, plumbing, water supply


7-20. Stainless-Steel Globe Valves (55A), 4-p. folder illustrating stainless steel and alloy valves, Dimensioned drawings show outside-screw-and-yoke valves and inside-screw-rising-stem types; outline gives factors to consider in designing piping system. Table of alloy designations. Cooper Alloy Corp., Hillsdale, N. J.

(Continued from page 157)

(Continued on page 162)
specialized equipment


8-15. Garden Ideas from California, 24-p. brochure on use of redwood for garden structures. Photos show many different types of garden houses, trellises, fences, and planting boxes; sketches illustrate ideas for wood decks and paving blocks. Construction details; data on specification of redwood and finishes. California Redwood Assn., 576 Sacramento St., San Francisco 11, Calif.


8-18. Food-Serving Equipment for Hospitals, 32-p. booklet illustrating institutional kitchens. Describes problems encountered in eight actual installations; presents photos and floor plans to show solutions. Also gives data on construction of stainless-steel equipment. Southern Equipment Co., 5017 S. 38 St., St. Louis 16, Mo.

vertical transportation


interior furnishings


Three booklets showing cabinet and partition units. First brochure illustrates cabinets, desks, and chalkboard units designed for homemaking classes; includes several layouts for home-economics classrooms. Second booklet details hardware and accessories for retailing; gives specifications as well as photos. Third one shows movable wood or steel partitions; provides specifications. Weber Showcase & Fixture Co., Inc, 5700 Avalon Blvd., Los Angeles, Calif.
The first new...all-new
"Custom" door
at standard prices

An outstanding example of the "Kawneer Touch"... the new all-welded aluminum door can be "customized" to your needs. Now you can specify a door that is 10% stronger than similar doors, provides a clean, seamless, eye-appealing appearance, and features interchangeable hardware... yet the cost compares with other standard doors. Here is the only stock door that can be styled to any type of store. Learn all about it now. See your Kawneer dealer or write Kawneer, Niles, Michigan.

Now! -identification hardware
"individually designed"

Kawneer offers a choice of four different styles of hardware. The two styles shown have interchangeable face plates. If you wish a face plate to identify any type of business or name, all you do is have artwork prepared. Kawneer will laminate it in plastic, etch it on aluminum, or produce it on any material you desire and in any color. The cross-hatch plate is then merely replaced right on the job with the new design.

Completely welded construction
for greater strength—lower cost

- 10% stronger than most doors
- New "deep-weld" penetrates metal 100%
- Hairline joints and unblemished finish for attractive appearance
- No exposed, unsightly screws
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- Long lasting beautiful aluminite finish

Kawneer
General Offices
Niles, Michigan

October 1955
163
JOHNSON-CONTROLLED HEAT PUMP
Insures Ideal Comfort, Cuts Heating and Cooling Costs

Year 'round air conditioning for the award-winning Roanoke Public Library is accomplished by an application of the reverse cycle heat pump, utilizing two 40-ton refrigeration compressors. The installation is one of the first of its kind in a library building.

Precision control of this modern air conditioning system is provided by a specially engineered system of Johnson Automatic Temperature Control. Strategically located Johnson Heating-Cooling Thermostats maintain refreshing, even temperatures throughout each of the nine zones into which the building is divided. Behind the scenes, other Johnson Thermostats, Valves and related apparatus constantly keep the system in balance with outdoor temperatures.

Whether it's the spacious main reading room, a filled-to-capacity auditorium or one of the many smaller special activity rooms, there is constant comfort to satisfy the occupants. Control is so perfect that occupants never feel the need for more or less heating or cooling.

Operation of the system is completely automatic, including all heating and cooling, defrosting and indexing of the room thermostats. Added to the comfort and convenience features of Johnson Control are equally important economy advantages. The efficient control of this heat pump installation results in virtually waste-free heating and cooling performance!

Whatever your control problem—whether it involves a new or existing building, a simple or intricate system—it can be solved best by Johnson. Why don't you take advantage of the more than 70 years' experience of the nationwide Johnson organization? An engineer from a nearby Johnson branch will gladly make recommendations without obligation. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

*Roanoke Public Library, Roanoke, Virginia. Frantz & Addkison, architects, Roanoke; Wiley & Wilson, mechanical engineers, Lynchburg, Virginia; R. H. Lowe, air conditioning contractor, Roanoke.
"Carton Forms," inverted fiberboard boxes with cross-sectional stiffeners, are used as forms for waffle-type concrete floor slabs (left). Constructed from water-resistant materials, the carton forms hold their shape long after concrete has set and need not be removed. Holes for plumbing and electrical conduits can easily be cut with a knife and, if desired, ceiling lath can be installed before the expendable forms are placed. After pouring and hardening of concrete, centering boards and shoring are removed leaving lath bonded to the bottom of the forms ready for plaster.

Fibre Box Association, c/o Westheimer & Bloch, 212 North Kingshighway, St. Louis 8, Mo.

Fiber tubes used as pipe sleeves easily withstand pressure of poured concrete. Tubes are used with two metal ends to keep from filling. One metal closure is nailed to form (above left); after being cut to required length, tube sleeve is slipped over the nailed-in-place closure (above); other end closure is inserted in top of sleeve before pour (above right). Sonoco Products Co., Hartsville, S.C.

Special features of decentralized built-in-wall individual units (left) for air conditioning apartment buildings, office buildings, hotels, etc., are: (a) true perimeter cooling of rooms; (b) individual control by tenants; (c) permanent installation; (d) less than one-third cost of central installation. Has especially silent operation through quiet, shock-mounted nonvibrating installation and extra-quiet fans. Amic Manufacturing Corp., 21-25 44 Ave., Long Island City 1, N.Y.

To eliminate pilferage through emergency exits that (by law) must remain unlocked on the inside at all times, a new Fire Exit Lock has been developed (right) for commercial buildings, hotels, factories, etc. In the event of fire, one simply strikes the lock and the exit door immediately opens. At the same instant a loud sounding bell is activated to warn that an emergency exists—or that someone is attempting a theft. Authorized personnel to whom special keys have been issued, however, can unlock the exit without sounding the alarm. Lock has Underwriters' Laboratories approval and is legally recognized in all major cities. Over-all dimensions are 4½" x 11" x 2 and a good maintenance man can install the lock in 15 to 20 minutes. Installation cost is $53 per unit and under normal operating conditions lock has life-time guarantee. Six, 12, and 20 station control panels that monitor exit locks are optional (far right). Exit Lock Company, 171 Main St., Port Washington, N.Y.
When Lang Brothers Company of Cincinnati, Ohio, planned the Greenfield Village development in a most desirable residential area, they determined that quality construction throughout would be the first consideration. The results of their insistence on quality are evidenced in the photographs below.

The entire Greenfield Village development comprises 550 homes. Of these, 389 have two baths and the remainder one and one-half baths. All bathroom fixtures—bathtubs, lavatories and closets—are AllianceWare—in color.

Discriminating builders recognize that there is only one quality to AllianceWare—the very best we know how to produce. So AllianceWare goes into the finest homes, apartments and hotels. Added to high quality are AllianceWare design advantages that assure customer satisfaction. Every AllianceWare tub has a patented "grab-rail" construction for safety in entering or leaving the bath. AllianceWare's exclusive wall-hung method of installation keeps tubs from shifting or settling, while the AllianceWare wall-guard tiling flange prevents leaks between tub and wall.

The features of AllianceWare in modern styling, high quality and lighter weight with a choice of white and five colors are appreciated by builders and home-owners alike.

