

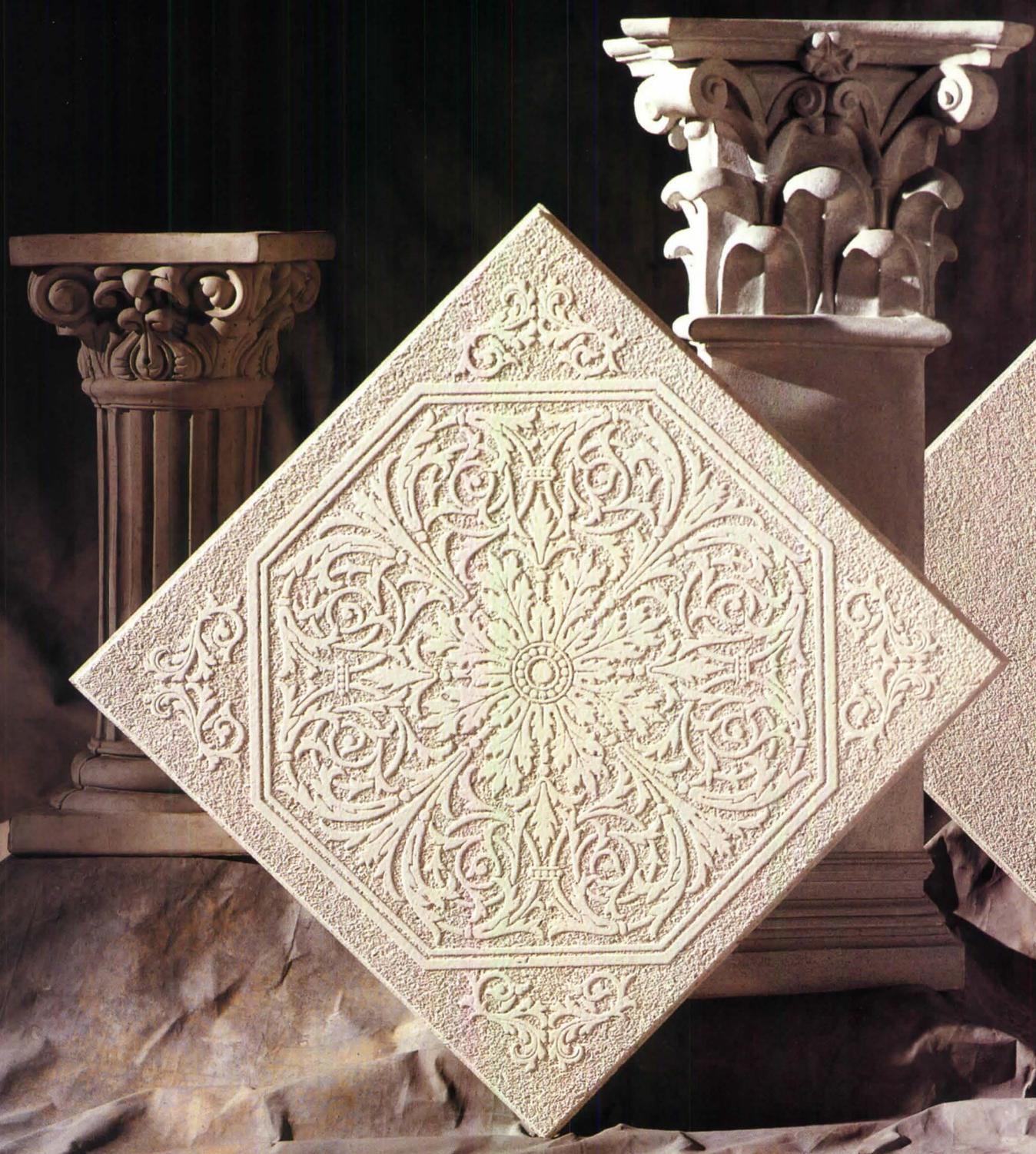
ARCHITECTURAL RECORD

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Role reversal

Despite the approximately 20-page gap between Record Interiors and the Building Types Study on correctional facilities in the September 1990 issue, a striking juxtaposition still emerges. Namely, interiors are becoming less humane while prisons are becoming more so. I find the portrayed interiors [RECORD, September 1990, page 71 et seq.] more grim than glitz, more funereal than fun.

ANDREW RUPPEL
ARCHITECTURAL ADVISORY
COMMITTEE
Charlottesville, Virginia

Nicely done

I was simply delighted to see the tiny vestibule for the Church of St. Paul the Apostle [RECORD, October 1990, pages 76-77]. It is this type of coverage that continues to differentiate you in the periodicals race.

JOSEPH A. GONZALEZ
PARTNER,
SKIDMORE, OWINGS & MERRILL
Chicago

A case for GC/CM

Carl Sapers argues against using general contractors as construction managers (GC/CM) for project delivery [RECORD, August 1990, pages 43-44]. Respectfully, we have a different point of view.

The bulk of our company's work is GC/CM, primarily because our clients—and architects—have found that this is the most cost-efficient and comprehensive way to handle their construction projects.

Mr. Sapers suggests that the potential problems he has observed with GC/CM are incomplete budgets and confusion over the responsibility for assignment of trade scopes. Yet he argues for the "traditional" system of project delivery.

In the traditional system of hard bidding, client and architect place themselves in an adversarial relationship with the general contractor. The contractor's hands are tied: any work not indicated on bid documents will require a change-order from the client. This upsets the budget and reflects poorly on the architect. Client and architect tend to blame the contractor.

GC/CM avoids that mess, and protects the client's budget and the architect's design. The contractor is first a consultant to the client and architect, and second their general contractor. The foremost advantage of the GC/CM as consultant is that all his records are available for the owner's and architect's review.

As general contractor, he retains full responsibility for the construction of the project. But because he has worked with the client and architect through design and budget development, he assumes responsibility that the budget is comprehensive for the project as defined. Change-orders are virtually eliminated—except for actual design or scope changes. Both client and architect are protected.

GC/CM does not replace the architect as construction manager—though some new terminology might need to be found. The architect takes on the additional responsibility, beyond design, of construction management to protect the design and program integrity of the project through construction. How the architect's design gets realized in physical terms, or how the client's program integrates with the construction process, how costs are controlled and subcontractors coordinated—these are the general contractor's contribution as construction manager.

PHILIP L. MEYERCORD
Dallas

Corrections

Swisher & Hall, AIA Limited, should have been credited as the consulting architects on the Las Vegas Library/Discovery Center [RECORD, October 1990, pages 68-75].

In "That's Entertainment" [RECORD, August 1990, pages 72-79], the International Lighting Design Partnership should have been credited as the interior lighting consultant for all six featured hotels.

In "Working with Photographers," [RECORD, October 1990], the top right photo on page 31 was of Harborside Financial Center, Jersey City, N. J., Beyer Blinder Belle, Architects.

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THERE'S HONOR IN THE FIELD

Recapturing the architect's site role has its risks,
but the rewards are worth the effort.

It is no secret that the years have seen steady erosion of the architect's authority in a most critical phase of the construction project—when all the design creativity and technical prowess is translated on site into the physical building.

The same years have seen the watering down of words, from “inspection” and “supervision” to weak words such as “observe,” “advise,” “consult.” Look through a typical owner-architect agreement, and the number of times you see “shall not” after “architect” boggles the mind.

The history of backing off has gone hand in hand with the litigiousness of the owner and of third parties. Not so many years ago architects were typically paying out 4 percent of net billings for e&o insurance premiums. The insurance companies demanded cautious contracts.

The consequences anyone could predict. Where angels feared to tread, others rushed in: entrepreneurial individuals willing to trade extra risk for extra fees—construction managers, engineers, value engineers, design/build entrepreneurs.

But the climate has eased; the courts have established a more stable relationship between owner and architect.

That's exactly the time for architects to recoup and reach anew for a more active role in the field. It will take time. As architect John Webb, a devoted laborer in this vineyard, said to me: “This authority was a long time losing; it will take a long time to get back.” How to start?

1. Don't let your grasp exceed your reach. Assess your firm's skills. (Call Chip Levy at the AIA to try out its self-assessment program.)
2. Keep on the lookout (or advertise) for men and women who like the construction side of architecture, who glory in the sight of a shop drawing, product data, and samples, and love the on-site dirt and bustle as the building goes up. Encourage those staffers; have them understudy your top CA people.
3. Attend one of dozens of workshops on the subject. Read books, such as Jay Bannister's forthcoming *Building Construction Inspection, A Guide for Architects* (Wiley, 1991) or Culbertson et al., *Contract Administration Manual for the Design Professions* (McGraw-Hill, 1983).
4. Schools should offer compulsory courses in building construction.
5. Consider, in this age of increasing niche services, setting up an architectural practice specializing in administering construction.
6. As the AIA goes into its new cycle of document revision, become involved, and press for development of documents that reflect a greater construction phase role for the architect.
7. Make sure the fee reflects the risk.

Someone must do the job—why not the architect?

STEPHEN A. KLIMENT

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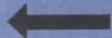
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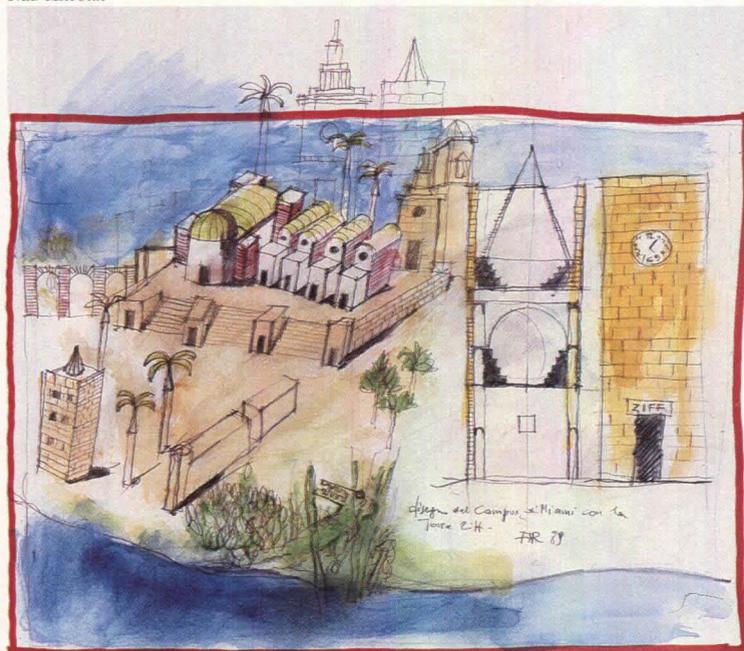
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DESIGN NEWS

NED MATURA



Rossi's Torre di Miami

After three years of planning, construction begins early next year on Aldo Rossi's Ziff Tower, the first installment of his phased plan for the University of Miami's new School of Architecture. The 45-foot-square, 132-foot-high tower, clad in native Florida coral stone, will house three large interior halls that progress in shape from cube to sphere to cone as the building rises. The tower was the first commission in the U. S. for Rossi's Studio di Architettura. □

Preservationists After the Storm

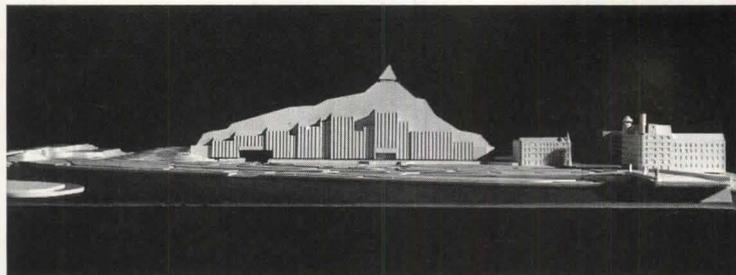
A year after Hurricane Hugo tore through Charleston, South Carolina, the National Trust for Historic Preservation came to town for its 44th conference and found a thriving laboratory of disaster-recovery efforts.

Maintaining design controls after Hugo was a controversial decision for Charleston Mayor Joseph Riley, but it helped ensure the city's heritage would be restored properly, said Charles E. Chase, preservation officer and city architect, at a presentation on disaster preparedness and recovery. Reporting on Northern California's recovery following the 1989 earthquake, Christine MacAvoy, head of the California Preservation Foundation, said, "Planning for disaster is paramount. It's the most important lesson we learned."

Interior Secretary Manuel Lujan outlined the Bush administration's part in enacting legislation to protect over 100 Civil War battlefields. But he added that local governments must carry much of the burden of heritage preservation, an effort best led by "the people close to it." In a debate on federal land-use controls, Ronald Fleming, president of the Townscape Institute, argued that the federal government could use the Constitution's "general welfare" clause to protect historic sites, as it has with coastal areas and the environment. Grant DeHart, director of the Maryland Environment Trust, argued that regional controls are more appropriate and better managed.

The 1986 changes in federal tax credits for historic preservation have seriously hurt preservation efforts nationally. National Park Service statistics show that use of the credit peaked in 1985 at just below \$2.5 billion and plummeted to less than \$1 billion by 1989. C. A. P.

National Library for Latvia



KEIICHI MIYASHITA

The Soviet republic of Latvia has commissioned native son Gunnar Birkerts to design a new Latvian National Library for the capital, Riga. The 500,000-square-foot library and national archive will rise from the south bank of the Daugava River, across from the city's historical

center, parts of which date to the 12th century.

The building's fluid, rising central structure is based on the Latvian fable of the Crystal Mountain, symbolizing freedom. A monolithic 600-foot-long concrete spine, sheathed in semi-reflective glass and peaking off-

center at 180 feet, will hold the stacks and archival material. The storage area sits well above the Riga floodplain, now protected by hydrostatic dams upriver. The south elevation of the building contains administrative and service offices. On the north elevation, a series of reading rooms is set off from the main mass. This grouping, in the protection of the mountain behind, is in scale with the city across the river. North and south facades will be clad in stone.

Despite Latvia's evolving political status, Birkerts is confident the \$50-million library will be built, perhaps as a monument to a newly independent republic. Construction is slated for 1992. □

Design by Workshop

A week-long design workshop under the direction of Charles W. Moore, in collaboration with Arbonies King & Associates, yielded a 30,000-square-foot expansion for the Palmer Museum of Art at Pennsylvania State University. Workshop participants included not only physical-plant representatives, faculty, and students, but also engineers and a cost estimator, the latter to keep planning within the \$4.5-



JOHN BLOOD

million construction budget. Rather than functioning as merely a "community feel-good exercise," says Sandra Vlock of Arbonies King, the planning sessions "drove the design,"

contributing to decisions from "the programmatic to the poetic." The existing museum building, erected in 1970, will be renovated to provide support services for the addition. □

Committee Probes Urban Waterfronts

Architect Graham Gund claims he needs 87 separate approvals for a proposed hotel on Lewis Wharf in Boston Harbor—a new record, probably, even for this highly regulated city.

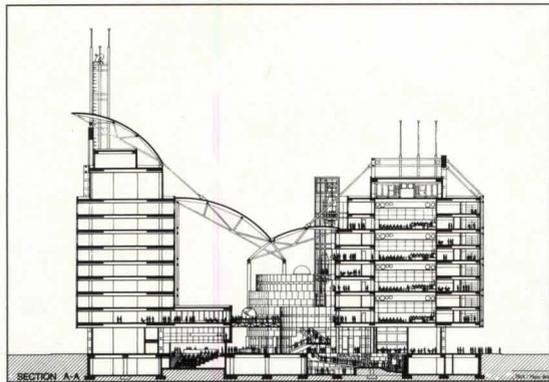
Gund's cry of despair came during a three-day conference of the national Committee on Design of the American Institute of Architects, held in Boston October 6-8. More than 140 architects met to discuss "Urban Waterfronts." Their conclusion: Boston's edge to the sea is doing pretty well, thanks to a heady mix of different uses.

AIA Gold Medalist Joseph Esherick spoke at the New England Aquarium, contrasting the gritty, lumbering waterfront of Coos Bay, Oregon, with the touristy piers of San Francisco. Alex Krieger, director of urban design at Harvard's Graduate School of Design, kicked off the conference with a history of open space in Boston. Krieger argued that every time Bostonians carve up their landscape—as they regularly do—they compensate, in a fit of Puritan guilt, by making a park. He warned against too much open space at the water, calling the clearing of water frontage in Norfolk, Virginia, a mere "symbol of publicness," as contrasted with a living city "still operating at the water's edge."

Other speakers included journalist J. Anthony Lukas and architect Adrian Smith, the designer of Boston's bold Rowes Wharf development. A wrap-up symposium, held in Charles Bulfinch's St. Stephen's Church in the city's North End, arrayed Boston architects Graham Gund, William Rawn, and Todd Lee against city planner Victor Keren, of the Boston Redevelopment Authority. All agreed that a waterfront should be a place of streets and buildings and diverse uses, always including housing, as well as a site for recreation and tourism. AIA President Sylvester Damianos rounded out the conference with a Presidential citation to the Boston Landmarks Commission for "guarding the timeless values of architecture and urban design."

ROBERT CAMPBELL

County/City Building for Mobile



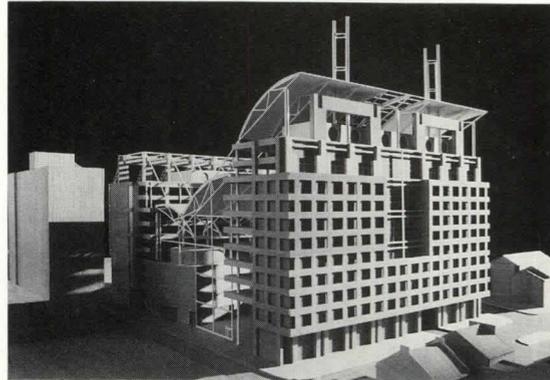
An eight-story, glass-enclosed atrium is the design feature that convinced jurors in the Mobile, Alabama, County/City Building competition to select a proposal by Harry Goleman and Mario Bolullo of Houston, in association with Frederick C. Woods of Mobile. The atrium slants between the two buildings in the

partnership's design, tying together the slightly larger administrative building in front with the court structure in the rear. County and city functions are assigned equal halves of each of the vertically divided buildings.

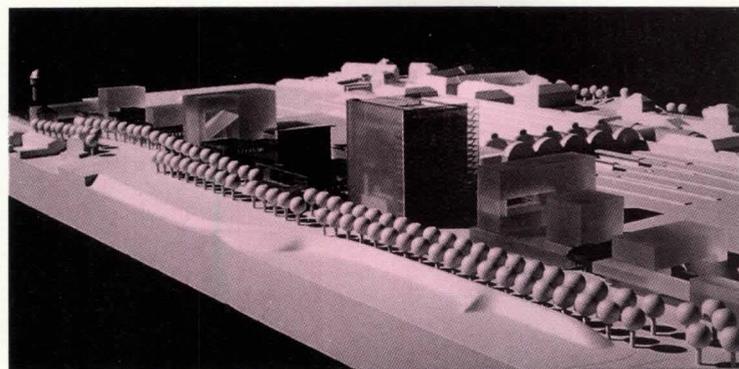
The project's open public space resolves the complex circulation pattern presented by

the heavily-trafficked, 550,000-square-foot buildings, which are sited on a 2.5-acre lot. Leading in from a nearby parking lot, the atrium siphons off pedestrians to either side, passing cafeteria space, court facilities, and information desks and culminating in a city council chamber placed below grade. □

PANDA PHOTOGRAPHY



Koolhaas in Karlsruhe



Along with his winning proposal for Zeebrugge, Belgium [RECORD, November 1990, page 13], Rem Koolhaas has won yet another competition in Europe, this time for the Center for Art and Media Technology in Karlsruhe,

Germany. Koolhaas's design for this independent multi-arts foundation was chosen over proposals by Bolles-Wilson and Bernard Tschumi. Heinrich Klotz, the center's director, calls Koolhaas's approach "the high

Renaissance of Modernism."

The hallmark of the winning project, which sets a massive square tower within an enclosing cube, is the ephemeral nature of its double-layered facades. A skin of glass and perforated metal creates the primary exterior, offering constantly shifting views of the concrete facade behind it. Sixteen levels in this wraparound corridor contain services and provide circulation for eight levels of performance, exhibition, and study spaces inside the tower.

The complex, which will serve as counterpoint to Karlsruhe's hilltop castle across town, is linked to the main concourse of the train station. Funding is in place, and the center should be completed by 1994. □

Museum in the Pines

Edward Larrabee Barnes has designed a deceptively simple stucco exterior for his recently completed Katonah Museum of Art, in Westchester County, New York. Capped with a copper roof and set in a stand of Norway spruce, the museum boasts a skylit entry that sweeps through its center and opens at the rear to a gravel-covered, semicircular sculpture court. A low wall surrounds the

court, and at the front screens a 50-car parking lot from the road. The ground floor of the 12,750-square-foot museum (which has no collection of its own) has two

galleries, a shop, and playroom. Upstairs, two north-facing slanted skylights illuminate staff offices; a glass-fronted director's office watches over all. P. D. S.



SCOTT MILES

PRACTICE NEWS

New Federal Housing Bill

A two-year, \$57.4-billion housing bill has been hammered out by Congress and the Administration. Congressional supporters of a bigger government role in providing housing for low-income people welcomed the bill—"a major redirection in federal housing policy," said Representative Chalmers P. Wyle.

The legislation resumes federal help and money for some new housing, although critics such as the National Low Cost Housing group fault the funding levels and a relatively low priority on



NATIONAL TRUST

new construction. Instead, the bill includes new initiatives to allow public-housing tenants to buy their existing units. It also includes \$770 million for a National Homeownership Trust Fund to assist first-time buyers with financing down payments.

Another major Administration initiative covers reform of the financially troubled FHA. Its mortgage fund has been losing about \$300 million a year. Reform includes reduced closing costs homeowners may finance with FHA help and requires homeowners using FHA mortgage assistance to pay a risk-

based premium of 0.5 percent of their annual loan balance. Cities and states will benefit during these two years from a \$3.1-billion trust fund, giving them more flexibility in low-income housing requirements.

An AIA spokesman cites satisfaction with all aspects of the bill, despite the low priority on new construction. Such projects as the recent remodeling of the 1910 Regent Terrace apartment complex in Philadelphia into affordable housing (photo) are bound to get a big boost.

PETER HOFFMAN
Washington, D. C.

Adversity Breeds Invention

How are architects in New England coping with the local down times? "Competition has grown dramatically," says Boston architect Peter Forbes. Many firms are trying to diversify. ADD Inc. has recently refocused its marketing efforts to get federal work, according to

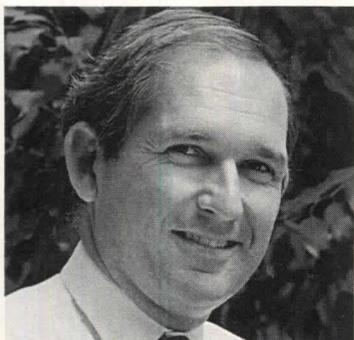
says William Truex of Truex deGroot Cullins in Burlington, Vt. Portland architect Berry Stallman told RECORD that his firm, The Design Alliance, is looking into product design. Feasibility, planning, and energy management studies are paying the bills at more than a few firms. For others, computers have proven a boon. "With CAD, we've developed a sideline of documenting existing facilities for business-

trating on the clients I have—in general trying to offer superior service," says Robert Reno of the Reno Design Group, a three-person firm in Concord, N. H. Many offices are relying more than ever upon their traditional areas of expertise. "We feel fortunate to have tapped into a unique local market," says Willis N. Mills, senior partner at SMS Architects in New Canaan, Conn. "We've found a niche in country-club design and renovation."

How are entry-and mid-level architects coping? "Fewer offices seem to be taking on full-time people these days," says

Boston Society of Architects executive director Richard Fitzgerald. "But there is short-term work." The BSA has just brought in the placement firm, Consulting For Architects, to help offices and architects find each other, even if only temporarily.

Morale is shaky; yet there is a refusal to give way to gloom, possibly due to Yankee resiliency. The Maine AIA recently sponsored a competition to design a gas station at a major Portland crossroads. "We wanted to do something fun," says the chapter's president, Arthur Thompson. NANCY LEVINSON



Pollock: Going afield.

president Wilson Pollock. Notter, Finegold + Alexander is one of several offices exploring markets in eastern Europe. "Our experience in adaptive reuse makes it a likely place for us," says principal Tony Platt.

Non-architectural design is enjoying new status. "Having in-house interior and landscape designers has allowed us to respond to diverse opportunities,"



Mills: Finding a niche.

es," says James Somes, a principal at JSA Inc. in Portsmouth, N. H.

Diversification does not suit all offices. Smaller firms, especially, have adopted the opposite strategy, and are hunkering down in their home communities. Personal, qualitative strategies seem to work best for small firms. "I've been calling friends and business associates, concen-

Work Abroad: Roundtable Highlights

The countries with the most construction may not offer the best opportunities. Places to look: Third World countries may be good bets, but clients for work abroad may be right here in the U. S. A full report will appear in January and February on a roundtable held last month for which RECORD brought together principals in small and large firms from around this country to find out how they are successful at work in others.

More points:

• Small offices have characteristics that may make them highly competitive. But work for them

may have to come from one-on-one relationships.

• Fees may be higher abroad but so are costs. Watch how you structure your contracts.

• Size up the country and the client before you sign on. Know the danger signs.

• The 1992 European Economic Community may not be the best thing for U. S. competition. Setting up an office now may keep your foot in the door.

• Some countries require local licensing if you are to avoid local partners. In others, it will be used as a bargaining chip on fees. C. K. H.

MAKING YOUR SPECIFICATIONS STICK

How and why architects, despite all rumors, still control the product-specifications process. The second in a series. By William Dyer

Selecting products and then dealing with requests to substitute for them has always been a problem for the construction industry—especially architects and manufacturers. To make these processes go smoothly and defend specifications against inappropriate substitutions, the players need to understand the processes and each other's motives.

What the givens are

Since development of the 16-division and the three-part section formats by the Construction Specifications Institute some three decades ago, certain constants have emerged:

1. Architects have the right to create proprietary specifications. Court cases have established that architects may exercise their expert opinions and legitimately select specific products from one or more manufacturers. The proprietary method has become one of the most popular methods of specifying products other than commodity products such as concrete. The advantage to architects is that they know exactly what to expect from the finished project. The advantage to contractors is that they know exactly which manufacturer or manufacturers to go to for bids. The advantage to manufacturers is that they know for certain that their products are acceptable to the architect.

2. The or-equal method of specifying is universally denounced, and for good reason. The question that can never be answered is: "How equal is equal?" First, the only thing equal to Product A is more Product A; Product B will be different in some respects. Second, the only person who knows what criteria were used to select Product A is the architect. Unless the architect has carefully combined a performance specification with his proprietary specification, there is little chance that anyone else can determine what is "equal." It's never really a question of what is equal to Product A; it's a question of what is acceptable to the architect.

3. Architects are reticent about specifying new products because of the added liability they assume for a product without a track record. If there are no installations that architects can inspect, no other architects they can talk to about the performance of the product, and no history of performance in the field, then they are basing their selection solely on their analysis of the manufacturer's claims and on the results of laboratory tests.

product selections included in masters such as Masterspec are examples and do not take the place of thoughtful selection by architects.

Product selection and the architect

Product selection presents many problems for architects:

1. It is not always easy for architects to obtain esthetic and technical information. This is especially true for small firms and firms that are not near large urban centers.

2. In proprietary specifications, the magic number is three. While architects may specify only one product for an application, it is customary to offer this reasonable number of choices. It can be extremely difficult and time consuming to find three products that are similar in appearance, similar in performance, and similar in cost. The reality is that the effort is worthwhile for major systems and materials that will be used in large quantities. It is not worthwhile for a handful of door stops.

3. It is not always readily apparent to architects what criterion they should use to make product selections in the first place. They usually know what they want the product to look

like and that it should look new forever, but what tolerances are reasonable?

4. Architects want their buildings built with the best materials available. Owners, on the other hand, don't always have the same priorities, and it is the owner after all, who is the architect's client.

5. On projects for which there are multiple prime contracts for engineers, site designers, interior designers, etc., lack of cooperation may be a problem. The architect, even though designated the coordinating designer, may not see the other designers' specifications until the day scheduled to send them to the printer.

Product selection and the manufacturer

The manufacturer doesn't have an easy time of it either: *Continues on page 38*

How the Process Works

- Architects have the right to choose specific products by specific manufacturers.
- While they may choose only one for a use, it is usual to give contractors three choices.
- Other manufacturers may feel their products offer superior advantages and they, the owner, or the contractor may propose substitutions.
- To assure that their choices are not diluted, architects must spell out what makes them important.
- Specified manufacturers can help by supplying specific technical information.
- Architects can help by recognizing the important contributions manufacturers can make.

4. Construction contracts differ fundamentally from most contracts. When other contracts are formulated, the parties assume they will come to an agreement on the wording and that thereafter the agreement will never be changed. Construction contracts, on the other hand, are designed to be changed after execution. It should come then as no surprise that the architect, owner, and contractor are frequently pressured to change product selections after the specifications have been agreed to.

5. Commercial master specifications are among the most helpful tools for developing project specifications and individual offices' master specifications. When they are used for these purposes, however, they must be tailored for the project or the project types for which they will be used. The

1. Ideally, manufacturers' representatives would be in the right place at the right time talking to the right person for every project. To accomplish this, they would have to know every project in every architectural office, what stage of development each project is in, at which of these stages each office would be likely to make a decision on the product, *and* who in the office would be likely to make that decision—the designer, the project architect, the specifications writer, the project manager, the principal-in-charge, more than one of these, or someone else entirely.

According to AIA data, 84 percent of U.S. architectural firms have staffs of fewer than 10. The problem for manufacturers is to call on a given number of small firms. However, the solution to this impossible task is visibility. A local representative is a very important component of visibility *and* it makes architects more comfortable with the product.

2. Manufacturers must be concerned with providing architects with sufficient technical information to make specifications tight. If an architect has a good understanding of the criteria used to select a product, if the manufacturer provided adequate technical information, and if the specification reflects those criteria and includes that technical information, then it will be easy for the architect to defend that specification should an attempt be made to break it.

3. Manufacturers may be reluctant to provide architects with information on the products of their competition. But they would be better off if they promoted fair competition among comparable products. (Notice, I didn't say equal.)

Dealing with substitutions

There are a few realities in making and reviewing requests:

1. No one likes substitutions. Manufacturers are often unable to get from architects the information they need in order to know if their proposals for substitutions will be seriously considered. Their window of opportunity is usually small and architects (who have already researched materials once) are often too busy to spare more time. Manufacturers then take a shotgun approach and submit every product that might be acceptable—producing, as a result, reams of paper that the architects must wade through to see if there is a worthy substitution. Still, the process may be worth the effort. Manufacturers who understand the design process may make beneficial proposals.

2. The substitution process can be complex. Considering public and private work, negotiated and bid work, single and multiple prime-design professionals, and single and multiple prime contractors, there are many different possible combinations in the process.

In specifications, “or equal” signifies not equality, but what the architect will accept.

When substitutions are unavoidable

Architects' main concern in the substitution process is to maintain the control required to preserve the esthetic and technological integrity of their designs. One of their most disturbing problems is to be backed into a corner on a substitution. This usually happens late in a project with a construction deadline fast approaching. The contractor informs the architect that Product A will not be available in time to meet the schedule. However, he can have Product B on the site tomorrow. Usually the architect has never heard of Product B, does not have time to evaluate it, and has no alternative. This leaves an unpleasant memory for the architect not only of the contractor, but also of Product B.

Many architects do not keep accurate records of the selection and substitution process. From their files plus the contract documents, they should be able to reconstruct the selection of major building components *and* the origins of substitutions. If an architect issues a modification to contract documents and does not record the source, it becomes the architect's idea. Included in the file should be all correspondence on the request for substitution, a record of its investigation, and notes on the disposition of the request.

Manufacturers' role in substitutions

The specified manufacturer's main concern is to support the decision of the architect when substitutions are proposed. Specified manufacturers are invariably willing to give this support when contacted. But they must have understood the project scope when they first convinced the architect to use their product. If it exceeded what was needed and therefore the project budget, the architect will have a hard time defending it.

The question for the manufacturer who is not specified is how and when to request a substitution. The architect should have set up a process for such requests and that process should be explained in Division 1 of the specifications, or the instructions to bidders, or both. Many architects have a submission form bound into the project manual. As in the initial process of product selection, the time to propose substitutions will vary with the architect.

Making specifications hold

While attempts at substitutions may be a fact of life, it is in the interests of both the architect and the manufacturer to have the specifications hold. Rarely is the approval of a substitution as carefully considered as the selection of the original product and, as has been seen in well-publicized instances, this can result in disaster including structural collapse. Hence, substitutions create liability for architects.

If specified manufacturers who have a genuine interest in serving the industry are routinely cut out of projects through substitutions, even though they have invested time and money working with the architect, then eventually their services will be withdrawn. They may already be endangered.

What architects can do is select products carefully and then specify them carefully. If a specific manufacturer is important to getting what is wanted, architects should use the descriptive/proprietary method of specifying. Describe the product and its important attributes and then name several products that meet those specifications. If the manufacturer is less crucial (as is the case with commodities), tie the specifications to an industry standard and avoid the substitution process altogether.

What manufacturers can do is to make complete and candid information on their products readily available. To do less is myopic. Manufacturers must counsel architects not to specify their product if they understand it to be inappropriate. Such valuable counsel will not be forgotten by the architect, and the manufacturer will be ahead in the marketplace as a source of straightforward advice.

Architects and manufacturers need each other

Manufacturers need architects to specify their products. They need their specifications to be reasonable and fair and tight. They need the architect's control of the bidding process and construction so that substitutions, when they occur, are handled in a manner that is fair to all the parties and, at the same time, promotes healthy competition.

Architects must understand that manufacturers perform a service when they call. Manufacturers must understand that architects can't waste time looking at endless brochures that don't answer current needs. It is in the industry's best interests that architects *and* manufacturers cultivate a close relationship so that industry can best serve the market. □

Mr. Dyer is an architect who practices in Atlanta as a specifications consultant. He is currently vice chairman of the AIA's Masterspec Architectural Review Committee and, in 1991, will assume the chair.

HOW GOOD IS WOOD?

An environmental controversy in the Pacific Northwest calls attention to a declining resource. Today, neither manufacturers nor architects can take the forests or its products for granted. By Timothy B. McDonald

We're used to thinking of wood as the most environmentally benign of materials. And, thanks to modern forest-management techniques, we thought it was the paragon of a renewable resource. But the controversy raging in the Pacific Northwest over the remaining old-growth forests disturbs this vision. With a rapidly changing (and, most agree, *deteriorating*) resource, its rapidly escalating cost, and the shrinking availability of certain kinds of wood, architects are being forced to rethink the way they use a building material once taken for granted.

News reports have portrayed the controversy in the Northwest as logging jobs versus the endangered spotted owl. But the situation has an impact on the architectural use of wood as well. Jim Pissot, director of the Audubon Society in Washington State, puts the issue this way: "Do you think architects are going to be alarmed that clear, natural, high-quality, straight-grained lumber will soon be a thing of the past?"

Consequences of a shrinking resource

How much cuttable old-growth forest remains is controversial. That the large examples of defect-free, straight-grained timber that come from old growth are becoming rarer and more expensive is incontrovertible. Old growth is not being cut just for the quality of the wood it supplies. Timber companies claim that the demand for wood cannot be met by second-growth forests alone. Because of lax replanting of logged-over areas, the "renewable" forest has proved to be a myth.

What role do architects—many of whom consider themselves environmentally sensitive—have in all of this? "I don't specify [large timbers] where substitutes can be used," comments Arne Bystrom, a Seattle architect known for his use of wood. But the dilemma is more complex still. Witness a recent trend in Seattle, the latest in a number of locales experiencing very rapid real-estate appreciation. The *Seattle Post-Intelligencer* recently focused

ARNE BYSTROM



Clear wood: a nonrenewable resource?

on a number of architect-designed new houses that replaced modest existing ones. The houses typically "cost" six logs—two to build the original house and four to build the much larger new house that replaced it. One architect explained, "The land had become too valuable and the house was inappropriate for the lot."

This isn't new, it's the way cities are renewed. In the Pacific Northwest, however, where the debate over the use of limited timber resources sometimes seems all-consuming, such "tear-downs" are particularly ironic. Are the natural resources locked up in those houses only as valuable as the real-estate market says they are? Can the profession ignore that kind of waste?

Should architects take the lead?

Jim Cutler, a Seattle-area architect who espouses a hard-line environmentalism in the context of a practice largely composed of new residences for affluent clients, comments, "I'm not against cutting trees." Yet, he later declared, "We shouldn't touch [old growth]." His statement points up the architect's dilemma. Many seem to be torn between wanting to save a limited resource and the desire to continue using it.

Possibly the only point on which timber interests and environmentalists agree is that the resource base has changed. On pages 40-41 the old-growth controversy and its implications for the supply and

quality of lumber are described. Many users have questioned whether the timber grading and classification system recognizes the kinds of wood actually available (pages 42-43).

There is one bright spot: the growing number of engineered wood products. They're replacing large, clear wood sections for headers, beams, and floor and roof joists in residential and light commercial construction. As described on pages 44-45, they *can* be manufactured from second- and third-growth timber, and use many parts of the tree (and types of trees) once considered waste.

If architects sincerely want to participate in saving that last hint of the great cathedral-like stands of old-growth Douglas fir, redwood, spruce, and yew, a rethinking of the way wood is used will have to take place. Gilbert Cooke, a Baltimore-based architect, and other concerned architects are fashioning a specification that would eliminate the use of old-growth lumber. For the specification to be effective, however, the U. S. Department of Agriculture would have to produce a stamp identifying old-growth products. That would be an uphill battle.

This kind of action raises disturbing questions. Does the architect have obligations to the long-term effects on the environment even if his client is unconcerned? Is it presumptuous for architects to take the lead in specifying alternatives to old-growth-derived timber? After all, the world seems to want the esthetic warmth and structural versatility of wood construction—and there are presumably plenty of architects and builders who will be happy to take on commissions refused by those who put devotion to the forest first.

Jim Cutler has taken his stand. "We need to honor wood. Now we treat it like garbage. Maybe as it becomes scarce, we'll treat it like gold." □

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END OF AN ERA

Do we stop cutting old-growth forests now? Or wait till they're gone? Architects have a role in this complex environmental controversy.

The kind of softwood framing lumber architects are used to is changing. No longer can they rely on the appearance and strength they have come to expect from the forests of the Pacific Northwest. (Some 66 percent of lumber used in the U. S.—405 billion ft—comes from the 12 Western states. The lion's share of this comes from Washington, Idaho, Oregon, and California.)

The immediate crisis was brought about by court-ordered set-asides of old-growth forest to protect the habitat of the spotted owl. For architects, the direct effect will be in ever-shrinking quantities of strong, straight-grained wood of consistent appearance as old-growth forests are either cut or withdrawn from production. In the next few years, wood with more visual defects and a higher tendency to warping and cupping will increasingly be seen on the jobsite. By specifying wood, and especially by specifying wood taken from old growth, architects encourage depletion of the resource. The severity of wood quality and supply problems will depend, however, on a bewildering number of interlocking issues.

The ancient forests

When loggers had all but exhausted the great hardwood and pine forests of the Northeast, South, and Great Lakes regions, only one area remained virtually untouched. A great conifer forest, the only one like it on earth, stretched 2,000 miles from just north of San Francisco Bay to the panhandle of Alaska. From the ocean shore it extended dozens of miles into the Coast Range and the Cascade mountains. The trees—Douglas fir, hemlock, yew, redwood, and spruce—were immense, some reaching a height of 300 ft and a circumference of 50 ft. And they were old; 500 years old was common, with some nearly 2,000 years old.

Before the cutting began, the trees covered 70,000 sq mi of Canada and the United States. Depending on who you listen to, only an estimated 10 to 20 percent is left on federal and state lands, and little, if any, primeval forest remains in private hands. The controversy is about whether much of this remaining resource will be preserved or whether it will be cut. In ei-

JIM PISSOT/AUDUBON/LIGHTHAWK



Clear-cuts in the Umpqua National Forest, Oregon.

ther case, experts expect that the kind of high-quality timber products that come from old growth will essentially disappear from the market in at most 15 years.

The complexity of old-growth forests is just beginning to be understood. Scientists admit that less is known about the Northwest's ancient forests than about the tropical forests of South America. Generally, a stand of trees has to be at least 80 years old to be considered a mature forest (some experts say this isn't old enough).

Other scientists have concluded that the forests are critical to much of the Pacific Northwest's way of life. The trees provide a sheltered environment for wildlife in the winter and store thousands of gallons of water from seasonal rains, which are used or released during the dry summers.

- A single old-growth tree has 60 to 70 million needles, a total of 43,000 sq ft of leaf surface, which is very efficient at collecting moisture from passing clouds and fog banks. At the Bull Run watershed, from which Portland gets some of its water supply, researchers have found that timber-cutting deprived the watershed of moisture from passing rains. They found that almost one-third of the reservoir's water had been retained by the forest.

- Public-works officials up and down the Northwest coast are blaming runoff from newly cut areas for growing damage from floods and road washouts. The forest had broken the impact of spring rains and retained the snowpack, slowing runoff.

- Research at Oregon State University suggests that historical declines in Northwest fisheries, once blamed on overfishing, may be equally due to destruction of

coastal old-growth forests. These findings are of special concern to fishermen on Alaska's Southeast coast. They're concerned that logging in the giant Tongass National Forest (which is actually *subsidized* by the U. S. government) will threaten their livelihood.

The lack of knowledge about the dynamics of old growth is feeding the forestry controversy in the Northwest. Because of differing definitions, government officials and environmentalists cannot even agree on which forests should be counted as old growth (chart opposite).

The owls

The original population of spotted owls is unknown, but today there are only an estimated 3,000 to 4,000 pairs in northern California, Oregon, and Washington. Each pair requires an estimated 5,000 acres of hunting range. Studies in Oregon indicate the owl population declined by a third between 1976 and 1987. Scientists liken this collapse to a canary in a coal mine—a warning that we have taken too much of the old growth.

Under the Endangered Species Act, the habitat of an endangered or threatened species must be protected. As a result of a series of suits begun in 1987, the Interior Department—apparently against its will but in the face of overwhelming evidence—has classified the owl endangered. Through the Act, the spotted owl has become a tool that environmental groups are using to protect the old growth ecosystem. The Interior department's plan to save the owl tries to protect both logging jobs and the spotted owl but has pleased no one, and at press time had still not been adopted. This may put the department back in court, with the result that timber sales affecting hundreds of thousands of acres could be put on hold. In the end, protecting the spotted owl may entail setting aside as much as 60 percent of federal timberland and thousands of privately held acres.

The timber economy

The dynamics that swirl around the West's forests are not just local, they are national and even international.

- The recent housing boom in Japan and the weak U. S. dollar have made North-

west timber more desirable, not only in Japan but throughout the world. At the dock, high-quality Douglas fir runs \$600 per thousand bd-ft, or about \$240 a log. For the most part Japan buys raw logs from the U. S.—not finished lumber. Last year, Japan imported 6.7 billion bd-ft of logs but only 1.7 billion bd-ft of sawn lumber. At a time when U. S. mills are complaining about the diminished supply of timber, Japan's mills are running at an all-time high.

- On this side of the Pacific, a recent real-estate boom in Washington has made it very profitable for private land owners to cut their trees and sell the land to developers. It is estimated that Washington State alone will lose 80,000 acres of forest to development by the end of this decade.

- A recent reform in the federal capital-gains tax closed a loophole that rewarded those holding their forest lands more than five years.

- On Wall Street, the wave of leveraged buyouts in the '80s required many companies to "liquidate standing assets" because corporate raiders borrowed heavily in order to buy companies. "Undervalued" assets such as timber were often sold to pay debt.

- Other companies, fearing takeovers, spun off their timber assets into limited partnerships that were uniquely equipped to take advantage of a provision in the Federal Tax Act of 1987, allowing companies tax-free profits from natural resources such as timber. (Plum Creek Timber Co., a limited partnership spun off by Burlington Resources, Inc., liquidated forests in Idaho, Montana, and Washington, producing a 39 percent return on its investment in only 11 months.)

- The spotted-owl decision, which has long been anticipated, has itself encouraged cutting. Timber companies see the controversy portending a flood of new regulations. Rather than face that unstable future, many companies have rushed to cut before new restrictions prohibit it.

Competing interests

Loggers find themselves in a vulnerable position. In the recent past, the number of logging-related jobs in the Northwest has declined. Oregon, a typical example, produced more timber than ever between 1977 and 1986, yet saw a *decline* of 6,000 timber-related jobs in the same period. The mills that have not kept pace with modern innovations have folded or are on the brink of folding. Other companies saw the handwriting on the wall and upgraded their mills—reducing jobs in the process. In order to maintain logging jobs at today's present level, the boom must continue. Old growth set-asides will accelerate the job loss, which many see as inevitable. Nevertheless, the end of as many as 30,000 jobs (the most dire estimate) where there are few job alternatives is political dynamite.

Though the timber-supply crisis in the Northwest has often been narrowly drawn as jobs versus owls, changes in the timber economy are having effects even in the second-growth forests that supply the lion's share of Western wood products. Permit requests for logging on private land have increased 50 percent since 1986; more timber was cut on private land in 1989 than in any year on record. In that one year, the harvest was up 25 percent—the biggest one-year jump since records were first kept 40 years ago. Little if any of this forest is old growth. The effects of such rapid cutting—rapidly spreading clearcuts, degraded streams—have brought together a coalition of groups that in the past were often adversaries. "Traditional" environmentalists have been joined by sports and commercial fishermen, recreational hunters, and local officials to lobby for reduced logging. They may not often agree on the big issues but are driven by a passion for a particular place.

Dividing a shrinking pie

Caught in the middle is the U. S. Forest

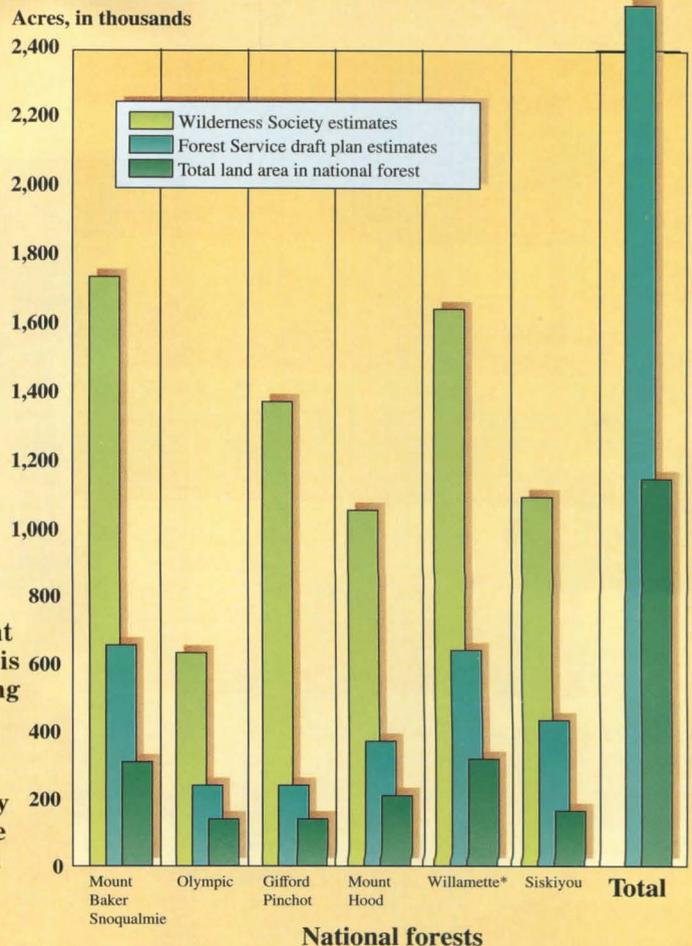
Service, the federal agency entrusted with care of the nation's public forests. Created 85 years ago, the Forest Service, which oversees 191 million acres of forest land, has traditionally championed "multiple use" of national forest lands. Now it has come under increasing fire from environmentalists, hikers, fisherman, and tourists, as well as logging interests, even from some within its ranks. Policies the service said would deliver "sustained yield" while protecting multiple use are not living up to their claims, according to critics.

The opening shots in this war over the woods are just being heard. All the responsible parties in the dispute agree that the nation needs the wood products the forest supplies, but logging isn't the only game in the forest any longer. Now, it's just one among several interests, each of which—it sometimes seems—has designs on every forest acre. Jim Pissot, of the Audubon Society, likens the Forest Service's new role to trapeze artists. "They have to let go of one swing, but they aren't quite ready to grab the next one."

TIMOTHY B. McDONALD

How much old growth remains? A serious difference of opinion

Chart shows U.S. Forest Service and Wilderness Society figures on how many acres of old growth remain in six Washington and Oregon national forests:



Assessing the amount of old-growth forest is critical to establishing a plan to save the spotted owl. An aggressive conservation strategy would nearly end the supply of old-growth derived products.

Sources: Forest Service draft plans, 1986-87; Wilderness Society report, 1988

COURTESY SEATTLE TIMES

DECLINE OF A COMMODITY

Timber companies are switching to younger, even marginal species. Standards and practice are still catching up.

We've either heard it or said it ourselves, "That's when 2 by 4s were really two by four." Were they ever? Since the '30s, the surfaced, nominal 2-in. framing member has shrunk from 1 5/8 in. to 1 1/2 in. There is no indication that stock dimensions will decrease further, but a good portion of the construction industry sees a continuing decline in the *quality* of solid, sawn lumber and escalating prices. Problems have been most noticeable in residential construction, which absorbs some three-quarters of the wood used by the construction industry. (The balance is used in commercial or nonbuilding construction of such projects as bridges, dams, and highways.)

There is widespread agreement within the timber industry that prices for all types of lumber will get steeper because more demands are being placed on a shrinking resource. "No one can predict the future," says David Mumper, resource manager for Weyerhaeuser Co. "All things being equal, though, we expect prices to go up because of land withdrawals to protect the spotted owl and other restrictions." He notes that during the period 1986 to 1990, the price of a delivered log soared from \$260 to more than \$600. (Presumably because of slackening housing demand, wholesale prices rose only 25 to 30 percent in the same period.) The Forest Service predicts that withdrawals in public lands will be made up by increased cutting of private stocks. Mumper disagrees—"We're not sitting there with an excess that will pick up the slack."

Changes in the quality of timber are already being seen, and some architects are changing the way they design because of it. Arne Bystrom, a Seattle-based architect known for his use of wood, says "the days of the clear Douglas fir beam are over." As the supply of slowly grown, older trees shrinks, timber companies are shifting to rapidly grown trees from managed forests, and to "weed" species once considered marginal. Bystrom is using glue-lami-

© ARNE BYSTROM



Architects are exploring details driven by scarcity.

nated beams for large exposed members (photo, page 44) where he once would have used clear lumber.

Eroding standards?

The perception that wood-grading standards are being eroded stems from higher numbers of warped, defect-ridden pieces discarded at the jobsite. Experts say grading *standards* are not being ignored; it's just that a greater proportion of wood falls into the low end of each grading range, due to reduced supplies of defect-free wood, and timber in the appearance grades is becoming increasingly hard to find.

Coupled with this growing scarcity is the evolving nature of the construction industry. As costs rise, pressure to use each component with greater efficiency increases. This puts strains on the links connecting the designer, builder, and manufacturer. Lumber, in the past, has had an engineered safety factor of perhaps two or three. To make better use of the resource, the engineered redundancy is decreasing, placing a greater burden on the designer. "We're accepting codes and regulations as the standard of good practice rather than as the minimum acceptable level they actually represent," says William Dost, head of the Wood Building Research Center, at the University of California Forest Products Laboratory.

Typical of this thinking, according to

Dost, is the Products Standard (PS) 20-70, the bible by which the lumber industry, since 1970, has graded more than 770 billion bd-ft of lumber. The Western Wood Products Association literature claims that "the standard... set an industry precedent by defining dry lumber as that with a moisture content (MC) of 19 percent or less." Dost thinks that standard is "ridiculous," (although he believes it did solve problems of decay and stain that for years plagued green lumber). He claims it "barely begins to solve shrinkage problems."

The moisture content of wood decreases after cutting, leveling out at between 10 and 15 percent depending on its location within a building. When wood shrinks in place, gaps show up, floors creak, and nails pop through drywall. Dost believes it is misleading to sell lumber with a moisture content of 19 percent as "dry."

The question, however, is often one of money. As a manufacturer reduces the moisture content, the wood shrinks, and it increasingly shows cupping and other defects that can mean the piece receives a lower grade and a lower price.

How good is young wood?

The changing timber supply does not just affect esthetic uses of wood. It has implications for durability and dimensional qualities. The moisture-content problem, for example, may be compounded as the proportion of second- and third-growth timber increases. Compared with old-growth timber, there is a higher percentage of juvenile wood in the cross-section of second-growth timber. This lower-density wood is characterized by its shorter fibers and higher lignin content (which means the wood is subject to greater ultraviolet deterioration). The lower density is an advantage during the drying process: the wood dries faster. It is more permeable to moisture, however, and changes size and shape rapidly as humidity changes, exacerbating problems of dimensional stability on site.

In the future, wood will be more uniform in appearance and quality because the trees from which it is taken will be more consistent in age and height. However, the wood from managed tree farms differs significantly from old-growth trees. For example, the tree's juvenile wood zone, with its lower strength and greater longitudinal shrinkage, comprises a significantly greater proportion of the cross-section in the 30- to 50-year-old tree. The sapwood, in addition to picking up more moisture, is generally less durable and more prone to decay than the heartwood. Even the heartwood in the second-growth trees is weaker than that produced by old-growth trees, according to Dost. "I'm not saying buildings are at risk. It's just the wood from second-growth isn't as strong as the old-growth."

In addition, these smaller-diameter trees have more curvature in their annual-growth rings. Lumber with this curvature has a tendency to cup. And smaller-diameter trees inevitably produce more lumber that must be cut on the corners (wane). While wane-cut pieces may meet grading standards, they aren't suitable for visible locations and present a smaller fastening surface.

Timber as a commodity

Wood is an organic material that shows natural variations. The number of wood species is so great that it would be impossible to market them separately. As a consequence, species have been combined into groups with similar properties and appearance. The wood called Hem-fir, for example, combines Western hemlock with six species of fir.

At the mill the lumber is sorted into four categories: finish grades based on appearance, structural and construction grades, special-purpose grades, and cutting or industrial grades. This system recognizes that lumber is treated as a commodity. Users perceive little difference between woods from Weyerhaeuser, MacMillan Bloedel, or Boise-Cascade. In addition, producers of solid, sawn lumber do not focus on special requirements architects may have for wood. The consensus is that mills could not justify the expense of producing differentiated products that exceed industry standards. Old-growth logs, for exam-

**"Wood from second growth isn't as strong as the old growth."
—William Dost**

ple, are often cut to meet types of wood ordered, rather than the strong and clear members to which they are best suited.

Thinking about wood in a new way

The product mix is changing, however. Not only do wood-derived engineered products increasingly compete with traditional products (pages 44-45); sawn lumber itself is being redefined when it is used as machine-stress-rated (MSR) lumber. Machine-stress rating, a process that began in the 1970s, insures that each piece of lumber

meets at least a minimum standard of strength. (Traditional grading assumes strength values based on size, species, and visible defects.) To be stress-rated, individual pieces of surfaced lumber are passed through a machine that measures the stiffness and modulus of elasticity. Because of the direct relationship between stiffness, a piece's bending strength (or modulus of rupture), and its ultimate tensile strength, one only has to measure the stiffness in order to compute the modulus of elasticity and predict the strength values.

The primary market for MSR lumber has been for roof trusses in residential and light commercial structures where close tolerances and cost efficiency are important factors. In the beginning, it didn't fare well. It seems the machines that did the stress testing do not care about appearance. A piece of lumber could have wane and knots but if it passed the stress test, that was good enough for the machine. Nonetheless, appearance has implications for reliability, at least in construction. It was not until the 1980s, when machines were equipped with a manual override, that appearance could be controlled. Since then, sources say, the market for MSR lumber has improved. But no one from the timber industry will predict whether MSR lumber will find wide acceptance for structural uses within conventional construction.

The MSR experience is an object lesson. We're not only going to be using wood differently, we're going to have to think about what these new uses mean for design suitability, ease of construction, and esthetics. **TIMOTHY B. McDONALD**

FACSIMILE OF 1982 PLATE COURTESY JOHN WILEY & SONS

Grading standards have changed, and so has wood availability. Most woods in appearance grades are becoming hard to obtain. Timbers 5 in. and thicker in all grades are scarce.

BASIC GRADE CLASSIFICATION FOR YARD LUMBER			
<p>Total products of a typical log arranged in series according to quality as determined by appearance.</p>	<p>SELECT Lumber of good appearance & finishing qualities.</p>	Suitable for natural finishes	Grade A Practically free from defects. Grade B Allows a few small defects or blemishes
		Suitable for paint finishes	Grade C Allows a limited number of small defects or blemishes that can be covered with paint. Grade D Allows any number of defects or blemishes which do not detract from a finish appearance, especially when painted.
	<p>COMMON Lumber containing defects or blemishes which detract from a finish appearance, but which is suitable for general utility and construction purposes.</p>	Lumber suitable for use without waste	#1 Common Sound and tight knotted stock. Size of defects and blemishes limited. May be considered water-tight lumber. #2 Common Allows large and coarse defects. May be considered grain-tight lumber. #3 Common Allows larger and coarser defects than No 2, and occasional knot holes.
		Lumber permitting waste	#4 Common Low quality lumber admitting the coarsest defect, such as decay and holes. #5 Common Must hold together under ordinary handling.

Data supplied by National Lumber Manufacturers' Association

MAN-MADE TIMBER

Engineered wood products are gaining wider acceptance for their performance—and for their efficient use of forests.

The timber industry may still treat solid, sawn lumber as a commodity, but as concern about the decline in timber quality rises, it has recognized and begun to develop a variety of products that make better use of the low-density, fast-growing trees that replace old-growth timber. This trend began with the development of plywood, some seven decades ago. The focus today is on products used in framing.

Parallel-strand lumber

Parallel-strand lumber (sold by MacMillan Bloedel as Parallam) is a reconstituted product said to have 2 1/2 to 3 times the strength of lumber of equal dimension. According to Michael O'Halloran, assistant director at the American Plywood Association's Technical Services Division, "the original concept was to use short sheets out of plywood plants."

PSL is manufactured by bonding long strands of veneer with a waterproof adhesive. The member is then cured under pressure as it passes along a continuous-line system. The 10-percent moisture content in Parallam is lower than the 19-percent maximum of sawn, kiln-dried lumber, so PSL is more dimensionally stable after installation. Natural flaws such as wane, warp, or the tendency to split have been engineered out. Parallam is designed to be used as beams, headers, and girders in the residential and light-commercial building market.

Since Parallam is produced in a continuous process, it doesn't have the same length restrictions normally found in conventional lumber. Spans of 60 ft are commonly produced, and heavy-timber sizes are available. To date, the largest member produced is 11 in. wide by 18 in. deep. The

material is denser than ordinary lumber and it has less tendency to split on impact than sawn lumber. The same nail-and-bolt patterns used with conventional lumber are used with Parallam.

Laminated veneer lumber

Another relatively new process is laminated veneer lumber (LVL). It looks like plywood, except it's thicker—3 1/2-in. is standard, which matches standard stud dimensions. The grain of each ply in LVL runs parallel (in plywood, the grain of each layer is opposed). Like PSL, LVL is laid up in a continuous gluing and drying process which means there is no restriction on length other than that imposed by transportation. LVL is typically made in thicknesses of 1 3/4 or 3 1/2 in. for use as headers and beams. Members are not made in thicknesses greater than 3 1/2 in. because the mass hampers the drying process. Trus Joist Co. does make a beam that's 7-1/4 in. thick, but it's simply two 3 1/2 in. pieces glued together.

Like Parallam, the veneers in LVL have to be dry before they are adhered. Veneers are intentionally assembled at random so that defects won't "read through" more than one layer. Result: no more knots. Some companies actually measure the stiffness of the veneers, grade them, and place the stiffer layers on the outside and the less stiff veneers in the core, reflecting actual in-situ stresses. "You can virtually build a balanced product," says APA's O'Halloran.

Glue-laminated lumber

Once considered primarily for long spans where appearance was important, glue-

laminated beams are increasingly moving into all kinds of heavy-timber applications. The bulk of glu-lam production has now become utility-grade beams. These are lighter, more economical industrial-type-beams used as framing, or as headers for openings having spans of 24 ft or less.

As with LVL, manufacturers are increasingly engineering each component of their product so that performance, according to Karen Mahoney, marketing communications manager for Weyerhaeuser, "is very similar to how an I beam works." Using machine-stressed lumber, manufacturers are able to lay up a beam in which the strength of each layer responds to the structural requirements of its position in the member's section. A joist may have a top layer that resists compression and a bottom layer that resists tension. The core is filled out with wood of lesser strength.

Wood I joists

As early as 1970, Trus Joist Corp., a manufacturer of wood trusses, recognized the need for a dimensionally stable engineered product assembled in a way that exploits the best qualities of wood unsuitable for framing. As high-quality structural members have become more expensive, their pioneering replacement products have grown in popularity. I joists, now made by a variety of manufacturers, have flanges that may be made of 2- by 4- machine-stressed lumber or LVL. Into these pieces is fitted a 3/8-in. or 5/8-in. CDX-plywood web. "Because they're true to dimension," says Seattle architect Arne Bystrom, "contractors prefer engineered wood products like I joists."

Despite the fact that they are deeper



ARNE BYSTROM



AMERICAN PLYWOOD ASSOCIATION



AMERICAN PLYWOOD ASSOCIATION

Engineered products can be used when appearance is important.

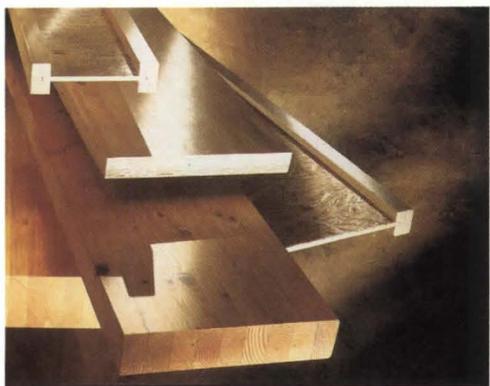
I joists combine panel products and solid wood or LVL.

Glu-lams in utility grades are replacing sawn heavy timbers.

than a solid section spanning the same distance, less wood is used in an I section. Contractors also like the joists because they are lighter, capable of longer unsupported spans, require fewer men to jockey into place, and don't warp, twist, or shrink once they are installed. Where depth-to-span ratio is a problem, it is offset by the builder's ability to cut some openings in the web to accommodate ductwork and conduit.

