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July 1973

House & Home



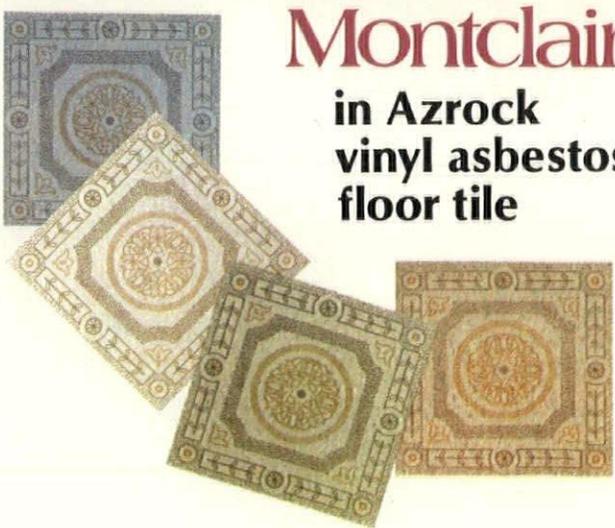
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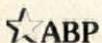
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House & Home

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Cover/Enid Cytryn

Watergate spills into housing: Laird takes over as domestic policy chief

The tide of change that rose when the Watergate opened has now swept into the housing policy area.

By persuading Melvin Laird, the former Secretary of Defense and powerful Republican leader in the House of Representatives, to come out of semi-retirement and become his domestic counselor, President Nixon has made his most dramatic move toward changing the way his White House will handle domestic problems.

Laird will have more clout on such issues as housing than his predecessor, John Ehrlichman, for Laird is highly regarded in both parties in Congress. Congressional leaders can now expect to get a sympathetic hearing at the White House.

While Laird has no known record on housing matters, he is strongly in favor of revenue sharing, which he considers preferable to categorical grant programs. (As a member of the Wisconsin legislature, he sponsored a Veterans Rehabilitation and Housing Act, but this remains his only known foray into actual housing legislation.)

Thaw on subsidies? Laird is clearly as conservative as the President as measured by his voting record in the House. He rated a zero on the index kept by the liberal Americans for Democratic Action and a solid 89% on the scorecard of the conservative Americans for Constitutional Action. But he is approachable and friendly, and he has no hang-ups about publicity or the press.

At his initial White House news conference Laird said the government was "at a standstill in some quarters" because of Watergate—and that "this cannot be allowed to continue."

This could mean a new look at the housing freeze, for instance, and perhaps a speed-up in the study of policy alternatives under way in the Department of Housing and Urban Development (HUD).

Laird gave no specifics but made it clear he expects to carry more weight with the President than the Office of Management and Budget, which had been calling the shots on many HUD programs.

New head of FHA. It may have been only coincidental, but within a day after Laird's arrival



FHA'S LUBAR
New mortgage-credit director

on the scene a Wisconsin man, Sheldon B. Lubar, chairman of Mortgage Associates, a mortgage banking company, was chosen as assistant secretary of HUD for housing production and mortgage credit and as the federal housing commissioner in charge of FHA. (More on FHA, page 12.)



WHITE HOUSE'S LAIRD
New housing-policy overseer

Lubar is 44 and is a Republican. If he is confirmed by the Senate, he will succeed Eugene A. Gulledge, who held the FHA portfolio for almost four years. The position pays \$38,000 a year.

Laird's move into the White House raised a question of the impact this change would have

Holland, who helped Fed stop fussing about interest rates, named to board

Robert C. Holland, President Nixon's new appointee to the Federal Reserve Board, is no monetarist. But very few men had more to do with the wedding of basic Friedmanian doctrine to the actual practice of central banking—in so far as this has occurred.

Holland, at 48, has spent his career with the Fed staff. By 1966 he had become the board's chief policy adviser, and he helped plan the turnabout that minimized the Fed's concern with interest rates and emphasized instead its regard for the whole range of monetary aggregates.

Money supply. Holland is credited in particular with the thinking behind the Fed's current technique in controlling growth in the money supply. It now does this through targets for the increase in reserves for private deposit (RPDs) instead of by the old means of setting interest-rate goals. The latter too often led the Fed to stabilize interest rates at the expense of large fluctuations in the money supply.

Yet none of Holland's published articles bespeak a monetarist orientation. And since 1971, when he became chief of staff for all board activities including regulatory steps, he had been devoting more of his time to overseeing the board's big,



FED'S HOLLAND
Stepping upstairs

new job of administering the Bank Holding Company Act.

Burns team. Those who know him well feel that Holland will be less outspoken about the evils of inflation as a member of the board than the man he replaces, J. L. Robertson. But he will be closely attuned to the thinking of the board's chairman, Arthur Burns—as are two other recent additions to the board appointed on Burns' advice, John Sheehan and Jeffrey Bucher.

A Republican, Holland has been applauded as a choice for the board by both bankers and by Senator William Proxmire (D., Wis.), who criticized Sheehan and Bucher as inadequate. Holland was an obvious candidate at a time when the Watergate scandal had made it difficult for the White House to recruit able outsiders.

—S.W.

on the role of housing Secretary James T. Lynn, who had risen fast as a result of his work for Ehrlichman, Bob Haldeman and Commerce Secretary Maurice Stans. Lynn had been promoted to one of the four super-cabinet posts created in a shakeup sponsored by Ehrlichman, but the President abolished the super cabinet after Ehrlichman left.

Continuity. Lynn—after Watergate had left its mark on the White House—adhered to the Administration line that all was business as usual at HUD.

It was also business as usual in the Domestic Council, the White House organization that coordinates domestic legislation. Kenneth Cole continues as the executive director but reports to Laird.

Laird's arrival is expected to de-fuse the potential for show-downs with Congress as it moves to reassert its authority as an equal branch of government. House Speaker Carl Albert had told the assembled directors of the National Association of Home Builders that President Nixon's impoundment of funds "strikes at the very heart of the most basic constitutional responsibility of the Congress—the power of the purse."

Representative Al Ullman (D., Ore.) struck the same theme:

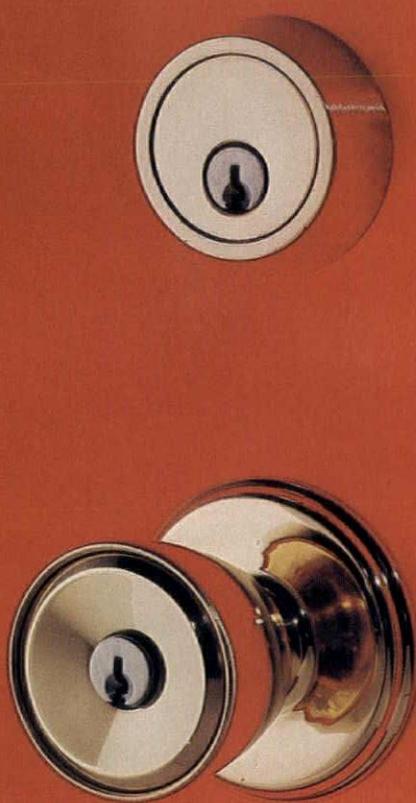
"It is important that Congress move in to recapture its prerogatives and lay down a set of priorities of its own."

Money. Laird, at his first news conference, declined to predict how the impoundment fight would end. But he said that the White House "will have to take certain actions" until the Congress "evolves" its own mechanism for controlling expenditures.

Issues that will clearly move onto Laird's agenda include the decision by congressional leaders to hold up the Administration's Better Communities Act until the Administration's own housing recommendations are sent up for consideration.

Even before Laird arrived, the Office of Management and Budget had begun to approve some sewer and water grants that had been caught in the President's fund freeze.

—DON LOOMIS
McGraw-Hill World News,
Washington



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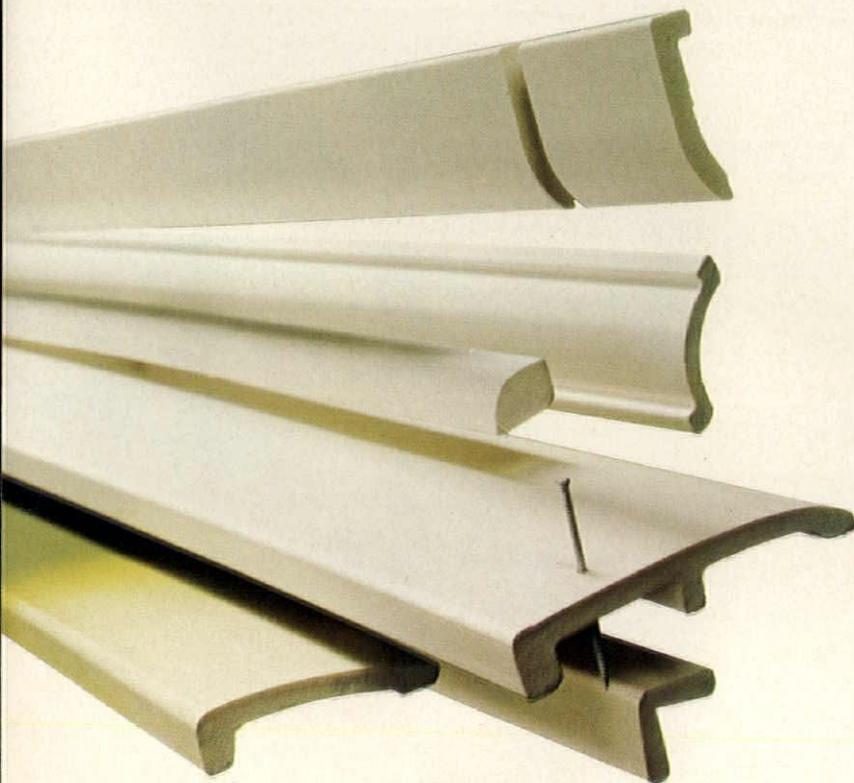
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H&H JULY 1973 5

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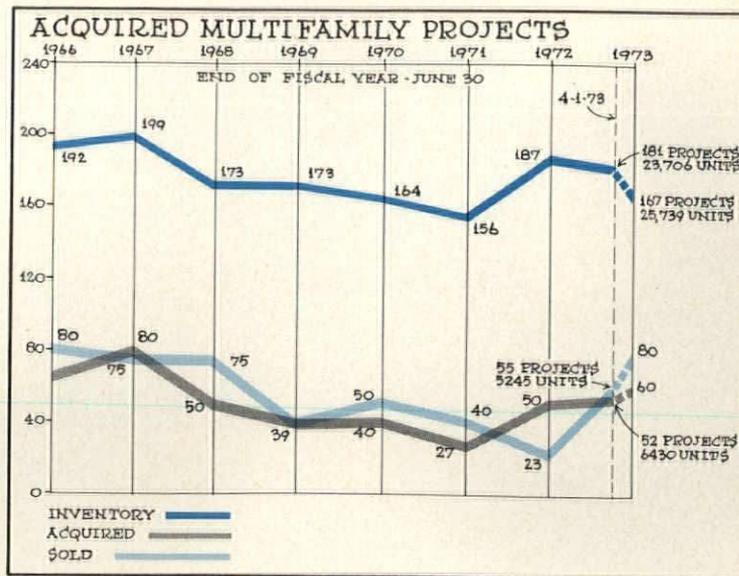
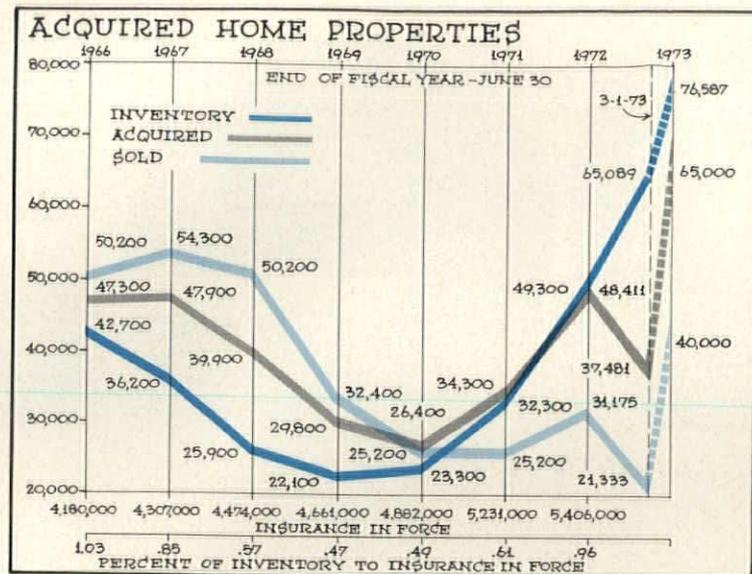
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CIRCLE 7 ON READER SERVICE CARD



HUD on way to owning 250,000 homes—'Staggering, intolerable,' says Lynn

The danger signals are flying on the charts hanging at the foot of the bed of the ailing Federal Housing Administration—a once-powerful agency now badly battered by scandals and mismanagement, then frozen, and finally left headless for the first months of this year.

Applications for FHA loans are at new lows—for the first quarter, fewer than one third of the number filed in the same period of 1972.

On the other hand, more and more holders of FHA mortgages that have turned sour—on both single-family and multifamily projects—are collecting their FHA insurance money and departing, leaving Housing Secretary James T. Lynn holding a ballooning bag of real estate and mortgages he doesn't want.

More and faster. The charts tell the story: HUD's inventory of properties and mortgages keeps rising sharply, and while sales are up too, HUD officials estimate it will be at least another year before there is a turn for the better.

Lynn told the Senate Appropriations Committee recently that HUD's inventory of single-family properties and mortgages jumped from 63,000 units in June 1972 to nearly 90,000 units as of June 30, 1973. That's almost a 50% increase in a single year.

The number of units in his holdings of multifamily projects is also rising, but not quite so sharply. By June 30 these were expected to approximate 160,000 units, up from 131,000 in a year—about a 23% rise. That makes 250,000 single- and mul-

tifamily units all told.

Lynn calls the situation "staggering... intolerable... cancerous... a tragedy to the people who lost their homes... a tragedy for the neighbors (when vandalism sets in)... and very costly to the government."

\$1.3 billion in holdings. The cost to the HUD budget is one reason for the Administration's anguish:

The government will acquire property and mortgages worth \$1.8 billion during fiscal 1974, which begins July 1—up from \$1.2 billion in fiscal 1972 and \$1.5 billion for 1973, ending June 30. That's a steady \$300-million-a-year rise.

