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So take advantage of Lucalox lamps. Call your General Electric lamp representative. Or write: General Electric, Dept. C-110, Nela Park, Cleveland, Ohio 44112.

GENERAL ELECTRIC

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If the name Glaros sounds Greek to you, it’s okay. Not too many architects have heard of us.

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If you don’t agree they’re everything we say they are, give us a piece of your mind.

Glaros Insulated Metal Panel System

Glaros Products, Inc.
Clara Street, Rankin (Pittsburgh), Penna. 15104

*U.S. Patent No. 3,535,844
BUILDING TYPES STUDY 429, NEW LIFE FOR OLD

81 NEW LIFE FOR OLD BUILDINGS
A detail from an engraving of Boston's Old City Hall, now preserved, is a good symbol of our renewed attempts at finding new uses for buildings.

82 THE ARCHITECT'S ROLE IN PRESERVATION
Developing sources of funding, and inventing new ways of bringing historic architecture into the economic mainstream of the 1970's are major parts of the work to be done.

86 RESTORATION OF HISTORIC BUILDINGS AND PLACES
Selection of buildings for preservation and restoration on a priority of historic and architectural significance is essential, since many are worthy, but dollars are few. The restorations in this section eminently qualify on both counts.

94 RENOVATION WITH A MAJOR NEW ADDITION
New work will always be architects' major source of income, and there are sensitive visual problems connected with combining this work with older architecture.

94 The New York State Bar Center, Albany, New York; James Stewart Polshek and Associates, architects.

106 PRACTICE PROBLEMS IN REMODELING
Architectural work on existing buildings involves important changes in approach and documentation.

106 Gold mines and land mines lie in practice groundrules for architectural work on existing buildings. While this work is bread and butter to many growing firms, budgets and fees need careful attention, as do contract documents.

110 Survey of architects shows that most do some remodeling—and find surprisingly big jobs and big rewards. This is a report on a nationwide survey by the RECORD Research Department.
BUILDINGS: THE ARCHITECT'S RENEWED COMMITMENT TO PRESERVATION

112 REHABILITATION OF BUILDINGS FOR THE SAME USE
Rising costs for new construction and deep roots in the community influence many owners to stay and renovate.

112 The David Sarnoff Building of the Educational Alliance, New York City; David Specter, architect.

114 Levi-Strauss Factory, San Francisco, California; Howard Friedman, architect.

116 Project Rehab, an effort by the Federal Government to upgrade a significant portion of the nation's housing inventory.

117 Chapel of St. Jude, Christ's Church, Washington, D.C.; Philip Ives, architect.

118 The Greening of Ruppert—an a land reclamation that has provided New Yorkers with a temporary people's park.

120 RAILROAD STATIONS: AN ENDANGERED SPECIES
There was a time when railroad stations meant a lot to America. They were the grand entrances to cities, the outposts along the great lines of travel, part of railroading's movement, power, spectacle, and symbols of their communities. A nostalgic—and evocative review.

124 REHABILITATION OF OLDER BUILDINGS FOR NEW USE
They adapt surprisingly well to functions their original designers could never have imagined.

124 Newark Community Center of the Arts, Newark, New Jersey; Hardy, Holzman and Pfeiffer, architects.

126 Heinz Hall for the Performing Arts, Pittsburgh, Pennsylvania; Stotz, Hess, MacLachlan and Fosner, architects.

130 Old City Hall, Boston, Massachusetts; Anderson Notter Associates, architects.

132 Jackson Place, San Francisco, California; Lloyd Flood and Bruce Beebe, architects.

134 THE HERITAGE THAT SHOULD BE SAVED
A few of many endangered buildings across the country brought to our attention by AIA State Preservation Coordinators and their associates and by the Historic American Buildings Survey.

134 A nostalgic—and evocative review.
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For more data, circle 4 on inquiry card.
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WHEN CARPET DOES IT, CARPET OF SOIL-HIDING ANTRON® DOES IT BEST.
Where, oh where, are the management skills?

Oh where, or where, can they be? I suggest—and herewith argue—that the skills needed by “the construction manager” to manage the building process as “a single process, a systematic whole” lie more with the architect than with any other discipline.

In a speech last month, Gerry McKee, president of McKee-Buerger-Mansueto and one of the industry’s savviest managers, said: “We must first distinguish between two related but separate concepts to which “Construction Management” refers.

“First, there is the curiously belated discovery of professional management techniques as a means of improving productivity and achieving economic goals in the construction industry.

“Second, there is the emergence of a Construction Manager, a professional service firm, with whom owners may contract for management solutions for specific construction-project applications.”

In McKee’s view, the main reason for the emergence of the construction manager is not because anything constructive has happened about the difficulties of the industry—“its fragmentation, its rigidity, its resistance to change, its peculiarly local economic dimensions, its enmeshment in restrictive codes and regulations . . .” and the unusual fact that far from being characterized by its means of production (like most industries), the structure of the construction industry is defined by the organization of its labor force. McKee says “What has changed, and what has marked management techniques as important—indeed essential—for the construction industry is the role of the owner. The owner has emerged as a prime mover in the construction process. If the producer and seller are not large enough to sponsor industry change, the owner is. If the contractor cannot justify management and capital inputs in terms of increased profits, the owner can certainly justify them in terms of reduced costs, or improved delivery time. . . . The Construction Manager is an owner’s tool, invented by the owner out of his own need [and] in one sense, a kind of makeshift device invented to fill the obvious gaps in the construction process.”

Now, I guess in these days of complex building deals, soaring costs, and a history of missed delivery dates, no one can be against better management of the building operation. And I guess architects—who have, in the past, borne responsibility for on-price and on-time delivery (at least they have gotten the blame for missed bids and delivery dates)—have to assume that the rise of the construction manager concept is a reflection on their management of the process.

But I see no reason why the architect—if he wants to, and if he does his homework, and if he gets the right people on his staff, cannot become the manager of the “new process.”

For instance, here is the definition of Construction Manager in RECORD senior editor Bill Foxhall’s important new book*: “The Construction Manager is a firm that applies knowledge of construction techniques, conditions and costs to the three phases of decision, design, and delivery of a project. First, as construction consultant he clarifies the time and costs consequences of decision and design options as they occur. Second, as construction manager he enters, still as a professional, into construction scheduling, pre-purchasing of critical materials, advising on the method of obtaining contractors and awarding contracts, and coordination and direction of all construction activities, including those of the producers of systems and subsystems.”

Now what in that definition seems beyond the capabilities of an architect? To be sure, it includes some activities beyond the traditional skills of the architect. But it also includes some activities beyond the traditional skills of anyone else.

Indeed, was it not architects who invented “Fast Track” or phased construction which is clearly the most effective single tool in cutting time and costs (see RECORD, October 1970, page 154)?

It is indeed clear—whether the client is a big and sophisticated one such as GSA of FECA or SUNY, or a small and one-time client such as the building committee of a school or a church—that “the owner wants a single, systematic integrated effort from earliest planning through occupancy.” It is clearly desirable (indeed, essential) that, as McKee suggests, “construction management emerge as a professional service obtained by the owner through an agency contract.” But, just working for a fee instead of for profit does not make a “professional”—which the architect already is. Some other disciplines—including most contracting firms—which aspire to become “construction managers” must undergo a fundamental change in attitude to become professional. It sure makes sense to me that the architect make the strongest possible bid—not by shouting for it or demanding it, but by preparing for it—to provide that professional service.

—Walter F. Wagner, Jr.
One long fight that preservationists lost

Five weeks ago, scaffolding was erected around the old Chicago Stock Exchange Building, and wreckers began to strip its once-sumptuous interiors. A permit to demolish the Louis Sullivan-Dankmar Adler structure had finally been issued after a three-year preservation attempt.

Behind the demolition lay months of feverish effort by a handful of lawyers, architects, and interested citizens, and the struggle should be understood for the things it tells us about preservation politics.

In the end, it was a classic struggle; a small cluster of dedicated individuals against the time and money pressures of real-estate economics—and the indifference of bureaucrats and politicians who could have preserved the great building if they had only cared.

The old Stock Exchange, one of the last three Sullivan buildings left in the Loop, is (was) a graceful thirteen-story structure, and sits on what may be the most expensive land in the Midwest—the last undeveloped corner of the LaSalle Street canyon. In a city where money talks, no one could ignore the vast rewards promised by the development of the parcel.

The only counterweight to the dreams of Chicago developers for that spot was a 1968 landmarks ordinance. The law established a commission of citizens to advise the city council on designated historic or architectural landmarks. According to the law, once a building is designated a landmark the owners cannot alter or demolish it without permission from the Council. If the owners are determined to demolish it, the Council will be faced with taking the building off the owners’ hands through eminent domain or other means, or letting them go ahead with demolition.

Many people had doubts about the strength of the ordinance in 1968, but they weren’t prepared for the ease with which the Council blithely decided against designation on economic considerations (the inability of the city to buy it) rather than architectural or historical features, as the law prescribed.

And while the Council deliberated (until August 1970), the options were narrowing. The two developers who had purchased the leasehold in 1968 at $3.3 million sold it for close to $7 million. Edward Ross admits he was relieved at the offer because it saved his firm from the opprobrium of tearing down a landmark. But the economic problems were now, of course, twice as great.

The apparent flouting of the landmarks ordinance by the Council might have led to a law suit, but the group trying to save the building hesitated. Instead of a suit, they chose to start the designation procedure all over again. They thought that if they could prove how important the building was, the city council would have to designate it. ("We were extremely naive.") Richard Miller, the young lawyer who emerged as the most active champion of preservation, has a more sophisticated explanation: Going to court would have only postponed the day when the owners would have to face the problem of whether or not to sell the building.

In re-opening the proceedings, the Council came up with one. Jared Schlaes and John J. Costonis devised for the Chicago A.I.A. a creative air-rights-transfer plan which would allow the owner of a landmark to be well compensated without redeveloping the site. Under a change in zoning laws, the owner of a landmark would be allowed to sell the air rights to his property to developers engaged in a building project elsewhere. These developers would pay the landmark owner, but they really would be buying from the city permission to add to their own building project more floors than otherwise allowed under the zoning ordinance. In short, the rights to develop above the landmark would be transferred to another location.

This plan somehow got lost in the shuffle—and the Council never seriously considered it—as the fight over the Stock Exchange dragged on. Then, shortly before the mayoral election, Chicago Mayor Daley appointed a special “blue-ribbon” committee. In the past, such committees have been used to neutralize opposition by taking a difficult task “out of politics” and placing it on the shoulders of a group of distinguished citizens. The committee’s solution was a limp alternative to the air-rights-transfer plan. The city would buy the building, then resell it to a developer who would build a high-rise on an adjoining parcel and also preserve the Stock Exchange.

The mayor charged his committee with finding such a developer within 30 days. Murray Finley, president of the Amalgamated Clothing Workers and chairman of the committee, says the group talked to about 20 developers. One reluctant firm did do a study, but decided that the project did not meet their investment criteria.

And that sealed it. The mayor allowed the wrecking permit to be issued. A flurry of interest by the Federal Advisory Council on Historic Preservation had subsided when the developers promised to do their study, and did not re-enter. The Landmarks Preservation Council sought a Writ of Mandamus to require the City Council to designate the building a landmark, but they were at the end of their string. Appeals in the press, and a last-minute march around the building concluded the fight.

So in spite of the best intentions, innovative ideas, and a lot of hard work, another effort to preserve an architectural masterpiece had foundered. Whatever the assessment, the fight will be waged again, for other great examples of the Chicago School—the Monadnock, the Reliance, and the Rookery—also “stand in the way of progress.”

—Jane Shaw, McGraw-Hill World News, Chicago
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Grand Rapids Showroom: 3445 Lake Eastbrook Boulevard, S.E. Grand Rapids, Michigan 49508 (616) 949-1050

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Neoprene gaskets have proven reliability. They are neat for better appearance. Resilient to hold their grip and keep a tight seal. Dependable because, properly compounded, Neoprene has proven resistance to sun, weather, heat, cold, ozone, chemicals and wear. And, they’re fire-resistant because Neoprene won’t propagate flame.

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was the natural choice in roofing material to top things off in the restoration of the old Cumberland School in downtown Dallas. The building now serves as corporate headquarters for Sedco, Inc., an offshore oil drilling company. Sedco's president, Dallas native William P. Clements Jr., felt that restoration of this venerable landmark would be an outstanding addition to the Dallas skyline. The building has already won two architectural awards; one from the Dallas AIA chapter, the other from the Texas Society of Architects.

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LENNOX PROVIDES The atmosphere: a critical element in “shop” design

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(continued overleaf)
environment. And there is need for continuous flexibility in the size and uses of space. And in the availability of power.

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For information write Lennox Industries Inc., 980 South 12th Avenue, Marshalltown, Iowa 50158.

For more data, circle 14 on inquiry card
The Mercado, a cluster of 48 shops built around cobblestoned plazas in Rancho Bernado, a development in Southern California. Developer: AVCO Community Developers. Architects: Gary Coad, Dale Nangle Architecture & Planning, Inc., La Jolla, California. Engineers: University Mechanical Engineers & Contractors, Inc., San Diego. This open mall and Spanish design fit the climate, the history, the lifestyle of Southern California.

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Level-loop jute-backed contract carpet glued down provides a firm surface over which casters and wheels under chairs, carts, mobile equipment and hospital beds roll easily. Without sacrificing carpet's aesthetic, acoustical, safety, easy maintenance benefits.

Jute has over double the thickness of other no-pad carpet backings. Cracks in old flooring won't depress the carpet or be felt underfoot. Jute's extra thickness also provides greater area for edge "beading" with adhesive at seams, important since heavy traffic strains seams.

Jute backing absorbs and retains adhesive, providing a secure floor bond. Its dimensional stability assures permanent precise fit to floor cutouts. It permits carpet to be pulled up, intact for reinstallation. If "stretch" installation is desired for selected areas, jute hooks taut on tackless gripper pins without loosening up.

Write for Architectural Guide Specification, Case Histories of Installations

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Stonco introduces a new concept in architectural illumination: geometric area lighting.

**Why a geometric approach?**
Until now, most outdoor and area lighting fixtures bore little or no relation to the geometry of the building they were lighting. Awkward, bulky shapes clashed with the architecture, and were difficult to adapt to modern building planes and angles.

**Stonco's innovation**
Stonco has changed all that. We've designed the first complete series of architectural area lighting fixtures that are geometric, flexible, modular ... and harmonize perfectly with today's building styles.

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We did it by going back to the basic shapes of modern architecture — the cube, the sphere, the cylinder. Then we designed fixtures with clean, uncluttered lines to match these geometric forms. Now, by selecting from a wide choice of new Stonco lighting fixtures you can design area lighting as an integral part of your building plan.

**A brilliant example: Cool Cube**
Consider the quartz area flood. Most conventional types are distracting in shape, unfinished in appearance. But Stonco designed Cool Cube — up to 1500W of tungsten halogen lighting — as a compact cube that has all the inherent quality a fine building exterior demands. It's made with extruded aluminum satin-polished and anodized to a deep bronze.
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**How can you learn more?**

Our new brochure, "The Shape of Architectural Lighting," illustrates all the styles, features and options that the latest Stonco geometric area fixtures offer you. For your copy, simply circle the reader service card. Or write for details to Keene Corporation, Stonco Lighting, 2345 Vaux Hall Rd., Union, N.J. 07083.

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Model 2000 (90-C) at right,
1040 (50-C) below, available in all five colors. Ask about Haws remote chillers for hidden cold-water source.

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Exit devices. Outwardly, their design reflects an inner strength and reliability. Now look beneath the cover for the real Sargent quality. Built for service through simple design; a smooth, positive interaction of all moving parts. And look at the completeness of the line... all functions in all finishes, including a full line of Fire Exit Hardware. Sargent exit devices... well worth another look.

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Dover Stage Lift helps create a theatre for all seasons.

A college theatre should be able to handle many styles of theatrical presentations. Which is why so many new college theatres include a Dover Stage Lift in their plans.

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We custom-design every Dover Stage Lift to meet specific requirements, of course. Dover engineers have solved stage lift problems for buildings ranging from high school auditoriums to mammoth convention halls. They’ll be glad to help you with design or engineering assistance.

For more information, see our catalog in Sweet’s Files. Or write Dover Corporation, Elevator Division, Dept. A-12 P.O. Box 2177, Memphis, Tenn. 38102.

In Canada: Dover-Turnbull.

For more data, circle 26 on inquiry card.
News in brief

Housing starts and building permits moved downward in September to just under the 2 million mark. The annual starts rate declined to 1,958,000 units, down 12.4% from the record August rate of 2,235,000 units. The annual permits rate, on the other hand, dropped by only 1.9%—from 2,066,000 units in August to 1,967,000 units in September. The decline in the September starts rate was mainly in apartments (structures with 5 or more units). However, permits issued for apartments in September remained at record levels, indicating stronger activity in this sector in the immediate future.

General Services Administration has selected Turner Construction Company of New York as construction manager for a package of three social security payment centers to be built in San Francisco, Chicago, and Philadelphia. Turner's bid was $1,497,800.

The Illuminating Engineering Society announces that nominations for the Lumen Award (for lighting design) are being received until January 12, 1972. Submissions are limited to installations completed this calendar year and located in New York City or Westchester. For more information: Viggo B. Rambusch, 40 West 13th Street, New York, N.Y.

The Construction Industry Stabilization Committee has reviewed 1258 cases since it was established. According to figures released by the Associated General Contractors of America, in their national newsletter, the Committee has approved 730 cases (averaging increases of 11.2 per cent), approved partial adjustments in 204 cases, and returned 140 cases to the craft boards for further negotiation. In 1968, wage increases in construction averaged 8 per cent; in 1969, 15 per cent; and in 1970, 18 per cent.

Second International Symposium on Lower-Cost Housing Problems will convene on April 24-26, 1972 in St. Louis, Missouri. Technical Papers on every aspect of housing will be presented. For more information contact: Dr. Oktay Ural, Symposium Co-Chairman, Civil Engineering Department, University of Missouri-Rolla, Rolla, Missouri 65401.

The NY/AIA Chapter announces that proposals are invited for the Arnold W. Brunner Scholarship. Areas of study are: 1) Computers—an evaluation of their present and future worth in professional offices; 2) Minority groups in the Profession—their access to schools and the profession; 3) Design—the effects of ecology and climate in the design of buildings and communities. A research stipend of up to $10,000 will be given to the winning candidate. Selection will be announced June 1, 1972.

William H. Edgerton, and the consulting firm of McKee, Berger, Mansueto, Inc., have established a publishing company to publish and distribute books and services of interest to the construction industry. To be called Construction Publishing Company, Inc., the new firm will be located at 2 Park Avenue, New York, N.Y. 10016. Mr. Edgerton was formerly Manager of Dodge Building Cost Services of McGraw-Hill Inc.

G. Holmes Perkins has been named University Professor of Architecture and Urbanism by the Trustees of the University of Pennsylvania. Perkins, who retired in June 1971 after 20 years as dean of the Graduate School of Fine Arts, received a professorship that is awarded to a small group of senior faculty who are distinguished in their field and who have made major contributions to the University.

The 21st Architecture and Gardens Tour of Japan, Spring, 1972, directed by Kenneth M. Nishimoto, A.I.A., of Pasadena, California, will leave by air from Los Angeles on April 6, 1972. The 22 day tour of Japan will include visits to numerous gardens and buildings of architectural significance both modern and traditional. Members of the tour will also visit the Katsura Imperial Villa and Gardens in Kyoto. The group will be limited to 25 members. For more information, contact Kenneth M. Nishimoto, A.I.A., 285 South Los Robles Avenue, Pasadena, California 91101.
1. Washington conference on new communities

About 350 architects, economists, and planners came to Washington, D. C., November 3rd through the 6th, to attend the AIA's New Communities Conference. Federal legislation (Title VII) enabling developers to begin planning and building new communities was devised only in 1970, and the principal author of that legislation, Representative Thomas Ashley (Dem., Ohio) was on hand Thursday to tell the conference that Title VII is not being administered, nor the available funding spent, so that the law can help new communities to the degree intended. Because of the newness of the legislation, and the uneasy agreement about what new communities are, the conference could have been inconclusive. Instead, it was one of the better organized conferences of the year; the format allowed what hard information there is about new communities to be disseminated, architects were shown what physical progress there is at the sites, and the two or three positions taken against new communities concepts as they are now forming, were clearly presented so listeners understood the issues and the choices.