Manufactured shop lumber

There is a bit of invisible technological wizardry at work in the wood door and window manufacturing industries. Exposed pieces that appear solid are increasingly made up of veneers and glued-up members. As clear wood has become scarce, manufacturers have resorted to these techniques to maintain quality, to respond rapidly to orders, and to meet ever-closer performance tolerances. One window maker is moving into composite cores made up of finger-jointed lumber, LVL, and particle board. This system of fabricating usable lumber has now become less expensive



WEYERHAEUSER CO.

than buying clear lumber. Manufacturers say they are satisfied with these methods, because they have greater control over strength, dryness, visible defects, and dimensional stability than with even the best clear lumber.

Evaluating engineered products

On paper, engineered wood products are a godsend, offering efficiency and predictability. In the field, some questions remain. How long can we expect these new components to last? How reliable is manufacturers' testing? On the last point, William Dost, of the University of California Forest Products Laboratory, reports "the quality of testing can be a mixed bag." He suggests that architects ask manufacturers for results of long-term testing of members in the actual sizes under consideration and for intended exposures. Areas to examine include fastener holding, strength, moisture and fire performance, and internal bond. Claims that the new product will perform as well as, or better than, solid, sawn lumber should be carefully examined. (The skeptical Dost does give

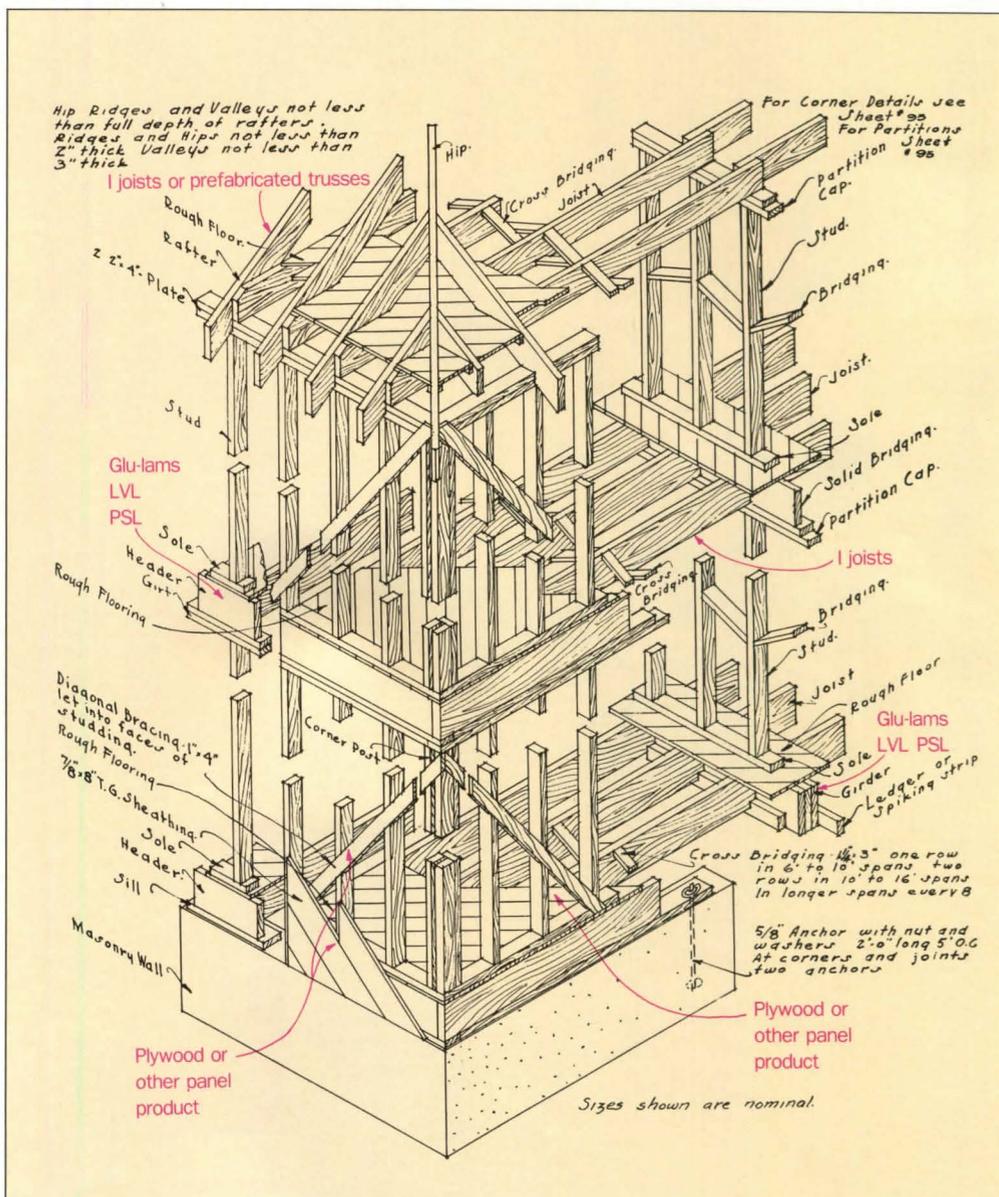
Parallam rave reviews. "They've done a marvelous job of testing before putting it out on the market," he says.)

In order to respond to specifier concerns, manufacturers are establishing an industry-wide standards program. The American Plywood Association has agreed to form a related corporation called American Wood Systems, which will come into being in January 1991. APA will set uniform industry standards based on engineering tests that will assure compliance with building codes. In addition, APA is de-

be certified as the testing and evaluation protocols are established.

The future

Already, engineered products are being refined to replace smaller sawn members such as rafters and even studs. Research is underway to develop products suited to innovative construction systems. General Electric's prototype home, completed last year in Pittsfield, Massachusetts, included a structural corrugated wall system produced by Weyerhaeuser from oriented-



An image from the first edition of *Architectural Graphic Standards* shows where new products are being used.

veloping a manufacturer quality-assurance program and will provide technical information for evaluation of products. The goal is to market a series of integrated products that work together as a system for residential and light-commercial construction. Approved products will carry the stamp APA/EWS (Engineered Wood Systems). At first, only glue-laminated products will be stamped; other types will

wood strands. Still in the experimental stages, the panels were formed into structural sheets 1/4-in.- to 5/8-in.-thick that look very similar to metal decking. In the future, these panels could replace the conventional framing for floors, walls, and roofs. If this is any indication, what is available now may be only the beginning of a wide array of engineered-wood products.

TIMOTHY B. McDONALD

Product Reports 1991

As a lead-in to the 19th running of RECORD's product marathon, we'd like to answer two questions that come up often in connection with our December annual: How were the more-than-700 new product and literature items you will find on the following pages collected? And how are they selected?

Following a procedure that has been streamlined over the years, we start with a mailing, usually early in July, which asks manufacturers for information on product introductions and new catalogs. The enclosure contains a letter from our Editor describing the organization of the issue, what types of product and literature will be considered (building products, materials, and services of interest to the architect and available nationwide), and how new they have to be. A form accompanies this letter, to be returned along with the product photo, factual data, and requested catalogs. This mailing goes to firms that have appeared in product and literature columns in RECORD, past and current advertisers, and manufacturers or agencies that have asked to receive it. When the returns come in, we organize them by product division, then review each submission. What we're looking for is real newness, usefulness to the architectural or contract-design specifier, and quality. An excellent photograph of the product or application always helps. After this first cut, we select the final entries that will appear on the product and literature pages of each division, with an eye towards the widest possible representation, both of product type and manufacturer. Promising also-rans are held for use in the new product pages of future issues.

This year for the first time we take a closer look at the product literature sent in for the December issue, and cite 12 brochures that seemed to us to best communicate their message. See our choices, on pages 171-173. And recognizing the growing usefulness of the computer in product specification, we provide, on pages 175-177, a list of building-product manufacturers or associations offering disk-based detail and specification help.

JOAN F. BLATTERMAN



Drawn for ARCHITECTURAL RECORD
by Sidney Harris

General Data

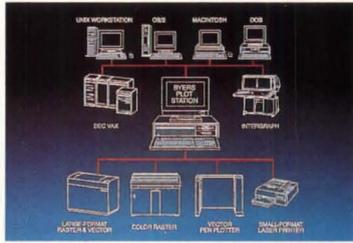
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Computer software
 Computer systems
 Design office equipment
 Information systems
 Office machines & supplies
 Reproduction services & equipment
 Testing equipment

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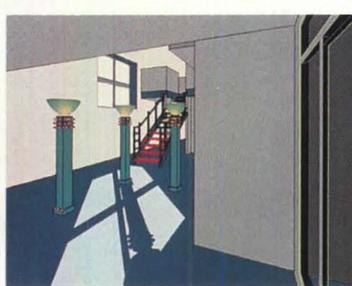
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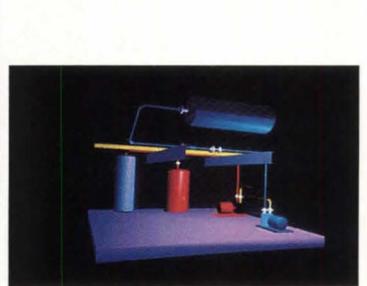
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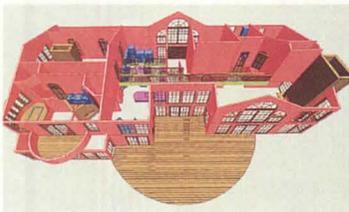
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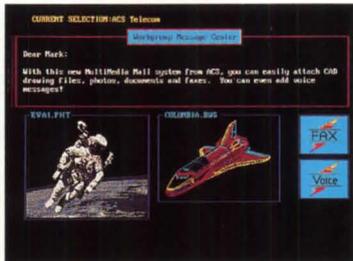
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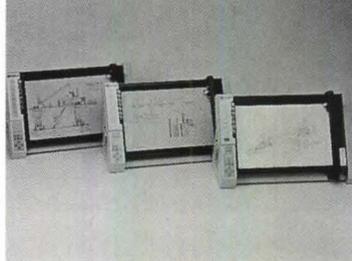
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1 Large-format plotter

The Signature 5000 plotter provides A- through E-size drawings, with 10-pen output as standard. Up to 25 pens can be used with optional expansion modules, allowing the customizing of pen types and line widths. It plots at a rate of 51 in./sec., to within 0.0002 in. Ioline Corp., Kirkland, Wash.

2 CAD drawing program

AutoSketch version 3 provides the flexibility of drawing objects in freehand style, then adding them to AutoCAD drafting programs. Enhancements in the product include the ability to handle 200 percent larger diagrams, visual confirmation of the working plane, and dynamic viewing. Autodesk, Inc., Sausalito, Calif.

3 CAD software

A full-featured CAD program for the Macintosh personal computer, ArchiCAD ver. 4.0 features 3-D rendering. New capabilities include shadow casting and lighting, "fly-by" or walk-through animation, sun-study capability, and expanded compatibility with other key CAD programs that run on Macintoshes. Graphisoft, South San Francisco.

4 Communications software

Speeding the process of setting up plotters that accept files from CAD stations, Plot Station links any MS-DOS-type personal computer with VAX-based, Unix, or PC-LAN-based networks. It supports CalComp, HPGL, and most PostScript-compatible plotters, and can be linked to fax or microfilm equipment. Byers Engineering, Atlanta.

5 Engineering copier

The Xerox 2520 copier is intended for users with medium-volume, large-format copying needs. It can be linked to an "intelligent" roll-media cutter for sizing sheets. The machine accepts diazo blueprints, CAD plots, cut-and-tape composites, and rigid or mounted originals up to 1/8-in. thick, through E-size. Xerox Corp., Rochester, N. Y.

6 Communications software

The transmission of AutoCAD files, faxes, voice messages, and other communications is expedited by this program, MultiMedia Mail. Designed for networked offices (including remote offices), the program works with users of 10 CAD programs, and supports MS-DOS computers. ACS Telecom, Lomita, Calif.

7 Land-use planning software

LandCADD Light combines site planning and landscape design programming with the ability to render shadows cast by 3-D plant materials. Shadows are created based on latitude, day of the year, and time of day. The program is said to be compatible with all third-party AutoCAD applications. LandCADD International, Franktown, Colo.

8 CAD software

Recently upgraded, Architrion II series 5 runs on Macintosh II personal computers. The program is subdivided into ArchiDesign, ArchiDraw, and ArchiList modules. Together, they let the architect visualize and quantify large projects. The screen-redraw feature has a greatly enhanced speed. Gimeor, Inc., Washington, D. C.

9 Pen plotter

The DXY desktop plotter has a maximum plotting speed of 420 mm/sec. in all directions, and a software resolution of 0.025 mm. The plotting area covers both ISO standard A3 and ANSI standard B sizes. It has HPGL emulation, as well as the manufacturer's DXY-GL and RD-GLI protocols. Roland Digital, Irvine, Calif.

10 Lettering tape

New tape cartridges, the Super A/E System, and a Tape Trimmer, to easily remove excess tape from the edges of labels, speed drawing lettering procedures. The cartridges are durable and resist temperatures of up to 245F. When combined with the maker's Letrex LM-500 equipment, 6- to 43-point sizes are produced. Max Business Machines, Garden City, N. Y.

11 3-D rendering software

The Model Vision rendering and animation package enables the user to view 3-D designs and produce animations that can be played back on the computer, or copied and sent to clients. With the appropriate hardware, a direct-to-video output can also be produced. The program runs under AutoCAD and other popular CAD programs. ASG, Sausalito, Calif.

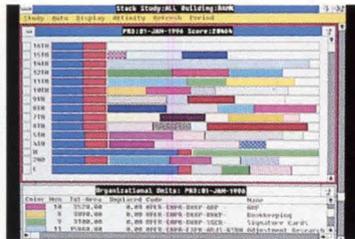
12 Detailing software

Working under AutoCAD, the Detailer and DynamicDetails programs allow the user to "assemble" predrawn detail components in building-block fashion, which can then be added to the architectural diagrams. Vertex Design Systems, San Francisco.

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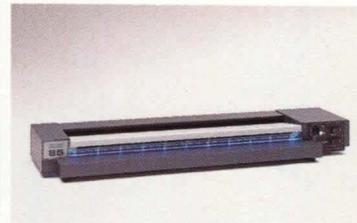
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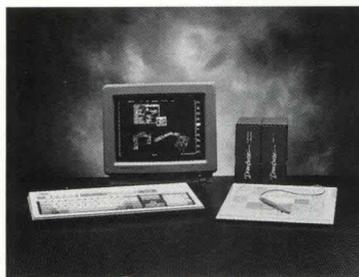
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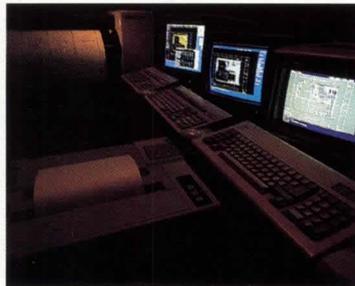
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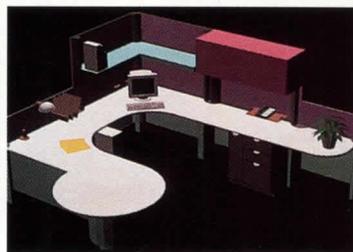
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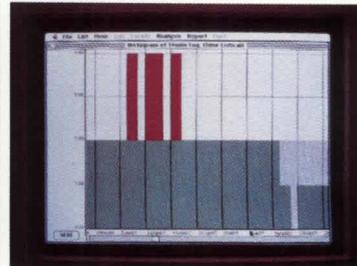
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13 Graphics workstation
The HP Apollo 9000 VRX family of 2-D and 3-D computers offers performance up to 1 million vectors/sec. The range of workstations includes monochrome, color, and turbo capabilities. The manufacturer also offers HP-PHIGS 2.0, a hierarchical programming interface for open-architecture standards. Hewlett-Packard Co., Cupertino, Calif.

14 Network CAD software
Exhibiting enhancements in networking capability, the Release 107 version of Drawbase combines CAD and database functions. It supports a program, Phar Lap 386 DOS Extender, which permits 32-bit performance in personal computers. Screen drivers, file management, shell programs, and other programming tools are included. CADWorks Inc., Cambridge, Mass.

15 Imaging enhancement
Renderstar is a third-party product for AutoCAD, using the Release 10 DXF format. The program adds depth shading, material definitions, sun shading, or shadow by up to 50 specified lightsources. Resolution can be as sharp as 10,000 by 10,000. Modern Medium, Inc., Portland, Ore.

16 Space-planning software
Spacetek is described as a "strategic facility planner" that enables managers to collect, manipulate, and organize data to help manage and optimize the use of space for design or operational purposes. A sophisticated relational database program drives the data-collecting and organizing effort. Drover Technologies, Inc., Tarrytown, N. Y.

17 Network equipment
Emphasizing nonproprietary hardware and software, the Flexible Networking System provides a means of connecting the computer resources of a typical architecture or engineering office. The software includes modules for drafting, documenting, and data management. Accugraph Corp., El Paso, Tex.

18 Computerized code-checking
Codeworks combines computerized file-keeping with a database of construction and building codes. Clients submit building design details, and receive printouts of codes that regulate the details. These include fire codes, hvac systems, plumbing, handicapped accessibility, and others. Codeworks Corp., Washington, D. C.

19 CAD software
FastCAD 3-D combines a 2-D and 3-D version, as well as Renderman, an enhancement that permits the creation of photo-realistic images. The latter program provides rendering details such as texture, light from multiple sources, and reflected light. The Renderman features require a VGA-type video card. Evolution Computing, Tempe, Ariz.

20 Interior design software
To save the effort of generating images of office furniture, this product provides a "library" of images. The product lines of Haworth Places, Herman Miller Ethospace, and Steelcase Context systems are included. Users can import these images into AutoCAD files. CAP Electronic Sweet's, Grand Rapids, Mich.

21 Lettering machine
The DuraType 240SE is a portable lettering system that has a range of features and an affordable price. The unit has a QWERTY keyboard and 16-character liquid-crystal display, and prints a range of typestyles and sizes. Output is on 1/2-in. adhesive tape. Kroy Inc., Scottsdale, Ariz.

22 Blueprint machine
The Model 85 whiteprinter offers economical reproduction for drawings up to 30 in. wide. It uses fully synchronized printing and ammonia-vapor development. No warm-up is necessary. An optional vapor-removal system eliminates odors from prints and the machine. Blu-Ray, Inc., Essex, Conn.

23 Project manager
Micro-Planner X-pert is a project-management program for the Macintosh family of PCs. The program features a variety of schedule reports (bar charts, PERT diagrams, job cards, etc.), and extensive printing capabilities. Micro Planning International, Mill Valley, Calif.

24 Networked CAD software
Cadvance for Workgroups provides drafting, database, and communications features in a form useful for office networks. The program is tailored to the Netware technology of Novell, Inc., and can manage peripheral sharing, file security, and referencing. ISICAD, Inc., Anaheim, Calif.

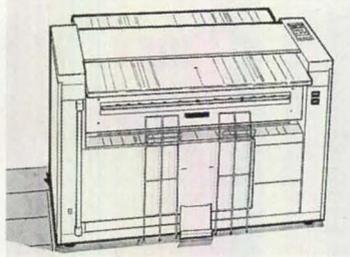
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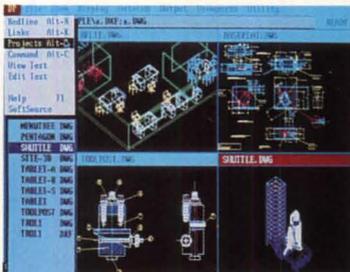
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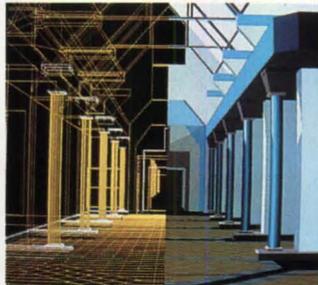
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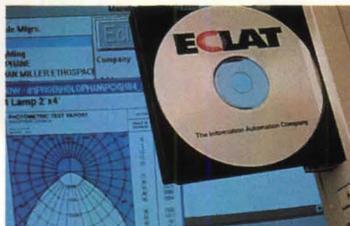
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25 CAD software

Emphasizing a capability in presenting drawings or concepts to clients, the Personal CADD family includes Point Line Drafter, requiring minimal training time; Point Line Designer, for 3-D molding and shadowing; and Point Line Painter, for styling and adding textures to Point Line files, or outputs of AutoCAD. Point Line Graphics, Inc., Middleton, Wis.

26 Digitizing scanner

The LDS scanner can handle documents up to ANSI E/DIN A0 oversize. An automatic paper sensor reads document length. Typical scan times for an E-size document (scanned and converted to RLC format) are 32 sec. at 100 dpi, and 96 sec. at 300 dpi. The unit is priced at \$13,995. Houston Instrument, Austin, Tex.

27 Electronic drafting table

The CADTable incorporates a high-resolution display monitor on a worktable, enabling the draftsman to work as if drawing on paper. The unit also includes an ultrasonic digitizer, a monochrome display for entering text commands, and an articulated arm to hold the keyboard. Man & Machine, South Burlington, Vt.

28 Desktop workstation

The Series 2000 is rated at up to 12.5 million instructions/sec., and is intended for graphics-intensive applications in engineering, design, and architecture. A wide variety of third-party software packages are available, including 2-D and 3-D CAD, structural and civil engineering, and rendering. Intergraph Corp., Huntsville, Ala.

29 Drafting software

Said to require only 10 minutes to learn, the Drawing Librarian Junior acts as a graphic front end to AutoCAD. The new program is complemented by Drawing Librarian Standard, which can display multiple images on screen, and Block Librarian, a symbol storage and retrieval system. Softsource, Bellingham, Wash.

30 Marketing management

Intended to automate the resources and planning involved in marketing architectural and engineering services, the A/E Marketing Manager runs on MS-DOS-type computers. The program enables users to store data, automate repetitive documentation tasks, and plan campaigns. Wind-2 Software, Inc./Infomax Corp., Fort Collins, Colo.

31 Plain-paper copier

High speed—10 24- by 36-in. copies/min.—is the key feature of the 6080 engineering copier. The unit automatically dispenses copy material from two rolls of paper, with dimensions ranging from 12- to 36-in. wide. The flow of paper from original to copies can be specified in several directions. Ozalid Corp., Binghamton, N. Y.

32 CAD software

Arrish V. 5.7, a modularized design and data-management program, can be tailored to the needs of specific users. The core element, Building Design and Drafting, is enhanced by modules for modeling structures, for rendering and lighting studies, and for facilities management, among others. Sigma Design, Inc., Waltham, Mass.

33 CD-ROM product data

Eclat Product Researcher puts current (updated every three months) product data and color graphics from suppliers on a CD-ROM disk. A search and retrieval program on the disk speeds access to records, and allows for "backward" research, such as specifying by generic attributes rather than brand names. Eclat, Pleasanton, Calif.

34 Electrostatic plotter

The CADmate plotter can draw E-size plots at a rate up to 6 times faster than pen plotters. The unit is offered with optional MS-DOS spooling software to manage print production. It has 300-pt-per-in. resolution, and can use roll paper, vellum, or electrographic film. Versatec, Santa Clara, Calif.

35 Personal-computer mouse

The Manager mouse has been redesigned to provide a more comfortable design for the hand, and a lower price (minimum \$105). The unit is available in corded and cordless versions, the latter employing an infrared-light interface. Numonics Corp., Montgomeryville, Pa.

36 Drafting software

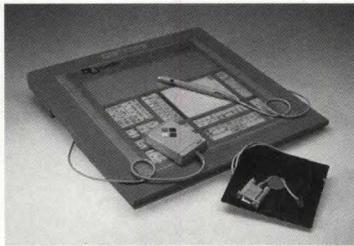
Full-fledged compatibility with the Macintosh "feel" and an affordable price (\$299) are the main features of MacDraft, ver. 2.0. The program now incorporates Bezier and spline curves, layers, advanced text handling, and full Macintosh II color support. It also provides for 32-bit compatibility, for AU/X and System 7 applications. Innovative Data Design, Inc., Concord, Calif.



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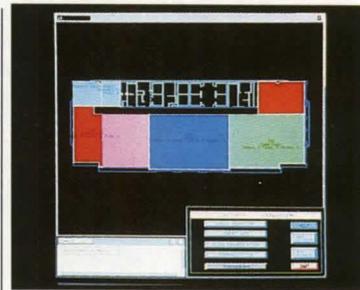
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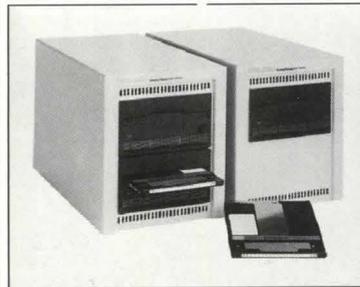
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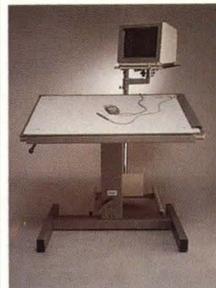
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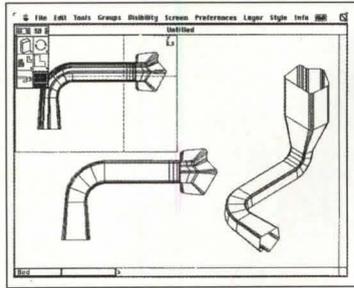
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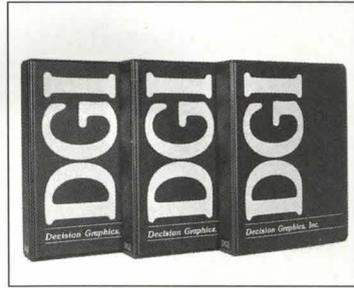
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37 Modeling program
Star Architecture UX is a 3-D design program using solid geometry. When 2-D graphics are created, they can be both scale- and view-dependent. Associated drawings automatically reflect any change to the model. The program operates under UNIX on Hewlett-Packard, Silicon Graphics, Apple, IBM, and Sony computers. Archistar, Inc., Laguna Hills, Calif.

38 Optical-disk storage
The DMS system is capable of storing hundreds of thousands of drawing files, so that they can be recovered by IBM-type personal computers. A menu-driven retrieval process enables the user to recover files and perform editing and annotation. Single- or dual-disk formats use 600-Mb erasable optical disk cartridges. Vemco Corp., San Dimas, Calif.

39 Large-format digitizer
Intended for construction estimating, the XLC digitizer is lightweight and can easily be transported to the field. It offers an active area of up to 36- by 48-in., and proprietary software for supporting Microsoft Windows as well as for inputting to AutoCAD programs. Kurta Corp., Phoenix, Ariz.

40 Digitizing tablet
Said to be the first tablet to offer a resolution of 1,000 points per inch for less than \$450, the SketchMaster now features an overlay to protect and hold menus in place. The unit is powered directly from the host computer, and is available with active areas of 11.7- by 11.7- or 12- by 18-in. GTCO Corp., Columbia, Md.

41 Video output board
For developing animated walk-throughs of CAD drawings, the NthTV output board uses 1,280 by 960 resolution. A related program, Hydra, uses this component to map the tour through the design, and to output to a videocassette recorder or similar device. Nth Graphics, Austin, Tex.

42 CAD software
The MacBravo Modeler and Detailer is a mechanical-CAD program for Macintosh computers. Version 2.0 provides shading, hidden line removal, automated dimensioning and tolerancing symbols, and other enhancements. Three-dimensional models are produced with user-defined shading. Schlumberger Technologies, Ann Arbor, Mich.

43 Electrostatic copier
The first machine of its kind offered by this maker, the model 636S can deliver six 24- by 36-in. copies per minute with automatic feed. It can capture in black and white the details of colored originals, second originals, blues, matte-finish prints, and other media. Dietzgen Corp., Des Plaines, Ill.

44 Pen plotter
A patented method of monitoring ink levels during plotting sessions is the main feature of PenMinder plotters. Up to 8 pens are monitored in such a way as to substitute the next available pen of like color and type so that plotting can continue when a pen runs low. Roll-feed ANSI D and E size plotters provide a range of capacities. Zeta Graphics Corp., Martinez, Calif.

45 Graphics translation software
CATS is an AutoCAD-DXF to Intergraph-MicroStation translator which permits the user to combine, separate, edit, and translate drawings into different formats or arrangements. A multilayered DXF file can be split into different files, combined, or otherwise manipulated. Technical support is included in the price. Decision Graphics, Inc., Huntsville, Ala.

46 Facilities management
CADG+FM is said to raise the productivity and quality of decision-making in facilities management. It allows for "what-if" analysis of various space-allocation decisions, and automates the management of real estate, office space, and equipment. The program, compatible with both DEC and IBM hardware, can be linked to AutoCAD. Computer-Aided Design Group, Marina del Rey, Calif.

47 Graphics conversion program
Envision It is a "raster to vector" conversion program for scanned or bit-mapped images. The program is compatible with many CAD programs, and can be used on 250 types of printers or 80 types of plotters. It recognizes lines, curves, circles, and arcs, and allows for control of line thickness. Price: \$399. Envisions Solutions Technologies, Inc., Burlingame, Calif.

48 Modeling program
Intended for IBM-type computers, DynaPerspective provides 3-D modeling, design, and presentation. It uses simple drawing primitives such as polygons, cylinders, walls, and stairs, which allow for rapid design creation. Dynaware USA, Inc., Foster City, Calif.

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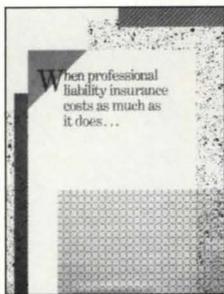
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General Data

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49 Professional liability insurance

A six-page brochure provides highlights of this firm's insurance policies for architects and engineers. The services include education and premium-reduction opportunities, loss prevention information, and claims handling. DPIC Companies, Inc., Monterey, Calif.



55 Energy conservation advice

The National Appropriate Technology Assistance Service is a federally contracted agency that provides free advice on renewable energy and conservation. A flyer gives an overview of the agency services and a toll-free number (800/428-2525; 800/428-1718 in Montana) for making requests. National Appropriate Technology Assistance Service, Butte, Mont.



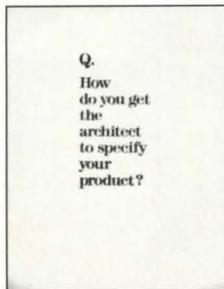
50 Drafting supplies

The 25th-anniversary issue of this catalog offers a complete selection of brand-name drafting, printing and plotting supplies. Totalling 65 pages, the catalog has black and white illustrations, product specifications, and price lists. Dataprint Corp., San Mateo, Calif.



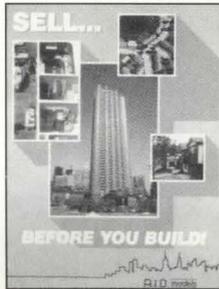
56 Drafting furniture

A nationwide distributor of graphics-arts equipment offers a 40-page catalog with plotter and media supplies, technical instruments, drafting furniture and work stations, specialized files, and other items. Prices are listed for each product. GS Direct, Inc., Bloomington, Minn.



51 Specifications-writing program

A pamphlet outlines the features of a programming service, called Pro*Spec, whereby a manufacturer's product line is encoded to be used by an architect when drawing up a spec list. The software is compatible with SweetSpec, a specification system distributed by McGraw-Hill. Heery International, Inc., Atlanta.



57 Architectural models

An eight-page, full-color brochure illustrates the creative possibilities of models provided by this firm. Custom-crafted models, constructed to exact scale, can be built, with details as small as kitchen appliances. Manufacturing methods include metalworking, urethanes, resins, and injection molding. A.I.D. Models, Inc., Washington, N. J.



52 CAD-enhancement software

A pamphlet introduces version 3.5 of Geocad, intended to enhance AutoCAD in both IBM and Apple versions. It consists of a design element library, pre-programmed drafting and design procedures, and a laminated tablet menu with commonly used AutoCAD commands. Overall, the program is meant to ease drafting processes. Geocad, Inc., Pound Ridge, N. Y.



58 Drafting supplies

This 24-page catalog provides color illustrations of a wide range of supplies for drafting and designing. Tables, tools, paper, measuring, lettering, and cutting devices are among the products listed. Books on design, computer training, and health hazards are included. All items have prices listed. Charette, Woburn, Mass.



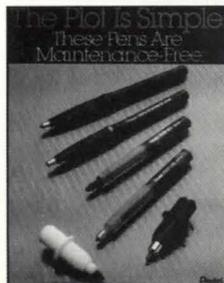
53 Plotter supplies

A 48-page catalog includes a complete range of proprietary plotter media, from bonds and vellums to polyester films and custom-printed formats. One featured new product, an ultra-translucent bond, plots on both sides. Plotter pens, inks, and adaptors are also shown. Teledyne Post, Des Plaines, Ill.



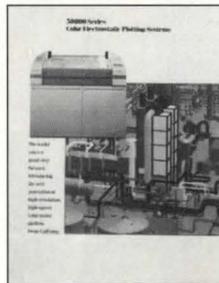
59 Computer file server

Designed to be the heart of a network or high-performance graphics-computing application, the XD88/700 RISC-based server supports up to four 88100 processors. Proprietary visualization software is tailored to the unit, which can run several standard protocols. A data sheet provides general details. Tektronix Inc., Wilsonville, Ore.



54 Ceramic-tip plotter pen

An illustrated brochure introduces the CXP, described as a maintenance-free plotter pen with a ceramic tip harder than stainless steel. Other features include a temperature- and atmospheric pressure-sensitive ink regulator system, and a clog-resistant capillary feed. Pentel of America, Ltd., Torrance, Calif.



60 Color plotter

Large-format electrostatic plotters in the 58000 Series are described in a brochure as the "next generation" of large-format, high-resolution color systems. Electrostatic technology is explained, stressing the importance of color and registration capabilities and ergonomic features. CalComp, Anaheim, Calif.

Sitework

Earthwork
Fences & gates
Footbridges
Geotextiles/geogrids
Paving & surfacing
Retaining walls
Site furnishings
Site utilities

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61



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62



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63



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61 Park bench

The Avenida two-seat bench is made of 1 1/2-in. tubular steel, with a 1/16-in. perforated-steel seat and back; welds are reinforced at critical joints. Finished with a sintered synthetic coating. Comes with or without arms. Supplied with nylon glides and end-caps on mobile base. Kroin Inc., Cambridge, Mass.

62 Settee

A settee designed by landscape architect M. Paul Friedberg combines sand-cast iron stanchions with handcrafted wood seating. Available in several domestic and imported woods and a wide selection of frame finishes. Coordinating planters and litter holders. WoodForm, Portland, Ore.

63 Foundation systems

Steel foundations for light poles, signs, grade beams, retaining walls, and all types of structures are hydraulically placed and exploit the shear strength of soil to act as part of the anchoring system. May be installed in less than one hour by a crew of two. Foundations & Anchors, Inc., Bridgeville, Pa.

64 Planters and receptacles

The Avenue Series of planters, ash urns, and litter receptacles is suitable for interior and exterior use. Made of fiberglass, they have a concrete- or granite-like finish, as well as standard gloss or matte colors. From 34-in. dia by 29-in. high to 72-in. dia by 42 in. high. KI, Green Bay, Wis.

65 Café furniture

Café Site tables for indoor malls, restaurants, snack areas, or atriums have wafer-thin tops of durable, high-pressure-laminate composite. Round, square, and rectangular shapes are made in a variety of smooth and textured colors. All come with contrasting black edge. Forms + Surfaces, Santa Barbara, Calif.

66 Site furniture

The Deerfield series of concrete site accessories includes a waste container equipped with an aluminum funnel top; a bollard; a cigarette snuffer with drain screen and sand; light pole; and a planter that accepts a Form Products reservoir. Various sizes and weights are produced. Wausau Tile, Wausau, Wis.



67



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67 Retaining-wall system

High-strength, high-density concrete modules are assembled to make a mortarless retaining wall as high as 20 ft. The 60-lb hollow-core units are held in place by glass-filled nylon clips. They create a 3/4-in. setback per course. Curves to 4-ft radius. Stonewall Landscape Systems, Inc., Milwaukee.

68 Custom-curved benches

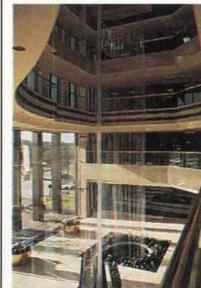
Wooden benches to fit the curves of sidewalks, planters, garden plots, walls. Made of clear, all-heart California redwood, as well as five other woods. Sealer/preservative is applied to the wood. Bronzitone enamel coating on pedestals and brackets. Sitecraft, Inc., Long Island City, N. Y.

69 Park furniture

TimberForm Manor Estate Furniture is styled after traditional American garden seating. But this series of benches, seats, tables, and accompanying accessories is made of color-coated steel instead of wood, and can withstand the wear of public use. Columbia Cascade Co., Portland, Ore.



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72

70 Mackintosh settee

Designed in the style of Charles Rennie Mackintosh, this settee is made of teak, a handsome hardwood that performs well for decades in any climate. Constructed with peg-and-mortise joinery. Its 48-in. linear back extends below the seat toward the floor. Country Casual, Germantown, Md.

71 Water feature

Rain Curtains for malls and lobbies look like sheets of falling water, and can be built to heights of 50 ft in a wide variety of shapes. Single- and double-strand units available, enhanced by submersible lighting. Low water-flow reduces pump horsepower needs. Roman Fountains, Albuquerque, N. M.

72 Skate-board security

From a manufacturer of bicycle and motorcycle security devices: a skate-board rack. Free-standing or wall-mount, vandal-proof galvanized-steel racks and locking hasps accept all standard padlocks. No exposed fasteners; powder-coat colors are optional. Rally Racks, Div. Rally Enterprises, Inc., Santa Rosa, Calif.

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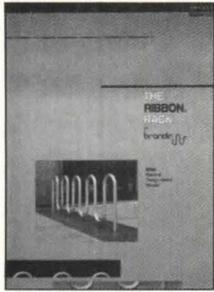
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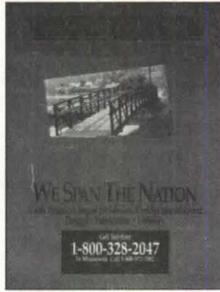
Sitework

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73 Bicycle rack

Illustrations and specifications on a bicycle rack made of undulating, 2 3/8-in.-dia galvanized tubular steel that enhances its setting and provides maximum security. Models will accommodate 4, 5, 7, 9, or 11 bicycles. Installed by inground anchor mount or surface flange mount. A A A Ribbon Rack Co., New York City.



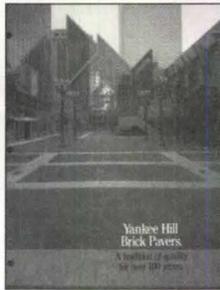
79 Prefabricated bridges

Details of the make-up of custom prefabricated steel bridges, small and large. Small bridges are delivered finished and ready for mounting on abutments. Larger bridges are delivered in sections to be spliced on site. Made of self-weathering steel or painted ASTM A500 steel. Eight pages. Continental Bridge, Alexandria, Minn.



74 Man-made rocks and boulders

Brochure describes the work of Ken Macaire in designing and creating rocks and boulders in shapes and colors appropriate to constructed waterscapes. Rocks are designed individually to be geologically and regionally accurate. Monolithic structures give the rocks strength and stability. Macaire, Pacific Palisades, Calif.



80 Brick pavers

For streets, sidewalks, malls, parks, lobbies, the brick paver adds variety and durability to surfaces. Compressive strength of 14,000 psi, resistant to freeze/thaw cycles. Seven colors. In modular 3 5/8 by 7 5/8 in. or standard 4 by 8 in. Heights of 1 1/4, 1 1/2, and 2 1/4 in. Yankee Hill Brick Manufacturing Co., Lincoln, Neb.



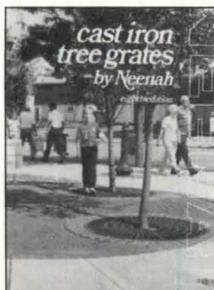
75 Outdoor furniture

Four-page folder pictures and describes a line of benches, tables, chairs, receptacles, planters, lighting, and clocks. Benches are made of cast iron, cast aluminum, fabricated steel, or fabricated aluminum, with Philippine mahogany and other hardwoods. Lengths of 4-, 5-, 6-, 8-, and 10-ft. Bench Manufacturing Co., Concord, Mass.



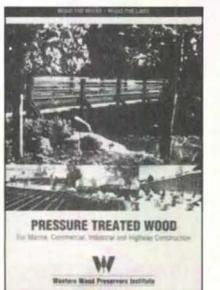
81 Clocks

A diverse collection of custom-built clocks in public and private installations around the country illustrated in a four-page, four-color folder. Designs include antique or modern faces for indoor and outdoor clocks for towers, walls, posts, and pendant. Electric Time Co., Inc., Medfield, Mass.



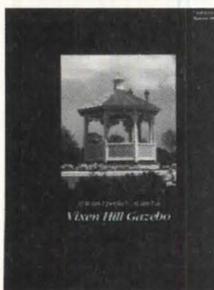
76 Tree grates

A 38-page brochure shows a wide variety of patterns for cast-iron tree grates, including squares, rectangles, rounds, and square-round combinations, plus pentagons, hexagons, and octagons. Different grates accommodate lighting, custom medallions, or nonskid surfaces. Neenah Foundry Co., Neenah, Wis.



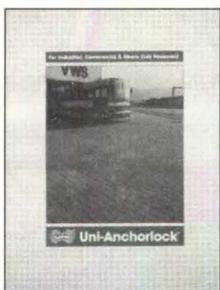
82 Pressure treated wood

Pressure Treated Wood for Marine, Commercial, Industrial and Highway Construction explains the characteristics of preservative- and fire retardant-treated wood, and illustrates wood applications. Includes design requirements and information on wood preservatives, field treatment, and selection of treated wood. Western Wood Preservers Institute, Seattle.



77 Gazebo

The Model VK-15B gazebo, a Victorian style designed for modular assembly on site with unskilled labor, is made with kiln-dried Western red cedar. The 15-ft.-dia shelter can be assembled in under 20 man-hours with stainless steel and solid brass hardware. Prewired for 110 volts. Vixen Hill Manufacturing Co., Elverson, Pa.



83 Concrete pavers

Uni-Anchorlock concrete paving stone was designed for industrial and heavy-duty application. The L-shaped configuration of the paver acts as an anchor, preventing twisting, tipping, or lateral movement under stress. Heights of 2 3/8 and 3 1/8 in. Approximately 2.41 pieces needed per sq ft. Uni-Group U. S. A., Palm Beach Gardens, Fla.



78 Retaining walls

Design Methodology for Miragrid Reinforced Soil Retaining Walls is a 120-page manual accompanied by IBM-compatible software. It explains the essential design elements of geotextile retaining-wall construction, including external and internal stability analyses, soil parameters, and drainage parameters. \$50. Mirafi, Inc., Charlotte, N. C.



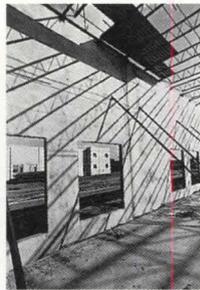
84 Retaining wall systems

A new eight-page technical brochure contains product information and photography on interlocking-block retaining wall systems. Product profiles, design criteria, installation and specification guidelines, and soil-stabilization criteria. Keystone Retaining Wall Systems, Edina, Minn.

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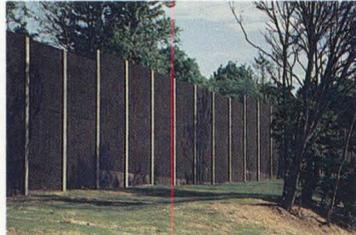
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85 Architectural concrete

Bomanite's Concrete Graphics program permits designers' total design authority by varying the orientation of the graphics tools used to create paving patterns. If the desired pattern is not in the Bomanite line, the corporation will create a custom form. Bomanite Corp., Palo Alto, Calif.

86 Brick gasket liner

Elastomeric gasket liners attached to precast concrete panels accept brick tile, pavers, splits, thin brick, and ceramic tile to form facade panels. Gasket holds onto brick tiles and has the appearance of mortar joints. Designed for rapid assembly. The Scott System, Inc., Denver.

87 Concrete coloring

Lithochrome Color Hardener, a permanent, nonfading, dry-shake material that produces a hard, abrasion-resistant surface for concrete slabs, has added eight colors to its 16-color line. Designed for plazas, entries, commercial floors, walks, and drives. L. M. Scofield Company, Los Angeles.

88 Software for tilt-up

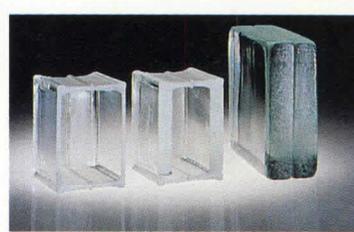
The TILT program for personal computers aids in analysis of tilt-up concrete load-bearing walls. Design and investigation modes calculate or verify reinforcing requirements on the basis of building geometry, loading criteria, and mix strength. Portland Cement Association, Skokie, Ill.

89 Form-release agent

The water-based Crete-Lease 20-VOC release agent provides a clean release for concrete forms and form liners and a blemish-free architectural surface. Produces a virtually bughole-free surface. Biodegradable and noncarcinogenic. Cresset Chemical Company, Weston, Ohio.

90 Architectural stain

Cementrate stain for unpainted concrete, concrete block, and masonry revitalizes the existing color of brick and other porous vertical surfaces. Pigment and water repellent protection are carried deep into the surface of concrete. Both standard and custom colors are offered. Fosroc Inc., Plainview, N. Y.



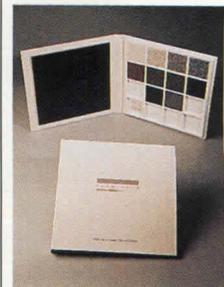
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91 Security glass block

A thicker clear-glass block in the Vue pattern is 6- by 6- by 3 7/8-in., with 3/4-in. transparent faces for security. Variations that also permit visibility are blocks with 1/4-in. faces and 3-in. solid glass block units. Pittsburgh Corning Corp., Pittsburgh.

92 Lapis lazuli

Lapis lazuli, the stone of jewelry and artifacts, is now available in tile form for architectural and decorative use, either as 4- by 4- by 3/8-in. solid tile or 6- by 6- by 3/8-in. bonded tile. High abrasion resistance and compressive strength. Innovative Marble and Tile, Inc., Farmingdale, N. Y.

93 Granite tile

Tiles manufactured with extreme dimensional accuracy from domestic and foreign granites come in a broad color range. Standard tile size is 12- by 12-in., with a 3/8-in. thickness for polished and honed finishes, and 1/2-in. for thermal finish. American Granite Tile, Inc., Elberton, Ga.

94 Masonry wall units

Spectra Glaze factory-glazed concrete-masonry wall units now include facing sizes that enable designers and builders to install 64 faces in a single step, from 16- by 16-in. to 2- by 2-in. Eighty standard colors. Chemical-resistant finishes. The Burns & Russell Company, Baltimore.

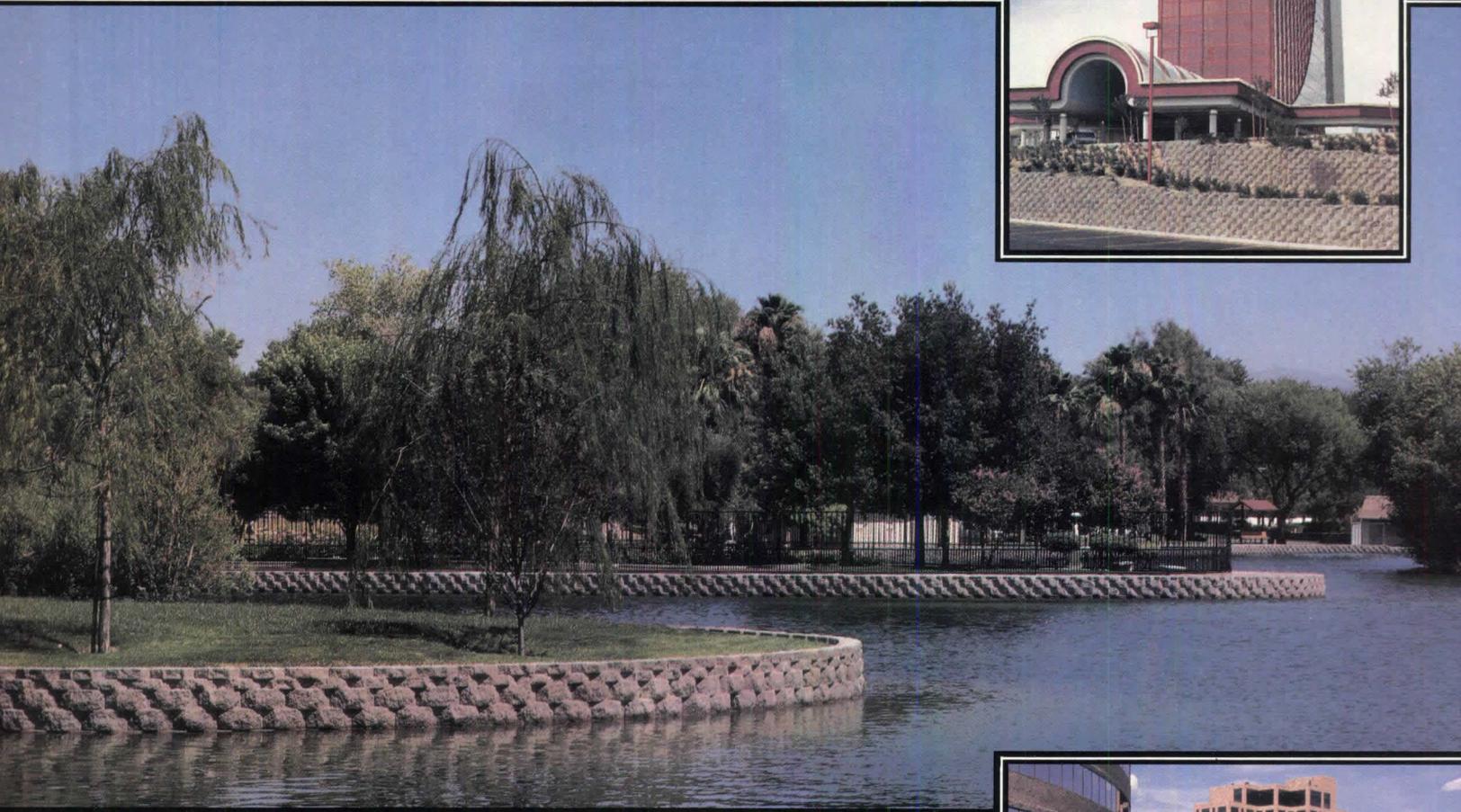
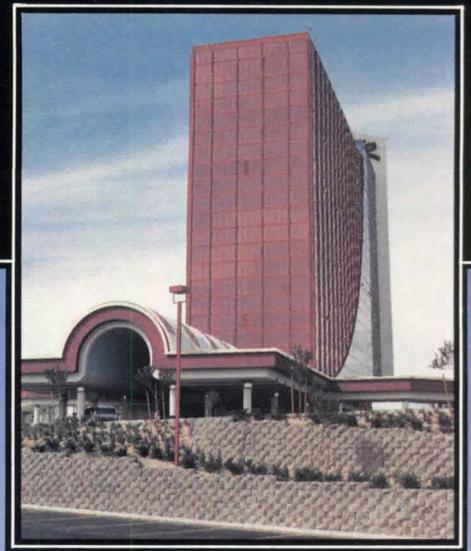
95 Cast-granite panels

Sample sets of Granitech composite granite panels, including a 1/8-in. veneer, are available. Material comes in eight colors and three finishes—polished, honed, and textured. Applications include fireplace and window surrounds, floors, and countertops. The Granitech Corporation, Fairfield, Iowa.

96 Decorative stonework

Haddonstone is a British-made reconstructed limestone with a surface texture resembling Portland stone, cast into garden ornaments and architectural elements in custom and classic designs. Produced in Portland, Bath, Cotswold, and terra cotta finishes. Haddonstone, Philadelphia.

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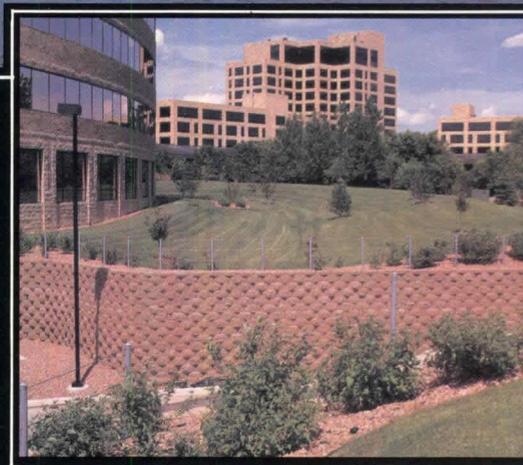
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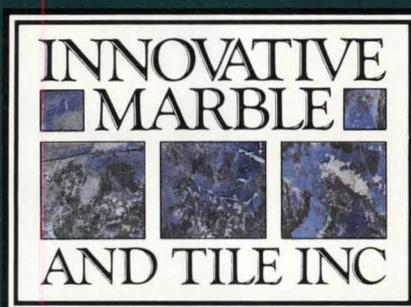
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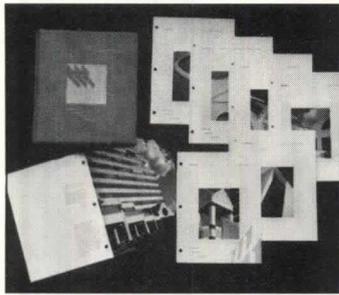


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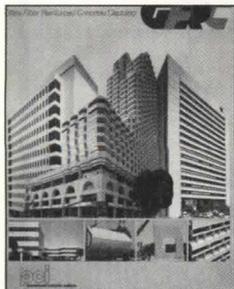
97 White Portland cement

Seven color brochures detail architectural applications and technical specifications for white cement. Line includes cement type I, high-early-strength cement type III, waterproofed cement, and types N, M, and S white masonry cement. Lehigh Portland Cement Co., Allentown, Pa.



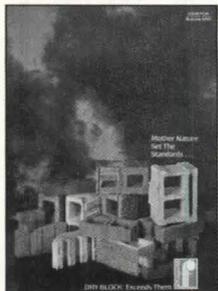
98 Masonry cleaning

Cleaners for new masonry construction described, including Sure Klean 600 detergent, a general-purpose cleaner; Vana Trol to control metallic stains; and Sure Klean 101 lime solvent to remove excess mortar and job dirt. Whitescum remover handles insoluble salt residue. Six pages. ProSoCo Inc., Kansas City, Kan.



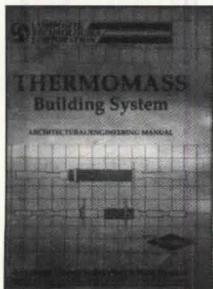
99 Glass-fiber-reinforced concrete

GFRC, a portland cement-based composite reinforced with glass fibers, produces strong but lightweight architectural cladding panels. An illustrated brochure describes many possible finishes, colors, and shapes. Prestressed Concrete Institute, Chicago.



100 Waterproof concrete block

Dry-Block, a system of liquid polymeric admixtures, is designed for use in concrete during block manufacture and as an admixture in mortar preparation. As concrete dries, polymers cross-link, becoming permanently locked for long-lasting resistance to water penetration. Forrer Industries, Div. of W. R. Grace & Co., Milwaukee.



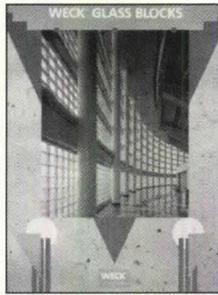
101 Sandwich walls

The Thermomass Building System uses two concrete panels with a Styrofoam panel between. Layers are linked with fiber-composite connectors, to produce a wall with high thermal efficiency. Brochure explains applications in precast, prestressed, and tilt-up construction. Composite Technologies Corp., Ames, Iowa.



102 Reinforced concrete

The Manual of Standard Practice describes generally accepted methods for estimating, detailing, fabricating, and placing reinforcing bars in reinforced concrete construction. Illustrations include 36 domestic rebar markings. Eighty-four pages. Concrete Reinforcing Steel Institute, Schaumburg, Ill.



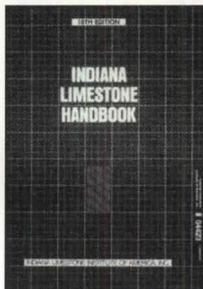
103 Finished-edge glass blocks

The 1991 12-page catalog introduces the WeckEnd glass block in the Clarity and Nubio-patterns. Gently rounded 90-deg corners and smooth, perpendicular faces provide a graceful ending to a block wall. Large line of blocks described. WECK Glass Blocks, Glashaus, Inc., Darlington Heights, Ill.



104 Structural tile

Structural-glazed facing tile and the Millennium line are products for interior and exterior use in schools and recreation facilities. They are described in the brochure *Discover How Tough Beauty Can Be*. Products come in designer colors, are easy to maintain, and are virtually indestructible. Stark Ceramics, Inc., Canton, Ohio.



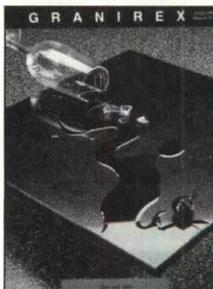
105 Limestone

The 18th edition of the 116-page *Indiana Limestone Handbook* details the history and properties of Indiana limestone, recommended standards and practices for its use, its applications as building elements, and a color portfolio of projects by leading architects. Indiana Limestone Institute of America, Inc., Bedford, Ind.



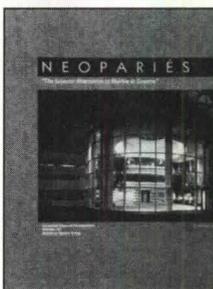
106 Bricks

A four-color catalog illustrates a universe of bricks: wire-cut, machine molded, authentic handmade, glazed and industrial face brick, brick paving units, and a complete assortment of brick shapes and shape systems to achieve interesting design detail. Wide variety of textures and sizes available. Glen-Gery Corp., Wyomissing, Pa.



107 Tiles and slabs

Manufactured marble and quartzite Bretonstone tiles and slabs for interior and exterior flooring and cladding application resist wear, acids, and scratching. Tiles come in standard sizes from 12 by 12 by 3/8 in. to 24 by 24 by 1/2 in. Maximum slab is 4 by 10 ft in 3/4 and 1 1/4 in. thickness. Granirex, Inc., Thetford Mines, Quebec, Canada.



108 Wall cladding

Neoparies is a glass-cladding material produced by a process that forms needle-shaped crystals within the glass matrix. It is impervious to acids and alkalis, freeze-thaw cycles, and acid rain. Can be produced thinner than marble, granite, and other natural stones, reducing spandrel weight. N. E. G. America, Inc., Des Plaines, Ill.

Metals

Metal finishes
 Architectural metalwork
 Expansion control
 Fasteners & supports
 Gratings
 Metal stairs
 Perforated metal
 Railings & handrails

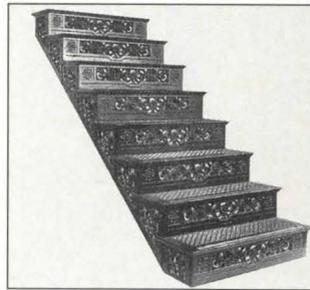
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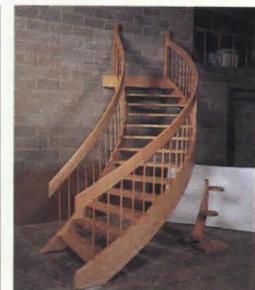
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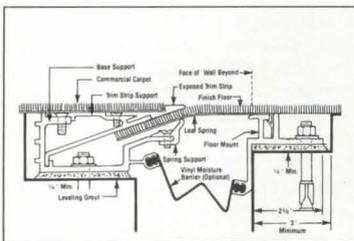
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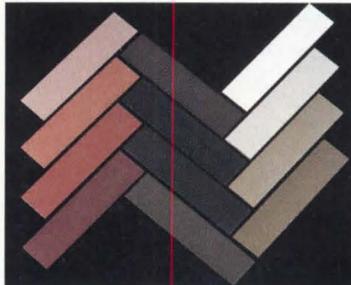
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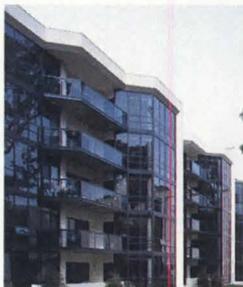
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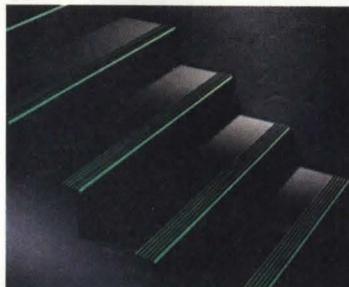
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109 Architectural railings
 Custom-designed handrails are fabricated in bronze, stainless steel, and aluminum. Each corner and joint continuously welded by hand for a consistent seam; metal surfaces are finished by grinding, sanding, and buffing. Rail pictured designed by Lorenz & Williams, architects. Wausau Specialty Products, Wausau, Wis.

110 Interior expansion joint
 Where an expansion joint must be installed but not necessarily seen, the Allure joint has only about a 1/2-in. visible strip. In 1-, 2-, 4-, and 6-in. sizes. Installed with snap-lock spring. Integrates with standard jute-backed 1/4-in.-thick commercial carpeting. Watson Bowman Acme Corp., Amherst, N. Y.

111 Metal-clad wood moldings
 Architectural trim elements are covered with metal, but can be handled and installed like wood with standard tools. Can be applied with contact cement and most adhesives to any substrate. A variety of finishes and shapes are available. Outwater Plastic/Industries, Inc., Wood Ridge, N. J.

112 Decorative metal panels
 Custom-designed facing panels for elevators, doors, walls, furniture, any application. Patterns achieved by engraving, embossing, sandblasting, handbrushing, perforating, and electroplating, depending on design effect desired and the metal selected. Surface Design and Technology, Inc., Hialeah, Fla.

113 Anodized aluminum
 A new range of colored anodized aluminum includes shades of rose, copper, redwood, burgundy, and deep burgundy. These reddish colors are achieved through addition of a copper-salt bath to the company's two-step anodizing process. Standard bronze, black, champagne, and silver anodized finishes are still available. Anogee, Wausau, Wis.

114 Balcony railings
 The Sentinel System railing line uses advanced assembly, coating, and safety-engineering techniques; all rail designs meet BOCA codes. More than 50 different aluminum railing configurations are available from stock dies. Custom engineered components meet design requirements precisely. Robern, Inc., Bensalem, Pa.

115 Cast-iron entrance stairs
 For front entrances, porch steps, and patio exits, the 36-in.-wide Kensington cast-iron straight staircase offers rugged, low-maintenance construction in an intricate Victorian pattern. Components bolt together; longer rises mount on steel channels. Resistant to weather and salt spray. Steptoe & Wife Antiques, Ltd., Toronto.

116 Profiled metal
 A new Curved Architectural Panel System forms metal into a wide range of shapes such as this entrance element, assembled from curved Super Rib panels. Other profiles are Econolap 1/2-in., Hi-Rib, and Box-Rib, in G-90 galvanized steel. Finishes include Corrtan multi-mil protected metal coatings, silicone polyester, and fluorofinish. Steelite, Inc., Pittsburgh.