But HUD's sales of mortgages and properties show an increase of only about \$100 million a year for the same three years, leaving a sales gap that is growing at a \$200-million-a-year rate. There is also the problem, costly in itself, of managing the property.

The total inventory of properties and mortgages now held by HUD is more than \$2.7 billion. That includes \$1 billion in single-family houses to which HUD has title, plus \$120 million in mortgages, and \$280 million in multifamily properties owned outright, along with \$1.3 billion in multifamily mortgages.

Budget drain. The bottom line for Administration officials is that which shows the net drawdown on the FHA insurance fund rising from \$290 million in fiscal 1972 to an estimated \$869 million in fiscal 1974—an added drain of a half billion dollars on Lynn's HUD budget and an equal boost for the President's overall

budget deficit for the year.

The new assistant secretary for management, H.R. Crawford, a controversial but successful real estate entrepreneur and manager of inner-city housing projects before joining HUD, is trying to devise new ways of disposing of the HUD property.

At one point he was proposing a sale of 10,000 of HUD's single-family properties to families just beyond the income limits for public housing, and a less ambitious variation of the scheme is still in the works. The government is also proposing bulk sales, in which 40 or 50 properties are aggregated and then rehabilitated under contract for clearance at prices specified by HUD.

'Nightmare.' One Crawford aide suggests, "The trick is to sell them (acquired houses) quick," but he adds, "We've got a real nightmare on our hands, because we can't sell 'em until we get title, and in some states that takes months and months."

Sales of multifamily projects, on the other hand, generally pose fewer problems.

The largest number of single-family homes now on HUD's rolls—more than 25,000—came from the section 203 unsubsidized house-purchase program. But the new section 235 program, which subsidizes mortgage interest rates above 1% for poor families—is coming on strong, with more than 17,000 on hand at the beginning of this year.

Apartment defaults. The number of multifamily projects going into default—with the

mortgages being turned over to FHA or FHA foreclosing on the mortgage—has been running about 40 a month since June 1972. That's out of a total of 13,850 projects under FHA insurance.

Most recent figures show HUD holding the mortgages on 1,112 multifamily projects with 127,773 units, worth \$1.3 billion. That includes 365 projects that HUD foreclosed and then sold again at whatever price the market would bring—with the buyer paying 10% down and HUD holding a 90% mortgage.

"These sales usually bring 60% to 70% on the dollar," says one FHA source.

Of the 747 remaining projects on which HUD has had to take over the mortgage for the first time, more than 200 are current—that is, actually paying off the monthly principal and interest as it comes due.

Section 236. Most of these projects presently on hand are not the controversial section 236 projects that aid private investors seeking tax shelters and tap the Treasury to pay all but 1% of the monthly interest charges on the mortgage. Of 3,000 section 236 projects insured, 168 were in default April 30.

But section 236 projects and mortgages are being dumped back on HUD at an increasing rate, with more than 100 being placed on the government's doorstep during the first four months of this year.

"There's every reason to expect this rate will continue," says one HUD property management official. —D.L.

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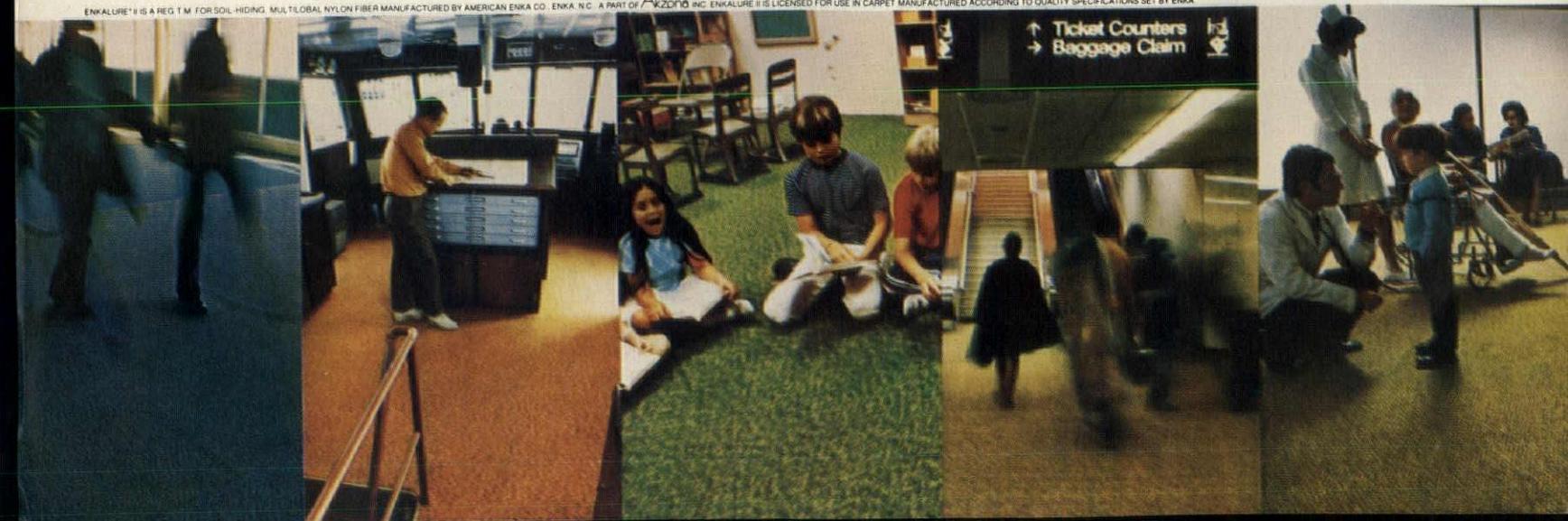
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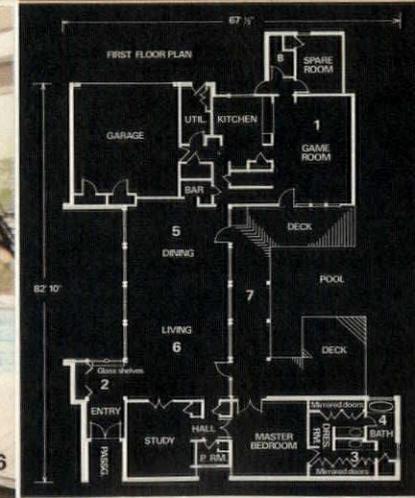
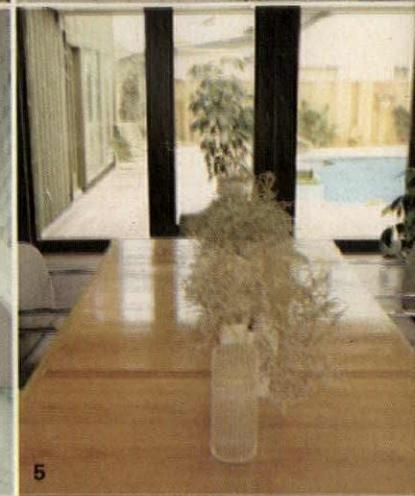
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CIRCLE 11 ON READER SERVICE CARD



The FHA has a friend in the right place—in the HUD secretary's office

HUD Secretary James Lynn told the National Association of Home Builders that he has one bias, and that bias is in favor of the FHA.

"It would take the strongest arguments—arguments I am not aware of at this moment—to have me recommend its abolishment to the President," he said.

Lynn spoke before some 1,600 NAHB directors and alternates gathered in Washington, D.C. for their annual spring board meeting. He gave them a quick run-down of what he has accomplished during his first four months in office and then turned to the floor for questions and comments.

Lynn, who was introduced by NAHB President George Martin as "a man in whom this association is intensely interested," quipped:

"At least you have to admit one thing: I've got courage."

Among friends. Lynn could not have spoken before a more respectful audience.

And although the builders tried to get a clue as to the new secretary's thinking on such subjects as the FHA and the housing programs, they had to be content with answers—including the admission of bias in favor of the FHA—that came laden with lawyerly disclaimers about holding his options open until he had heard all of the arguments.

Lynn presented himself as sort of a super research captain who had put together a team to gather facts, digest them and offer recommendations to the President, and he repeatedly emphasized that the final policy recommendations would be the President's. If the secretary had any strong opinions of his own, he kept them well hidden.

Housing study. Lynn told the builders that the housing study was on track, with 80 people working on the 500 reports that have already come in. He still expects the President to be able to meet his September 7 deadline for presenting his policy recommendations to Congress.

The secretary did not rule out the possibility of returning to one or more of the suspended subsidy programs, but he said that if this were done there would certainly be some administrative changes to correct the problems that had surfaced



This wary size-up took place as HUD Secretary James Lynn (center) arrived to address his first NAHB directors' meeting in Washington. He is greeted by George Martin, president of NAHB (left), and Nat Rogg, executive vice president (right).

while the programs were in effect. He emphasized:

"We're looking at a lot of other options. . . . We intend to get all of them and absorb them before we make up our minds."

FHA commissioner. Lynn also said that he expected to name a new commissioner of housing production and mortgage credit within two weeks.* One of the new commissioner's first assignments, he said, would be to look into complaints that the FHA has slowed down to the point where it isn't of much use any more in the unsubsidized area.

Repeatedly during the 45-minute session the discussion returned to the subject of the FHA. Bob Campbell, of Las Vegas, commented that some builders think there is little need

*The new commissioner was Sheldon B. Lubar, chairman of Mortgage Associates of Milwaukee (see page 4).

N.Y. agency loses power to override local codes

New York state's Urban Development Corporation, which stirred up a hornet's nest of protest last year when it tried to build low-income housing in Westchester County's small towns [News, Aug. '72], has lost its power to override local zoning.

The legislature in Albany not only stripped the agency of its power to disregard zoning in towns and villages; it voted to let the small communities stop work on UDC projects already in progress if they reimbursed the

to continue the FHA. This led to Lynn's remark about being biased, and he continued:

"I look at what the private insurance companies are doing and it's all to the good. But when I compare what they accomplish with the intended goals of FHA, there's an awful lot that the FHA does that the private companies do not."

Dan Grady, of San Diego, Calif., voiced the now familiar complaint that recent reorganizations have put inexperienced people in the decision-making jobs in local FHA offices.

"You can't go back to the way things were done ten or 15 years ago," said Lynn, reminding the builders that environmental considerations and the mandate for fair housing and equal opportunity are here to stay. He did hint, however, that he was considering changes in the traditional FHA programs.

"Even with those consid-

erations," he said, "there must be ways to make the regular unsubsidized programs more effective than they've been recently. With the experience we've now had we should have learned something."

erations," he said, "there must be ways to make the regular unsubsidized programs more effective than they've been recently. With the experience we've now had we should have learned something."

New communities. Lynn also hinted at a new emphasis on the New Communities Development Corp., which he termed "an extremely important program."

He announced that President Nixon would name an official—again within two weeks—as president and general manager of the corporation. This job, which will carry assistant secretary's rank, had previously been part of the responsibility of the assistant secretary for community planning and development.

Legislation. Lynn's progress report concentrated on four areas: legislation, the housing study, improved operations and efforts to clean out corruption.

Three pieces of the department's legislative program are already in Congress: the Better Communities Act, calling for urban development revenue sharing, a bill to increase flood insurance limits and to encourage people not to build in flood-prone areas and a bill defining the responsibilities of federal, state and local governments when disaster strikes.

About to be sent to the Hill are the Responsive Governments Act, which is intended to provide more flexibility in planning and management, and a new proposal for a Department of Community Development that is very close to the original concept that failed to pass two years ago.

Lynn mentioned that the investigations into wrongdoing in the department, begun under George Romney, were still moving ahead. "I want to get it over with," he said. "It's a cloud over HUD and over all those people who are trying to do an honest job."

"I could go on and on as to what we are going to do to improve operations," he told the builders. "But I'd rather let you see those as they evolve over the next months—and I do mean months."

From the comments of some of the builders, those months seem more like years.

—NATALIE GERARDI



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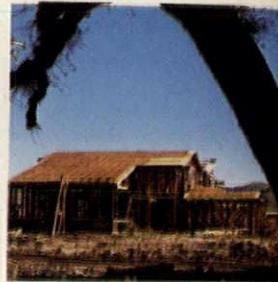
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Two of the country's leading builders use 24-inch wood framing because it saves them money.

The Larwin Group, Inc., one of the country's largest residential builders, tested the 24-inch framing system in three prototype homes, and now uses the system wherever possible. To date several hundred homes have been built with 24-inch framing because as Larwin explains "Cost savings on a 1,500 square foot single-family home were significant."

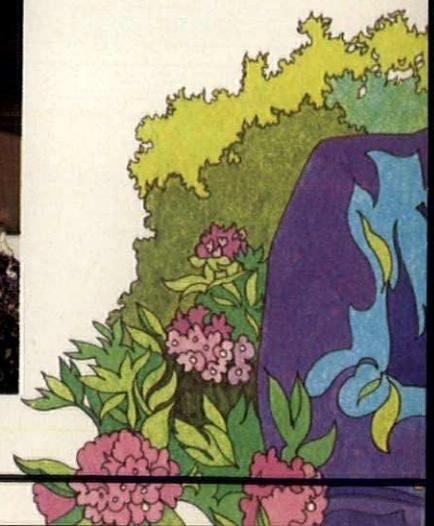
The three test homes in Cypress, California, convinced Larwin that 24-inch framing was "the way to go." Two hundred identical homes were then built in two successful developments. As a result, the firm now plans to use 24-inch wood framing and pre-cut Western Wood in much of its production this year.