Presentation boards were on display outside the general meeting room, showing many of the new communities now underway and being considered, but the two shown to the conference in slides were Jonathan, Minnesota, being developed on 8,000 acres twenty miles from Minneapolis, with a projected population of 50,000; and Cedar-Riverside, Minneapolis, an in-town new town on 100 acres, with a projected population of 30,000. Minneapolis is definitely one of the centers of action in the field. Jonathan is a satellite, probably commuter-oriented new town like most of them being sponsored by HUD, and Lloyd Rodwin and Lawrence Susskind, both professors at MIT and the two doubters of the conference, took exception to the long-term usefulness of this type. Calling such new-towns merely better organized hopefully racially mixed suburbs whose land will be developed anyway for private profit, Rodwin and Susskind call for long-term regional growth planning, and perhaps "magnet-dimension" new cities developed from scratch, with populations of 500,000 or more. Several examples of this kind of urban development are now in the talking stages, but much hard planning remains to be done.

The comments of all the speakers and participants in the conference (about twenty-one) including Rodwin's and Susskind's, are presented in papers that were available prior to the conference, and are still available from the AIA in Washington. Carroll S. McNulty, Jr., AIA, was conference moderator, and Michael Barker, AIA Director, Urban Programs was the conference organizer.

2. Piranesi find

A set of 24 original architectural drawings by Giovanni Battista Piranesi (1720-1778) has been discovered by Columbia University and acquired by the university through the generosity of art collector Arthur Sackler. The 24 drawings show Piranesi's 1764 plan for remodeling Rome's ancient Basilica of S. Giovanni Laterano, one of the oldest and most important churches in Christendom. The Italian rebuilding proposal was one of two working architectural projects Piranesi ever developed. He presented the drawings in 1767 to Cardinal Rezzonico for consideration by the Cardinal's uncle, Pope Clement XIII. But the plan was never executed. The Church of Santa Maria Priorato in Rome remains the only existing Piranesi building.

The drawings will be part of a comprehensive exhibition of Columbia's Piranesi collections that will go on display this March at the University.

Tall buildings can still be built in San Francisco

Proposition T, to limit height of new buildings throughout the city to 72 feet—was roundly defeated by a vote of 139,775 to 85,031 in last month's hotly contested election, and its initiator, dressmaker Alvin Duskin, was also defeated in his try for a post on the City-County Board of Supervisors.

Actually, Proposition T allowed for buildings over 72 feet in height if the people voted for them. But they would have to vote on any and every over-72 foot height application. The vote was a blow for Duskin, who had gathered 45,000 signatures from San Franciscans to get the proposition on the ballot. Duskin may be out but he is by no means through. Unless the city rejects the urban design plan and adopts a "realistic new plan," Duskin promises to get another proposition on the ballot next year. He also demands that the city finance a major independent study of the economic and ecological impact of tall buildings, tax all new highrise buildings to pay for "extra services" they incur, increase bridge and freeway tolls, develop neighborhood control of local planning, to prohibit political campaign contributions and to establish a city wide environmental agency.

The Urban Design Plan, presented by the City Planning Department last spring, is the first such plan by a major city. It sets limits on building bulk and proposes locations for high rise buildings (of various heights) where their height would not be injurious to the cityscape, either at skyline or at eyeline. The City Planning Commission adopted the plan last August and immediately enacted zoning laws to implement it, but in October it violated its own decisions by approving a highrise hotel on Van Ness Avenue, not one of the locations designated by the plan for highrise structures.

Duskin obviously hit a sore spot among citizens in the proposals he made. But they were badly drawn, their intent unclear and there were implications of throttled opportunities for the city in the limitations they would have imposed.
3. Students design
Instant Environments
The design of an "Instant Environment" was the subject of a competition at Kent State University recently between the ten student chapters of the AIA. The day began at 9:30 when Buckminster Fuller, a dynamic 76, warmed to his favorite subject—how to do more with less. Only occasionally pausing to choose the right word, Fuller discussed the theories of energy and motion, the discovery of the elements, and some of his personal thoughts on religion, politics and economics. All the while, students were assembling their projects on the University's practice football field.

At 5 p.m., when Fuller's lecture ended, Instant Environment had come to Kent State. The winning design, by Kent State junior Edward Monaco, was titled "Boxed House" (photo above). The program called for structures that were inexpensive and lightweight. There was nothing lightweight about the six-hour Fuller lecture.

4. Index notes
There were more people, more exhibits and more examples of industrialized housing that has actually been built in Index (the Industrialized Building Exposition and Congress, Louisville, October 31-November 4) this year than at the first one held there last year. Thus it appears to be an index of dramatically increasing American interest in industrialized building.

But it is not industrialized building as architects like to think of it. The gap between those committed to innovation in building design and those beginning to construct modular housing is as wide as ever. Yes, a few architects who have done work in systems building (Philip Mezrhe, Clovis Heimsath and George Heery, for instance) stood on platforms talking to large audiences about architecture and industrialized building. But they were often speaking of matters their listeners could not understand. Architects are designing the products which this new industry is producing, it is true, but generally they are the same ones who did the floor plans for builders in the past.

This does not mean the show had no value for the architect/visitor. Many full-scale examples of modular design inside the hall and nearby could be seen. A Louisville-based firm, Unex Building Systems, Inc., also had just completed a neatly-detailed 24-unit complex in the Old Louisville urban renewal area for the inspection of visitors, (above). It was designed by architects Harstern, Schnell and Associates. The exhibition hall was also filled with new products for modular manufacturing and several examples of packaged kitchen, bath and utility cores around which conventional structures can be built.

Two European speakers especially emphasized the potential of industrialized housing as architects see it. Jan van Ettinger, executive president of the Rotterdam Bauzentrum, a building research organization which had led Holland's post-war reconstruction efforts, spoke of his own concern for using systematized construction to produce a humanized environment. Fritz C. Stucky, president of Vario Building Systems, a Swiss firm, showed many examples of large-scale commercial and institutional projects all over Europe that use their open module—a floor structure with corner posts and beams to support the next module above. A surprising degree of design freedom is possible since the designer cannot only stock modules as he pleases but has complete control of wall materials and fenestration.

Many architects in attendance expressed the hope that, by the time Index convenes again next fall, the breach between objective and realization will have started to close.

Allen office to OAE
Employees in the Office of Rex Whitaker Allen & Associates voted 13-12 recently to join the Organization of Architectural Employees. The Allen office thus becomes the second to vote in favor of OAE (Hertzka & Knowles voted 16-2 in favor in September). NLRB ruled only 26 of the firm's 50 people eligible to vote. Thus, critics charge, the 13 who voted for OAE (there was 1 abstention) determined the outcome for three times their number.

International reciprocity
International reciprocity for architects took a step forward at the recent NCARB sponsored World Conference that opened in Amsterdam, October 1.

Twenty-five architects representing ten countries attended. These were Australia, Canada, Eire, France, Malaysia, Mexico, Spain, the United Kingdom, the Republic of South Africa and the United States. The delegates unanimously accepted, in principle, a resolution broadening international, architectural reciprocity.

Maters for ongoing study were:
1. recognition and accrediting internationally accepted standards of architectural education;
2. defining and establishing internationally accepted standards of professional training and experience (exclusive of discipline) beyond academic qualifications;
3. specifying special conditions that must be recognized in particular regions and countries.

ARCHITECTURAL RECORD December 1971 37
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Time-proven Permalalite Sealskin *plus* science-proven urethane give you a thinner, lighter, more efficient board!

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Permalite Pk provides greater insulation with less thickness. It is made for installations requiring "U" values of .05 or higher where limited insurance requirements are stated for steel deck application and where roof edge curb or fascia require lesser thickness of insulation, yet high efficiency.

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One truckload of Permalite Pk rigid roof insulation does the work of two or three loads of other insulations. Lighter, thinner and non-irritating, it reduces handling and installation costs one-third or more. True edges, square corners and formed flat surfaces require no taping.
Manufactured under GREFCO, Inc. Patent No. 3,510,391, Permalite Pk insulation is ideal for all roof deck, wall element and other installations where maximum thermal efficiency is required. For example, the 1 1/2-inch thickness of Pk board provides as much insulation as 3 inches or more of other materials. By specifying Permalite Pk insulation, you can reduce fascia depth and cost—or provide double or triple insulation in the same depth to meet stepped-up air conditioning requirements. Permalite Pk insulation will also reduce air conditioning equipment and operating costs.

Permalite Pk rigid roof insulation merits your serious examination. Send coupon today for free sample, technical data and dramatic labor-saving comparisons. Or call your Permalite representative.

For more data, circle 27 on inquiry card.
Crown Center Hotel, Kansas City, by Harry Weese will have 750 rooms and all the luxury features of a tropical resort. The ground level building will have the lobby, a restaurant-bar, coffee shop, another bar, night club, grand ballroom, ten banquet rooms, kitchens and service, registration and parking. The rooms and suites will be in the L-shaped hilltop tower overlooking a lagoon.

The Bell Canada Microwave structure in Toronto is the tallest self-supporting microwave edifice in North America (501 ft). It is of high-strength, tubular, weathering steel. Architects and engineers: Gordon S. Adamson & Associates; associate consulting engineers: Morrison, Hershfield, Millman & Huggins.

The Office Tower (far left) and Regency Hyatt Hotel (left), Houston, were designed by JV III, a joint venture of Koetter, Tharp & Cowell; Caudill-Rowlett-Scott; and Neuhauß & Taylor. The 47-story office tower is skirted by a sloping glass wall from the fourth floor to the sidewalk which will begin 30 ft from the curb and slope at a 60 degree angle joining the tower 55 ft above the sidewalk, providing an air-conditioned pedestrian mall. It will be linked with the 1000 room luxury hotel and its adjacent 14-story, 2,750-car parking garage by a pedestrian skywalk and underground concourse. The hotel is built around a 29-story skylighted atrium with glass front elevators revealing the changing view.
John T. Holmes' house, Mill Valley Cal., is constructed of "recycled" windows. An Honor Award winner in the AIA Sunset Magazine Western Home Awards competition, it was designed by William W. Kirsch. With conservation of trees in mind, the house was built up rather than being allowed to sprawl across the site.

CNA Park Place Building, Los Angeles, designed by Ernest C. Wilson, Jr., of Langdon & Wilson, architects, is a 19-story tower placed diagonally on its corner site and resting on sculptured buttresses rising from its granite plaza to heights of 14 feet. CNA coordinated plans with the Parks Department to enhance the adjacent park.

The De Luxe, an abandoned movie theater in Houston's Pearl Harbor area (so named because of its condition), was remodeled in three weeks to provide space for a high caliber avant-garde art show including such black artists as Al Loving (painting right) and Richard Hunt. After this show the space became a campaign headquarters. Other exhibits and community uses are planned to continue to bring attention and new life to the neighborhood.
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FOR REMODELING HOSPITALS (RE-WARDING)
AND REPLACING OLD EQUIPMENT WITH THE
FINEST BUILT & ADVANCED FURNITURE DESIGN.

When you are called upon to redesign a portion of a hospital, remember Watson. We offer more than new-fashioned looks. We can provide units designed to effect maximum efficiency in every ward. And they're made to last with old-fashioned attention to detail and craftsmanship.

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We want to thank A.I.A. State Preservation Coordinators and their associates for their generous response to our query about endangered buildings in their vicinity and Jack E. Boucher for material from the Historic American Buildings Survey (HABS).

From top to bottom, left to right:
Anything can happen

at the track. The racehorse, Dragon Blood, ridden by Lester Piggott in the Premio Naviglio in Milan, Italy, on June 1, 1967, went off at 10,000 to 1 odds, the longest in racing history. He won.


And anything can happen at Overly

Like doors that plug nuclear reactor cores.

We build doors that can resist or shield you from almost anything: atomic radiation or particle bombardment, bombs, fires, rocket tests, a lunar takeoff, gunfire or a noisy nearby tuba player.

You may need a door to resist lower pressures, or one that can take up to 300 psi peak incident pressure. No matter what kind of acoustical, shielding, fire or blast door you need, our computer will simulate all factors. Then we’ll take all its information and custom-make the doors and frames to meet your specific need.

Anywhere protection is a problem, there’s an Overly door to solve it. At Overly, anything can happen ... and it happens for the good. We have plants in Greensburg, Pa., and Los Angeles, Calif. For more information, contact Overly Manufacturing Co., Dept. 19, West Otterman St., Greensburg, Pa. 15601.
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By night and by day.
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Morton Rader (l) of Chan Rader and Associates, Architects & Planning Consultants; and Harold Stockstad (r) of Chin & Hensolt, Inc., Structural Engineers. Jannan Construction, Inc. was the General Contractor. Dublin Steel Co. the Steel Fabricator and Ashby Metal Products, Inc., the Erector.
At 7 lbs. psf, staggered truss delivers a 1971 apartment house for 1968 costs.

A new 12-story apartment house for the elderly in San Francisco is the first application of a staggered steel truss design in the West. And the cost savings that resulted were considerable.

In size and accommodations, the new building is practically a duplicate of a conventional concrete framed building which was designed two years ago for the same site. Thanks to the economies of staggered truss, the new building—despite substantial increases in material and labor costs over the past few years—costs no more than the 1968 structure.

It costs no more because its structural system costs less. The structural steel weight for the staggered truss was only 7 psf for a typical bay. The fireproofing, intermediate stud walls and ceilings added only 15 psf for a total of 22 psf. This compares to 65 psf for the concrete structure. An additional savings of 27 psf was achieved by the use of the composite steel and concrete floor system. At about half the weight of a concrete structure, the staggered truss system significantly reduces foundation requirements and costs.

But cost wasn’t the only advantage of the staggered truss design. It provided an indispensable 70' x 60' column free garage which increased usable space by 50 percent. There is little or no on-street parking available in this section of San Francisco, and adequate garage accommodations are mandatory legal requirements.

This building is the first application of staggered truss in a seismic design area in this country.

Structural Report

If you’re planning a new apartment house or similar structure, you should investigate the staggered truss system. We’ll be happy to send you a copy of our “Structural Report—ADUSS 27-5111-01,” which details its use in this building. Call our nearest sales office and ask for a USS Construction Marketing Representative or write U.S. Steel, Box 86, Pittsburgh, Pa. 15230.

Construction Details

Description: 12-story apartment with clear-span integral 14-car garage, with a one-story recreation building attached. Steeply sloped site, with closely adjoining buildings on east and west sides. Typical floor contains 10 studio apartments, 2 one-bedroom apartments, two elevators (one large enough to handle stretchers), lobby, corridor and stairway.

Erection: Floor-by-floor due to steep, cramped site.

Design Live Loads: Wind:
Floors 40 # psf
Roof 20 # psf
Stairways 100 # psf
Roof Terrace 50 # psf

Building Code: City of San Francisco

Structural Steel: 120 tons of A-36 steel 7# psf of structure.

Floor Deck: 3" metal deck, H.H. Robertson 1 IQ L-211

Shear Walls: Concrete service cores at north and south ends.

Foundations: Square Footings and Belled Caissons.

Curtain Wall: Exposed formed concrete and 3-1/8" precast wall panels.

Interior Walls: At trusses: 1/8" insulating plaster on metal lath and steel channel furring. At stud walls: 1/2" gypsum board on each side and 1-1/2" batt insulation with 21/2" and 6" steel studs.

Ceiling: 1/2" gypsum board on 3/8" steel furring channels.

Sprayed fireproofing.

Elevators: Two at 200 fpm lone accommodates stretchers.

Fire Resistance: Trusses—3 hours @ interior walls. Trusses—4 hours @ exterior walls. Columns—4 hours. Floor and Ceilings—2 hours/Inner Walls—1 hour.

Construction Costs: Total—$2,057,500 (includes site development) Steel (erected) —$82,800.

Construction Time: 510 days (due to adverse site conditions).

Gross Area: 77,505 sq. ft.

Floor-to-floor height: 8'-4-3/4"

Floor-to-ceiling height: 8'
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John M. Sanders, AIA, of San Angelo, recently joined the architectural-engineering firm of Parker, Croston & Associates, AIA, 610 Bailey Street, Fort Worth.

John E. Figel, formerly of Celli-Flynn Associates, has joined the firm of Damiano and Pedone, Architects as an Associate.

Curtis and Davis, Architects and Planners, has recently appointed two new Associates to its New York office, Mr. Frank Arde and Mr. Edoardo Leoncavallo.

Christopher R. Wojciechowski, AIA, Los Angeles architecture and planning firm announce that Paul R. Drag has joined the organization as partner in charge of design and planning.

Perkins & Will Architects, Inc. is pleased to announce the election of Charles William Brubaker as President.

Wallace W. Scott, AIA and Donald K. Renshaw, AIA have been made associates in the firm of Renshaw and Taylor, Architects, P. A.

Collins Uhl Hoisington Anderson, Architects, Engineers, Planners announce that Marvin B. Jacobson, AIA has been named an associate of the firm.

LeMessurier Associates Inc. wish to announce that Stanley H. Goldstein, of their New York office, and Salvatore G. Mazzota, of their Cambridge, Mass. office, have been named Associates of the firm.

Holt & Morgan Architects are pleased to announce the appointment of Arthur W. Schwartz as an associate.

The firm of Richard Manhoff Marsh, Inc. are pleased to announce that Peter M. Cohen has joined the firm as Vice President.

Thomas H. Price, Jr., AIA, has been named an associate of The Eggers Partnership.

C. Kenneth Campbell, a registered Professional Engineer, was recently selected as an Associate of the Miami architectural and engineering firm of Smith, Korach, Hayet, Lippack, Haynie & Associates.

James M. Montgomery, Consulting Engineers, Inc. welcomes the addition of Mr. David K. Haase, AIA, as staff architect.

Stephen S. Page has joined Giffels Associates, Inc. of Detroit as assistant director of architectural design.

Jordan R. Kilbricker has been named Director/Corporate Development by Maxwell Starkman AIA & Associates. Mr. Kilbricker's former position as construction manager will be filled by Guy A. Zebert.

Delbert E. Allison and John V. Grundmanis have joined Ellerbe as project architects.
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Montgomery is the way to go between floors . . . in office buildings, retail stores, manufacturing plants . . . in fact, wherever you need vertical transportation for people or products, Montgomery has a transportation system that makes the going great. For specific information about the quality products of Montgomery Elevator Company, see the Yellow Pages for the telephone number of a nearby Montgomery man, who will be happy to assist you.
Computers: tools for construction management


Computers play a dual role as tools for time, cost and quality control in construction management. First, they serve as high-speed mathematical aids—especially in the areas of engineering, estimating and scheduling. Second, computers are a sorting, collating and reporting tool for the management process. They can relate the placement schedule to, for example, purchasing, cash flow, inspection, meetings and approvals. The special conditions of client procedures, the myriad variations in emphasis and detail for communicating the same body of information to, say, the contractor, the purchasing agent and the project administrator; all can be sorted out by the computer with idiot speed.

The computer can make infinite lists. It can list all the systems and activities in a project in several ways: by date of early or late start in a CPM network, by longest lead-time for purchasing, by cost, by supplier, by contractor or (for the project administrator) by overall summary of cost and schedule.

The listing and sorting process is perhaps the least demanding on the potential skills of the computer and its programmers. It has been called a trivial use of great capacity. But it can be, on complex projects, the computer's most rewarding use in terms of savings in time and money; in terms of coordinated communications; and in terms of evaluating the cost/quality options.

The myth of the computer as super-machine that takes over all tasks and has its accomplishments measured in stacked feet of print-out paper is long past. Now the machine is more maturely regarded as a high-level investment in the profitable (i.e. rapid) manipulation of massive and relevant data. It has a mindless talent for repetitive scanning, with key (and keyed) variations in either the core-memory of applied parameters or the daily input of job data.

But building design and construction are exceptionally non-repetitive—in comparison with manufacturing or accounting procedures. Although both manufacturing and accounting are within the purview of construction management, the idiosyncrasies of each job and each client call for rigorous assessment of the computer's applicability job by job. The key words emphasized in the preceding paragraph are: profitable, massive, and relevant.

There are two major considerations that bear on the construction manager's assessment of computer applicability.

1. No management program can be turned over to a computer to the total exclusion of manual calculation and verbal communication. Someone has to read the print-out, make decisions, write reports and orders, negotiate, see that things get done. Even cost estimating, a chore of massive detail that would seem readily amenable to computerization, becomes progressively more refined and immediate, to the point where the real price is the bid price. Computerized costing is a well-developed service, but there comes a time on every project where the computer must give way to the pencil sharpen.

2. The smaller the project, the larger is the proportion of manual and verbal (i.e., non-computerized) components in the management task. Considering the difference between, say, the World Trade Center and a $500,000 factory, that seems a simplistic statement. But somewhere on the scale of size and complexity between those two extremes is a point below which no job-developed software is warranted—no matter how much in-house hardware is standing by to handle it. The location of that point is itself a management decision based on the answer to a simple question. Does it pay?

