New sheet vinyl floor

**Armstrong DORELLE VINYL CORLON**
designed and priced for commercial interiors

This new sheet vinyl floor offers long-term beauty and performance and costs only about 70¢ sq. ft. installed.

Dorelle Vinyl Corlon meets needs of modern commercial interiors where traffic is heavy but color and design are important, too. And it costs only 70¢ sq. ft. installed—far less than other commercial-weight sheet vinyl floors. This is a tough, long-wearing vinyl floor, developed to take the pounding and scuffing of millions of feet, yet stay fresh looking with normal maintenance. In most characteristics—resistance to abrasion, indentation, alkali, and staining; recovery from compression by heavy furniture and the indentation of spike heels; economy of maintenance—this new vinyl floor is superior to battleship linoleum.

**SCALED FOR COMMERCIAL USE**

The colors and design of Dorelle were planned specifically for commercial interiors. Its seven colors, all soft or neutral, are coordinated with Armstrong Vinyl Cove Base and Armstrong Wall Corlon. The subtly grained design is scaled to give a monolithic effect in large areas. Colors and design go uniformly through the thickness of the vinyl to the backing.

**EASY TO MAINTAIN**

Because Dorelle comes in 6' rolls up to 90' long, it can be installed with a minimum of seams and can be coved or flashed up the wall to eliminate baseboard crevices—important advantages in hospitals, "white rooms," and other interiors where cleanliness is essential. Dorelle is resistant to grease, dilute acids, and most alkalis and chemicals. All these qualities make Dorelle easy and economical to clean and to keep clean.

**INSTALLED AT ALL GRADE LEVELS**

Its Hydrocord Back (available only on Armstrong floors) allows Dorelle to be installed above, on, or below grade, except where excessive alkali or hydrostatic pressure makes the installation of any resilient floor impractical.

**MORE INFORMATION**

For more information on Dorelle—or on any of Armstrong's wide range of commercial floors—contact your Armstrong Architect-Builder Consultant at your Armstrong District Office. Or write directly to Armstrong, 302 Watson Street, Lancaster, Pa.

Dorelle, Corlon®, and Hydrocord® are trademarks of Armstrong Cork Company.
Good commercial proposition: 
Red Cedar Shingles & Handsplit Shakes
The unmatched color and texture and mood of this classic natural material offers exciting design opportunities for light commercial construction. And, beyond beauty, cedar shingles and shakes offer the practical advantages of superior wind and hail resistance, insulation, light weight, strength and durability. In fact, a cedar roof lasts for decades. If you would like more information about this unique material, write: Red Cedar Shingle & Handsplit Shake Bureau, 5510 White Building, Seattle, Washington 98101; 550 Burrard Street, Vancouver 1, B. C.

Foamed-in-place urethane bonds to any surface; provides permanent structural stability; seals cracks, voids and seams; prevents condensation and sweating; resists mildew, dry rot and deterioration; muffles sound. And these are all bonus features.

The main reason for specifying urethane foam is because its insulating efficiency is twice that of the next-best insulating material on the market. Write for all the facts.
Cover  COMPOSITE PHOTOGRAPH OF PAUL RUDOLPH AND HIS ART & ARCHITECTURE BUILDING (page 108) Photography by Damora

Frontispiece  ENTRY SIDE, YALE ART & ARCHITECTURE BUILDING
Photography by Damora

8 VIEWS

55 NEWS REPORT

107 EDITORIAL

108 EDITORIAL FEATURES

108 YALE SCHOOL OF ART AND ARCHITECTURE, Yale University, New Haven, Connecticut; Paul Rudolph, Architect

128 THE OPPOSITES: EXPRESSIONISM AND FORMALISM AT YALE: A CRITIQUE

130 YALE RARE BOOK AND MANUSCRIPT LIBRARY, Yale University, New Haven, Connecticut; Skidmore, Owings & Merrill, Architects

GEOMETRY OF SPACES IN SCHOOLS:

134 CLUSTERS OF HEXAGONS: Jennie May Fleming ElementarySchool, Detroit, Michigan; Meathe, Kessler & Associates, Architects

139 ZIGZAG LINE OF BAYS: Chichester Senior High School, Boothwyn, Pennsylvania; Vincent G. Kling, Architect

143 GRIDIRON OF RECTANGLES: Harper High School, Atlanta, Georgia; Toombs, Amisano & Wells, Architects

148 RECENT WORK OF PIERRE JEANNERET by U. E. Chowdhury

154 ARCHITECTURAL PRACTICE IN MEXICO by Raymond L. W. Wright

155 Precast Annular Embassy: United States Embassy Office Building for the Republic of Ireland, Dublin, Ireland; John M. Johansen, Architect

162 SELECTED DETAIL: Concrete Components, Dublin Embassy

164 MECHANICAL ENGINEERING CRITIQUE: Winter Humidity Control
By William J. McGuinness

166 SPECIFICATIONS CLINIC: Spec-Data Sheets
By Harold J. Rosen

168 IT'S THE LAW: Need for Careful Site Inspection
By Bernard Tomson and Norman Coplan

170 BOOK REVIEWS

190 JOBS AND MEN

194 DIRECTORY OF PRODUCT ADVERTISERS
Frank Flick, President of Flick-Reedy Corp., Bensenville, Illinois, reports on the advantages of using flameless electricity as a single source of energy for all plant heating, cooling and lighting.

"Without any doubt, one of the most important new design elements in our new Flick-Reedy plant is total electric space conditioning," reports President Frank Flick. "By following our architect's recommendation and using electricity as our only source of power, we have obtained a markedly more efficient operation.

"Greater plant cleanliness, for example, has enabled us to improve the quality of the hydraulic cylinders and sealing fittings manufactured by our two divisions. And automatic year-round air conditioning—with heating and cooling both provided by our electric heat pump—has resulted in a sharp drop in absenteeism and a consequent increase in production.

"On the basis of our own experience here at Flick-Reedy, I would strongly recommend that anyone involved in industrial design look into the advantages of total electric space conditioning as soon as possible."

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

If you are interested in finding out ways in which total electric space conditioning can help you in the design of industrial and commercial buildings, contact your local electric utility company. They will welcome the opportunity to work with you.

BUILD BETTER ELECTRICALLY

Edison Electric Institute, 750 Third Avenue, New York 17

CITED FOR "IMAGINATIVE BOLDNESS," the award-winning Flick-Reedy plant features total electric design. Architect-engineering firm was Zay Smith & Associates, La Grange, Illinois.
Doors are to dramatize...
Views

Future of the Profession and Architects' Responsibility

Dear Editor: Your Editorials in the October/November 1963 P/A certainly indicate that you should be brought up to date on a number of points.

First, the AIA is not "gripped with fear" nor "frantically searching for a substitute solution." The Institute began in 1960 to examine the profession and itself in calm and deliberate fashion. We adopted the premise that these are changing times requiring a changing profession.

In fact, we believe that the years ahead will be unlike anything before in the history of architecture. The opportunities and challenges in design will be greater than ever and, indeed, will be in terms of total environmental design. The nature of practice will undoubtedly be different and will indeed be along the lines of "comprehensive architectural services." This will become "standard practice."

Since the AIA adopted these concepts, we have been instituting activities and projects in a planned and purposeful manner to move steadily toward the major objectives. Seemingly you have heard only of the "expanded services" project, which may have drawn more attention at first than other equally important programs. The comprehensive services project is no flash in the pan. The two-year series of articles in the Journal will produce only the first book on the subject. Subsequent, expertly written texts on subjects such as finance, land assembly, feasibility studies and cost estimating, together with regional seminars, will develop a long-term extension education for AIA members in new methods of practice.

Let me tell you of other far-reaching projects we have underway: [Here follows a description of all the Institute activities.]

Does this sound like an Institute running scared? Quite the contrary, obviously. We know what we want to achieve and are going about it with the greatest unity of purpose ever seen in the AIA.

Now, about this leadership business. I don't know of a leader in our profession who assumes that leadership is attained by assertion. It must be earned. That is why we are intent upon developing our capabilities.

Further, we fully comprehend the team requirement for total environmental design. The design professions produce such design and, under various circumstances, one or another of the professions will exercise a share of leadership. Generally speaking, we believe the education of the architect—and especially under the new educational ideas we are promulgating—qualifies the architect for the chief conceptional responsibilities in the solution of most environmental problems. This has nothing to do with the yardstick of dollar cost of the parts and systems of a building, which you erroneously cite as a measure of the importance of design services.

Our relationships with the design professions are directly maintained through our AIA-Engineers Conference Committee and the newly formed Interprofessional Commission on Environmental Design. The Committee includes the National Society of Professional Engineers and the Consulting Engineers Council; the Commission includes the American Society of Civil Engineers, the American Institute of Planners and the American Society of Landscape Architects. We know from our sister professions that the AIA is not the only society faced with necessities to meet the challenges of these times. In common with us, they share our determination not to let the decision-making processes fall into the hands of nonprofessionals. They share our determination to educate the public to the importance of design to today's communities.

Your November Editorial makes oblique reference to AIA's "existing policy." I must presume you are referring to our ethical code—our Standards of Professional Practice. At our next convention, the membership will consider revisions of the Standards. The revisions, after three years of study, will add some phrases and eliminate some phrases—both with the intent of bringing ethical concepts into line with modern practice. In general, the requirements upon the architect for competence and responsibility are being increased—as well as his freedom of action in the early stages of large projects for group clients. No revision, however, will detract one iota from the requirement for a professional performance.

Finally, the Institute advances the architectural profession by building upon the three basic cornerstones of architecture—art, science, and business—in a way that no specialized group devoted to any one of these vital elements of architecture could attempt to do.

We are always interested in editorial criticism, but like to see it cognizant of what AIA is now and not yesterday. May I suggest that you need endure no puzzle about anything the AIA is doing. The information is always available.

J. ROY CARROLL, JR.,
Washington, D.C.

[The preceding letter from the President of the AIA was followed three weeks later by the letter reproduced below.—En.]

Dear Editor: I have just read your Editorial of the November, 1963, issue [sic].

I would like to comment on two points which were raised.

First of all, it should be possible for a professional society such as The American Institute of Architects to speak first in the interest of all of our citizens; and this is precisely what we have tried to do. We are also interested in upholding the standards of our profession and the interest of all of the corporate members of The American Institute of Architects. These two objectives are perfectly compatible.

Sometimes, as you can well imagine, the opinions of the members of the Board of Directors are as diverse as the opinions of the some sixteen thousand architects across the country whom they represent. This should be no surprise to you or any other well-informed person. The point is that Institute policy is determined by the majority of our delegates at conventions, and by a majority of the members of the Board of Directors.

I would say that the policies thus formulated in the last few years have always been "on the side of the angels," and I would be interested in knowing what single policy The American Institute of Architects has espoused which put the interest of its members above the interest of the society which it is serving. [See the following letter; also, p. 60, December 1963 P/A.]

Our AIA Commission on Education was charged to concern itself with the relationships of all of the design professionals to each other and to the problem of designing man's total physical environment. The preliminary report of our Commission on Education recognized a need to have all of the design professionals educated within a single school. Their proposal suggests that an A.B. degree might be requisite for admission; that during the first year of such a school all of the design professionals would take the same courses; that each design professional from that point on
To help you use doors dramatically...

**Uniloc Locksets by Russwin**

In creative hands, doors are to dramatize. Doors are to accent... enrich... impress. To help you be creative with doors, Russwin brings you creative designs in the Uniloc* Lockset, modern masterpiece of lockmaking. Here is distinctive doorware... doorware that complements your doors, your interiors, your overall building concept. Here is doorware that brings you Russwin "unit construction" completely preassembled, designed for high-frequency service, engineered to last for the life of your building. Have your Russwin supplier show you today's Uniloc Lockset designs. Or write for literature to Russell & Erwin Division, The American Hardware Corporation, New Britain, Connecticut.

*TRADEMARK*
would develop his own particular specialty; and that, finally, all during these years of study, groups of these different design professionals would collaborate in the school in the development of various projects.

The American Institute of Architects hopes that a suitable Foundation will provide sufficient funds so that this preliminary report of the Commission on Education can be studied in depth to the benefit of society in general, all design professionals, and the present professional schools.

I cite this example, and there are many, as one in which the Institute is trying to find a solution for an important problem, and is approaching it on the basis not of "protecting the architect," but serving best all of our citizens.

Now, I would like to speak on the subject of criticism. For one architect to "knowingly injure falsely or maliciously, the professional reputation, prospects or practice of another Architect" is deemed unprofessional conduct. This quote is taken from The American Institute of Architects' Standards of Professional Practice. Its intent is perfectly clear, and I see no reason to change it.

With regard to specific design proposals for a building or a group of buildings, I would like to suggest that the press, and especially the architectural press, approach this problem somewhat differently than at present. If a building is to be criticized, adequate photographs and plans should be shown, and the architect responsible for the design should have an opportunity to describe his reasons for producing his particular design. In an adjacent column, criticisms of his building could appear, and I am sure that most architects would not object to such a presentation as long as they have the opportunity to present their own case for the building they designed.

Finally, if criticism needs to be aimed at the appropriateness of a public structure or its location, I believe a position objecting to it should be taken by a component of our professional society rather than by an individual. I believe, also, that such a position should not be taken unless the matter is first thoroughly aired with ample opportunity for proponents and opponents to present their opinions before, say, a chapter meeting. I should also point out that local chapters could very well take such positions on local matters, state components on state matters, and the national organization on national matters. What I am saying is that I do not believe a single one of our chapters should try, by public pronouncement, to represent themselves as expressing the point of view of all one hundred and sixty chapters, on architectural matters, at the national level.

It should be called to your attention that the AIA, contrary to what your Editorial says, does not have a double standard. Its present organization is, I believe, truly representative of all of its members, and I am, as I indicated above, unfamiliar with any action taken by The American Institute of Architects which could be construed as either a proposal of a minority of its members, or an action not in the best interest of all of our citizens.

J. ROY CARROLL, JR.
Washington, D.C.

Dear Editor: Your Editorials deserve the serious attention of all architects, but especially of members of the Institute, in view of the fact that the AIA has been intensively projecting for its membership a role of prime responsibility for the coordination of the disciplines necessary to the design of "total physical environment." It is presupposed that without such co-ordinating initiative, beauty is unattainable. However, the capability and desire of the membership to fulfill that role is only an assumed and unsubstantial factor.

Your stated concept of responsibility to the public weal, transcending narrow self-interest, is very relevant to the co-ordinative function projected upon the architectural fraternity. But its meaning must be assimilated before it can be expressed in the formal tenets of the Institute.

For example, it was apparent at the recent N.Y. Chapter AIA meeting, which dealt with the proposal for competitions for commissions to design the New York City Civic Center, that there is a dichotomous aspect to the Institute's position. It is desirous, on the one hand, of enhancing the architects' (professed) functions as co-ordinator of the process of design of comprehensive environment; while, on the other hand, it maintains zealous guardianship of the architects' hereditary privileges in the architectural marketplace.

The implicit conflict of interest (in its effect upon our attitude toward the public weal) constitutes a condition which can undermine the effectiveness of the architect—as you clearly inferred.

The composite avalanche of technological and economic (as well as the civic and social) pressures demand more sophisticated criteria of architectural performance. Hence, new levels of knowledge and objective competence (which raises the base on which the architect exercises his intuition in the creative process) are mandatory. The contemporary architects' awareness has to be broader and, in a sense, more "democratic."

Thus, the burgeoning pressures of megalopolis (to which New York City's Civic Center redevelopment is a response) must be met by an architectural procedure adequate in contemporary terms. The design of the Civic Center should be formulated in the broad spectrum of awareness of the millions of urbanites, not within the inherently limited perspective of the bureaucracy which negotiates and awards contracts. In short, we (the professionals involved) have a responsibility to the "client"—not to the "building committee."

Although it was evident at that meeting that there was a healthy undercurrent flowing toward the broader interpretation of "responsibility," this was inevitably modified by the time-honored, established pattern of practice evolved from earlier, simpler days, but now anarchistically inhibiting or restrictive. Thus, the immediate issue was foredoomed to partial resolution as regard the matter of the public weal; and it shall remain thus unless a vigorous effort is made to find and promote a mode of practice commensurate with the projected goal. Failure to initiate such search would be tantamount to abdication of leadership; and the vacuum created thereby, abhorrent to the public weal, shall inevitably be filled by nonarchitectural specialists.

An image inherited from our master-guildsmen antecedents can be partially sustained by only one aspect of contemporary civilization: the realities of the marketplace, and the struggle for economic advantage. This fact, be it warming or chilling, affects all of us, daily. But it behooves us to make the painful effort to transcend motivations stemming solely from that aspect of reality, if we are to be respected and trusted for the performance of a humanistic service.

The idea you develop in your Editorial must be nurtured; and its significance relentlessly reiterated. Its assimilation into the Body Professional, and inevitable effect upon professional ethics, cannot be anything but benign.

BERTRAM L. BASSUK
New York, N.Y.

Dear Editor: Your Editorials are thoughtful and thought-provoking. And I think
Four proven ways to make your public telephone installations both distinctive and functional

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

PLAN AHEAD. Provide for adequate yet attractive public telephone installations while you're still in the blueprint stage. Today's flexibility in color, materials, basic size and design allows you to plan public telephone installations that will reflect the same decor you designate for walls, floors and ceilings. Early planning makes it possible for our Public Telephone Consultants to analyze the telephone requirements of a particular building, and offer practical suggestions. Remember also that preplanned installations often eliminate the costs and delays of expensive afterthoughts.

ACCENT CONVENIENCE. Little comforts are an important consideration in planning any building for public use. Tenants, visitors, employees and casual traffic all require easily accessible and conveniently located public telephones. Our Consultants can help you select the proper locations in your particular building, based on its function, floor layout, and potential traffic patterns.

SPECIFY THE RIGHT NUMBER OF INSTALLATIONS. The logical number of public telephones can be predetermined for any building. In this area our Public Telephone Consultants are helpful, too—for they can predict with remarkable accuracy the number of installations your building will require.

BELL TELEPHONE SYSTEM
SERVING YOU

For more information, turn to Reader Service card, circle No. 303
Model 36-DY

Sculptured in tenzaloy aluminum

More than a useful fountain, this new Haws twin bubblers unit, cast in Tenzaloy Aluminum, adds sculptured outdoor emphasis to architectural design. Model 36-DY echoes modern lines with bold form and imparts a quiet richness of color with its muted bronze, hard anodized finish. The surface resists scuffs, scratches and corrosion, the tough body wards off dents and nicks. Clients will appreciate Model 36-DY’s vandal-proof features: Simple, push-button valves, locked-on bubbblers, and under-plate to safeguard trim. For architectural beauty that lasts to the client’s satisfaction, specify 36-DY.

Write today for complete specifications:

HAWS DRINKING FAUCET COMPANY
Since 1909

GENERAL OFFICES
1441 FOURTH STREET • BERKELEY 10, CALIFORNIA

For more information, turn to Reader Service card, circle No. 319

Everything that you said is true.

Your emphasis on serving “the public weal” stands out—this is the key to our professional standing. Our acceptance by the public as leaders of a team effort (which must be mounted to solve the immense building problems facing us) will surely come only if we serve the public interest first and our own interest second. Architectural practice in the tradition of the huge Los Angeles firms, complete with public relations departments, may be having temporary success, but I can’t help feeling that the superficiality of their work will be found out even by the general public. Certainly they have not done quality design work and thus confer a reputation of business-like insensitivity on the whole profession.

The magazines have a responsibility to unmask their works publicly—who else can do it?

If, as you suggest and I agree, the AIA should change its policy, so should the magazines that continue to glorify the great masters when they no longer do masterful work. The sterility of Mies’ and Pei’s recent published work is a case in point, yet they are extolled everywhere. The FAA is now about to impose uniformity on new airports everywhere with a tower design that looks for all the world like nothing more than an industrial designer’s plastic model toy.

How about dedicating P/A for a year to unmasking the phoniness of much of today’s work and extolling the genuine article when you find it? The so-called “theme building” at the Los Angeles airport; the Las Vegas airport building that copied TWA at Idlewild; the unbelievable hollowness of some of Niemeyer’s work in Brasilia, the Milam house in Sarasota; the facade of the American Embassy in New Delhi would be good morsels to chew on.

Some examples of the genuine article? Harder to find, of course, but you might start with Alhini’s great and too little known Museum of the Treasury of Saint Lawrence, in Genoa; some of Ed Barnes’ work, some of Schindler’s and Ellsworth Storey’s work? I’m sure you can dig them out; you will find the serious members of the profession supporting you.

Incidentally, the November issue was great—especially the Burchard article. Let’s have more like that.

FRED BASSETTI
Seattle, Wash.

Dear Editor: Your Editorials indeed discussed questions of paramount importance to the future of our profession.

Continued on page 16
We've been hit again!

Last year the Callaway Design Studio received the A.I.D. International Design Award for its Northern Lights towel and rug collection. This year... pow! We're delighted to report that the A.I.D. has hit us again. Our American Exploration collection of area rugs received one of the only twenty awards made by the A.I.D. for 1964. Since the award winners will be receiving intensive exploitation throughout the country, the promotional opportunities for our dealers will be exceptionally plentiful; we'll be happy to talk to you about them. If you haven't already seen or don't have the opportunity to see this great collection at the markets... Please hit us for your free full-color portfolio.
SHAPE A MIGHTY CATHEDRAL SPIRE

COPPER SPIRE for Church of the Open Door, Muskegon, Mich. It was fabricated from 5,000 lbs. of 16 oz. Cold Rolled Revere Copper by LIVINGSTON SHEET METAL CO., Muskegon. Spire is 81 feet high and 19 feet in diameter at the base. Revere Distributor: CENTRAL STEEL AND WIRE COMPANY, Chicago, Ill.

ROOF A SCHOOL

BATTEN SEAM ROOF on Miss Porter's School, Farmington, Connecticut, was fabricated from 30,000 lbs. of Revere Sheet Copper. Architect: MOORE & SALSbury, West Hartford, Conn. General Contractor: FELIX BUZZI & SON, INC., Torrington, Conn. Sheet Metal Contractor: EARNEST PETERSON, INC., Hartford, Conn.

YOU CAN DO ALL THREE, AND MORE, WITH

VERSATILE REVERE COPPER
"Man's oldest metal," is also his newest when it comes to design possibilities. The flexibility of copper in building construction is virtually unlimited.

It is because of this versatility of copper that architects are incorporating it in their work more and more.

Scan the plans now taking shape on your boards . . . consider the ones you are planning for the future. There undoubtedly are excellent opportunities to take advantage of the tremendous design flexibility of copper . . . just the advantage you've been looking for to make your buildings outstanding works of achievement. You'll find copper doubly effective when you wish to combine utility with beauty.

Particularly significant in the use of copper, today, is the fact that its price is the lowest it has been in years. We believe it will pay you to "Have copper in mind when you design."

Revere's Technical Advisory Service will be glad to help you in creating the unusual with copper and its alloys. Get in touch with the Revere Office nearest you today.

SEND TODAY for free copy of "Copper and Common Sense," Revere's 140-Page Brochure illustrating the design principals and techniques of sheet copper construction. Also free companion piece, "The Revere System of Copper Flashing," for the complete weatherproofing of masonry buildings. Address Dept. "P-2" at address below.
Lattice Treillage

A quiet, simple, yet sophisticated beauty is combined with a modern accent in LATTICE, the newest addition to Julius Blum’s contemporary treillage. A basic undulant design unit is employed in continuous running bands which are alternately reversed. The flowing, wave-like effect of this design makes it a perfect complement for a wide range of decorative schemes, both interior and exterior. Suitable for dividers, screens, railings and other applications, LATTICE, like other JB treillage, is available either in malleable iron or aluminum. For other treillage patterns, see Sweet’s Architectural File 6e/BL or the new Catalog No. 9.

Continued from page 12

Your discussion, however, does not in any way reflect the motives of the AIA, or the spirit of any discussions in which I have engaged on the subject of expanded services. Furthermore, you interpret the standards of professional practice of the Institute in a manner which I consider entirely erroneous, although not uncommon.

Since I served for several years on the committees which discussed expanded services and standards of practice in detail, and which recommended policies in both cases, I think I can speak with assurance in both cases. In none of our discussions on expanded services over a period of years did I hear that the Institute was “gripped by fear,” nor that we had “a growing fear that inroads made by others could diminish the architect’s role to the point of insignificance.” Quite the contrary. The discussions, as I recall them, were always positive and constantly sought opportunities for the “profession to be of ever increasing service to society,” a fundamental stated purpose of the Institute.

The misinterpretation to which I refer occurs where you indicate that the standards of professional practice inhibit the Institute from taking a stand that might jeopardize the commission of a member, or inhibit an architect from opposing a project he believes harmful to the community, simply because another architect is involved in it. No rule of which I am aware makes “such opposition unethical.”

Quite the contrary. Rule 7 of the mandatory standards requires that an architect properly serve the interests of his client and the public. Deviation from this rule may subject the architect to discipline “in proportion to its seriousness.” Rule 12 does require that an architect not “knowingly injure falsely or maliciously the professional reputation, prospects or practice of another architect,” but I assume you are not referring to such a case.

As a matter of fact, more than one architect currently is opposing a project which I am advocating for a client before the City Planning Commission. I am confident that my proposal is in the best interests of the public, as well as my client, but I also recognize that there are two points of view, which I believe are equally responsible from the standpoint of the public welfare. I do not resent my colleagues’ opposition, although I wish I could convince them that our proposal is in the best interests of the

Continued on page 20
Slip-formed white concrete goes to the Fair. The sixteen 100-foot concrete columns that support a 2,000-ton steel roof at the New York World's Fair were continuously cast by the slip-form technique ... using ATLAS WHITE portland cement. Because of cold weather during the placing cycle, the columns were wrapped in plastic-covered curing blankets. The architect specified the white surface of the columns to be form-finished. No other treatment was used. Today, more architects and builders are using white cement concrete for structural building components. It produces a uniform white surface that needs no costly finishing. For detailed information on ATLAS WHITE portland cements for structural concrete, write to Universal Atlas, 100 Park Avenue, New York, N. Y. 10017.
At work in California: 
The Armstrong Luminaire Ceiling System

Armstrong takes five ceiling functions and creates the first totally integrated ceiling system.

The place is the new Choral Room of Culver City Junior High School. The ceiling is the new Armstrong Luminaire System—the first ceiling system to integrate air distribution, lighting, acoustical control, good looks, and finished ceiling surface. Hundreds of these ceilings are now in operation throughout the country.

The Armstrong Luminaire System was specified in place of the originally planned separate systems. The architect explained why. The system eliminated most ductwork and all diffusers. It simplified design and installation. Eased inspection and supervision for both air distribution and lighting systems. The system allowed concealment of light sources from normal sight-lines while providing high lighting levels, outstanding good looks.

With the Armstrong Luminaire System, all components are available from one source. All functions are supported from one grid. Each 50" module is its own light and air distribution source. Directed entirely downward, light is uniform and glare-free—10% more efficient than conventional recessed troffers. Here, illumination levels measure 180 footcandles at the work plane. These levels are typical. The ventilation function provides uniform, draft-free air distribution.

Flat ceiling panels allow the system's adaptation to any size or shape room. Specially designed to accommodate ceiling-high partitions, it offers limitless layout flexibility. The system is available with one-, two-, or three-lamp fixtures. Even shielded, as here, lamp cleaning and replacement are fast, uncomplicated.

MORE INFORMATION. For complete information on the new Armstrong Luminaire Ceiling System, contact your local Armstrong District Office or Armstrong Ceiling Systems Contractor. For a free illustrated portfolio and photometric data, write to Armstrong, 4202 Watson Street, Lancaster, Pa. Circle #300 on Reply Card.


Armstrong CEILING SYSTEMS
They're protected! (and they're saving money, too)

Are you?

Two recent Kinnear Door installations at Atlantic Cement Company, Ravenna, N. Y. (Top: 14' to 23' widths, all 31' high. Bottom: 14' x 40')

The Atlantic Cement Company chose Kinnear Rolling Doors because Kinnear gives the rugged, efficient door service — plus the overall economy — demanded by the firm's heavy duty operations.

These exceptionally large doors (two of which are motor-operated) travel straight up and coil compactly out of the way, freeing valuable floor, doorway and overhead space inside and outside the building. When closed, their interlocking galvanized steel slat curtain gives maximum durability and protection against fire, intrusion, theft, vandalism, wind and weather. (Also available with aluminum slats.)

Kinnear Doors can be crank hoist, chain hoist or motor-operated. With motor-operation, you get the extra convenience and efficiency of quick opening and closing to keep heating or air conditioning equipment working effectively. Push-button controls can be located at any convenient location — saving time and labor.

All Kinnear Doors are permanently REGISTERED so that replacement parts are readily available any number of years later.

Send for full details on how you can profit with Kinnear Doors!

The manufacturing Co. & Subsidiaries

Factories:

1900-20 Fields Avenue, Columbus 16, Ohio
1742 Yosemite Avenue, San Francisco 24, Calif.
3683 Dundas Street West, Toronto, Ont., Canada

Continued from page 16

City as a whole, as well as the residents of the area.

In any event, if you will reread the last report on the Committee on the Profession and the standards of professional practice, last proposed in a draft (May 5, 1961), you should find the door opened to opportunities with no prophesy of doom in the former, and many references to our obligation to the public in the latter. I regret that these points failed to come through.

Robert E. Alexander
Los Angeles, Calif.

Dear Editor: Your Editorial on the future of the architectural profession are indeed a reflection of our times. Obviously the existing national fear psychology responsible for the death of President Kennedy has so penetrated the journalistic profession that it is no surprise indeed to see it come out in your writings. While I recognize this phenomenon, I cannot subscribe to it.

All of us in the profession who have struggled to exist through warfare and depression are just too hard-boiled to be swept along with the tide. There is no room for defeatism and pessimism in our thinking, so we do not permit it.

Regarding your criticism of the AIA, here I disagree with you most wholeheartedly. The AIA is and always has been a professional organization devoted to the protection of and growth of the profession and not to its destruction. If the architects cannot look to the AIA for protection of their rights, then who in God's name can they turn to.

In the latest issue of the AIA Journal, one can see how far this fear psychology has penetrated the nation. When Phil Meithe, President of the Detroit Chapter, states that "we really are on the road to death. This death in my opinion is just,"

Fortunately, we have the rebuttal by Phil Will who answers that he is "far less discouraged about the profession than Phil Meithe is."

As for me, I definitely am not discouraged about the profession, but I recognize the need to fight for it and defend it at all times so that it be more widely recognized and respected for the glorious art that it is.

I would be delighted if you would recognize the correctness of this stand, cheer up, and take immediate steps to implement this optimism in your next issues.

Sidney L. Katz
New York, N. Y.

Continued on page 22

FEBRUARY 1961 P. 20

For more information, circle No. 325

For more information, circle No. 386

20 Views For more information, turn to Reader Service card, circle No. 325
Pratt & Lambert Brings Fresh Beauty to the South

From fresh, bright colors to subtle, subdued tones—you'll find a complete range in exclusive Pratt & Lambert Calibrated Colors® and in products to suit any type of application.

Architects everywhere rely on the knowledge and experience of P&L representatives. You can depend on the Pratt & Lambert man who calls on you, to recommend the right finishes for maximum beauty and protection. Ask him for color-styling ideas . . . or write the Pratt & Lambert Architectural Service Department nearest you—

3301 38th Ave., Long Island City, N. Y. 11101
75 Tonawanda St., Buffalo, N. Y. 14207
4900 S. Kilbourn Ave., Chicago, Ill. 60632
254 Courtwright St., Fort Erie, Ontario
NEEDED FOR YEARS...to prevent perplexing predicaments in the bathroom...AND HERE IT IS

CONCEAL-A-ROLL
by HALL-MACK

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

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

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

HALL-MACK COMPANY
PA-264
1380 W. Washington Blvd., Los Angeles 7, California

□ Please send free color booklet on bathroom planning
□ Include complete information on Conceal-A-Roll.

Name ____________________________
Address ____________________________
City ________________________________Zone ______ State ______

(PLEASE PRINT)

Sold by Leading Plumbing, Tile and Hardware Dealers Everywhere
For more information, turn to Reader Service card, circle No. 317

Continued from page 20

Dear Editor: For several weeks now, off and on, I have been giving some thought to the central question you raised in your pair of fine Editorials on the future of our profession—whether we architects should publicly criticize work of our colleagues. If the answer to that question is "yes," as I think it should be, then the next question is "how."

It seems to me that individual architects should be discouraged from being publicly critical of the work of other architects, because such criticism can be—or can appear to be—self-seeking publicity; in addition, such criticism in the aggregate only serves to blur the public image of what architects think about architecture.

In the best of all possible worlds, the architectural profession would be self-critical publicly through AIA, and such criticism should extend to individual projects, particularly those either public or private which have a large public impact. The problem here is how to make the group action representative of its members' thinking and not just of the group's leadership, which may be personally and directly involved in the projects. Perhaps machinery could be developed for polling membership opinion in an AIA chapter for the guidance of its officers, but while I am inclined to be pessimistic about the possibility that this could happen, it would be worth a try.

The most likely way to achieve this objective is for the profession to encourage, in every possible way, journalistic criticism of current architecture. We need to cultivate an informed public opinion about architecture. PROGRESSIVE ARCHITECTURE and other architectural journals are doing this, but to a limited audience, and they are more inclined to do this by publishing what they regard as good work rather than by pointing out defects and weaknesses in poor work. On the other hand, The New York Times, with its large circulation to the general public, is making a major contribution in this direction through the articles by Ada Louise Huxtable, who is being accorded the same freedom enjoyed by the drama and music critics. Time magazine also occasionally publishes critical articles on architecture, and Show magazine is thinking of starting a column of criticism. I understand that The San Francisco Chronicle published a column and that it had a discernible effect on the community. So far as I know, these efforts to establish a tradition of criticism for architecture have been made without

Continued on page 26
TERNE, FRANÇOIS MANSART AND THE CONTEMPORARY IDIOM

Few architectural elements are more traditional than the classic mansard roof. Its current adaption to highly contemporary design thus provides a dramatic example—as does Terne metal itself—of “the very old becoming the very new.” And wherever mansard fascia is used, the unique functional characteristics of Follansbee Terne, along with its natural affinity for both form and color, are available at moderate cost.

Architect:
Harry Weese, F.A.I.A.
Harry Weese & Associates
Chicago, Illinois

Jens Jensen Elementary School
Chicago, Illinois

Sheet Metal Roofing Contractor:
J. Smith & Company
Chicago, Illinois
Indianapolis builds
a city within a city...
with glass by ASG

These soaring towers of glass and brick mark completion of the first phase of a remarkable privately-financed urban re-development project—the James Whitcomb Riley Center. The Center will eventually cover 20 acres of Indianapolis with a complex of slender apartment buildings, glass fronted shopping areas, spacious plazas and landscaped grounds.