117 Stair nosings
 Saf-T-Glo finish for ribbed treads on all stair nosings is self-illuminating, rather than reflective or electrical. Recharges in natural and artificial light. Ideal for locations experiencing temporary darkness, theaters, concert halls, emergency stairs. Choice of colors. Balco, Inc., Wichita, Kan.

118 90-degree staircase
 Just introduced, this wooden spiral stair takes only a quarter turn. In red oak or mahogany, the staircase has an 18-ft diameter. Sizes range from a floor-to-floor height of 90- to 96-in. with 12 risers to 120- to 128-in. with 16 risers. York Spiral Stair, North Vassalboro, Me.

119 Shot-peened metal
 A nondirectional texture, Peentex achieves a decorative and durable finish by bombarding metal panels with steel shot (spherical steel particles). The result is a dimpled finish resembling an orange skin. The process stresses the subsurface metal, which can increase part life and harden metal surfaces. Metal Improvements Co., Inc., Paramus, N. J.

120 Curved metal panels
 Line of curved panels expanded to 22 architectural and structural profiles from 3/4- to 4-in. deep. Metals include galvanized steel, stainless steel, and aluminum, in more than 35 standard colors. For contoured roofs and walls, fascias, mansards, canopies, decking. Curveline, Inc., Ontario, Calif.

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121 Architectural aluminum
Anodized finishes, fluorocarbon coatings, and acrylic-enamel paints are among coatings for architectural aluminum that defy weathering, ultraviolet deterioration, and corrosion. A wide variety of colors and dimensions are available for flat sheet, coil-coated, and extruded metal. Eight pages. Southern Aluminum Finishing, Atlanta.



127 Handrails
A low-cost hollow-aluminum handrail system is designed for on-site fabrication with simple hand tools. Exceeds OSHA standards. All fasteners are stainless steel. Appropriate for processing, manufacturing, and waste- or water-treatment plants. Four pages. J. G. Braun Company, Skokie, Ill.



122 Steel joists
The 1990 Catalogue of Specifications and Load Tables lists criteria for using K-Series joists and 16 floor and roof assemblies with specific UL designations, and introduces new specifications for long-span joists, deep long-span joists, and joist girders. Steel Joist Institute, Myrtle Beach, S. C.



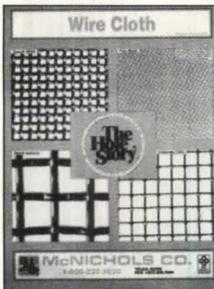
128 Steel framing systems
Heavily illustrated 48-page catalog on a proprietary steel framing system carries section properties, allowable axial loads, limiting heights, allowable spans, details, and other information needed by architects and engineers for curtainwall and load-bearing framing systems. Unimast Inc. Fremont, Ohio.



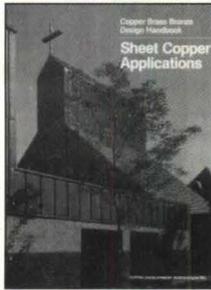
123 Space frames
A 16-page, full-color booklet of structural answers looking for building problems to solve. Space frames in spans from 25 to 700 ft for covering 200 sq ft to tens of thousands of sq ft. Convention centers, atriums, pyramids, pedestrian bridges, truss structures, and barrel vaults are pictured. Mero Structures, Inc., Germantown, Wis.



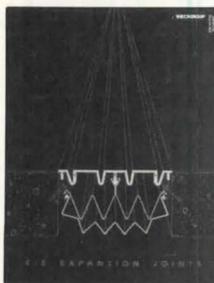
129 Nylon handrails
Solid nylon, colored uniformly throughout, covers a stainless-steel core to form handrails that are sturdy, hygienic, and easily maintained. Components are joined by internal steel bolts. Class One fire rating. Produced in 13 colors. Broad fixture line. HEWI, Inc., Lancaster, Pa.



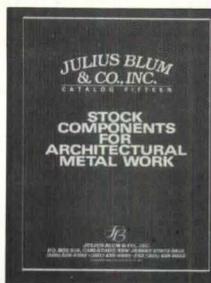
124 Wire cloth
Illustrations, dimension tables, load tables, applications, and product specifications for an extensive list of wire cloth, screens, and mesh in steel, aluminum, galvanized, brass, monel, iconel, and copper. All are available for 24-hour shipment. 18 pages. McNichols Company, Tampa, Fla.



130 Sheet copper
The Copper/Bronze/Brass Design Handbook is a 58-page, informatively illustrated study of properties, uses, and specifications for copper alloys. Half the handbook details examples of copper application by architectural masters. Copper Development Association Inc., Greenwich, Conn.



125 Expansion-joint covers
Expansion-joint covers designed to solve virtually every type of building-movement requirement. Designs from 1- to 14-in.-wide, for interior and exterior use, are shown. Conventional metal joint covers, fire-rated designs, elastomeric systems, seismic designs are covered. Conspec Systems, Inc., Cranford, N. J.



131 Architectural metal work
Stock components for architectural metal are illustrated and detailed in this 132-page catalog. Railings and railing systems, moldings and fittings, treillage and ornaments, elevator cab components, handrail brackets, expansion joints, and tubing, bars, and shapes. Julius Blum & Co., Inc., Carlstadt, N. J.



126 Steel floor and roof deck
Eighty-four pages with illustrations and tables of specifications and commentaries for design of composite steel and concrete floor decks, conform (noncomposite) floor decks, and steel roof decks. Details of diaphragm shear strength and stiffness are included. Nucor Corporation, Charlotte, N. C.

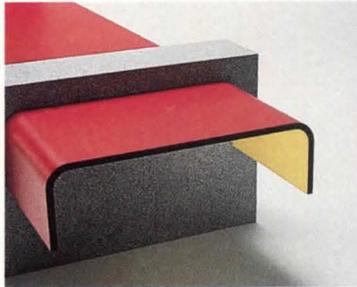


132 Decorative metal strips
Metal surfacing material comes in metal alloys, high-pressure laminates, anodized aluminum, and oxidized finishes. All finishes are available in standard strip sizes: 3/4-, 1-, 1 1/2-, 2-, 3-, 4-, 6-, 12-in., and in lengths of 96 and 120 in. Cut-to-size pieces may be ordered. Chemetal Corporation, Stratford, Conn.

Wood & Plastics

Architectural woodwork
Connectors & supports
Lumber
Plastic fabrications
Plastic laminates
Prefabricated structural plastics
Prefabricated structural wood
Wood treatment

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133



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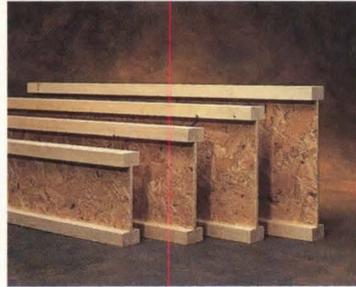
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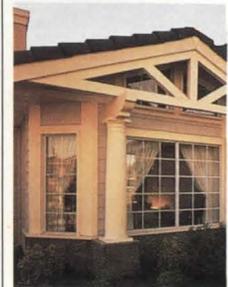
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133 Structural laminate
Wilsonart formed structural laminate combines a decorative surface and a phenolic substrate in a thick panel preformed to specification. For store fixtures, vanities, seating, toilet partitions, counters, 200 patterns and colors. High tensile strength. Ralph Wilson Plastics Co., Inc., Temple, Tex.

134 Custom-design laminate
The SpecFX program translates the designs of commercial-interior designers into plastic laminates used for table tops, wall coverings, furniture, menu boards, and signage. Pictured is custom-patterned chicken footprints for California Chicken restaurants. Pioneer Plastics Corp., Auburn, Maine.

135 Interior cladding
Designed for furniture, doors, architectural elements, interior design, and displays, Europlex is a 1/8-in.-thick acrylic sheet produced in solid colors, metallics, and such designs as granites, marbles, cobweb, and crystal. Sheets are 4- by 8-ft. Fifty designs. Clear-Core, Inc., Greensboro, N. C.

136 Decorative surfacing
Grafix, a new laminate collection, is derived from the overlaying of a minute stippled pattern on a solid color background. Available in beige, deep brown, deep green, dark gray, light gray, medium gray, rose, and light teal. Standard finish is matte. Formica Corp., Wayne, N. J.

137 Fiberglass elements
Molded fiberglass-reinforced polyester can be produced in almost any shape and color that a designer can conceive. Wide range of colors and textures. Products are lightweight, but strong and durable. Replications of masonry a specialty. Molded Fiber Glass, Union City, Pa.

138 I joists
Composite I joists, made with Inner-Seal OSB webs and stress-rated lumber flanges, have more load-bearing capacity than sawn lumber. For cantilever beams in balconies, cathedral ceilings, high-pitched roof framing, and conventional framing, joists come in lengths to 64 ft. Louisiana-Pacific, Portland, Ore.

139 Wood stain
O. V. T. is a solid-color acrylic stain in 15 colors for siding, shingles, shakes, and trim. Water-based stain is easy to apply, mildew-resistant, and water-repellent, and will protect wood from warping and checking. Usable over previously painted or stained surfaces. Samuel Cabot, Inc., Newburyport, Mass.

140 Solid-surface material
A polymer composite that looks like stone and can be cut like wood, Avonite comes in five new colors: porcelain white, cameo white, Tuscany rose, crystal rose, and Sherwood green granite. Suited for architectural elements, countertops, fascias, furniture, and signage. Avonite, Los Angeles.

141 Laminated rafters
Framing members are composed of laminations of high-quality kiln lumber, permanently bonded under pressure with waterproof glue. Each piece is joined with a notched scarf joint to equalize strain and give uniform load strength over total length. Rigidply Rafters, Inc., Richland, Pa.

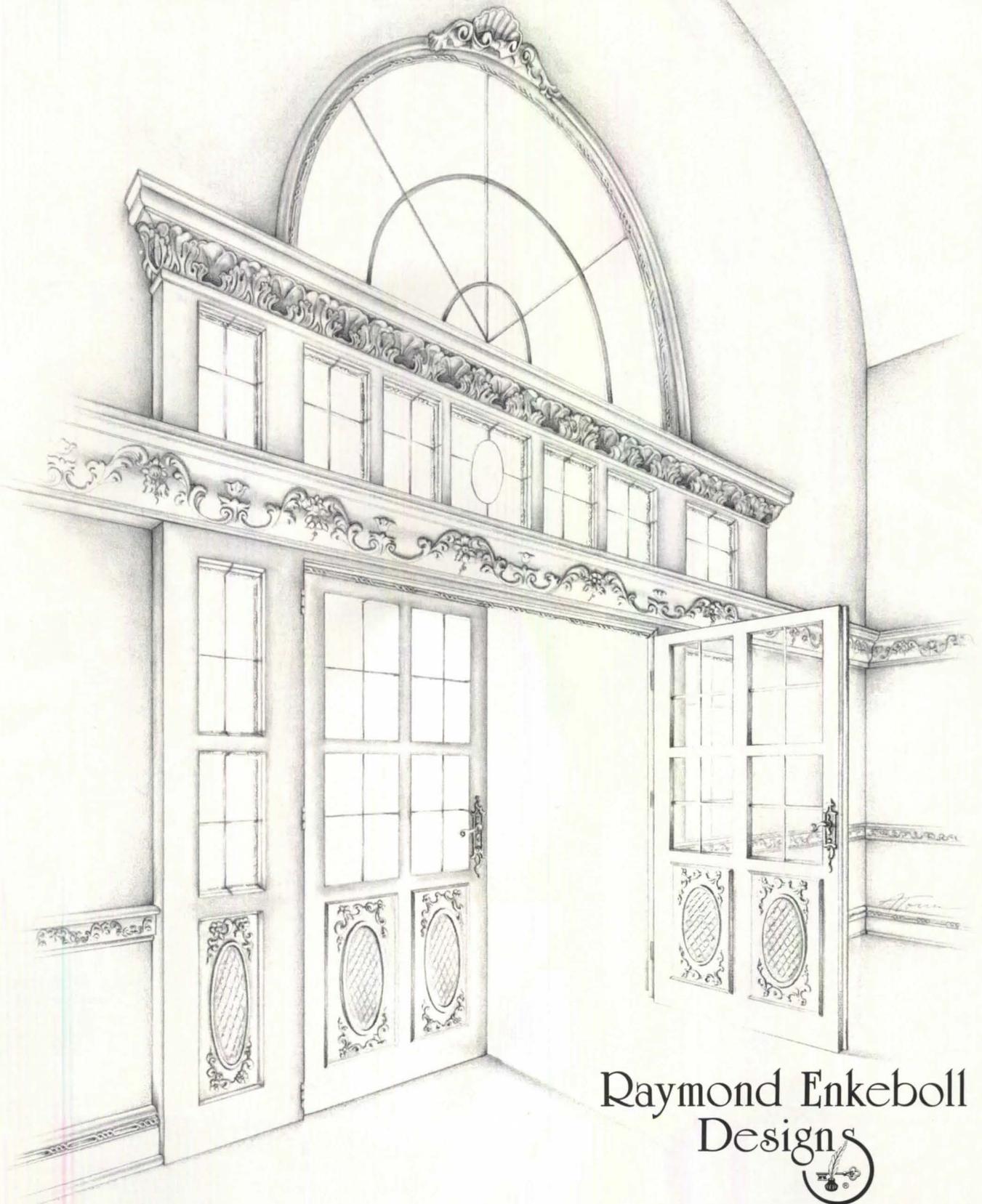
142 Redwood paneling
Paneling for ceilings and wainscoting shows the beauty of clear, flat grain. Redwood shrinks and swells less than other woods, so tongue-and-groove joints stay tighter. Panels are reversible, with an edge and center-bead on one side, and an edge and center-V on the other. Pacific Lumber Co., Mill Valley, Calif.

143 Decorative laminate
Among a new line of 64 decorative laminates is Verde Patina, a pattern resembling the finish of artifacts where the oxidation of bronze creates a naturally aged verdigris surface. The product is enhanced by a super matte finish to give it a weathered appearance. Nevamar Corp, Odenton, Md.

144 Structural columns
Classic columns made of Marbeleine—a mixture of marble chips, polymer resins, and fiberglass—have the look and feel of stone. Made in heights of from 8 to 16 ft, hollow columns are usable as conduits for wiring and plumbing. Weather- and termite-proof. Focal Point Inc., Atlanta.

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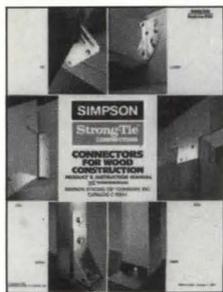
145 Particle board

Performance qualities of Duraflake FR are described in an architectural binder that carries information on specifications, composition, finishes, UL classification, and installation. Binder is designed for inclusion of subsequent information. Duraflake Div. of Willamette Industries, Inc., Albany, Ore.



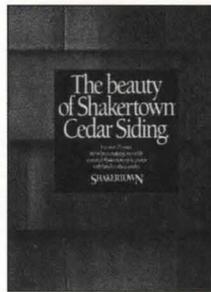
151 Redwood lumber

Redwood Lumber Grades and Uses, a four-page brochure, describes the various grades, properties, and applications of over 30 types of redwood lumber. Grains and textures are shown in color. Durable heartwood is resistant to decay and insect attack. California Redwood Association, Novato, Calif.



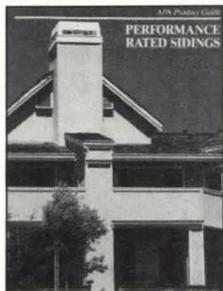
146 Construction connectors

The 60-page *Connectors for Wood Construction* includes updated specifications for the entire line, load charts, application drawings, and building code-acceptance information. Among the featured new products is the Deck-Tie concealed connector for wood decks. Simpson Strong-Tie Co., Inc., San Leandro, Calif.



152 Cedar siding

Natural-cedar shingles that can be applied in 8-ft panels are described in an eight-page brochure. Shingles available in hand-applied keyway look and tightly jointed contemporary look. Nine styles of fancy cuts. Exposures of 4 1/2, 7, or 14 in. Matching, rust-resistant nails included. Shakertown Corp., Winlock, Wash.



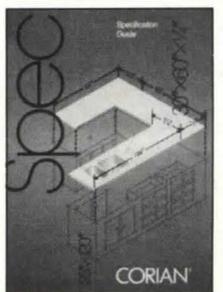
147 Plywood siding

The 24-page *APA Product Guide: Performance Rated Sidings* shows applications of APA 303 siding, performance-rated panel, and lap sidings, evaluated for exterior use. Specifications and finishing, maintenance, storage, and handling recommendations included. American Plywood Association, Tacoma, Wash.



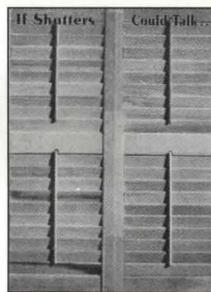
153 Ponderosa Pine

A colorful 12-page booklet illustrates many of the ways Ponderosa pine, a major Western species, can be used in home construction and building components. The wood's appearance and performance characteristics explained, with best uses suggested. Western Wood Products Association, Portland, Ore.



148 Solid-surface design software

A 5 1/4-in. floppy disk contains specification and design data for Corian solid-surface material. Disk has detailed drawings for mounting and edge treatments, sink styles, sheet thicknesses for specific colors. For MS-DOS operating systems. \$20. Du Pont Co., Corian Products, Wilmington, Del.



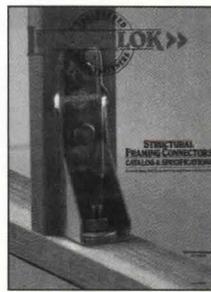
154 Wooden shutters

Custom wood shutters can match virtually any configuration, dimension, and louver size. Applications pictured range from Cape Cod cottages to Southern mansions. Made-to-order interior shutters available in a broad range of styles. American Heritage Shutters, Inc., Memphis.



149 Parallel-strand lumber

Load tables for floor and roof systems using Parallam 269 parallel-strand lumber show allowable loads for beams in pounds per linear foot. Clear spans run from 6 to 14 ft for floors and 6 to 30 ft for roofs, in thicknesses of 2 11/16, 3 1/2, and 5 1/4 in. MacMillan Bloedel Ltd., Annacis Island, B. C.



155 Structural framing connectors

A 50-page heavily illustrated catalog gives specifications and descriptions of a line of wood construction connectors that range from mud-sill anchor clips to roof truss clips. Hangers and connectors can be custom-made to specification. Lumberlok Engineered Metal Fasteners, Hayward, Calif.



150 Architectural ornamentation

Color catalog introduces a new line of American-dimensioned fireplace surrounds made of dense gypsum. Other items in plaster are crown moldings, ceiling medallions, and niches. Exterior canopies, door surrounds, balustrades, and columns of fiberglass-reinforced plastic. Aristocast Originals Inc., Smyrna, Ga.



156 Solid-surface material

Solidex, a tough polyester resin that is colored through, impervious to acids and alkalis, nonporous, and guaranteed for 12 years, is described in an eight-page booklet. Made in sheet stock, table rounds, edges, cove molding, and sink bowls. Guardsman Products, Inc., Grand Rapids, Mich.

Thermal & Moisture Protection

Cladding/siding
Composite building panels
Insulation
Roofing
Sealants & caulking
Shingles & roofing tiles
Unit skylights
Waterproofing & dampproofing

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157 Translucent building panels
Kal-Tint is a new line of optional colors for exterior facesheets: aqua, greenish blue, ice blue, and rose. Kalwall glazing systems are translucent fiberglass face sheets permanently bonded to an interlocked, extruded structural-aluminum grid core. Compatible with architectural glass. Kalwall Corp., Manchester, N. H.

158 Roofing shingles
Woodlands 25 mid-weight architectural shingles simulate the look of hand-split shakes. The heart of the shingles is a fiberglass mat for durability and fire resistance. Large ceramic-coated granules embedded in asphalt protect against fire, weather, and UV damage. Limited 25-year warranty. Manville Roofing Systems Division, Denver.

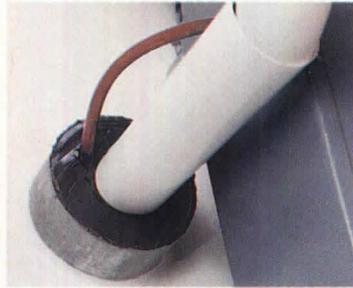
159 Reroofing system
The Techna System is a service that specifies ASC Pacific metal roofing products for special renovation applications. Design criteria based on existing structural system, dead and live loads, wind up-lift, and insulation requirements. Roof slopes of 1/4:12 to 3:12 can be accommodated. ASC Pacific, Inc., West Sacramento, Calif.



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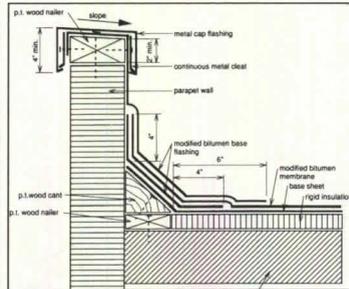


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160 Simulated-slate shingle
Heritage slate is an asbestos-free fiber-cement roofing shingle with naturalistic slate graining, colored in black, gray, or green with pigmented acrylic emulsion base coating. Slates measure 11 7/8 by 23 5/8 by 3/16 in. and will not burn, rot, delaminate, shrink, warp, or dry out. Supradur Manufacturing Corp., Rye, N. Y.

161 Waterproofing membrane
Bituthene System 4000, for waterproofing concrete and masonry structures above- and below-grade, consists of two elements, a waterproofing membrane and a surface conditioner. The water-based conditioner binds concrete efflorescence and enhances the adhesion of the self-stick, rubberized-asphalt membrane. W. R. Grace & Co., Cambridge, Mass.

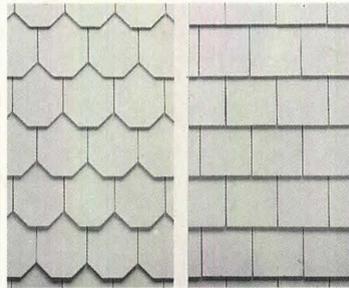
162 Firestop system
The PENSIL Through-Penetration firestop is a simple-to-install, two-part system: a mineral-wool forming material and a silicone sealant (or foam) filler. The UL-listed firestops create a complete, flexible fire- and smoke-seal that can absorb movement of pipes, wires, and ducts. GE Silicones, North Adams, Mass.



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163 Roofing-detail software
USICAD is a computer-assisted design package that provides roofing specifiers, architects, and engineers writing project manuals with a complete modified bitumen section, including detailed drawings in CSI format. USICAD can be downloaded from U. S. Intec to any computer system. U. S. Intec, Inc., Port Arthur, Tex.

164 Aluminum composite panels
Reynobond panels have a solid thermoplastic compound between two sheets of aluminum, and offer tight flatness tolerances and the ability to achieve complicated curve applications. Available in 25-ft lengths and 62-in. widths, which reduces number of joints. Construction Products Div., Reynolds Metals Co., Richmond, Va.

165 Exterior accessories
The Exterior Design system coordinates authentic-looking vinyl sidings with details such as window surrounds and corner posts. New accessory styles include decorative square and round shingles designed for gables and accent areas. Wolverine Technologies, Dearborn, Mich.



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166 Exterior finish system
Granstone finish is a spray-applied system formulated to simulate granite or stone. Can be used as a final coating for exterior insulation finish systems (EIFS) or applied directly over concrete, masonry, and portland cement scratch/brown surfaces. Twelve colors. Thoro System Products, Miami.

167 Roofing membrane
Geoflex PIB is a 100-mil white elastomeric polyisobutylene single-ply roofing system for reroofing or new construction. Adhered with hot asphalt or cold adhesives. Self-sealing side-lap welds to itself. Republic offers a CAD system to aid in specification and detail drawings for the system. Republic Powdered Metals, Inc., Medina, Ohio.

168 Simulated tile roofing
A steel roofing system that simulates clay tile weighs 1 lb per sq ft, one-tenth the weight of clay tile. Stile pattern shown comes in 1-meter width and 16-ft lengths and has steps at 12-in. intervals. Made of 26-gauge steel coated with a fluorocarbon paint. Five colors. Limited 20-year warranty. Metal Sales Manufacturing Corp., Louisville, Ky.

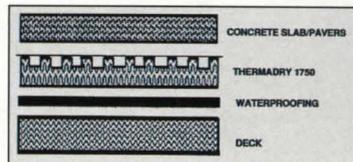
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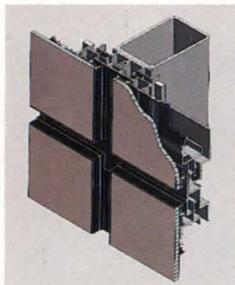
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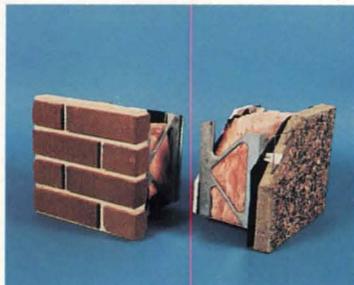
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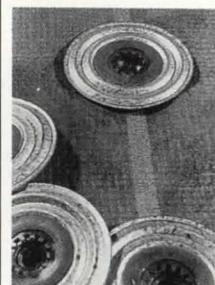
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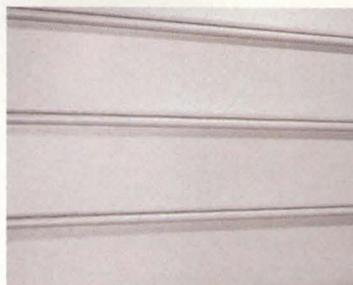
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169 Fluid-applied waterproofing
Ram-Tough 250 is a fluid, hot-applied rubberized asphalt membrane that forms a monolithic waterproof system. It adheres to almost any sound surface, horizontal or vertical. Water cannot get under or through it. It seals difficult flashing conditions and is said to remain flexible through its lifetime. Barrett Co., Wilmington.

170 Exterior wall system
Axiom 1 is a complete architectural wall based on a lightweight, all-aluminum composite panel. The system includes all the elements needed for fenestration, glazing, penetrations, corners, soffits, parapets, transitions, insulation, and structural support. Axiom 1 is acceptable where noncombustible cladding is required by code. H. H. Robertson Co., Pittsburgh.

171 Roofing membrane
New color choices are offered in Poly/4.5 granular APP modified bitumen membrane. The slate-flake finish is available in white, gray, terra cotta, tan, brown, black, green, burgundy, and desert blend. Also available in black granite, surfaced with slag particles for durability. Dibiten USA, South Gate, Calif.

172 Firestopping system
Fyre-Sil (gun grade) and Fyre-SilSL (self-leveling) silicones are low-modulus sealants designed for use in passive fire protection—penetrations and perimeters. They limit passage of flame, smoke, and water through fire-rated joints and a variety of cable and pipe penetrations. Tremco, Inc., Beachwood, Ohio.

173 Precast wall system
Slenderwall architectural building system panels are made with a 1 1/2- to 2 1/2-in.-thick precast-concrete exterior attached to lightweight steel studs that are 4, 6, or 8 in. deep. After panels are erected, wiring is installed, insulation is placed, and drywall is attached. Finish options include brick and exposed aggregates. Smith-Midland, Midland, Va.

174 Structural adhesive
A new one-part structural adhesive, 995 silicone is said to offer excellent adhesion to unprimed surfaces, including glass, reflective glass, aluminum, granite, and paints. It forms a durable, flexible, watertight bond that can be warranted for 20 years. Dow Corning Corp., Midland, Mich.

175 Insulating drainage panels
Styrofoam Thermadry insulating drainage panels are recommended for plaza deck construction. Concrete can be poured directly onto the fabric surface of the panels and still be adequately drained at the concrete/foam interface. Material is unaffected by freeze-thaw cycles. The Dow Chemical Co., Midland, Mich.

176 Low-profile ridge vent
Shinglevent II is a shingle-over ridge ventilation system that provides 18 sq in. of net free vent area. Molded of high-density polyethylene material, it comes in 4-ft sections for easy handling. Its rounded profile makes cap shingles nailed over the vent less likely to crack. Air Vent Inc., Peoria Heights, Ill.

177 Vinyl siding
Williamsport Colonial beaded vinyl siding was introduced to meet demand for Restoration-style siding. The 6 1/2-in. panels and coordinating accessories come in glacier white, Cape Cod gray, Mission beige, Monterey sand, Highland pebble, Windsor blue, and antique parchment. Siding carries a transferable lifetime warranty. Alsida, Akron.

178 Clay roof tile
Newly introduced for residential and commercial structures, Mediterranean Blue clay roofing tile is designed as a one-piece barrel tile, appropriate for either steep or low-pitched roofs. Made from Ohio shale and clays, these hard-fired tiles carry a 50-year limited warranty. Ludowici-Celadon, Inc., New Lexington, Ohio.

179 Backout-resistant fastener
The HP Locking Seam Plate is a 2-in.-dia steel fastening plate with Galvalume coating. A plastic plate in the center locks the plate and the HP fastener together. The Automatic Fastening Tool positions the plate and installs the fastener in a one-step process. Carlisle SynTec Systems, Carlisle, Pa.

180 Structural building panels
R-Control panels are monolithic structural building panels that can replace conventional framing for walls, floor, and roof. Adaptable to residential and light commercial construction. Oriented strand board skins enclose expanded polystyrene cores to achieve values of R-14 to R-44. AFM Corp., Excelsior, Minn.

Thermal & Moisture Protection *continued*

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181 Wall and roof panels
Insulated panels made with two layers of 26-gauge steel enclosing polyurethane foam insulation up to 6 in. thick facilitate the construction of temperature-controlled buildings such as warehouses and food-processing rooms. Panels pass the FM full-scale corner burn test. Aluma Shield Industries, Inc., Daytona Beach, Fla.

182 Pipe insulation
Snap-On pre-jacketed fiberglass pipe insulation is lightweight, flexible, and easy to apply. Installation requires only opening the hinge, placing the insulation over the pipe, and applying the self-sealing lap. Has a smooth finished appearance, and may be painted. Broad range of thicknesses and dimensions. CertainTeed Corp., Valley Forge, Pa.

183 Modified-bitumen roofing
Awaplan Premium FR modified-bitumen roll roofing system is now available for cold-process adhesive installation, which eliminates adhesion problems caused by poor heating of molten materials. Adaptable to most roof slopes, it may be applied at temperatures between 40 and 140 F. Tamko Asphalt Products, Inc., Joplin, Mo.



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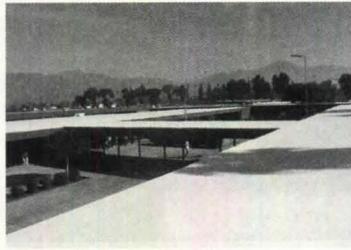


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184 Roofing base sheet
The MB base sheet provides twice the breaking strength (44 lbf/in.) of typical ASTM D-4601, Type I base sheets and is easier to roll out. Made of roofing-grade asphalt and a heavy-duty fiberglass mat. High puncture resistance. Contains no fillers. Firestone Building Products Co., Carmel, Ind.

185 Curb clip
The CMB-11 and the CMB-12 loose-clip style allow the curb to be put any place on a roof without having to determine where the rib centers lie in relationship to the steel openings. If the rib centers are out of module, this style compensates. Custom Curb, Inc., Chattanooga, Tenn.

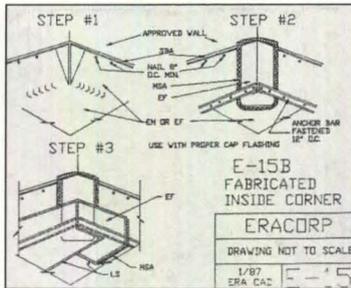
186 Portland-cement tiles
Lightweight, easy to install portland-cement tile has less than half the weight of clay or concrete tiles. It defies rot, ultraviolet rays, fire, moisture, insects, freeze-thaw cycles. Comes in terra cotta red, autumn brown, clay, Oxford gray and marble gray. MaxiTile, Inc., Carson, Calif.



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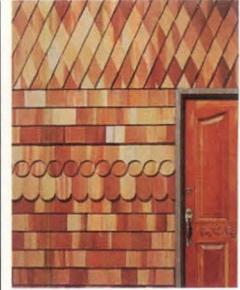


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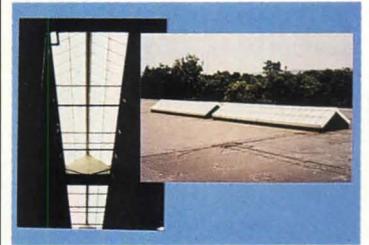
187 Cold-process roofing
Thermolastic cold-process roofing system is based on an elastomeric membrane installed under ambient conditions, without flames or solvents. Made up of multiple layers of polyester reinforcing fabric bound into a seamless membrane with elastomeric ply adhesive. Thermo Materials Inc., San Diego.

188 Wall waterproofing
Neoflex is an elastomeric, acrylic decorative and waterproofing coating for stucco, concrete, and exterior insulated finish systems (EIFS). Comes in a wide range of colors and as a clear solution. Good for retrofit and new construction. Patching, caulks, primers, and sealers available. Neogard, Dallas.

189 Single-ply details on disk
Synergy EPDM Roof Systems, now marketed by Era Corp., offers roofing specifiers CAD-formatted detail drawings identical to those in the product manual. For use on IBM and compatible computers, the program runs under AutoCAD 9 and above. EraCorp./Synergy, Danielson, Conn.



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190 Cedar-shingle panels
New premium red-cedar shingle panels are 96 by 21 in., and light enough to be installed by one person. Available in exposures of 4, 5, and 7 in. with either straight or staggered buttline. Custom-made panels are available, as shown, in any of nine patterns. Cedar Valley Shingle Systems, Hollister, Calif.

191 Skylights
Standard translucent skylights come in flat, ridge, pyramid, and polygon designs. They are easy to install, provide effective insulation, resist impact, and require minimal maintenance. Curbs to withstand thrust-load requirements can be supplied. Skywall, Inc., Chattanooga.

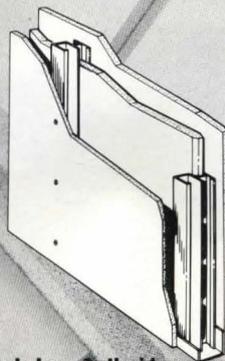
192 Combination roofing system
The Veral system combines SBS polymer-modified asphalt, fiberglass, and metal foil to produce a roof that has the appearance of an all-metal installation. Now available in colors as well as reflective aluminum, copper, and stainless steel. Embossing ensures metal facing works with base. Siplast, Irving, Tex.

USG® CAVITY SHAFT WALL

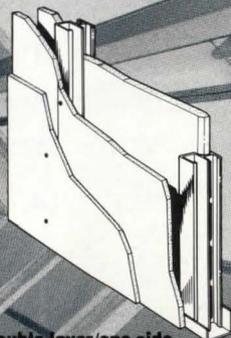
LOW RISE . . . HIGH RISE . . . THERE IS NO EQUAL!

USG® Cavity Shaft Wall Systems enclose more elevator, stairwell and mechanical shafts in megastructures and low rises nationwide. For solid, cost-effective reasons. No other masonry or drywall system gets elevators running sooner to speed job completion and occupancy. No competitive system delivers all the critical test numbers demanded by strict building codes. And, no other "working wall" gives you so many design options to work with . . . or so much systems expertise . . . from start to finish. Little wonder USG Cavity Shaft Walls are preferred by the shaft-enclosure market. Get the facts:

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GAMBLE

Paper-faced exterior gypsum sheathing

Let's face it. With ordinary paper-faced gypsum sheathing, there's no guarantee that it will stand up to problems like rain, wind, snow or humidity. In the face of adversity, it can sag, buckle, warp and delaminate. Which can create adversity for you.

Georgia-Pacific presents an innovation in sheathing: G-P Dens-Glass® Gold. Named for its unique gold alkali-resistant coating, Dens-Glass Gold is truly the next generation in sheathing. Superior performance proves it. And a remarkable warranty backs it up.

THE WINNING NUMBERS What do we mean by "superior performance?" Check the box and compare the numbers. At about the same weight as ordinary gypsum sheathing, Dens-Glass Gold is a heavyweight in performance. Twice the flexural strength, in the 4' direction. Five times better in humidified deflection. Half the susceptibility to water absorption.* Pick any

number: Dens-Glass Gold outperforms the ordinary every time.

MULTIPLE APPLICATIONS, MULTIPLE ADVANTAGES

Unlike paper-faced gypsum, Dens-Glass Gold is ideal for exterior finish systems with or without insulation. In EIFS applications, the unique gold coating eliminates the need for primer, and enhances the bonding of the system. On exteriors such as wood, brick, stucco and

Properties	1/2" Dens-Glass Gold® Gypsum Sheathing	1/2" Regular Gypsum Sheathing
Flexural Strength, parallel, lbs.		
face up	100	40 ¹
face down	94	40 ¹
Flexural Strength, Perpendicular lbs.		
face up	141	110 ¹
face down	151	110 ¹
Hardness, lbs. core	29	15 ¹
end	25	15 ¹
edge	41	15 ¹
Water Absorption, % by weight	5.0	10.0 ²
Surface Water Absorption	.83	1.6
Humidified Deflection, inches	1/4"	10/8"
Flamespread	0	15

NOTE: Tests conducted in accordance with ASTM guidelines.

¹ Minimum requirements for ASTM C-79 standards specification.

² Maximum requirements for ASTM C-79 standards specification.

**The TCS roof.
elegant
simplistic
adaptive**

There is, in the remarkably simple lines of a TCS standing seam roof, an expression of architectural character unmatched by other types of roof forms. As it serves its essential function of providing shelter, TCS, terne-coated stainless steel, gives the Hult Center for the Performing Arts a bearing of elegance. And TCS will weather to a predictable, warm gray. TCS is readily adaptable to all types of structures and allows maximum creative latitude to the designer at relatively modest cost.

Aesthetics aside, however, TCS has outstanding functional characteristics—great tensile strength combined with light weight and a low coefficient of expansion; exceptional resistance to corrosive attack and a durability measured in generations rather than years.

We will be happy to send you substantiating evidence. Call us at 800/624-6906.

Hult Center for the Performing Arts, Eugene, Oregon.

Architects: Hardy, Holzman, Pfeiffer Associates, New York, NY.

Rofer: Acme Roofing, Eugene, Oregon.

Photograph by Timothy Hursley.

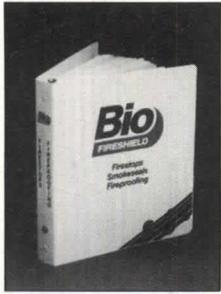


FOLLANSBEE

FOLLANSBEE STEEL CORPORATION
FOLLANSBEE, WEST VIRGINIA 26037

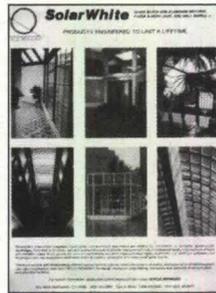
Thermal & Moisture Protection

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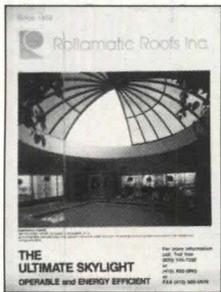
193 Firestop manual

Described as one of the most complete manuals ever compiled on firestops and smoke seals, Bio Fireshield's 200-page binder provides over 30 typical firestop construction details. Products include mortars, sealants, mastics, pillows, sleeves, and the Pyrobox firestop system. Bio Fireshield, Inc., Concord, Mass.



199 Glass-block assemblies

Preglazed glass-block and aluminum assemblies for installation as skylights, barrel vaults, skybridges, floor and deck lights, wall panels, and complete structure. Also available in steel and concrete systems with solid paver glass blocks. Circle Redmont, Inc., Wallingford, Conn.



194 Operable skylights

Electrically controlled skylights and domes are illustrated in an eight-page booklet. Large-opening skylights offer the heat gain of solar radiation and the cooling capabilities of natural convection currents. Guaranteed waterproof. Rollamatic Roofs Inc., San Francisco.



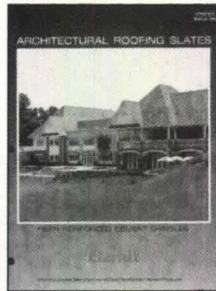
200 Roofing system

Hi-Tuff single-ply roofing membrane encapsulates a tough polyester scrim between two layers of Hypalon-based synthetic rubber. The membrane can be hot-air welded. Exposure to ultraviolet rays strengthens the seams. JPS Elastomerics Corp., Roofing Systems Div., Northampton, Mass.



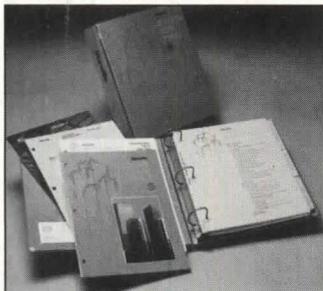
195 Siding

Pre-primed Inner-Seal OSB (oriented strand board) lap and panel siding is described. OSB produces a strong, dimensionally stable wood product that is easily applied and resists moisture, even from the inside out. Lap siding has either a smooth finish or embossed cedar grain. Shear wall values are given. Louisiana-Pacific Corp., Portland, Ore.



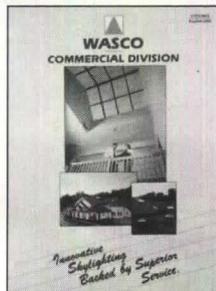
201 Slate-textured shingles

Architectural roofing slates made of fiber-reinforced cement are shown on both restored historical buildings and new institutional construction. General specifications and installation instructions are supplied. Eternit, Inc., Reading, Pa.



196 Insulation

A reference binder on thermal and acoustical insulations—fiberglass and phenolic foam—includes sheets, brochures, and technical bulletins on unfaced, kraft- and foil-faced fiberglass, flame-resistant FSK-25 batts, curtainwall insulations, and sheathings. Manville, Building Products Group, Denver.



202 Commercial skylighting

Skylight systems include self-supporting, tubular-framed configurations, low-profile grids supported by existing rafters, single-unit skydomes, vaulted continuous domes, half- and quarter-round units, and cluster systems. All are modular, assembled from economical standard shapes. Wasco Products Inc., Sanford, Me.



197 Weather protection

Brochure describes a line of silane weatherproofing materials, Cheme-Trete, Aqua-Trete, and Dyna-Trete, which protect horizontal and vertical masonry and concrete surfaces. Materials penetrate pores to a depth of from 1/4 to 1/2 in., and keep out water-borne contaminants. Hüls America Inc., Piscataway, N. J.



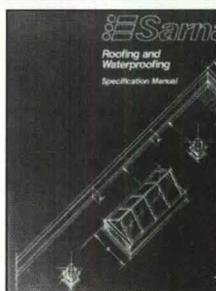
203 Standing-seam roofing

Zip-Rib standing-seam metal roofing for commercial, industrial, and residential use feature concealed floating clips that permit expansion and contraction. Impervious to water, wind, standing snow, or ice. In 22- or 24-gauge steel and .032 and .040-in. aluminum. Merchant & Evans, Inc., Burlington, N. J.



198 Wall and roof systems

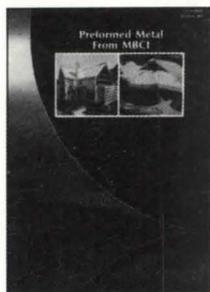
A fully illustrated and detailed 28-page booklet describes a broad range of steel-enclosed foam-core wall systems, various profiles of steel roofing and siding, and a range of in-house finish options. Panels are shown on a variety of recently built projects. E. G. Smith Construction Products, Inc., Pittsburgh.



204 Roofing manual

A binder-format 350-page *Design/Specification Manual* includes full-color cutaway drawings of the mechanically fastened Sarnafast membrane roof, as well as fully adhered, IRMA, bar-attached, and ballasted systems. Samples of roofing membrane included. Sarnafil Roofing Systems, Canton, Mass.

For more information, write item numbers on Reader Service Card



205 Metal roofing

Architectural catalog highlights a wide range of preformed metal building components. Different panels interlock with other styles, permitting a variety of profiles in one design. Structural standing-seam roof systems included; all coating options are described. Metal Building Components, Inc., Houston.



211 Insulating systems

A 16-page book offers data on the installation and performance of Thermax Insulation Board for pre-engineered buildings, Thermax-Plus Liner Panels for interior impact resistance, and Thermax Metal Building Board to dampen noise caused by temperature change in standing-seam roofs. The Celotex Corporation, Building Products Division, Tampa.



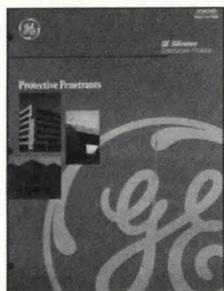
206 Single-ply installation

A 12-page brochure offers information on specifying and installing a mechanically attached polyester-reinforced thermoplastic membrane roofing system. It describes installation procedures step-by-step, with drawings of recommended roof details, including applications on top of existing roofing. Bond Cote Roofing Systems, West Point, Ga.



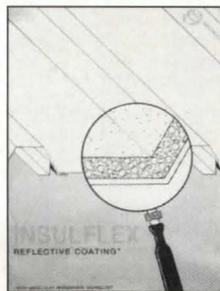
212 Wall panels

An eight-page color brochure shows Mapes porcelain-on-aluminum building panels, designed for use in curtainwalls, as a window replacement, and as add-ons for existing windows in retrofit projects. The insulated panels are rated at R-25 or greater. Mapes Industries, Inc., Lincoln, Neb.



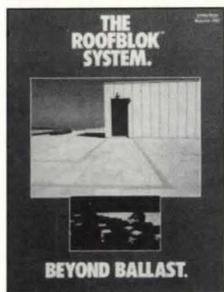
207 Surface protection

GE Silicones has issued a four-page color pamphlet describing two GEPeL protective penetrants and their applications: TWR 255 Water Repellent Penetrant, to protect against freeze-thaw deterioration, chloride ion intrusion, and moisture; and TSR 218 Stain-Resistant Penetrant, to facilitate removal of dirt and discoloration. GE Silicones, Waterford, N. Y.



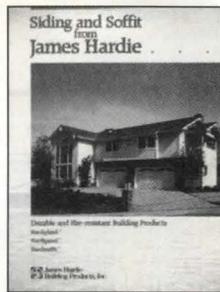
213 Reflective coating

A data sheet describes Insulflex, a thermal and waterproofing roof coating composed of small hollow spheres suspended in an acrylic emulsion. The reflective coating, which is applied as a liquid, forms a seamless membrane that is tear resistant and can conform to surface irregularities. Gaco Western, Inc., Seattle, Wash.



208 Roof pavement

Roofblok, Ltd. has issued the 1991 edition of its four-page Roof Paver System Catalog, describing 12- by 12- by 2-in. interlocking lightweight concrete pavers. The tiles augment single-ply roofing systems with a walkable surface as well as protection from wind, punctures, and deterioration caused by UV exposure. Roofblok, Ltd., Fitchburg, Mass.



214 Fiber-cement siding

In addition to showing the different surface patterns of its cement-fiber vertical and horizontal siding, soffits, and manufactured accessories, Hardie's 16-page brochure gives performance statistics and illustrates installation techniques. James Hardie Building Products, Inc., Mission Viejo, Calif.



209 Terne-metal roofing

An eight-page brochure describes the significant corrosion-resistant advantages of Terne-Coated Stainless Steel. Recommends installation techniques for batten-, standing-, and flat-locked-seam roof applications, and suggests the use of TCS for flashings, rain-carrying leaders, and preformed accessories such as drip edges. Follansbee Steel, Follansbee, West Virginia.



215 Curtain wall installation

The American Architectural Manufacturers Association has published *Installation of Aluminum Curtain Walls*, an in-depth discussion of proper curtain-wall details and installation procedures. The book is available from AAMA for \$10 prepaid. American Architectural Manufacturers Association, Des Plaines, Ill.



210 Cementitious fireproofing

CAFCO 300 cementitious fireproofing, a spray-applied product for steel or concrete structures, is shown in four-color photographs and black-and-white drawings. The asbestos-free product has a smooth, hard, white finish and contains neither vermiculite nor polystyrene materials. Isolatek International, Netcong, N. J.

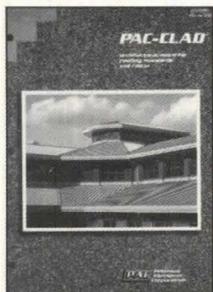


216 Single-ply details

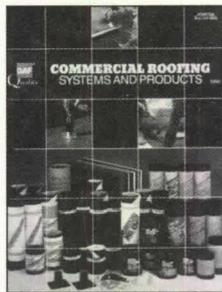
Data sheets describe how Duro-Last thermoplastic-coated roofing fabric is factory-welded to create a *one-piece installed roof membrane*. Individual pages detail roof-edge gutters, coated metal edges, drip-edge corners, flashing, drains, and penetrations. Covers existing roofs without tear-off. Duro-Last Roofing, Inc., Saginaw, Mich.

Thermal & Moisture Protection *continued*

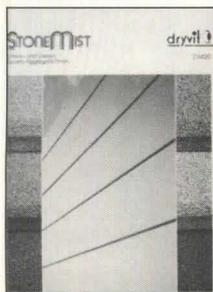
For more information, write item numbers on Reader Service Card

**217 Metal roofing**

A 28-page technical catalog describes a line of architectural metal roofing, mansard, fascia, and soffit products. Standing-seam and batten systems available in aluminum and G-90 galvanized steel in 20 standard colors. Coating data and wind-load charts are included. Petersen Aluminum Corp., Elk Grove Village, Ill.

**223 Commercial roofing**

Commercial Roofing: Systems and Products, a 28-page brochure, carries information on GAF roofing products, their application and installation, code approvals, and guarantee coverage. A page is devoted to each GAFGLAS product. GAF Building Materials Corp., Wayne, N. J.

**218 Wall finish**

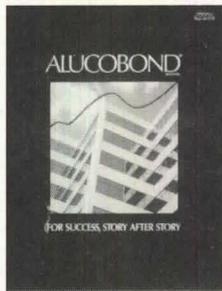
Stone Mist with Luster is a spray-applied, ceramically colored, quartz aggregate finish in a 100-percent acrylic binder. For use with Dryvit exterior insulation and finish systems as well as exterior masonry, stucco, concrete, and cement block. May be used for interior work. Ten colors. Dryvit Systems, Inc., West Warwick, R. I.

**224 Skylights**

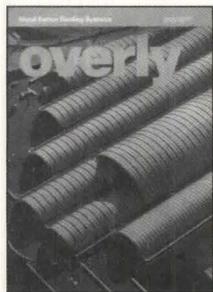
Architectural skylights available in glass, acrylic, and polycarbonate glazings are described in a 24-page catalog. Designs include structural skylights, vaults, modular grid skylights, ridges and structural domes, tandems, curb-mount, and integral-curb constructions. Code, loading, and finish information given. Plasteco, Inc., Houston.

**219 Deck waterproofing**

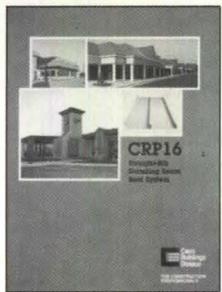
Designed to protect against leakage and chloride penetration in suspended slabs in parking structures, pedestrian bridges, and plaza decks, the Kelmar System is a neoprene membrane covered by an epoxy wear course. Black or gray finish. Four pages. Master Builders Technologies, Beachwood, Ohio.

**225 Aluminum cladding**

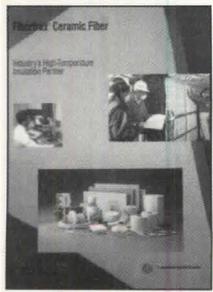
Alucobond, two sheets of aluminum with a polyethylene core, is a material for exterior cladding, retrofit, and interior walls. It lies flat and will not oil-can, but lends itself to curving and folding. Anodized panels in several colors. Panels weigh 0.92, 1.12, and 1.49-lb per sq ft, with a high strength-to-weight ratio. Alucobond Technologies, Inc., Benton, Ky.

**220 Metal-batten roofs**

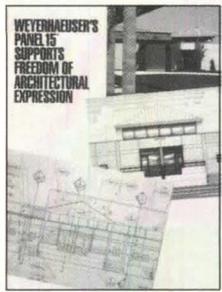
Metal Batten Roofing Systems contains information on a proprietary attachment system designed to be particularly effective against wind-uplift loads. Recent roof projects, including domes, are illustrated. The manufacturer offers a warranty of up to 30 years backing leakproof performance and workmanship. Overly Manufacturing, Greensburg, Pa.

**226 Standing-seam roof**

A six-page brochure describes the CRP16 straight-rib standing seam roof system, which has preformed interlocking panels that join in a weathertight seam when installed on site. Specifications, properties, roofing details, and photographs of completed buildings are included. Ceco Corp., Oakbrook Terrace, Ill.

**221 Ceramic fiber insulation**

Fiberax Ceramic Fiber: Industry's High-Temperature Insulation Partner describes the material's industrial and commercial fire-protection applications. Low density and low thermal conductivity enable it to withstand temperatures to 3,000 F. The Carborundum Co., Niagara Falls, N. Y.

**227 Cladding moldings**

A new anchoring accessory, Snap-On Moldings cover and seal the edges of Panel 15 double-faced architectural siding. The trim profiles hide all traces of installation, and cut on-site installation time. Choice of a flat or reveal-mold pattern, including a Water Table style for use where panels abut brick. Weyerhaeuser Architectural Panels Div., Tacoma.

**222 Re-roofing membrane**

Versigard MD, a reinforced EPDM, has particular application for fully adhered installations on existing roofs. It goes down with asphalt, which adds a secondary waterproof barrier and shortens installation time. Test data and warranty information given. Four pages. Goodyear Tire & Rubber Co., Akron, Ohio.

**228 Acoustic insulation**

A series of Project Profiles illustrates the ability of K-13 spray-on cellulose insulation to dampen noise, reduce sound transfer, reflect or absorb light, and provide thermal insulation. It provides an attractive textured surface. Available in white, gray, tan, beige, and black, and custom colors. International Cellulose Corp., Houston.

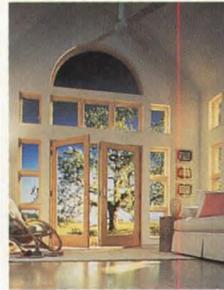
Doors & Windows

Entrances & storefronts
 Glazing & accessories
 Hardware & specialties
 Metal doors & frames
 Metal windows
 Window/curtain walls
 Wood & plastic doors
 Wood & plastic windows

For more information, write item numbers on Reader Service Card



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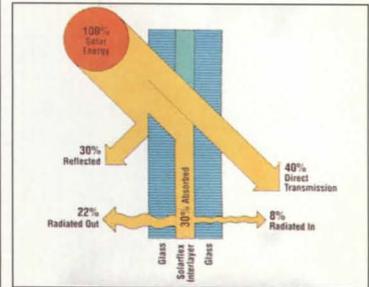
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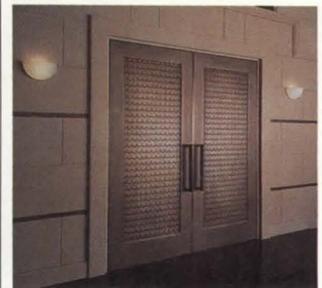
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229 Dirt-defying glass
 Clear Shield Easy-Clean glass is manufactured to resist surface contamination and staining. The microscopic surface irregularities of glass that trap dirt are smoothed over. The modified surface sheds water and contaminants easily and quickly, reducing the need for window washing. Viracon, Inc., Owatonna, Minn.

230 Opening glass wall
 Wood-framed door system functions as a single entry door, swing double-operating French doors, and an exterior bi-folding unit. Clear opening widths of 7 ft 4 in., 9 ft 10 in., and 12 ft 2 in. possible with three-, four-, and five-door panels. Resists water and wind infiltration. Nana Windows & Doors, Mill Valley, Calif.

231 Detention glazing
 Defender-Lite panels come with a welded-aluminum frame glazed with Lexan MR5. Panels can be tinted for sun control. Provides insulation and sound deadening. Units are guaranteed against breakage, abrasion, and yellowing. Kane Manufacturing, Kane, Pa.

232 Elliptical-top windows
 Designed to fit over Andersen hinged and gliding patio doors, the elliptical-top window is sashless, made of white pine and laminated maple with white or Terratone Perma-Shield exteriors. Standard with argon gas-filled, low-emissivity insulating glass. Andersen Corporation, Bayport, Minn.

233 Privacy glass
 Varilite glass, now made in larger panel sizes for interior and exterior windows, changes from clear to frosted at the flip of a switch. Liquid-crystal film laminated between two sheets of glass is clear when subject to voltage and becomes translucent in absence of voltage. Talique Corp., Sunnyvale, Calif.

234 Energy-saving window
 Supersmart windows and doors combine two argon gas-filled spaces and two surfaces coated with Softcoat Low E to provide thermal insulation, reflect 95 percent of the sun's ultraviolet rays, and reduce noise penetration. Sold with 20-year warranty. Weather Shield Manufacturing, Inc., Medford, Wis.

235 Vertical weatherseal
 FA-SET Weatherseal is a vertical silicone seal for glazed horizontal ribbon windows that is installed from the inside. CPCV extrusion 15/16 in. wide comes in standard colors, accepts 1/4-in. or 1-in. glazing. Allows a flush-glass appearance. Kawneer Company, Inc., Norcross, Ga.

236 Garage door
 A thermal-break garage door, the Series TC-II has a 2 7/8-in. expanded polystyrene core and 0.01-in.-thick exterior and interior metal faces. End stiles are 0.055 thick. Competitively priced for commercial-size openings of up to 14 ft square. R value of 8.3, zero wind infiltration at meeting rails. Raynor Garage Doors, Dixon, Ill.

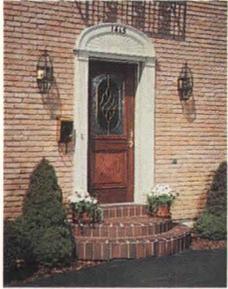
237 Motion detectors
 Compact bidirectional VG037-C and unidirectional VG087-C microwave motion detectors control sliding, revolving, and swinging automatic doors. Units operate with a highly sensitive K band frequency that emits either narrow or wide detection patterns. Adjustable angle. B. E. A. Inc., Pittsburgh.

238 Steel door
 Series 5000 custom doors are made of formed steel, said to be stronger than rolled steel, which permits the design of larger-size units with narrow steel sightlines. Doors accept a wider range of hardware, including heavy-duty closers. Hope's Architectural Products Inc., Jamestown, N. Y.

239 Heat-reflecting glass
 Solarflex laminated glass reflects more than 50 percent of infrared solar radiation, while admitting more than 70 percent of the cooler visible-light spectrum. A thin, virtually invisible solar mirror film is sandwiched between layers of Saflex polyvinyl butyral and glass. Monsanto Chemical Company, St. Louis.

240 Metallic cladding
 Granules of such metals as bronze, copper, aluminum, and nickel silver are cast in a resin matrix reinforced with fiberglass to produce a lightweight, durable sculptured casting with the appearance of solid metal. For doors, walls, columns. Forms + Surfaces, Santa Barbara, Calif.

For more information, write item numbers on Reader Service Card



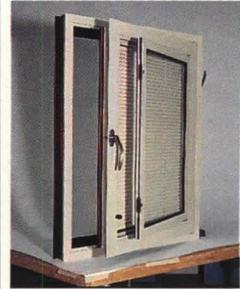
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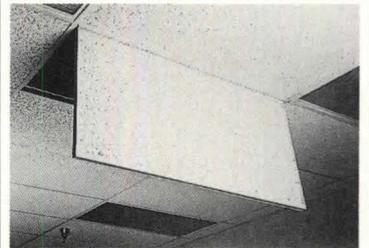
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241 Fiberglass doors

The Ever-Strait insulated fiberglass door comes with a detailed grain embossed to resemble red oak. Panels have high-profile design ready for painting or staining. Wood stiles and rails surround the perimeter for hinges and hardware. Thirty glazing and configuration options. Pease Industries, Inc., Fairfield, Ohio.

242 Storefront system

The MorFront is a stock-length, screw-spline system. Ribbon windows, 9-ft-high butt-glazed storefront, and standard storefront applications are possible. Choice of mullions, butt-glazing, flat- or bull-nose face caps, 1 3/4- or 1 1/4-in. sightlines. Vistawall Architectural Products, Terrell, Tex.

243 Architectural windows

Siteline aluminum windows have a silicone glazing that eliminates the need for massive muntins, mullions, meeting rails, and imposts often required to accommodate insulating glass. Made in casements, awnings, and fixed-light models with the profile of traditional steel windows. Color system available. Season-All Industries Inc., Indiana, Pa.

244 Bronze windows

Windows and doors are now offered in custom designs made of bronze, for residential, restoration, and commercial applications. Casement windows have a concealed, three-point locking system. Optimum Window Manufacturing Corp., Bronx, N. Y.

245 Electric strike

The 7900 series of electric-release strikes for mortise latches is made of stainless-steel and comes in (AC or DC) 6-, 12-, 16-, 24- and 48-volt models in fail-secure and fail-safe versions. Designed for ANSI A115.1 metal jamb cutout. Adams Rite Manufacturing Co., City of Industry, Calif.

246 Double door

The 3-ft French Classic is a double-operating door scaled to smaller proportions for such applications as bedrooms, balcony access, and breakfast areas. One turn of its brass lever locks the door in five places along the panel. The Atrium Door & Window Company, Dallas.

247 Tinted float-glass

EverGreen glass has a soothing green color that offers a crisp, clean view from inside out. Combines a low shading coefficient (0.58) with a high daylight transmittance of 66 percent. Exterior reflectance is only 7 percent. It blocks 78 percent of UV radiation. Made in 3/16- and 1/4-in. thickness. Libbey-Owens-Ford Co., Toledo, Ohio.

248 Cabinet hardware

Ten knob and pull designs in the Aria line are produced in 12 different colors made with DuPont Corian and Fountainhead by Nevamar with solid brass trim. Knobs from 1 1/4- to 1 1/2-in. diameter and 1 3/16-in. projection. Pulls from 3- to 4-in. on center. Colonial Bronze Co., Torrington, Conn.

249 Door locks

Four new lock products include H Series for latchset/deadlock, entrance door, and hotel/motel; F Series for light-commercial construction; G Series lever lockset/latchset to meet requirements of handicapped; N Series high-quality materials for beauty and security. Falcon Lock, Garden Grove, Calif.

250 School windows

Custom-designed window systems offer such options as multicolor finish capabilities on both interior and exterior, equal sightline system, internal venetian blinds in a variety of colors, lock or limited opening devices, and high-level sound attenuation. Modu-Line Windows Inc., Wausau, Wis.

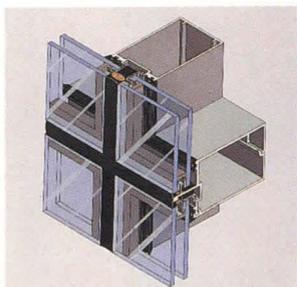
251 Ceiling access panel

Rapid-access modified LWT panel permits fast access to ceilings without damaging tile. Can incorporate either tile configurations in new buildings or existing tile in older buildings. Installation kit provides for three-step assembly. Cesco Products, Brooklyn Park, Minn.

