You don't have to specify JAMISON

but if you value VALUE, you will.

A Jamison cold storage door gives you the obvious values of the finest materials, excellent construction and proper functional design. It's what you'd expect from the oldest and most experienced maker of cold storage doors.

In addition to these obvious values, Jamison gives you hidden values. Architects find especially valuable the architect data sheets which describe in detail each door that we make. They also give complete specifications which may be used with possibly only slight modifications.

Another value we would like to offer you. Send for a free copy of our book “How to Select and Specify Doors for Cold Storage Warehouses and Food Processing Plants.” This in no way obligates you to specify JAMISON. But if you value VALUE, you will.

For complete details write to Jamison Door Company, Hagerstown, Maryland 21740.
Why install anything but a Durcon® sink in a chemical laboratory? They’re light in weight, esthetically appealing, corrosion resistant, low in cost, readily available in many shapes. Durcon quality sinks and fittings will solve any of your installation problems! And you get fast delivery!

DURCON COMPANY, INC., DAYTON, OHIO

For more data, circle 3 on inquiry card
Testimonial to your good judgement and our reputation.

These Code Approvals.

The three significant code approvals shown say a lot for both of us.

When you specify Dur-O-waL truss masonry wall reinforcement your clients get the assurance that a quality product protects the distinctive beauty and adds longer life to masonry walls.

When the Building Officials Conference of America (BOCA), International Conference of Building Officials (ICBO), Southern Building Code Congress (SBCC) and local codes give their materials approvals to Dur-O-waL, your good judgement and our reputation both benefit.

Dur-O-waL truss in your specifications means you have selected the original, the most available and the most widely used masonry wall reinforcement. And we think, the best.

We do a lot more than just make and sell the best. We can help you on how best to use our product. For a look at the evidence, write us for a copy of our Installation Details Bulletin No. 64-1. Dur-O-waL, P. O. Box 368, Cedar Rapids, Iowa 52406.
FEATURES

131 TREND IS NOT DESTINY
Lewis Mumford reviews Albert Mayer's *The Urgent Future*.

135 HATCHER HOUSE, JACKSONVILLE, FLORIDA
William Morgan has designed a cube-shaped house whose series of level open up unexpected spaces, expanded to a sweeping river-basin view.

139 PLACE BONAVENTURE: A UNIQUE URBAN COMPLEX
A critical analysis of an $80-million trade center and roof-top hotel in the heart of downtown Montreal designed by Affleck Desbarats Dimakopoulos Lebensold & Sise.

BUILDING TYPES

STUDY 378

107 CIVIC ARCHITECTURE
Daniel Patrick Moynihan, an expert on social and political problems in the central cities, Professor of Education and Urban Politics at the Harvard Graduate School of Education and Director of the Joint Center for Urban Studies at M.I.T. and Harvard makes a strong plea for excellence in public architecture of all kinds.

108 NORTH RIVER WATER POLLUTION CONTROL PROJECT
New York City
Architect: Philip Johnson

110 BOSTON PUBLIC LIBRARY ADDITION
Boston, Massachusetts
Architect: Philip Johnson

112 THE JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN
Washington, D.C.
Architects: Skidmore, Owings and Merrill

116 DEPARTMENT OF LABOR BUILDING
Washington, D.C.
Architects: Brooks, Barr, Graeber and White, and Pitts, Mebane, Phelps and White

120 FEDERAL OFFICE BUILDING, SOUTH PORTAL SITE
Washington, D.C.
Architects: Marcel Breuer and Herbert Beckhard, and Nolen, Swinburne & Associates
124 FEDERAL TRIANGLE FEASIBILITY STUDY
Washington, D.C.
Architects: John Carl Warnecke and Associates

128 THE JOHN FITZGERALD KENNEDY GRAVE SITE
Arlington National Cemetery, Virginia
Architects: John Carl Warnecke and Associates

151 TENSION COLUMNS FOR TOWER DORMITORIES
Nine floors of precast panels hang from high-strength steel straps for two
three-winged residence halls.

153 TOTAL ENERGY IN HIGH-RISE: TWO APPLICATIONS

156 SOPHISTICATED ROOF STRUCTURE FOR LOW-COST HOUSES

161 BUILDING COMPONENTS
New techniques for lead-lined pools.

163 PRODUCT REPORTS

164 OFFICE LITERATURE

245 READER SERVICE INQUIRY CARD

9 BEHIND THE RECORD
"Emerson Goble won't like this a bit, but..." by Walter F. Wagner, Jr.

10 PERSPECTIVES

35 THE RECORD REPORTS

40 BUILDINGS IN THE NEWS

46 LETTERS

60 CALENDAR AND OFFICE NOTES

81 ARCHITECTURAL BUSINESS
Building activity .......................... 83
Cost trends and analysis .................. 87
Cost indexes and indicators ............... 89
Practice/Office Management ............... 93

232 REQUIRED READING

238 SEMI-ANNUAL INDEX

242 ADVERTISING INDEX
COMING IN THE RECORD

BUILDING TYPES STUDY: APARTMENTS

For 1968, F. W. Dodge predicts that apartments will have the largest gain of all building types in dollar volume of construction contracts—a very healthy 25 per cent. Next month's Building Types Study will focus on the growing interest in low-rise apartment and townhouse developments which offer more human scale and individuality for this increasingly consumer-oriented housing market.

A NATIONAL AQUARIUM

Kevin Roche, John Dinkeloo and Associates, in collaboration with Charles Eames, have designed an immense aquarium for Washington, D.C., which will be constructed by the General Services Administration in collaboration with the National Wildlife Service.


OFFICERS OF MCGRAW-HILL PUBLICATIONS: Joseph H. Allen, president; Bayard E. Sawyer, executive vice president; Robert F. Marshall, senior vice president—operations; vice presidents: John R. Callaham, editorial; John M. Holden, marketing; Paul F. Cowie, circulation; Angelo R. Venezian, production; Jerome O. Luntz, planning and development; Robert M. Wilhelmy, controller.

CORPORATION OFFICERS: Donald C. McGraw, chairman of the board; Shelton Fisher, president; L. Keith Grosh; Robert E. Slaughter, executive vice presidents; Donald C. McGraw, jr., senior vice president; John J. Cooke, vice president and secretary; John L. McGraw, vice president and treasurer.

All efforts will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

SUBSCRIPTIONS: Available only by paid subscription. Publisher reserves the right to refuse non-qualified subscriptions. Subscriptions solicited only from architects and engineers. Position, firm connection, and type of firm must be indicated on subscription orders forwarded to Fulfillment Manager, Architectural Record, P.O. Box 430, Hightstown, New Jersey 08520. Subscription prices, U.S., Possessions and Canada: $6.00 per year; other Western Hemisphere countries, to those who by title are architects and engineers, $15.00 per year for 12 monthly issues not including Mid-May issue. Subscription from all others outside U.S., U.S. Possessions and Canada for 12 monthly issues, not including Mid-May issue, $24 per year.

SUBSCRIBERS: Address change of address notice, correspondence regarding subscription service or subscription orders to Fulfillment Manager, Architectural Record, P.O. Box 430, Hightstown, New Jersey 08520. Change of address notices should be sent promptly; provide old as well as new address; include zip code or postal zone number if any. If possible, attach address label from recent issue. Please allow one month for change of address to become effective.

UNCONDITIONAL GUARANTEE: The publisher, upon written request, agrees to refund the part of the subscription price applying to the remaining unfilled portion of the subscription if service is unsatisfactory.

Allen-Bradley’s world-famous clock tower marks a timesaving breakthrough in computer-controlled elevatoring:

The exclusive Haughton 1090 System

Under Allen-Bradley Company’s world-famous clock tower stands A-B’s new office and research building in Milwaukee. Just nudge a car-call button on any floor of this building, and your elevator is there. Almost before you can say “1090 System.”

1090 is the new, advanced Haughton Supervisory System that teams a remarkable solid-state electronic computer and electronic demand-response modules of our own design. The System constantly monitors traffic flow and puts elevators where the action is. No aimless cruising up and down . . . no loitering in lobby or at upper floors. Cars are spotted at strategic locations between lobby and topmost floor. When a call is registered, the nearest car responds instantly. Result? Service that represents a significant breakthrough in speed and reliability . . . to enhance the worth and prestige of any building!

The 1090 System is a product of Elevonics® . . .

Specify Haughton automatic elevators with 1090 Supervisory Control for new buildings, and for modernization, too. Call in your Haughton man for complete information. Or, write to us.


HAUGHTON ELEVATORS

Haughton Elevator Company / Division of Toledo Scale Corporation / Toledo, Ohio 43609 / Elevators / Escalators

For more data, circle 5 on inquiry card
When your design demands rugged quality... specify Eljer.

Eljer plumbingware is Master Crafted to outlast the building.

How? The secret lies in Eljer’s blending of domestic and imported clays, plus advanced techniques in ceramic engineering. The result? Eljer’s long-lasting, acid-resistant vitreous china fixtures.

All fixtures are reinforced at points of stress. Eljer’s brass fittings are triple-plated with copper, nickel and chrome for greater durability.

Eljer’s full-line availability, in white or pastels, assures your client on-schedule delivery.

For all the facts, call your Eljer representative. Or write: Eljer, Dept. AR7, P.O. Box 836, Pittsburgh, Pa. 15230.

Eljer Plumbingware Division/Wallace-Murray Corporation
Emerson Goble won't like this a bit, but...

At the beginning of his editorial last month, the editor dropped in a little phrase: “Yes, retirement has caught me.” And at the end of his (as usual) timely and keenly-reasoned and beautifully-written essay, he wished, “in this valedictory, I might be more constructive...” and signed his name.

Well, Emerson Goble has been one of the most constructive voices in the field of architecture for all of the 26 years he has been a member of the staff of ARCHITECTURAL RECORD. And for any of those years—17 as managing editor and nine as editor—he has been achaching and cajoling and propping up and otherwise equipping those of us who make this magazine on from here to do the job as well as he’d like it done. And this is what I’d like to talk about if—just once—you’ll forgive a personal note.

On Em’s last official working day, it fell to Jonnie Davern—managing editor and Em’s long-time assistant—to express something of our feeling. Part of what he said was this: “You never stopped learning when you worked for Em. He took the care and training of editors very seriously, and he always had time for anyone who seriously wanted to understand. He never let any of us get away with missing the point, and I thought we might all assure him today that we will be keeping in mind a couple of points he sometimes felt we were in danger of forgetting: One, we will edit and write for our readers and not for ourselves (that’s ten as hard for an editor as it may sometimes be for an architect to design for the client and not for himself) and two, we will always remember who our readers are.”

Most often, Em reminded us of these “couple of points” by asking us, “How does it help the reader?” That simple question is at the heart of nearly everything we do, and I remember well some of the times Emerson asked it of me.

The first time was when I’d been entrusted with writing my first story for the RECORD. Since I was new on the staff, I figured I’d better do a pretty good job to show all the other editors (wrong audience, right?) that I knew my stuff. So I badgered the art department into putting together an elaborately designed layout, and spent a lot more time than anyone else gets around this office organizing and writing and reorganizing and polishing and rewriting until every word and argument shone like a new penny. And I turned it in to Em. First comment: “Pretty fancy layout.” Long silence. Second comment: “You’re selling me architecture. I already believe in it. Our readers are pretty fond of it, too.” Then he read for quite a long time, sighing, as I recall, more than I thought necessary. Third comment: “Let’s go to lunch.” And at lunch he reminded me that our staff never to let the design of the magazine pages get in the way of the design that’s being shown on those pages, never to explain laboriously—even in your best words—what any architect can see in a glance at the photographs, and never—having made the key decision to publish something—to argue its worth or importance with readers who are eminently qualified to judge its worth or importance for themselves.

Another time, Em asked me “How does this help the reader?” when a change in printing processes made it possible for us to use much more four-color. All of us scrambled around collecting the most dazzling four-color transparencies we could find to illuminate our articles. I remember the first transparency I presented to Em as part of a projected layout. He shuffled through the photographs and told me to go ahead, but skip the color. Why? “I knew the building was white before I got to the color shot, and when I got there I couldn’t see the architecture for all the blue sky and green grass.” And so he reminded us that we must use color (just as we use black-and-white photographs and drawings and words) not for its pizzazz, but for its capability to help the reader understand something that he would not otherwise understand.

Not long ago Em wrote on this page that “we are increasingly conscious that architects and engineers, in growing numbers, are shoving out into space with an orbit-minded world, eagerly inventing an architectural approach to every problem the world can toss at them.” For those of us who write and edit the RECORD, it’s going to be a great trip. We’ll be changing the magazine as architecture changes—and as the demands on and needs of our readers change. But one thing won’t change, Emerson: We won’t forget that our job as editors is to do all we can to help the readers do their job as architects and engineers.

If we ever do, write a nasty Letter to the Editor and I’ll have it printed on everyone’s forehead.

—Walter F. Wagner, Jr.
Never saw a Shafter cow
never hope to see one

Mostly, I find I can take or leave what in-
dustrial corporations do to observe their
corporate anniversaries. But what Kaiser
Aluminum did to observe its 20th anni-
versary is something else.

It published—in a series of six issues
of Kaiser Aluminum News—an extraordi-
nary and evocative look at what the fu-
ture might be like, written by the com-
pany's publications editor, Don Fabun.
The illustrations in this series would make
an art director weep for joy, and the copy
is about this good:

"At exactly 5:13 p.m., the 18th of
April, 1906, a cow was standing some-
where between the main barn and the
milking shed on the old Shafter Ranch in
California, minding her own business.
Suddenly, the earth shook, the skies
trembled, and when it was all over, there
was nothing showing of the cow above
ground but a bit of her tail sticking up.

"For the student of change, the Shaf-
ter cow is a sort of symbol of our times.
She stood quietly enough, thinking such
gentle thoughts as cows are likely to have,
while huge forces outside her ken built
up all around her and—within a minute
—discharged it all at once in a great
movement that changed the configura-
tion of the earth, and destroyed a city,
swallowed her up. And that's what
we are going to talk about now; how, if
we do not learn to understand and guide
the great forces of change at work on our
world today, we may find ourselves like
the Shafter cow, swallowed up by vast
upheavals in our way of life—quite early
some morning."

Well, that should give you an idea
without spoiling anything; that is just
page one of issue one. And I've tried to
what your appetites since you can now
get a copy of these six issues, all bound
in one handsome book, by sending $6.95
to Prentice-Hall, Inc., Englewood Cliffs,
New Jersey, and asking for a copy of
"The Dynamics of Change," by Don
Fabun. It's worth your time and money.

The A.I.A. headquarters:
a reasonable attitude

Whether you are personally for or
against, you had to wonder pretty hard
just how the A.I.A. board was going to
handle the Fine Arts Commission's em-
barrassing rejection of the design of the
new headquarters building. Heaven
knows what got said behind closed doors
at 1735 New York Avenue, N.W., but
what's been said publicly seems to me
pretty sensible.

Bob Durham reminds all A.I.A.
members, in a recent Memo, that "The
A.I.A. has worked closely with the Fine
Arts Commission since its inception. In
this case we feel that the Institute sub-
mitted an excellent design concept. . . .
Nevertheless, because of our belief in the
need for the Fine Arts Commission and
comparable design review boards
throughout the country, we are going to
undertake the review of our current de-
sign." Not that there was much choice,
of course. But there could have been a
lot of public bickering, which would have
made nifty newspaper copy and wouldn't
do anyone any good.

Architects and mayors:
advice and authority

Back in our 75th Anniversary Issue, we
complained that, 'There is still a political
jungle between the architect's dream of
cities of spacious beauty and lively prom-
ise' and what can be accomplished in
dealings with local officials and politi-
cians and pressure groups.' But we a-
gued that "... for the first time there is
strong public and private climate of ac-
ceptance for something new and better.

Some things happened in New York
this month that give us hope that the gap
is closing:

1. Mayor Lindsay appointed Phil
Johnson and I. M. Pei to a nine-man U-
ban Design Council which, while we do
not have any enforcement powers, will "ad-
vice Mr. Lindsay on design and plan-
ing for urban projects.

2. The mayor announced a new
"one-stop service" which will permit an
architect to visit the Building Depart-
ment in his borough and complete the pap-
erwork formerly handled separately by
seven different departments: Building
Highways, Public Works, Real Proper-
Assessment, Fire, Health, and Air Pollu-
tion Control.

3. Don Elliott, chairman of the Ci-
Planning Commission, in a speech to the
New York Building Congress, said: "Us-
ally, when one of you has come to the
Planning Commission, it was because you
were asking for special dispensation
do something the zoning code did not
permit. . . . Normally, when a public off-
cial comes to private enterprise, he
seeking the financial support of the pri-
te sector.

"I am going to ask you to work with
us—for the benefit of the public and pri-
ivate enterprise."

It's probably realistic to assume that
none of these steps will prove as effec-
tive as the mayor and the architects ho-
tey will. But they might work a little, a
that's something.

Bureaucrats in other cities, plea-
copy.

---W.
The Keydeck Truss-T subpurlin, another form of inner strength

The webs are open. The cast in place material flows through. This single design improvement—from solid subpurlin to the open webs of the Keydeck Truss-T—provides a host of advantages. The subpurlins are lighter. Get better fire ratings. Reduce thermal conductivity. Let you hide electrical conduits in poured slabs over exposed formboards. Provide composite resistance to shear, uplift, cracking and deflection because of complete embedment.

We added an extra improvement, too; widened the base to prevent formboard drop-outs. These advantages are not theoretical. They have been proved in over 30 tests conducted by C. S. Barnes & Associates, Consulting Engineers, and in hundreds of buildings. For complete information, call your Keystone representative or write us.

Keydeck mesh reinforcement is the other component of the Keystone roof deck reinforcement system. It has proved to be a superior reinforcement under stress, maintaining the integrity of decks subjected to hurricanes, tornadoes and earthquakes.
from Keystone

inner strength
ROOFS • WALLS • FLOORS

from Keystone Steel & Wire Company
Peoria, Illinois 61607

For more data, circle 7 on inquiry card
The "OVERHEAD DOOR" electric is tougher than a tribe of Apaches

Sterling qualities, these. However, they don't tell the whole story of why more and more architects are specifying The "OVERHEAD DOOR" electric for their custom home and industrial building designs. We know why they are, though. Why?

Quality construction. The "OVERHEAD DOOR" and electric operators are made of the finest materials available, and are built by us in our own factories equipped with specialized production machinery.

Manufacturing experience. Overhead Door Corporation invented the sectional door, and has built over eight million of them. It's not surprising that we know more about the application of doors and electric operators than anybody else.

Professional assistance. Our engineers are always ready to confer with you on any standard or special door requirement. We stand ready to assist you on any industrial, commercial, or residential specifications.
and as dependable as the Sheriff.

**Versatility.**
The "OVERHEAD DOOR" electric can be designed for almost every conceivable application. Specify The "OVERHEAD DOOR" and get the industry's widest selection of materials, sizes, and designs.

**Nationwide service.**
There's a distributor of The "OVERHEAD DOOR" within minutes of nearly every job site in the country. America's largest network of factory-trained door specialists is at your service. Just look for your nearest distributor's name under "OVERHEAD DOOR" in the white pages of your telephone directory. Maybe you're a bit past your prime for a fast game of Cowboys and Indians. But you can still prove yourself one of the good guys by always specifying The "OVERHEAD DOOR" and electric operator.

For more information about the men who stand behind The "OVERHEAD DOOR", please turn the page.

For more data, circle 8 on inquiry card
The men standing in back of The "OVERHEAD DOOR"
also stand behind it.

Next to the product we sell, these men are our pride and joy. They’re door men, factory-trained specialists who are eminently qualified to help you select the door or doors best suited for any application: commercial, industrial, or residential. We make doors of wood, steel, aluminum, and fiber glass in any size to fit any opening. Specify The "OVERHEAD DOOR" electric and you put the vast technical knowledge and experience of these men to work for you.

Your client will appreciate it. And he'll remember it. Always specify The "OVERHEAD DOOR". It’s the door you can stand behind, because we do. For full details call your local distributor. He’s listed under "OVERHEAD DOOR" in the white pages of your phone book. Or, refer to our catalogue in Sweet's Architectural File. Another open and shut case for The "OVERHEAD DOOR". For more information about The "OVERHEAD DOOR", please turn back one page.
New Field House, University of California at Santa Cruz. Copper encloses the terminal chords of the two-way steel truss that spans the large main area of the building. Repetition of copper above an open stairway unites the design. The unusually prominent drip created at the eave gives strong definition to the roof.

The workability and rich color of sheet copper were used to good advantage by architects Callister, Payne and Rosse in the design of this college athletic building. Copper combined perfectly with the buff of the concrete and deep color of the redwood. A few years of weathering should make them harmonize even more beautifully. The ease of joining and forming sheet copper simplified the installation. And the enduring copper roofing, flashing and fascia should require no maintenance for many, many years.

Details of the roof eaves and upper roof fascia are shown above. For a new 96 page handbook of sheet copper fundamentals, design details and specifications, write for “Contemporary Copper”.

Copper Development Association Inc., 405 Lexington Avenue, New York, N.Y. 10017

For more data, circle 9 on inquiry card
When you enter the office building in the new Madison Square Garden Center, look up

You’ll see Holophane’s unique solution to an unusual lighting problem

Designers of Two Pennsylvania Plaza, the office building adjoining New York’s new Madison Square Garden, faced a lighting problem months before construction even started. They wanted the clean, unobtrusive good looks and superior lighting performance of Holophane frameless lenses throughout the structure. Yet the fixture called for by the building’s easy access ceilings required a lens with a frame.

Holophane specialists developed a solution. Through an ingenious modification of Holophane’s 2’ x 4’ frameless Controlens®, they adapted lens to fixture and totally eliminated the need for a metal frame. Nearly 20,000 of these special lenses, specified as building standard, provide a high level of uniform, glare-free illumination throughout the 29-story skyscraper.

Holophane has been helping architects and builders solve lighting problems like this for years. Big lighting problem? Let Holophane help. Just fill in the coupon.

Architectural lighting solutions from Holophane
TOUCH-A-MATIC
Drawing Unit

Drawing platform adjusts to any angle and height simultaneously, and it takes only fingertip pressure.

Moves on two springs and parallelogram mechanism
The patented Lift-o-Mate mechanism operates through two slender, unobtrusive counterbalanced pneumatic cylinders.

From almost vertical
Adjust it to just 12 degrees off vertical to make it easy to move through narrow doorways, easy to store in limited space.

To almost horizontal
For use as a table or desk, move it to within three degrees of horizontal, adjust it to desired height.

At the touch of a toe
Press the foot pedal lightly and the board will move freely to any position. Touch the pedal again and a parallelogram brake system locks the board in place.

Plan a Touch-a-Matic work station. Use matching chairs, bookcases and desks for inline or L-shaped work stations. For day-long comfort, choose the draftsman’s favorite—the Model 6025-D GF chair, which tilts slightly forward.

The General Fireproofing Company, Dept. AR-27, Youngstown, Ohio 44501.

For more data, circle 10 on inquiry card.

Now Honeywell 1-man Building Control gives you $33\frac{1}{3}\%$ annual return, microelectronic circuitry plus...

...these reasons to specify Honeywell:

Only Honeywell offers 5 different systems to automate clients' buildings... ranging from one so simple their secretaries can run it to new systems that let one man control an entire building complex. They get what they need. No more. No less.

Only Honeywell offers microelectronic circuitry... the next state-of-the-art advancement in control technology. Integrated circuits in new Honeywell building control systems provide infinite life expectancy and reliability.

Only Honeywell maintains a field staff of Building Automation Systems Engineers to help you deliver the payoff your client deserves. He can call on 8 other Honeywell divisions for help... taking advantage of Honeywell know-how in process control and space guidance to keep your system from becoming obsolete.

Add to this the fact that Honeywell has 112 offices around the country to give you 24-hour service and you can only conclude: Only Honeywell can design, build, install, guarantee and service the complete system your client needs.

Make us prove these strong statements. Ask for examples of operating economies in building projects like yours. Send coupon.

Honeywell automation systems help make people more productive

FREE BOOKLET!  Send for copy of "Honeywell Building Automation Planning Guide"

Honeywell, Dept. AR12-101
Minneapolis, Minnesota 55408
It had to be more than aluminum.
It had to be Alcoa.

At Lexington, Ky., the architect of the University of Kentucky's proposed 11-unit dormitory-dining complex had to select a window-wall system that would be immune to mildew problems and also offer maximum insulation values. To meet these needs, he specified Alcoa® Alply Panels. Made of polystyrene foam laminated between aluminum sheets, Alply Panels offer excellent resistance to rot and mildew. In addition, the polystyrene-aluminum combination provides a 3-in.-thick panel that imparts the insulation value of a 15-in.-thick masonry wall.

The handsome and durable bronze finish that lends such dignity to the light metal components is Alcoa Duranodic® 300 finish. Its rich color, like all Duranodic 300 finish colors, is not a dye or a pigment but an integral part of the metal itself.

Other reasons why aluminum was specified: Its versatility and compatibility permitted clean, crisp detailing of the bays. The 11-unit dormitory-dining complex reflects the architect's imaginative use of Alply Panels and aluminum extrusions. Scheduled for completion in September, 1967, the project includes eight three-story structures, two 23-story, high-rise buildings, and a separate dining facility.

From concept to completion, Alcoa can smooth the way for an architect. Get the benefit of fresh, imaginative Alcoa architectural thinking. Call your local Alcoa sales office and talk to Alcoa early at the talking tissue stage.

*Registered Trademarks of Aluminum Company of America
†Trade Name of Aluminum Company of America
We've improved grass cloth.

We call ours Tamara. It's a Koroseal vinyl wall covering. It gives you the same expensive look of natural grass cloth, but there the similarity ends.

Koroseal is economical. It resists smudges, scratches, stains and all the other perils that ruin the real thing. It won't shred, chip, flake, yellow, fade or crumble.

It's easy to hang, too. To keep clean. It's washable, over and over again. Even flame-resistant.

Koroseal grass cloth comes in Pure White, Bone White, Tea Leaf Green, Eggshell, Ivory, Opal, Oriental Blue, Bamboo, Lined White, Natural, Hemp (a few shades darker than natural), Olive, Ming Red, Taiwan Tan, and Char Brown.


If you like the real thing, you'll like our improved version of it even more.

So next time, use Koroseal vinyl wall covering. 30 patterns. 500 colors. Write B.F. Goodrich Consumer Products, Akron, Ohio 44318.

For more data, circle 11 on inquiry card.
Corridor-installed Bradley Washfountains make supervision a snap, save money in schools! They get students out of toilet rooms quickly. There's no reason for loitering and possible horseplay. And one teacher can supervise wash-up and monitor the corridor at the same time. What's more, Washfountains serve up to 8 people with one set of plumbing connections. So they reduce installation costs up to 80%. In 36 and 54-inch diameter circular and semi-circular models. Available in widest choice of colors and materials. Corridor-installed Washfountains. A bright idea you can use—from Bradley! For complete details, see your Bradley representative. And write for latest literature. Bradley Washfountain Co., 9109 Fountain Drive, Menomonee Falls, Wisconsin 53055.
Thomas Pride Mills Inc. presents "Starpoint" and "Rockpoint" the new public-image carpets with Zefkrome® E.S.P.*

*E.S.P. Engineered for Superior Performance

Look into the carpet with the innovations of Zefkrome acrylic, Engineered for Superior Performance. You'll find the advantages worth your time.

Color: multichromes, a new color concept developed for greater clarity of color.

Durability: unusual wear power, tested by 2 million footsteps, or 54 years. Outwears other acrylics by as much as 50%.

Superior color retention: lasting color, safe in sunlight because the color is locked in when the fiber is made.

Superior cleanability: "Starpoint" and "Rockpoint" return to their original appearance after on-location cleaning better than any other acrylic carpet.

Dirt resistance: Zefkrome is a smooth circular acrylic fiber that doesn't hold soil the way other acrylic fibers do. Both carpets are moth and mildew proof. Perfect for installation anywhere in the world, wherever fine carpeting is a part of protocol.

Specifications.
- "Rockpoint":
  - 2.14 yarn size
  - 7/32 pile height
  - 1/8 gauge
  - 20 tufts per inch
  - 4 oz. face yarn weight
  - 4 oz. polyback
  - Polypropylene primary back
  - 24 oz. latex
  - 8 oz. jute secondary back
  - 15 lb. pull tuft bind
  - 78 oz. total weight

- "Starpoint":
  - 2.4 yarn size
  - 5/32 pile height
  - 1/8 gauge
  - 15 1/2 tufts per inch
  - 3 oz. face weight
  - 4 oz. polyback
  - Polypropylene primary back
  - 24 oz. latex
  - 8 oz. jute secondary back
  - 15 lb. pull tuft bind
  - 67 oz. total weight

Zefkrome is a trademark of Dow Badische Company.
Everything’s beautiful about LPI’s new surface-mounted 7100 Series fluorescent luminaire. Want more than just our word? Ask Holophane.

They make the lens. Around this lens we’ve designed a special luminaire. And it’s a real beauty—both in its slim silhouette styling and in its superior illuminating characteristics achieved through precision prismatic design.

You may have already guessed—LPI’s new luminaire was designed for Holophane’s finest injection-molded, clear acrylic lens: the 7100 CONTROLENS.®

This is the lens that combines maximum illumination with the control you need to light an area economically with fewer fixtures. Light is directed upward and outward as well as downward. Lighting efficiency like this gives you total uniform illumination. The kind of illumination that cuts off most glare and eliminates dark spots from ceilings. Along with the kind of beautiful design that keeps the hinges off the diffuser so that they’re not visible. Practical design, too.

With no hinges on the diffuser, there’s no pressure that could cause damage when it’s swung open from either side for relamping.

LPI did some beautiful things, too. (However at first glance, they may seem too practical to be beautiful.) The best example is the way we control ballast heat rise in the new 7100 Series. It’s controlled so well that the 7100 Series is U.L. listed for surface mounting without spacer brackets on combustible cellulose low density fiber-board ceilings in the two-lamp, four-foot and in the four-lamp, eight-foot series. Now is that practical or beautiful? When you really examine our new 7100 series you’ll find LPI’s basic quality and simplicity of design throughout this luminaire. Ask your LPI representative, or write to us, for complete information on the new LPI 7100 Series luminaire. It’s a beautiful buy.
Metal walls go up faster
...and last and last with finishes of Kynar® 500!

Metal walls go up nearly 10 times faster than brick or masonry walls, and cost ½ to ½ as much. They can be taken down quickly for easy access or plant expansion.

What's the best protection for the metal? Finishes of Kynar 500! They come in a wide selection of colors; assure perfect color match panel for panel. They're durable: won't crack or craze, take abrasion in stride. Accelerated tests by Pennsalt, plus years of exposure data project 30 years of maintenance-free life!

For your next industrial building, consider metal walls highlighted by a colorful finish of Kynar 500. For more information, contact Plastics Department, Pennsalt Chemicals Corporation, 3 Penn Center, Philadelphia, Pa. 19102. (215) LO 4-4700.

Make your base specification Kynar 500! PENNSALT®
ZIP Codes keep postal costs down but only if you use them.

1. Packages are shipped by more direct route.
2. They are handled fewer times.
3. There is less chance of damage.

For the West’s most distinguished libraries...

...practical beauty in Ames modern library shelving

"A continual invitation to books." This apt description of the new Stanford Undergraduate Library sums up the concept of designing, planning and manufacturing library shelving and equipment at Ames. Complete flexibility of product line plus experienced engineering assistance are the ingredients of practical as well as inviting book display and storage. Plan with Ames for today’s modern libraries.

J. HENRY MEYER MEMORIAL LIBRARY
LIBRARIAN: Warren B. Kuhn
ARCHITECTS: John Carl Warnecke
AMES PRODUCT: Multi-Tier Stacks (Basement) Freestanding Steel Shelving Units — Alcove Pattern Walnut Veneer end panels, top canopies and back panels

Since 1910
W. R. Ames Company
Shelving Division
1001 Dempsey Road • Milpitas, California 95035

For more data, circle 17 on inquiry card
Union Bank Square, in Orange, California, is a dramatic example of the economy of All-Electric buildings.

The All-Electric Central Tower is a six story office building, steel curtain wall construction, with 84,000 sq. feet of gross space. It was completed in August of 1966.

Right next door is the North Tower, a non-All-Electric building of similar construction and the first building in the complex to be erected.

Calculated on a per-square-foot-basis, the combined overall initial, operating and maintenance costs for the All-Electric Central Tower are lower. Electric strip heaters in the ducts and refrigerated electric air conditioning accounted for significant savings in first cost.

Annual operating costs are just under 25 cents per sq. ft. per year. Maintenance time on the space conditioning system in the Central Tower is two-thirds less than in the North Tower.

Canal-Randolph Corporation, owner and operator of Union Bank Square, has found that claims for All-Electric buildings are proven in practice. That's why the third building in the complex, the twelve story South Tower, will also be all electric. Scheduled completion date is July of 1969 and leasing operations for space in this luxury office building have already begun.

We can give you hundreds of other case histories of low annual cost of All-Electric building. Write Marketing Engineering, P.O. Box 62, Terminal Annex, Los Angeles 90051.
All-Electric Central Tower

Central Tower, Union Bank Square, Orange, California. A Canal-Randolph Property

Building Profile

GENERAL DESCRIPTION
Six-story building
84,000 square feet office tower
Steel curtain wall construction

OPERATING COSTS
Total electric Operating Costs - 25¢ per sq. ft. per year

ELECTRIC LOAD
Connected lighting and miscellaneous load — 250 KW
Electric space conditioning equipment —
Cooling — 300 Tons
Heating — 374 KW
Electric Water Heating — 15 KW

SPACE CONDITIONING
Double-duct electric heating and cooling system
"All I know is one evening in our living room, my wife and I decided it was a good idea to join the Peace Corps. So we did."

What the David Kadanes did puzzled and puzzles a lot of people. Maybe because the Kadanes weren't anywhere near twenty years old anymore. Maybe because they gave up two years' worth of a lot of salary, two years' worth of a big job as General Counsel for the Long Island Lighting Company, two years' worth of a life they had spent their whole lives building ... just to join the Peace Corps.

But what a lot of people don't realize is that the Peace Corps isn't just a place for just out-of-college kids with strong arms and heads and good-size hearts. The Peace Corps is a place for people who want to do something and can do something. It's a place for people who want to see things and do things firsthand and closeup. People who want to give other people a chance to get to know and understand their country and themselves as they really are. People who care about the world and other people maybe even as much as they care about themselves.

And, maybe more than anything, the Peace Corps is a place for people who, for some reason, are willing to give up whatever they have to give up to do something they feel they have to do. And the David Kadanes are two of those people.

Start a small revolution in the bathroom.

The new American-Standard Compact/Vent-Away has a remarkable built-in ventilator—to keep the bathroom always fresh. Why not specify Vent-Away on all your new home and motel projects? The revolution is on at American-Standard.
... and the first patient hasn't even arrived.

Sure, it's designed to take the best possible care of patients. The construction is totally sound. And facilities include everything modern medicine could ask for.

But if communications aren't the most modern available, a hospital is obsolete before it's even begun.