To avoid the uniform, slab-sided “development” look, The Perkins & Will Partnership, co-sponsors as well as architects of the Center, designed two basic types of building: a square-plan 30-story tower and a 17-story “Twin Tower” (actually two connected buildings) of basically horizontal design. The Center’s 13 major buildings—eight “twin” and five 30-story towers—will be grouped into clusters around parks and plazas. To maintain openness and human scale, buildings will occupy only 18% of the land area.

More than 90,000 square feet of ASG glass plays a central role in furthering the openness and liveability of Riley Center’s first three buildings. Residents of the 500 apartments have sweeping views of the prairie-sprawling city through broad windows of ASG’s Lustracystal® sheet glass. Sliding doors of tempered Lustracystal open onto cantilevered balconies overlooking project and city. Starlux plate glass has been installed in all store fronts, lobby facades and other large glazed areas. Even the built-in mirrors throughout the project are made with Starlux.

The flawless visual fidelity of Starlux plate and the clarity and lustrous beauty of Lustracystal are typical of the qualities that have made glass by ASG an important part of significant architecture throughout the country.

For complete information about ASG’s full line of flat glass products, write: Dept. E—2, American Saint Gobain Corporation, Box 929, Kingsport, Tennessee 37662.

© American Saint Gobain 1964

GLEAMING FACADES of shops and lobbies are of Starlux® plate glass. First four floors of all buildings are devoted to commercial space, eliminating hard-to-rent apartments at or near ground level.

AMERICAN SAINT GOBAIN
any help or any special expression of appreciation from the profession-at-large. Wouldn't it help for the AIA to make a survey of the 200 leading newspapers in the country to find whether they have an architectural critic, and thereby suggest they need one? Couldn't the New York Chapter AIA circulate some of Mrs. Huxtable's columns, together with something on why the Times decided to institute this program?

It is true that there are not many qualified architectural critics in this country, probably because there have been so few opportunities to publish; but it seems reasonably certain that if opportunities were offered, qualified critics would rapidly appear.

In conclusion, I am in full agreement with your feeling that we architects must push our professional organizations to advance the interest of the entire profession by affirmative and positive action rather than to seek the protection of the established architects by negative and repressive attitudes and actions.

FREDERICK C. FROST, JR.
New York, New York

Dear Editor: C. P. Snow, the British scientist-novelist, speaks of the two cultures in our time and the need for a third culture which will bridge the increasing gap between science and art. He believes the social arts, including architecture, must be one such bridge. To assume that an architect alone or the profession of architecture itself can do it is naive.

You point out that the increase in size of building projects and the increased technological requirements tend to make the future of the profession uncertain. I can't agree, for a total work of architecture is and was always beyond the scope of a single discipline. Any examination of a great work, whether Parthenon, Duomo, Angkor Wat or Notre Dame, places the architect as a part of a larger system. In some cases he is a "stylist," as you put it (to say this is the "last and least important rung in the ladder" is to say that in our time art is not important). In other cases, the inventors of a system of building (Brunelleschi and Buckminster Fuller) or of a city plan (Soria y Mata, Tony Garnier, Ebenezer Howard).

In each instance, the social and power configuration of the time, the place, work, folk formula of Patrick Geddes provides the climate, the materials and...

Continued on page 184

more and more great American architects are using

MARMET

here are a few of the reasons:

With its unusual tower, this impressive motor inn offers weary travelers big city, luxury hotel living in Owensboro. Designed in the round, it permits a full windowed view for every room. Just below the swimming pool deck at the top, a sophisticated cocktail lounge has a spectacular 360° view of the country-side.

High rise cabins in Kentucky
GABE'S MOTOR INN • OWENSBORO

Guest room fenestration
Each room offers its own panorama through three large lites that contain a projecting window in the center section. This projecting AP is integral-fabricated into the 5212 sash unit at the factory — no separate installation at the job site is necessary.

Full circle fenestration "at the top"
Another example of the flexibility in the 5212 series is the floor to ceiling vista guests enjoy from the cocktail lounge. Each large lite is framed between exterior mulls. Dominant vertical accents on the exterior were obtained from the choice of large dominant mull extrusions. MARMET offers in either the 5212 or 5142 series.

MARMET corporation
SWEETS CATALOG 3a MAR
322-H Bellis Street
Wausau, Wisconsin

For more information, turn to Reader Service card, circle No. 331

Continued from page 22
ARCHITECT:
R. BEN JOHNSON
Owensboro, Ky.

Curtain Wall
by
MARMET CORPORATION
Big Capacity in Small Space

AEROFIN Smooth-Fin Heating and Cooling Coils

High ratio of surface area to face area
High air velocities without excessive friction or turbulence
Write for Bulletin S-55

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

Aerofin is sold only by manufacturers of fan system apparatus.
List on request.

ENGINEERING OFFICES IN PRINCIPAL CITIES
329 Slide: Full extension, 
½" side space, 
100 lb. load capacity

340 Slide: Self-closing, 
½" side space, 
100 lb. load capacity

337 Slide: ½" side space, 
50 lb. load capacity

335 Slide: ½" side space, 
100 lb. load capacity

There is a Grant Slide designed for every need.

Grant's exclusive slide design and development department is constantly engaged in research and planning activity, to stay abreast of the varied requirements of slide users.

Pictured here are but four of the broad array of Grant Slides — slides expressly engineered for application to specific products such as: desks, store fixtures, kitchen cabinets, general furniture, phono units and other special areas.

Whatever your specific requirements, you can be certain Grant has a slide — or can efficiently make a slide, to meet the need.

Do you have a copy of Grant's 32 page Slide Manual? It's yours, free for the asking!
Today, raceways under concrete floors can be readily designed for maximum versatility. One method, a pyramidal feed system, that provides adequate capacity for future utility requirements as well as changing plant or office layouts is shown at left.

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

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

Write for additional free information. (U.S. and Canada only.)
THEY'RE THE SMOOTHEST

They take to paint the way lips take to lipstick
New Bethlehem Hollow Structural Sections

...architectural beauty, structural efficiency

Smooth surface finish begs to be painted and exposed!

Choose from 146 square and rectangular sections!

Bethlehem does it again... with Hollow Structural Sections made especially for applications where aesthetics matter.

Smooth surface finish perfect for painting. New Bethlehem Hollow Structural Sections are cold-formed from prime Bethlehem steel sheets and plates... then electric-resistance welded. Cold-forming produces a finish ready for painting... clean enough and smooth enough to satisfy your aesthetic tastes.

Widest range of sizes and gages. New Bethlehem Hollow Structural Sections come in 146 square and rectangular sizes and gages... enough sections to make every one of your hollow structural ideas work. Square sections from 2 x 2 x 3/16 in. to 8 x 8 x 3/8 in. Rectangular sections from 3 x 2 x 3/16 in. to 12 x 4 x 3/8 in.

Certified strength and dimensional tolerances. New Bethlehem Hollow Structural Sections have flat sides, small corner radii, excellent torsional properties, and high strength-to-weight ratios. Easy to detail, fabricate, join, and erect.
New Bethlehem sections, because of their superior finish, are ideal for use as exposed columns, beams, posts, rafters, and mullions...in schools, homes, churches, plant and office buildings, and other one- and two-story structures.

Available now for shipment from Bethlehem, Pa., in carload and truckload combination with structural shapes and bar angles. Bethlehem now offers you, from a single source, the largest and broadest structural shapes product line in the nation.

Want more details? New booklet gives sizes, properties, and other useful design data on new Bethlehem Hollow Structural Sections. For your copy, just mail coupon. Or call the Bethlehem Sales office nearest you.

BETHLEHEM STEEL
Export Sales: Bethlehem Steel Export Corporation
Now available: a wide range of products surfaced with Du Pont TEDLAR®

TEDLAR® PVF Film is a tough, long-lasting film-finish. How long will it last? We frankly don't know, because we haven't been able to wear it out yet. However, we predict that when TEDLAR is properly bonded to a stable material, it might last up to 25 years or more without re-finishing. TEDLAR also provides outstanding resistance to fading and chalking. To keep your next building new-looking longer, consider these five products:

1) ARCHITECTURAL CURTAIN WALL consists of two fiberglass panels laminated to an aluminum frame assembly. TEDLAR on these panels prevents erosion, retains color and light-transmission, stands up to weather. Assembly shown is made with "Filoclad" fire-resistant panels by Filon Corporation.

2) ARCHITECTURAL RE-FACING PANEL gives existing buildings an attractive new exterior with long life, low maintenance, long-term freedom from painting. Shown: "Egyptian" pattern, postformed in aluminum by Architectural Manufacturing Company of America, who can supply accessory framing and installation components as well as re-

3) (continued)

4) (continued)

5) (continued)
the film-finish that may keep buildings looking new for up to 25 years

facing panels in a variety of sizes and designs, all surfaced with TEDLAR.
3) ONE-PLY ROOFING MEMBRANE surfaced with TEDLAR, covers any slope, any shape from folded plate to compound curves. Name: Ruberoid T/NA 200. Applied with conventional roll-roofing techniques. Pliable, very lightweight, highly reflective. Stays white through any weather.
4) MULTI-PURPOSE INSULATION JACKETING surfaced with TEDLAR. Covers tanks, process vessels, pipelines. Name: Ruberoid T/NA 100. Despite severe climate or corrosive atmosphere, stays white, highly flexible, virtually fireproof. Can be field-installed or factory-applied. Tape of TEDLAR seals joints. Shown here: rigid pipe insulation.
5) METAL WALL PANELS offer modern architectural look with excellent insulation. Surface of TEDLAR gives all-weather protection and decoration. Shown: "Shadowall"† Type D, roll-formed aluminum panel by Elwin G. Smith Company. Other types available (insulated or uninsulated; factory- or field-assembled) with finish of TEDLAR.

MORE INFORMATION. For more details about any of these products or for more information about TEDLAR, write E. I. du Pont de Nemours & Co. (Inc.), Film Department, Box 2066 Wilmington, Delaware 19898.

*Du Pont registered trademark. †Elwin G. Smith Co. registered trademark.

BETTER THINGS FOR BETTER LIVING THROUGH CHEMISTRY
Q. Would you have greater freedom in roof deck design if you used concrete to insulate?

A. Far more! Permalite concrete can be poured on any type or shape of roof — flat, sloped or compound curve — and still achieve required "U" value. Weighs as little as 3 1/2 lbs/sq. ft. Compressive strengths to 400 psi. Completely fire-safe. Accepted as a perfect base for a 20-year-bonded roof. This combination offers you new design opportunities in concrete.

Permalite®
LIGHTWEIGHT INSULATING CONCRETE
Largest Selling Perlite Aggregate in the World.

WRITE FOR TECHNICAL BULLETIN, C-15, OR CALL YOUR LOCAL PERMALITE FRANCHISEE.

Great Lakes Carbon Corporation • 612 South Flower Street, Los Angeles 17, California
For more information, turn to Reader Service card, circle No. 365
When a smoothly distributed ‘wash’ of light is needed—for walls, murals, displays, etc.—the unit of choice is Gotham’s number 588/598. In designing an instrument of this kind, the trick is to achieve a distribution free of streaks, scallops, and hot spots. Everyone tries—few succeed. We did it by combining a specular Alzak reflector with our own carefully computed spread lens (please note that we do not just use an ordinary spread lens turned upside down). When you want immaculate, flangeless ceiling apertures, specify our number 598; for exposed surface trim, order number 588. For full data—and we mean full!—let us hear from you—Gotham Lighting Corporation, 37-01 thirty-first street, long island city 1, new york.
GAS ENGINE POWERED 100 TON SINGLE UNITS

Equipped with heavy duty gas engines developed for minimum oil and fuel consumption. The engine operates considerably below its maximum rated horsepower, for longer life and minimum maintenance.

Additional operating features include automatic and adjustable engine warm-up...100% no-load start...capacity control effected by automatically varying engine speed in addition to varying the compressor unloading.

Another outstanding feature adds to the numerous advantages which make B&G Package Liquid Coolers known for dependable, efficient performance. Positive control of compressor cylinder unloading is achieved by using external solenoid operators activated by temperature signals instead of suction pressure.

The advantages are twofold. Positive unloading control assures stable operation at each capacity step...prevents "hunting" between steps with attendant problems of excessive wear and breakage of the mechanisms. Second, the necessity to service intricate and sensitive small parts inside the machine is eliminated. The control solenoid valves and temperature controller are located outside of the compressor crankcase and can be serviced without opening the refrigeration compressor.

B&G 100 ton "packages" are remarkably compact, with a low center of gravity which makes handling and installation easier. An exclusive advantage is that they are the only units on the market in which all major components, except the motor or gas engine, are designed, built and guaranteed by one manufacturer—a single source of responsibility!

For literature, write ITT Bell & Gossett Inc., a subsidiary of International Telephone and Telegraph Corporation, Morton Grove, Illinois, Dept. HX-37.

ITT BELL & GOSETT INC.
Milcor Structural Studs can carry the load

Many load bearing conditions encountered in a structure can be handled effectively and economically by Milcor Structural Steel Studs—no need to specify heavy construction materials. These strong, lightweight, incombustible structural members are easy to work with — leave little, if any, site debris. They provide sound construction, with worthwhile savings on installation time and foundation requirements, when used for: interior and exterior load bearing walls, spandrel and curtain walls, ceiling runners, door buck reinforcement, cloakroom and book shelf headers, etc. Five sizes, in lengths up to 25-ft., offer a wide range of capabilities.

Specify Milcor Structural Steel Studs for your next project. For technical data see Sweet's, section 2a/In, or write for catalog 713-2.
A FLOOD OF FREE LIGHT... without shatter or blaze

Soft, cool light cascades through these panels—strong, plastic panels that vandals or storms can't shatter. And they're Hetron®-based panels, so they can't spread a blaze. Panels made of Hetron polyester resin are qualified to carry the Factory Mutual seal of approval and U/L label. Typically, they test within a range of 20 to 75 in flame-spread rating by procedure ASTM E84-50T.

Because this important property is inherent in Hetron, you get fire retardance without any sacrifice of physical properties. You can specify Hetron-based panels as translucent or opaque, corrugated or flat, for exterior or interior use, in any of more than 20 different colors.

They are color keyed for high, medium, and low light transmission and their clean lines integrate readily into modern architectural designs. The panels are also available integrally bonded to "Tedlar®" PVF film for maximum resistance to weather.

For more complete information on Hetron properties and a list of expert fabricators who can supply you with the panels, please write us. Durez® Plastics Division, Hooker Chemical Corporation, 7702 Walck Road, North Tonawanda, N. Y. 14121.

*Du Pont registered trademark

Solve your insulation problem with Hetron foam®-based urethane foams. Like Hetron, they are inherently fire retardant. Bonded to Hetron-based panels, they provide a strong, rigid, corrosion-resistant barrier against the weather.
When the 15-story San Diego County Hospital (not illustrated) was designed, the architects and mechanical engineers planned on copper for water lines, oxygen service, and sanitary drainage. By deciding on copper at the design stage, they saved piping space, gained floor area, and cut installation costs.

When you specify copper, your savings can be compounded throughout the project and throughout the life of the building. Copper is light and compact: about one-fourth the weight of cast iron for the same job. Copper is easy to install. Rust-free. Good looking. Durable. And copper’s advantages apply to buildings of any size.

You’re the key man in achieving these savings. Specify copper plumbing at the start. “The Specs Call For Copper” is a new Anaconda filmstrip presenting the advantages of DWV Copper Tube in commercial construction. It can be shown right at your desk. Mail the coupon and arrangements will be made to your convenience. Anaconda American Brass Company, Waterbury, Conn. 06720. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

THINK COPPER...

Compact copper tube saved 50,000 cubic feet and $40,000 on one job alone

Anaconda American Brass Company

Attach to your letterhead and check for film showing or booklet.

Film Department
Anaconda American Brass Company
Waterbury, Conn. 06720

☐ I would like to see your film strip “The Specs Call for Copper.”

☐ Please send me booklet, “It Pays To Specify Copper.”

For more information, turn to Reader Service card, circle No. 358
DESIGN HEADACHES?

RELIEF IS JUST AN INQUIRY AWAY... when you send
that inquiry to or call Cambridge Tiles’ Design Depart­
ment here in Cincinnati. You see the Cambridge design
staff has had extensive experience in working closely
with architects—translating their ideas into ceramic tile
mosaics. Under the direction of George Limke, our
design staff is ready and anxious to assist you with your
tile design or layout problems. Send us your plans or
elevations for suggested tile applications, or let us put
your own tile designs into layout form. Address your
inquiry to Dept. PA-42

THE
CAMBRIDGE
TILE MFG. CO.
P. O. Box 15071,
Cincinnati 15, Ohio

For more information, turn to Reader Service card, circle No. 355
It has long been a policy of Hope's Windows, Inc., to offer the architect maximum freedom of design...first, by providing a wide variety of windows and components; second, by offering the cooperative services of an experienced engineering staff from planning stages through completion.

This building in the nation's capital is a typical example of such cooperation. The architect wished to avoid the monotony of a flat wall expanse by creating a shadow-box effect at each window. To produce the desired effect, the architect designed the work so that each window unit extended one inch beyond the face of the wall. Hope's engineers co-operated and completed an aesthetic and weathertight installation.
WEST COAST LUMBER
Made in U.S.A.

FREE! "Bright New World of West Coast Hemlock", 8 pages of ideas in full color with span table information. For your personal copy write:
WEST COAST LUMBERMEN'S ASSOCIATION
1410 S.W. Morrison Street • Portland 5, Oregon

WEST COAST DOUGLAS FIR
WEST COAST HEMLOCK
WESTERN RED CEDAR
SITKA SPRUCE
WHITE FIR
This handsome bowling center in Coos Bay, Oregon, built with the standard sizes and grades of West Coast Lumber, is full tournament size, containing 22 completely equipped bowling lanes.

Of particular interest in the construction of a building requiring large, uninterrupted floor space is the use of contoured glued laminated beams in a double curve which provides maximum roof support with a minimum of interior support. The 2" x 8" White Fir tongue and groove decking is applied directly to the beams for a light, attractive covering. An important secondary benefit is the sound-absorptive quality of the irregular wood surface.

The entire construction, in a No. 2 fire zone, is of West Coast Lumber, even to the walls which are board and batten siding of Western Red Cedar with a resawn face. Exposed trim is vertical grain West Coast Douglas Fir.

The result is a hospitable, practical building completed, minus alleys and equipment, at the astonishing figure of $7.71 per sq. ft.—an excellent example of the economical use of the standard grades and sizes of West Coast Lumber.

The retail lumber dealer conveniently located in your community is your source of information and supply for dependable West Coast Lumber.

Architects: Kruse and Fitch, A.I.A.
New UL two-hour fire rating for fast, economical steel roof deck construction

Now you can save as much as ten to twenty percent over conventional fire resistive roof construction, where two-hour fire ratings are required!

All the important benefits of steel roof deck—fast, all-weather construction, uniformly dependable quality, strength, durability, lightweight, and economy are now augmented by Underwriters' Laboratories assignment of two-hour fire ratings. Added benefits will be gained for years to come, in lower insurance premiums.

Get full information, now! Contact your local MRDTI member office or write direct for complete information on modern steel roof deck construction and Underwriters' Laboratories detailed fire test Report No. B39963.

METAL ROOF DECK TECHNICAL INSTITUTE
53 WEST JACKSON BOULEVARD • CHICAGO 4, ILLINOIS

Airtherm Manufacturing Company • Bowman Steel Corporation • Ceco Steel Corporation • Fenestra, Inc. • Granco Steel Products Company • Inland Steel Products Company • Macomber, Inc. • The R. C. Mahon Company • Plasteel Products Corporation • Republic Steel Corporation, Manufacturing Div. • H. H. Robertson Co. • Wheeling Corrugating Co.

For more information, turn to Reader Service card, circle No. 332
In ORSAN II, nationally known color consultant, Walter C. Granville, has brought about a level of color perfection never before obtainable in natural clay tile. Colors are compatible with each other to permit an infinite variety of harmonious blends. Furthermore, patterns of solid colors or blends can be handsomely combined with Romany•Spartan wall tile to create any desired decorative effect.

ORSAN II colors are available in many easy-to-install forms: Orsanettes, Regular Ceramic Mosaics, Heavy Duty, Pavers, Brickettes and Ceramaflex Mediterranean Medleys.

ORSAN II is extremely versatile. Use it indoors for floors, walls and countertops. It’s frost-proof, too... ideal for exterior use on walls, swimming pools, patios and entrances.

You can’t beat ORSAN II for value. With its moderate inplace cost, permanence and low maintenance, when you select ORSAN II you’re getting the finest at "lowest lifetime cost".

Our brand new full-color brochure gives complete information about ORSAN II. Get your copy from your nearby Romany•Spartan Distributor or write Dept. OB-11.

United States Ceramic Tile Company Canton, Ohio 44702
“A Valuable Supplement to Personal Selling”

by Jay C. Wallenstrom, National Sales Manager
Wood Products Division
Weyerhaeuser Company

“Today – the successful marketing of wood and wood products depends upon the steady flow of communication with the many segments of the building industry. Architects, designers and specifiers are an important factor in this complex marketing structure.

“Because person-to-person contact is often beyond the reach of reality, Progressive Architecture helps us reach these people month after month with the important story of wood, and to preview for them all the new products that better the efficiency of engineered structures and enhance the beauty of design.

“We recognize the excellent coverage of Progressive Architecture in this segment of the market. We are well aware of its high readership, influence and responsiveness among decision-making professionals.

“These are the basic reasons why Progressive Architecture has always been a key publication on Weyerhaeuser’s media schedule.”
Five different prestressed concrete sections featured in new seminary complex

Giant tees, ledger beams, rectangular columns, single wing double tees and hollow core floor slabs are five structural members of prestressed concrete used in the new DeSales Preparatory Seminary, St. Francis, Wisconsin. This is an example of the versatility that is winning acceptance for post-tensioned and pre-tensioned concrete construction.

Structural framework of prestressed concrete is economical and quickly erected, yet it accommodates a wide range of design expression—as demonstrated in this project. Prestressing was by three different firms: Concrete Research, Inc., J. W. Peters & Sons, Inc., and West Allis Concrete Products Company. Prestressing strand was Union’s TUFWIRE.

Helpful data on Union TUFWIRE Products for Prestressed Concrete is available in a free folder. Write us for your copy. TUFWIRE Strand and other Union Wire Rope Products are made by Sheffield Division, Armco Steel Corporation, Department S-203, 7100 Roberts Street, Kansas City 23, Missouri.
Acousti-Celotex ceiling products mean the world’s most experience in solving sound control problems

For 38 years, Acousti-Celotex ceiling products have surpassed all others in number of installations. These add up to the world’s largest single body of experience with sound control, meeting the most varied requirements of design, aesthetics, building codes, zoning laws and costs.

This all has resulted in the marvelously flexible Acousti-Celotex product line—hundreds of variations offering architects today’s widest choice in acoustical and ventilating ceilings. And, in today’s most experienced organization of consultant-distributors.

When you have a ceiling problem, think of your Acousti-Celotex distributor first. Find him in the Yellow Pages and call him in for consultation. You’ll share all his experience—and ours, too—without cost or obligation.
THIS NEW PUSH-PULL* HAS A BRIGHT FUTURE FREE OF DRIPS AND LEAKS

Now the famous Push-Pull line of bath and lavatory fittings has a new horizontal look. The solid, oblong handles are even easier to grip... the new shape makes temperature adjusting easier for the user. The escutcheon of the bath and shower fitting is newly styled to complement the graceful new handle. But inside is the same washerless Hyseal* valve, proved in over a million installations. Update your plumbing specifications with Push-Pull in '64. Ask your American-Standard representative or write American-Standard, Plumbing and Heating Division, 40 West 40th Street, New York, N. Y. 10018.

*Trademarks of AR&SS Corp.
Travertine—a classic new look in flexible wall covering

This new design in Weldwood® Tapistron brings to modern designers the simple elegance of an old material. Travertine recalls the antique marble of Rome and Carthage and the alabaster of the ancients. Its fine sculptured pattern will give an interesting texture to broad sweeps of wall. Or it can be used in smaller areas to complement and bring out the beauty of wood paneling. And it is ideal for covering columns and pillars. Tapistron is particularly designed for use in reception rooms, sales areas, and other public places where durability, washability, and moderate cost are as important as style and color. It bears the Underwriters' Laboratories, Inc., label. It is also approved by the New York City Board of Standards for use in New York City under calendar #784-60-SM. And it passes Federal Specification SS-A-118-b for incombustible wall coverings. You can use Tapistron with confidence—it's backed by United States Plywood.

SEND IN THE COUPON ON THE BACK OF THIS PAGE FOR COMPLETE INFORMATION ABOUT THE ENTIRE TAPISTRON LINE.
Walls of this executive office designed for Alcoa are paneled with teak Flexwood. Weldwood doors are covered to match. Designed by: G. F. Studios, New York. Installer: Kolflex, Inc., New York.

You can get around a lot of problems with Flexwood paneling

Flexwood is literally flexible. It is genuine wood veneer—permanently laminated to a special backing for easy handling. In fact, you can actually wrap it around your little finger. And this is important when you want to panel a curved wall or cover columns and pillars or moldings, as in the installation below.

But Flexwood is flexible in another sense, too. Can help you do many things you may never have considered possible or practical. Where existing walls are flat and sound, you can quickly and easily upgrade an office with fine wood veneers—match doors and built-ins, too.

Satisfy special code requirements where the use of wood is restricted. Flexwood meets Federal Specifications SS-A-118b for an incombustible wall covering when applied to an incombustible surface, such as plaster. The New York City Board of Standards and Appeals permits the use of Flexwood bonded to plaster or metal. Flexwood bears the Underwriters' Label with a flame spread rating of 15.

Use rare woods. Because Flexwood veneers are cut only 1/8" thick, it's possible to use woods that are too scarce to slice in the thickness required for standard paneling. Thus you can consider even such rare woods as Macassar ebony and East Indian rosewood. And Flexwood also cuts the cost of using exotic woods like teak, tigerwood and oriental wood.

Panel high and wide. Veneers cut for Flexwood mean a vastly greater area of matching veneers from each log. These can be side- and end-matched to cover walls even 30' or more in height. Or they can be stretched farther on wall surfaces of normal height.

Now you can use the beautiful color and texture of fine wood practically anywhere you wish. Send in the coupon for complete information.

New First National Bank of Stoughton... sound planned

with a Webster Electric music and program system

A dramatic departure from conventional bank design, First National's bank-in-the-round at Stoughton, Wisconsin was designed to "allow the most facility in the smallest possible area..." It's an exciting combination of white, gray and gold Wisconsin limestone... a great, self-supporting glass dome in the center... controlled-variation indoor and outdoor lighting.

And it's sound planned with a Webster Electric music and program system!

All customer and service areas are provided with background music. Program selection is by area—blankets offices, lobby, public meeting rooms.

Sound components include an amplifier, speaker switch panel, AM-FM radio tuner, record player—all contained in a single cabinet. Each Webster unit assures crisp, clear voice reproduction and high fidelity music.

See your Webster Sound distributor* for details and a personally conducted tour of recent Webster Electric installations. *See Yellow Pages—"Intercommunication Systems"

WEBSTER ELECTRIC

For more information, turn to Reader Service card, circle No. 351
World’s Largest Buildings
Proposed for Manhattan

NEW YORK, N.Y. “The world’s tallest building,” a title held since 1931 by the Empire State Building, will be taken over by not one but two 1350-ft-high towers scheduled to form the main elements in the new, redesigned World Trade Center proposed for Manhattan’s lower West Side. To provide 10 million sq ft of rentable space, the complex will qualify as largest in that category, too, outpointing the present holder of the most floor space—the Pentagon—by about 3.5 million sq ft.

The World Trade Center was designed by Minoru Yamasaki & Associates in association with Emery Roth & Sons and the design and planning staff of the Port of New York Authority, which will construct and operate the project. At the meeting to announce the project and unveil the model, Yamasaki said that he considers the Center a physical evocation of the “relationship between world trade and world peace,” and a “living symbol of man’s dedication to world peace.”

In addition to the two towers, the 16-acre site will be developed with 70-ft-high buildings containing shops and stores, restaurants, exhibition halls, and a 250-room hotel. These lower structures, according to Yamasaki, will also furnish a point of reference to permit the spectator or pedes-
Main entrance to WTC plaza from Church Street.

WTC's twin towers seen from N.Y. City Hall Park.

The WTC Plaza Galleria seen from the Plaza.
Showing 60' x 30' prefabricated floor framing section being lowered into place. System is intended to furnish economy and speed. Note metal-clad steel columns of exterior frame at right.

trian to relate in scale to the whole complex. The low and high buildings will surround a wide public plaza which, as Ada Louise Huxtable wrote in The New York Times, "could be a modern Piazza San Marco—with skyscrapers." Off-street parking is planned for 1600 cars.

The exterior steel walls of the towers will be load-bearing. The structure will be apparent on the exterior through metal-clad (either aluminum or stainless steel cladding) supporting members. The verticality of the towers will be further elaborated through the use of floor-to-ceiling, 22-in.-wide windows. Yamasaki says that people will not be bothered by heights when windows are not much more than the width of their shoulders.

The Center will have 230 automatic elevators, with 11 in each tower going directly to the 41st floor, and a dozen going straight to the 74th floor. These floors will be called "sky lobbies." Seventy-two local elevators in each 110-story-high tower will service traffic in the lower, middle, and top areas thus created.

Governmental and private interests in the export-import field are expected to be the major tenants of the project.

A group of members of the Downtown West Businessmen's Association, whose enterprises would be dislocated by the new center, picketed the scene of the announcement, which was attended by Governors Rockefeller of New York and Hughes of New Jersey, plus Deputy Mayor Edward Cavanagh and Austin J. Tobin, executive director of the Port of New York Authority. For one group's reaction to the entire problem of lower Manhattan development, see page 74.
NEW YORK, N.Y. On January 18, the stately University Club, designed by Charles Follen McKim of McKim, Mead & White, was the scene of the 11th Annual P/A Design Awards presentation. Assembled in the elegant Council Room of the club, an audience of noted architects, including many past winners and jurors, were welcomed by Philip H. Hubbard, President of Reinhold Publishing Corporation, then looked on as P/A Editor Jan C. Rowan bestowed awards and citations on the 1964 winners.

Following luncheon, a seminar was held to examine in detail three of the winning projects. Louis Sauer presented his First Design Award winner, the Eleventh and Waverly Street Townhouses in Philadelphia, and it was given a crit by William Conklin of Whittlesey & Conklin, New York. Next, The Architects Collaborative's master plan for the research campus of a large U.S. corporation was presented by Norman Fletcher, Richard Homer and Morse Payne of TAC. Peter Collins, Professor of Architecture at McGill University in Montreal, made the critique. The third project discussed was the Little Rock Junior High School by Wittenberg, Deloney & Davidson. A. B. Chapman III, designer of the school, described his program, whereafter Walter Rooney, head of the New York office of Curtis & Davis, gave his evaluation of the project. Each presentation was followed by a lively session of questions and comments from the architects assembled in the Club's Council Room.
Romaldo Giurgola, Thomas Vreeland, Louis Sauer, Jordan Gruzen, Richard Baringer, George Lubasz (P/A), William McGuinness (P/A), A. Quincy Jones, George Nelson, Arthur Drexler, Hudson Jackson, Philip H. Hubbard, Sr. (President, Reinhold), Kenneth Smith, Judge Bernard Tomson (P/A).

William McGuinness (P/A), A. Quincy Jones, George Nelson, Arthur Drexler, Hudson Jackson, Philip H. Hubbard, Sr. (President, Reinhold), Kenneth Smith, Judge Bernard Tomson (P/A).

Terry Rankine, Paul Cifrino, Jan Rowan, Alden Christie, Paul Dietrich, Peter Chermayeff.

Isadore Rosenfield, Joe DiLullo, Abraham Geller, Alfred Clause, Paul Cifrino, Serge Chermayeff, William Evans (P/A).

Philip Hubbard, Jr. (Associate Publisher, P/A), David DuTot, Gordon Wittenberg, A. B. Chapman, Ray Smith (P/A).
ANOTHER MAJOR PROJECT FOR BOSTON

BOSTON, MASS. The excitement engendered here by the commission-winning design for the Boston City Hall by Kallmann, McKinnell & Knowles and the comprehensive plan by I. M. Pei Associates for the governmental center received another boost recently with the unveiling of the plans for the Boston Government Service Center, to occupy a site halfway up the hill to the Massachusetts State House. The project encompasses three buildings, for the Division of Employment Security Department, the Health, Welfare, and Education departments, and a Mental Health Hospital. The three buildings will be grouped around a pedestrian plaza which could rank with the most exciting in the world when built.

Paul Rudolph, the co-ordinating architect, says, "The three buildings are purposely designed so that they form a specific space for pedestrians only and read as a single entity rather than three separate buildings. In terms of urban design, this is undoubtedly one of the first concerted efforts to unify a group of buildings that this country has seen in a number of years."

The center will stand on a site the shape of a fat boomerang (facing page, plaza floor plan). Following a recurrent small-park pattern of Boston, the buildings will be aligned with...
the street on all sides of the site except at the three corners, where they will be set back to create small plazas. Major ingress to the plaza will be between the tower of the Health, Education and Welfare Building and the lower element of the Employment Security Building. The deployment of the five-to-seven-story buildings near the property line will form an interior pedestrian space, which, together with the 28-story-high-tower, will create a plaza evocative in shape, size, and feeling of the Piazza del Campo in Siena and the Piazza San Marco in Venice. The plaza, whose "irregular and complex form is derived primarily," according to Rudolph, "from the irregular street pattern of Boston," will be a striated, three-level space converging on—or extending from, according to the vantage point of the pedestrian—a series of great curved stairs that will arc like a multi-tentacled la mitetria de Piazza di Spagna in Rome. Although some observers have commented that this is a mighty concept indeed for what is, in essence, a service center, there will be a public restaurant in the Health, Welfare, and Education Building at the intermediate level of the plaza, and benches, planting, sculpture, and hanging flags of the 50 states around its perimeter (further recalling the festive use of public spaces in Italy). Light and air will stream into the huge open space due to setbacks on all floors of the lower buildings surrounding the plaza. Automobile parking and unloading will be provided for beneath the plaza.