The answer to that question is not always revealed by simple arithmetic. It can be distorted by two opposing attitudes. One that has cost untold amounts in overrun is the compulsion to "keep the hardware busy." The other, equally costly, has been a reluctance to use expensive and exotic machines in the trivial role of giant tickler file. A judgment must be made based on the particulars of

1) available hardware in-house,
2) its cost to own or rent,
3) its current loading,
4) software programming cost for the project,
5) available core programs,
6) management demands of the project,
7) management fees available.

At risk of offering figures that are dated and otherwise limited by special conditions, we report the following yardsticks of computer cost mentioned at a 1971 seminar of the Advanced Management Research International.

1. Engineering firms with repetitive usage of well developed programs and good load factor spend about $40 per month per graduate engineer on staff.

2. The cost of in-house hardware is about one-third to one-half of the cost of computing; the rest goes into people, programming, supplies and space.

3. A minimum cost for in-house hardware alone is between $1500 and $2000 per month.

4. Initial cost for time-sharing at a service center is much less, but the added cost of communication and travel brings the total to almost $1500—not counting personnel.

The two major considerations previously stated having to do with the limits of computer application (i.e.: no program can be 100 per cent computerized; and small projects may not warrant any computerization at all) set the stage for developing management systems for cost, quality and time control using the computer at key points. Those points are determined by the criteria of project characteristics in size and complexity and by the resources of the managing firm itself.

The ideal management system would be totally flexible so that it could be applied logically and economically over a full scale of job and firm criteria. It turns out, however, that the development of a computer-oriented system capable of serving the management of large projects calls for a certain commitment of the management firm to full-time staffing for computer programming, cost estimating and field operating personnel. That commitment sets a high break-even point that almost automatically precludes the handling of small projects except on a fragmentary basis.
Components of the computerized management system

A well-designed management system for the control of construction projects will combine capabilities in cost estimating, critical path analysis, financial status and progress reports, and administrative procedures in a well-organized format. Individual reports should be designed for each level of project administration and construction management. In each case, the system should be able to use either a manual or a computerized mode of reporting in order to approach as closely as practicable the kind of ideal flexibility previously described.

Because of the mass of data available and the immense capability of the machine to absorb and report, an essentially editorial judgment should be made as to content and format of these reports. That judgment should be based on the function and preoccupation of individual recipients. For example, the project administrator might receive a summary schedule and financial status report while the on-site construction manager would require a more detailed list of all work items for each phase of the job.

Individual reports and input documents should not only be tailored to each user but should also have consistent format one with another, so that translation of data into decision and action is handled readily.

The information presented by the system should be coordinated on the basis of a scheduled flow of input related to stipulated intervals and classifications of output. That is, the data sources, such as estimators, field inspectors, job captains, clerks of the works, etc., should be encouraged to report back to the system at stipulated intervals and in patterned format readily convertible to input data.

A workable system might be designed to present four basic areas of information (schedule, cost, financial and administrative) to three key decision-making groups: project administration, construction management and a third level comparable to job captain or field superintendent which might be labeled "technical management." Definition of the four areas of information might be amplified as follows:

A. Scheduling, planning, and control of project duration usually employs the CPM technique or one of its variations. The system should develop a detailed model of each project's design-delivery-occupancy process as a single identity made up of many parts. The network technique both views the process as a whole and separates its parts into manageable modules.

B. Cost control systems should present timely cost data in useful format. These data are exceptionally sensitive to the chance conditions of the market and the phase of design development. For that reason, its reporting method usually has a high manual component.

C. Financial summaries integrate data generated in the estimating and scheduling areas in order to show how much of the project's total cost has been spent and how much will be committed in designated future periods. These summaries also indicate the extent to which funding and cash flow have been approved and appropriated for the job.

D. The administrative applications of the system tend to be less rigidly structured than other areas and are tailored to the in-house capabilities and methods of the owner and/or project administrator. In order to provide full services to a variety of clients, public and private, over a substantial spread of project size, the construction management firm should be prepared to fit its own capabilities to those of the client. The danger lies in overstaffing for a level of administrative participation that may not be required to a consistent degree from one client to another.

Some of the administrative backup services to be considered might include manuals of procedure, either general to the construction management process or specific for the project at hand, outlines of useful administrative reports, step-by-step procedures and background literature on construction markets and practices that may be helpful to the less sophisticated client.

Develop sets of useful management reports

In order to discipline the unlimited computer output at a manageable level, the professional construction manager should establish specific sets of reports. These reports will draw upon the complete reservoir of project data, but will be assembled in format relating the four categories of information previously described to the needs of recipients. The reports will also be tailored to the management level to which they are directed.

Top-level reports. Most major projects have a senior decision-making group made up of client representatives, and principals of the architectural, engineering and construction management firms. Ordinarily, these people have more than one center of interest in addition to the project itself. Their objective as a group is to maintain adequate surveillance of the project development in order to respond intelligently when top level decisions are required. Useful reports for this group should give clear and concise information about a project's general progress, its cost status related to the schedule and its financial status related to the budget. This information might be usefully divided into:

1) A narrative report from the principal in charge of construction management, summarizing overall development and pointing up significant problems that might call for action of the top management group;

2) A financial-status report summarizing critical aspects of the budget-schedule relationship, noting any significant change between the current and prior period, alerting management to any need for additional or progress funding;

3) A master schedule chart in some readily comprehensible form (usually a bar chart) which serves as a summary of current status of the CPM schedule condensing all significant aspects of the project delivery process through a display of key activities.

Action-level reports. At the second level of management, directly related full-time to the project, is a second category of reports also tailored to the problems of the individuals concerned. The objective is to avoid inundating all members of this management echelon with the massive data typical of large projects. The "need to know" principle should be applied to the editing of these reports, which might include:

1) A narrative report based on cost and progress information from the field or from "technical management" summarizing current developments;

2) A summary of the master schedule detailing activities of the network for the entire project and serving as a central scheduling checklist for the project;

3) A critical list of items within the network with minimal float time that must be viewed most carefully;

4) A list of important dates on individual schedules of the project;

5) An alerting list of key activities scheduled to take place within the immediate future; a period of, say 60 to 90 days, in a print-out arranged in sequence by early start date;

6) A master tickler for central management summarizing the upcoming activities of staff and compiled from the individual tickler files of staff members in a uniform format;

7) Current working estimates bringing out significant detail from the data used as background for the top management cost and financial status reports;

8) Detailed current cost estimates identifying building system costs and noting changes from the preceding period to readily spot any system in danger of a cost overrun;

9) A cash flow summary providing a monthly check against schedule activity and not only projecting cash flow requirements but implementing the payment process for upcoming schedules.

The sorting and format of these reports, the intervals of their issuance, and the lists of individuals to whom they are directed are all subject to the characteristics of the project and the organization of the management firm itself. Computer print-outs are not the most readable of documents, although users become familiar with them and programmers edit their physical volumes to manageable dimensions, they become increasingly useful as both management tools and field documents.
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Living with the Phases

A shift in economic policy that holds out the prospect of changes as vast and sweeping as President Nixon's August 15th pronouncements is bound to settle unevenly over the economy—if only by virtue of timing.

The cause of the financial planner, who got prospective clients to listen to him by explaining the need for a "hedge against inflation," was not served very well by the August 15th pronouncements. Neither was the cause of the New York Telephone worker, who refused to sign the national labor contract in hope of getting something better.

On the other hand, the construction tradesman nodded approvingly now that everyone was going to live under rules similar to the ones that were imposed on him earlier in the year.

Construction labor began living under its own special Phase Two last March, with the creation of the Construction Industry Stabilization Committee. Since March, the Committee has reviewed some 1,400 contract agreements, approved about two-thirds of them, and sent the rest back to the creation of the Construction Industry Stabilization Committee.

Another aspect to this is the fact that 1971 has been a banner year for housing, particularly among the skilled construction trades. But, the labor shortage of the type that existed through the last few years of the 1960's, and the rest. In effect, the new job opportunities were being filled by nonunion personnel at a faster rate than had been the case in prior years. This, too, forced some of the craft unions to take a second look at their past practices with respect to wage demands.

1972's construction markets, as you saw on these pages last month, are expected to show strong gains in the area of nonresidential building. This is a sure bet to dry up some of the persistent unemployment in the industry, particularly among the skilled construction trades. But, a labor shortage of the type that existed through the last few years of the 1960's, and the stage for much of the recent pressure for sharp wage increases is not in the cards. Also, since housing is expected to continue strong in 1972, the trend toward proportionally more nonunion workers will continue. This plus the fact that the rest of the economy will be in the same Phase Two boat (the construction unions will remain under the authority of their own Stabilization Committee, but will conform to the general guidelines of the Pay Board) augurs well for further reductions in construction wage gains next year.

The case will get even stronger if the Price Commission meets with any success in holding down gains in general prices.

Materials prices were not a very prominent factor in construction costs during 1970, rising less than one per cent, on the average, over the 1969 rate. This year, however, due largely to gains in prices of housing-related materials like lumber and gypsum, the rise in the aggregate index has been in excess of five per cent, well above the 2.5 per cent target for Phase Two. It stands out as an area that would probably receive close scrutiny from the Price Commission if a price increase is proposed in the months ahead.

Within this respect it is significant that most building products manufacturers fell either in tier one, or tier two of the three tier price policing mechanism set up. Materials manufacturers' prices, then, will be followed more carefully than those of the contractor, engineer, or architect, most of whom will be down in the third tier, reserved for small business firms. Although they will be spot checked, the smaller firms will not carry the financial burden and inconvenience of periodic reporting.

Another big factor in the cost of construction, the cost of money, will also be affected by the new economic programs. Though it won't be directly regulated, Phase One and Phase Two have acted to relieve the Federal Reserve System of most of its inflation-fighting burden. The policymakers at the Fed can now concentrate on holding down interest rates and insuring an adequate supply of funds to meet 1972 business and personal credit needs.

There is one aspect of the system that could impose a significant burden to certain areas of construction next year, though. This is the fact—particularly critical in the area of homebuilding—that unimproved land prices are not controlled. This will not pose much of a problem for the apartment builder, because rents on new apartment units are not subject to control either. The price of a new single family house will be controlled, though. This could put the homebuilder in a squeeze.

In the short-term, the Nixon phases will most assuredly do what they're designed to do—reduce the rate of inflation in the economy.
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BUILDING COSTS

COSTS UP 7.8 PER CENT

Nationwide construction costs registered an average 7.8 per cent gain for the twelve-month period ending September 30. By comparison, the cost of construction labor and materials rose 8.1 per cent during the previous period ending September 30, 1970.

The most significant factor in the current increase was an average four per cent rise in building materials costs plus a 10.7 per cent jump in wages for building trades craftsmen. Craftsmen’s wages a year earlier showed a 12.9 per cent rise. This cost information is based on semi-annual surveys of 182 cities in the continental United States. Highest regional gains were in the New England and the Mississippi River/West Central regions; both registered 0.3 per cent cost hikes.

Although not reflected in the current data, the wage-price freeze, Phase Two and the establishment of the Construction Industry Stabilization Committees are expected to have a noticeable impact on the results of the Spring 1972 survey. This should produce a slower rate in construction materials and wage costs.

Building cost indexes

All the indexes on this page are based on wage rates for nine skilled trades, together with common labor, and prices of five basic building materials are included in the index for each listed city.
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3. Gliding doors add light to old basement.


5. Gliding doors are used to give light and dramatic element to lower rooms.

6. Triangular casement detail provides perfect display areas.

Residence: Robert F. Ackermann, Afton, Minn.

Architect: Robert F. Ackermann, A.I.A.
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the architect's role in preservation
restoration of historic buildings and places
renovation with a major new addition
practice problems in remodeling
rehabilitation of buildings for the same use
railroad stations: an endangered species
rehabilitation of older buildings for new use
the heritage that should be saved
the architect's role in pre

He must be persuasive with unconvinced clients, seek out funding for local preservation, and act as a synthesizer, when necessary, of historic and modern architecture

People need familiar objects, buildings, and spaces to remind them of what their lives have been in the past, and how their lives are proceeding today. When we quickly move from one town to another or, more powerfully, when we return to a place that used to be familiar but now has changed, we feel a direct personal break with former events that is emotional, easily recognized, a bit mysterious, and probably universal. The power of this very human capacity to remember, and to associate forms with events, is the principal force behind the preservation movement today, in our cities and towns. It is a movement that is affecting the architect deeply because he understands the personal human values involved, and he has often been a leader in those local battles to save a good building. It is a movement now affecting even those architects who have never done a restoration or bothered with remodelings, because the economic balance between keeping existing architecture and building new architecture has changed too. In a growing number of specific projects there is less economic justification for tearing down and starting over than there is for rehabilitating an older structure or adding to it: this is a gradual realignment that is nevertheless changing many architects' practice.

These broad philosophical and economic questions are what the editors have tried to illustrate in this one-subject issue on preservation.

For someone doing his first work with an old building, the definitions can be confusing. Consider this list of terms: conservation, preservation, restoration, reconstruction, renovation, rehabilitation, rebuilding, modernization, alteration, remodeling, repair. These are similar words, and they mean close to the same thing in any dictionary. In preservation work as it is developing, however, some meanings are becoming distinct from others.

“Preservation” has become the term encompassing most of the others, and describing the movement as a whole. Originally the principal aim of the preservation movement was to save historic and architecturally significant buildings, and that focus continues. But the scale of preservation is expanding today. It aims now at the rescue of historic districts—often a better cultural record than single buildings—and it attempts to record and maintain some of the smaller artifacts of towns and cities that seem important—artifacts like the streetcars of San Francisco, important bridges, a group of neighborhood light posts, or an “Uncle Sam” mailbox in rural New York.

The word “conservation” has been claimed by the environmentalists, and applies in familiar usage to the regeneration and maintenance of our natural surroundings—rivers, forests, soil, air, sea—more than to our man-made world. But it can also be applied to man’s ecological context in general, including buildings and cities, and probably should be so applied. Our environment includes our architecture, and preservationists now are trying to strengthen their legitimate philosophical links with the powerful environmental protection movement as a whole.

“Restoration” means returning a building to its appearance at a specific period, with meticulous attention to original details and materials. In its most familiar form it is like the work at Williamsburg, but it need not always create museum-piece buildings that people visit or look at or study but do not otherwise use. Restoration work is specialized, however, involving the skills of the historian and archeologist, as well as architects.

The rest of the terms we listed are less clearly differentiated in the profession. “Reconstruction” has been defined in the A.I.A.’s Handbook of Professional Practice, section 21, as “... utilizing documentary evidence to design and construct a replica of an earlier building or facility which no longer exists.” “Rehabilitation” is defined as “… equipping the building or facility for an extended useful life with a minimum alteration of original construction,” but the term is coming more and more to be associated with the rehabilitation of housing, where the emphasis is on making old housing re-inhabitable, with not much attention given to reclaiming the architecture. Remodeling, alteration, renovation, and modernization probably have specific meaning in some cities or regions, but they have still to be defined professionally other than in their normal language connotations. We use them interchangeably.

The important work in preservation now is developing new uses for older buildings or districts. Much of our old architecture may be destroyed if it cannot be made productive. The new uses that must be created may allow an old building to be accurately restored to some former period in its history, or it may not. It is acceptable if the
old facade can be retained while the interior is entirely remodelled, or if a substantial new addition can be made that is compatible with the old work and revitalizes it. At the Tulane University School of Architecture in New Orleans, for instance, a group of advanced students under the direction of the late Dean John L. Lawrence and Professor Jack Cosner have produced and published a paperback booklet delineating possible new uses for the New Orleans Mint, William Strickland Architect, 1835. One of the outstanding architectural monuments in New Orleans or any city, the precise Greek Revival building sits abandoned now, but immediately adjacent to an area controlled by a large group of private developers. The old mint is supposedly secure (it was deeded to the state of Louisiana in 1966, with the stipulation that it be preserved) but as long as it remains without an economic or institutional base of its own, it is implicitly threatened, as private development increases the value of land around it. Investigating new uses for the New Orleans Mint is one of the most important preservation efforts in that city. A series of bright sketches and possibilities for new use done by the Tulane students is one way to broaden public conceptions of what might be possible in an old building that now looks useless and crumbling.

It is the expanding role of the architect in preservation that we are concerned with here. An archaeologist may provide valuable information about an old building or neighborhood through excavation, that would help in a reconstruction. The historian or curator is needed to document the original forms of a building or the general characteristics of a town, and he provides the historical evidence from which restoration work can proceed. The sympathy of at least one attorney is required in most preservation contests, to fight through the courts for the public values by which preservationists must usually confront private interests and private profit. But finally, the architect must deal with the physical forms themselves; esthetically, structurally, and through codes. The medium of his involvement is usually the individual building, even when historic district preservation is the context, because most of the decisions about what work to do in an historic district, and how to do it, will take place building by building.

Particularly with substantial new additions to existing architecture, or with major alterations for new uses, the architect must make decisions that no one else is qualified to make. He must decide how the old forms can most effectively be complemented by the modern forms he understands, for it is rarely appropriate now to copy moldings and details, or to simply continue old facades. In additions or major alterations, an architect is concerned with the late 18th century (perhaps) in the context of the late 20th century, and he must deal artistically with both.

Schools and government agencies are expanding their involvement in preservation

Among architecture schools in this country, the first graduate program directed specifically at architectural preservation was initiated at Columbia in 1963, and there are programs leading to a degree in preservation. The following is a list of various specific sources where architects and preservationists might look for money to assist either themselves or their clients. It is a very abbreviated list: for more sources, write Russell V. Keune, Director, Department of Field Services, National Trust for Historic Preservation, 740 Jackson Place N.W., Washington, D.C.

Federal Urban Renewal Program
Description: Grants, planning advances and temporary loans to help finance blight elimination through surveys and planning, land acquisition, rehabilitation of existing structures and installations or public improvements. A project can include relocation of structures which will be restored and maintained for historic purposes, and restoration of historic properties.
Example: Grant in 1970 to Pittsburgh Urban Renewal Authority for the restoration of 19th-century townhouses in the Hill District, Pittsburgh, Pennsylvania.
Eligibility: Preservation activities must be part of local urban renewal program. Restoration activity may only be carried out on acquired properties that will remain in urban renewal area. Properties must meet "criteria or evaluation" set by National Park Service for the National Register. Local public agencies, renewal agencies or housing authorities or government departments empowered to carry out urban renewal may apply.
Federal funding agency: Renewal Assistance Administration, Department of Housing and Urban Development
Legislation: Housing Act of 1949 (P.L. 81-171)
For information contact: Assistant Regional Administration for Renewal Assistance, HUD Regional Office.

Historic Preservation
Description: Matching grants are provided to cover up to 50 per cent of the cost of acquiring, restoring, and improving sites, structures, or areas of historic or architectural significance in urban areas, in accord with comprehensive local planning. Property must result in a public use or benefit. Applicants must assure maintenance.
Example: Grant for the acquisition and restoration of the South San Francisco Opera House, a landmark dating from 1888, San Francisco, California, 1970.
Eligibility: States or local public bodies with authority to carry out the above activities and to contract with the Federal Government. Properties must be listed in the National Register of Historic Places.
Federal funding agency: Office of Community Development, Department of Housing and Urban Development
Legislation: Housing Act of 1961 (P.L. 87-70)
For information contact: Assistant Regional Administrator for Community Development, appropriate HUD Regional Office.

Comprehensive Planning Assistance Program
Description: Matching grants at two-thirds of costs to help finance surveys for identifying historic and architecturally significant structures and sites, estimating costs of their rehabilitation or restoration, and providing other information to serve as a foundation for a historic preservation plan.
Eligibility: State and local comprehensive planning agencies, or cities, municipalities or counties.
Federal funding agency: Department of Housing and Urban Development
Legislation: Housing Act of 1954 (P.L. 83-560), Sec. 701, as amended.
For information contact: The appropriate HUD Regional Office, Assistant Regional Administrator for Planning Coordination.

Urban Renewal Demonstrations
Description: A program of grants to help develop, test, and report new or improved methods and techniques for preventing and eliminating slums and blight.
Grants are made to cover up to 90 per cent of the cost of developing and testing innovative methods and techniques, and the full cost of writing and publishing reports on the results. Grants may also be made to cover the full cost of writing and publishing reports on innovative activities not financed under this program.
Eligibility: Public bodies or nonprofit organizations legally authorized to undertake the proposed activities and to contract with the Federal Government. Other interested public or private agencies may participate and contribute.
Federal funding agency: Office of Research and Technology, Department of Housing and Urban Development.
Legislation: Housing Act of 1954 (P.L. 83-560)
For information contact: Office of Research and Technology, Department of Housing and Urban Development.