Modern hospitals need all the communications consideration you can give them.

So they can take full advantage of the telephone. Bring in Tele-Lecture or closed-circuit TV. Even tie into a computer with Data-Phone* service or teletypewriter.

And that's where a Bell System Architect and Builder Service Representative comes in. He can help make your next hospital—and every building—as modern as modern communications can make it. And insure that communication needs of the future will fit in without expensive alterations.

Just call 212-393-4537 collect. We will send you a complete list of our Architect and Builder Service Representatives.

*Service mark
Merson Coble, left, with Walter Gropius, an ARCHITECTURAL RECORD editorial consultant. Right, Walter F. Wagner, Jr., new editor of the RECORD.

Merson Coble retires; new RECORD editor is Walter F. Wagner, Jr.

Merson Coble retired on November 1st after 26 years on the RECORD staff. His successor is Walter F. Wagner, Jr., executive editor of the RECORD since February 1, 1965.

Mr. Coble, who holds a Bachelor Science degree from the University of Illinois, came to the RECORD in 1941, holding positions at “Buildings,” “Building Management,” and “National Real Estate Journal.” He became editor in 1958, succeeding the late John Knox Bear.

During Mr. Coble’s period of service at the RECORD, both circulation and advertising page volume more than doubled. The Building Types Studies—basic research on functional planning for the architect—and the Architectural Engineering section—relating building technology to building design—became major foundations of editorial content.

Mr. Wagner, a graduate of the Massachusetts Institute of Technology with a Master’s degree in engineering and business administration, first joined McGraw-Hill as an editorial assistant on “Factory” in 1950. After promotions on Factory to western editor in 1951 and assistant managing editor in 1955, Mr. Wagner went to “House and Home” where he was named architectural editor and assistant managing editor.

Mr. Wagner left “House and Home” to become editor-in-chief of “Popular Boating,” his last position before joining the RECORD staff in 1965.

Robert Simon ousted at Reston; Gulf Oil takes control

Robert E. Simon, Jr., founder of the new town of Reston, Virginia, has been ousted from his position as board chairman of the operation. This action came three weeks after the Gulf Oil Corporation had taken 90 percent control of the financially troubled new town, forming subsidiary known as Gulf Reston, Inc.

At the time of the Gulf takeover, H. Ryan took over Mr. Simon’s position as president and chief operating officer, with Mr. Simon being named board chairman. Within days the two men differed over “the whole range of policies, plans and priorities” for coping with Reston’s problems. Mr. Simon was given a chance to resign, and when he refused, he was fired after the first board meeting of Gulf Reston, Inc.

Gulf’s participation in Reston dates back to 1964 when the company invested $15 million in the project. In 1966, the John Hancock Mutual Life Insurance Company invested $24 million, and it retains its interest in the subsidiary. Gulf took controlling interest to protect its investment, and Ryan plans to start more cash flowing in by a broad plan for increasing sales of houses, apartments and industrial land. Mr. Ryan has stated that “we’ll stick to the original master plan,” but new emphases will include more traditional detached houses and fewer attached townhouses, and a broader range of houses, especially in the lower price brackets.

Mr. Simon stated that his greatest mistake was “doing too many things at the same time with an inexperienced organization. There should have been better coordination between design and construction people,” Mr. Simon added.

Commenting on the management change at Reston, Robert L. Durham, president of the American Institute of Architects, said that a change in the “new town” concept is not needed, but “rather, developers of ‘new towns’ must have access to sources of ‘patient money’—long-term financing that will carry the project until sufficient income is available. This kind of financing is provided in many European countries, frequently through government action. It is not out of the question for our country to consider such an arrangement. We are accustomed to having government providing financing in one form or another for many kinds of public works projects. A ‘new town’ should qualify as a ‘public work.’ In addition, we can ease some of the front-end load on new towns through tax incentives.”

63 cities chosen for funds in Federal model cities program

Congress finally appropriated enough money last month to get 63 cities going in the “model cities” program. The final bill authorizes $312 million to begin a new phase of attacks on slum problems. The appropriation is broken down into $11 million for planning and the remainder for building. The 63 cities were chosen from 193 that submitted preliminary applications. In the same bill was $10 million for rent-subsidy projects, which enable the Government to subsidize the rent of low-income tenants in privately sponsored apartment projects.

Thirty-four states and the District
of Columbia are represented on the list of "model city" winners which includes: Huntsville, Alabama; Texarkana, Arkansas; Fresno, Oakland, and Richmond, California; Denver and Trinidad, Colorado; Bridgeport, Hartford, and New Haven, Connecticut; District of Columbia: Miami and Tampa; Atlanta and Gainesville, Georgia; Honolulu; Chicago and East St. Louis, Illinois; Gary, Indiana; Des Moines, Iowa; Pikeville, Kentucky; Portland, Maine; Baltimore; Boston, Cambridge, Lowell, and Springfield, Mass.; Detroit and Highland Park, Michigan; Duluth and Minneapolis, Minnesota; Kansas City and St. Louis, Missouri; Manchester, New Hampshire; Hoboken, Newark, and Trenton, New Jersey; Albuquerque; Buffalo, Harlem, South Bronx, Central Brooklyn, Poughkeepsie, and Rochester, New York; Charlotte, North Carolina; Columbus, Dayton, Toledo, Ohio; Tulsa, Oklahoma; Portland, Oregon; Philadelphia, Pittsburgh, Reading-Berks County, and Wilkes-Barre, Pennsylvania; San Juan, Puerto Rico; Providence, Rhode Island; Nashville-Davidson County and Smithville-DeKalb County, Tennessee; Eagle Pass, San Antonio, Texarkana, Waco, Texas; Winooski, Vermont; Norfolk, Virginia; Seattle, Washington.

Robert C. Weaver, Secretary of Housing and Urban Development, reminded disappointed officials of cities not given grants that Congress had appropriated $12 million more for a second round of grants that Congress had appropriated and Urban Development, reminded disappointed officials of cities not given grants that Congress had appropriated $12 million more for a second round of planning grants. The criteria for the second round will be the same as stipulated by Congress in the authorizing legislation for the first competition, which states that cities receiving funds must coordinate a variety of social and physical programs to achieve a visible and substantial impact on the "model neighborhood." Mr. Weaver said, "we will soon be inviting applications for this second round."

Three institutes are formed to study urban problems

The study of the growing complexities of dealing with the urban environment has given impetus to the formation of three centers which propose a multi-disciplinary approach to solving the problems of cities.

The Institute for Architecture and Urban Studies in New York City is an independent organization organized, according to its director, architect Peter Eisenman, "to bring the real world into the academic world and create a halfway house." The Institute, formed with the initial support of The Museum of Modern Art, Cornell University and private foundations and individuals, will provide a new form of education and training for architects by integrating theoretical studies with empirical design problems, so that graduate students will be brought into contact with actual urban design problems.

The Research Center for Urban and Environmental Planning, located in the School of Architecture at Princeton University, has been formed to bring together "the diverse intellectual resources needed to develop fundamental knowledge of man's interaction with his environment," according to Bernard Spring, the Center's director. Fundamental to the Center are three aspects, says Mr. Spring: multi-disciplinary approach research done by the Center and teaching in the School of Architecture to be closely interwoven; and dealing with "real world problems."

The Institute of Urban Ecology at the University of Southern California is marshalling the total resources of the University—public administration, architecture, engineering, medicine, the social sciences—for the study of major urban areas and their problems. Eric Pawle, chairman of the central faculty planning committee of the Institute, states that "through such an organization, the total weight of a community can be exerted to solve problems—even the problem of making a place into a place people will remember."

Architectural League exhibits continue experimental program

Two exhibits at the Architectural League of New York—"The Diamond" by architect John Hejduk and painter Robert Slutzky, and "Vibrations" by artists-in-residence Jackie Cassen and Rudi Stern—are continuing the League's purpose of being "a forum for experimental ideas."

In "The Diamond" (see photograph above left) which was shown from November 2-24, Hejduk and Slutzky have studied the dynamism inherent in the diamond shape. Hejduk's exquisite drawings construct a square building in which all the lines of direction follow the diagonal. Thus a visitor sees the building as a diamond. Slutzky's paintings gather force from the interplay of horizontals and verticals with the diamond shaped canvas. Supported by the Graham Foundation for Advanced Studies, this fifteen-year study was intended to carry DeStijl findings to their natural conclusion.

Environment V: "Vibrations," which opens on December 14 and continues through January 11, will transform the gallery into a "kinetic light environment" by means of a number of sophisticated projection techniques (see diagram at right). Included will be revolving plastic sculptures which retain projected images (above). The artists believe that "the exploration of light as an art medium provides the challenge of creating in architecture enveloping rhythms of color found in nature."

more Record Reports on page 37

36 ARCHITECTURAL RECORD December 1967
Vollrath walked in to the walk-in business...
We walked into the walk-in business...

with our eyes wide open

We’re now manufacturing modular walk-in cooler/freezers.

How come?
After a thorough examination of the food service equipment industry and our role in it, we decided that the modular walk-in is a natural extension of our already large line of mobile equipment. So we walked in.

Frameless construction.
Rather than produce just another walk-in, we’re offering units which incorporate the latest, most modern features. For example, we use foamed-in-place urethane insulated stainless steel modular panels for maximum rigidity and insulation qualities. (We use other metals, too.) This eliminates the need for wooden frames and braces. Tongue and groove panel ends insure a positive seal between modules.

The full measure.
Unlike other manufacturer’s units, Vollrath walk-ins measure out to the full stated size. We don’t short you a few inches on nominal dimensions. Not only does this simplify your own space calculations, but it actually gives you more refrigeration for your dollar.

Package refrigeration system.
Vollrath’s compact package refrigeration unit is entirely self-contained. Ready to plug in, ready to operate in one-tenth the time required for the average remote system. Includes compressor, fan, coil and condenser.
It's convertible—and expandable!
The Vollrath modular walk-in cooler is identical to the freezer except for the refrigeration unit. So you can convert back and forth at any time, simply by changing the refrigeration unit. The four-inch urethane foam insulation is more than sufficient for any type of food freezing operation.
And, as your business grows, you can increase your cooler capacity simply by adding on more modular panels. Or you can even add an entire freezer section onto your Vollrath cooler.

NSF construction.
Full four-inch-thick floor and ceiling sections have coved corners to elevate the seams above the floor. This exceeds NSF requirements; makes it easy to clean.

Available in a wide variety of sizes; the modular panels permit simple, inexpensive customizing. For full details, contact your Vollrath Representative or write for a new catalog.
Manufactured by Vollrath-Erickson, a subsidiary of The Vollrath Company, Sheboygan, Wisconsin, Dept. AR 12.
A new world headquarters for McGraw-Hill, Inc., will be built as a joint undertaking of Rockefeller Center, Inc., and McGraw-Hill, Inc., and will be the 20th building in New York's great midtown Center when it is completed in 1970. Some 5,000 employees will be moving from Raymond Hood's famous green skyscraper at 330 West 42nd Street, McGraw-Hill headquarters since its completion in 1931, and seven other locations in New York. McGraw-Hill expects initially to occupy more than 1 million of 1.8 million square feet of space in the new building. It will be a 48-story tower about 645 feet tall. The project, designed by Harrison & Abramovitz & Harris, architects, will be located on the west side of the Avenue of the Americas between 48th and 49th Streets, and will be set back approximately 117 feet from the Avenue. The building will be faced with stone and glass compatible with existing Rockefeller Center buildings.

The regional headquarters of the Crippled Children's Society of Los Angeles County, Los Angeles, designed by Ladd & Kelsey, Architects, will contain the Society's executive headquarters, workshop and volunteer facilities and a counseling and testing center for the children. Commenting on the project, architect John Kelsey feels that the building's character is created by contrasting the simplicity of the ground floor with its inset wall of wood and glass with the rhythmical sculptural sunshaded windows of the much larger overhanging second floor. The $800,000 building, scheduled for completion in October, 1968, will contain four levels including two subterranean parking floors.

The Museum of the Illinois Indian at Dickson Mounds (a 63.25-acre area including a prehistoric Indian cemetery mound created by the Mississippian culture) will consist of truncated pyramids interlocking, building on top of one another. The truncated pyramid shape is characteristic of local Indian ceremonial mounds. The building is designed by the architectural firm of Golabowski, Spinney & Coady in association with State of Illinois Supervising Architect Lorentz A. Johnson. The project consists of four wings around a central area and will provide facilities for exhibitions, cemetery excavations and research. The exterior building material will be earth-toned exposed aggregate precast concrete.
Intermediate School 29, New York City, will be a five-story building integrated with a portion of the 70-year-old Squadron A Armory. The architects, Morris Ketchum, Jr. and Associates, have incorporated two 100-foot brick towers and the old entrance wall to partly enclose the school playground. Operating under a grant from the Educational Facilities Laboratories of the Ford Foundation, the architects designed three subschools, each for 600 students, located in the top three floors. Each of the subschools has its own teaching staff and individual laboratories for science, language and art. The three subschools share a number of facilities including auditorium, library, gymnasium and cafeteria.

The Oceanography Research Building, University of Washington, Seattle, designed by Liddell & Jones, Architects, has won the only honor award in the awards program of the Southwest Washington chapter, American Institute of Architects. Commenting on the building, the awards jury stated: “Appropriately, the traditional directness of ocean-going vessels is apparent in this building with its no-nonsense sea-going character, yet it is thoroughly modern in all respects.”

Housing for the Elderly, Fawcett Avenue, Tacoma, designed by Robert B. Price, architect, is one of four merit award winners in the Southwest Washington awards program. The awards program praised the project in saying: “On a difficult site, this project is well handled, orderly and forthright, particularly so within the strictures of government regulations. The jury was impressed with the sense of pride the tenants obviously feel for their new home.”

Mr. Evans Dental Clinic, Tacoma, designed by Liddell & Jones, architects, is another merit award winner in the Southwest Washington awards program. “The building has an intimate scale with a very good garden,” stated the jury report. “Pleasant private vistas are provided for almost every outlook; it is a good solution for a small site.” Serving on the awards jury were architects Joseph Esherick, San Francisco; John Storrs, Portland, Oregon; and A. O. Bumgardner, Seattle.
The Boston City Hall, with facade nearly done and a scheduled completion date of Spring 1968, has changed very little from the original competition-winning renderings (March 1964, pages 192-4). Designers of the building are the City Hall Architects and Engineers, Kallman, McKinnell and Knowles in association with Camell and Aldrich and Lemenerur Associates. The material is reinforced concrete, some of which was precast, the rest was poured on the site. Cost of the nine-story structure will be about $20 million. Work began last month on the surrounding plaza which was designed as part of the competition by the same architects.

The New England Aquarium, which straddles Central Wharf in downtown Boston's waterfront renewal area, is nearing completion with the opening scheduled for early Spring 1968. The project, a joint venture of Cambridge Seven Associates, architects, and Lemessurier Associates, structural engineers, is a five-story poured and precast concrete building. According to the architects the building is "in concept, an Aquatic Museum designed as a simple exterior shell or volume containing a complex interior space. A giant [170,000-gallon] cylindrical tank is the focus and lantern. Circulation is one way, up a series of straight ramps and galleries around the outside of the main space, and down a spiral ramp around the giant tank. Galleries at the ends have alcoves containing small fish tanks. Large transparencies and other descriptive graphics in lightboxes play a major architectural role along the five side galleries." General contractor for the $5-million building is the Jackson Construction Company.

The Philadelphia Stadium, designed by Hugh Stubbins Jr., executive architect, with George M. Ewing Company, architects and engineers, and Stonorov and Haws, architects and planners, has been approved in a bond issue with site excavation now in progress. The stadium seats 50,000 for baseball and 65,000 for football with all seats permanent in nature. To shield the 15,000 extra seats, two large scoreboards on hydraulic pistons and three huge movie screens are raised, while 6,000 field-level seats can be stored under the outfield stands.

A condominium apartment in Kahului, Maui, Hawaii, designed by architects John Russell Rummell & Associates, Ltd., will be a 12-story structure built entirely of concrete block, with pre-stressed precast plank floors with concrete topping. The architects developed a new "shell block" which will be used for the first four stories. The building is the first of seven structures proposed for the seven-acre site.
The Morningside House for the Aged, New York City, designed by Philip Johnson, architect, will have 10 residential floors with each floor consisting of five hexagonal-shaped rooms surrounding a sixth hexagon that will serve as entrance lobby and sitting room. The cluster of hexagonal shapes was used to eliminate long corridors, thus improving the efficiency of the nursing staff. The building is designed so that each of the residential floors can be changed for use by ambulatory or infirm patients. On the ground floor will be extensive occupational and physical therapy facilities, while the second floor will house a library, chapel, dining facilities and lounges. The building will have a reinforced concrete structure and will be faced with light-colored brick and stone.

The American Embassy in Saigon, Vietnam, was designed with security as a prime consideration. The $2.6-million building has an exterior of reinforced concrete columns with a sun screen of massive terra cotta blocks. The blocks are also used in a fence surrounding the compound. Both the screen and sun screen were designed to act as shields and the windows are of shatterproof acrylic plastic. The embassy has six stories and contains 49,670 square feet of floor space. The original design for the embassy by Curtis and Davis, architects, called for a three-story structure. When the need for a larger building became apparent, the architectural firm of Adrian Wilson and Associates enlarged the building, retaining as much as possible of the original design.

The new education building for The Cooper Union, New York City, designed by architect Richard Franzen, is a massive six-story structure designed to relate to two existing buildings by means of scale, siting, and alignment. A triangular entrance court, three stories high and covered from above by an outcropping at the fourth floor level, will serve as an entranceway from the two existing structures. The architect also proposes to rearrange the outside environment of Cooper Union to unify the three-building complex. The new building will contain a student-faculty center, auditorium, dining area, a 100,000-volume library, classrooms and offices for the department of humanities, and administrative offices of the institution.

Horace Mann Plaza, an urban renewal project being undertaken by the Horace Mann Insurance Group in downtown Springfield, Illinois, will be a multi-use complex of buildings which will cost an estimated $25 million. Architects for the project are Ferry and Anderson. Dominating the complex will be the home office building for the insurance company, a curved building which will be at least 15 stories. Other structures in the complex include: a second office building of four six floors containing 100,000 square feet; 12-floor motor hotel containing 250 rooms; 12-story apartment tower; a theater seating about 900; and retail space of 125,000 square feet to accommodate a department store and a wide variety of specialty and service shops.
Expansion program at Brown University respects surrounding historic district

The five buildings shown below are only part of Brown University’s effort to update and expand their campus facilities in Providence, Rhode Island. According to Charles Hughes, architect, and member of the Brown building committee, one of the primary considerations of the expansion program was keeping scale with the surrounding College Hill Historic District. Other buildings in the expansion program include a proposed bookstore-office building by Kent Cruise and Associates, and a proposed Science Library by Warner, Burns, Toan and Lunde (September 1966, pages 208-9).

An art center and gallery, designed by Philip Johnson, will be constructed of reinforced concrete and glass. It will contain a 2,880-square-foot exhibition gallery and two lecture rooms, one of which will seat 250 and the other 100, on the first floor. Classrooms, offices and studios are on the upper four floors.

The Geological Sciences-Mathematics Complex, designed by I. M. Pei, is organized around a three-story galleria which runs the length of the building. The 200,000 square feet of floor space is divided among the four stories, two underground, of the main structure, and the five-story tower.

A preliminary scheme for an athletic complex, designed by Cutting, Fraeger and Candela, will span an unobstructed area 450- by 350-feet. The load-bearing reinforced concrete walls will be 130 feet high an will be faced with brick. A laminated wood roof spans the space in parabolic arch supported by a steel-tubing space frame.

A five-building Graduate Center now nearing completion, designed by Jean Paul Carlhian of Shepley, Bulfinch, Richardson and Abbott, was sited so that no building rises more than 50 feet above ground level. Four of the buildings are dormitories; the fifth is a common building. Building cost is estimated at $4.3 million.

The Bio-Medical Center, designed by Shepley, Bulfinch, Richardson and Abbott, consists of two inter-connected buildings now nearing completion. One of the units will be a four-story laboratory tower that will be supported one story above ground level by concrete towers. The other will be a five story animal care facility.
VERSATILE BORDEN PRESSURE LOCKED GRATING

Borden’s Pressure Locked steel grating is used extensively as the flooring of the continuous balconies surrounding the new Washington, D.C. German Chancery building shown here. An integral part of the design of this striking 95,000 sq. ft. steel-and-wood-framed structure, the grating adds the practical advantages of sun shading, ease of window cleaning, and requires no maintenance.

Available in many subtypes, Borden’s Pressure Locked Type B, approved for all general purposes, was chosen for the above application. For complete information on this and other grating types, including Riveted and All/Weld in steel or aluminum, write for...

a free copy of
The 16-page Borden Grating Catalog

BORDEN METAL PRODUCTS CO.
MAIN OFFICE: 822 GREEN LANE, ELIZABETH, NEW JERSEY
Elizabeth 2-6410
PLANTS AT: LEEDS, ALABAMA; UNION, NEW JERSEY; CONROE, TEXAS

When in New York City, see our exhibit at Architects Samples, 101 Park Avenue

For more data, circle 21 on inquiry card
Air conditioning here and abroad
Upon my return from Europe last week, I read both portions of the two-part air conditioning article (July and August). You put more industry progress into the article than is normally the case, but not as much as I would have included. Let me add that I have recently met with leading architects of Spain and Belgium and have learned that they are rather as much as I would have included. Let I read both portions of the two-part air systems which have been installed in their newest buildings. Already they are ready for a change.

I want to congratulate you on the excellence of your article. The clear and copious illustrations should be particularly helpful to your readers.

Herbert L. Laube
Senior Consultant
The Singer Company
Auburn, New York

Acclamations are not often in order for articles that appear in the press on mechanical equipment. However, you really earned a couple with your July and August series entitled: “Air Conditioning: A New Interpretation For Architects.”

It is no small accomplishment to sort out all the bits and pieces, plus all the equipment and types of systems that are involved in the mechanical side of a construction program. It is also no small accomplishment to make a presentation in the finest fashion that you accomplished in your report, not only for the plain language used in reporting on the various types of systems, but also for the excellent drawings included.

We believe that this report will be of estimable value, not only to the architects for whom it was originally put together, but also for the engineers who have never had the opportunity to find a complete appraisal of all the systems in one article. I can well appreciate the hours that must have been spent to put such a mass of material into print.

Robert F. Hayes
International Manager
Buenos-Aires-Stacey Corporation
New York City

About that criticism . . .
The topless gals of the Lido (August editorial) are famous only to those who are starving for that kind of thing. In any event, the references to the positions of the gals is the interesting part of the article.

Why don't you go to see the gals and see if your suppositions are true? Maybe in the meantime you will forget about “architectural criticism.”

Luigi Pellegrin, architetto
Roma

TAC
In regards to The Architects Collaborative building (September): What a tacit building!

Sam Carson, Architect
Los Angeles, Calif.

A letter for a letter
The following is in reference to a letter printed in your October issue from Wallace D. Jeong, A.I.A., Los Angeles.

No one should “By definition . . . represent the supreme decisions in the profession of architecture, the mother art.” I hope you enjoy the 20th century, when you move into it.

Jack R. Scholl
Washington, D.C.

FLLW in The Smithsonian?
Japanese friends spent an evening at our home recently and stated that the Imperial Hotel was slated for early demolition. My wife and I spent several nights there in 1932 when it was a comparatively new structure and already famous for standing up through the great earthquake. This brief association with the Imperial was an exhilarating experience. I have never forgotten it.

In the spring of 1965, we again visited the Imperial and were shocked at what had happened over the intervening years. The exterior detail, which was once so beautiful, was rapidly deteriorating with dirt and erosion. The interior was being modified by management and plastered with wires, signs and homemade decoration. Encroachment of the surrounding buildings, and especially the addition to the Imperial itself, was a sorry spectacle and my only reaction was the hope that it gets copped de grace before long and the dignity it deserves. Here is an idea for consideration:

It is impossible to portray the quality of the original. Therefore, I suggest that before the Imperial is lost forever the architectural profession should make an effort to retain as much as possible of this magnificent structure for an inspiration to future architects. I am suggesting an enormous model be constructed of such size, scale and scope that would at least partially portray the quality of the original.

The model should be at least 20 feet square and possibly 20 feet high. It should be arranged so that the base shoulder height from the floor and the viewer could stoop under and put his head up through the floor in such a manner that his eyeline would be at the eyeline of a person in the actual building. Here, he could look in all direction and see what it is like in the Imperial, which is lost forever the architectural profession. I am suggesting an enormous model be constructed of such size, scale and scope that would at least partially portray the quality of the original.

There are, of course, numerous other ways to handle this problem, but my main concern is that it be promoted before it is too late. It is obvious that any attempt to save the original building will meet with the same fate as the Metropolitan Opera.

O. Kline Fulmer
Fulmer & Bowers
Princeton, New Jersey

Who's in whose bag?
Thank you for a very beautiful story of our work (October). I don't know whether I am in Venturi's bag or he mine, but I enjoyed your comments.

Ulrich Franzen
New York City

Noise control
I liked very much the Special Report No. 4 titled “Noise Control in Architecture More Engineering Than Art” as printed in the October issue. You might be interested in a May article in Sound and Vibration, which goes to members of the Acoustical Society of America, acoustics consultants, and other specialists in the field. It further elaborates on both the architect's and engineer's role in handling vibration and structure-borne noise generated by mechanical equipment.

Laurence L. Eberhart
President
Consolidated Kinetics Corporation
Columbus, Ohio
One Space Park, Redondo Beach in Suburban Los Angeles, is the home of TRW Systems Group of TRW Inc. Here, in a gleaming new space age facility over 16,000 of the country's foremost scientists, engineers and technical support people are applying advance technology to the nation's major space, defense and civil systems programs.

Dunham-Bush, Inc., regarded by many experts as number one in air conditioning research and development, was selected by TRW to provide the equipment to maintain the comfort of its 16,000 employees and to control the atmospheric conditions in which a variety of vital space and defense projects are being designed and manufactured.

The Dunham-Bush 3547 ton air conditioning system at TRW is among the world's finest and largest. Low silhouette condensing units, air handling and multi-zone units, package chillers and dual dry water coolers comprise the Dunham-Bush equipment complex.

Here's an example of one of the world's most sophisticated installations of air conditioning... one which would have been inconceivable just a few short years ago.

Big jobs or small jobs there's a Dunham-Bush unit for every application. Contact your local Dunham-Bush sales representative for complete information.


ARCHITECT AND CONSULTING ENGINEER:
A. C. Martin and Associates, Los Angeles, California
CONTRACTOR:
Western Air and Refrigeration, Compton, California

DUNHAM-BUSH
MANUFACTURERS OF THE WORLD'S MOST COMPLETE LINE OF REFRIGERATION - AIR CONDITIONING - HEATING EQUIPMENT

Low silhouette condensing units and package chillers, roof mounted.

Roof top installation saves valuable space.

Easily accessible roof installed units.

For more data, circle 22 on inquiry card
Everyone wants the
Same Public Address Speaker...
The Right One!

And the right one is University! For every place, every purpose. You'll find them below the scoreboard at Comiskey Park. On helicopters in Vietnam. Aboard ships in the South Pacific. In hushed auditoriums... busy offices... noisy loading docks Wherever people-to-people communications are particularly important.

Only University offers over 120 combinations of integrated commercial sound speakers... the world's highest powered sound column... such exclusives as the Omni-Lok Swivel Mount. Plus more built-in protection against obsolescence!

Let University supply the right public address speaker. See your University dealer, or send for University's FREE COMMERCIAL SOUND PRODUCTS CATALOG '67 today. Write Desk #M743.

LISTEN—UNIVERSITY SOUNDS BETTER

UNIVERSITY SOUND
A DIVISION OF LTV LING ALTEC, INC.
9500 W. Reno Oklahoma City, Oklahoma 73101

For more data, circle 23 on inquiry card
The unifier.


INTERNATIONAL NICKEL

new products must be much better

Allenco 1½” nozzle is much better because of its molded Lexan® body

Lexan, hi-impact thermoplastic is much stronger than many metals—weighs much less—costs much less

new nozzle has brass stem; adjusts from solid straight stream through any degree of solid conical fog up to 90°; tested to 1000 p.s.i. hydrostatic pressure; unaffected by severe temperature, shock loads or abuse

new Lexan® nozzle is exclusively

W. D. ALLEN

Write or call W. D. Allen for complete specifications and prices

W. D. ALLEN MANUFACTURING CO.
2200 W. 16th St. / Broadview (Chicago), Ill. 60153 / 345 0230

Trademark—General Electric Co.
We are keeping things QUIET!

...from TRADE-WIND the “FAN”-tastic QT, a remarkably QUIET Ventilator. Results of sound testing indicate that the QT has the quietest sone rating of any comparable ventilator currently available. Only 2.0 sones (at 5 feet). Versatile design permits QT to be mounted in a 4” stud wall or in the ceiling. Further, QT will operate quietly with inexpensive 3” or 4” round, or 3½” x 10” duct. QT has excellent air delivery characteristics: 90 CFM (at ½”); 78 CFM (at ¼”).

...from THERMADOR, the “Sil-o-ette”, a low profile, QUIET, turbofan-forced heater. It’s the low speed turbofan that keeps “whisper quiet” as it gently circulates heat throughout the living zone. The attractive, inconspicuous beige “mini-grille” permits the Sil-o-ette to be installed almost anywhere. Exclusive design allows the Sil-o-ette to be adapted at the jobsite, to any of five power ratings: 500, 1000, or 2000 watts at 120 volts; 1575 watts at 208 volts; 2000 watts at 240 volts. Available with or without integral thermostat.

For details on these products — and other QUIET “things” — write to...

THERMADOR
5119 District Blvd., Los Angeles, California 90022. Department AR

America’s Finest Bilt-In Appliances Come from Thermador
Often Copied . . . Never Equalled

Division of Norris Industries

For more data, circle 26 on inquiry card
This is Tyler foam-in-place

It increases display and storage capacity as much as 25%

Fire-resistant foam, forced under pressure into a jig holding the inner and outer walls of a sales case or cooler, expands and bonds the walls together. It fills the space, stays in place and can’t absorb moisture.

This foam-sandwich construction is one of the most efficient insulators—two inches of foam provides as much insulation as five inches of fiberglass. And it makes a much stronger case or cooler.

For sales cases

Out-of-stock or restocking problems during rush hours are reduced because Tyler foam-in-place sales cases give up to 25% more capacity than conventional fiberglass cases.

Tyler sales cases are lighter in weight so they’re easy to install. And they’re rust-resistant so they last longer—can be hosed flushed every night.

Supermarkets, convenience and specialty stores can add extra display space throughout the store without adding extra floor space with a complete line of Tyler foam-in-place, produce, meat, dairy and frozen food sales cases.

For coolers

Foam-in-place increases capacity as much as 24% in low-temperature coolers and up to 8% in normal temperature models. This extra “cube” may let you specify a smaller cooler, saving valuable space.

Foam can’t settle in the walls and leave voids so you get uniform insulation for the life of the cooler. And Tyler foam coolers are lightweight for easy dismantling if you want to increase the size or move them.

Tyler walk-in coolers are NSF approved.

For more information

Call your Tyler distributor listed in the yellow pages under “Refrigerating Equipment, Commercial.” Or write:

For more data, circle 27 on inquiry card

52 ARCHITECTURAL RECORD December 1967
Ceramic tile belongs

The "or" in "or equal" usually ends up in... "inferior"

Those two words — "or equal" — in your specifications section can lead to considerable disappointment in a finished project. Particularly in vinyl wallcoverings. A moment of inattention, a persuasive salesman, a rash attempt to save a few dollars and you agree to a substitute for Vicutex. Sometimes, the substitution is even made without your knowledge.

There's only one way to guarantee that you get superior stain-resistant finishes, attractive textures, unique patterns and lustrous colors of Vicutex vinyl wallcoverings. By tight specs and double-checking along the way.

If you know enough about vinyl wallcoverings to specify VICRTEX, make sure you get Vicutex.

Sacramento pedestrian mall will be a focus for renewal program

An urban plaza in Sacramento, California, designed by the architectural and planning firm of Victor Gruen Associates, is meant to be, according to the architects, "a place for people to congregate, a place for civic and cultural functions, exhibits and band concerts, as well as a place for the pedestrian to stop and relax in an urban surrounding." The $415,000 first phase, financed by the Federal Department of Housing and Urban Development with the Sacramento Redevelopment Agency, will be 410 feet long and 108 feet wide. The plaza will have fountains, reflecting pools, full-grown trees, rest areas with double benches, children's play area featuring sculptured animals, and a lowered amphitheater with step and bench seating for up to 400 people. The $150 million redevelopment program in Sacramento involves a 65-block downtown area. General contractor for the plaza is the J. Bailey Company. The project is expected to be completed within five months.

Director of education named at Boston Architectural Center

Sanford R. Greenfield, a partner in the Boston architectural firm of Carroll & Greenfield, has been named director of education at the Boston Architectural Center. Mr. Greenfield, who served as chairman of the Education Committee of the Center, assumes the newly created post to further the development of the Center's School of Architecture and to create new programs in continuing education and community relations.

The Center School accepts students without requiring formal university prerequisites for admission in order to educate architects and skilled personnel for architectural offices, and to educate individuals who must have a basic understanding of architecture and building problems for their work in allied fields.

L. E. CARPENTER & CO.
Empire State Building
New York 10001
(212) Longacre 4-0080

For more data, circle 29 on inquiry card

This "sandwich" gives SANDVIK MOVATOR an exclusive advantage over all other moving walks

A continuous, SANDVIK hardend tempered spring steel belt with permanently-bonded rubber covering gives SANDVIK MOVATOR moving walks an exclusive combination of advantages. The heavy gauge, one-piece endless steel belt provides the rigidity and permanent strength to assure smooth, safe and comfortable ride. The grooved rubber covering assures a safe, non-slip surface. Sandvik's wide-rib, narrow-groove tread contour combined with a special landing platform design prevents the catching of lady's heels to a greater degree than any other design. Sandvik can apply ten years of design, manufacturing, installation and service experience to your moving walk requirements anywhere in the U.S.A. today. Write for SANDVIK MOVATOR booklet or contact your nearest Sandvik office.

For more data, circle 30 on inquiry card
American gives Dallas passengers the easiest distance* between two points

At American Airlines expanded terminal, being built at Love Field, Dallas, a SANDVIK MOVATOR will transport up to 10,000 people per hour in a smooth, controlled way. Wheel chairs, baby strollers and luggage carts will be accommodated just as easily as passengers and luggage on a 44" wide moving belt of rubber-covered steel. They'll all travel effortlessly at 120 feet per minute for 260 feet from the ticket area toward the gates. In installations around the world, SANDVIK MOVATORS provide an exclusive combination of advantages. The heavy-gauge, hardened and tempered spring steel belt gives permanent rigidity and non-stretch strength. The SANDVIK wide-rib, narrow groove tread and special landing plate design prevents heel catching more positively than any other design. Write for SANDVIK MOVATOR booklet or contact Sandvik.