From the exterior of the complex, the viewer will see its multileveled aspect clearly: entrances to parking, stairs and ramps to various points, different heights and façades of the several units. The monumentality of the whole composition will be emphasized by using fixed elements—elevators, stairs, stacked toilets—as tall, irregularly-shaped cylinders. Entrances to the buildings will be unmistakable in this scheme. The towers of the tall building will act as "pivoting elements" to lead to the plaza and the other buildings.

A special aggregate exposed concrete designed to catch light and shadow on the curving and faceted walls will be used for the complex.

Mole Home at Fair

With fall-out scares directing thinking underground, permanent subterranean housekeeping may logically follow. At the New York World's Fair, a 130'x90'x15' waterproofed, reinforced-concrete shell is being constructed to contain a three-bedroom luxury home. An underground home allegedly has the conveniences of privacy, quiet, climate control, and unpolluted air. The exhibit house boasts abundant simulation of customary household amenities ("views" are murals on concrete shell outside windows; plants thrive under ultraviolet rays). Entrance to this home—fourth of its kind in the U.S.—will be via a stairway from a small above-ground pavilion. Perhaps recent test-ban progress will bring us back to the light. Otherwise, Bang!—you're six feet under. Architects: Billy J. Cox and Don L. Kittreel; Structural Engineer: Fred P. Wagner, Jr.; Developer: Underground World Home Corporation.

Concrete Church and College Designs

Two projects from the San Francisco firm of Hatch & White are the Belvedere-Tiburon Community Congregational Church and an administration building for Davis Campus of the U. of California. The church, on a knoll over Tiburon Highway, will rise from a single-level social hall to a towering chancel at the hill's crest. Two textured concrete piers flanking the chancel will enclose a cross. Views from the nave will be of Mt. Tamalpais on one side and of San Francisco on the other. Planned between the social hall and sanctuary are classrooms, offices, and fellowship room.

The administration building—by Hatch, White & Steinau—is designed on a 5' modular grid to house offices of varied sizes. Reinforced concrete on the second through fifth floors will form a structurally independent square block to be superimposed on a larger first-level rectangle. This main floor—featuring an arched colonnade—will in turn be elevated on a podium. Decrating facades will be quartz window finishes and finned sunshades.

Self-Contained College for Michigan State University

Playing with serpentine, fan, rectangle, and slab shapes, Ralph R. Calder & Associates, Detroit, have designed a self-contained college for the Michigan State University campus. Each of three clusters sharing a common court will have men's and women's dormitory wings (serpentine and high-rise structures) plus a multipurpose wing (fan-shaped and rectangular structures). Multipurpose wings will contain classrooms, lecture halls, offices, lounges, snack bars, and complete dining facilities. Closing the court (left) will be a library-auditorium. Future addition of a fifth unit (background) will bring capacity of the college to 4600 students. Structural materials will be reinforced concrete for dormitories and steel in classroom-dining areas; exteriors will be brick and stone with aluminum windows.

Y at Waikiki

Y-shaped, 27-story apartment-hotel by John Graham & Company, which will be one of world's largest prestressed structures, will occupy a 21/4-acre choice plot on Waikiki Beach. There will be 504 hotel rooms, 510 occupant-owned apartments with "lanai" (small balconies), complete hotel facilities on the first and second floors, and the Continued on page 68
Remember Styrofoam for masonry walls. Then forget it.

Remember Styrofoam for slabs and foundations. Then forget it.

For more information, turn to Reader Service card, circle No. 360
remember Styrofoam for built-up roofs.

Then forget it.

remember Styrofoam® brand insulation board when you want an insulation with a permanent low “k” factor, that serves as its own vapor barrier, that can’t absorb water, that you can install and forget—forever.

Then remember it (on your next job). See Sweet’s Architectural File 10a/Do. The Dow Chemical Company, Midland, Michigan.
Continued from page 65

"world's longest" glass exterior elevator. (One of three restaurants will be situated at the top of this elevator.) Parking for 500 cars is provided below a plaza. Concrete piles have been driven through an average of 120' of soft coral ledges to hard coral strata in order to support the 1,193,200 sq ft structure.

Belluschi Design for Philadelphia

First major building under construction in Philadelphia's Independence Mall West Project was designed by Pietro Belluschi in collaboration with George M. Ewing Company of Philadelphia. Ground floor of nine-story structure for Rohm & Haas will have two glass-enclosed areas separated by a 60-ft galleria. This galleria will open a view through the building from Sixth Street to the Atwater Kent Museum garden. Key element in the architect's effort to provide classical overtones within modern lines is in the use of recessed columns supporting the upper stories.

Direct Design for Florida

Ground has been broken for a College of Architecture and Fine Arts complex at the University of Florida, Gainesville. The complex will collect departments formerly scattered in seven temporary buildings into three units: (left) two small lecture halls and art gallery; (rear) a 4-story classroom and drafting room; and (right) an architectural library and administrative offices—totaling 95,730 sq ft. Façades will be of red brick with limestone trim. Architects are Kemp, Bunch & Jackson.

Luxury in L.A.

New Wonderland in L.A. will be that city's first high-rise condominium project. Special features of this 17-floor "Incomparable Residence of a Select Few," to be on Wilshire Boulevard, include Roman baths, dining rooms decked above sunken living rooms, and landscaped roof containing heated swimming pool and facilities for private parties. Design places first floor of apartments above a two-storied, glass-enclosed lobby. The entire building is raised on terraces. Architects are Daniel, Mann, Johnson, & Mendenhall.

Rooms for Thought and Research

Central Research Facility in Palo Alto, Calif., consists of two-story laboratory wing, a 4,000-sq-ft technical library, and an administration-reception area. The rectangular lab wing has scientists' offices along an inner court and laboratories on the periphery, enabling close contact between researchers. The complex, to accommodate 50 scientists and 100 technicians of Varian Associates, is on a 5-acre site across from existing administration facilities. Architect: Rockrise & Watson; Consulting Architect-Engineers: Albert C. Martin; Landscape Architect: Thomas Church.

Munch Museum Now Open

Latest tourist attraction in Oslo is the recently opened Munch Museum. Designed by competition winners Gunnar Fougner and Einar Myklebust, the museum houses the legacy of expressionist Edvard Munch.

Aid for Researchers

Aid for researching scientists and engineers is supplied by the National Referral Center. Switchboard connection with specialized information sources is obtained, without charge, by contacting the Center at the Library of Congress, Washington 25, D.C. Information sources are invited to advise the Center of their capabili-

Houston Space Facility

New York Engineers Ford, Bacon & Davis have designed a flight acceleration facility for NASA's Manned Spacecraft Center at Houston. Main structural element will be a 156' diameter rotunda, to house a centrifuge for simulating lift-offs and space flights. One of two wings will be for offices, controls, computer and orientation room. The second, a service wing, will permit occasionally needed expansion of the centrifuge arm.

Rooms for Thought and Research

Central Research Facility in Palo Alto, Calif., consists of two-story laboratory wing, a 4,000-sq-ft technical library, and an administration-reception area. The rectangular lab wing has scientists' offices along an inner court and laboratories on the periphery, enabling close contact between researchers. The complex, to accommodate 50 scientists and 100 technicians of Varian Associates, is on a 5-acre site across from existing administration facilities. Architect: Rockrise & Watson; Consulting Architect-Engineers: Albert C. Martin; Landscape Architect: Thomas Church.

Luxury in L.A.

New Wonderland in L.A. will be that city's first high-rise condominium project. Special features of this 17-floor "Incomparable Residence of a Select Few," to be on Wilshire Boulevard, include Roman baths, dining rooms decked above sunken living rooms, and landscaped roof containing heated swimming pool and facilities for private parties. Design places first floor of apartments above a two-storied, glass-enclosed lobby. The entire building is raised on terraces. Architects are Daniel, Mann, Johnson, & Mendenhall.

Aid for Researchers

Aid for researching scientists and engineers is supplied by the National Referral Center. Switchboard connection with specialized information sources is obtained, without charge, by contacting the Center at the Library of Congress, Washington 25, D.C. Information sources are invited to advise the Center of their capabili-

Houston Space Facility

New York Engineers Ford, Bacon & Davis have designed a flight acceleration facility for NASA's Manned Spacecraft Center at Houston. Main structural element will be a 156' diameter rotunda, to house a centrifuge for simulating lift-offs and space flights. One of two wings will be for offices, controls, computer and orientation room. The second, a service wing, will permit occasionally needed expansion of the centrifuge arm.

Rooms for Thought and Research

Central Research Facility in Palo Alto, Calif., consists of two-story laboratory wing, a 4,000-sq-ft technical library, and an administration-reception area. The rectangular lab wing has scientists' offices along an inner court and laboratories on the periphery, enabling close contact between researchers. The complex, to accommodate 50 scientists and 100 technicians of Varian Associates, is on a 5-acre site across from existing administration facilities. Architect: Rockrise & Watson; Consulting Architect-Engineers: Albert C. Martin; Landscape Architect: Thomas Church.
Why Parkview Manor Nursing Home installed Chrysler Airtemp

Parkview Manor Nursing Home, in Midland, Texas, needed an air conditioning system that would be unusually quiet, reliable, and compact. Their selection, two Airtemp reciprocating chillers, met all three requirements. The units' "vibration-free" compressors keep noise levels to a minimum; reduce stresses on internal machinery. Compact — both chillers passed easily through a standard 35-inch doorway, were in position 15 minutes after leaving the delivery truck, and required only 16.4 sq. ft. of floor space per unit.

You, too, should consider Airtemp for your next cooling problem. Its line has one of the broadest BTU ranges in the cooling field. And all equipment is Chrysler-Engineered. Reliable. When it comes to assistance, Chrysler Airtemp stands ready to help you with fully qualified technical representatives. Detailed technical literature.

For more information, write Mr. T. W. Kirby, Vice President-Marketing, Airtemp Division, Chrysler Corporation, 1600 Webster Street, Dayton 4, Ohio.

88th Congress: First Session

Official Washington was marking time, early in January, waiting for a series of new Presidential messages and for the 1964 political wars to begin in dead earnest.

As you know, Congress slipped from its first to its final session with almost no perceptible break, and with an enormous backlog of bills still piled up for some sort of disposal this year.

If you review the legislators' accomplishments in the first session, you can come up with only one "package" of bills that will have a direct effect on architects' business interest; and a very few other matters of more general concern.

Most important was the one new spending program of any size: the education bills originally submitted by the late President Kennedy. These call for spending approximately $3 billion over the next four years—nearly $2 billion for construction—for colleges and other institutions of learning.

Other public works measures that finally were passed included the nearly normal $4.4 billion public works bill, plus appropriations for other Government construction agencies. Most got just about what had been sought for them. Only fly in this ointment was the long delay in appropriating the money—a delay that has caused slowdowns and even shutdowns of quite a few Government construction projects.

Not affected at all was the huge highway program, funded out of a trust fund, from which about $3 billion will go this year as grants to the states.

From a professional viewpoint, a couple of small items were of interest:

One was a prohibition (in the foreign aid authorization bill) against use of Government agencies for engineering and similar work—unless the agency head is prepared to justify such work in writing.

Another—though not directly a Congressional action—concerned use of materials in highway construction:

The Bureau of Public Roads issued regulations requiring competitive bidding on highway materials. That brought an immediate query from engineers, who feared that BPR might be overriding engineering judgment as to materials used, or might force issuance of duplicate specifications—say, for asphalt and portland cement concrete pavement.

BPR hastily replied that it wasn't interested in paving, but rather in smaller (and more easy to cheat on) items like piping, wiring, and fill. And in any case, if proper justification accompanied the selection of a material, BPR won't interfere.

Planning Failures

There was another matter breaking loose around Washington that is of prime interest to planners—though it has nothing directly to do with the Federal Government. This is an obvious breakdown of long-range planning of community development. It is not unique to Washington and its sprawling metropolitan area, of course—but it is more noticeable because of the center around the capital.

What's happened is that the political heads of the burgeoning suburban counties (especially Prince George's, Montgomery in Maryland, and Arlington and Fairfax, in Virginia) have been riding roughshod over their own planning commissions, architects and others, in granting rezonings of rural land for all manner of high-rise apartments, close-together housing developments, and the like. The pressure, as usual, comes from landowners and developers, most of whom are represented on the county planning boards.

A particularly flagrant case was Fairfax County, where an outgoing County Board, at its final meeting, hasty rezoned hundreds of acres of land from residential to apartments; and in Montgomery County, where a new County Board overrode not only the previous Board, but its own planning commission and an adverse vote of residents of a tiny town that would be affected (Poolesville), to permit 15,000-sq-ft zoning on a 500-acre tract more than 35 miles from the center of Washington.

In Washington itself, similar things have been happening—in this case with Congress (which is Washington's "City Council") overriding major plans for a transit system, and cutting in on plans for new highways by freezing some, refusing to permit others.

Planners (and architects) in general have contented themselves with comment to the press or elsewhere, leaving it to citizen groups to carry on any active fighting.

So far, though, nobody has brought up the key point: The planners haven't really sold their operations to the politicians or even to the general public. They seem to work too often as if they were planning in a vacuum—as if there was no one living in or holding land in the areas they designate. Inevitably, therefore, they run into the quite human objection that their plans to maintain an area as rural or parkland will cost somebody money in lost sales opportunities. That's a hard argument for a politician to ignore.

FINANCIAL

Some of the reasoning behind those predictions of a $65.5-billion year for the construction industry in 1964 becomes a little clearer after study of the reports on which they are based.

Most encouraging for architects, perhaps, is the universal confidence in the strength of the private building field (exclusive of housing) where an over-all gain (over 1963) of 7 per cent is expected, for a total of $12.7 billion for the year. That's predicated on numerous surveys of intentions of manufacturers and others—surveys that indicate these elements plan to spend something like $41 billion during the year on new plants and equipment. By rule of thumb, about a third of all such expenditures go for construction.

The forecasters see strongest trends for office buildings, factories, laboratories, and warehouses; and some drop in construction of new stores, restaurants, garages, and similar structures.

Surprisingly, in view of the feeling in many quarters about overbuilding, the forecasters think apartment construction will continue strong, at least for the first half of the year.

The other big area for privately-financed construction work is in institutional building: schools, churches, hospitals. Economists see this area as increasing by 10 per cent, to bring the total up to $4 billion for the year.

Note that these forecasts are being made with only a small bow to the effect of a possible tax cut this year. Reason: Last year, economists relied heavily on a tax cut as foundation for their prediction of a $62-63 billion year for 1963. The 1964 forecasts are based on 1962 tax laws, but the industry came out at the end of the year at $62.5 billion, anyway.

So the theory is that the economy is strong and will make the grade in any case. A tax cut, if it comes, would be further icing on the cake.
A way to improve multiple story construction 
(and reduce its costs)

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

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

The Macomber Composite System is another new custom steel product from the expanding world of Sharon Steel. For technical brochure write Macomber Inc., Subsidiary of Sharon Steel Corp., Canton 1, Ohio.
BEAUTY THAT ENDURES

in a wide variety of Lo-Tone acoustical patterns and types for any installation

Whatever your acoustical ceiling requirements, it will pay you to talk first to your nearby Lo-Tone Acoustical Contractor.

Perhaps you have a job where ventilating ceilings are being considered. Lo-Tone acoustical ventilating products will afford maximum comfort by controlled air induction and proper mixing of room air. This dramatic new approach to room air distribution utilizes the jet orifice principle and provides sufficient velocity for optimum air movement in occupied zones.

If you should have a ceiling installation where ease of cleaning is of real importance, you will want to investigate the unique features of Lo-Tone vinyl-coated ceiling tile and board. The plastic surface is sealed and static free — will not attract dirt particles.

Perhaps your needs call for a Fire-Rated tile or ceiling board. Lo-Tone FR products are listed by Underwriter’s Laboratories, Inc. One of the handsomest Lo-Tone FR patterns is new Fissura. This dramatic new ceiling tile captures the classic beauty of travertine marble.

For the complete line of Lo-Tone mineral acoustical products, consult Sweet’s Catalog or your nearby Lo-Tone Acoustical Contractor. You may also write direct to Wood Conversion Company, St. Paul 1, Minnesota.

LO-TONE®
MINERAL ACOUSTICAL CEILINGS
SEALED GAS COMBUSTION

pletely New!!!!!!! Here's the industry's only 55,000 BTU sealed gas combustion furnace capable of handling 2 tons of air conditioning. Vents directly through any outside wall, eliminates costly flue or chimney, pilot ignites electronically, is A.G.A. approved for safety PLUS (fume-free), fits snugly in the darnest places. This Safe-T-Sealed® furnace exemplifies the engineering know-how, the product design and development that have been the foundation of the PEERLESS CORPORATION for over 63 years. Write today for complete specifications and quotations.

PEERLESS
PEERLESS CORP. • INDIANAPOLIS, INDIANA

NEW YORK, N.Y. The announcement of the proposed World Trade Center (pp. 57-59) came last month just as New Yorkers for a Civic Center of Excellence, a new ad hoc organization of architects and planners, issued a call for an over-all planning study of Manhattan south of Houston Street. Members of the group believe that a cohesive, imaginative master plan is required to bring together the many disparate schemes currently proposed for the area. These include not only the World Trade Center, but also the controversial Civic Center plan (p. 41, JANUARY 1963 P/A); Fulton Fish Market Redevelopment; additions for Pace College and the Beekman-Downtown Hospital; Washington Market renewal and redevelopment; the new Stock Exchange (p. 71, MAY 1963 P/A); the proposed redevelopment of the West Side waterfront from the Battery to 72nd Street; Two Bridges Housing and Industrial Development; two housing projects in Park Row; Brooklyn Bridge Southwest Urban Renewal; and heliport and marina.

NYCCE was formed during 1963 as a result of the disappointment of its members over what they considered a compromise solution of the New York Civic Center Plan, since passed by the City Planning Commission and the Board of Estimate. The group felt that although the plan was a step in the right direction, it reflected a tendency of the city to let expediency and compromise dictate in important matters of this sort. NYCCE particularly objected to the plan's lack of relationship to the surrounding area and its future situation as an unapproachable island in traffic.

Last summer, Jacob M. Kaplan, a noted New York philanthropist and financier, offered Mayor Robert Wagner $50,000 for the support of an international competition for the design of the Civic Center. Wagner, after consultation with his staff, refused the offer, mainly on the basis that it would delay construction and the opinion that competitions are usually not successful. The philanthropist repeated his offer, raising the amount to almost twice what the city has paid for its own Civic Center study, but the Mayor was obdurate. Subsequently, the New York Chapter of the AIA, while not endorsing a competition for the entire area (which included several commissions already held by chapter members), did ask for the city to consider competitions for areas not already contracted to architectural firms.

continued on page 76
Heres Why: 1. Basic CBM standards for ballast performance, established to fit fluorescent tube needs.
2. A group of ballast manufacturers determined to provide dependable fluorescent lighting service... and working together to meet and surpass those basic standards. 3. Check and re-check by an established testing laboratory to make sure that Certified CBM Ballasts meet the standards and keep meeting them. Go for these benefits; insist on Certified CBM ballasts in your fluorescent lighting fixtures. And to keep informed on this “outward mark of inward quality”, ask us to send you CBM News.

CERTIFIED BALLAST MANUFACTURERS, 2116 Keith Building, Cleveland 15, Ohio.
Participation in CBM is open to any manufacturer who wishes to qualify.

For more information, turn to Reader Service card, circle No. 312
Dissuaded from the plan for a competition, Kaplan turned to a panel of experts for their opinions on the plan. A conference attended by 13 prominent architects and planners produced a statement featuring five points the signatories asked the city to take into consideration before proceeding with further planning on the Civic Center:

"(1) The relationship between automotive traffic and the Civic Center enclave needs considerably broader thinking about the role of the automobile in the precinct of the city.

"(2) Present and future needs for structures required by the three governmental levels—City, State and Federal—must be considered as part of a single, broad-range, co-ordinated program.

"(3) The 'edge' conditions, i.e., relationship between the Civic Center and adjoining private areas, have to be carefully studied, since the boundaries are as important as the core.

"(4) Plans for expansion cannot be left undecided and future development should be considered now and integrated into the Master Plan.

"(5) The impact of the Civic Center caused by drastic changes that will occur in the near future in several adjoining areas must be made part of the Civic Center study.

"Without an adequate analysis of these five items, the New York Civic Center is doomed to failure."

Signers of the statement, which recently was released to the press by Kaplan, were Edward Larrabee Barnes; Peter Blake, Managing Editor, Architectural Forum; Marcel Breuer; Walter Gropius; Douglass Haskell, Editor, Architectural Forum; Philip C. Johnson; Burnham Kelly, Dean, School of Architecture, Cornell University; Ieoh Ming Pei; G. Holmes Perkins, Dean, Graduate School of Fine Arts, University of Pennsylvania and Chairman, Philadelphia City Planning Commission; Jan C. Rowan, Editor, Progressive Architecture; Paul Rudolph, Chairman, Yale University Department of Architecture; Hideo Sasaki; and Jose Luis Sert, Dean, Harvard University Graduate School of Design. These men were joined by scores of others in the design and planning professions in written and verbal messages to NYCCE voicing concern over the New York Civic Center plan. One of these was Le Corbusier, who wrote from Paris:

"Your project as shown in the photograph and plan attached to your letter is unworthy of modern times. Americans benefit from a favorable prejudgment. Urbanism, historic or contemporary, reveals and accu..."

Architectural critic and historian Lewis Mumford wrote, "Even a glance at the plan shows that the major decision has already been made, not by architects and planners, but by the highway engineers, whose Brooklyn Bridge interchange will sufficiently mangle the site to make its redemption all but impossible. In deference to the engineers' wishes, it would be wise to put all the buildings underground and turn the land they now pre-empt into even more complicated traffic spirals for achieving the ultimate triumph of the motor age; maximum speed and zero destination."

Raymond S. Rubinow, New Yorker who led the fights to save Carnegie Hall, Washington Square, and Breezy Point, said that it is "ironic that Mayor Wagner and Milton Mollen (Chairman of the Housing and Redevelopment Board) should be proposing this piece-meal plan just at the time when the new Chairman of the City Planning Commission, William F. R. Ballard, is urging a Master Plan for the whole city."
NEW PRODUCTS

Garage Door Transmitter
Palm-sized high-frequency radio transmitter operates garage doors by remote control. "Alliance Genie Model AT-10" offers transmission range up to 125' and provides 21 channels. Transmitter, 3 1/4" x 2 1/4" x 1 1/4", is powered by single, low-cost 221/2-v battery. Mounting kit includes chrome clip for attaching AT-10 to sunvisor, and black plastic holder for below-dash mounting. Complete unit is priced at $78.95. The Alliance Manufacturing Co., Inc., Alliance, Ohio.

On Free Data Card, Circle 100

Rooftop Heating/Cooling
Rooftop heating-cooling packages have been developed to cut total heating-cooling costs. Unit contains heat exchanger, burners, controls, cooling coil, high capacity blower, and filters. When combined with air cooled condensing units, rooftop system has heating capacities from 100,000 to 300,000 Btu/hr, and cooling capacities from four to five tons in larger sizes. Unit features tri-alloy heat exchanger which resists corrosive atmosphere and can handle 100 per cent outdoor make-up air; built-in filters; and automatic pilot ignition for quick relighting if pilot outage occurs. Bryant Mfg. Co., 2020 Montcalm St., Indianapolis 7, Ind.

On Free Data Card, Circle 101

Air Handling Units
Line of 1 1/2- and 2-ton capacity horizontal air handling packages has been developed for use in false ceilings, closets, or crawl spaces. Units are 12 1/2" x 26 1/2" x 30". Blower, filters, and evaporator coil are all contained in same compact package. Units use standard-size duct work. Versatile filter arrangement allows air intake from either the rear or the bottom. Depth of 12 1/2" permits units to be flush mounted against closet ceiling in apartment applications to provide central ducted air conditioning without taking any floor space from the living area. Peerless Corp., 1853 Ludlow Ave., Indianapolis, Ind.

On Free Data Card, Circle 102

Low-Cost Cooling
Remote low-cost air conditioners are available in double- and single-blower models with capacities of 2 to 10 tons. "Krack Comfort Masters" feature four-way directional discharge grilles with individually adjustable louvers. Units can be mounted against ceiling or between hanger bars. Two rows of heating coil can be added for winter heating. Coil may either be hot water or steam construction. Centrifugal type blowers are standard for all models. Refrigeration Appliances, Inc., 903 West Lake St., Chicago 7, Ill.

On Free Data Card, Circle 103

Oil Finish for Wood
Appearance of hand-rubbed linseed oil woods is obtained by utilization of marproof, foolproof finish. "Penetrating Finish" is applied by brush, spray, roller, or rag and is immediately wiped off with a cloth. After several hours, finish becomes hard. This process eliminates spray booths, expensive equipment, skilled mechanics, and costly handling. Finish has no cloudy or yellowing appearance. It can be used over stain and filler as well as lacquered over. Ar-Jay Paint Co., Inc., 1231 Atlantic at Nostrand Aves., Brooklyn 16, N. Y.

On Free Data Card, Circle 104

Sump Pump
"Model 64" sump pump includes unit-bearing construction, unitized control chamber, watertight sealed outside motor housing, and recently developed hermetically-sealed oil-filled motor housing with only one moving part (motor rotor). Completely submersible, pump features oil-filled sealed motor chamber that keeps motor from heating up, lubricates bearing, and prevents internal condensation. Pump also has nonclog, two-vane impeller that moves normal debris found in sumps. Larger air trap liquid level skirt prevents clogging and provides positive diaphragm actuation. Kenco Pump Div., The American Crucible Products Co., Lorain, Ohio.

On Free Data Card, Circle 105

Conformable Sealant
"Poly-Tite," a conformable one-step sealant, has been introduced. Sealant fills and seals joints in metal, concrete, or any curtain wall construction. It forms an impenetrable barrier to moisture, wind, rain, cold or heat. Sealant has 50 per cent compression and requires no fillers or joint preparations. Poly-Tite can be applied to wet panels under any weather conditions, including temperatures below freezing. It is available in colors to match all types of construction materials. Sandell Mfg. Co., 26 New Street, Cambridge 38, Mass.

On Free Data Card, Circle 106

Insulated Expansion Joint
"Lexspand" is a prefab permanent and insulated roof expansion joint. Unit has a synthetic rubber horseshoe
Products

Contour that achieves two-way flexibility with lateral expansion to 4½". Lexspand consists of: (1) pair of rigid polyvinyl chloride locking strips; (2) factory assembled unit made of two rigid PVC bases bonded to polyurethane foam curbs and linked by flexible synthetic rubber foam center connecting strip that bridges the closure. Lexsuco Inc., 33095 Bainbridge Rd., Solon, Ohio.

Control Panel for Air Cleaner

"Living Room Performance Panel" is mounted to living area to give fingertip control for electronic air cleaner installed in forced air ventilating system. Unit shows normal operation, and also indicates when unit needs maintenance. Attention switch on panel provides choice of constant or automatic fan operation. Panel requires no water or drain connection. Electro-Air Cleaner Co., Inc., Dept. Z, Olivia & Sproul Sts., McKees Rocks, Pa.

Liquid Plastic for Roofing

Liquid plastic roofing compound requires no expert laying, heating, joints, overlaps, or flashings. "Polaplex" can be applied with brush, roller, trowel, or spraygun. It cures in about eight hours, and skin, thus formed, adheres permanently to wood, glass, concrete, brick, asbestos cement, fiber board, metal, and insulating concrete. Polaplex is waterproof and highly elastic. It does not grow soft in hot climates, nor does it flake or deteriorate through weathering. It does not support combustion and is self-extinguishing. Polaplex is available in permanent colors, including pastels and deep shades. The Terrazite Corp., 2203 West Malone St., San Antonio 25, Tex.

Condensing Unit

Model 20 (20,000 Btu capacity) remote air conditioning condensing unit provides flexibility of being used with matching coil and case, or a slab coil. It offers a compact unit for "add-on" cooling. Model measures 20¾" high, 16¾" wide, and 29¾" long. Condenser is pulled through coil and discharged both vertically from the top and horizontally, from one end. The Payne Co., Box 1234, La Puente, Cal.

Redwood Glulam Beam

Recently developed is redwood laminated structural member. "The Noyolam Beam" can be specified in sizes from 3x4 up to 11x16 and in lengths up to 40'. There are up to 20 laminates in a single beam, each being 1" or thicker in stock. Waterproof exterior adhesive is employed, which permits interior and exterior spans of same beam. All "green" problems are eliminated because Noyolam is completely kiln dried. Union Lumber Co., 620 Market St., San Francisco, Cal.

Outdoor Carpeting

All-weather outdoor carpeting material withstands both heavy rains or hot sun. "Terrace Green" carpet is used in high-rise apartment balcony terraces, exposed porches or patios, and for areas around swimming pools.

Ceramic/Vinyl Tile

"Vinylbond Ceramic Tile" requires no special preparation of subfloor. Regular waterproof mastic can be used. It will not crack, chip, peel, or absorb liquids, and will resist staining. It is available in 12" x 12" tiles, composed of 1" sq ceramic tiles grouted and underlaid with vinyl. It comes in many color combinations. Stylon Corp., Milford, Mass.

Epoxy Coating

Resists Chalking

Air-drying epoxy modified acrylic coating retains its high gloss and resists chalking for minimum of five
Coating is utilized for maximum surface protection of poured concrete, decorative masonry, concrete and screen blocks and other architectural materials including metals. Plas-Chem Corp., 6177 Maple Ave., St. Louis 30, Mo.

Riser Chairs
Telescoping riser chairs are made of heavy-duty welded steel. They are available in sections from 2 to 25 rows high. Entire assembly extends only 4 ft when nested. Sections are either permanently attached to the wall, or portable for removal and storage after use. Whether attached or unattached, chairs can be folded in place and stored on nested platforms, thereby saving both space and time. Safway Steel Products, Inc., 6228 W. State St., Milwaukee, Wis.

On Free Data Card, Circle 114

Recessed Phone System
Telephone system can be recessed in wall. Called "Panel Phone," it features disappearing cord. Only parts that protrude from the wall are receiver and chrome receiver hook and small button to control volume of phone's ring. Rectangular-shaped phone consists of face-plate which is flush with wall and is 8 1/2" wide by 11 1/2" long. Three models are available: (1) Basic phone provides regular telephone service. (2) Second model includes built-in microphone and speaker, which is used as part of intercom system. Call on one line can be automatically held while other line is in use. (3) Third model incorporates all features of first two models plus six-button, multi-line flexibility and speakerphone. American Telephone & Telegraph Co., 195 Broadway, New York, N.Y.

On Free Data Card, Circle 115

Holding Trash Cans
Enclosure unit built for two, three, four, or five 30-gallon trash cans has been introduced. Special units may also be fabricated to larger trash can sizes. Enclosure is constructed of heavy-gage galvanized steel. Closure curtain coils around a shaft contain a counterbalance spring for easy hand operation. Air vents and drainage pipes are included. Corrosion-resistant prime coat serves as base for finished coat. The J. G. Wilson Corp., P.O. Box 599, Norfolk, Va.

On Free Data Card, Circle 116

Masonry Coating
Cementious masonry coating called "Tileize" has recently been developed. Once applied, it cures to rock-hard, permanently bonded, seamless surface coating. It can be made waterproof and washable. It will not support combustion and is backed by 10-year guarantee. Porcelain-smooth, nonporous monotonies to textured, multicolored finishes are available. International Protective Coatings Corp., 5309 West Broward Blvd., Ft. Lauderdale, Fla.

On Free Data Card, Circle 117

Resilient Flooring
Recently designed are two styles of resilient vinyl flooring, "Paventi Vinyl Corlon" has depth and translucence of Italian Carrara marble. It is available in four light colorings with neutral accents. "Caradel Vinyl Corlon" features plain background and a scroll inset inlay, simulating brass.

On Free Data Card, Circle 118

Art Service for Architects
Tanglewood Gallery is an art service for architects and designers that makes Continued on page 84
Continued from page 81
available a large variety of prints, original paintings, and wall hangings. Sample selections are delivered or shipped for consideration. Prices vary from $35 to $100 for individual prints. New works may be commissioned for large-scale installation. Service includes supervision of framing and hanging without extra charge. Works are available by such artists as Josef Albers, Carol Summers, Uchima, Gerson Leiber, Robert Goodnough, Larry Rivers, Harold Krisel, Karl Schrag, and Robert Rauschenberg. For details, contact Rosa Esman or Suzanne Lubell, 4 E. 95 St., New York, N.Y.

Lightweight Wall Vinyl
Fourteen unusually lightweight yet durable vinyl wall coverings that simulate such materials as wood, grasscloth, burlap, linen, leather, silk, marble, and stucco are available in sample folder. Processed vinyl is laminated under high heat and pressure to fabric backing. It is therefore lightweight and requires less than ordinary amount of adhesive for application. Vinyl is cut into rolls of 50-60 yds. long and 54 in. wide; partial rolls are available. Material meets all Federal specifications. The McCordi Corporation, 707 Fenimore Rd., Mamaroneck, N.Y.

On Free Data Card, Circle 120

Textured Qualities of Precast Concrete
Textured qualities enhanced by Schokbeton process of producing precast concrete components are shown. Special aggregates can be employed for decorative units. They can be revealed by etching with acid, sandblasting, or bush-hammering. Kawneer Co., 1105 No. Front St., Niles, Mich.

Offset Concrete Window
Corpus Christi 26-story building, designed by Jenkins & Hoff, of Hou-


On Free Data Card, Circle 121

Pedestal Theater Seating
English-designed, self-tipping seating for theaters, lecture halls, and auditoriums has compact steel frames, 1’-9” wide, welded to pedestal tubes 6” high and 2” in diameter. The chairs are set 1½” apart, are 1’-3” deep when folded, and fit into rows of any radius. Slightly concave back and seat are padded with latex foam; armrest is padded with plastic foam. Seating is delivered completely assembled, except for arm pads, which are added on site.

Other seating designs feature front and rear writing shelf. Catalog illustrating design variety is available. Race Contracts Ltd., c/o Scandinavian Design, 15 E. 53rd St., New York, N.Y.

On Free Data Card, Circle 122

Outdoor Clocks
Latest in series of weatherproof outdoor clocks in wide variety of sizes and face styles has been announced. Three face styles are available in black-finished aluminum or other finishes with standard diameters ranging from 30” to 120”. Special face diameters are available up to 24’ on request. Clock movements are weatherproof and will keep accurate time under all climatic conditions. Howard Miller Clock Co., Zeeland, Mich.

On Free Data Card, Circle 123
Let Your Washroom Designs Reflect
This New Concept

Bobrick Multi-Purpose Units eliminate that confused collection of accessories and enhance washroom appearance. Just one neat, recessed stainless steel cabinet now combines soap and towel dispensers, mirror, shelf, and light. Consult Sweets or write for AIA File 29-J showing other multi-purpose units and over 100 matching accessories. Bobrick architectural services available in United States, Canada, and overseas.