Archeological and Paleontological Salvage
Description: To preserve for public use historical and prehistorical sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States, where such sites, buildings, and objects lie within the limits of proposed highway construction.
Eligibility: Federal and Federal-aid highway funds may be used for such salvage costs as are clearly attributable to highway projects, including survey costs incurred in advance of construction, as are determined to be necessary to preserve historical objects which might otherwise be adversely affected by highway construction, or to avoid increased salvage costs as might otherwise occur during highway construction.
Federal funding agency: Federal Highway Administration, through the Highway Trust Fund.
For information contact: Chief, Utilities Staff, Office of Right-of-Way and Location, Federal Highway Administration, Department of Transportation, Washington, D.C. 20591.

Project and Research Grants
Description: Makes grants to groups and individuals for projects and research in architecture, landscape architecture, and urban planning.
Example: Grant in 1969 to the National Trust for Historic Preservation for the "National Conference on Architectural Review, Landmarks, and Historic Districts."
Eligibility: Individuals, groups and schools of architecture
Federal funding agency: National Endowment for the Arts
Legislation: National Foundation on the Arts and Humanities Act of 1965 (P.L. 89-209)
For information contact: Director, Architecture Programs, National Endowment for the Arts, Washington, D.C. 20506.

Research Grants
Description: Provides grants to individuals or groups for scholarly research in any field of the humanities, including archaeology and historic preservation. Grants as such do not usually exceed $15,000.
Eligibility: Individuals or groups in all fields of the humanities. Persons affiliated with institutions must apply through it.
Funding agency: National Endowment for the Humanities
Legislation: National Foundation on the Arts and Humanities Act of 1965 (P.L. 89-209)
For information contact: Director of Research and Publication, National Endowment for the Humanities, Washington, D.C.

National Historic Preservation Program
Description: Makes matching grants for state historic surveys and plans, acquisition and restoration of individual properties. Matching grants to National Trust for Historic Preservation. Properties receiving assistance must be included in the National Register of Historic Places. States must have qualified survey staffs and review boards.
Example: $2 million was appropriated for 40 states and the District of Columbia for historic survey and plan projects, fiscal 1971.
Eligibility: The States and the National Trust for Historic Preservation
Federal funding agency: National Park Service
For information contact: The National Register, National Park Service, 801 19th Street, N.W., Washington, D.C. 20006.
to similar graduate degrees at Cornell, the University of Florida, and Virginia. But it is still unusual to find any emphasis on preservation in the undergraduate schools. A recent questionnaire mailed to 49 schools of architecture in the United States by the AIA's Committee on Historic Resources discovered that about half of them had never given a design problem, in any undergraduate studio, in which the emphasis was preserving and enhancing an existing building or district. Eighty per cent of the schools had no course that dealt with systems for inventorying and documenting historic buildings in a community, and 90 per cent of the schools had no undergraduate courses on the architectural techniques of restoration, rehabilitation, or reconstruction.

The Department of Housing and Urban Development program was funded at $75 million for fiscal 1971 but this sum will nearly triple—to $200 million—if President Nixon's budget request for 1972 is approved. There is more money available now than there used to be, and funding machinery is in place ready to go; grant applications are what is needed now to make it effective.

The Department of the Interior's main preservation assistance programs are under the National Park Service's Office of Archeology and Historic Preservation, and administered by the National Register of Historic Places. Over two thousand five hundred places are now on the National Register, and the inclusion of a building on this list is usually necessary for funding from HUD and other government agencies. The intention, of course, is to expand the registry and its availability. This year, funding for direct architectural activity is being

In saving older buildings, an architect must act as his community's advocate with his client

This issue is organized in a way that, we hope, will be useful to an architect thinking about preservation work. Part one is on restoration; part two on new-addition renovations; part three on practice problems in remodeling; part four on rehabilitation for the same use, and part five on new-use rehabilitation. The principal justification for separating the last two is the architect's different involvement with codes. When rehabilitating a structure for the use it has had, new laws requiring additional exit-units or stricter fire ratings or user restrictions can sometimes be ignored if the owner and architect agree, because such laws do not apply to previously established buildings. But if a new use is being developed, of course all existing codes apply, and they usu-
Interest in preserving the monuments of our past is on the increase and, fortunately, so is knowledge of how to restore and strengthen them to endure for the future.

Restoring any building is an exacting process, but restoring a building of historic or architectural significance requires all the art and science at an architect's command. At every step, another man's ideas and another era's ways must govern. There is no room for ego in a good restoration. The satisfaction of rescuing an important building from oblivion and of association with the work of some long-gone master architect offsets the challenge of such a disciplined procedure. But there is far more to restoration than mere duplication of another's work: the right decisions, the careful judgments, demand insight and imagination, and getting at the facts themselves can have as exciting overtones as the unraveling of a mystery.

To restore a building, however, it must first be saved from whatever ravages threaten it—termites, weather, vandalism, or the ultimate destruction of a wrecking crew—and that takes money. Since there will never be enough money, public or private, to preserve all the worthy buildings, let alone to restore them, those of greatest historical or architectural importance and significance must be the chosen ones. The four buildings shown in this section are of that kind.

The Patent Office Building (right), Washington, D.C., now the National Collection of Fine Arts and the National Portrait Gallery, is a remarkable building, exhibiting the changing tastes of an eventful 27-year period in the development of the United States. Four architects of note contributed to its Greek Revival design, one of the handsomest buildings (and certainly one of the largest in this country) of this architectural style. In its new role of sheltering two art galleries, the old...
Restored for new life:  
the old Patent Office now 
houses two art museums

The original building of the old Patent Office was Greek Revival, and this has survived as its exterior character. But when two wings, destroyed by fire, were rebuilt in 1877, the interiors of these sections were done to newer tastes: the third floor library (3), with its three tiers of reading areas and stacks, is an example of the eclectic design of that day. The burned wings had roofs supported by iron trusses and vaults, instead of the masonry vaults and wood roofs used by Robert Mills in the first two wings which did not burn. The building was designed with great halls for display of patent models, one of which was the scene of the inaugural ball for Lincoln's second presidential term (2). Its 28 freestanding square marble columns and four pilasters, of unusual and original design, support a series of groined vaults 300 feet long.

THE FINE ARTS-PORTRAIT GALLERY, Washington, D.C. 
Owner: The Smithsonian Institution. 

3
building makes a remarkable come-back, thanks to sensitive and skillful treatment.

Unlike the Patent Office Building, Adler & Sullivan's great Auditorium Theater in Chicago had been badly misused for 25 years before its restoration was begun, but like the Patent Office, it had barely escaped demolition. To bring it back to its original form was more a matter of renovation and repair than of reconstruction, for the building proved, after careful structural inspection and analysis, to be basically sound. One truss was found to have become over-stressed because of settling, and this was strengthened. The stage floor was replaced (it had been used as a bowling alley during World War II when the theater was a USO Center) and new fans and heating and cooling coils were installed to work with the original duct system. The remarkable stage equipment—Adler's genius showed here as in the heating and air conditioning system he devised—was in surprisingly good condition, considering its years of disuse and misuse. New stage lighting was required; new ropes for scenery placement, restoration of some of the hydraulic lifts, new dressing rooms and new plumbing were provided. The major costs, however, were for plaster repair, paint and a new electrical system. There were unexpected rewards for faithful adherence to the original plans: When a row of boxes, installed between the orchestra seats and the grand foyer were removed to restore the continuity between theater area and foyer, excellently preserved examples of the original paint and Sullivan's beautiful stencilling were found. The faithful restoration included new chairs in the original design, a
Adler & Sullivan's masterpiece: restored and reactivated

The successful restoration of the Auditorium Theater, a demanding and difficult job because of a tight budget, was due to the careful research of the building's original condition, the repair and reconditioning of every possible part of the theater, and the replacement of only those parts (missing plaster ornament, for instance) that could not be repaired. To replace the theater today, with its superb acoustics, its unimpaired sightlines, its array of stage equipment, would cost $16 million, estimates Harry Weese, the restoration architect. But if it had been replaced, there would have been no living record of the genius of Adler, the virtuosity of Sullivan and the techniques of the late 19th century. The Theater's stage—98 feet in clear width, 87 feet in grid height, 62 feet deep—will make possible performances on the grand scale most theaters cannot accommodate.


Ledrich-Blessing

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duplication of the red carpet Sullivan had designed, even the same kind of long carbon-filament light bulbs that had made the “Golden Arches” scintillate.

The house an architect designs for himself is always of interest, especially if he is well-known. But the house of a mid-19th century architect is a rare object. The Gallier House in the Vieux Carre of New Orleans was built by James Gallier, Jr., for his family but can be associated with his equally distinguished father, also an architect, since the father lived for 11 years after the house was completed in 1857. Renovated and some parts remodeled for private owners a few years ago, the house has now been restored to its state when new and furnished with objects that closely match those owned by the Galliers. This work was done for the Ella West Freeman Foundation which now administers the house as a historic house museum. The Foundation acquired two adjacent properties to provide facilities necessary to public use (elevator, stairs, coffee shop, ticket desk) which would otherwise have had to be inserted in the Gallier House. This adjacent building also contains displays of objects belonging to the two architects and pertaining to their profession.

Restoration of the Gallier House was greatly facilitated by access to the original working drawings, now deposited at Tulane University, to old photographs and to an annotated plan describing the original heating and plumbing equipment. Not all restoration architects are so fortunate, and many find the first thing required is to make measured drawings of the building, particularly if the building has not
Architect Gallier’s house in New Orleans: returned to its original 1857 state

The Gallier House, as elegant and dignified now as it was 100 years ago, was restored without visitor facilities—since these could be located in the adjacent building, renovated to provide exhibition space and a controlled entrance to the Gallier House. The facade of the exhibition building was restored (5), but the interior has been remodeled and the warehouse of which it had long been a part was demolished, opening up an alley to a rare commodity in the French Quarter: parking space (3). On the other side of the alley is the twin of the exhibition building, available for expansion when needed.

JAMES GALLIER, JR., HOUSE, New Orleans, Louisiana.
been recorded by the Historic American Buildings Survey of the National Park Service. Since 1935 HABS has measured, photographed and recorded data on historic buildings, and now has accumulated such material on over 15,000 buildings and has placed it in its archives in the Library of Congress.

Among the buildings measured by HABS is Iolani Palace in Honolulu, the last royal residence of the kings of Hawaii. The Palace, used since 1895 as the seat of government, first of the Territory, then of the State, of Hawaii, is in process of restoration to the splendor it had in the last years of the monarchy (1882-1893) when it was new. The original plans of the Palace have not been found, although a notion persists that they are in the cornerstone. Continuing research in the building and excavation of the grounds to determine actual site use, plus the HABS documents, are providing the basis for decisions on the restoration. Paint samples, analyzed for color and chemical content, have yielded unexpected information: for instance, instead of gold leaf having been used on the picture rails as had been believed, orange shellac over tin alloy leaf had produced the effect, and this was easily and (more important) inexpensively restored. Funds for the project are from HUD and the State, and are administered by a nonprofit organization, the Friends of Iolani Palace. The project was begun in 1969 and will take four years to complete.

Of the four buildings shown here, one was protected by municipal ordinance. The others saved only by the active intervention of interested citizens who saw their context and scale as positive urban values.

Iolani Palace: only royal residence in U.S. restored to regal splendor

Palace life in monarchy will be recreated. First-room finished is in Queen's suite.

Historic districts: to preserve the look of a place and time

To save old buildings of significance, Los Angeles' Cultural Heritage Board established Heritage Square on unused city park land as a kind of historic district in the making. Two Victorian houses (1, 2) are already on the site and will be restored as funds are available. Western historical and architectural heritage is largely from the Victorian era, with only a few from earlier periods still extant. Occasionally a whole town merits designation as a national landmark, as did Jacksonville, Ore. (5), its late 19th century environment almost completely intact. The town preserved its character with a municipal historic district ordinance; "Old Sacramento" is a six-block section of the city's redevelopment area, where 41 Gold Rush buildings will be restored, 57 will be reconstructed on their sites, as a tourist attraction and self-sustaining business district. The agency has restored the Old Morse Building (3) as a demonstration project (restoration architects: Angelico-Vitiello) to encourage private developers. San Francisco wants to make a historic district of Jackson Square (4), where private restoration of many buildings preserves 19th century style and scale.
An architect's principal work will always be new construction, and when that work is placed in conjunction with older buildings that need to be saved, the architect uses skills that no other preservationist can apply.

A new building in Albany dramatically unites tradition and creativity

Any major new addition to older buildings requires that the architect be a bridge between one era and another; between an earlier time in a culture's history whose old forms remain intact, and the present time that almost certainly demands new forms to express new intentions. Usually, the architect today will not attempt any accurate reproduction of the old building (except perhaps to make an artistic comment about it, like Warhol copies soup cans), and he won't bury the old forms in modern facades or paneling.

The New York Bar Center by James Stewart Polshek is a case in point. Yet the enlightened architectural compromises shown here were not obviously necessary from the beginning; they had to be fought for to be achieved, and most other preservation projects will have to be, too. The New York Bar Association's first intentions when the headquarters was being considered four years ago, were to remove all four of the early 19th century row houses then on the site, and build an entirely new structure. Before the architects had barely finished first schematics on this parti, several members of the Albany Historic Sites Commission got wind of things, and began publicly denouncing the project's intentions. Of course, it was not just that Albany might lose four fine row houses; the most important part was where the row houses were. As the aerial photo and site plan at the immediate right indicate, these houses form part of the boundary for one of Albany's finest...
The preserved Elk Street facade of the Albany Bar Center is shown at the right, while the photo below shows the major new addition that has been connected at the back. The aerial photo at left shows the neighborhood context of the new center, including the continuing line of residential facades of which it is a part, Academy Park which these old houses face, and several of the New York State government buildings that also face the park. Preservation of this neighborhood context was a major justification for saving the three old houses as part of the new Bar Center.
ith a major new addition /1

small parks, one that eventually leads to the Capitol building itself, two blocks away. The stakes were the preservation of four individual buildings, the quality of the space in front of them, and ultimately, the still-intact 19th century continuity of the whole district. Soon the Hudson River Valley Commission (a New York State agency) held a public hearing on the issue, and the result was a judicial order barring any demolition whatsoever. All this (it must be emphasized because it is important) happened before either the architects or the owners had any substantial design commitments at all.

The architects insisted to the clients that the four row houses could be saved, although of course they said it would cost more money to save them, and it did. As for the clients themselves, one critic found the point exactly, saying "The legal profession is trained to reason, if not to urban esthetics. Reasonably, the Bar Association reconsidered the project." They saw their own self-interest within a sufficiently large context, and almost any preservation project requires this kind of broader perspective if it is to be achieved in the face of direct economic calculations.

As these photos show, Polshek's final scheme uses the front half of three of the original four row houses, with the main entrance to the Bar Association now through house number one, shown in the middle photo, far right. The fourth row house (it used to be on the corner that is now grass and trees) was incorporated into the design too, but it developed severe structural cracks during construction. Consequently, the fourth house was removed en-
The new Bar Center has created a large exterior court between old and new, as the photo below shows. The main entrance to the Center is still through row house number one (below, center) but a major secondary entrance lies through the court. The three principal spaces of the new addition have skylights into them, set within the three peaked roofs of terne-coated stainless steel. These three loft-like spaces are spanned with reinforced concrete beams, resting on concrete bearing walls and columns.
The perspective section at right shows the relationship of new and old spaces. The major interior is the Great Hall (below, right), which functions as a library, lounge, and social reception area for the Center. The space is 40 by 66 feet, and is filled dramatically by Norman Laliberté's bright banners, depicting various mottos, scenes, and events from legal history.

The interior below looks into the small reception and sitting room from the Great Hall, then out to the interior court.
LEGEND:
1. Storage and expansion
2. 1st Floor, reception
3. Maintenance staff
4. Hinman Library
5. Garage
6. Employee's lounge
7. The Great Hall
8. Reproduction and records
9. Mezzanine:
   Conference room
   Public Relations Department
   Accounting Department
10. 2nd Floor:
    Executive Director
    Foundation Office
    Continuing Legal Education
    Meetings and Membership
11. 3rd Floor:
    Grievance Hearing Room
    Counsel
    Staff Attorneys
    Legislation Offices
12. Courtyard
An old hospital structure becomes a modern example of serviceable space

Mount Sinai Hospital in New York City has been in a continuous state of remodeling for the last two decades, a condition any growing hospital today finds inevitable. One firm—Kahn and Jacobs—has performed most of this work, adding several entirely new buildings, and remodeling a campus of 26 older structures varying in age from 9 to 67 years.

The building shown here is a conversion of old open-ward nursing units (see photo, opposite) to semi-private acute patient rooms that are fully serviced with central air conditioning, toilets in each patient's room, and piped oxygen and vacuum systems overhead.

The key to remodeling was the quality of the old building itself. It was originally designed as an open-ward center in 1900 by Arnold W. Brunner, a New York City architect, and it has a handsome neo-renaissance facade that has been retained, as the picture at the right shows. It was also built with a sound masonry and steel structural system, vaulted flooring (middle photo, right) and a substantial floor-to-floor height—17 feet, 10 inches. Before air conditioning, a high ceiling was a common mode for aiding human comfort. Because of the ceiling height, Kahn and Jacobs were able to remodel in stages, and provide the remodeled nursing units with a modern concept in hospital planning: that is, the flexibility of "interstitial spaces" for the housing of mechanical systems immediately above and below the working floor levels.

The alteration was executed in stages so that a typical floor could be reconstructed while all the rest of the floors were in use, as in the large section, far right. The phasing went something like this: all vertical piping was brought to the underside of the third floor (for instance) while that floor was still occupied. Patients were then relocated from the third floor, and existing construction was demolished and removed. A permanent full-floor catwalk was then constructed ten feet above the floor, and all lateral distribution piping and other mechanical components were installed from the catwalk. Finally, new partitions and finishings were added to the third floor below the catwalk and the floor was re-occupied by patients. Then the fourth floor was evacuated and demolished, beginning the process again.

This rebuilding provided "as new" facilities at a construction cost of under $16,000.00 per bed. It would have been impossible to accomplish had the original building been removed, or had it been originally constructed on a smaller bay module with less ceiling height. The investigations to determine what old construction should be saved, and how to best use that old construction for new facilities, is largely up to the architects, and of course this kind of creative rehabilitation work is an important part of many large architectural offices today.

Above is the facade of the old open-ward unit which has been allowed to remain intact, with some changes in elevation and circulation at the ground level. Before, during, and after stages of reconstruction are shown from top to bottom in the series of three photographs at the right, and the section, far right, illustrates construction of the interstitial mechanical spaces.


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Elderly housing that exhibits a welcome sense of tradition

When the Home For Aged Men in Portland, Maine, was ready to expand, it could have torn down the fine old residence it was utilizing, and started over. The house was in adequate condition, but it violated many of the more stringent code requirements developed over the last 10 years for this kind of housing, and needed to be completely "modernized." But it was not torn down; it was saved and used as the esthetic keystone for further development of the property, as the photograph at right so nicely shows. Now both the old home and the major new addition that it generated are housing elderly people, and maintaining the architectural continuity of the 18th-century residential neighborhood around them. And the people of Portland, Maine are publicly praising both the sponsor and their architect, as they should.

The old Levi Cutter House, built ca. 1810, with extensions added during the 19th century, was placed in trust by Mr. Cutter when he died to be converted to a home for elderly men. It remained in this use until 1964, housing from six to 24 men in a kind of boarding house arrangement. Then the board of directors of the trust decided they should try to enlarge the effectiveness of the home, and hired the young firm of Bruce Porter Arneill as their architects. Arneill studied the problem, and came up with the solution on these pages. As Arneill puts it: "The basic concept was to have the old and new buildings complement each other, and the space be-
The three plans below show the major floors of the housing complex, and the grading, with the previously existing facilities overlaid in color. The long neck linking the two parts allows a clear division between the two, creates an adequate space for an entrance vestibule, and allows the corridor to slope up or down to meet existing floor heights. The original house, it is apparent, had several additions to it between 1810 and 1900.
tween invite you in ... We studied all the pertinent characteristics of the older building, and these influenced the detail design decisions on our new work.”

The first problem of designing a compatible addition was one of scale: the finished new facility was to house 85 people, both men and women, rather than the six people it had housed for the last few years, so it would have been easy to dominate the old house with the new addition. The problem was solved by maintaining the roof line of the house, by making the windows in the new addition about the same size as the old window shapes (including the shutters) and by matching the old brick as closely as possible. The mansard roof of the addition allows a fourth floor to be worked in while still maintaining a three-floor roof line.