ALLIANCEWARE, INC.
Alliance, Ohio
Plants in Alliance, Ohio and Colton, California
Bathtubs • Lavatories • Closets • Sinks
BRIGHTEN DARK CORNERS AND NEAR-WALL AREAS WITH

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.

Write on your letterhead for Bulletin 929-88 today.

THE EDWIN F. GUTH CO. - ST. LOUIS 3, MO.

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

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

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20 WATT HALF-PEERLITE * with GrateLite** Louver-Diffuser — center reflector — up and down light

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

HALF-PEERLITE*— one or two lights

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

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SWIVEL-SHADE Bracket

UPFOR-DOWN-LITE Bracket

BED-LIGHT Bracket

Guth

TRUSTED NAME IN LIGHTING SINCE 1902

*Trademark Registered
air and temperature control

Roomette Air Conditioner: new room air-conditioning unit, resembling end table, need not be built into wall or window. Basic engineering difference is that air for refrigerant condensing is drawn from bottom instead of back of unit; 13" x 15" opening is cut in floor over ventilated basement. Equipped with thermostat as well as filters, unit cools, dehumidifies, cleans, and circulates air; controls and grills for flow of conditioned air are located on front panel. Unit, 27" high x 15" wide x 28" deep, is finished in driftwood beige; ½-hp model uses standard 115-v current. Carrier Corp., Syracuse, N. Y.

Winkler Boiler: oil-fired, steel boiler features six heating surfaces. Two sets of double economizers provide four extra heating surfaces; unusually large water content of boiler insures constant supply of domestic hot water. Boiler comes completely packaged with hot-water specialties, tankless water heater, and thermal valve which prevents boiler water from leaving unit below 180 F. Stack temperatures are extremely low and draft loss through boiler is claimed to be so slight that no chimney is required. U. S. Machine Div., Stewart-Warner Corp., Lebanon, Ind.

Radiant Radiator: cast-iron radiator for steam or hot-water heating systems, provides blending of both convected and radiant heat. Recessed unit, 5" deep by 29" high, is especially suited for location under low kitchen windows or in bathrooms where space is limited. Radiator, available with matching outlet grills, can be painted to harmonize with walls; simplified piping hook-ups are designed for economical installation in new or existing homes. Utica Radiator Corp., Utica, N. Y.

Electric Baseboard Heaters: new baseboard heaters are designed to give economical operation and maintenance in any climate. Two-foot units, installed in place of baseboards, provide both radiant and convective heat; individual controls for each room permit conservation of heat. Maximum surface temperature of heater 7" high by 2½" deep is 100 F; requires 240-v, a-c current. Westinghouse Electric Corp., Box 2099, Pittsburgh 30, Pa.

Steel-X Bridging: 20-gage, galvanized-steel bridging is engineered with structural ribbing for maximum strength. Feature of bridging is that it is installed after plumber, electrician, and heating contractor have finished work—eliminating alterations in braces. Bridging, braced between joists, is pulled down into position; anchor prongs lock firmly in place. One size is quickly adjustable to 2 x 10's, 2 x 8's, and 2 x 6's. Taber Bushnell Co., Minneapolis 2, Minn.

Pocket-Door T-Frame: new warp-proof pocket for interior sliding doors, is designed for use with any type of wall material. Steel header, head jambs, and up-right jambs are finished in rust-proof baked enamel; frame package also includes aluminum track and door guide, wrought-steel hangers, nylon rollers, rubber bumper, and mounting screws. Frame will accommodate 13½" doors, single or in pairs (for biparting installations). Sterling Hardware Mfg. Co., 2345 W. Nelson St., Chicago 18, Ill.

Sanlime Finish Applied By E-Z-Tex Spraying Machine: colored, sand-textured finish for walls is inexpensively produced by applying prepared lime material with portable spraying machine. Lime mixture, requiring addition of water only to obtain proper consistency, is first trowelled onto base coat to fill depressions; when finish coat is sprayed on, all marks are concealed. Use of spraying machine is said to reduce dusting substantially; two men can cover 500 yd per day with machine. Ohio Lime Co., Ohio Hydrate Bldg., Woodville, Ohio; E-Z-On Corp., 1725 W. Pershing, Chicago, Ill.

CONSTRUCTION DETAILS

for LCN Floor Type Door Closer, Shown on Opposite Page

The LCN Series 2-4-6 Closer’s Main Points:

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Construction Details on Opposite Page
ANNOUNCING...

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A 24" x 24" white translucent single panel. The basic material is vinyl plastic, providing an effective balance between the transmission and diffusion of light emanating from a totally separate lighting fixture.

ACOUSTI-LUX

A 24" x 24" white translucent double panel fabricated of two formed units of the basic material, secured together around perimeter. A specific volume of air is contained between the two faces; diaphragmatic damping provides the sound absorption value.

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Two new, highly decorative answers to today's high-level illumination demands: Acousti-Celotex LUMICEL and ACOUSTI-LUX (Patents No. 2218992, 2710335) ... for scientifically correct balance between peak light transmission and uniform light diffusion.

Installed on Alumitee metal suspension system, directly from the base ceiling, completely independent of light fixtures. May be used in combination with choice of attractive Acousti-Celotex sound conditioning tile in translucent ceiling designs, depending upon lighting, acoustical, and decorative requirements.

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With all basic types of locks available in one line, selection of the right type for the service is simplified for those who specify Russwin. For complete details on "Unilocs," write Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.

doors and windows

Infropake Coating: new coating for interior surface of windows, doors, and skylights reduces harmful effects of sun. Highly transparent protector is claimed to eliminate 99 percent of ultraviolet light which fades fabrics; in addition, coating is said to absorb glare, cut down reflections, and reduce radiant-heat influx. Applicator is provided for windows up to 30' x 30'; for larger glass areas, coating is sprayed on. Infropake Corp., of America, Whitestone, Long Island, N. Y.

Stanley Garage Doors: three new roll-up doors feature inclined track and adjustable lock strike. Two-in, heavy-gage inclined track insures free motion of door; lock strike can be adjusted for unevenness of floor or to fit locking conditions. Doors also have adjustable top corner bracket for weathertight fit when closed as well as ballbearing roller hinges for smooth, quiet operation. Available in 8' or 9' heights, 6'6" to 8' wide. The Stanley Works, New Britain, Conn.

electrical equipment, lighting

Meter-Socket Load-Center Combinations: residential service-entrance devices combining meter socket and circuit-breaker load center in one unit, facilitate wiring economies. Six branch-circuit model has 50-amp, two-pole common-trip main breaker wired in and is rated for 120/240-v, a-c, single-phase, three-wire service; similar eight-circuit model is rated at 70 amp with meter wired directly to load-center bus bars. Both types are manufactured in semi-flush or surface-type rain-tight enclosures. Trumbull Components Dept., General Electric Co., Plainville, Conn.