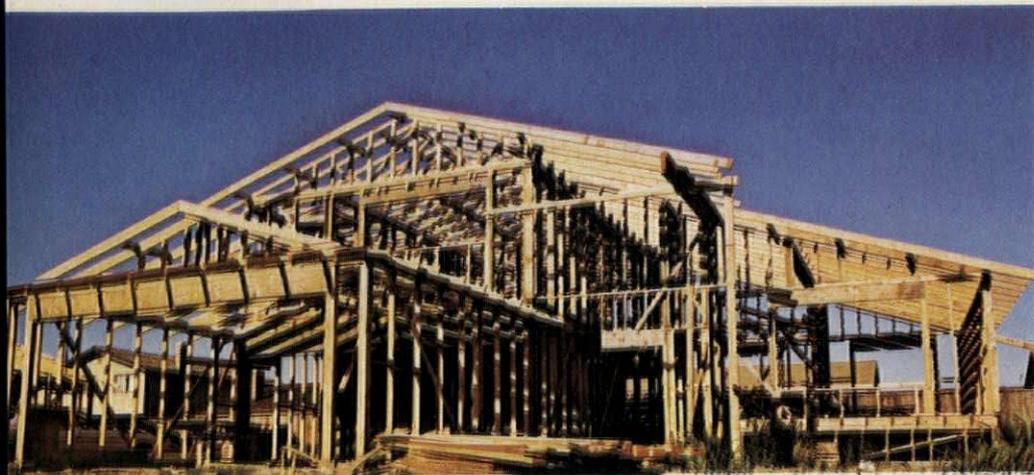


Larwin investigated a variety of building materials and settled on one as the most economical and most attractive: pre-cut Western Wood. Larwin homes bear a distinctive "wood look" throughout, with large structural wood members left exposed for appearance.



CIRCLE 14 ON READER SERVICE CARD





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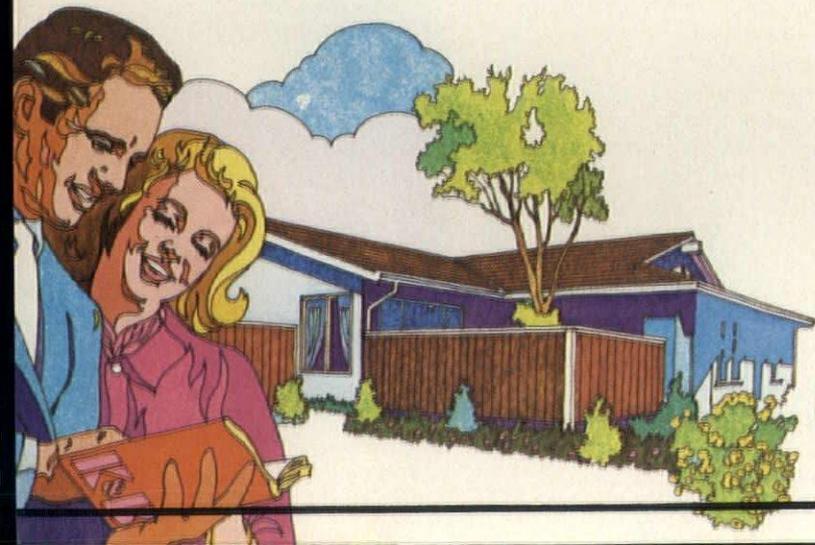
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One of a series by members of the American Wood Council.



Homebuilders approve concept of ten-year warranty and set land-use policy

The homebuilders struck out in a new direction when the NAHB board, at its spring meeting in Washington, D.C., approved in principle a warranty program to insure house buyers against structural defects for ten years.

At the same time they also approved a statement setting forth the NAHB's policy on land use.

The board authorized President George Martin to develop details of the warranty plan for the fall meeting in New Orleans September 20-25.

Coming just four months after Martin appointed a committee to study the feasibility of a warranty, the affirmative vote was a victory for the NAHB president and a tribute to his determination to launch such a program during his term.

Help from abroad. Martin's cause gained considerably from the presence of Andrew Tait, director-general of the National House Builders Council of Great Britain, who explained the British system.

So carefully had the groundwork on the resolution been done that a vote for passage was virtually assured. Discussion centered mainly on such details as who would own and control the insurance, what the financial vulnerability of the NAHB would be and what the actuarial risks were.

These are some of the details that must be worked out before the fall board meeting, when an actual plan should come up for approval.

Land-use debate. The spring meeting also approved a resolution setting the NAHB's policy on land use and the environment. In contrast to the smooth path of the warranty proposal, the land-use statement had required four years for drafting in committee, and when it came to the floor an emotional debate reduced parliamentary procedure to wrack and ruin.

A group of builders balked at some of the language and asked whether the vote could be put off until the following day. That was impossible, they were told, because Committee Chairman Jay Janis could not be on hand.

The dissident builders then tried to rewrite the offending language on the floor—and chaos ensued.



Builders on a building site see where their money is going. The NAHB had a photographer on hand at the new housing center so directors could have a souvenir of their visit. Here making their inspection are John Ganns, Charles Williams and Robert Snow.

They finally compromised by approving the resolution as it was presented and then rewriting it in a private session with the committee. The new language was approved by the board

on the following day.

Moderate stance. What finally emerged was a surprisingly moderate statement that acknowledged the right of federal, state and local governments to

regulate land use and specified the responsibilities of each level of government.

Government's role. The resolution asked that the federal government establish broad national land-use policy and that it aid the states in developing, coordinating and reconciling local policies.

It asked that the states create an appropriate appeals mechanism to override local land decisions, develop performance-oriented model codes and assume a major share of the costs of education so that property taxes can be used mainly for real estate-related services.

Local governments should enter into regional compacts to solve common problems, such as water supply and sewage disposal, and, of course, should build community facilities to meet present and future needs.

The statement came out against moratoriums and the imposition of unreasonable charges on new housing, such as compulsory dedication of land. However, it did agree to governments acquiring or reserving open space if the amounts are reasonable and owners properly compensated.

'Sue the bastards.' The association's \$5,922,050 budget provoked another lively debate.

T. A. Shinn of San Francisco moved to increase the legal defense fund from \$25,000 to \$200,000 to help local associations in their battles against no-growth legislation.

The board finally voted the additional money, but it added the restriction that it be earmarked to combat cases of landmark significance.

Vice President Lew Cenker captured the spirit of the meeting when he said:

"There's a strong mood here this morning to sue the bastards, I think."

Other resolutions. The board also urged that the 203(b) mortgage limit be raised to \$40,000 for a term of 40 years, that the \$45,000 ceiling on S&L single-family homes be removed, that a permanent construction industry wage stabilization committee be formed and that Congress investigate environmental agency regulations for their adverse effect on the supply and cost of housing.

Architects' convention draws 5,000

Some 5,000 members and guests of the American Institute of Architects gathered in San Francisco for a convention on the theme, "The Challenge of Growth and Change."

The meeting, which featured talks by Nobel laureate Dr. Glenn T. Seaborg and population experts Philip Hauser and Dudley Kirk, lacked the drama of last year's Houston convention, when the AIA ended its traditional ban on political activity by approving a policy statement that proposed a complete overhaul of the nation's development strategy.*

Election. The architects chose William Marshall Jr. of Norfolk, Va. as their first vice president. Marshall's election puts him in line to become president of the 24,000-member organization in December 1974.

Archibald C. Rogers of Baltimore, Md., elected at last year's convention, will become president at the end of 1973.

Marshall, a principal in the firm of McGaughy, Marshall & McMillan, has long been active in the institute. Under his lead-



AIA's ROGERS
Next year's president

ership the government affairs commission gained passage of the Architect-Engineer Selection Act, which clarifies and codifies a system of selecting architects for federal projects.

Resolutions. The architects passed resolutions asking President Nixon to release funds for water pollution control and to rescind the moratorium on subsidized housing.

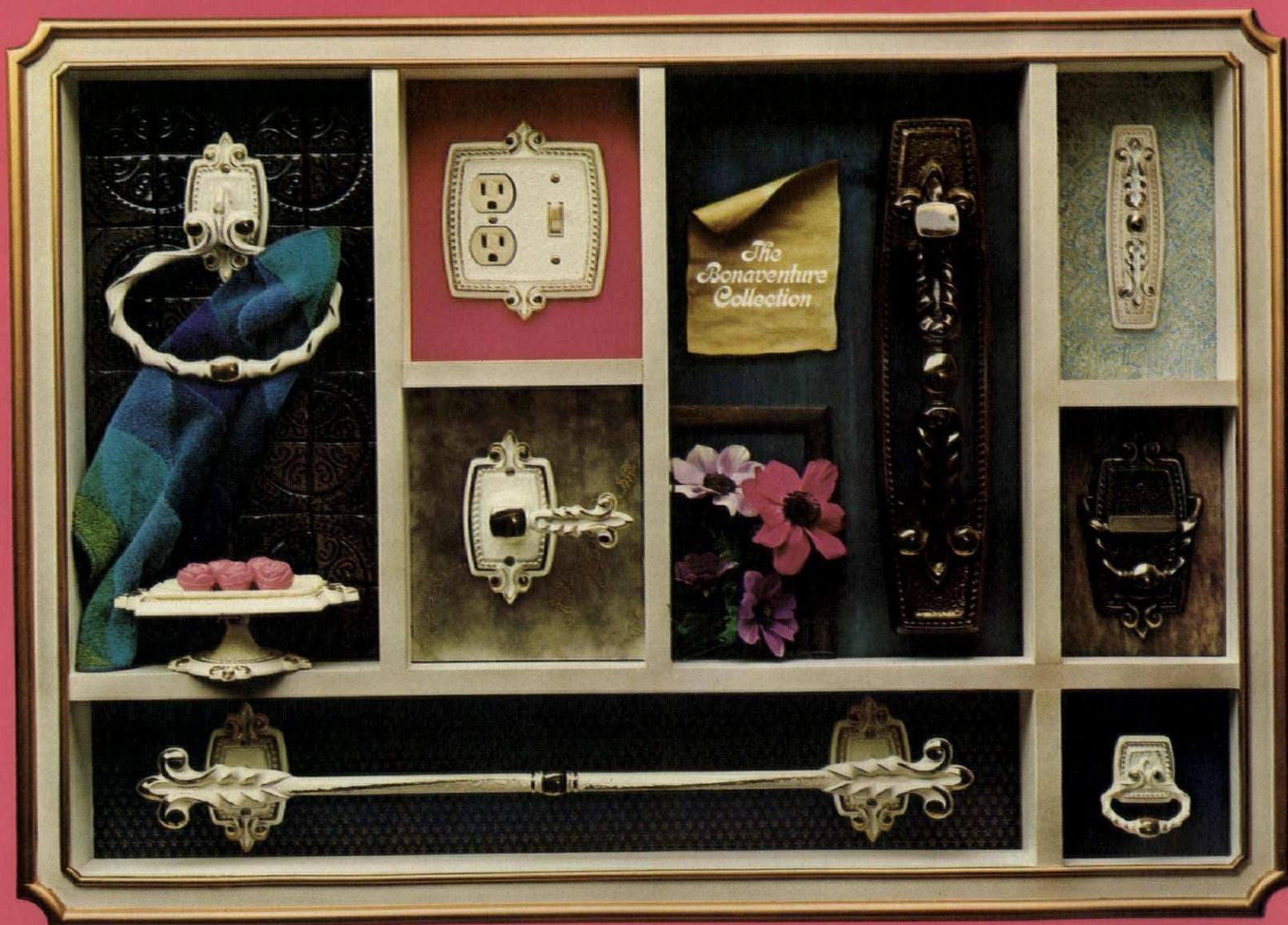
They also directed the institute to prepare criteria that will take the energy shortage into account and to take steps to integrate women into all aspects of the profession as full participants.

—BOB YEAGER
McGraw-Hill World News,
San Francisco

* The AIA has been lobbying in Congress for the proposals contained in the policy statement and will issue a progress report in the fall.

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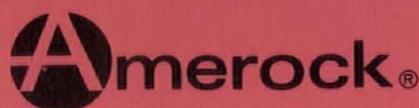


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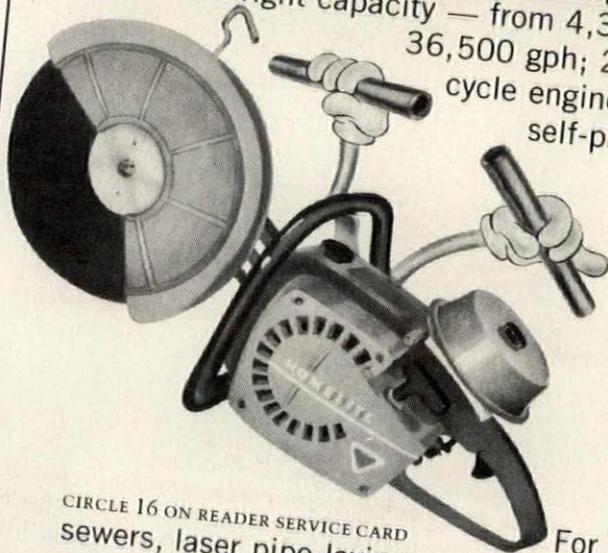
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CIRCLE 19 ON READER SERVICE CARD

FTC charges plastics industry conceals fire danger of building materials

The Federal Trade Commission has announced plans to charge that two organizations and 26 major companies have known about but have failed to disclose to users the fire hazards associated with two popular plastics, cellular polyurethane and polystyrene.

Housing's uses of these polymers include acoustical and thermal insulation (particularly of the spray-on variety), doors, wall panels, decorative beams, lighting fixtures, furniture, siding, roofing, shutters and structural expansion joints.

Charged in the proposed class-action complaint are the New York-based Society of the Plastics Industry (SPI), a trade association, and the American Society for Testing and Materials (ASTM), a standards-setting organization with headquarters in Philadelphia. The respondents also include such industry giants as Allied Chemical of New York, Du Pont & Co. of Wilmington, Del., Monsanto Co. of St. Louis and Union Carbide Corp. of New York.

The others cited are BASF Wyandotte (Mich.) Corp., Baychem Corp. of New York; Cook Paint and Varnish Co. of Kansas City, Mo.; Dow Chemical Corp., Midland, Mich.; Flintkote Co. of White Plains, N.Y.; Foster Grant Co. of Leominster, Mass.; the General Tire and Rubber Co. of Akron, Ohio; W. R. Grace & Co. of Cambridge, Mass.; Hooker Chemical Corp., a subsidiary of Occidental Petroleum, of Stamford, Conn.; Jefferson Chemical Co., a Houston company 50% owned by Texaco Inc.; Millmaster Onyx Corp., New York; Mine Safety Appliance Co., Pittsburgh.

Also, Olin Corp., Stamford, Conn.; Owens-Corning Fiberglas Corp., Toledo, Ohio; PPG Industries, Pittsburgh; Rohm & Haas Co., Philadelphia; Sinclair-Koppers Co., Pittsburgh; Tenneco Chemicals Inc., Wilmington, Del.; U.S. Steel Corp., Pittsburgh; Uniroyal, New York; the Upjohn Co., Kalamazoo, Mich.; and Witco Chemical Co., New York.