SANDVIK STEEL, INC., Fair Lawn, New Jersey
MOVATOR DIVISION
Branch Offices:
Cleveland • Detroit • Chicago • Houston • Los Angeles • Portland, Ore.
In Canada: Sandvik Canadian Ltd.: Montreal

For more data, circle 30 on inquiry card
The new, thin 319 slide packs the muscle to carry 150 pounds.

Grant's 319. It has everything you need for drawers which must support very heavy loads. Requires but ½" side space. Provides full extension. 150 lb. load capacity. Part of the great Grant line. Get the facts today.
Strong joints.
Smooth walls.

Small wonder.

New SHEETROCK® SW Gypsum Wallboard features unique eased edges. New DURABOND®-90 Compound bonds these edges together into Super-Weld joints, strongest wallboard joints ever developed.

This system virtually eliminates joint imperfections caused by twisted framing, offset joints, poor framing alignment, damaged board edges. Now, for any dry-wall system you specify, walls strong and smooth as a billiard table. Of course, new SHEETROCK® SW Wallboard meets code requirements.

To realize the full benefits of this major advance, see your U.S.G. representative, or write to us at 101 South Wacker Drive, Department AR-76, Chicago, Illinois 60606.

United States Gypsum

For more data, circle 32 on inquiry card
Wakefield Air Troffers let you say goodbye to heat build-up, smudgy ceilings and stale air. Our three new models adapt to your every need. One unit, the ASR, brings in a continuous flow of fresh, clean air, while the HTR model removes heated air. The benefits are multiple. Along with a fresher environment, you get cooler, more efficient fluorescent tubes. And if you want to combine complete air exchange, try our CTR model.

Here's something else you get with all three units: Adjustable air flow, dirt and light traps, a selection of lenses and a wide choice of boots. What about looks? Wakefield Air Troffers give the architect a sleek, simple, uncluttered design. A design that won't clash with his. Modular 1' x 4' and 2' x 4' sizes add even more versatility in use.

So whether you're lighting a room or a building, why not cool it, too? Send for our new Air Troffer catalog, while you're thinking about lighting. It's free. And it could be the brightest move you'll ever make.

ITT Wakefield Lighting Products, International Telephone and Telegraph Corporation, P. O. Box 195, Vermilion, Ohio 44089.

WAKEFIELD LIGHTING

In Canada, Wakefield Lighting Ltd., London, Ontario
This administration building is "painting" itself

Bare USS COR-TEN Steel is a natural for appearance, minimum maintenance, and for structural use. With a minimum yield point 40% stronger than structural carbon steel in most sections, it permits lighter members with no sacrifice of strength. USS COR-TEN Steel is available in a full range of structural shapes, plates, bars and sheets. For full details on the use of bare COR-TEN steel in architectural construction, contact a USS Construction Marketing Representative through the nearest USS Sales Office. Or write U. S. Steel, Room 4759, 525 William Penn Place, Pittsburgh, Pa. 15230. USS and COR-TEN are registered trademarks.

High-Strength
Low-Alloy Steel
OFFICE NOTES
OFFICES OPENED

Harry J. Betley, A.I.A. Architect announces the opening of his new office at 737 North Michigan Avenue, Chicago.
Bormfriend & Cox, A.I.A. Architects have opened their new office at 210 South 13th Street, Philadelphia.
Morganelli-Heumann & Rudd, Los Angeles architecture and interior design firm, recently opened Seattle offices.

James W. Dupar, of Seattle, has been named as associate-in-charge of the offices, located in Suite 212, 505 Madison Avenue.

Bolt Beranek and Newman Inc., research, consulting and development firm centered in Cambridge, Massachusetts, has opened a San Francisco office at 1 Jackson Place.

Arthur A. Schlott, Julian Norman and John D. Cain, A.I.A. announce the opening of their office under the firm name Schlott/Norman/Cain Architects at 145 Third Avenue North, Nashville, Tenn.

The firm of Abernethy & Robinson, Architects announces the association of C. Bolton Abernethy for the practice of architecture as Abernethy, Robinson and Abernethy, Architects. The firm is at 403 East Market Street, Johnson City, Tenn.

Harold Adler, A.I.A. and David R. Rosenthal, A.I.A. announce the continuation of their practice in architecture as Adler Rosenthal, Architects, 200 N. Fairfax St., Alexandria, Virginia.

The Los Angeles architectural and planning firm of Robert E. Alexander, F.A.I.A. & Associates has named Ernest H. Elwood an associate.

E. Tucker Carlton announces the formation of the firm, Carlton, Taylor and Clark, Architects, located at 206 East Cary Street, Richmond, Virginia. Principals of the firm also include Wayne E. Taylor and Robert H. Clark.

Eleven new associates have been elected by Caudill Rowlett Scott of Houston and New York. The new appointments are: James R. Cagley, Edward Carr, Jr., Joseph L. Cummins, Robert T. Daniel, Jr., Michael W. Davis, Jack del Bartolo, Jr., Paul N. Delitz, Frederick O. Matthews, F. Conrad Neal III, Kenneth R. Rector and Byron Stenis.

Sylvester Damianos, A.I.A. and James S. Pedone have formed the partnership Damianos and Pedone, Architecture, Interior Architecture. Offices are at 416 Hastings Street, Pittsburgh.

James A. Babcock is now an associate in the firm Chan/Rader and Associates.

Vincent C. Cersi announces that Robert G. Torgersen has become a member of the firm. The new office, known as Vincent C. Cersi and Associates, Architectural and Engineering, has moved its office to 375 Marmon Avenue, White Plains, N.Y.

The firm of Childs/Bertman Tseckares Associates, Inc. has been formed for the practice of architecture, planning and landscape architecture. Principals of the new firm, located at 188 Rawson Road, Brookline, Massachusetts, are: Richard Jay Bertman, Maurice F. Childs and Charles N. Tseckares.

Cesar Pelli was recently elected vice-president of Daniel, Mann, Johnson & Mendenhall, Los Angeles-based architectural, engineering, planning and economic firm.

continued on page 1

NEW FIRMS, FIRM CHANGES

The Zero's 1968 Catalog shows many new products, contains 175 full size drawings.

Write today for your copy

Our 43rd year of service to architects

For more data, circle 34 on inquiry card.
Ruberoid vinyl asbestos offers versatile styling--easy to maintain!

This attractive floor tile installation at a Grandway Department Store was photographed more than a year after the store opened. Thousands of customers have tracked in dirt, mud, rain and snow.

The entrance and check-out area, boldly patterned with Thru-Hip vinyl asbestos—and the main aisles, combining Travertine with marble strips (below), look unbelievably new. Racks and bins have been moved frequently across the tiling floor, tiled with Fine Grain.

Ruberoid's vinyl asbestos has a smooth hard surface that resists grease and stains. Spills can be wiped up quickly and easily. A weekly schedule of washing and a light top dressing keep the floor tile in tip-top condition. No need for frequent heavy waxing, buffing and stripping.

Ruberoid's high style line of architectural patterns and colors is the most extensive in the industry. Most signs extend through the tile—even the heaviest traffic won't wear away the pattern.

Embossed Travertine captures the elegance of the natural product as found in the quarries of Italy.

Ask your Ruberoid representative to show you the full line of contract designs in just 3 sampler albums. Fill them for a rich source of ideas for distinctive, long-wearing floors.

For more details, write The Ruberoid Co., a division of General Tire & Film Corporation, 733 3rd Ave., New York, N. Y. 10017.

Grandway Department Store, Closter, N. J.
Architect: George Volovich, Englewood Cliffs, N. J.
General Contractor: Closter Contracting Corp., Hamptons, N. Y.
Flooring Contractor: Circle Floor Co., Bronx, N. Y.

RUBEROID
DISTINCTIVE FLOORING

another fine product from

GAF
A complete line of advanced architectural hardware, including the Sargent Maximum Security System.

New Haven, Connecticut • Peterborough, Ontario
A NEW SYMBOL OF QUALITY

This symbol, displayed by a producer of prestressed or precast concrete used in structural applications, tells you that his plant has demonstrated the capability to produce quality products in accordance with the prescribed PCI Plant Certification requirements.

These requirements are based on the PCI Manual for Quality Control.

Under the program a certified plant is subjected to 3 inspections by a nationally recognized, independent consulting engineering firm during the course of each year the symbol is retained.

Membership in the Prestressed Concrete Institute is not a prerequisite since any U.S. producer can participate in the program.

Administration of the PCI Plant Certification program is in the hands of a specially qualified PCI Committee working under the direction and supervision of the Institute's Board of Directors.

The PCI Plant Certification program is additional evidence of this industry's characteristic devotion to quality.
George Nemeny uses ceramic tile for beauty and freshness to up-date Stanford White design.

George Nemeny (F.A.I.A.) tore down walls, installed skylights, window walls and white ceramic tile to update this Kings Point, N.Y., house designed by Stanford White at the turn of the century. He flooded the dark interior with light and centered on highlighting a magnificent view of Long Island Sound while retaining the spirit of the Classic Revival original.

Glazed ceramic tile for kitchen countertops and splash areas provides a sanitary, scratch-stain-burn-resistant and easy-to-clean surface for preparing food. The center island topped with tile offers an attractive cooking and snack spot with work and storage areas combined.

Unglazed ceramic tile gives a safe, non-slip, easy-to-clean surface for bathroom floors, walls and the step-up tub in the master bath. Floors in the kitchen, dining room, powder room and solarium are also ceramic tile. The builder for this rejuvenation was Laimons Birkmanis and Cramer Bros. of Cold Spring Harbor installed the tile.

For a long-lasting, carefree material that offers you unlimited design ideas for interior and exterior use in either new or remodeling projects, specify ceramic tile made in the U.S.A. The triangular mark at right appears on every carton of wall tile, ceramic mosaic tile and quarry tile when you select and install Certified Quality Tile. This seal is your assurance that tile is regularly sampled and tested by an independent laboratory to meet the most rigid government specifications (SPR R61-61 and SS-T-308b). For more data about Certified Quality Tile and tile installation see Sweets Architectural File or write: Tile Council of America Inc., 800 Second Avenue, New York, N.Y. 10017.

MEMBER COMPANIES: American Olean Tile Co., Inc. • Cambridge Tile Manufacturing Co. • Continental Ceramic Corporation • Florida Tile Industries, Inc. • Gulf States Ceramic Tile Co. • Hoffman Tile Mfg. Co., Inc. • Huntington Tile, Inc. • Keystone Ridgeway Company, Inc. • Lone Star Ceramics Co. • Ludowici-Celadon Company • Marshall Tiles, Inc. • Mid-State Tile Company • Monarch Tile Manufacturing, Inc. • Pomona Tile Manufacturing Co. • Sparto Ceramic Company • Summitville Tiles, Inc. • Texeramics Inc. • United States Ceramic Tile Co. • Wenczel Tile Company • Western States Ceramic Corp.
Ask any contractor who has used Butyl-based caulks and he'll tell you that it doesn't make much sense to specify 3- to 5-year oil-base caulks on permanent structures. Not when one-part Butyl sealants cost only a fraction more... are just as easy to apply... and give you a seal that's good for 20 years or more.

When made of non-oxidizing weather-resistant Enjay Butyl rubber, economical Butyl sealants resist cracking and hardening... are non-staining and offer superior adhesion with minimum shrinking. Normal service life is 20 years or longer. Except for extreme movement joints (lap joints with more than 20% relative movement and butt joints with more than 15%), performance of these economical sealants is comparable to that of expensive, chemically cured rubber-base sealants, both the one- and two-part variety.

Enjay does not make Butyl sealing caulks, but we do supply Butyl rubber and other elastomers to quality-conscious manufacturers that do. Enjay Chemical Company, 60 West 49th Street, New York, N.Y. 10020.
Masterpiece in All-Electric Design

THE JOHN F. KENNEDY CENTER
FOR THE PERFORMING ARTS, WASHINGTON, D.C.

to be completed in 1969

Architect: Edward Durell Stone
Structural engineers: Severud-Perrone-Fischer, Sturm-Conlin-Bandel Associates
Mechanical and electrical engineers: Syska and Hennessy, Inc.
This theater complex for the performing arts—which will house two theaters, an opera-ballet house and a concert hall—will be served by a single source of energy, electricity. For heating and cooling. And for all other functions requiring power.

As a result of this All-Electric design, planners anticipate a substantial reduction in owning and operating costs.

**LIVE BETTER ELECTRICALLY**

Edison Electric Institute
750 Third Avenue, New York, N.Y. 10017

---

For more data, circle 40 on inquiry card
Buy BARRETT building products
It was a progressive move that resulted in a bigger-than-ever company, dedicated to giving you better-than-ever services.

And please set your mind at ease. There'll be no fooling around with the proven and respected Barrett line of roofing products. We're not about to make willy-nilly changes. Not even to the name. It's still Barrett.

What does it mean to you? It means that the basic Celotex line of superior products has been nearly doubled; every facility of continuing research and development has been expanded; manufacturing capabilities have been vastly increased. And you'll still enjoy the benefits of the same efficient combined distribution network, see the same familiar faces on the job.

It was a big step for us. The way you've been responding makes us know that we were right.
the beautiful world of reinforced concrete is looking up

Twenty years ago, reinforced concrete building construction literally hugged the ground. Not any more. It's on the rise, reaching for the clouds. And the trend to taller, more beautiful buildings in reinforced concrete has just begun. Look at what has happened in just the past ten years.

One of the major reasons for this spectacular breakthrough is the new Grade 60 reinforcing steel. It has 50% greater yield strength. Helps designers achieve slimmer columns. Greater usable floor space. Reduced overall construction costs. Gives construction a material as versatile as the men's minds that design, engineer, and build with it. Beauty, utility, economy are all a part of the package.

If you have a building that's going up, ask your consulting engineer about the many benefits high-strength reinforcing steels offer in modern concrete building design. Do it soon.
Diners climb to the “Top of the Mark” to see the Bay, not the blinds.

LEVOLOR lets them.

Those are Venetian blinds on the windows. You can’t quite make them out?

Neither can the patrons. And that’s the whole idea.

For the view from the “Top of the Mark”—famed San Francisco restaurant atop the Mark Hopkins—is spectacular.

And, to preserve it, management demanded Levolor’s carefully engineered disappearing act: the narrow, 1-inch-wide slats and nearly invisible polyester ladders of Riviera blinds.

You can’t see the ladders?

Never mind. Just enjoy the scenery.

LEVOLOR RIVIERA Venetian Blinds

For more details, write Levolor Lorentzen, Inc., 722 Monroe Street, Hoboken, New Jersey 07030.
Complete Industrial Panelboards
---An Inside Job

Until now, industrial panelboards were built in such a manner that the slightest modifications of circuitry meant, at the very least, troublesome hours of work for an electrician—and, in extreme cases, weeks of delay. Now, a new concept eliminates these headaches and, at the same time, provides advantages in safety and design flexibility of importance to engineers, electricians, contractors and users.

New approach to old problems
The solution is a new panelboard design developed by Square D Company. It incorporates vertical stacking of the bus bars, freeing a large portion of the lateral space required by old-style bussing. This I-LINE® design permits mounting any combination of circuit breakers. No special tools are required (see Figure 1). If a change in electrical requirements arises, additions or substitutions can be made without delay. To install or change over to a new 100-ampere breaker takes about 10 minutes with locally available I-LINE breakers versus more than two hours with other designs using connector assemblies and breakers which must be ordered from the factory. All components—boxes, interiors and breakers—are stocked by Square D distributors for immediate use.

Many new design features
Aside from easy assembly, I-LINE power panelboards incorporate a number of important benefits. An I-LINE circuit breaker, for instance, can be installed anywhere, regardless of the frame size or number of poles of the breaker opposite it on the bus bar stack. This is readily seen in the main illustration above. Lugs are front-removable, and special lugs are easily substituted when necessary. All terminals are UL listed for use with either aluminum or copper cable. A single bolt clamps the cable connectors to the respective bus bars, and complete joint maintenance means only the tightening of that one bolt. Provisions are made for a solid neutral in the main lug or main breaker compartments.

Integrated equipment rating
An extensive testing program conducted by Square D Company assures safety with every combination of breakers installed. Called the "integrated equipment rating," it is the short circuit rating of the complete panelboard with branch circuit breakers installed. This testing (1) confirms the capability of the line-side bus and insulation assembly to withstand any ionized gases discharged from a branch circuit breaker during short-circuit interruption (discharges must not cause a line-side, phase-to-phase arc on the bus assembly), (2) establishes that any arrangement of branch circuit breakers can be made safely, without regard to frame sizes, and (3) verifies the safety of the physical bracing of the bus system.

Additional safety
The integrated equipment rating is only a part of the safety built into I-LINE power panelboards. Even with exterior and interior trim removed, the panelboard presents a "dead front" (Figure 2). A captive, hinged cover protects personnel from accidental contact with the main lugs.

Polyester glass insulators throughout the bus bar stack are as wide as the bus bars themselves to minimize the chances of accidental contact with bus bars or line-side connectors. Dead metal insulators and filler blanks provide additional safety within the completed unit.

Wide selection
Plug-on breakers range from 15-ampere, single-pole devices to 400-ampere, three-pole frames. All have mounting brackets and connectors attached and ready for installation. Optional designs include bolt-on connectors, Visi-blade breakers, bell alarm, shunt trip, under-voltage trip and auxiliary contacts.

For more data...
Further information on I-LINE power panelboards is available. Write to: Square D Company, Dept. SA, Lexington, Kentucky 40505. Or contact your Square D field representative or distributor.
The number of extra people who can fit on an elevator with Otispace-Saver doors depends on the people.

Otis has found a way to save space between car and hoistway. This exclusive Otis engineering development gives you the option of extra car capacity—or extra rentable space in your building. It's standard with a VIP elevator installation. At no extra cost.

Otis

So many extras are standard with VIP
Chem 101 to basketball practice
Modine delivers the comfort

In laboratories, classrooms and offices—Modine unit ventilators or fan coils heat, cool, filter and dehumidify year 'round.

In the library—heat with Modine convectors or finned-tube radiation; heat and cool with Modine unit ventilators.

In hallways and doorways—Modine cabinet unit heaters deliver heat on demand; finned-tube radiation blankets large areas with uniform comfort.

In the auditorium and gymnasium—Modine central station units heat, cool, filter and dehumidify wide, open areas.
NEW FIRMS, FIRM CHANGES
continued from page 60

Environmental Systems Design, Inc., a consulting mechanical and electrical engineering firm was recently formed, with offices at 35 East Wacker Drive, Chicago. It is headed by Hem C. Gupta, president and Robert J. Ladner.

Martin E. Fossler is now general manager of Alexander Ewing & Associates, Philadelphia architects, engineers and planners.

Albert Kennerly, formerly with Skidmore, Owings & Merrill, is now a partner of Fordyce & Hamby Associates. The firm continues in the general practice of architecture at 717 Fifth Avenue, New York City, under the new name, Fordyce Hamby & Kennerly.

Frederick G. Frost Jr. & Associates, Architects of 30 East 42nd Street, New York City have appointed Owen L. Delevante A.I.A. an associate in the firm. Mr. Delevante was formerly with the firm of Harrison & Abramovitz.

Louis J. Nacamuli was recently appointed associate in the consulting structural engineering firm, Garfinkel, Marenberg and Associates. The firm's address is 9 East 40th Street, New York City.

Donald E. Wudtke, A.I.A., has joined M. Arthur Gensler Jr. & Associates, Architects as a partner. The firm has recently moved to new offices, 222 Hear Building, San Francisco.

Kinney E. Griffin, A.I.A. announces the formation of a new organization engaged in the practice of architecture and planning under the name of Kinney Griffin & Associates, Architects & Planners, and the professional liaison of the firm with Douglas Dacre Stone, A.I.A. The practice continues at Suite 26, 457 Williams, Fremont, Calif.

The Detroit-based architectural and engineering firm of Harley, Ellington Cowin and Stiriton Inc. has elected Malcolm R. Stiriton, A.I.A. president. He succeeds Julian R. Cowin, A.I.A., who was elected chairman.

The partnership firm of Charles C. Hartmann, Architects, A.I.A. has been reorganized with the formation of the firm of Charles C. Hartmann, Sr. and Associates, Architects. Charles C. Hartmann Sr., F.A.I.A. is the principal with Ralph Austin, Jr., A.I.A. as associate. The firm's address remains unchanged: 405 West Fisher Avenue, Greensboro, N.C.

E. Hernandez and B. O. Menezes announce the formation of a partnership under the name of Hernandez, Menezes & Associates, Architects and Town Planners. The new firm's address is: Solar House, Government Road South, P.O. Box 20120, Nairobi, Kenya.


Louis R. Morandi, A.I.A. is now partner of the firm Hillman/Garmendi Architects, 122 East 37th Street, N.Y.

The architectural firm of Lemme Freeth, Haines & Jones has appointed Fred R. White, A.I.A. and George Welling, A.I.A. as associates and Joseph G. F. Farrell, A.I.A. as senior associate.

William M. Schoenfeld, A.I.A. has been elected a vice president of the Los Angeles architectural firm, Charles Lubman Associates, and Peter DeFrancis appointed director of consulting services.

W. Gene Williams of Oklahoma City, Oklahoma has merged his architectural firm with the Tulsa consulting engineering firm Mansur, Steele & Associates to form Mansur-Steele-Williams, Inc.

Cut-a-way view of unique bellows feature. Complete wade shokstop ready for installation.

WADE SHOKSTOPSP
prevent water hammer permanently!

- One-piece hydraulically-formed bronze bellows, pre-charged with nitrogen gas and sealed in an extra-heavy, all-brass casing.
- Hydraulic stop prevents compression of the bellows beyond elastic limits.
- Maximum operating range — minus 35° F to 225° F.
- Tested and certified under Plumbing and Drainage Institute Standard PDI-WH201.

for top performance, specify Wade

WADE DIVISION/TYLER PIPE INDUSTRIES, TYLER, TEXAS
Member, Plumbing and Drainage Institute

For more data, circle 46 on inquiry card
Six 8' Excelux Units
do the work of nine 8'
School Fixtures!

THE NEW GUTH EXCELUX 800 . . . "goes to school" so economically it saves
over $100.00 per room on equipment alone. It cuts annual operating costs at least
20%. And with White Louvers, Excelux meets the Scissors Curve. Ask for Bulletin
No. 320. The Edwin F. Guth Company, P.O. Box 7079, St. Louis, Missouri 63141.

*and many other places

Trusted Name in Lighting Since 1902

For more data, circle 47 on inquiry card
Which one of these 6 advantages of Weyerhaeuser Prefinished Siding/Panel 15 do you want to know more about?

The Product: An entirely new kind of structural material that combines the stability of plywood and the durability of aluminum into one panel. Weyerhaeuser Prefinished Siding/Panel 15 can be used in a variety of ways: curtain walls, siding, interior walls, soffits, mansard roofs, spandrels...you name it. A full line of matching accessories are available.

Weyerhaeuser Company
Box B-2818
Tacoma, Washington 98401

I'm interested in more information on Weyerhaeuser Prefinished Siding/Panel 15.

Name _____________________________
Firm __________________________________
Address ______________________________

City ____________________________ State ______ Zip ______

For more data, circle 48 on inquiry card
Congress stops fee bidding and opens top limit

The threat that architects might have to bid before getting Federal design contracts was knocked out by Congress last month. Representative Jack Brooks (D-Tex.) told the General Accounting Office to quit trying to make A/E firms submit fee schedules during the final stages of negotiating a design contract.

At the same time, he wrote a stiff letter to GAO to stop trying to make A/E firms submit fee schedules during the final stages of negotiations. Representative Jack Brooks (D-Tex.) told the General Accounting Office to quit trying to make A/E firms submit fee schedules during the final stages of negotiating a design contract.

And he told both the A/E societies and GAO to calm down about any special cases where an A/E firm's fee might be above the 6 per cent limit legitimately; in such special cases, he said, Congress can pass a separate waiver if needed.

Brooks' committee consensus clears up GAO quandary

Brooks voice carries a lot more weight than just one congressman complaining about GAO's fussy accountant-like attitude. He is the chairman of the House Subcommittee on Government Activities, which would consider any legislation about the issue.

And since he wrote the letter to GAO on subcommittee stationery, speaking as the chairman, Brooks' views have the force of law unless some congressman tries to elevate the 6 per cent fuss into a major public issue—highly unlikely.

The controversy arose last spring when GAO suggested Congress ought to do away with the 6 per cent limit altogether; in such special cases, he said, Congress can pass a separate waiver if needed.

Budge housing bills expected in Congress next year

By next year, President Johnson is expected to ask Congress to approve a number of "omnibus" housing bills, topped by his own proposal for a new plan to promote home ownership for the near-poor.

The administration's bill, which will also include requests to continue urban renewal, public housing and the other major urban programs through 1973, will headlong into another major housing bill that the Senate was to take up this month.

This bill, authored by Senator John Sparkman (D-Ala.) and his housing subcommittee, contains a hodge-podge of housing plans.

Home ownership plans compete for notice

haps the best known is the "lower-income home ownership" plan that the Alabama senator put together in the wake of favorable publicity over Senator Charles Percy's (R-Ill.) "Home Ownership Foundation" scheme. Senator Percy's plan remains in the Sparkman bill in name only, as a vehicle for aiding nonprofit housing sponsors. A similar concept, authored by Senator Walter Mondale (D-Minn.) is also included—but FHA would do the counseling.

Senator Sparkman hopes his new plan would be used mostly for new construction or rehabilitation. "Lower-income" families (including those qualified to live in public housing) would be eligible; rents would be subsidized, but the mortgages would carry a market rate of interest.

Interest rates approach statutory limits

Senator Sparkman's bill also contains many other changes in national housing policies, some of which would undoubtedly be picked up in President Johnson's bill next year. The most significant, particularly for short-term outlook on home building, is the deletion of the statutory limit (6 per cent) on maximum interest rates for mortgages insured by the Federal government.

By lifting the 6 per cent ceiling,
Senator Sparkman’s bill would permit HUD Secretary Robert Weaver to allow stated interest rates to swing into line with prevailing market rates, thereby lessening the amount of “points” paid. This in turn would encourage greater use of Federal mortgage insurance, which then might attract more funds toward construction of multiple housing.

Lifting the 6 per cent ceiling is politically a hot potato, however. Many states now assert that rates above 6 per cent constitute usury, and President Johnson could hardly maintain a “populist” image if he advocates higher rates to be paid to bankers.

Other innovations: Senator Sparkman proposes FHA insurance for seasonal homes—vacation houses. He suggests letting some urban renewal funds be used to fix up municipal facilities (parks, streets, and other minor improvements) in areas destined for clearance but not yet worked into urban renewal schemes. Objective of the idea is to provide temporary relief for a long hot summer of tension in those areas.

Unions step up pressures on A/E firms

In recent months, unions have been making a concerted effort to organize the employees of architectural firms. Reports from Michigan, Florida, Illinois, New York and several other states indicate several unions—particularly UAW and AFL-CIO operating engineers are trying to organize subprofessionals.

To counteract the unionization drive, the A.I.A. and five engineering societies were to meet soon after press time to hash over what architectural firms could do when faced with a unionization effort.

“No conference is going to do away with the union problem, however,” explained Milton Lunch, general counsel for one of the engineering societies.

The group was likely to affirm the principle that self-interest (collective bargaining) often can run counter to professional responsibility and the client’s interest. By the same token, however, several speakers were expected to explain that the only true “cure” to the problem was for A/E firms to provide good working conditions and enough pay so as to smother the appeal of any unionization effort.

Philip Hutchinson, A.I.A.’s director of government affairs, had already expressed the fear that the unionization drive could have wider ramifications, judging by the current direction of court decisions. “It certainly isn’t going to happen tomorrow, but we can’t ignore the possibility that unions might begin to picket a construction job unless the plans and specs were drawn in a unionized shop,” he said.

Briefs

Continued opposition to H.R. 8213, the Federal bill requiring the listing of all subcontractors on Federal work has been urged by both AGC and A.I.A. who favor a listing procedure compatible with that developed and approved by AGC.

Capital spending by American business will reach $65 billion for plants and equipment next year reports the 14th McGraw-Hill fall survey, “Preliminary Plans for Capital Spending in 1968-1969.” This is a 5 per cent gain over the 1967 rate, and though substantially smaller than the 16 to 17 per cent gains of 1965 and 1966, the planned increase nevertheless represents a turnaround from the declining rate between the fourth quarter of last year and the second quarter of this year.

A statute of limitations law effective November 9, protects California’s architects and other design professionals. Authorized by Sen. William E. Coombs, the new law limits the architect’s liability to four years in suits arising from patent (i.e., apparent by reasonable inspection) deficiencies in design, planning, or supervision of construction.

Capital spending by American business will reach $65 billion for plants and equipment next year reports the 14th McGraw-Hill fall survey, “Preliminary Plans for Capital Spending in 1968-1969.” This is a 5 per cent gain over the 1967 rate, and though substantially smaller than the 16 to 17 per cent gains of 1965 and 1966, the planned increase nevertheless represents a turnaround from the declining rate between the fourth quarter of last year and the second quarter of this year.

A statute of limitations law effective November 9, protects California’s architects and other design professionals. Authored by Sen. William E. Coombs, the new law limits the architect’s liability to four years in suits arising from patent (i.e., apparent by reasonable inspection) deficiencies in design, planning, or supervision of construction.

Capital spending by American business will reach $65 billion for plants and equipment next year reports the 14th McGraw-Hill fall survey, “Preliminary Plans for Capital Spending in 1968-1969.” This is a 5 per cent gain over the 1967 rate, and though substantially smaller than the 16 to 17 per cent gains of 1965 and 1966, the planned increase nevertheless represents a turnaround from the declining rate between the fourth quarter of last year and the second quarter of this year.

A statute of limitations law effective November 9, protects California’s architects and other design professionals. Authored by Sen. William E. Coombs, the new law limits the architect’s liability to four years in suits arising from patent (i.e., apparent by reasonable inspection) deficiencies in design, planning, or supervision of construction.

Lump sum fees for architects participating in New York State’s housing programs are now based on the number of dwelling units rather than construction costs. Commissioner James S. Gaynor says the new schedules provide increased fees for all types and sizes of new construction (including non-residential areas and structures), and insure just compensation for consultants by stipulating a minimum fee requirement. He describes the program as a commitment to architectural excellence.

A bill to outlaw hold harmless agreements, such as the indemnification clause in A.I.A. Document A-201, has been vetoed in Illinois by Gov. Otto Kerner on grounds that it would make recovery by innocent third parties more difficult and impair the right of parties to freely negotiate their contract. Though more than 20 other state legislatures have considered similar bills, none has been adopted in any state to date.

The U.S. Supreme Court has dismissed planners’ appeals to review a New Jersey Supreme Court decision which holds that registered engineers, land surveyors and architects may obtain professional planner registration without examining and/or planning degrees.

At the Chicago symposium, many case histories would trace how son firms were successful in fending off unionization drive and how others have accepted the union’s presence.

Several lawyers specializing in labor relations were to explain that architect are seldom prepared for a union’s entry into their shop. Harry Rains, New York attorney, has previously explained that an architect should always have a weakness whenever first confronted by union representative; he should say or that he will recognize a unit that is certified by an NLRB election; he should not touch any cards signed by employees; he should be brief, polite, firm and write down everything once the first confrontation is over. Then get a lawyer, Rain added.

A 2.5 per cent increase in building costs for the year ending October 31, 1962, reported by W. H. Edgerton, manager of cost calculating services of the F. Dodge Company, and editor of the Dodge Building Cost Calculator and Build Cost and Specification Digest. The big reason for the increased building cost was an average 6 per cent increase hourly wages for building trades craftsmen, Edgerton said. During the same period, building materials costs rose 3.5 per cent.
The strong recovery of the housing market during 1967 has been, without question, this year's most important construction trend. As the increased availability of mortgage money lifted home building from its badly depressed state back in January to near-normal levels by the final months of the year, total construction activity rose to new record highs.

But while all attention was focused on seeing the housing industry through its crisis, another important area of construction—the industrial and commercial building market—has developed some troubles of its own.

In a way, it's possible to draw a parallel between the 1966 housing collapse and the later reversal in commercial and industrial building. When mortgage sources dried up early last year, housing activity fell off sharply; when business investment incentives (the 7 per cent tax credit and accelerated depreciation) were suspended late in 1966, business-related construction receded. And although housing activity has now regained near-normal strength, store building is only beginning to show a corresponding upturn.

In the industrial building market, the problem is one of mild overcapacity. This time last year, manufacturers were operating at 90 per cent of potential output. Since then a combination of factors—the need to reduce output for a brief time (in order to keep inventories from getting out of hand) plus the availability of a lot of new capacity (which had been ordered a year or more earlier)—pressed the operating rate down to 81 per cent by this past September. And this means that it's now possible to get a fairly large increase in output from existing facilities before another new burst of plant and equipment expansion becomes necessary to handle expected growth.

What, then, are the prospects for industrial and commercial building in the year ahead? According to the recently released McGraw-Hill survey of business plans for capital spending, things should be moving up again soon, though only at a modest pace.

One important key to the capital spending outlook is that manufacturers anticipate that next year's sales will be up 8 per cent in physical volume. That will have the effect of raising operating rates back to about 85 per cent of capacity. In order to produce at that rate—and to replace obsolete facilities—manufacturers plan to raise their capital outlays by 3 per cent in 1968.

A much bigger percentage gain, according to the survey, is slated for commercial building. Next year's outlays for stores, warehouses, and offices (both buildings and equipment) are expected to advance by 8 per cent.

These survey findings bear out the fact that after several years of very strong plant and equipment expansion, there's enough capacity around right now to take care of most needs for a while. But they also show that with a good rise in sales volume, the current sluggishness in industrial and commercial building is bound to be short-lived.

Building activity: monthly contract tabulations

<table>
<thead>
<tr>
<th>NONRESIDENTIAL BUILDING</th>
<th>RESIDENTIAL BUILDING</th>
<th>TOTAL BUILDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ (BILLIONS)</td>
<td>$ (BILLIONS)</td>
<td>$ (BILLIONS)</td>
</tr>
<tr>
<td>1967</td>
<td>1966</td>
<td>1967</td>
</tr>
</tbody>
</table>
Announcing the Onan green giants!

A big, new line of standby power plant systems: 300, 350, and 400 kw.

This is the 400 kw "Big Daddy." He's huge... and green... with a shape only an engineer could love. But you said you needed a line of 300 to 400 kw giants, so we built 'em.

Why should you specify Onan instead of the other well-known makers of big power plants? For the same reasons you specify our smaller-sized plants.

First, the complete Onan unit has been designed to work together—engine, generator, load transfer and starting control gear. It's been tested together, too. Run in under full load.

Second, there's just one place to go if you have trouble. Onan takes full responsibility for everything. Across the country there are over 100 parts and service centers with factory-trained experts to back up that claim.

Do you have a home for one of our new, green giants? Like more information? The coupon will bring it fast.