Bobrick Dispensers, Inc.,
503 Rogers Ave., Brooklyn,
New York; 1839 Blake Ave.,
Los Angeles, California

SCHOOLINE
ADJUSTABLE WALL MOUNTED
HAT AND COAT RACKS

- Tailored to fit any length
- Adjustable in height
- Heavy duty steel construction
- Choice of colors

These beautifully styled, heavy duty, steel wall mount units are built to fit your exact length and multiple shelf requirements. Shelf brackets are held at wall in box formed channel mountings for vertical adjustment. Finish in choice of Mist Green, Desert Sand or Medium Gray, baked on enamel. They come with hanger rail or double pronged nylon hooks in Black or Red. Matching overshoe racks are also available.

Write for catalog SL-510

VOGEL-PETERTON COMPANY
"The Coat Rack People"
ELMHURST, ILLINOIS

For more information, turn to Reader Service card, circle No. 362

NEW
P&S
SUPER
DEVICES
for the job where only
the best will do

One look tells you that these aren't run-of-the-mill switches. They look different. They are different. And they're designed to take years of rough usage.

Arc-resisting molded urea forms their sturdy, shallow bodies. Compact units that can be side or back wired with up to No. 10 wire and installed in any position. Large silver alloy contacts assure long life under continuous heavy-duty service.

The nodal point principle means quiet, positive action. Finally, there's no confusing 15 and 20 amperes, they're color-coded*, anyone can tell the difference!

*15 amp. switches are coded blue;
20 amp., red.

For further information on 1001 and 1021, write Dept. PA-264.

For more information, turn to Reader Service card, circle No. 334
AIR/TEMPERATURE

Chilled Water Prefab System

Folder, 4 pages, describes chilled water prefab system adaptable for both new and existing buildings. By utilizing supply and return risers as heat exchangers, system reduces required floor space. Extra space allowances for large, insulated runout, drain lines, and risers are eliminated by replacing them with vertical fan-coil units. Each unit is connected directly to unit above it. Units operate noiselessly due to large, free areas for air passages through riser-exchanger system and low speed squirrel-cage centrifugal fans. Large surface areas of cabinets are treated with sound-absorbing material as well as insulation to reduce any possible air noise. James J. Whalen Co., 8605 Cameron St., Silver Spring, Md.

On Free Data Card, Circle 200

Ventilating Classrooms

Booklet, 4 pages, introduces complete, individual classroom ventilation system for use with radiant-acoustical ceiling heating. Mounted above the radiant-acoustical ceiling, unit draws in large quantities of air, blends in recirculated air, filters the mixture, and delivers it at constant volume and uniform temperature to the classroom. System includes outside wall louver with fly screen and mounting sleeve, insulated inlet extension, two circular flexible supply ducts, two modular ceiling diffusers, and return air grilles. Booklet gives details and performance data. Jacobson and Co., Inc., Environment Control Div., 227 East 44 St., New York 17, N. Y.

On Free Data Card, Circle 201

Heating Enclosures

Brochure, 4 pages, describes perimeter radiation enclosures. They include full back panel, continuous wall strip backed with vinyl wall seal, continuous heavy section aluminum outlet grille, and mounting clips. Enclosure panels are finished in choice of 12 baked enamel colors. There are 30 types of enclosures and elements. Details, Btu capacity ratings, and dimensional data are given. Scheme-

If It's a Thin Shell Roof, Make It SPECTACULARLY WHITE... with Addex Color-Shield® over Addex Heavy Duty Roof Shield®

Here is the ideal waterproofing and decorative surface specification for any thin shell roof contour you can draw. Roof Shield — the waterproofing component of the specification — provides a smooth, unbroken surface without unsightly lap lines, seams or taped joints. It has the longest proven performance record of any monolithic waterproofing specification available today. Color-Shield is a highly pigmented emulsion coating for Roof Shield. It resists soil penetration and retains its brilliant whiteness for years. Also, because Color-Shield permits only one-fifth as much heat to enter the building through the roof as a conventional black surface, it keeps interiors cooler in hot weather and cuts air conditioning costs.

T. L. Osborn World Headquarters Tulsa, Oklahoma
Architect: Kelly & Marshall Roofing Contractor: Empire Roofing Co., Tulsa

FOR COLOR-SHIELD AND ROOF SHIELD SPECIFICATIONS, WRITE TO DEPT. Q-2, ADDEX MANUFACTURING CO., WICKLIFF, OHIO

Addex

For more information, turn to Reader Service card, circle No. 301
CONSTRUCTION

Vinyl Building Panels
Folder, 8 pages, illustrates PVC building panels. They are resistant to deterioration from sunlight, salt air, moisture, and bacteria. Panels will not peel or crack and have good tear and puncture resistance. Both corrugated and ribbed styles yield net width coverage of 4'. Standard lengths allow for 6" end lap to provide net length averages of 8', 10', and 12'. Panels are available in various sizes and colors and configurations. Details, charts, and specs are given.
B. F. Goodrich Co., Building Products Dept., Akron 18, Ohio.
On Free Data Card, Circle 203

Steel Strand for Prestressed Concrete
On Free Data Card, Circle 204

Load Tables for Lin Tees
Three brochures present span loading tables for 6', 8', and 10' flange precast, prestressed Lin Tees. Factors governing choice of stem depths from 12" to 48" and Lin Tee lengths from 20' to 140' are included. Tables provide information for hardrock or lightweight concrete members. Also given are property charts, weights per sq. ft. and specs. Lin Tee Affiliates, 14656 Oxnard St., Van Nuys, Cal.
On Free Data Card, Circle 205

Aggregate Wall Panels
Six-page folder, and supplement showing four separate typical details, presents aggregate wall panels. These panels utilize natural aggregates ranging from fine sands to several inches in diameter. Aggregates are embedded in copolymer resin and are available in unlimited color choices. The matrix may be colored to match or contrast. There are insulated curtain wall type panels; insulated spandrel sandwich panels, which are usually poured monolithically into aluminum or steel frames; column covers, copings, and specialty shapes. Colored photographs depict various installations. Architectural Research Corp., Ar-Lite Div., 12700 Farley, Detroit 39, Mich.
On Free Data Card, Circle 206

Steel Arches/Gables
Manual, 50 pages, describes steel gables and arches. Part 1 contains complete design tables covering wide...
Now you can specify office furniture as imaginative and distinctive as your building

You need no longer be restricted by the conventional in office furniture. Whatever best expresses your ideas, Yawman & Erbe will build for you. With this special new service, you now can give your clients that one-of-a-kind distinction in layout, equipment and decor that only custom furnishings permit. For complete information on this new Yawman & Erbe service to architects and interior designers, telephone 716-FA 8-1010 in Rochester, N. Y. Ask for the Contract Service Division.
zontal steel members become permanent built-in parts of surrounding building. Stairs allow for wide choice of finishing materials and ornamental metalwork, which includes tread, riser, landing, and railing detail. Penetrating oxide primer is applied to all parts, which provides on-site corrosion resistance and base coat for finish paint. Details, photos, and specs are given. Pico Safe Stairs Co., 4628 42 Place, Hyattsville, Md.

On Free Data Card, Circle 210

Ceramic Tile Handbook
Handbook, 20 pages, gives installation details and specs for ceramic tile floors, walls, countertops, and shower receptors. Also included are installation details for swimming pools, tile tubs, refrigerator rooms, and steam rooms. Materials for setting and grouting ceramic tile are also given. Tile Council of America, Inc., 800 Second Avenue, New York 17, N. Y.

On Free Data Card, Circle 211

Steel Partitions
Catalog, 32 pages, presents data on six types of steel partitions. Specs, details, photographs and general information pertaining to doors, door hardware, sound control, and electrical wiring are given. Aetna Steel Products Corp., 730 Fifth Avenue, New York 19, N. Y.

On Free Data Card, Circle 212

Redwood Siding and Paneling
Brochure, 6 pages, illustrates uses of

Continued on page 92
Imagination with Wood... Enhanced, Protected by Cabot's STAINS

This is The Abbey on Lake Geneva, Wisconsin. Behind this striking facade is a resort-marina complex of monumental proportions. All wood surfaces, both exterior and interior, are treated with Cabot's Stains.


2500 gallons, eight different colors were used on The Abbey, indicating the architect's confidence in Cabot's products. Cabot's Stains, in a range of 35 colors, bring out the best in wood, preserving it and enhancing the grain. Cabot's Stains cost only half as much as paint, require less maintenance, never crack, peel, or blister; Cabot's Stains beautify... a stained surface grows old gracefully.

STAINS FOR INTERIOR BEAUTY

The interior of The Abbey is as breathtaking as the exterior. Study beams, soaring arches, wood in its natural beauty... a fitting complement to the luxury and comfort of the furnishings. For interior surfaces, Cabot offers two distinct products: Cabot's Interior Stains for the traditional flat finish; Cabot's Stain Wax for a rich, soft, satin luster... staining, sealing, and waxing in one operation.

SAMUEL CABOT INC.

228 S. Terminal Trust Bldg., Boston 10, Mass.

Please send color cards and information on Cabot's Stains.

REINHOLD


A complete description of the content and purpose of the famous "Introductory Course" at the Bauhaus, by the man who established it. Used as a trial semester to judge incoming students of varying educational backgrounds, the purpose of this course was three-fold: to determine creative talent; to facilitate choice of career; to teach elementary design.

REINHOLD BOOK DIVISION
430 Park Avenue, New York, N.Y. 10022

WAYS WITH WATERCOLOR by Ted Kautzky. 9 x 12. 136 pages. 125 illustrations, 37 in color, $12.50

WAYS WITH WATERCOLOR

The Book that Taught 50,000 Americans How to Paint in Watercolor... Now in a New, Revised Enlarged Edition

This newly revised and enlarged edition of the book, written by the man who is considered the unquestioned master of teaching watercolor painting techniques, proves to be as timely as ever. In addition to the many demonstrations, there is challenging practice material to help solidify each bit of knowledge and skill as you acquire it.

REINHOLD BOOK DIVISION
430 Park Avenue, New York, N.Y. 10022
For greater safety—greater impact resistance

TEMPERED plate glass framed MIRRORS

Where impact and shock resistance must be evaluated for specific mirror installations in hospitals, schools, institutions and other locations—specify FM framed tempered plate glass mirrors. Impact resistance is eight times greater than ordinary glass. Under terrific impact, the glass will shatter, but disintegrates into blunt fragments—not sharp. Available in a wide range of framed sizes.

Please write
Faries-McMeekan, Inc.
P. O. Box 35, Elkhart 2, Indiana
For more information, turn to Reader Service card, circle No. 315

Bally pre-fab walk-ins
all-metal coolers and freezers

World's most advanced design. New materials and construction techniques offer architects an opportunity to provide tremendous refrigeration advantages to their clients.

Urethane 4" thick (foamed-in-place) has insulating value equal to 8½" fibreglass. Standard models can be used as freezers with temperatures as low as minus 40° F. Urethane has 97% closed cells—cannot absorb moisture—ideal for outdoor use.

Speed-Lok Fastener designed and patented by Bally for exclusive use on Bally Walk-Ins. Makes assembly accurate and fast...easy to add sections any time to increase size...equally easy to disassemble for relocation.

New foamed door, so light in weight it ends forever the "hard pull"...the "big push". Door is equipped with new type hand lock (with inside safety release) and convenient foot treadle for easy opening. Also has special hinges that close door automatically. Magnetic gasket guarantees tight seal.

Self-contained refrigeration systems combine balanced capacity condensing units and refrigeration coils. Mounted and hermetically sealed with necessary controls on small wall panel. Simplifies installation. Four-hour factory test assures quiet, efficient, trouble-free operation.

Write for Free Architect's Fact File which includes 12-page brochure...Specification Guide...and sample of urethane wall construction.

See Sweet's File, Section 25a/Ba

For more information, turn to Reader Service card, circle No. 305
MOVABILITY

with a 10d/nail!

DONN HIGHLANDER MOVABLE PARTITIONS

MOVABILITY and simplicity is the Donn concept of hollow-core, movable partition systems. Radically few components permit movability, accessibility and changeability with ease and efficiency. The result? — a low cost system — so simple you can even disassemble it with a 10d/nail.

ACCESSIBILITY • CHANGEABILITY • AFFORDABILITY • VERSATILITY

Write today for Donn Catalog #35 with complete architectural details and specifications.

DONN PRODUCTS, INC.

700 BASSETT ROAD • WESTLAKE, OHIO 44145

Continued from page 89

redwood siding and paneling. Sizes, characteristics, and color photos of various types of both siding and paneling are given. Simpson Timber Co., 2000 R Washington Bldg., Seattle 1, Wash.

On Free Data Card, Circle 213

Woodworking Manual

Compendium, 160 pages, includes specs with 325 drawings and details on woodworking. It discusses materials, methods, joinery techniques, tests, and tolerances. There are 14 sections, which include lumber and plywood grades, panel work, exterior frames and sash, hollow and solid core flush doors, and stile and rail doors. Architectural Woodwork Institute, 1808 West End Building, Nashville, Tenn.

On Free Data Card, Circle 214

DOORS/WINDOWS

Steel Doors/Frames

Booklet, 16 pages, illustrates uses of steel doors and frames in residential, commercial, institutional, and industrial buildings. Installation of various frames in new or existing buildings regardless of type of wall construction is also explained. Booklet discusses Underwriters’ Laboratories labels and steel door standardization, as well as finishes, hardware, and accessories. Photos and details are given. American Iron and Steel Institute, 633 Third Avenue, New York 17, N. Y.

On Free Data Card, Circle 215

Sliding Doors

Brochure, 8 pages, presents sliding glass doors consisting of heavy-walled tubular aluminum extrusions. Anodized finish makes metal corrosion-resistant in all climates. Silicone-treated, certified woven pile is used inside and out at vent jamb, inter-locker, header, and threshold. External screen cannot become damaged by pets or small children when forced to play inside. Details, specs, and drawings are included. Miller Sliding Door Co., 3216 Valhalla Drive, Burbank, Cal.

On Free Data Card, Circle 216

Window/Panel System

Notebook, 140 pages, describes building component consisting of window installed in modular framing panel. Notebook contains 14 sections, which
NEW DESIGN

Roof track systems with 360° swinging booms and Albina “Hi-Climber” Powered Platform can be moved to desired work area and lowered by one man. Powered Platform can swing over roof area for storage on self contained supports. New track carriage will run on right or left hand curved track.

For more information, turn to Reader Service card, circle No. 382

MATERIALS FOR ARCHITECTURE
from ABRASIVES to ZIRCONIUM

by CALEB HORNBOSTEL, A.I.A.

INDISPENSABLE...
first single source of basic and scientific data on all materials used in modern architecture!

INCLUSIVE...
COMPONENTS (copper, lead, nickel and zinc)—FABRICATED BUILDING PRODUCTS (panels, insulaton, tile and acoustic materials)—PHYSICAL & CHEMICAL PROPERTIES (lists, complete analysis of advantages, limitations, details of use in buildings)—DESCRIPTION OF PRINCIPLE TYPES OF MATERIALS (uses, history, manufacturer, techniques of application)—CONSTRUCTION MATERIALS—FINISHING PROCESSES—ACCESSORY MATERIALS (for installation)—PREFERRED MATERIALS (for each building part)—plus much more!

1961. 8½ x 10½. 624 double-column pages. 1,046 tables, charts, diagrams, and photographs. $20.00

REINHOLD BOOK DIVISION Dept. M-331. 430 Park Ave., N. Y. 22

Lighting News AT THE
TYRONE GUTHRIE THEATRE

For next lighting project, count on the technical assistance of Kliegl experts. Whether in the field of theatre or architectural lighting, your project gains the benefit of Kliegl’s six decades of lighting and control experience.

A push-button selector switch system, over each of the 60 SCR® dimmers on the Kliegl console, permits the operator to select the type of mastering wanted for any given cue in a pre-set. He pushes any one of eight switches.

The result, as proved in thousands of installations, is an all-round better job at a definite over-all saving. There is no obligation—call on your Kliegl representative or write us directly, regarding your plans, today.

Our lighting advisors will be pleased to assist in the planning of any installation, using standard or special units to meet your requirements. Full details on request.

For more information, turn to Reader Service card, circle No. 326
With "staging-in-the-round," audiences never had it so good — visually. View of the stage from all points in the round (200' dia.) Melodyland Theater is "aisle-center." The stage is round (32' dia.) and sometimes performers come right into the aisles to give the audience a feeling of total participation. However, the theater's unusual cylindrical shape and 64' conical dome created unusual problems in providing crowd-pleasing speech and music reinforcement.

FEEDBACK "STARVED" WITH ALTEC CARDIOID CONDENSER MIKES

Batteries of microphones of three different makes were tried. Each, in turn, proved totally incapable of coping with the unique acoustical problems created by the cylindrical structure involved in "theater-in-the-round" design. Finally, 12 Altec M-30 Cardioid Condenser Microphones were installed within the stage canopy. These directional Altec mikes — each no bigger than a lipstick — cover the range of 20-20,000 cycles and are characterized by high discrimination, controlled pick-up, and positive effectiveness in screening out spurious sound. The remainder of the system is made-up entirely of Altec components — mixer controls, amplifiers, and sectoral horns, etc. — to give audiences on-stage audio quality without feedback.

According to Harry Zevin, General Manager of Melodyland, "Presenting dialogue plays in the round" poses complex audio problems, as well as staging full-scale musicals with up to 50 performers, plus orchestra. Our Altec Sound System solved them to our audiences' complete satisfaction."

EXCLUSIVE "SINGLE-SOURCE" SPECIFICATION

Each Altec sound system is made up from components designed and manufactured by Altec — the only single source of audio components in the U. S. to comply with the all-important specification: "All products must be of the same manufacturer." For the optimum single-source solution to your audio problems — and single-source responsibility for its ultimate performance — consult an authorized Altec Sound Contractor. He's in your Yellow Pages. Or write Dept. PA2.

For more information, turn to Reader Service card, circle No. 364
audio-visual nurses’ call systems, nurse-resident communications, and doctors’ register systems. Each topic includes complete specs, wiring data, properties, and layout and survey forms. DuKane Corp., Communications Systems Div., St. Charles, Ill.

On Free Data Card, Circle 222

Bathroom Fixtures
Booklet, 24 pages, illustrates bathroom fixtures. Those included are tubs, lavatories, bidets, water closets, and hardware. Booklet contains size, description, and color photograph of each fixture. All items except hardware are available in six colors. Kohler Co., Kohler, Wis.

On Free Data Card, Circle 223

SURFACING MATERIAL

Wall Tile File
Compact plastic case contains 240, 2”-square, glazed wall tiles. Chips may easily be removed or replaced. Chart on inside lid provides quick reference to colors, sizes, and types of tile available in mat, bright, or crystalline glazes. United States Ceramic Tile Co., 217 Fourth, N. E., Canton 2, Ohio.

On Free Data Card, Circle 224

Vinyl Wall Coverings
Sample book gives 1500 colorways and 75 patterns of vinyl wall coverings. Leatherguild, Inc., 1 East 53 St., New York, N. Y.

On Free Data Card, Circle 225

Hydroment improves hardness, density, wearability, corrosion resistance and appearance of concrete floors — institutional, commercial, industrial. Easily applied by the dust-coat method when concrete slabs are poured; requires no additives or mixing at the job site. Non-toxic, odorless, waterproof; ideal indoors and outdoors — new construction or remodeling. Non-dusting; non-rusting. Proved superior in over 20 years’ use by architects and contractors everywhere. Write for catalog and color card.

Specify and Install

...make your concrete floors

LOOK BETTER, LAST LONGER!

CHOICE OF 9 RICH COLORS

- TILE RED
- TAN
- TERRA COTTA
- FRENCH GRAY
- GREEN
- GRASS GREEN
- BROWN
- BLACK
- WHITE
-and NATURAL

Hydroment

CONCRETE DENSIFIER and HARDENER

THE UPCO COMPANY

For more information, turn to Reader Service card, circle No. 359
Remember when Bradley Washfountains were specified only for school shop rooms? Today’s creative architects outmoded such thinking long ago, and now utilize colorful, functional Washfountains throughout modern schools: in corridors, washrooms, classrooms, cafeterias, science and art rooms, as well as shop rooms.

Bradley Washfountains are the wash fixtures for schools because they serve as many as eight students at one time, cutting installation costs 50% or more . . . save as much as 25% on floor and wall space, as well as 80% of the water lavatories require . . . and serve more students in less time with less supervision than any other wash fixture. They’re more sanitary, too (hands touch only a fresh, clean spray of tempered water).

They’re available in famous circular and semi-circular types, 36" or 54" sizes; two-person Duos; and counter-types. This gives you a wide variety of colors, compositions, and shapes to exercise your creativity. Doesn’t it make good sense to standardize on Bradley Washfountains throughout modern schools?

See your Bradley representative or write direct for colorful literature. Bradley Washfountain Co., 2375 W. Michigan Street, Milwaukee, Wisconsin 53201.

For more information, circle No. 308
Architect: Nesmith, Lane & Associates, El Paso, Texas • Consulting Engineer: M. D. Goodwin, El Paso, Texas • General Contractor: T. Jack Foster & Sons
Mechanical Contractor: Bell Plumbing & Heating Co., Albuquerque, N. M.


Deserted? No! Everyone is inside enjoying Gas-powered Carrier Air Conditioning!

And no wonder. Texas afternoons can pack quite a wallop. That’s why the Cielo Vista Apartments in El Paso chose Carrier absorption refrigeration. It has no major moving parts. It efficiently converts the steam from the apartments’ heating system into chilled water for cooling. Only one boiler is needed. But that isn’t all. Operating costs are cut even further because Carrier air conditioning uses Gas—the service-free, economical, clean fuel. There are still more benefits. Your local Gas Company can tell you what they are. Or write Carrier Air Conditioning Company, Syracuse 1, N. Y.

For heating and cooling... Gas is good business!

For more information, turn to Reader Service card, circle No. 302
light yellow, shade 103;
light green, shade 204;
light violet, shade 404;
dark violet, shade 408;
medium yellow, shade 106;
blue, shade 127;
dark green, shade 250;
medium green, shade 247;
dark yellow, shade 110;

“Ice”, pattern no. 73; 1/8" thick, 49" x 120"
COLOR COMES ALIVE
IN IMPORTED EUROGLASS
BY SAINT-GOBAIN

A brilliant spectrum of colors and the endless variety of light combine in a single building material—Euroglass by Saint-Gobain.

With Euroglass, you build with a practical, maintenance-free material that suits both standard and advanced construction techniques for partitions, room dividers, skylights, windows, decoration and interior surfacing, and lighting.

Your results: distinctive, efficient offices; homes of unusual charm; stores and commercial structures with drama and vitality. Forty contemporary and traditional patterns give Euroglass the versatility to execute your most imaginative plans.

There are three centuries of European craftsmanship in Euroglass by Saint-Gobain. And it is available in the United States exclusively through the Euroglass Corporation. Write for handsomely illustrated brochure on Patterned Glass and samples.

Sole representative in the United States
EUROGLASS CORPORATION • 200 Park Avenue • New York, N.Y. 10017 • Tel. 212-MO 1-2800

For more information, turn to Reader Service card, circle No. 373
More and more top architects are going Gold Bond

The Gold Bond difference: Unique qualities of Travacoustic tiles provide quiet and beauty to match the environment at American Cyanamid
The 180 acres which surround the new American Cyanamid headquarters are heavily wooded. The area is quiet and beautiful. And so are the offices—from reception desk to board room. They all have ceilings of Gold Bond Travacoustic. The surface fissures vary in size and arrangement. And because no two tiles are exactly alike, ceilings have a pleasing, natural appearance. The white finish offers high light-reflection. Made from mineral wool, Gold Bond Travacoustic has a noise-reduction coefficient rating of .70 or better and is dense enough to help reduce sound transmission from office to office. Travacoustic is rated noncombustible, and is available in fissured, striated or choice of sculptured patterns. For technical information, see your Gold Bond* Representative. Or write to Department PA-24, National Gypsum Company, Buffalo 25, New York, U. S. A.

Gold Bond materials and methods make the difference in modern building.
For transparent domes... Plexiglas


® Trademark Reg. U.S. Pat. Off., Canada, and principal Western Hemisphere countries. Sold as Oroglas® in other countries.
An outstanding feature of the new International Inn of Washington, D.C., is its enclosed outdoor swimming pool. The enclosure is a dome, 38 feet high and 102 feet in diameter. The dome's steel framework holds more than 300 pre-assembled light-transmitting units—double glazed in aluminum frames and mounted in structural gaskets. The glazing material is PLEXIGLAS acrylic plastic. Over 600 sheets of PLEXIGLAS were cut into more than 400 different trapezoidal shapes for the double glazed units. Why was PLEXIGLAS used? Resistance to breakage. Ease of fabrication. Outstanding weather resistance. Light weight. Crystal clarity. We will be pleased to provide you with design assistance on specific projects which involve the use of PLEXIGLAS for glazing dome structures.

For more information, turn to Reader Service card, circle No. 339

PLEXIGLAS details:
Thickness: .250".
Types: Colorless transparent and white translucent No. W-2447.
White translucent used for inner glazing of two main triangular sections of dome.
BORDEN ARCHITECTURAL DECOR PANELS: DECA-GRID

Borden Architectural Decor Panels are highly adaptable for nearly unlimited application as facades, dividers, grilles, etc. in the field of modern architecture. The handsome, lightweight aluminum panels are both sturdy and practical, providing access for light and air in conjunction with safety and a long maintenance-free life.

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

For complete information on Deca-Grid and the other Borden Architectural Decor Panels, including Deca-Gril, Deca-Ring, Decor Plank and their many variations and subtypes, write for our new eight-page catalog on Borden Architectural Decor Panels.

another fine product line of

BORDEN METAL PRODUCTS CO.

MAIN OFFICE: 859 GREEN LANE, ELIZABETH, NEW JERSEY  Elizabeth 2-6410
PLANTS AT: LEEDS, ALABAMA; UNION, NEW JERSEY; CONROE, TEXAS

For more information, turn to Reader Service card, circle No. 370
The new School of Art and Architecture at Yale is now completed. At the dedication ceremonies, Nikolaus Pevsner said that a building fails in architectural quality if it is not a product of both function and art. Referring to Paul Rudolph, architect of the building and Chairman of Yale's Department of Architecture, he also said: "The guardian of the aesthetics of architecture is the architect, the guardian of the functional satisfaction is the client. . . . Here we have the rare case that . . . the client was the architect and the architect was the client . . . In walking around this building . . . never forget that whatever you see and inspect is exactly as the brief demanded it."

This thinly veiled criticism brings back into the open the old controversy about functionalism in architectural design. Once more the question is raised: Can great architecture be achieved only in a building that functions to perfection—which is, of course, what the early modernists asserted—or does beauty transcend function?

The functionalist theory was developed by men who revolted against romantic excesses of the eclectic period, were enamored of the glorious possibilities of an industrialized civilization, and, above all, were deeply affected by the depressing, impoverished, revolutionary years that convulsed Europe after World War I. It was not long before the functionalist credo became a gospel, and, as happens with all gospels, it was used as an infallible placebo for all designs—-aesthetically pleasing or displeasing, logically valid or invalid.

Later, with the advent of more prosperous times, the theory was modified to include aesthetics as one of the "functional" requirements. Beauty for its own sake became part of the dogma and no longer did one have to sneak it in by subterfuge. But it was "allowed" only when it did not interfere with utility.

Where do we stand today? Is the new Art and Architecture building at Yale a tremendous architectural success because it excites the imagination, stimulates the senses, and makes one wonder at man's ingenuity in the manipulation of masses, the shaping of spaces, and the use of light and color? Or is it a dismal architectural failure because some of the teaching areas are not what they should have been?

It is no secret that improperly lighted upper studios and low-ceilinged basement studios (neither feel like art studios at all) aroused strong resentment among nonarchitectural students who occupy them. The Yale Daily News reported that painters and sculptors threatened to picket the opening ceremonies. On my last visit, I noticed that the building had been splattered with eggs and one window pierced by a bullet from a zip gun. I questioned Rudolph about this. After putting up only a half-hearted defense of the design of spaces occupied by departments other than his own, he replied by asking: "After all, did anybody expect that my primary interest would not be in the School of Architecture?"

What he did not say is that not all architecture must be judged solely by the way it performs. How "functional" was Rheims Cathedral, or Blenheim Palace, or Pennsylvania Station, or Falling Water, or Ville Savoie? Nobody seriously interested in the art of architecture damns them because they did not work perfectly as utilitarian structures. Some worked well, and some did not; some were inexpensive to build, and some were not. What one admires in them and remembers about them is not circulation flows and square-foot costs. What they achieved goes far beyond such considerations.

It is worth remembering, however, that few buildings reach such distinction. Each generation produces merely a handful of them. And only these exceptional buildings can shrug off some of the more pedestrian requirements. There is a vast difference between a leaky roof in a great building by a great master and a leaky roof in a building by a lesser architect. Noblesse oblige, they say. One could also say that, at times, noblesse excuse. But noblesse has to exist before any excuse can take place. There lies the glory and also the danger.

I believe this is the present status of the functionalist controversy, and think that most architects today will agree that when a building is born which is a great work of art it is time for rejoicing. There are so few of them.
Embedded in a concrete wall near the library of Yale's recently opened Art and Architecture building is a bisected nautilus shell. Its polished pearly interior contrasts with the rugged texture of the building's concrete, exposed similarly inside and outside, yet the internal structure of the shell, with its legendary sails revealed, is an epitome of the larger structure.

"Since the building is on a corner," Paul Rudolph has written, "its role in the cityscape is to turn that corner. A pinwheel scheme has therefore been adopted."

The plan resembles an elongated ticktacktoe grid, or a square doughnut with projections at the corners, but the sides are set at different heights—"a kind of overlapping and interpenetrating series of platforms"—so that they function as vanes, radiating from the axis of the central, major spaces.

Taken together, the building's spaces constitute a structure of large size, but one that has a considered, if not readily recognizable, relationship to the other University buildings. They all have irregular silhouettes, are complex in plan, emphasize the vertical, and are broken down in terms of scale so that often they read as clusters of buildings. Correspondingly, this massive concrete fortress has clusters of forms at each corner, which can be thought of as pavilions projecting from each overlapping leg of the pinwheel plan—pier-like shafts, windowless on their main elevations to emphasize verticality, and only scored horizontally to indicate the complex change of interior levels. But smooth floor slabs and bay windows project from the sides in jagged profusion. These clusters make the building difficult to read from the exterior; only after one understands the spatial organization of the interior can the elevations be understood. (See also critique on pages 128-129.)

The building gathers all of Yale's student architects, planners, painters, sculptors, and graphic artists under one roof. The disciplines are layered one above the other, thus extending the pinwheel scheme vertically. However, in what is nominally a seven-story structure, there are 37 different levels manipulated so as to mold spaces to their intended functions.

On the lowest stories, where the sculpture and basic design studios are located, the center of the building is occupied by a lecture auditorium—a two-story space with massive elements that seems to reiterate the over-all plan in microcosm. Brilliant orange carpet and orange velveteen over orange molded plywood benches, along with art works, are typical furnishings here as throughout the building.

At grade level, the library stacks occupy a single-story space, 7'6" high, except that the reading room on the front side rises up two stories, encompassing a small mezzanine and open to view from the story above. Clerestories emphasize the change of height.

The exhibition hall on the next floor, envisioned as a place where all students can meet and see each other's work, is a composite of low-ceilinged, one-story spaces and a central, sunken, two-story-high area, at one end of which is the architectural jury pit. Open mezzanines housing the administrative offices of the school surround this central space; white metal file cabinets are used as balustrades to continue the theme of exposed functionalism typical throughout the building. From the mezzanine, one can look down the exhibition hall through a visually uninterrupted series of spaces into the library reading room several levels below.

Above the exhibition-administration space is the architectural drafting room—the most dramatic, plastic space in the building. This masterly two-story interior has five levels on the lower story, one for each year of the curriculum, yet it is still one room "so as to facilitate an interchange of ideas." The east and west platforms of the pinwheel are higher than the north and south sides. The central space is several steps lower; it is also the tallest, floating upward onto two mezzanines (one of which is devoted to the City Planning Department), swirling around a concrete, channel-shaped bridge, and finally soaring up between the central piers to skylights.
which are as much as two stories higher. Light streams down onto
a 14-ft statue of Minerva. A combination of masculinity and grace,
reminiscent of Vanbrugh and Piranesi, this space uniquely embodies
the building’s aesthetic: the spatial, plastic interaction of solid and
void. One can easily understand the jealousy it is inspiring in
students of the other departments.

The painting and graphic art studios, located on the two top
floors “to give them the best possible light,” are primarily open,
long galleries, but students have partitioned off cubicles for greater
privacy and concentration. Most studios have clerestories or sky­
lights; two studios have expansive glass walls. Large panes of
polished glass, as elsewhere in the building, are set in steel frames
painted dark brown, with operable hoppers underneath. Fins, short
of the top and bottom to correspond to structural requirements of
the bending moment, have been added outside the mullions to help
resist deflection.

Within the corner towers and the separate service tower is a
variety of smaller, auxiliary spaces. In the southern projection on
the entry elevation, for example, are: on the second floor, an en­
closed multilevel classroom that, like the auditorium, reiterates the
over-all plan in miniature; above it, the office of the Chairman of
the Department of Architecture, which overlooks the secretarial area
from a higher level; several stories above, the tower—pierced and
open—is used as a covered terrace with wide, suspended planters
serving both as railings and as effective stops to vertigo.

As might be expected from this complexity of plans and levels,
no single structural syllogism was devised to negotiate all situations;
rather, structural problems were solved as they developed.

To emphasize its monolithic quality, the building is constructed
of concrete. The singular, predominating texture—ribbed and fuzzy
looking, like a collegiate shetland sweater—was obtained by mono­
structurally casting vertical ribs, which were partially broken off after
removal of the forms to provide a fractured surface exposing the
aggregate. The concrete ribs are spaced 2 in. o.c., and, before
fracturing, projected 1 1/2 in., varying in width from 1 1/2 in., at the
nominal (or inner) wall surface to 1 1/4 in. at the outer surface. Form­
ing consisted of plywood to which tapered wood strips were applied.
Break back, or fracturing, with 3-lb hand hammers, was accom­
plished after hardening was sufficient so that the gravel aggregate
would break, rather than pull out. Uniformity of cleavage was
achieved by striking opposite sides of the rib alternately.