Involvement. Not all of the companies named in the proposed complaint either manufacture or otherwise process the plastics, but all are or have been members of the two ASTM



Polyurethane foam flames up, left, when lit by gas torch in test by GAF Corp., New York City. But GAF claims that if its fire-retardant monomer, dibromobutenediol, is injected into the same foam, the foam will then extinguish itself, as shown at right.

standards-drafting committees concerned with plastics and with fire tests of materials in construction.

A spokesman for the FTC called the proposed complaint "probably the single most important action the commission has taken in its 70-year history."

Though both ASTM and the National Association of Home Builders, spokesmen for the home-construction industry, declined to comment, SPI was quick to express "shock" at being named in the FTC action. The society's president, Ralph L. Harding Jr., said the plastics industry had cooperated fully during the eight-month FTC investigation and had recently announced "a broad-ranging research program into the relationship of synthetic materials to fire and life safety." He also called the timing of the action "somewhat disconcerting" because it nearly coincided with the release of the report of the National Commission on Fire Prevention and Control. It, too, expressed reservations on the use of urethane and polystyrene.

\$1-billion market. Polyurethane and polystyrene together account for about 20% of the plastics industry's annual production. Approximately 3.6 billion pounds of polystyrene worth \$576 million were sold in the U.S. last year, and the one-billion-pound market for urethane foam accounted for another \$400 million. By the year 2000, the annual production of polystyrene is expected to approach 19.8 billion pounds and urethane 17.6 billion pounds.

The FTC alleges that the companies as well as ASTM and SPI knew at least since 1967 "either directly or indirectly" that these

materials presented a serious fire hazard but failed to disclose this to users. The FTC also claims that the respondents have misrepresented the plastics as "non-burning" and "self-extinguishing" and knew that the applicable test standards were invalid for determining how they would behave in a real fire.

Test criticism. The FTC contended that the ASTM's test E-84, the so-called Steiner tunnel test now widely used by building-code officials, architects, contractors and fire and insurance officials, "has been and is unfair, false, misleading and deceptive."

In its report to the President and Congress, the National Commission on Fire Prevention and Control also notes that most of the current tests used to measure the rate and amount of smoke produced by certain plastics, as well as their toxicity and flammability, "do not simulate the complexities of real fires."

"As a result," the commission report warns, "architects, design engineers, building contractors, and ultimately the consuming public may grossly misinterpret or inappropriately extrapolate these test results as indicative of fire safety."

Next step. The FTC issues a complaint when it has reason to believe that a law had been violated. An attorney for the commission says that the failure to disclose the fact that the building plastics can be extremely hazardous constitutes deceptive advertising and is therefore a violation of the Federal Trade Commission Act, which forbids any deceptive trade practice.

Respondents have ten days in which to tell the FTC if they will enter consent negotiations. The

consent-order procedure can take as few as 30 days but often lasts much longer. If the parties fail to agree, the commission issues the formal complaint.

The FTC plans to charge that, compared to the materials being replaced, such as wood, cotton, glass, metal, the plastics:

- Spread flame more rapidly and increase the likelihood of flashover fires.
- Generate extreme heat more quickly.
- Produce greater amounts of dense smoke.
- Release toxic or flammable gases or chemicals more quickly and release more gases at various stages of combustion.

Children's deaths. Alfred W. Cortese, assistant executive director for legal coordination and chief of the FTC's field office personnel, says the commission first became aware of the potential dangers of polystyrene and urethane foam as the result of a Kansas City house fire in which two small children died. The home had been insulated with a spray-on polymer plastic material that had been advertised as "non-burning and self-extinguishing." Since then, polyurethane and/or polystyrene have been implicated in a number of serious building fires in the United States and abroad.

The most recent criticism of plastics appeared when the Skylab space station overheated. The National Aeronautics and Space Administration said tests showed the plastics inside the Skylab probably emitted a variety of poisonous gases. The Federal Aviation Administration long has been aware that certain plastics used in airplanes can produce toxic fumes when heated.

Among other affirmative actions, the FTC wants all the respondents to:

- Halt the alleged misrepresentation (that these materials are non-burning or self-extinguishing).

- Give clear warning in the future as to possible fire hazards.

- Conduct a program of "precautionary, remedial and corrective action" to establish or minimize hazards associated with fire with respect to existing installation.

—SUE MEYER
McGraw-Hill World News,
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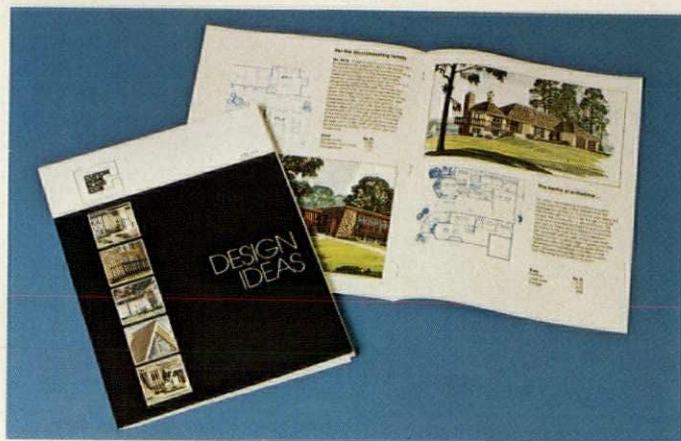
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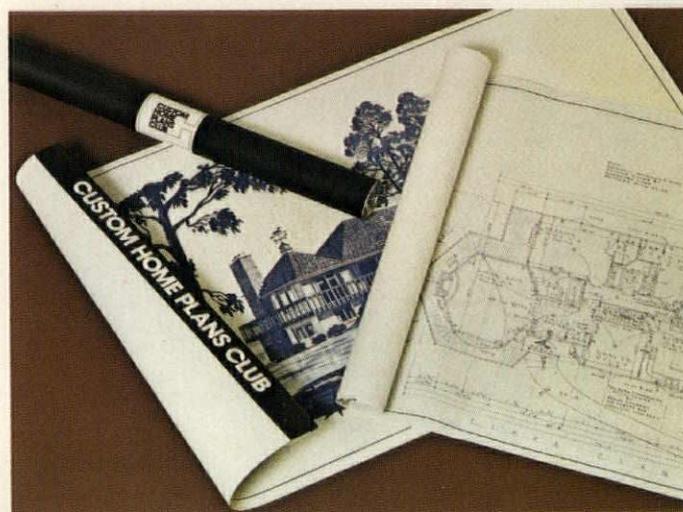
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With lumber down, will home prices drop too? Well, no, they'll go up

When lumber and plywood prices turned downward in May, the National Forest Products Assn. put the needle to the homebuilders.

The lumbermen suggested, in an announcement to the newspapers, that the turnabout "should enable builders to cut the prices of new homes, since wood products account normally for 15% to 20% of the selling price of an average single-family house."

The suggestion was the lumber association's attempt to turn the spotlight back on the agitators who had given them a hard time by organizing a March on Washington that was intended to force a reduction in the prices then charged for lumber and plywood [News, May]. When those prices were rising, the builders told Congress they had increased the cost of the average house by \$1,400 in a matter of months.

8% house markup. Now that lumber prices were down, the NFPA asked, how about reciprocation?

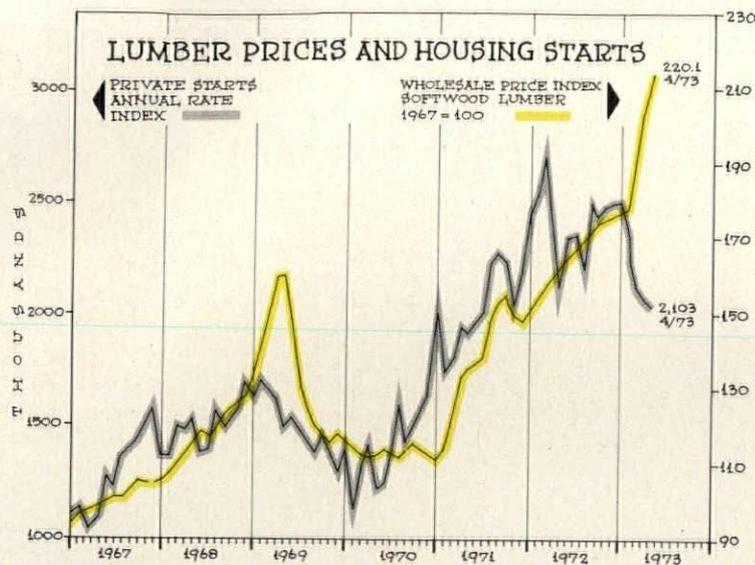
No soap, replied Michael Sumichrast, chief economist for the National Association of Home Builders.

Other cost increases, including those for land, more than offset the effect of lower-cost lumber, Sumichrast said. In fact, he expects the average price of a house to be up 8% this year instead of the 6% average rise of years past.

The drop in lumber prices came as the Nixon Administration acted to increase lumber supplies for the mills and as the demand side of the lumber market weakened in response to a drop in housing starts.

Price curbs. The Administration reacted to the intense price lobbying in several ways—by committing itself to a sizable boost in timber sales from the national forests, by negotiating with the Japanese a voluntary slowdown in their purchase of logs from the United States and by threatening to clamp on tougher price controls on the lumber industry.

John Dunlop, the Cost of Living Council's director, gave a lot of credit for the turndown in prices to the Administration's moves to boost supplies. But equally important—and perhaps



Note: Chart does not show lumber price drop that began in May, continued in June.

more so in the minds of some economists—was the Administration's strategy in jawboning the lumber industry while waiting for the drop in housing starts to put the pressure on prices.

A wider cut. The strongest Administration move was a decision to increase timber sales from the national forests—administered by the Department of Agriculture—to 11.8 billion

Home-owner costs up 93% in 20 years

The latest consumer price index shows that home ownership cost 93% more in April than it did in December 1952.

There is only one category of consumer expense that has risen faster. That's the costs of services—which include such things as rent, transportation, medical care and the like. They are up 107.9% for the same period.

Home-cost items. The costs that go into calculating the home-ownership index include purchase prices, mortgage interest, taxes, insurance and upkeep.

The consumer price index, based on 1967 price levels equalling 100, has home ownership in April 1973 at 143.6, food prices at 136.4 and services at 137.0. This reveals that in the last five years consumers have seen the cost of owning a home rising even faster than the other two inflation-prone categories.

Home-ownership costs vary by areas, of course. The Labor Department's report shows that, when the national average for city areas was 140.1, the home-ownership index for Chicago was 135.5, for Detroit 147.7, for Los Angeles-Long Beach 154.8, for New York-Northeastern New Jersey 133.7, and for Philadelphia 143.7.

The big jumps. In a front-page story on these trends, *The New York Times* reported on June 11 that in Levittown, on New York's Long Island, houses that cost \$6,900 in 1948 now sell as high as \$40,000; In Miami houses selling for \$16,400 in June 1966 were going for \$42,100 in January 1973. In Chicago prices rose from \$21,000 in 1961 to \$43,000 this year for a typical house. In Raleigh, N.C. prices increased \$10,000 in the last two years on a three-bedroom house. In Los Angeles the average price rose between \$4,000 and \$4,500 during a recent six-month period.

The *Times* reported the major reason for the increases as "the pressure on the supply," despite record production.

Land-cost spiral. Michael Sumichrast, chief economist for the National Association of Home Builders, told the *Times* that the cost of land as a proportion of the sales price of a new house "has changed dramatically. It was 11.6% in 1946 and is more than 22% now."

Other upward pressures on prices cited include higher construction-craft wages, the limitation on building sites caused by sewer moratoria, and other impediments to development.

board feet this year and to continue this rate through the first half of 1974. John Larson, the White House official in charge of the lumber problem, said that the Administration is exploring ways of boosting sales and timber cutting even more in 1975 and 1976.

Larson said that "a significant part of the drop in prices" could be attributed to the announcement by Dunlop in March that the Administration was studying such a boost in timber sales. The decision announced in May, Larson said, "added credibility to that."

Help from Japan. The Administration delivered on another promise by getting the Japanese to agree to cut back their imports of softwood logs in the second half of this year to a level 15% below the last half of 1972.

Another downward drag on lumber prices was the high rate of output from the lumber and plywood producers. Plywood production was up 4.5% during the first 19 weeks of 1973, and during one week in March production exceeded 400.7 million board feet for the first time ever. There was also some easing of the freight car shortage, which mill owners had blamed for their failure to get their lumber to market.

Starts. One of the most powerful levers on the lumber market, however, was the decline in housing starts in February, March and April. As the accompanying chart shows, the down side of the housing cycle historically pulls wood product prices into line.

At the peak of public pressure and agitation for lumber price cuts, government officials counted on the universal belief that—after the industry's record-breaking 2.4 million starts in 1972—there was no way for the industry to go in 1973 but down.

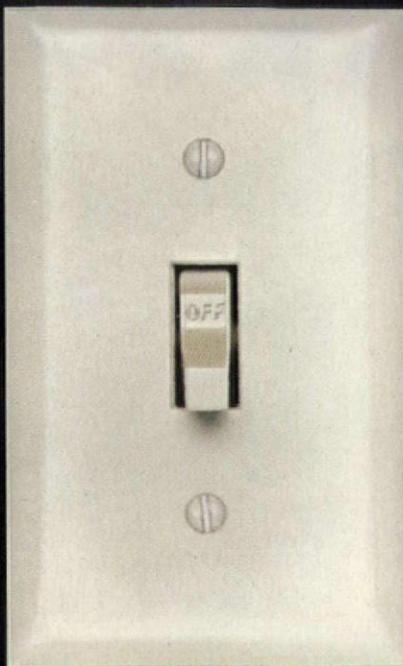
Back in January, even as starts were running at an annual rate of 2.5 billion, Sumichrast was saying that "the industry will do well in 1973 if starts reach the 2 million level." In June he was sticking with that projection. He and other economists anticipate some minor squiggles in both starts and lumber prices. But the trend they see for months ahead is—down.

—D.L.

Yesterday.



Today.



Today.