Mail to: Onan, Dept. AR 127
2515 University Ave. S.E., Minneapolis, Minn. 55414

Please send specifications on the □ 300kw. □ 350kw. □ 400kw.
Have an Onan sales representative call on me with more details □

Name ________________________________
Title ________________________________
Address ________________________________ State ________ Zip ______
City ________________________________

We build our future into every Onan product

For data, circle 49 on inquiry card
YES! with Air-Lite 3’x3’ silhouette...**NEW** from Sechrist

Sechrist has perfected and engineered a truly regressed, handsome fixture which offers new dimensions of aesthetic beauty for clean, crisp modern architectural design. The new 3’ x 3’ Air-Lite drops into a standard 5’ x 5’ module with no special engineering or difficult construction. It conceals all mechanical functions. It is precisely detailed with extruded aluminum doors and trim flanges. Each module has its own lighting, supply and return air systems. Its even margins enhance the overall architectural beauty of interior design, yet are truly functional in all aspects.

Write for all new catalog data on Air-Lite series troffers before your next project. At Sechrist new things are happening compatible with your most advanced concepts of air handling and lighting.

---

_P.O. BOX 16775, DEPT. 712 / DENVER, COLORADO 80216 / (303) 534-0141_

_for more data, circle 50 on inquiry card_
A proposed guide for square-foot cost calculations

The guidelines for calculating the square-foot cost of a building are quite vague, and the fact so vague that just about any figure one comes up with for a building can be defended as accurate. For more complex buildings, one cost calculation can vary as much as 25 per cent from another. Yet either one (or any in between) can usually be justified by accepted criteria.

And, if one wants to come up with a much higher or lower figure than can be achieved by calculating area and dollar amounts in different ways, an even more flexible method is available. This is the often meaningless approach of determining the cost per bed, per pupil, per man, etc. Since the guidelines for this approach are virtually non-existent, the selection of what cost items to count and how to count them is highly discretionary. It is occasionally absurd.

How to cut costs by ignoring them

A government directive was circulated that set a maximum limit on the per-man cost of barracks on overseas installations. Because either the limitations were unrealistic, or the buildings were uneconomical, or the bidding was not competitive, or perhaps because of all three, the low bid often indicated that the cost per man (measured in any reasonable terms) had been substantially exceeded.

This did not mean that the projects were not approved. Nor was some feat of value engineering performed at the last minute. Instead, the field estimator eliminated certain areas of cost from the per-man ratio that were not considered "relevant". While there was no rationale for eliminating site work costs and other similar projects. The result can again be criticism, reduction in scope, or curtailment, and with little or no basis for any of these. But this can be a greater problem area to overcome since it is more difficult to point out discrepancies in comparisons of cost-per-square-foot. The lack of uniformity in cost-per-pupil, etc. is more easily revealed by a little research, and the disparities are more readily understood by the client. On the other hand, the architect may unwittingly present his project in an unfavorable light because of his procedures for calculating square-foot costs. If he is aware of differences between his methods and those used to calculate similar projects, it still may be difficult to convey this fact to the client.

This happens for two reasons: First of all, as indicated above, there can be significant differences in what elements are considered to be part of the total building cost. Secondly, the guidelines for calculating the square foot area of a building are such that different interpretations of these guidelines for the same building can mean as much as a 20 per cent difference in the figure designated as total area.

Each architect determines square foot areas as he sees them or as he interprets how they should be calculated. He may, or may not, do this in the same way each time or weigh the varying aspects of his project in the same manner each time. Obviously, if he has no explicit standard to guide him he cannot evaluate the area in the same manner as his fellow architect.
A.I.A. standard method is useful but limited

A standard in general use is the A.I.A. document on areas and volumes. The expression often used is, "... taken off according to the A.I.A. standard guide." What exactly does this mean and why does this frame of reference produce a wide range of interpretation?

The A.I.A. reference (A.I.A. Doc. D101 Sept. 1963 ED) states the following: "The ARCHITECTURAL AREA of a building is the sum of the areas of the several floors of the building, including basements, mezzanine and intermediate floored tiers and penthouses of headroom height, measured from the exterior faces of exterior walls or from the center line of walls separating buildings.

"Covered walkways, open roofed-over areas that are paved, porches and similar spaces shall have the architectural area multiplied by 0.50"

"The architectural area does not include such features as pipe trenches, exterior terraces or steps, chimneys, roof overhangs, etc."

This guide appears adequate at first glance, but if applied to most of today's complex buildings it is not. Too much remains undefined for the uniform interpretation of peripheral and marginal areas of the building, thus most of the discrepancies occur because of the manner in which these areas are calculated.

Below is a detailed interpretation of the A.I.A. guide that is suggested as one way in which the calculation of these areas could be more closely defined. It is by no means the only way that the guide can be interpreted. But it does offer a more precise guideline to the calculation of areas that are now subject to various interpretations. Continuity is achieved in that fully enclosed areas, partially enclosed areas, open areas, etc. are each treated in a consistent manner. The diagram indicates some of the major areas of consideration.

The A.I.A. method can be more precise

The architectural area of a building is the summation of the total area applying the following procedure. Buildings of unusual design or nature not conforming readily or easily to these procedures should be discussed with the project coordinator before determining area or volume.

1. Full Areas

Square foot areas are determined by measuring the following spaces from outside to outside of exterior walls:

a. Basements or sub-basements having full height, including but not duplicating elevator pits, boiler rooms or pits, and other spaces which go below floor level.
b. Pipe space over 6 feet high.
c. Enclosed spaces (four sides) of open entrance terraces beneath the upper floors as in a structure of stilts-design.
d. All intermediate floors.
e. Mezzanines and interior balconies.
f. Mechanical spaces.
g. Penthouses.
h. Any full height space above roof, i.e., stair bulkheads. The lowest full area will be the slab on grade of the basements or first floor, and the highest full area will be the top floor or floors of penthouses or bulkheads above roof.

Areas frequently omitted from full space calculations but which should not be so omitted are:

a. Stair well openings.
b. Elevator shaft openings.
c. Pipe shaft openings.
d. Any other nominal floor opening.

2. Half Areas

The following spaces will be considered at one-half their measured values:

a. Exterior wall balconies with entrances to the interior of the building.
b. Attached porches with open sides.
c. Exterior entrance canopies of significant size and structure.
d. Unenclosed spaces of entrance terrace beneath buildings of stilts-design.
e. Unfinished open basements with concrete floors.

3. Areas Not to Be Considered

Do not include the following areas in square foot calculations:

a. Open spaces that go beyond one or more floors, such as the upper spaces of auditoriums, gymnasiums, swimming pools, large architectural stair wells, lecture halls or other rooms.
b. Interior courts or yards.
c. Catwalks.
d. Unoccupied or unfinished attached spaces.
e. Roofs.
f. Open air spaces of roof entrance terraces or walkways.
g. Other enclosed spaces (or structures) not attached to building.
h. Outside connecting corridors or covered walks.
i. Window canopies or sun shades.
j. Crawl spaces (with or without concrete floors).
k. Pipe space less than 6 feet high.

A quick comparison of the A.I.A. guide against this outline will show those areas of the building that are either vaguely defined or not mentioned at all by the existing standards. At the present time there are numerous peripheral areas that are counted as zero by some architects, one-half by others, some fraction in between by others and even full for some. If square foot costs are to be at all meaningful, for comparative purposes otherwise, more explicit guidelines should be established. The ones we have indicated are by no means the only possible but they may suggest the necessary steps to be taken.
INDEXES AND INDICATORS
William H. Edgerton
Manager-Editor, Dow Building Cost Calculator,
An F. W. Dodge service

DECEMBER 1967 BUILDING COST INDEXES

1941 averages for each city = 100.0

| Metropolitan area | Cost differential | Current Dow index | % change
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Average</td>
<td>8.5</td>
<td>283.2</td>
<td>+2.05</td>
</tr>
<tr>
<td>Atlanta</td>
<td>7.2</td>
<td>320.2</td>
<td>+1.79</td>
</tr>
<tr>
<td>Baltimore</td>
<td>7.7</td>
<td>282.8</td>
<td>+1.49</td>
</tr>
<tr>
<td>Birmingham</td>
<td>7.5</td>
<td>258.7</td>
<td>+1.48</td>
</tr>
<tr>
<td>Boston</td>
<td>8.5</td>
<td>254.2</td>
<td>+1.41</td>
</tr>
<tr>
<td>Chicago</td>
<td>8.9</td>
<td>316.5</td>
<td>+2.53</td>
</tr>
<tr>
<td>Cleveland</td>
<td>6.8</td>
<td>274.6</td>
<td>+3.56</td>
</tr>
<tr>
<td>Detroit</td>
<td>6.9</td>
<td>290.0</td>
<td>+1.45</td>
</tr>
<tr>
<td>Kansas City</td>
<td>8.3</td>
<td>252.9</td>
<td>+1.26</td>
</tr>
<tr>
<td>Nashville</td>
<td>8.4</td>
<td>275.8</td>
<td>+0.77</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>8.6</td>
<td>285.4</td>
<td>+1.74</td>
</tr>
<tr>
<td>New Orleans</td>
<td>7.8</td>
<td>254.5</td>
<td>+3.04</td>
</tr>
<tr>
<td>New York</td>
<td>10.0</td>
<td>298.2</td>
<td>+3.16</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>8.7</td>
<td>282.8</td>
<td>+2.51</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>9.1</td>
<td>261.5</td>
<td>+1.18</td>
</tr>
<tr>
<td>St. Louis</td>
<td>9.1</td>
<td>280.3</td>
<td>+1.77</td>
</tr>
<tr>
<td>San Francisco</td>
<td>8.5</td>
<td>364.9</td>
<td>+1.24</td>
</tr>
<tr>
<td>Seattle</td>
<td>8.4</td>
<td>260.3</td>
<td>+0.69</td>
</tr>
</tbody>
</table>

Differences in costs between two cities may be compared by dividing the cost differential figure of one city by that of a second, if the cost differential of a city (100) divided by that of a second (0) equals 75%. Thus, costs in the first city are 25% higher than costs in the second. Also, costs in the second city are 25% lower than those in the first (100=100=75%).

The information presented here indicates trends of building construction costs in 21 leading cities and their suburban areas (within a 25-mile radius). Information is included on past and present costs, and future costs can be projected by analysis of cost trends.

HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Average</td>
<td>213.5</td>
<td>259.2</td>
<td>264.6</td>
<td>266.8</td>
<td>273.4</td>
<td>279.3</td>
<td>284.9</td>
</tr>
<tr>
<td>Atlanta</td>
<td>223.5</td>
<td>289.0</td>
<td>294.7</td>
<td>298.2</td>
<td>305.7</td>
<td>313.7</td>
<td>321.5</td>
</tr>
<tr>
<td>Baltimore</td>
<td>213.3</td>
<td>272.6</td>
<td>269.9</td>
<td>271.8</td>
<td>275.5</td>
<td>280.6</td>
<td>285.7</td>
</tr>
<tr>
<td>Birmingham</td>
<td>208.1</td>
<td>240.2</td>
<td>239.9</td>
<td>250.0</td>
<td>256.3</td>
<td>260.9</td>
<td>265.6</td>
</tr>
<tr>
<td>Boston</td>
<td>199.0</td>
<td>232.8</td>
<td>237.5</td>
<td>239.8</td>
<td>244.1</td>
<td>252.1</td>
<td>257.8</td>
</tr>
<tr>
<td>Chicago</td>
<td>231.2</td>
<td>284.2</td>
<td>292.9</td>
<td>292.0</td>
<td>301.0</td>
<td>306.6</td>
<td>311.7</td>
</tr>
<tr>
<td>Cincinnati</td>
<td>207.7</td>
<td>255.0</td>
<td>257.6</td>
<td>258.9</td>
<td>263.9</td>
<td>269.5</td>
<td>274.0</td>
</tr>
<tr>
<td>Cleveland</td>
<td>220.7</td>
<td>263.1</td>
<td>265.7</td>
<td>268.5</td>
<td>275.8</td>
<td>283.0</td>
<td>292.3</td>
</tr>
<tr>
<td>Dallas</td>
<td>221.9</td>
<td>239.9</td>
<td>244.7</td>
<td>246.9</td>
<td>253.0</td>
<td>256.4</td>
<td>260.8</td>
</tr>
<tr>
<td>Denver</td>
<td>213.8</td>
<td>257.9</td>
<td>270.9</td>
<td>274.9</td>
<td>282.5</td>
<td>287.3</td>
<td>294.0</td>
</tr>
<tr>
<td>Detroit</td>
<td>197.8</td>
<td>239.5</td>
<td>264.7</td>
<td>265.9</td>
<td>272.2</td>
<td>277.7</td>
<td>284.7</td>
</tr>
<tr>
<td>Kansas City</td>
<td>213.3</td>
<td>237.1</td>
<td>237.1</td>
<td>240.1</td>
<td>247.8</td>
<td>250.5</td>
<td>256.4</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>210.3</td>
<td>263.6</td>
<td>274.3</td>
<td>276.3</td>
<td>282.5</td>
<td>288.2</td>
<td>297.1</td>
</tr>
<tr>
<td>Miami</td>
<td>199.4</td>
<td>235.5</td>
<td>239.1</td>
<td>260.3</td>
<td>269.3</td>
<td>274.4</td>
<td>277.5</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>213.5</td>
<td>260.0</td>
<td>267.9</td>
<td>269.0</td>
<td>275.3</td>
<td>282.4</td>
<td>285.0</td>
</tr>
<tr>
<td>New York</td>
<td>207.1</td>
<td>242.3</td>
<td>244.7</td>
<td>245.7</td>
<td>248.3</td>
<td>249.9</td>
<td>256.3</td>
</tr>
<tr>
<td>New York (Quarterly)</td>
<td>207.4</td>
<td>264.5</td>
<td>270.8</td>
<td>276.0</td>
<td>282.3</td>
<td>289.4</td>
<td>297.1</td>
</tr>
<tr>
<td>St. Louis</td>
<td>221.1</td>
<td>251.9</td>
<td>256.9</td>
<td>255.4</td>
<td>263.4</td>
<td>272.3</td>
<td>280.9</td>
</tr>
<tr>
<td>San Francisco</td>
<td>266.4</td>
<td>327.5</td>
<td>317.4</td>
<td>343.3</td>
<td>352.4</td>
<td>365.4</td>
<td>368.6</td>
</tr>
<tr>
<td>Seattle</td>
<td>191.8</td>
<td>237.4</td>
<td>247.0</td>
<td>252.5</td>
<td>260.6</td>
<td>266.6</td>
<td>268.9</td>
</tr>
</tbody>
</table>

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200) divided by the index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0-200.0=75%) or they are 25% lower in the second period.

ARCHITECTURAL RECORD. December 1967 89
40 years ago, a few architects recognized the long-range economy of stainless.
Today, it's specified for common roofing and flashing.

The high strength-to-weight ratio of stainless allows lighter, more economical gages to replace heavier, more expensive (and less available) gages of copper in most roofing and flashing specifications.

Now Republic offers this surprisingly economical material in two tempers: a roofing grade type 304, and a new strong, yet easy-to-work, stainless flashing grade, Republic DUROFLASH®.

New Republic DUROFLASH®, a soft stainless.
Soft stainless means just that. A workable stainless that can be soldered, welded, brazed, nailed, riveted... even cut with scissors and formed by hand, on the job.

But this flashing grade stainless is no softie. It has the same durability and corrosion resistance you expect from stainless. Plus a maximum yield strength of 35,000 psi.

Leading architects have already accepted Republic Soft Stainless. On the 41-story Federal Office Building at Foley Square in New York City, more than 55 tons of stainless steel were used for spandrel and through-the-wall flashing. Republic Stainless was also used extensively in the complete new roof installed on the Birmingham, Alabama, Civic Auditorium.

Our first stainless installation was also in New York. The roof of the Chrysler Building. It's still visually bright and virtually unimpaired despite nearly 40 years of corrosive city living.

Designing and Specifying Stainless Steel in Built-up Roof and Moisture Protection Systems.
Everything we know about stainless steel in roofing systems we put down in a new booklet which is yours for the asking. It contains complete specifications and details plus tables comparing the properties of roofing and flashing metals.

And we'll include a sample of Republic DUROFLASH which will tell you more than we can about the workability of this new soft stainless.

This table illustrates the recommended applications of regular Republic 304 grade stainless, and new Republic DUROFLASH, the soft stainless.

| Stainless Steel Types, Gages, Finishes, and Tempers FOR ROOF AND FLASHING SYSTEMS |
|-------------------------------------------------|---------------------------------------------------------------|
| Use                                             | Product Description and Finish                                |
| Exposed Flashing                                | Where a semibright reflective treatment is desired...        |
| Roof Trim                                       | Specify temper rolled AISI type 304 No. 2 (strip) or No. 2B (sheet) conventional annealed finish |
| Roofing                                         | -- OR --                                                     |
| Roof Drainage Accessories                      | Specify temper rolled AISI type 304 No. 2 rough rolled (Republic No. 2 RSK) conventional annealed finish. |
| Expansion Joint Covers                          | Specify cold rolled (65 to 80,000 psi yield strength) AISI type 304 No. 2 (strip) or No. 2B (sheet) conventional annealed finish... appearance — semibright |
| Roof Drainage                                   | Specify soft temper (dead-soft or fully annealed) AISI type 304 No. 1 (strip) or No. 2D (sheet) conventional annealed finish... (Republic DUROFLASH) appearance — matte |

Let Republic Steel help you in the selection of the stainless steel type, gage, finish and temper for your specific roofing job. Contact your nearest Republic Steel sales office for a sample of new Republic DUROFLASH, and the complete booklet, “Designing and Specifying Stainless Steel in Built-up Roof and Moisture Protection Systems,” Adv. 1820, or write to Republic Steel Corporation, Dept. AR-4875, 1441 Republic Building, Cleveland, Ohio 44101.

IN STAINLESS, TOO. You Can Take the Pulse of Progress at:

REPUBLIC STEEL
Cleveland, Ohio 44101

For more data, circle 51 on inquiry card
After daylight comes K-Lite.
(There's nothing in between. Quality-wise, that is.)

In fact, K-Lite puts artificial light far ahead of nature's best in many ways.

Today's lamps and fixtures easily provide enough light. The critical problem is converting high intensities into effective task and space illumination.

K-LITE PRISMATIC PANELS DO IT BEST. AND WE CAN PROVE IT.

That's why most major manufacturers of lighting equipment use K-Lite panels.

KSH also produces custom lenses in all shapes and sizes to fit all kinds of fixtures...recess, surface, suspended, etc.

The odds are that any fixture you specify will come with KSH panels.
But it's best to make sure. So with your fixture specs...specify that you want plastic lenses by KSH.
Then you'll know for sure you're getting the best.

KSH is the world's largest specialist in the field of embossed prismatic lighting panels.

For more data, circle 52 on inquiry card
The architect's creative role can be preserved against the encumbrances of burgeoning technology—by making use of that technology. Many architects are already using an array of devices with names that would have frightened them a decade ago: computers, data plotters, microfiche, network planning, a host of information storage, retrieval and production systems. They have one objective in common: support—not substitution—for the architect's primary design function. Professor Wheeler takes an architect's hard look at what's here today, standing in the wings.

The leading architects in the next five or ten years will be those who not only continue to practice architecture with great competence and sensitivity, but who, in addition, adopt advanced techniques and equipment that have already become important in industry, business, and many other professions. New techniques using combinations of photographic and other production devices (microfilm, xerography, offset, etc.) will be linked to computerized systems of storage and retrieval. Electronic reproduction and analysis systems (such as data plotters, light pencils ting on cathode ray tubes, and other computerized graphics systems) will enter directly into the mechanics of the sign process. Therefore, the designer will have more time to think; he will have capabilities to make value judgments; and he will be able to approach designs with greater confidence.

Microfilming, microfiche, and aperture cards for filing all project and business records not only will eliminate excessive paper in the office, but more important, will make it possible to retrieve the information wanted—when it is wanted. There will be compact microfilm readers (Fig. 1) and reader-printers (Fig. 2) throughout the office that will make it possible not only to read any document, scan the document, and enlarge elements of it, but also to print it at will. The microfilm projection and worktable (Fig. 3) developed by the Scan system will make possible checking and studying drawings and making quantity take-offs in both sub-contractors' and architects' offices. In short, microfilm will permit the convenient printing and reproduction of architectural documents in any shape or form, will reduce storage space, and speed up retrieval.

The large-size blueprints of today will become small, pocket-size prints by means of photo reduction and low-cost offset printing techniques. The photo reduction of drawings will make it possible for designers to make freehand details on grid paper. In the photo process the grid can be dropped out leaving the image sharp, clean, and in scale, thus eliminating tracing and redrawing which is time-consuming and subject to error. Such reduced-scale details, which can look as good as precision-drawn details, will trigger many new techniques for greater efficiency in the preparation of construction documents. Drafting retrieval through use of indexed aperture cards will permit the designer to refer readily to his past tried and proven designs and details, and in many cases reuse them.

Product literature, technical information, photographs and perspectives can be mounted on documents and drawings and reproduced to create a single document—thus adding to convenience and reliability and eliminating a great deal of tracing and checking.

The various photographic technologies will make possible new developments in booklets, brochures, and bound documents. Drawings and specifications will be coordinated into booklets—well organized to permit cross-referencing. And new binding and printing methods will encourage better multi-color construction documents.

Data processing equipment on line for architects

Simultaneously with the application of the photographic sciences will come increased application of data processing (Fig. 4). The entire business-keeping system can be computerized from the recording of "time and costs" to the preparation of payroll and billing for services. Data processing will include the high-speed printing of specifications. Several types of master specifications will be stored on magnetic tapes and printed on line printers which are electronically operated (Fig. 5).

Even secretarial and routine work of
a practice can be accomplished by using magnetic tape electric typewriters. These typewriters operate automatically from information stored on magnetic tape cartridges. The secretary is able to stop tapes, add material, erase material and continue on automatically error-free.

On standard documents, only items changed will need to be proof-read and checked. Architectural firms will find that the magnetic tapes will expedite and change will need to be proof-read and make more reliable the various written material, outline specifications, and other practice documents which fall into patterns of similarity, but which vary in detail. Several office-type computers, now being used by many architect-engineer offices, will become a vital tool in building design and planning.

Computers will be used by designers, planners, specification writers, business managers and engineers. Small general practices, and specialized practices that are not quite large enough to have their own automated equipment, will be tied into architectural service centers. The small practices will be able to secure high-speed specification services, in time-sharing basis while still in their own offices.

The digital data plotter (Fig. 7) will produce drawings—plans, elevations, and perspectives—automatically. Although the art of laying out perspective drawings will probably never be lost, very few of these drawings will be "hand-made," because technology has produced two automatic perspective machines. The digital data plotter (Fig. 7) will make perspectives at any angle. Using the same basic, record information, additional perspectives from different vantage-points can be made inexpensively. Cost would be about $160 for the first layout and $50 for each additional layout. The Illustromat, (Fig. 8) a perspective layout machine driven by an analog computer, will probably be used extensively to make perspectives. Many architectural firms and delineators are now using the machine on a hourly basis. Its accuracy in making perspective of multi-curved building exteriors or interiors is uncanny. One of its most effective uses could be in checking interference in space for ducts, piping and architectural features.

Also located in the architectural service center will be a central information bank, which will consist of a microfilm library of technical data and product literature. This system, in one form, is the research laboratories at Penn State University, which has key punches, a digitizer, a microfilm projection table, and cathode ray tube calculators. The practice will have a telephone communications tie-line which is connected with a high-speed computer system and all of its auxiliary equipment. This communications system (Fig. 6) will make it possible for designers and managers to use the computer facilities on a time-sharing basis while still in their own offices.

Designers in practice will use a building plan digitizer. Also known as the X-Y coordinatograph, it will permit the designer to take off drawing data on areas, volumes, equipment, and materials and store it in a memory bank for subsequent investigation and use. The equipment, consisting of the automatic drafting machine digital computer, and card punch, facilitates quantity take-offs for cost analysis, estimating, and product analysis.

Another item of equipment in the computer center will be the data-plotter which will produce drawings—plans, elevations, and perspectives—automatically. Although the art of laying out perspective drawings will probably never be lost, very few of these drawings will be "hand-made," because technology has produced two automatic perspective machines. The digital data plotter (Fig. 7) will make perspectives at any angle. Using the same basic, record information, additional perspectives from different vantage-points can be made inexpensively. Cost would be about $160 for the first layout and $50 for each additional layout. The Illustromat, (Fig. 8) a perspective layout machine driven by an analog computer, will probably be used extensively to make perspectives. Many architectural firms and delineators are now using the machine on an hourly basis. Its accuracy in making perspective of multi-curved building exteriors or interiors is uncanny. One of its most effective uses could be in checking interference in space for ducts, piping and architectural features.

The fact is that some offices are ready using many techniques described here. Of course, architecture will always be "the practice of an art"—a concept; art; automation will simply assist the designer and planner, so that architects will be "the practice of an art which uses scientific techniques and business-methods."

Mr. Wheeler is Associate Professor of Architectural Engineering at The Pennsylvania State University.
you see so much more in carpeting when you call in Berven of California

Looking for carpeting combining interesting rustic texture with colorations ranging from sedate earth-tones to mardi gras? You might check out Berven's most practical hand-loomed Reversible Chenille, offering you the added feature of carpet custom-tailored to your exact room dimensions. Reversible Chenille, in turn, is but one of 10 basic lines manufactured or distributed by Berven Of California to offer you one of the widest selections of carpeting qualities and services in the Nation. And behind all this is a sure sense of textural styling and colors that spring from a most knowledgeable Custom Carpet heritage. Wouldn't it sound like we might be of service? We'd like to try.

For more data, circle 53 on inquiry card
When your client confronts you with a tough walk-in cooler or walk-in freezer problem, come to Bally...

Chances are we already have the answer...

It comes from thousands of Bally prefab Walk-In Coolers and Freezers already in use. Installed in schools, hospitals, hotels and motels, food stores, bakeries, dairies, research laboratories... wherever the finest in refrigeration is required. Each time, the answers to problems come more easily because we keep perfecting our techniques and our product.

So ask us. No matter how difficult the problem. Ask us for details about handling every type of food... and special materials including drugs, blood plasma, epoxys, film, chemicals. Ask us about relative insulation efficiencies... how to plan special sizes or layouts... shelving... special doors or display windows. The answers come from our experience.

Answers from Bally are answers from the leader in the industry. The company that developed the use of 4-inch self-extinguishing urethane foam insulation equal to 8-1/2" of fiberglass; the inventor of self-closing magnetically sealed doors; the company who designed the patented Speed-Lok that makes installation easy... makes it easy to add sections for size increase... equally easy to disassemble and relocate.

Our Engineering Department will be happy to work with you. For more information, send for free Architect's Fact File which includes a 32-page catalog and a sample of urethane.

See our catalog in Sweet's Architectural File, No. 23a/BaL.

Bally Case and Cooler, Inc.
Bally, Pennsylvania 19503

For more data, circle 54 on inquiry card
Add Krueger Tables and Seating Comfort to your menu

... and talk about taste in seating

Discerning restaurant managers know customer comfort is just as important as fine cuisine. That's why Krueger's new Pedestal Base Tables and 504 Stack Chairs are seen in discriminating restaurants. Here is elegant comfort, combined with lasting durability, promising years of impressive service. Serve your customers a generous helping of Krueger comfort—it just could become the specialty of the house.

130 Series brass base and column, marble laminate top. Choose from over 160 base/top combinations.

150 Series Base with Black accented chrome.

Heavy-duty 110 Series Base that defies tipping.

120 Series chrome column—black porcelain base

VISIT OUR SHOWROOMS...

Chicago—1184 Merchandise Mart
Los Angeles—8615 Beverly Boulevard

For more data, circle 61 on inquiry card

The best food processing fixtures made come from Wheeler.

Wheeler Clean Lite II is the ideal fixture wherever food is processed or served. In 4' and 8' lengths with 1 or 2 power groove lamps. Only fixture of its type that uses 1500 MA lamps and can be surface mounted. Unique can latch suspension for positive, stress-free support of straight, modern pan. Non-porous, closed cell gasketing surrounds housing...provides moisture and dust resistance. Continuous, smooth-welded seams. Clean, shadow-free bottom shielding. Available in clear or white acrylic plastic. For information write E. Quin-tilliani, General Sales Manager, Wheeler Reflector Co., Inc., Hanson, Mass.

Designed by Paul Lamson Illuminating Engineer

For more data, circle 61 on inquiry card

Where you used to call for "toggle switches"

Specify MARK-TIME WALL BOX TIME SWITCHES

More comfort and convenience —savings on electricity—for all your clients

Turn "OFF" lights, electric heaters, fans—automatically. For motels, homes, schools, all public buildings. Timings available from 60 seconds up to 12 hours. The only time switches that mount flush against wall...use 2-wire installation...offer a wide choice of wall plates. Send for free brochure.

M.H. RHODES, INC.

HARTFORD, CONNECTICUT 06101

IN CANADA—M. H. RHODES (CANADA) LTD., OTTAWA 5, ONTARIO

For more data, circle 62 on inquiry card
Secretaries love this file. It's the strong, silent type.

File drawers opening and closing all day make a lot of noise. Enough to drive a girl to aspirin.
So we designed our file with drawers that just won't slam or screech.
Another nice thing about our file drawers. They pull out all the way. The "zebra" folder is as easy to remove as the one on "aardvark".
There's nothing tinny or weak about our file, either. It's built to take on big loads without getting out of alignment. You know what happens when files lose their alignment. They get stuck.
Our "500" file has a clean, beautiful face. Easy on the eyes. No drawer pulls that stick out like sc rungs. And your clients don't need a magnifying glass to read the labels.
In two, three, four and five drawer units. Letter and legal size. In gray, black and beige finishes.
Art Metal furniture looks beautiful and works beautifully—a solid investment for management.
We'll be happy to send you a brochure on "500" files, and tell you where they can be seen. Write today.
You'll hear from us, posthaste.
The best mercury fixtures made come from Wheeler.

Single lamp High Bay Mercury fixture with integral ballast. Space-age styled with baked-grey enamel finish on die-cast aluminum body. Alzak-finished reflector (or porcelain enamel). Constant-wattage ballast. For 400 or 1000 watt single lamps. (Also available in double lamp model).

For information write E. Quintiliani, General Sales Manager, Wheeler Reflector Co., Inc., Hanson, Mass.

Designed by Paul Lamson
Illuminating Engineer

For more data, circle 65 on inquiry card

Oxford Fact-Packed Data and the Oxford Carpet Counselor

Designed to help you specify contract carpeting

Woven Sample Color Charts ... Performance and Quality Control Test Data ... Specification Sheets ... Construction Details ... everything you need ... even special color strike-offs in 48 hours or less

Esthetically and beyond, when it comes to technical excellence. Oxford commercial carpets are second to none ... plus Oxford's unmatched personal service. Oxford presents its products in a straightforward manner with complete data specifically prepared to assist architects, commercial interior designers, contract buyers and owners. Reference materials include test data and information on flame spread, construction, backing and acoustics. Color strike-offs to your exact requirements, if desired. There's an Oxford carpet counselor nearby who's eager to work with you. He really gets things done, quicker.

Your reference library needs Oxford's commercial carpet data. Write for it today. Let us know when you want our representative to call. No obligation, of course.

OXFORD MILLS, INCORPORATED
WARE, MASSACHUSETTS 01082

For more data, circle 66 on inquiry card

PRECAST CONCRETE EXTERIOR UNITS
A 24-page descriptive color booklet showing graphic examples and design tips.

“CR-85 SERIES®” CHEMCOMP
An 8-page engineering-application description of this revolutionary new crack-resistant concrete.

CUSTOM COLOR MASONRY CEMENT
"Imaginative masonry" using custom color masonry cement. 8 pages of description and wall design considerations.

WRITE FOR ALL THREE!

MEDUSA PORTLAND CEMENT COMPANY
P.O. Box 5668, Cleveland, Ohio 44101

For more data, circle 66 on inquiry card
new weatherstripped steel windows
solve rain, wind and rust problems

High-performance steel windows by Ceco (check the features)
✓ Weatherstripped ventilators
✓ Built-in pressure-equalizing features
✓ "Cecoclad" in colored polyvinyl chloride
✓ Furnished with snap-on glazing beads

Weatherstripping and pressure-equalization features afford superior resistance to air infiltration and prevent water leakage (even under simulated 8"-per-hour rainfall with 90 mph wind pressure). Add to this a 6 to 8 mil color-cladding of polyvinyl chloride and you have a truly high-performance Ceco steel window.

Design makes the difference...
Cecoclad Weatherstripped H-P Steel Windows permit outside weather pressures to enter into the internal chamber of the window through planned openings (a) behind baffle (b). This creates pressure inside the chamber essentially equal to the outside pressure. Specially designed closed-cell foamed vinyl weatherstripping (c) seals the inside surface of the chamber. Rain is blocked by the baffle along with outside weatherstripped contact surfaces (d). The baffle and contact surfaces are effective because there is no pressure differential to draw quantities of water into the chamber. Small amounts of water that enter with the weather collect at the bottom of the chamber and drain off freely to the outside.

The Ceco Corporation, 5601 West 26th Street, Chicago, Illinois 60650.
Please send copy of Bulletin 1108 entitled "Cecoclad Weatherstripped Steel Windows... Pressure equalized for high performance."

Name
Company
Address
City State Zip

CECOCLAD STEEL WINDOWS
For more data, circle 67 on inquiry card
With no very great evidence, to be sure, but with much conviction I will argue that the American polity—both the experience and the awareness of community and shared conviction—has been impaired, has atrophied in our time because of the retreat from architecture and public buildings as a conscious element of public policy and a purposeful instrument of the expression of public purposes.

The concept of private affluence and public squalor in the United States is a familiar one, and correct as far as it goes. But save for a rare person such as John Kenneth Galbraith, it infrequently extends to the notion that public squalor includes the penury and squalor of public building and city planning. Indeed the very persons who will be the first to demand increased expenditures or one or another forms of social welfare, will be the last to concede that the common good requires an uncommon standard of taste and expenditure for the physical appointments of government and of the public places of the city. Even the most vocal in support of government support for the arts will resist, even eject, the manifest fact that architecture and urban planning are the two arts in which government must be involved.

This is not a matter of oversight, but of widely held conviction; and it has been more manifest than in recent months when, in response to new public demand for greater amenity in city life, the more enlightened Federal and city political leaders are trying to establish a higher standard of design for public projects. They have just begun, as Daniel Patrick Moynihan points out on this page*, but it is an encouraging beginning as the work on the following pages will show. Most encouraging—this focus on quality is not limited to buildings normally conceived as civic monuments, but includes a broad range of projects of civic consequence.

After a long lapse, in response to new public demand for greater amenity in city life, the more enlightened Federal and city political leaders are trying to establish a higher standard of design for public projects. They have just begun, as Daniel Patrick Moynihan points out on this page*, but it is an encouraging beginning as the work on the following pages will show. Most encouraging—this focus on quality is not limited to buildings normally conceived as civic monuments, but includes a broad range of projects of civic consequence.

The result has been a steady deterioration in the quality of public buildings and spaces, and with it a decline in the symbols of public unity and common purpose with which the citizen can identify, of which he can be proud, and by which he can know what he shares with his fellow citizens.