Scott-Line Fixtures: new fixture design features one-piece, all-plastic louvers. Designed to meet demands of high efficiency at low cost, lamp emits luminous, diffused light. Louver, which swings down from either side for maintenance, is made of molded, high-temperature polystyrene; channel is formed of cold-rolled steel, bonderized for paint adhesion. Fixtures may be surface or pendant mounted with provisions for continuous-row installation; available for both rapid and instant-start lamps. Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y.

finishing, protectors

Gelvatex Coatings: vinyl-emulsion paint is claimed to have longer life than conventional paints without oxidizing, chalking, or fading. Features of plastic-base paints are washability, imperviousness to chemicals, and absence of inflammable solvents. Coatings, applied by brush, spray, or roller, are available for wide variety...
of interior and exterior surfacing materials. The Gelvatex Coatings Corp., 1250 Wilshire Blvd., Los Angeles 17, Calif.

insulation (thermal)
Armavflex Pipe Insulation: foamed-plastic pipe insulation for use on dual-temperature lines to air-conditioning units can be slipped over pipes or tubing during installation. Closed-cell foam material, highly resistant to passage of air or vapor, has thermal conductivity of .28 at 75 F and will withstand dual temperatures from 32 F to 200 F. Insulation is also self-extinguishing, odorless, and nonstaining; made in 6’ lengths in 5/8”, 7/8”, 11/8”, or 13/8” diameters. Armstrong Cork Co., Lancaster, Pa.

sanitation
Stationary Vacuum-Cleaning System: small-sized budget-priced, vacuum-cleaning system is designed for installation in homes or small commercial buildings. Available in either bag or centrifugal type, unit can be placed in utility room, garage, or cellar; lightweight tubing runs from unit to conveniently located wall outlets. In addition to dry cleaning, unit will draw in as much as four gal of water. The Spencer Turbine Co., 484 New Park Ave., Hartford 6, Conn.

specialized equipment
C-O-Two Predetector System: automatic, radioactive system detects fire in its earliest stages without depending on visible smoke or heat for actuation. Predetector heads, containing radioactive element, are spaced on centers up to 60’ apart and connected to fire-indicating cabinet; when combustion gases or smoke are present, relays in fire-indicating cabinet function to sound alarms, close fire doors, or activate fire-extinguishing systems. As many heads as necessary can be connected together in single two-wire circuit to cabinet. C-O-Two Fire Equipment Co., Newark 1, N. J.

surfacing materials
Latexcrete Coating: industrial flooring material is combination of liquid rubber and special cement powder. For use as surface coating in repair work or new installations, material adheres to concrete, steel, brick, or tile. Materials are mixed on job and handled like concrete; after hardening, surface will take heavy loads without cracking over wide temperature range. Will take compressive loads of 2500 psi; adhesion to concrete is about 300 psi. Naugatuck Chemical Div., U. S. Rubber Co., 1230 Ave. of the Americas, New York 20, N. Y.

Finishing hardware specifications for the magnificent new Denver Club Building called for the unique advantages of Russwin Unit Locks. These locks, for example, are completely assembled at the factory. No disassembly is required to install or remove them. Latches are anti-friction, pullinan type, assuring positive latching with minimum effort. Lock frames are solid bronze metal castings designed to maintain permanent alignment of parts. Such features PLUS a choice of styling and finishes met the exacting specifications established for the Denver Club Building and assured the right type lock for the service. Russell & Erwin Division, The American Hardware Corporation, New Britain, Connecticut.
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Unique Weldwood Chalkboard is guaranteed for the life of the school—never needs refinishing—is glare-free and easy to read. It is a combination chalkboard, magnetic visual aid board and bulletin board—yet its low installed cost makes it a natural for today’s squeezed budgets. And its versatility makes it a school designer’s dream...and perfect for industrial applications, too.

Weldwood Chalkboard consists of a 3-coat porcelain-on-steel* face permanently bonded to exterior grade plywood and backed with an aluminum sheet. It won’t shatter, buckle, warp or break under impact, stress or temperature changes.

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Chalk doesn’t “squeal” on Weldwood Chalkboard’s special porcelain surface that’s easy to write on, easy to erase, easy to keep clean. Valhalla Junior High School, Valhalla, N. Y. Arch: Robert A. Green.

Electrically operated double Chalkboard moves on tracks in physics laboratory at University of Pennsylvania. Problems started on one board can be finished on the other. Arch: James R. Edmunds, Jr.

Built-in Weldwood Chalkboard is covered by sliding panels, allowing one section at a time to be uncovered for quizzes. Darien Junior High School, Darien, Conn. Arch: Ketchum, Gina & Sharp.

“Live Wall” of Weldwood Chalkboard allows adjustment of board height to height of child in three schools in Mineola School District, N. Y. Chalkboard needs no fixed grounds for installation. Arch: Ketchum, Gina & Sharp.

*Porcelain faces by the Bettinger Corp.
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books received

Italy's Architecture Today. Carlo Pagani. Ulrico Hoepli, Corso Matteotti 12, Milan, Italy, 1955. 293 pp., illus., L.5.500

American Skyline. Christopher Tunnard and Henry Hope Reed. Houghton Mifflin Co., 2 Park St., Boston, Mass., 1955. 302 pp., illus., $5


rare architecture


The greater part of this volume is devoted to Alvar Aalto's work in 1950-51. In these years his firm has been actively engaged in the design of industrial communities in Finland, their site plans, factory buildings, residences, and community centers; but time has also been found to plan the extensive complex of the Finnish Technical High School and an elegant glass and metal pavilion in Helsinki.

The introductory section, which presents the background of contemporary Finnish architecture, from simple log farm buildings to Saarinen's Helsinki Station, provokes a number of speculations as to the proper influence of a distinctive region on architecture, the dangers of provincial isolation, and the strength with which an integrated society may meet adversity. To this reader, Aalto's industrial communities provide tangible examples to quiet all verbal argument. This is rare architecture in our time, generously fulfilling its obligations to the community by the use of the land, by the useful arrangement of space, practical construction, and the poetry of high art.

HEATH LICKLIDER

(Continued on page 180)
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reviews

not by formulas alone
Strutture di Calcestruzzo Armato e di Calcestruzzo Precompresso. Reinforced Concrete and Prestressed Concrete Structures. Riccardo Morandi. Libreria Dedalo Editrice, Via Barbini 75, Rome, Italy, 1954. 141 pp., illus., L. 4.600

To the layman, the development of modern architecture might appear to consist of a series of false starts. Each of these episodes is distinct in character, each has been accompanied by considerable intellectual fanfare, each has made its contribution to the total modern movement, and each, individually, has led to its own dead end. Art Nouveau, in the early 1900s, briefly replaced Victorian decorative clichés with a flowering naturalism, leaving us a few masterworks of sinuous grace and a jungle of writhing horrors. De Stijl followed, dedicated to an equally intense worship of the straight line and the right angle, with some temporarily disastrous effects on objects directly related to the human form. The machine aesthetic and the International Style, hailed in the '20s and '30s as the true design expression of the century, produced the coolly calculated perfections of Le Corbusier and Mies—and the cold sterilities of many of their followers. The '40s developed a softened and more decorative tendency, praised by some as a New Humanism and derided by others as the Cottage Style.

Only now, after the middle of the century, do we begin to see all of these phases in their proper historical perspective. In spite of valid experiments with style, we now realize that the basis of true architectural form is structure and that the most significant innovators in the 20th Century (as they were in the 19th) are the engineers. The 19th Century engineering in iron and steel led to the skeleton frame, the curtain wall, the skyscraper, and entirely new concepts of interior space. Today's remarkable and unprecedented structures in reinforced and prestressed concrete may prove to be equally great determinants of contemporary form and style.

(Continued on page 184)
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(Continued from page 180)

reviews

(Continued on page 186)
New Pittco
No. 84 Awning Hood

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reviews

(Continued from page 184)

tures of extraordinary ingenuity, significance, and beauty.