The gravel-aggregate concrete mix for the walls was designed
with a water-cement ratio of 4 gal per bag to increase weathering
resistance and to relieve shrinkage effects. Concrete was placed
Structure and mechanical equipment are integrated in the building, which is almost entirely of concrete. Door jambs and heads are detailed without metal bucks (right). A ribbed and hammered texture reveals the internal consistency of the concrete (above and left).

Major structural support is by four hollow central piers and by similar perimeter piers. Hot and cold air are supplied to floors through the perimeter piers. At each floor are mixing boxes that supply proper temperatures to ceiling plenums; registers are in coves at ceiling edges (facing page). The four interior columns are used for return (left).
with a relatively low slump, and external—or form—vibration was employed.

During initial stages of the work, segments of the ribs would strip off with the form, resulting in "bald" spots where there was no marked relief beyond the nominal wall surface. This was due to failure at the base of partially hardened ribs, which was caused by a slight deflection of the forms between ties under the pressure from succeeding lifts of concrete. A reduction in spacing of ties rectified this problem. The General Contractor, George B. H. Macomber Company, was responsible for the development of this technique.

The building demonstrates the belief of the Architect, his Structural Engineer Henry A. Pfisterer, and Mechanical Engineers Van Zelm, Heywood & Shadford, that their respective designs not only should be integrated, but should also, wherever possible, complement and aid the functions of the other designs.

To achieve this goal, hollow structural columns at the perimeter of the building are used as primary air passages of the heating and air-conditioning system. Branch air-supply passages are provided by plenums enclosed by suspended ceilings. Standard grilles and diffusers were rejected for more complementary slots and strips, which are in coves at the edges of the ceilings.

A double-duct high-velocity heating and air-conditioning distribution system was selected for centralization of equipment and for its capacity to provide individual area control and maximum outdoor air cooling during intermediate seasons. Supplemented by hot water radiant floor heating below large glass areas, this system is divided into two zones, north and south, controlled from outdoor temperatures; final control is by mixing boxes in the double-duct air system.

Fresh air is brought down to the main system through two of the hollow structural columns, which are, in general 4-ft wide and 10-ft long, with 12-in. thick walls providing vertical passages 2' x 8'. From the hot and cold decks of the central system, metal ducts are extended to perimeter columns, which are lined with heavy-density glass-fiber thermal and acoustical insulation to prevent abrasion by the air stream. On each floor, short ducts are extended from the columns to mixing and attenuating boxes exposed against the underside of the floor slab. Short ducts connect these to ceiling plenums, which are partitioned into interior and exterior zones. Air is discharged through simple slots within coves at the perimeters of suspended ceilings.

Since the building is composed mainly of large areas, a central return air system is installed, utilizing the four main interior columns. Vertical slots on both sides of these columns have combined volume and fire dampers. Return air flows through concrete trenches below the lowest level to the main air-handling equipment in the sub-basement.

The building is supplied with high-pressured steam from the central power plant of the main campus. Provisions have been made to receive air-cooling equipment when the operation of the school is changed to a twelve-month program.

All these architectural disciplines are fused to produce a building the function of which is to be a teaching facility—not only to house a school of art and architecture, but, in the words of the architect, "to excite and inspire the occupants." In this sense, the primary function of the building is actually to teach architecture.

Students and critics may demur to several practical aspects. All may warn that this monument to art and architecture should not be imitated by those it is designed to educate. Yet few who visit this building can resist the mnemonic quality of its spaces, its light, its inventive furnishings, its use of art work. Like a museum, it displays the essences of design and architecture. Like a shell from the sea, it will sound the source of its being to those who will hear.
The link between the separate service tower and the body of the building is pierced at two levels to reveal the sky. The grand entry stair mounts like an Italian hillside street to the lower of these openings, the main entrance being expressed as a complete penetration of the building. The top of the stair gives access to the exhibition hall and elevators; most students, however, enter by the narrow door beneath the pierced pillar, and go down to the library level before taking the elevator.

Throughout the building, plaster casts of Donatello, della Robbia, and the Parthenon friezes, which were "re-excavated from the bowels of Yale," as well as casts of Sullivan panels, are placed, insofar as possible, to fill the entire surface of the areas they occupy. Many of the casts were of a dimension that recurs in the building. "These works," Rudolph says, "have been used to reduce the scale of the interiors, which is, I believe, the basic relationship between all ornament and architectural space."

"It is, of course, easy to criticize the use of the plaster cast," Rudolph admits, "but I believe that the rather purist arguments against using them are outweighed by the effect of their 'presence' in a building devoted to learning."

"The Minerva in the drafting room, for instance," he continues, "clearly demonstrates a problem in scale. She somehow manages to dominate a very large space even though she is only 14 ft tall. Her pedestal and placement, as well as the quality of light, allow her to dominate. It seems to me that this is in itself a lesson."
The art library space (above) flows from a low-ceilinged (7'6") entryway to a tall (20'9") reading room that seems to soar because of clerestories on both sides—one opening to daylight, the other to the exhibition hall. Orange carpeting was chosen for the warm light it reflects on walls and ceilings. Lighting, in general, is by incandescent reflector lamps, such as R-34 and R-40, that are left bare on adjustable sockets. Exposed raceways are either suspended, as in high-ceilinged areas, or surface-mounted. Suspended ceilings are cut short of the perimeter area to provide coves; lamps extend just below them to resemble recessed can lights. A Sullivan frieze closes off a cove in the open-plan office of the Architecture Department (below). "Spaces interlock in a most exciting way," said Nikolaus Pevsner of this building, "not only horizontally but also vertically, and not only inside but also between the inside and outside world."
The exhibition hall (above) rises two stories and has a view onto library below. The auditorium (below) reiterates the multilevel scheme.
Since the building nearly covers its site, landscaping is mostly in concrete planters; some of these are used also as railings for terraces, such as those on the roof (above), which will serve for outdoor painting and sketching. Several levels of the stairwell (below) are cut back to leave a display wall on which the Parthenon frieze is stacked vertically. Smooth, flat formwork is used for concrete walls in narrow spaces such as stairwells. Here, orange carpet is wrapped over concrete as bench upholstery.

A penthouse apartment (right) is for distinguished visitors. Here, the arrangement of the casts, as well as the design of the furniture, reiterate the theme of the building. Large expanses of glass expose rarely seen views of the University and New Haven.
Delicate-looking wrought-iron elevator grilles from Louis Sullivan's Chicago Stock Exchange are used as gates to art library and administrative offices (above); recesses made by wood cones for tie rods are left revealed in the lintel. In a second-floor lecture room (left), two wood Corinthian capitals atop slender pipes give a mannerist lesson on the strength of materials; the wall-wash skylight is used in the exhibition hall also. Heavy-duty mesh mats (facing page), generally used to hoist cargo from pier to ship, are hung as panels to screen glass walls. On sunny days, drafting tables receive a projected heavy-duty grid; duck inner panels are therefore used to diffuse shadows. These rugged nets—too coarse in scale for small interiors, some feel—make fitting companions to the burly-textured concrete from the exterior. Common materials are used in similarly uncommon ways throughout this uncommon building.
Perhaps nowhere in the United States (or elsewhere, for that matter) do we have a more vivid juxtaposition of contrasting architectural styles than in the two most recently completed buildings in Yale University's renowned building program: Paul Rudolph's intensely personal, "expressionist" Art and Architecture Building (see previous pages) and Gordon Bunshaft's calmly aloof, "formalist" Beinecke Rare Book and Manuscript Library (see following pages). Rudolph's building is the culmination of his architectural philosophy to date: iconoclastic, individualistic, yet decidedly having a sense of progression from the wellheads of the modern movement. Bunshaft's library, while not one of his chefs d'oeuvres in the line of Lever House, Pepsi Cola, and Connecticut General, does have his practiced touch and unerring eye for sensitive detail. To have these two buildings open almost simultaneously only a few blocks from each other provides an interesting look at what, in the hands of two uncommonly talented designers, is happening at the two opposite poles of contemporary architecture today.

Over the past few years, Rudolph has been one of the undoubted leaders of an architecture that has veered from simple geometry to plasticity and complexity—an architecture in which the personality of the designer decidedly asserts itself. Progressively, his Forestry Laboratory and Married Student Housing at Yale, Blue Cross Building in Boston, and New Haven Parking Garage have pointed the direction toward an architecture where, according to Rudolph's principles, "things are manifest, that they have various parts, sizes, and shapes." The number of designers who are following this philosophy is, to all evidence, decidedly on the increase, and, inevitably, they will be stimulated by Rudolph's latest, and best, work.

The tradition of Skidmore, Owings & Merrill's Bunshaft, in contrast, is predominantly marked by a formalistic approach of dignified impersonality. The success this style has had for corporate clients such as Lever, Chase Manhattan, Bankers Trust, Union Carbide, John Hancock, and many others is undeniable. The glossy surface, the meticulous detail, the striking accent, the immediate perception of a building as a total composition are all hallmarks of Bunshaft's design. Although it is interesting to speculate that buildings by less talented imitators of Bunshaft will cause far less visual distress on our cityscapes than those by emulators of Rudolph (due partly to the increasing availability of components which permit ready assembly of "SOM-type" buildings), it is nonetheless true that when a master of the form turns his hand, the difference is immediately apparent. When the two styles occur side-by-side, as they inevitably must, and without the serenely integrating influence of the Yale campus, we may look for either visual chaos or unexpected excitement in our urban scene—probably both.

It is most appropriate that these particular architects were assigned the buildings they designed. The Art and Architecture Building, a multi-use structure to be "lived in," to excite young imaginations, to be loved or hated, went to the personal designer Rudolph. The rare books library, a "monument" to a great collection and to cloistered scholarship, found the correct interpreter in Bunshaft. Rudolph, as Chairman of Yale's Department of Architecture, was somewhat his own client, and it could be said that he has no one but himself to praise or blame for the outcome of his building. Bunshaft, the architect experienced in getting good design through the labyrinth of corporate bureaucracy, had as client, in addition to Yale, the donors of the building, the very much alive and interested Beinecke brothers. Even the backgrounds of the two architects are peculiarly appropriate here. Rudolph, except for a short partnership with Ralph Twitchell in Sarasota, has been a one-man firm for his entire career. Bunshaft, on the other hand, joined SOM in the 30's and has been with the firm ever since, as Chief of Design for the New York office.

The Two Buildings: Rudolph's School

Paul Rudolph's rejection of the "universal space" has never been so complete as in the Art and Architecture School. Out of a complex arrangement of vertical and horizontal planes, he has created 37 levels in what is essentially a seven-story building. These range from the multi-level, two-story-high exhibition hall and drafting room (really the core of the building), to intimate, low-ceilinged seminar rooms and discussion alcoves. The space provided for each activity is not capricious; the lofty art library reading room is joined to lower-ceilinged open stacks; the great central space of the architectural drafting room is surrounded by drafting and conference areas for the various classes on the bottom level and a mezzanine; the high main room of the exhibition hall, with its jury pit for judging student problems, has ancillary, lower-ceilinged areas for the hanging of exhibits and the showing of sculpture. The only really "universal" spaces of the building are the seventh-floor painting studios, which have already been chopped up into a rabbit warren of partitions by the tenants.

To create a building of such plasticity, Rudolph's major material was inevitably concrete. The aggregate and the deep vertical striations of the concrete give what Dr. Nikolaus Pevsner called at the building's dedication a feeling of "tweed," which is uniquely appropriate to this old Ivy League campus. This treatment of surfaces is extensively repeated inside the building, relieved frequently by smoother surfaces where the board marks of the forms are exposed. Rudolph has used the smooth surfaces where they are more likely to be touched or brushed against, and the rough surfaces for more inaccessible walls (unfortunately, one occasionally comes too close to the latter for comfort). The feeling of masculine textures is carried through in the use of heavy cargo netting for light control on most of the larger glazed areas. The major color emphasis, also a positive note, is furnished by orange-red carpeting in the library, offices, and seminar spaces.

In his use of art for the building, Rudolph was courageously catholic. Work by such contemporaries as Albers (whose geometric wall sculpture furnishes a somewhat unsympathetic note above the entrance), de Kooning, Ives, and Liberman are pres-
ent side by side with old Beaux Arts casts of classical sculpture, capitals, casts of Assyrian wall reliefs, and, perhaps most successful, elevator grilles from Sullivan's Chicago Stock Exchange Building (used here as entrance gates), plaster casts of Sullivan's friezes from the Garrick, and intaglios of Le Corbusier's Modulor and da Vinci's Golden Mean. The feeling is of a great continuity of architecture and art; none of these disparate elements (except the Albers) jar with the over-all composition of the building.

As the newest element in the Yale campus-scape, the Art and Architectural School is eminently successful. The warmth of the striated concrete aggregate is very much in sympathy with the tone and vertical emphasis of most of Yale's buildings. Approaching the structure's corner site on York and Chapel Streets, one is struck by the fine sense of progression, on Chapel Street, of Street Hall, the old Art Gallery, and Louis I. Kahn's new Art Gallery, (the latter furnished a serene introduction to the personality of Rudolph's building). Although the school is surrounded at present on three sides by undistinguished commercial buildings, it has the camaraderie to be a good neighbor even to these. There is a decided feeling of permanence; the observer cannot imagine the building never having been just there. The irregular profile of the building, with its distinct penthouse, terrace, and stair tower roofline, echoes and continues the generally irregular silhouette of Yale itself. This feeling will probably become even more pronounced when the building eventually expands to the north.

The Two Buildings: Bunshaft's Library

The Beinecke Rare Book and Manuscript Library is broken cleanly into two kinds of space: the monumental and the functional. As with the exterior, the interiors are immediately perceived for what they are—Bunshaft's statement is unmistakable and direct. The monumental exhibit space is, in effect, a giant cube penetrated by a glass-enclosed tower of books. The entire feeling of this space is that this is a repository, a vault, a rather funereal museum for expensive and unusual objects. The feeling of awe necessary in the presence of treasure is experienced here. There is also a lingering feeling, however, that it is simply a large volume rather than a grand space.

Below ground, the space is quite different. This is the working area of the library, with reference room and offices surrounding a sunken court, and with stacks extending beneath the building and plaza. These areas are functional, crisply designed rooms for the actual scholarly use of the collection.

The materials used in the library reflect the value of the contents. The granite-framed Vermont marble panels announce that "nothing was too good" to create this monument. Everything here has the sheen of quality—marble, glass, steel, leather. While the effect of the white marble on the exterior is startling and even a trifle ostentatious in its tan campus surrounding, inside, on a sunny day, the light through the opaque panels creates an effect that is undeniably rich and appropriate to the great space. Richly-toned book jackets, carpeting, and lush leather sofas increase the feeling of opulence. The reference and staff rooms, while by no means Spartan, are judiciously neat and workmanlike.

Use of art in the library is as it should be for a museum (one cannot separate the idea of this unique library from that of a museum). The books themselves, as has been noted, are treated as the major display of "art." They are sealed off from the viewer in the huge glass tower and in cases and pedestal displays of single volumes. The other use of art is in Noguchi's eerie white marble landscape in the sunken court. Here again, the feeling is "look, but don't touch," for the court is surrounded by the glass walls of offices and reference room. The three symbolic forms of this huge sculpture are distant and cold, as impersonal as the gleaming facade looming above them.

In its campus setting of tan eclectic buildings, the rare book library appears as a definitely separate monument. Bunshaft sees the Yale campus as composed of "islands" of buildings of varying hues and make-ups. He obviously intended the library and its plaza to form a gray and white island of its own. One is struck, however, that this strong architectural statement is perhaps too strong in this environment. There is, moreover, a dichotomy of feeling: it does not "go" with its neighbors, but it is just "right" for what it was intended to be. It is somewhat forbidding: only those who want and need to enter will enter (the doors are well hidden under the overhang). Up close, the great granite and marble cube, carried by steel Vierendeel trusses, sits rather heavily on its corner columns. From across the plaza, an odd visual transition occurs: the building appears smaller than it really is—a jewel box rather than a treasure chest. Withal, it is a solid, uncompromising statement by an architect who knew what he wanted. This is its success.

The Two Buildings: The Two Philosophies

It has often been noted in the past year or year-and-a-half that Yale University is fast becoming a comprehensive museum of varying hues and make-ups. He obviously intended the library and its plaza to form a gray and white island of its own. One is struck, however, that this strong architectural statement is perhaps too strong in this environment. There is, moreover, a dichotomy of feeling: it does not "go" with its neighbors, but it is just "right" for what it was intended to be. It is somewhat forbidding: only those who want and need to enter will enter (the doors are well hidden under the overhang). Up close, the great granite and marble cube, carried by steel Vierendeel trusses, sits rather heavily on its corner columns. From across the plaza, an odd visual transition occurs: the building appears smaller than it really is—a jewel box rather than a treasure chest. Withal, it is a solid, uncompromising statement by an architect who knew what he wanted. This is its success.

Meanwhile, the array of all the new Yale buildings is brought into focus by the two latest additions, the expressionist school and the formalistic library. Between these two approaches can be encompassed virtually all present-day design philosophies: brutalism, sensualism, neo-eclecticism, and plain old Park-Avenue-curtainwallism. Though at opposite ends of the design spectrum, the two buildings have this in common: each represents the carefully accomplished design idea of a strong, talented architect who was in charge of his project from beginning to end. As such, they undoubtedly will merit the interest of future generations of architects as a picture of what two equally valid philosophies of design were contributing in the United States in the 1960's.—Ilse M. Reese and James T. Burns, Jr.
Yale Rare Book and Manuscript Library
Skidmore, Owings & Merrill, Architects
The pervasive design image—that of an immense translucent treasure chest—stirred considerable interest among architects when Yale’s plans for the Beinecke library were first announced in 1960. According to this design idea, the walls of the library would shield the rare books and manuscripts from direct sunlight, yet allow enough light to penetrate to the interior to provide a warm radiance; and at night, conversely, the building would emit a gentle glow from its own illumination to the outside. Already in the preliminary design stages, the architects had subordinated every aspect of planning to this single idea of the translucent container. Thus, in the interior planning of the building, one volume was placed within another; structurally, multi-tiered Vierendeel trusses provided the open web for the insertion of the translucent stone (see DECEMBER 1961 P/A); in the selection of a form for the building, a boldly assertive, free-standing structure was chosen, instead of a low-lying, conforming one under consideration at one point; and in siting the building, the device of the enclosing wall set the structure apart as an artificial island within the campus, which, according to the architects, “appropriately dramatized the fact that this building contains a priceless treasure.”

Success of this scheme depended on finding the right material, possessing the appropriate color and light-diffusing characteristics, and capable of being supplied in sufficiently large sizes and quantities. Marble quarries abroad were combed by the architects, samples shipped to the U.S., full-size mock-ups made, but nothing was found as suitable as the Montclair-Danby marble discovered in Vermont at the last moment.

With the insertion of the 1½-in. thick marble slabs into their granite-surfaced steel frames, the experiment can at last be examined. Indeed, the prime interest lies in the provocative re-use of the ancient material, which, coupled with sunlight, has given this building two fascinating faces: a crisp, cold, almost blinding white exterior (left) and, in surprising contrast, a warm, glowing, richly veined interior (below).

The success of this uncompromising adherence to the one strong design concept (see preceding critique) is credited by the architects to the following members: Gordon Bunshaft, Partner in Charge of Design; David H. Hughes, Partner in Charge of Coordination; Sherwood A. Smith, Design Assistant; Morris Zelkowitz, Job Captain; Davis B. Allen, Interior Design. Design Consultants were: Paul Weidlinger, Structural Engineer; Jaros, Baum, & Bolles, Mechanical Engineers; Edison Price, Lighting. George A. Fuller was the Contractor.
The four Vierendeel trusses are composed of welded, tapered steel crosses into which the octagonal marble panels have been fitted. Granite provides the outer covering for the box-framed truss members; precast stone with granite chips the inner surfacing. Each of the trusses carries part of the roof load and its own weight. These loads are transferred through pin-joints to the granite-encased steel columns. The central core takes part of the load of the steel-framed and steel decked roof.

Illumination in the public exhibit and lounge areas (1) has been kept consciously low to underscore the phenomenon of the light-filtering stone, and to draw attention to the brightly lit island display cases. Incandescent downlights pick up the surface glow of the exterior wall and transmit it to the book stack (2), where rich bindings add their own luster to the interior. The 60' x 35' x 50' book stack is glazed to maintain 50 per cent humidity and 70°F temperature, ideal for book preservation. For human comfort, a slightly higher temperature but reduced humidity is maintained in all other areas—the space surrounding the book stack, the reference library (3), and staff offices (4). The latter two surround a sunken court designed by Isamu Noguchi (5). In addition to temperature, dewpoint, and humidity control, elaborate systems provide protection against fire and theft.
GEOMETRY OF SPACE IN SCHOOLS

The teaching areas that constitute the major part of a school are generally made up of repeated units of space. Traditionally, these units have been the classrooms, as they still are in schools where the program demands uniform classrooms. Now, however, when teaching spaces are of various sizes, the repeated unit is often a structural bay—more flexible than the old classroom in the space arrangement it allows, yet equally rigid in its geometry.

These modular units are the building blocks from which the school is assembled. They may be connected together linearly or two-dimensionally, clearly articulated or composed into compact masses. Special spaces such as auditoriums and gymnasiums may be accommodated within this spatial matrix or housed in enclosures of different scale, using different structural systems.

The schools presented on the following pages illustrate three distinct approaches to the design of such modular units and the effect of these approaches on the over-all design of the buildings.
Although located in an area of small-scale single-family houses, this school was prevented by typically urban limitations of site area and budget ($16 per sq ft) from following the sprawling, segmented pattern so common in the suburbs. The effort to design a compact school, compatible with its neighbors, led the architects to adopt a uniform hexagonal plan for the 15 classrooms required in the program.

The repetition of these hexagonal units made it economically feasible to roof them with pyramidal poured concrete shells, rotating three sets of formwork among the 19 identical shells constructed. These low pyramids are a rational and expressive means of spanning hexagonal spaces, and—collectively—they give the school the appropriate appearance of a community of small-scaled houses.

These concrete shell roofs rest on concrete block bearing walls; block walls also support the steel beams and metal decking that span the flat-roofed areas of the building. The angular corners of the block walls caused considerable difficulty during construction, since a neat pattern of joints was required on the interior, where the blocks are painted; the exterior surfaces are brick veneered.

Once the hexagonal classroom plan had been established, its geometry affected the entire plan. Hexagonal shapes were applied to the separated auditorium-gymnasium wing, to sunshades, lighting fixtures, and skylights, and even to paving—not because of a whimsical or obsessive attachment to the shape, but because, in the architects' words, "there was no place to stop." The introduction of rectangular shapes in plan would have produced glaring inconsistencies and clumsy intersections.

One frankly symbolic element, however, is the entrance canopy. Its form is a restatement—or rather an introductory statement—of the classroom spatial unit; its roof structure, identical to that of the classrooms, is supported on six hexagonal concrete columns.

By arranging the classrooms in clusters
The ceiling of the typical classroom (top photo) follows the form of the concrete shell roof; concentric rings of acoustic tile and painted concrete and custom-designed fluorescent lighting fixtures conform to the hexagonal pattern.

Alcoves and changes in direction lend visual interest to the corridors (photo above). Located at the entrances to each cluster of classrooms, the alcoves provide complete changes of pace; walls are painted bright, identifying colors, which contrast with the generally neutral interior colors; hexagonal skylights introduce variation in the lighting.
along a hexagonal corridor, the architects have met the initial requirement for compactness more than adequately. The relatively short corridor length per square foot of teaching space has yielded the lowest over-all percentage of circulation space (18 per cent) yet obtained in a Detroit school. Although the total area of the corridors is relatively small, it includes skylighted alcoves at the entrances to all principal rooms, which provide extra space where it is needed and produce an effect of spaciousness and variety.

The space on the inner side of the main corridor accommodates the library, special classrooms, the administration, and ancillary facilities—the major rooms overlooking the quiet interior courtyard. Even the six windowless quadrilaterals at the corners of this hexagonal ring have been used to advantage for storage, circulation, and mechanical spaces.
The loads of the steel trusses that span the gymnasium (right and below) are transferred to the brick-veneered block bearing walls by triangular precast bearing blocks. The windows between them are the only elements of the building that repeat the hexagonal shape in elevation.

The court at the center of the classroom block (above) was designed for the use of science classes, but it also provides a pleasant, controlled outlook for the rooms around it. The dramatic arts room (left) and the multipurpose gymnasium (below) are located in a wing that was separated from the classroom block to isolate noise and facilitate after-hours use by the community.
Zigzag Line of Bays

The major teaching areas of this school are located in a long wing laid out in a zigzag line along the contours of a stream bank. The uniform string of 18-ft-wide bays that makes up the wing, together with wedge-shaped bays at the bends, provides spaces that are fixed in their transverse section, but can be flexibly divided along the length of the wing. On the upper level, two 24-ft-deep teaching spaces flank a central corridor. The lower level provides for larger spaces with conventional ceiling height requirements, such as the library and cafeteria. In many bays the lower level has been left open, in reserve for expansion.

The continuous band of windows stretching like a ribbon along the upper story of the wing emphasizes its shape—the mullions indicating the small modular divisions at which classroom partitions can be located. Lower level spaces have floor-to-ceiling glass, shaded by recessed galleries.

A bridge attaches the classroom wing to the “commons building,” which houses administrative offices, athletic and performing arts facilities, and shops. This building is compact in plan, with gymnasium and auditorium in the high-roofed core, and offices and special teaching spaces along the periphery.

Where the bridge enters the classroom wing, there is a student project area and lounge with a wide-angle view of woods and stream. Stairs lead down from there to the cafeteria. One unusual room is the “audion” room—located between the chemistry and physics labs—which has tiered seating for viewing demonstrations.

Population statistics and topography determined the broad outlines of the building. The school district, located in the rapidly growing outer suburbs of Philadelphia, anticipates a growth in senior high school enrollment from 600 this year to 1200 in 1970; provision for expansion was therefore a major requirement of the program.

The site, a 45-acre tract of farmland, slopes down gradually from a main road to the wooded banks of a stream. The relatively level, treeless acres near the road have been devoted to athletic fields, and the school has been sited at the edge of the stream-bank.

Plans for expansion call for the construction of a new 15-classroom wing to the west of the commons building. Cafeteria, library, homemaking suite, and locker rooms may be enlarged in the future at their existing locations.
Continuous ribbons of windows on both sides of the classroom wing (top photo) overlook the natural greenery. The "audion" room (photo above) is a college-style tiered lecture hall for science demonstrations.
The school is sited at the lower end of a 45-acre tract that slopes gently down from the highway. The classroom wing, isolated from both the highway and the athletic fields, follows the contours of the bank along which it is built. A bus entrance directly into the classroom wing makes it unnecessary for student traffic to funnel through the "commons building." The area across the stream is used for tennis courts and facilities for other small-group sports. Inside the building (plan below), the inherently noisy spaces such as the shops are isolated from both classrooms and administrative offices; the lower-level library is remote from all sources of noise.
A glass-walled bridge (top and middle photos) connects the classroom wing and the commons building. The diversity of spaces around the perimeter of the commons building is concealed by a uniform pattern of vertical slit windows. Pitched roofs provide the controlled roofscape required in a building that is approached from higher elevations (bottom photo); they also express, by changes of height and scale, the internal organization of the school.
The loft-like design of this school results from an effort to explore the advantages of the compact, mechanically ventilated, and artificially lighted interior, freed from reliance on conventional windows. The roughly 300 ft square plan is composed of a grid of rectangular bays spanned by a folded-plate concrete roof system.

The principal advantage of such a loft scheme—aside from the economies of building and maintaining shorter exterior walls, foundations, corridors, and mechanical and electrical circuits—is the freedom it permits in laying out the interior. The typical 28' x 56' bay was designed to accommodate the greatest number of possible layouts for conventional classrooms, larger spaces such as shops and laboratories, and any likely future configuration of teaching space.

This bay size is also an economical one for 4-in. folded-plate roof construction. The same system, reinforced to cover a 50 per cent greater span, was used over the gymnasiums, thus maintaining the advantages of repetitive forms and structural continuity for the entire building.

When the school received a P/A Design Award Citation (January 1962 P/A), it was reported that “the Jury admired particularly the logic of the folded-plate roof, not only as a practical and economical solution in covering a large floor area, but as a means of providing visual interest and space definition within the building.”

Concrete has also been used in all structural elements and most of the finished surfaces throughout the building—in columns and exterior walls, in slab-on-grade and pan-joint floor construction, and in the integrally colored concrete floors of corridors and public spaces.

All teaching spaces are located on the main (upper) floor of the school. The layout of this entire floor is related to the “demonstration area” (photo overpage top), which is designed to accommodate...
meetings and exhibitions. It is, in effect, an indoor plaza, through which one passes on entering the school and in moving from one part of the building to another; the library, auditorium, and administrative offices face it, and corridors to the classrooms lead out of it like side streets.

At the other end of the school is the block of athletic facilities (left), planned as a core around which the teaching spaces are wrapped, with corridors providing acoustical separation. The separate entrance to these facilities is furnished with ticket and concession booths.

Interior colors are limited to a range extending from white to dark brown. Concrete block interior partitions are painted in shades of cream and ocher, door bucks are brown, floors are a bright "golden ocher," and blinds in the classrooms (left, below) are orange.

The 17'-6" ceiling height of the lower floor makes it possible to increase the capacity of the school within its present volume by building mezzanines. The architects estimate that 500 students could be added to the initial capacity of 1200 by utilizing space over the cafeteria and the girls' gymnasium. The additional initial building volume cost relatively little to construct or maintain; in this case, the cost of the additional height was partially offset by resulting savings in grading.

The ventilating system is designed for conversion to air conditioning by the mere addition of compressors in the main fan room. All elements of the system, from unit ventilators to pipe insulation, have been designed as part of a year-round air-conditioning system. Such a system would make the building useful for special summer courses.

The construction cost was $1,225,278, or roughly $1020 per pupil. The cost per sq ft, with allowances for porches and extra ceiling heights, was $9.25. These costs include landscaping and built-in equipment covered in the general contract.
A folded-plate concrete roof spans the loft-like, mechanically ventilated teaching areas. The 28' x 56' bays are adaptable to a wide variety of layouts; one row of bays with a span of 84 ft accommodates the gymnasiums. The central expansion joint required for the 345-ft-long roof is expressed on the front (photo below) by the paired columns.
A 14-ft overhang shades all sides of the building. On the south side (below), the overhang is solid; on the other three sides it is punctured by rectangular openings in a pattern that recognizes the column locations. Lower-floor windows, occurring only on the east elevation (bottom), are shaded by the overhang except during the early morning hours, when most of the spaces inside are not in use.

The concrete exterior walls incorporate U-shaped structural columns, which appear freestanding at the entrance portico (above). The broad wall panels at the center of each typical bay (below) are also U-shaped in plan, but with the recesses on the interior. Because of the complex forms of the ventilator hoods, these panels were precast; all other elements were poured.
Windows constitute 53 per cent of the exterior wall area. The regularity of the pattern in which they are arranged is emphasized by the orange blinds that can be seen behind grids of aluminum mullions.
RECENT WORK OF PIERRE JEANNERET

BY U. E. CHOWDHURY

Pierre Jeanneret has quietly collaborated with his famous cousin Le Corbusier on and off for years. In fact, the first three volumes of Le Corbusier's monumental Oeuvre Complete, covering the years from 1910 through 1938, are a record of their joint work. It was through Corbu that Jeanneret first went to India in 1951, but it is the quantity and quality of Jeanneret's work at Chandigarh that prompts the author of this article to say, "It is his work that makes the biggest impact in the city proper." In the following pages, Mrs. Chowdhury, a close friend and colleague of Jeanneret, traces his career to these most recent projects, where, she feels, he has come into his own. This work should interest architects who have had little opportunity to follow the latest work of an early pioneer.

For more than 40 years, Pierre Jeanneret has worked with his world-famous countryman Le Corbusier. The two are actually cousins—few architects need to be told that Le Corbusier's real name is Charles Edouard Jeanneret. Their families are of solid middle-class Swiss stock from the neighborhood of Geneva, and have worked there as clockmakers for generations. Although Le Corbusier broke away from his family in his boyhood to earn an itinerant livelihood throughout Europe, Jeanneret was given an academic architectural education.

The two young men came together in 1920 in the intellectually highly-charged atmosphere of Paris. By this time, Le Corbusier had already formulated iconoclastic ideas. Jeanneret had been exposed to new concepts regarding the use of reinforced concrete through his work with August Perret. (Corbu had also been in the Perret atelier, from 1909 to 1910.) The cousins decided to work together. Le Corbusier had no academic qualifications but was overflowing with ideas. Jeanneret, nine years his junior, was officially qualified to practice and was interested in Le Corbusier's theories. The partnership was promising for both.

Paris was, in the 1920's—and perhaps still is—the center of intellectual life of Europe. In cafés, in noisy apartments, and in streets, discussions raged, imposing theories were put forward and torn down. No watertight compartment divided the practitioners of one art from those of another. Le Corbusier was writing prolifically at this time. During this early period, much of his energy was spent destroying myths about the applicability of historical styles to the present day. A little later, he began to contribute more positive ideas of his own. This work should interest architects who have had little opportunity to follow the latest work of an early pioneer.

The buildings erected by Le Corbusier and Jeanneret at this stage were stark and bare. These works denied all that went before, yet at the same time they made some new affirmations. Perhaps the most famous of these early buildings was the Villa Savoie at Poissy (1928-30), which embodies the five points laid down by Le Corbusier: (1) the functional independence of wall and skeleton; (2) the free pillar; (3) the free plan; (4) the free façade; and (5) the roof garden.

Side by side with their architectural work, both men were designing furniture, and Le Corbusier was simultaneously developing as a painter. Even their interest in architecture was not a narrow one, limited only to the design of single buildings: their ideas extended to the philosophy for living in them and to the integration of every building with its surroundings. It was therefore a logical step for them to do research in town planning and to evolve ideas for the spatial relationship of groups of buildings in an urban environment.

The first large-scale application of their ideas was their 1927 project for the League of Nations buildings in Geneva. Although theirs was the only design that came to grips with the functional problems involved, the academicians could not bring themselves to award it the first prize. The befuddled jury finally awarded nine first prizes, and the building—as constructed—was an unsuccessful hotchpotch of several designs.

Then followed two large projects in Paris: the Salvation Army hospice (1929-33); and the Swiss pavilion of University City (1931-33). Both show the inventiveness and boldness that have made them landmarks of modern architecture.

During World War II, when construction was practically at a standstill, the two cousins worked apart. Jeanneret designed light, prefabricated houses and schools, for the most part. In 1950, he began the design of an industrial training school in southern France, at Béziers (see photos, facing page).