In our time, the fear of taxpayer resentment of the costs of excellence in public buildings has been compounded with an almost ideological alarm at the implications of modern design. When President Kennedy took office in Washington, for example, it had been very near to half a century since the Federal government had constructed in Washington a building that was contemporary to its time, and the House of Representatives was soon to begin the Rayburn Building, perhaps the most alarming and unavoidable sign of the declining vitality of American government that we have yet witnessed. And this is the point: good or bad architecture is not an option. It is a fundamental sign of the competence of government.

I believe this is beginning to be seen. It is a matter of significance, I feel, that mayors such as John Lindsay and John Collins, governors such as Nelson Rockefeller, and both Presidents Kennedy and Johnson have been actively concerned with the quality of the public buildings by which—like it or not—posterity is likely to recall their administrations. But the subject is still far too little insisted upon by those who realize its import. If we are to save our cities, and restore to American public life the sense of shared experience, trust, and common purpose that seem to be draining out of it, the quality of public design has got to be made a public issue because it is a political fact. The retreat from magnificence, to use a phrase of Evelyn Waugh's, has gone on long enough. Magnificence does not mean monumentality. That seems to be a point to be stressed. I have heard Saul Steinberg quoted as saying that the government buildings of Washington seem designed to make private citizens realize how unimportant they are, and there is much to what he says. But that seems to me simply to define the special requirements of this age of enormity: to create a public architecture of intimacy, one that brings people together in an experience of confidence and trust. The city beautiful is as valid a concept today as it was when George Washington and Thomas Jefferson established it as an American principle almost two centuries ago. It is not a concept to be traded in for anyone's notion of private gain or social welfare. It is not an efflorescence of elite estheticism, it is the bone and muscle of democracy, and I repeat that we begin insisting on it.

At a time when there is so much that is brutal, we risk nothing less than our humanity if we fail to do so. The task of this less than all-powerful nation is to show to the world and to ourselves that, sensing our limitations, we know also our strengths, and that we will husband and develop those strengths. The surest sign of whether we have done this will reside in the buildings and public places which we shall build in our time, and for which we shall be remembered or forgotten in history.

*Excerpted by permission from a paper “Architecture in a Time of Trouble”, copyright 1967 by Daniel Patrick Moynihan, presented by Professor Moynihan at the Harvard Graduate School of Design Alumni Dinner held in New York City last month. Mr. Moynihan, now Director of the Joint Center for Urban Studies of M.I.T. and Harvard, helped implement the new Federal demand for “designs which embody the finest contemporary American architectural thought” as a member of the President's Council on Pennsylvania Avenue established by John F. Kennedy.
A sewage treatment plant designed to enhance a riverfront
architect Philip Johnson was recently invited by New York's Mayor John V. Lindsay to redesign the North River Water Control Project, a "short-period-activated-sludge-type sewage treatment plant." Johnson has described the project as follows: "The problem facing our firm was not only to preserve all of the necessary facilities for the project, but totally to recreate the visual aspects so that it could become a major esthetic monument on the waterfront as well.

"The main theme of the redesign is the creation of some 15 acres of water displays. An upper area of four acres is a comparatively quiet pool. This pool has sculptural shapes penetrating it, which not only house various functional requirements of the plant, but make a gigantic sculpture garden. The lower part comprises 11 acres of aeration nozzles forming a continuous shimmering haze of droplets of water. The major effect is a group of four 200-foot water jets. The changing effect of such a display lighted at night and blown about in the wind during the day can be one of the great attractions of the New York scene.

"During the course of our investigations we came across, however, a serious consideration from the point of view of city planning. Our new facility is, generally speaking, at the same level as the Henry Hudson Parkway and at the same level as Riverside Drive. It occurred to us that this land, some 15 acres in extent, which lies between Riverside Drive and our facility should be used by the city as a park and playground for the citizens of Harlem and Upper Manhattan. The express tracks of the New York Central could be covered as well as the highway. In this way the level of Riverside Drive would extend down a gentle green slope to the edge of our great fountain."

The existing site (above) lacks any civic amenity. The larger of the two model photographs shows the total project, including the parkland proposed by Johnson, designed as a platform bridging across the highway and New York Central tracks. The smaller photograph shows the new facility without the additional parkland. Owner of the project is the N.Y.C. Department of Public Works.

© Louis Checkman
An addition to the Boston Public Library

Architect Philip Johnson's major addition to McKim, Mead & White's great library on Copley Square, completed in 1895, located behind the existing building, will not disturb the handsome Renaissance facade which faces northeast toward the square, but will be clearly visible to the northwest on the Boylston Street side (below).

Although architect Johnson has yet to publicly reveal the plans and sections for this new wing, it is possible to speculate upon its interior arrangements by examining the exterior evidence shown in the model photograph and roof plan.

The roof plan (above) defines the boundaries of the site. The main facade of the Boston Public Library which faces Copley Square is shown on the left-hand side of the drawing. The remaining three sides are bordered by streets. The new addition has approximately the same perimeter as its neighbor but since it lacks the interior courtyard of the latter it will provide a much greater volume of space.
and relating it to the interior space of the famous Boston landmark. The Boston Public Library, like many other fine libraries, has its main reading rooms on the top floor contained within great vertical spaces directly under the roof. Beyond the reach of the highest bookshelves are rows of immense windows. Below the reading room floor and connected to it by a grand staircase is the entrance level which contains smaller spaces under a proportionately lower ceiling. The building surrounds a courtyard with a beautifully scaled Renaissance loggia used as an outdoor reading space. Although it is too early to see, Johnson may have created a secondary entrance to the new addition from this courtyard.

The new building, as its facade indicates, reverses the order of the older structure. The great high-ceilinged space is on the entrance level, and offices, workspaces and additional stack areas appear to occupy the top floors. Huge glass-filled lunettes and broad horizontal expanses of window located above the shelves will flood the principal space with light. Narrow strips of windows located in the recessed horizontal bands above the lunettes reveal the location of perimeter offices. The deep masonry band beneath the sloping roof apparently encloses stack areas.

In reversing the order of interior space, Johnson maintains alignments with the essential horizontal divisions of the adjoining Renaissance facade, but in his bold handling of the massive masonry elements of the new building he makes no concession to its more delicately scaled neighbor.

A new art gallery for the Capitol Mall, Washington, D.C.
The Joseph H. Hirshhorn Museum and sculpture Garden, designed by Gordon Bunshaft of Skidmore Owings & Merrill, for the Public Buildings Service of the General Services Administration, has been conceived as part of a great north-south cross axis for the east-west oriented Mall. Parallel to the magnificent cross axis to the east, which is formed by the White House, a slightly non-aligned Washington Monument and the Jefferson Memorial, the axis now clarified by Bunshaft's design was first established by Daniel Burnham, Charles McKim, Augustus St. Gaudens and Frederick Law Olmstead, Jr., creators of the McMillan Plan of 1901. The latter plan, named after the chairman of the Senate Committee for the District of Columbia, James McMillan, was the first important design for the development of Washington since 1791, the year L'Enfant established the city's axial streets and radial avenues.

The McMillan scheme influenced the location of the three major buildings on the northern edge of the Mall to which Bunshaft has symmetrically related the proposed Hirshhorn Gallery. Directly on axis and shown at the top of the model photograph is the National Archives building designed by James Russell Pope and built in 1935. To the east is the National Gallery also by Pope and constructed in 1941. Only an edge is shown in the model. On the west, but not included in the photograph is the Natural History Museum of 1910. All three are major eclectic monuments in the neo-classic style.

Bunshaft has enclosed three levels of gallery space within a cylindrical form for which the rectilinear neo-classic structures become a foil. Subtly assymetric in plan, each of the three circles which form the doughnut shape and the

The sketch at left shows the side of the 60-foot-high marble-covered cylindrical bearing wall which faces the Mall. The balcony located on the second gallery floor opens upon an axial vista which is terminated by the National Archives building to the north of the Mall, as shown in the model photograph at right. The Smithsonian Arts and Industries building lies to the west of the proposed structure as can be seen in the lower left-hand corner of the photograph, and the new National Air and Space Museum will occupy the adjacent block to the east.
CIVIC ARCHITECTURE

A circular pool within it, has a different center. The eccentric radii create gallery spaces of varying size. The building is far bigger than the model suggests. Frank Lloyd Wright's Guggenheim Museum would fit in the hole. The circular form is raised 15 feet above the plaza level by four great piers. The walls which are to be covered with marble are load bearing and reach a height of 60 feet. Below the plaza level there will be additional gallery space and a restaurant overlooking a reflecting pool and sculpture garden.

The 80-foot-wide pool spans the Mall for 500 feet. Since eventually all cars will be removed from the Mall and circulation will be by means of minibus streets within the Mall will no longer be major circulation elements. Bunshaft scheme, therefore, calls for the removal of two segments of parallel east-west avenues to accommodate the pool and its surrounding lawns. Free-standing sculpture from the Hirshhorn collection will be exhibited on the wide terraces on either side of the pool. Pool and terrace will be 7 feet lower than grade to place them at the restaurant level, and to preserve the Capitol, Washington Monument and Lincoln Memorial vista.

The sketch at the right reveals the coffered concrete underside of the cylinder. Plans show the glass enclosed entrance facing Independence Avenue at the southern edge of the Mall, a typical gallery floor, and storage for 5,000 paintings and library space on the top floor. Corridors are lit by large windows which afford a view of the courtyard. Galleries are lit by artificial illumination only since it has been found that natural illumination ages paintings five times more rapidly than incandescent. The building is larger than it appears: the diameter of the exterior circle is 235 feet, and the circle which defines the court is 115 feet.
Another plaza for sculpture has been proposed for the south forecourt of the National Archives building, directly beyond the reflecting pool. Visible in the model, it is not included in the Hirshhorn plan. Under study by the San Francisco office of SOM, it will exhibit works of sculpture from the National Gallery and the Natural History Museum on a terrace which will enclose a 980-car parking garage. Originally conceived in the Report of the President's Council on Pennsylvania Avenue, this plaza will be an additional reinforcement of the cross axis.

President Johnson has authorized a $15-million appropriation for the planning and construction of the building, pools, plaza and gardens. Originally scheduled for completion in 1970, Congress has not yet appropriated the funds. The museum will be devoted exclusively to the Hirshhorn collection and will be administered by the Smithsonian.

An air rights structure for the Department of Labor

The site plan above embodies the proposals of the Council on Pennsylvania Avenue which are not yet implemented. Constitution Avenue is shown intersecting with Pennsylvania Avenue by means of an underpass, and Louisiana Avenue extends across the Mall in a big curve. Note the proposed reflecting pool over the freeway tunnel. The drawing at left shows the facade of the Labor building which faces the Capitol. The perspective at right shows the main entrance facade facing the north side of the Mall.
This major new Federal office building is the most ambitious air rights project developed to date by the General Services Administration Public Buildings Service and marks the first joint venture between the GSA and the District of Columbia government on a project of this magnitude. Karel Yasko, special assistant to the Commissioner of the Public Building Service, describes the GSA’s new approach: “Although we set up these air rights projects deliberately—but for the timely freeway construction, we might have had a difficult time getting them started, at least with Congress. Who associates GSA with urban problems? But we believe that the Federal government should create a body of experience in the design of air rights buildings which can be made available to the country at large. This experience should serve as an encouragement to urban communities which are slashing highways through the hearts of their towns, to explore solutions by which these necessary roads can be better accommodated. While we did not search for varied types of air-rights problems, we grabbed them as they appeared. The first was the Labor building . . .”

Spanning the Center Leg Freeway
The Labor building, which will tunnel under the Mall, occupies an important site immediately to the northwest of the Capitol. The building will house the ventilation system for a large portion of the expressway tunnel.

The location of the Labor building lessens the noise and obscures the view of traffic entering the Mall tunnel.

The building's designers have successfully achieved an architectural expression in line with a general directive of the National Capital Planning Commission: "Federal buildings housing ordinary administrative offices should not be given a monumental treatment. The

Work space is provided for 6,000 employees, with underground parking for more than 900 cars. In addition there is a museum, a library and a cafeteria. The building spans eight lanes of traffic by means of deep steel plate girders which form two clear spans of 70 feet each. The space between the girders provides for functions normally placed in the basement. This service space creates a buffer zone against the noise and vibration of the expressway. A pair of tunnel exhaust ducts can be seen in the section. The drawing at the right shows the approach designed for visitor automobiles.
does not mean that they should be dull and anonymous—they should be among the best in their class—but their design and siting should respond mainly to the restraints of function and environment."

UNITED STATES DEPARTMENT OF LABOR FEDERAL OFFICE BUILDING, Washington, D.C.

A Federal office building designed to span a freeway
This proposed structure designed by Marcel Breuer and Herbert Beckhard, spans the Center Leg Freeway at a point directly across the Mall from the Labor Department building shown on the preceding pages. It performs the similar function of supplying and exhausting air for the freeway tunnel under the Mall. A large portion of the underground areas of the site are occupied by the freeway system. This area is augmented by a rather large sewer trunk which will run alongside the roadway. Large supply and exhaust ducts must be run from the freeway tunnel to a large mechanical equipment room within the building. From this point vertical shafts, at least 60 feet high will be constructed to dissipate the fumes exhausted from the freeway. Therefore the building had to be designed to accommodate these sizable exhaust ducts. Complicating the design problem further is the fact that the freeway will pass under the building diagonally, instead of axially as it does under the Labor Department building across the Mall.

It became apparent to the architects early in the design stage that there weren't too many locations through
The office spaces of the building are based upon a 5-foot-square module with the office space contained therein completely flexible, each module having its own source of air conditioning, heating and lighting. As a result, the flexible partitioning system permits relocation of partitions without adjustment to the mechanical or lighting systems.

The floor construction will be cellular steel deck.

The penthouse level of the building will be occupied by mechanical spaces for the building and by the employees' cafeteria. The cafeteria will command a view of the surrounding cityscape.

The entrance level in addition to containing the main lobby, is flexibly planned to permit the construction of such large spaces as a library, meeting rooms, and lecture halls. Diagonal elements shown at the basement level are exhaust and supply ducts for the freeway. These connect to vertical shafts which are elliptical in shape for acoustic reasons.
which column loads could be carried to the ground. They decided to use a limited number of large, widely spaced columns. These extend from their footings below the highway level to the penthouse roof and support deep trusses which establish the floor to ceiling height of the penthouse. The edges of these trusses slope 45 degrees and can be seen in the sections (opposite page).

The trusses in turn carry vertical trusses which support six office floors. Thus the structural system of the office floors is independent of the structural system of the three levels of parking, the truck service area and mechanical equipment spaces which occupy the available space below the plaza. It was possible to establish a separate column system for the parking garage based upon auto parking modules. Wind bracing is accomplished by the two main cores—the one containing passenger elevators, and the other incorporating exhaust ducts and service elevators. The 45-degree slope of the end members of the trusses is in accord with the setback requirements for buildings in this zone.

The plan itself is rectangular with two large interior light wells which provide a proportion of space with exterior windows to interior space which is generally considered desirable by the client. One of the light wells terminates in a completely enclosed inner court, while the other is a vertical extension of the open plaza as shown in the drawing on this page. It is possible to drive onto this plaza from Independence Avenue to drop off and pick up people by car.

Completing the Federal Triangle: a problem of style

The buildings shown in black on the plot plan below are Warnecke's proposed additions to the Federal Triangle, a vast neo-classic complex which was begun in 1928 and brought to its present incomplete state in 1938. The great crescents combine to form the Post Office Department. The rectangular car-filled plaza is enclosed to the west and south by the Department of Commerce and the Labor Department respectively. The new scheme will put the cars beneath the plaza and landscape its surface. The circular plaza will be completed, north-south streets will be tunneled underground and an underground bus terminal will be added.
Architect John Carl Warnecke's Federal Triangle feasibility study, prepared for the General Services Administration Public Buildings Service, is a fascinating exercise in architectural esthetics. The problem for which Warnecke's answers were sought is composed of several parts. First—how to add over half a million square feet of office space to the Internal Revenue Service building, a great neo-classic pile built during the first five years of the Depression. This building is part of an incomplete circular plaza formed by the elegant neo-classic facade of Delano & Aldrich's Post Office Department constructed in 1934 (see top photo opposite). Second—how to provide a setting for the famous spire, all that is to remain of the Old Post Office and Clock Tower built in 1897 (see middle photo opposite) which although deemed among "landmarks of importance... which should be preserved or restored if possible" by the Joint Committee on Landmarks of the National Capital Planning Commission and the Fine Arts Commission has been declared by the Report of the President's Council on Pennsylvania Avenue to be "chaotic beyond relief... in the midst of a conflicting [neo-classic] composition... it is not advocated that the Old Post Office be preserved as a whole... [only the Tower]". Third—how to design the two major facades of the new, 600-thousand square-foot Post Office building in harmony with the directives of the Pennsylvania Avenue plan. Fourth and last—how to best accommodate the revised street patterns, the new rail transit system, the vast underground parking area and the bus station proposed by the National Capital Planning Commission, and reinforced by the Pennsylvania Avenue plan.

Warnecke's feasibility study shows the drawing (top right) shows the level parking garage under the rectangular plaza and the west facade of the new Post Office building. The 360-foot-high Clock Tower of the Old Post Office building will remain. The drawings below show the completed plan and section taken through its main axis. New elements shown are the new facade of the proposed Post Office building and the neo-classic addition to the northwest of the circular plaza.
four possible facade treatments for the IRS building, but he strongly recommends that the Delano & Aldrich facade, which already comprises three-quarters of the circular plaza, be completed as designed in 1934. He also proposes that the Pennsylvania Avenue extension of the IRS building which replaces the Old Post Office exactly duplicate the neo-classic facade it adjoins. The Clock Tower (shown in the drawing below) will rise from a new podium within a semi-circle which has not yet been studied, but which will be carried out in a neo-classic manner to match adjacent elements.

The drawings above comprise all but three of the elements of the Federal Triangle which form the Pennsylvania Avenue edge. (The Department of Justice, the National Archives and the Federal Trade Commission were not included in this study.) The photograph at left looks toward the rectangular plaza now used as a parking lot. The model photograph at right shows how this plaza will appear when it is free of cars and the new Post Office addition has been added to complete the composition.

The photograph at left shows the Pennsylvania Avenue boundary of the Federal Triangle as it appears today. The model photographs at right show how the Avenue will appear after Warnecke's proposals are carried out. The old Post Office will be demolished save for its tower, and the new addition will be contemporary in style.
Warnecke also produced four solutions for the Post Office building addition, but his feasibility report favors the one shown in the model photographs and drawing (below right). The top photograph and middle drawing show how the building will appear on Pennsylvania Avenue; the bottom photograph shows how it relates to Delano & Aldrich’s other curving facade—the one which faces the large rectangular plaza. Warnecke feels that the new Post Office building addition is sufficiently separate and distinct from the rest of the neo-classic Federal Triangle to justify treating its facades in a contemporary manner. He believes that the column spacing and deep arcades will be particularly successful for the Pennsylvania Avenue side of the Triangle for they will harmonize with the arcaded structures which the Pennsylvania Avenue Plan proposes. Warnecke also believes that the Post Office addition will serve as a bridge relating contemporary structures to the north of the Avenue, with neo-classic structures to the south.

The diagrammatic site plan on page 124 shows that a subway stop will be located within the circular plaza, and that an underground garage for 1,600 cars will be located on two levels under the large rectangular plaza. North-south streets will tunnel underneath the Federal Triangle and an underground bus terminal will be located near the western edge of the site. The National Capital Planning Commission has approved, for budget purposes only, the proposed additions to the Federal Triangle. Work may start in 1968.

The President John F. Kennedy Grave
The noble Kennedy grave site at Arlington National Cemetery, designed by John Carl Warnecke, occupies such an important space in Washington's great axial fabric that its symbolic value is immensely enhanced. The placement of this essentially modest tomb on a gentle grassy slope crowned by the highly visible hill-top portico of Arlington House (Custis-Lee Mansion) at the end of a long axis leading to the Lincoln Memorial, confers upon the late President's grave a civic consequence comparable to that possessed by the Washington and Jefferson as well as the Lincoln memorials.

This is doubtless what the Kennedys intended when they chose the site, and architect Warnecke did not fail them. He has made inspired use of every dramatic, expressive and evocative potential the land provides. The grave is not on axis with the colonnade of the old plantation house, but it is directly centered on the main cemetery gate, Memorial Avenue and the Arlington Memorial Bridge which spans the Potomac River. The climax of the vista is the Lincoln Memorial which turns northward on its own long axis to define the eastern end of the Mall. The Washington Monument, just visible at
the right-hand side of the photograph on the preceding page, and the Capitol Dome define the second major axis to which the grave is obliquely linked.

The photographs below illustrate successive stages in the approach to the tomb. Steps lead to a circular walk which arrives at an elliptical plaza overlooking the great axial vista. From this plaza, a short flight of steps joins a rectangular terrace. The graves of Kennedy and two of his children are marked by tablets of grey slate set within a surface of rough hewn granite slabs quarried from Cape Cod. The round stone which holds the eternal flame was also found on the Cape.

The retaining walls are of granite, and the circular walk and elliptical plaza are also of this material. The steps leading to the grave terrace are of white marble, as is the terrace itself. A large 150-year-old oak tree and two magnolia trees have been planted on either side of the steps leading to the circular walk.

The title of this very special review of Albert Mayer's new book "The Urgent Future" by the leading urban scholar, author and critic reflects his conviction of the critical importance to effective planning for the urban future of that repeated admonition of Mayer. The book, developed from a series of articles "Architecture for Total Community" published in ARCHITECTURAL RECORD in 1964-65, is seen by Mumford—and by the editors—as a major contribution of synthesis and evaluation to the literature of city planning.

During the last thirty years there has been a Vesuvian eruption of books about cities—their nature, their forms, their planning, their deterioration and renewal, their probable future: in fact, more books about the city have been published in the United States alone during this brief period than in the whole previous century.

The results of all this scholarly activity are ironic. The study of urbanism, instead of being a neglected wasteland, has now produced such a heavy crop of information and knowledge that no one has been able to gather in more than a small part of it, still less assimilate it and apply it to the improvement of cities.

In spite of the amount of attention that has been given to the whole process of urbanization, a large number of the people who have been writing about the future of the city do not have the faintest notion of what they are about: or to put it more politely, what they call the city is only a particular sector of the city, or some limited aspect of its growth interpreted in terms of selected economic, social, or architectural processes.

As a result, they miss the two most important features of the historic city: the fact that it brings together within a definable and limited area the largest possible variety of human functions and facilities; and that cities, despite their wide range of size, from two thousand in ancient Mesopotamia or Greece to three or four hundred thousand in Renaissance Italy, always, like any other organism or organic association, exhibit serious lapses in functional efficiency and in cooperative human responses when they pass beyond these limits of growth.

Fortunately, during the past half-dozen years, a handful of important books on city and regional planning have appeared, which should help us to understand the dimensions of our problem and to take the measures necessary to control and direct into new channels the forces that are at work, while establishing more comprehensive and more humane goals than those which now beckon us. Among these books I would place Tunnard and Pushkarev's Man-Made America; Osborn and Whittick's The New Towns; Colin Buchanan's Traffic in Towns; and Edmund Bacon's Design of Cities. All these books are concerned with the city as an organic entity, at once a container and a magnet, a concentrated field for direct human cooperation, expression, communication, and stimulation. This habitat is far too complex, far too subtle in its qualitative aspects, to be handled solely by the abstract formulas, mathematical or sociological: direct observation and personal experience are essential.

These books have much to give to the professional planner and administrator and the architect: but they are too specialized to reach the public that these professions serve. And since active and intimate participation by the community itself is one of the chief requirements for urban and regional improvement on the scale that is now needed, the various positive contributions of these books and other related treatises, such as The Urban Condition, edited by Dr. Leonard Duhl, need to be brought together and focused upon the immediate situation. That difficult feat of selection and unification is one of the many merits of Albert Mayer's new work.

Mayer is peculiarly fitted to perform this act of synthesis. His own concern with the city developed slowly out of a private interest, as a builder of individual New York apartment houses, making miniscule innovations under the municipal and financial conditions that limit success in this field. In his awakening to the inadequacy of such piecemeal improvement and to the need for a more social approach, Mayer's development has been parallel to that of the general public. Mayer is one of the few current writers about the city who, as practicing architect and urban planner, with a basic training in engineering, has had an intimate contact with every variety of planning problem. But it was only after 1930, as he himself confesses, that his sense of public responsibility turned from private philanthropies to the public offices of housing and city design.

Since the Second World War, which brought Mayer into contact both with wide areas in his own country as consultant on war housing, and likewise with...
“Mayer happily sees that our present difficulties are also opportunities; for at last, perhaps they have jarred a whole people sufficiently to make action on a heroic scale possible.

Africa and India, his scope and authority have widened. Nehru brought him to India to look freshly at Indian villages and plan their development: a commission he was intelligent enough to turn into an experiment for improving agricultural practices. Before that, he had worked with Henry Wright and Henry Churchill on the design of Greenbrook, one of the projected Greenbelt communities of the second Roosevelt administration; and in 1950 he was, in association with the brilliant and still-lamented Matthew Nowicki, the first planner of Chandigarh, thus giving to LeCorbusier, who replaced him, his first initiation into the principles of the Radburn plan. Since then, with Clarence Stein as consultant, Mayer became the designer of the new aluminum town, Kitimat, in British Columbia; and he is now designing Maumelle, a New Town of 60,000 people, in Alabama.

Mayer’s long seasoning, his wide experience, his generous eagerness to learn from others and develop further their good ideas give his book still another distinction. Though alert to both technological improvement and fresh human developments, he is too well-grounded to be caught by the latest slogans or Twiggy models: nor does he reject vital ideas because, like the Garden City concept, they were formulated half-a-century ago. The Urgent Future is such a book as only a man ripe in years, yet still full of energy and youthful hope, could write, with no dogmas that need protection, no vanity that calls for petting, no ego that demands inflation. Mayer’s face on the jacket, concentrated, deeply lined, grave, shows that his hopes and his enthusiasm have not been purchased lightly. His does not seek credit for fake “originality” by giving old ideas a new name: rather he appreciates how much excellent work has already been done, both in theory and in many actual planning experiments; and he builds on these valid precedents in projecting the large tasks that now loom before us.

The guiding idea of this book Mayer lays down at the beginning: Trend Is Not Destiny. And this idea itself is almost as important as his discriminating appraisals of past accomplishments in public housing and planning, or his critical exposure of the failures in national policy, as well as in private enterprise, that have already brought our cities so close to ruin. Ever since Patrick Geddes introduced the notion of “survey before planning,” the need for adequate information, both historical and statistical, has become obvious to even the most routine administrators: but unfortunately those who confine themselves to the statistical method have forgotten the lesson of history: the future is never a mechanical extension of the past. Those who assume that a curve extrapolated from past observations must be followed into the future are in effect worshiping the past as if its achievements were immortal and its errors incorrigible.

Public authorities and private corporations that project new plans solely on the basis of existing trends merely follow the line of least resistance: they surrender in advance, on the assumption that opposition is futile, and that whether you have reason to like the result or not, you had better “go along with it.” This is not merely bad planning philosophy: it is bad biology. Even the lowest organisms are able to survive only because they are organized for prompt feedback, which enables them to correct mistakes that would endanger their survival or curb their further development. Instead of waiting for the future to happen, an organism’s whole system is planned, from birth to death, to achieve a future consonant with its own nature; and if this is not forthcoming, the organism escapes, retreats, shrivels, or dies. The advantage of knowing current trends, when they happen to be adverse to human development, is to be able to introduce new factors that will modify, halt, or reverse any particular threatening trend.

Mayer’s repeated admonition, “Trend is not destiny,” should be on the walls of every planning office. If it were taken seriously, most of the silly chatter about Megalopolis as the “new form of the city”—actually the formlessness of the non-city—would abruptly cease. Doxiadis’ inflation of Megalopolis into “Ecumenopolis,” a plane covering urbanoid mass with a terminus of 36 billion people, fortunately carries the notion that the megalopolitan “trend is destiny” to its final pitch of absurdity. If Doxiadis had an acquaintance with previous population statistics, he would have realized how shaky his own picture of present population growth actually is; for during the 1930’s most competent statisticians had indicated that the population of all Western countries except the Netherlands was approaching stability, and might even diminish after 1980. Till 1950 indeed many population experts refuse to believe that the postwar population explosion, which reversed this trend, would continue.

Had Doxiadis understood Mayer he would have realized that even if his statistical data seemed momentarily correct, they would not indicate the necessity for embracing “Ecumenopolis”; however grim the prospects as manifest destiny: they would rather call for massive efforts to control the birth-rate, by many new measures besides those already being tried. If the course were not successful, the desirable pattern of population would not be that of further congestion in continuous conurbations: rather food needs would demand the widest scattering in agricultural villages, with every possible square foot of land devoted to intensive cultivation.

To Mayer’s original statement, the one may accordingly add two corollaries: “The probable is not necessarily inevitable: so don’t panic and blindly submit to probability.” And the second is: “If possible is not impossible.” Therefore plan boldly and imaginatively, in terms of future potentialities, not just past necessities; and never accept any probabilities—final as if you have examined possible alternatives and have made sure the better choices are not—in the long run if not immediately—available. If Mayer’s book did nothing else than to dislodge the notion that past statistics
the only safe grounds for future projections, it would be doing a
slavish job toward reorganizing current practices in urbanization.
I shall not attempt to summarize Mayer's critical exposition of this crisis.
But now everyone has become aware of
through the breakdowns and disor-
organizations and impoverishments that
are becoming commonplace in the rou-

tines of our "great" and "affluent" Ameri-
can cities—the blocked traffic, the
disoned air, the polluted waters, the
imbalance budgets, the shortage of
vital urban benefits, the endless daily
struggles, the crimes, delinquencies,
by short, the creeping human pa-
tion for model cities and strictly mid-

21st-century expansion as an end in itself, as a
s sure further traffic jams: upon architec-
tural giantism as an end in itself, as a
status symbol, with the tendency of all
expanding metropolitan institutions—
the hospitals, the universities, the mu-
seums, no less than big industrial cor-
porations—to monstrous concentration
in one single site: upon the practice of the
speculative private enterpriser, with the
convivance in the past of the FHA, to
converf farm land into random suburban
parcels, emptying out the central city
ally ejected the slum dwellers from their
miserable quarters without rehousing
ally ejected the slum dwellers from their
and spoiling accessible recreation
spaces, while replacing valuable market
gardens and orchards with dreary acres
of asphalt and concrete.

On all these matters Mayer's criti-
cism is helpful because it is also discrimi-
ating. While he rejects single-factor an-
alyses and one-shot remedies, he realizes,
out of his own practical experience, how
difficult it is for the busy planner or ad-
ministrator to make a holistic approach
to what seems, at the moment, a piece-
meal problem, capable of a piecemeal
solution.

But Mayer does not lose sight of the
basic condition for effective city and re-
gional planning: the fact that the land
"is going to have to be considered and
regulated like a public utility and that the policy on land in certain locations
will have to go even further, to embrace
large-scale purchases and continuing
ownership by the government." This—

mii
diatronic contrast to the legali-
ized malfeasance of public funds that took place
under the Urban Renewal Act—is the
indispensable basis for any adequate pro-
gram for urban building and regional de-
velopment, whether under private or
public enterprise, as Ebenezer Howard
recognized in his original specifications
for the Garden City. And if I have any
serious criticism to make of Mayer's pres-
entation of the Urgent Future, it is his
failure to underline this essential condi-
tion as frequently as he has underlined
his thesis that trend is not destiny.

Without his detailed appraisal of
both the real accomplishments and the
rejecting defects of the housing and
planning that has been done during the
last generation, Mayer's program for
action would lack both its clearly defined
goals and the concrete proposals he
makes for achieving them. Because his
emphasis is on action, this work is not
merely an able treatise on contemporary
city planning, but a vital contribution to
the politics of regional development.

The crux of Mayer's work is a series
of interrelated proposals for mastering
those present trends which are inimical
to good urban development, and for
opening up a new period of constructive
city building. This involves four closely
linked measures.

First: the building of new cities of
moderate size, on a large scale, as an
imperative preliminary to any loosening up
of metropolitan congestion and effecting

ARCHITECTURAL RECORD December 1967 133
a genuine urban renewal. Here the brilliant success of the New Towns policy in England, signaled a few years ago by a canny attempt at a financial "take-over" of the oldest of the new towns, Letchworth, serves as a standard both of desirability and practicability, as do parallel developments in Sweden. But the current American belief that such new cities, sufficiently diversified to hold a mixed population with mixed incomes, with jobs near at hand, can be built without heavy government aid, is an illusion: since the most successful of such private enterprises, the Levittowns, are only monotonous suburban housing enclaves, not diversified cities.

Along with this process of urban colonization on a regional scale Mayer proposes the immediate decentralization of overexpanded and over-localized institutions within the metropolis. This has been going on in a spotty, spontaneous way since the 1930's, beginning with the decentralization of the big department stores and banks. But it has still to be planned on a larger scale, and deliberately coordinated by the municipality, in order to abate the counter-tendency to over-centralization and giantism. The multiplying of the number of in-city centers, each with its own complex of factories, offices, shops, and residential developments, would do more to permanently break the traffic paralysis of the big city than all the billions so far recklessly poured into expressways, double-decked streets, subways, and parking garages. This kind of internal decentralization of the big city was suggested in my lengthy criticism of the Plan of London County in 1945; and I am happy to find that Mayer makes it an essential feature of his program.

The second step is the re-structuring of the whole metropolitan area, by breaking away from the notion that planning must follow the trends that lead to the random spread of Megalopolis. Mayer points out that in Holland planners observed that the ring of cities from Rotterdam to Haarlem and Amsterdam was coalescing into a Randstad: a single urban smudge. Instead of backing this

movement further, the planners decided to counteract it by deliberately steering industries and population into other parts of the country, thereby maintaining open spaces between the cities, and establishing a green matrix for agriculture at the center of the Randstad.

The third step demands the creation of adequate organs for federated metropolitan government. This is not a simple task, as Mayer realizes, because it involves not only giving power to a new type of centralized public authority, but also rebuilding local units, from the smallest neighborhood cell upward, so that the citizens will be organized for direct participation and active responsibility. The more complex urban society becomes, the less can it be run by administrative experts, with one-way communication and remote control, and the more necessary it is to have constant two-way inter-communication and local action, to offset the ruthlessness and insouciance of public officials, too often unwilling to share power or authority with those they supposedly serve.

Admittedly such local action has so far chalked up mostly petty, preventive gains: now it saves a valuable tree, now it keeps a playground from being turned into a car-park, or again it saves a bigger area like Washington Square from violation and misuse. But if the boasted leisure of our technologically oriented society is worth anything, it is for spending time on local political efforts, as the Athenian democracy did in its heyday. Without legally instituted popular participation—such as has been proposed for the decentralization of New York City's school system—the moral urgency and vigilant local initiative that Mayer's urban program requires will be lacking.