Since the author insists on the consideration of esthetic criteria, it is only fair that the work be submitted to architectural criticism. In the desire to translate structure into architectural language, it would seem that, with the exception of the bridges, a little too much “style” has been forced upon some of the buildings. While we admire Morandi’s inventive engineering, his understanding of material, and his willingness to play with bold forms, we maintain reservations about certain arbitrarily decorative effects, most of which were produced in collaboration with architects: a disturbingly heavy marble facing ostentatiously applied to the overhang of an auditorium project for Rome, a theater in Rome that has been dressed up with a “sharp” exterior (although not nearly so flamboyant as most Italian movie houses). There is a subtle suggestion that even engineers may be influenced by that growing group of Italian architects who have developed a neurotic distaste for the direct and simple solution. It is extremely probable that Morandi, alone, might not have forced his structures into these decorative vulgaries. His more severe work—the Tecnicum building at Colleferro (1953), the match factory near Trieste (1950)—is surprisingly reminiscent, in the proportioning of rectangular volumes and fenestration, of the work of the “Comacini,” the group that pioneered modern architecture in North Italy around the lake of Como in the 1930’s. It is in the freer plastic elements, stairs in particular, that Morandi is able to show his own personal taste and virtuosity and to indulge his obvious pleasure in the esthetic potentialities of the material.

ADA LOUISE HUXTABLE

variety of houses
A Treasury of Contemporary Houses. Editors of Architectural Record. Architectural Record, 119 W. 40 St., New York 18, N.Y., 1954. 215 pp., illus., $5.95

The files of an architectural magazine (Continued on page 190)
A Century of Craftsmanship

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October 1955 189
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reviews

(Continued from page 186)

present a valuable opportunity for the publication of anthologies of recent architecture. This handsome picture book presents more than 50 houses in the United States, widely distributed as to location and architect. The houses have been grouped into descriptive categories and provided with captions which draw attention to interesting characteristics. Plan and detail drawings and several interior and exterior photographs provide a reasonably complete description of each example. The family contemplating construction or purchase of a "modern" house will find this book both instructive and enjoyable.

HEATH LICKLIDER

beauty of simplicity

This is Japan 1955. Number Two. Asahi Shimbun Newspaper Publishing Corp., Tokyo, Japan, 1954. 316 pp., illus.


Three recent publications depict, with a high degree of excellence in form and language, the present remarkable stage of development—cultural, scientific, commercial, and industrial—in Japan. The extent of such development, since the 1853 visit of Commodore Perry to open the country to outsiders, is spectacular. The results of that opening to Western trade and ideas could not have been foreseen; both sides of the relationship have been deeply affected in the resulting interplay; its two-directional effects have been extremely far-reaching in all fields; both sides have gained and both have possibly lost something in the interchange.

The country, closed to contacts with the outside since the early 1600s until a century ago, has risen with incredible rapidity to a foremost place among the nations. Japan has become many things: inter-

(Continued on page 194)
When the pressure's on...

*TURQUOISE can take it!

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The lead won't snap within the wood. By Eagle's patented Super Bonding process, lead and wood are inseparably welded to combine their strength against breakage.

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FISSURED WOODFIBER ACOUSTICAL TILE

costs no more than popular thicknesses of perforated tile...

Forestone, the world's first fissured woodfiber acoustical tile (invented by Simpson) is economical in the original 3/4" thickness. Now, it is available in 9/16" thickness...for even greater economy.

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Forestone, the most important development in acoustical materials in 20 years, has the natural, travertine-like beauty of fissured mineral tile, but with even greater warmth and richness...and at far less cost. It has been installed in thousands of offices, restaurants, schools, stores...and homes. It is the only paintable, efficient acoustical tile, without mechanical perforations, that is economical enough for widespread use in home sound conditioning.

Mail this coupon for information and name of nearest contractor

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Please send full details on Forestone Acoustical Tile

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C-54A
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We have seen glass block panels that were so bright you could not look at them. In one school, the glare was so bad that the teacher was actually wearing sun glasses. But . . .

Whenever there has been a glare complaint, we have found the blocks were either improperly used or something else was at fault.

Capable men worked for many years to evolve the present line of PC Functional Glass Blocks. They designed special patterns for above eye level to throw the light up onto the ceiling away from the eyes; special patterns to diffuse the light in all directions; special patterns for elevations that will be struck by the sun. When these patterns are properly selected and installed, glare is no problem.

Actually, the glare reduction properties of PC Glass Blocks can cause trouble! Glass block panels are frequently installed above a clear glazed vision strip. The contrast between the bright vision strip and the softly glowing glass block panel is often so great that discomfort results. In high brightness locations, we frequently recommend tinted glass for the vision strips as a solution to this problem.

If you have an important design coming up, and you want the advantages of low maintenance, insulation and controlled daylight—without glare—then specify PC Glass Blocks. Just follow the recommendations in our catalog. It's in Sweet's. Your PC representative will be glad to help.

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save space

with

Kinnear Steel Rolling Doors

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They give you full use of all space around doorways at all times. No extra space of any kind is needed for their opening action and closing action.

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Kinnear Rolling Doors are built any size, for easy installation in either old or new buildings of any construction. Manual-lift, chain, or crank operation—or motorized push-button control. Write for full details.

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Offices and Agents in All Principal Cities

reviews

(Continued from page 190)

This is Japan. This large, outsized volume (number two of an annual series) is a disjointed publication; and is of the kind that a Chamber of Commerce might sponsor in an ambitious effort to present compendious information on multiple phases of activity—government, defense, culture, art, architecture, religions, dress, foods, science, agriculture, manufacture, industry, commerce, transportation, shipping, travel, resorts, hotels.

In this encyclopedic publication the amount of information on such diverse subjects is of staggering proportions. Of interest to architects will be the section titled "Towards a New Architecture." Several recent notable designs in an advanced Western manner are pictured. Among others are the Maruei Department Store and Hotel in Nagoya, by Togo Murano; glass-fronted hospitals in Tokyo and Osaka, by Mamoru Yamada; the Ehime Prefecture Public Hall, Matsuyama, and Children's Library in Hiroshima, by Kenzo Tange. The Public Hall is very striking—its round shape and general features bear marked resemblance to those of the Dome of Discovery of the 1951 Festival of Britain. The other advanced work is manifestly derivative; in Japan the lack of original designers is evident no less than in Western countries.

The second of the publications, Perspective of Japan, has been issued to assist "Westerners in general" and "Americans in particular" in overcoming the special problems that make difficult an understanding of the culture of Japan: lack of knowledge of its past; lack of

(Continued on page 198)
“Strong, stay-dry FOAMGLAS roof insulation makes rooftop parking practical”

reports Dave Towell Cadillac—Oldsmobile Agency, Akron, Ohio

The Dave Towell Cadillac-Oldsmobile Agency, Akron, Ohio wanted to use the insulated roof of their new Service Department building as a parking area. FOAMGLAS roof insulation, with its remarkable compressive strength of over 7 tons per square foot, made it practical.

Dave Towell relates: “Our architect told us FOAMGLAS was the only roof insulation strong enough to support the weight of cars parked on our roof... and still do an efficient insulating job. Its performance since the building was finished last year has proved he was right!

“We constantly park as many as 42 cars on our roof deck. That heavy load hasn’t hurt the FOAMGLAS at all. It maintains a constant insulating efficiency that gives us real operating economy with our heating-ventilating system. Best of all, we know we’ll get the same top performance year-after-year because FOAMGLAS can’t absorb the moisture that ruins ordinary insulations.”