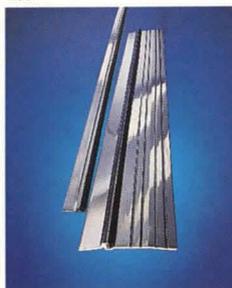
252 Architectural glass

Designer Shelley Jurs produces unique designs in glass for entry systems and window walls. The Designer Doors are made to blend with any existing style of décor. Designs for homes as well as businesses and institutions. Jurs Architectural Glass, Berkeley, Calif.

For more information, write item numbers on Reader Service Card



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253 Flush curtainwall system

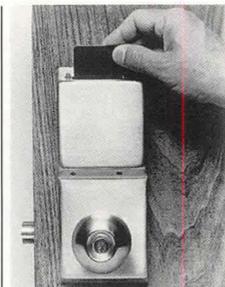
Duratec is a completely flush structural-silicone glazing system that provides for mechanical attachment of the interior glass light, eliminating the need for exterior metal stops used in traditional glazing. A new curtainwall design combines Duratec insulated-glass units with metal-composite and stone panels. H. H. Robertson Co., Pittsburgh.

254 Door sealing system

SiliconSeal jamb seals and gasketed thresholds work together to form a continuous barrier against smoke, air, weather, and sound infiltration. The system is fire-tested and -listed for up to three hours. Retains flexibility below -100F and resiliency above 400F. Pemko, Ventura, Calif.

255 Folding window wall

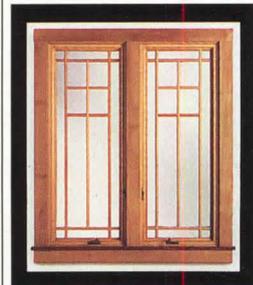
Mirage folding glass wall rides on a nylon-roller trolley, and can open 92 percent of the wall area. Available in bronze-colored or white extruded aluminum. Seven panel widths up to 20 ft and heights of 81 1/2 in. for room dividers or exterior walls, and to 49 1/2-in. high for new or replacement windows. Skytech Systems, Bloomsburg, Pa.



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256 Electronic locksets

Cardcode electronic locksets recognize up to 150 cards and automatically record each usage, giving card number, date, and time. They employ a commercial-grade steel-case mortise lock with 3/4-in. deadlocking latchbolt and 1-in. deadbolt. Yale Security, Inc., Charlotte, N. C.

257 Flush doors

Flushline doors are designed for interior or exterior use in industrial, office, dormitory, hospital, and school settings. Aluminum sub-frames are built with sigma deep-penetration and fillet welds. Four sheet-face options available. Doors are single-acting. Kawneer Company, Inc., Norcross, Ga.

258 Wood-framed windows

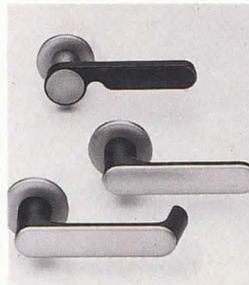
The Architect Series window line includes the Prairie muntin style, which reflects the strong simple lines used by Frank Lloyd Wright. Available in casement, double-hung, and circle-head windows, and French doors. Has a true-divided-light appearance, with narrow wood muntins concealing a steel grid set between panels of insulating glass. Rolscreen Co., Pella, Iowa.



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259 Stile-and-rail doors

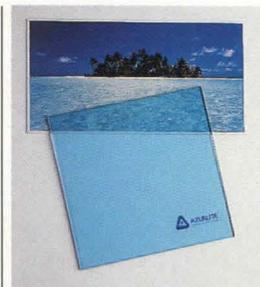
Architectural doors with rim-mitered panels have book-matched face veneers that are 1/8 in. thick before sanding. Standard or custom designs in Honduran mahogany, western white pine, red oak, natural birch, poplar, northern cherry, walnut, and ash. The Maiman Co., Springfield, Mo.

260 Entry doors

The Palladian entry presents a full-light, round-top door with surrounding sidelights. Doors are available in a range of sizes and wood species, either as single doors or complete units designed for particular applications. Kentucky Millwork, Louisville, Ky.

261 Lever-handle hardware

Hardware designed by Dieter Rams is made from engineering-grade alloy with a silver-gray finish bonded to GRP. The range includes three levers, door pulls, and doorstops. Levers are used with UL-approved mortise locks that accept all U. S. cylinders. The Ironmonger, Inc., Chicago.



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262 Window glass

Azurlite, an aquamarine architectural glass, transmits less infrared energy than standard clear glass. By comparison, Azurlite provides a 35 percent better shading coefficient, at 0.61, while maintaining 72 percent visible-light transmittance. PPG Industries, Inc., Pittsburgh.

263 Decorative glass

The EtchMatte process creates decorative flat glass by fusing ceramic frit onto glass during the tempering process. Designs have translucence without the drawbacks of sandblasting. Almost any design can be reproduced. Surface is not porous. Milgard Tempering, Inc., Tacoma, Wash.

264 Revolving doors

All-glass revolving doors are available with aluminum, stainless steel, and bronze frames, and with variable rail heights. Glass wings have a minimal outside stile finished to match the sweep. The stile holds the sweep without the separation associated with adhesives. Crane Fulview Door Co., Lake Bluff, Ill.

For more information, write item numbers on Reader Service Card



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265 Latches and trim

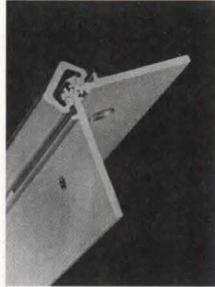
The Images line of solid brass interior latches and trim includes three knobs and five levers. It is available in passage, privacy, full-dummy, and half-dummy functions. Sets include a reversible latch with a 1-in. face plate and a full lip strike. The new hardware is described as affordable. Baldwin Hardware Corp., Reading, Pa.

266 Circle windows

Full-circle wood windows now come in two standard-size diameters, 2 ft 6 in. and 4 ft, and in three styles, clad, primed, and true-divided-light. They are available with energy-efficient low-E glass or standard insulating glass. Panes and parts can be ordered and replaced quickly. Caradco, Rantoul, Ill.

267 Corner windows

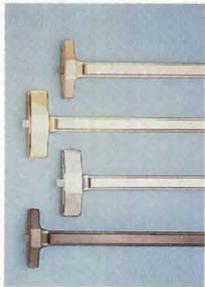
The Corner Window features glass bent at a 90-deg angle for a seamless corner without posts, mullions, or butt joints. Can be installed either at corners or into a flat wall, one or two units high, as a triangular bay. Made of solid Ponderosa pine with 1-in. insulating glass. Available in seven standard sizes. Marvin Windows, Minneapolis.



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268 Continuous hinges

Unigear continuous pinless door hinges maintain optimum alignment and maximum support, and eliminate deflection. A pair of self-lubricating Delrin plastic bearings join two extruded aluminum alloy segments in a cover channel to provide uniform load distribution and rotate a full 180 deg, allowing the door to open to maximum width. Zero International, Bronx, N. Y.

269 Air spacer

Colored-aluminum welded air spacers and muntin bars are designed to match or accent windows, doors, skylights, and other opening framework. Standard anodized and electrolytic colors range from black and white to light and dark bronze, tan and beige, and bright gold. Mill-, clear-, and custom-color finishes available. Allmetal, Inc., Itasca, Ill.

270 Electrified lock controls

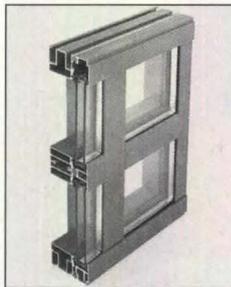
Electronic Latch Retraction on fire and panic devices provides for lock/unlock control by security guards. The Exit Alarm monitors the use of exits. Fail-Safe and Fail-Secure systems provide for electric locking or unlocking of exit and panic device trim. Monarch Hardware & Mfg., Sheperdsville, Ky.



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271 Garden windows

California Classics garden windows of Douglas fir or American red oak are made in six configurations, projecting from an outside wall at 60- or 90-deg angles. Large, single-pane tops for optimum light. Models come from 3 ft wide by 3 ft high to 8 ft wide by 5 ft high. California Millworks Corp., Pacoima, Calif.

272 Designer glass

The Designer Glass Series window line has a triple-glazing configuration. Pictured is a leaded and beveled-glass light sealed into an insulated glass unit so that it is protected from outside and inside. Both standard and Designer windows are wood-framed, with a prefinished aluminum exterior cladding. Available for circle-head windows. Eagle Window & Door, Inc., Dubuque, Iowa.

273 Thermal storefront

The System 403 Storefront is a thermally improved universal framing system with a 4 1/2-in. frame depth and a face dimension of 2 in. It is assembled by either shear block or screw spline method. Accommodates 1-in. insulated glass or spandrel panels and uses the same vinyl extrusion inside and out. EFCO Corp., Monett, Mo.



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274 Pulls

Custom-designed pulls to meet individual requirements. Such details as a logo engraved on a solid metal background or tubular bar stock fashioned in the form of a company's initials can be created in polished and brushed brass, bronze, and stainless-steel finishes. Hiawatha, Inc., Bloomington, Minn.

275 Blown-glass panes

German-made Restoration Glass has the slight distortion, pitting, and imperfections typical of Colonial-era glass. It is intended as a replacement glass for windows and furniture in historic structures, such as The Octagon in Washington, D. C., pictured. A UV-absorbing variety of Restoration Glass will be available in 1991. S. A. Bendheim Co., Inc., New York City.

276 Doorstops

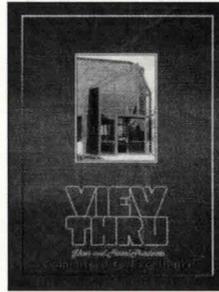
A line of three floor-mounted and two wall-mounted doorstops made of nylon in 13 colors and equipped with black Elastollan bumpers. All fasteners are concealed. Nylon bases have color throughout. Easily installed with screw connectors. Hewi, Inc., Lancaster, Pa.

Doors & Windows

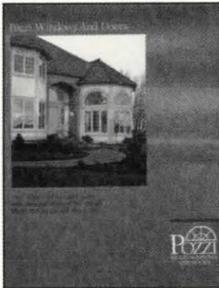
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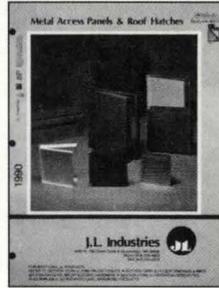
277 Roll-down shutters
Shutters of mahogany, teak, or extruded aluminum provide protection from sun and wind as well as security. Slats positioned at intervals let daylight through. Operated from the inside. Approved by the South Florida Building Code for hurricane protection. Broad range of sizes. Soleil Inc., Bronx, N. Y.



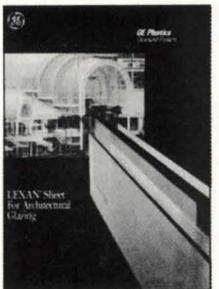
283 Sloped-glazing systems
Various standard skylights in different sizes and shapes, including prepackaged plans using 3-, 5-, or 8-in. rafter systems, accommodate spans from 2 to 24 ft. Precut and predrilled framing expedites on-site installation. View Through Glass and Metal Products, Schaumburg, Ill.



278 Wood windows and doors
Thirty-two pages of illustrations and specifications of a spectrum of wood windows: casement, double-hung, bows, bays, awnings, octagons, radius. Made with 1 1/4-in. wood assembled with interlocking mortise-and-tenon joints. Designed for inside cleaning. Pozzi Windows & Doors, Bend, Ore.



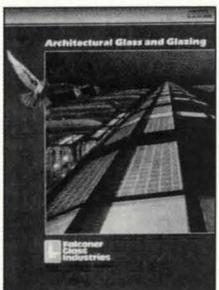
284 Security access panel
Designed for maximum-security considerations, the Model HSP inspection-access door is made of 3/16-in. steel plate. Lock options include heavy-duty detention hardware. Made in nine standard sizes from 8 by 8 in. to 24 by 48 in. Custom sizes are available on request. Eight pages. J. L. Industries, Bloomington, Minn.



279 Polycarbonate glazing
The Lexan line of polycarbonate sheet glazing includes MR5 for schools and institutions, XL-1 for overhead and sloping applications, Thermoclear thermal glazing, 9034 uncoated sheet for general application, and bullet-resistant Lexgard laminates. GE Plastics-SPD, Pittsfield, Mass.



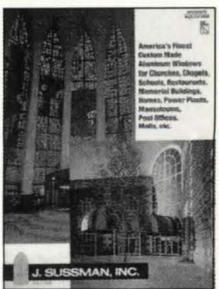
285 Decorative glass
Designer Susan Gold specializes in all types of glass: etched, sandblasted, and carved windows; stained, leaded, zinc, and copper-foil windows; etched, sandblasted, beveled, painted, and kiln-fired screens and room dividers; copper-foil and zinc lampshades. Elysian Art Glass Company, Boulder, Colo.



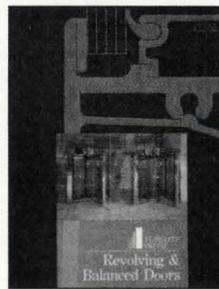
280 Architectural glazing
Definition of a product line that includes mirrors, spandrel products, tempered and heat-strengthened glass, flat glass, glass mullion systems, bullet-resistant and detention-strength glass, and sloped laminate and insulated glass. Twenty pages. Falconer Glass Industries, Falconer, N. Y.



286 Locksets
Illustrations and specifications of knob and lever latchsets, mortise locksets, narrow back-set locks, mortise entry sets, deadbolt locksets. Most hardware in polished and lacquered solid brass. Styles range from an ornate entry set with matching pushplate to modern. Thirty-two pages. Omnia Industries, Inc., Cedar Grove, N. J.



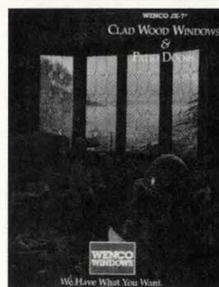
281 Custom metal windows
Church windows, single-, double- or triple-glazed, are a specialty, but schools, restaurants, institutions, government agencies, and mausoleums are also served. Aluminum framing for all work. Solid white-bronze hardware. Structural details provided. Twelve-page catalog. J. Sussman, Inc., Jamaica, N. Y.



287 Revolving entrances
Premier Series three- and four-wing doors have 1/4-in. glazing with rails and stiles in anodized or painted aluminum, stainless steel, or bronze Muntz finishes. Clear Core series doors have 1/2-in. glazing, with a see-through acrylic center core. Twelve pages. Tubelite Architectural Products, Reed City, Mich.

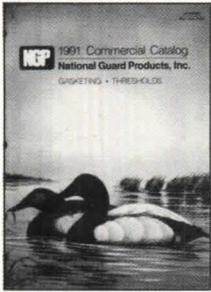


282 Electrified exit devices
Motorized dogging permits locking or unlocking of multiple exit devices from remote location. Delayed action electromagnetic lock on fire exits warns building manager of impending violation. Accessory equipment described. Six pages. Sargent Manufacturing Co., New Haven, Conn.



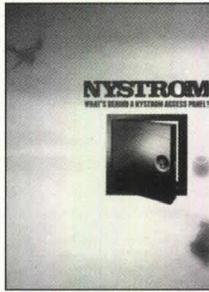
288 Clad-wood windows
Complete line of windows made of Ponderosa pine that comes with either primed, ready-to-paint exteriors or clad in white, bronze, or beige aluminum. Fitted with dual insulating glass. Extruded aluminum trim strips for replacement windows. Sixty-four pages. Wenco Windows, Mount Vernon, Ohio.

For more information, write item numbers on Reader Service Card



289 Door gasketing

Forty-eight pages of illustrations and specifications of door accessories. Thresholds as saddles, panic, thermal barrier, vinyl top. Bronze weatherstrips, nylon-brush gasketing, perimeter seals, door-bottom sweeps, door-bottom seals, automatic door bottoms. Fire-, smoke-, and air-infiltration ratings listed. National Guard Products, Inc., Memphis.



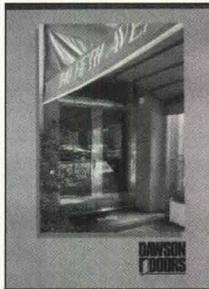
295 Access panels

Illustrations of a full range of access panels: fire-rated, flush for all surfaces, drywall, flush for plaster, recessed, fire-resistant ceiling, and security. Available in a variety of metals. Finishes are baked-on, rust-inhibitive primers. Special finishes available. Nystrom, Inc., Minneapolis.



290 Air-infiltration tests

AAMA has published a concise *Voluntary Specification for Field Testing of Windows and Sliding Glass Doors*. This details two test methods to be used to find the resistance to air infiltration and water penetration of building components in-place. A short-form specification is also given. American Architectural Manufacturers Association, Des Plaines, Ill.



296 Doors

Dawson Doors illustrates an elegant selection of custom entrances in place, ranging from church to tavern to office building. Illustrations and specifications of frame details, door details, and glazing options. Section on stainless-steel corner guards. Dawson Metal Co., Inc., Jamestown, N. Y.



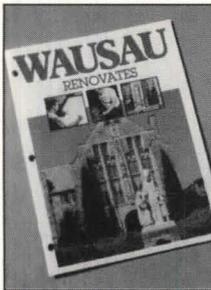
291 Architectural hardware

A full-line technical catalog, *Architectural Guide to Locks and Security Products* covers locking devices for residential, commercial, institutional, and hospitality applications. Knob, lever, and grip handle designs shown. All finish options are illustrated. Schlage Lock Co., San Fernando, Calif.



297 Rolling counter doors

Rollergard motorized rolling counter doors have tubular motor operator out of sight, allowing them to be installed with same clearance as push-up unit. Aluminum bottom bar has replaceable weather strip. Guides have replaceable pile runners. Cornell Iron Works, Inc., Mountaintop, Pa.



292 Renovation windows

An eight-page, full-color brochure details five major window renovation projects involving prestigious university and office buildings. Energy-efficient, customized retrofit windows preserve buildings' architectural integrity. Wausau Metals Corp., Wausau, Wis.



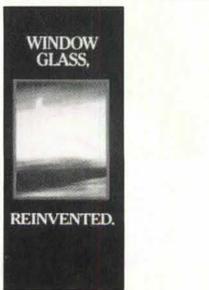
298 Door hardware

A 40-page color catalog from a Japanese source of decorative and functional hardware explains how a custom-made door handle can animate a building and express the mind of the designer. Both standard and site-specific styles shown. Highly polished stainless steel, chrome, and brass is a specialty. Elmes, New York City.



293 Hinges

The Concealed LifeSpan hinge gets rid of unwanted barrel lines. The CB1989 4 1/2-in. hinge with its 1989 reinforcement plate assembly provides a complete, invisible-hinge package. The reinforcement plate's integral tangs prevent damage to hollow metal doors. Stanley Hardware, New Britain, Conn.



299 Insulating glass

Superglass eliminates the chill felt next to windows in the winter. It is clear and colorless, but has an R value rating of 8, four times better than that for double-pane window glass and said to provide 92 percent of the insulation of a typical wall construction. Southwall Technologies, Palo Alto, Calif.



294 Residential entry

Beautifully photographed booklet presents the Mastermark line of wood entry doors with decorative glass lights. Triple-glazed panels may have textured or clear beveled glass set in brass came. Entries come in a number of styles reflecting Victorian, Gothic, and Prairie design influences. Simpson Door Co., McCleary, Wash.



300 Roof windows and skylights

A complete window program for the sloped roof is illustrated in color, rich in description and specifications. Roof windows open for ventilation and sashes rotate for cleaning. Ventilating skylights operate manually or electrically. Weathertight flashing. Velux-America Inc., Wilmington, Mass.

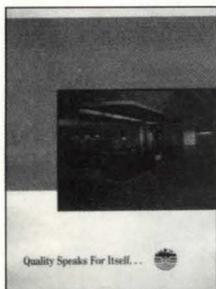
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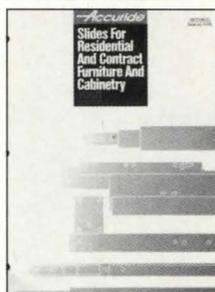
301 Security glazing
An eight-page *Guide to Architectural and Security Glazing* gives specifications on a line of laminated configurations that ranges from 1/4-in.-thick glass for shower doors and patios to a 2-in.-thick bullet-resistant glass appropriate to jewelry stores and banks. Laminated Glass Corporation, Plymouth Meeting, Pa.



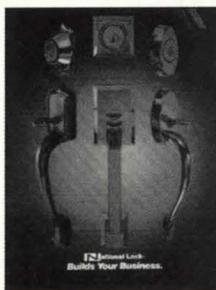
307 Doors and glazing systems
A line of anodized-aluminum-frame doors has .125 nominal wall thickness. Corners are reinforced with mechanical fasteners and welded. Stile designs come in narrow, medium, and wide. Balance and flush doors available. Flush-glaze framing made of AA-606s-T5 alloy. CMI-Cronstroms, Eagan, Minn.



302 Fire-door design
Colorful brochure presents an overview of the ways a FireGuard area-separation system can open up spaces that might otherwise have required a fixed fire-rated wall. Model code requirements are listed; hotel, airport, college, and office projects are shown. CAD-based design and specification help is described. Won-Door, Salt Lake City.



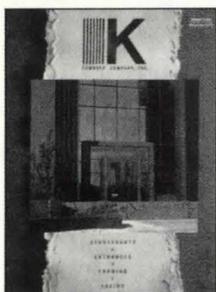
308 Drawer slides
Slides for doors, drawers, and shelves that can extend from 10 to 28 in. and take loads up to 130 lb are made of corrosion- and rust-resistant electro-zinc steel in black or silver. Movement is smooth and firm on continuous ball-bearings made of steel or acetal polymer. 12 pages. Accuride, Sante Fe Springs, Calif.



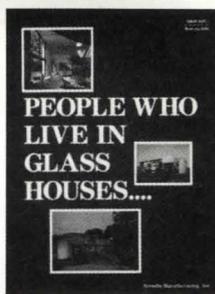
303 Locks
Catalog of door locksets and hardware illustrates knobs, levers, armored deadbolts, reinforced deadbolts, entry-handle sets with matching deadbolts, and swinging patio-door locks. Visible hardware is either brass or chrome; mechanisms are zinc-plated steel. Finish options include a new series of porcelain knobs in six colors. 16 pages. National Lock, Sikeston, Mo.



309 Acrylic glazing
An eight-page technical brief explains the architectural applications of Acrylite FF sheet, an acrylic glazing material which has the clarity of glass and transmits 92 percent of available daylight. Specific glazing instructions are detailed. CYRO Industries, Mt. Arlington, N. J.



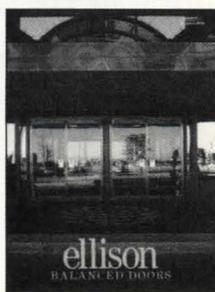
304 Entrances and storefronts
Entrances, offered as a complete system, meet the traffic, installation, and design needs of most commercial and institutional projects. Aluminum-framed doors are single, double, multiple, revolving, or sliding. Framing for a broad range of glazing options is designed for rapid installation. 16 pages. Kawneer Company, Inc., Norcross, Ga.



310 Sliding doors
Custom-glazed large-scale sliding doors for residential, commercial, and institutional applications are made of extrusions of 6063-T5 aluminum alloy. Heights range from 6 ft 8 in. to 12 ft. Glass thickness from 3/16 in. monolithic to 1 in. insulated. Clear, bronze, and black frame finishes. Arcadia Mfg., Inc., Bridgeport, Conn.



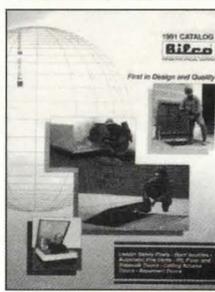
305 Electromechanical locks
All 400 Series mortise-mounted electromechanical locks have a narrow design that installs easily into hollow-metal and aluminum-frame entrance construction. Available in a variety of configurations with prewired, built-in options. Locknetics Security Engineering, Forestville, Conn.



311 Balanced doors
Custom configurations of easy-opening balanced doors can be assembled to individual specification from a range of standard bronze, stainless steel, and aluminum components. Hydraulic checking unit can be replaced without removing the door or any other hardware. Ellison Bronze Co., Inc., Falconer, N. Y.



306 Architectural doors
Wood doors in a range of fire- and non-fire-rated constructions, including stile-and-rail, flush panel, and interior and exterior solid-core doors. Custom fabrication in special sizes and veneer species is a specialty. Three-page Fire Door Facts section lists products with applicable code requirements. Eagle Plywood and Door Manufacturers, Inc., South Plainfield, N. J.



312 Special-service doors
Horizontal access doors and automatic fire vents for standard or site-specific application. Roof scuttles; pit, floor and sidewalk doors; pan doors with 1-in. fillable leaf; ceiling-access doors; and basement doors are included. Complete specifications. 24 pages. The Bilco Company, New Haven, Conn.



THE MINERAL COLLECTION

Clear, Fresh Color From Crossville Ceramics

As clear and cool as a fresh water stream, The Mineral Collection from Crossville Ceramics captures the lucid hues of nature and brings them to porcelain.

Extend your design possibilities with Crossville Ceramics porcelain tile—the only large-unit porcelain tile made in the United States. To view the entire Crossville line, phone 615/484-2110.



America's Porcelain Tile
Made In The U.S.A.

Finishes

Acoustical treatment
 Carpeting
 Painting materials
 Resilient flooring
 Tile
 Tile setting materials
 Wallcoverings
 Wood flooring

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313 Waterproof coating

Allguard elastomeric waterproofing for exposed surfaces of buildings is a silicone coating capable of bridging 1/16-in.-wide open cracks on masonry, concrete, block, stone, and fluted block. An easily applied one-coat formulation, it dries to create a 10-mil-thick protective layer. Wide color choice. Dow Corning Corp., Midland, Mich.

314 Vinyl floors

Contract vinyl flooring has a polymeric varnish surface combined with a 28-mm nonporous wear layer. Inert fiberglass liner gives dimensional stability. Resistant to roller-casters and high heels. Slip-resistant surface, wet or dry. Helleman GmbH & Co. KG, St. Petersburg, Fla.

315 Wall treatments

Profiled wall treatments for commercial and residential interiors come as glossy panels of copper, lacquer, simulated metal, and simulated stone: Patina, Avonite, Lacquers, Wood, and Reflections. All except wood may be cleaned with mild soap and water. Forms + Surfaces, Santa Barbara, Calif.



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316 Decorative tiles

Hot Lines are 2 1/4 by 9-in. tiles that can be used by themselves or as accent pieces with conventional-size tiles. Sparklers are 1/2- by 6-in. ceramic-tile strips that can create accent lines and patterns when used with field-tile formats. Available in 60 colors. Liza Allen Tile & Clay Co., Oakley, Calif.

317 Ceiling grid

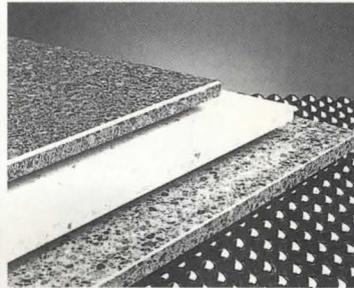
The Space-Grid is a series of extruded aluminum sections that interlock. The ceiling's U-shaped beams can be combined with fluorescent fixtures installed inside, and can also serve as a utility grid for other surface-mounted lighting fixtures. Dampa Inc., Scarborough, Ontario.

318 Ceiling system

A way to upgrade ceilings in important areas employs the Donn Centricitee suspension system and the Silent Collection of acoustical ceiling panels with fabric covering. Six-inch insets in a variety of accent materials. Recessed areas may be used for lights. USG Interiors, Inc., Cedar Rapids, Iowa.



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319 Vinyl wallcovering

Guard Beachstone, a pebble-textured, 54-in.-wide, 20-ounce Type II vinyl wallcovering, comes in 74 colorways that range from neutral and basic tones to vividly colored patterns. Has a Class A fire rating. Columbus Coated Fabrics, Borden Inc., Columbus, Ohio.

320 Cast-marble tiles

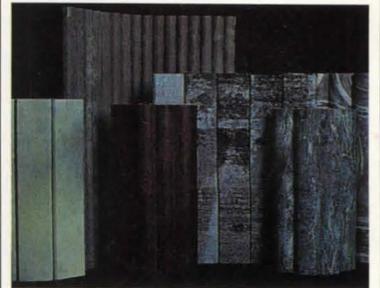
Armstone cast-marble floor tiles and wall panels are over 90 percent marble with a proprietary binder. Fifteen colors in textured, a new finish, as well as polished and honed surfaces. Made in 16- by 16-in. and 12- by 12-in. squares in 3/8-in. gauge, and 24- by 24-in. size in 3/4-in. gauge. Two-year limited warranty. Armstar, Lenoir City, Tenn.

321 Ceramic-granite tile

The Precious Stones Collection offers ceramic-granite tiles that have a naturalistic, three-dimensional appearance. A true porcelain, the Italian-made tiles are frost- and acid-resistant, and will withstand heavy foot-traffic. Three colors, in a 16- by 16-in. size. GranitiFiandre, Bensenville, Ill.



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322 Vinyl tiles

The Granite Dimensions line of vinyl tile achieves the look of real granite while offering the durability, resiliency, and cost-effectiveness of vinyl. It has the high gloss of polished stone and comes in granite tones. Manufactured in 1/8-in.-gauge in 12- by 12-in. size. Flexco, Chamblee, Ga.

323 Decorative surfacing

A unique process wraps or laminates metal around a variety of profiles, including moldings and flexible or rigid panels for application as the front of reception desks and counters, column covers, horizontal trim, furniture components, pedestals. Numetal Surfaces, Inc., Riverside, N. J.

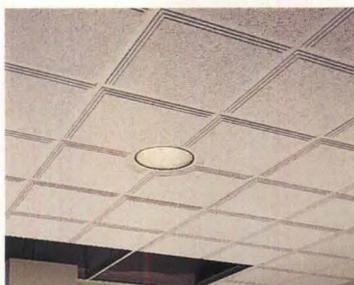
324 Wall/ceiling intersection

The Eliminator Track provides a finished appearance for drywall at ceiling/wall intersections. A replacement for standard top track when framing partition areas where acoustical ceiling grids are already installed. Attaches directly to ceiling grid. Clinch-On Products, Mounds View, Minn.

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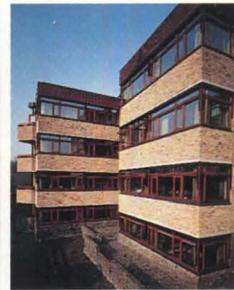
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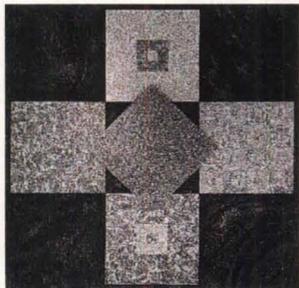
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325 Step up to color
Nora rubber stair treads now come in over 20 colors so that they can be color-coordinated with landings, trims, walls, and floors. One-piece nosing-tread-risers with round pastilles fit heavy traffic, while unitized nosing-treads with round or square pastilles serve normal commercial applications. Freudenberg Building Systems Inc., Lawrence, Mass.

326 Rugged carpeting
A new commercial program, "Performance Engineered" carpets are made of solution-dyed, continuous-filament nylon, protected with an antimicrobial treatment and Scotchgard soil-repellent finish. Heathrow textured pattern and coordinating Orly textured loop are shown. Stratton Commercial Carpets, Dalton, Ga.

327 Key flooring feature
Notched at their corners, 12- by- 12-in. vinyl floor tiles accept 2- by- 2-in. color "keys" that let designers recreate classic European tile floors. Tiles come in five neutral colors, while keys can be selected from a range of 16 colors. All are commercial gauge and have beveled edges. Azrock Industries, Inc., San Antonio.

328 Customized ceiling panels
Cirrus Hardware Friendly ceiling panels accept high-hat light fixtures, speaker heads, air diffusers, and other ceiling-mounted hardware. Different panel designs can be ordered from the factory with custom cutouts centered in the panel and ranging in diameter from 3 1/2 to 16 in. Armstrong World Industries, Inc., Lancaster, Pa.

329 Faux-stone tiles
Matte-glazed tiles with the appearance of stone, the Triad system combines geometric patterns with granite or marbled finishes. Decorated or granite-like tiles come in 8- and 12-in. squares; marble-look tiles in 12-in. only. The high-traffic floor tiles can also be used on walls and countertops. American Olean Tile Co., Lansdale, Pa.

330 Crack-resistant mortar
330 A portland-cement-based mortar for ceramic tile, marble, slate, or granite, dry-set Uniflex can bridge substrate cracks up to 1/8 in. by forming an elastomeric membrane when applied with a trowel. The dual-component adhesive is extremely flexible, with 190 percent elongation. C-Cure Chemical Co., Houston.

331 Handmade ceramic tile
Available in a wide range of colors, Chameleon wall and floor tiles are made of natural clay. Floor tiles are formed by hand, sand-textured, and fired with a translucent glaze; they come in 15 sizes. Wall tiles have an untextured finish, are fired with a translucent glaze on a white underglaze, and are 4 by 4 in. Epro Inc., Westerville, Ohio.

332 Durable wood flooring
Based on the results of Taber abrasion tests, Freedom Finish flooring offers five times more abrasion resistance than competing hardwood finishes due to its undercoating and six layers of urethane protection. The multilayer no-wax finish also eases cleaning by filling in dirt-trapping irregularities in the wood. Anderson Hardwood Floors, Clinton, S. C.

333 Sports flooring
Recommended for use in school gymnasiums, aerobic and exercise rooms, and physical therapy facilities, Cork Carpet is elastic, slip-resistant, and durable. It can be painted with game lines and sealed with an acrylic finish. Rolls up to 79 in. wide by 98 ft. long can be ordered in any of five colors. Forbo Floor Coverings Inc., Richmond, Va.

334 Protective wood finish
Cetol TGL plus—a high-gloss, translucent finish for exterior wood doors—repels moisture while allowing the wood to "breathe," thereby retaining its natural moisture balance. Iron-oxide pigments in the finish reflect UV radiation to prevent discoloration as well. It is available with no color and in four stains. Akzo Coatings Inc., Troy, Mich.

335 Romance at your feet
Gothic Oak floor finish is created by fuming quartered white oak to create the warm tones of aged English brown oak. The wood thus produced is then turned into a variety of styles, including borders, planking, and parquet. Custom designs and portable dance floors can also be ordered. Kentucky Wood Floors, Louisville, Ky.

336 Stone marquetry
With a palette comprising 24 semiprecious and ornamental stones, craftsmen construct table tops, vanities, murals, and light-traffic floors using techniques developed in Renaissance Florence. Over 100 stock designs, including Art Deco and Art Nouveau, can be realized, as can custom concepts. Lodestar, New York City.

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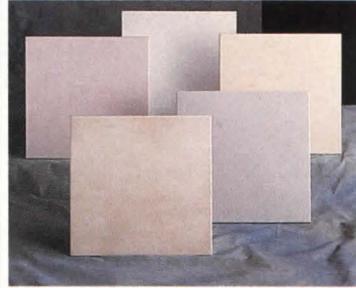
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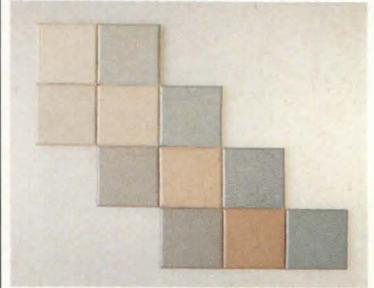
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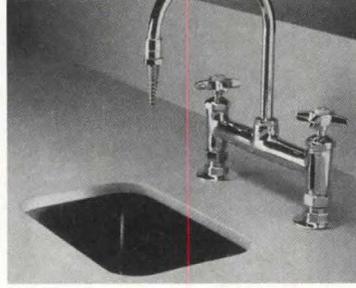
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337 Cove base
A new line of rubber cove base 1/8-in. thick and 4-in. high is easy to work around corners, but heavy enough to hide imperfections at the base of a wall. Dense coloration allows it to be molded around exterior corners without white show-through. Resistant to scratches. 15 colors. Endura Flooring, Waltham, Mass.

338 Veneer plaster
Diamond Veneer Plaster and Imperial Plasters provide a hard, high-quality plaster wall finish quickly at low cost. Both are troweled at 1/8-in. thickness on Imperial Gypsum Base Panel, which is designed to absorb water and bond with plaster. Ready for painting in 24 hours. United States Gypsum Co., Chicago.

339 Interior paint
The ProMar 200 interior painting system, for professional application, is available in both latex and alkyd formulations, in a number of gloss types. Primers in latex and alkyd ensure compatibility. For use on properly prepared drywall, plaster, wood, and concrete. Superior hiding and touch-up performance. The Sherwin-Williams Co., Cleveland.

340 Agglomerate tiles
Steinglass is an agglomerate tile that combines marble chips and varicolored opalescent glass. Available in two versions, Kubik, with larger glass fragments, and Blitz, with smaller particles. Field colors of gray, cream, black, and white. Offered in gauged tiles and slabs. Recommended for heavy-traffic areas. Trans Ceramica Ltd., Bensenville, Ill.

341 Heavy-duty carpet
Rocky Mount is a heavy-duty loop-pile carpet tile made from Zeftron 500 solution-dyed BCF nylon yarn to create a variegated heathered appearance. Resistant to fading and receptive to cleaning. Wedloc backing resists moisture. Comes in 15 colors. Karastan-Bigelow, Greensboro, N. C.

342 Laboratory countertop
Serrastone has a surface of reagent-resistant Glasweld, a hard inorganic coating, and a substrate of Eterboard, a fiber-reinforced cement panel. Resists stains and acid, noncombustible, and impact-resistant. Thickness from 5/8 to 1 1/4 in. Eight colors. Eternit Inc., Blandon, Pa.

343 Sheet-vinyl flooring
A more contemporary graphic is offered by 33 new colors and nine patterns of residential and light-commercial resilient flooring. Mexican Agate II, pictured, comes in five colorations. Tremayne has the appearance of 12-in. squares of granite. Tarkett Inc., Parsippany, N. J.

344 Floor tiles
The Crowne Series is a large (13 5/16 by 13 5/16-in.) glazed floor tile designed for more spacious residential and light-duty commercial interiors. Available in six colors, the tiles meet or exceed ANSI specifications. Easy to maintain, resistant to scratches. Monarch Tile, Inc., Florence, Ala.

345 Ceiling tiles
Cashmere, a line of ceiling tiles for commercial use, simulates fine fabric. In four colors as well as soft white. Offers desirable acoustical properties without fissuring or perforations. Twenty-nine profiles available with four product sizes, two edges, and five styles. The Celotex Corp., Tampa, Fla.

346 Illuminated step edge
The Lynx Interlock system is a modular low-voltage light strip designed for use within a recess in the front of Gradus slip-resistant PVC stair edging. Standard-length light strips may be plugged together and cut if required to produce the correct length. Each strip has sockets for plug-in lamps. Gradus, Inc., Cartersville, Ga.

347 Porcelain tile
The Mineral Collection consists of a buff-taupe range and a blue-green range. The colors—crystal pink, copper green, pebble, beryl, azurite, rose clay and viridian—reflect the origin of the design. Difficult to mar and easy to clean, they are ready for heavily trafficked floors. Crossville Ceramics, Knoxville, Tenn.

348 Commercial floor tile
Elite Marble is a high-traffic, commercial floor tile with the look of marble. Rugged, skid-inhibiting surface stands up to wear in shopping malls, office buildings, and restaurants. Colors: Arctic pink, sea mist, and summer straw. Easy to maintain. Laufen International, Tulsa.

For more information, write item numbers on Reader Service Card



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349 Flexible ceiling system

The Magnabeam open-cell ceiling consists of two types of suspended-beam components that combine in a flexible system. Smaller Magnagrid sections fit into larger Beamgrid modules and can provide color accents or be color matched. Lighting, hvac, and speakers can be placed above, in, or below the basic system. Alcan Building Specialties Group, Charlotte, N. C.

350 Southwestern flooring

Mimicking Mexican tile, Mexacali is an interior bisque floor tile that's free of lime pops and other similar imperfections. The kiln-run tile has a hand-quarried appearance, random color and texture variations, and natural skid resistance. Available in hexagonal and rectangular shapes as well as squares. Ro-Tile Inc., Lodi, Calif.

351 Clean, classic ceilings

Made of expanded perlite mixed with clay, these 2 by 2 ft. ceiling panels are mold-cast to resemble great European ceilings when installed in a suspended ceiling grid. Their composition makes them impervious to moisture, and extreme heat, and prevents water staining and bacterial growth. Domtar Gypsum, Ann Arbor.

352 Jacquard olefin

These wallcoverings are woven from Olefin yarns on jacquard looms, a technique not previously used for this fiber, which gives the resulting material the smooth seaming capability of more expensive wovens. Called Olefin Medley, the collection is available in five patterns and 69 colorways. Knoll International, New York City.

353 Artistic trim

Originally designed by artist Sara Bloodworth for the N.Y. Metropolitan Transportation Authority, these 6 by 8 in. ceramic modules can be used to create custom moldings, chair rails, friezes, and as a frame for accent areas. They are made of natural terra cotta with a glaze inlay and an overall glaze. Design Technics, Div. of Sackett Ceramics Corp., New York City.

354 Fire-safe fabric tracks

A fire-retardant fabric-track system, Snap-Text 100 Series accepts acoustic materials as well as fabrics with a patented PVC locking systems that lets fabrics be pulled taut. Invisible once installed, the system meets SBCII, BOCA, and ICBO Building codes. Snap-Text Systems, Inc., Rockland, Mass.

355 Stain-resistant grout

For filling 1/8- to 1/4-in.-wide joints in ceramic tile, Colorlastec is a stain-resistant sanded polymer grout that contains no portland cement and thus avoids efflorescence caused by soluble salts. It comes in nine neutral grout colors and is suitable for residential or light-commercial interior use. TEC Incorporated, an H.B. Fuller Company, Palatine, Ill.

356 Coordinated carpeting

Hampshire II and Endurance are coordinated carpetings made of Anso IV HP nylon. Hampshire II, with a tight, 0.10-gauge loop construction, has a ribbed texture and comes in 19 tweed colors, while Endurance is a velvet-like cut pile available in 25 solids. They are covered by a 10-year commercial warranty. Designweave, New York City.

357 Shaped acoustical panels

Soundsoak shaped acoustical wall panels are offered in two fabric-finished styles: Mezzo, a fully scored panel, and Intermezzo, a partially scored style. The panels have an NRC of 0.45 and a composite flame spread of 25 or less. Armstrong World Industries Inc., Lancaster, Pa.

358 Light-fast wood finish

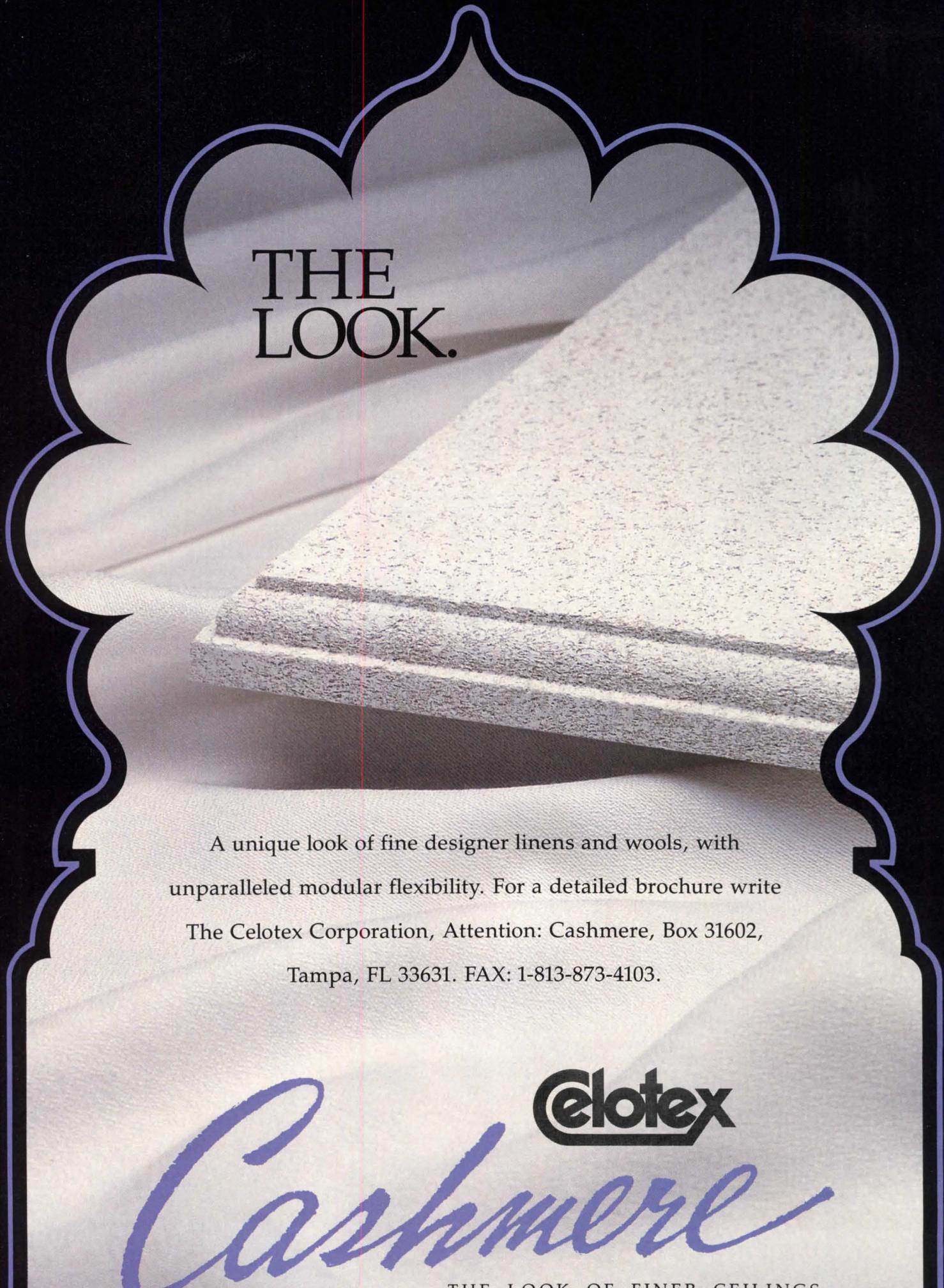
An oil-based clear exterior finish, CWF-UV protects wood from damage by UVL rays, while meeting recently passed California environmental emission laws. Also available with cedar or redwood toner, a gallon covers 250 sq. ft. of smooth weathered wood with two wet-on-wet coats; spills clean up with soap and water. The Flood Company, Hudson, Ohio.

359 Floors in software

Sculpture is a custom program that lets designers turn pictures or graphics into the manufacturer's vinyl flooring. The software creates a template used by craftsmen to cut any of four wood or stone styles of tile into a mosaic pattern for commercial or residential installation. TOLI International, Division of CBA, Commack, N.Y.

360 Colorful, tough walls

Offered in over 60 standard colors and 24 textures, Duraflex interior wall coatings cure to a surface strength that is 80 percent as hard as mild steel. Iron-oxide pigments in the coatings make them fade-resistant, and they can be applied directly to drywall, concrete, or masonry. Triarch Industries, Houston.



THE LOOK.

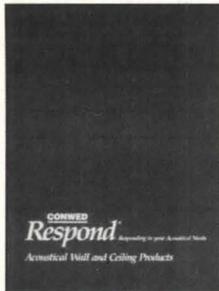
A unique look of fine designer linens and wools, with unparalleled modular flexibility. For a detailed brochure write The Celotex Corporation, Attention: Cashmere, Box 31602, Tampa, FL 33631. FAX: 1-813-873-4103.

Celotex
Cashmere

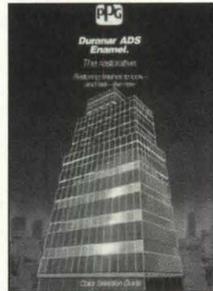
THE LOOK OF FINER CEILINGS

Circle 1049 on inquiry card

For more information, write item numbers on Reader Service Card



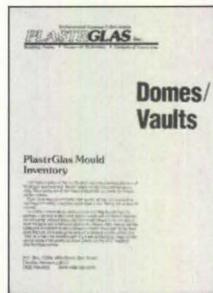
361 Acoustical walls and ceilings
Respond, Conwed's line of custom interior acoustical products, includes wall and ceiling panels and special acoustical/decorative interior solutions. Eight-page brochure describes acoustical properties and NRC levels, product construction, available sizes, installation options. Conwed, Minneapolis.



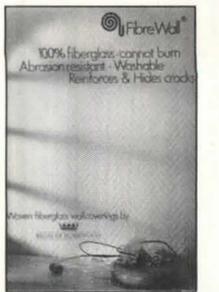
367 Exterior enamel
A color selection guide folder carries 10 chips of standard colors of Duranar ADS enamel, now available for on-site refinishing of building exteriors. With a weathering performance comparable to factory-applied, the fluoropolymer coating resists chalking, fading, ultraviolet degradation, and salt-spray corrosion. PPG Industries, Inc., Springdale, Pa.



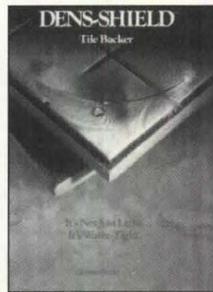
362 Vitreous tile
A series of application-specific brochures illustrate school, mall, and hotel projects using indoor/outdoor ceramic tile. With a low moisture absorption (less than 3 percent) tiles may be used in any climate. Wide range of through-body colors. Resists staining, needs no sealers or waxes. Made in 1/2-in. thickness. Metropolitan Ceramics, Canton, Ohio.



368 Columns and domes
Architectural details for the design of gypsum fabrications are available in a series of technical guides. *The Mould Inventory* provides detail drawings and dimensions of classic columns and domes made of gypsum. New moulds can be made or existing moulds modified to meet custom requirements for columns or domes. Plastrglas, Inc., Omaha.



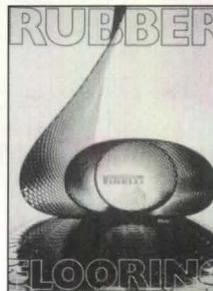
363 Fiberglass wallcovering
Non-static, non-toxic fiberglass wall coverings resist mildew, bacteria, and odor. Applicable over most surfaces, including bare concrete. Wide variety of textures. Easy to install, clean, touch up, and repair. Since it must be painted, precise color may be attained. FibreWall, Los Angeles.



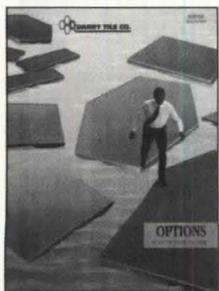
369 Tile backer
Dens-Shield has a water-resistant, silicone-based gypsum core between two fiberglass mats, and is faced with a water-resistant coating. Resistant to wicking, rot, mold, and other deterioration. Is 33 percent lighter than portland cement board. Dimensionally stable. Georgia-Pacific Corp., Norcross, Ga.



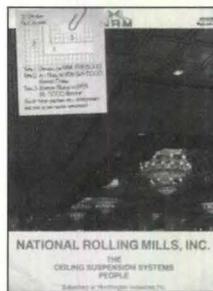
364 Colored tile grout
The Gem series, a new line of coordinating grout colors, offers brighter, more vivid tile grouting. Also available are 32 colors in sanded and unsanded versions for floors and walls with soft bisque glazed tile, non-vitreous clay tile, marble, and pavers. Laticrete International, Inc., Bethany, Conn.



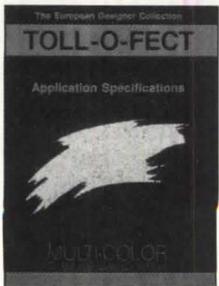
370 Rubber flooring
Flooring with a style to meet any demand—residential, institutional, industrial, educational, medical. Durable, sound absorbing, resilient, colorful, resistant to stains, easy to maintain. Available in rolls and tiles. Wide range of patterns and colors. Pirelli Industrial Products Corp., Teaneck, N. J.



365 Quarry tile
Options No Matter Where You Step describes the color choices, 44 coordinated glaze colors, 17 unglazed colors, and a custom-color program offered in quarry tile. The tile range offers 11 different shapes and sizes plus 35 coordinating trim shapes. Both historic restoration and new construction installations are illustrated. Quarry Tile Co., Spokane.



371 Ceiling suspension systems
Complete line of hardware for construction of suspended ceilings is illustrated and specified in a 22-page catalog. Finishes include 16 enamels in neutral tones, four aluminum, and four reflective. Systems are aluminum, stainless steel, or galvanized steel. New fire-rated grids are included. National Rolling Mills, Inc., Frazer, Pa.



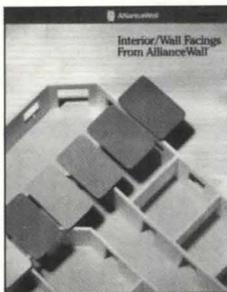
366 Seamless wall coating
A French system now manufactured in the U. S., Toll-O-Fect is a fine-textured, multi-colored seamless wall coating system available in 32 colors of granite-like patterns. Recommended for public, commercial, and residential buildings. Application requires special spray equipment. Coronado Paint Co., Edgewater, Fla.



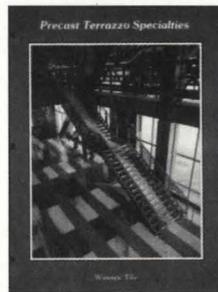
372 Nylon carpet
Designed for environments that require frequent cleaning because of spills and stains, the Antron Lumena carpet can be cleaned with mild detergents, without the use of bleach. Solution-dyed nylon fibers have inherent antimicrobial properties. Du Pont Flooring Systems, Wilmington, Del.

Finishes

For more information, write item numbers on Reader Service Card



373 Wall panels
The 1990 *ColorFusion Ceramic-on-Steel Interior/Wall Facings* brochure describes interior panels for industrial, school, commercial, and office applications. Panels defy scratches, chipping, and graffiti. Silkscreening techniques permit custom design and graphic opportunities. AllianceWall Corp., Norcross, Ga.



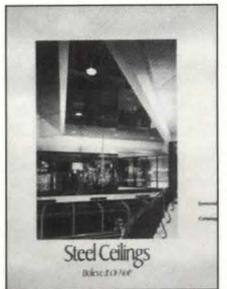
379 Precast tread and riser
A 12-page booklet illustrates a line of tread and risers in terrazzo and concrete. Also stringers, coved and straight bases, landings, and terrazzo floor tiles. Silicon-carbide strips make precast steps and treads slip-free. Broad range of colors. Wausau Tile, Inc., Wausau, Wis.



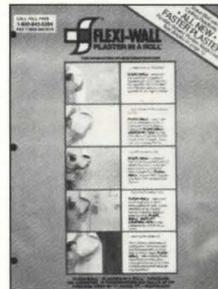
374 Acoustical-ceiling tiles
Spectrum acoustical ceiling tile is made of an open-celled material that traps noise. Available in white, gray, or beige, the tile has seven deep diagonally cut grooves that contribute to the design and deflect and dissipate sound energy. Class A-rated; works with all standard and fine-line suspension grids. Illbruck, Inc., Chaska, Minn.



380 Epoxy-matrix terrazzo
Morricite epoxy-matrix terrazzo produces lightweight (1/8 to 3/8 in. thickness) seamless floors that are almost indestructible. Unlimited color possibilities. Variety of chips, marble, glass, granite, sea shells, may be used. Low maintenance, Four pages. Master Builders Technologies, Beachwood, Ohio.



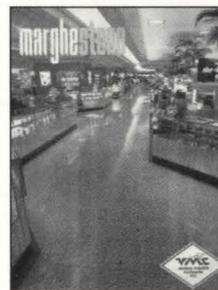
375 Metal ceiling
Ceiling panels in stainless steel, cold-rolled steel, galvanized steel and aluminum offer long life, low maintenance, and sound-transmission control. Standard panels are 24 by 24 in. Snap-in panels in four sizes. Broad range of textures and colors. Coordinating modular coffers incorporate lighting fixtures. 12 pages. Steel Ceilings, Coshocton, Ohio.



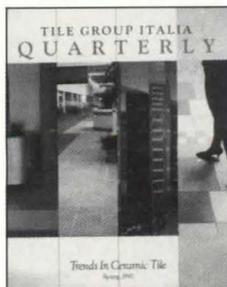
381 Plaster in a roll
This gypsum-coated fabric will cover ceilings and walls made of concrete or cinder block, gypsum board, plaster, wood, tile, or any rigid surface. Shipped as an uncrystallized roll of plaster, it crystallizes on application. Hides cracks, patches, mortar joints. Flexi-Wall Systems, Liberty, S.C.



376 Multi-colored wall coating
An eight-page *Zolatone Textures Color Card* displays the broad range of available color treatments for this wall coating. For spray application, the textured system contains multiple color elements that produce a granite-like pattern. UL Class A fire rated, an alternative to paint and vinyl. Zolatone, Los Angeles.



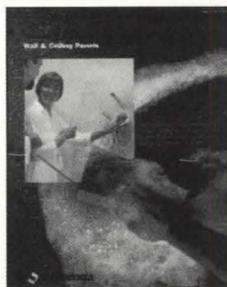
382 Assimilated granite
An eight-page folder carries color photographs of applications of Marghestone and Veronastone. These 16 by 16 in. tiles are made of marble chippings and thermoset resins and look like quarried granite. Usable for floors, walls, stairs, window sills, and accents. Verona Marble Co., Dallas.



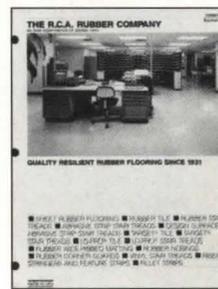
377 Italian tile
One of a series written for the design professional, the *Spring 1990 Quarterly* features recent ceramic tile installations; commentary from architects, designers and publishers; the latest tile lines available from Tile Group Italia; and information beneficial to the ceramics industry. Four-color, 12 pages. Tile Group Italia, Elk Grove Village, Ill.



383 Finishes on metal
Finishes on Metal - From the Field devotes 15 pages to detailed information on finishes applied to steel and aluminum. These include Kynar coatings, anodizing, polyester paints, and powder coatings. Case histories demonstrate correct application methods. Also included is a glossary of metal-industry terms. Petersen Aluminum Co., Elk Grove, Ill.



378 Wall and ceiling panels
Structoglas fiberglass-reinforced plastic panels, detailed in a four-page brochure, install as easily as wall board. Textured surface, in white, beige, almond, or gray, is scratch and abrasion resistant, needs no painting, and is easily cleaned. NFPA Class-A rated. Color-matched non-staining molding. Sequentia Inc., Strongsville, Ohio.



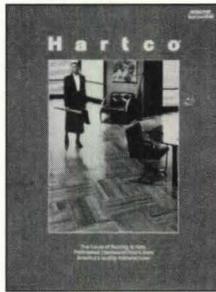
384 Rubber flooring
A complete range of rubber flooring products—sheet, studded tile and treads, abrasive strip treads, design surface treads and landing tile, flat surface treads, matting, and accessories—is illustrated in a 16-page catalog. Maintenance procedures are explained. The R. C. A. Rubber Co., Akron, Ohio.

For more information, write item numbers on Reader Service Card



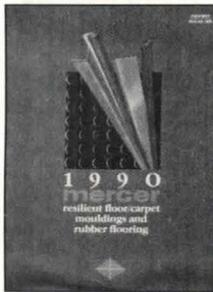
385 Paints

The 1991 Maintenance Coatings provides precise specifications for painting any interior or exterior surface, both primer and finish coat. Details of 30 exterior products, 34 interior products, 18 maintenance coatings and 25 professional coatings. Sixteen pages. Benjamin Moore & Co., Montvale, N. J.



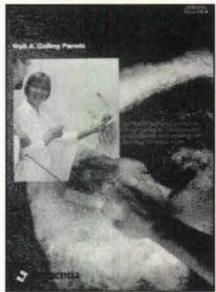
391 Hardwood flooring

The new urethane finish Imperial Plank oak flooring is described, as are three impregnated Pattern-Plus colors and 16 colors of parquet. A line of pre-finished moldings, floor care products and adhesives is illustrated. All impregnated products have a 25-year warranty. Hartco, Knoxville, Tenn.



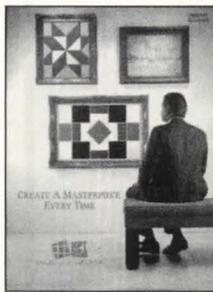
386 Flooring accessories

Illustrations and specifications on vinyl and rubber wall base, rubber flooring, stair treads, stair nosings, carpet and resilient molding, and transitional edgings used with floor covering installations. Flooring products are available in 43 colors. 12 pages. Mercer Products Co., Orlando, Fla.



392 Wall and ceiling panels

Designed for food production, processing, distribution and service, Structoglas fiberglass reinforced plastic panels will not rust, rot, corrode, stain, splinter, dent or peel. Available in white, beige, almond and gray with color-matched molding. Four pages. Sequentia Incorporated, Strongsville, Ohio.



387 Floor tiles

Descriptions of four ceramic tile styles: DaVinci, for residential use, which incorporates marble design in glaze; Heritage granite for heavy traffic; Tradition, available in skid resistant, and Designer, for residential and light traffic. Broad color ranges. Four pages. KPT Inc., Bloomfield, Ind.



393 Upholstery fabrics

Contract upholstery fabrics of solution-dyed Zeftron 200 nylon and nylon/wool blends are processed with air-jet texturizing to achieve a wool-like hand. Solution-dyed yarns are colored to the core and resist soiling, stains and wear. BASF Corporation Textile Fibers, Williamsburg, Va.



388 Tile setting products

Products for every stage and variety of tile and natural stone installation, leveling, waterproofing, sound control, mortars, epoxies, mastics/adhesives, grouts and sealers. Specification aids described. Eight pages. Mapei Corporation, Elk Grove Village, Ill.



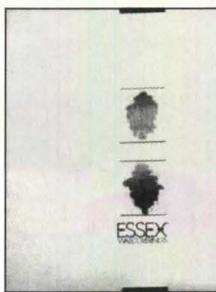
394 Acoustical ceiling panels

A system of cloud-like acoustical ceiling panels that can be produced in custom sizes provides maximum coverage while working around existing ceiling obstructions, such as conduit and lighting. They permit installation of a symmetrical pattern. Interior Acoustics, Inc., Somerville, N. J.



389 Waterproofing membrane

Hydroment Ultra-Set is a one-part, trowel-applied, white, elastomeric waterproofing and anti-fracture/crack depressant membrane and setting adhesive. It forms a seamless, positive urethane barrier to moisture, alkali and water migration, and penetration. Eight pages. Bostik, Middleton, Mass.