The fourth step, finally, is the establishment of a regional scale, to take the place of the metropolitan scale and therewith the restructuring of both old and new regions so as to effect a better balance between human needs and regional resources. Mayer recognizes that though the advantages of the metropolis are indisputable, they do not demand an indefinite increase in size, or an indefinite expansion in area. He sees that, on the contrary, a moderate-size city of 500,000 people, like Zurich, a humane and beautiful center, has—if it does not keep on expanding!—most of the advantages of metropolitan culture without the disadvantages of overcrowding and over-spread, which would seriously lessen these advantages. Mayer recognizes further that there are other incipient galas of American cities, like the Raleigh-Durham-Chapel Hill group, that might, with adroit organization and planning, turn into regional cities, with all the combined advantages of a larger metropolitan population, with ample financial and cultural resources, without the costly disadvantages of congestion and gigantism. Finally, Mayer points out, there are other areas like Appalachia, with now derelict industries, but possessing many positive geographic advantages, which might be rehabilitated, not by inconsiderate piecemeal improvements, still less by random highway building, as now projected, but by full-scale regional plans that would conserve the land and utilize its sources, interweave industries in a new population pattern, and multiply the cultural and social opportunities for both the existing population and a larger one.

There is no part of this program that is entirely new, no part that has not at some degree been tested. Mayer's special contribution has been to assemble the best planning thought of the last half century, to evaluate current experience and to diagnose current weaknesses, to bring forward alternatives, and to show what still lacking if we are to overcome urban disintegration. Finally he demonstrates by well-chosen illustrations and diagrams, how attractive our urban and regional environment could become, if we are engaged collectively to make use of our resources now at our disposal. Whether this book will actually have the impact it deserves to have will depend, in part upon how many Albert Mayers are available and how deeply they can be aroused and committed to cooperative political and economic effort on the largest scale.

"... the current American belief that such new cities ... can be built without heavy government aid is an illusion ..."
A cube-shaped house with expanded spaces for a woodland site on a small Florida peninsula. William Morgan designed a cube-shaped house whose height permits a sweeping river view through the surrounding trees, and whose small ground area preserves the existing liveoak woods intact. On closer inspection, and in the following pages, this familiar shape, solidly anchored to its site, opens up into new spaces, expanded and unexpected.
William Morgan has treated this house in Jacksonville, Florida in a delightfully unorthodox manner. Two-story spaces are spiralled within the cube. The result is an exciting interplay to be discovered behind a placid, compact exterior.

The key to this house's intriguing contrast of open, varied space and defining shape—and to its structure—is the four stone-faced columns. Alred familiar elements in Morgan's work, they are used with great sophistication. Structural supports they not only permit variations in ceiling height (from 6 feet 8 inches to 14 feet 7 inches) and multiple open living area (4,060 square feet in four levels); but, doubling as service towers, they concentrate fireplace, stairway, air conditioning and plumbing into vertical packages, leaving the living area uncluttered. Utility chases which connect the structural columns are hidden un...
The staggered levels within are expressed as patterns on the exterior. These varied facades are secured by the firm verticals of the structural towers and by the strong line of the roof. Recessed glass panels and broad overhangs that protect against direct sunlight form bold patterns of light and dense shadow. South and east from the living room, and south from the dining room, are the main glass areas, which open two full stories to the river basin.

A low-ceilinged inglenook (below) sets off the living room's two-story height, while to the rear a balcony reveals the second great space—of the dining room—beyond.
The dressing room of the Hatcher house (right) is located on the closed-off north side, as are other private and quiet areas (guest and master bedrooms, study). Careful lighting design emphasizes the boldly detailed, exposed beams and floor-ceiling deck. Dining room and kitchen (below left), actually form a single expanse; their areas are defined by a change in ceiling height.

dropped ceilings. The 6- by 12-inch beams between the four columns are supported by 6- by 6-inch posts.

Exposed structural members and natural-finished materials add to the interior clarity and sense of continuity between outside and inside. Floor decking, of 2-inch by 4-inch edge grain pine alternating with 2-inch by 3-inch spacers, is exposed below, forming finished ceilings. Wood siding of clear cypress, dressed and matched in a narrow horizontal board pattern, blends warmly with the facing stone of light brown coquina rock, locally quarried. Matching siding is used for the low boathouse and relates this outlying building to the main block of the house.

The house is sparingly furnished to emphasize the sweeping views, the varied spaces, the natural-finished cypress and pine-wood textures, and the clean de Stijl-like intersections of planes.

Designed for a family of four, the residence cost $105,000, including pool, boathouse and cabanas.

HATCHER RESIDENCE, Jacksonville, Florida. Owners: Mr. and Mrs. William K. Hatcher; architect: William Morgan; engineers: Haley Keister; contractor: Ross Construction Co.
PLACE BONAVENTURE:
A UNIQUE URBAN COMPLEX

Place Bonaventure, as most people who have been to Expo now know, is not what its name suggests—neither a public square with a monument in the center, nor a great plaza, serving as a platform for a typical arrangement of office towers, high-rise apartment buildings or great halls for the celebration of the arts. Place Bonaventure has no real plaza at all. One of the largest buildings in the world and relatively low in comparison to surrounding office and hotel towers, it is a dense monolith which almost completely covers its 6-acre site. As a building type it has no counterpart anywhere.

Designed by Montreal architects Affleck Desbarats Dimakopoulos Lebensold & Sise, this $80-million complex has been constructed primarily to provide space at many scales for the exhibition and sale of products, and supplementary space to shelter and feed those involved in viewing and buying. Its great showrooms serve the international businessman, and the shopping concourse accommodates the local worker on his way to the subway. Built on air rights above the Canadian National railroad tracks, the massive building is shaped by a complicated circulation network which accommodates underground truck routes, parking, a subway station, and sheltered pedestrian passageways, all of which link with the corresponding systems which are being developed as an integral part of Montreal's 200-acre urban core. The complexity of these interrelated functions constituted a major architectural challenge. As a prototype for the dense, multi-use urban complex of the future, Place Bonaventure's brilliant and unusual parti deserves careful study.

—Mildred F. Schmertz
Place Bonaventure’s lack of an actual place, and its dense monolithic shape can be explained by an analysis of the program requirements. The owners’ essential demand was for the type of space which should be artificially lit. Merchandise displayed in exhibition and shopping areas is shown to best advantage under carefully controlled lighting conditions and daylight can be a positive handicap. The provision of vast interior spaces became a practical answer. Only the hotel, auxiliary office spaces for the display areas and principal public elevator lobbies required perimeter locations to provide daylight and views. This meant horizontal circulation had precedence over vertical circulation for eminently functional reasons. The vertical distance to be travelled by elevators was minimized as was the area of perimeter wall and windows. These fundamental considerations made the conventional tower plaza solution infeasible.

Public enjoyment of the little outdoor open space which the Place Bonaventure complex affords is limited to users of the restaurants which are centered in the roof-top hotel garden shown in the hotel level plan (top) or to future patrons of the small terrace cafe which is planned for the southern end of the west plaza shown in the shopping level plan (bottom). This plaza’s principal purpose is to serve as an appropriately imposing drive-in entrance to the lower hotel lobby which is connected by express elevators to the main hotel lobby on the roof. The plaza also conceals parking facilities for about 1,000 cars.

‘Simultaneous’ is better than ‘sequential’ collaboration

The finished complex—eminently practical, extremely economical and designed and built within a relatively brief period—was produced by a collaborative approach on the parts of the architect, owner and contractor which departs from normal architectural practice and which Ray Affleck, partner-in-charge of Bonaventure, finds effective and significant. He has given an account of the process in the July 1967 issue of Architecture Canada. Said Affleck: “The classical triumvirate of owner, architect and contractor functioning in linear sequence and in relative isolation from one another, was replaced by the simultaneous interaction of these entities. . . .

“It was found that, in the process of problem stating, problem solving and decision making, basic ideas came from any individual or any discipline. . . .

“Our experience indicates that one answer to the apparent inadequacies of the building industry is not the expansion of the architectural profession into
The organization of elements on a 6-acre site

Place Bonaventure’s highest point is approximately 185 feet above the Canadian National tracks which run just below the boundary street to the north of the site and which bridge across the southern boundary street is shown in photo above. Directly above the tracks are two levels of retail shopping connected to an enclosed pedestrian system, a subway entrance and the city streets. Above this is a 40-ft-high exhibition and convention space. The hall’s mechanical and electrical equipment space (shown in blue) is integrated with the structural system. Five floors which comprise 60 feet in total height provide about 1 million square feet of merchandise mart space, and 100,000 square feet of office space. Just below the 400-room rooftop hotel and garden are international showrooms and hotel service and function rooms.

The site plan at right shows Place Bonaventure’s pedestrian passageways in relation to the existing (dark blue) and planned (light blue) pedestrian network for Central Montreal. These paths are located both above and below ground. Subway stations (diagonal stripe) are complete.
peripheral areas, but rather the professionalization of all the entities already involved in the game. . . . [If this were to occur] the architects' energies could be released from many side issues and channeled into the compelling issues of urban design as an art form.

An architecture for all the senses

On the question of urban design as an art form, Affleck is equally explicit, and if he sounds a bit like his fellow Canadian Marshall McLuhan, it is because both men have gone over this ground together. Affleck continues: “An attempt was made in the design of Place Bonaventure to develop an architecture based on patterns of human behavior rather than on the tenets of normal composition which have, generally speaking, held sway in our profession since the Renaissance. The general notion can be expressed in a variety of ways: an architecture oriented to total experience, involving all the senses, (not merely the visual) and involving movement as a primary activity—rather than an architecture related primarily to static objects to be ‘looked at’; an architecture of participation, where form is understood as process rather than object; an architecture related to the discovery of patterns, rather than the imposition of patterns. . . .

"At Place Bonaventure] the architecture of the internal streets and places became a major field for the direct application of these ideas, as did the creation of the special ‘fun-environment’ for the Hotel. In retrospect, I would say that the environmental barrier (facade) was possibly the most difficult element to cope with—maybe because of the weight of historical baggage that we still carry with us in this area of expression."

Finding a form and scale for the environmental barrier

Place Bonaventure’s architects, in designing the facade of their monolith, did not have to delve too far in the past for “historical baggage”.

The greater part of it was ready to be hoisted aboard as recently as the fall of 1963 when Paul Rudolph’s Yale Art and Architecture Building first opened its doors. Rudolph’s highly influential structure carries some historical baggage of its own to be sure—no good building would yet dare be without it—but this baggage within baggage merely increases the load which Affleck deplores. The Art and Architecture Building is a small structure compared to Place Bonaventure but its bold, vigorous concrete forms do provide a key to the
A search for legibility

Place Bonaventure has a very low ratio of perimeter wall to functioning space, and a number of separate elements which should where possible be expressed on the exterior. The photograph (left) is of the north facade and shows (from bottom to top) the arcade at the shopping level; air intakes for the mechanical ducts and windows for the small office spaces located below and on the mezzanine of the exhibition hall; the windowless perimeters of the artificially lit exhibition spaces which admit light only at inset corners; and at the top, two office levels crowned by three stories of hotel rooms. The photograph (above) is of the east facade as it turns the south corner. The corridor below is handled as a vertical space.
In Place Bonaventure's Concordia Hall the architectural, structural, mechanical and electrical systems are completely integrated.

The structural problem was a difficult one: to provide a large free open space with relatively few structural supports to carry the eight floors of the merchandise mart and hotel above. Economy and function indicated that the mart and hotel structure be based upon a 25-foot square grid. In order to provide the long spans and few columns required in the hall, this upper structure had to be transferred to a grid of 75 feet by 50 feet through the enormous concrete truss and truss structure.

The two-directional concrete truss is the depth of a complete floor and provides completely accessible electrical raceways, full height catwalks for service personnel, and complete distribution system for air-conditioning supply and exhaust. The concrete grid floor of this truss space is perforated with circular holes on a regular pattern to provide complete flexibility for exhibition lighting, as well as the possibility of dropping other service such as water, compressed air, elec
rical power, etc., as might be required for exhibition purposes. The high spaces surrounding the tree support columns contain general illumination for the hall. The forms that were developed out of this synthesis were constructed entirely in poured-in-place concrete with the principal spans post-tensioned. The simple wood plank concrete formwork was itself carefully designed to provide the pattern now apparent on all the exposed concrete members. After stripping the forms, the concrete was sandblasted in order to expose the warm colored aggregate. This strong concrete expression makes a fine background for displays.
proper use of the material for projects many times its size.

In the process of adaptation to an immense complex, however, these shapes must be brought up to scale, not only for esthetic effect but to make the individual elements more legible. Legibility is a problem at Place Bonaventure. Since all the elements which make up the complex are enclosed within a simple environmental barrier, rather than expressed as isolated forms, different functions and spaces are difficult to recognize and find from the exterior (this problem is solved quite well inside where space grows larger and thrusts upward to define major points within the complex). Rudolph has established several precedents for the elaboration of exterior forms which might have increased definition and comprehensibility in Place Bonaventure. The massing at each of the four corners should have been stronger for example.

Rudolph’s building, as every disciple knows, turns a corner. The roof top hotel could have made a great cornice—consider the Kallmann, McKinnell and Knowles design for Boston City Hall. Place Bonaventure’s architects might have cantilevered some of the hotel terraces, pulled back the rest, permitted the planting to spill over and separated each little suite of hotel rooms from its neighbor with a pair of huge fins. Perhaps it would have cost too much.

In any case Affleck and his collaborators clearly weren’t interested. Since in Place Bonaventure they have created an unprecedented contemporary urban building type, a cornice may have rightly seemed to be more historical baggage than they were willing to carry.
The environmental barrier

The exterior wall was developed as a double wythe wall with the interior wythe serving as the actual plane of enclosure. This wythe consists of the poured-in-place reinforced column and spandrel beam system insulated on the exterior, combined with self-insulating aerated concrete block in-fill wall panels. The exterior panels are the actual "rain screen" members which follow the general principle of shingle design with entirely open joints to the exterior. These giant "shingles" are made of poured-in-place concrete, using corrugated steel movable forms. Within the general theory of the wall, the shingles could have been of any open-jointed material whose main function is to protect the inner wall and insulation from direct rainfall, and to provide a visually-acceptable skin. Metal louvers or precast concrete shingles might have fulfilled these functions equally well. In this case, however, a careful study of the economics of the wall resulted in the choice of the poured-in-place concrete members.

The problem of the migration through exterior walls of interior mate with a high relative humidity under positive pressure has the potential of causing severe damage in the Canadian climate. The method of wall design employed at Place Concorde deals with this problem in the following manner: The extreme inner face of the inner wythe is regarded as the only significant barrier to this migration. It is, however, assumed that some of this air will be forced through the barrier. The design is therefore handled in such a way that this humid air may immediately escape to the outside because of the open-shingle type joints and the equalization of air pressures with the outside environment at every plane beyond the interior wythe.

Concrete textures

Interior concrete surfaces vary according to a carefully established system related to their scale and function. The hand-hammered corrugated surface (top right) is used throughout the hotel interiors (above). The random finish (center) is used in Concordia Hall. One of the uses of the boarded pattern (bottom right) is shown at the entrance to an elevator lobby (below).
The Garden of the 5-acre rooftop hotel was conceived as a Canadian setting, with moving water, lakes, streams and waterfalls and a natural composition of deciduous and coniferous trees, shrubs and rock formations. By locating the public rooms in the center of the garden and the guest rooms around the periphery, a high degree of relationship between the garden and the various aspects of the hotel was achieved.

Arrival at the hotel is by express elevator from the west plaza. From this point, however, the movement patterns are entirely horizontal with very slight changes of level. Glazed bridges with varying views of the garden connect the guest room wings with the central facilities, and the guest room corridors themselves are broken up with skylit garden courts. During the summer-time, guests will also have the choice of circulating through the garden pathways from one part of the hotel to another.

In designing the garden, particular attention was paid to its wintertime aspects. The various level changes provide a varied snowscape and many of the waterfalls are designed to function all year round. In addition, interior skylit gardens contribute natural greenery throughout the long winter season.
Canadian building research is significant, diversified

This summer the Division of Building Research of the National Research Council of Canada marked its 20th anniversary. A good idea of how broadly ranging the Division's research activities are is evident from a perusal of its latest annual report. Representative subject areas include: sound isolation, air leakage in buildings, snow loads, fire research on steel structures, flame spread in corridors, protective coatings, and permafrost.

Interest in most of these areas obviously should be widespread, and not merely limited to Canada. Take air leakage, for example. With mechanically air conditioned multi-story buildings, pressure differences between inside and outside can vary widely depending on wind, stack action, and building pressurization by the mechanical system. This can affect not only infiltration or exfiltration, but piling on building cladding as well.

The Division of Building Research has conducted field studies of pressure differences across external walls and internal separations first in a 9-story office building, and then later in a 17-story building in Ottawa and in 34- and 45-story office buildings in Montreal. As a part of the field studies, exterior wall pressure differences, together with wind speed and direction and outside air temperature are being recorded on magnetic tape for digital computer processing.

Studies at the Division of Building Research have led to the development of the "rain screen" principle which is exemplified in the double wythe construction described following: 1) the inner wythe should be designed as the environmental barrier with all joints fully sealed against infiltration or exfiltration, 2) the vapor barrier, if required, should be on the inner face of the interior wythe, 3) thermal insulation should be located on the exterior plane of the inner wythe. All structural members should be inside the plane of insulation, 4) the two wythes should be separated by an air space vented to the outside, for air pressure equalization, 5) the exterior wythe should be designed as an open vented screen to protect the inner sealed wythe from rain or snow.

This concept has been applied in Place Bonaventure (page 147) by Affleck, Desbarats, Dimakopoulous, Lebensold and Size. It has also been applied in a number of instances by Emery Roth & Sons of New York. The most prominent example from the Roth firm (who are associated with Minoru Yamasaki and Associates in this instance) is the World Trade Center. This was described fully in the RECORD Special Report on "Wind, sun, rain and the exterior wall." Four examples from the Canadian firm were presented by R. T. Affleck at a symposium on "Weather Tight Joints for Walls," conducted by the International Council for Building Research, Studies and Documentation (CIB) in Norway last September.

In their fire research, the Canadians have been examining the creep of three widely used structural steels at various temperatures ranging from 700 to 1,200 F, and at various stresses ranging from 1,000 to 45,000 psi. The study showed that the failure of steel-supported floor and beam constructions in fire is expected to occur when the temperature of the key component of the structure reaches a level in the range of 1,700 and 1,200 F. The exact value of the critical temperature depends on the characteristics of the steel, the loading conditions, and the load resistance of the deck.

The slow, persistent fight against air pollution

President Johnson's signing of the Air Quality Act of 1967 will provide $125 million for expanded Federal research to determine which fuels are most to blame for dirty air and means of control. It also provides over $300 million for Department of Health and Education and Welfare expenses covering laboratories, equipment, personnel and stations for monitoring emissions.

While results may seem to be slow in coming, as far as the man on the street is concerned, much has been done, particularly "detective work" in identifying the sources of annoyance, discomfort and health hazards. For example the National Bureau of Standards has developed methods by which they can even identify the type of gasoline being burned by automotive vehicles by geographic area. Another example is the Special Air Pollution Study of Louisville and Jefferson County, Kentucky, financed by local industry and the Federal and local governments. As part of the study the National Bureau of Standards developed practical methods for sampling and shipping of samples, analyzing them and interpreting the results; providing techniques and instruments not
available to the local group, advising the group on the application of existing analytical methods to specialized problems, and developing new methods. NBS was involved in a pollutant-source survey in one area of Louisville in estimating the relative contributions to pollution by motor vehicles, industrial and domestic processes.

That a Federally funded program was needed is fairly obvious. But just how far-reaching the pollution problem is can be appreciated even more from findings of the Atmospheric Sciences Research Center of the State University of New York. Air sampling and visual observations from airplanes showed that the pollution zone of Los Angeles reaches 500 miles into the Pacific and to western Arizona and central Nevada. Satellite pictures taken during winter storms have shown snake-like plumes, extending many miles downwind of lakes, which could be traced to lake-side cities. Question is whether ice crystals formed due to industrial stack waste or due to auto exhaust.

To prove a non-shrink grout doesn't shrink

When Construction Products Research of Old Greenwich, Connecticut developed a new non-shrink grout (for setting of columns, machinery, precast beams on walls, and also for patching, even to a fine feather edge and the like), they felt the need for a new test method which would show shrinkage from the time the grout material was first mixed with water. The reason, the company says, is that most of the shrinkage of grouts takes place in the first 24 hours, whereas the ASTM standard reference for shrinkage calls for testing to start after the first day.

The test—which, incidentally, has been adopted by T.V.A. laboratories—is amazingly simple: Small cans (like frozen juice cans) are filled with the freshly mixed grout. Then a small plastic ball the size of a marble is dropped into the grout. A light projector set up behind the test sample projects a highly magnified image onto a piece of paper some distance away used for recording purposes. Thus even miniscule movement can be detected.

With the non-shrink grout, the sample will actually expand just slightly, generally on the order of 0.003 in. per in., or so. While the basic ingredient which achieves the non-shrink effect has not been revealed, the developers say that it is not metallic or plastic-based in nature. The basic physical achievement, however, does not involve a change in the chemistry of concrete.

First “staggered-truss” building set to be built

The new steel framing system for apartment buildings developed by an architectural and engineering team at M.I.T. is to be used for the first time in a 17-story high-rise apartment building in St. Paul, Minnesota. The system, which was featured in June 1966 RECORD, employs building-wide Pratt trusses arranged in a staggered pattern from the end view floor-by-floor. By this technique floors need only span 12 feet while still allowing 24 ft clear space—trusses are 24 ft apart. A given floor slat rests on the top of one truss hangs from another truss (located in the story above) in the middle of the bay, and rests on a third truss at the other end of the bay. The 17-story structure, which is being sponsored by the St. Paul Housing and Redevelopment Authority as a low-cost housing project uses slightly more steel than the M.I.T. prototype design. This was due partly to the heavier floors—6 in. prestressed concrete slabs plus a 2-in. topping, as opposed to 4-in. precast slabs proposed by the M.I.T. group. Even so startling savings result as compared with conventional framing systems: about 7 lb per sq ft, contrasted with 6 lb for a braced frame, and 10 lb for a column-girder portal frame. High-strength steel is being used, with deflection being no problem because of the stiffness of the trusses.

Contracts let for low-cost military housing

Last month the defense department let a number of research and development contracts aimed at cost reduction for military family housing. Organizations involved in the research will be: Carl Koch & Associates, General Electric Company, the University of Michigan, Kaiser Industries, National Gypsum, Battelle Memorial Foundation, and Aerodot-General Corporation. According to HUD Secretary Weaver, his department cooperated with Defense in the research activities that led to these contracts. Weaver also has said that the Department of Defense is interested in building and testing prototype houses if studies yield encouraging results.

Mechanical consultants developing computer program

Automated Procedures for Engineering Consultants, Inc. is an organization of over 50 members, including mainly mechanical consultants, several architectural firms and a few utilities. First objective of this year-old group was to develop computer programs for automatically calculating heating and cooling loads on the most complex type of commercial and industrial buildings. In addition a specification writing program has been developed. And presently in the works are a building configuration program, a duct design program and an equipment selection equipment program. Cost of developing the load-calculation program is said to have been over $15,000 plus considerable volunteered time. The program is available to all APEC members for a nominal cost of reproduction. Cost of joining APEC is $500 and dues are $100 per year. Current president is Herman Blum of Herman Blum Consulting Engineers, Dallas.

Computer produces toned prints—perhaps of a building

Architectural designs can be visualized in three dimensions, under a variety of lighting conditions and from any specified angle, with a new computer process developed by Mathematical Applications Group, Inc. (MAGI) of White Plains, New York.

In effect, the new technique causes a computer to simulate a camera, light sources and object to be reproduced on design. Briefly, the process works this way. The object to be pictured is converted to a mathematical representation and put on a punched card. Additional data on simulated light sources, camera position and focus are also put on punched cards. The cards are fed into a computer which is attached to a cathode-ray tube, similar to a TV tube. The computer then traces the light rays from the source of light to the object (mathematically represented), and through the simulated camera lens to a point on the cathode ray tube. The computer completes the same process for a large number of points on the tube. A built-in camera then photographs the image formed by the points of light and produces a fully-toned picture of the desired object.

According to Dr. Philip S. Mittelman, MAGI president, the computer has capability for calculating heat and air conditioning loads under any lighting condition. This might be especially helpful when dealing with complicated sculptural facades.

Although MAGI has never actually handled a building, Dr. Mittelman says that the process is capable of handling very complicated projects. A commercially useful system will be produced within the next six months.
Nine stories hang from steel straps for two high-rise dormitories

High-strength steel hangers, only 1-by-4-in. in size, carry nine floors of precast concrete floor panels and walls for two three-winged residence halls at Central Washington State College, housing 500 students. The “tension columns” stretch between steel outriggers at the top of the building to grade beam bolts at the bottom that permitted tensioning of the 1-by-4-in. straps. The outriggers, in turn, are carried by 6-ft-deep prestressed concrete girders which span between the precast concrete walls of the center core and precast concrete end frames.

The 1-by-4-in. hangers were shipped to the job in nine-story sections. Since long lengths of T-1 steel were not available, the hangers were fabricated with the upper third from T-1 steel, the middle third from A-441 steel and the lower third from A-36 steel, in correspondence with the lessening load from top to bottom.

How the structure went up

Before construction started, a thorough soils analysis was made to make sure that differential settlement would be negligible. After deep, rigid footings had been placed, three A-441 braced columns and a collar section, which forms a heavy supporting ring at the second floor level, were erected to receive the three precast concrete center-core walls. The heavily-loaded braced steel columns were used to open up the first floor lobby for architectural reasons; otherwise the core would have had to continue down to grade and block off the center of the lobby. Next the precast end frames were erected and held in place by temporary bracing trusses. Then the 60-ton girders were placed by crane and joined to the end frames and core with high-strength concrete.

Steel outriggers that carry the hanger straps were bolted to the concrete girders 9 ft on center by means of high-strength bolts. The outriggers consist of T-1 steel for the upper chords (three straps for each) and A-441 steel for the lower chord, which is a 10 WF section.

The pre-drilled hanger straps were then attached to the outriggers, first...
The precast walls for the core are supported by a ring beam and three braced columns—one for each wall. After the structure was in place, two-story-high panels were erected—a fixed connection in the center, sliding connections at the ends.

Special engineering problems

The high-strength steel hangers, working in tension at approximately 50,000 psi stress, were subjected to about three times the strain generally experienced by conventional columns. Other elements such as the outriggers are also high-stressed, which further added to the deflection problem. Thus, accurate predetermination of deflections, particularly those caused by dead load, was extremely important.

In order to reduce the change in elevation of floor levels caused by addition of dead load—i.e., the stretch in the hangers after floor panels had been installed—the hanger system was predeflected by jacking it down and connecting it to the grade beam. After all load was on the hangers, some additional tensioning was applied to prevent any hanger from becoming slack under live load or due to thermal effects. Further because of stretch in the hangers, floor panels had to be erected in such a position that they ended up at the correct elevation after all dead load had been placed on the structure. For example, the precast channel slabs obviously had to line up with their respective floor level in the core and at the end frames. For this reason it was necessary that deflections be carefully calculated and the hangers be placed at predetermined elevations throughout.

All floor and wall panels and prestressed girders were fabricated in a Seattle-area plant, 130 miles away from the campus. Only the core walls and end frames were precast at the site. Reason—the small labor force available in the town.

Cost of the two dormitory buildings, which will house 500 students, was slightly over $2.2 million dollars, or $4,400 per student. This includes built-in room equipment and carpeting, but excludes the architect’s fee.
Two dormitories at Ohio State

The heart of the total energy systems for two new high-rise dormitories at Ohio State University are four natural gas engine-generator units, located on the top floor of each building. These supply all the electric power for the dormitory complex. Heat from the engine exhaust, jacket water, and lube oil recovered and used to heat the buildings in winter, air condition them in summer, and furnish domestic hot water. Prime movers for the O.S.U. total energy systems are four 690-hp natural gas-fueled reciprocating engines. Each engine drives a 500-KW generator.

Automatic switchgear activates and synchronizes the four engine-generator sets in sequence as the building’s electrical load increases, and shuts them down periodically to equalize running time. Only three generators are required to carry full load. Maximum load anticipated is 1350 KW, leaving a 450 KW nominal reserve in each plant’s capacity.

Heat rejected from these engines is recovered by passing engine exhaust and jacket water through vapor phase heat recovery units where a large percentage of the high temperature water is converted to low-pressure steam. A portion of this steam, supplemented when necessary by five 100-hp natural gas boilers, is used to heat the thousands of gallons of hot water required daily throughout the dorm. This steam is also used to provide hot water for the building’s hydronic heating system, and to operate a 480-ton absorption air conditioning machine. Any excess steam (above 13.5-14 psi) generated in the heat recovery boilers is exhausted to the cooling towers serving the chiller.

Total energy in high-rise—two applications
NATURAL GAS
Engine Powers Generator
To Produce Electricity

Jacket Water
From Engine

Exhaust
From Engine

Steam and Water
Separated In This Unit

Supplementary Steam
NATURAL GAS
Boilers

Electric Power For Use
Throughout Dormitory

Steam Recovery Unit

Water

Hot Water
For Cooking,
Laundry, Showers, etc.

WATER HEATER

Hot Water
For Space Heating

WATER HEATER

Chilled Water
For Air Conditioning

ABSORPTION TYPE
Air Conditioning Unit

Simplified diagram of the total energy plant. Maximum anticipated load is handled by three of the four generators on the top floor of each dormitory.

Floor plan shows arrangement of student suites and lounges.

One of the engine-generator units which is mounted on an inertia block and springs to prevent annoying vibration from being transmitted to the structure below.

Lube oil heat is recovered for use by the domestic hot water system at 140F., with any excess dumped via the cooling tower. Maximum rated Btu recovery for the total energy system is estimated at 38 to 40 per cent of all exhaust, jacket water, and lube oil heat. A separate 500-hp natural gas engine manifolded into the same heat recovery system, drives a 465-ton centrifugal compressor, to provide additional air conditioning.

Anticipated operation of the total energy system in each building will be by three engine-generator sets at 85 per cent of the maximum load factor. At present, the automatic switchgear brings on the third engine at 645 KW load under full occupancy, the third engine will be activated at 700 KW. A cold engine can be cranked, started, synchronized and paralleled in 45 seconds but any one generator can be brought on line in only 36 seconds from “every thing off” condition.

Excess or standby capacity for emergency mode operation (of one elevator fire pumps, exit and corridor lighting etc.) is available from one engine generator set, or the university’s power plant, more than fulfilling the Ohio building code requirements.

One-engine excess capacity also provides for both scheduled or emergency downtime. Via a manual control system, the twin buildings can be selectively tied in for reduced-load operation in the event either total energy plan should fail. Any six of the eight engine generator sets can carry the full projected load of both dormitories in the manual mode.

Top-floor location of each building’s mechanical equipment isolates from the students and permits more effective use of lower floors. Each engine rests on a spring-mounted concrete inertia block. The entire engine roof floor is separated from the structural slab by high-density glass-fiber block for sound attenuation. All piping in the engine room is supported with either spring hangers or glass-fiber pads.

Annual gas consumption projected for both dormitories totals approximately 181,626 mcf. Of this total, power generation is expected to use some 98,768 mcf/yr; auxiliary heat and air conditioning will take 72,858 mcf/yr and cooking should use approximately 10,000 mcf/yr, according to utility estimates.

Project architects and engineers were Schooley, Cornelius, Schooley; structural engineers were Fling & Eema Inc.; acoustical consultants were Bo Beranek & Newman, Inc.; and general contractor was George C. Driscoll.
Three gas-turbine driven generators, 250 kw each, serve the 12-story International Trade Center. The gas turbines are installed in sound-attenuating enclosures. Exhaust heat from the turbines is passed through a common hot water heater to provide high-temperature water for space heating, domestic hot water and air conditioning.

Two office buildings in Pasadena

Two new, almost identical, 12-story office buildings in the Los Angeles area, each receive all their energy requirements from three natural gas-powered turbine/generator sets. Turbine exhaust heat is recovered for use in the air conditioning and heating systems. The equipment is leased from Garrett-AiResearch and a maintenance agreement has been made with a local company presently serving a number of industrial facilities.

Each of the two buildings has a usable area of approximately 125,000 ft² plus a penthouse containing the power generating and mechanical equipment. The equipment, installed in a sound-deadening enclosure, is equipped with inlet and exhaust silencers.

The three gas turbine/generators are each rated at 400 hp, 250 kw, 60 cycles, 277/480 volts. Turbine exhaust heat is recovered by a single hot water heater, rated at 7,200,000 Btu/hr at full output of the three turbines, and producing 270°F high-temperature water at a flow rate of 205 gpm. Rated capacity of each of the chillers in the two buildings is 400 tons. Of this, 350 tons are available for comfort cooling. About 50 tons are required to cool the air inlet temperature for the turbines, which reach peak efficiency at 59°F.

The high-temperature water is also used for space heating and for domestic hot water. When the electric load is light and not enough hot water is produced for heating and cooling, electric immersion heaters are switched on automatically in steps of 150 kw maximum.

In the event of a turbine failure, there is automatic load shedding. Circuits automatically drop out in a three-step program—nonessential circuits first, followed by other circuits in reverse order of their importance, finally leaving only emergency lights and one elevator. There is a control cubicle for each turbine, with automatic shut-downs in case of high oil temperature, overspeed, high pipe temperature, etc.
SOPHISTICATED ROOF COMPONENT
WIDELY USED FOR SELF-HELP HOUSING

Corrugated roof element of asbestos cement acquired its curved shape through strictly functional needs. Originally made from two halves of "wet" asbestos-cement pipe, it was given a channel form to permit it to span 20 ft and more, plus small bends at the edges for overlapping joints. The modified curved shape was developed to permit stacking of units to greater heights for storage and shipping. While the original operation was performed partly by hand, an automated machine has now been developed and is in use in Mexico City. The huge housing project at the top of the page is in Guatemala City, where the process was first tried out.

The photos on this page show the results of a rather simple, but spectacular, successful idea for self-help housing in Central America that has acquired considerable sophistication in the six years since its inception. In February, 1961, the RECORD showed how architect Alvar Ortega, who is on the staff of the United Nations Technical Assistance Commission, had taken asbestos-cement pipe directly from a Guatemala factory, sliced in halves, and while it was still fresh, pressed it into galvanized metal forms to make channel-shaped-roof member. When dry, the channels, 21 ft long, 8 in. deep, 15 in. wide at the bottom and 2 in. wide at the top, were rigid enough to span 20 ft without intermediate support.

More recently the channel slabs have undergone a face-lifting and are made in 18 countries in Central America, South America and Africa. Also the machinery has been automated, with the first such plant being located in Mexico City (this plant is shipping the channels to both Texas and California for vacation houses). The photo at top left shows a 5,000-unit low-cost housing development in Guatemala City employing the new shape.

Reason for the new shape was to acquire more rigidity so that the channel units could be stacked much higher for shipping than the simpler shape. The original shape tended to bow out under excessive stack loads. The drawing shows the various configurations tried. Architect Ortega reports that it was not easy as it might seem to develop a shape that would have sufficient strength and at the same time nest properly. As can be seen from the photo at the bottom of the page, the units overlap in a self-capping fashion. Ortega says that his group is now experimenting with a roof 35 ft long employing the new shape.
Antron*  
the carpet fiber for high traffic areas

Be it a hall, a lobby or a busy office you can't beat carpets made with pile of "Antron", the soil-hiding nylon. In similar carpet constructions, "Antron" nylon is the carpet fiber that keeps its new look longer than any other fiber.