Matching the floor elevations in the old house was a problem, because new construction generally requires a greater floor-to-floor height than the nine feet of the original building. The nine foot height was accomplished by using brick bearing wall construction, concrete planking for the floors, and by eliminating dropped and suspended ceilings except in certain corridors. The interior ceiling height is still maintained from eight feet to eight feet six inches throughout. The front facade of the new addition is in exactly the same plane as the facade of the house, and about three times as long, but the undercutting for terraces and porches that occurs at the ground floor of the addition lightens its mass effectively. Because the addition went up four stories, large parts of the site became available for terracing and exterior use (photo, above right) that would not have been available if an earlier two-story concept had been continued.

The old stairway of the original house is intact inside, as well as most of its original moldings. What the architect has added is paint; paint in bright colors and broad stripes to give the interior of the house a fresh new life without permanently harming any of its old forms. The house and its earlier additions now provide sleeping rooms for 22 people, plus activity and storage areas. The new addition houses the kitchen, dining room, administrative offices, lounges, and 15 one-bedroom apartments, eight efficiency apartments, and 27 single rooms.

The main entrance to both the old and the new parts of the complex is now between the two structures, shown in the large photo, opposite. The steps here are fewer than in the old entrance, and because of the grading of the site a person can avoid all steps into the building from the parking area at the rear.

The Park-Danforth Home has room sizes that are substantially larger than the FHA standards for elderly housing. There is no Federal money at all in the project; the original trust itself put up about half the funds and local Portland banks put up the other half. Total cost of the addition and rehabilitation together was $1,-100,000.

The west end of the new addition (below) is designed so that the corridor on each level can plug into a future addition, and the new elevatoring and kitchen system has been designed to accommodate this future addition, too. Below, the interior of the new lounge looks onto the street, and some of the other early 19th century architecture of the neighborhood. At right, the new main entrance of the home fits between the old and new buildings. Note how the major horizontal elements of each facade line up with each other.

least one potential high cost situation ahead of time. In another instance of high design cost—that is, client indecision—the simple mechanics of the inexorable monthly rendering of time spent multiplied by the hourly rate tends to produce an acceptable degree of self-regulation on the part of the indecisive client.

"The high front-end loading of the typical remodeling fee contributes to another cost problem which has proven more difficult to resolve—the client who pulls out before proceeding into working drawings or construction and is (I suppose, understandably) unenthusiastic about paying for what has, for him, become an entirely unproductive building venture. Since our uncollected bills can only work to increase our overhead and hence our billing rates, we are actively seeking ways to overcome this problem. In this regard we have found that when a first meeting with a client has indicated any likelihood of a project's untimely demise, the old fashioned retainer works very effectively. But since prognosis of this type often borders onclairvoyance, we are investigating other more mundane methods."

The commercial client, that is the owner or prospective buyer of an office building, is understandably more hard-headed about the cost of remodeling versus the returns on proposed occupancy. Economic feasibility of the project therefore becomes a double study; first, to weigh the economics of total demolition and rebuilding; and second, to accurately assess the cost of remodeling. Early consultation should be fortified in these areas of feasibility for commercial work with special attention not only to accurate costs but also to the floor loadings and mechanical requirements of proposed occupancy.

Two advantages commercial clients have over some others are: Sophistication in assessment of the economic rationale of proposals, and flexibility in adaptation to appropriate compensation negotiations. Commercial remodeling occurs over a wide range of project size and the compensation rates vary accordingly. The Slinkerland firm previously mentioned reports a range of projects from $500,000 to over a million dollars and a corresponding range of compensation rates that work out to about 12 per cent on the smaller work and about 9 per cent at the upper end of the scale. These are generalizations subject to considerable modification from job to job depending on the complexities involved.

Occasionally, preservation and remodeling occur jointly on some important projects. The $9.3 million commission to Alfred Shaw and Associates for remodeling Chicago's Board of Trade building is a case in point.

The Board of Trade's landmark structure, designed 41 years ago by Holabird and Root, will be virtually re-designed on the inside while preserving the external character and basic structure of the building.

The modernization project, now in full swing, includes replacement of existing heating, ventilating and air conditioning systems; conversion to an all-electric energy system; replacement of 22 elevators; the creation of two entirely new interior stairwells and the reclamations of 180,000 square feet of space for rental.

Simultaneously, a tenant improvement program will transform office space into modern, flexible units offering amenities competitive with any new building in the city.

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Simultaneously, a tenant improvement program will transform office space into modern, flexible units offering amenities competitive with any new building in the city."
and does remove some of the mystery prior to starting an alteration. It cannot, however, remove the perversity, or resistance to change so often built into original structures as a result of false economies made to meet a stringent budget (short structural spans, inadequately spaced or sized risers, badly located stairs and low floor-to-floor heights). These represent minor first cost savings but are a major factor in increased costs incurred by the inevitable series of alterations that follow. This is one of the major issues to be resolved in establishing long-term institutional client relationships."

The public client usually operates under a set of procedural constraints that are particularly difficult in remodeling work. First is the widespread legal provision that compensation must be charged on the basis of a legally pegged per cent of construction cost. Second is the common requirement of open competitive bidding on construction work of all kinds. This precludes early consultation with pre-qualified contractors except on a strictly professional basis and by separate commission directly with the client. It also encumbers the prequalification of contractors, an important aspect of successful remodeling work. Documentation of public work also is forced into patterns of phasing and approval prior to the start of actual work. This frequently defeats the economics and flexibility of remodeling as a mode of lengthening the life of public buildings.

Problems of documentation reflect special conditions
In most remodeling and preservation work, the building itself is a physical component of the documentation of required work. The existence of record or as-built drawings is not only problematical but is frequently insufficient for conventional documentation of the new work. Therefore, the architect in developing efficient modes of remodeling documentation is turning more and more to photo techniques. Some of these involve actual photographs of the existing building, key details, or parts of the mechanical and structural systems on which drawn alterations are superimposed. Another technique uses a photographically shaded set of plans on Mylar or other film systems upon which the designers of the various new systems can work out their changes in solid black line.

The drawings of record of the completed remodeling job also will contain the photographic record, which therefore must be fairly well documented as to date and angle of exposure of each picture.

Where standard forms of agreement between owner and architect are used in remodeling or preservation work, they should be carefully adapted to this special use. The outline of basic services, for example, should be amplified to cover any special research or consultation, not only in pre-design services but also at key points during the schematic, design development and construction document phases. Where A.I.A. document B131 (per cent based compensation) is used, it should be modified to cover these extra services. The previously cited Handbook chapter 21 provides detail on these points in preservation work, and the implications of all of the foregoing should provide legal counsel with some guidance.
Survey of architects shows most do some remodeling—and find big jobs and big rewards

Increasingly aware of the importance of remodeling, preservation and restoration as a substantial portion of architectural practice, the RECORD Research Department last spring drew up an extensive questionnaire that was mailed to 1,000 architectural firms selected by a sampling method that characteristically produces a true national cross section of firms with respect to size and location. There was a surprisingly large and detailed response from 25.3 per cent of the firms surveyed.

The questionnaire began with the following statement: "The questionnaire that follows is about remodeling. By this we mean any commission to alter an existing building—whether the project is called renovation, rehabilitation or restoration."

Highlights of results are shown in the box at right.

Response in detail shows active participation

The first question: "Has your firm been involved in building remodeling in the last two years?" Answers revealed that 77 per cent of firms had been so involved, and of those who were not, only five firms declared they would not undertake commissions for remodeling work.

Question 2: "Approximately what percentage of your firm's work is remodeling (as opposed to new construction)?" brought 191 replies, among which 65 reported more than 20 per cent of their work as remodeling, five firms had over 70 per cent of their work in this category. The median firm had about 14 per cent of its work in remodeling of existing buildings.

Question 3: "Are you doing more or less remodeling work than you did, say, five years ago?" brought 190 replies of which 87 per cent reported they were doing the same amount or more than they had done previously.

Question 4 was a two-part question asking whether respondents expected more or less remodeling work in the next two years—and why. Some 35 per cent expect more; 55 per cent about the same and 9 per cent expect less. The reasons given for an expected increase were: the increasing cost of new construction, the prevalence of structurally sound existing buildings and a general tendency to expand existing facilities. Notable among observations supporting an expected increase were those dealing with systems approaches to inner-city rehabilitation and the probability of more school remodeling as local bond issues fail in passage and school expansion needs diminish.

Three of the respondents who expect less remodeling work simply state: "It doesn't pay."

Shift in procedures revealed in key question

Question 5 was another two-part question about whether firms handle remodeling projects in the same way as new building projects.

a. "Do the same people in your firm work on remodeling projects as work on new buildings?" (yes, 94 per cent)

b. "Does your firm write the same kinds of specifications for remodeling work as for new buildings?" (yes, 54 per cent; sometimes 24 per cent; no, 22 per cent)

Respondents who replied "no" or "sometimes" to the question about specifications were asked for comment about what is different. Following is a sampling of comments:

"Special conditions are more varied and complicated."

"We try to define much of the work and materials on the drawings."

"Specifications for remodeling work usually put on drawings."

"Matching or reusing some existing equipment."

"Instructions of how to perform."

"Other headings, processes, etc.—often not bid—but contractor selected at outset."

"Specs vary on alteration jobs. No repeats, at least not too many."

"Description and control at demolition; contractor has more leeway to handle unforeseen conditions."

"All the difference in the world. Scope is always more complex."

"Most sections have paragraphs referring to existing work."

"Revamping and reusing existing items in order to keep costs down."

"More specific in areas of cutting, patching, painting, demolition, etc."

"Demolition, site utilities, shoring, special conditions, temporary facilities, finishes, mechanical and electrical."

"The basic reason is that remodeling work is not the same as new work. Demolition and site investigation are important items. Disposition of removed materials plays a big part, etc."

"On larger work above $100,000, specs are the same type. On smaller, incidental work the specs are on the drawings as much as possible, plus a "Scope of the Work."

"Many items subject to specific site considerations."

"In remodeling work you never know for certain what conditions exist until you have the job under construction and changes are apt to occur in specifications as a result."

A substantial market comes to light

The questionnaire probed projects handled in the last two years by each firm. Some 645 projects were reported in detail with a total dollar volume of $242,682,500; an average value of $376,251 per project. Among these, 232 projects involved major increases in floor area. The principal reasons given for remodeling were change in function of space; improve comfort; bring up to standards; increase...
profitability; and conform with codes.

The age distribution among 613 buildings reported was as follows:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 5 years</td>
<td>19</td>
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<tr>
<td>5-10 years</td>
<td>80</td>
</tr>
<tr>
<td>11-15 years</td>
<td>81</td>
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<tr>
<td>16-20 years</td>
<td>76</td>
</tr>
<tr>
<td>21-25 years</td>
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<td>26-30 years</td>
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<td>31-35 years</td>
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<td>10</td>
</tr>
<tr>
<td>Over 100 years</td>
<td>36</td>
</tr>
</tbody>
</table>

The results by building type are tabulated below right. It is interesting to note that the average job cost for houses is about $55,000. This rather high figure is a result of considerable expansion work on some very large and very old houses.

**Comments summarize experience and reaction**

The survey's concluding invitation was: "Would you give us what comments you like on your firm's experiences with remodeling work—how important it is to you—how your firm approaches a remodeling job—what you think is the future of the architect in the remodeling field—your thoughts on the whole subject of remodeling.

Following is a sampling of replies received.

- We feel that remodeling should be approached with the same degree of attention, enthusiasm and idealism as a new project. The challenge to solve existing problems in the most efficient, esthetic and economical manner possible is just as great or even greater due to the investigation and research required. As construction costs continue to rise, remodeling jobs should increase greatly. Architectural firms interested in remodeling and prepared to do it properly should have little trouble in keeping gainfully occupied.

- Most architects have started their careers with a renovation commission, and those who maintain fairly small general practices will always be involved with additions and remodelings of some type. This is an important area of service, as it should achieve the same goals as a new structure for the client. Many older buildings are in too good condition to be razed but need to be updated. Architects will always be called on to render this service and should treat it with the same respect shown any commission.

- Remodeling is a way of life with clients who are constantly expanding existing facilities and acquiring new markets. Our specific endeavor is with the airlines industry. There is continual change at existing airports and remodeling is the byword for most architectural-engineering work even when new facilities are constructed. Existing outdated facilities are revamped for another use.

- Remodeling is a very important part of our practice. Some of our most satisfying significant work is remodeling. Remodeling work is highly challenging due to the additional limits imposed. Our approach is complete modernization, not "make-do."

- Most often exteriors of existing buildings are completely usable and often are too expensive to duplicate. Approach is substantially same as for new building. Design is often simplified by having a set of boundaries—floor area, heights, etc. Remodeling is a great challenge and for the most part interesting work.

- In our work remodeling is not a separate field, but is done either in connection with an addition to a building or for an owner for whom we have done new building work—a "regular client" who wants to update and improve an older building.

- As far as our firm is concerned, remodeling and renovation work is important. We are primarily engaged in the design of hospitals and for the last four or five years approximately 75 per cent of our work has been expansion programs for hospitals which we originally designed.

- We find an increase in remodeling work, thus are spending more time investigating new products and architectural solutions for this type of work. Generally, we have been able to satisfy the client's requirements, sometimes with better results than could have been achieved with new construction. Our firm has experienced great success with minor capital improvements programs for schools and hospitals. The greater portion of this work is remodeling. Many facilities require updating of old buildings while the newer areas are constantly revised to accommodate expansion and/or new programs of occupancy.

- We do mostly custom residential work and from this experience I believe there will be a great need for residential remodeling due mainly to the high cost of property and heavy construction. I believe new materials are helping to save money on remodeling. As for commercial work, of which we have none at the moment, I believe there will be a greater surge.

### SUMMARY OF BUILDING TYPES REMODELED

(by 253 representative architectural firms)

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<thead>
<tr>
<th>Building type</th>
<th>No. of projects</th>
<th>Total value $ million</th>
<th>Average proj. cost $ thousand</th>
<th>Median bldg. age years</th>
<th>Per cent involving expansion</th>
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<td>All buildings</td>
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<td>243</td>
<td>376</td>
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<td>209</td>
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<td>Hospitals</td>
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<td>16</td>
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<td>Hotels, motels &amp; dorms</td>
<td>10</td>
<td>2</td>
<td>235</td>
<td>42</td>
<td>20</td>
</tr>
<tr>
<td>Misc. non-residential</td>
<td>20</td>
<td>7</td>
<td>332</td>
<td>22</td>
<td>40</td>
</tr>
</tbody>
</table>

ARCHITECTURAL RECORD December 1971 111
The rising cost of new construction, deep roots in the community, and an awakening interest in our architectural heritage are among the most important reasons these owners decided to stay and renovate.

Renovation sustains cultural goals of a community service institution

This 77-year-old structure, located on Manhattan’s Lower East Side, has long been the headquarters of the Educational Alliance—a settlement house that sprang up before the turn of the century to serve the educational needs of a Jewish immigrant community. As the ethnic character of the community gradually expanded to include other minorities, the Alliance’s goals and services have broadened in response. Because its roots are so deep in the community, the Alliance decided to renovate rather than seek quarters at a new location.

In planning the renovation, architect David Specter strove to preserve the building’s exterior esthetic while bringing its functional standards up to current levels of acceptability. On the three floors now renovated, many spaces have been reorganized and finish surfaces are largely new. Halls and stairwells are color-saturated with supergraphics that convey information and lend visual enrichment in powerful doses. Throughout the building, Specter has used large photomurals culled from various archives, that catch the color and flavor of community life at the turn of the century. The photos also serve as a constant reminder of long years of dedicated and uninterrupted service.

for the same use/rehabilit
Soon after the savage fire of 1906, Levi Strauss & Company (makers of the well-known clothing line) began construction of a large manufacturing plant in downtown San Francisco. The structure was a three-story wood frame box of pleasant proportions but no particular architectural distinction. Since original construction, both the building and the neighborhood have gradually deteriorated.

In renovating this building, architect Howard Friedman's somewhat whimsical approach was to create "a sort of Disneyland Western Hotel look—in keeping with Levi's original cowboy image." Four stair towers were added at the building's corners to meet the city's standards for required exits. The porch was constructed for period style and to provide a place for employees and public to relax. A playground for public use was added as a commitment to the neighborhood. The interior planning, by contrast, is serious in intent and reflects 1971 corporate functions. The heavy wood structure—posts, trusses and plank floors—was retained and highlighted with color. Functions within the building have been redistributed. A new sculptural light court, new partitioning, lighting and mechanical equipment complete this spirited and timely renovation.

Renovation of this building has lent impetus to a drive toward upgrading the appearance of the whole neighborhood. The sharing of playground equipment with neighborhood children has met with warm affirmative response. After almost a year of use in an area characterized in the past by widespread vandalism, not one pane of glass or lighting fixture has needed replacement.
Two examples from Pittsburgh are in many ways typical of housing rehabilitation in 20 U.S. cities. Preservation of architectural character is apparent in before and after photos.

Federal funds sponsor housing rehabilitation in 20 U.S. cities

The surging, nation-wide demand for low- and moderate-income urban housing has lent special urgency to HUD's Project Rehab. Responding to needs outlined in the Second Annual Report on National Housing Goals, Project Rehab, headed by Assistant Commissioner Robert E. Philpott, has an ambitious long-term objective of a million rehabilitated units over the next decade. With better than 15,000 units now complete or under way, Rehab has made a strong beginning. "We hope to have 37,400 units under contract by the end of this fiscal year," says Philpott, who has a 1971 budget of approximately $35 million to be distributed over several types of subsidies. Operating currently in 20 United States cities (and hoping to increase the number) Rehab teams work with private developers through local elected officials who have demonstrated a strong and continuing commitment to the program. Historically, housing rehabilitation, like the urban renewal of which it has been a part, has concentrated almost exclusively on efficient re-use—too often at the expense of architectural character. High among the Rehab teams' priorities is a determination to maintain the architectural character and integrity of buildings and neighborhoods in which they work (photos, left). None of the funding for Rehab projects has been diverted from other HUD programs.

It is too early to tell much, but many signs are certainly encouraging.
A Georgetown chapel renovated with warmth and sensitivity

This small chapel has been shaped from a two-story parish house that formed an annex to a nineteenth-century Episcopal church. Much of the success of the renovation stems from architect Philip Ives' decision to move the choir practice room upstairs and slope its floor upward at both ends to gain space in the chapel below (see section). The added height in the chapel is used at the rear for a row of overhead organ pipes and, behind the altar, for a high wall washed by concealed lighting. The effective use of light as a design tool, the simple but elegant detailing and the careful choice of finish materials combine to form a very handsome and exceptionally successful renovation.

Interior walls are textured plaster, floors are gray slate, woodwork is stained dark. Chairs, altar, lectern and font are designed by the architect.

An urban wasteland converted into a low budget community park

The rubble-strewn site (photo top left) is not Cologne after the fire bombings in 1944. It is a site in the heart of New York City once occupied by the Ruppert Brewery. Now owned by the City and slated for future high-rise development, the demolished, multi-block site has lingered too long as an eyesore and community blight.

A small group of concerned citizens, headed by architecturally trained Mac Gordon, William Hodgson and Oliver Hamill, bent to a task they called "The Greening of Ruppert." With the sponsorship of the Parks Council and the financial assistance of the Astor Foundation, the designers regraded the flat cut slope into a rolling meadow, seeded the area with grass and planted fast-growing vines on the battered chain link fence surrounding the property. "Design," says Gordon, "was a constant exercise in improvisation. We used whatever found materials we had at hand—old railroad ties, cable reels and scrap lumber." Allotment gardens, on the site's periphery, are tended by members of the community who grow flowers and vegetables. Several festivals and park events are now scheduled.

The designers have done more than bring life to dead land. They have provided a constructive format for community action and an example of what might be done with any of the thousands of city lots now vacant and neglected.

There was a time when railroad stations meant a lot to America. They were the grand entrances to cities, the outposts along the great lines of travel, part of railroading's movement, power, spectacle, and symbols of their communities. In a romantic age, they took on the most romantic of forms, from Tudor manors to Spanish cathedrals. Even small stations tended to be special.