395 Vinyl wall coverings

Essex vinyl wall coverings are designed for residential, healthcare and corporate application. Available in 27 and 54-in. widths, solids and prints. Produced with special germicidal additives that inhibit growth of staphylococcus aureus. GenCorp Polymer Products, Fairlawn, Ohio.



390 Architectural ceramics

A 16-page, full-color catalog describes and illustrates an extensive line of glazed and unglazed ceramic tiles for residential floor and wall application, commercial floors and facades and a line designed for pool use. Buchtal Corporation USA, Roswell, Ga.



396 Vinyl flooring

Marathon inlaid vinyl flooring and Flor-ever commercial vinyl flooring are described in a 12-page, full-color Specifier's Guide. Stain resistance, installation procedures and maintenance directions included. Five-year limited warranty. Congoleum Corporation, Lawrenceville, N. J.

Specialties

Exterior sun control
Fireplaces & stoves
Identifying devices
Lockers
Partitions
Service wall units
Storage shelving
Toilet & bath accessories

For more information, write item numbers on Reader Service Card



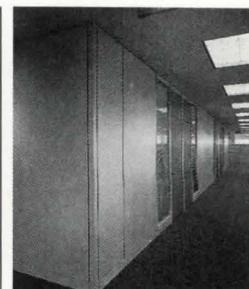
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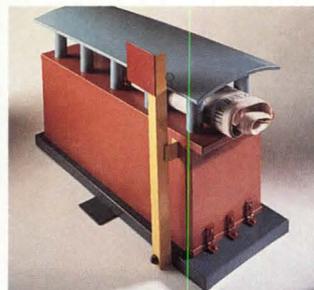
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397 Exterior sun shade
ShadeScreen aluminum for exterior shading blocks up to 87 percent of annual solar heat coming through glass windows and doors. With 17.5 louvers per in., the screen blocks heat and glare before they reach the glass. Screen is 70 percent open for visibility. Matte-black finish can complement exteriors. Phifer Wire Products, Tuscaloosa, Ala.

398 Range hood
The Hidavent pull-out canopy range hood slides into concealment when not in use. Hood exhausts vertically through external ductwork and has a 3 1/4-by-10-in. duct connector with a damper. Variable fan speed. Blower shuts off when canopy is pushed in and reverts to former speed when pulled out. Jenn-Air Co., Indianapolis.

399 Custom signage
SouthWood specializes in durable products created in three-dimensional medium by casting, sandblasting, or carving. Any type style or logo can be duplicated to provide an exclusive look with low maintenance costs. Signs for commercial, regulatory, and directional needs. SouthWood Corp., Charlotte, N. C.

400 Lockers
Steel lockers have recessed handles and louvers, rattlefree lockrods, rubber cushions, and pan reinforcements with sound deadeners welded to the doors. Available in variety of colors. Designs include a range of formats, up to 16-person layouts. Medart, Inc., Greenwood, Miss.

401 Postmodern mailbox
Michael Graves used a Classical motif in deep colors of terra cotta, blue, green, yellow, and red enamel for his design for the Projects mailbox line, to which Robert Venturi, Stanley Tigerman, and Clifford Selbert also contributed. Made of galvanized steel or aluminum, the boxes comply with relevant U. S. postal regulations and range in price from \$50 to \$450. The Markuse Corp., Woburn, Mass.

402 Security turnstiles
The ASTG anodized-aluminum turnstile comes in 19 colors, including yellow, gold, red, turquoise, and blue. Heavy aluminum extrusions, welded construction, and a heavy-duty controller mechanism produce a nonpenetrable turnstile. Burle Industries, Inc., Lancaster, Pa.

403 Demountable wall
Rapid Wall 21 is a five-component, nonprogressive system available in heights from 7 ft 6 in. to 10 ft. Panels are 2 ft wide and 2 in. thick and interlock with a hairline tongue-and-groove joint. Electrical service can be laid in the concealed horizontal raceway. Available in five colors. Dowcraft Corp., Falconer, N. Y.

404 Bath cabinet
The Mirror Plus, a mirrored cabinet and lighting unit, has a de-fogging device that keeps the center of the mirror clear, and contains an extending make-up mirror. Vertical tubular incandescent lighting gives shadow-free, flattering illumination. When recessed, the cabinet projects less than 3/4 in. from wall. Robern, Inc. Bensalem, Pa.

405 Tactile orientation model
A new signage device for the visually impaired constructed for the Maryland Rehabilitation Center, the tactile orientation model is a three-dimensional floor plan built to scale in contrasting colors, placed on a stand at a 20 deg angle. Designed to convey spatial relationships. Kurt Milam, Baltimore.

406 Movable wall system
The Design Option Wall is a movable wall system with a wide variety of standard options, including steel-panel and glass-frame wall panels and pivot-hinged hardware for solid doors. Walls are made with durable, reusable, and changeable components for easy and inexpensive revision of interiors. Clestra Hauserman Inc., Cleveland.

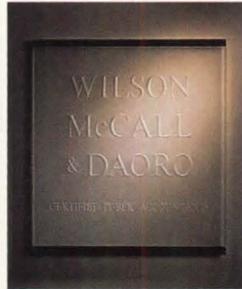
407 Mantels
Handcarved fireplace mantels are based on 18th- and 19th-century French, English, and American designs. They are made from red oak, paint-grade poplar, and mahogany, and are designed to accommodate the standard 36-in.-wide and 30-in.-high fireplace opening. Shipped unfinished. Pinecrest, Minneapolis.

408 Etched tile signs
Framed or unframed ceramic or porcelain tile is photomechanically sandblasted to etch an image into the surface. The etched area is filled with black, white, brown, or gold, or a color matched on a custom basis. Six popular typefaces stocked and 50 more available. Signs from 4 by 4 in. to 12 by 12 in. Buchtal USA, Roswell, Ga.

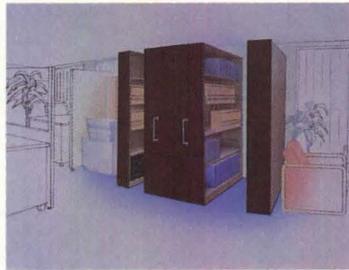
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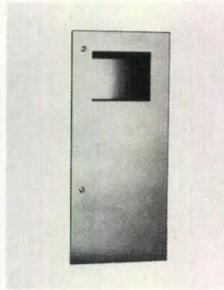
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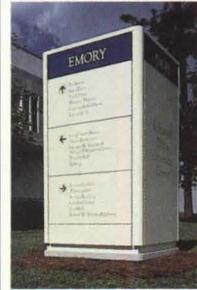
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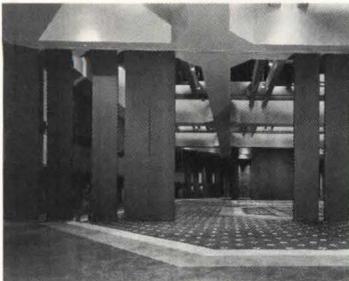
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409 Fireplace

The TU 1900 is a Finnish fireplace designed in soapstone with a facade inspired by a Helsinki railroad station. A soapstone fireplace is comforting and economical, because this dense material stores 2 1/2 times more heat than brick. Tulukivi Group North America, West Lebanon, N. H.

410 Fire-equipment cases

The Medallion series of cabinets for fire extinguisher, fire hose, and fire-department valves have solid-brass doors and trims that make them appropriate to important buildings. Solid bronze and Muntz metal available in lieu of brass. Larsen's Manufacturing Co., Minneapolis.

411 Operable wall

The Spacesetter FS 202/252 operable floor rests 80 percent of its weight on the floor, eliminating costly overhead supports. Stainless-steel floor track can be either surface-mounted or recessed. A ceiling track provides lateral stability. Modernfold, Inc., New Castle, Ind.

412 Carved-glass signage

Optical glass is free of iron that gives plate glass its greenish cast and makes it white when carved. Deep lettering is V-cut by precise sandblasting techniques. The optical glass acts like a fiber optic when edge-lit with colored neon or other light, highlighting the inscription. The Wallach Glass Studio, Inc., Santa Rosa, Calif.

413 Retail storage

Industrial, high-tech-look shelving bins, cabinets, and tables for displaying retail goods. Polished metal or colorful acrylic finishes. Wire shelving is easily assembled and reconfigured. Dust falls through it. Steel and wire shelves are interchangeable. Equipto, Aurora, Ill.

414 Image planning

Lorenc Design produces distinctive signage for commercial, industrial, and institutional projects, including the design of site sculptures to underline corporate identity. These design services also embrace stationery, facades, trademarks, logotypes, and manufactured products. Lorenc Design, Atlanta.

415 Movable filing and storage

The Trackless Storage System cuts filing space in half. Simple to install and easy to relocate. Welded steel carriages accommodate a variety of existing or new shelving sizes. Built-in, foot-activated safety lock stops movement due to uneven floors. Variety of colors. Advance Manufacturing, Los Angeles.

416 Waste receptacles

New series of waste receptacles, recessed for 8-in. walls (B-36703, B-36707), semi-recessed for 4-in. walls (B-367034, B-367074) and surface mounted (B-367039). Made of type-304 stainless steel, with all exposed surfaces in satin finish. Bobrick Washroom Equipment, Inc., North Hollywood, Calif.

417 Toilet compartments

The SanyPorcena used in manufacture of toilet compartments is impervious to acids, caustics, scratches, corrosion, steam, water, and fire. Virtually maintenance free. Recommended for areas subject to extreme use and abuse. Sanymetal Products Co., Inc., Cleveland.

418 Personal-effects lockers

Personal storage unit doors and panels finished in solid oak, oak veneers, and decorative laminate colors and patterns. Cabinet interiors are almond color. Accessories include locks, hinges, garment hangers, identification plates, benches. Fibersin Industries, Inc., Oconomowoc, Wis.

419 Sign standard

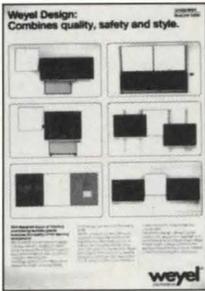
The attention-getting PolySign is a multisided pylon made with three or four fiberglass posts supporting three or four fiberglass sign panels, which can range in size from 6 by 24 in. to 144 by 60 in. These panels can be attached to the posts at virtually any point. Posts supported by concrete base. Forty standard colors protected by urethane coating. Wide variety of graphics available. Apco, Atlanta.

420 Signage software

Macintosh-based Sign Studio Apprentice Architectural applies desktop publishing to signage. It includes three disks containing formatted templates using MacDraw and Apprentice Graphics, a disk with eight templates, and more than 30 multinational symbols. Kroy Inc., Scottsdale, Ariz.

Specialties

For more information, write item numbers on Reader Service Card

**421 Audio-visual aids**

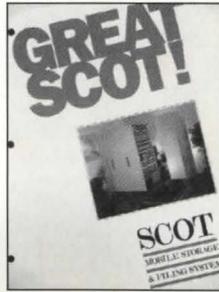
The Visuwall is made up of individual wall-hung or free-standing elements that can be used separately or in combination, writing surfaces, projection surfaces, television compartments, equipment cupboards, control panels, display boards, furniture. Eight pages. Weyel International, Delray Beach, Fla.

**427 Movable walls**

An eight-page display of three lines of movable walls. Both base and channel systems adjust to variations. Closed-cell PVC provides sound and light seal along ceiling, floor and wall interfaces. Installed without drilling holes. Easily relocated. Virginia Metal Industries, Inc., Orange, Va.

**422 Signage**

A 24-page full-color catalog on interior and exterior signage provides dimensions and specifications for a full range of application. Signs in specialty materials and signs made to order. Wide selection of materials and colors. Best Manufacturing Co., Montrose, Colo.

**428 Mobile storage system**

The Scot system increases filing and office storage capacity in 50% less floor space. Cabinets mounted on steel wheels roll on tracks so that cabinets not in use are placed together. Vertical and lateral files and accessories. Scot Mobile Storage & Filing System, Commerce, Calif.

**423 Communication boards**

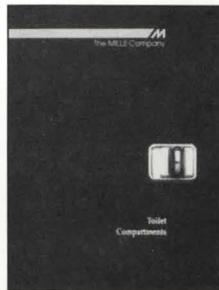
Marsh Visual Communications Products provides specifications, features and packaging information for wall-mounted units, glass-enclosed wall-mounted boards, oak conference cabinets, standard wall-mounted units and radius-cornered boards. Marsh Chalkboard Co., Dover, Ohio.

**429 Shelving systems**

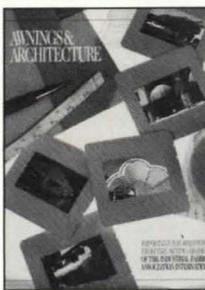
A line of steel cantilever shelving systems for library, filing, and storage applications is described in six-page brochure SC-9003. Broad range of heights, shelf widths and shelf depths. Snap-on construction makes assembly and dismantling easy without tools. Spacesaver Corp., Fort Atkinson, Wis.

**424 Closet accessories**

Design Ideas Book by Closet Maid shows how to solve the storage problems of laundry room, garage, walk-in closet, reach-in closet, child's closet, and pantry by application of a line of hangers, shelves, basket drawers and bins in high-tech wire. Clairson International, Ocala, Fla.

**430 Restroom compartments**

A line of toilet compartments, urinal screens, shower cabinets and dressing compartments designed for long life in hostile environments is described in a four-color, 12-page brochure. Overhead braced, floor braced and ceiling hung. Finishes in stainless steel, baked enamel or phenolic. The Mills Co., Cleveland.

**425 Awnings**

A colorful 16-page booklet tells almost everything about awnings, manufacture, frames and frame behavior and anchoring, styles, fabric characteristics, graphics, illumination, and suppliers around the country. Industrial Fabrics Association International, St. Paul, Minn.

**431 Fireplaces**

The radiant heat, wood-burning RD-A fireplace has an interlocking damper/smoke shield combination that gives a 25% larger viewing area. It has no exposed grilles. Available in screen opening sizes of 33, 38 and 43 in. Decorator glass doors optional. Superior Fireplace Co., Fullerton, Calif.

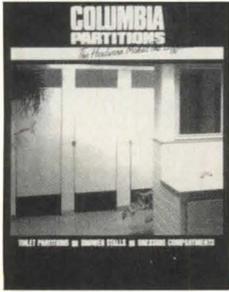
**426 Toilet compartments**

Description of overhead braced, floor mounted and ceiling hung toilet compartments designed for heavy wear. Produced in stainless steel, baked enamel, plastic laminate or phenolic. Also shower and dressing compartments and urinal screens. Metpar Corp., Westbury, N. Y.

**432 Equipment screens**

Mechanical equipment screens are designed for handsome concealment of roof top and ground level equipment. An eight-page booklet pictures a variety of extruded aluminum profiles in many patterns. Finishes are Kynar 500, Tri-X metallic, Duranodic, anodized. C/S Group of Companies, Muncy, Pa.

For more information, write item numbers on Reader Service Card



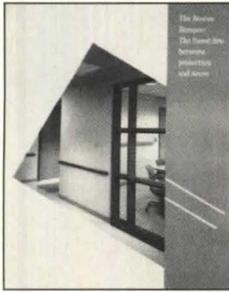
433 Toilet partitions

Elegance toilet partitions are solid oak, cherry, walnut, or mahogany, made in either a raised- or a flush-panel design with polished brass, stainless steel, or aluminum hardware. Infinity partitions are made of a solid-surface material, in a choice of five colors. Durable and easy to maintain. Columbia Partitions, Inc., Columbia, S. C.



439 Washroom accessories

A 40-page hospital and washroom catalog gives specifications and illustrations for soap dispensers, paper-towel dispensers, waste receptacles, grab bars, mirrors, and other accessories. The Uni-Color series has solid, 5/16 in., high-pressure, one-piece, laminated plastic in designer colors. A & J Washroom Accessories, New Windsor, N. Y.



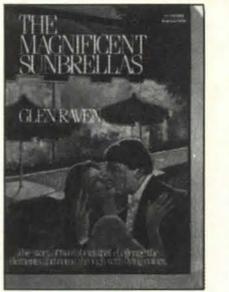
434 Bumpers

Illustrations and descriptions of a line of vinyl bumpers that protect walls from the impact of chair backs. Resilient, abrasion-resistant, non-marking vinyl is mounted on an extruded-aluminum channel. Seven standard colors; custom colors on order. Boston Retail Products, Medford, Mass.



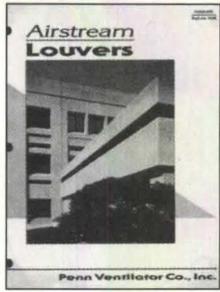
440 Hat and coat hooks

High-style hat and coat hooks, racks, and costumers described and pictured in a 20-page catalog. Product range is broad, with designs in polished metal, natural woods, and acrylic. Mounting bars can hold hooks in multiples of two to four. Complete material and size information on each product. Peter Pepper Products, Inc., Compton, Calif.



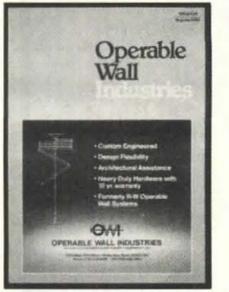
435 Awning fabric

Firesist modacrylic material meets fire- and building-code requirements for use in a variety of solar-control, screening, and interior decorative applications. Fabric is identical on both sides, and will not support the growth of mildew. All standard colors and patterns illustrated. Eight pages. Glen Raven Mills, Inc., Glen Raven, N. C.



441 Louvers

A 12-page catalog covers stationary, operable, and combination louvers in extruded aluminum or galvanized steel. Louvers used for shade, privacy, ventilation. Finished in Kynar 500, baked enamel, and Flurodized. Airstream Products Div., Penn Ventilator Co., Inc., Philadelphia.



436 Operable walls

An eight-page booklet gives specifications and illustrations for a line of track-hung, sound-retarding operable doors. Panels are 3-in. thick, with 20-gauge steel faces. Facings are vinyl, carpet, fabric, or paint. Heights to 30 ft, widths 4 ft. Operable Wall Industries, Bridgeville, Ill.



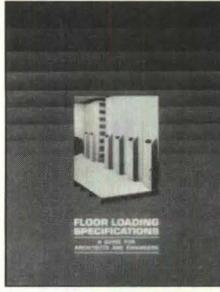
442 Gas fireplace/stove

A cast-iron fireplace-insert heater has push-button ignition and three heat settings. Gas Association-approved for natural gas or LP-gas fuel. Finished in any of five colors of porcelain enamel. Stove weighs 175 lb and is 26 3/4 in. high, 33 in. wide, 14 3/4 in. deep. Fireplace holds natural-looking simulated logs. Jotul USA, Inc., Portland, Me.



437 Crowd control

Catalog covers a complete line of portable posts and ropes for pedestrian-traffic control, lobby accessories such as sign stands, utility railing, and decorative brass systems for bars, buffets, and space separation. Broad range of styles, materials, and finishes. 30 pages. Lawrence Metal Products, Inc., Bay Shore, N. Y.



443 Floor-loading guide

Floor Loading Specifications—a Guide for Architects and Engineers is an analysis of the weights of concentrated loads, required when designing automated, high-density storage systems. Tables on equipment loading, and for loads placed on parallel framing. White Office Systems, Kenilworth, N. J.



438 Security lockers

Coin-operated lockers sized for holding items from billfolds to skis. Special storage units for parcel post, pistol, and evidence control. Finishes in stainless steel or enameled electro-zinc-coated steel. Locks made of stainless steel, type 304 nickel bearing. Computerized locks available. 12 pages. American Locker Security Systems, Jamestown, N. Y.



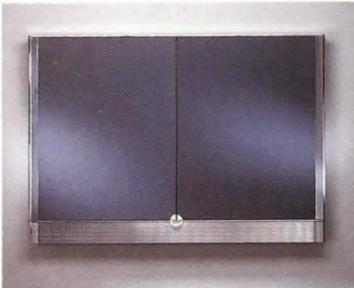
444 Fireplace trim

A catalog of trim options for the SunBurst fireplace includes new porcelain-enamel colors for the upper grill, and a louvered upper grill in brass, silver, or black finishes. Add-on accessories include kits for edge-trim, heat deflectors, outside-air intake, and a new gas-log conversion device. Dove, Aurora, Ill.

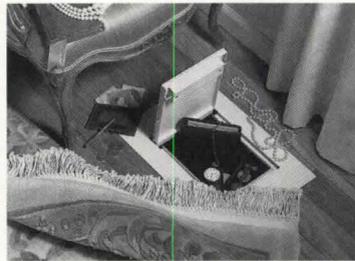
Equipment

Conference room & audiovisual
 Kitchen & bath cabinets
 Laboratory equipment
 Library equipment
 Loading dock equipment
 Medical equipment
 Merchandise display
 Residential equipment

For more information, write item numbers on Reader Service Card



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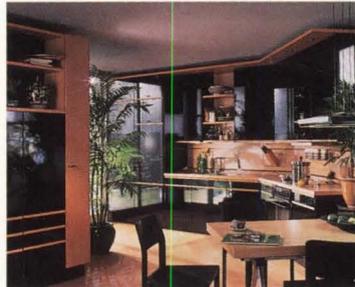
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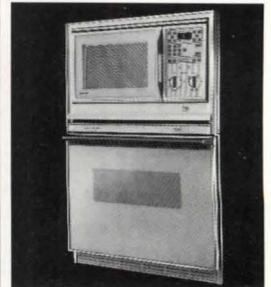
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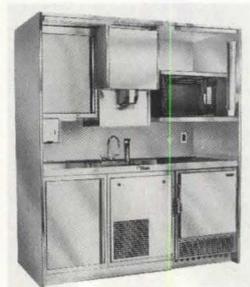
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445 Visual communication boards
 Wall-mounted cabinets conceal dry-marker boards, flip-chart pads, or projection screens, and have tip-out accessory trays. Designed in a contemporary style by Charles Mauro, they offer a wide choice of sizes, surface materials, colors, and finishes. Howe Furniture Corp., Trumbull, Conn.

446 Cooker
 The AGA stove, fueled by natural gas, propane, or coal, operates on the principle of continuous, stored heat. No knobs or dials. Large model has seven cooking stations, four ovens, and three surface plates; the more compact stove pictured has two ovens. In red, green, blue, black, white, ivory, or brown enamel. Weighs 1,400 lb. Cooper & Turner, Inc., Stowe, Vt.

447 Semi-custom kitchen cabinets
 Delayr door style, one of seven available on the new Amera line of frameless, European-style cabinets, has a laminate finish in either white or gray with accent stripes in red, blue, black, white, gray, and natural or unfinished oak. More than 47,000 design options. Merillat Industries, Inc., Adrian, Mich.

448 Built-in safe
 A built-in wall or floor safe is simple to install between 16-in.-on-center studs, and can be easily concealed by pictures, cabinets, rugs, closets. Made of heavy-gauge steel reinforced with steel backplates. Seamless bodies and double-reinforced doors. Exterior lock is high-alloy, nickel-plated steel. Felt-like interior. NuTone, Cincinnati.

449 Custom kitchens
 The 2002 GL kitchen has doorfronts of glossy, black laminate with light beech profile strips. PVC edges make doors and drawers resistant to chips and scratches. Doors and drawers have all-around dust seals for clean contents and quiet closings. Pullouts are mounted on ball-bearing glides. SieMatic Corp., Treviso, Pa.

450 Nourishment station
 For lunchrooms, vending areas, and lounges, the Modular Nourishment Station includes a sink and counter, an ice machine, and an undercounter refrigerator, all of stainless steel. Options include super-hot water tap, automatic coffee brewer, dual electric hot plates, microwave oven. Jewett Refrigerator Co., Buffalo, N. Y.

451 Kitchen furnishings
 The Barley Twist kitchen draws inspiration from 18th-century English country furniture. Key features are carved barley twist plasters and dentil cornices. Fittings include a deep Belfast sink with teak drainers, willow baskets for fruit, multi-tiered plate racks, granite and wood work surfaces. Smallbone, Inc., New York.

452 Rear-projection screens
 Expanded line of optical coatings for Cinescreen rigid rear projection screens range from Cine 10, with a gain of 1.0 for maximum uniformity over an ultra-wide viewing cone, to standard Cine 25, which offers a peak gain of 2.5 on axis and medium viewing angles. Draper Shade & Screen Co., Inc., Spiceland, Ind.

453 Custom kitchens
 Tielsa luxury kitchens in laminate, metal, and lacquered and polished wood finishes. A wide variety of styles and colors are combined with time-saving features. Company designers specialize in spacious, convenient storage for equipment and provisions. Contemporary Systems, Inc., Woburn, Mass.

454 Cuisinière
 La Cornue 5-star is a heavy, professional-level kitchen stove. Custom-made in France of stainless steel, nickel-plated steel, and bronze, these stoves have two ovens, one electric and one gas, a hot plate with graduated heat, and four cast-iron burners with brass tops. A new 36-in. model is designed to replace the conventional-size American range. Europe in USA Corp., Miami.

455 Built-in oven
 A white-on-white combination of microwave speed with the convenience of a self-cleaning conventional oven. Model RM 286PXV offers microcomputer touch controls with auto-sensor microwave cooking and an oven with a panoramic glass door, automatic clock, and minute timer. Whirlpool Corp., Benton Harbor, Mich.

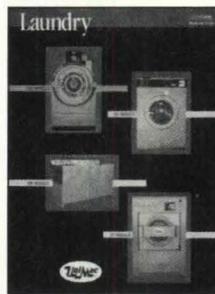
456 Range hood
 The Barrel Form one-piece hood has a two-motor centrifugal exhaust unit producing 600 cfm. Comes in wall-mount and island design in 36-, 42-, and 48-in.-wide sizes. Utensil rail with S hooks. Finishes are solid brass, stainless steel, copper, and white or matte-black enamel. Abbaka, San Francisco.

Equipment

For more information, write item numbers on Reader Service Card

**457 Cabinets**

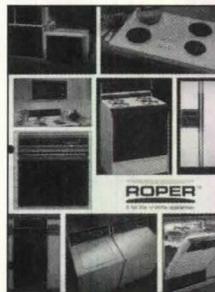
A complete range of kitchen cabinetry, wall cabinets, base cabinets, full cabinets, and specialized cabinets is illustrated and described in a four-page bulletin. Face frames are built of solid 3/4 in. kiln-dried oak rails joined by mortise and tenon with glue. Exteriors protected by sealer and top coat. Kitchen Kompact, Jeffersonville, Ind.

**463 Washer-extractor**

The UniSoft UF-50 soft mount, 50-lb washer-extractor is made of stainless steel, has computer control, a water-tight enclosure, and low power consumption. Extraction speed is 900 rpm and the G force is 345. Powered by a variable-speed AC invertible drive motor with self-diagnostic drive system. UniMac Co., Inc., Marianna, Fla.

**458 Projection screens**

A design guide outlines the advantages of a smooth, seamless screen material whether used in auditorium, classroom, or boardroom. Rules are given for how to determine the best viewing size. Accessories include tilting devices, cases, and remote controls. Bretford Manufacturing, Inc., Schiller Park, Ill.

**464 Home appliances**

A 40-page, four-color booklet illustrates and gives dimensions for a broad selection of electric and gas ranges, cooktops, and ovens; refrigerators, freezers, dishwashers, air conditioners, trash compactors, washers, and dryers. Each appliance comes with a comprehensive warranty. Roper, Benton Harbor, Mich.

**459 Mini-kitchens**

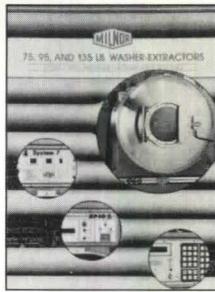
Kitchen equipment for when space is precious. All-in-one kitchen centers range in size from a 30-in.-wide unit with sink, refrigerator and two burners to a 72-in.-wide model with four burners, a full oven, a 9.2-cu-ft refrigerator, sink, counter space and storage compartment. Gas or electric ranges. King Refrigerator Corp. Glendale, N. Y.

**465 Modular exhibit system**

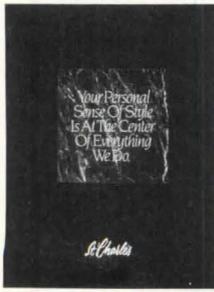
Tubular structural system for furniture, displays, exhibits, and store fixtures in the 19 mm (3/4 in.) series has connectors of metal alloy and tubes of heavy-gauge steel. Connectors in eight configurations. Tubes come in lengths from 7.13 to 46.5 in. All elements are chrome plated. Abstracta Structures Inc., New York City.

**460 Dock leveler**

Descriptions and illustrations of the Dual-Dok lift and leveler system. Gives the efficiency of a fully hydraulic level and a powerful lift. System's working range is 32 in., 12 in. above dock level and 20 in. below. Lift handles the full range of operations from driveway to dock floor heights to 55 in. Rite-Hite Corp., Milwaukee.

**466 Programmed washer-extractor**

The EP-10 series of washer-extractors is pre-programmed with 10 formulas for different demands, such as athletic, commercial, healthcare, prison. Formulas can be modified as soil or fabric conditions change. Equipped with LCD information panels. Models come in 35, 50, 75, 95 and 135-lb range. Pellerin Milnor Corp., Kenner, La.

**461 Kitchen furnishings**

A colorful 16-page brochure describes a line of kitchen cabinetry that has shapes and models for every conceivable design style, from Colonial to high tech. available finishes include popular species of wood, a broad color range in laminate surfaces, and steel. The St. Charles Companies, Chesapeake, Va.

**467 Semi-custom kitchen cabinets**

A new less-expensive line, the Coronado cabinet offers 13 door and frame styles. A cabinet specification and accessory guide contains dimensions for all base and wall cabinets; 16-page catalog describes hardware, finish, and fit options. Quaker Maid, Div. WCI, Inc., Leesport, Pa.

**462 Dock adjusters**

The Pel series of dock levelers comes in mechanical and fully hydraulic models with capacities of 20,000 and 25,000 lb. Both kinds have one-piece wrap-around headboards, full-width piano hinge with 1-in. pin, nine-point rear hinge support, and 4-in. maintained side-to-side deck tilt. Blue Giant Equipment Corp., Pell City, Ala.

**468 Waste-compaction system**

A line of solid-waste compaction systems for needs ranging from high-rise residential and commercial to shopping centers to heavy industry and municipal. Capacities range from 0.27 to 4.2 cu yd. Terms negotiable for rent, lease, lease/purchase, and purchase. Marathon Equipment Co., Vernon, Ala.

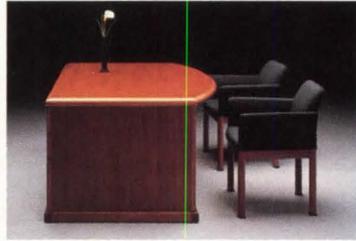
Furnishings

Artwork
Blinds, shades & shutters
Cabinets & storage
Fabrics
Furnishing accessories
Furniture
Rugs
Seating

For more information, write item numbers on Reader Service Card



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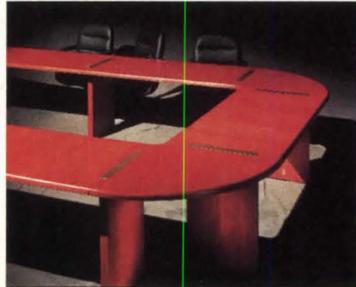
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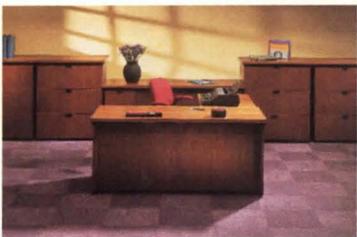
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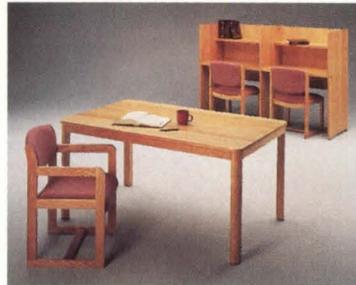
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469 Office systems

The Tab-Trac high-density storage system for archives and filing uses shelving units placed on carriages that move along tracks. Aisles are created only where needed. A new program of radius-edged, laminate-surfaced end panels permits a custom-design look. Choice of manual, mechanical-assist, or electrical systems. TAB Products Co., Palo Alto, Calif.

470 Seating system

A range of chairs with the same design theme suit a variety of conference, dining, or stacking-chair needs. Made of molded plywood, Hopper chairs can be upholstered in one or two fabrics and/or leather. Frames are made of wood, and stainless- or chrome-plated steel tubes. Kinetics, Rexdale, Ont.

471 Office furniture

Distinguished by a cornice-like stepped edge detail, Brian Kane's Paladin office uses a brand-new assembly process and composite trim materials. These production innovations produce a wood casegood line at a competitive price. Finish is medium-tone walnut veneer. Stow & Davis, Div. of Steelcase, Inc., Grand Rapids, Mich.

472 Office suites

The Beckett Collection of executive office furniture is characterized by the design, composition, and finish of its wood casegoods. Interiors of cabinets, and the backs of all freestanding credenzas, have been finished in matching veneers. All woods are treated with Technivar acid-resistant varnish. Tuohy, Minneapolis.

473 Conference table

The Entropy Tablesystem is a modular conference table with straight, corner, and intersecting tops that join to form almost any configuration. Edges can be soft, square, beveled or transitional profile. Available in five standard woods and 20 finishes. Lunstead, A Haworth Co., Holland, Mich.

474 Horizontal blind

The SheerView 0.020-in. perforation option provides visibility through a closed horizontal blind, optimizing the exterior view while maximizing light and glare control. Has a 6percent openness factor. Available in St. Tropez 1-in. and Riviera 1-in. and 1/2-in. blinds. Levelor, Inc., Sunnyvale, Calif.

475 Armchair

The Otaru armchair, designed by Nigel Coates for Palazzetti, was made for sophisticated comfort. A cotton/linen blend covers a combustion-modified, fireproof foam supported by a beechwood frame. The chair is 30 1/2 in. tall, 36-in. wide, and 37 in. long. Palazzetti, Inc., New York City.

476 Modular seating systems

Logix lobby furniture adapts to any layout. Curved, wedge-shaped, straight, and quarter-circle modules are made of seamless, molded fiberglass components in a variety of finishes. KI Architectural Fiberglass Site Furnishings, Green Bay, Wis.

477 Tables and chairs

The Groton Series of solid oak tables and chairs is designed for use in libraries, lounges, offices, and hospitals. The Groton table comes with circular, square, and rectangular tops. Chairs, with or without arms, have fully upholstered seats and back supports. Adden Furniture, Inc., Lowell, Mass.

478 Woven-wood screen

A standing screen designed by Timothy de Fiebre is made of handwoven 1 3/4-in. maple strips mounted in a curved frame, 5 1/2 ft tall, carved from solid American maple. Screens are made with three to six 15-in.-wide panels. The entire screen folds for storage. Brickel Associates, Inc., New York City.

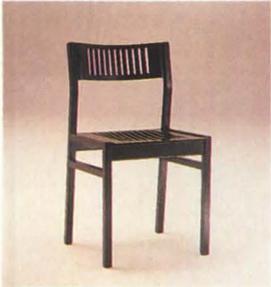
479 Play center

A new design meant specifically for day-care centers, the two-story EdVenture Center offers 44 sq ft of play space using only 4 by 5 1/2 ft of floor space. Easy to assemble. Designed with safe edges and an unbreakable window. Weighs 500 lb. Modifications, custom design, color options available. Playscapes, Inc., Madison, Wis.

480 Decorator fabrics

The Spice Island collection was inspired by the exotic arts and crafts of Indonesia and the European influences that modified them. Designed by batik authority Iwan Tirta, the Spice Island patterns reflect designs produced by ancient resist-printing techniques. Scalamandré, Long Island City, N. Y.

For more information, write item numbers on Reader Service Card



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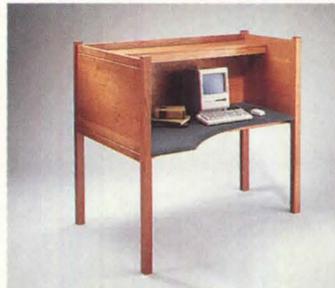
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481 Small-scale chair
Designed by Enrico Franzolini for smaller-scale restaurant, institutional, office, and residential environments, the Minim chair has a slotted back and a seat of molded, laminated beechwood. Finishes in cherry and mahogany stain, natural, and matte black and metallic gray lacquer. Interna Designs of America, Ltd., Chicago.

482 Shaker-style chair
The Meeting House Chair, designed in a Shaker style by Davis Allen, is a lightly scaled maple pull-up chair with wooden back slats and an upholstered seat. Slats and arms be upholstered or left unadorned. Upholstery options include COM, leather and HBF textiles. Hickory Business Furniture, Hickory, N. C.

483 Entrance mat
The Pedigrid/Pedimat entrance mat now comes in a broader color range. The aluminum treadrail entrance system reduces tracked-in dirt, mud, sand, and slush in building lobbies. Made with solution-dyed nylon carpet treated with Scotchgard to resist stains. Construction Specialties, Inc., Cranford, N. J.

484 Conference tables
Ovolo series tables, designed by Robert F. Ingram, are produced in conference and occasional models. Occasional tables have either leg or cube base, with fluted columns as leg or corner trim. Conference tables have anigre veneer tops in a variety of sizes and shapes. Mueller, a Haworth Co., Holland, Mich.

485 Tubular chair
The Jonathan chair, designed by Stanley Jay Friedman, has a seat and back constructed of 3/8-in.-thick molded fiberglass resin, designed with a lumbar spring for comfort. The frame is made of 5/8-in. tubing. The chair is available with or without arms. Brueton Industries, Inc., Springfield Gardens, N. Y.

486 Carrel
Library carrel, built in cherry or ash, incorporates a curvilinear fireslate work surface and can be produced as either right or left. Because they are finished on all sides, they can be configured in a variety of ways. To supplement ambient lighting, task lighting is provided from behind the valance. Thos. Moser Cabinetmakers, Portland, Me.

487 Desk system
The Ellipse freestanding desk system consists of extensive work surfaces, conference tables, storage cabinets, screens, and pedestals. Vertical wire and cable management is incorporated in legs. Horizontal power beam routes cabling between workstations. Steelcase Inc., Grand Rapids, Mich.

488 Console table
The Weatherend console table, made of wood, is designed for foyers or as a buffet table. Suitable for outdoor or indoor use in both residential and commercial settings. Available in clear coat mahogany finish or a wide range of high gloss and custom colors. Weatherend Estate Furniture, Rockland, Me.

489 Sofa
The Ali-Baba is a combination sofa and rug designed by Oscar Tusquets on a Moorish theme. It is made of molded polyurethane foam over a steel frame and upholstered. Available with two different rugs attached with Velcro or upholstered in COM without the rug. International Contract Furnishings Inc., New York City.

490 Decorative fabric
Caracus appears from a distance to be a bold plaid and on close examination is an intricate twill. Woven domestically of 50 percent silk and 50 percent cotton, it has a crisp, taffeta hand, with clear and strong colors. Appropriate for office or domestic use. Passes the California Flammability Test Bulletin #117. F. Schumacher & Co., New York City.

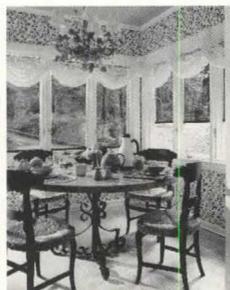
491 Window shade
Duette shades are built on a cellular honeycomb design that traps air, acting as insulation against heat and cold. Available in 3/8, 3/4 and 2-in. pleat. No cords or holes are visible and there are no seams. Available in transparent, semi-transparent, translucent, and blackout. Hunter Douglas Duette Window Fashions, Broomfield, Colo.

492 Desk accessories
The Sterling Specifier Series of desk accessories comes in three collections, Specifier, Designer and Custom, and are made of anti-static, high impact polystyrene. Series includes letter trays, card files, calendar pad, memo pad, pencil cup, paper clip dispenser, wastebasket, and memo pad holder. Sanford Corp., Bellwood, Ill.

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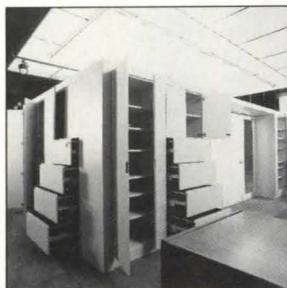
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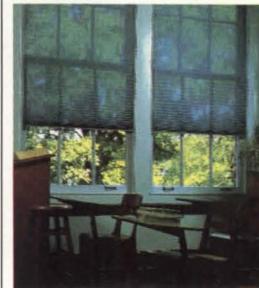
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493 Folding table

Designed by Douglas Ball, the Ballet table has a metal base that pivots and folds. Available in both X- and K-shaped configurations, the base supports rectangular 24-in.-wide surfaces, which come in 48-in., 60-, 72-, and 84 in. lengths. Vecta, Grand Prairie, Tex.

494 Banners

This banner for the eight-story atrium of San Antonio's Lincoln Center, designed by the architectural firm of Lance Larcade Bechtol, is from a line of custom-made banners for public spaces and corporate commissions. Triangular nylon segments in gradated colors meant to invoke a rainbow are suspended from a metal structure. Bannerworks, Inc., Seattle.

495 Modular storage wall

The Archetype storage system includes modular filing cabinets, storage closets, and glazed panels. Connecting soffits, office doors, and clerestory glass panels can be assembled to give the appearance of built-in cabinetry. Finishes include low- or high-pressure laminates and wood veneers. J. G. Furniture Systems, Inc., Quakertown, Pa.

496 Sun shading

Llumar polyester film, traditionally applied directly to flat window glass to reduce solar heat gain, can also be used on retractable window shades. Metallic alloys integrated into the film are said to improve the product's heat control performance. Martin Energy Products, Div. of Cortaulds Performance Films, Martinsville, Va.

497 Fabric

Fortress is the newest version of this mill's standard Armor Cloth. The long-wearing upholstery, woven of Cordura nylon fiber in a tighter construction for improved durability, comes in 18 bright multitones. DesignTex, Woodside, N. Y.

498 Chair

The Dickinson chair features mortise-and-tenon construction with a handrubbed oil or lacquer finish and a hand-woven Shaker Tape seat. The chair measures 15 1/2- by 15 1/2- by 31 1/2-in. and can be specified in a variety of woods (cherry is shown). Thomas W. Brady, Furnituremaker, Bolton Landing, N. Y.

499 Upholstery fabric

The Cross Cultures collection of fabric designed by Hazel Siegel is based on large-scale jacquard-weave patterns with small repeats. Bauhaus Geometric (shown), inspired by an original Bauhaus design, is a cotton and rayon blend that is available in six colorways. Knoll International, New York City.

500 Casement fabric

The vertical lines of Fox Trot's square pattern are accented with diamond shapes. The 100-percent cotton fabric is 59-in. wide and has a small-scale (2 5/8 in.) repeat, in a variety of off-white and beige colorways. Gretchen Bellinger, Long Island City, N. Y.

501 Conference chair

The Triform chair has curved beech armrests and legs supported by a steel-tube frame. The chair's seat and back, made from pressed plywood and a foam layer, can be covered with fabric or leather upholstery. Can be stacked or ganged. Coordinating lounge chairs and two- and three-seat benches are also available. Lübke International Design, High Point, N. C.

502 Computer table

The manufacturer's mobile Design Station can suspend monitors and other computer hardware weighing up to 120 lbs over an adjustable drafting table. The system consists of a 70- or 78-inch-high frame, 30- or 42-inch wide shelves, radial-arm monitor supports, an adjustable laminate worksurface, and a movable base. Ergotron, Inc., Eagan, Minn.

503 Wood chair

Designed by Glenn Gee, the Symphony II chair is available with a rounded or arched back. Both versions have powder-coated steel frames, and can be specified in wood or upholstered. The chairs are 33 1/2 inches high, 22 inches wide, and 22 inches deep. Charlotte Company, Inc., Belding, Mich.

504 Sheer sun shades

A line of pleated sun shades made from the manufacturer's Veroluscent aluminized fabric is intended to reduce solar-heat gain, while retaining access to the view out. The flame-retardant polyester fabric passes NFPA 701, and is available in a variety of colors and opacities. Verosol USA, Inc., Pittsburgh.

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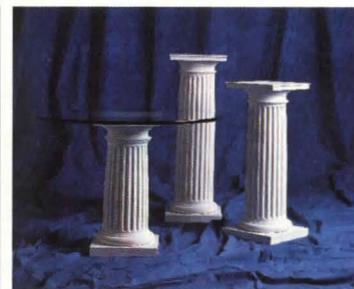
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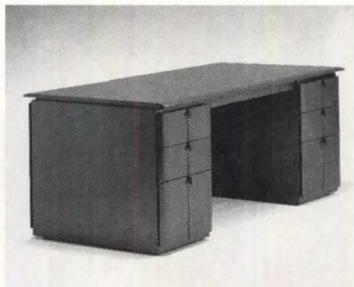
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505 Office collection

New Rizzi Office components complement the freestanding furniture line. Privacy screens in three heights, linking modules that allow users to link electrical components, wire management files, conference tops with returns or bridges, executive U units. The Gunlocke Co., Wayland, N. Y.

506 Guest chairs

The Oriana line of guest seating designed for Stow & Davis by David Jenkins is a 20th century version of slatback and ladderback furniture. Available in four models in a variety of colors and finishes, including cherry, mahogany, black, and white. Steelcase, Inc., Grand Rapids, Mich.

507 Club chair

The Cub-a club chair, inspired by cubism and international style, is a compact, leather-upholstered chair devoid of ornamentation except for a cast-bronze lower edging. The chair is almost a cube, measuring 29 by 34 by 30 in. and is available in eight leathers. Dakota Jackson, Inc., New York.

508 Motorized window coverings

The WindowTech line of remote controlled window coverings include floor to ceiling draperies, Roman shades, mini blinds, and other coverings controlled either by wall switches, push-button remote control or automatic solar sensing devices. Shaffer & DeSouza Inc., Bala Cynwyd, Pa.

509 Casegoods

The Rialto collection, a complete line of casegoods designed by Wayne Braun for the executive office, includes desks, credenzas, workwalls with bookcases and wardrobes, and conference tables. Done in fine wood finishes. Metropolitan Furniture Corp., South San Francisco.

510 Compact office furniture

The Triuna collection was designed by Manfred Petri for the smaller office or workspace. High-end, custom-designed wood furniture includes table and pedestal desks, credenzas, sideboards, bookcases, occasional and conference tables. Done in premium-grade veneers. Geiger International, Atlanta.

511 Adjustable stool

The Fritz adjustable stool has a seat and legs in black expanded polyurethane over a steel framed with post and feet in contrasting colors. Seat is 14 1/2 in. in diameter and adjusts from 18 to 26 in. height. Optional black footring is available to order. The Ironmonger, Inc., Chicago.

512 Tabletops

Dur-A-Edge tabletops have ultra-violet color stable, chemically resistant seamless edging. Molded seamless polyurethane rounded and texture edging is sealed to high-pressure plastic laminate table face, table core, and moisture/warp resistant bottom liner. Foldercraft Co., Kenyon, Minn.

513 Decorator fabric

Florian, a 100% new wool jacquard floral fabric, is the most recent addition to the Pallas Textiles line. It takes its name from the cafe on the Piazza di San Marco. The fabric is produced in 11 colorways and is appropriate for executive and residential application. Pallas Textiles, New York City.

514 Pedestals

The Tuscan 701 pedestals and table bases replicate Greek and Roman columns. This design is inspired by the Amphitheater at Arles and the Temple of Piety in Rome. The design includes the entasis, projecting astragal, and Ionic flutes. In pine or poplar. Chadsworth Inc., Atlanta.

515 Workstation accessories

The Orchestra line of workstation accessories is designed for style, efficiency and comfort. Included in the collection are letter, memo and utility trays, paper management organizers, pencil cup, tape dispenser, disk holders, calendar, card index, and wastebasket. Knoll International, New York City.

516 Folding screens

Solid wood interior screens, hinged for portability, come with screen designs of raised panels, louvers, lattice and removable cloth panels. Useful as display backdrops for department stores, cover ups for unsightly views, and creation of intimate hideaways. Kestrel Manufacturing, St. Peters, Pa.

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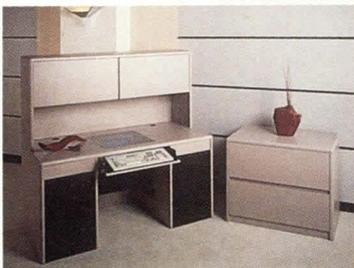
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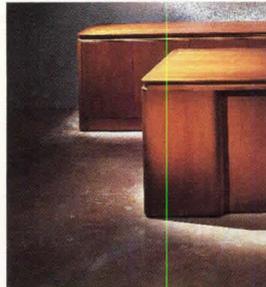
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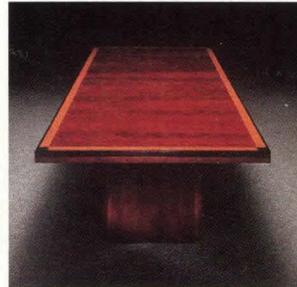
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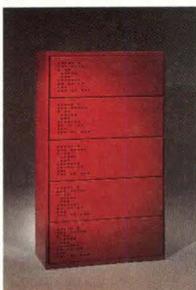
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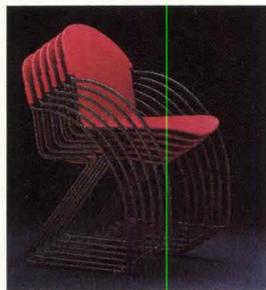
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517 Furnishing fabrics

The International collection is composed of five coordinated patterns in 48 colorways. Their designs reflect the cultural influences of Italy, Spain and England. Among the patterns are Mosaico; Botticelli, a scrolling vine pattern, and Byzantine. Arc-Com Fabrics, Inc., Orangeburg, N. Y.

518 Computer casegoods

A line of laminate casegoods furniture that integrates the computer and its peripherals comes in 11 desk colors and five coordinating worksurface colors. Drawers are ergonomically positioned and have solid black laminate interiors. Nova Office Furniture, Inc., Effingham, Ill.

519 Filing cabinets

The Impressions line of metal file offers the option for creating geometric symbols, logos or patterns in the drawer or front door by knocking out or removing material from the front. A painted liner is placed behind the knock-out area for contrast. Office Specialty, Holland Landing, Ont., Canada.

520 Pull-up chair

The "N" chair, designed by Perry A. King and Santiago Miranda, is a full-size, light weight contract pull-up chair. Frame is tubular welded steel. Seat backs and arms covered in textured black urethane. Seat is plywood covered with urethane and dacron. Atelier International, Ltd., Long Island City, N. Y.

521 Desk collection

The Wainright desk collection, designed by William Sklaroff, exemplifies high-quality cabinet making in its pedestal and U desks and accompanying executive furniture. The double-pedestal comes in 74, 78 and 84-in. lengths. Edward Axel Roffman Associates, Allentown, Pa.

522 Stacking chair

Parade! is a stacking chair designed to be attractive and functional in group settings. Available in a variety of upholstery fabrics and frame and shell finishes. Durable, comfortable, and lightweight, it is compact for easy storage and transportation. Steelcase, Inc., Grand Rapids, Mich.

523 Fire-retardant fabrics

Three new SEF (self-extinguishing modacrylic fiber) upholstery fabrics are Blazon, Chevronel, and Ardor. Blazon and Chevronel are made of 70percent SEF and 30percent wool engineered to form a single yarn. Ardor is a 100 percent SEF velvet plush that looks like mohair, feels like cotton. Brickell Associates, Inc., New York.

524 Executive desks

The Carillon desk collection designed by William Sklaroff offers a broad range of veneer tops in woods such as Honduras mahogany, cherry, ash, and maples, with contrasting accent edge details. Each pedestal has a distinctive incised corner detail. Halcon Corp., Stewartville, Minn.

525 Panel fabrics

Terrazzo/Terrazzo Reverse and Monterey are two new panel fabrics designed for heavy-duty office performance. Both are made of 100percent Trevira polyester FR. Monterey has a damask-like pattern in six colors. Terrazzo/Terrazzo Reverse is in 12 colors. Maharam/Vertical Surfaces, Hauppauge, N. Y.

526 Desk

Volker Laprell has designed a desk in the Sigma line that is in the 1930s style. Available in black, pearl white, and metallic /anthracite lacquered ash. It is 95 1/4 in. long, 34 3/4 in. wide in part of its length and 52 in. wide in the rounded end. Line includes accessories. Ligne Roset USA Corp., New York.

527 Contract fabrics

Derived from the wool paisley shawls, the Marrakech damask is a 100percent wool fabric designed for durability and beauty. In 54-in. widths, it comes in malachite, Pompeian red, Sienna, saffron, sapphire blue, and jade. Has 16-in. vertical repeat, 14 1/2-in. horizontal. Brunswick & Fils, New York.

528 Lab workstation

Modular Laboratory Workstations are a system of work surfaces, equipment support and utilities. Storage is designed to handle equipment and supplies while saving on floor space. An eight-wire electrical system provides power and protection. American Seating Co., Grand Rapids, Mich.

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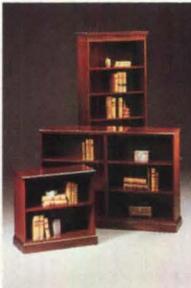
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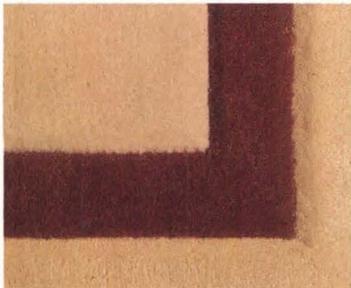
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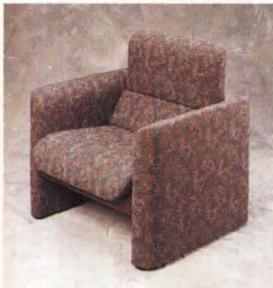
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529 Casegoods

The Rendition line of wooden casegoods offers solid-wood edges, mitred joints, solid-wood dovetailed drawers, and top-quality veneers. Capabilities for both horizontal and vertical wire management. Removable backs. Mahogany, maple, and cherry finishes. Hardwood House, Rochester, N. Y.

530 Office chairs

The Marathon chair has built-in lumbar support. Fingertip adjustments control tilt and pneumatic lift. Line includes management, task, and side chairs. Upholstered in Herculon fabric over high-density molded foam. 18 colors. Lifetime warranty. The Marvel Group, Inc., Chicago.

531 Rugs

Area rugs made of wool, nylon, wool/nylon blends, and olefin have applications in healthcare facilities, hotels, restaurants, institutions, and offices. One-of-a-kind rugs produced from clients' designs. Works directly with decorators, designers, contractors, and specifiers. Omega Rug Works, Dalton, Ga.

532 Decorator fabrics

Brighton is an all-cotton jacquard fabric that combines satin and double-cloth with high-relief brocading for imposing draperies. Hologram Leaves is 56-percent silk and 44-percent linen colored in a whitened gold and deep bronze. New Leaf is 100-percent cotton with a chintz finish. Jack Lenor Larsen, New York City

533 Upholstery fabric

Tellure, a new seating fabric in 17 colorways, is a 100-percent polyester Grade A crepe weave. Tellure colors are either mid-tone spice or jewel tones and coordinate with Haworth trim. The Maharam Synergism collection has been expanded to 42 fabrics in over 800 colorways. Haworth, Inc., Holland, Mich.

534 Lounge furniture

Otto Zapf has designed a collection of lounge furniture for private office and reception areas and a series of tables. Lounge has separate lumbar panel that can be upholstered in same or contrasting material. Tables offer inserts in leather, granite, or wood. Allsteel, Aurora, Ill.

535 Desk accessories

Desk Scape is a full line of desk accessories that includes in/out trays, bookends, pencil/pen cups, desk pads, and other desk top equipment. Specifiable in a variety of materials that includes stone, leather, metal, and plastic. Customization is also available. Details, New York City

536 Bookcases

A line of eight finely crafted bookshelves built on 30-in. centers will feature three heights, 30, 42 and 84 in. Widths available will be 30, 60, and 90 in. Produced in mahogany and compatible with the 18th Century and the 1200 Traditions Series. Baker Furniture, Chicago.

537 Custom rugs

Only custom-design rugs and carpets made. Able to incorporate fabric or wallpaper designs, corporate symbols, or sport motifs into rugs of wool, nylon, wool/nylon blends, or olefin. Dimensional shadings possible. Multi-colored borders in widths from 2 to 27 in. Abbey Custom Rug Co., Chattanooga.

538 Chair

The Model 2956 chair of the Designer series has a full-function knee tilt control that allows the user to tilt 5 deg forward while reducing pressure from the back of the knee. An articulating back with height adjustment capabilities and a contoured seat support the upper back. Domore Corp., Elkhart, Ind.

539 Handcrafted rug

An extension of the Bolidist furniture collection is the Bolidist rug, also designed by Massimo Iosa-Ghini. The rug, called Surf, measures 78 3/4 by 98 1/2 in. It is handcrafted of 100 percent wool, is durable, easy to maintain, suitable for home and office. Palazzetti, Inc., New York City.

540 Office seating

The Allegis office seating system has a spring tilt mechanism made of continuous strand, glass-fiber reinforced, epoxy resin that responds to the individual user. Forward tilt combines with independent seat and back movement. 27 models. The Harter Group, Chicago.

**“Choosing the right chair
is a lot like
standing blindfolded
in the rain.”**

Steelcase
The Office Environment Company



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Furnishings

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541 Office furniture
The 6000 Series, a 29-piece modular furniture group, is designed for dependability and heavy use. Pieces have all-wood veneer fronts, panels, and rims and the work surfaces are closely matched wood grain plastic laminate. Oil walnut and sierra oak finishes. Myrtle Desk Co., Highpoint, N. C.



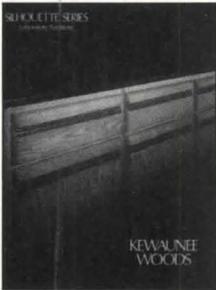
547 Ergonomics
The Ergonomic Advantage is a quarterly newsletter about the benefits of a healthy, safe workplace. The Grahl premise is that properly designed and placed occupational furniture promotes improved health and efficiency in the work place. Four pages. Grahl Industries, Inc., Coldwater, Mich.



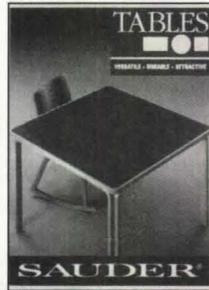
542 Office dividers
The Sounddivider open plan office system creates attractive, semi-private work stations with interlocking panels that come in a variety of baked enamel, fabric, vinyl, and wood veneer finishes. Four heights from 42 to 80 in. and eight widths from 12 to 72 in. Transwall Corp., Malvern, Pa.



548 Executive furniture
The Pinstrip collection of quality wood office furniture is designed for top-level management, either as the components of a single executive office or an entire corporate suite. Broad range of fine wood veneers in a range of finishes and colors. 12 pages. ICF, Inc., Orangeburg, N. Y.



543 Wood lab furniture
A four-page, full-color brochure describes the Silhouette series of wood laboratory furniture. Faced with red oak. Solid hardwood frames and seven-layer plywood sides support work surfaces. Drawer and door-front edges overlap to keep out dust. Kewaunee Scientific Corp., Statesville, S. C.



549 Tables
An eight-page booklet illustrates tables designed to take a beating in office, educational, institutional and food service applications. Available in round, square, and rectangle with metal or wood bases and a variety of edges. Surfaced with general service laminate. Sauder Manufacturing Co., Archbold, Ohio.



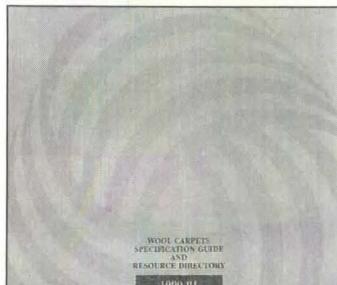
544 Window shades
FlexShades operated either manually or by electric motor come with optional hardware that conceal blind edges, bottom, and top and roller mechanism. Available in several colors in four fabric styles. Motorized models for skylights. Draper Shade & Screen Co., Inc., Spiceland, Ind.



550 Floor systems
An eight-page brochure pictures a line of floor systems, solid architectural bronze floor mats and grids, recessed and surface rollup mats, and shallow pit and deep pit floor grid systems. Designed to prevent metal-to-metal rattle. Carpets have an all-nylon face. Balco, Inc., Wichita, Kan.



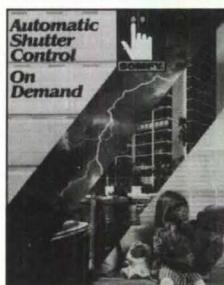
545 Carpets
A six-page folder illustrates the Colefax and Fowler line of carpets, which is mostly based on 18th- and 19th-century British designs. Produced on Brussels looms for a double-loop or a cut pile carpet of 69-cm width. Can be woven in any color combination. Patterson, Flynn & Martin, Inc., New York.



551 Wool carpets
The 1990/91 Specification Guide & Resource Directory contains a comprehensive listing of contract and residential wool carpeting currently in production, covering 108 companies. Fiber, manufacturing technique, construction, specifications listed. The Wool Bureau, Inc., New York.

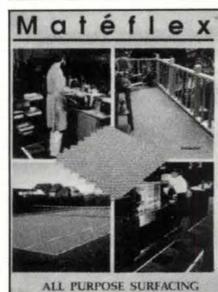


546 Library modules
Basic box modules of Baltic birch can be attached to form endless variations of library shelves and display areas. Large plastic nuts and bolts join them. Based on an 11 1/2-in. cube. In natural, red, blue or green. Easy to assemble. Can be used as toys. Six pages. Gressco, Ltd., Madison, Wis.



552 Shutter control
Automatic Shutter Control on Demand describes motorized roller shutter installations and explains the use and benefits of rolling shutter electronic controls. A handheld transmitter can provide remote control of operations for several shutters. Eight pages. Somfy Systems, Edison, N. J.

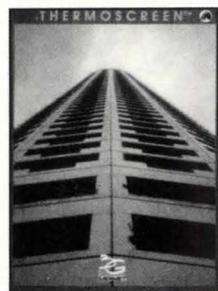
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553 Special-purpose flooring
A modular sports surface and flow-through safety tiles are featured in a catalog on rubber/polypropylene all-purpose flooring products. Descriptions include pattern, installation, loading, and performance advantages of various tiles. Applications include roof-top tennis courts, pool surrounds, and anti-slip matting. Matéflex-Mele Corp., Utica, N. Y.



554 Toys for Tots
Children's furniture made of a plastic material said to be ideal for indoor and outdoor use. Brochure illustrates several table models, low stools and chairs, and sandboxes and a slide. Smooth edges and rounded corners make these toys particularly suitable for day-care facilities. Peter Pepper Products, Inc., Compton, Calif.