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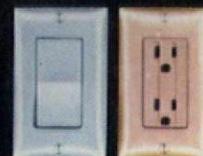
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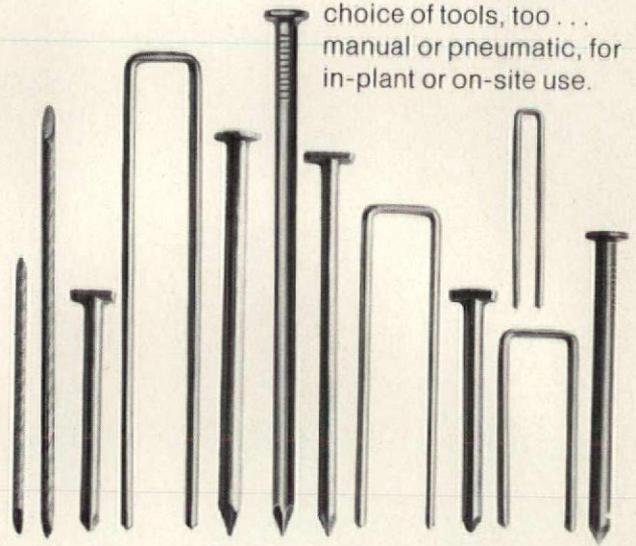
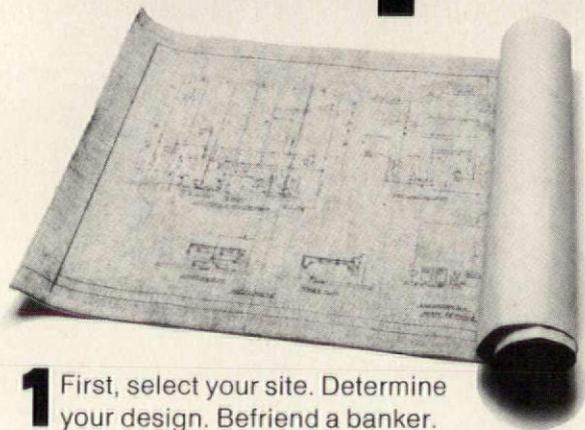
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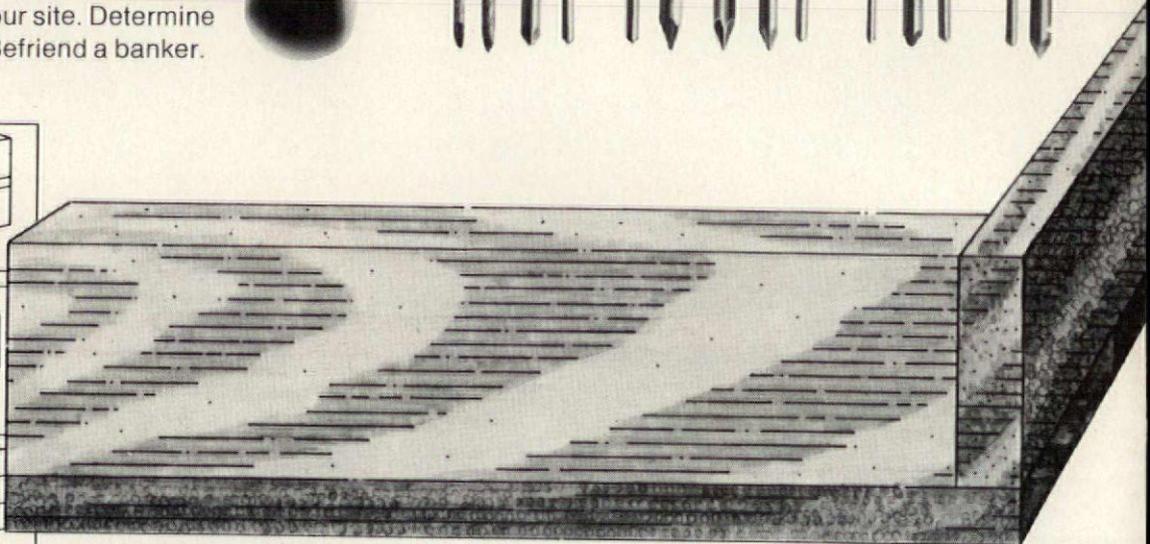
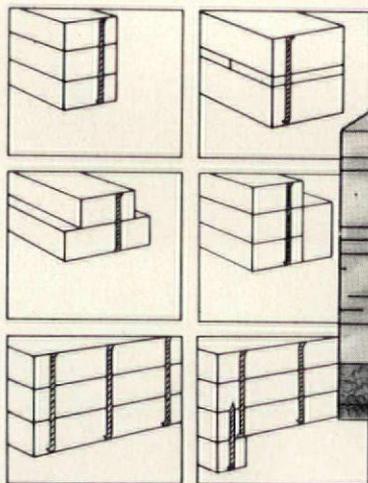


Our House Recipe.

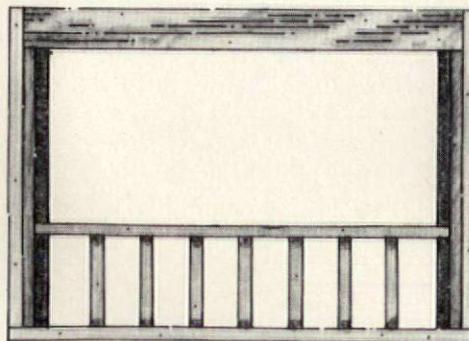
2 Next, gather a liberal assortment of Bostitch nails, staples and other fasteners. You'll find everything you need because Bostitch makes a complete line. Bostitch gives you a choice of tools, too . . . manual or pneumatic, for in-plant or on-site use.



1 First, select your site. Determine your design. Befriend a banker.

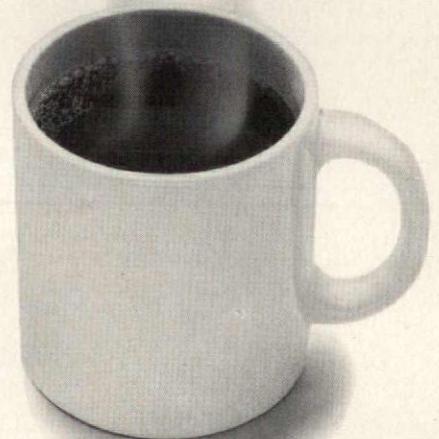


3 Here's a handy hint. Your sills, posts, headers, girders, and all other subcomponents will blend together faster with our Auto-Nailer Model Titan 40SC. It nails at speeds of up to 90 nails per minute, making its own nails from a coil of Threadlok™ nail stock. The Titan's powerful clamping system automatically aligns, removes warpage, and presses the members while nailing. The result is alignment so accurate, subcomponents are interchangeable.

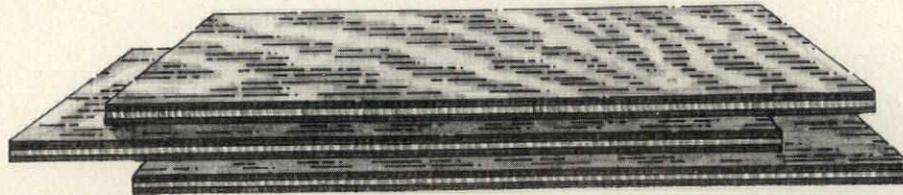


4 Now add one Bostitch Auto-Nailer Model Hercules 9 and make all the window frames, outside door frames, and two-piece sills you'll need. This high-speed jamb nailer will make a profitable addition to your systems building facilities, even if you use it for as few as seven window units a day.

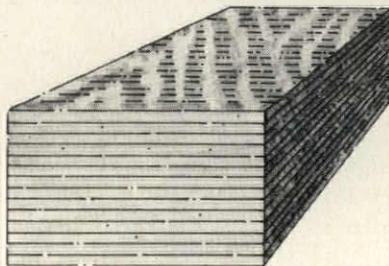
5 Take a break. You're not really tired, of course. But look at all the time you've saved. Go on. You deserve it.



6 Now for the flooring. The Bostitch N3 portable coil nailer will really floor you. It lets you drive up to 300 nails without reloading. That's five times faster than you could do it by hand.

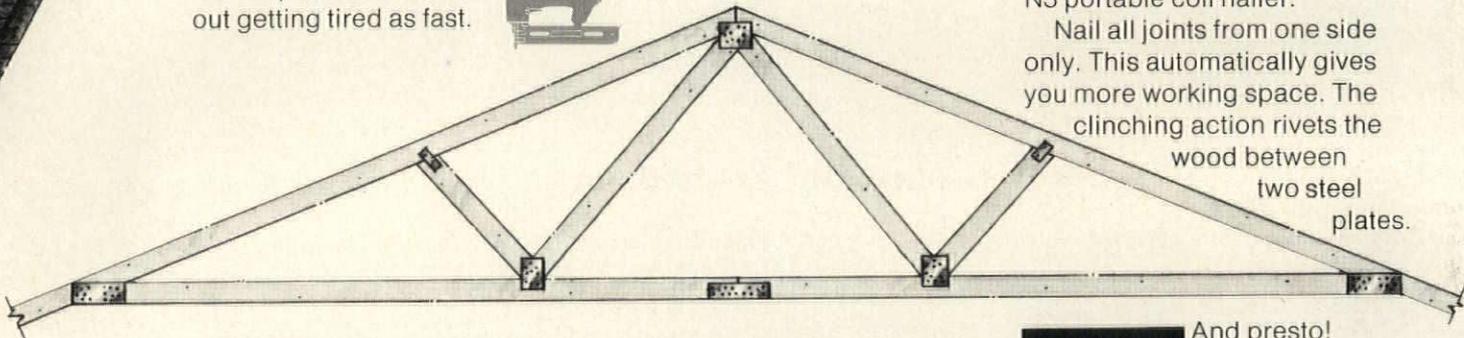


7 The sheathing's a breeze, too. With the Bostitch Model T36, you get speed, accuracy and uniform drive every time. Its low recoil drive action means your crew will get more consistent performance without getting tired as fast.



8 Time to make the roof trusses. You'll need some truss members, truss plates, and our versatile friend, the Bostitch N3 portable coil nailer.

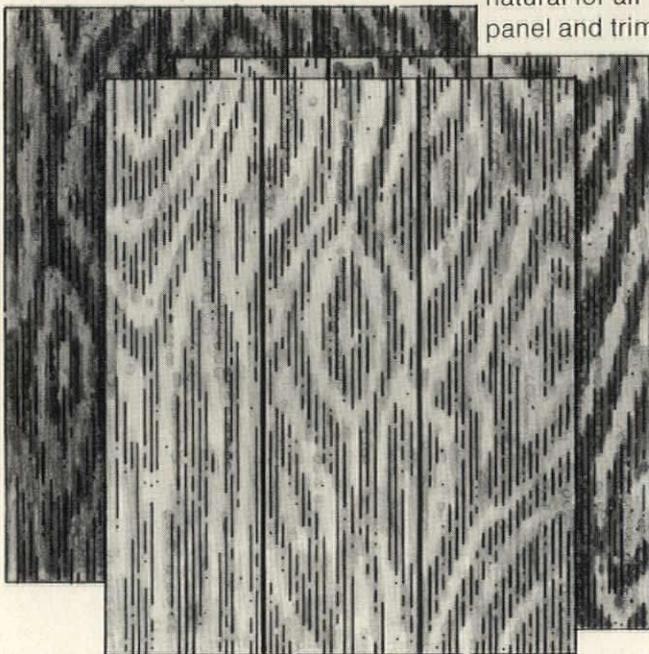
Nail all joints from one side only. This automatically gives you more working space. The clinching action rivets the wood between two steel plates.



And presto! You've got a truss tough enough to take more racking than it would ever receive . . . in shipping, handling, and installation.

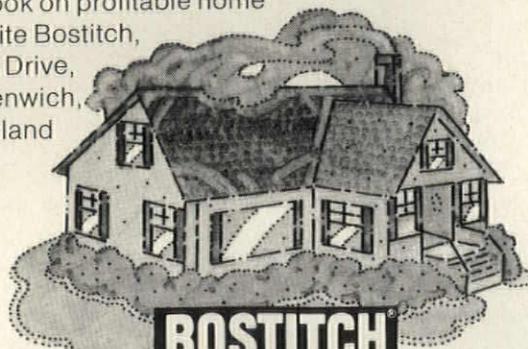


9 A few interior panels, some trim here and there, and you're home with the Bostitch Model T28. Its lightweight design and powerful drive make it a natural for all your panel and trim work.



10 Well, you're through. Easy, wasn't it? But the best is yet to come. Now get ready for your just deserts: profits served and serviced à la Bostitch. For our complete

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Bostitch fasteners hold fast...

Non-union builders start fighting to get out of a fight—with the unions

Charging that job-site violence had become intolerable, an organization of open-shop contractors has filed a massive complaint with the National Labor Relations Board asking that the alleged coercion be stopped immediately and that several building craft unions be penalized.

The organization, the Associated Builders and Contractors, claims its members and other contractors hiring non-union workers have become the target of a widespread conspiracy by unionists to disrupt their operations unlawfully, often by using violence.

The ABC's lawyers contend that these actions are a clear violation of the Taft-Hartley Act, section 8(b)(1)(A), which bans any action that is "reasonably calculated to restrain or coerce" employees "whether or not it succeeds in actually restraining or coercing employees."

Unions' reply. In interviews ABC officials say they believe the conspiracy to cause violence goes to the top of trade-union organizations. But the AFL-CIO building trades president, Frank Bonadio, retorts: "Any allegation that we are or have been involved in a conspiracy of any type is utterly absurd."

John P. Trimmer, ABC's executive vice president, says his group had counted 170 individual acts of violence in recent months directed at open-shop (or merit-shop, as ABC calls it) contractors. These include 34 fires, 42 assaults, nine dynamitings, 64 acts of vandalism and 29 incidents of mass picketing.

Typical of these acts, according to ABC, is one directed at Bill Bonner, a Columbus, Ohio developer and contractor building the \$45-million City Within a City, using both union and non-union subcontractors.

Orgy of wrecking. Bonner says 2,000 pickets stormed his job site last October, tearing out plumbing, knocking over cranes, slinging paint and generally running amuck. He said the rioters wore identifying red arm bands and that union leaders, equipped with walkie-talkies, coordinated the attack.