"Antron" has been structured for precise control of reflected, absorbed and transmitted light. This control of light dramatically reduces the appearance of soil on the carpet.

What does all this mean to you? Carpets that keep the total appearance of any interior at its highest.

And, because "Antron" is the unique soil-hiding fiber, it means lower maintenance costs and less frequent commercial cleaning. In short, "Antron" delivers a long-term investment saving. An important fact to the cost-conscious client.

"Antron" sounds like a lot. And it is. Recently, over 57,000 square yards of carpeting of "Antron" was specified for one building. Reportedly one of the largest fully carpeted office buildings in the country. "Antron" was chosen on the basis of soil hiding, appearance retention and wear tests.

Impressed? You should be. Specify LEES Design III or Tribune on your next job. We're sure you'll be convinced "Antron" is the optimal carpet fiber for high traffic areas.

If you'd like to learn more about "Antron" and Du Pont's other fibers for contract carpeting, a fact-filled brochure is yours for the asking. Address request to:

Contract Specialist  
Carpet Marketing Group  
E. I. du Pont de Nemours & Co. (Inc.)  
308 East Lancaster Avenue  
Wynnewood, Pennsylvania 19096


For more data, circle 68 on inquiry card
New arts center for Nazareth College won First Honor Award from the Department of Health, Education and Welfare, Office of Education, in collaboration with the American Institute of Architects.
Exciting roof design for $3,000,000 arts center

The dynamic versatility of structural steel is dramatized in the sweeping parabolic curves which crown this two-story auditorium building.

The 1142-seat auditorium is part of an award-winning $3,000,000 arts center for Nazareth College, Pittsford, N.Y., near Rochester. Its unusual roof trusses run longitudinally through the structure, providing a clear span of 105 feet. A music building and a low-lying art wing will join the auditorium in an integrated grouping around a landscaped court.

Structural steel was the natural choice for the framing and roof trusses in creating the graceful configurations of the center's three units, because steel is so economically adaptable to design requirements.

Steel offers many other advantages. Such things as shortened construction time; adaptability to existing architecture; wide scope of aesthetic expression; low building cost.

Before you start designing, ask a Bethlehem Sales Engineer what today's new steels and new design techniques have to offer. Bethlehem Steel Corporation, Bethlehem, Pa.

BETHLEHEM STEEL

For more data, circle 69 on inquiry card
Last year Dover Stage Lifts met the engineering challenge of the Metropolitan Opera

and the budget of the Rosarian Academy Auditorium

These extremes of complexity and cost illustrate the versatility of Dover Stage Lift engineering. Utilize this unique breadth of experience on your projects by contacting Dover for imaginative suggestions on achieving the effects you want with Oildraulic® Stage Lifts. There are practically no limitations on platform size, lifting capacity or control systems. Installation is by elevator specialists whose services are always available to assure dependable maintenance and operation. Write for literature and list of recent installations or see our catalog in Sweet's files.

Dover Corporation / Elevator Division
Dept. T-6, P.O. Box 2177, Memphis, Tenn.

For more data, circle 70 on inquiry card
An exposed lead membrane for reflecting pools

Sheet lead has long been used as a waterproofing membrane for outdoor reflecting pools and fountains. Normally, however, it is not exposed to the weather, but is covered with a lightweight concrete fill and, perhaps, tile. Thus the lead membrane is not exposed to the direct rays of the sun when the pool is empty.

When architects Harrison & Abramovitz were designing the reflecting pools for New York State's South Mall project in Albany, they came up with the idea of using lead as the top layer rather than as an interlayer. They reasoned that 1) possible breaks in the membrane would be easier to repair (in conventional construction, leaks are practically impossible to find without tearing up the whole pool) and 2) the lead might have some aesthetic advantages when exposed to view. A waterproof pool system was required in this instance because the reflecting pools and fountains will be atop a four-story elevated plaza, above laboratories, offices, a meeting hall, cafeterias, a bus terminal, the main electrical substation, and a central air-conditioning plant.

Using the lead sheet as the top layer posed a new problem, however: the possibility of cracking of the lead due to expansion and contraction caused by wide swings in surface temperature when there was no water in the pools. It has been noted that lead linings exposed for extended periods to temperature extremes from below freezing to 170°F (from absorption of solar heat) had in certain instances been stressed beyond their elastic limit and cracked.

In order to find out whether such severe service conditions might be met, the Lead Industries Association, Inc. undertook a study of a representative pool section, 30 by 35 ft, built using a newly-designed expansion joint, and a special lead alloy sheet (lead with 4 per cent antimony and 0.08 per cent arsenic) which has greater elastic and creep strengths than ordinary lead.

As the lead sheet was laid, 3-in. spaces were left for the expansion joints. In these 3-in. spaces, 1- by 2-in. redwood strips were set; the strips were lined...
on the edges with 1\textsuperscript{1/2}-by 1-in. strips of neoprene foam rubber strip to allow for give and take as the main sheet changed length with temperature. The expansion joint was completed and sealed by capping it with lead sheet of the same alloy as used for the main sheet. The capping, which was formed from rolled alloy sheet, was then "burned" to the surface of the lead sheet. [Lead "burning" is trade terminology for a true weld. It is done using a burning torch and a burning rod of the same composition as the sheet lead to be burned.] While in this test installation rolled sheet was used for the expansion joint, the lead industry recommends that for actual construction, an extruded shape be employed.

The architects felt that the appearance of the expansion joints would be more interesting if they were to run diagonally in a "herringbone" pattern. The test installation was, therefore, laid out in this fashion.

A layer of 30-lb roofing felt was put under the sheet lead to prevent contact between fresh concrete and lead, since free lime can corrode the lead. In the test installation, the felt was overlapped 2 in. But since this double thickness showed a raised seam after one year in the test installation, the investigators now recommend that instead of lapping, the felt be butted and taped.

Following two summers and one winter of testing, visual observation showed that no problems of creep or buckling arose. From measurements taken during the testing, the Lead Industries Association deduced that expansion joints may be as far apart as 38 ft, with no apparent deleterious effect. Measurements of a daily cycling pattern showed that pool buckling was both random and small. Only long-term rises and falls were measurable, but they were found to be of little consequence. The addition of water to the pool lessens, of course, the degree of thermal cycling and leads to even greater confidence in the durability of the construction.

The installation of the lead sheet was made at mid-day, so that surface temperature at that time was approximately 170 F. This temperature was used as the base reference temperature for measuring vertical deformation. The height measurements showed that the most severe positive displacement at any one point was 1.3 cm. On the average, displacements were on the order of 0.2 to 0.3 cm. The data show that during the first three days following installation, the lead sheet showed an initial settling. Days 3 to 42 showed a general rise in level probably due to some cycling expansion. After 42 days the sheet lead appeared to have flattened out.
EXTERIOR COATINGS / Two exterior coating systems provide new and existing buildings with an unlimited variety of surfaces that are attractive, durable, and functionally effective. Marble, stone and other aggregates are partially embedded in a matrix. The systems may be applied over any shape or form and over any sound backing. • Desco International Association, Buffalo, N.Y.

Circle 300 on inquiry card

ACOUSTIC FABRIC / Mellotone pattern number 1415 is an all-synthetic, non-combustible, acoustic material, engineered and designed to be a decorative fabric, and it is sound transparent. Since sound passes through without being distorted, it is possible to use the material to cover speakers, as well as to cover soundproofing insulation where sound should be absorbed. Installation shown is in the new Lincoln High School, Port Arthur, Texas, designed by Lawrence Vihime and J. Earle Neff. Mellotone covers 8 large speaker baffle boxes in the main door ceiling and 20 baffle boxes in each of the ceilings of the two-tiered seating sections. It is also used to cover the three-inch soundproofing insulation on parts of the side walls, rear walls and on tier railings. • Mellotone Inc., New York City.

Circle 301 on inquiry card

ONE-POINT CLASSROOM CONTROL / A compact control panel gives a teacher control of temperature, lighting and intercom—and includes a full-view integral clock. The thermostat can be equipped with a tamper-proof cover, and temperature settings can be locked; light switches are mounted from behind the panel face and the door has a tumbler lock. The 8-in. speaker, in an acoustically lined enclosure, is protected by twin grilles. • Honeywell’s Commercial Division, Minneapolis, Minn.

Circle 302 on inquiry card

FURNITURE / This 36-in. square, 15-in. high bar-coffee table in French olive ash burl is part of a collection that includes chairs, desks, and couches. Nothing is what it seems at first glance, and the coffee table is a good example. It appears to be a piece of modern sculpture, but a closer look reveals an ice bucket in the top and storage for bottles in the sides. The whole piece rolls on hidden casters. • John Mascheroni Furniture Co., Inc., New York City.

Circle 303 on inquiry card

SILK-SCREENED WALLCOVERINGS / Concoctions of colors labeled “use sparingly” illustrate the “Pinch of Salt” collection of twelve designs. Designer Jack Denst forecasts a near-future world of interiors devoted mainly to “slow” tones, to “greyed” versions of otherwise spirited contemporary colors. Insertion of his own bold colors is a “spice-device.” The lively colorways have been planned for disciplined use—in foyers, on single walls or dados, on room dividers or screens, framed as a serigraph, or simply draped. • The Jack Denst Designs, Inc., Chicago.

Circle 304 on inquiry card

GIANT BEAMS / What are believed to be the largest timbers ever manufactured in the U.S. are being laminated and surfaced to support the roof of the new physical education building of the Hampton Institute in Virginia. Five of the seven beams are 123 ft long, 76½ in. deep, and 16½ in. thick. Each beam weighs 35,000 pounds and contains 20,000 board feet of lumber. About 500 lbs. of glue and five gallons of stain are used in laminating and covering each beam. • Timber Structures, Inc. Portland, Ore.

Circle 305 on inquiry card

more products on page 170
OFFICE LITERATURE
For more information circle selected item numbers on Reader Service Inquiry Card, pages 245-246

SOUND-INTERCOM SYSTEM / A silicone solid state system designed for medical and professional offices, restaurants, stores and homes is described in an 8-page booklet. A featured music and communication system with 10 station capacity allows selective station calls without interrupting background music at other locations; another system is equipped with a microphone input for paging. ■ Emerson Electric Co., St. Louis, Mo.* Circle 400 on inquiry card

HOME CARE / The Homeowner's Record Book and Guide provides the new homeowner with basic information on breaking-in and caring for his home. "There are over 3,000 component parts in your new home," reports the guide, "many . . . are products you can easily maintain or adjust." The loose-leaf book includes such topics as plumbing, electrical, heating, painting, floors, and walls in one section, and roofs, surfaces, and landscaping in another. In addition, there are convenient forms for keeping records of taxes, mortgage, utility charges, and insurance. $6.95 plus postage. ■ House & Home Planner's Digest, 330 West 42 Street, New York City 10036.

PANELING / An 8-page brochure illustrates prefinished long-length metal roofing and siding panels available in 5 permanent baked-on enamel colors, galvanized finishes, and aluminum. The text explains the five 1-in.-deep ribs that add rigidity, prevent siphoning and drain seepage to the outside. ■ The Ceco Corporation, Chicago.* Circle 401 on inquiry card

Circle 402 on inquiry card

CONCRETE MASONRY / A 15-page booklet presents three textures: slump block, split block and concrete brick. Illustrations of interior and exterior residential applications are included. ■ National Concrete Masonry Association, Arlington, Va.
Circle 403 on inquiry card

PACKAGED WATER CHILLERS / Two catalogs provide information on models capable of passing through a 36-in. doorway. Catalog 901-2 (27 pages) covers 71/2- through 60-ton capacities, while 902 (23 pages) details 70- through 120-ton units. ■ McQuay, Inc., Minneapolis.
Circle 404 on inquiry card

Circle 405 on inquiry card

RECESSED FLUORESCENT LIGHTING / Commercial and institutional lighting fixtures are offered in a 32-page illustrated brochure. A wide range of sizes and shapes are shown, including the Sky-light. ■ Lightolier, Jersey City.* Circle 406 on inquiry card

STORAGE PRODUCTS / A 64-page illustrated catalog covers a complete line for industrial, commercial and institutional use. The booklet details such products as bar racks, book units, clip shelving, lockers, boxes and skids, open shelf files, service carts, tool stands, work-benches, bins and cabinets. ■ Republic Steel Corporation, Youngstown, Ohio.* Circle 407 on inquiry card

WELLPOINT SYSTEM / A 100-page, pocket-size book explains principles of de-watering, and the proper installation and operation of wellpoints, pumps and related equipment. $2.00. ■ Moretrench Corporation, Rockaway, New Jersey 07866.

CURVED PANEL DESIGN / Design information on plywood panels is offered in a 12-page brochure. Connection, flashing, edge joints, and assembling instructions are detailed. ■ Plywood Fabricator Service, Tacoma, Wash.* Circle 408 on inquiry card

LIGHTING FOR SUSPENDED CEILINGS / An 8-page booklet features fixtures that eliminate exposed metal housing. ■ The Celotex Corporation, Tampa, Fla.* Circle 409 on inquiry card

DRAFTING SUPPLIES / A 96-page catalog with over 700 illustrations describes a complete line of more than 1700 items including a wide selection of drawing instruments, drafting media, and slide rules. ■ The Lietz Company, Div. of Paxton National, Inc., South San Francisco.
Circle 410 on inquiry card

FURNISHINGS / A 52-page full-color catalog covers a product line designed to meet industrial and institutional needs. Included are a series of sequence seating for schools, a multiple modular seating series, commercial pedestal base tables, adjustable-height backrest stools, and hat and coat racks. Also featured are extensive lines of fiberglass chairs, steel folding chairs, fixed and folding leg tables, and storage trucks and accessories. ■ Krueger Metal Products Co., Green Bay, Wis.* Circle 411 on inquiry card

PLYWOOD STRESSED SKIN PANELS / A 16-page brochure covers both floor and roof systems and offers revised information to conform with U.S. Product Standard PS 1-66. ■ Plywood Fabricator Service, Tacoma, Wash.* Circle 412 on inquiry card

STUDY CARRES / A 4-page brochure describes and illustrates models that may either be installed against a wall or arranged in completely self-supporting island groups. Panel and desk surfaces are of laminated alkyl-melamine plastic with solid or wood grain finishes. Electric lighting and outlets for audio-visual equipment are optional. ■ Paneline Division, Movable Walls Corporation, Covina, Calif.
Circle 413 on inquiry card

INTERIOR HARDBOARD / Illustrations of panels, pre-finished moldings and other accessories are presented in a 24-page catalog conveniently indexed by categories. ■ Masonite Corporation, Chicago.* Circle 414 on inquiry card

More literature on page 216

164 ARCHITECTURAL RECORD December 1967
Specify the new masonry fillers. They pass the test of time.

And only fill-coats with Goodyear PLIOLITE® resins pass the test for Federal specs. These unique fillers plug the holes in masonry surfaces, forming a flat, nonporous shield that won't blot up paint. They cut your client's painting costs.

And repainting costs. Paint grips longer on the fill-coated surface. And —ultimately— subsequent paint jobs are as economical as the first.

Fill-coats based on Goodyear PLIOLITE resins lock into masonry. Permanently. Your buildings stay looking new for ages.


Give cinder block, concrete and stucco buildings lasting protection. Specify a fill-coat with PLIOLITE resins.

For a directory, write Goodyear, Chemical Data Center, Dept. L-84, Box 9115, Akron, Ohio 44305.
Are you self-employed?

You may take advantage of the tax benefits available under the Keogh Act with investments in:

**FIDELITY TREND FUND, INC.**

which emphasizes capital growth possibilities by interpretation of market and economic trends.

For a prospectus and information about the opportunities offered you by the Self-Employed Individuals Tax Retirement Act, see your investment dealer, or write:

THE CROSBY CORPORATION
Dept. KE 225 Franklin St., Boston, Massachusetts 02110

---

Want your name remembered?

Set your client's in metal!

Architects and Decorators: Now that you've made "beautiful music"...building and interior, client and you, all in harmony...how about the words?

They might be mundane words: Purchasing, Personnel, Production, even Please Enter. They might be the most important words in the world. Like: The Widget Company. And: Office of the President. But how they look is up to you.

Knight will cast your letters in solid bronze, brass or aluminum. With anodized, polished or satin finish. To your design, or from our huge variety of styles. Cost, about the same as painted letters. But these will last!

And you'll be remembered, with appreciation. First step: Get Knight's FREE CATALOG, now.

---

new narrow-beam floodlight

**delivers biggest return on lighting investment**

Cost comparisons with three of the industry's most popular high-intensity floodlight types prove GE's new Powr•Spot luminaires, equipped with 1000-watt Multi-Vapor lamps, deliver the greatest return per lighting dollar. Regardless of annual usage—200 to 4000 hours.

Unique reflector design produces minimum overlap from remote mountings; now fewer Powr•Spot units do the job it once took many more conventional fixtures to do.

One of the big factors in the Powr•Spot economy story is GE's exclusive charcoal-filtered optical assembly that prevents efficiency-reducing dirt build-up on reflector, lamp, and inside door glass.

And Powr•Spot floodlights let you use the modern light source best-suited to your application: 1000-watt Multi-Vapor, 1000-watt Mercury-Vapor or 400-watt Lucalox®.

See your GE Sales Engineer or franchised distributor for complete cost-light comparison and other details write for Bulletin GEA-8554. Outfit Lighting Department, Henderson, North Carolina 28739.
Aerofin, the industry pace-setter, offers the widest possible range of fan-system-engineered hot and chilled water, steam, direct expansion, booster, SMOOTH-FIN coils. So why specify over or under your exact requirements?

Aerofin's close-fin spacing produces optimum heat-exchange capacity in unusually compact space. SMOOTH-FIN design coils have a low airside friction factor — yet are completely compatible with modern high-duct velocities. Need coil application help? Your Aerofin man has the answer.

AEROFIN CORPORATION
Lynchburg, Virginia 24505

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

AEROFIN OFFICES: Atlanta • Boston • Chicago • Cleveland • Dallas • New York • Philadelphia • San Francisco
Don’t chain school planners to an inflexible, immobile unit ventilator
Select the totally flexible Lennox DMS Heating-Cooling-Ventilating System

Many new schools are obsolete the day they open! Why? Because the planners became locked into inflexible mechanical and structural systems.

For example, unit ventilators. They require permanent walls, and permanent connections to a hot or chilled water supply. They occupy space within the classrooms. And the boilers and water chillers involved occupy costly space within the building.

The answer: The Lennox Direct Multizone System that requires no floor space, and no permanent walls, and no “boiler” room.

Because its overhead ducts are flexible, outlets can be moved at will. Therefore, walls can be moved, or added or eliminated. And buildings can be added to (you simply put additional DMS units on the roof).

Each Lennox DMS provides room by room thermal control (up to 12 zones per unit). Each responds instantly to changes in weather, occupancy, or activity.

In fact, a DMS unit can provide 100% outside air if required. It can cool free, with outside air, any time temperatures are below 57°F. Mechanical cooling can be installed originally or added any time.

Gas, hot water or electricity can supply the heat.

A low (42") silhouette, and wide choice of outlet designs, impose virtually no architectural limitations.

The Lennox DMS provides the ideal learning climate, both thermally, and in terms of spatial flexibility. For information, see Sweet’s—or write Lennox Industries Inc., 106 S. 12th Avenue, Marshalltown, Iowa.
the quiet show off

Sooner or later, when the big things are decided, you'll come to the time for drinking fountains. The wrong choice can be an eyesore, so don't settle for just anybody's fountain. Haws gives you more new designs and modern materials than all the "other guys" put together. Ask for your free catalog today. **Haws Drinking Faucet Co., 1441 Fourth St., Berkeley, California 94710**

* Shown is Model 7R, hard anodized Tenzaloy aluminum. The finish is permanent, corrosion and abrasion-resistant. Get free details now.

**Haws**

**DRINKING FOUNTAINS**

- drinking fountains and faucets
- emergency eye/face-wash fountains and drench showers
- dental fountain/cuspidors and lab faucets

for more data, circle 76 on inquiry card

continued from page 163

**RAMP FOR HANDICAPPED** / A specially-designed ramp permits the severely handicapped to use regular outdoor recreation facilities such as swimming pools. • Henry J. Campbell Jr. and Associates, Garden City, N.Y.

Circle 306 on inquiry card

**RESILIENT FLOORING** / Sellbacork combines the toughness and lustre of urethane with a specially compounded core aggregate. Although it is extremely resilient, it is also highly abrasion-resistant. There are no seams and the finish requires a minimum of maintenance. The quietness of the ¼ in. thickness makes it attractive for such areas as churches, libraries, schools, and offices. • Selby Battersby & Co., Philadelphia.

Circle 307 on inquiry card

**TWO-IN-ONE LIGHTING LENS** / A lighting control provides all the benefits of both lens and louvers in one unit. Their Louver Lens is slotted for unobstructed air flow. It is available in acryl and styrene, in clear, translucent white and low brightness, and is provided in frameless style as well as T-Bar lay-in systems. • MSL Plastics, Franklin Park, Ill.

Circle 308 on inquiry card

more products on page 171
In an apartment house, families live inches apart.

BEFORE YOU SPECIFY WHAT THOSE FEW INCHES SHOULD BE, REMEMBER ONE OF MANKIND'S MOST CHERISHED RIGHTS IS IN YOUR HANDS. PRIVACY.

Keep New York Plastered.
THE PLASTERING INSTITUTE OF NEW YORK

For more data, circle 44 on inquiry card

This Landmark Flood will still be an advanced design when they change the lamp ...7 years from now

With Mercury Vapor lamps rated 24,000 hours, today's floods must be as esthetically pleasing in years to come as when they are installed. Landmark's contoured design, cast aluminum " Recta-Flood" is created for the future. Its versatility appeals to the specifier, easy installation pleases the contractor, elimination of service problems makes a hit with the owner. Also available with Metallic Vapor lamp. Write Dept. HH for photometric data, specifications, and name of Landmark representative. Our condensed catalog is in Sweet's.

LANDMARK LIGHTING
Division of American Electric Manufacturing Corp.
Southaven, Mississippi 38671

For more data, circle 110 on inquiry card

For data, circle 81 on inquiry card

For more data, circle 110 on inquiry card

For more data, circle 81 on inquiry card
PRECAST MAKES THE DIFFERENCE.
ATLAS WHITE MAKES THAT DIFFERENCE WHITE.

H. D. Lee Building, Mission Woods, Kansas. This is precast at its best. The slim, graceful columns taper from 16-inch square bases to 10-inch square tops, where they meet precast capital arches that flare out to 8-foot squares. The design is made even more striking by the use of Atlas White Cement. Universal Atlas cements are known for their uniform brilliance, whiteness, and physical characteristics that assure quality throughout every phase of construction. And Atlas offers more types of white cement than any other producer.

Sure the price tag is heavier ... but only to save you money!

We do put extra metal, extra plating, extra care into Chicago Faucet bodies. For one reason alone: We expect them to last for years and years.

You see, Chicago Faucet design gathers all operating parts into one replaceable unit. This is unusual first because it closes with the pressure—works easier, stays leak-free longer. Then when service is needed you just drop in a spare unit, finish repairs at the bench. Best of all, if ever necessary you can completely renew the operating heart without disturbing the body or connections.

Does this Chicago Faucet idea really work? Can it promise to save you money? Ask anyone who bought Chicago Faucets 20, 30 or even 50 years ago.

Chicago Faucets offer the biggest line of laboratory fittings also. Ask for catalogs.

No. 897 Service Sink Faucet with integral vacuum breaker, adjustable wall brace, pail hook, adjustable supply arms with integral stops.

No. 1746-E15 Widespread Lavatory Fitting with pop-up waste, in Classic pattern. Available with spray, plain or aerator spouts.

No. 967 Spray Head Lavatory Faucet, for today's public washrooms. Reduces splash and water waste, permits washing in clean running water.

SPECIAL INTRODUCTORY OFFER

Home owner's Record Book & Guide

GIVE THIS HANDSOME, LOOSE-LEAF BOOK TO YOUR NEW HOMEOWNERS — IT’S DESIGNED TO HELP THEM WITH DAY-TO-DAY MAINTENANCE PROBLEMS AND WITH ESSENTIAL RECORD KEEPING.

IT INCLUDES—

★ CONVENIENT FORMS FOR RECORDING HOME PURCHASE DATA . . . REPAIR AND IMPROVEMENT COSTS . . . TAX AND MORTGAGE PAYMENTS . . . WARRANTY DATES . . . YEAR-TO-YEAR UTILITY CHARGES . . . INSURANCE DATA, ETC.

★ USEFUL INFORMATION ON HOME MAINTENANCE PLUS REPAIR TIPS ON LAWN, TREE AND SHRUBBERY CARE . . . IDEAS FOR PRESERVING AND IMPROVING THE VALUE AND BEAUTY OF A NEW HOME.

THIS UNIQUE BOOK IS YOURS ON A FREE EXAMINATION OFFER FROM

HOUSE & HOME PLANNER'S DIGEST

A unique publication distributed daily to new home-planning families reported by F. W. Dodge giving manufacturers an opportunity to offer their product literature to over 50,000 prime prospects annually.

To obtain a copy of the HOMEOWNER'S RECORD BOOK & GUIDE for FREE examination and approval, fill in and mail this coupon.

HOUSE & HOME PLANNERS' DIGEST
330 West 42nd Street, New York, N.Y. 10036
Please send me the HOMEOWNER'S RECORD BOOK & GUIDE for 10 days free examination. In 10 days I will remit $6.95 plus any local tax and postage. Otherwise, I will return the book postpaid.

NAME
ADDRESS
CITY STATE ZIP

For more data, circle 82 on inquiry card
CAN YOU AFFORD NOT TO GO FIRST CLASS...
in something as permanent as a unit ventilator?
Maybe that's why more and more of the best
schoolhouse architects and engineers recommend
Schemenauer, the most thoughtfully engineered unit made!

DESIGNED AND BUILT BY SCHEMENAUER MANUFACTURING COMPANY  HOLLAND, OHIO 43528

"The Benchmark of the Industry"
Photograph taken with a Hasselblad camera through a lens cap made with Mirropane Glass.

You’re seeing them through a mirror

We call it Mirropane®, the “see-thru” mirror. From the children’s side, where light is bright, it looks exactly like a mirror. But from your side, where light is dimmer, it is a window. Teachers and therapists use Mirropane for observing children’s reactions. Storekeepers use it for detecting shoplifters.

You can probably think of a dozen uses of Mirropane for the buildings you’re planning right now.

For more facts, phone your L-O-F distributor or dealer listed under “Glass” in the Yellow Pages, or write:

LIBERTY MIRROR
A DIVISION OF LIBBEY-OWENS-FORD GLASS COMPANY
81127 L-O-F Building, Toledo, Ohio 43624

For more data, circle 84 on inquiry card

LAMINATED FABRICS / Genuine fabric incorporated in a high-pressure laminate is called Numaplast. The fabric-laminate is available on a custom basis of large or small quantities. Numaplast may be used on any vertical or horizontal surface and it is unaffected by cigarette burns, alcohol, coffee and fruit juice stains. • Parkwood Laminates, Inc., New York City.

Circle 311 on inquiry card

BI-FOLD DOORS / These doors have a core of paper honeycomb which is said to give them excellent rigidity from top to bottom and completely prevent warping. Because the honeycomb core is about 90 per cent empty air cells, the doors are extremely light. The doors are available with five different vinyl surfaces in wood grains or linen patterns. • Hexcel, La Mirada, Calif.

Circle 312 on inquiry card

SHOWER TEMPERATURE CONTROL / A balancing control automatically maintains water discharge temperatures, once pre-set. • Speakman Company, Wilmington, Del.

Circle 313 on inquiry card

For more data, circle 85 on inquiry card
The Zibell System cuts costs and
gives new versatility to marble

The Zibell System is a special arrangement of metal struts and fastenings that provide positive anchoring for marble as thin as 7/8”. Old facades require a minimum of remedial work, and the lightweight installation rests easy on old footings. The Zibell System gives marble a versatility that designers like and an economy that delights the owners.

Write for New Brochure “THE ZIBELL ANCHORING SYSTEM”

The Georgia Marble Company
11 Pryor Street, S.W., Atlanta, Georgia 30303

COAST-TO-COAST CONSULTING SERVICE Our engineers stand ready to assist you any time anywhere on any subject involving marble or limestone. A phone call will put one of our men across the desk from you in a matter of hours. No obligation, of course.

For more data, circle 89 on inquiry card
THE UPCO COMPANY
a subsidiary of United Shoe Machinery

Stop him from murdering your floors
...specify U-poxy

If the quarry tile or brick paver floors you specify are going to be “murdered” every day by chemicals, hot water, acids, sugars, alkalis, and salts, grout them with U-poxy! This revolutionary epoxy grout is resistant to most of these severe corrosive conditions! Recommended for kitchens, chemical plants, food processing plants, etc. We’re in Sweets Up A U-poxy joint is actually stronger than the tile units it joins — shear strength in excess of 2,000 p.s.i.

THE UPCO COMPANY 4805 Lexington Avenue, Cleveland, Ohio 44103

[Blank]

PLASTIC FILM SURFACE / More than 25,000 sq ft of Tedlar PVF film bonded to vertical metal panels promises to keep the University of Mississippi’s $1.7 million sports coliseum looking clean and new for years. The film is on a substrate of 16-gauge aluminum, bonded to 18-gauge prime painted steel over a layer of insulation, the whole making up a three-and-one-quarter-inch-thick insulated acoustical wall. According to the architects, Pritchard and Nickles of Tunica, Miss., the film was chosen because of its color fastness and to protect the metal against chipping, crazing, cracking or other maintenance problems. This installation is said to mark the first use of Tedlar on a splayed tapered panel for a radial wall section. — E. I. du Pont de Nemours and Company, Wilmington, Del.

Circle 316 on inquiry card

INVISIBLE SEAMS / Monolithic Durasan vinyl-surfaced gypsum-core paneling, in single-layer, pre-finished wallboard that can be screw-attached to steel studs without visible fasteners or battens and has no dirt-catching grooves or joints. Since it can be cleaned with soap and water the paneling is especially suited to hospitals, hotels and motels, apartments, dormitories, cafeterias, and other public or commercial buildings. Panels are available in eight colors. — National Gypsum Company, Buffalo, N.Y.

Circle 317 on inquiry card

For more data, circle 90 on inquiry card

more products on page 20
73 ideas
to plan a dormitory with
Free.

Please send your free 24-page book on Royalmetal Multiversity dormitory furniture to:

Name

Title

Organization/Firm

Address

City State Zip

For more data, circle 91 on inquiry card.
The time: sunrise. The scene: San Francisco Bay, overlooking the sun-gilded roof of one of the five enormous buildings in the Port Authority’s new Army Street Terminal. The point: the designers locked out leaks by specifying Kaiser Aluminum’s new Zip-Rib® roofing system. And they got a bonus besides—speed. Our exclusive Zip-Rib system uses no nails, screws, or other through fasteners; this means that in the almost 1,000,000 square feet of un-holey roof on this deep-water port complex, there are 550,000 fewer chances for leaks. And because the corrosion-resistant panels are pre-cut to the exact ridge-to-eave length, there are no end laps to worry about, either. Yet its special design holds the Zip-Rib roof tight under heavy wind loads; the tie-down clips fit into the edge flange on each panel and are locked into place by our automatic closure tool which “zips” the panels together. Translucent plastic panels are fully compatible with the aluminum panels, letting you bring the sun inside. Besides locking out leaks, the Zip-Rib system cuts the time needed to put a roof on by one-third or more. The six-month Army Street Terminal job was done in just over
four months. And when you save time, you save money. The same kind of case history could be told about a containerized cargo handling facility of 45,000 square feet at San Pedro, California; about the new roof of almost the same size at a university’s field house; about the 174,000 square feet of roofing on a race track grandstand in New York. All used Zip-Rib roofing.

Doesn’t the Zip-Rib system sound like a good idea for your next building projects? For technical information literature, write Jim Larkin, Room 2136, Kaiser Center, Oakland, California 94604.

The design of our Zip-Rib system encloses and conceals the tie-down fastener in the “zipped-up” standing seam at the edge of each 12” wide panel.
A leak-free, under-plaza garage was demanded to accommodate the tenants at New York University Village Towers. Carlisle Sure-Seal Rubber Membrane was specified because it follows structural movement without damage...it is tear and abrasion resistant...it resists high hydrostatic pressure...it is immune to damage by soil chemicals, bacteria and aging...and, of course, it has excellent water impermeability. But this is not new for Carlisle Sure-Seal Rubber Membrane. For over ten years it has been meeting rugged waterproofing demands.

TECHNICAL AND FIELD SERVICE

This is Dick Kelley, one of the Carlisle team that lends practical assistance in the field. Dick is not a theoretical lab technician, but a waterproofing installer with many years of practical experience.

Technical and field assistance from design through estimating and installation is provided by Carlisle. For good results take advantage of this service, from start to finish.

Write for more information today.
Special Products Department

CARLISLE TIRE & RUBBER DIVISION
Carlisle Corporation • Carlisle, Pennsylvania 17013

For more data, circle 93 on inquiry card
This could change your thinking from the ground up!

Ozite® Town 'N' Terrace Carpet made with Vectra® olefin fiber proved attractive and durable on walkways, balconies, patios, porches, in kitchens, hospitals, offices, restaurants...for over 4 years!
Where would you use it?

Use your imagination! Ozite is the original, proven outdoor-indoor carpet. Sun, rain and snow haven't been able to hurt it. Won't rot. Won't mildew. Colorfast—because the color is in the Vectra fiber, not on it. And because Vectra fiber doesn't absorb moisture, it resists stains from food, drink, even household chemicals.

Use Ozite Carpet in kitchens and restaurants to add comfort, reduce noise, cut dish breakage. Put it in rec-rooms and baths to give warmth, end floor polishing and waxing. Use it in new dramatic ways outdoors...on patios, walkways, balconies.

Easy to install. Needs no binding. 16 decorator colors. Send now for free full-color brochure and sample swatches.

For additional information
... see the 8-page Ozite Carpets brochure in Sweet's Architectural Catalog File, Section 11L/OZ.
... ask your floor covering supplier to show you samples of all the famous Ozite Carpet products.
The Goof Proof Roof.
It covers any shape you can dream up.

A liquid GE Silicone Rubber Roofing System covers any shape you can design . . . elliptical, straight pitched, doughnut shaped . . . to make a long lasting, seamless elastic skin.

And, Silicone Rubber Roofing will stay weather resistant, seamless and resilient for years, if the substrate does its job. And that solves the most common problem of intricate roofs like this. Leakage.

As years of testing have shown, silicone rubber resists sunlight, ozone, ultraviolet and moisture. These are the things that cause eventual damage to other synthetic materials. So a Silicone Rubber Roof will not crack or embrittle. It exhales trapped air. And it will stay seamless as long as the substructure does its job.