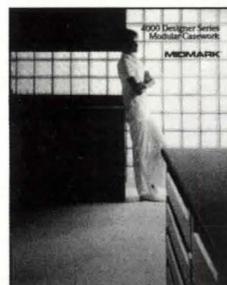
555 Sun-screening fabrics
Swatches of fabrics designed to reduce the sun's radiant heating power are included in this brochure. PVC-fiberglass material for exterior and interior applications. Flame-resistant. Non-toxic. Dimensionally stable. Blocks up to 95 percent of UV radiation and up to 85 percent of solar heat. 3G Mermet Corp., Cincinnati.



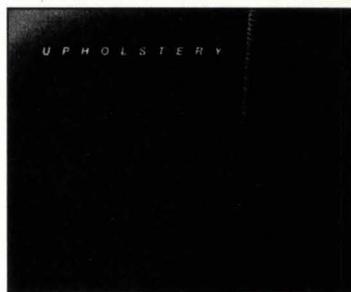
556 Walk-off grates
Brochure provides detailed explanation of stainless-steel entry grate systems with compatible stainless hvac vent grilles. Mats, grates, and frames are described. The manufacturer offers samples of the product and a free IBM PC-compatible software program with details and specifications. Arden Architectural Specialties, Inc., Minneapolis.



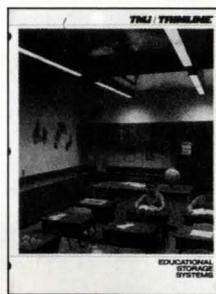
557 Filing system
A broad range of storage files and cupboards are described and pictured in this catalog. The products are shown in a variety of colors. One can order custom-made cabinets by choosing drawer fronts of any solid-surfacing material or wood desired. Dimensions of the various product groups are provided. Storwal International Inc., Pembroke, Ont.



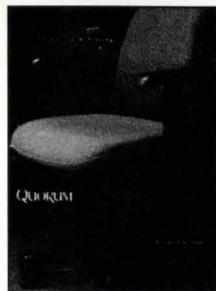
558 Medical casework
An easily-moved, modular casework program offers a selection of base and overhead cabinets, desks, and lavatory units, as well as accessory items like task lights, waste receptacles, narcotics lock-boxes, and soap dispensers. Made of a material that resists cross-infection hazards. Midmark, Versailles, Ohio.



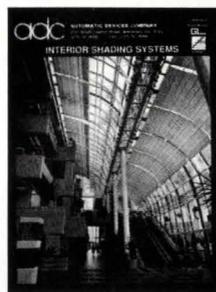
559 Upholstered furniture
A stunningly-photographed 70-page catalog of upholstered furniture that's fun to look through. The complete line of upholstered furniture is shown in sections categorized by the architect/designer, and is pictured in room-setting formats. Technical descriptions and dimensions. Atelier International, Long Island City, N. Y.



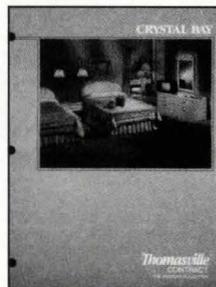
560 Storage for schools
One of a series on the special storage needs of schools and other institutions, a color brochure shows how Trimline, Trimrail, and custom components can be used to create space-saving, site-specific casework for primary and secondary classrooms. Staff workstations and dormitory storage systems are included. TMI Systems Design Corp., Dickinson, N. D.



561 Office seating
A color booklet introduces a new line of task-oriented seating from Quorum. Includes stools as well as manager, task, and pull-up chairs. Products are available in standard Unison fabrics or COM. Broad range of styles and heights. Pneumatic or manual lifts; swivel-tilt or front-tilt mechanism standard. Quorum Office Furniture, Chicago.



562 Interior shading
A pamphlet provides technical information on two products: the fold-up sunspace and skylight shading systems, and the roll-up light-diffusing and blackout shading systems. Motorized shades come with a three-position wall switch. More than one shade can be operated from one motor. Automatic Devices Co., Allentown, Pa.



563 Hospitality furniture
Color brochure illustrates contemporary hotel furnishings. Among the products shown are a credenza, writing table, mirror, armoire, panel headboard, and night stand. Dimensions, specifications, and case-construction methods are explained in diagrams and written descriptions. Thomasville Contract, Thomasville, N. C.



564 Electronic enclosures
A full line of custom-designed enclosures, consoles, control desk, racks, and small instrument housings shown in this catalog. Enclosures are designed and assembled by either manufacturer or user. Applications include security, process-control, and electronic trading desks. Units are modular, easily modified, and offer quick access to components. Alusett USA Inc., Peekskill, N. Y.

Air & Tension support structures
 Glazed structures
 Integrated ceilings
 Metal building systems
 Prefabricated buildings
 Sound & vibration control
 Special-purpose rooms & buildings
 Swimming pools

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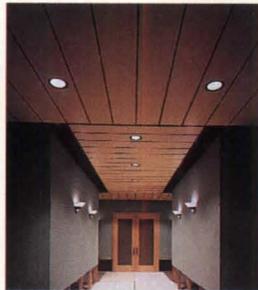
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565 Information kiosk
 Preassembled Beverly kiosk features stone siding, with a centered door, glass-to-glass corners, and backlit translucent ceiling. Built using a pan-and-post system, units come ready for power hook-up and operation. Designs range from vending kiosks to NATO Level VII-resistant security booths. B. I. G. Enterprises, Inc., South El Monte, Calif.

566 Sound-absorbant panel
 Combining acoustic performance with cleanable surfaces, Clean-Flow ceiling and wall panels have perforated, all-steel faces laminated with an impervious film for easy cleaning. Scouring can be done with a variety of cleaners as often as needed to maintain a contaminant-free environment. NRC of .90 for panels with fill. Industrial Communications Co., Bronx, N. Y.

567 Modular jail units
 A line of steel units consists of complete cells as well components that interface with precast-concrete or block wall. Fully outfitted when shipped in standard modules of 4 to 6 cells, units can also be stacked for multistory jails. Hopeman Correctional Systems, Winston-Salem, N. C.

568 Saunas
 Designer Series of Nordic white-spruce saunas features rounded, half-round, and angled windows with tinted glass and a number of door options. Contoured benches of splinter-free wood are designed to fit the body. Interior lights are recessed. Finnleo Saunas, Inc., Cokato, Minn.

569 Ceiling system
 Integra-Tee line includes three systems: Rectilinear, consisting of cross-tees, main runners, and square infill panels; Linear, in which panels are suspended from main runners, concealed cross-splines, or exposed mini-cross-tees; and Corridor, a main-runner-only system with panels and mini-cross-tees in lengths to 120 in. Forms + Surfaces, Santa Barbara, Calif.

570 Bow-end conservatory
 A modified, less-costly version of this British maker's Traditional series is now made in the U. S. Features include aluminum framework, roof glazing of double-layered polycarbonate, and white PVC gutters. Timber windows are impregnated with preservative and undercoated with microporous paints. Machin Designs (USA), Wilton, Conn.

571 Conservatory
 Available in a variety of configurations, including standard octagonal and rectangular models, Amdega conservatories are crafted of Canadian red cedar, primed for a microporous paint finish in white. Tempered safety glass is used throughout, and doors and windows are fitted with security locks. Amdega, Inc., Rye, N. Y.

572 Correctional housing units
 Precast, concrete modular cells are said to be adaptable to many different housing-unit styles. Manufacturer will provide all or none of the interior components, such as bunks, flooring, window, desk, lighting, plumbing, ventilation, and electrical fixtures. Up to 40 units can be erected in one day, claims the maker. The Rotondo Companies, Rehoboth, Mass.

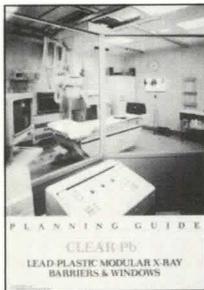
573 Modular jail cells
 Considered a fast-track solution to overcrowded conditions, two 200-bed modular dormitories were installed recently at New York's Riker's Island. Manufactured off-site simultaneously to on-site development, the units created permanent housing for 400 inmates in less than 10 months. Besteel, Industry, Calif.

574 Modular walkway
 Ridgeway model is one of three new lines offered in pre-engineered walkways. The high-vault Vienna series and the arched Wellington series are also available. All feature Kalwall/Kalcurve roof-panel systems and Kalwall HC-rated window system. Kalwall Corp., Manchester, N. H.

575 Pressure-relief panels
 Explovent panels have been designed to conform to NFPA guidelines and are available in three types of panel material: 2-in. thick aluminum skin with semirigid fiberglass insulated core; aluminum honeycomb noninsulated core; and translucent polycarbonate core. Panels can be top- or bottom-hinged. Conspec Systems, Inc. Cranford, N. J.

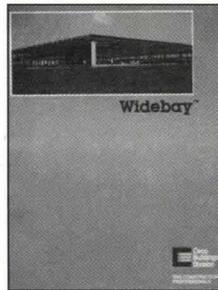
576 UV-resistant solarium glass
 XUV fading protection has been added to all Four Seasons solarium and wood products that feature Heat Mirror insulating glass. A specially formulated polyester film, Heat Mirror with XUV is said to block over 99.5 percent of ultraviolet radiation from the sun. Four Seasons Design Centers, Holbrook, N. Y.

For more information, write item numbers on Reader Service Card



577 X-ray barriers/windows

A 24-page full-color planning guide on the selection of Clear-Pb lead-plastic modular X-ray barriers and windows gives details on modular styles and components available. Technical data includes advice on handling, storage, and cutting, as well as drilling, chamfering, cleaning, and scratch removal. Nuclear Associates, Div. of Victoreen, Inc., Carle Place, N. Y.



583 Pre-engineered building

A six-page brochure featuring the Widebay line of pre-engineered buildings explains the advantages of post-and-beam construction and open-web joists used in the system. Tapered sidewall columns and solid or open-web rafters, which support intermediate columns—the heart of the Widebay primary framing system—are shown in detail. The Ceco Corp., Oakbrook Terrace, Ill.



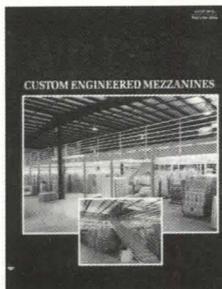
578 Clean-room control panels

Ceramic-on-steel contamination-control panels are described in a four-page brochure. The guide discusses such features as impact-resistance of the panels, the fact that they are demountable, and static-control and fire-resistant characteristics. AllianceWall Corp., Norcross, Ga.



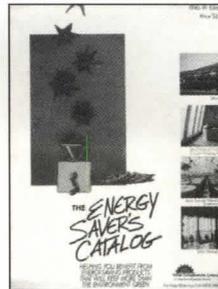
584 Aluminum swimming pool

A four-page catalog gives a brief overview of the maker's welded aluminum swimming pools, stressing the pool's watertightness and workmanship. During the 1989 San Francisco earthquake, the manufacturer claims, hotel and resort owners with these pools found they suffered no damage. Overly Manufacturing Co., Greensburg, Pa.



579 Custom mezzanines

An eight-page brochure describes custom-engineered mezzanines, which can be installed by factory personnel without interrupting normal work schedules. Beams and columns are keyed to custom drawings. Also highlighted are accessories such as gates and stairs. Wildeck Mezzanines, Inc., Waukesha, Wis.



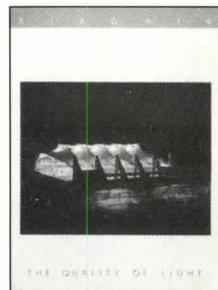
585 Solar-energy catalog

Said to be a complete source for solar and energy-saving products, the 1991 edition of Solar Catalog includes 10 product sections, all indexed, with information on materials, components, systems, books, and greenhouses. The 64-page catalog is \$2, post paid. Solar Components Corp., Manchester, N. H.



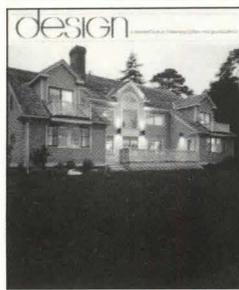
580 Prefab shelter systems

Modular-design bus and transit shelters are described in a color brochure that highlights the maker's entire line, including barrel-vaulted and pyramid-roofed models. Other shelters function as entrance enclosures, canopies, and kiosks. Columbia Equipment Co., Jamaica, N. Y.



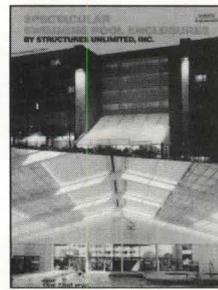
586 Fabric structures

The versatility of fabric structure is highlighted in the full-color brochure, *Quality of Light*, from Birdair. The company's line of Teflon-coated fiberglass-fabric structures is shown in retail applications, hotels, transportation, and sports facilities, as are special structures such as Canada Harbor Place, Vancouver. Birdair, Buffalo, N. Y.



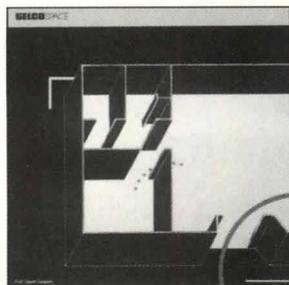
581 Post-and-beam homes

Plans and specifications for Timberpeg houses are featured in the Artisan/Design catalog. A homebuilding timeline outlines most major steps. Drawings and floor plans for nine styles are shown: Cottage, Gambrel, Mediterranean, American, Hillside, Coast to Coast, Country Living, Carefree, and Traditional. Timberpeg, Inc., West Lebanon, N. H.



587 Pool enclosures

Custom-engineered and -designed swimming-pool enclosures feature Kalwall panel systems combined with Box Beam framework. Corrosion-resistant, the enclosure does not require a superstructure—the framework can span 100 ft unsupported, claims the manufacturer in its recent literature. Structures Unlimited, Inc., Manchester, N. H.



582 Modular buildings

The Designer Series brochure highlights one-, two-, and three-office versions, each with a closet, half-bath, coffee bar with sink, display area, and hvac. The one- and three-office buildings are 24 by 44 ft; the two-office model is 12 by 56 ft. Exterior walls are silver-tone wood siding with blue-gray trim. GelcoSpace, Bala-Cynwyd, Pa.



588 Bullet-resistant panel

The advantages of the fiberglass-reinforced Life Gard ballistic armor flat-sheet panel, made of composite material, is explained in technical literature, which includes comparative data and product specifications. Applications include reinforcement of woodwork in corporate offices, suggests the manufacturer. Point Blank Body Armor, Amityville, N. Y.

Conveying Systems

Conveyors & chutes
Elevators
Hoists & cranes
Lifts
Materials-handling systems
Moving stairs & walks
People-mover systems
Pneumatic-tube systems

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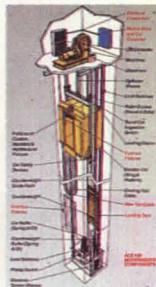
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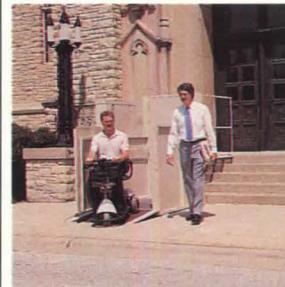
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589 Materials transport

Pneumatic delivery system using large, 10-in. tubes can carry any item smaller than 7 3/4 in. wide and 20 in. long, and weighing up to 80 lb, at speeds from 10 to 30 mph. Computer controls manage multiple send-and-receive stations, located in neighboring buildings or several miles apart. Paulsen Pneumatic Delivery System, Salt Lake City.

590 Elevator-cab panels

Wall panels for use on elevator entrances and interiors are slim-cast, ANSI-approved bonded metals in bronze, nickel, silver, copper, and aluminum, and in embossed and etched in stainless steel and bronze alloy 280 (Muntz metal). Forms + Surfaces, Santa Barbara, Calif.

591 Wheelchair lift

A fixed, inclined wheelchair lift travels along turning or straight stairways, stopping at each floor. No shafts required. Suitable for indoors or outdoors, retrofit or new construction. New Model GSL-3 can follow either inside or outside turning radiuses. Garaventa (Canada) Ltd., Surrey, B. C.

592 Passenger conveyors

Described as easy-on/easy-off, Compaveyor passenger conveyors come in two models: the RSE for inclines of 10 to 12 deg and the RSG for inclines up to 4 deg. Both feature a short pallet module that minimizes space usage and cambered, cleated pallets for secure footing. The no-axle design has fewer parts. Schindler Elevator Corp., Morristown, N. J.

593 Shuttle system

The Otis Shuttle is a "horizontal elevator" that extends horizontal transportation to distances that exceed practical limits of walkways. Fully automatic, the system uses a less-costly single-lane guideway design, and moves on a cushion of air. Otis Elevator Co., Farmington, Conn.

594 Residential elevator

A new design, the Minivator doesn't require a shaft. Car rides on two rails mounted on a wall. As car ascends to second story, a self-closing hatch opens and the car passes through. Bottom of car becomes the ceiling. Holds two persons or one wheelchair. American Stair-Glide Corp., Grandview, Mo.

595 Elevator

The Elevonic 411 gearless elevator offers passenger-traffic channeling and advanced dispatching systems with expanded artificial intelligence to alleviate lobby congestion during peak traffic periods. Choice of two high-speed drive systems, Ward Leonard or DC direct drive. Otis Elevator Co., Farmington, Conn.

596 Elevator modernization

The ACS 150 variable-frequency drive modifies existing AC elevators so that they can accelerate and decelerate as smoothly as new DC systems. Computerized controller is installed in machine room. Designed for single- and two-speed motors. Armor Elevator Co., Inc., Louisville.

597 Escalators

SWE-series escalators for general commercial use come in widths of 32, 40, and 48 in., and meet applications that rise to 36 ft 9 in. Speeds to 100 fpm. Design includes an external drive for easy accessibility and a hand brake that ensures a smooth stop. Choice of architectural features. Schindler Elevator Corp., Morristown, N. J.

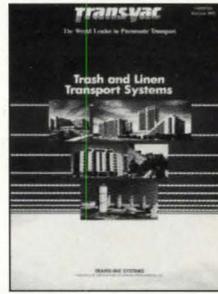
598 Wheelchair-lift enclosure

The Handi-Guard meets most building-code security requirements for a low-rise wheelchair lift. It fits outside the lift platform's front and side enclosures and stays locked in place to form a three-sided enclosure as the unit rises. Easily assembled. Suitable indoors and outdoors. Cheney Co., New Berlin, Wis.

For more information, write item numbers on Reader Service Card



601 Elevator planning guide
A 1991 guidebook provides an overview for the manufacturer's lines of elevators, escalators, and powered walks and ramps. Line drawings, cutaway views, and descriptions of operating principles provide essential information. Power systems include hydraulics, DC motors, and geared traction. Montgomery Elevator Co., Moline, Ill.



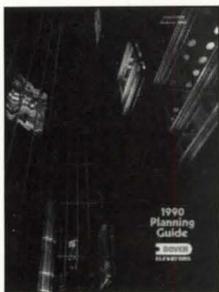
607 Pneumatic transport
For conveying trash, linen, or other materials, the Trans-Vac system uses vacuuming and pneumatic-fan principles. The pull of air through the system also controls odors. A four-page flyer shows dual-tube design principles, safety features, and space-saving installations. Trans-Vac Systems, Contractors Engineers International, Inc., Georgetown, Tex.



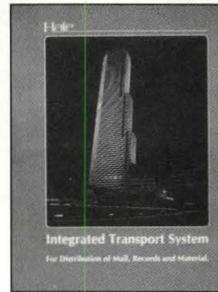
602 Elevating docks
These docks are beam-supported platforms that are powered up and down by hydraulically actuated scissor legs. An eight-page brochure details typical applications, technical specifications, and product features. The units are available in fixed and semi-portable versions, for loads of up to 20,000 lb. Blue Giant Equipment Corp., Pell City, Ala.



608 Access lift
The Accessibility lift provides access between floors for the handicapped or invalid person. Interior dimensions are 36x48 inches; capacity is 500 or 750 lb. A variety of interior paneling or surfacing are illustrated in a four-page flyer. Inclinator Co. of America, Harrisburg, Pa.



603 Low-rise elevators
A 16-page planning guide highlights this firm's elevators for various types of service, including hospital, passenger, and freight. Product features are explained, such as the advantages of using microprocessor controls for all equipment. Elevators incorporate Oildraulic drives, for buildings of up to six floors. Dover Elevators, Memphis, Tenn.



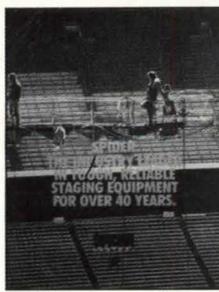
609 Materials transport
For lifting or conveying of papers or other light materials (up to 65 lb per load), this remote dispatching system can be computer-programmed for automatic delivery. The system handles up to 840 "transactions" per hour, and has a wide variety of containers, tubes, or trays. Pneumatic-tube systems are also available. Hale Systems, Charlotte, N.C.



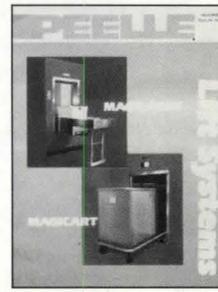
604 Moving walkways
This source for industrial materials-handling equipment also makes Speedwalk/Speedramp walkways in single- or double-lanes. Nominal capacities are between 3,040 and 11,700 people per hour. A brochure illustrates various applications, and notes design details such as balustrades, code requirements, and maintenance capabilities. Westmont Industries, Santa Fe Springs, Calif.



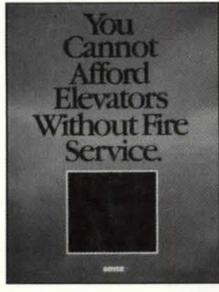
610 Vehicle turntables
For areas where space is at a premium, this low-profile turntable allows vehicles such as cars or trucks to be turned around quickly and efficiently. The systems are of modular design, enabling the specifier to select dimensions of up to 50 ft dia and capacities of up to 40 tons. Air bearings permit loads up to 20 tons to be rotated manually. Hovair Systems, Inc., Seattle, Wash.



605 Powered scaffolding
For performing construction or to carry out maintenance, these scaffolds are fabricated from welded high-strength aluminum. Tradenamed Spider, the units are available in single-person models, as well as modules that are expandable to 53 ft. A 16-page brochure provides specifications and features. Spider Staging Corp., Seattle, Wash.



611 Dumbwaiter transport
Magicart and Magicarry systems employ wheeled carts or containers to convey mail, packages, pharmaceuticals or small supplies. Programmable controls allow for automatic delivery to specified destinations. An eight-page brochure illustrates the products, and provides design specifications and capacities. Pelle Co., Bay Shore, N.Y.

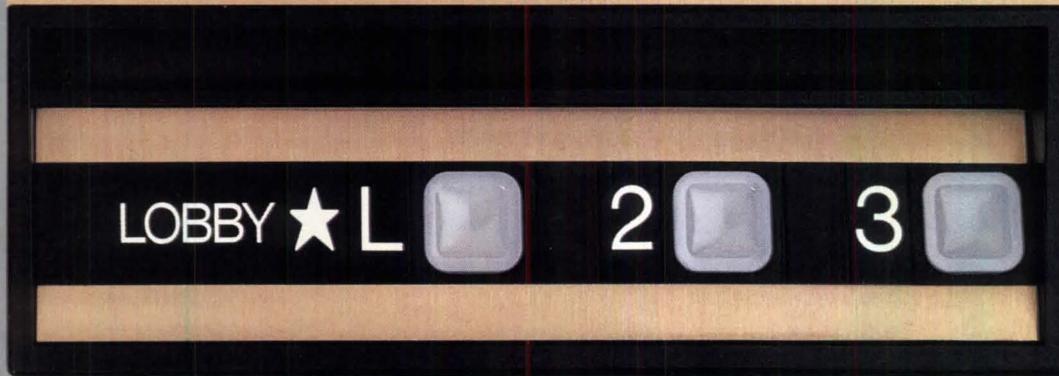
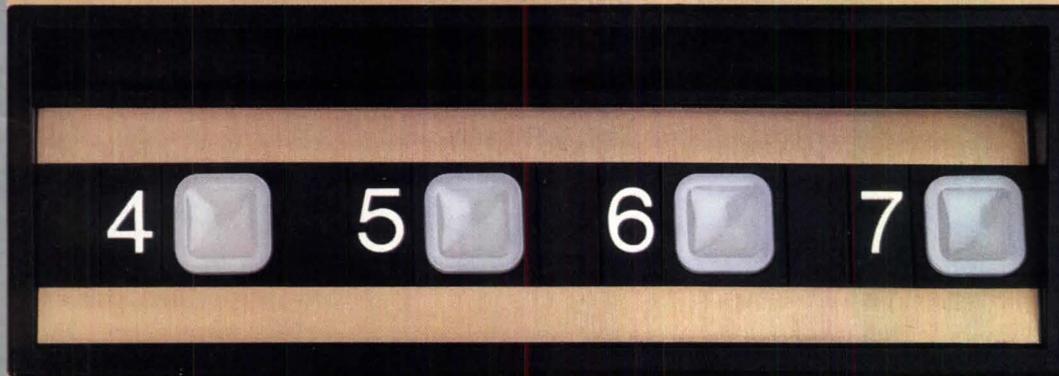
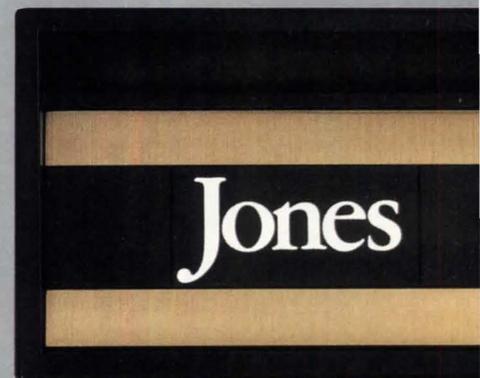


606 Fire safety
This elevator manufacturer is offering information on how installations can be modernized by adding a controller that guides elevators when fire is detected. The Fire Service unit, custom-engineered to existing controller specifications, is designed to take elevators out of service and station them at the main floor. Dover Elevator Systems, Memphis, Tenn.



612 Hydraulic residence elevator
A color brochure details this firm's residence elevator, which is delivered in knock-down condition for rapid installation by the contractor. The unit is microprocessor-controlled, and has a capacity of up to 700 lb. A compact power source may be located at a distance from the elevator shaft. Sedgwick Lifts, Inc., Poughkeepsie, N. Y.

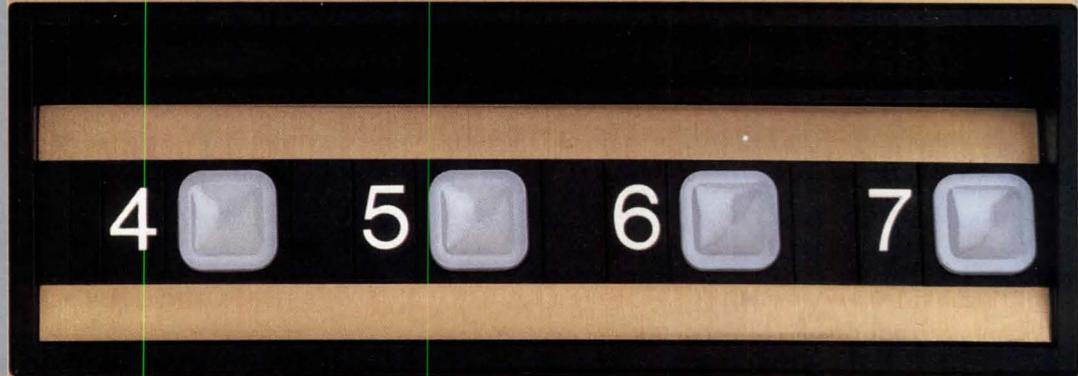
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Signage and buttons are recessed at a 20° angle facing up, so they're easy to read, easy to use.

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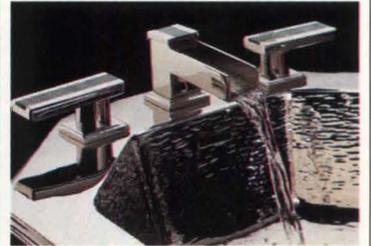
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613 Radiator enclosures
 Finned-tube radiator enclosures in off-the-shelf and custom designs for any architectural application. Electric heaters offer a number of mounting options; finishes include custom-color paints and stainless steel. Vandal-resistant Security heaters available for jails, schools, and industrial plants. Vulcan Radiator Corp., Westfield, Mass.

614 Water coolers
 Complete line of lead-free water coolers. Units for handicapped activated by electric eye, touch-sensitive pads, and a new infrared control (pictured). Water automatically shuts off after preset time. Finish options include stainless steel and baked enamel. Fountains for piped-in or bottled water. Ebco Manufacturing Co., Columbus, Ohio.

615 Pedestal lavatory
 The Portrait lavatory has a backsplash that tapers into a tiered rim and a pedestal with vertical lines. Flat deck available drilled for 4- or 8-in. faucets. Measures 26 3/4 by 19 1/8 by 34-in. tall. Part of a full suite of vitreous-china or acrylic bath fixtures. Available in all standard and high-fashion colors. Kohler Co., Kohler, Wis.

616 Shower stall
 The Shower Pavilion, made of transparent acrylic, is 65 in. in diameter and 93 in. tall. Has five individually adjustable massage body sprays, an overhead spray with three modes, a handshower, thermostatic control of water temperatures, and control panels inside and outside. Hansgrohe, Inc., Soquel, Calif.

617 Whirlpool bath
 The Opalia whirlpool bath is 6 ft long, has built-in arm rests, and is equipped with four fully adjustable jets. Made of fiberglass-reinforced acrylic, with slip-resistant shell bottom. Motor may be recessed in floor or on a platform. Has a water capacity of 98 gallons. Floor loading is 53 psf. Jacuzzi Whirlpool Bath, Walnut Creek, Calif.

618 Lavatory/water closet unit
 A new design in the LavCare line of hospital in-room fixtures incorporates a concealed one-piece toilet bowl, base, and pivot made of easy-to-clean stainless steel. Handicap-height water closet swings out at a touch. Model pictured has a molded chair for additional seating. Bradley Corp., Menomonee Falls, Wis.

619 Work-station air purifier
 The Purelite, a combination office light and air purifier, removes dust, smoke, ozone, allergens, and odors from the air. A fan and directional vents help improve air circulation and lower hvac costs. Units are designed to mount under shelves or overhead cabinets. Housing is molded from Noryl resin. Systematix, Inc., Gulf Breeze, Fla.

620 Stainless-steel sink
 Gourmet Cuisine Centr  has a built-in, bilevel food preparation area. The ribbed drainboard can be covered by a dishwasher-safe cutting surface for meat preparation. Overall sink dimension is 43 by 22 in., making it suitable for remodeling. Elkay Manufacturing Corp., Oak Brook, Ill.

621 Bath suite
 A new line, French-made Madison bath suite includes two pedestal lavatories, a self-rimming lavatory; a semi-encasso basin mounted in a custom cabinet; and a wall-hung hand basin. A matching wall-mounted shroud conceals the drain line. A toilet, bidet, and 67- by 32-in. acrylic bath are also offered in Madison styling. Porcher Inc., Chicago.

622 Inlaid-stone faucets
 The Paros series of bathroom faucets incorporates custom-supplied natural stone in the fabrication of handles and spout. Such semiprecious stones as malachite, tiger's eye, and sodalite can be inlaid in each handle. High-quality internal mechanism. Kallista, Inc., San Leandro, Calif.

623 Residential heating unit
 The GV Gold cast-iron gas boiler is available in four sizes, designed for mistake-proof installation, easy maintenance, and energy efficiency. Premix combustion technology combines gas and air before burning. Operating efficiency 87 percent. Unit is 29 in. high and 18 in. wide. Convertible to propane. Weil-McClain, Michigan City, Ind.

624 Lavatory/mirror
 Suggested for small guest- or powder-rooms, the Rondo pedestal lavatory and lighted mirror ensemble was designed by Dieter Sieger. Lavatory is 33 1/2 in. high and 20 in. wide, made of vitreous enamel fired onto heavy-gauge iron alloy. Mirror has an overhead light. Euro Source, Ltd., La Crescenta, Calif.

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625 Kitchen sink

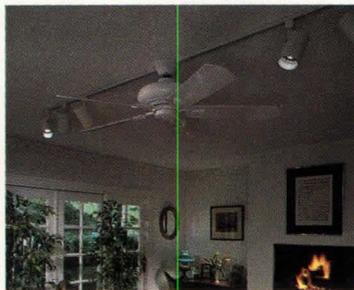
Accent Brights, a new color line, are designed to provide a splash of color against the lighter shades and woods now widely used in houses. Available in eight cast-iron sink styles for kitchen and lavatory, the range includes French blue, aquamarine (pictured), Sunshine, and Chianti. American Standard Inc., Piscataway, N. J.

626 Finned-tube radiators

The Versa-Line heating enclosure comes in 18-, 16-, and 14-gauge cold rolled steel with baked-enamel finish. Stainless steel and aluminum are options. There are 12 different enclosure configurations, including pedestal mount and sloped top. Heat output ranges from 220 to 3,210 Btu per ft. Sterling Heating Equipment, Westfield, Mass.

627 No-touch lavatory

For areas where hygiene is important, the Sanset No-Touch Lavatory operates through a battery-powered infrared sensing device, turning on water as persons approach it and turning it off when not needed. Lavatory is 19-gauge stainless-steel type 304. International Sanitary Ware Manufacturing Co., Phoenix.



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628 Fan light

The Fan-Trak combines the versatility of ceiling-mounted track lighting with any style of Casablanca fan. It provides direct lighting without the glare of a central fixture, and maximizes light from halogen or standard incandescent sources. Controlled from a single two-wire outlet. Casablanca Fan Co., City of Industry, Calif.

629 Faucets

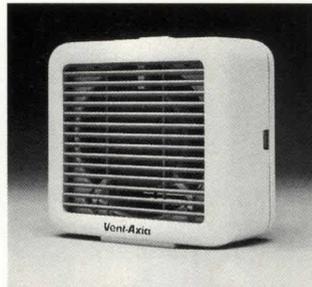
Granitone finishes in three colors of simulated granite, white granite, sandstone, and tweedstone are available on faucets and bath accessories. Produced by bonding enamel to ultrasonically cleaned pieces, the finish is said to be durable. Warranted for five years. Sepco Industries, Brooklyn, N. Y.

630 Plumbing expansion loops

The Metraloop is designed to accept movement in any direction caused by explosion or earthquake. It is a combination of pipe loop with stainless-steel or bronze hose and braid. Needs no anchoring thrust blocks. Stainless-steel version comes with threaded, weld, flanged, or grooved ends. Bronze has copper sweat-ends. The Metraflex Co., Chicago.



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631 Double-bowl sink

The Prestige, a 38- by 22-in. double-bowl sink, is now offered in a through-color composite of fine quartz particles chemically bonded in a stable matrix. Colors are white, almond, gray, and black. Color-coordinated faucets and accessories available. Franke, Inc., Hatfield, Pa.

632 Exhaust fan

The compact VA150 fan can be fitted to almost any vertical surface: panels, walls, even double-glazed windows. Will change the air in an 8- by 10-ft room in four minutes. Pullcord operates fan and built-in iris shutter. Shutter closes against backdraft. Six trim colors. APV Vent-Axia Inc., Woburn, Mass.

633 Bathroom fan/light unit

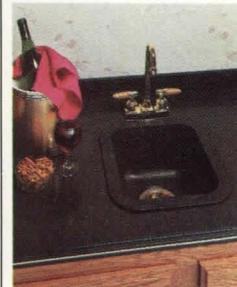
The Soltaire exhaust fan line is described as offering commercial air-moving capacity in an easy-to-install 4-in. duct size. For larger bathrooms up to 120 sq ft. Quiet operation. Model S120L, pictured, combines a 120-cfm fan with a 100W downlight and a 7W nightlight. Broan Mfg. Co., Inc., Hartford, Wis.



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634 Wash basin

The Pump 952 offers the ultimate in sink simplicity. A terra-cotta bowl is supported by a matte black metal band; a tap-support pole holds the faucet. Wash basin also available in white enamel. Tap-support pole comes in white, black, red, yellow, gray, and light blue. Watercolors Inc., Garrison, N. Y.

635 Sanitary fittings

Single-control faucets use two of the world's smallest ceramic disks to govern water volume, temperature, and total fitting tightness. Used in comprehensive line of all-brass faucets for kitchen, lavatory, and bath. Available in 12 epoxy colors, brass, and chrome. Kroin Inc., Cambridge, Mass.

636 Solid-surface formed sinks

The Inspiration series sink, made of cast Fountainhead material, now comes in a larger, two-bowl kitchen sink, with a 10-in. depth, as well as a bar sink, shown above in Black Matrix color. Stain-resistant. Mounting options: top mount, bevel, seamed, and undermount. Nevamar Corp., Odenton, Md.

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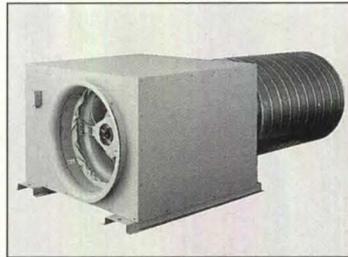
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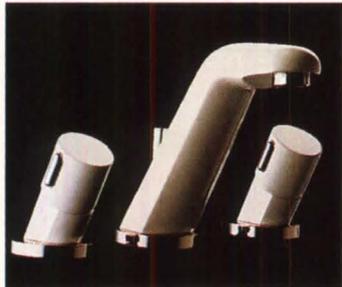
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637 Pedestal lavatories
Three new designs for pedestal lavatories — Renaissance, Heritage, and Empress — are available in more than 60 colors with custom pinstriping or handpainting. American China, Phoenix, Ariz.

638 Steel sink
The clean-lined Series LM stainless-steel sink bowl is supported in a steel framework with inward curving legs that allow the user to stand close for more efficient use in limited spaces. Side towel rails are included. Hastings Tile & Il Bagno Collection, Freeport, N. Y.

639 Nonfibrous pipe insulation
Techlite SSL protective pipe insulation is a lightweight, white, nonfibrous jacketing that provides safety and fire resistance. The material is available in 3-ft lengths and 1-, 1 1/2-, and 2-in. wall thicknesses. Protective jackets are offered for various levels of environmental exposure. Accessible Products Co., Tempe, Ariz.

640 Affordable whirlpool
Lightweight and easily installed, the contoured Overture whirlpool includes a self-draining pump, individually adjustable jets for air and water, and tub-mounted air switch. The tub is constructed of a glossy composite available in white, almond, or gray. Kohler Co., Kohler, Wisc.

641 Ergonomic bathtub
A tub incorporating backrest, integrated handles, and handheld showerset, the Dynesetstar is made of Eurocast, a heavy-duty porcelain-enameled metal combining strength with light weight. The slip-resistant surface is backed by a 30-year guarantee from Kaldewei, its German manufacturer. Tubs are available in a number of sizes and colors, and can incorporate custom patterns. EBI Ltd., Vista, Calif.

642 Brass bathroom fittings
The Jetline series of German-crafted bathroom fittings includes high-style faucets, bath accessories, and hardware in solid brass and lucite. Jado, Camarillo, Calif.

643 Bathroom exhaust system
Mounted in the attic rather than the bathroom, the F-series of bathroom exhaust fans reduce noise and, when used with multiple intakes, virtually eliminate condensation. The fans are equipped with auto-reset thermal overload protection and carry a three-year warranty. Fantech, Sarasota, Fla.

644 Ventilating fan
The Super Q II Plus fan blocks radiated noise with an acoustical closure and duct-borne noise with low-turbulence silencers on the fan inlet and outlet. Compact and lightweight, the fan is available in capacities from 1,000 to 35,000 cfm. Can be placed in acoustically sensitive spaces such as ceiling plenums. Trane Co., La Crosse, Wisc.

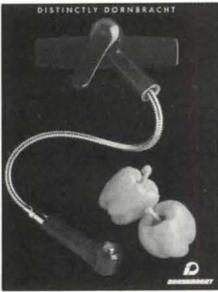
645 Vanity lavatory
The Consul lavatory has a large, 36-in.-wide marble top, and stands 24-in.-high on a polished metal base. Basins may be polished and plated brass, nickel silver, glazed porcelain, or hand-rubbed marble. Bates & Bates, Lakewood, Calif.

646 Bathroom fittings
Mayan, one of five new designs in the Custom Collection of bathroom fittings, comes in a variety of finishes and finish combinations. A preset valving system with ceramic disc cartridges eases faucet installation and alignment. Matching towel bars and other accessories available. Paul Associates, Long Island City, N. Y.

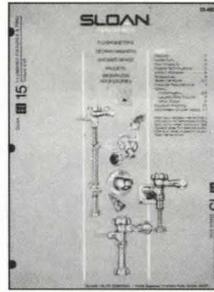
647 Bath and shower faucets
The 764 Series of bath and shower faucets uses a three-valve installation for easy control of mixing and diverting. The solid-brass set comes finished in coated and uncoated polished brass and chrome plating, with metal and ceramic cross handles and ceramic lever handles. The Chicago Faucet Co., Des Plaines, Ill.

648 Instrumentation interface
The DeltaNet universal gateway is a microprocessor-based communications interface that integrates freestanding industrial controllers with the building's environmental control systems. Allows on-line monitoring of EPA and OSHA compliance. Applications include research areas, laboratories, and clean rooms. Honeywell Inc., Minneapolis.

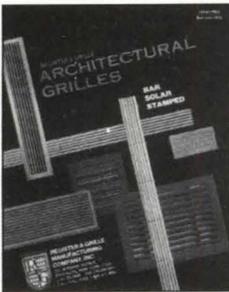
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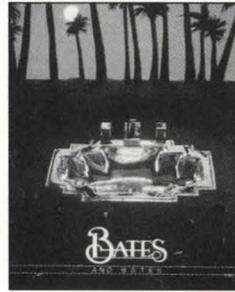
649 Single-lever faucets
The German-made Dornbracht kitchen faucet has a single-lever mixing mechanism and uses a low-noise ceramic-disc valving cartridge. All models have a 9-in. swivel spout and aerator; a pull-out spray is available on some faucets. Finishes: chrome, durabronze, white, black, red, almond. Dornbracht/Santile International Corp., Houston.



655 Water-saving plumbing
The Flushometer valve uses 12 1/2 percent less water than conventional toilet tanks, are whisper quiet, metered to exacting requirements, and shut off automatically. Catalog also covers bed pan washers, lavatory fittings, soap dispensers. Sloan Valve Co., Franklin Park, Ill.



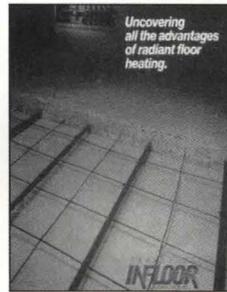
650 Architectural grilles
A 40-page catalog of decorative grilles and registers includes decorative patterns such as Egyptian, Grecian, and shell as well as straight-bar styles. Mounting options are diagramed; curves are possible. For new construction or retrofit. Broad range of finishes in aluminum, steel, bronze, and paints. Register & Grille Manufacturing Co., Brooklyn, N. Y.



656 Metal wash basins
An eight-page, full-color folder illustrates an elaborate line of lavatories and bar sinks with matching faucet sets in brass, copper, nickel, pewter, and gold plate. All basins are designed for counter installation. All products are hand finished and delivered in crush-resistant foam. Bates and Bates, Lakewood, Calif.



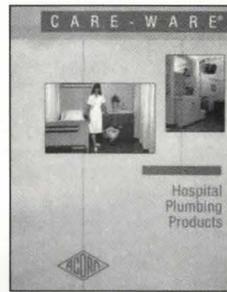
651 Firestop devices
A stack fitting for firestopping plastic drainage piping. A cast-iron plug is held inside the wye branch of a wye fitting by a polypropylene harness. A fire will burn up through the inside of the pipe, melting the harness and allowing the plug to fall into a cast-iron insert pipe and seal off the fire. ProSet Systems, Inc., Atlanta.



657 Radiant heating
The Infloor radiant-heating system is designed for slab-on-grade construction, basements, and large floor areas in homes and commercial buildings. Uniform heating with no drafts or hot air surges. System can reduce heat loss as much as 25 percent. No baseboards or registers to interfere with furnishings. Gyp-Crete Corp., Hamel, Minn.



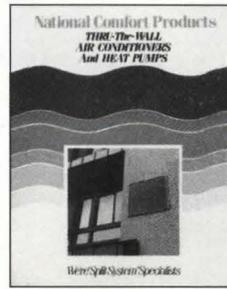
652 Household plumbing
A 32-page, full-color brochure illustrates kitchen and lavatory faucets, kitchen sinks, and accessories. Broad line of designs in stainless steel, quartz amalgam, chrome, and brass. Patented cartridge allows washerless construction that carries a lifetime limited warranty against leaks. Moen Inc., Elyria, Ohio.



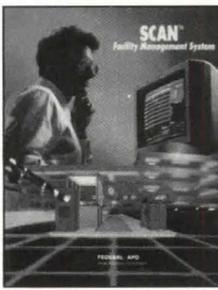
658 Concealed toilets
The Care-Ware lavatory cabinet holds a swing-out toilet. Units save space in hospitals, and provide easy-to-reach facilities in intensive-care and chemotherapy areas. The Swivette swivels into the room when a cabinet door is opened. On the Swingette, a cabinet door opens to reveal a floor-mounted toilet. Acorn Engineering Co., City of Industry, Calif.



653 Water coolers
The Design 2000 line of water coolers surpass the standards of the Safe Drinking Water Act, using no leaded brass. All offer the Filtrex System, which traps water-borne particles before they can reach the water reservoir. The line offers barrier-free models, two-level, single, compact, and free-standing water coolers and drinking fountains. 12 pages. Elkay Manufacturing Corp., Oak Brook, Ill.



659 Through-wall air conditioner
Through-the-Wall line of air conditioners and heat pumps is specified on an information sheet. The split-system hvac equipment features a thin, 18 1/2-in. deep condenser unit, which can replace many out-of-production units by other manufacturers with little or no wall alteration. National Comfort Products, King of Prussia, Pa.



654 Parking-garage software
The SCAN System gives control of entrance and exit equipment and cash transactions; monitors violations, access cards, entrance and exit equipment, and vehicle counts; and reports on revenues, exception reports, audits, and invoices. Uses a single five-wire cable. Federal APD, Farmington Hills, Mich.

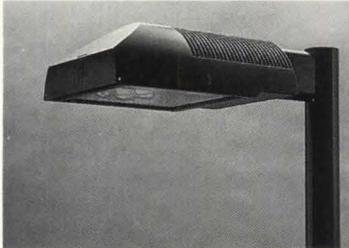


660 In-ceiling air cleaner
Electrostatic air cleaners' three-filter system captures 96 percent of impurities, including dust, bacteria, large viruses, pollen and allergens, soot and smoke. A washable prefilter and collecting cell means no replacement-filter expenses. Unobtrusively replaces a 2- by 2- or 2- by 4-ft. lay-in ceiling panel. Tectronic Products Co., Inc., East Syracuse, N. Y.

Electrical

Alarms & detection systems
 Communications
 Electrical heating-cooling
 Lighting
 Power generation
 Protective systems
 Raceways
 Wiring devices

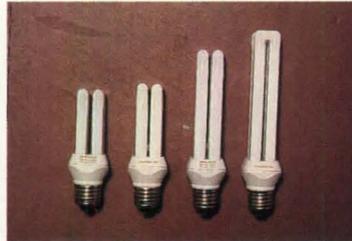
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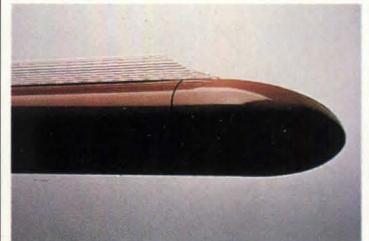
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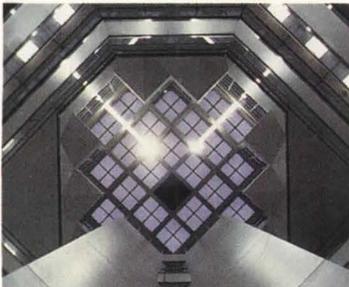
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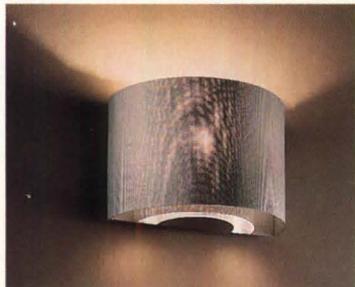
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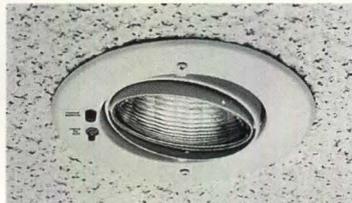
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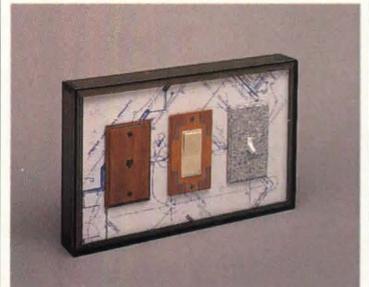
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661 Outdoor cut-off lighting
 Rugged construction is emphasized in low-profile Archetype luminaires. Die-cast housing offers four light-distribution patterns. Accepts HID lamps from 70W to 400W. Pole heights range from 12 to 35 ft. Concealed and accent landscape lighting are also available. Kim Lighting, City of Industry, Calif.

662 Interior lighting
 The Lightpipe is a long (up to 40 ft) box containing optically precise reflective materials. The reflectors carry the light efficiently down the length of the box. One or two sides can emit light; 250 or 400W metal-halide lamps are provided. The system is recommended for lighting difficult-to-reach areas, hazardous or sterile environments, and spaces where radio or magnetic-imaging emissions are restricted. TIR Systems Ltd., Burnaby, B. C.

663 High-efficiency lamp
 Said to produce up to a 60 percent savings in energy consumption relative to conventional incandescents, the Halogen IR recycles infrared radiation to produce more visible light. It is available in 60W and 100W versions. General Electric Lighting, Cleveland.

664 Premise wiring
 These perimeter raceway systems are designed to handle a range of telephone/data communications and power wiring demands, delivering service at the most accessible office locations. They come in two pieces. The Wiremold Co., West Hartford, Conn.

665 Home automation system
 The Home Manager system allows the user to control lights, appliances, and a security system throughout a house. A PC-interface feature allows the operation of the system to be displayed on a personal computer's touch-screen. Interior and exterior temperatures can also be monitored. An expansion module adds control of sprinklers or pool equipment. Unity Systems Inc., Redwood City, Calif.

666 Light fixture
 The Moiré scone is made of matte-etched anodized aluminum, perforated to create a visually appealing pattern across the face of the housing. The small-scale fixture measures 9-in. wide by 6-in. high, and projects 5 in. from the wall. A 75W halogen bulb is recommended. Illuminating Experiences, Highland Park, N. J.

667 Very compact fluorescent
 Said to be 15 percent smaller and 29 percent lighter than the most advanced compact fluorescent currently being marketed, the Mini-Lynx lamp is available in sizes of 7, 11, 15, and 20W. These produce 400, 600, 900, and 1,200 lumens, respectively. An integral electronic ballast and screw base allow for direct incandescent replacement. The line is currently limited to voltages of 220-240V. GTE Electrical Products, Danvers, Mass.

668 Fluorescent wall-wash
 This compact, high-intensity floodlight is available with one or two Biax lamps. Each is rated at 39W, a greater light output than a 150W incandescent. It is intended for areas where high output and a wide sweep of illumination are desired. Lightolier Inc., a Genlyte Co., Secaucus, N. J.

669 Recessed emergency light
 The unobtrusive EXT-122-EM emergency fixture comes with a kit for easy installation in suspended ceilings, and complete with a sealed 10-year lead-calcium battery. The lamp provides an 8W output in sealed-beam pattern; lamp-head assemblies are adjustable. Dual-Lite, Newtown, Conn.

670 Indirect office lighting
 The linear LDX fixture is 9.5-in. wide by 3.5-in. deep, and can accommodate 1-, 2-, or 3-lamp T8 or T12 bulbs, as well as compact fluorescents. Laser-cut lenses eliminate socket shadows while providing smooth indirect lighting. Peerless Lighting Corp., Berkeley, Calif.

671 Task light
 The Barcelona lamp is designed to complement overhead lighting at individual work stations. It uses a built-in parabolic louver to provide control over the light direction, and has an articulated arm for optimum positioning. Two warm-toned 9W PL-type lamps are standard. Colors include matte black, brown, gray, and beige. Waldmann Lighting Co., Wheeling, Ill.

672 Custom-design fittings
 Cover-plates for light switches and outlet boxes can be made to match nearly any interior design. In addition, multigang plates for any service configuration can also be supplied. Plates are of milled wood or solid-surface material, with a UL-approved metal backplate. Fifteen different edge configurations can be specified. Torrance Coverplates, Lakewood, Colo.

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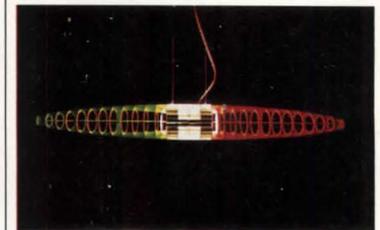
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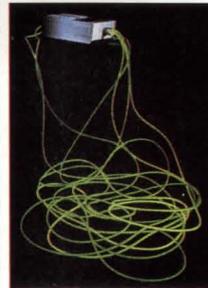
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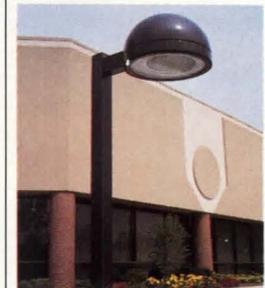
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673 Line-voltage halogen
The Safety-JDR is now available with a permanent glass lens affording double-filament protection. It can be used in most existing 150W-rated fixtures, thus providing MR-16 halogen lighting effects without the high initial cost of 12V installations. It is available in 75 and 100W. Iwasaki Electric Co., Ltd., Dallas.

674 Motion-sensor lightswitch
Offering a 180-degree field of view, this new occupancy sensor can cover up to 2,700 sq ft., with a 50-ft minimum central, 27-ft lateral dimension. It can be used with 120V or 277V lighting applications (incandescent or fluorescent), with no wiring modifications. Operating modes for on/off function can be set in three ways. An ambient-light override can be adjusted to take account of daylighting. Leviton Mfg. Co., Inc., Little Neck, N. Y.

675 Light fixture
The Lalit lamp, designed by Aldo Cibic for Bieffeplast, provides both direct and reflected light. Made of etched glass and painted steel, it has a circular steel housing, and can accommodate three 60W or one 40W bulb. Gullans International, Inc., Bridgeport, Conn.

676 Room lighting
Wall/Slot-2000 is a system of concealed vertical-surface illumination for rooms or corridors. The system is designed with a compound reflector system to provide an even gradient of light along walls, with no socket shadows. Baffles and louvers to complete the ceiling line are optional. Litecontrol Corp., Hanson, Mass.

677 Floodlight
For the general category of low-voltage garden lighting, the Model 7315 stake-mounted floodlight is fully adjustable from vertical, and has 360-degree horizontal rotation. It is supplied with 3 ft of cable for a low-voltage (12V) power connection, and is painted black. BEGA/FS, Santa Barbara, Calif.

678 Chandelier
Designed by Andrée Putman, the Constantin chandelier incorporates direct down-lighting with wide-spread uplighting. It comes in 14 metal finishes, and bowl diameters of 26, 36, and 42 in. Baldinger Architectural Lighting, Astoria, N. Y.

679 Wall sconce
This unit produces an indirect white illumination that interacts with two spectral glasses, producing one color and at the same time transmitting the other, generating a four-color prism effect on the wall and ceiling. The body and glass holder are cast aluminum, polished, or finished in matte black or white. Artup Corp., Santa Ana, Calif.

680 Floor lamps
Intended to correct poor lighting conditions, these portable asymmetric uplights provide the full-color spectrum and dimming capabilities of tungsten halogen. They have a thin base that can be slipped under a sofa or desk. Various styles and colors are available. Elliptipar Inc., West Haven, Conn.

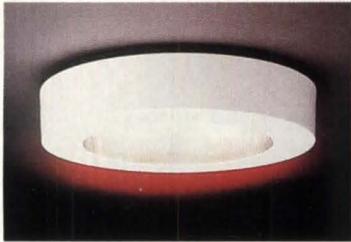
681 Fiber-optic accents
Design Lights are suited for both interior and exterior applications where highlighting or outlining in light is desired. Flexible tubing, illuminated by a 150W lamp with color wheel, convey the light without heat or electrical propagation. A Fresnel feature provides prism effects for maximum light transmission. 3M Construction Markets Dept., St. Paul, Minn.

682 Outdoor luminaire
The Candela series of outdoor lights provide a variety of fixtures and bases for modern or traditional effects. HID or incandescent lamps can be used; inverted designs are rated up to 100W, while upward designs are up to 175W. A variety of refractors, louvers, fittings, and bases are available. Lumec, Ste-Therese, Que.

683 Suspension lamp
Providing both direct and reflected light, Luce Plan's Titania pendant has adjustable cables that are independent of the electrical connection. Available in anodized black or aluminum with a set of interchangeable color filters. Designed by Alberto Meda and Paolo Rizzatto. Artemide Inc., Long Island City, N. Y.

684 Large-area luminaire
Suited for shopping centers, schools, hospitals, and other public spaces, these fixtures have a one-piece spun-aluminum housing. A clear, flat, tempered-glass lens is mounted with a retaining clip. A variety of photometric effects can be specified, based on reflector designs. Finish is dark bronze; others are available. Spaulding Lighting, Inc., Cincinnati.

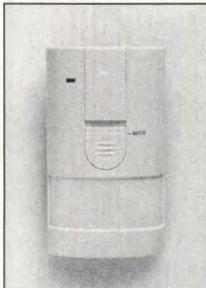
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685 Surface fixture

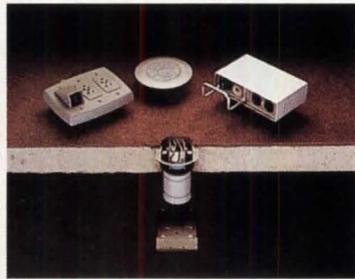
The Corolux fixture is designed to recede into any décor, and provide corridor illumination without the possible glare and maintenance problems of incandescent sources. It takes two 13W color-balanced compact-fluorescent bulbs, which consume 34W but provide more lumens than a comparable 100W incandescent. Edison Price Lighting, New York, N. Y.

686 Outdoor lighting

Wall-, path-, post-, and bollard-style lights are fabricated of California redwood. The wood is carefully laminated and treated with a preservative, and will age to a gray tone. Ceramic versions are also available. Standard lamping is 120V incandescent. Lightform Designs, Portland, Ore.

687 Automatic light switch

The WI-120B and WI-277B wall switches combine light-level sensing with a passive infrared occupancy detector. This available-light feature can reduce energy consumption when natural light is sufficient. The sensor can cover 180 deg of area, and 1,000 sq ft of space. Sensitivity is adjustable. The Watt Stopper, Inc., Santa Clara, Calif.



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688 Poke-through system

A fire-rated conduit system uses a single insert to accommodate power, voice, or data wiring. When wiring changes are made, the insert does not need to be removed; only the service head is changed. This head is available for token-ring computer networks, 25-pair voice, and modular voice jacks. Thomas & Betts Corp., Bridgewater, N. J.

689 Wireless light control

The Nova T RanaX infrared control provides remote dimming and switching with a hand-held transmitter from distances up to 30 ft. The unit works with one or more wall-mounted signal receivers on independent circuits. It is available in capacities from 600 to 1,500 W/VA, and in six colors. Lutron Electronics, Inc., Coopersburg, Pa.

690 Fiber-optic lighting

For detailing, outlining, or highlighting space, exterior walls, or interior-design features, fiber-optic lighting provides a full range of colors. Each loop runs up to 200 ft; multiple loops can be run along the same path. Since no electricity or hazardous gases are being used to transmit the light, system may be used near pools or in contact areas. Fiberstars, Inc., Fremont, Calif.



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691 Tiffany reproductions

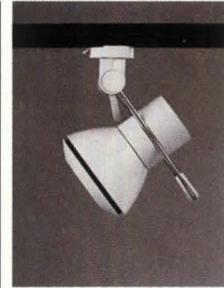
Featuring bronze bases and carefully selected glass parts, these reproductions are said to be made with many of the same techniques and materials used by the original Tiffany craftsmen. Shade diameters range from 16 to 20 in., and are available in hanging as well as tabletop versions. Pinecrest/IJM, Minneapolis.

692 Emergency ballast

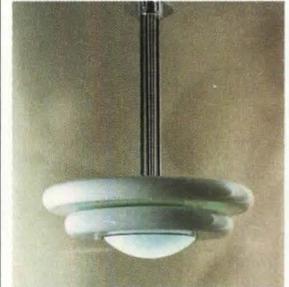
Suited for hospital emergency rooms or manufacturing facilities, ballasts convert a new or existing fluorescent fixture into an emergency light. Equipped with a field-replaceable five-year battery. Switches from line to battery power automatically. Up to 90 minutes of nearly full lighting capacity. With a 4 ft, 40W fluorescent lamp, it produces 2,800-3,000 lumens. Bodine Co., Collierville, Tenn.

693 Italian pendant

Glamour fixtures feature a single cylindrical tube that supports a decorative glass lens. Constructed of die-cast aluminum with a flow-through ventilation system. Pendant shown can rotate and tilt. Recessed, canopy, monopoint, and track models also available. Reggiani USA, New Windsor, N. Y.



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694 Spotlights

Par-Tech Lytespots are highly styled miniature halogen lights in a versatile, modular design. The modular adapter can serve as a freestanding fixture or can be used with a selection of bezel, cone, or cylinder shapes. The holder adjusts up to 90 degrees from vertical. Lightolier Inc., A Genlyte Co., Secaucus, N. J.

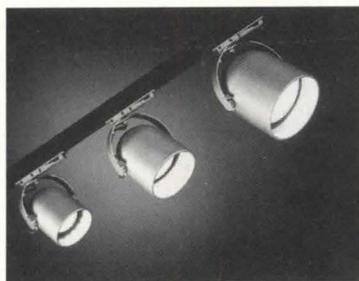
695 Suspended fixtures

Five stems support a double-disk design that provides direct down-light, ambient up-light, and enhancement of the fixture. Pendant can be provided with incandescent or compact-fluorescent bulbs. Tsao/CLS, New Canaan, Conn.

696 Direct/indirect lighting

The RC semi recessed office luminaire allows for attractive indirect/direct lighting while blending with daylight and minimizing glare. Two convex reflectors aid in indirect lighting, and a perforated refractor panel adds to the effect. The housing is 20-gauge cold-rolled steel. An energy-efficient compact 39W fluorescent lamp is standard. Zumtobel Lighting, Inc., Garfield, N. J.