The last straw, Bonner said, was that 70 to 116 city policemen (depending on who did the counting) stood across the street



ABC'S TRIMMER
Cities 170 violent acts

at parade rest and made no attempt to halt the melee.

The contractor, who said he had "never had pickets or problems" during his 17 years in business, credited the news media in Columbus with concentrating the pressure of public opinion on local officials. The city is now providing protection for the job site.

"I think the union finally realized it was setting back the union movement," Bonner says. "The people in Columbus were appalled."

In seven cities. The ABC's

St. Louis is shutting Pruitt-Igoe

Pruitt-Igoe, the apartment complex hailed as a bright hope for the poor in the fifties but denounced later as a symbol of the nation's public housing troubles, is being closed by the St. Louis Housing Authority.

Thomas Costello, executive director of the authority, said he will ask the Department of Housing & Urban Development to let him use \$300,000 committed for demolition and rehabilitation of Pruitt-Igoe to renovate enough units in other housing projects to care for Pruitt-Igoe's remaining 587 families. All but six of the project's 33 buildings have been closed since 1970.

Numerous studies and plans have been advanced to save Pruitt-Igoe, built for \$36 million in 1955-56. Another \$5 million was used in an abortive rehabilitation program in the sixties.

The blast-down. Two Pruitt-Igoe buildings were dynamited last spring in a HUD study to determine if the violence-ridden project could be salvaged by expanding living units within the 11-story apartment structures and reducing population density [News, May '72]. A \$26-million

rehab plan, drafted by the Chicago office of architects Skidmore, Owings & Merrill and the St. Louis city planner Harland Bartholome, also was unveiled. Like so many others, this came to naught.

The federal government still owes about \$31 million in principal on the Pruitt-Igoe bonds, and HUD, under Secretary George Romney, had refused to tear down the project, now a vandalized eyesore on the northern periphery of downtown St. Louis.

Angry pickets. The difficulties with Pruitt-Igoe are far from over. As the housing authority's commissioners voted the closing, tenants angrily picketed outside and swore they would not leave unless decent replacement housing was provided. Since more successful low and high-rise projects now screen new tenants carefully, the authority faces a potentially explosive problem in relocating the Pruitt-Igoe residents.

—TED SCHAFERS
McGraw-Hill World News,
St. Louis

aging, ratification, acquiescence in and/or condonement of coercive activities" by the labor organizations.

Cash at stake. If ABC's complaint is successful, the NLRB will go before a federal judge and ask for an injunction halting the practices that the ABC considers unlawful.

Success would also mean a cash award to employees of ABC and open-shop contractors and the contractors themselves for the wages and benefits lost and property destroyed through the allegedly illegal activities. The labor organizations would be forced to use their membership sanctions and influence to win compliance of the individual member in halting the practices. The ABC's legal fees would be paid by the unions.

Open-shop drive. In a larger sense the filing of the NLRB action by the open-shop organization is part of a wide-ranging battle between the growing ranks of open-shop contractors and the building crafts, says ABC's Trimmer.

The violence, he says, is in response to the growth of the open-shop movement, which in turn has been spurred by the increased competition between union and non-union contractors.

This trend is more pronounced in the 15 states in the eastern half of the country, and most of ABC's members are also in the East.

The unions cited in the NLRB charge:

The asbestos workers, boiler-makers, bricklayers, carpenters, electrical workers, elevator constructors, granite cutters, iron workers, laborers, lathers, marble workers, operating engineers, painters, plasterers, plumbers, roofers and sheet metal workers.

Reinforcements. While the ABC was busy with its lawsuit, the Associated General Contractors stepped in the act, too.

After proclaiming that violence and crime on construction sites had become a major national problem, the association pledged \$50,000 to further the investigation of crimes committed against construction firms.

—WILLIAM HICKMAN
McGraw-Hill World News,
Washington

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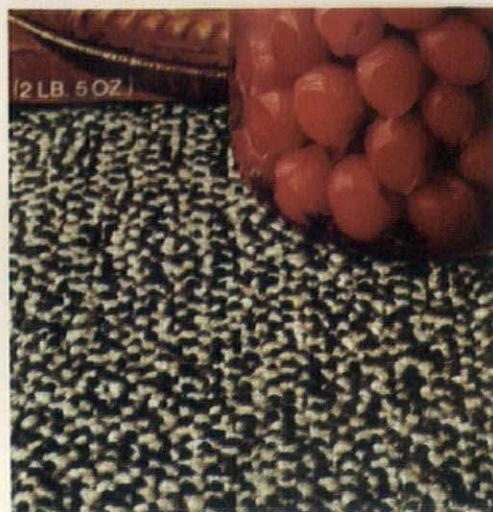
For detailed information on HERCULON, see Sweet's **S** Light Construction, Architectural and Interior Design files. Or, write Fibers Merchandising, Dept. 306, Hercules Incorporated, Wilmington, Delaware 19899 for a free 24 page booklet.

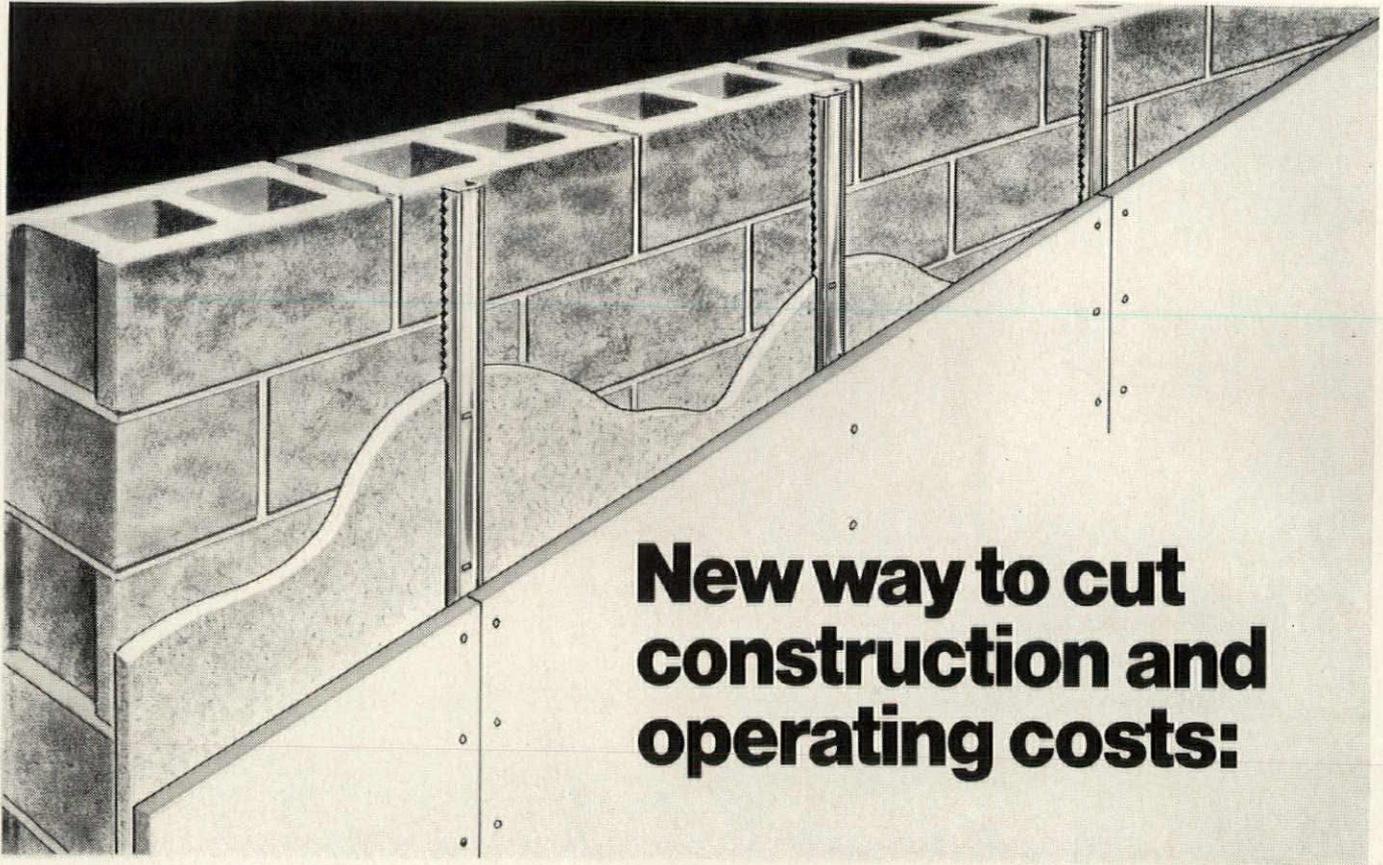


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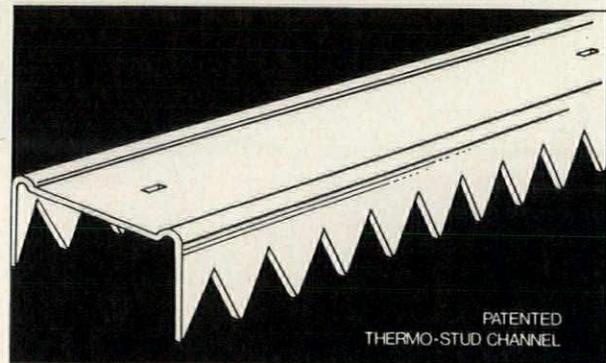
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Meets power company standards. The system meets or exceeds power company "U" value requirements of .10 or better for wall insulation. "R" values increase accordingly—as a result,



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4-3

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Maryland gets statewide rent control and its builders dig in for a fight

Maryland has a brand new law that is believed to impose the nation's first statewide rent controls.

The temporary measure covers only the landlords of four or more private rental units. The state has an estimated 480,000 private rental units altogether, most of them apartments but some of them one to four-family houses. Federal projects are exempt.

Governor Marvin M. Mandel signed the bill May 24. The law became effective June 1 and it will expire July 1, 1974.

The act has come under strong fire from builders and apartment owners, however, and a court test is expected.

The law is retroactive to January 11, when federal price controls were lifted. It prevents landlords of four or more units from increasing rents beyond 5% of those in effect January 11.

The law voids—with certain exceptions—all increases subsequent to January 11 that exceed 5%. It authorizes counties and cities to enact their own rent controls if they are as strong or stronger than the state's curbs. And the state measure voids itself if federal rent stabilization is reinstated.

Increases. Rents for any unit vacant June 1 or afterward may equal the highest rent allowed for a comparable unit in the same rental facility.

A landlord may increase the permitted rental fee if he can prove that his rental-unit costs have increased since January 11 because of rising real estate taxes, water and sewer charges or utility rates. The landlord must have his documentation available to the tenant when he informs the tenant of the rent increase.

The governor has expressed concern about how the law will be administered, speculating that it may be unfair to landlords to freeze rents while their costs are rising. He contends that the bill is "the direct result of the federal administration's failure to deal effectively and firmly with the pernicious problem of inflation."

Opposition. Builders urged the governor to veto the bill because "it would make it difficult to borrow money to finance construction projects." They also

question the constitutionality of the law.

One apartment builder and developer, Harvey M. Meyerhoff of Baltimore, described the law as being politically motivated to get the votes of tenants.

"There is no housing crisis in Maryland, as claimed by the

bill's proponents," he said. "There is a vacancy rate in the Baltimore metropolitan area in excess of 5%."

"Why did they pick on rents? There had been no mass rent increase in Maryland since the federal wage-price controls were lifted January 11. The average

apartment rent increase in the Baltimore metropolitan area was approximately 5% from January to mid-April."

'Havoc.' Meyerhoff, one of the real estate industry's five members of the federal Rent Advisory Board until its demise January 11, contends that the rent-control law discourages production and maintenance of rental units, dries up capital and complicates the sale of apartments.

"Rent control creates havoc and uncertainty in the construction and operation of the apartments-for-rent industry," he says. "It destroys the comparability of rental units. This law will mean less apartment construction in Maryland."

Meyerhoff, a former president of the House Builders Association of Maryland, notes that new apartment construction was exempted from the federal wage-price law, but not the Maryland law. He believes that owners of new property can rent new apartments at the market rate but that once those units are vacated, they will be subject to the Maryland law.

And Meyerhoff says his views are representative of the state's apartment builders and owners.

—EDWARD MARTIN
McGraw-Hill World News,
Baltimore

Florida condominium reform killed

A bill to reform Florida's condominium law has failed to clear the 1973 session of the legislature.

Supporters held tight to a provision that would have outlawed leases on recreational facilities, and that clause led to the bill's death in the final days of the session in Tallahassee.

Bills from both the Senate and House were passed out of committee, and it was the tougher House bill that drew fire from builders and developers [NEWS, June]. That version would have ruled out the placement of a lien against a condominium unit for non-payment of rent on recreational facilities.

Fee disclosure. The Senate bill settled for greater disclosure on fees and leases and would have required developers to specify how land on the same plot would be developed. It was felt that a conference committee could have settled differences between the House and Senate versions except for the House prohibition against liens.

Backers of the bill almost lost heart in the final days of committee hearings as more than 50

amendments were offered in attempts to gut the legislation. The bill was wounded, but not mortally, and Governor Reubin Askew's condominium commission would have been happy to settle for the improvement in disclosure assurances.

One builder's role. The chances for passage suffered because both bills were in clearing committee. Credit or blame rests in part with Senator Richard Deeb of Tampa, a builder and real estate man, who successfully asked for committee delays on grounds of senatorial courtesy. He had requested to be heard, but asked that the matter be put off until he could fit a meeting with the committee into his schedule.

Deeb's tactic was galling to the condominium commission because he had served as a member and listened to hours of testimony from people in his own district who said purchasers needed greater protection against leases and the legalese of hundred-page contracts.

—FRED SHERMAN
McGraw-Hill World News,
Miami

People in the housing field

The following item is taken verbatim from Bob Sylvester's column, "Dream Street," which appeared May 12 in the New York Daily News:

Builder William Levitt is one of our town's heavier philanthropists and the other day he went to the North Shore Hospital on Long Island and presented a check for only a million bucks toward a new wing.

As he left the hospital with a friend, a lady sidewalk solicitor came up pleading the same cause.

Mr. Levitt absent-mindedly reached for his pocket, but his



WILLIAM LEVITT
He gave at the office

friend told him to desist.

"Just tell her, Bill," the friend advised, "that you already gave at the office."