To Chandigarh in 1951

When Le Corbusier was commissioned to design the new capital of the Punjab, it was evident that someone would be needed at the site to interpret his ideas, since he himself was not prepared to leave Paris and live in Chandigarh. The obvious choice was Jeanneret, who was not only a renowned architect in his own right, but because of his long and close association with his cousin could also be relied upon to transcribe Le Corbusier's ideas faithfully at the site. Furthermore, Jeanneret had established a reputation for bringing out the best in the young students who had come to work for them. To the Indian authorities entrusted with the task of selecting architects, it was immediately recognized as a great asset to have a man who could, by his influence and example, turn out confident and creative architects in a nation where they are scarce.

With Le Corbusier's appointment as planning consultant and chief architect to Chandigarh, it was stipulated that he select three senior architects to be appointed by the Punjab government. These three were to set up offices on the site (hiring
In 1950, Pierre Jeanneret began the design of this technical school in Béziers, France. The simple, cubist forms are a latter-day continuation of the vocabulary so eloquently used when he and Le Corbusier first worked together in the 1920's. In the same way, in relating a series of elements to each other, Jeanneret is concerned with some of the same problems that, in theory and practice, have absorbed the two cousins since their earliest years together. The wing-shaped units at Béziers are workshops. Materials used throughout the school—stone, concrete, and brick—are precisely those that Jeanneret used in his extensive work at Chandigarh.
Indian architects exclusively) and remain in India solidly for
the next three years. Although Maxwell Fry and Jane Drew
did leave in 1954, Jeanneret stayed on—overseeing construction
of Le Corbusier’s governmental buildings, and designing his
own great variety of work: housing of all types, schools, offices,
shops, clinics, and major structures in the university enclave.

Although the master plan of Chandigarh is Le Corbusier’s,
it actually evolved through years of research in town planning
carried on in his studio in collaboration with Jeanneret. Le
Corbusier was responsible for the buildings in the capital
city—the area to the north of the city, comprising the most
important buildings of the state: the High Court, Secretariat,
Assembly, and Governor’s residence. But the majority of other
buildings in the city were designed by Pierre Jeanneret. It is
his work that makes the biggest impact in the city proper.

**Design Approach in India**

In Jeanneret's approach to design, there is a sound reason for
every design decision. To the casual viewer, his work may
appear to contain an element of fantasy, but even a perfunctory
examination reveals the logic behind particular forms.

Working with the basic program requirements, Jeanneret
seeks a solution that will simultaneously meet exigencies of
climate, social usage (present and future), and economy. Cost
is perhaps the biggest determining factor in the design of
buildings in Chandigarh. Since brick is the cheapest material,
economy has necessitated that it be extensively used; it is the
basis of the bearing-wall construction of nearly all Jeanneret’s
buildings. He has used brick imaginatively in arched porches,
screen walls, and sunscreens. He has been the first in India
to use unplastered brick extensively for low-cost dwellings.

Although it seems likely that other architects before Jean­
neret would have adopted the same approach and arrived at
similar results, his buildings are actually unlike any that have
preceded them in India. Traditional buildings had followed a
standard pattern: the principal rooms were crammed into the
core, with little thought as to their visual or spatial continuity;
girdling the core were subsidiary rooms and verandas. This
girdle was the only attempt at solving the problems of climate.
Ceilings were very high, rooms immense. Economy in the
utilization of space was a secondary consideration. For finishing
touches of “beauty,” Graeco-Roman moldings were applied,
and the exterior plastered. This, in brief, was the legacy of the
British to the architecture of India. Indigenous architectural
forms—minarets and domes—were also used, but because they
were originally intended for a different type of society, where
the emphasis was on tombs, temples, and palaces, these forms
were ill-suited to such modern buildings as railway stations,
hospitals, and schools, and in fact have no application today.

Jeanneret soon decided that the ubiquitous veranda was an
expensive solution to the problems of climate. The cost per
square foot of a veranda is not much less than that of a room;
and because of it, interiors are dark and depressing. Jeanneret
looked for other solutions to protect walls and openings—
sunbreakers, canopies, and fins (see photos, this page). Fre­
quently, too, the exterior wall itself is treated with projecting
bricks, to provide shade and thus reduce the amount of heat
that will be received, stored, and radiated. His work shows a
tireless search for effective and economical ways to combat the
heat and other problems of the difficult climate.

**Housing Types**

Chandigarh will ultimately have a population of 500,000 people.
Despite the impressive contribution of Le Corbusier—the magni­
cificent sculptural buildings for the governmental functions—
it is the humbler buildings in the day-to-day life of the people
that contribute equally to the atmosphere of this capital city.
Responsibility for all house designs has been in the hands of
the three senior architects, and it is here that Jeanneret has
Maxwell Fry has said that there are six climates in Chandigarh, the major ones, however, being a cold winter, a dusty dry heat before the monsoon, and a humid heat afterward. There are thus problems of a strong sun and stinging sand storms, and a need for through-ventilation during the monsoon. Jeanneret has met the challenge of these conditions imaginatively. Shown here are a dramatic brick sunscreen (6); a wall where projecting bricks give partial shade (7); and a curved fin that serves as “wind-catcher” (8).

The building materials are also restricting: economy dictates extensive use of local brick. Much of Jeanneret’s work is a translation of traditional bearing-wall construction into contemporary terms.

There are 13 categories of housing for government servants in Chandigarh, ranging from minimal dwellings for peons, built for $650, to $15,000 detached residences for ministers. Examples of Jeanneret’s work include: low-cost units arranged so that ground-floor residents sleep in back courtyards, upper-floor residents on the roof (9); a peon “village” (10); row housing with two bedrooms on the second story (11); another middle-income block, with recessed balconies (12); apartments for members of the state legislature (13); and a private house for the well-known Indian writer, Nayantara Sahgal, daughter of Mme. Pandit (14).
made, and continues to make, a solid contribution.

The housing at Chandigarh, according to Jaqueline Tyrwhitt, is “deliberately experimental in a country where there have been few original experiments in housing.” She reports that each design has led on to another, and she concludes, “There is no doubt that a new ferment has started in the design of dwellings for India that may be able to bring to birth a new and truly Indian development of domestic architecture.”

The housing at Chandigarh is a unique product—not a duplicate of anything previously done in Europe or India. In program, it seeks to interpret contemporary Indian life, which is a blend of traditional habits and Westernized ideas and which is changing rapidly in this fast-moving world. For instance, a compromise must be made between existing living habits, and the habits which, of necessity, will be coming to the fore as a result of a changing economic pattern. The joint family is rapidly giving way to the single family, but in view of current usage it is still necessary to provide accommodation for the multi-family unit. The policy at Chandigarh has thus been to give more rooms to some occupants of low-cost houses and smaller houses to people in the upper-income brackets.

All low-income housing is in rows, with common side walls. This arrangement does away with objectionable refuse-filled alleys between houses, and effects a considerable economy in development costs, since plots are deep and narrow and the length of services is reduced. Housing for peons is grouped to form enclosed “villages,” with a small park or square as focal center, perhaps a large tree or well at the center. This grouping is intended to recall the village life of India and encourage community spirit—the feeling of social integration that is often lost in the hives of modern cities. The peons' houses all have running water, electricity, and waterborne sewerage—and two rooms instead of the traditional one space. A kitchen is also included, as well as a bathroom and a separate toilet. Total area is approximately 450 sq ft. Since the northern Indian climate and local custom demand a private outdoor sleeping area for the hot months, an enclosed back courtyard is provided. In Jeanneret's low-cost housing, windows form vertical slits in the corners of rooms, ensuring maximum privacy.

Higher-income houses are generally two stories high, with living areas on the ground floor and sleeping space on the upper floor. Jeanneret has found that it is not essential to give sun protection on the north and northeast sides of a building; the two most vulnerable sides are the south and southwest. The plan is usually so organized as to provide verandas, storage, hall, and bathrooms on the vulnerable sides of the house.

One of Jeanneret's most interesting buildings is the four-story hostel for members of the Legislative Assembly. Walls are of bearing brick frankly expressed on the façades. The play of natural materials, brick and stone, in contrast with the flat surfaces of plaster, is characteristic of Jeanneret's work.

Other Buildings

Jeanneret's designs for schools, offices, and other institutional buildings are generally straightforward. His major construction at Chandigarh, however, is the university campus, which forms almost a small town in itself within the city of Chandigarh. Here his most noteworthy buildings are the library; the secretariat; and the Gandhi Memorial (see photos, right).

Although it is too early to assess Jeanneret's influence, it is certain even now that it has extended throughout northern India. His copyists have often misunderstood and mutilated his ideas, but their imitations are sincere enough proof of their admiration.

(For photo credits, see page 188.)
Jeanneret's major project in India is the university campus, which is a sizeable sector of Chandigarh. These buildings are mostly of concrete, a material not common in his residential work. Among his university works are the library, a concrete frame faced in red stone (15); the secretariat, a modern restatement of traditional overhanging eaves (16, 17); and the Gandhi Memorial (18, 19), a three-part building with library, lecture hall, and meeting rooms.

It is interesting that a Swiss-French architect (together with his countryman Le Corbusier and the British architects Jane Drew and Maxwell Fry) has contributed so much to this capital city for the Punjab, and indirectly to new architecture throughout India. It was the Indian government's hope that Westernized ideas could be brought into a healthy interaction with Indian traditions—Nehru has said that a nationalism unable to absorb from the outside is both provincial and dangerous. To the extent that Jeanneret has given sensitive thought to the native climate, society, and economy, his buildings are a credit to the Indian leaders who trusted him to build with them.
Architectural Practice in Mexico

BY RAYMOND L. W. WRIGHT

Although Mexico and the United States share a common border, they have little in common in their practice of architecture. The problems are different—the challenges, too. Here are observations by one young American architect who has practiced in Mexico City.

Young architects have much more opportunity to set up an independent practice in Mexico than in the United States. From the time they are in their third year of school, students often hang out their shingles, and, if they have the necessary audacity, ability, or connections, can obtain a large clientele before graduating. Finding a registered architect or engineer as collaborator or associate is not difficult, and low office rents or co-op offices make thrifty operations possible. The educational system also encourages a student to work. School hours, from seven until ten in the morning and resumed again at six in the evening, leave most working hours free. (Many architectural professors are also in private practice.)

One result of this system is a great shortage of trained personnel for drafting, engineering work, and job supervision. The majority of draftsmen are students with little or no experience. They must be trained on the job, and, once trained, may leave to open their own small office. The situation has been changing in recent years, as more large architectural offices have opened. But the traditional influence of the small independent practice is still felt; offices have a number of associates, rather than the vertical corporate setup of the U.S.

Draftsmen’s wages range from 40¢ (U.S.) to $2 an hour. Engineers, supervisors, and designers receive from $150 to $500 a month. As for other office personnel, bilingual (Spanish-English) secretaries receive $150 to $250; receptionists, $100; and office boys, $40 a month. Office furnishings cost about the same as in the States; drafting equipment, even pencils, is high due to the import duties.

Clients and Contractors

Residential clients account for at least 70 per cent of all jobs. Since there are no project builders (or very few, beginning with the work of Casas Badil and Austroplan de Mexico in 1960), anyone who wants a house will use an architect or engineer and will expect to receive a custom design. Construction of an average house costs as little as $5/sq ft; $12/sq ft will buy a marble castle and $2.50/sq ft a shelter.

The architect is often his own general contractor, directly hiring all workmen under his own foreman (generally a mason), purchasing all materials, and paying all workmen every week, after presenting accounts to the client. Daily job inspections are thus vitally necessary. Many sketches for the work are made at the site itself, and minor adaptations made on the spot. The disadvantage to the architect is the limited amount of work that can be accomplished during the day.

A further corollary of frequent job inspections is that architectural drawings are usually little more than finished sketches. It is common for detail drawings to be done on the job, often on scratch pads or half-finished walls. Many workmen, although highly skilled craftsmen, cannot read plans. Times are changing, however, and more workmen are learning to read plans—a result of Mexico’s fantastic drive for education, both in basic subjects and in trade fields. It is common now to have more complete plans, although they seldom have as much detail as in the U.S.

As contractor, the architect must keep complete daily files on each job, and have an up-to-date knowledge of all labor laws, social-security laws, and so on. Subcontracting brings no economic advantage either to architect or client, with the exception of extremely large or simple jobs.

An interesting outgrowth of the tradition of architects serving as contractors is that most construction companies are owned and operated by licensed architects or engineers, and also give architectural services. A recent trend is the emergence of companies dedicated solely to construction, but as yet they are important only on large jobs.

Materials and Techniques

Wood-frame construction is not common in Mexico; almost all work has brick or block walls, with reinforced-concrete slab roofs and floors. Masonry, in fact, is the oldest building profession in the country; skilled craftsmen existed before the arrival of the Spaniards, 400 years ago.

The few prefabricating companies work in aluminum, asbestos cement, or concrete—none in wood. Wooden structures are simply not acceptable, partly because of tradition and partly because of the high cost of raw materials. Even with the widespread earthquake problem, which would seem to make wood ideal because its jointing makes it flexible in shocks, it is doubtful whether wood construction will gain acceptance in this generation.

In Mexico City, which is built on an old lake bed, a sea of mud, there is a serious problem with foundations. Soil resistance under multistory buildings is often only 3 tons/sq yd of surface, requiring great care and ingenuity in designing foundation systems. Floating slabs, displacement basements, sectional piles, or deep piling are common. One extreme condition, with a resistance of 800 lbs/sq yd, required floating foundations 20 per cent larger than the house structure.

Although frost is rare, there is extreme cold by night and heat by day; temperatures can vary 45 degrees over a 12-hour period, causing cracking of masonry and serious waterproofing problems.

All interior walls are wet plastered (unless left in natural brick or block); dry-wall construction is not used.

Labor costs are extremely low. A first-class mason will earn $2 to $3 a day; a carpenter, plumber, or electrician, $3 to $4; a day laborer, $1.80. Such wages, of course, often permit detailing that would otherwise be impossible in tight budget work.

Standardization of building elements is not extensive. There is nothing like Sweet’s Catalog; the nearest is a reference book approximately the size of Time-Saver Standards filled with commercial literature. The architect must therefore gather his reference material from the major suppliers. For example, only four companies make standard doors; no company makes a standard window that can be ordered by catalog. Aluminum is coming into use for window and door frames, but iron work (both structural and tubular) is the usual material. Wooden window frames do not exist.

Conclusion

Here, then, are some of the difficulties of architectural practice in Mexico. It is rather like playing regulation baseball with a five-man team, but the compensations are great.

The young architects are well-trained and have a keen interest in new ideas. Their design philosophy in general is based on Bauhaus teachings, with adaptations to suit the local conditions, materials, and love for bright colors. Form has become something of a plaything, as can be seen in the well-known Pedregal subdivision. But the continuing challenge is to follow the rich heritage of Mexican culture, while developing new ideas and new methods of building and of practice.
Materials and Methods

The following presentation reviews the design influences, precasting procedures, planning analysis, structure, and erection of the United States' youngest overseas embassy.

Presently nearing completion in Dublin is the new United States Embassy Office Building for the Republic of Ireland. Target date for dedication has been set for St. Patrick's Day. In solving the program established for this commission, Architect John M. Johansen, of New Canaan, Connecticut, has designed an annular three-story building, topped with a clerestory hand of glass to provide natural lighting for a rotunda within, and constructed primarily of precast-concrete components.

The site, selected by the Office of Foreign Buildings of the U.S. State Department, is a triangular property at the intersection of Elgin and Rembroke Roads, situated about one mile from the downtown area of the city (1). Although this location is in a section of the city that permits a fair amount of design freedom for its buildings, the property is a part of one of the old estates of Dublin and final designs had to be submitted to its owners for acceptance. A more severe design control is imposed on many of the surrounding estates. This site is sufficiently large to permit a free-standing building, and, since the 42° angle of the street intersection makes façade alignment difficult, if not impossible, a free-shaped building of one sort or another was considered necessary. Remaining portion of the site has been made into a public garden having an open, paved terrace forming the setting for the embassy and its large, surrounding trees. Neighboring buildings are primarily two-story, brick residences fronted by gardens.

Design Influences

At the time that this commission was awarded (about five years ago), Johansen was keenly interested in the sculptural possibilities of exposed concrete. Beyond this personal interest, however, the use of precast exposed concrete seemed particularly fitting to him since the basic modular character of office design immediately suggests some kind of precasting system. Further, the designs for Eero Saarinen's U.S. Embassy in London had recently been made known. Since this structure was to have a dominant three-dimensional rectilinear façade, a more fluid line was sought for Dublin. In addition, Johansen has been interested in reviving the arcade and medieval tracery, and has a fondness for round towers and the circular form commonly found in architecture of the Celtic-Christian tradition. Practical arguments for the circular form, as cited by Johansen, are: "most suitable within the existing governing setback requirements; smallest appearance with respect to volume; a continuous façade that turns its back on no one; a direct structural system is permitted while providing the largest rotunda volume on the interior."

These varied influences, together with an awareness of the inappropriateness of a specular metal-and-glass structure for Dublin, caused the architect to fashion a three-story sculptural frieze revealed by a continuous, precast-concrete façade for both the exterior and interior of the building (2, 18).

Although there were Dubliners who had hoped for a Georgian-type design for the U.S. Embassy, there was also a farsighted group of individuals who would have been distressed with a neo-classical building and who are now far more delighted with this example of contem-
porary U.S. architectural design.

**Precasting Procedures**

Although there are competent precasters in Ireland, as well as in Great Britain, N. V. Schokbeton, of Kampen, Holland, was chosen to produce the concrete components because of its long record of quality precasting of structural components on the Continent.

One of the most difficult, and interesting, aspects of this assignment was the design and fabrication of the mold necessary to cast the primary, vertical twisted support members. All members of the interwoven exterior façade were assembled in a one-bay mock-up demonstrated at the precasting plant in Kampen (3). In his detail drawings, the architect provided nine plan sections, which were cut at equal intervals throughout the height of the vertical unit. (See Selected Detail, page 162, for typical plan section.) Using obeche (a kind of African wood) and plywood, a model of the vertical support was constructed. First, straight-line wood generators (from the plan sections) were arranged in such a manner (4, 5) that doubly-curved surfaces would result when plywood strips were bent over them (6). After approximate surface curvatures had been obtained, they were corrected and finished so that a natural, continuous, flowing line was achieved. Next, an epoxy-resin material was applied over the positive (7). Onto this surface, laminations of glass-fiber cloth of various grades of fineness were built up to a thickness of \( \frac{3}{8} \) in. (8). To insure rigidity, the glass-fiber negatives were provided with plywood supports and each half mold was anchored to a steel frame. After opposite-hand molds were completed (9), specified reinforcement was placed (10).

Subsequently, molds were mounted on a shocking table, framed of rolled-steel sections, which produced shocking by an abrupt travel movement of \( \frac{3}{4} \) in. upward and downward at the rate of 250 times per minute (11). During shocking, the twisted units were so positioned that the straight backlines faced upward, with the unit in a horizontal position. In the Schok-beton process, shocking starts simultaneously with the casting of the no-slump concrete (only enough water is added to complete chemical reaction); therefore, the time necessary to fill the mold approximates the time required for shocking. For this particular unit, the time elapsed was about \( \frac{3}{4} \) hr. Before casting, each mold was provided with a special parting agent to facilitate removal of the precast unit (12).

Compressive strengths specified were:
- for columns: after 7 days, 3300 psi; after 28 days, 4950 psi; for floor slabs: after 7 days, 2750 psi; after 28 days, 4125 psi.

Average compressive strengths obtained from daily tests were:
- for columns: after 7 days, 5687 psi; after 28 days, 6705 psi; for floor slabs: after 7 days, 4437 psi; after 28 days, 5514 psi.

All of the test figures are based on the use of 8 in. test cubes.

Molds were designed with tongue-and-groove construction and bolted to prevent seepage of concrete during shocking. One might question whether the achievement of sharp, curvilinear arrises presented any problem. The precasters report that this requirement only imposed extra attention to the construction of the mold, plus special accuracy in placing the reinforcing steel. Final finish of the concrete was bushhammered, revealing broken white gravel with white cement and some yellow sand.

Following shocking, columns and slabs were stored inside the heated production plant (while proprietary curing procedures were administered) and then stripped from the forms on the following day. Slabs were then moved outside to the stockyards, while units to be bushhammered were stored within the plant. This last step was necessary because of the inclement weather; normally, these units may be finished outdoors.

Wedge-shaped floor and roof panels (13, 14), as well as spandrels and other panels between floors, were far less complicated as far as mold preparation was concerned. "Cabinet-making" precision was observed, however, since more than 1600 individual precast members were
produced at Kampen before being shipped by boat from Rotterdam (15, 16, 17).

Planning Analysis

The embassy is separated from its public terrace by a circular moat to be filled with planting (section below). This is a "friendly" moat, yet it will provide personnel in ground-floor offices a degree of privacy by preventing visitors from peering into office windows. Service parking area and garages at the rear are similarly lowered so that a continuous relation of building to ground is achieved and automobiles are eliminated from view. Two bridges spanning the moat provide access to the embassy entrances.

A basement houses mechanical equipment, while the ground floor provides space for garages, servicing, lunch room, kitchen, commissary, and storage. The entrance floor has two vestibules, a large reception area in the 50-ft diameter rotunda (18), and offices for the consulate in a circular arrangement. Second and third floors provide arcaded circular corridors overlooking the rotunda, and allow access to private offices for the ambassador, attaches, and staff (plan below). Vertical circulation is afforded by three towers that rise to a height of 50 ft above ground level and support the rotunda roof over clerestory lighting. The circular plan provides complete flexibility through its continuity of office space, and a modular system of 7'-6" establishes flexible partition arrangement. All columns have been eliminated from useful interior space. Floors are terrazzo throughout, with green marble chips, except where girder rings occur. These areas remain as exposed concrete surfaces so that users of the building may be aware of its structural character. Stair and elevator towers have bushhammered surfaces. Office ceilings are of a suspended, luminous plastic, with fluorescent lamps above.

Structure and Erection

Early studies, in collaboration with Ammann & Whitney, consulting engineers for the structural design, confirmed that a cast-in-place erection system would have been impractical due to the character of the façades. Johansen's initial design
called for the vertical supports to have a 180° twist. Accordingly, a test bid was sought to determine the economic feasibility of this amount of turn. Since the result of the test indicated that the budget would be exceeded, a compromise twist of only 90° was acceptable, since it satisfied both design and economic considerations. The exterior and interior girder rings that link the structural elements together act as continuous beams that resist the reactions of the precast floor panels (each weighing 3½ tons) as well as supporting the wall elements (19-26).

Stair cores serve as shear cores, and all wind forces, which induce ring forces, are transferred to the cores via the precast floor slabs (19, 20). Only the straight portion of each vertical precast unit acts as a column (21, 22), the curved remainder serving as wall cladding (see Selected Detail). In the erection sequence, the foundation walls were cast-in-place. Vertical units were then set in place and secured by scaffolding (21). Voids remaining at the top of the foundations were filled with a locking concrete grout. Next, exterior and interior rings were formed at the second level. Areas over columns that were to receive bearing portions of the next ring of vertical units were left empty (see Selected Detail, upper right corner). Precast slabs were then set in place on the ring and the following tier of vertical uprights were positioned. Voids were again filled with grout and, upon setting, the formwork could be removed (22).

On the interior, that girder ring was cast in three segments and the cores were poured simultaneously with the following ring (18, 19, 20). A vital factor to the success of this kind of structural design and construction depends upon the extreme accuracy of the precaster (23, 24 roof details; 25, 26 head and sill connections).
Winter Humidity Control

BY WILLIAM J. MCGUINNESS
Three aspects of indoor winter humidity — control, equipment, and maximum allowable percentage—are interpreted by the Chairman, Department of Structural Design, School of Architecture, Pratt Institute.

The discussion on “Design Parameters,” by Consulting Engineer Sidney J. Greenleaf, in the October 1963 P/A, established a number of criteria for comfort design. Among them are: (1) air temperature; (2) average temperature of surrounding surfaces; (3) relative humidity. Too often, the first of these has been our only consideration. The second is solved by better insulation or radiant panels. The third, relative humidity, has usually had proper study for cooling systems, but has often been a neglected item in planning winter indoor conditions. Systems utilizing air for all-year climate control in large buildings invariably provide for winter humidification and its control. In smaller buildings, particularly residences where piped heating is employed, separate humidification is seldom added.

The importance of maintaining adequate humidity in winter is well known. In addition to its value as a comfort aid, reports from ear, nose, and throat specialists indicate that it promotes better health. It also has other values; among them, notably, is that related to prevention of wood shrinkage. The advent of the first International Symposium on Humidity and Moisture, in May 1963, emphasized all of these values.

More important than the general lack of humidification is that humidity content, natural or artificially produced, has been largely uncontrolled. It is true that tight houses retain moisture longer than older, drafty structures. An open pan of water emits 0.33 oz of moisture per hr. A kettle, when raised to a boiling temperature, produces 60.0 oz/hr. This kind of difference in vaporization rate (ratio of 1 to 200) during various periods needs a bit of controlling.

One company, active in the production of control equipment to solve the problem of providing humidification during the many periods of dryness, and relieving its excess during times of cooking-bathing-laundry operations, is Ranco, Inc., of Columbus, Ohio. Two control types are needed, because of the unavoidable partnership of activity-produced humidity and that which is contributed by the new power-type humidifiers used in furnace plenum or return duct. The switches that formerly controlled exhaust fans at baths, kitchens, and laundries now become two-position controls. They may be turned “on” to remove odor-laden air. But if left on the “automatic” position (the only other choice), they operate the fans to exhaust air which carries humidity in excess of the amount that has been dialed by the occupant. On another control, the occupant also dials his choice of R.H. This control operates the power-type humidifier in the warm-air duct system whenever the R.H. drops below the selected value. One such humidifier, produced by Lau Blower Company of Dayton, Ohio, has a small cylindrical blower that vaporizes water picked up from a pan by a rotating hollow cylinder of soft fibrous material. Where piped systems are employed, a space-humidifier responds to the humidistat.

Now arises the problem of how high a level of R.H. may be maintained. Unfortunately, this is controlled by considerations other than those of health or comfort. National Warm Air Heating and Air Conditioning Association (NWAHACA) sets R.H. values (see graph) slightly greater than the approximate values at which condensation and frosting occurs on single glass at various outdoor temperatures. Of equal importance with glass fogging is the freezing of airborne moisture, which finds its way to cold surfaces of wall cavities through vapor barriers that are seldom as impervious as planned.

In the United States, the variation of outdoor design temperatures ranges from about —40 F to 40 F. With 0 F as the approximate average of these, it is evident that 25 per cent R.H. is the maximum value permissible in the average house at critical outdoor temperatures. NWAHACA, Ranco, Lau, and others have provided us with information and equipment to maintain this value. Improvements in vapor barriers and increased use of double glass must occur, if desirable values of 35 R.H. or greater are to be held at outdoor temperatures of 0 F or below.
The exciting new home of the United California Bank is the largest building in Beverly Hills, California ... and the eleventh major office building to be built by the Kreedman organization. Its superb blending of functional beauty, comfort and convenience gives tangible meaning to the Kreedman creed ... Building as it should be. For example: five Haughton elevators under fully-automated electronic control answer calls with uncanny speed and efficiency. Their remarkable performance is made possible by a new, advanced-design computer created by Haughton Elevonics. This computer constantly monitors traffic demand and responds instantly to match elevator service with the need. Include Haughton elevators in your building or modernization plans. Ask your Haughton Sales Office (listed in the Yellow Pages) for details, or write to us.

*Haughton's advanced program in systems research and engineering with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance. Reg. in U.S. Patent Office.
Spec-Data Sheets

BY HAROLD J. ROSEN
A proposed joint CSI-PC specifications data sheet is previewed by the Chief Specifications Writer of Kelly & Grazen, Architects-Engineers.

The Construction Specifications Institute and the Producers’ Council are working jointly to evolve a Specifications-Data Sheet that would present purely technical information about building products in a concise, consistent format. The “Spec-Data Sheets,” as they will be termed, are intended for the specifier and as such will eliminate nontechnical, promotional information which has little value for the technician.

This new format for the presentation of technical information would permit architectural and engineering specifiers to compare competing products more readily, since the information contained in the Spec-Data Sheets would be presented in the same organized manner.

The manufacturer would be in a position to present, and the specifier would readily be able to find, the specific technical data essential to the writing of specifications for building products and equipment. This concept will be a boon to the manufacturer, inasmuch as he is constantly striving to find the proper means of communication with the specifier. He will now be able to take the criteria established for the Spec-Data Sheet, prepare the required information on a product he manufactures, have the proposed Spec-Data Sheet reviewed by members of a CSI committee, and upon final approval issue it as a Spec-Data Sheet.

Although the current effort is a joint undertaking, the program will eventually be available to all manufacturers of building products who may wish to utilize this form of product literature.

Since the Spec-Data Sheets may carry the stamp of approval of CSI, it is this writer’s opinion that specifiers will, in time, be more prone to specify products described in Spec-Data Sheets. In addition, they will assure them that the information contained has been assessed by qualified, competent architects and engineers.

The general rules for the Spec-Data Sheets are as follows:

1. Only one product shall be described in each Spec-Data Sheet; in this context, a “sheet” may consist of one to four pages of text.
2. Text material must be technical in nature. It may include tables, graphs, and photographs where applicable. The text should not include vague generalities, unrelated material or text, testimonials, product history or manufacturing processes, or other informational copy of a nontechnical nature.
3. Each Spec-Data Sheet shall follow the format prescribed by the joint CSI-PC committee.
4. Before publication, each Spec-Data Sheet shall be approved by the joint CSI-PC committee until such time as this function is delegated to another reviewing authority.

The proposed format will include the use of a standard masthead that will include the seal of CSI and of PC for its omission.

1. Product Description:
   a. Brief, detailed description of product; principal uses; limitations of use.
   b. Grades, if any, and differences that determine these grades.
   c. List sizes, shapes, surface finishes, textures, colors. State limitation of its availability nationwide.
   d. List applicable standards, including ASTM, ASA, Federal and Military Specifications; Dept. of Commerce Commercial Standards; Trade Assn. Sds.; etc.
2. Technical Data:
   a. List numerical values of physical characteristics such as: strength in compression, tension, shear; durability; life expectancy; chemical resistance; insulating qualities in terms of “K” factor; coefficients of expansion; density and specific gravity; resiliency; melting point; heat distortion characteristics; and any other pertinent technical data.
   b. If available in more than one grade, tabulate for ready comparison.
   c. List recognized rating bureau such as Fire Underwriters and Factory Mutual.
   d. For each numerical physical value, indicate the test method.
3. Cost:
   a. Indicate cost range: F.O.B. plant or other basis; sectional differences in cost; list prices from distributors.
   b. Give average range of installed costs; list at least two market areas to indicate the geographic variances.
4. Installation:
   a. List methods of installation and note regional or sectional differences.
   b. List preparatory work required to receive product.
   c. List building code restrictions concerning installation.
5. Guarantees:
   a. If other than standard one-year guarantee, explain in detail.
6. Maintenance:
   a. Brief description that would suffice for owner’s custodial personnel.
7. Technical Services:
   a. Describe manufacturers’ services available to the specifier. Indicate where and how to procure them.
8. Filing Systems:
   a. CSI, AIA, Sweets Catalogs, CEC.

For further information, consult the Construction Specifications Institute, DuPont Circle Bldg., Washington, D.C.
The United States Gypsum Building is built on a 45-degree angle to its adjacent streets. This unusual layout affords beautiful triangular plazas at street level, the creation of eight corner offices on each floor, and ample light on all sides.

Sixteen spur-footed exterior columns of white Vermont marble overlay spandrels of smartly contrasting black, Buckingham Virginia slate and are symbolic of mine shafts, connoting the company’s extensive interest in the mining and excavative industries.

The Chicago Building Congress has conferred its Merit Award upon the new home office building of the United States Gypsum Company. Architects, engineers and builders, comprising the Chicago Building Congress, honor the USG building for “its contribution of open space in downtown Chicago, its exceptional and unusual quality of design and material, and its high standard of construction.”

The flush valves installed in the USG building, of course, are Sloan—unequalled in over half a century for dependable service, long life, water economy and lowest maintenance cost.

Your building, too, can have these same Sloan Flush Valves of highest quality—merely be sure you specify them by name—most people do.
Need for Careful Site Inspection

BY JUDGE BERNARD TOMSON AND NORMAN COPLAN
Nassau County District Judge and a New York attorney examine a decision that underscores the importance of a careful inspection of the site and project by a contractor before he enters a bid.

Who, as between the contractor and owner, bears the risk and cost of construction work, the necessity for which is not known or realized at the time of the contractor's bid or the making of the construction contract? This was the issue in a recent case in New York (Kay Field Construction Corp. v. Board of Education of the City of New York).

In this case, the plaintiff-contractor had agreed to perform the general construction work for the alteration and addition to a junior high school in accordance with the architect's plans and specifications for the agreed sum of $1,679,000. The contract obligated the plaintiff to perform all work specified, and an addendum to the contract required specifically, in relation to the windows of the project, that the contractor "replace all rotted, badly split frame members and trim." At the time this contract was bid, no rotted or split frame members were visible and the drawings did not show or indicate any required replacement in this connection.

During the course of construction, the contractor discovered that a deteriorated condition in the windows existed, involving rotted and badly split frame members and trim. This condition could not have been—nor was it—discovered by visual inspection at the time of bidding. The situation was brought to the attention of the client, the Board of Education, who directed the contractor to perform "extra work" and to "remove and replace all rotted, badly split frame members and trim as directed at the site." A change order, signed by the chief engineer of the Board of Education, was issued.

The contractor performed the work and forwarded a bill for the purported extra in the amount of $3,695.29. Upon receipt of the bill, the client advised the contractor that this sum would be added to the total contract price. However, upon submitting his voucher to the Comptroller of the City of New York, payment was refused by the City on the ground that the work in question was not an "extra" but part of the original contract work, and the City rescinded the change order that had been issued.

The Court, in ruling in favor of the Board of Education and against the contractor, stated that the contract was clear and unambiguous in calling for the replacement of rotted and split frame members and trim of windows within the contract price. In rejecting the contention of the contractor that he was confused as to what was required because the contract drawings were at variance with the specifications, the Court stated: "... the contract itself specifically recites that the plans, drawings and specifications form part of the contract. In the first instance, the contested clause means what it says and there is no need to refer to any plans or drawings. The very purpose of the undertaking was that the plaintiff was to construct a new addition to an existing school building and to modernize and put the existing school building into first-class condition. Obviously part of the work of putting the old building into first-class condition was to have extensive repairs made to the windows and to replace the bad ones with the good. If the plaintiff's argument is carried to his logical conclusion, then the pertinent clause of the amendment to the contract which required the replacement of all rotted and badly split frame members and trim to be replaced would be useless and of no contractual effect."