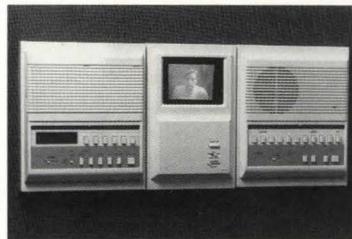
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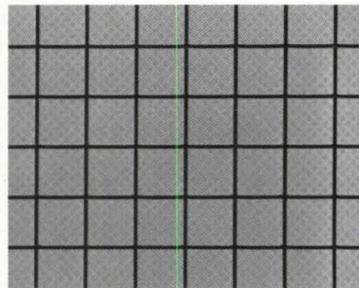
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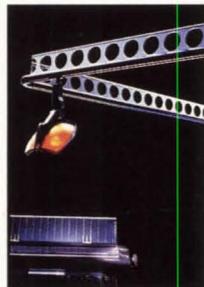
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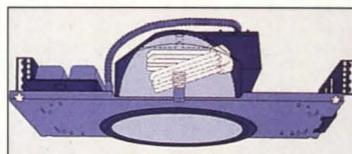
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708

697 Track lighting

These fixtures, called the Round Back Series, have modularized ends with a stylized appearance. They utilize lower wattages and can handle tungsten/halogen lamps. A vertical-rotation stop prevents the fixtures from going beyond a 35-degree striking angle. Lighting Services, Inc., Stony Point, N. Y.

698 Wall lamp

The Daisy, designed by PAF of Milan, is a halogen wall lamp with diffuser in white glazed glass. Details are blue acrylic resin, and a metal support in metallized gray complements the design. The maximum power consumption is 300W (halogen). Koch+Lowy, Long Island City, N. Y.

699 Wall sconce

Cast from a white-gypsum faux-stone, the Argo unit has dentil cut-outs that accentuate indirect and semi-indirect illumination. Available for incandescent (two 75W each, maximum) and fluorescent (two 13W) lamplighting. Dimensions are 6 in. high, 15 1/2 in. wide, and a 7 in. projection. Boyd Lighting Co., San Francisco.

700 Wall sconce

Fabricated from natural marble, granite, onyx, or limestone, the Tulip fixture uses standard compact incandescents of 15W to 40W. Each stone inlay is precision-cut using lasers or hydrocutting. Stonelights, Ltd., Barrington, Ill.

701 Illumination panels

Illuma-Grid panels comprise projecting pyramidal prisms with an integral 3/4-in.-square louver grid. The material is 100 percent acrylic available in clear, or clear or white with Glaregard, a black embellishment on the tips of the louver grid. The panels can be custom-sized, and are thermoformable. K-S-H Inc., St. Louis.

702 Spotlight

The TOH unit is part of the Minitondo and Structurella lines of track-lighting systems for commercial use. The unit has a dichroic reflector of General Electric's Ultem plastic, and can be used as a spot reflector or as a flood reflector. It can be oriented on a 95-deg vertical plane and has unrestricted horizontal rotation. UL-listed at 32A-12V. Targetti, Inc., New York City.

703 Home/office security monitor

Connecting video, radio, and intercom units into an integrated security system, the Master Sentry can handle up to 10 stations. Private or all-call communications are selected at the touch of a button. A low-profile design is suited to most interior décors. Aiphone Corp., Bellevue, Wash.

704 Wall sconce

Originally a custom design, the AL 480 is an 18-in.-dia aluminum and acrylic fixture, available in Duranamel or polished metal finishes. The sconce projects 7 1/2 in. from the wall, and is illuminated by two PL-13 lamps. Appleton Lamplighter, Appleton, Wis.

705 Compact fluorescent fixture

The Alu-Quad recessed luminaire offers a 45-deg bare-lamp cutoff, aluminum-oxide coatings that minimize rainbow effects (caused by trichrome phosphor lamps), and contoured, efficient reflectors. Quick-connect plugs and adjustable brackets facilitate installation. Staff Lighting Corp., Highland, N. Y.

706 Emergency lights

These fluorescent light fixtures are designed to provide state-of-the-art technology in an esthetically appealing package. A mounting bracket is provided. Units are intended for commercial, industrial, and residential uses. Beghelli Inc., Jacksonville, Fla.

707 Light monitor

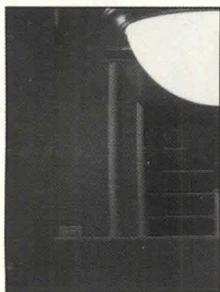
While sensing room occupants, this controller not only will turn off lights, but also can control heating and ventilation devices. Two versions are available, one for 900-sq-ft rooms, and another for 2,100-sq-ft rooms. Novitas, Inc., Santa Monica, Calif.

708 Light meter

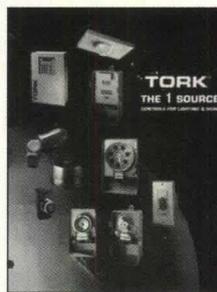
This digital meter has a 1/2-in. display with a hold feature that freezes readings to improve accuracy. An on-off component built into the cover automatically turns the unit on when the cover is opened, and shuts it off when closed. A precise measurement between 0 and 1,999 fc is provided; a correction element covers incident light angles between 0 and 90 deg. Philips Lighting Co., Somerset, N. J.

Electrical

For more information, write item numbers on Reader Service Card

**709 Indirect lighting**

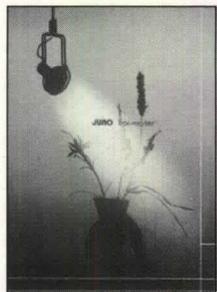
A 24-page concepts brochure presents interior spaces that have been designed with the manufacturer's lines of indirect-lighting products. The reduction of glare and shadows, and high energy efficiency, are stressed, as well as a desirable interior appearance. SPI Lighting, Inc., Mequon, Wis.

**715 Lighting controls**

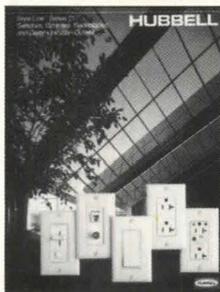
56-page catalog specifies a range of controls for indoor and outdoor controls and accessories. Included are electromechanical controls, digital controls, occupancy sensors, powerpacks, adapters and photoelectric components. Complete ordering information is listed. Tork, Mt. Vernon, N. Y.

**710 Compact-fluorescent fixtures**

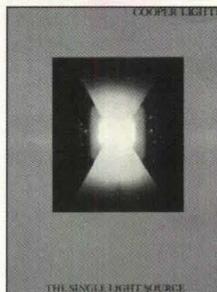
Commercial, architectural, and residential lighting designed to maximize the benefits of compact fluorescent lamps is illustrated in a 36-page catalog. Downlights, emergency fixtures, and wallwash luminaires are included, as well as 10 sconce designs. Lighting effects are shown in color. Halo Lighting, Elk Grove Village, Ill.

**716 Lighting fixtures**

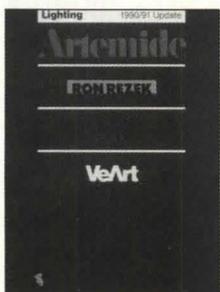
Intended for residential or commercial use, these track, recessed and adjustable-beam lights are detailed in an 84-page catalog. A sizable number of application photos provide examples of light uses. Line- and low-voltage models are available. Juno Lighting, Inc., Des Plaines, Ill.

**711 Lighting accessories**

Switches, dimmers, receptacles communication outlets and other accessories are detailed in this 18-page brochure. Typical installation arrangements are depicted, and full technical specifications are provided. Hubbell Inc., Bridgeport, Conn.

**717 Lighting products**

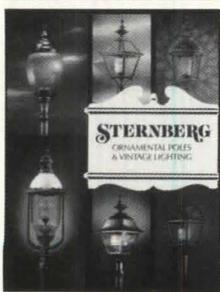
This brochure samples the variety of brands of lighting products manufactured by the divisions of this firm. Included are Halo recessed lights; Metalux fluorescents, Crouse-Hinds indoor and outdoor industrial and heavy-duty lights; Lumark and McGraw-Edison landscape and building lights; Sure-Lites signage and emergency lights. Cooper Industries, Elk Grove Village, Ill.

**712 Designer lighting**

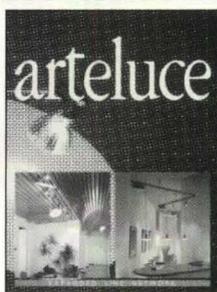
62-page brochure displays the various floor-, wall-, ceiling- and desk-mounted light fixtures offered by this firm. Brand names include Artemide, Ron Rezek, Luce Plan, and VeArt. Generalized dimensions and optional features are provided. Artemide Inc., Farmingdale, N. Y.

**718 Telecommunications system**

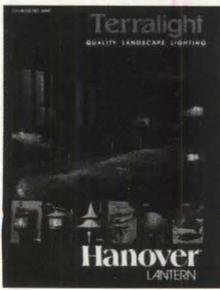
Four-page brochure describes the Telecenter unit for controlling communications within a school building. The unit connects with external phone lines, as well as microphones or room speakers located remotely. Rauland-Borg Corp., Skokie, Ill.

**713 Ornamental lighting**

A comprehensive 48-page brochure provides specifications on this firm's line of vintage poles and fixtures, intended primarily for exterior use on streets, buildings or public spaces. A wide range of installed examples are depicted in color photos. Sternberg Lanterns, Chicago, Ill.

**719 Linear lighting**

The Expanded Line network is a system of power conduits, fixtures and electrical accessories for mounting track-type lights throughout offices, halls and showrooms. Color photos illustrate applications, and the options and adapters are listed. Flos Inc., Huntington Station, N. Y.

**714 Landscape lighting**

20-page catalog illustrates this firm's models of exterior lighting, which are manufactured from cast aluminum. Detailed specification pages show photometric patterns and lamp beam data. The fixtures can accept incandescent, mercury, sodium and metal halide lamps. Hanover Lantern, div. of Hoffman Products, Inc., Hanover, Pa.

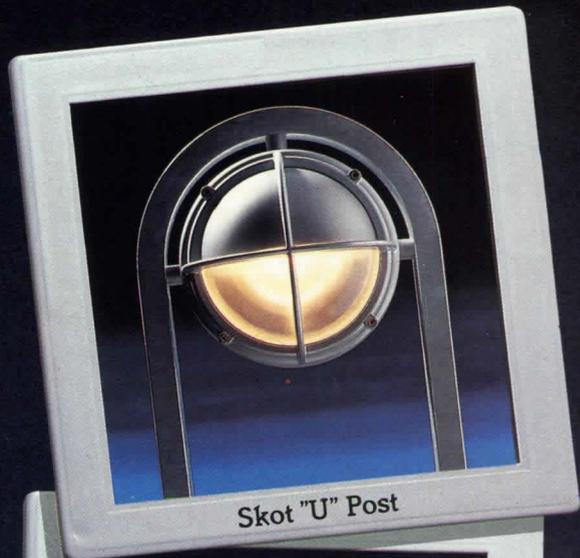
**720 Emergency lighting**

76-page catalog describes this firm's lines of emergency lighting and power products. New additions to the products include wall sconce, wall cylinders, vandal-proof exit signs, central d.c. systems and explosion-proof emergency lighting. Specifications and ordering information are provided. Siltron Illumination, Inc., Cucamonga, Calif.

LIGHT AND DESIGN



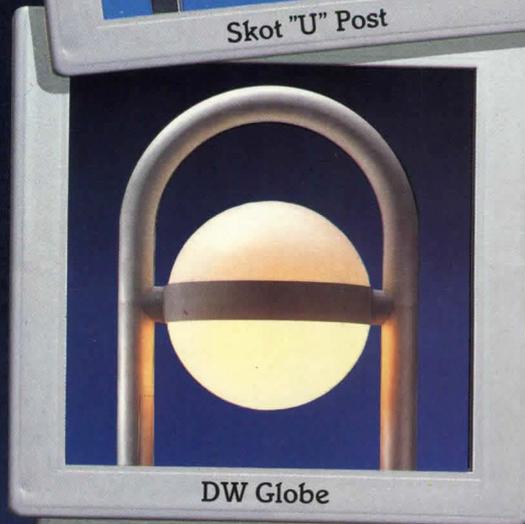
Satellit Series



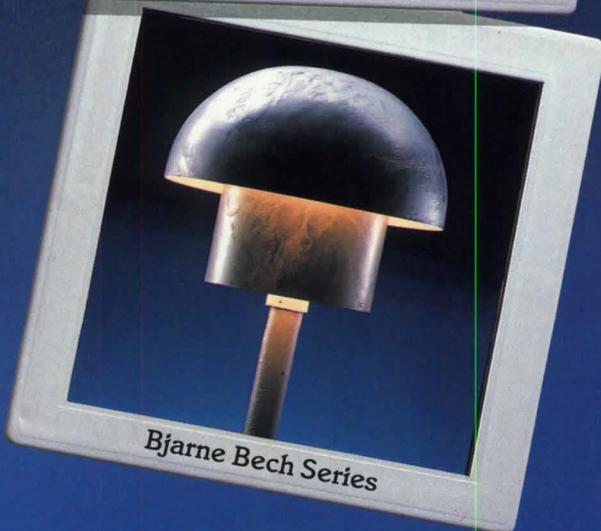
Skot "U" Post



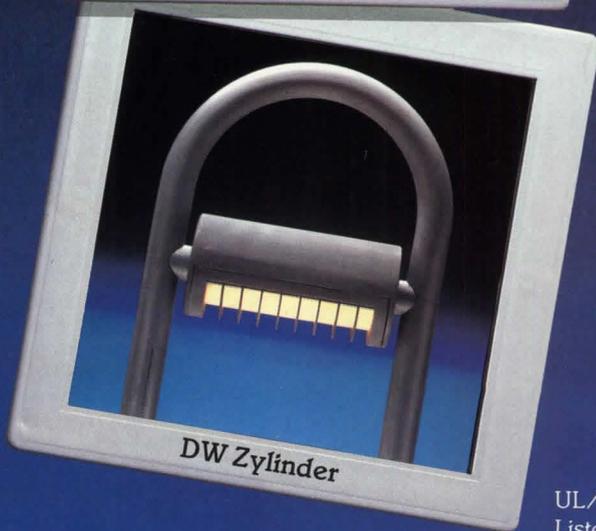
HW Patina



DW Globe



Bjarne Bech Series



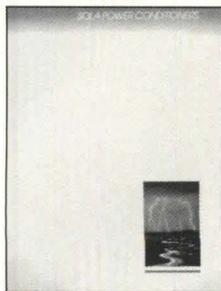
DW Zylinder

UL/CSA
Listed

**louis
poulsen**

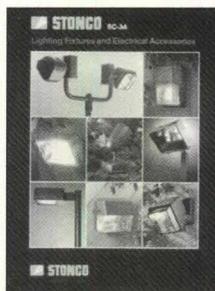
Poulsen Lighting, Inc.
5407 NW 163 Street
Miami, Florida 33014-6130
Telephone - 305-625-1009
Telefax - 305-625-1213
Call Toll Free - 800-342-2310

For more information, write item numbers on Reader Service Card



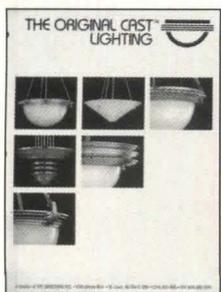
721 Power conditioners

To condition and maintain electrical power in office, industrial, and medical environments, this range of conditioners offers single- or three-phase output between 0.5 and 750 kVA. A 24-page illustrated brochure outlines product features, and provides full engineering specifications. Sola, a Unit of General Signal, Elk Grove Village, Ill.



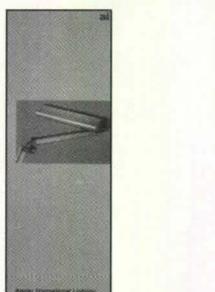
727 Lighting fixtures

This 116-page catalog lists details on a comprehensive line of fluorescent, metal halide, and other types of fixtures, in 11 sections. Products include floods, area lighting, landscape lighting, boxes, and accessories. A section on technical data complements product descriptions. Stonco Lighting, a Genlyte Co., Union, N. J.



722 Classic lighting fixtures

The classic look is emphasized in these catalogs of fixtures, which employ incandescent, fluorescent, and other types of illumination in traditional pendant designs. Cast or spun brass, copper, and aluminum are used. Full-color illustrations show designs, details, and options. The Original Cast Lighting, a division of Art Directions, Inc., St. Louis.



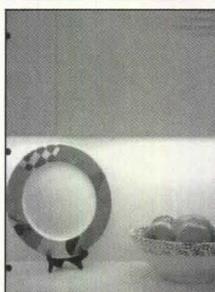
728 Desk lighting

A line of high-design lighting fixtures for offices and boardrooms are illustrated in this full-color pamphlet. The line includes fluorescent, incandescent, and halogen versions, in floor-, table- or wall-mounted designs. Atelier International, Ltd., Long Island City, N. Y.



723 Dimming switches

A four-page, color brochure outlines the features of LiteTouch 2000 controls. These units are built with a modularized construction that allows for switching and dimming the full range of incandescent, fluorescent, neon, and other types of lamps. Up to 2,300 settings can be programmed, for up to 600 independent loads. LiteTouch, Inc., Salt Lake City.



729 Undercabinet lighting

A full range of incandescent and fluorescent lights for kitchens, offices, institutions, and decorative applications are examined in this 22-page color brochure. The units feature a proprietary ballast and a lifetime warranty. Alkco Lighting, subsidiary of Jac Jacobsen Industries, Franklin Park, Ill.



724 Dimming controllers

A four-page, color brochure illustrates the potential uses of this family of dimming control systems. The units feature electroluminescent backlighting for easy viewing of the switch displays. The control station offers up to 20 preset points and 32 channels. Lithonia Control Systems, Decatur, Ga.



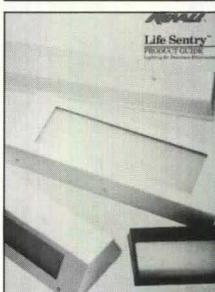
730 Lighting fixtures

A 46-page catalog provides specifications on a full line of recessed and wall-mounted lighting fixtures. Variations include high-intensity discharge, fluorescent, and low-voltage lamps, for recessed installation or where insulated or suspended ceilings are employed. Marco/Marvin Electric, Los Angeles.



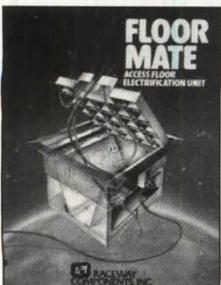
725 Prismatic lighting

A four-page brochure details PrismGlo high-bay fixtures for commercial or industrial settings. The lamps are available in predefined proportions for upward and downward illumination. Above-ceiling, surface, and remote-ballast mountings are options. Holophane Co., Inc., Newark, Ohio.



731 Institutional lighting

Designed specifically for detention environments, these lighting fixtures are constructed with heavy-gauge metal. Products include security, task, utility, and wall lighting, as well as signage. A page of lighting-design considerations provides assistance to the specifier. Kenall, Gurnee, Ill.



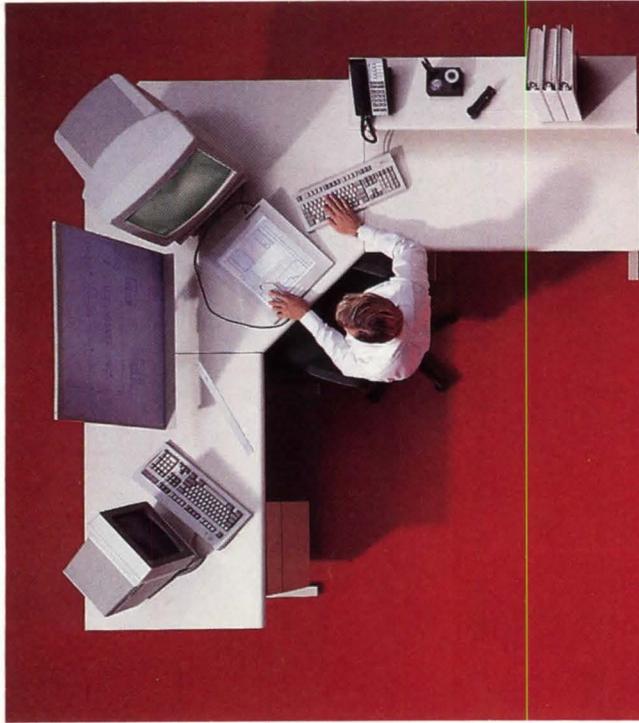
726 Cable receptacle

The Floor-Mate electrification unit provides through-floor access to power and telecommunications cables. A diecast cover complements the steel box. A variety of power, modular telephone, coaxial-cable, and RS232 connections, as well as a blank box, can be specified. Raceway Components, Inc., Paterson, N.J.



732 Public space-lighting

A color brochure highlights this firm's standard and custom products for lighting lobbies, churches, and other public spaces. Pan-A-Lux wall-mounted indirect lighting, as well as recessed and directional lights, are available. Customized designs for historically significant structures are included. Rambusch Co., New York City.



Before you switch to CAD, consider an overview of Hamilton's new free-standing CADCorner.



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The Mayline Company, P.O. Box 1342, Sheboygan, WI 53082-1342. Phone 414-457-5537.

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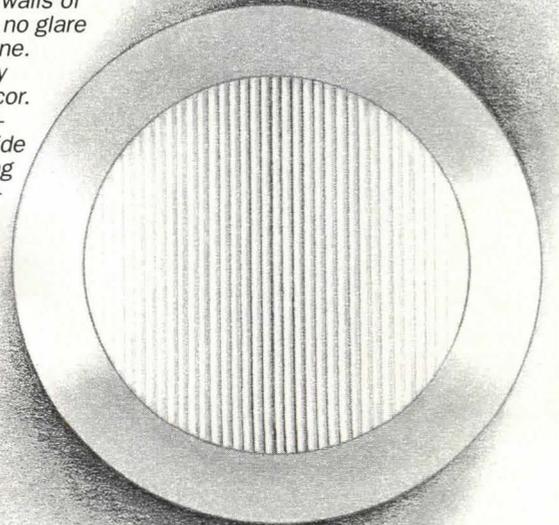
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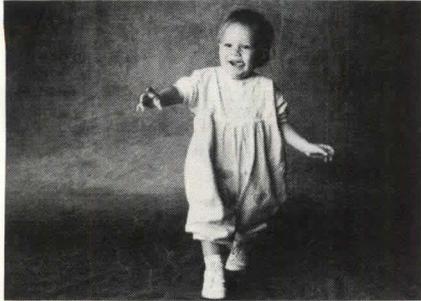
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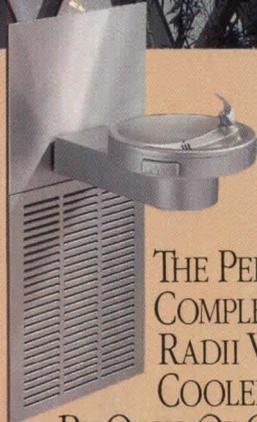
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12	Atlantic Richfield
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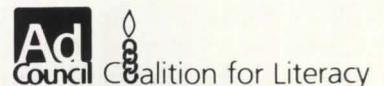
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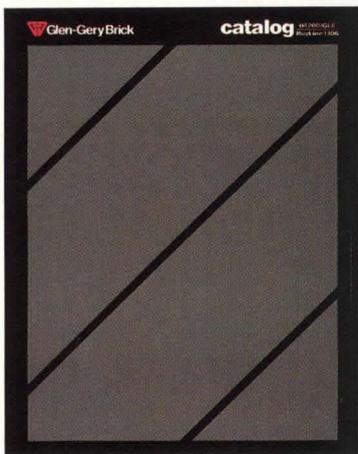
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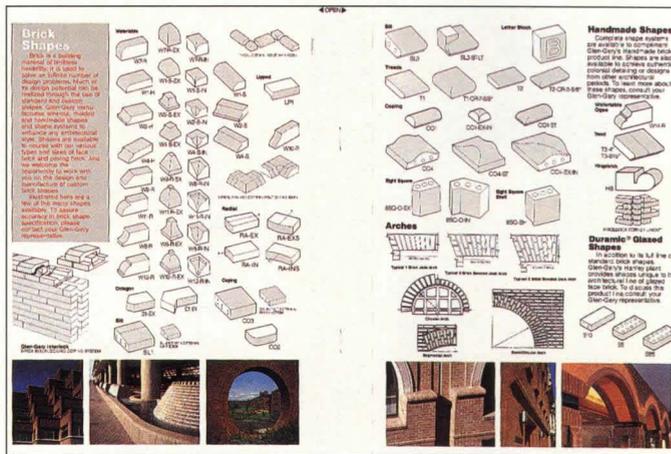


CREAM OF THE CROP

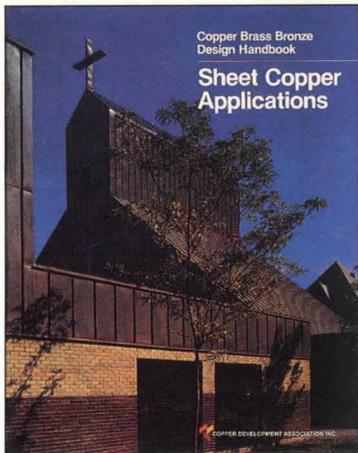
An informal jury, composed of William Paxson, AIA, with Davis, Brody & Associates in New York City; Joseph Bower, AIA, Director of Architectural Projects for the Sweet's Group; Alberto Bucchianeri, Design Director of RECORD; and Joan Blatterman, RECORD's New Products Editor, reviewed the catalog, mailers, and other literature sent in for consideration for the December issue. We show you the ones we liked best, and say why.



Glen-Gery Brick Catalog
Materials/16 pages or less
 Panelists noted that "it is very hard to photograph bricks, all those shapes and corners. Very good job. Combined photos of product with good axiometric views. Compact brochure. Good use of fold-out."
 Glen-Gery Corp.
 1166 Spring St.
 Wyomissing, Pa. 19610

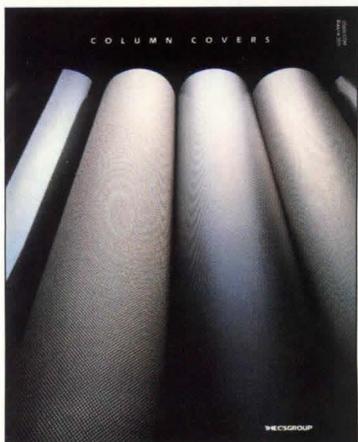
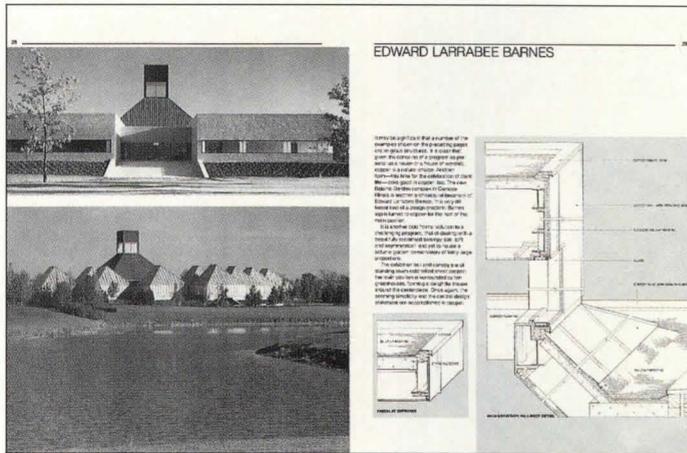


Glen-Gery Corp.



Copper Brass Bronze Design Handbook
Materials/64 pages or less
 "Good cover. Terrific details, clear. With a book of this size and range, actually having a table of contents is a good thought; it's necessary. Any catalog that has Belluschi in it has got to be good."
 Copper Development Association, Inc.
 2 Greenwich Office Park
 Greenwich, Conn. 06836

Copper Development Assoc.

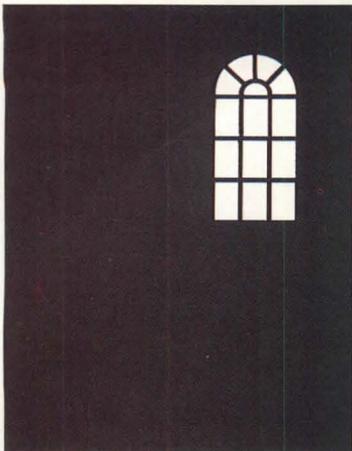


Column Covers catalog
Materials/8 pages or less
 "Dramatic cover. Lots of information in a concise format without crowding. Excellent photographic reproduction of metal-finish options. Clear, pertinent detail drawings. Refers user to Design Manual for specification data. One of a series of graphically consistent brochures from the same manufacturer."
 The C/S Group
 55 Winans Ave.
 Cranford, N. J. 07016

The C/S Group



Continued on page 172

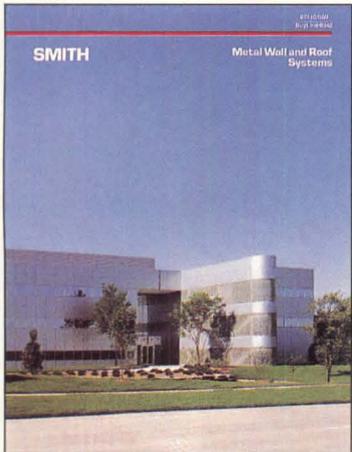


Pella Wood Entry Door Catalog

Enclosures/16 pages or less
 "Intriguing cover for mailer. Pella shows me what the doors are going to look like, before I specify. Picks up the wood grain. Photographs of all the side-light options. Good dimensional chart in back. Graphics consistent with rest of Pella's line."

Rolscreen Company
 102 Main
 Pella, Iowa 50219

Rolscreen Company

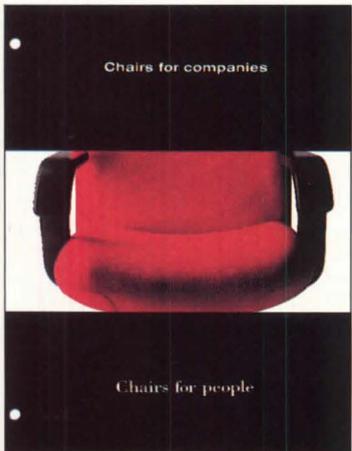


Metal Wall and Roof Systems catalog

Enclosures/64 pages or less
 "Great cover. Has a lot of information on a difficult subject. Don't have to keep paging through to find product. Good application photos. Clear photos, cutaway-views, and diagrams to explain product features. Pages not crowded."

E. G. Smith Construction Products, Inc.
 100 Walls St.
 Pittsburgh, Pa. 15202

E. G. Smith Construction

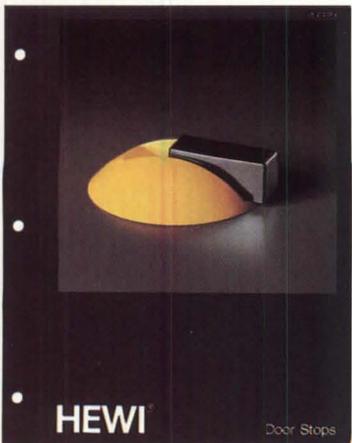


Bulldog Chair catalog
Finishes and Furniture/64 pages or less

"Knoll catalog does it all. Got the dimensions. One catalog I can use; tells me everything. Uncluttered. Across-the-line features charted."

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 655 Madison Ave.
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Knoll International

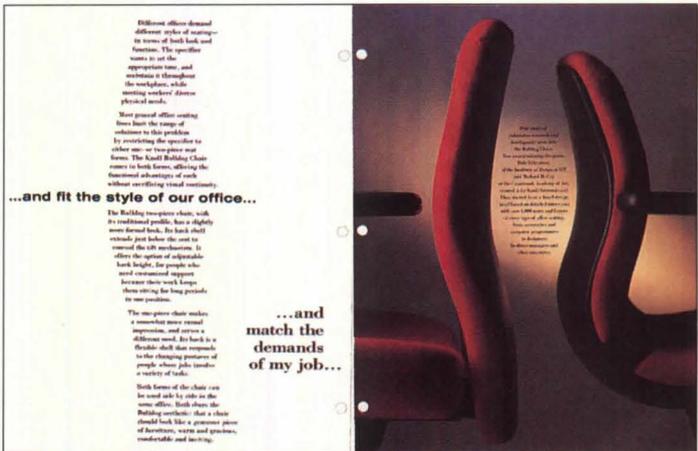
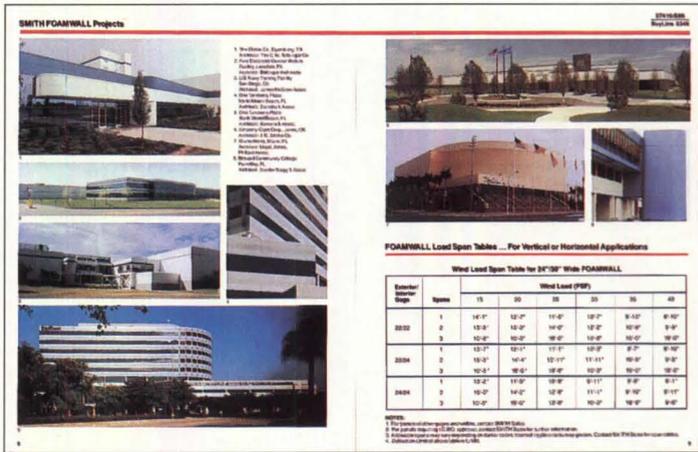


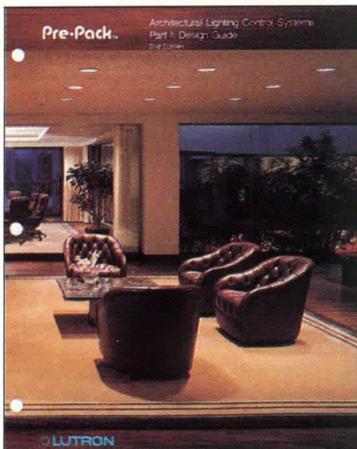
Door stop binder insert
Enclosure Systems/8 pages or less

"About as succinct as one could get. Interesting front page, taking a very pedestrian product and making it art. Drawings not so useful. Another example of a consistent graphic approach; works both as a single page and as part of a complete product line."

Hewi, Inc.
 2851 Old Tree Drive
 Lancaster, Pa. 17603

Hewi, Inc.



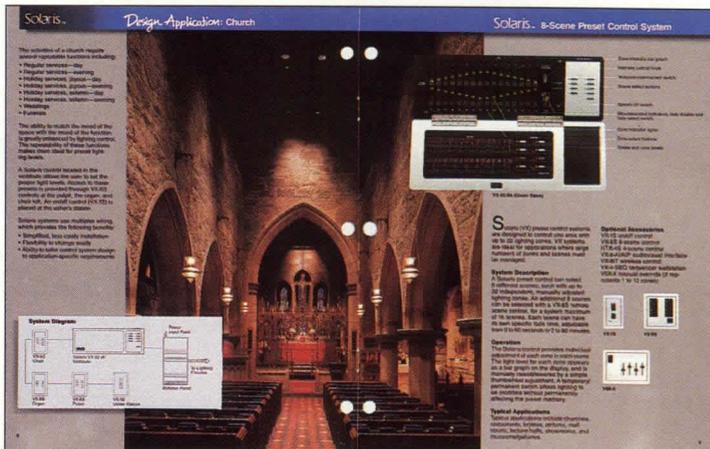


Lutron Electronics Co., Inc.

Design Guide: Architectural Lighting Control Systems
Special Construction & Engineering Systems/
 16 pages or less

"Neatly designed. Very well explained with photos of both product and its application. You know how the whole thing operates. Good diagrams. Excellent color separations. Cover is attractive."

Lutron Electronics Co., Inc.
 205 Suter Road
 Coopersburg, Pa. 18036



Low Voltage Garden Lighting catalog
Special Construction & Engineering Systems/
 8 pages or less

"Use of black is striking. Good in-use photos. Another well-thought-out part of a graphics whole. Conveys sense of scale. Power and lamping data included. Clear feature charts."

Bega/FS
 Box 50442
 Santa Barbara, Calif. 93150

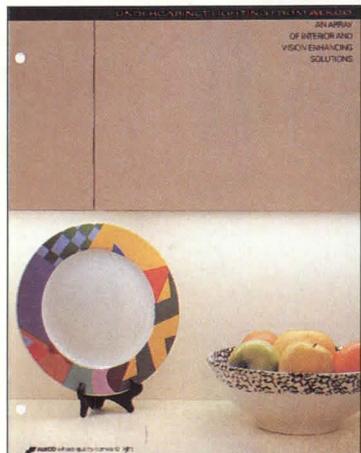
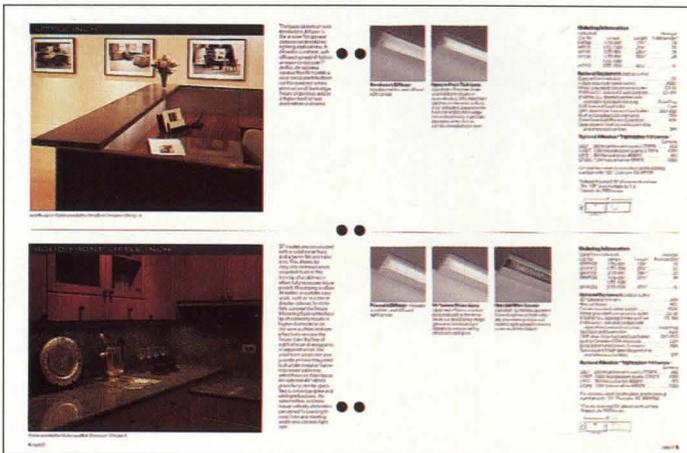


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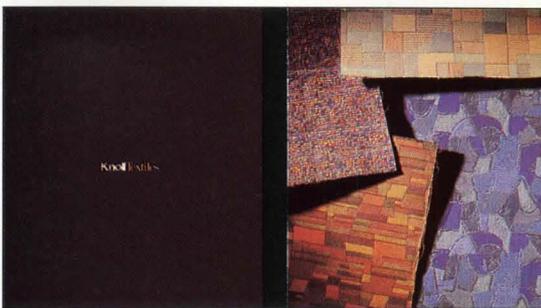
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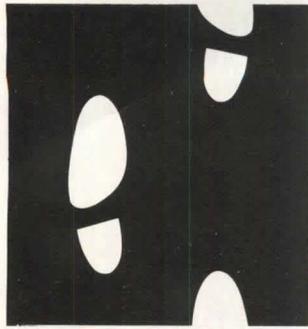


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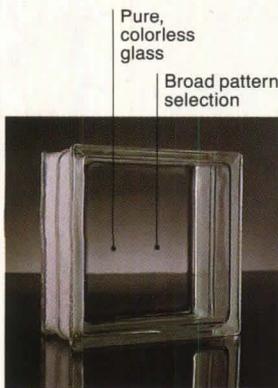
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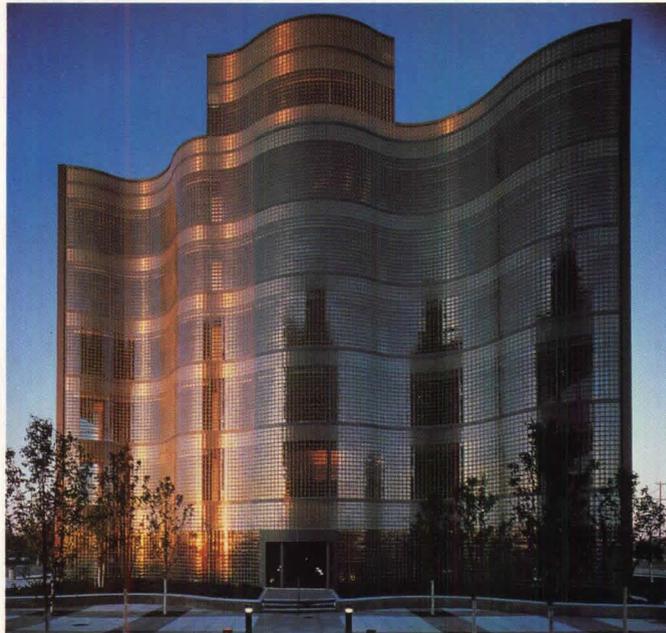
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Electronic detailing and specification of building products is here. Although too many manufacturers still speak their own proprietary language, most software now offered can be made to work within a common format. This listing is a guide to what's available to the specifier today.

A CAS Overview by Mark J. Kalin

CAS (Computer-aided specification) software attempts to solve two of the most critical tasks for a design professional: Product selection and specification writing. At their best, these "expert" or "knowledge-based" systems effectively communicate choices to a designer, and suggest solutions with detailed drawings, schedules, and specifications. At their worst, CAS software becomes an ungainly mix of operating systems and detailed computer codes.

What's unique about most of this software is that it really works. If you need to write a spec for a custom skylight, the Naturalite/EPI spec provides text on diskette which comes with a cover sheet indicating design options. If you need to select glazing for its acoustical properties, the Monsanto Acoustical Glazing Design Guide asks about the building and site configuration, and lists all the types of suitable glazing. If you need to design a built-up roofing system, the Tamko TAMCADD program lets you select by performance and provides details and specs complying with NRCA recommendations.

Who's the Expert?

The companies providing CAS systems use the software as the "neck-of-the-funnel" for their corporate memory. The software attempts to filter all the lessons they've learned, their successes and failures, into a tool which a design professional can use to his or her benefit. There are two groups of experts here: The building product manufacturers who understand they must convey experience gained at the construction site, and the design professionals who must use a portion of this knowledge for the project on which they are working.

The growing availability of CAS from building product manufacturers, professional societies, and software vendors has prompted attempts to simplify the organization and distribution of CAS products. Each year the informal CAS roster has grown, to the point where a building product manufacturer who doesn't have an automated solution in the marketplace or under development is rare. The Directory that follows includes the systems we know about. Select a few promising candidates, and call for a copy of the program. You can get the benefit of the advice of a thousand experts without leaving your workstation.

Mark J. Kalin, AIA, CSI, is a specifications consultant and frequent lecturer on specification automation. The directory was compiled by Mr. Kalin and Joan Blatterman.

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ABT, Inc.
P.O. Box 837, Troutman, N. C. 28166.
(800) 438-6057
Polydrain Trench Drains details.

Concrete Pavers Institute
P.O. Box 781, Herndon, Va. 22070.
(703) 435-4900.
Paving Block details.

CONCRETE/MASONRY

Heckmann Building Products
4015 W. Carroll Ave., Chicago, Ill.
60624. (800) 621-4140
Masonry Ties and Accessory details.

JVI Corp.
7315 N. Monticello, Skokie, Ill. 60076.
(708) 675-1560
Bearing Pad sizing and specifications.

Pittsburgh Corning Corp.
800 Presque Isle Dr., Pittsburgh,
Pa. 15239. (800) 992-5769
Glass Block details, specifications.

Sika Corp.
P.O. Box 297, Lyndhurst, N. J. 07071.
(201) 933-8800
Sika Spec-Servers, CSI-format, grout, mortar, and epoxy products.

Voss Engineering Inc.
695 N. Hamlin, Chicago, Ill. 60645
(312) 673-8900
Bearing Pad sizing and specifications.

METALS

C&C Metals
2141 NW Broad St., Murfreesboro,
Tenn. 37129. (800) 232-2141
Steel Stair Systems, specifications.

Hilti Fastening Systems
P.O. Box 21148, Tulsa, Okla. 74121.
(918) 252-6000
Fastener detailing, specifications.

Neenah Foundry Co.
P.O. Box 729, Neenah, Wis. 54947.
(414) 725-7000
Inlet Grate Capacities, sizing for inlet grates and specification data.

Zephyr Metal Craft, Inc.
100 E. Morrow Road, Silver Springs,
Okla. 74063. (800) 255-9860
Stairs, glass handrails, column covers, CSI format specifications.

WOODS & PLASTICS

DuPont Company
B11-210, Wilmington, Del. 19898.
(800)-4-CORIAN
Corian installation details.

Louisiana-Pacific Corp.
P.O. Box 19010-LP, Portland, Ore.
97216. (800) 999-9105
Wood-E program for GNI joist, Gang-Lam LVL Beam, I-Joist design.

Simpson Strong Tie
1450 Doolittle Dr., San Leandro,
Calif. 94577. (415) 562-7775
Details on Disk, product details.

Weyerhaeuser
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Ariz. 85018. (602) 952-7000
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3M Center Building 225-45-08, St.
Paul, Minn. 55144. (612) 733-7119
Scotch-Clad Brand coatings details.

Allied-Signal, Inc.
P.O. Box 1053, Morristown, N. J.
07926. (800) 221-6490
Black Armor Coal Tar Roofing details.

ASC Pacific, Inc.
2110 Enterprise Blvd., W. Sacramento,
Calif. 95691. (800) 726-ASCP
Metal Roofing Systems details.

Berridge Manufacturing Co.
1720 Maury St., Houston, Tex. 77026
(800) 231-8127
Metal Roofing and Siding Systems, CSI-format specifications.

Bilco Co.
P.O. Box 1203, New Haven, Conn.
06505. (203) 934-6363
Roof Hatches, details and specs.

Chemical Products Co.
7649 SW 34th St., Oklahoma City,
Okla. 73179. (800) 624-4356
Siloxane-based water repellents, CSI format specifications.

Dryvit Systems Inc.
P.O. Box 1014, West Warwick, R. I.
02893. (800) 556-7752
cad2ry, EIFS details.

Era Corp./Synergy Methods, Inc.
P.O. Box 119, Danielson, Conn. 06239
(800) 443-5785
PrismCAD, system details for Synergy EPDM membrane roofing.

Gory Roof Tile
1100 Park Central Blvd. S., Pompano
Beach, Fla. 33064. (800) 223-8453
VersaTile, details and specs.

IPSO
792 S. Main St., Mansfield, Mass.
02048. (508) 339-9106
IPSO, CSI format spec.

JPS Elastomerics
395 Pleasant St., Northhampton,
Mass. 01060. (413) 582-1073
Stevens Hi-Tuff Roofing Systems, product details.

Manville Sales Corp.
51 Lexington St., Lewiston, Maine.
(800) 445-1500
Roofing Accessories product details.

Masonite Corp.
1 South Wacker Dr., Chicago, Ill.
60606. (800) 848-3673
Flame Test Siding, siding selection, CSI format spec.

MB Technology
188 South Teilman, Fresno, Calif.
93706. (800) 621-9281
SpecTech, mail-in questionnaire, CSI format spec.

Naturalite/EPI
101 Corporate Dr., Export, Pa. 15632
(412)-733-8600
BMS 3000 Skylight System, CSI format spec.

Nelson Electric
P.O. Box 726, Tulsa, Okla. 74101
(800) 331-7325
Firestop Systems, Selector guide, UL designs, specifications.

Product Development Corp.
1810 N. 106 East Ave., Tulsa, Okla.
74116. (918) 838-8300
Insuwall EIFS, CSI format spec.

Republic Powdered Metals, Inc.
P.O. Box 724, Medina, Ohio 44258.
(800) 255-1136
Geoflex PIB-CAD, details and specifications on PIB roofing membrane.

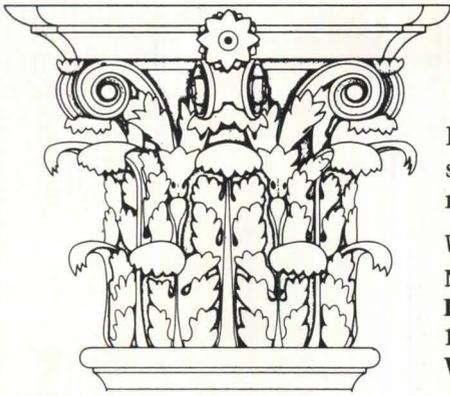
Sika Corp.
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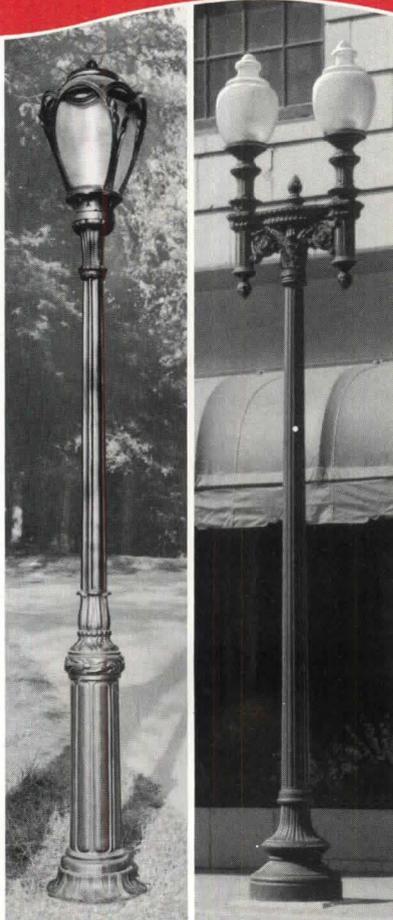
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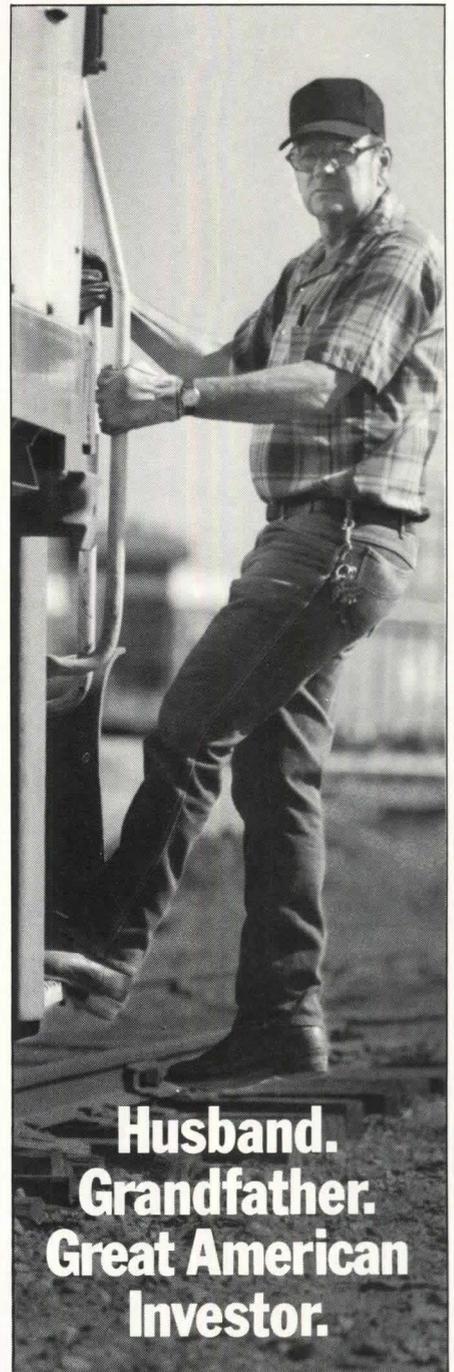
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Modu-Line Windows

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Modu-Line technical manual.

Monsanto Chemical Co.

800 N. Lindbergh Blvd., St. Louis, Mo. 63167. (800) 325-4330
Acoustical Glazing Design Program, product selection and schedules. Performance of Laminated Glass, analysis of structural performance of laminated glass to users criteria.

Peachtree Doors Inc.

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Rolscreen Co.

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Medford, Wis. 54451
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Gypsum Association

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Laticrete International

1 Laticrete Park North, Bethany, Conn. 06525. 243-4788
Compugrout, grouting calculations, installation details, specs.

MAPEI Corp.

1350 Lively Blvd., Elk Grove Village, Ill. 60007. (312) 364-4470
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Polomyx

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(800) 527-2100
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Consideration will be given to architectural/engineering firms or joint ventures on a nationwide basis. However the selected firm must have or establish an operational office within the Metropolitan Boston area where the project team will operate and all contract documents must be produced. We plan to issue the public notice in the Commerce Business Daily (CBD) on or about December 13, 1990 with the submission of SF264/255's on or about January 15, 1990. Interested parties must respond to the CBD notice to be considered.

Inquiries about this announcement should be directed to the Project Liaison:
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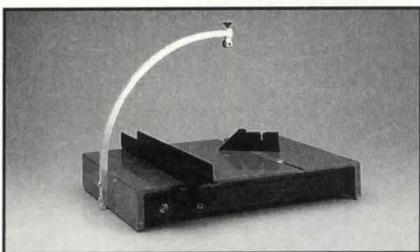
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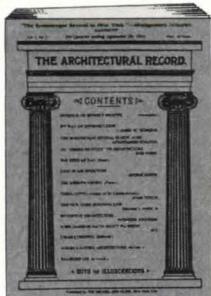
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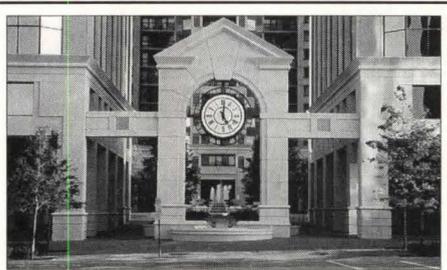
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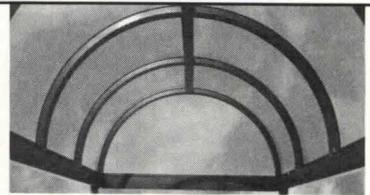
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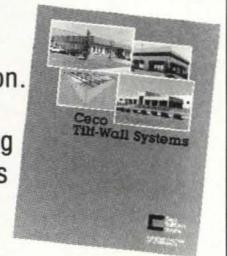


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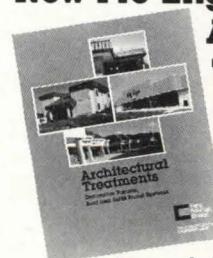


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1990 index

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Readers using this index will find
buildings entered in two ways: by
architect's name and by building
type.

- A**
Abel, Chris—Henning Larsen, archt—“Modernism in the Danish Manner”—June 1990, pp. 76-83.
Access Flooring—“Access Floors: A Way To Handle The Cabling Mess”—Sept. 1990, pp. 157-159
ADD, Inc., archt—404 Wyman Street, Waltham, MA—Nov. 1990, p. 17.
Additions—Evergreen State College Studio Addition, Olympia, WA—The Miller/Hull Partnership, archt—May 1990, pp. 88-89• San Francisco Day School, San Francisco—Simon Martin-Vegue Winkelstein Moris, archt—Mar. 1990, pp. 84-85 & pp. 88-91• San Francisco Waldorf School, San Francisco—Tanner Leddy Maytum Stacy, archt—Mar. 1990, pp. 84-87—World Bank, Washington, DC—Kohn Pedersen Fox Assocs., archt—July 1990, p. 21.
AIA—Washington, DC—“Accent on Architecture: An AIA Celebration”—Apr. 1990, p. 21• “The Prince of Wales v. Architecture”—Apr. 1990, p. 21.
Airports—New Terminal for O'Hare International Airport, Chicago, IL—Consoer, Townsend & Assocs. with Heard & Assocs. and Perkins & Will—Jan. 1990, p. 21.
Anderson/Schwartz, archt—The Napa House, Rutherford, CA—Mid-Apr. 1990, BTS, pp. 96-101• Parkside Restaurant, Atlanta, GA—Feb. 1990, p. 19.
Andrews, John, International, archt—Adelaide Convention Center, Adelaide, Australia—Mar. 1990, BTS, pp. 108-109• Sydney Convention Center, Sydney, Australia—Mar. 1990, BTS, pp. 104-107.
Apartment Buildings—Manhattan Triplex Apartment, New York City—Steven Forman, archt—Sept. 1990, BTS, pp. 110-116.
Arquitectonica Int'l Corp., archt—Bank of Luxembourg, Luxembourg—Jan. 1990, p. 21.
Arup, Ove, and Partners, engr., with Michael Painter, landscape archt—Cliff House, San Francisco—Ream/James with Stone Marraccini and Patterson—Feb. 1990, p. 21.
Asbestos—“Asbestos: Still A Dark Cloud Over Construction”—Oct. 1990, pp. 110-111—“Were Asbestos Dangers Exaggerated?”—Oct. 1990, p. 111.
Auditoriums—Opera at Compton Valley, Warwickshire, England—Henning Larsen, archt—June 1990, pp. 82-83.
Austin-Hansen Group with Kaplan/McLaughlin/Diaz, archts—University of Calif. at San Diego, Price Center, San Diego, CA—“Good-guy modern”—by Mary Kate Kelly—Aug. 1990, BTS, pp. 92-95.
- B**
Baker, Cecil, & Assocs., archt—The Waterworks, New Hope, PA—July 1990, BTS, pp. 76-79.
Baker, David, archt—Parkview Commons, San Francisco, CA—July 1990, BTS, pp. 84-87—Meadow Court, San Mateo, CA—Jan. 1990, pp. 96-97• Hodgkin Hall, St. Mark's Church, Berkeley, CA—Apr. 1990, pp. 90-93.
Ballast, David Kent—“Taming The Facts”—Oct. 1990, pp. 39 & 41—“New Post Office for Denver”—Post Office, Denver—Hoover Berg Desmond, archt—Oct. 1990, p. 15.
Banks—Bank of Luxembourg, Luxembourg—Arquitectonica Int'l Corp., archt—Jan. 1990, p. 21• Home Savings of America Tower, Los Angeles—Albert C. Martin & Assocs., archt—Feb. 1990, pp. 94-97.
Barnes, Edward Larrabee, archt—Katonah Museum of Art, Westchester County, NY—Dec. 1990, p. 21.
Barron, Errol/Michael Toups, archt—Howard Memorial Library, New Orleans, LA—Mar. 1990, pp. 72-73.
Basta, Nicholas—“How a small firm competes for large projects”—Mar. 1990, pp. 139-140• “What the job market holds for graduates”—Apr. 1990, pp. 41-42—“New Direction for CAD” Nov. II, 1990, pp. 20-21.
Beall, Christine—“Making Masonry Walls Look Their Best”—Nov. 1990, pp. 112-113.
Becher, Bernd and Hilla—“Industrial Giants”—Aug. 1990, p. 128.
Beckley/Myers, archt—Milwaukee Repertory Theater, Milwaukee, WI—Aug. 1990, pp. 64-65.
Beha, Ann, Assocs., archt—Andover Town Hall Restoration, Andover, MA—Nov. 1990, BTS, pp. 61-65.
Beyer Blinder Belle and Harry Weese & Assocs., archts—Grand Central Terminal, New York City—June 1990, p. 21 with Notter Finegold + Alexander, Inc., archts—Restoration of Ellis Island, New York City—July 1990, pp. 46-57.
Binder, Rebecca L., archt—Armcast Duplex, Los Angeles, CA—Jan. 1990, p. 91—UCI Info. Computer Sciences Engineering Research Facility—Irvine, CA—Aug. 1990, p. 25—with Neptune Thomas Davis, archts—UC San Diego Visual Arts Facility, San Diego, CA—Aug. 1990, p. 25.
Birkerts, Gunnar, and Assocs., archt—Urban Center, Torino, Italy—Oct. 1990, p. 19—Latvian National Library, Riga, Latvia—Dec. 1990, p. 20.
Blackman, Leo J., archt—Vestibule, Church of St. Paul of the Apostle, New York City—Oct. 1990, pp. 76-77.
Blake, Peter—“Federal Style”—Canadian Chancery, Washington, DC—Arthur Erickson, archt—Mar. 1990, pp. 58-65.
Bohlin Powell Larkin Cywinski with James Cutler, archts—Gates House, Seattle, WA—Sept. 1990, p. 25.
Booth/Hansen & Assocs. and The Austin Co., archts—North Pier, Chicago—Apr. 1990, BTS, pp. 102-105• The Chicken Coop, Lake Bluff, IL—Mid-Apr. 1990, BTS, pp. 84-87.
Botta, Mario, archt—San Francisco Museum of Modern Art, San Francisco, CA—Oct. 1990, p. 17.
Bradburn, J. H., and Assocs. with C. W. Fentress, archts—Jefferson County Governmental Center, Golden, CO—July 1990, p. 21.
Brennan Beer Gorman with Cesar Pelli & Assocs., archts—Carnegie Tower, New York City—Oct. 1990, p. 106.
Bridges—The Four Continents Bridge, Hiroshima, Japan—SITE Projects, Inc., archt—Apr. 1990, pp. 80-83—Two Bridges, Portland, OR—PAE Consulting Engineers—Craig Marquardt, lighting dsgr—“Brightening a River”—by Donald J. Canty, —Nov. II, 1990, pp. 22-25.
Building Codes—“Federal building code: why still a no-go”—by Douglas E. Gordon—July 1990, pp. 31-32.
Building Technology—“Shadow Free”—Corporate Development Center, Steelcase Inc., Gaines Township, MI—The WBDC Group, archt—Mar. 1990, pp. 119-121• Scarborough Operations Centre, Scarborough, Ontario—NORR Partnership Ltd., archt/ engr. Apr. 1990, pp. 124-125• “A sudden unusual force”—Feb. 1990, pp. 146-148• “A thin-stone veneer primer”—by Ian R. Chin, John P. Stecich, Bernard Erlin—June 1990, pp. 108-113• “A volatile issue”—by Jane Nemke—May 1990, pp. 126-127• “An affinity for ornament” by Donald London—May 1990, pp. 121-125• “Assessing the ‘the big pretty big one’”—Feb. 1990, pp. 144-145• “Design of glazing”—Jan. 1990, pp. 147-149• “Finlandia Hall dilemma”—by Heikki Lonka—Mar. 1990, p. 127• “Forces of nature”—Feb. 1990, pp. 143• “Outlook for new coatings”—May 1990, p. 127• “Restoration the old-fashioned way”—Mar. 1990, pp. 124-126• “Sealant configurations and performance”—by James C. Myers—Jan. 1990, pp. 150-151• “Selecting glass for tall buildings”—by Joseph E. Minor—June 1990, pp. 105-107• “Sorting out building sealants”—Jan. 1990, pp. 152-153• “Sticking with built-up roofing”—Feb. 1990, pp. 139-141• “The costliest hurricane”—by Nancy Levinson—Feb. 1990, pp. 144-145 & 148• “Under the lights”—Mar. 1990, p. 121• “When no glitches are allowed”—Apr. 1990, pp. 119-123—James Carpenter, dsgr—“Steel And Glass Bring Form To Light”—Nov. 1990, pp. 108-111—Presbyterian-University Hospital, Pittsburgh—Burt Hill Kosar Rittelman, archt—“When There's No Place To Go But Up”—Sept. 1990, pp. 160-163—“Access Floors: A Way To Handle The Cabling Mess”—Sept. 1990, pp. 157-159—“Asbestos: Still A Dark Cloud Over Construction”—Oct. 1990, pp. 110-111—“Delineating Waterproofing”—Aug. 1990, pp. 100-103—“Designing The Super-Thin New Buildings”—Oct. 1990, pp. 105-109—“Don't Deny Radon”—Nov. 1990, p. 105—“Indoor Air Quality: The Architect's Role”—Nov. 1990, pp. 105-106—“Making Masonry Walls Look Their Best”—by Christine Beall—Nov. 1990, pp. 112-113—“Were Asbestos Dangers Exaggerated?”—Oct. 1990, p. 111—“What's this building make of?”—July 1990, pp. 91-97—“Man-Made Timber”—by Timothy B. McDonald—Dec. 1990, pp. 44-45—“How Good Is Wood”—by Timothy B. McDonald—Dec. 1990, p. 39—“End of an Era”—by Timothy B. McDonald—Dec. 1990, pp. 40-41—“Decline of A Commodity”—by Timothy B. McDonald—Dec. 1990, pp. 42-43.
Building Types Studies—“To gather together [Religious Buildings]”—Jan. 1990, pp. 123-135• “Getting away from it all [resort hotels]”—Feb. 1990, pp. 117-131• “Timing the behemoth [convention centers]”—Mar. 1990, pp. 99-113• “Reshuffling the deck [retail facilities]”—Apr. 1990, pp. 97-111• “Record Houses 1990—mid-April 1990, pp. 33-101• “Dressing for the office [commercial interiors]”—May 1990, pp. 103-115• “Targeting Treatment [hospitals]”—June 1990, pp. 87-101—“The Search Continues [Multifamily Housing]”—July 1990, pp. 75-87• “Extracurricular Education [Campus Buildings]”—Aug. 1990, pp. 83-95—“Record Interiors 1990”—Sept. 1990, pp. 69-117• “Prison Explosion [Correctional Facilities]”—Sept. 1990, pp. 141-153• “High-Risk High Rises [High-Rise Office Buildings]”—Oct. 1990, pp. 87-101—“In the Public Interest 1990”—Nov. 1990, pp. 61-101.
Burak & Herfurth with Peter Marino + Assocs., archts—Antwerp Diamond House, Belgian—Apr. 1990, p. 29.