Another beauty of Silicone Rubber Roofing is that it weighs only 1/20th of conventional built-up roofing. That opens up all kinds of design possibilities. It goes on in fewer man hours than any other liquid applied system. That keeps costs in line. And it doesn’t take much skill. That’s a help.

So, if you’d like to guard against goofs on your next showcase design, get the facts on GE Silicone Rubber Roofing.
Write Section BG 12271, Silicone Products Dept., General Electric Co., Waterford, N. Y. 12188.

For more data, circle 95 on inquiry card
and, how many people do you know whose ankles are as wide as their jet? Or whose backs are ironing-board flat? Whose arms hang below their feet? Probably the exact number of people who can get really comfortable in a bathtub-shaped bathtub.

Bathtubs are beautifully shaped for sailing toy boats. But certainly not for people.

Until now. Until Crane created the new, body-shaped Empress, the very bathtub to cuddle people in comfort. It's luxuriously wide at the seat for lots of hip and elbow room. Slimmer at the outlet end to include a shelf for bathing accessories. The backrest is actually back-shaped for relaxing comfort. And the self-draining soapdish and strong assist-bar where they should have been all along—right under your hand for safety convenience. The outer rim even slims where you grip it for safe, graceful entry and exit. Every thoughtful contour is built with the Crane quality we admired, then permanently porcelainized in Crane's rich colors.

Before you design another bathroom, you owe it to yourself and to your guests to see The Empress bathtub. It's home in any decor. For additional information write for Brochure ADJ-1984, the Co., Dept. 008, 4100 South Kedzie Avenue, Chicago, Illinois 60632.

CRANE

Crane just created a bathtub shaped like people
(for people who just aren't shaped like bathtubs)
FROM RECORD HOUSES OF 1967

2 Gonzales House, Paradise Valley, Arizona. Architect: Bennie M. Gonzales. Photo by Bill Sears
4 Woo House, Los Angeles. Architect: Young Woo. Photo by Leland Lee
Coming in mid-May...

RECORD HOUSES OF 1968

Featuring...
The 20 Houses of the Year

A year in preparation, RECORD HOUSES OF 1968 will present the work of a wide variety of architects ranging from the well-known to talented unknown architects new to the ranks of major innovators. The houses will win for their architects and owners Architectural Record's coveted Annual Award of Excellence for House Design. All 20 award-winning houses are fully detailed with photographs (many in full color), plans and schematics. This highly visual presentation of each house, coupled with a clear statement of the problems and purposes behind its planning, will make RECORD HOUSES OF 1968 an ideal tool for opening your client's eyes to ways in which architecture can serve their individual needs, aspirations and way of life.

RECORD HOUSES OF 1968 comes to you as part of your subscription to Architectural Record. And again in 1968, RECORD HOUSES will be distributed to the nation's 23,000 foremost builders to accelerate the healthy trend toward greater architect-builder collaboration on tract housing. The house building and buying public will find it on sale at leading book stores.

ARCHITECTURAL RECORD
330 WEST 42ND STREET
NEW YORK, N.Y. 10036
A McGRAW-HILL MARKET-DIRECTED PUBLICATION
Whatever the shape...

whatever the finish, you'll find your requirements in Wall Urns by Duk-It. Superb quality, designed and built into every product.

See our complete line of urns, trash/ash receptacles by contacting your Duk-It representative...or write for full-color brochure.

DUK-IT
McDonald Products Corp.
205 DUK-IT BLDG., BUFFALO, NEW YORK 14210
For more data, circle 97 on inquiry card
Would all Americans kindly leave the page?

(Except for those designing jobs for locations outside the U.S.)

We want to talk about the Archimetric System, a new series of architectural products already proved in use in the US; and optional in Alcoa Duranodic 300® finish

Alcoa International has wrapped up the best features of aluminum building components in one neat, universal package.

Curtain-wall, windows, doors, accessories . . . the lot.

And all in Alcoa Duranodic 300, if specified.

A complete range of aluminum architectural products capable of building anything from a modest shop to a luxury hotel.

Because we are an international marketing organization we can supply your needs everywhere outside the U.S.

Available everywhere’ means that the nagging, time-wasting business of specification is simplified right down to one straightforward process . . . leaving you free to get on with the real business of being an architect. You can rely on Alcoa International to make sure that the local licensee is really trustworthy before he is given full responsibility for fabrication, assembly and installation of Archimetric products. He stands ready to inform, estimate, schedule, and deliver on any project. Any size. Anywhere. Except the U.S. of course.

Important

This booklet may contain the answer to one of your current problems. Better get it right away. The address is:
Alcoa International, S.A., Avenue d’Ouchy 61, Lausanne, Switzerland.
(A subsidiary of Aluminum Company of America.)

ALCOA INTERNATIONAL

For more data, circle 98 on inquiry card
CEILING GRID AIR DIFFUSER / Tri-Trol
Air Trak, a satin finish extruded aluminum grid, will support all standard ceilings and lighting fixtures, and features a center groove to permit complete flexibility in partitioning interior areas. Air distribution patterns are adjustable within a full 180 deg through three-inch-long openings alternating for the continuous length of the installed grid. A knurled knob adjusts the control valve for the full length of the module. • Krueger Manufacturing Company, Inc., Tucson, Ariz.

Circle 321 on inquiry card

HERE’S AN ATTRACTIVE / PRACTICAL SOLUTION TO THE WRAPS PROBLEM IN THE MODERN CLASSROOM

SCHOOLINE SEMI-CONCEALED WARDROBES
do away with the costly, inconvenient nuisance of a cloak room—the slamming, banging, finger pinching of closet doors—the unattractive clutter of open shelving and, instead, give a completely flexible hidden-from-view wraps and storage system.

Each double wardrobe unit accommodates 16 pupils, is constructed to give long trouble-free service and as an extra bonus, provides 21 sq. ft. of colorful tackboard or chalkboard. Matching teacher’s closet, storage cabinet, and sink units are available and can be combined to meet your special requirements.

For a more complete story write for our catalog SL-48


"The Coat Rack People"
ELMHURST, ILLINOIS

For more data, circle 99 on inquiry card

PLAYGROUND EQUIPMENT / A wide range of stainless steel product lines include seven basic slide designs, 75 swing set designs, seven glider swing designs, a variety of merry-go-rounds, spring-supported animals, climbers, muscle bars, obstacle courses, basketball equipment, bicycle racks, park benches, and picnic tables and grilles. One of the latest slides is a 26-ft, high space rocket. The company makes available proposed playgrounds in miniature, using scale models after they have received a dimensioned sketch of the playground and the approximate age range and number of children who will use the area. • Game-Time Inc., Litchfield, Mich.

Circle 322 on inquiry card

DRAFTING HEAD / A magnetized drafting head, which is self-locking in any position and needs no wires or counterbalances, is claimed to cover the whole of a normal 54-in. by 32-in. drawing board to the top rail without extensions. The head is mounted on a carriage and vertical rod assembly and is locked in position by a simple trigger mechanism. For left-handed draftsmen, and to enable the entire drawing surface to be used, the head may be released from its vertical rod slide and rotated through 180 deg and replaced. • British Information Services, New York City.

Circle 323 on inquiry card
Prescription for economy:  
Concrete tees that combine mechanical and structural functions

At the Medical Merchandise Mart, a one-stop shopping center for doctors, prestressed single-tee units span the 96-ft. wide showroom and cantilever beyond. Only prestressed concrete could combine the long spans and striking appearance within the budget limitations of this project.

Contributing to its economy was the ability of the tees to perform beyond their primary structural function. Their very shape reduced the cost of air distribution and made practical the use of inexpensive light fixtures.

Again, the undersides of the tees require no weather protection outside and only a coat of light-reflecting paint inside if desired.

The structural system is a combination of prestressed concrete tees and precast framing. The high white ceilings and freedom from columns give the feeling of an open-air display that enhances the building's function—the display of medical equipment.

The Medical Merchandise Mart is typical of structures being built today for new reasons and new functions: an excellent example of how total thinking and cooperation between owner and architect can create a structural answer that is both aesthetically pleasing and commercially functional.

For the full story on design and construction details of the Medical Merchandise Mart, write for free literature. (U.S. and Canada only)
Versatility... in prestressed concrete
Double-tees do double duty in 360,000 sq. ft. shopping center

The Mall — a new, enclosed shopping complex between Elmira and Corning in Big Flats, New York — is employing one prestressed concrete member to function as two design elements.

Double-tees, 7½ feet wide by 18 inches deep, as roof panels enclosing the mall area. In addition, these elements also serve as exterior wall panels, lending beauty and basic continuity throughout the structure.

Use of these prestressed concrete elements helped minimize wintertime construction problems. Pre-cast under controlled plant conditions and delivered to the site when crews were ready for them, the double-tees permitted work to continue even when weather and ground conditions were less than ideal.

Today, the versatility of prestressed concrete is evident in shopping centers, high-rise apartments, office buildings, parking decks, bridges, dock facilities, transportation terminals in projects throughout the nation. And for these projects, and more quality conscious prestressed concrete suppliers, relying on service-proved TUFWIRED® and TUFWIRED Strand for their post-tensioning and pre-tensioning operations. For dependable performance... TUFWIRED and TUFWIRED Strand.

If you are interested in seeing other examples of prestressed concrete's versatility, then write for a free copy of our booklet Prestressed Concrete: a Growing Concept in Construction. Union Wire Rope Products, including TUFWIRED and TUFWIRED Strand for tensioning, are made by Armco Steel Corporation, Department W-3297, 7000 Roberts Street, Kansas City, Missouri 64125.

ARMCO STEEL

For more data, circle 101 on inquiry card
For safer, more comfortable, more enjoyable living

**TALK-A-PHONE**

**HOME INTERCOM-RADIO SYSTEM**

**Fully Transistorized.** Everyone in the family will enjoy the comfort, convenience, and peace of mind this system provides. From any room in the house you can...  
- Listen-in on baby, children, or sick room.
- Answer outside doors without opening door to strangers.
- Talk to anyone—upstairs and downstairs, inside and out.
- Enjoy radio in every room with the simple flick-of-a-switch.


**Intercom For Apartment House.** Provides instant and direct 2-way conversation between any Apartment and Vestibules—in buildings of any size. Greater performance with these exclusive Talk-A-Phone features:  
- Ample volume without "boom"  
- Automatic privacy  
- Individual volume selection for each apartment  
- Built-in Buzzer.

**Intercom For Office and Industry.** Saves thousands of man-hours, simplifies office routine. Distinctively styled, ruggedly built to withstand continuous day and night use. From 2-station systems to elaborate installations, you can do it better and more economically with Talk-A-Phone. Pays for itself many times over.

*Send for Free Catalogs...* Dept. AR-12

**TALK-A-PHONE CO.,** 5013 N. Kedzie Ave., Chicago, Illinois 60625

For more data, circle 103 on inquiry card
Completed Project: USS ULTIMET

This office building the distinctive appearance that only
strong, beautiful, maintenance-free stainless steel can provide.
Significantly, the building is owned by the Joslyn Stainless Steel &
Supply Company, Fort Wayne, Ind.

Testing: USS ULTIMET wall undergoes dynamic test for resistance to
ter infiltration (NAAMM Test C-2). The wall was subjected to a water
flow and winds of 100 and 130 miles per hour. Results: No evidence
of water on the interior.

Production: Two half-mullions are continuously seam-welded
this resistance seam-welding machine. USS ULTIMET components
are maintained in inventory to ensure immediate delivery.

Fabrication: Shop preparation of
ULTIMET components for installation
fast and simple. Many of the
items require only cutting to length
in abrasive cutting equipment.

Erection: USS ULTIMET Framing
members go up fast and easy, worker snapping in a horizontal
member which can support either
ulated panels or fixed glass.

United States Steel, P. O. Box 86 (USS 5042), Pittsburgh, Pa. 15230

Send me the following material on USS ULTIMET:

☐ “A Significant Architectural Innovation” (includes design drawings).
☐ “Suggested Guide Specifications for USS ULTIMET Stainless Steel Wall Framing.”
☐ “Suggested Guide Specifications for USS ULTIMET Stainless Steel Narrow Stile Swinging Doors and Frames.”
☐ “USS ULTIMET Stainless Steel Business Showplaces” (renderings of storefronts).
☐ Information on USS ULTIMET in USS COR-TEN Steel.

Name

Title

Firm

Address

City  State  Zip
NEW FIRMS, FIRM CHANGES

continued from page 78

George R. McElvy and James J. Jennewein announce John E. Stefany, A.I.A., as a partner in the firm of McElvy, Jennewein, Stefany & Associates, Architects, A.I.A. The firm is located at 1020 Exchange Bank Building, Tampa, Florida.

Pancoast/Ferendino/Grafton/Architects have added to their staff Ralph Z. Aaron, city planner. The Miami firm is located at 2575 South Bayshore Dr.

Michael A. Grillo is now a partner in the architectural firm of Schiller & Frank, 23 East Jackson Blvd., Chicago.

Schutte-Phillips-Mochon, A.I.A. Wisconsin architects, planners and engineers, have named Frederick Albert Schutte a partner. The firm maintains offices in Milwaukee, Appleton and Kenosha, Wis.

Ellison, Sedgwick & Associates has changed its firm name to G. A. Sedgwick & Associates, Consulting Structural Engineers, 1045 Sansome St., San Francisco.


Frank Straub & Associates, Architects, has amended its firm name to Straub, Van Dine and Brown, Architects.

Harold F. Van Dine Jr., A.I.A., has joined the firm as principal in charge of design, and Robert L. Brown, R.A., has been appointed principal in charge of production and coordination. The firm's address is 177 West Big Beaver Road, Troy, Mich.

Three principals of Stone, Marraccini & Patterson have been elected vice presidents of the San Francisco architectural and planning firm. The new vice presidents are: George A. Agron, Sanford L. Berger and Robert J. Bettencourt.

The architectural firms of Ray Takata, Architect and John W. Hansen, Architect have formed a partnership for the practice of architecture under the firm name of Takata & Hansen, Architects. Offices are relocated at 926 Jay Street, Sacramento, California, Suite 910.

Vosbeck-Vosbeck & Associates, Architects, of Alexandria, Virginia and Kendrick and Redinger, Consulting Engineers of Arlington, Virginia have merged for the combined practice of architecture, engineering and planning. The merged firm, Vosbeck-Vosbeck-Kendrick & Redinger, is relocated at 720 North Saint Asaph Street, Alexandria.

John Carl Warnecke, F.A.I.A., Architects, Planners and Landscape Architects has appointed A. Eugene Kohn as a vice president of the firm and director of the New York Office, 350 Park Avenue.

NEW! WEATHERTIGHT EXTRUDED ALUMINUM FLUORESCENT UNITS

The 97 line—rugged, totally enclosed fixtures—ideal for any wet location

mcPhilben brings you a fixture of great structural strength whose clean rectilinear styling blends naturally with the most contemporary architectural concepts. Heavy wall aluminum construction combined with an unbreakable polycarbonate diffuser creates a virtually indestructible unit.

A clear prismatic acrylic diffuser is standard for normal applications. Fully enclosed and gasketed, the 97 Line keeps out water under pressure, vapors, bugs and grease. Your choice of one or two lamp units with ballasts for starting temperatures as low as —20°F. Varied mountings available.

97 Line has a continuous knuckle hinge door (see left) that swings away to simplify relamping and is completely removable for maintenance. The door locks with quarter turn Phillips head Camloc captive screws. Write for complete specifications and data.

For more data, circle 108 on inquiry card
A hotel with no hotel rooms

The 765 accommodation units of the Four Ambassadors range from studio apartments to luxurious penthouses. There's not a "hotel room" in the house. Every guest accommodation is a suite. And each suite is masterfully planned to provide the most imaginative use of floor space possible.

The architects selected concrete to render this new idea in bay-front, downtown living which will serve both businessmen and vacationers in Miami. Here, as in new construction ideas throughout the U.S., Lehigh Cements helped make it happen. Lehigh Portland Cement Company, Allentown, Pa.

...built with concrete

The new Biscayne Bay-front complex consists of four, 19-story residence towers, an International Promenade shopping plaza and entertainment center, two yacht piers and two swimming pools. Below-ground parking for 760 cars provides direct access to both the Promenade and dwelling areas.

The entire complex is constructed of concrete. Columns and floors are all reinforced cast-in-place concrete. Walls are Portland Cement stucco over concrete masonry. Each residence tower measures 110' x 110' overall. And the Shopping Plaza is 540' x 45'.

Owner:
Nathan Manilow, Harry Salter & Robert L. Turchin (Partners), Miami Beach, Fla.

Engineer:
James O. Power, So. Miami Beach, Fla.

Architect:
Russell-Melton Associates, Miami, Fla.

General Contractor:
Robert L. Turchin, Inc., Miami Beach, Fla.
When **SILENT** door control is vital...

**THE CHOICE IS**

LOYOLA UNIVERSITY MEDICAL CENTER, Hines, Illinois
SCHMIDT, GARDEN & ERIKSON, Architects and Engineers
GEORGE SOLLITT CONSTRUCTION CO., General Contractors
KEN-LEE HARDWARE CO., Contract Hardware Dealer

AND THE ECONOMY OF MANY YEARS OF TROUBLE-FREE SERVICE COMPLETES THE CHOICE

Yes, anyway you look at it... economy or function...
GJ door control hardware is a favorite in hospitals everywhere. Whether it's door stopping, door holding, or cushioning the stop, you can always depend on the silent function of GJ products... year after year... reducing the cost of maintenance to a minimum.

**SEND FOR FREE DESCRIPTIVE LITERATURE**

GLYNN-JOHNSON CORPORATION / 4422 NORTH RAVENSWOOD AVE. / CHICAGO, ILLINOIS 60640

For more data, circle 131 on inquiry card
Environmental analysis of college housing


An interdisciplinary approach to the problems of programing and designing the environment can assist the analytic skills of the architect and at the same time enhance his design capacities. Such interdisciplinary action is a rich area for an integrated attack on the same problems.

The squeeze on future college housing certainly justifies the need for an interdisciplinary analysis on the various aspects of student housing design. Moreover, since the environment is a prime part of the molding of an individual, the reaction that takes place between man and his environment there should set out sensitive criteria. The results of this study indicated first of all, the need for a relationship between the design process and environmental analysis.

Modern industrial sealants

SEALANTS. Edited by Adolftas Damusis. Reinhold Book Division, 430 Park Avenue, New York, N.Y. 10022. 382 pp., illus. $17.00.

A comprehensive reference on the new kinds of sealants should be especially helpful to those architects and engineers who need to make a serious evaluation of sealant properties and applications.

Here is a primary source of reference on the new sealants. It provides detailed information on every type of polymeric binder available giving a classification of sealants, characteristics of binders and pigments, and physical qualities of joints. The chemistry of sealants is kept minimal with the emphasis put rather on the types of binders, their application, and physical properties.

Sealants are presented on the basis of their polymeric binders and in the order of their decreasing elasticity and recovery. Various chapters deal with physical aspects of sealants in a joint, with pigments and their applicability in low modulus elastomers, with equipment for sealant application, and with specific problems encountered in the testing of sealants. Elastic recovery of cured sealants is correlated with the linearity of the elastomeric binders.
Formerly . . .
you had to spray on fireproofing here.

Now . . .
Robertson Q-Lock® Floor gives you 2-hour fire rating without fireproofing underneath.

H. H. Robertson Company's research and development group is constantly searching for new ways to improve construction and lower costs. Q-Lock Floor is a good example. Since its design made structural partners of concrete and steel, new fire tests became feasible. Underwriters' Laboratories Floor & Ceiling Design No. 267 tested and classified it a 2-hour fire rated floor construction without the underfloor fireproofing previously required. When an incombustible ceiling is used, this new 2-hour floor construction can result in considerable savings in time and money. Write for complete Q-Lock Floor literature.

SPECIFY ROBERTSON Q-LOCK FLOOR

H. H. ROBERTSON COMPANY

For more data, circle 112 on inquiry card
CABINET UNITS

for one-room-at-a-time heating/cooling

Do both heating and cooling jobs economically and efficiently with the new SC NELSON/aire cabinet unit. Install the units in one room at a time or in a complete wing at one time. This thin-profile, through-the-wall unit heats via central system steam or hot water—or comes equipped with its own electric resistance coils. Whisper-quiet air conditioning is self-contained. A sealed refrigeration unit, available in 8,000, 12,000 and 15,000 BTU/hr. capacities, needs only the correct electrical source for immediate, plug-in cooling. It also features 20% fresh air ventilation. SC NELSON/aire may be installed initially for heating and ventilating only. Then, packaged refrigeration section can be added quickly, easily, at low cost when you're ready. Here's the ideal way to bring modern climate control to older rooms or build it into new ones. American Air Filter Company, Inc., 215 Central Avenue, Louisville, Kentucky 40208.

For more data, circle 113 on inquiry card
NELSON/aire

UNITS

NELSON/aire cabinet unit
(self-contained air conditioning) can be installed through the wall without disrupting service to surrounding areas. Complete assortment of temperature control packages helps you get the most from your fuel costs—in any installation. Unit is completely insulated and weather sealed. Slide-in refrigeration section is equipped with handles for easy maintenance. Two-speed operation with color coded pushbutton controls. Choice of filters to fit any maintenance program—throwaway, renewable, permanent or polyurethane. Pop-out front panels (optional) make filter changing fast and easy—for anybody. Decorator or standard models available in choice of colors. Cabinet top and sides are 16-gauge metal. Thin profile projects only 7 1/2' into room. Fits any wall thickness.

NELSON/aire cabinet units for central systems. The same thin-profile, architecturally-styled NELSON/aire cabinet units are also available in over 289 models for systems that feature central system heating and chilled water cooling. These units feature money-saving "Damper guard" control system for maximum dehumidification (moisture removal); an anti-blow through ventilating damper; and your choice of up to 25% or 100% fresh air damper arrangements for ventilation requirements. NELSON/aire heating, ventilating and air conditioning units are available in a complete range of CFM sizes. Both decorator and standard models available in choice of colors.

NEW ITALIAN ARCHITECTURE. By Alberto Galardi. Frederick A. Praeger, Publishers, 111 Fourth Avenue, New York, N.Y. 10003. 203 pp., illus. $17.50.

ARCHITECTS' DETAIL LIBRARY, Volumes 7-7. Edited by Konrad Catz and John Thierry. Transatlantic Arts, Inc., 565 Fifth Avenue, New York, N.Y. 10017 pp., illus. $11.50 per volume.


COLLEGE HILL, A DEMONSTRATION STUDY OF HISTORIC AREA RENEWAL. Conducted by the Providence City Plan Commission. City Plan Commission, City Hall, Providence, Rhode Island 02902. 240 pp., illus.

SOME ROOTS OF MODERN ARCHITECTURE. By Heinz Rasch, Transatlantic Arts Inc., 565 Fifth Avenue, New York, N.Y. 10017. 92 pp., illus. $7.50.


CONSTRUCTIVISM. By George Rickey. George Braziller, Inc., One Park Avenue, New York, N.Y. 350 pp., illus. $15.00.

A TREATISE ON THE THEORY AND PRACTICE OF LANDSCAPE GARDENING. Introduction by John O. Simonds, Jr. Funk & Wagnalls, 300 Madison Avenue, New York, N.Y. 10017. 576 pp., illus. $7.50.

PRIVATE HOUSES, AN INTERNATIONAL SURVEY. By Werner Weidert. Frederick A. Praeger, Publishers, 111 Fourth Avenue, New York, N.Y. 10003. 165 pp., illus. $16.00.

For more data, circle 113 on inquiry card

For more data, circle 114 on inquiry card

Valuable Bookmark

Tear along dotted line, place in Sweet's File No. 2 (Hartmann-Sanders Wood Columns) and whenever you want full and complete information on classical columns and their complementary components, just call 312-439-5600 collect.

If you don't have Sweet's, call collect today and well'll send you our Wood Columns catalogue.

HARTMANN-SANDERS COMPANY
1717 Arthur Avenue
Center Industrial Park
Elk Grove Village, Illinois 60007
228* studies revealing reading preferences of architects and engineers

*SPONSORED BY BUILDING PRODUCT MANUFACTURERS AND ADVERTISING AGENCIES

Send for your copy of 228 Studies. Write, phone or wire your Record representative today.
In 210 out of 228 independently sponsored readership studies, architects and engineers have voted Architectural Record "preferred", "most helpful", or "most useful."

While the results of a single study may not provide a conclusive picture of reading habits, the steady pattern of preference for Architectural Record as expressed in 210 studies—comprising over 243,000 mail questionnaires and interviews over a period of three decades—surely deserves the close attention of every advertiser who seeks to place his architectural advertising on the basis of readership.

Especially significant is the fact that, since January 1966, architects have voted Architectural Record "preferred" in fifteen out of fifteen studies. Here are the results:

<table>
<thead>
<tr>
<th>READERSHIP STUDIES — 1966-August, 1967</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record</td>
</tr>
<tr>
<td>PA</td>
</tr>
<tr>
<td>AF</td>
</tr>
<tr>
<td>A &amp; E N</td>
</tr>
<tr>
<td>AIA J</td>
</tr>
</tbody>
</table>

Equally significant is the fact that the Record's margin of leadership over the second place magazine has widened at the same time. In 1965 the margin of preference for the Record over the second place magazine was 19 per cent. In 1966, it was thirty-five per cent. In three recent independent readership studies, the Record's leadership over the second place magazine has widened to more than fifty per cent. Here are the results of these studies, in response to the question, "Which architectural magazine do you find most helpful in your work?"

<table>
<thead>
<tr>
<th>Why Architects and Engineers Prefer Architectural Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because the Record continually grows with the profession—improving its &quot;helpfulness&quot; whenever possible—such as the redesign of the magazine in 1966, the unique Architectural Business feature introduced last January, and the Architectural Engineering Special Report, unveiled in the July issue.</td>
</tr>
<tr>
<td>Because Record has the largest editorial staff in the architectural field with 17 full-time editors.</td>
</tr>
<tr>
<td>Because Record's staff brings to its work over 250 years' background in architecture, journalism, engineering, teaching and the graphic arts.</td>
</tr>
<tr>
<td>Because Architectural Record editors take a no-nonsense approach to the profession—stressing 100 per cent editorial concentration on architects and engineers—with every page reflecting their working information needs and interests.</td>
</tr>
<tr>
<td>Because the Record staff is imaginative—creating a unique editorial climate that attracts the greatest architectural and engineering authorities of our time.</td>
</tr>
<tr>
<td>Because the Record offers architects and engineers the most editorial pages in the field—with most on nonresidential and residential buildings...the most photographs, drawings, four-color, the work of the most architects.</td>
</tr>
</tbody>
</table>

Why More Building Product Manufacturers Prefer Architectural Record...

Because architects and engineers find the Record most helpful in their work, they spend more time with the Record, giving advertisers a better climate in which to tell their advertising story. And they are the active architects and engineers. Over 90 per cent of all architect-designed non-residential and large residential building is in the hands of Record subscribers.

Sell your building products to architects and engineers in the magazine they prefer...more building product manufacturers do.
ARCHITECTURAL RECORD

Published by McGraw-Hill, Inc., 330 West 42nd Street, New York, New York, 10036. ©1967. All rights reserved.

SEMI-ANNUAL INDEX

Readers using the index will find buildings, with only a few exceptions, entered in three ways: by architect’s name, by owner’s name, and by building type (apartments, hospitals, schools, etc.). Still other categories cover the special subjects dealt with in the magazine’s engineering (lighting, prefabrication, etc.). Still other categories cover the special areas addressed (its structural materials, components; RR—Record Reports for lead-lined pools”—Dec. 1967, pp. 161-162.

B


C


Harrell & Hamilton and Chan/Rader & Associates, archts.; Mounsey College, Dallas County Junior College District, Texas—Nov. 1967, BTS, p. 159.


Heinle, Erwin and Robert Wischer, archts; College University Medical Center, Cologne, Germany—Sept. 1967, BTS, p. 190-1.


First Federal Savings and Loan Association, Salem, Oregon; Wilmsen, Endicott and Unthank, archts.—July 1967, p. 132.


Fisher Administrative Center, University of Detroit; Gunnar Birkerts and Associates, architects.—July 1967, p. 132.


ADVERTISING INDEX

Pre-filed catalogs of the manufacturers listed below are available in the 1967 Sweet's Catalog File as follows.
A Architectural File (green)
I Industrial Construction File (blue)
L Light Construction File (yellow)

A
Aerofin Corp ........................................... 167
Alcoa International .................................. 210A
A-1 Allen Mfg. Co., W. D. ......................... 50
A I Aluminum Co. of America ..................... 22-23
Ameritherm Air Filter Co. ......................... 235
American Olean Tile Company .................. 53
American Smelting & Refining Co ............. 102
American Standard, Plumbing & Heating Div. 33
American Telephone & Telegraph Co ........ 34
Amos Company, W. R ............................... 32-71
A L Andersen Corp .................................. 192-193
Architectural Record .............................. 236-237
A I Armaco Steel Corp .............................. 210D
A L Armstrong Cork Co .............................. 171
A L Art Metal, Inc .................................... 104
A L Azrock Floor Products ......................... 3rd Cover

B
A Bally Case & Cooler, Inc .......................... 96
A L Bell Telephone System ......................... 34
Beveren of California ................................ 95
A I Bethlehem Steel Corp ......................... 158-159, 174-175
A L Borden Metal Products Co .................... 45
A L Bradley Washfountain Co ...................... 25

C
A L Carlisle Tire & Rubber Div., Carlisle Corp. 204
A Carpenter & Co., L. E .............................. 54
ACeco Corp ............................................ 106
A I Celotex Corp ...................................... 68-69
Chicago Faucet Co ................................. 384
Chicago Pump Co ..................................... 100
A L Cleaver Brooks Company ...................... 29
Concrete Reinforcing Steel Institute .......... 70-71
Copper Development Association, Inc. ....... 17
A L Crane Co ........................................... 207

D
Day-Brite Lighting Div. of Emerson Electric .......................... 187 to 190
A Dover Corp., Elevator Div ....................... 160
A L Dow Badische Co ................................. 26-27
Dunham-Bush, Inc .................................. 47
DuPont de Nemours & Co., E. I .................. 157
A L Duriron Co., Inc ................................. 1
A L Dur-O-Wal ....................................... 2-3

E
Edison Electric Institute ........................... 66-67
Eljer Plumbingeware Div., Wallace-Murray Corp. 8
A L Enjay Chemical Co ............................... 65

F
Fidelity Management & Research Co ........... 166

G
A L General Electric Co ............................ 166-167, 206
A L General Fireproofing Co ....................... 20
Georgi Marble Co ................................. 199
Glypt-O-Johnson Corp ............................... 231
A I Goodrich Co., B. F. ............................. 34, 194
A I Goodyear Tire & Rubber Co .................. 165
A Grant Pulley & Hardware Corp ............... 56
A Guth Co., Edwin F ................................. 79

H
A Hartmann-Sanders Co ............................ 235
A Haughton Elevator Company ................... 7
A Hass Drinking Faucet Company ............... 170
Hepolzine Co., Inc ................................. 178-179
L Honeywell ......................................... 21
House & Home ....................................... 184

I
International Nickel Co., Inc ..................... 49

J
A Jamison Door Co ................................. 2nd Cover

K
A Kaiser Aluminum & Chemical Co .............. 202-203
A Kawneer Co ....................................... 98-99
A L Keystone Steel & Wire Co ..................... 11 to 13
Knight, H. W. & Son, Inc ......................... 166
A Krueger Metal Products Co ..................... 103
A K-S-H, Inc ......................................... 92

L
Landmark Lighting Div., American Electric Mfg. Corp ........................................ 181
A L Lead Industries Assn., Inc ..................... 226
Lehigh Portland Cement Co ....................... 230
A L Lennox Industries, Inc ......................... 168-169
A L Levolor Lorenzten, Inc ......................... 72-73
A L Libbey-Owens-Ford Glass Co ............... 211 to 214
Liberty Mirror, Div. Libbey-Owens-Ford Glass Co .......................... 106
Lighting Products, Inc ............................. 28

M
McDonald Products Corp ........................... 210
A L McPhilen Lighting Div., Emerson Electric Co., Inc 229
Medusa Portland Cement Co ..................... 105
A L 3M Company ....................................... 97

N
National Lead Co .................................... 215

O
A O'Brien Corp., The ................................ 215
A L Olson Div., Studebaker Corp ................ 84-85
A Ots Elevator Co .................................... 75
A L Overhead Door Corp ............................ 14 to 16
A L Oxford Mills, Inc ............................... 165
A Otsie Corporation .................................. 265

P
A I Pella Rolsecreen Co ............................. 227-228
A L Pennsalt Chemicals Corp ....................... 32
A L Pittsburgh Corning Corp ....................... 224-225
A L PPG Industries .................................. 177 to 180
Flastering Institute of Greater New York .......... 181
Portland Cement Association ..................... 210C
A L Prestressed Concrete Institute ............... 63

R
A L Rayner Mfg. Co .................................. 223
A L Republic Steel Corp ............................. 90-91
A Rhoss, Inc., M. H ................................. 103
A L Robertson Co., H. H ............................. 233
Royalmetal Corp ................................. 291
A L Ruberoid Co ................................. 56
A L Ryerson & Son, Inc., Joseph T ............... 195 to 198

S
Sandvik Steel, Inc ................................. 54-55
A Sargent & Company ............................... 62
Schemenauer Mfg. Corp ............................ 189
Sechrist Manufacturing Co ....................... 96
Selck, Walter E., and Company ................... 181
A L Sloan Valve Company ........................... 4th Cover
Square D Company .................................. 74
A L Standard Conveyor Co ......................... 210
A Steel Joist Institute .............................. 244
Sweet's Catalog Service ............................ 243

T
Talk-A-Phone Co ................................... 218
A L Thermador, Division of Norris Industries .................. 51
A L 3M Company ....................................... 97
A Tile Council of America, Inc .................... 64
A Tremco Mfg. Co .................................... 176
Tyler Refrigeration Div., Clark Equipment Co. .... 52
In your Sweet's Files you'll find useful, readily available information from 1,497 manufacturers, including most of those listed in the adjoining index (see codes).

Save time. For immediate details, reach for your Sweet's Architectural Catalog File, Sweet's Industrial Construction Catalog File, or Sweet's Light Construction Catalog File.

Joist Laboratories Like This Assure BETTER CONSTRUCTION for You

This is a common sight in the laboratories and test centers operated by Carnegie Tech and Kansas and Washington Universities on behalf of the Steel Joist Institute. In these laboratories, new ideas in open web steel joists are performance-tested by research and development specialists. It was through such facilities that the SJI evaluated the new high-strength joist series, and conducted valuable investigation into methods of bridging.

R & D centers at selected universities are valuable tools for the SJI’s Research and Engineering Practices Committees and the Institute’s consulting engineer, Dr. Theodore Galambos of the Washington University School of Engineering, St. Louis. These men are responsible for research in the technical and engineering aspects of open web steel joists.

If you would like detailed information on the design, construction, performance and application of open web steel joist, send now for the latest manual. It’s the Institute’s complete working handbook for all who specify and use steel joists.

STEEL JOIST INSTITUTE
DuPont Circle Bldg., Washington, D. C. 20036

For more data, circle 115 on inquiry card