The stations are still there by the hundred, but they are being left high and dry by the steady, rapid decline of passenger travel. Six months ago, the decline became a nose-dive when Amtrak, the new Federally sponsored railroad organization, cut passenger service throughout the country in half, leaving dozens of stations empty. Amtrak has commissioned a study on stations, but Amtrak has no power to save them: it does not own stations or equipment, but rents them from private rail companies. Many of the best have been destroyed, and many more will be. The sites, usually in the center of town, frequently are too valuable to make any kind of preservation as profitable as new construction. Money built these stations— and money is tearing them down. Often, however, stations are demolished only because no one has thought of a new use.

Henry Hobson Richardson raised railroad architecture to a high art. Most of his stations are gone, but the finest of all— New London, Connecticut—remains. For a while, anyway. The station's demolition is written into New London's urban renewal plan. (February 1971, page 36). Many New Londoners hate their station, which is filthy inside and out, though solid. The station is needed (New London is Amtrak-served) and must be replaced by a new station before it can be torn down. Preservationists now believe there is some hope it can be saved and refurbished.

Happily, railroad stations have shown remarkable adaptability. They have been converted into private homes, libraries, restaurants, meeting halls, offices, banks, stores, galleries. A few are surviving as railway offices. But if you want to see a train buff light up, show him a station that's still going strong. The old romance is still alive.

Jonathan Hale
4. Union Station, Nashville, Tenn., 1900. Now almost empty, but sympathetic owners and public are studying ways to adapt it to new uses. Photo: Jack E. Boucher, Historic American Buildings Survey.
5. Cumberland, Md., 1872, built as a combination luxury hotel-station. A recent casualty, demolished in late October after a cliff-hanging fight. Photo: Edmund Barrett, HABS.
7. Burlingame, Cal., 1893; still in use, excellent condition. Photo: Morley Baer, HABS.
9. Mt. Royal Station, Baltimore, Md., 1894. Now part of Mary-
ngered species/railroad s
land Institute of Art. Photo: Edmund Barrett, HABS.
10. Union Railroad Station, New London, Conn., 1885, Henry Hobson Richardson, architect. In serious danger, but chances for saving it have improved. Photo: Robert F. Fulton III, HABS.
14. Main Street Station, Richmond, Va., 1901, Wilson, Harris and Richards, architects. Little changed and still in use. Photo: Edgar S. Heite, HABS.
17. Union Station, Washington, D. C., Daniel Burnham, architect, now being converted into a tourist information center by the National Park Service. Photo: Jack Boucher, HABS.
20. Point of Rocks, Md., 1875. Still in use as a commuter station. Photo: Edmund Barrett, HABS.
Music/dance students now perform in this old Newark carriage house

The rehabilitation of carriage houses, in those communities lucky enough to have them, for residential use began as soon as the automobile replaced the horse-drawn carriage. As in most residential work, the architectural and legal problems are relatively simple. But when the carriage house is converted to public use, as was this one at the Newark Community Center of the Arts, the designer must deal with code requirements as stringent as those for new construction of the same type. Thus, a building of 2,000 square feet must accommodate two means of egress, provide adequate toilets, and meet the same codes as larger structures.

Hardy, Holzman and Pfeiffer Associates, architects for the renovation, have met those restrictions with their customary flair. With a limited budget and area in which to work, they have provided rehearsal and performance space for music and dance which works well and admirably captures the spirit of the school. Mrs. David Lass and Saunders Davis, music teachers in the Newark school system, established the Center in January, 1968. Enrollment grew so rapidly that new quarters were needed within six months. Grants from two foundations enabled the school to move into a large house in a once well-to-do Newark neighborhood. Soon afterwards the architects began the conversion of the carriage house behind.

Although the roof and some of the masonry of the existing building had to be replaced, the 20-foot-wide shell dictated the proportions of the revised design. The alley facade (top of the plan, opposite page) remains as it was with all new construction toward the house (which now contains offices and music rehearsal rooms). Performance-goers pass through the house into a courtyard, which will be developed as an outdoor theater, across which they see the sprightly elevation (right). A split-level entrance leads down to toilets and mirrored rehearsal room with an elegant two-position barre and new hardwood floor. The stairs up bring audiences directly into a large room divided diagonally into stage and seating areas. Faced with a 2:5 plan proportion, the architects felt that the diagonal stage permitted the width necessary for dance movement, as a standard stage across one end would not, while not spreading the audience the entire length of the space. A new roof structure echoes and reinforces the stage angle while a clerestory over the audience increases the sense of enclosure about the stage. Performers can come onto the stage from a ramp leading to the lower floor or can enter from an alcove over the lobby. An adjustable stage lighting system adds a glamorous note.
Dings for new use/rehabilitation
Pittsburgh's Heinz Hall:
a movie palace
becomes a first-class
concert hall

When Loew's Penn theater closed its doors in 1964, after providing film and vaudeville entertainment for 37 years, demolition seemed inevitable. After all, on all sides of the Golden Triangle, old structures were being pulled down and replaced by shiny metal-skinned towers. But circumstances held a far different fate for the building.

On September 10, 1971, the Penn theater became the Heinz Hall for the Performing Arts. Plans to renovate the building for its new use began in 1968 after test concerts in the theater (see marquee, above) proved that not only did the room work well for symphonic music but that Pittsburghers were very willing to come downtown for concerts. Henry J. Heinz II, through the Howard Heinz Endowment, agreed to purchase the building and to substantially pay for the cost of rehabilitating it—approximately ten million dollars to date. The 2,730-seat hall will not only serve the renowned Pittsburgh Symphony but the Pittsburgh Opera, the Civic Light Opera, the Pittsburgh Ballet and the Youth Symphony as well.

Although the neo-Baroque opulence of the old movie palace remains, photo right (heightened if anything by the restraint and tact of the architects Stotz, Hess, MacLachlan and Fosner and their interior designer, Verner Purnell), the technical requirements necessary for revamping the building to its new use have been achieved economically and unobtrusively. In addition to restoring the Grand Foyer, the Grand Lobby and the hall itself to a tasteful reflection of the late twenties, the architects and their many consultants revised circulation patterns thoroughly with a new lobby (right center), intermission lounges and staircase, (right, bottom), provided three floors of offices for the various performing groups, added a wing behind the stage containing enlarged backstage space and other support facilities, and finally—under the direction of Dr. Heinrich Keilholz of Salzburg, Austria—added a large acoustical reflector above the proscenium and other refinements for optimal sound delivery in a multi-purpose hall.

Symphony, ballet, and especially opera performances, as opposed to moviegoin, require spacious and comfortable rooms in which to relax and greet friends during intermissions. The mezzanine plan, page 128, shows two major additions for that purpose. A new horseshoe staircase from the main floor to the mezzanine brings the audience to a new lounge and to the Grand Foyer, formerly a space open to the main floor but now bridged at the mezzanine level to provide intermission space. Where once the marquee glittered, a four-story window reveals the Grand Lobby to evening passersby, (right). The newly-built ticket lobby is en-
tered by five doorways under copper-sheathed cupolas. The bulb-lined cupolas serve not only to shelter the entrances, but to screen the view of those in the lounge from flashing neon signs on the shops across the street, section above.

A six-story addition behind the existing building spans an important city utility right-of-way in order to permit a stage twice as deep as before. Two two-story rehearsal rooms, dressing rooms, practice rooms, instrument storage, a music library, performers' entrance and other circulation space is included in a compact new building.

The most intriguing technical aspect of concert hall design is, of course, the acoustical one. Here, Dr. Keilholz, who has an impressive list of accomplishments, including the final and successful work at New York's Philharmonic Hall, has used the classic technique of reflection from solid, hard surfaces to reinforce the energy transmitted to the listener by the orchestra or singer. A movable but heavily-built enclosure around the orchestra combined with the reflector, overpage, and panels flown above the players produces clear but lively sound images for a variety of performance requirements. In addition to these elements, Dr. Keilholz has specified an electro-acoustical system that permits sound reinforcement of certain productions, although not symphony or opera music.

HEINZ HALL OF THE PERFORMING ARTS, Pittsburgh, Pennsylvania. Architects: Stotz, Hess, MacLachlan and Fosner; acoustical and stage technique consultant: Dr. Heinrich Keilholz; engineers; George Levinson, Inc. (structural), Meucci Engineering Inc. (mechanical), Hornbeck Engineering, Inc. (electrical); interior designer: Verner S. Purnell; general contractor: Mellon-Stuart Co.
Although the only changes in the audience portion of Heinz Hall (right) are new seats and a considerably restrained redecorating of walls and ceilings, the acoustical elements added to make it a first-rate symphony hall are quite evident. The large reflector above the proscenium (shown left) under construction with the circular frames for the twelve chandeliers hovering like space vehicles, is constructed of hard plaster on a steel frame. The orchestra enclosure is stressed seven-ply 3⁄4-inch plywood sheets in movable steel frames that permit the enclosure depth to vary more than 15 feet. One of the two-story rehearsal rooms in the new wing (left bottom) has plywood baffles on walls and ceilings. The plans and sections (below) show that most of the changes in the renovation took place in the lobby and backstage areas of the building. Seating capacity was reduced by 700 seats because of increased seat spacing and removal of some seats in the uppermost balcony.
Over a hundred years before the Boston City Hall Competition of 1962, another competition for a Boston city hall was held. The winning entry of that one, designed by Gridley J. F. Bryant and Arthur Gilman, was as influential in its time as its worthy successor. The style was known as Second Empire and the architects of many public buildings around the United States drew inspiration from the Boston building, completed in 1865 at a cost of about $500,000.

When the new city hall was occupied late in 1968, the Boston Redevelopment Authority sought a private developer who would respect the architectural character of the building while converting it into a prestigious office building with commercial and restaurant facilities. Architectural Heritage Inc., a non-profit corporation, was interested in seeing the building properly renovated. It sponsored, in 1969, preparation of a historical report which underlined the BRA's concern for preservation of the existing structure and demonstrated the economic feasibility of the project. Based upon that report, a subsidiary of Architectural Heritage, Old City Hall Landmark Corporation, and Graham Gund, at the time an urban design student at the Harvard Graduate School of Design who had been part of the project from its inception, were named co-developers. They in turn chose Anderson Notter as architects.

Today, almost all of the 80,000 sq ft of renovated office and commercial space in the newly-cleaned granite building has been rented and many tenants have moved in. The original central staircase, and two ancient elevators added soon after the building was finished, occupied a large hall surrounded by interior bearing walls, upper plan, right. That space was large enough to accommodate a new core with two separate egress stairs, two modern elevators, toilets and circulation corridors for the entire floor. Thus, the perimeter, as in a standard contemporary office building, was left entirely free for development of office and secretarial space. All windows have been re-glazed with single sheets of glass (left), the only visible exterior change, but one which strengthens the original design.

The two lower floors of the old city hall have had substantial interior revision as well. A new entrance passage (bottom left) leads through an arched glass door that contrasts elegantly with the clustered stone columns. The original dedication plaque is visible above the elevators. The right half of the main floor has been occupied by the First National Bank of Boston (right bottom), another interior by the architects. In the future, the left half may be occupied by spacious dining rooms of Maitre Jacques, a well-known restaurant in Boston. For the moment, Chef Lucien Robert and his interior designer, Les Larson, are finishing a smaller group of dining rooms, bar and kitchen in the basement. Next summer, an outdoor dining patio outside the bar will open for lunches.
The most successful office floor interior completed to date, and the only one by the architects, Anderson Notter, is occupied by the Massachusetts Housing Finance Authority, a quasi-public agency which lends money for construction of low- and moderate-income housing. Its spaces (photographs below and bottom plan) express most clearly the architect's intent to carry the theme of the building's arched windows by creating new arches faced with natural-finish wood in interior partitions. These arches, sometimes glazed, form a strong axis that seems entirely appropriate in a classical building.
Renovation has brought new spirit to this San Francisco warehouse

When this building was a warehouse for the Crown-Zellerbach Paper Company, horse carts and old-fashioned trucks unloaded in the courtyard, (right). Today San Franciscans come to the Irish Pub (bottom) and sit in the same courtyard sipping a pint. Jackson Place was the precursor of the tide of renovation which has seen nearly abandoned warehouses and factories turned into elegant commercial facilities—Ghiradelli Square, the Cannery, the Dancer-Fitzgerald-Sample offices (RECORD, August). It quickly proved that urban renewal through preservation, not demolition, was a sound idea, both economically and esthetically.

Built in 1907 of brick salvaged from the earthquake and fire of the previous year, the existing complex was for San Francisco as old and outmoded as anything could be. For one thing, even though it was used as a whiskey warehouse after the repeal of Prohibition, the long alley leading to the truck dock was very inefficient for modern vehicles. For another, no self-respecting business would consider it as an address in the days when new office skyscrapers were shooting up all over town.

As in the case of Dancer-Fitzgerald-Sample, it was an advertising man, Joseph Weiner, who first saw the potential in the solid old structure. With industrial designer Walter Landor, he approached architect Lloyd Flood who has developed 100,000 sq ft of luxury business space. Although Jackson Place has special charm due to the scale of its shop-lined passage
—not unlike a Venetian calle—it shares certain advantages with the nineteenth- and early twentieth-century warehouse industrial buildings found in every American town: solid construction and lots of high-ceilinged, unobstructed floor space. Given the relatively moderate cost of installing modern conveniences into these lofts, commercial tenants can afford to rent much more space than they could in new construction. Furthermore, the brick walls and timber truss structures soaring above individual cubicles can give office workers a sense of belonging.

Architect Flood, for instance, spent approximately $20 per sq ft (in 1968) and produced such elegant offices as the one for U.S. Leasing Corp. (center photo, left). Where fire escapes were needed he installed steel balconies (right). This is a solution very similar to that used in the courtyard of New York's Westbeth (RECORD, March, 1970), another open space formerly used for truck loading. Wherever possible, Flood has exposed the timber structure (below left) to the space below and has introduced devices in every office area to give it distinct character: tiny patios off executive offices; planting areas; even, in one case, a glass cage cantilevered from the brick wall to give greater spaciousness and light. Corridors, too, are varied by shallow glass bays which either project or are indented and which prevent the depressing monotony of most office building corridors.

JACKSON PLACE. San Francisco, California. Architects: Lloyd Flood, Bruce Beebe (Phase 1); engineers: David Allan Welisch (structural); Westcon Associates, Robert A. Wistort (mechanical); R. F. Darmsted & Associates (electrical); general contractor: H. S. Meinberger and Sons.
A few endangered buildings across the country brought to our attention by local and national preservationists

WEST

1. Fraternity Hall, Elkhorn, Mont. ca. 1880: the social center during the silver and gold boom.  
   2. The Old Saloon next door.  
   3. Superintendent’s House, Granite, Mont. The mill office may have been upstairs.  
   4. Old City Hall, Tacoma, Wash., by Hatherton & McIntosh, 1893. Suggested uses: tourist and recreation or cultural center; special high school.  
   6. The ZCMI Store, Salt Lake City, Utah. Its cast iron and pressed metal facade may be modernized leaving only a fiber glass replica of a portion of the original.  
   7. The Mill, 1898, is in Berlin, Nev., a ghost town and State Park, and the only Nevada mining area with buildings of the gold and silver days still standing.  
   8. The Long-Waterman house, San Diego, Cal., 1889, by D. P. Benson.  
   9. Broadwater Hotel (left) and Natatorium (right—razed due to earthquake damage), 1889, Helena, Mont. Photo ca. 1900. Phased out as an elegant hotel in the 30’s it became a dance and gambling hall and is now empty.  
   10. The Mills house, Springer, N.M., 1876, is a thirty-room adobe mansion in the French academic style.  
   11. Nuestra Señora de los Dolores, Bernalillo, N.M., (mid-late 19th c.) was flat roofed. The pitched roof was added after railroads brought corrugated iron in 1879. Because of a new church this stands empty.  
   12. The Dorsey Mansion, Chico Springs, N.M., 1878-1884, has thirty rooms, some of logs, others of stone.
be saved/the heritage tha
SOUTH
13. Seven Oaks, New Orleans, La., a vandalized and neglected peristyle plantation house. 14. The Edward C. Peters house, Atlanta, Ga., 1885, by G. L. Norrman, needs a sympathetic buyer. 15. & 16. City Hall, Richmond, Va., 1887-1894, by Elijah E. Myers, is in danger when the city offices move to new quarters. It might become a courts or state office building. 17. The Bellamy mansion, Wilmington, N.C., by Rufus Bunnell, is increasingly in need of repair. 18. The Convent of Mary Immaculate, Key West, Fla., of native stone, was a hospital during the Spanish American War.

MIDWEST
19. The Old Post Office, Akron, Ohio, 1895, by a Treasury Department architect, may be a senior citizens' center or exhibition space for a variety of groups. 20. Butler Brothers, Minneapolis, by Harry Jones—some call it the city's most significant building—is a warehouse vacated because low floor-to-floor heights and deep wood structure hamper its use. 21, 22. Scarritt Building and arcade, Kansas City, Mo., 1908, by Root and Siemans, shows Chicago and Sullivan influence. 23. The Library, Quincy, Ill., 1889, by Patton & Fisher, is a good example of Richardsonian Romanesque. 24. Pillsbury "A" Mill and Elevator, Minneapolis, 1882, by L. S. Buffington. The owners have found no economic adaptive use. 25. Orchestra Hall, Detroit, 1919, deserted by the symphony despite its extraordinary acoustics because the neighborhood deteriorated, might be rejuvenated by the neighborhood. 26. Indiana Theater, Indianapolis, a picture palace with an even more lavish interior.
tage that should be saved
EAST
27. Harrisville, N.H., a rural industrial village threatened by the closing of the mills and sale of the town. 28. Resurrection Manor, St. Mary's County, Md., 1652, a rare survival. 29. Crown and Eagle Mill, North Uxbridge, Mass., an abandoned textile mill. 30, 31. The Music Hall, Troy, N.Y., ca. 1870, by George B. Post, is above the Troy Savings Bank. Some say it has the best acoustics in America. 32. Sailors' Snug Harbor, Richmond, Staten Island, N.Y., a rare Greek Revival group; the central one by Martin E. Thompson, 1833. They proved the strength of the Landmark Preservation Law but need funds. 33. Court of Appeals, Annapolis, Md., 1901, with marble court and Tiffany glass, may be torn down.

Credits. WEST. 1, 2, 3. photos by and from John N. DeHaas. 4. Tom Upper photo from Alan Liddle. 5, 7. photo from Edward S. Parsons. 6. P. Kent Fairbanks photo from HABS. 8. Historical Collection, Title Insurance and Trust Co., San Diego, photo from Historical Sites Board, A.I.A. 9. Montana Historical Society photo. 10, 11. Louis Castillo photo. 10, 11, 12. photos from George Clayton Pearl.

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because Unizone permits individual room control and is especially suitable for itinerant occupancy as units may be shut down when rooms are not in use. It is also ideal for perimeter rooms where cooling or heating needs fluctuate widely. The broad, flexible line of 35 Unizone models meets every cooling, every cooling/heating, and every wiring requirement for motels, nursing homes, apartments, and other lo- and hi-rise buildings, whether new or older construction. Whenever economical zonal cooling or heating is required, Unizone does the job — reliably and quietly.

Unizone is increasingly specified because of its extreme degree of quietness. But then quietness was among the major design criteria when Unizone was engineered. The sleeve is acoustically insulated with heavy glass fiber batts. Unizone has twin double-inlet blowers...
for softer delivery of room-side air. A separate motor drives the condenser fan — this Unizone is quiet outside the building as well. Lavish use of steel and aluminum — rather than low cost substitutes — assures durability.

Capacities in cooling are 7,000, 9,000, 12,000 and 15,000 Btu/hr. Resistance heating ranges from 5,500 to 17,000 Btu/hr. Hydronic heating ranges from 6,950 to 24,600 Btu/hr. Models are available in 230, 208, 230/208 dual voltage and 277 volts.

Unizone sleeves are installed as the building is constructed with the chassis inserted at a convenient later date. A sub-base permits Unizone to fit wall thicknesses from 1” to 12”. Sub-bases are available with electrical receptable to meet U.L. regulations and local codes. An optional horizontal line exterior louver is also available.

The Unizone packaged terminal unit is studded with fine features. It will cool a room interior without coil freeze-up even when outside ambient temperatures are as low as 35°F. A large damper door permits up to 20 percent fresh outside make-up air in keeping with the requirements for hospitals, schools, and nursing homes.

Unizone is simple to operate. There are color-keyed pushbuttons, which include three cooling speeds, and two heating speeds on heat/cool models. Other controls include a rotary thermostat and rotary air exchanger. Unizone has a concealed, owner-adjustable fan or continuous cycle selection switch. Air vanes are also owner adjustable and are easily directed.