New survey to pinpoint mobile home placement

Beginning in December, the Census Bureau will provide statistics on mobile homes similar to those it now provides on conventional housing.

The new monthly report will survey the number of mobile homes placed in the country as a whole, the number placed in each of the four Census regions, and, eventually, the number placed in selected local areas where many mobile homes are sold.

The first step in the project will be to mail questionnaires to mobile home manufacturers asking for the names and locations of their dealer outlets. The Bureau will then select a sample of the dealers and survey them each month. The statistics thus obtained will be used to estimate national and regional placements.

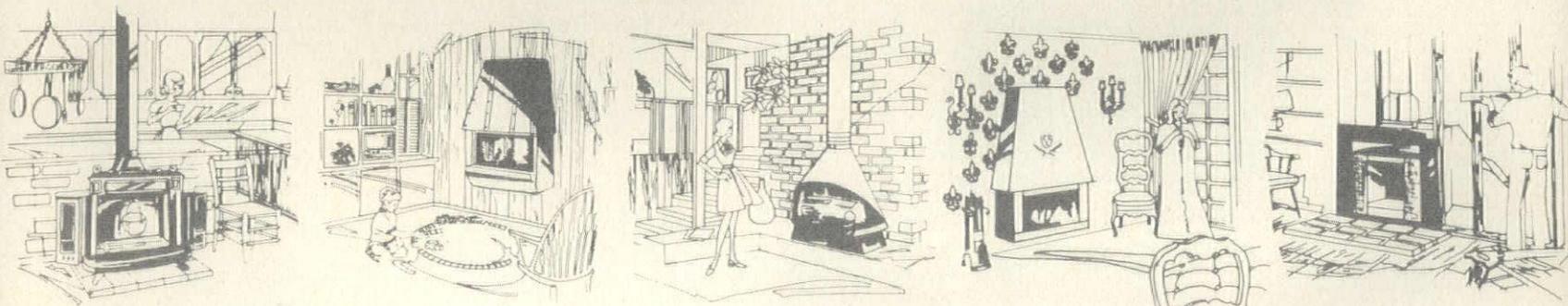
a nice warm feeling

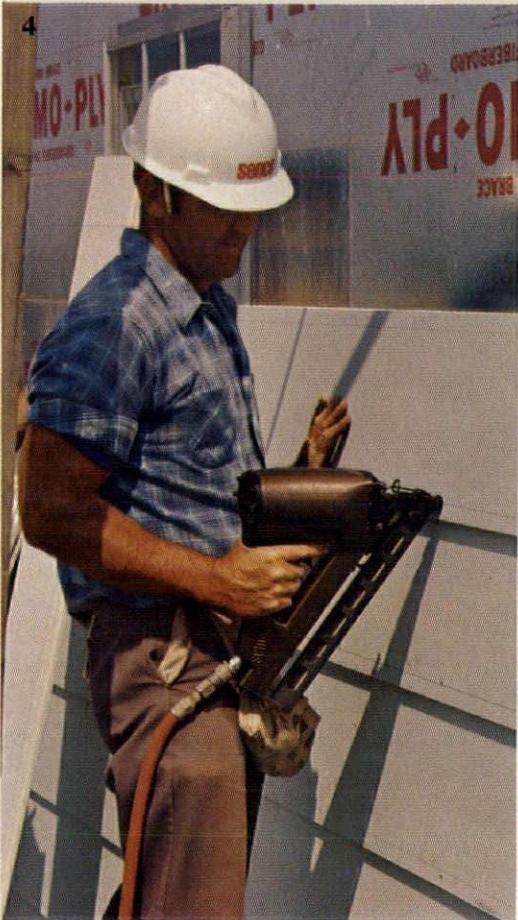
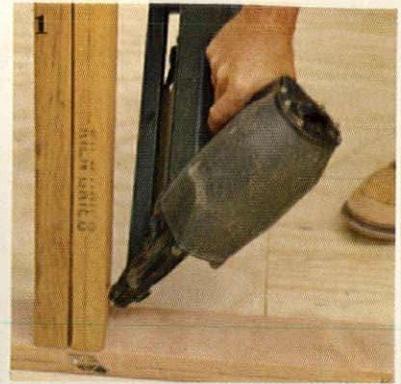
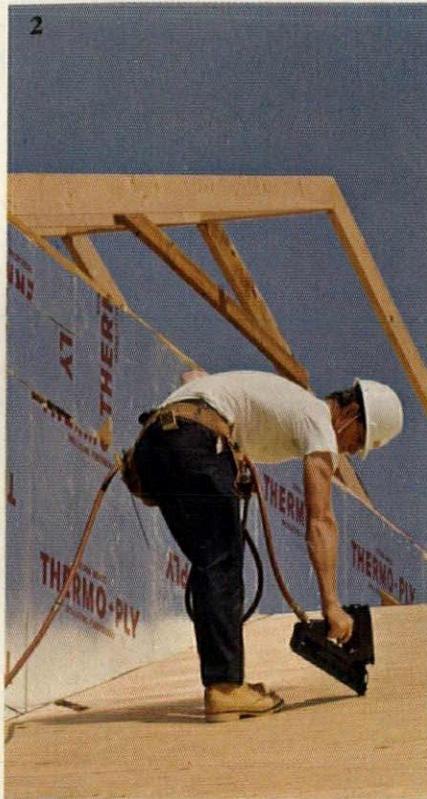


There's a subtle Old World charm about the Continental. Yet it fits beautifully with the most modern decor. It's shipped *complete in one carton*, with a built-in fire base and chain-mesh fire curtain. The unique low-surface-heat construction makes minimal wall clearances possible. Its distinctive hexagonal design adds an interesting new dimension to any room shape. For homes, apartments, condominiums. UL listed. Preway has a complete line of built-in, free-standing and wall-hung models. Learn why Preway means more fireplace profits for you. Contact your distributor . . . or write to us.

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Whatever the application, a Senco automatic nailer or stapler will do the job fast. One large builder reports an 80% reduction in man hours for shingle application is common. Exterior siding is applied 25% faster than by conventional methods. Builders are increasing their profits with similar savings in fascia and soffit attachment, interior trim, framing, application of insulation—to name just a few of the time-saving uses for Senco equipment.

Senco offers the lightest, best balanced and most efficient nailers and staplers in the industry. And, the fasteners they drive — Sencote® nails and staples—provide phenomenal holding power, equal to or better than most more expensive deformed shank fasteners. Sencote fasteners are easy to drive, minimize wood splitting and result in better craftsmanship.

Our interest in the builder goes beyond the sale, too. The unique Senco Construction Specialist Program means our sales representatives are trained and eager to help you keep Senco equipment in good operating condition through regular, on-site calls; help train your workers in the most proficient use of the equipment; and, assist you in setting up an economical, under-roof component operation.

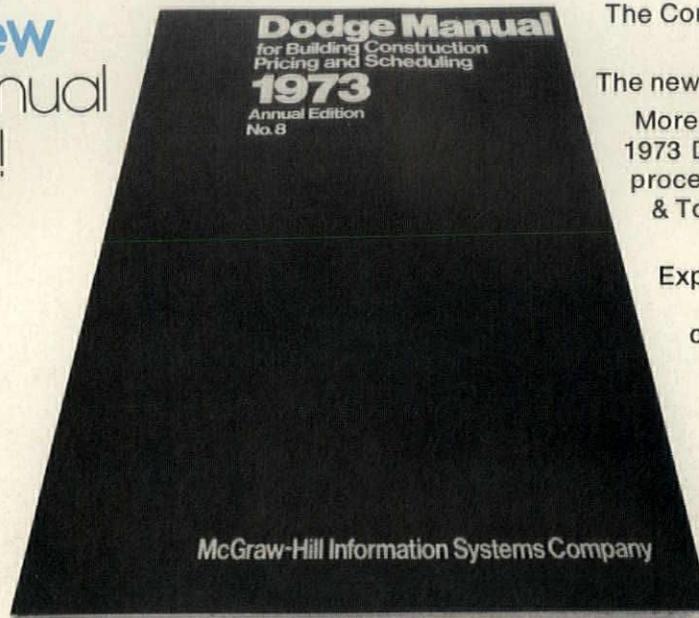
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MONEY-BACK GUARANTEE

CIRCLE 35 ON READER SERVICE CARD

H&H JULY 1973 35

The danger of rumor—and the blitz that sank Kaufman & Broad stock to 14½

Kaufman & Broad has traditionally occupied a special niche in the stock market. Until it acquired the Sun Life Insurance Co. in 1971, it was perhaps the biggest publicly held company whose business was almost pure housing—the production of single and multifamily units including mobile homes. Housing and related business still account for 78% of its pre-tax operating income and the company's size, along with its enviable earnings record, has made it a darling of institutional investors.

But K&B's harrowing experience of the past month shows that no company is immune to the peculiar maladies of the stock market that take up so much of corporate management's time and attention today. On April 30 the company complained to the Securities and Exchange Commission about a bear raid that had knocked its stock far off the year's high of \$45⅞. Several days later, a few hedge funds and other short sellers suddenly blitzed the shares all the way down to \$14½. The stock recovered to about \$20 shortly afterward, but company officials are still reeling from the experience.

The rumor mill. For what caused the precipitous drop was not any showing of adverse change in the economics of Kaufman and Broad but rather a host of rumors about bogus insurance, doctored policies and credit reports, governmental investigations. To top it off there appeared a highly critical article about the company in *Barron's* weekly by the accounting expert Abraham J. Briloff.

"It seemed," said a company spokesman, "that we were the victims of the whole psychology of Watergate, equity funding, the bear market. There were people just out looking for a stock to raid."

Twin inquiries. The whole story of what happened to Kaufman and Broad may not be told for months, for the SEC and the New York Stock Exchange are still investigating. But the company and, independently, some analysts who follow the stock, have taken some unusual steps to set the record straight.

First the company conducted its own investigation of the



An explanation for Wall Street was offered by Kaufman & Broad after the stock was suspended for a day and then plunged 5½ points, to 18, in the next trading session on the N.Y. Stock Exchange. Chairman Eli Broad is shown speaking to 200 security analysts at Plaza Hotel in New York May 16. President Eugene Rosenfeld is at left.

rumors. All but one of the rumors proved false. The company did find, in interviewing some former clerks in its southern California division, that a few had exaggerated the incomes of some homebuyers on mortgage credit applications. Apparently the clerks simply got a bit over-zealous in trying to help the applicants. The company said it has not suffered any losses as a result of the falsified credit forms, and K&B has not filed charges against the individuals involved.

Prof. Briloff's accounting ar-

ticle, however, has not been disposed of so easily.

Briloff, in a rambling piece in the May 14 issue of *Barron's*, raked the company and its auditors, Haskins and Sells, over the coals on a number of points. He questioned the company's assertion that 95% of its sales are collected in cash. He intimated that the company had tried to play down the importance of the sale of remnant land left over from community developments. And he questioned the accounting practices followed in Kaufman and Broad's acquisition of

Sparkman's man gets HLBB post

Thomas R. Bomar and Grady Perry Jr., two former staff officials of the Federal Home Loan Bank Board, were elevated to board membership last month after the Senate confirmed their nominations by President Nixon.

Bomar, whose appointment had been previously announced [*News*, May], is the new chairman of the FHLBB, a post that has been vacant since Preston Martin resigned last December. Perry becomes the Democratic member of the three-man body, replacing Thomas Hal Clarke, who retired. The third member, Carl O. Kamp, who has been acting as chairman, continues on the board.

The board is the regulatory agency for the savings and loan business.

A promotion. Perry, the new appointee, had served as the board's congressional liaison of-

ficer since 1965. He is an Alabamian and was the personal choice of Senator John Sparkman (D., Ala.).

Sparkman, chairman of the Senate Banking Committee and perhaps Washington's most powerful spokesman in housing legislation, has had a hand in previous appointments at the agency, most notably in the selection of John Horne, former head of the Small Business Administration, who served as HLBB chairman in the 1960s.

Before joining the HLBB staff, Perry was chief clerk of the subcommittee on housing of the House Banking and Currency Committee. He had also been a legislative assistant to former Representative Albert Rains (D., Ala.).

Reaction. The Bomar and Perry appointments have been favorably received by many in the housing industry. —D.H.

Sun Life—particularly the calculation and disclosure of the amount of good will that was acquired in the transaction and which must, under accounting rules, be written off against income over a period of years.

Defense. Shortly after the article appeared, Eli Broad, the company chairman, along with president Eugene S. Rosenfeld, other Kaufman and Broad officials and the auditors, made a fast trip east for mass meetings with analysts in New York and Boston. The company defended its accounting practices and said the controversy would not affect its plans to increase per-share earnings at a rate of 20% a year over the next five years.

The K&B defense seemed to satisfy most analysts and reportedly many institutional investors have held on to the stock. In fact, a number of brokerage firms have issued special reports supporting Kaufman and Broad and criticizing the Briloff article.

Briloff, for example, pointed out that according to *pro forma* figures in a November 1971 prospectus, Kaufman and Broad would acquire \$8.8 million in Sun Life good will, yet the 1972 annual report stated the figure at only \$1.6 million. He suggested that Kaufman and Broad had hidden assets that were not being written off in violation of accounting rules.

Writing in response, a Harvard professor, David F. Hawkins, said in an accounting bulletin published by Drexel Burnham & Co. that the original good will projection was only an estimate and was changed after Kaufman and Broad revalued the Sun Life assets—all in accordance with the accounting rules.

One change. Kaufman and Broad may yet take one Briloff criticism to heart, however. That is the absence of the annual report to shareholders of certain footnotes on accounting changes introduced into Sun Life after its acquisition. The information was disclosed only in the public reports filed with the Securities & Exchange Commission. A spokesman said the company is considering telling more about its life insurance operation in next year's report to shareholders. —DEXTER HUTCHINS

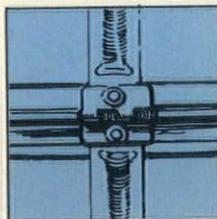
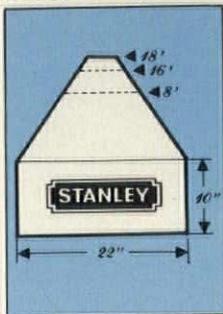
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Housing industry's stocks plummet for sixth month

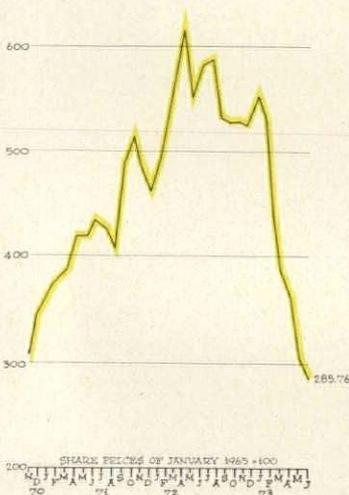
HOUSE & HOME's price index of 25 housing stocks plunged through the 300 level to settle at 285.76 for the month ended June 6.