Whatever your insulating problems may be, you too can profit from Mr. Towell’s experience. It will pay you to find out more about FOAMGLAS, the unique cellular glass insulation that will give you all these benefits: It 

Pittsburgh Corning Corporation
Department AB-105, One Gateway Center
Pittsburgh 22, Pennsylvania
In Canada: 57 Bloor St. W., Toronto, Ontario

Heavy power roller smooths out bituminous paving on roof deck. FOAMGLAS insulation underneath supports weight without crushing.
cultural ties linking this country to the East, as it is linked to Europe; the language barrier; the nature of the Japanese, which tends to make them avid students of the West rather than aggressive teachers of their own culture and habits.

Japan in its past history has been a catch-all of various Asian civilizations. The process of assimilation has made the country, in a sense, the essential component of Asia and affords to the West a means of understanding Asia. To provide, in brief form, knowledge necessary to proper understanding of Japan without visiting and seeing “its narrow village streets bright in the evening after rain, its tiny, steep, green mountains wrapped in their sudden mists, and its charming, tireless, brilliant and erratic people” is the purpose of *Perspective of Japan*. This is the third of a series of anthologies of artistic and literary work published in co-operation with *The Atlantic Monthly* (the others were concerned with India, and Holland and Belgium combined). The selected subjects—current economics, politics, art, architecture, literature, poetry, theater, etc.—highlight various facets of modern Japan which are of interest to the West.

The pages devoted to Japanese architecture illustrate Japan’s good fortune in having missed the various revival and eclectic periods of the West. She has passed easily from the antiquity-rooted traditional domestic and religious architecture into the contemporary. Surprising to some may be the fact that many of the basic modern architectural principles have for centuries been applied by Japanese to even the humblest residences. This is clearly brought to light in a brief, concise discussion of architecture in two articles in *Perspective of Japan*: one by Mosuke Morita and another by Yoshiro Taniguchi, both Japanese architectural professors. The elements of the beauty of Japanese traditional residential architecture are shown to be the basic elements of modern architecture — “simplicity, functionalism, straightforward expression of materials and construction, geometric composition devoid of superficial orna-
mentation, standardization of parts, unity of house and garden."

The authors also discuss some outstanding examples of nonresidential traditional (palaces, temples, and shrines) and modern architecture. They emphasize, as worthy of careful notice, the characteristic traditional features: skeleton construction of the post-and-beam type rather than bearing walls, sparseness of ornamentation, openness of spaces, organic unity of interior and exterior.

The recent widely publicized construction of a typical Japanese residence on the grounds of the Museum of Modern Art in New York has focalized and fostered a wide, increasing interest in Japanese domestic architecture. The average American may picture Japanese homes as weak, bare structures of paper and wood. For a true picture, the third book is recommended, *The Lesson of Japanese Architecture.*

This book, a reprinting in revised, up-to-date form of a work originally published in 1936, portrays further the delicate, subtle, exquisite beauty of the country's domestic architecture; it shows its development from origins in the early centuries of the Christian era to its present high degree of refinement and distinctive richness. This development has centered around the universal, social-cultural custom of the Tea Ceremony and its elaborate techniques. The size, layout, and furnishings of the house are based on the size and number of *Tatami* (floor mats of wadded rice straw, covered with reed matting), used for sitting and sleeping. *Tatami* are approximately three feet by six feet in size; from their use developed an age-old modular system based on the *Tatami* unit.

After a reading of this book, the principles of Japanese domestic architecture may be summed up as standardization, variety in unity, functionalism, simplicity of form and proportion, organic integration with nature, economy of materials and space, natural use of wood and stone, modular planning based on the unit of the mat, and deliberate irregularities to avoid monotony. The whole is a code of

(Continued on page 202)
“Roofed 30,000 sq. ft. $3,675 with

Cuts application time as much as 45%. Only one material to handle. New Insulite Roof Deck eliminates need for separate roof boards, insulation, lath and plaster and ceiling finishing. Saves 12 man-hours per 1,000 sq. ft. of surface compared with 2”x 6” D&M roof sheathing.

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It’s insulation with vapor barrier. No need for other insulation. Two-inch Roof Deck is comparable to 2” wood deck plus 1” fiberboard insulation and meets heat loss requirements for roof and ceiling construction. Exclusive vapor barrier protects against condensation within the unit.

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says Elmore Snary of the Ted F. Merrill Co., General Contractors, Brush, Colo.
in 1½ days... saved
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He saved 11¾¢ per sq. ft. in labor costs alone. Elmore Snary’s crew of 14 men worked with Insulite’s 3 in 1 product—with big, handy 2’x8’ Roof Deck units. And in one and a half days they had a complete built-up roof—with the exception of final mopping and spreading of white marble chips.

The Gem Oil Co. office building (shown) is not only an example of the savings possible with Insulite Roof Deck—it demonstrates the new and unique types of construction possible with Roof Deck. Look at the detail pictures on the opposite page—see how Insulite Roof Deck can solve architectural problems for you and give you big savings, too!

Send for complete information now! Actual on-the-job pictures and construction details show how to use new Insulite Roof Deck to build better for less. Write Insulite, Minneapolis 2, Minnesota.

Build better and save with

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art characterized by quiet taste, subtle beauty, simplicity without severity, and—above all—restraint. In addition to domestic architecture, religious architecture is also discussed. The general appearance of these temples and shrines is well known: the stable balancing of the strong verticals and horizontals, the rich color, the large scale, the dramatic effect.

These three publications prove that the lessons to be learned from a study of Japanese culture—especially Japanese domestic architecture—are well worth the time and effort required.

LAWRENCE E. MAWN

architectural lures


This useful guide for store owners and designers has been revised, and a number of new examples substituted to represent recent work. Short articles offering advice on the recurring problems of shop design are sandwiched between generous sections of illustrations with the author's running commentary. A brief history of shop design is provided and a 35-page supplement is devoted to scale drawings of store furnishing details. Most shops are represented by several photographs; most are examples of work in the United States; and the largest selection is from the author's own designs.

As a cross-section of superior shop designs, this book provides an interesting commentary on the influence of the special circumstances of retail trade on current trends in architecture. The conspicuous triumph of the open-front shop, joining interior and exterior space to suck the shopper from the streets, and the expert integration of artificial illumination, furniture and over-all plan toward a common goal of merchandise display, indicate a happy marriage of good design and good business. But the appallingly low level of architectural lettering displayed in signs seems to spell out incompatibility!

HEATH LICKLIDER

(Continued on page 306)
Glare, shadows and dark corners disappear when daylight is diffused with translucent reinforced plastic panels.

Work areas are evenly illuminated by flat reinforced plastic panels. Inexpensive, easy to install in existing standard window, skylight frames.

Reinforced plastic panels... a new approach in lighting

Need soft, glare-free lighting in your current design? Reinforced plastic panels may be your answer. These handsome translucent panels have already proved their worth in side lights and sky lights for schools, factories and homes. Your clients will like them in all these installations because they reduce maintenance costs and eliminate reglazing because they are shatterproof.

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ideal for school classroom doors • hospital patient room doors • hotel guest room doors • office building and factory interior doors...

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PRINCIPAL SAVINGS were accomplished by nailing the 26-gauge roof deck and siding to the LIGHTSTEEL sections. This could be done because both the purlins and studs have a built-in nailing groove, designed for this purpose. Nails driven into the groove are not only held by friction, but are also deformed to provide maximum holding power.

ACCORDING TO W. A. KRUSEN, President of Florida Steel Buildings, Inc., steel erectors, nailing the sheets reduced the cost of erection substantially. In fact, he feels that, for high-quality construction, this is the lowest cost steel building possible to erect. His opinion is based on cost comparisons, made over a period of eight years, covering a wide variety of constructions.