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because Fedders air cooled chillers and air handlers provide the most satisfactory method of cooling (and heating) many areas of single and multi-story buildings. Air handlers are styled and engineered to be installed in the conditioned area and be for either single or multi-zone air distribution. They can be floor or platform mounted or suspended from (or above) the ceiling. The chiller is located on the roof, freeing space in the boiler room and discharging operating sounds away from the building. Piping and pumping are simplified. Water towers with their many problems are eliminated.
Fedders Chillers with a complete range of air handlers are available in capacities up to 80 tons of cooling with hot water and steam coils to provide compatible heating. You can choose CFM's from 800 to 36,000 with the heavy duty air handlers operating against statics up to 5' and standard models up to 3'. Each of the compressors is designed so capacity can be adjusted to satisfy varying comfort demands. Capacity control is maintained by a temperature sensor located in the leaving water. The factory mounted starter is predesigned for minimum inrush conditions to provide savings in demand charges.

The Fedders system may be operated year round. A mild ambient (to 35°F) control is supplied as standard equipment. Optional low ambient control permits operation at temperatures down to 0°F.

Maintenance and service have been reduced to a minimum because only heavy duty components are used and because both the chiller and the air handler are completely fabricated and run tested at the factory.

Shown in the elevation drawing is a typical Fedders system. Air cooled liquid chiller is located on roof supplying chilled water to air handlers located in the core areas on each floor. The perimeter offices and rooms are cooled and heated by Fedders Unizone terminal units (see Fedders submittal #2 this issue) to provide each of these high temperature fluctuation areas with individual comfort control. And for the one story areas (not shown) are Fedders rooftop units from two to fifty tons. (See Fedders submittal #1 this issue).

Fedders is the one brand you can rely on for all your air conditioning and heating needs.

For further information, write the Fedders Technical Information Department.
because Fedders Instapak provides a ducted heating and cooling system that takes little interior space and installs easily and economically. Instapak consists of a gas fired forced air furnace, a condensing unit and evaporator coil packaged into a cabinet only 27” wide, 24” deep and 56” high. It is completely self-standing, needing no wall or bracing for support. Powerful blowers move condenser air and flue products through a 16” x 56” exterior wall opening that needs only 50% free area...eliminates chimney and permits effective decorative concealment of the wall opening.

Three models are available: 18,000 btuh cooling with 50,000 btuh heating; 24,000 and 28,000 btuh cooling with 75,000 btuh heating. Each unit has special fittings for quick connecting of ducts and electric service; and removable panels for access to all interior components.
Submittal # 4

Instapak Packaged Air Conditioning  
... and Heating

To reduce installation costs even further Fedders provides an optional wall sleeve, in various depths, to line the wall openings. The sleeve can be installed as wall is constructed or slipped into rough opening provided. Optional grille supplied by Fedders fastens directly to outer flanged face of the wall sleeve.

The Instapak is ideal for apartment installations because of its configuration, economies and capacities. It can, however, be used effectively in small commercial applications, townhouses, small homes ... in fact any installation that requires up to 75,000 Btu's heating and 28,000 Btu's cooling.

In addition to the Instapak, Fedders has a complete range of condensing units (see Fedders Submittal #5 this issue) air handlers, heating units, terminal units, air and water cooled liquid chillers, roof top units (see Fedders submittal #6 this issue).

Write Fedders Technical Information Department now to learn more of the advantages of having Fedders as a one brand source for all your air conditioning and heating needs.

FEDDERS  
CENTRAL AIR CONDITIONING & HEATING  
EDISON, NEW JERSEY 08817  

For more data, circle 60 on inquiry card
FEDDERS
Equipment Shall Be
because Fedders condensing units and evaporator blowers are pre-engineered and factory matched for optimum performance and economy.

Capacity requirements can be met exactly because there are 62 condensing units with capacities from 1½ tons to 80 tons. All models 6 tons and over bring even further flexibility with operational capacity reductions in both heating and cooling. Low ambient controls permit year round cooling operation to 0°F.

The condensing units have low silhouettes... line-of-sight for roof mounting is exceptionally shallow. Condenser air is discharged upward by low RPM fan along with the operating sounds of the compressors and motors to minimize sound transmission to surrounding areas and to the structure.

The evaporator blowers come in all sizes and shapes with choices of CFM's from 600 to 36,000. Some are only 10” high so they can be placed on a shelf in a closet or tucked above a drop ceiling. Others are big enough to handle the wide range of CFM's required in commercial applications.

In the application shown in the plan view below and in the sketch at left, the condensing unit is roof mounted and connected to evaporator blower suspended from ceiling joists. Cooled air is ducted to ceiling diffusers.

In addition to the condensing units, Fedders has a complete range of packaged heating and cooling units (see Fedders Submittal #4 this issue), air handlers, heating units, terminal units, rooftop units, air and water cooled chillers (see Fedders Submittal #6 this issue).

Write Fedders Technical Information Department now to learn more of the advantages of having Fedders as one source for all your air conditioning and heating needs.
because Fedders water cooled liquid chillers are built of carefully selected and tested heavy duty components . . . because the fan coils are engineered for exceptionally low sound levels as rated in compliance with ARI Sound Standard 443-66.

The liquid chillers are available in capacities ranging from 15 to 100 tons and feature a heavy duty industrial type reciprocating compressor with an open motor for more efficient performance, lower maintenance and reduced equipment insurance costs.

The Fedders fan coil units are available in four models with cooling capacities from 6500 to 36,200 btuh and heating capacities from 18,700 to 85,200 btuh.

In the application shown in the elevation drawing, the liquid chiller is located in an equipment room and the chilled water is piped to air handlers located in the core area and to fan coil units located in the outer wall of the perimeter areas.
Submittal # 6
Water Cooled Coupled Liquid Chillers
...And Fan Coil Units

Fedders full range of water and air cooled liquid chillers, air handlers, fan coil units, terminal units, forced air furnaces, package heating & cooling units (see submittal #4 this issue), condensing units, evaporator blowers (see Fedders submittal #5 this issue) and roof top units gives you the opportunity to have one brand you can rely on for all your air conditioning and heating.

For further information, please write the Fedders Technical Information Department.

FEDDERS
CENTRAL AIR CONDITIONING & HEATING
EDISON, NEW JERSEY 08817

For more data, circle 62 on inquiry card
CARVED WOOD GRILLES / The carving technique used here leaves a solid un-carved border on all four edges. No frames are required. These "Purday" grilles are dimensionally adaptable to almost any vertical or horizontal proportioning, limited only by the modules of the design selected. Folding mounts include free-standing screens and overhead track, either bi-fold or center hung. Single panels up to 48 in. wide may be mounted in sliding track or shoji-style.

TRANSIT SYSTEM / Tampa International Airport's passenger shuttle system is the first to use unattended wheeled transit vehicles operating under completely automatic electronic controls. The system is designed to eliminate much of the air traveler’s walking distance between car and plane.

The airport configuration consists of a central building for terminal functions and four satellite buildings, containing holding and loading areas, arranged in a semi-circle around the central building. Four elevated transit legs about 1,000 feet long link the main landside terminal with each airside building. There are two roadways per leg, each with a single vehicle comfortably accommodating 100 passengers. The cars reach a peak speed of 30 miles an hour in their 40-second run between buildings. With station dwell time set at a planned 30 seconds, cars are available every 70 seconds to passengers at any loading point. Vehicles are controlled by a system of wayside and car-carried equipment linked by two-way radio. The wayside controls together with a central console contain all the intelligence needed to give correct commands such as "stop," "go," emergency stop," "open doors," "reverse power," etc. Each transit leg has its own wayside control operating independently of the others. Failure safety is provided by a combination of conventional railroad-type fail-safe relays and modern solid-state electronic devices. Westinghouse Electric Corp., Gateway Center, Pittsburgh.

All grilles are carved from exceptionally stable blanks of random width edge-glued strips of clear furniture grade solid North American hardwoods. No random length material with end joints is used.

The manufacturer offers a complete line of carved wood grilles, panels and doors. Customwood Mfg. Co., Albuquerque, N.M.
IF YOU DON'T KNOW WHAT SPAN-DECK IS FOR AND HOW TO USE IT, WE CAN TELL YOU.

Span-Deck is prestressed concrete...hollow cored...smooth top and bottom surfaces...quickly erected...fire rated...available across the country and in Canada...used for floors, ceilings, roofs and wall panels...and is selling like hot cakes.

If you want to know how it works, send for any of the literature pictured above.

SPAN-DECK, INC. P.O. BOX 99, FRANKLIN, TENN. 37064

For more data, circle 63 on inquiry card.
CRYSTAL CHANDELIERS / A principal central frame supports eight columns in a star-like configuration. Metal fittings are finished in polished brass; suspension tubes are steel. • Fisher, Bruce & Co., Philadelphia. Circle 302 on inquiry card

LIGHT BULB / An average life of 3,000 hours is provided by this household bulb. The extended life is achieved without sacrificing brightness, the manufacturer reports. • Westinghouse Electric Corp., New York City. Circle 303 on inquiry card

PARTITIONS / Vinyl-covered gypsum wallboard system is one-hour fire-rated and non-progressive. • The Flintkote Co., Los Angeles. Circle 304 on inquiry card

AUTOMATIC DOOR STOP AND HOLDER / An arcuate strike configuration compensates for angular misalignment, while allowing door openings of up to 118 degrees. Holders incorporate positive holding with maximum mounting flexibility. • H. B. Ives Co., New Haven. Circle 305 on inquiry card

SHOWER UNIT / Pre-assembled stainless steel unit can be wall-mounted at any height. It serves three persons with one set of piping connections. • Bradley Washfountain Co., Menomonee Falls, Wis. Circle 306 on inquiry card

ACOUSTICAL DIVIDER / Features include efficient sound control and overall panel thickness of 25/32 in. Straight panels are available in five sizes; curved panels in three. • Conwed Corp., St. Paul, Minn. Circle 307 on inquiry card

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more products on page 160
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The design flexibility offered by Horton Automatic entrances is virtually limitless. Somewhere among Horton’s vast creative design possibilities you’ll find an eminently functional door of distinctive beauty. A door that can pretty the facade of any commercial or industrial building you’re designing. Horton developed the first successful commercial sliding door mechanism in 1956, and has been synonymous with imaginative innovation ever since. For example, Horton’s automatic door, with the patented Swing-Slide Breakaway Feature, has been approved by Underwriter’s Laboratory as an exitway, meeting or exceeding the strictest building codes. Horton Automatic entrances. Another fine product from a company famed for quality products, Overhead Door Corporation. For more information on Horton Automatics and the name of your local Horton distributor, write us. They can pretty any face you can create.
CONTRACT DRAPERIES / This natural-colored casement fabric is flame-resistant, dimensionally stable and color fast. • Burlington Industries, Inc., New York City. Circle 308 on inquiry card

END TABLE / Scalloped, acrylic design is available in red, black, or white. • Stendig Inc., New York City Circle 309 on inquiry card

PROTECTIVE SURFACING / This wall covering has been coated with a polyvinyl fluoride film which reportedly provides a hard surface inpenetrable to any known substance. Heavy dirt and stains are removed with rags or steel wool. Spot cleaning leaves no discoloration. • E.I. DuPont de Nemours & Co., Wilmington, Del. Circle 310 on inquiry card

SHEET VINYL FLOOR / Cushioned layer resists indentation. Asbestos backing allows for permanent installation above or below grade. Floor is recommended for light commercial installations. • GAF Corp., New York City. Circle 311 on inquiry card

FIRE PROTECTION SYSTEM / The exposed steel spandrel girder shown here has a fire shield welded to top and bottom flanges. Fireproofing material fills the space between flange and shield, combined with fireproofing on interior web surfaces. This system, according to the company, meets code requirements for fire resistance. • U.S. Steel, Pittsburgh. Circle 312 on inquiry card

FIRE DETECTOR / Device is designed to close doors equipped with electromagnetic releases to prevent the spread of smoke and fire gases. • Firemark, Franklin Park, III. Circle 313 on inquiry card

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PATINA is not a surface coating. It is a bronze-colored metal developed by a special patented process after many years of research and field testing. All exposed surfaces, including matching bronze-tone trim, are wear and abrasion resistant. And PATINA wipes clean without scouring.

For special projects where a touch of elegance or the quiet dignity of burnished bronze is required, specify PATINA by Halsey Taylor. Available in fully-recessed, semi-recessed, and wall-mounted models — write for complete information.

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To learn more, write for our Reflective Brochure, Shatterproof Glass Corporation, Dept. 101A, 4815 Cabot Avenue, Detroit, Michigan 48210. Phone: 313/582-6200.

For more data, circle 70 on inquiry card
Piet Hein is a poet and a mathematician who combined a rectangle with an ellipse and came up with a super-elliptical table, and a square with a circle for a super-circle table! Strangely fascinating shapes that offer more top working space without using additional floor space. For simplified assembly this unique series is fitted with Hein's tubular steel "span-leg" system. For more information please write to Fritz Hansen, Inc., 979 Third Ave., New York 10022.

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Compare the Soss look of invisibility with any strap or butt hinge and you'll choose The Soss Invisibles. These amazing hinges hide when closed to blend with any decor. With The Soss Invisibles you can create room, closet, or cabinet openings which are unbroken by hinges or gaps...the perfect look for doors, doorwalls, built-in bars, stereos, or T.V.'s. The Invisibles are extra strong, open a full 180 degrees, and are reversible for right or left hand openings. See listing in Sweet's or write for catalog: Soss Manufacturing Company, Division of SOS Consolidated, Inc., P.O. Box 8200, Detroit, Michigan 48213.

For more data, circle 72 on inquiry card

For more data, circle 71 on inquiry card
Today, Florence, South Carolina is a little warmer place.

The reason—the community’s new City-County Complex built with Trinity Warmtone. Using Trinity Warmtone, Gill and Wilkins AIA, created a naturally warm, inviting building.

And that’s the beauty of Warmtone. All the structural qualities of gray ordinary concrete with the saving grace of warmth.

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Architect: Gill and Wilkins AIA, Florence, South Carolina
General Contractor: Dargan Construction Company, Inc., Myrtle Beach, South Carolina
Precast Supplier: Florence Concrete Products, Inc., Florence, South Carolina

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You can see at a glance some of the reasons why Celebrity Wall is a fresh, original answer for lighting almost any contemporary setting. There’s the classic simplicity of its cantilevered styling...the trim profile of a fixture that’s only three inches deep...the quality accented by a fine baked enamel finish.

But the most important advance is the unique way Celebrity Wall functions, distributing light uniformly down and across the entire illuminated area. The secret is our new lens, a one-piece injection-molded acrylic that’s an achievement in precision engineering and molding technique. Rows of identical prisms on the bottom, side and end reflect and refract, mirroring out brightness at critical viewing angles. There are no distracting shadows, no lamp image. Instead, Celebrity Wall diffuses a warm, equal glow...a new look in modern interior lighting!

Maintenance is more convenient than ever, too, because Celebrity Wall’s one-piece lens is easy to remove and replace, and the entire electrical assembly is hinged for hands-free servicing. One- and two-lamp models are available, with matte black or white housings. To see Celebrity Wall in action, contact your Keene Sechrist agent. Or write for details to Keene Corporation, Sechrist Lighting, 4990 Acoma St., Denver, Colo. 80216. Phone (303) 534-0141.

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National Electrical Contractors Association
Washington, D.C. 20036

The Lord Baltimore Hotel, Baltimore, Maryland

ACCESS FLOOR / Standard floor modules 24-through 36-in. square are available to meet a wide range of construction requirements. Washington Aluminum Co., Inc., Baltimore.
Circle 318 on inquiry card

GLASS BLOCKS / Each hermetically sealed unit eliminates dust and air flow while admitting light. The sealed blocks, which are virtually unbreakable, are designed for environmental and decorative applications. Pittsburgh Corning Corp., Pittsburgh.
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ACRYLIC PANEL GLAZING SYSTEM / Panels add a skylight feature to space-frame construction. They are designed for use with the company's Triodetic structural building system. Dome shapes, arches, square or rectangular grid construction for clear spans up to 600 ft are possible. Butler Mfg. Co., Grandview, Mo.
Circle 320 on inquiry card

SAND URN/WASTE RECEPTACLE UNIT / Aluminum column is 24 in. high. The front round opening for inserting trash is 5 in. wide. When the sand tray is removed, a large opening is provided for emptying trash. Finishes available are satin chrome, bronze, or matte black. Habitat, New York City.
Circle 321 on inquiry card

For more data, circle 80 on inquiry card
As Frank Lloyd Wright once remarked, "Because of its inherent adaptability... Follansbee Terne permits the visible roof area to become a significant part of structural design." The recently completed Fasbender Clinic at Hastings, Minnesota—one of his last major projects—dramatically confirms this statement. Here color and form unite in a singular felicity of expression, underlined by the functional integrity of the material itself.
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PRODUCT REPORTS

continued from page 170

EXTRUDED VINYL FLASHING / Flexible vinyl portion placed against the wall surface above the head casing is wide enough from front end to back to fit a wide range of different wall constructions of varying thicknesses. • Crane Plastics, Columbus, Ohio.

Circle 322 on inquiry card

THEATER SEATING / This chair's accentuated back slant gives additional comfort. It is recommended for use on the main floor of theaters, particularly in level or slight-incline areas. • Irwin Seating Co., Grand Rapids, Mich.

Circle 323 on inquiry card

FILTER SYSTEM / An extruded vinyl frame, polyester filter media, and metal retainer screen comprise the system, designed to fit virtually any air-handling system. An optional coating gives filtration efficiencies as high as 87 per cent, with no shedding. • Honeywell, Commercial Div., Minneapolis.

Circle 324 on inquiry card

* For more data, circle 88 on inquiry card
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That's what the Harrisburg East Shopping Mall does. In fact, it's the first mall with an underground Total Energy plant.

In the plant, six gas engine-generators produce all the electricity the shopping mall needs. These engines give off heat. The Gas Total Energy system captures this heat and uses it to provide a perfect climate for shopping. No matter what the season.

So, the totally enclosed mall's climate control comes from energy that's usually wasted. This efficient operation drastically cuts the cost of providing essential services.

And it uses gas efficiently. With the country's rapidly increasing energy needs, that's pretty important.

AMERICAN GAS ASSOCIATION

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Consulting Engineer: Hattis Service Company, Inc., Division of REH Corp., Deerfield, Illinois

Conserve natural gas. It's pure energy.

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over 40 varieties, all from a single source.

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For schools: For beauty and safety select Tru-Temp® tempered glass from a wide choice of patterns. These and polished wired glasses, qualify as Safety glass under USAS Z97.1—1966. Nuweld® wired glasses are approved by the National Board of Fire Underwriters as fire retardant.

For homes: Bring new light and freedom to any architectural style, and do it safely. Use tempered Flutex as entrance side lights. Or select finely textured Muralex® to provide both light and privacy. ASG patterned glasses are ideal for privacy panels, room dividers, or clerestories.

For doctors: Nothing somber here. Brighten the patient’s visit with Flax® Or give maximum privacy in the examining room with softly translucent Huewhite® the most obscure of patterned glasses and exclusive with ASG. Just what the doctor ordered.

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AT GEORGETOWN UNIVERSITY LAW CENTER
13,000 SQUARE YARDS OF LOKTUFT* DUON
WENT DOWN WITHOUT A FIGHT.

You're looking at just part of the obstacle course that carpet installers were faced with at Georgetown University. The job, sold by M. S. Ginn & Co., Washington, D.C., called for a glue-down installation of thick 85 ounce carpeting by Bigelow.

So the secondary backing had to be pliable enough to fit a heavy carpet into any trouble spot. And tough enough to hold it there.

Loktuft Duon was the secondary backing they used on the carpet.

Non-woven Loktuft cut cleanly and neatly. Without fraying or raveling. No matter how intricate the cuts they had to make.

This was particularly important in the amphitheater-shaped area on the first floor where sloping aisles and curved stepped floors complicated the installation problem.

That's where we expected to separate the men from the boys", said Jimmie Byrd, President of Superior Carpet Shops, Inc., who handled the entire installation. "But Loktuft worked beautifully. It made a difficult job easier."

Every inch of Loktuft laid perfectly flat. No bubbling, no rippling. Not even a hint of a grinning seam.

Most important, Loktuft came with a built-in reputation for staying that way. Made with Maness® olefin, a Phillips 66 fiber, Loktuft resists rot, mildew and insect damage. And it won't pucker or shrink from moisture exposure.

Which makes it ideal for installations where dampness or high humidity can be harmful to natural fiber backings. And that includes the not-always-great outdoors.

Loktuft Duon. Who'd have thought a secondary backing this tough could ever go down this easy?
ZINC prevents corrosion from getting a seat in Wrigley Field

The newly refurbished seating sections in the home of the Cubs use pre-cast concrete panels reinforced with hot dip zinc galvanized steel.