The contractor also had urged the Court that, since the drawings did not show the location of the rotted or split frame members and such condition was not visible upon inspection prior to bidding, he should not be held to the cost of furnishing this work within the original contract price. In response to this contention, the Court said:

"The drawings concededly do not show the location of the rotted, badly split frame members. Plaintiff's representative had an opportunity to examine the building and conduct that inspection which was necessary for him to bid. The fact that the condition was not visible, assuming it was not visible, nor was it shown on the drawings, the provision requiring replacement of the rotted and badly split frame members and trim was a caveat to the plaintiff to inspect with care... In any event, it is the law of the state that where a contractor submits a closed bid for the entire performance of any given work he assumes the risk as to the nature and quantity of the work to be performed."

The third contention of the contractor was to the effect that he was entitled to rely upon the change order of the Board of Education and that the City should be stopped from dependence upon its purported rescission of that authorization for extra work. The Court also rejected this position, stating:

"Plaintiff's reliance is primarily on the 'change order' and the interdepartmental communications in the city offices which stated that the work was in fact 'extra work.' However, it should be noted that the 'change order' was rescinded and the City had such a right to rescind. What was done may not be invoked as an estoppel in the case where the city under the contract was authorized to do the very thing which it did."

This decision illustrates the importance of an adequate inspection by a contractor of the site and project before bidding. From the owner's and architect's point of view, it also illustrates the importance of adequate and unambiguous construction contract documents insuring a complete project for the price contracted. Thirdly, it illustrates a principle that is significant to all parties having dealings with municipalities—that is, the rights of such municipalities may not ordinarily be waived by acts of its representatives.
New waterproof black "Universal" drawing ink for use on paper, film or cloth. Perfect adhesion on all surfaces. True, intense blackness... free-flowing... fast drying... non clogging. 9 different convenient packages.

KOH-I-NOOR Rapidograph Drawing Ink, Waterproof Black "Universal"

A. Plastic or Glass 1 oz. bottle with special filler insert  B. Plastic or Glass 1 oz. bottle with dropper-stopper  C. 1/4 oz. plastic squeeze-bottle for filling drawing point sections  D. Plastic bottles containing 8, 16 or 32 oz.  E. Automatic drawing ink cartridge for drawing point sections

The Famed Rapidograph Technical Fountain Pen and its two companion pieces, Acetograph and the new Brushograph. The proven precision instruments of the drafting profession! Pocket models with clip and automatic filling system, or holder models with truly interchangeable drawing point sections. 7 precision tube-line widths and 4 variable brush-line widths.

Pocket Model KOH-I-NOOR Technical Fountain Pens (Rapidograph No. 3060, Acetograph No. 3070, or Brushograph No. 3061) with pocket-clip and self-contained filling system

KOH-I-NOOR is the company that pioneered the Technical Fountain Pen and provides the world's most comprehensive line of coordinated technical fountain pens and accessories—the finest, most durable drafting instruments of their type yet developed. KOH-I-NOOR also supplies complete lines of pencils, chalks, pastels, drawing leads, lead-holders, templates, lettering guides and other specialized materials for use by artists, architects, engineers, draftsmen. KOH-I-NOOR knows your professional needs, and fulfills them completely. See your KOH-I-NOOR dealer, or, for descriptive literature, write KOH-I-NOOR, INC., Bloomsbury 25, New Jersey.
BOOK REVIEWS

BY WILLIAM ALEX

Pier Luigi Nervi: Buildings, Projects, Structures, 1953–1963. Introduction by P. L. Nervi. Frederick A. Praeger, 64 University Place, New York 3, N.Y. (1963, 168 pp., illus. $15.) Mr. Alex, a writer and critic, was general editor of the Braziller series, Masters of World Architecture; more recently, he served on the President’s Advisory Council for the rehabilitation of Pennsylvania Avenue.

If certain beings from a nearby galaxy announced their intention to visit neighbor Earth, and if all the nations agreed to co-operate in preparing a reception place to demonstrate or house whatever edification we expected to provide, the first decision would probably be to build a small, orderly city in which to receive our guests. Apart from what to show, discussion would then center on the sorts of buildings needed for this city and, most likely, agreement would be universal that works of engineering be made dominant. For these, signifying what is most advanced in our technological and structural development, are the most powerfully expressive works of our time.

Chances are that the leader of the European delegation to the building congress (CIAM quickly resurrected?) would be Professor Nervi. Why Nervi? First, one would need great, elegant, lacy hangars built in the style to which spaceships might be accustomed. Second, one would need grand assembly and demonstration halls enclosing space with precision, with the greatest economy of means, in a natural and accomplished way, but with flair. Third, as a matter of pride, these halls would have to be constructed so as to suggest our capacity for dealing with some of the forces pervading the cosmos, reflecting the highly advanced activities within these structures where our knowledge of the atom will surely be demonstrated. One must, of course, assume that the world has been made a safer place to receive guests, nuclear energy having been harnessed by this time with the understanding and grace with which Nervi now controls the forces of gravity through structure. Nervi’s plastic inventions are no less a response to natural forces than processes involving the atom. The parallels become remote on application, however. The abrupt fashioning of matter by the fusion of atomic components, in a sense the most sophisticated plastic process we have yet developed, is basically devoted to the most inartistic purpose imaginable. Nervi’s operation, plastic in the more familiar sense, begins with simple materials, not much refined beyond their original state—limestone, clay, and iron. To fashion these together, he adds water and transforms them into shelter—the primary concomitant of civilization. Then to range to the highest level, beyond the parable of creative morality which Nervi’s work manifests and which for complex and unfortunate reasons is sadly lacking in the arts and even more so in the sciences, his results seem to consummate the spatial aspirations of our time.

The latest lessons of Nervi’s own conquest of space are presented with characteristic clarity in this recently published volume of his works between 1953 and 1963. In format, it resembles the publisher’s previous volume on Nervi and seems destined to become part of a series, as time passes, like the oeuvre of Le Corbusier. The books overlap slightly in content, with examples like the Pirelli building of Milan and the Paris UNESCO headquarters shown in both but given more complete coverage in the second volume. A total of twenty-six structures, buildings, and projects are shown in clear photographs, drawings, plans, and completely understandable details. Each work is presented in a sequence that generally begins with the site and progresses through the building to its details. A pertinent summary includes the program and functional requirements, explains structural techniques, mentions special problems, and sometimes gives the construction deadline—the added challenge on which Nervi thrives. Aside from a few pages with irregular-size drawings which are not numbered and make for some initial confusion before one finds the proper sequence, the volume, with its good translation, is a compliment to the art of bookmaking.

Nervi makes engineering appear so easy that many attempt it who shouldn’t. It almost seems to work this way: Somebody telephones, say from Genoa. Professor Nervi takes his briefcase and goes there. The needs are explained—a
Buildings of abiding character maintain weather resistant characteristics when sealant using Thiokol's LP® polysulfide polymer is included in joint design. Note above joint detail in beautiful Pacific Science Center Foundation.

Sealant systems based on LP® polymer (synthetic rubber in liquid form) custom fit any structural joint regardless of size, form, or accidental variation from original design. Properly installed, they cling with a weld-like bond to any and all building materials in any combination...even add structural strength of their own.

Rubbery in flexibility, polysulfide type sealants move with joint movement...will expand more than twice original width—and recover—again and again without tearing, cracking, or diminishing in leak-proof serviceability. Sun, rain, wind, ozone, freeze-thaw, vibration—the ordinary ravages of time and wear will not shorten life or weaken weather-proofing performance of polysulfide base sealant.

structure so large, to serve this or that function; economy is stressed, time limits are discussed and everyone drives to the site, gets out of the car and stands in a group. Soon Nervi takes out a pad of paper, points in several directions, sketches a moment and makes a few sweeping motions with his arm. Heads nod and someone is heard to say; "Yes, yes, that's just what we had in mind." The fact of shelter seems now to have always been there, a little invisible or slightly out of focus, the structural forces pervasively playing around somehow. It just needed Nervi to see them, sort them out, align some here, adjust a few there, and then bring some reinforced concrete and ferro cement to encase them so that they hold still. And there it is—a small, sensible palace for the gods of technology. No stylistic arguments, no fashionable schools of thought, no dogma to be propounded, no discretionary excuses, no esoteric justifications, no willfulness.

In the past few years, Nervi has served as a juror in many international structural competitions. He notes, in his introduction to the book, that the large majority of solutions submitted were characterized by "the unrestrained search for the new at any price—even the price of inconstructability." He gently calls attention to the lack of adequate educational preparation for both architects and engineers to meet the challenge of "structural architecture," the term he uses to designate the new class of buildings whose large-scale requirements—air terminals, large industrial buildings, great stadia, and exhibition halls—are fully synchronous with modern technology and materials. But architects, he finds, tend to begin with a form which they then elaborate graphically; engineers, on the other hand, direct themselves to the mechanics of structure which leads too frequently to concentration on theory and mathematics. "Both forget that a structure is nothing but a system of reactions and internal stresses capable of balancing a system of external forces; and, therefore, it must be conceived as a material organism directed toward that precise end."

Nervi's own program follows these steps; the conception and proportioning of a structural system; the choice of materials and methods best suited to the final purpose and environment of the work, evaluating at the same time the problems of thermal variation and settlement, intuitively if required; and finally, a search for the greatest economies. Afterward, the theory of structures and necessary calculations are applied, and models may be built for test purposes.

Keeping this in mind, one looks at Nervi's structures and becomes aware of the realities words do not express, that an inseparable blend of operating method, principle, and intuition have combined (during fifty years of continuous effort) into a single, integrated process, consuming and producing in the optimum technological sense. The self-conscious striving of architecture and the difficulty of deciding merely what is "given" seems very far away and a little redundant when one looks at Nervi's Savona Railway Station and sees how the "engineer" has crossed over into "architecture" with embarrassing ease. This is something Nervi has not always been able to do with consistency. On the other hand, he can state pure engineering with matchless power and fluency, as in the Burgo Paper Mill at Mantua, really a suspension bridge, where an 800-foot-long rolling mill is covered by a steel roof deck hung horizontal and taut between two enormous 16-story-high, reinforced concrete trestles. Not the first of such structures, it is nevertheless breathtaking, and ultimately right. The

---

**Installation Details**

**for LCN closer concealed-in-door shown on opposite page**

The LCN series 3002-3003 closer's main points:

1. Arm is attached to door frame by surface-applied shoe; closing power adjustable by reversing position of shoe
2. Here the closer is mounted 3/4" higher than usual, with small notch in header to receive hub of arm
3. Door is hung on butts; closer is easy to adjust
4. Closer is used for interior doors only; Underwriters approved for self-closing doors
5. Hydraulic back-check protects walls, etc. on opening swing
6. Double arm provides high closing power
7. Arm may be regular, 90-140° hold-open or fusible link

Descriptive matter on request—no obligation, or see Sweet's 1964, Section 19e/Lc

LCN CLOSERS, PRINCETON, ILLINOIS

A Division of Schlage Lock Company

Canada: LCN Closers of Canada, Ltd., P.O. Box 100, Port Credit, Ontario

For more information, turn to Reader Service card, circle No. 328
Modern Door Control by

LCN

Closer concealed-in-door

Municipal Building, Lubbock, Texas

Talmage DeWitt, Architect
Arnold Maeker, Engineer

LCN CLOSERS, PRINCETON, ILLINOIS

Installation Details on Opposite Page
Turin Palace of Labor perhaps best fits Nervi's definition of structural architecture. Yet it is neither architecture nor engineering but some sort of gigantic organic mechanism, or series of mechanisms, for embracing a vast space; steel fireworks atop huge tapered concrete columns, isostatic adventures around the mezzanine perimeter, great glass walls delicately braced against the wind—altogether, it presages new beginnings.

Perhaps Nervi is receiving a telephone call right now, say from Genoa, via radio-telephone on his small ferro-cement yacht sailing off the coast, being interrupted just as he is telling a guest, "You know, that reinforced-concrete airplane wing that Freyssinet designed? They really built it . . . ."

OTHER BOOKS TO BE NOTED

**Dar es Salaam: A Study in Urban Geography.** Harm J. de Blij. Northwestern University Press, 1840 Sheridan Rd., Evanston, Ill., 1963. 112 pp., illus. $5.50

This study, implemented by maps and photos, of an African urban center emerging from colonialism is of value to city planners, urban geographers, and social scientists. The city of Dar es Salaam developed under Arab, German, and British administrations and is now the capital of independent Tanganyika. Research and publication were supported by the Michigan State University African Studies Center.

**Exterior Design.** Henry and Lilian Stephenson, Studio Books, London. Distributed by Sportshelf, P. O. Box 634, New Rochelle, N.Y., 1963. 96 pp., illus. $9.25

To be reviewed.


To be reviewed.


Among the more than 200 photographs in the book, there are many excellent illustrations of the Japanese home—both its charming atmosphere and its fascinating details. Unfortunately, the standard of taste is not uniformly high, particularly in those sections that deal with Westernized Japanese houses and the adaptation of Japanese ideas for American houses.


To be reviewed.


To be reviewed.


An understanding of today's diverse sculptural forms is sought in this exploration of sculpture from 1850 to 1920. Jean Selz, French art critic, stresses three developmental forces: (1) Rodin; (2) the painter-sculptors from Daumier, Degas, and Renoir to Picasso and Gris; and (3) primitive sculpture.

**New York Landmarks.** Edited by Alan Burnham. Sponsored by the Municipal Art Society of New York. Wesleyan University Press, Middletown, Conn., 1963. 430 pp., illus. $12.50

To be reviewed.

**The Peripheral Journey to Work: A Geographic Consideration.** Edward J. Taaffe, Barry J. Garner, and Maurice H. Yeates. The Transportation Center, Northwestern University, 1818 Hinman Ave., Evanston, Ill., 1963. 125 pp., maps, tables. $7.50

The movement of centers of employment to the periphery of the city greatly affects urban transit and the spatial organization of the city. Based on data from the Chicago area, this study identifies the key differences between a journey-to-work to a peripheral center and one to a downtown center, presents principles for analyzing this new pattern, and speculates on the implications of

---

These are the glasses that go into this cabinet and these are the books that sit on these shelves and these are the bottles that go into this bar and these are the panels that make up the walls that all these **System Cado** components hang on.

![System Cado](image)

Matched wood floor-to-ceiling panels in teak or oak panels ... both with a wide variety of component shelves and cabinets that fit on the brackets that sit on the pegs that roost in the slanted holes that make this system unique. Available at 17 showrooms throughout the U.S.A. Write for full information.

**System Cado**

1130 THIRD AVENUE, NEW YORK

R. S. ASSOCIATES, 9400 ST. LAWRENCE BLVD., MONTREAL, CANADA

For more information, turn to Reader Service card, circle No. 340

**Book Reviews**

FEBRUARY 1964 P/IA

For more information, circle No. 322
FAST-ACTING RADIANT CEILING HEATS AND COOLS . . .

Burgess-Manning/Inland Radiant-Acoustic Ceilings provide comfort and quiet in Milwaukee Children’s Hospital. There are no “cold spots”, “hot spots” or drafts to aggravate the condition of patients. Wards and therapy rooms stay warm and cozy when winter winds howl outside — stay cool on hot summer days. The acoustical properties of the ceilings help keep noise levels low. There are other advantages that make Burgess-Manning/Inland ceilings ideal for hospitals — and other buildings: Ease of housekeeping. Low maintenance requirements. Flexibility of layout. Adaptability to lighting. For a description of heating and cooling principles, along with performance curves, design procedure, and other data see Sweet’s Architectural File, section 11a/In, or write for Catalog 250.

These articles on the history of public lands have been selected from historical and other journals published in the past 50 years. The Selection, Care, and Laundering of Institutional Textiles. L.A. Bradley. The Cornell Hotel & Restaurant Administration Quarterly, Cornell University, Ithaca, N.Y., 1963. 84 pp., $2 (paperbound)

Publication, mainly for the hotel manager, has one section of interest to the interior designer. Here is an explanation of the composition of synthetic and natural fibers and a comparison of their reactions to prolonged usage, sunlight, dyes, wetness, and cleaning.

NOTICES

New Branch Offices

ALAN GOLIN GASS and ROBERT BREWSTER GAY, Associated Architects of Denver, Colo., have opened an office at Main St., Rapid City, S.D.

GORDON INGRAHAM and ELIZABETH WRIGHT, Associated Architects of Colorado Springs, Colo., have opened a branch at 1401 Elizabeth St., Pueblo, Colo.

New Addresses

BOYKEN & MOSS, Architects, 335 George St., New Brunswick, N.J.

JOSEPH ESHERICK, Architect, 120 Green St., San Francisco, Calif.

SMITH, ENTZEBOTH, INC., Architects-Planners, Pierre Laclede Bldg., 7701 Forsyth Blvd., St. Louis, Mo.

MAX O. URBAIN, Architects, 642 Fifth Ave., New York, N.Y.

Elections, Appointments

SOL ADLER was appointed Director of Research and Development of Barclay & Barclite products, BARCLAY MFG. CO., Bronx, N.Y.

ROY I. ALBERT, GEORGE CHIPMAN, VINCENT J. CRAMPTON and MILTON LENHARDT received new appointments in the firm of HARLEY, ELLENGTON, COWIN & STURTON, INC., Detroit, Mich.

HUGH A. BARNES has been named Corporate Vice President of Manufacturing for the BASTIAN-BLESSING COMPANY, Chicago, Ill.

ROBERT R. BLEEMER has been appointed to the design staff of the Miami branch of HENRY END, Miami, Fla.

RINO COPPOLA has been appointed Executive Vice President and head of the Rome office of FRED S. DUBIN ASSOCIATES. HARRY KATZ has been appointed controller of LEO KORNBALTH ASSOCIATES, New York.

HOWARD M. DUNN appointed architect at firm of COHEN, HAFT & ASSOCIATES, Washington, D.C.

SANDFORD KAUFMAN has been appointed National Director of Planning for FSA, New York and Chicago.

LARRY RICHMOND named associate in firm of BERNARD VINICK DESIGN ASSOCIATES, Hartford, Conn.

JOSEPH WILLIAM SABOL has been appointed head of the Engineering Cost Control Dept. of JOHN HANS GRAHAM & ASSOC., Washington, D.C.

EUGENE TARNAWA made Associate Designer in firm of BERNARD VINICK DESIGN ASSOCIATES, Hartford, Conn.

WHEN YOU CHANGE YOUR ADDRESS

Please report both new and old addresses directly to P/A five weeks before you move.

PROGRESSIVE ARCHITECTURE

Circulation Department

430 Park Ave., New York 22, N.Y.
ALL THE PROOF YOU NEED

Waterproof
Scratchproof
Fireproof
Frostproof
Fadeproof
Dentproof

No other floor product offers so much honest proof of long wear and minimum maintenance. Quarry Tile by Summitville cleans with water . . . never needs waxing . . . offers a wide range of beautiful colors and design possibilities. Specify the proven product . . .
This is what they're saying about

CITIES

by Lawrence Halprin

"I think this is one of the finest books on the subject. Every page is an experience. The point made in the book is greatly needed at this moment and could scarcely have been better made." — Edmund N. Bacon, Executive Director, Philadelphia City Planning Commission

"A unique inspiration for community architects. It richly presents the elements that can make spacious, flexible backgrounds for good living here and now." — Clarence S. Stein, Consultant, City and Community Planning Development

In this refreshing, new book Lawrence Halprin observes cities through different spectacles—as an urban planner, as an architect, as a landscaper, as an artist, as a political man, as a social scientist, and as a humanist. Mr. Halprin believes that cities always have provided, and will continue to provide, a creative environment for men. He defines this environment in his own perceptive words and pictures. Over 400 superb photographs. A beautiful as well as a practical source book for the architect.

Here is a partial listing of the Contents.

URBAN SPACES: streets / plazas / parks. GARDENS BETWEEN WALLS.


Here, for the first time, is a complete description of the content and purpose of the famous Basic Course at the Bauhaus in Weimar, Germany—written by the man who organized it at the invitation of Walter Gropius. Of particular interest to the architect because it presents some very exciting documents on the evolution of modern art education. Each of the 160 illustrations have a detailed description which help the reader understand the purpose of art education. Nature studies as well as studies of form and abstractions, together with a few plastic works and works in the applied arts are included. 7¼ x 10¾. 200 pages. 160 illustrations. $12.00

Type and Typography: The Designer's Type Book, by Ben Rosen

This practical type specimen book belongs in every architectural office. Presents complete alphabets of the best type faces available in the U.S. Every letter shown in both upper and lower case, including numbers and all basic punctuation. Basic family groups are shown in display sizes from 72 to 18 or 16 point, and in text from 14 to 6 point. Identifications by foundry, recognition traits, comparisons of cuts from different manufacturers. 1187 complete type fonts; 498 text showings; 124 one-line showings of romantic styles, 8 pages of foreign type faces; 17 designers' and specialists' pages. 8½ x 11¾. 416 pages. $18.00
BE OUR GUEST!  WORK WITH THESE PRACTICAL DRAWING AND PAINTING BOOKS FREE FOR 30 DAYS!

DRAWING

Drawing With Pen And Ink, Revised Edition by Arthur Guptill. A complete presentation of the classic technique of drawing with pen and ink. Step-by-step instructions plus hundreds of detailed drawings guide the reader through the beginning and advanced techniques of pen and ink. Includes many architectural drawings and almost a hundred examples of ink drawings by famous artists such as Seurat, Toulouse-Lautrec, Dufy, Grignon, Klee, Raleigh and others. 8% x 10½. 120 pages. $1.09

Pencil Drawing Step-By-Step by Arthur Guptill. Learn through a series of progressively arranged chapters, every one a definite lesson. Information on needed materials; practice in line and tone; light, shade and shadow; textures; construction; testing; rendering in line and tone; composition; spontaneity and speed; still life; the living subject. 144 pages. 8¼ x 10¼. 121 drawings. $7.95

Pencil Techniques in Modern Design by William W. Atkin, Raniero Corbelletti and Vincent R. Fiore. A complete study of modern pencil design methods including fine line pencil painting and broad stroke, and how they can be used in architectural forms, perspective, rendering, and line work. 8¼ x 10½. 112 pages. $4.95

Perspective Charts by Philip J. Lawson. These labor-saving charts have proved a blessing wherever accurate perspective drawings of architecture, furniture, industrial design are required. Eliminates the need for distant vanishing points. Kept in its true perspective direction. 8 charts, each set, 21 x 24. $5.00

Drawings by Architects: From the Ninth Century to the Present Day by Claudius Coulon. 65 full pages of beautifully reproduced architectural drawings, many in their original size, some with hand-inscribed notes. A magnificent compilation of these renderings, idea sketches and detailed drawings. An excellent introduction to the work of the most influential architects in history, this unusual volume covers elements encountered in an authoritative survey of architecture, along with significant evaluation of this art form, 10 x 13½. 140 pages. $12.75

Drawing The Line: Fine and Commercial Art by James A. Ernst. 157 illustrations demonstrate the many ways an artist can achieve with pen and ink, brush and ink, brush and paint—carbon, litho, grease. 8¼ x 10½. 160 pages. $8.95

The Watson Drawing Book by Ernest W. and Aldren A. Watson. An introduction to the language of drawing—the through of 80 artists. Innumerable diagrams describe black and white techniques, from pen and ink to proper use of a whittled stick! Learn to draw the world around you. More than 345 directive drawings supplement basic instruction. 8¼ x 10½. 160 pages. $8.95

Pencil Broadsides (Enlarged Edition) by Ted Kautzky. This enlarged edition of Kautzky's original work adds a portfolio of his drawings never before published. Kautzky explains the broad stroke pencil technique and its application to the expressions of architectural and landscape forms and textures. 64 pages. 9 x 12. 23 drawings. $6.95

Pencil Pictures by Ted Kautzky. Deals with creating pictures in pencil technique and its application to the expressions of architecture and architectural illustrations. 31 magnificent plates are reproduced by lithography. 9 x 12. $5.50

Course in Wash Drawing by Leonard Wash. Wash—the ideal medium for study, practice, and discipline. Learn to simplify complex forms in nature following a monochromatic scale. From choice of subject to use of ink and lampblack. 98 illustrations, 5 in full color. 7½ x 10¼. 64 pages. $6.50

WATERCOLOR

Architectural Presentation In Opaque Watercolor by Chris Choate. A logical approach to both fundamental and advanced techniques of architectural illustration in color. The book demonstrates the advantages of using opaque watercolor to create mood and atmosphere, and how to indicate activity and function within the scene. In addition, he analyzes the degree of psychological stimulus of colors and composition devices, evaluating their impact on the viewer. Contains 16 black and white illustrations, 16 pages full color. 8¼ x 10½. 158 pages. $15.00

Ways with Watercolor (Revised, Enlarged Edition) by Ted Kautzky. A complete presentation of the classic instruction book which has taught thousands of architects the fundamentals of watercolor painting. Enlarged by Ted Kautzky, this book retains all the unique teaching methods of the original edition. You literally watch over the shoulder of Ted Kautzky as he takes you step by step through a graduated series of exercises, from preliminary thumbnail sketches to final paintings. Includes 12% black and white illustrations and 37 full color plates. 9 x 12. 136 pages. $12.50

Painting Trees and Landscapes in Watercolor by Ted Kautzky. Shows how to paint such important landscape forms as trees, rocks, water, and fog. 16 painting in full color, plus many sepia-tone studies, are used to teach the fundamental techniques. 112 pages. $10.95

Reinhold Drawing and Painting Book by Belo Jaxtheimer. A remarkable one-volume source of reference on art, encyclopedic in scope. Carefully researched and edited. "Reinhold Drawing and Painting Book" represents an unexcelled instruction method, and necessary technical information. Included are sections on perspective, landscapes, architecture and the paintings of buildings. Its 35 chapters are literally 35 books combined in one volume, 300 illustrations in color, 150 black and whites. 6 x 9. 408 pages. $10.95

Whitaker on Watercolor by Frederic Whitaker. An encyclopedia on watercolor by the man who is often referred to as "Mr. Watercolor." From introductory elements for the beginner to advanced work for the experienced. In addition to the highly technical information there are valuable suggestions for exhibiting. A unique index arranged in the margin provides an excellent and workable cross reference to related matters. 140 illustrations, 24 in color. 8¼ x 10½. 164 pages. $12.50

Watercolor Made Easy by Herb Olsen. A remarkable "how-to" watercolor book full of practical instructions about painting landscapes, seascapes, trees and the human figure. 140 illustrations, 19 in full color. 8¼ x 10½. 112 pages. $9.95

Watercolor Technique (Revised Edition) by Rex Brandt. Fifteen tested working lessons in techniques and methods. Learn how to choose materials properly for the best results; how to frame and frame your finished work. Every step of the way is illustrated. Over 95 drawings, charts, and diagrams. 17 full color illustrations, 8¼ x 10½. 104 pages. $7.95

Watercolor Landscape by Rex Brandt. With a portfolio of outstanding examples to help you, will learn the three techniques of watercolor and how to combine them: brush line, brush, and wet-into-wet. All procedures for out-of-door painting are fully described, including how to proportion space—establishing far and near, high and low. 160 illustrations, 20 in full color. 8¼ x 10½. 160 pages. $10.00

Techniques of Picture Making by Henry Gasser. Picture making is the process of creating a picture. 140 pages, 14 illustrations, 8½ x 11. $9.95

ART AND ARCHITECTURE

Art in Latin American Architecture by Paul Damaz/Preface by Oscar Niemeyer. This handsome, and visually exciting review offers a critical analysis of the successful integration of the artist and the architect. Part I presents a comprehensive view of Latin America, society, culture, pre-Columbian, European, colonial art and architecture, modern architecture, and contemporary art. Part II analyzes the finest examples of murals, sculpture, stained glass, tiles, and mosaics. 500 photographs, 300 pages. $15.00

Architecture USA by Ian McCallum. A long-needed survey of living American architects—plus the social and historical development that has carried their ideas to fruition. Short biographies of 50 leading architects include illustrations of their work, accompanied by plans— with fully descriptive captions. Concludes with a summing up of the outstanding contributions to architecture in the United States, 500 illustrations, 8½ x 11. 216 pages. $7.95

Mosaics: Principles and Practice by Joseph Young. Retaining all the introductory materials of his course for beginning mosaicists, Dr. Young has created a new, all-inclusive outline. It outlines in detail all the steps in artist, craftsman, and muralist needs to know on theory and the latest techniques, with photo-visualization of all methods and procedures. 7½ x 10¼. 128 pages. $6.50

Contemporary Houses: Evaluated by their Owners by Thomas H. Creighton. Frankly and freely, the owners of these houses tell what they like and what they DON'T like about their new homes. They add to the owners' evaluations, drawing some perceptive conclusions. More than "critical and analytical report, the book is a model study of a new and workable building system. Illustrated with 209 photographs and floor plans. 8¼ x 10¼. 224 pages. $11.50

These practical work books are tools of the trade that belong in every architect's library. Use the convenient reply card attached above, to order them for a free 30-day examination period. If after working with them for 30 days, you decide not to keep them, you may return them and owe nothing.

FEBRUARY 1964 P/A 181
Cut building weight one-third with tubular steel

With its higher strength-to-weight ratios, structural steel tubing is finding more and more cost-cutting applications in office buildings, schools, shopping centers, and a variety of other structures.

Buildings erected with tubing will average 30% to 40% lighter than those employing conventional steel members. The lighter framework permits lighter footings and foundations. At the same time, tubular load-bearing columns allow one-third thinner walls for greater usable floor space.

Tubular steel is cut to length and fabricated before delivery to the jobsite. It can be welded by arc and gas welds, spot welding, projection welding, or brazing. Mechanical joining techniques include threaded joints, bolted and riveted joints, telescopic joints, compression joints, flanged joints, and T-joints.

To further increase the design and economic advantages of structural steel tubing, Republic has increased guaranteed minimum yield strength of ELECTRUNITE Square and Rectangular Tubing by 36% over ASTM Specifications A-7 or A-36.

Detailed in the chart at right and in Republic's new ST-101 Specification; the higher strength can bring about substantial savings in overall costs. You spend less money to get needed bearing strength in columns, posts, lintels, spandrels, and other structuralists.

FOR A COPY of Republic's informative, 52-page booklet—"ELECTRUNITE Steel Tubing for Structural Use"—send the coupon. ELECTRUNITE Structural Steel Tubing is available in rounds to six inches O.D., squares and rectangles in peripheries to 20 inches, and wall thicknesses up to .250-inch.

REPUBLIC STEEL
Cleveland, Ohio 44101

You Can Take the Pulse of Progress at Republic Steel

Port of New York Authority Bus Terminal. Square tubing is employed to frame glass and porcelain enamel sandwich panels which protect waiting passengers from bus exhaust fumes. Tubular framework extends from floor to ceiling and full-length along each 200-ft. long platform. Final tube fabrication was by White Plains Iron Works, Peekskill, N.Y.

Extensive service plaza building program. Square and rectangular steel tubing was picked for columns, beams, and spandrels in stations like the one shown. Flat sides of the tubing simplifed fitting of glass, masonry, and curtain wall sections. Tubing was fabricated by The Austin Company—Designers, Engineers, and Builders.
Ford Motor Company pavilion at the New York World's Fair. Welton Beckett & Associates, Architects, used over 50 tons of rectangular tubing in the design of this pavilion. Tubing serves as framework support for glass panels enclosing the 235-ft. diameter, 56-ft. high rotunda.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Tensile Strength, Min., psi</th>
<th>Yield Strength (2% offset), Min., psi</th>
<th>Elongation in 2&quot;, Min., percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>45,000</td>
<td>33,000</td>
<td>25</td>
</tr>
<tr>
<td>B</td>
<td>52,000</td>
<td>42,000</td>
<td>25</td>
</tr>
<tr>
<td>C</td>
<td>60,000</td>
<td>50,000</td>
<td>20</td>
</tr>
</tbody>
</table>

- **ASTM A-7**
  - Tensile Strength, psi: 60,000
  - Yield Point, Min., psi: 33,000
  - Elongation in 2": 24

- **ASTM A-36**
  - Tensile Strength, psi: 60,000
  - Yield Point, Min., psi: 36,000
  - Elongation in 2": 23

---

Republic Steel Corporation
DEPT. PA-7844
1441 Republic Building - Cleveland, Ohio 44101

Please send a copy of the booklet, ELECTRUNITE Steel Tubing for Structural Use.

Name: ____________________________  Title: ____________________________
Company: __________________________
Address: __________________________
City: ____________________________  State: ____________  Zip: ____________
Thirty-five years ago Sandell introduced the S Wire Flashing, the first permanent, conformable thru-wall flashing with a coefficient of expansion close to that of masonry. It set a new standard in the industry and was specified and used in such buildings as the John Hancock Mutual Life Insurance Co., Boston, Mass.; Willow Run Plant, Ford Motor Co.; Architectural Building, M.I.T.; Southern Bell Telephone Co., Gastonia, N.C. A proven performer, the S Wire Flashing is increasingly in demand for today's waterproofing needs.

The newest Sandell flashing first is DUO-WELD, the one flashing where inorganic copper is ingeniously combined with inorganic fiberglass to meet the special need for unusually tough flashings that cannot rot or delaminate in service. Architects and engineers continue to look to Sandell for the best product answers to waterproofing problems, and for reduced installation and maintenance costs. Write Dept. A for complete information, including specifications, test results and samples.

For instance: at spandrel beams, Sandell Type S Wire Reinforced Flashings protect the steel and prevent seepage over heads of windows or at the ceiling.
erly concerned with the position of the architect in the increasing complexity of urban construction.

The need is for a more integrated point of view. The architect, who is a unique compound of builder, businessman, and artist, should be particularly able to serve the community in solving these complex problems. But in most vast projects today, the architect is reduced to a more specialized and less significant position, working within rigid limits established by others.

Perhaps the most neglected aspect of the architect is the most required today: the architect as an artist. The complex urban problem may only be solved by the artistic imagination which we should possess.

Every other art is subjected to constant criticism by artists as well as by critics. When we severely limit criticism of architects by architects we lose an important source of vitality for our profession. We also risk losing the unique compound of elements required for fine architecture.

HERBERT OPPENHEIMER
New York, N.Y.

Dear Editor: I think that the design of total physical environment would depend not so much on the will of the public to accept the architect's leadership, but rather upon whether the architect can train himself to deal with design at this larger scale. At the present time, we have only planners who work at this scale, but no architects.