ADDITIONAL SAVINGS result from the light weight of the purlins, which reduces the loads carried by the rigid bents. Then, too, both the purlins and studs are carefully designed for maximum economy on a strength-to-weight ratio.

RESULT: A COST OF $1.60 PER SQUARE FOOT for materials and erection of the rigid bents, purlins, girts, bridging, bracing, roof deck and siding, windows, doors, ventilators, miscellaneous steel and all accessories. This figure does not include the floor slab, foundations, electrical wiring or plumbing.

ONLY 3 WEEKS WERE REQUIRED FOR ERECTION of the steel for this 75 x 200 foot building.

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October 1955
MODERN SCHOOL REST ROOM DESIGN

Gets Everything off the Floor...

American-Standard Wall-type Toilets carry out the off-the-floor design of Weisart Ceiling-hung compartments. The Zurn System, used to install the toilets in this photo, simplifies rest room layout and opens the way to savings in the overall cost of building.

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- FOR FINE APPEARANCE
- FOR LOW COST MAINTENANCE

PARTICULARLY in schools where appearance, sanitation and ability to stand hard usage are vital, Weisart compartments are the logical choice. They have triple protection of (1) flush steel construction with edges locked and sealed, galvanized surface "smooth as glass" (2) Bonderized for additional corrosion resistance and positive adhesion of enamel (3) synthetic primer and enamel separately baked combining a highly protective surface with lustrous beauty in your choice of 24 colors. Ceiling-hung Weisart compartments leave floors clear for cleaning... cut maintenance. For detailed information write

HENRY WEIS MFG. CO., INC., 1021 Weisart Bldg., Elkhart, Indiana

reviews

(Continued from page 202)

real estate guide

The paths threading the jungle that is urban real estate are like the interchanges of a macabre superhighway, where a man can only hope he has properly read the sign as he whizzes past it at sixty miles an hour.

Fisher & Fisher set out to map the jungle, and their name will be praised by all who need a competent guide. They have posted clear, well-lighted signs along each road, put caution signs at intersections, and given ample forewarning of turn-offs. It won't be the fault of the authors if anyone goes astray.

This book carefully explores and thoroughly explains the complex turnings of all transactions involving urban land—buying, owning, selling. It picks a precise path among analyses of spatial units, titles and transfers, short- and long-term leases, markets and mortgages, the economic base of communities, and other such formidable obstacles. And an excellent glossary at the end completes the reader's orientation.

Definitions given here are a far cry from those of bygone days—those days when boundaries were a running brook, a bowed elm, an angle formed by two stone walls—"I give thee, Jonathan Blake, all the land contained therein. . . ." In the difference, one sees the progress and the plight of man.

Since we have arrived at our present sorry state, the architect who perforce gets involved in his client's real estate problems will do well to fortify himself with this fine book—and a brace of outstanding lawyers.

A director of the Institute of Urban Land Use and Housing Studies at Columbia University, trustee of New York City's Citizens Budget Commission and of the Urban Land Institute, Washington, D.C., and consultant to the Federal Reserve System (to list only a few affiliations), Dr. Ernest M. Fisher seems exceptionally

(Continued on page 211)
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@POWERPLUGIN FEATURES

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Toplite Panels may be installed in continuous strip, pattern, or in individual panels. Use a Toplite Panel as you do a lighting fixture. They permit daylighting of all building areas regardless of location or distance from exterior walls.
Toplite Roof Panels
are factory-fabricated
... ready to install

They are shipped in individual crates marked to show correct orientation and directional positioning; for speed and ease in installation. Panels arrive on job site ready to install. They are set on prepared curbs and anchored ready for flashing by the roofer.

Why Owens-Illinois TOPLITE meets the demand for good daylighting

Transmits north light
Maximum transmission of north light is a desirable quality in toplighting because of its uniformity and freedom from glare and solar heat. Note how the prism structure of Toplite affords efficient transmission of north light.

Accepts winter sun
Since low winter sun is comparatively weak in relation to high summer sun as far as glare and solar heat are concerned, maximum transmission is again desirable. This illustration shows how Toplite accepts and transmits winter sunlight.

Rejects summer sun
Other materials which transmit north light and low winter sun also transmit high percentages of light during the hot, summer months. Toplite rejects direct light and heat from hot, summer sun, but transmits much of the cool, north light.

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The complete story of this great new advance in efficient utilization of free daylight is available in this new bulletin. For your free copy write today: Kimble Glass Company, subsidiary of Owens-Illinois, Dept. PA-10, Toledo 1, Ohio.
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Manufacturers of Stainless and Carbon Steels
qualified to sponsor a study and analysis of real estate in American cities. Since six out of ten U.S. residents live in urban areas, the inherent problems affect, directly or indirectly, a sizeable segment of our population. Primarily, this is a guide for the real estate profession, but the layman, too, can profit.

For the architect in particular, now that practice demands a working knowledge of everything from zoning standards to population trends, the book would prove a timely addition to the technical shelf. Potentially valuable chapters include, "The Control of Space," "Title," "Agreements to Transfer," "The Rate of Utilization," "Patterns of Land Use," "Real Estate Finance," and "The Influence of Public Policies."

These will also bear out this reviewer's contention that urban real-estate transactions require the services of super-specialists equipped with a fair amount of clairvoyance and a medium crystal ball. Such things are best left to those who qualify: and at least one architect feels he should steal back to his drawing board and contemplate contentedly the blessing of small gifts.

JOSEPH AMISANO

new office tool


Ben John Small has long been known to P/A readers as the author of a long series of Streamlined Specifications and more recently as the creator of Spec Small Talk, a monthly column discussing both the serious and humorous aspects of specification writing. Ben's most recent book provides the architectural office with an invaluable set of check lists which quickly refresh the memory, useful against omitted or overlooked items. His check lists include specifications, equipment, contracts, tips to job captains, resume of AIA General Conditions, and associations and institutes. Under Playground Equipment, for example, among many other checks one finds Ocean Wave (Continued on page 214)

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Architectural Terra Cotta combines impressively with other materials!

The architectonic horizon is being extended constantly by the creative use of modern Architectural Terra Cotta for interiors and exteriors. It is adaptable to any design and can be combined readily for harmony or contrast with all other building materials. You can choose any color under the sun for decorative panels, sculpture or plain surfaces. Federal Seaboard custom-makes Architectural Terra Cotta in units large or small to your precise requirements. No other building material offers so much—in design freedom, quality, appearance and price. Still another advantage of Architectural Terra Cotta is minimum maintenance. Only soap-and-water washings are required to retain the original richness and colorful beauty indefinitely.

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Twin-Seal Weatherstripping is just one Arcadia point of difference you should know about. For complete details on Arcadia steel and aluminum doors, see the Yellow Pages under "DOORS, Sliding."

reviews

(Continued from page 211)

Units; and under Theater Equipment one is reminded to recall whether he thought to consider the Wind Breaks. An excellent index makes this compact volume easy to use.

useful guide


Written for architects, engineers, and contractors, this volume is a guide to the legal and business aspects of the administration of construction work. As in the two previous editions, the emphasis is on fundamental methods of preparing contracts and specifications, including an outline of the basic legal information pertaining to engineering and construction. It also reviews the many differences between U. S. Government contract procedures and private practice. The scope remains the same, but about one half of the book has been rewritten in order to make it more convenient for use as a text and reference; new material has been added on cost plus fixed fee contracts, insurance, contracts for professional services, and specifications.

persuasive report


This is a volume of equal interest to the architect, engineer, contractor, and prospective owner. Throughout the book there is evidence of the author's wish to reach all who are concerned with the selection, design, installation, and operation of radiant heating. Another objective was the presentation of systems of all kinds—for buildings of all types and sizes, from the smallest residence to the largest industrial building. The author has succeeded well in achieving all of these aims. It is a complete work though concisely handled.