"The galvanizing of reinforcing steel and mesh was specified to eliminate rusting and corrosion in the event of any cracking in the concrete and as part of the requirement of having all imbedded metal items rust resistant to the highest degree possible," said Charles E. Correa, president of LBC, Inc., general contractor for the project.

About 1000 pre-cast L-shaped panels, 19' long by 2'9" wide by 18" high and weighing a ton apiece were used in the $1,200,000.00 project.

The zinc-protected reinforcing steel was decided upon after consultation among the architect, consulting engineer, owner and general contractor. By preventing subsurface rust, galvanized re-rod also eliminates surface cracking or spalling from internal pressures caused by rust build-up.

Used in concrete or as a separate material, galvanized steel provides the most practical combination of strength, corrosion resistance and economy.
formed into Ventaire's Super-V Panel or (flat) Ceilok, it is an ideal decking or paneling for siding, canopies, carports, walkway covers, overhangs or marquees.

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Dromoland Castle doesn't need a moat.

Moats don't have much to do with security these days.
Dromoland Castle relies on Schlage for that.
Inside Dromoland's three-foot-thick walls are seventy guest rooms. On every door is a Schlage lock in the Claremont design. Claremont blends right in with the 271-year-old paneling and wood and stone carvings. But the works inside are as modern as a lock can be.
Dromoland is built for keeps. We expect our locks to be at home there for quite a while.
Architects and builders who care about quality have been specifying Schlage locks since the early twenties.
For applications that range anywhere from a low-income housing project in Omaha to an Irish castle.
No matter which Schlage lock you specify, you'll get the highest standard of quality in the industry. Because that's the way we make every lock we make.

Schlage Locks

For more data, circle 95 on inquiry card
Before C-100 came along windows could be a pain. Like having to climb ladders or not being airtight. Our C-100 did away with such nonsense. The sash lifts out for easy inside cleaning, then snaps back weathertight. What keeps it tight is something you get only from Caradco: stainless steel weatherstripping with proven trouble-free performance. So you can forget call-backs, enjoy reduced on-site labor costs. Factory treated and primed, too. It looks great. And it's a complete package—grilles, storm panels and screens. Now the clincher: C-100 carries a competitive price. No wonder so many builders are switching to Caradco.
Here's the window that put an end to painting and clean-up expense. Our PF-C100 is completely prefinished. We clad the frame in vinyl to give maintenance-free protection. The sash is every bit as carefree. Outside, it's covered with a 4-step finish that outlasts conventional finishes two or three times. Inside, it's wood-toned stabilized to resist water and soil—you refinish only to change tone or color. And only Caradco gives you vinyl gasket glazed insulating glass. It all adds up to a lot more window for your dollar.
Office Literature

Continued from page 190

Office Chair / Fourteen models featuring urethane arms, reinforced fiberglass shell, body-contoured recess and sculptured steel pedestal base are presented in an 8-page catalog. * The General Fireproofing Co., Youngstown, Ohio.*

Circle 408 on inquiry card

Contour-shapeD Glass Window Panes / Descriptive information and installation photos are presented in a 4-page brochure. Detailed glazing instructions and specifications are also available. Window panes do not distort objects seen from either side, the manufacturer reports.

* The Vexocave Co., Morrison, Colo.

Circle 409 on inquiry card

Contract Carpets / The company's complete contract carpet service and installation photos of their complete line are given in a booklet. Specifications are included.


Circle 410 on inquiry card

Controlled Air Flow Systems / Design ideas and applications for reliable air flow systems are outlined in a 20-page booklet. Both primary air control equipment and diffusion subsystems are discussed. The manufacturer's product line is featured.


Circle 411 on inquiry card

Extrusion Design Guide / Application data on plastic profile extrusions for exterior building products is contained in a 2-page guide.

* Crane Plastics, Columbus, Ohio.

Circle 412 on inquiry card

IncanDESCENT Wall-Mounted Dimmers / A line for commercial and institutional buildings is presented in a brochure. Reportedly, there is no television or FM interference.

* General Electric, Providence, R.I.

Circle 413 on inquiry card

Intrusion Alarm / Descriptive literature introduces a system featuring dual ultrasonic and ultra-high frequency sensors to eliminate falling, individual sensitivity controls for each mode, optional remote area ultrasonic sensor, and provision for connection to a closed loop perimeter system.

* Bourns Security Systems, Inc., Smithtown, N.Y.

Circle 414 on inquiry card

Redwood Exterior Finishes / Advice on bleaching oils, stains, water repellents, mildewcides, and finish maintenance is included in an 8-page data sheet.

* California Redwood Assn., San Francisco.*

Circle 415 on inquiry card

*Additional product information in Sweet's Architectural File

For more data, circle 97 on inquiry card

For more data, circle 98 on inquiry card
The new Student Center at Rider College, Lawrenceville, New Jersey, hums till midnight. By 6 AM, when it starts to hum again, everything has to be spotless.

It is. One reason is the Murray quarry tile all over the place. A fast damp-mopping and those 65,000 square feet look like new.

And the architect had other good reasons for picking Murray. Like durability. Knowing Murray can take years of stomping traffic in its stride.

It fitted the college’s needs so well that now Rider's Dining Hall is getting new floors. Of Murray quarry tile. How about your next floor?

Write American Olean Tile Company, 1544 Cannon Avenue, Lansdale, Pa. 19446. For more data, circle 100 on inquiry card

Murray quarry tile. It's the natural thing to use.
New Fascia System by SILBRICO

A fascia, water dam, gravel stop, curb and cant—all in one simple, durable system. The Silbrico extruded aluminum fascia system is designed and installed to meet Factory Mutual roof perimeter flashing requirements of Data Sheet 1-49 to resist wind uplift of 60 lb./Lin. Ft. of wall. It controls water, prevents leakage at the roof perimeter, withstands high winds, hides building irregularities and provides a most attractive non-corrosive, durable fascia for any building. An exclusive vinyl seal throughout an extruded aluminum liner flashing is held tight by the Silbrico “Cam-Lock” locking device to assure a positive water seal always. Wide variety of finishes and colors. Compare fascias... then specify “the tough one”... the Silbrico Fascia System. Write for details, specifications and brochure showing complete range of sizes.

Windows can win you the commission! Specify Alpana’s Fully-Engineered Replacement System

Selection of the window installation is key—as part of your presentation—and in the ultimate satisfaction of both you and your client.

You can help insure success on both counts with another of Alpana’s “firsts”—a fully-engineered (to your specs) replacement system.

Of importance to you: an Alpana system will match any architectural design.

Of importance to your client: an Alpana system guarantees—■ modernity ■ savings in maintenance ■ savings in heating and air-conditioning ■ reduced noise ■ simple, fast installation ■ minimal loss of occupancy or in operation of building functions ■ no tearout of existing fenestration ■ total replacement project under a single responsibility.

Available in these types of ‘Thermo Barrier’ aluminum windows:

Fixed and Projected Casements and Pivots
Venetian Blind Pivots
‘Thermo-Barrier’ Sliding Doors

For full details and specifications on all types, write:

alpana aluminum products inc.
14105 HIGHWAY 55, MINNEAPOLIS, MINNESOTA 55441
PHONE: 612/544-1551

For more data, circle 102 on inquiry card
You can't afford not to install NUPRIME windows now!

To maintain our present production rate during the winter we are drastically cutting our price on Nuprime aluminum replacement windows. Nuprime windows can easily be installed any time of the year since installation can be handled by one man in less than a half-hour from the inside without disrupting normal work routines. No structural changes are required. You can't afford not to take advantage of this offer. Nuprime windows virtually pay for themselves by cutting high heating, cooling and maintenance costs. All Nuprime windows are custom-made, but assembly-line production keeps our prices low. They are economical to clean and easy to operate. Available in beautiful Electrocote colors, Nuprime windows meet, and in most instances exceed, AAMA specifications. Nuprime windows add dynamic new beauty to office buildings, schools, apartment buildings, hospitals and hotels. Install Nuprime aluminum replacement windows now and save. You can't afford not to.

For complete details send coupon below or call 412-463-3531.

Gentlemen:

I am genuinely interested in Nuprime aluminum replacements for my building.

☐ Please arrange for a Nuprime window installation and complete replacement window survey at no cost or obligation.

☐ Please send me complete product information on Nuprime aluminum replacement windows.

Name
Title
Address
City State Zip
Telephone

My building(s) is____ years old. Windows are made of____

season•all
Season-All Industries, Inc. Indiana, Pa. 15701
412-463-3531

For more data, circle 103 on inquiry card
Two ways you can assure the

Built-up roofing, of course, has just one function—to waterproof the space inside a building. It’s a nonstructural bituminous membrane, soft and easily penetrated in warm weather, brittle and easily cracked in cold. For this vital but relatively fragile component of a roofing system to do its job, it must have a base that provides these minimum engineering requirements:

• strong, uniform attachment
• rigid, continuous support
• physical and chemical stability
• slope for drainage

Fire resistance, of course, is also highly desirable.

Pittsburgh Corning has two materials that fully satisfy these requirements: Tapered Foamglas® Insulation and Celramic® Roof Deck. Basis of both is closed-cell glass, which is incombustible, inert and impermeable to moisture. A kind of natural selection tells you which to use. When you already have a deck, choose Tapered Foamglas; when you don’t, Celramic Roof Deck. Whether you have a deck or not depends on the building type:

Tapered Foamglas for institutional and public service buildings, including medical, educational, research, and religious structures; apartments; and utilities. Such buildings, as you know, are massive in framework and generally require heavy roof decking. They’re usually high-rise and often have different roof levels. Roof areas are relatively small and broken up with equipment.

These conditions, plus limited space at the job site, make Tapered Foamglas the choice. It’s delivered to the job in the exact amount needed, in factory-tapered sections that are easy to handle and apply. No serious disruption of sidewalk and road traffic, no big operating penalty for variations in roof level and size.

And the moisture-proofness, dimensional stability, incombustibility and high compressive strength of Tapered Foamglas allow it to meet the
integrity of built-up roofing.

minimum engineering requirements for built-up roofing.

Celramic Roof Deck for manufacturing, commercial, and campus buildings, including factories, warehouses, industrial parks, airport wings, shopping and distribution centers, and campus schools. Typical characteristics of such buildings are light or medium framework, low profile, uniform roof level, big roof area, and ample space at the site. These characteristics permit efficient batching operations and uninterrupted placement of 10,000 to 15,000 sq. ft. of roof fill per day.

Celramic Roof Deck is the ideal choice for such an operation. It consists of Celramic concrete insulating fill and galvanized steel centering in a composite that provides a totally integrated deck. It perfectly complements light framework, and it has a two-hour fire rating (ASTM E-119).

Key is Celramic aggregate, “engineered” from closed cell glass, which keeps water-cement ratio low enough to form a strong, monolithic concrete base. No shrinkage or residual moisture problems, no long curing time (48 hours is typical). Easy to slope for drainage, too.

To learn more about Tapered Foamglas and Celramic Roof Deck, get in touch with our nearest representative. Or write to Pittsburgh Corning Corporation, Dept AR-121, Three Gateway Center, Pittsburgh, Pa. 15222.
The Lighting Professionals by KSH.

The professionals we're talking about are lined up at right. THEY'RE THE SPECIFICATION-QUALITY PRISMATIC LIGHTING PANELS THAT GUARANTEE PROFESSIONAL RESULTS.

They never let you down with a client. Here's why:

The variety of prismatic patterns lets you put more imagination into your lighting designs.

They're optically correct. Designed right. Produced right. They give you lighting that's right. And they stay like-new year after year.

Remember. Other panels may look like K-Lite because they're KOPIES. But they don't perform like K-Lite.

To get the real thing ... SPECIFY "THE PROFESSIONALS" BY THE NUMBERS.

Write for the KSH Catalog. It shows many more types of K-Lite Panels.

KSH, Inc. • 10091 Manchester • St. Louis, Mo. 63122

for more data, circle 105 on inquiry card

KSH-11

KSH-12
The standard that has been copied many times. A basic with square prisms on a diagonal axis. Low brightness. Glare-free at luminaire and working surface. Clear, silvertint or white. Up to 4 x 4 in 3/16. 2 x 4 or smaller in 1/8.
KSH-15

KSH-16
The first prismatic designed to control both direct and reflected glare for new visual efficiency. Lamp hiding equal to opal panels. A thin sheet of acrylic covers the prismatic. Clear and silvertints. 2 x 4 or smaller in .165 O/A. 3 x 3, 2 x 4 or smaller in .225 O/A.

KSH-17
The panel that has everything. A bold modern pattern with thin sheet of acrylic on top. Direct and reflected glare control. High VCP ratings. Clear and silvertints. Sizes up to 4 x 4 in .240.

KSH-19
Another basic with just about everything a panel can offer. Male conical prisms. Excellent lamp hiding. Exceptionally low brightness in 60° to 80° zones. Clear and silvertint. 5/32 or 3/16. Sizes 3 x 3, 2 x 4 or smaller.
LABORATORY SINKS/TABLE TOPS / Complete mold-size capabilities for both plain and raised rim table tops, plus sink sizes, are illustrated in a 12-page folder. Chemical and physical resistance test data is also included. • Kewaunee Scientific Equipment Corp., Adrian, Mich.

Circle 416 on inquiry card

MATS/MATTING / An 8-page selection guide presents 12 vinyl-based models, including nylon on vinyl mats for reception rooms and lobbies, country club matting especially made to withstand contact with golf shoes, and matting for recessed frames combining nylon carpeting with a heavy backing of solid vinyl. • Crown Rubber, Fremont, Ohio.

Circle 417 on inquiry card

INTERIOR LOCKSETS / Three styles offered in two-tone combinations and solid colors alike are presented in a brochure. Molded in thermoplastics, locksets reportedly will not tarnish, rust, corrode or discolor. • Acme General Corp., Monrovia, Calif.

Circle 418 on inquiry card

WASTE COMPACTION/HANDLING EQUIPMENT / Stationary machines for commercial applications of all sizes are presented in a 12-page catalog. Specifications are included. • Anchorpac, Jackson, Mich.

Circle 419 on inquiry card

CANADIAN DIMENSION LUMBER / Complete one-step span tables and working stresses for new sizes of dimension lumber specified in American Softwood Lumber Standard PS20-70 and for new grades uniform among all U.S. and Canadian rules-writing agencies are given. They agree with those approved by FHA and used widely by building code authorities, as published by the National Forest Products Association. Copies are free. • Write Canadian Wood Council, 300 Commonwealth Bldg., 77 Metcalfe Street, Ottawa 4, Canada.

Circle 420 on inquiry card

ENVIRONMENTAL AIR CONTROL MODULES / The modular design concept utilized to precisely control environmental conditions is discussed in a 12-page brochure. A line of modules is featured. The concept of self-contained systems, with strict adherence to quality control for extended reliability, is stressed. • Pomona Air, Inc., Pomona, Calif.

Circle 421 on inquiry card

AUTOMATIC DOOR CONTROL / A system requiring no mats, grids, plates or floor wiring is described in a bulletin. Components of the system include two transducers that emit a silent, invisible signal and actuate the door operator control circuit when people or objects enter the scanned zone. • Dor-O-Matic, Div. of Republic Industries, Inc., Chicago.

Circle 422 on inquiry card

* Additional product information in Sweet's Architectural File

• For more data, circle 106 on inquiry card
Compared with two leading competitive types of sealants, the Thiokol polysulfide entry wins in a breeze.

It's not surprising. Besides having a track record which includes the longest period of successful use, sealants based on Thiokol's LP polysulfide polymer are constantly tested to assure topnotch performance.

Under our exclusive Seal of Security program, polysulfide-based sealants are regularly checked to meet rigid specifications. In fact, our technicians and chemists check more than 200 samples every year.

The check consists of a series of tough tests, ranging from four to six weeks. Samples are tortured, twisted, stretched, heated and frozen to make sure they can survive what the elements dish out over long periods of time.

If the sealant passes each and every test, then it's entitled to bear Thiokol's Seal of Security. We're proud of this program. It's the first of its kind in the United States. And, since its inception in 1965, more than 300 sealants, produced by 20 manufacturers, have earned the right to carry the seal.

Insist on sealants with the Thiokol Seal of Security and you can't go wrong. For a more detailed comparison between polysulfide-based sealants and eight other types write: Thiokol Chemical Corporation, P.O. Box 1296, Trenton, N.J. 08607.

For more data, circle 107 on inquiry card

ARCHITECTURAL RECORD December 1971 203
building product advertisers run more pages in ONE magazine than in any other in the world.

isn't it logical to do an optimum advertising job in THAT ONE?
The magazine is Architectural Record. And 1970 was the 24th consecutive year in which more building product advertisers placed more advertising pages in the Record than in any other magazine. To date in 1971, 50 per cent more!

Equally important, during 1970 nearly 200 building product manufacturers saw fit to advertise exclusively in the Record. They ran 250 per cent more exclusive pages in Architectural Record than in the second publication. They did their best in the leader first.

One reason advertisers prefer the Record is that their customers prefer the Record. Architects and the engineers who work with them consistently select the Record as their number one magazine. A fact borne out by 232 out of 251 studies sponsored by building product manufacturers and their advertising agencies over three decades.

This outstanding preference is all the more important when you consider that over 90 per cent of the total dollar volume of all architect-planned building is in the hands of Architectural Record subscribers—a fact documented by Dodge Reports. And these 41,000 men represent the largest architect and engineer subscriber audience in the field—at the highest subscription price.

When one magazine is dominantly preferred by the readers you have to reach—and the advertisers you have to compete with—doesn’t your primary advertising effort belong in that one magazine?

WHAT IS AN OPTIMUM ADVERTISING JOB IN THE LEADING MAGAZINE?

That depends.
On marketing objectives, the balanced use of marketing tools, competition, product, budget and a host of other considerations.
However, advertising professionals generally agree that four basic laws are operative.
1. Continuity increases impact.
2. Larger space tends to command greater attention.
3. Functional 4-color lends dominance and aids understanding.
4. Continuity, larger space size and functional color together help get attention, create interest, build reputation, impress the reader.
Architectural Record would welcome the opportunity to place its knowledge of the market and marketing at your disposal—to help you determine how you can get maximum value out of your advertising program.

What Advertisers Want in an Architectural Magazine (and find in Architectural Record):
Largest, more professional editorial staff. Backed by McGraw-Hill Information Services—Dodge Reports, Dodge Statistics, Sweet’s. Balanced coverage of all types of architect-engineer planned building—nonresidential and residential, large and small.
2. Outstanding reader preference. Year after year architects and engineers in building vote Architectural Record preferred in independently sponsored studies.
4. Top market coverage. Over 90 per cent of the total dollar volume of all architect-engineer planned building is in the hands of Architectural Record’s paid subscribers—a fact documented by Dodge Reports.
5. Advertising leadership. Most advertisers. Most advertising dollars. Most exclusive advertisers. Year after year for 24 years!
Readers using the index will find buildings entered in three ways: by architect's name, by building or owner's name, and by building type (apartments, hospitals, schools, etc.). Other categories cover subjects in the engineering section (concrete, lighting, prefabrication, etc.). ABBREVIATIONS: AB—Architectural Business; AE—Architectural Engineering; BC—Building Components; BTS—Building Types Study.

A

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Apartment, Aleksandra Kasuba's New York City apartment designed by herself—Aug. 1971, pp. 93-95


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Baneker Homes, San Francisco; Joseph Esherick & Assoc.s., archts.—Oct. 1971, BTS, pp. 130-131

Bassett, Mary Imogene, Hospital, Cooperstown, N.Y.; Skidmore, Owings & Merrill, archts.—Sept. 1971, BTS, pp. 140-143

Beaubourg Center for Contemporary Arts and Information, Paris; Plano + Rogers, archts., winners of an international competition—Oct. 1971, p. 45


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Bollin and Powell, archts.; Fagersta Steel, Inc., Mountain Top, Pa.—July 1971, BTS, pp. 96-97


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Budget Control of the Phased Construction Project" (extract from a book entitled "Professional Construction Management and Project Administration" by William Foxhall)—Oct. 1971, AB, pp. 67-69


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Burden, Ernest, "Slide Presentations"—July 1971, AB, pp. 55-58

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Campbell Green Cunizio, archs. and engs., Parkways-West Technical School, North Fayetteville Township, Pa.—July 1971, BTS, pp. 104-105


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Clifton and Sachs, "The search for flexibility in hospital design: a perspective on the work of Clifton and Sachs"—by Gordon Best and John Weeks—Sept. 1971, AB, pp. 66, 258


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