Burden, Ernest—"Let the client be your judge"—Feb. 1990, p. 42-44.

Burgee, John, archt—Three Buildings, Sacramento, CA—Feb. 1990, p. 21• with Philip Johnson, archts—Franklin Square, Washington, DC—Feb. 1990, p. 101—Wortham Park, Houston, TX—"A Park on a Historic Site"—by Gerald Moorhead—Sept. 1990, p. 29.

Burt Hill Kosar Rittelman, archt—Presbyterian-University Hospital, Pittsburgh—Sept. 1990, pp. 160-163.

Buttrick White & Burtis, archt—Three buildings, New York City—Mar. 1990, p. 19.

C

Calatrava, Santiago, with Arnold Amsler and Werner Rueger, Stadelhofen Railroad Station, Zurich, Switzerland—Oct. 1990, pp. 54-61.

Caliandro Assocs. with Nikken Sakkri Ltd., archts—Pacifico Convention Center, Yokohama, Japan—Apr. 1990, p. 29.

Callison Partnership, The, archt—Pacific First Centre, Seattle, WA—May 1990, p. 87.

Cambridge Seven Assocs., archt—University of Mass., William D. Mullins Memorial Center, Amherst, MA—Jan. 1990, p. 23• Tempozan Marketplace, Osaka, Japan—Apr. 1990, p. 25.

Campus Buildings—Brown University, Salomon Center for Teaching, Providence, RI—Goody, Clancy & Assocs., archt—Aug. 1990, BTS, pp. 84-87—University of Calif. at San Diego, Price Center, San Diego, CA—Austin-Hansen Geoup with Kaplan/McLaughlin/Diaz, archts—"Good-guy modern"—by Mary Kate Kelly—Aug. 1990, BTS, pp. 92-95—Vanderbilt University, Psychology Bldg., Nashville, TN—The Stubbins Assocs., archt—Aug. 1990, BTS, pp. 88-89—Westminster School, Centennial Performing Arts Center, Simsbury, CT—Graham Gund, archt—Aug. 1990, BTS, pp. 90-91.

Canty, Donald J.—"Western Front"—Julian Main Post Office, Julian, CA—Keniston & Mosher, Inc., archt—Nov. 1990, BTS, pp. 94-95—"Homage to Gill"—Oceanside Civic Center, Oceanside, CA—Charles W. Moore/Urban Innovations Group, archt—Nov. 1990, BTS, pp. 76-81—"A Water Oasis"—Plaza Park, San Jose, CA—Ross DeAlessi, Luminae Souter Lighting Design, lighting dsgnr—Hargreaves Assocs., landscape archt—Nov. II, 1990, pp. 16-17—"Brightening a River"—Two Bridges, Portland, OR—PAE Consulting Engineers—Craig Marquardt, lighting dsgnr—Nov. II, 1990, pp. 22-25—"Uptown Delight"—Uptown District, San Diego, CA—SGPA Architecture and Planning, archt—Oct. 1990, pp. 62-67—"At Home in San Jose"—Sept. 1990, pp. 132-137.

Cardinal Architect Ltd., archts—

Canadian Museum of Civilization, Hull, Quebec—Feb. 1990, pp. 88-93.

Carlson/Ferrin, archt—Larry's Market, Kirkland, WA—May 1990, pp. 90-91.

Carpenter, James, dsgnr—"Steel And Glass Bring Form To Light"—Nov. 1990, pp. 108-111.

Carrington & Assocs., archt—"Ingenuity Par Excellence"—Riverview Terrace, Jersey City—Feb. 1990, p. 53.

Centerbrook, archt—Neuroscience Center, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY—June 1990, p. 25—Nauticus, Norfolk, VA—May 1990, p. 29.

Chan and Mohney Architecture, archt—Spy Magazines Offices, New York City—May 1990, BTS, pp. 108-109.

Chicago Park District, archt/ engr—Burnham Harbor Station, Chicago, IL—Nov. 1990, BTS, pp. 82-83.

Child Care Centers—Starlight Pavilion, Los Angeles, CA—Kaplan/McLaughlin/Diaz, archt—Oct. 1990, p. 17.

Chin, Ian R., John P. Stecich & Bernard Erlin—"A thin-stone veneer primer"—June 1990, pp. 108-113.

Cho, Wilks & Benn, archt—Central Corridor Light Rail, MD—Oct. 1990, p. 19.

Christie, George A.—"Another year on the plateau"—May 1990, pp. 51-52 & 54—"Building Is Down—But MidYear Upswing Seen"—Nov. 1990, pp. 33-43—"Construction Volume Update"—Oct. 1990, pp. 41-42, & 43.

Civic Buildings—Jefferson County Governmental Center, Golden, CO—C. W. Fentress, with J. H. Bradburn and Assocs., archts—July 1990, p. 21—Andover Town Hall Restoration, Andover, MA—Ann Beha, Assocs., archt—Nov. 1990, BTS, pp. 61-65—Aurora Municipal Justice Center, Aurora, CO—Skidmore, Owings & Merrill/Washington, DC, archt—Nov. 1990, BTS, pp. 96-101—Bartholomew County jail, Columbus, IN—Hisaka & Assocs., archt—Nov. 1990, BTS, pp. 66-71—Boston Fire Dept., Div. 1 Headquarters, Boston, MA—Jung/Brannen Assocs., archt—Nov. 1990, BTS, pp. 72-75—Burnham Harbor Station, Chicago, IL—Chicago Park District, archt/ engr—Nov. 1990, BTS, pp. 82-83—Caribbean Marketplace, Miami, FL—Charles Harrison Pawley, archt—"Caribbean Recall"—by Beth Dunlop—Nov. 1990, pp. 90-93—Julian Main Post Office, Julian, CA—Keniston & Mosher, Inc., archt—"Western Front"—by Doand J. Canty, —Nov. 1990, BTS, pp. 94-95—Metropolitan Toronto Police Headquarters, Toronto, Ontario—Shore Tilbe Henschel Irwin Peters, archt—Nov. 1990, BTS, pp. 84-87—Oceanside Civic Center, Oceanside, CA—Charles W. Moore, /Urban Innovations Group, archt—"Homage to Gill"—by Donald J. Canty—

Nov. 1990, BTS, pp. 76-81—Post Office, Denver—Hoover Berg Desmond, archt—"New Post Office for Denver"—by David Ballast—Oct. 1990, p. 15—County/City Bldg. [competition], Mobile, AL—Harry Goleman and Mario Bollulo with Frederick C. Woods, archts—Dec. 1990, p. 21.

Clark & Menefee, archts—Croffead House, Charleston, SC—Mid-Apr. 1990, BTS, pp. 42-47.

Clark Tribble Harris & Li, archt—100 East Wisconsin Avenue, Milwaukee, WI—Aug. 1990, pp. 63.

Clinic—Clinic, Kiev—Anshen + Allen, archt—Nov. 1990, p. 13.

Clubs—Epping Forest Yacht Club, Jacksonville, FL—Pappas Assocs., archt—Mar. 1990, p. 67.

Coatings—"A volatile issue"—by Jane Nemke—May 1990, pp. 126-127—"Design of glazing"—Jan. 1990, pp. 147-149—"Outlook for new coatings"—May 1990, p. 127.

Cohn, David—"Spain fetes modernism"—June 1990, pp. 47-48.

Computer Practice (see *Office Practice*)

Conservatories—Lewis Ginter Botanical Garden, Richmond, VA—Environmental Planning and Design with Marcellus Wright Fox & Smith, archts—Sept. 1990, p. 29.

Consoer, Townsend & Assocs. with Heard & Assocs. and Perkins & Will, archts—New Terminal for O'Hare International Airport, Chicago, IL—Jan. 1990, p. 21.

Construction Costs—"Are we heading for a period of deflation?"—Feb. 1990, p. 60—"The price of building declines"—June 1990, p. 37—"Construction Costs Calm On The Surface"—Oct. 1990, p. 38.

Construction Documents (see *Office Practice*)

Construction Finance—"Interest rates' stubborn stance"—June 1990, p. 40—"That crucial cost of credit will fall in 1990"—by Phillip E. Kidd—Jan. 1990, p. 60—"The short-term squeeze on midsize builders"—by Phillip E. Kidd—Mar. 1990, p. 38.

Construction Volume Update—"Another year on the plateau"—by George A. Christie—May 1990, pp. 51-52 & 54—"Building Is Down—But MidYear Upswing Seen"—by George A. Christie—Nov. 1990, pp. 33-43.

Convention Centers—Adelaide Convention Center, Adelaide, Australia—John Andrews International, archt—Mar. 1990, BTS, pp. 108-109• Bartle Hall, Kansas City, MO—Howard Needles Tammen & Bergendoff, archt—Apr. 1990, p. 29• Convention Center, Atlantic City, NJ—Wallace Roberts & Todd, archt—Mar. 1990, p. 23• Miami Beach Convention Center Expansion, Miami Beach, FL—Thompson, Ventulett, Stainback & Assocs., archt—Mar. 1990, BTS, pp. 110-

113• Pacifico Convention Center, Yokohama, Japan—Caliandro Assocs. with Nikken Sakkri Ltd., archts—Apr. 1990, p. 29• San Jose Convention Center, San Jose, CA—MGA Partners, archt—Mar. 1990, BTS, pp. 100-103• Sydney Convention Center, Sydney, Australia—John Andrews International, archt—Mar. 1990, BTS, pp. 104-107—San Diego Convention Center, San Diego, CA—Arthur Erickson; Deems Lewis McKinley with Loschky, Marquardi & Nesholm, joint-venture archts—Aug. 1990, pp. 53-61.

Cooper, Robertson & Partners, archt—Carlyle, Alexandria, VA—July 1990, p. 25.

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J, K

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- Lohan Assocs., archt—Centennial Fountain, Chicago—by David Masello—Mar. 1990, pp. 92-95—Dean Witter Financial Svcs. Group, Riverwoods Corporate Place—Riverwoods, IL—Sept. 1990, BTS, pp. 88-93.
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- Luckenbach/Ziegelman & Partners Inc., archt—Kellogg, W.K., Foundation Headquarters, Battle Creek, MI—Mar. 1990, p. 21.
- M**
- Machado and Silveti, archt—Piazza Dante renovation, Genoa, Italy—May 1990, p. 27.
- Marcellus Wright Fox & Smith with Environmental Planning and Design, archts—Lewis Ginter Botanical Garden, Richmond, VA—Sept. 1990, p. 29.
- Marino, Peter, + Assocs. with Burak & Herfurth, archts—Antwerp Diamond House, Belgian—Apr. 1990, p. 29.
- Marketing (see *Office Practice*)
- Marketplaces—Tempozan Marketplace, Osaka, Japan—Cambridge Seven, archt—Apr. 1990, p. 25.
- Marraccini and Patterson with James Ream, archts, Cliff House, San Francisco—Ove Arup and Partners, engr., Michael Painter, landscape archt—Feb. 1990, p. 21.
- Martin, Albert C., & Assocs., archt—Home Savings of America Tower, Los Angeles—Feb. 1990, pp. 94-97• Keihin Tennis & Sports Club, Japan—June 1990, p. 23.
- Masonry—"Making Masonry Walls Look Their Best"—by Christine Beall—Nov. 1990, pp. 112-113.
- Maxman, Susan, archt—Cabin Complex, Camp Tweedale, Lower Oxford Township, PA—July 1990, pp. 64-67—Camp Tohikanee, Bucks County, PA—July 1990, p. 23.
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- McKinley, The, and Kohn Pedersen Fox Assocs., archt—Washington Mutual Tower, Seattle, WA—May 1990, p. 86.
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- Metalwork—"An affinity for ornament" by Donald London—May 1990, pp. 121-125• 225 West Wacker Drive, Chicago—Kohn Pedersen Fox with Perkins & Will, archts—May 1990, pp. 122-123• One Federal Street, Boston—Kohn Pedersen Fox with Tajima Corp., archts—May 1990, pp. 122-123• One O'Hare Center, Rosemont, IL—Kohn Pedersen Fox, archt—May 1990, pp. 124-125• 900 North Michigan Avenue, Chicago—Kohn Pedersen Fox, archt, Jules Fisher & Paul Marantz, lighting conslt—May 1990, pp. 124-125.
- Meyer, Richard Conway, archt—Boathouse, St. Andrew's School, Middletown, DE—July 1990, pp. 58-59.
- Meyer, Scherer & Rockcastle, archt—Valspar Varnish Factory Renovation, Minneapolis, MN—Aug. 1990, pp. 68-69.
- MGA Partners, archt—San Jose Convention Center, San Jose, CA—Mar. 1990, BTS, pp. 100-103• Suffolk County (N.Y.) Courthouse, Central Islip, NY—May 1990, p. 29.
- Miller, Hood, Assocs., archt—14-16 Leroy Place, San Francisco, CA—Jan. 1990, pp. 92-93• with Whisler—Patri, archts—One Thousand One Hundred Fifty Lombard Street, San Francisco, CA—Jan. 1990, pp. 94-95.
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Minor, Joseph E.—“Selecting glass for tall buildings”—June 1990, pp. 105-107.

Mintz, David A., lighting consult—Management Center, Electronic Data Systems Corp., Plano, TX—“A Well-Lighted Space”—by David Masello—Aug. II, 1990, pp. 35-36.

Mitchell/Giurgola, archt—Center West, Los Angeles, CA—Oct., 1990, BTS, pp. 88-89 & 90-93.

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Moore Ruble Yudell, archt—Humboldt Library, Tegel, West Berlin—Jan. 1990, pp. 100-107.

Moore, Arthur Cotton, archt—“Throwing a Curve”—Sept. 1990, BTS, pp. 78-79.

Moore, Charles W./Urban Innovations Group, archt—Oceanside Civic Center, Oceanside, CA—Nov. 1990, BTS, pp. 76-81.

Morgan, William, archt—Beach United Methodist Church, Jacksonville Beach, FL—Jan. 1990, BTS, pp. 128-129.

Moss, Eric Owen, archt—Gary Group, Culver City, CA—June 1990, p. 21• Samitaur 3, Southwestern Los Angeles—June 1990, p. 21.

Murphy/Jahn, archt—Cityspire, New York City—Oct. 1990, p. 107—Fountain Square West, Cincinnati, OH—Aug. 1990, p. 23.

Museums—Brooklyn Museum, Brooklyn, NY—Arata Isozaki & Assocs., with James Stewart Polshek, archts—July 1990, p. 23—Children's Museum of Manhattan, New York City—Paul Segal Assocs., archt—July 1990, pp. 68-70—Las Vegas Library/Discovery Museum, Las Vegas, NV—Antoine Predock, archt—Oct. 1990, pp. 68-75—San Francisco Museum of Modern Art, San Francisco, CA—Mario Botta, archt—Oct. 1990, p. 17—Canadian Museum of Civilization, Hull, Quebec—Douglas J. Cardinal, Architect Ltd. and Tetreault, Parent, et Languedoc, archts—Feb. 1990, pp. 88-93• Il Campanile, CO—Urban Design Group, dsgrn—Jan. 1990, p. 23• The Maine Maritime Museum, Bath, ME—Winton Scott, archt—June 1990, pp. 72-75• Nauticus, Norfolk, VA—Centerbrook with Charles W. Moore, archts—May 1990, p. 29• “Sealant configurations and performance” by James C. Myers—Jan. 1990, pp. 150-151—Katonah Museum of Art, Westchester County, NY—Edward Larrabee Barnes, archt—Dec. 1990, p. 21.

N

NBBJ Group, The, archt—Two Union Square, Seattle, WA—May 1990, p. 85.

Nemke, Jane—“A volatile issue”—May 1990, pp. 126-127.

Neuman, David—“The academic village in exurbia”—by Betsky, Aaron—Apr. 1990, pp. 49-53.

Nikken Sakkri Ltd. with Caliendo Assocs., archts—Pacífico Convention Center, Yokohama, Japan—Apr. 1990, p. 29.

NORR Partnership Ltd., archt/ engr—Freeport Hospital Health Care Village, Kitchener, Ontario—June 1990, BTS, pp. 90-93• Scarborough Operations Centre, Scarborough, Ontario—Apr. 1990, pp. 124-125

Nouvel, Jean, archt—Hotel Saint James, Bouliac, France—Sept. 1990, BTS, pp. 98-103—Tour sans Fins, Paris, France—Oct. 1990, p. 109.

Novitski, B.J.—“Modeling Daylight”—Nov. II, 1990, pp. 29-32.

O

Office Buildings, High-rise—

AT&T Tower, Minneapolis, MN—Bishop Walsh Assocs., archt—Jan. 1990, p. 21• Freedom Tower, Miami, FL—R. J. Heisenbotte, archt—Mar. 1990, pp. 68-69• Miglin-Beitler Tower, Chicago, IL—Cesar Pelli & Assocs., archt—Feb. 1990, p. 15• One North Franklin, Chicago—Skidmore, Owings & Merrill, archt—May 1990, p. 25• 225 West Wacker Drive, Chicago—Kohn Pedersen Fox with Perkins & Will, archts—May 1990, pp. 122-123• 101 Federal Street, Boston—Kohn Pedersen Fox with Tajima Corp., archts—May 1990, pp. 122-123• One O'Hare Center, Rosemont, IL—Kohn Pedersen Fox, archt—May 1990, pp. 124-125• 900 North Michigan Avenue, Chicago—Kohn Pedersen Fox, archt, Jules Fisher & Paul Marantz, lighting conslt—May 1990, pp. 124-125• 125 High Street, Boston, MA—Jung/Brannen Assocs., archt—June 1990, p. 27• Pacific First Centre, Seattle, WA—The Callison Partnership, archt—May 1990, p. 87• Savings of America Tower, Chicago—Helmut Jahn, —Feb. 1990, p. 19• Three Buildings, Sacramento, CA—John Burgee, archt—Feb. 1990, p. 21• 300 East Pratt, Baltimore, MD—Kevin Roche, John Dinkeloo and Assocs., archt—June 1990, p. 27• Two Union Square, Seattle, WA—The NBBJ Group, archt—May 1990, p. 85• Washington Mutual Tower, Seattle, WA—Kohn Pedersen Fox and The McKinley, archts—May 1990, p. 86• Management Center, Electronic Data Systems Corp., Plano, TX—David A. Mintz Inc., lighting conslt—Aug. II, 1990, pp. 35-36—Center West, Los Angeles, CA—Mitchell/Giurgola, archt—Oct., 1990, BTS, pp. 88-89 & 90-93—AT&T Corporate Center, Chicago, IL—Skidmore, Owings & Merrill, archt—Oct. 1990, BTS, pp. 88-89 & 94-97—Baltimore Gas & Electric, Baltimore, MD—Ehrenkrantz Eckstut & Whitelaw, archt—Aug. 1990, pp. 100-103—Carnegie Tower, New York City—Cesar Pelli & Assocs. with Brennan Beer Gorman, archts—Oct. 1990, p. 106—Los Angeles City Center, Los Angeles—Johnson Fain Pereira, archt—“Two by One in California”—by Aaron Betsky—Nov. 1990, p. 15—Miglin-Beitler Tower, Chicago—Cesar Pelli & Assocs., archt—Oct. 1990, pp. 108-109—100 East Wisconsin Avenue, Milwaukee, WI—Clark Tribble Harris & Li, archt—Aug. 1990, pp. 63—120 Broadway, New York City—Ehrenkrantz, Eckstut & Whitelaw, archt—July 1990, pp. 95-97—125 Summer Street, Boston, MA—Kohn Pedersen Fox Assocs., archt—Oct. 1990, BTS, pp. 88-89 & 98-101—Rhodes Center Town, Atlanta, GA—Fox & Fowle, archt—Sept. 1990, p. 27—712 Fifth Avenue, New York City—Kohn

Pedersen Fox Assocs. with Shuman Lichtenstein Claman and Efron, archts—Oct. 1990, p. 106—Tour sans Fins, Paris, France—Jean Nouvel, archt—Oct. 1990, p. 109.

Office Buildings, Mid-rise—800 Connecticut Avenue, Washington, DC—Keyes Condon Florance, archt—Oct. 1990, p. 19—One Bowdoin Square, Boston, MA—Graham Gund, archt—July 1990, 1990, pp. 92-94—Franklin Court, Washington, DC—Kohn Pedersen Fox Assocs., archt—May 1990, p. 25• Home Savings of America Tower, Los Angeles—Albert C. Martin & Assocs., archt—Feb. 1990, pp. 94-97.

Office Buildings, Low-rise—Creative Artists Agency, Beverly Hills, CA—I.M. Pei & Partners, archt—Jan. 1990, pp. 82-89• Crown American Corporate Office Building, Johnstown, PA—Michael Graves, archt—Feb. 1990, pp. 76-83• Franklin Square, Washington, DC—John Burgee, Architects with Philip Johnson, archts—Feb. 1990, p. 101• Gary Group, Culver City, CA—Eric Owen Moss, archt—June 1990, p. 21—W.K. Kellogg Foundation Headquarters, battle Creek, MI—Luckenbach/Ziegelman & Partners Inc., archt—Mar. 1990, p. 21—100 Old Broad Street, London—Swanke Hayden Connell, archt—Apr. 1990, p. 25• Samitaur 3, Southwestern Los Angeles—Eric Owen Moss, archt—June 1990, p. 21.

Office Practice—“Ingenuity Par Excellence”—Riverview Terrace, Jersey City—Carrington & Assocs., archt—Feb. 1990, p. 53• “A resourceful profession meets the future” by Robert Gutman—Jan. 1990, pp. 56-58• “Glitz or quality: what do developers want?”—by Peter Hoffman—Mar. 1990, pp. 35• “How a small design firm works with developers”—by Daniel Waterman—Feb. 1990, pp. 52-53• “How to land a job in an architectural firm”—by David Grusel—Apr. 1990, pp. 34-37• “Apple grows at Taliesin West”—by Steven S. Ross—Jan. 1990, pp. 171-175• “How a small firm competes for large projects”—by Nicholas Basta—Mar. 1990, pp. 139-140• “The future is now”—by Steven S. Ross—June 1990, pp. 30-31• Marketing—“How three architects market themselves [Samuel White, Leland Cott & Hugh Jacobsen]”—by Nicholas J. Polites, —July 1990, pp. 27-28—“Stow it don't throw it”—by Merle T. Westlake—Mar. 1990, p. 41-42• “How do they get those commissions?”—Jan. 1990, pp. 34-41—by George & Laura Heery• “How do they get those commissions? [Part II]”—Feb. 1990, pp. 48-50—b George & Laura Heery• “How do they get those commissions? [Part III]”, —by George & Laura Heery—May 1990, pp. 40-41—“Before You Engage A

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- Offices—Antwerp Diamond House, Belgian—Burak & Herfurth with Peter Marino + Assocs., archts—Apr. 1990, p. 29• Deloitte & Touche Headquarters, Wilton, CT—Ellerbe Becket/New York, archt—May 1990, BTS, pp. 110-115• Il Campanile, CO—Urban Design Group, dsgr—Jan. 1990, p. 23• Spy Magazines Offices, New York City—Chan and Mohny Architecture, archt—May 1990, BTS, pp. 108-109• Vogue Magazine Conference Room, New York City—Tod Williams, Billie Tsien and Assocs., archt—May 1990, BTS, pp. 104-107—Borders, Ferrin & Norrande, Inc., Portland, OR—Zimmer Gunsul Frasca Partnership, archt—Sept. 1990, BTS, pp. 70-77—Contract Interiors, San Diego, CA—Topdjan, Bartev, The Austin Group, interior design—Nov. II, 1990, pp. 26-27—Dean Witter Financial Svcs. Group, Riverwoods Corporate Place—Riverwoods, IL—Lohan Assocs., archt—Sept. 1990, BTS, pp. 88-93—Hemdale Film Corp., West Hollywood, CA—Hodgetts & Fung Design Assocs., archt—Sept. 1990, BTS, pp. 104-109—Offices of Ellerbe Becket, Kansas City, MO—Ellerbe Becket, Inc., archt/lighting dsgr—Nov. II, 1990, pp. 6-9.
- Olson/Sundberg, archt—Monroe Jewelers, Seattle, WA—Aug. II, 1990, pp. 14-15.
- Outtakes—"Urban Fright"—Anton Furst, dsgr—Jan. 1990, pp. 206-207• Civil Rights Memorial, Montgomery, AL—Maya Lin, archt—Feb. 1990, pp. 186-187• "Material World ['Mondo Materialis' exhibition]"—Mar. 1990, pp. 168-169• "City Lights [Galveston arch]"—Aldo, Rossi, archt—Apr. 1990, pp. 172-173• "Watching their garden follies grow [International Garden and Greenery Exposition, Osaka, Japan]"—June 1990, p. 144—Bernd and Hilla Becher—"Industrial Giants"—Aug. 1990, p. 128—Zalotay and Cooper, archt—"Tilting at Convention"—July 1990, p. 118-119—"Tilting at Convention"—July 1990.
- P**
- PAE Consulting Engineers—Craig Marquardt, lighting dsgr—Two Bridges, Portland, OR—Nov. II, 1990, pp. 22-25.
- Pappas Assocs., archt—Epping Forest Yacht Club, Jacksonville, FL—Mar. 1990, p. 67.
- Parker, Leonard, Assocs., The, with Opus Corp. archts—State of Washington Labor & Industries Bldg., Tumwater, WA—Aug. 1990, p. 23.
- Parking, Garage—Fifth Street Parking/Transit Facility, Minneapolis, MN—The Stageberg Partner, archt—Aug. 1990, pp. 66-67.
- Parks—Wortham Park, Houston, TX—John Burgee, archt—Sept. 1990, p. 29.
- Parsons Brinckerhoff Quade & Douglas Inc., archt/engr—Convention Place Station, Downtown Seattle Transit Proj—Seattle, WA—TRA (station arch. & surface improvement)—Lightsource Inc.; lighting dsgr—Aug. II, 1990, pp. 28-31.
- Pawley, Charles Harrison, archt—Caribbean Marketplace, Miami, FL—Nov. 1990, pp. 90-93.
- Pei Cobb Freed & Partners with Simon Martin-Vegue Winkelstein Moris—New Main Library, San Francisco—Nov. 1990, p. 13.
- Pei, I.M., & Partners, archt—Creative Artists Agency, Beverly Hills, CA—Jan. 1990, pp. 82-89.
- Peirce Pierce & Kramer, archt—Carnegie Institution, Washington, DC—June 1990, p. 27.
- Pelli, Cesar, & Assocs. with Brennan Beer Gorman, archts—Carnegie Tower, New York City—Oct. 1990, p. 106—Miglin-Beitler Tower, Chicago—Oct. 1990, pp. 108-109—Miglin-Beitler Tower, Chicago, IL—Feb. 1990, p. 15.
- Performing Arts Buildings—Broward Center for the Performing Arts, Ft. Lauderdale, FL—Benjamin Thompson & Assocs., archt—Mar. 1990, p. 19• Gusman Center for the Performing Arts, Miami, FL—Craig Stark Assocs. with Richard J. Heisenbottle, archts—Mar. 1990, p. 23—Milwaukee Repertory Theater, Milwaukee, WI—Beckley/Myers, archt—Aug. 1990, pp. 64-65—Theater/Concert Hall, Lenox/Stockbridge, MA—William Rawn Assocs., archt—Oct. 1990, p. 17—Westminster School, Centennial Performing Arts Center, Simsbury, CT—Graham Gund, archt—Aug. 1990, BTS, pp. 90-91.
- Perkins & Will with Consoer, Townsend & Assocs. & Heard & Assocs.—New Terminal for O'Hare International Airport, Chicago, IL—Jan. 1990, p. 21.
- Perkins Geddis Eastman, archt—Woodside Place, Oakmont, PA—Aug. 1990, p. 21.
- Perkins, Bradford—"Starting Your Own Firm [Part I]"—Sept. 1990, p. 37 & 39—"Building A Successful Practice [Part II]"—Oct. 1990, pp. 35-36.
- Perry Dean Rogers & Partners, archt—William M. Bristol Jr. Natatorium, Hamilton College, Clinton, NY—Apr. 1990, pp. 84-89.
- Phillips, Frederick, & Assocs., archt—Private Residence, Chicago—Mid-Apr. 1990, BTS, pp. 58-59 & 60-61• Private Residence, Washington Island, WI—Mid-Apr. 1990, BTS, pp. 58-59, & 62-63.
- Plazas—Piazza Dante renovation, Genoa, Italy—Machado and Silveti, archt—May 1990, p. 27—Plaza Park, San Jose, CA—DeAlessi, Ross, Luminae Souter Lighting Design, lighting dsgr—Nov. II, 1990, pp. 16-17.
- Polites, Nicholas J.—"How three architects market themselves [Samuel White, Leland Cott & Hugh Jacobsen]"—July 1990, pp. 27-28—"Working With Photographers"—Oct. 1990, pp. 30-31 & 138—"How architects market themselves"—June 1990, pp. 35-36.
- Polshek, James Stewart with Arata Isozaki & Assocs., archts—Brooklyn Museum, Brooklyn, NY—July 1990, p. 23.
- Practice (see *Office Practice*)
- Predock, Antoine, archt—Zuber House, Paradise Valley, AZ—Mid-Apr. 1990, BTS, pp. 88-95—Hotel Santa Fe, Euro Diseyland, Marne-la-Vallee, France—Aug. 1990, p. 75—Las Vegas Library/Discovery Museum, Las Vegas, NV—Oct. 1990, pp. 68-75.
- Preservation—"A sudden unusual force"—Feb. 1990, pp. 146-148• Epping Forest Yacht Club, Jacksonville, FL—Pappas Assocs., archt—Mar. 1990, p. 67• Freedom Tower, Miami, FL—R. J. Heisenbottle, archt—Mar. 1990, pp. 68-69• Howard Memorial Library, New Orleans, LA—Errol Barron/Michael Toups, archt—Mar. 1990, pp. 72-73• Linden Row Inn, Richmond, VA—Glave Newmann Anderson, archt—Mar. 1990, pp. 74-75• Venetian Pool, Coral Gables, FL—H. Carlton Decker and Assocs., archt—Mar. 1990, pp. 70-71.
- Promotion—"Let the client be your judge"—by Ernest Burden—Feb. 1990, p. 42-44.
- Public Buildings—Palm Beach County Judicial Center, The, West Palm Beach, FL—Hansen Lind Meyer, with Michael LeBoeuf, archts—Aug. 1990, p. 23• Restoration of Ellis Island, New York City—Beyer Blinder Belle with Notter Finegold + Alexander, Inc. archts—July 1990, pp. 46-57—State of Washington Labor & Industries Bldg., Tumwater, WA—Opus Corp. with The Leonard Parker Assocs., archts—Aug. 1990, p. 23.
- Q**
- Quigley, Rob Wellington, archt—Escondido Transit Center, Escondido, CA—by Dirk Sutro—Sept. 1990, pp. 128-131.
- R**
- Rawn, William, Assocs., archt—Back of the Hill Rowhouses, Boston, MA—July 1990, BTS, pp. 80-81—Theater/Concert Hall, Lenox/Stockbridge, MA—Oct. 1990, p. 17.
- Ream/James with Stone Marraccini and Patterson, —Cliff House, San Francisco—Ove Arup and Partners, engr., Michael Painter, landscape archt—Feb. 1990, p. 21.
- Recreational Facilities—Boathouse, St. Andrew's School, Middletown, DE—Richard Conway Meyer, archt—July 1990, pp. 58-59—Cabin Complex, Camp Tweedale, Lower Oxford Township, PA—Susan Maxman, archt—July 1990, pp. 64-67—Camp Tohikanee, Bucks County, PA—Susan Maxman, archt—July 1990, p. 23—U.S. Olympic Training Center, San Diego, CA—Tucker, Sadler & Assocs., with Skidmore, Owings & Merrill, archts—Sept. 1990, p. 27—William M. Bristol Jr. Natatorium, Hamilton College, Clinton, NY—Perry Dean Rogers & Partners, archt—Apr. 1990, pp. 84-89• Camden Yards, Baltimore, MD—Hellmuth, Obata & Kassabaum, archt—Jan. 1990, p. 27• Georgia Dome, Atlanta, GA—Heery/RFI/TVS, archts—Jan. 1990, p. 27• Keihin Tennis & Sports Club, Japan—Albert C. Martin & Assocs., archt—June 1990, p. 23• Shad Hall, Boston, MA—Kallmann, McKinnell & Wood, archt—May 1990, pp. 78-83• Three buildings, New York City—Buttrick White & Burtis, archt—Mar. 1990, p. 19• Venetian Pool, Coral Gables, FL—H. Carlton Decker and Assocs., archt—Mar. 1990, pp. 70-71.
- Regional Portfolios—"The coastal condition [regional portfolio: Calif. Housing]"—

- Jan. 1990, pp. 90-99 • "Southern Traditions [regional portfolio: southeast preservation]" — Mar. 1990, pp. 66-75 • "Northwest Passage [The Pacific Northwest]" — May 1990, pp. 84-93 — "A Tale of Two cities [The Midwest]" — Aug. 1990, pp. 62-71.
- Religious Buildings — Blackhawk Baptist Church, Ft. Wayne, IN — Harding Assocs., archt — Jan. 1990, BTS, pp. 130-131 • Gates of the Grove Synagogue, East Hampton, NY — Norman Jaffe, archt — Jan. 1990, BTS, pp. 124-127 • Hodgkin Hall, St. Mark's Church, Berkeley, CA — David Baker, archt — Apr. 1990, pp. 90-93 • St. Peter Catholic Church, Olney, MD — Hugh Newell Jacobsen, archt — Jan. 1990, BTS, pp. 132-135 • Beach United Methodist Church, Jacksonville, FL — William Morgan, archt — Jan. 1990, BTS, pp. 128-129 • St. Clement Church, Chicago — Holabird & Root — Walker C. Johnson, lighting dsgr/proj. archt — Nov. II, 1990, pp. 12-13 — Vestibule, Church of St. Paul of the Apostle, New York City — Leo J. Blackman, archt — Oct. 1990, pp. 76-77.
- Renovations & Restorations — Beurs Van Berlage, Amsterdam — Zannen, Pieter, archt — Sept. 1990, BTS, pp. 80-87 — Brooklyn Museum, Brooklyn, NY — Arata Isozaki & Assocs., with James Stewart Polshek, archts — July 1990, p. 23 — Hotel Saint James, Bouliac, France — Jean Nouvel, archt — Sept. 1990, BTS, pp. 98-103 — 120 Broadway, New York City — Ehrenkrantz, Eckstut & Whitelaw, archt — July 1990, pp. 95-97 — Restoration of Ellis Island, New York City — Beyer Blinder Belle with Notter Finegold + Alexander, Inc. archts — July 1990, pp. 46-57 — 284 King Street East, Toronto, Ontario — Kuwabara Payne McKenna Blumberg, archt — July 1990, pp. 60-63 — Valspar Varnish Factory Renovation, Minneapolis, MN — Meyer, Scherer & Rockcastle, archt — Aug. 1990, pp. 68-69 — Piazza Dante renovation, Genoa, Italy — Machado and Silvetti, archt — May 1990, p. 27 • Grand Central Terminal, New York City — Beyer Blinder Belle and Harry Weese & Assocs., archts — June 1990, p. 21 • Gusman Center for the Performing Arts, Miami, FL — Craig Stark Assocs. with Richard J. Heisenbottle, archts — Mar. 1990, p. 23 • "Finlandia Hall dilemma" — by Hekki Lonka, — Mar. 1990, p. 127 • "Restoration the old-fashioned way" — Mar. 1990, pp. 124-126 — Andover Town Hall Restoration, Andover, MA — Ann Beha Assocs., archt — Nov. 1990, BTS, pp. 61-65.
- Research Buildings — Carnegie Institution, Washington, DC — Peirce Pierce & Kramer, archt — June 1990, p. 27 • Neuroscience Center, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY — Centerbrook, archt — June 1990, p. 25 — UCI Info. Computer Sciences Engineering Research Facility, Irvine, CA — Rebecca L. Binder, archt — Aug. 1990, p. 25 — Valspar Varnish Factory Renovation, Minneapolis, MN — Meyer, Scherer & Rockcastle, archt — Aug. 1990, pp. 68-69 — Restoration of Ellis Island, New York City — Beyer Blinder Belle with Notter Finegold + Alexander, Inc. archts — July 1990, pp. 46-57.
- Restaurants — Parkside Restaurant, Atlanta, GA — Anderson/Schwartz, archt — Feb. 1990, p. 19 • Three buildings, New York City — Buttrick White & Burtis, archt — Mar. 1990, p. 19.
- Retail Facilities — A & S Plaza, New York City — RTKL Assocs., archt — Apr. 1990, BTS, pp. 108-110 • Fashion Island, Newport Beach, CA — The Jerde Partnership, archt — Apr. 1990, BTS, pp. 98-101 • Napa Town Center, Napa, CA — Field Paoli and HGHB, archts — Apr. 1990, BTS, pp. 106-107 • North Pier, Chicago — Booth/Hansen & Assocs. and The Austin Co., archts — Apr. 1990, BTS, pp. 102-105 — Antwerp Diamond House, Belgian — Burak & Herfurth with Peter Marino + Assocs., archts — Apr. 1990, p. 29 • Larry's Market, Kirkland, WA — Carlson/Ferrin, archt — May 1990, pp. 90-91 — Monroe Jewelers, Seattle, WA — Olson/Sundberg, archt — Aug. II, 1990, pp. 14-15.
- Ritchie Organization, The, archt — Baptist Hospital, Lake Pavilion/Family Birth Center, Miami, FL — June 1990, BTS, pp. 98-101.
- Roche, Kevin, John Dinkeloo and Assocs., archt — 300 Hundred East Pratt, Baltimore, MD — June 1990, p. 27.
- Roofing — "Sticking with built-up roofing" — Feb. 1990, pp. 139-141.
- Rossi, Aldo, Studio di Architettura, archt — "Aldo Rossi wins 1990 Pritzker Prize" — May 1990, p. 25 • "City Lights [Galveston arch]" — Apr. 1990, pp. 172-173 • Hotel Il Palazzo, Fukuoka, Japan — Aldo Ross, Studio di Architettura/New York, archt — May 1990, pp. 70-77 — Ziff Tower, University of Miami, School of Architecture, Miami — Dec. 1990, p. 20.
- RTKL Assocs., archt — A & S Plaza, New York City — Apr. 1990, BTS, pp. 108-110.
- S**
- Saitowitz, Stanley Office, The, archt — McDonald House, Stinson Beach, CA — Mid-Apr. 1990, BTS, pp. 52-57.
- Sapers, Carl — "The Ins and outs of living with lawyers" — Feb. 1990, p. 55-57 — "Why go for conventional project delivery" — Aug. 1990, pp. 43-44.
- Sasaki, Assocs., archt — Samoset Resort and Village, Rockport, ME — July 1990, BTS, pp. 82-83.
- Schmitt, Donald and A.J. Diamond, archts — Jerusalem City Hall Square, Jerusalem — June 1990, p. 23.
- Scholz, Kevin C., archt — Utah State Veterans Memorial Park and Cemetery, UT — Feb. 1990, p. 17.
- Schools — San Francisco Day School, San Francisco — Simon Martin-Vegue Winkelstein Moris, archt — Mar. 1990, pp. 84-85 & pp. 88-91 • San Francisco Waldorf School, San Francisco — Tanner Leddy Maytum Stacy, archt — Mar. 1990, pp. 84-87.
- Schwitzer, David M., archt — Hollywood Plaza, Hollywood, CA — Mar. 1990, p. 21 • Cook-Fort Worth Children's Medical Center, Fort Worth, TX — May 1990, pp. 94-99 • The Saratoga, Washington, DC — Feb. 1990, p. 102-103.
- Schweitzer BIM, archt — Monument, The, Joshua Tree, CA — Mid-Apr. 1990, BTS, pp. 64-69.
- Scott, Winton, archt — Maine Maritime Museum, The, Bath, ME — June 1990, pp. 72-75.
- Segal, Paul, Assocs., archt — Children's Museum of Manhattan, New York City — July 1990, pp. 68-70.
- SGPA Architecture and Planning, archt — Uptown District, San Diego, CA — Oct. 1990, pp. 62-67.
- Shore Tilbe Henschel Irwin Peters, archt — Metropolitan Toronto Police Headquarters, Toronto, Ontario — Nov. 1990, BTS, pp. 84-87.
- Showrooms — American Standard Showroom, Long Island City, NY — Tigerman McCurry, archt — Sept. 1990, BTS, pp. 94-97 — Centro de Iluminacion, Mexico City — T.E.N., Taller de Enrique Norton y Asociados, archt — Feb. 1990, pp. 84-87.
- Shows & Conferences — Chicago — "NEOCON 22: The International Arena" — May 1990, p. 29 • "Conference Updates: The Call of Nature" — Jan. 1990, p. 25-27 • "LA 20/21: Design. Business. The New Century [15th annual WestWeek show and conference]" — Feb. 1990, p. 19.
- Shuman Lichtenstein Claman and Efron with Kohn Pedersen Fox Assocs., archts — 712 Fifth Avenue, New York City — Oct. 1990, p. 106.
- Simon Martin-Vegue Winkelstein Moris with Pei Cobb Freed & Partners, archts — New Main Library, San Francisco — Nov. 1990, p. 13.
- Simon Martin-Vegue Winkelstein Moris, archt — San Francisco Day School, San Francisco — Mar. 1990, pp. 84-85 & pp. 88-91.
- SITE Projects, Inc., archt — Four Continents Bridge, The, Hiroshima, Japan — Apr. 1990, pp. 80-83.
- Skidmore, Owings & Merrill, archt — NBC Tower at Cityfront Center, Chicago — Apr. 1990, pp. 68-73 • One North Franklin, Chicago — May 1990, p. 25 — AT&T Corporate Center,
- Chicago, IL — Oct. 1990, BTS, pp. 88-89 & 94-97 — Skidmore Owings & Merrill/Washington, DC, archt — Aurora Municipal Justice Center, Aurora, CO — Nov. 1990, BTS, pp. 96-101.
- Skolnick, Lee H., Architecture & Design, archt — Slesin/Steinberg House, Bridgehampton, NY — Mid-Apr. 1990, BTS, pp. 34-41.
- Slesin, Suzanne and Michael Steinberg — "Hampton Style" — Slesin/Steinberg House, Bridgehampton, NY — Skolnick, Lee H., Architecture & Design, archt — Mid-Apr. 1990, BTS, pp. 34-41.
- Smith, Janet Marie — "Playing The Field" — by David Masello — Oct. 1990, pp. 45 & 46.
- Snohetta Arkitektur Landskap, archt — Alexandria Library, Alexandria, Egypt — Feb. 1990, p. 15.
- Software Reviews (see *Computer Technology*)
- Software Reviews [by Steven S. Ross] — "A 3-D Package For Fastcad Devotees" — Nov. 1990, pp. 125, 127 & 129 — "Drafix Windows Versus Powerdraw For The Mac" — Oct. 1990, pp. 119, 121 & 123 — "Fast Graphics For Autocad" — Sept. 1990, pp. 187-188 & 189 — "A 2.5-D package tailored for architects" — June 1990, pp. 123-124, & p. 126 • "A powerful add-on for AutoCad" — May 1990, pp. 141, 142, & 143 • "An accounting package tailored for architects" — Mar. 1990, pp. 143, 145, & 147 • "Autocad 10's 386 or O/S2: which to choose?" — Apr. 1990, pp. 129, 131 & 133 • "CAD that grows in sophistication with you" — Feb. 1990, pp. 177-181 • "Designed from the round up for architecture" — Jan. 1990, pp. 177-181.
- Sorkin, Michael — "The Aga Khan's balancing act" — Apr. 1990, pp. 57-61.
- Sottsass Associati, archt — Wolf House, Ridgway, CO — Oct. 1990, pp. 78-83.
- Specifications — "Getting What You Want From Specifications" — by Timothy Kirby — Nov. 1990, pp. 45-46.
- Spiers, Joseph — "Let There Be Light" — Aug. II, 1990, pp. 21-22 & 25.
- Spillis Candela & Partners, archt — Volusia County Administration Center, Deland, FL — June 1990, pp. 66-71.
- Stageberg Partner, The, archt — Fifth Street Parking/Transit Facility, Minneapolis, MN — Aug. 1990, pp. 66-67.
- Stechich, John P., Ian R. Chin, Bernard Erlin — "A thin-stone veneer primer" — June 1990, pp. 108-113.
- Steinitz, David, lighting dsgr — Irmas House, Malibu, CA — "Razzle-Dazzle On the Beach" — by Aaron Betsky — Aug. II, 1990, pp. 16-19.
- Stephens, Suzanne — "That's Entertainment" — Euro Disneyland, Marne-la-Vallee, France — Aug. 1990, pp. 72-79.
- Stern, Robert A.M., archt — Cheyenne Hotel, Euro

- Disneyland, Marne-la-Vallee, France—Aug. 1990, p. 77—Newport Bay Club, Euro Disneyland, Marne-la-Vallee, France—Aug. 1990, p. 76.
- Stirling, James, archt—“Stirling wins Praemium Imperiale”—Aug. 1990, p. 21.
- Stone—“Finlandia Hall dilemma”—by Lonka, Heikki—Mar. 1990, p. 127• “Restoration the old-fashioned way”—Mar. 1990, pp. 124-126.
- Structural Engineering—Carnegie Tower, New York City—Cesar Pelli & Assocs., with Brennan Beer Gorman, archts—Oct. 1990, p. 106—Cityspire, New York City—Murphy/Jahn, archt—Oct. 1990, p. 107—Embassy Suites, New York City—Fox & Fowle, archt—Sept. 1990, p. 163—Miglin-Beitler Tower, Chicago—Cesar Pelli & Assocs., archt—Oct. 1990, pp. 108-109—1675 Broadway, New York City—Fox & Fowle, archt. with the Office of James Ruderman, struc. engr.—Sept. 1990, p. 162—Rihga Royal Hotel, New York City—Frank Williams, Assocs., archt—Oct. 1990, p. 107—712 Fifth Avenue, New York City—Kohn Pedersen Fox Assocs. with Shuman Lichtenstein Claman and Efron, archts—Oct. 1990, p. 106—Tour sans Fins, Paris, France—Jean Nouvel, archt—Oct. 1990, p. 109—“Designing The Super-Thin New Buildings”—Oct. 1990, pp. 105-109.
- Structural, Concrete—One Bowdoin Square, Boston, MA—Gund, Graham, archt—July 1990, 1990, pp. 92-94—120 Broadway, New York City—Ehrenkrantz, Eckstut & Whitelaw, archt—July 1990, pp. 95-97—San Francisco Marriott Hotel, San Francisco, CA—DMJM, archt—July 1990, p. 94—“What’s this building make of?”—July 1990, pp. 91-97.
- Stubbins Assocs., The, archt—Vanderbilt University, Psychology Bldg., Nashville, TN—Aug. 1990, BTS, pp. 88-89—Suffolk County Jail, Boston, MA—Sept. 1990, BTS, pp. 148-151.
- Studios—Studio, San Francisco—Interim Office of Architecture, archt—Apr. 1990, pp. 74-77.
- Sutro, Dirk—“Regional Transit”—Escondido Transit Center, Escondido, CA—Quigley, Rob Wellington, archt—Sept. 1990, pp. 128-131.
- Swanke Hayden Connell, archt—100 Old Broad Street, London—Apr. 1990, p. 25.
- Systems/Components (see *Building Technology*)
- T**
- T.E.N., Taller de Enrique Norton y Asociados, archt—Centro de Iluminacion, Mexico City—Feb. 1990, pp. 84-87.
- Tanner Leddy Maytum Stacy, archt—San Francisco Waldorf School, San Francisco—Mar. 1990, pp. 84-87.
- Tetreault, Parent, Languedoc et Associes and Douglas J. Cardinal, archts—Candian Museum of Civilization Hill, Quebec—Feb. 1990, pp. 88-93.
- The Austin Co. and Booth/Hansen & Assocs., archts—North Pier, Chicago—Apr. 1990, BTS, pp. 102-105.
- The Law—“Putting the expert in expert witnesses”—by Arthur T. Kornblut—Apr. 1990, pp. 39 & 167• “The Ins and outs of living with lawyers”—by Carl Sapers—Feb. 1990, p. 55-57.
- Thomas, Donald C., Pres., IESNA—“Legislative Alert”—Nov. II, 1990, p. 34.
- Thompson, Benjamin, & Assocs., archt—Broward Center for the Performing Arts, Ft. Lauderdale, FL—Mar. 1990, p. 19.
- Thompson, Ventulett, Stainback & Assocs., archt—Miami Beach Convention Center Expansion, Miami Beach, FL—Mar. 1990, BTS, pp. 110-113.
- Tigerman McCurry, archt—American Standard Showroom, Long Island City, NY—Sept. 1990, BTS, pp. 94-97.
- Topdjian, Bartev, The Austin Group, interior design—Contract Interiors, San Diego, CA—“Torch Song”—by Gareth Fenley—Nov. II, 1990, pp. 26-27.
- Transportation—Parsons Brinckerhoff Quade & Douglas Inc., archt/engr—Convention Place Station, Downtown Seattle Transit Proj—Seattle, WA—TRA (station arch. & surface improvement)—Lightsource Inc.; lighting dsgnr—Aug. II, 1990, pp. 28-31—Central Corridor Light Rail, MD—Cho, Wilks & Benn, archt—Oct. 1990, p. 19—Escondido Transit Center, Escondido, CA—Rob Wellington Quigley, archt—Sept. 1990, pp. 128-131—Passenger Terminal [design competition], Belgium—Rem Koolhaas, archt—Nov. 1990, p. 13—Stadelhofen Railroad Station, Zurich, Switzerland—Santiago Calatrava with Arnold Amsler and Werner Rueger, Oct. 1990, pp. 54-61—Grand Central Terminal, New York City—Beyer Blinder Belle and Harry Weese & Assocs., archts—June 1990, p. 21.
- Tucker, Sadler & Assocs., with Skidmore, Owings & Merrill, U.S. Olympic Training Center, San Diego, CA—archts—Sept. 1990, p. 27.
- U**
- University & College Bldgs.—Evergreen State College Studio Addition, Olympia, WA—The Miller/Hull Partnership, archt—May 1990, pp. 88-89• Churchill College, Cambridge University, Cambridge, England—Henning Larsen, archt—June 1990, pp. 82-83• Copenhagen College of Business Administration, Fredericksberg, Denmark—Henning Larsen, archt—June 1990, pp. 80-81• Dartmouth College, Chemistry Building, Hanover, NH—Ellenzweig Assocs. Inc. and R.M. Kliment & Frances Halsband, archts—May 1990, p. 27• University of Hartford, Harry Jack Gray Center, Hartford, CT—Tai Soo Kim Assocs., archt—Feb. 1990, pp. 104-109—Brown University, Salomon Center for Teaching, Providence, RI—Goody, Clancy & Assocs., archt—Aug. 1990, BTS, pp. 84-87—Computer Science Building, Princeton University, Princeton, NJ—R.M. Kliment & Frances Halsband, archt—Sept. 1990, pp. 122-127—Laboratory for Atmospheric and Space Physics, University of Colorado at Boulder, Boulder, CO—Hoover Berg Desmond, archt—July 1990, p. 23—New York University, Leonard N. Stern School of Business, New York City—Geddes Brecher Qualls Cunningham with Helpers Archts, archts—Aug. 1990, p. 25—UC San Diego Visual Arts Facility, San Diego, CA—Rebecca L. Binder with Neptune Thomas Davis, archts—Aug. 1990, p. 25—UCI Info. Computer Sciences Engineering Research Facility, Irvine, CA—Aug. 1990, p. 25—University of Calif. at San Diego, Price Center, San Diego, CA—Austin-Hansen with Kaplan/McLaughlin/Diaz, archts—Aug. 1990, BTS, pp. 92-95—Vanderbilt University, Psychology Bldg., Nashville, TN—The Stubbins Assocs., archt—Aug. 1990, BTS, pp. 88-89—Uptown District, San Diego, CA—SGPA Architecture and Planning, archt—Oct. 1990, pp. 62-67—Ziff Tower, University of Miami, School of Architecture, Miami—Aldo Rossi, Studio di Architettura, archt—Dec. 1990, p. 20.
- Urban Design Group, dsgnr—Il Campanile, CO—Jan. 1990, p. 23.
- Urban Design—Penn’s Landing, Philadelphia—“Landing on its feet”—Feb. 1990, pp. 65-67—Uptown District, San Diego, CA—SGPA Architecture and Planning, archt—“Urban Delight”—by Donald J. Canty—Oct. 1990, pp. 62-67—“At Home in San Jose”—by Donald J. Canty—Sept. 1990, pp. 132-137.
- Urban Planning—“Core Concerns [Los Angeles Portfolio]”—June 1990, pp. 58-65.
- V**
- Van Lengen, Karen, archt—American Memorial Library, West Berlin—Feb. 1990, p. 17.
- W**
- Wallace Roberts & Todd, archt—Convention Center, Atlantic City, NJ—Mar. 1990, p. 23.
- Walsh, Bishop Assocs., archt—AT&T Tower, Minneapolis, MN—Jan. 1990, p. 21.
- Warner & Gray, Inc., archt—Irmias House, Malibu, CA—Aug. II, pp. 16-19.
- Waterman, Daniel—“How a small design firm works with developers”—Feb. 1990, pp. 52-53.
- Waterproofing—“Delineating Waterproofing”—Aug. 1990, pp. 100-103—Baltimore Gas & Electric, Baltimore, MD—Ehrenkrantz Eckstut & Whitelaw, archt—Aug. 1990, pp. 100-103—Rodef Shalom Synagogue, Pittsburgh, PA—Ehrenkrantz, Eckstut & Whitelaw, archt—Aug. 1990, pp. 100-103—“Sealant configurations and performance”—by James C. Myers—Jan. 1990, pp. 150-151
- Waterproofing—“Sorting out building sealants”—Jan. 1990, pp. 152-153.
- WBDC Group, The, archt—Corporate Development Center, Steelcase Inc., Gaines Township, MI—“Shadow Free”—Mar. 1990, pp. 119-121.
- Weese, Weese & Assocs. and Beyer Blinder Belle, archts—Grand Central Terminal, New York City—June 1990, p. 21.
- Westlake, Merle T.—“Stow it don’t throw it”—Mar. 1990, p. 41-42.
- Whisler-Patri with Hood Miller Assocs., archts—One Thousand One Hundred Fifty Lombard Street, San Francisco, CA—Jan. 1990, pp. 94-95.
- White, George, archt—“George White, architect of the Capitol”—June 1990, pp. 43-44.
- Williams, Frank, Assocs., archt—Rihga Royal Hotel, New York City—Oct. 1990, p. 107.
- Williams, Tod, Billie Tsien and Assocs., archt—Vogue Magazine Conference Room, New York City—May 1990, BTS, pp. 104-107.
- Wimberly, Allison Tong & Goo, archt—Grand Floridian Beach Resort, The, Lake Buena Vista, FL—Feb. 1990, BTS, pp. 118-121.
- Winery—Opus One Winery, Napa Valley—Johnson Fain Pereira, archt—“Two by One in California”—by Aaron Betsky—Nov. 1990, p. 15.
- Wines, James—“Green Architecture”—Apr. 1990, pp. 78-79.
- Wood—“Man-Made Timber”—by Timothy B. McDonald—Dec. 1990, pp. 44-45—“End of an Era”—by Timothy B. McDonald—Dec. 1990, pp. 40-41—“How good is Wood?”—by Timothy B. McDonald—Dec. 1990, p. 39—“Decline of A Commodity”—by Timothy B. McDonald—Dec. 1990, pp. 42-43.
- Wortman, Marc—“Bofill plays the provinces”—July 1990, pp. 41-42.
- Z**
- Zalotay & Cooper, archt—“Tilting at Convention”—July 1990, p. 118-119.
- Zannen, Pieter, archt—Beurs Van Berlage, Amsterdam—Sept. 1990, BTS, pp. 80-87.
- Zimmer Gunsul Frasca Partnership, archt—Borders, Perrin & Norrander, Inc., Portland, OR—Sept. 1990, BTS, pp. 70-77—Federal Correctional Institution, Sheridan, OR—Sept. 1990, BTS, pp. 142-145.

Advertising index

Bold face—page number
Italics—Reader Service number

A

- Accuride, **145**; *1055* [D]
(213) 903-0373
- Amarlite Architectural
Products, **107**; *1040* [G]
(404) 691-5750
- American Architectural
Manufacturers
Assn. (AAMA), **46**; *1009* [G]
(609) 567-8725
- American Stair-Glide Corp., **182**;
1073 [G]
(800) 383-3100
- Amoco Fabric & Fibers Co., **121**; *1047*
[E]
(800) 292-6626
- Arcadia Mfg., Inc., **106**; *1039* [G]
(800) 423-6565
- Armstrong World Industries,
Inc., **Cov. II-1**; *1001, 2-3*; *1002*
[G-E-D]
(800) 233-3823
- Ausimont USA, Inc., **11 to 14**; *1003*
- Autodesk, Inc., **53**; *1011*
(800) 445-5415
- Azrock Industries, Inc., **122**; *1048*
[G]

C

- Celotex Corp., **123**; *1049* [G-I-L-D]
- Chicago Metallic Corp., **120**; *1046*
[G-D]
(312) 563-4600
- Compaq Computer Corp., **18-19**
(800) 231-0900
- Crossville Ceramics, **114**; *1044* [G-D]
(615) 484-2110

D

- Dover Elevator Systems,
Inc., **156-157** [G-I]
(601) 393-2110
- Dowcraft Corp., **129**; *1050* [G]
(716) 665-6210

E

- Ebco Manufacturing Co., **170**; *1063*
[G-E-I]
- Edison Price, Inc., **169**; *1062*
(212) 838-5212
- Electric Time Co., Inc., **179**; *1066*
[G-E]
(508) 359-4396

- Ellison Bronze Co., Inc., **96**; *1031*
[G]
(716) 665-6522

F

- Follansbee Steel Corp., **83**; *1028* [G]
(800) 624-6906

G

- Garaventa (Canada) Ltd., **169**; *1061*
[G]
(800) 663-6556
- Georgia-Pacific Corp., **74-75**; *1020*
[G-I-L]
(800) 447-2882
- Glen Raven Mills, Inc., **130-131**;
1051 [G]
(919) 227-6211
- Gyp-Crete Corp., **132**; *1052* [G]
(612) 478-6072

H

- Heery International, Inc.,
SPECSYSTEM, **52**; *1010*
(800) 942-SPEC
- Hope's Architectural Products,
Inc., **104**; *1037* [G]
(716) 665-5124

I

- Innovative Marble and Tile,
Inc., **61**; *1015* [G]
(800) 62-STONE
- Intergraph Corp., **54**; *1012*
(800) 345-4856
- Isolatek International Corp., **81**;
1026 [G-E]
(201) 347-1200

K

- Kawneer Co., Inc., **94-95**; *1030* [G]
Keystone Retaining Wall Systems, **60**;
1014 [G-E]
(612) 897-1014

L

- Libbey Owens Ford Corp., **91 to 93**;
1029 [G]
(800) 848-4400

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M

- Malaysian Timber Industry
Board, **181**; *1069*
- Marble Modes, Inc., **180Ea**; *1068*
(718) 539-1334
- Marvin Windows, **102-103**; *1036* [G]
(800) 346-5128
- Mayline/Hamilton Co., **169**; *1060*
(414) 457-5537
- MBCI, **76**; *1021*
- MERO Structures, Inc., **151**; *1057*
[G-D]
(414) 255-5561
- Metpar Corp., **133**; *1053* [G-I]
(516) 333-2600
- Mirafi, Inc., **80**; *1025* [G-E]
(800) 438-1855

N

- Nippon Electric Glass Co.,
Ltd., **101**; *1035* [G]
(800) 752-8099

O

- Optimum Window Mfg. Corp., **109**;
1042
[G-I]
(800) BUY-OPTI
- Overly Mfg. Co., **181**; *1070* [G-I]

P

- Petersen Aluminum Corp., **79**; *1024*
[G]
(800) PAC CLAD
- Pittsburgh Corning Corp., **108**; *1041*,
174; *1064* [G-E-L]
(800) 992-5769
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(800) 537-0095
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S

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1018 [G-L]
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(800) 323-3405
- Spring City Electrical Mfg.
Co., **176**; *1065* [G-E]
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(800) 333-9939
- Steelite, Inc., **71**; *1022* [G-I]
(800) 824-1371
- Super Sky Products, Inc., **152**; *1058*
[G]

T

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- Tamko Asphalt Products, **Cov. III**;
1103 [G-I]
(800) 641-4691
- Tischler und Sohn, **97**; *1032* [G]
(203) 622-8486

U

- U-Flow Roof Drain Systems,
Inc., **181**; *1071*
(716) 854-1521
- Uni-Group, U.S.A., **57**; *1013* [G-E]
(800) USA 1UNI
- United States Aluminum Corp., **82**;
1027 [G]
(800) 627-6440
- United States Gypsum Co., **73**; *1019*
[G-E-L-D]
(800) 347-1345
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[G-E-I-D]

W

- Wausau Tile, **182**; *1072*, **196**; *1102*
[G-E-I]
(800) 762-7253
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1033 [G]
(715) 748-2100
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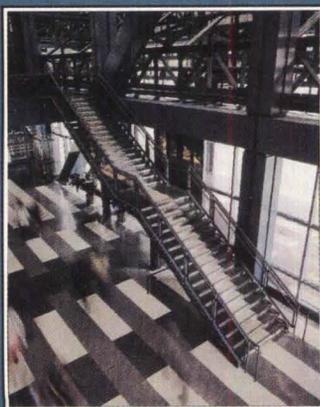
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