I agree with all you have to say about the architect's leadership. Since the Institute represents the profession, its action must reflect the supraprofessional nature of the problem. Again, this the Institute cannot do, although it should, until there are architects who can competently deal with design at urban scale. However, I don't feel that the AIA is any different in attitude from the American Medical Association or the National Association of Manufacturers, with whom the public must also deal.

JOHN M. JOHANSEN
New Canaan, Conn.

Dear Editor: I was very interested in your comments and projections, and delighted to see that P/A does not hesitate to face the reality of conditions we all should become aware of.

It is not a question as to whether your Editorials represent reality as I see it, or for that matter reality as may be interpreted differently by our fellow architects. Rather, I feel it is valid in that you have publicly expressed concern,
and have projected comments for our consideration. This, to me, is important.

We certainly are experiencing a perplexing array of changing concepts and values that will be our task to consider. Because of this, it is my belief that unless we architects, along with all other interested citizens, can develop a fuller understanding of the forces motivating and influencing the changing scene of our human drama, we will not be adequately equipped for a more creative part in helping to shape our future culture.

Our biggest immediate problem may be a pragmatic one. I mean that we are likely to become subject to acting hastily, giving less consideration to the wider range of knowledge that should be reflected in our future planning. Again, this is why I feel your Editorials are valid, for they should encourage thinking, studying, and the expression of various viewpoints.

My view is that I do not think that the future of the architectural profession is uncertain, but that we might be left without credentials in these changing times. On the contrary, it would appear that while we are in for some changes, the necessary adjustments involved will lead to a greater strength and solidarity within the profession, rather than weaken it.

That there are many architects who are concerned about the future of their profession is understandable. Needless to say, any transitional evolution, whether it takes place in oneself or in society, can be a very disconcerting experience. Certainly, today, we are not just witnessing a minor adjustment to our way of life. Rather, we are experiencing, and will continue to experience for some time, a social and economic evolution that will touch the very roots of our society.

Today, we tend to attribute our plight to the growth of an industrial complex. That, by its very nature, creates bigness, confusion, and certainly a complexity of interests. This rapid growth in our society has for the main part occurred without adequate social or economic planning. Since little or no study has been devoted to ecological considerations—the cause and effects of our actions and designs upon society—we can surely understand why this dilemma has come about. Now let's be very clear about this, for we will find it is not only the architectural profession that must re-evaluate its thinking.

We are becoming aware that our architectural expressions are far too often the results of an industrial product designer, rather than the efforts of a socially conscious and creative architect; that mechanical services are skyrocketing and will continue to do so for some time; that far too often the design functions are dictated by other interests; that as leaders of the building industry we are losing our esteemed identity.

All these conditions have rocked our boat, so to speak; they have produced our disillusionment, and this is good, for to hold an illusion without foundation is unrealistic. It is within the very nature of this confusion and this complex society that the architect will find his profession growing to greater responsibility and not dying on the vine of despair.

The growth required of us will be disturbing to our present tendency to hold on to the status quo. Too many architects are failing to project their thinking into the new order of things.

In the past, and unfortunately still too much today, we have reflected a more exclusive approach in our attitudes toward the problems of human environment. Too many of us still see ourselves operating from a position of leadership with respect toward creating our physical environment. As long as our clients were private individuals or even corporations, we were more truly in command. But look at the mess we have created today. Because many of our activities have tended to be more exclusive, we continue to cling to this wish to project an image of ourselves as leaders. What we fail to understand is that, precisely because of this tendency, we may not in any real sense be ready for the vastly more complex problems of a larger client, the general public.

What we are hopefully witnessing today is a transition in human evolution from a lower order of an unintegrated society toward a higher and more integrated democratic society. In other words, a society that will express itself more than it did in the past, through a greater understanding for the need of human communication between individuals and groups.

We are moving away from the more exclusive past, where we acclaimed democracy, but too often failed to express it in our lives and the projects we erected.

Planning tomorrow will be governed more by ecological considerations. Because of this, we will find many more professional disciplines involved than has been the case in the past. For example, within a typical planning group we may...
WE ARE PROUD that Schokbeton was selected for the outstanding new U.S. Embassy Building in Dublin, Ireland. It is a challenge to Schokbeton's engineering skills and logistical planning ability which was welcomed and successfully met. For the best in precast concrete specify Schokbeton precast, load-bearing, combination column and window-wall element, U.S. Embassy Bldg., Dublin, Ireland. Architect: John Maciian Johansen New Canaan, Conn., U.S.A. Manufactured by N.V. Schokbeton, Holland.

Now available through the following: EASTERN SCHOKBETON CORP., 641 Lexington Ave., New York 17, N.Y. / EASTERN SCHOKBETON CORP., 65 Mountain St. West, Worcester 1, Mass. CREST SCHOKBETON CONCRETE INC., P.O. Box 326, Lakewood, Ill. / SCHOKBETON PITTSBURGH, INC., 37 South 20th St., Pittsburgh, Pa., Subsidiary of The Keystone Steel Co. SCHOKBETON PRODUCTS DTV., Concrete Structures Inc., 12825 Northeast 54th Ave., North Miami, Fla. / SCHOKBETON QUEBEC, INC., P.O. Box 278, St. Eustache, Quebec, ROCKWIN/SCHOKBETON DIV., Rockwin Pre-Stressed Concrete Corp.—a subsidiary of United Concrete Pipe Corp., P.O. Box 2536, Santa Fe Springs, Calif.

SCHOKBETON PRODUCTS CORP. 18 EAST 41 STREET, N.Y.C. 17, N.Y.—A SUBSIDIARY OF THE KAWNEER DIV. OF AMERICAN METAL CLIMAX INC.
VICRTEX

color ranges make Vinyl
Wallcovering planning easier

Architects and designers have a whole world of color availabilities—for example, 21 shades of yellow alone—with Vicrtext V.E.F.* vinyl Wallcoverings. This means you enjoy broad opportunities for color use and accents. These Vicrtext colors come in a wide range of fabric textures that best fit your design, your engineering requirements and your bid. Handprints are another advantage offered to you with Vicrtext. These exclusive patterns are overlaid on rich, deep-molded Vicrtext Vinyl ... again in any color you specify. They help you give settings new individuality!

Investigate the many new design opportunities open to you with Vicrtext Vinyl Wallcovering colors and patterns. Write for swatches, samples and complete information on color-full Vicrtext.*

* means vinyl electronically fused

Write today for All Swatch Book and colorful Walls of Fame Brochure.

L.E. CARPENTER & COMPANY

Empire State Building
New York, New York
Distributed in principal cities from Hawaii to the Caribbean, by:

For more information, circle No. 385

find the sociologist, the lawyer, the psychiatrist, the real estate man and businessman, the banker, and, depending upon the nature of the task, many others who will join in common interest with the engineer, planners, architects, and landscape architects.

All these many professional disciplines will from time to time, as needs arise, form into planning groups. Because of the many interests that will be involved, these planning groups will become aware of the necessity for pluralism as a functional requirement for the group's healthy endeavors.

We will come to see that a higher level of human development is involved here in sustaining a pluralistic environment. Just what do we mean by pluralism? We mean the ability of a group of individuals to function where differences of opinion and beliefs can co-exist without impairing the group's growth or their planning abilities. In other words, it is the function of productive activity within the group while accepting difference of opinion and diversity of outlook.

For pluralism to function, however, there must exist some common ground of understanding in these planning groups that all members can agree to. It is my belief that this common ground should be based on democratic principles and the belief in the potentials for growth and dignity in man. This, it would seem to me, is an all-inclusive outlook that could be accepted by all mature individuals regardless of background or interest.

The architects who will help staff these planning groups will find there is no need to show superiority to gain mastery within the group. That he will, from time to time, find himself involved in sharp disagreements with other members, should be understood as one sign of genuine respect for the other person.

SIDNEY WRIGHT TOMAN
Chapel Hill, N.C.

PHOTO CREDITS

Recent Work of Pierre Jeanneret

PAGE 148: Jost Malhotra

PAGES 149-152:

Precast Annular Embassy

PAGES 155-161:
(3-10) 12-17: Stuervo-Foto-Film, Kampen
(2) 18-20: A. J. Kersling, London
(11): P. H. Goede, Amsterdam

D. A. MATOT, INC.

1533 W. Altgeld Avenue • Chicago 14, Illinois

See our catalog in Sweet's for estimates on any jobs—special problems are welcomed as well as regular dumbwaiter or vertical lift installations. Write for free catalog and descriptive information.

FEBRUARY 1961 P/A
GET MORE IN A DOOR! 1 Exclusive Amarlock has new recessed cylinder...eliminates unscrewing...offers extended bolt protection. 2 New pivots and butts have ball bearings and stainless steel pins. 3 Security clips...easily installed...prevent removal of exterior stops without proof of entry. 4 Tie-rod constructed doors are welded at unexposed junctions of rails and stiles. New optional Staminawood Pulls now available...insert of resin impregnated wood compressed to high density. A touch of warm wood, to contrast with flawless anodized aluminum.

AMARLITE
DIVISION OF ANACONDA ALUMINUM COMPANY
MAIN OFFICE • P. O. BOX 1719
ATLANTA 1, GEORGIA

Sales Offices and Warehouses:
Chicago, Illinois    Dallas, Texas
Cleveland, Ohio     Paramus, New Jersey
Atlanta, Georgia    Los Angeles, California

For more information, turn to Reader Service card, circle No. 367
P/A JOBS AND MEN

SITUATIONS OPEN

ARCHITECT—Immediate opening for graduate architect who is a creative designer. Permanent position with a well established Midwest consulting firm. Salary commensurate with ability. Moving expenses paid. Box #712, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Large concern has opening for Architect, under 45, with college degree and NCARB certificate—interested in commercial architecture. Main office in Massachusetts. Must be willing to travel and must possess thorough background in all phases of architecture including preparation of complete working drawings, experience as job and team captain, project coordinator, client contact and contract negotiation. Responsible position with future for man who prefers detail work and has executive administrative ability. Submit resume of education, experience, and salary requirements to Box #713, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Registered Pennsylvania or NCARB registrations for position as Job Captain, Municipal Authority (PA) with progressive architectural firm in South Central Pennsylvania. Also architectural draftsmen capable of developing working drawings with minimum supervision. Submit resume, salary required and references. Box #714, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Top opening available for experienced architect in medium-sized firm in Richmond, Virginia. Diversified practice in contemporary architecture. Submit resume of education and experience and salary expected. Box #715, PROGRESSIVE ARCHITECTURE.

ARCHITECT—LAND PLANNER—Wanted for large progressive, publicly owned builder. Experience with FHA MIP’s desirable. Submit resume to Box #716, PROGRESSIVE ARCHITECTURE.


ARCHITECTURAL DRAFTSMEN—Capable of developing studies and preliminary sketches into final working drawings and details. Kansas City location, excellent working conditions. Give all information regarding training and experience. Send resume of work. Box #717, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL GRADUATE—Capable of developing studies and preliminary sketches into final working drawings and details with minimum supervision. Southern location. Excellent working conditions. Give all information regarding training and experience. Send resume of work. Box #718, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL GRADUATES—Several draftings and design positions as a result of the expansion program of a leading merchandising firm headquartered in Chicago. Initial responsibilities will involve design assignments which will lead to opportunities for promotion to project supervision. Excellent training provided under guidance of corporate architect. Prefer recent graduate who has one to two years experience. Send resume stating salary requirements to Box #719, PROGRESSIVE ARCHITECTURE.

SITUATIONS WANTED

ARCHITECT—AIA, Harvard B.Arch., NCARB, N.Y. licensed, progressive architect for eight years in U.S.A., Europe and Africa. Married, age 38. Fluent French, working knowledge of Italian. Desires permanent responsible position with architectural firm in New York, Connecticut area or in New England. Write Box #720, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Interested entering progressive field, related to Architectural practice, which is based upon integrity, quality, creative talent, hard work, research, imagination, practical concepts, ideas, development, refinement. Architectural practice too often does not require nor allow one to work to utmost of ability. Believe I can be asset to growing field which does demand and reward top work. Relocation based upon opportunity. Like travel. Graduate, licensed, AIA, 37, 4 dependents, midwest, ten years chief designer, four years own practice. Experienced all phases large, custom, residential, schools, commercial, $65.00 per day minimum. Box #721, PROGRESSIVE ARCHITECTURE.

ARCHITECT—N.Y. State and NCARB registrations, summa cum laude, wide experience in all phases architecture. Desires association or position of responsibility with the opportunity of future partnership. For resume and references write Box #722, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Registered, single, U.S. citizen, European degrees, with long varied experience in all fields of architecture and urban planning. Particularly skilled in architectural and structural design, with fluent knowledge of English, French, German & Spanish seeks responsible position with progressive firm working in Western Europe. Box #723, PROGRESSIVE ARCHITECTURE.


ARCHITECT—Wisconsin registration. Graduate of University of Illinois with 8 years diversified architectural, structural, and specification writing experience doing schools, churches, hospitals and commercial buildings. Desires responsible position with established reputable firm doing contemporary architecture. Resume available. Confidential replies requested. Box #725, PROGRESSIVE ARCHITECTURE.

DESIGN DEVELOPMENT—28 year old man desires design development position with manufacturer of complete building systems. Has Bachelor and Master of Architecture degrees, three years university instructor, strong background and interest in industrialization, registration in process. Family with two children. Box #726, PROGRESSIVE ARCHITECTURE.

DESIGNER-DRAFTSMAN—9 years varied experience, 35 years old, married, family. Desire permanent, challenging, interesting, different, unusual architectural position such as in city planning, educational planning, space programs, research, etc. Will consider location from Trenton, New Jersey to New York City. Immediate reply guaranteed. Box #727, PROGRESSIVE ARCHITECTURE.


REGISTERED ARCHITECT—31, married. M.Arch. Harvard graduate school of design. Varied experience in architectural offices and two years experience in architectural education. Presently working in London and Paris in Europe. Desires association or position of responsibility with the opportunity of future partnership. For resume and references write Box #729, PROGRESSIVE ARCHITECTURE.

MISCELLANEOUS

ARCHITECTURAL & DESIGN AGENCY—Architects, design or production experience $6M to $25M. Muriel Feder maintains close contact with the entire Architectural & Design field. The "professional Consultant" for confidential, nationwide, & international coverages. Equally skilled in all phases of the architectural office for the past 15 years. 58 Park Ave., New York City, Murray Hill 3-2523.


CONTACT PERSONNEL AGENCY-LILLIAN FOX—A highly personalized and discriminating service in architects, architectural and interior designers, production and draftsmen, in all phases of architecture. Confidential interviews by appointment. 515 Madison Ave., New York 22, N.Y. Murray Hill 5-1674.


ADVERTISING RATES

Advertising Rates

Standard charge for each unit is Five Dollars, with a maximum of 50 words. In counting words, your complete address (any address) counts as five words, a box number as three words. Two units may be purchased for ten dollars, with a maximum of 100 words. Check or money order should accompany advertising and be mailed to Box #729, PROGRESSIVE ARCHITECTURE, 430 Park Avenue, New York, N.Y. Insertions will be accepted not later than the 1st of the month preceding month of publication. Box number replies should be addressed as noted above. All box numbers placed in lower left hand corner of envelope.
WHY COMPOSITE DESIGN IS OFTEN BETTER DESIGN

All across the country, architects and their associated engineers are turning to composite construction to achieve a variety of better structures — economically. Composite construction is giving them stronger, stiffer structures ... structures better able to handle vibrations or impact from machinery or moving loads. It's decreasing beam depth and building height. It's making economical use of rolled sections for longer spans. And it's saving steel tonnage. Here are just a few examples.

Redesigned using composite...steel tonnage cut 5%. Original design of this handsome two-story Lord & Taylor department store in Jenkintown, Pa. called for a conventional steel frame. Composite redesign, undertaken to cut framing costs, pared steel tonnage some 5%...saved about $10,000 according to the architect-engineer.

Composite design of 3-story warehouse saves $25,000. Composite design and A36 steel won out over concrete in the 253,000 sq ft South Carolina warehouse for Spring Cotton Mills. Increased stiffness of the composite structure, needed to support very heavy loadings on its three floors, was a prime factor. Composite design cost some $25,000 less than conventional steel design.

Composite design cuts cost of parking ramp to $1,250 per car...compared to average cost of $1,700 to $1,800 per car for reinforced concrete parking ramps. Architects-engineers for the 1,000-car ramp for Buffalo store of Sears, Roebuck & Co. report a 20% reduction in steel tonnage using composite design and higher-stress A36 steel.

New Handbook on Properties of Composite Sections. Does your engineer have a copy of Bethlehem's handbook, Properties of Composite Sections for Bridges and Buildings? If not, have him get in touch with the nearest Bethlehem sales office, and ask for our steel design file on composite sections.

(Names of the architectural and engineering firms responsible for the projects named above will gladly be furnished on request.)
SPECIFY CoPan

Beauty, versatility, economy — three main reasons why you should specify CoPan colored panels of aluminum on your facing jobs — both new construction and remodeling.

Here is why this winning combination will work for you:

- **14 CLEAR LIVE COLORS** — The widest selection of usable colors in aluminum facings.
- **NEW MODERN CONTOURS** — Two distinct panels suggest almost unlimited design and color combinations.
- **LOW COST** — CoPan offers low material cost, low installation cost, low maintenance cost — unquestionably the lowest cost, fine quality building facing material on the market today!

Just Published!

**ART IN LATIN AMERICAN ARCHITECTURE**
by PAUL F. DAMAZ Preface by Oscar Niemeyer

A comprehensive, critical analysis of architectural art in Latin America, this new book is the one all-inclusive source on this subject. The author brings a penetrating insight to the special qualities of the Latin American temperament—a dynamic fusion of European-Indian culture, contemporary political and social forces, and sensuous response to color and form—which is responsible for the uninhibited collaboration between artist and architect. This handsome, visually exciting book considers this collaboration both in the text, and in the perceptive introduction by Oscar Niemeyer, and illustrates the extraordinarily imaginative results this union has produced.

Part I: A bird's-eye view of the culture and heritage of art and architecture in Latin America. Part II: The finest examples of Latin American murals, sculpture, stained glass and mosaics, mainly through illustrations and captions. 400 illustrations, 24 in color. 8½ x 10½. 224 pages. $15.

**ART IN EUROPEAN ARCHITECTURE**
by PAUL F. DAMAZ
Preface by Le Corbusier

This beautiful book describes the integration of the arts in modern architectural design with superb examples showing the use of color, mural painting, sculpture, stained glass, and mosaics in office buildings, factories, churches, gardens and steamships. The works of 130 architects and 150 artists are shown in this companion volume to ART IN LATIN AMERICAN ARCHITECTURE. 450 illustrations, 15 in color, 8½ x 10½. 242 pages. $10.95.

**HASTINGS ALUMINUM PRODUCTS, INC.**

Dept. 592 Hastings, Michigan

For more information, turn to Reader Service card, circle No. 366
MARBLE: economy material for cost-conscious clients!

MARBLE? they’ll say, an economy material? Yes, indeed! If they’ll take a square look at all the facts.

Too many people make the mistake of assuming that anything as beautiful as marble—with its incomparable look of luxury—must simply be too costly. That simply is not true.

Actually, marble offers the best of both beauty and economy.

Marble, of course, is permanent and durable, more than good for the life of any building. Its economy begins the minute it’s installed. It never needs painting or waxing or buffing. Year after year, its minimum cost of maintenance is like money in the bank.

Even marble’s long-lasting look of luxury has a tangible value, increasing pride of ownership and pleasure in use, and helping to sustain property values by creating individual distinction for any structure.

Members of the Marble Institute of America offer skilled and experienced counsel in the proper use of marble; they offer the world’s finest marble workmanship in their plants throughout the U.S.; and they offer as well more than 250 foreign and domestic marbles for you and your cost-conscious clients to choose from.

For further information, write:

MARBLE INSTITUTE OF AMERICA, INC.
32 Fifth Avenue, Mt. Vernon, N. Y. 10550

For more information, turn to Reader Service card, circle No. 330

CARAM-MIRACLE LIQUID APPLIED SYSTEM
Formulated From Neoprene-Hypalon® (DuPont TM)

...THE ANSWER TO MODERN ROOFING

Check These Products—Sold Through Approved Applicators

✓ KOLORPRENE® for roofs
✓ KOLORGRIT® for traffic decks
✓ PROMENADE® for balconies and foot traffic

For roofs of normal or unusual shape—curved, warped, folded plate, etc.—the Caram-Miracle Roofing System gives architects complete freedom in choice of color. Now being used extensively on monolithic reinforced concrete, lightweight aggregate concrete and exterior plywood.

MIRACLE ADHESIVES CORPORATION
250 PETTIT AVENUE • BELLMORE, N. Y.

For more information, turn to Reader Service card, circle No. 377

design for the lightest* brightest garage door ever

interior photographs taken with natural daylight

RAYLON & ALUMINUM GARAGE DOORS by RAYNOR
Always a "sun-bright" garage interior!

Whether you are utilizing the translucent fiber-glass Raylon door to design the added convenience of a “bad weather” work area into hanger or commercial fleet garage, or increasing the natural lighting efficiency of an industrial plant interior...the Raylon door’s maintenance-free construction and featherlight performance (1/4 to 1/3 the weight of wood) make it the sectional door that completely fulfills the most exacting architectural specifications.

RAYNOR MFG. CO.
DIXON, ILLINOIS

For more information, turn to Reader Service card, circle No. 363
<table>
<thead>
<tr>
<th>Adrex Mfg. Corp.</th>
<th>86</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerofin Corp.</td>
<td>28</td>
</tr>
<tr>
<td>Albina Engine &amp; Machine Works</td>
<td>93</td>
</tr>
<tr>
<td>Altec Lansing Corp.</td>
<td>94</td>
</tr>
<tr>
<td>American Gas Asn.</td>
<td>97</td>
</tr>
<tr>
<td>American Radiator &amp; Standard Sanitary Corp.</td>
<td>52</td>
</tr>
<tr>
<td>American-Saint Gobain Corp.</td>
<td>24, 25</td>
</tr>
<tr>
<td>American Telephone &amp; Telegraph Co.</td>
<td>11</td>
</tr>
<tr>
<td>Anaconda American Brass Corp.</td>
<td>41</td>
</tr>
<tr>
<td>Armco Steel Corp., Sheffield Division</td>
<td>47</td>
</tr>
<tr>
<td>Armstrong Cork Co., Ceiling Systems</td>
<td>18, 19</td>
</tr>
<tr>
<td>Armstrong Cork Co., Flooring Division</td>
<td>2nd Cover, 1</td>
</tr>
<tr>
<td>Bally Case &amp; Cooler Co.</td>
<td>91</td>
</tr>
<tr>
<td>Bayley, William Co.</td>
<td>87</td>
</tr>
<tr>
<td>Bestwall Gypsum Co.</td>
<td>196</td>
</tr>
<tr>
<td>Bethlehem Steel Co.</td>
<td>31, 32, 33, 191</td>
</tr>
<tr>
<td>Blum, Julius &amp; Co.</td>
<td>16</td>
</tr>
<tr>
<td>Bobrick Dispensers</td>
<td>85</td>
</tr>
<tr>
<td>Borden Metal Products Co.</td>
<td>104</td>
</tr>
<tr>
<td>Bradley Wash fountain Co.</td>
<td>96</td>
</tr>
<tr>
<td>Cabot, Samuel, Inc.</td>
<td>90</td>
</tr>
<tr>
<td>Callaway Mills Corp.</td>
<td>13</td>
</tr>
<tr>
<td>Cambridge Tile Mfg. Co.</td>
<td>42</td>
</tr>
<tr>
<td>Carpenter, L. E. &amp; Co.</td>
<td>188</td>
</tr>
<tr>
<td>Carrier Air Conditioning Co.</td>
<td>97</td>
</tr>
<tr>
<td>Celotex Corp.</td>
<td>30, 51</td>
</tr>
<tr>
<td>Certified Ballast Mfrs.</td>
<td>75</td>
</tr>
<tr>
<td>Chrysler Corp.</td>
<td>69</td>
</tr>
<tr>
<td>Donn Products, Inc.</td>
<td>92</td>
</tr>
<tr>
<td>Dow Chemical Co.</td>
<td>66, 67</td>
</tr>
<tr>
<td>du Pont de Nemours, E. I. &amp; Co., Tedlar Div.</td>
<td>34, 35</td>
</tr>
<tr>
<td>Du Pont Plastics Div., Hooker Chemical Corp.</td>
<td>40</td>
</tr>
<tr>
<td>Edison Electric Institute</td>
<td>6</td>
</tr>
<tr>
<td>Electronic Teaching Laboratories</td>
<td>91</td>
</tr>
<tr>
<td>Euroglass Corp.</td>
<td>98, 99</td>
</tr>
<tr>
<td>Farley-McMeekan, Inc.</td>
<td>91</td>
</tr>
<tr>
<td>Federal Seaboard Terra Cotta Corp.</td>
<td>3rd Cover</td>
</tr>
<tr>
<td>Follansbee Steel Corp.</td>
<td>23</td>
</tr>
<tr>
<td>Gotham Lighting Corp.</td>
<td>37</td>
</tr>
<tr>
<td>Grant Pulley &amp; Hardware Corp.</td>
<td>29</td>
</tr>
<tr>
<td>Great Lakes Carbon Corp.</td>
<td>36</td>
</tr>
<tr>
<td>Hall-Mack Co.</td>
<td>22</td>
</tr>
<tr>
<td>Hastings Aluminum Products, Inc.</td>
<td>192</td>
</tr>
<tr>
<td>Haughton Elevators Co.</td>
<td>165</td>
</tr>
<tr>
<td>Haws Drinking Faucet Co.</td>
<td>12</td>
</tr>
<tr>
<td>Hopes Windows, Inc.</td>
<td>43</td>
</tr>
<tr>
<td>Inland Steel Products Co.</td>
<td>175</td>
</tr>
<tr>
<td>International Steel Co.</td>
<td>42</td>
</tr>
<tr>
<td>ITT Bell &amp; Gossett, Inc.</td>
<td>38</td>
</tr>
<tr>
<td>Johnson Service Co.</td>
<td>4th Cover</td>
</tr>
<tr>
<td>Keystone Steel &amp; Wire Corp.</td>
<td>82, 83</td>
</tr>
<tr>
<td>Kinneer Mfg.</td>
<td>20</td>
</tr>
<tr>
<td>Klieg Brothers</td>
<td>93</td>
</tr>
<tr>
<td>Kol-I-Noor, Inc.</td>
<td>169</td>
</tr>
<tr>
<td>LCN Closers, Inc.</td>
<td>172, 173</td>
</tr>
<tr>
<td>Macomber, Inc., Subsidiary of Sharon Steel, Inc.</td>
<td>71</td>
</tr>
<tr>
<td>Marble Institute of America</td>
<td>193</td>
</tr>
<tr>
<td>Marmet Corp.</td>
<td>26, 27</td>
</tr>
<tr>
<td>Matot, D. A., Inc.</td>
<td>188</td>
</tr>
<tr>
<td>Metal Roof Deck Technical Inst.</td>
<td>46</td>
</tr>
<tr>
<td>Miracle Adhesives Corp.</td>
<td>193</td>
</tr>
<tr>
<td>Mobay Chemical Co.</td>
<td>4</td>
</tr>
<tr>
<td>Myrtle Desk Co.</td>
<td>195</td>
</tr>
<tr>
<td>Macomber, Inc., Subsidiary of Sharon Steel, Inc.</td>
<td>71</td>
</tr>
<tr>
<td>Marble Institute of America</td>
<td>193</td>
</tr>
<tr>
<td>Marmet Corp.</td>
<td>26, 27</td>
</tr>
<tr>
<td>Matot, D. A., Inc.</td>
<td>188</td>
</tr>
<tr>
<td>Metal Roof Deck Technical Inst.</td>
<td>46</td>
</tr>
<tr>
<td>Miracle Adhesives Corp.</td>
<td>193</td>
</tr>
<tr>
<td>Mobay Chemical Co.</td>
<td>4</td>
</tr>
<tr>
<td>Myrtle Desk Co.</td>
<td>195</td>
</tr>
<tr>
<td>Macomber, Inc., Subsidiary of Sharon Steel, Inc.</td>
<td>71</td>
</tr>
<tr>
<td>Marble Institute of America</td>
<td>193</td>
</tr>
<tr>
<td>Marmet Corp.</td>
<td>26, 27</td>
</tr>
<tr>
<td>Matot, D. A., Inc.</td>
<td>188</td>
</tr>
<tr>
<td>Metal Roof Deck Technical Inst.</td>
<td>46</td>
</tr>
<tr>
<td>Miracle Adhesives Corp.</td>
<td>193</td>
</tr>
<tr>
<td>Mobay Chemical Co.</td>
<td>4</td>
</tr>
<tr>
<td>Myrtle Desk Co.</td>
<td>195</td>
</tr>
<tr>
<td>National Gypsum Co.</td>
<td>100, 101</td>
</tr>
<tr>
<td>Palco Gypsum Div., Fiberboard Paper Prod. Corp.</td>
<td>74 W-h-c</td>
</tr>
<tr>
<td>Pass &amp; Seymour</td>
<td>85</td>
</tr>
<tr>
<td>Peerless Corp.</td>
<td>74</td>
</tr>
<tr>
<td>Portland Cement Association</td>
<td>30</td>
</tr>
<tr>
<td>Pratt &amp; Lambert, Inc.</td>
<td>21</td>
</tr>
<tr>
<td>Raynor Mfg. Co.</td>
<td>193</td>
</tr>
<tr>
<td>Red Cedar Shingle &amp; Handsplit Shake Bureau</td>
<td>2, 3</td>
</tr>
<tr>
<td>Reinhold Publishing Corp.</td>
<td>74 W-a, d, 90, 93, 178 thru 181, 193</td>
</tr>
<tr>
<td>Republic Steel Corp.</td>
<td>182, 183</td>
</tr>
<tr>
<td>Revere Copper &amp; Brass Co.</td>
<td>14, 15</td>
</tr>
<tr>
<td>Richards-Wilcox Div., Hupp Corp.</td>
<td>89</td>
</tr>
<tr>
<td>Rohm &amp; Haas Co.</td>
<td>102, 103</td>
</tr>
<tr>
<td>Royal Systems</td>
<td>174</td>
</tr>
<tr>
<td>Russell &amp; Erwin, Div. of American Hardware Corp.</td>
<td>7, 9</td>
</tr>
<tr>
<td>Sandell Mfg. Co.</td>
<td>184, 185</td>
</tr>
<tr>
<td>Schokbeton Products Corp.</td>
<td>187</td>
</tr>
<tr>
<td>Sloan Valve Co.</td>
<td>167</td>
</tr>
<tr>
<td>Summitville Tiles, Inc.</td>
<td>177</td>
</tr>
<tr>
<td>T&amp;S Brass &amp; Bronze Works, Inc.</td>
<td>176</td>
</tr>
<tr>
<td>Thiokol Chemical Co.</td>
<td>171</td>
</tr>
<tr>
<td>Torjesen, Inc.</td>
<td>76</td>
</tr>
<tr>
<td>United States Ceramic Tile Co.</td>
<td>47</td>
</tr>
<tr>
<td>United States Plywood Corp.</td>
<td>53, 54</td>
</tr>
<tr>
<td>Universal Atlas Cement Co., Div. of U. S. Steel Corp.</td>
<td>17</td>
</tr>
<tr>
<td>Upco Co.</td>
<td>95</td>
</tr>
<tr>
<td>Yawman &amp; Erbe Mfg. Co., Inc.</td>
<td>88</td>
</tr>
</tbody>
</table>
Encore library equipment...for the added prestige that only distinctively designed furniture can give to today's modern architecture...and for the warmth that only expertly crafted wood furniture can give to libraries. Encore fits...with a broad, complete line of design coordinated pieces — standard in handsome American Walnut or Conventional Maple; custom crafted in woods to meet your specifications. For your next library space planning job, plan on Encore for an inviting atmosphere, functional and durable styling, beauty and warmth, quality craftsmanship. For catalog and specifications, write Library Division, Myrtle Desk Co., Dept. PA2, High Point, N. C.

ENCORE IS FIRST CHOICE IN LEADING UNIVERSITIES, COLLEGES, SCHOOLS AND PUBLIC LIBRARIES IN ALL 50 STATES

FEBRUARY 1964 P/A
IT'S HERE . . . THE LOWEST-COST ACOUSTICAL GYPSUM TILE! Bestwall Incombustible Acoustical Tile, a lightweight, random perforated unit designed for use in exposed grid suspended ceilings, provides the economical answer to acoustical treatment and incombustible requirements in schools, factories, churches, supermarkets and other commercial and industrial structures. For lowest-cost fire resistance and efficient sound absorption, choose Bestwall Incombustible Acoustical Tile . . . reinforced with miles of interlocking glass fibers for added strength and resilience. Bestwall Gypsum Company, Ardmore/Pa.

For more information, turn to Reader Service card, circle No. 357
Dramatize your design in colorful Ceramic Veneer

There's no need to confine creativity or sacrifice the right colors when you bring Ceramic Veneer into your plans. With it you can create colorful smooth surfaces, polychrome panels, perforated facades and ornamental sculpture. Ceramic Veneer's versatility of form, color and texture is unrivaled because each unit, large or small, is custom-made to your specifications. Permanent quality as well as color, moderate price and utmost economy of maintenance are other factors which favor the use of Ceramic Veneer, the modern architectural terra cotta. Construction detail, data, estimates and advice on preliminary sketches involving the use of Ceramic Veneer will be sent on request. Write today.

FEDERAL SEABOARD TERRA COTTA CORPORATION 10 East 40th Street, New York 16, N.Y. Plant at Perth Amboy, N.J.
United States Gypsum Building Reflects Growing Role of Automatic Systems – Functionally, as well as aesthetically, this dramatic structure incorporates advanced concepts in office building design. Specially engineered Johnson automatic control systems, for example, assure efficient, economical operation of a wide array of equipment and services.

Most important is a comprehensive Johnson air conditioning control system with individual room thermostats. Other automated functions include building security, smoke detection, sprinkler flow alarm, snow melting, clock programming and intercommunications. In addition, Johnson installed a custom designed pneumatic-electric control center from which one man can supervise and/or control all systems (except security, which has a separate panel off the main lobby).

More and more, quality-minded planners and owners are upgrading building services by incorporating Johnson automatic control systems which pay for themselves through savings on fuel, power, manhours, and other costs. Why don’t you, too, take advantage of Johnson’s across-the-board systems capabilities? Johnson Service Company, Milwaukee, Wisconsin 53201. Direct Branch Offices in 112 Principal Cities.

For more information, turn to Reader Service card, circle No. 375