(Continued on page 215)
HOPE'S WINDOW WALLS
STEEL WINDOWS HAVE THE STRENGTH AND RIGIDITY THAT NO OTHER WINDOW CAN MATCH

In addition to their use for exteriors, Hope's Window Walls are ideally suited to the modern concept of school corridor partitions as shown above.

Long uninterrupted rows of floor to ceiling framing are possible because of the greater strength and rigidity of their steel construction. This type of wall construction permits a variety of layout possibilities. Doors, fixed sash, insulated panels and ventilators may be inserted where desired. In this school, Hope's Heavy Intermediate Projected ventilating sash were used at intervals. The feeling of spaciousness, the ample controlled day lighting and the planned ventilation, important factors to the health and well being of the students, are well achieved here. Valuable extra floor space, the economies and advantages resulting from speed in erection and fast building enclosure are further benefits gained by using Hope's Window Walls.

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FROM DARK TO FULL-BRIGHT

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In planning to use this relatively new kind of heating, the seeker of information is primarily concerned with the successful experience of others. No other book on the subject gives quite as much attention to inspiring the confidence of the new user of radiant heating. There are 17 photographs showing structural advantages, 28 of examples of commercial installations, 20 of residential jobs, and 49 showing installation techniques. There is also much of value to more experienced readers who are already well acquainted with the subject. In addition to the divisions just mentioned, other chapters are: "Principles" (properly brief since they are not so well known); "Plant," illustrating boilers, firing, valves, and circulating; "Controls," comparing the on-off method with that of blended water temperature; "Design," which stresses simplicity of method and careful balancing of the system; "Radiant Cooling," including the use of the heat pump for this purpose; and "Electric Radiant," now so important as auxiliary heat and as primary heat in areas close to power generation centers. The last chapter is a discussion of advanced theory and methods of precise design of great interest to the consulting engineer and the research analyst.

Items of interest which receive a rather fresh treatment are: converters for producing hot water from steam in large buildings where steam generation is advantageous; details of the heating and cooling installation in the Alcoa Building; a great variety of heating boilers; comparison of design methods of the Chase Brass & Copper Company, Inc. and those of the Guide of the American Society of Heating and Air-Conditioning Engineers; soldering and bending techniques; the Kritzer system of enclosing fin convectors in walls and joist spaces; heated swimming pools; snow melting; radiant-heated railway cars; and slab and perimeter insulation in houses.

The book has very obvious advantages for the architect and engineer and should be in the possession of owners and managers who direct the selection and design of heating and cooling systems for buildings of any type. WILLIAM J. MC GUINNESS
Skylike, the silvered bowl incandescent modular unit has been accorded wide acceptance as a highly efficient and economical indirect lighting unit for schools. The 24' and 14' units with metal eggcrate or plastic diffusers provide the quality and quantity of light demanded for school requirements—in classrooms, auditoriums, corridors, gyms, lunchrooms, etc.

Exclusive features include comfortable low brightness, pleasing color, floor relamping, minimum of maintenance and comparatively low initial cost. For any school lighting problem it will pay you to investigate the many advantages of Skylike.

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October 1955
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**competition winners**

The College of Architecture and Design, University of Michigan, announces PHILLIP JOHN LUTH as winner of the GEORGE G. BOOTH TRAVELING FELLOWSHIP COMPETITION for 1955.

J. C. Nichols Foundation of the Urban Land Institute has awarded a $2000 grant-in-aid to GERALD K. TAYLOR, JR., for research to be carried on during the academic year 1955-56 at GEORGIA INSTITUTE OF TECHNOLOGY.

**fellowships**

CHARLES G. BRICKBAUER, New Canaan, Conn., DAN R. STEWART, Boston, Mass., and WAYNE PLATNER, Birmingham, Mich., are recipients of ROME PRIZE FELLOWSHIPS in Architecture for the year beginning October 1, 1955. STEPHEN F. BOCHKOR, Cambridge, Mass., at the same time received a Fellowship in Landscape Architecture.

WILLIAM E. PALMQUIST, mechanical engineering senior at ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago, Ill., has been named recipient of a propulsion and structural research fellowship presented by ARMOUR RESEARCH FOUNDATION of Illinois Tech.

**new offices, partnerships**

ROGER G. WEEKS, Architect, 301 Thiesen Bldg., Pensacola, Fla.

JAMES EDWARD LYNKEY, Architect, 1553-A Sunset Dr., South Miami, Fla.

ROBERT W. CONNER, Architect, 244 S. Main St., High Point, N.C.

McCoy & Roach, Architects, 704 Queen & Crescent Bldg., New Orleans 12, La.

J. BUCHANAN BLITCH, Architect, has become a partner in the firm of RICCIUTI ASSOCIATES, Architects-Engineers, 302 Q & C Bldg., New Orleans, La.

LAURENCE SACCHETTI, Architect, has joined the firm of KELLY & CRUZEN, Architects-Engineers, New York, Newark, and Boston.

JOSEPH L. DONOFRO, Architect, 208 N. Oates St., Dothan, Ala.

JEAN FENTON FINKEL & WARREN EDWARD FINKEL, Architects, 800 Broadway, Lorain, Ohio.

ALFORD-PEARSON-HUMPHRIES, Architects, 201 Hill Bldg., Montgomery, Ala.

WHITE, NOAKES & NEUBAUER, Architects-Engineers, 1145 19 St. N.W., Washington, D.C.; 1073 W. Broad St., Falls Church, Va.; 80 Broad St., New York, N.Y.

STEPHEN H. BLAIR, Jr., Architect, 4 W.O.W. Bldg., Hattiesburg, Miss.

PARRISH & STARR, Architects, 523½ Fourth Ave. South, St. Petersburg 5, Fla.

CHARLES A. WOEBR & FRANKLIN D. MABBETT, ARCHITECTS, 119 E. Washington Ave., Madison 3, Wis.

PRENTICE BRADLEY, Architect, 74 North St., Pittsfield, Mass.

BUDINA & FREEMAN, Architects, 728 E. Main St., Richmond, Va.

GORDON DICKSON ORR, Jr., Architect, 80 S. Main St., Wallingford, Conn.

JOHN GRAHAM & COMPANY, Architects-Engineers, 15 W. 44 St., New York, N.Y.

WILLIAM P. GREENINC, Architect, 356 S. Beach St., Daytona Beach, Fla.

ROBERT S. OLIVER, Architect, 916 F St., Marysville, Calif.

WILLIAM B. FOX has become a partner in the firm of WEHRE, FRICK & KRUSE, Architects, 414 Mason St., San Francisco 2, Calif.

DR. FRANCIS G. CORNELL, Educational Consultant, has become a member of the firm of ENGELHARDT, ENGELHARDT & LEGGETT, 221 W. 57 St., New York 19, N.Y.

SWANSON, MATSON & WEGLEITNER, Architects, 500 Sexton Bldg., Minneapolis, Minn.
The new Martin Van Buren High School, in the heart of New York’s fastest growing borough, will open for classes this fall. Its over 3000 students will find it the most modern, best equipped and one of the largest high schools in the biggest school system in the country. It is constructed of the newest and best materials to insure many trouble-free years of low maintenance use.

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See SWEET’S
—Arch. (1955) 121-Ma for suggested specifications and full technical data.

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materials center
The Construction Materials Center has just opened its doors in San Francisco, at 330 Clay St. Established to serve the needs of the construction industry, the Center will gather samples and product information regarding competitive products for information of architects, builders, contractors and the general public. Victor M. di Saviero is Director of the Center.

new addresses
Aetna Steel Products Corporation, sales offices and sales executive personnel, Arnot Partition-ettes, Arnot Office-ettes and Arnot modular furniture components, 730 Fifth Ave., New York 19, N.Y.

Mississippi Glass Company, New York Office, Chamin Building, 122 E. 42 St., New York 17, N.Y.

p/a congratulates
Armand J. Thiebrot, recently named Director of Vitro Corporation of America, and Raymond T. Rubek and Junius H. Cooper, new Treasurer and Controller.

Perry L. Francis, recently elected Vice-President in charge of Marketing, Alan Wood Steel Company, Conshohocken, Pa.

Glenn A. Hutt, newly appointed Vice-President, Building Products Division, Ferro Corporation, Cleveland, Ohio.

Burton G. Tremaine, Jr., newly elected President of The Miller Company, and Henry J. Millington, new Vice-President, and John L. Busey, Director of the Company. Burton G. Tremaine was elected Chairman of the Board.

John Lang, whose appointment as General Sales Manager was recently announced by The Rubberoid Co., and Joseph G. Hall, new Assistant General Sales Manager.


Robert A. Muller, recently named President of Atlas Plywood Corporation, Boston, Mass.

W. B. Evans, recently appointed Manager of the Special Industries Department, The Philip Carey Mfg. Company, Cincinnati, Ohio.

L. B. Olmsted, newly elected Vice-President of United States Plywood Corporation, New York, N.Y.

Richard G. Lubinsky, Manager of the Fan Sales Department of The Trane Company, La Crosse, Wis., who has been elected to a two-year term on the Board of Directors of The National Association of Fan Manufacturers, Inc.

Herman R. Giese, Charles A. Ellis, and Stanley R. Cullen, recently promoted by Sargent & Company, New Haven, Conn., to Vice-President and General Manager; Vice-President in charge of Product Engineering and Research; and Works Manager (in that order).

Ray A. Tritten, new Assistant to the General Manager of the West Coast Divisions of Carrier Corporation, Syracuse, N.Y. In this post Tritten will report to William J. Bailey, Carrier Vice-President and head of the Company’s four West Coast Divisions.

Thurman C. Carter, Vice-President of General Bronze Corporation, Garden City, L.I., N.Y., who has been elected President of Aluminum Window Manufacturers Association. Other new officers include J. J. Donovan of Universal Window Co., Berkeley, Calif., First Vice-President; E. C. Munro of Ware Laboratories, Miami, Fla., Second Vice-President; and Robert L. Klein of Windalume Corp., Kenvil, N.J., Treasurer.

Robert W. Minett, Jr., Vice-President in charge of Merchandising for Thomas Industries, Inc., Fort Atkinson, Wis., recently elected President of American Home Lighting Institute.

John H. Stevens, whose promotion to Senior Architect was recently announced by Libbey-Owens-Ford Glass Company, Toledo, Ohio.
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A mechanical method of suspending Tongue and Groove Acoustical Tile

WIRE, ROD OR STRAP HANGER

1/2" CHANNEL, NOT OVER 4'-0" O.C.

No more nails
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Can be suspended to desired ceiling height

Speeds up installation

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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 unfaltering service.

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October 1955
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by S. GIEDION

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The second part of the book contains 140 pages of illustrations covering every phase of Gropius' work—by far the most comprehensive collection ever published. The book ends with a complete list of Gropius' works; bibliographies of all the books, essays and contributions to learned periodicals he has written; a listing of the books and critical articles about him and his work; and an excellent index.

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I have on my desk a review copy of a teaching manual issued by American Institute of Architects. It is entitled At Home With Architecture. Intended for use as a "manual of suggestions for the presentation of architecture in the primary, secondary, and junior-high school years," it will be tested in three Texas cities, and evaluated after that testing by the University of Texas. Presumably it will be revised if the testing indicates faults from the teachers' point of view, or lack of student acceptance and understanding. This is an implementation of Recommendation #6 of the Commission For The Survey of Education and Registration: "... that the AIA investigate the feasibility of preparing project workbooks for use in secondary and elementary school classes, designed to familiarize all such students with the importance, influence and appeal of good architecture in community life."

I wish that I could wholeheartedly recommend this workbook pamphlet; I know how much time has been spent on it by the Public Relations Committee of the Institute, in consultation with other Committees and individuals. I know the careful way John Campbell, the author (Account Executive of the AIA account for Ketchum, Inc., public relations counselors to AIA), has checked his manuscript with a large number of educators. And certainly I am not competent to judge the value of the educational aspects of the booklet. It is from the point of view of "the importance, influence, and appeal of good architecture in community life" that I am disappointed.

The first section (kindergarten-second grade) deals with understanding of basic living requirements. Starting with living habits of animals and birds, discussing the child's own shelter requirements, and going on to simple order and arrangement, it seems to me to be excellent.

The second part (third and fourth years) discusses living needs of a family (the Jones family, with two children and a cute dog), and how a house is built. Nothing wrong with this, that I can see. From here on I think the manual becomes so sketchy as to be dangerous, and leads to rather shocking visual conclusions. The section for fifth and sixth school years has to do with "looking at a house" and "advantages of good design." There is a great deal said, sensibly, about what is a plan? While I think the text is probably informative, it scares me to death to see this plan used as "the floor plan of the new house for the Jones family." Remember, the kids have been leading up to this since third school year.

I'm sure that any of the good architects on any of the good Committees advising on this booklet could have provided a plan that didn't have an interior dining room, didn't indicate a bedroom smaller than the bath, had better circulation, and so on. Is this quibbling? I think not, when "good design" is being demonstrated to impressionable sixth-graders. There's one other plan shown in this chapter (which is worse). Then comes the final section for older youngsters—seventh, eighth, and ninth school years. Here the aim is to "help the student respect the architecture of the past ... realize that the house of each period was 'modern' ... recognize the role of the architect ... know the natural and educational requirements for a career as an architect." The approach to history is reasonable, if sketchy and oversimplified.

There follow two and a half pages on "What is The Nature of an Architect's Work," one page of which is devoted to Remodeling. The paragraphs on "The Training of an Architect" avoid entirely any description of the length or nature of architectural school training (remember these are now junior high students). I hope that these fairly obvious faults can be corrected. More important, I hope that the final product will pay some attention to what the Commission report suggested as emphasis: "... the importance, influence and appeal of good architecture in community life." Surely somewhere along the line, in this opening of the eyes of the school children to architecture, the design of schools, churches, shopping centers, parks, and playgrounds could have been discussed. The importance, even to a child, of pleasant streets and good landscaping, of elementary planning in its broadest sense, could be made a subject for classroom discussion, I am sure.

It's a good try, and I suppose it's only through incomplete first attempts that a fully satisfactory answer will be found to this important business of getting people concerned about good design. The next time, perhaps, the attempt should be made by architectural educators rather than a public relations firm. There is altogether too much direct "selling" of the architect in this one, and not enough explanation of the value of architecture.

Thurman N. Leighton