That was a drop of 20 points in a month, and it was the list's sixth straight monthly decline. The index has now lost more than 50% of its peak reading of 612.33, attained in April 1972.

The building-company and mobile home groups led the latest decline. Only the mortgage companies managed a gain.

The index equates prices of January 1965 with 100. Prices on the index are overprinted in color in the lists at right.

Here's the composite graph.



Here's how the five companies in each group performed.

	June '72	May '73	June '73
Builders	527	274	230
Land develop.	653	180	150
Mortgage cos.	1,209	985	1,046
Mobile homes	1,938	525	434
S&Ls	184	132	119

Company	June 6 Bid/Close	Chng. Prev. Month
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BUILDING

Alodex	1 3/4	- 1/2
AVCO Community Dev. ^b	1 1/4	- 1/2
American Cont. Homes	3 1/4	+ 1 7/8
American Housing Systems	2 1/2	- 1/2
American Urban Corp.	3 3/8	+ 1/8
Bramalea Cons. (Can.)	4	- 1 1/4
Building Systems Inc.	1 1/8	- 1/8
Capital Divers. (Can.) ^d	42	- 2 1/2
Centex Corp.	10 1/2	- 2 1/4
Cenvill Communities ^b	9 7/8	- 2 7/8
Cheezem Dev. Corp.	3 1/4	- 1/4
Christiana Cos. ^b	2 1/8	- 1/4
Cons. Bldg. (Can.) ^b	3.00	+ 0.05
Dev. Corp. Amer. ^b	14 7/8	+ 1 1/8
Dev. Int. Corp.	5 1/8	- 3/8
Edwards Indus.	7 1/8	- 3/4
First Builders Bancorp.	2 1/4	- 1/4
First Hartford Corp. ^b	3 1/2	- 1/2
FPA Corp. ^d	8 1/8	- 3/8
Frouge Corp.	5	- 1/2
General Builders ^b	1 1/2	- 1/2
Gil Development	1 1/4	- 1/4
Hallcraft Homes	3 3/8	- 3/8
Hoffman Rosner Corp.	3 3/4	- 1/4
Homewood Corp.	6 3/4	- 5
Hunt Building Corp.	3 7/8	- 3/4
Kaufman & Broad^b	19 1/8	- 6 1/8
Key Co. ^b	4	- 1/2

Company	June 6 Bid/Close	Chng. Prev. Month
Leadership Housing (includes Behring Corp.)	4 1/2	- 3/8
Leisure Technology ^b	7 1/8	- 1 1/4
Lennar Corp. ^b	10 1/4	+ 3/4
McCarthy Co. ^d	3 7/8	- 1/4
McKeon Const. ^b	3 3/4	+ 1/8
H. Miller & Sons ^b	7 1/2	- 1
Mitchell Energy & Dev. ^b	17 3/4	- 3 1/2
National Environment (Sprout Homes)	1 5/8	- 1 1/4
L. B. Nelson Corp. ^d	5 7/8	- 1 1/4
New America Ind.	4 1/8	+ 1/2
Oriole Homes Corp. ^b	11 3/4	- 1
Prell Corp. ^b	5 1/2	- 1
Presidential Realty ^b	11 1/8	- 1 1/8
Presley Development ^b	6	- 5/8
Pulte Home Corp. ^d	4 1/8	- 1/4
F. D. Rich Housing Corp. ^b	2 1/2	+ 1/4
Robino-Ladd Co. ^b	7 5/8	- 1 1/4
Rossmoor Corp. ^b	4 1/2	- 2
Ryan Homes^b	16 3/4	- 1
Ryland Corp.	12 3/4	+ 2 1/4
Shapel Industries	11 1/8	- 2 1/8
Shelter Corp. of America	2 1/4	- 5/8
Standard Pacific ^b	2 1/4	- 1/4
Universal House & Devel. ^b	2 1/8	- 7/8
U.S. Financial^b	26 1/8	- 1 1/2
U.S. Home Corp.^b	10 1/2	- 1 1/8
Valley Forge Corp.	5 1/2	- 1 1/4
Washington Homes	3	- 1/4
Del. E. Webb ^b	4 7/8	- 7/8
Western Orbis ^d	1	- 1/4
Westchester Corp.	4 1/4	+ 7/8

SAVINGS & LOAN ASSNS.

American Fin. Corp.	12 1/4	- 7/8
Calif. Fin. ^b	3 3/8	- 1/2
Empire Fin. ^b	8	- 1 1/4
Far West Fin.^b	7 3/8	- 7/8
Fin. Corp. of Santa Barb. ^b	15 3/4	- 7/8
Fin. Fed.^b	12 1/8	- 1 1/8
First Charter Fin.^b	16	- 1 1/4
First Lincoln Fin.	3 3/8	- 1/2
First S&L Shares ^b	12	- 3 1/2
First Surety	4	- 1/2
First West Fin.	1 7/8	- 1/8
Gibraltar Fin. ^b	15 1/2	- 3 1/4
Great West Fin.^b	17 3/8	- 2 1/4
Hawthorne Fin.	7 7/8	- 1 1/8
Imperial Corp.^b	9 1/4	- 1 1/2
Trans World Fin. ^b	7 1/4	- 1 1/2
Union Fin. ^d	10 1/4	- 1 1/2
United Fin. Cal. ^b	8 1/8	- 1 7/8
Wesco Fin. ^b	12 3/4	- 1 3/4

MORTGAGING

Charter Co. ^b	13 7/8	- 4 1/2
CMI Investment Corp.	29 1/8	- 2
Colwell^b	20 3/4	- 1
Cont. Illinois Realty ^b	17 1/8	- 1
Excel Investment ^b	14 1/8	+ 5/8
Fed. Nat. Mtg. Assn. ^b	15 1/8	+ 1/2
Financial Resources Gp. (Globe Mortgage)	2 3/8	- 1/4
First Mtg. Ins. Co.	17 1/2	- 1 1/2
Lomas & Net. Fin.^b	9 7/8	- 1 1/4
MGIC Inv. Corp.^b	65 1/4	+ 6 1/4
Midwestern Fin. ^b	15 1/8	- 1/8
Mtg. Associates	13 3/4	- 3/4
Palomar Fin. ^b	4 1/8	- 3/8
So. Cal. Mort. & Loan Corp.	2 1/8	- 1
UPI Corp. ^b	1 1/8	- 1/4

MORTGAGE INV. TRUSTS

Alison Mtg.	24 3/8	- 3 7/8
American Century ^b	18 3/8	- 1 7/8
Arlon Property Invest.	13	- 2
Atico Mtg. ^b	17 1/8	- 2 1/8
Baird & Warner	17 1/8	- 1 1/4
Bank America Rity.	26 1/4	- 1
Barnett Mtg. Tr.	22 3/4	- 4 1/2
Beneficial Standard Mtg. ^b	21 3/8	- 2 1/2
BT Mort. Investors	27 1/4	- 2 3/8
Builders Investment Gp. ^b	26 1/2	- 2
Cameron Brown ^b	25 1/8	- 3 1/8
Capitol Mortgage SBI	22 3/4	- 2
Chase Manhattan ^b	52 3/8	- 3
CI Mortgage Group ^b	19	- 2 7/8
Citizens Mtg. ^d	16 1/2	- 3/4
Citizens & So. Rity.	32	- 3 1/8
Cleve Trust Rity. Investors	18 3/4	- 1 1/8
Colwell Mtg. Trust ^b	27 1/2	- 2 1/8
Conn. General ^b	22 1/2	- 2
Cont. Mtg. Investors^b	9 7/8	- 1/4
Cousins Mtg. & Eq. Inv.	24 1/4	- 2 1/2
Diversified Mtg. Inv. ^b	23	- 2 1/8
Equitable Life ^b	22 7/8	- 3 1/8
Fidelco Growth Inv. ^b	32 5/8	- 4 1/4
Fidelity Mtg. ^b	27 7/8	- 3 1/8
First Memphis Realty	21 1/8	- 5/8
First Mtg. Investors^b	17 3/8	- 1 1/8
First of Denver ^b	20 1/2	- 1/2
First Pennsylvania	19 1/2	- 4 1/2
Franklin Realty ^b	7 1/8	- 1/2
Fraser Mtg.	17	- 3
Galbreath Mtg.	22	- 4 1/4
Gould Investors ^b	9 1/8	- 3/4
Great Amer. Mtg. Inv. ^b	30	- 4 3/4
Guardian Mtg.	37 3/8	- 1 1/4
Gulf Mtg. & Rity. ^b	17	- 1 1/4
Hamilton Inv.	17	- 5/8

Company	June 6 Bid/Close	Chng. Prev. Month
Heitman Mtg. Investors ^b	12 1/8	- 5/8
Hubbard R. E. Investments ^b	19 1/8	- 3/8
ICM Realty ^b	18	- 2 7/8
Larwin Mtg. ^b	23 1/4	- 3 1/8
Lincoln Mtg.	6 1/2	- 1 1/2
Mass Mutual Mtg. & Realty ^b	20 1/2	- 1 1/2
Median Mtg. Investors	11 1/4	- 1 1/4
Mony Mtg. Inv. ^b	11 1/2	- 1 1/8
Mortgage Trust of Amer. ^b	16 1/4	- 3
National Mortgage Fund	13 1/8	- 7/8
North Amer. Mtg. Inv. ^b	23 1/4	- 4 5/8
Northwest Mut. Life Mtg. & Rity. ^b	22 7/8	- 3/8
PNB Mtg. & Rity. Investors ^b	21 3/8	- 1 1/4
Palomar Mtg. Inv. ^b	14 7/8	- 1
Penn. R. E. Inv. Tr. ^b	11 1/2	- 1 1/8
Property Capital ^b	15 1/4	- 4 1/2
Realty Income Tr. ^b	14 1/2	+ 3/4
Republic Mtg. ^b	15 1/4	- 1 1/8
B. F. Saul R.E.I.T.	15 1/2	- 3
Security Mtg. Investors ^b	8 1/8	- 5/8
Stadium Realty Tr.	6	- 1 1/2
State Mutual SBI ^b	22 3/8	- 2
Sutro Mtg. ^b	16	- 3/4
Unionamerica Mtg. & Eq. ^b	21 1/8	- 2 1/8
U.S. Realty Inv. ^b	13 1/8	- 1 1/2
Wachovia Realty Inc. ^b	22 3/8	- 1 1/8
Wells Fargo Mtg. ^b	21 1/8	- 1 1/2

LAND DEVELOPERS

All-State Properties	5 1/8	- 1/4
American Land ^d	0.5	- 1/4
AMREP Corp.^b	5 1/4	- 2
Arvida Corp.	8 1/8	- 2 1/4
Atlantic Imp. ^b	3 1/2	- 1
Canaveral Int. ^b	2 1/8	- 3/4
Cavanagh Communities ^b	3	- 1/2
Crawford Corp.	5 1/4	- 1 1/2
Deltana Corp.^b	11 3/8	- 1 1/4
Disc Inc. of Amer.	1 1/8	- 7/8
Fairfield Communities	1 1/2	- 1/4
Gen. Development^b	8 1/8	- 7/8
Getty Financial Corp. (Don the Beachcomber)	4 1/2	- 1 1/2
Holly Corp.^b	1	- 1/4
Horizon Corp. ^b	7 3/8	- 5/8
Landmark Land Co. ^b (Gulf State Land)	2	- 3/8
Land Resources	2 3/8	+ 1/4
Major Realty	4 5/8	- 1 1/8
McCulloch Oil^b	6	- 1 1/8
Southern Rity. & Util. ^b	5	- 1/4

MOBILE HOMES & MODULES

Champion Home Bldrs.^b	5 1/4	- 1
Commodore Corp.^b	3 1/8	- 7/8
Conchemco ^b	10 7/8	- 1/4
De Rose Industries ^b	2 1/4	- 1
Fleetwood^b	8	- 1 1/8
Golden West Mobile Homes	4 1/8	- 1 1/2
Moacmo Corp. ^d (formerly Mobil Americana)	3 3/4	- 5/8
Mobile Home Ind. ^b	9	- 1/2
Monarch Inc.	1 1/4	- 3/8
Redman Ind.^b	6 1/4	- 4 1/4
Republic Housing Corp.	4 1/8	- 3/4
Rex-Noreco ^b	2 1/2	- 1
Skyline^b	13 1/8	- 1
Town & Country Mobile ^b	4	- 1/8
Triangle Mobile	1 1/4	- 1 1/4
Zimmer Homes ^b	3 7/8	- 7/8

Albee Homes	1/4	+ 1/8
ASM Ind. (Formerly AABCO)	1/4	- 1/8
Brigadier Ind.	3 3/8	- 3/8
Environmental Communities	1 3/4	- 3/8
Hodgson House	2 1/2	- 1/4
Liberty Homes	2 1/2	- 7/8
Lindal Cedar Homes	5 3/4	- 1 1/2
Modular Dynamics ^b	1 1/8	- 1/16
Nationwide Homes ^b	7 1/2	- 7/8
Shelter Resources ^b	6 1/4	- 2
Swift Industries	7 1/8	- 1 1/2

DIVERSIFIED COMPANIES

Amer. Cyanamid ^b	23 1/4	- 2 3/4
Amer. Standard (Wm. Lyon)	11	+ 1/4
Arlon Realty & Develop. ^b	4 1/2	- 2 1/8
AVCO Corp.	9 1/2	- 1 1/8
Bethlehem Steel ^b	29 1/8	- 1 1/4
Boise Cascade ^b	9 3/8	- 1
Building & Land Tech.	7 3/4	- 1
CNA Financial (Larwin)	12 1/8	- 2
Castle & Cooke ^b (Oceanic Prop.)	12 1/4	- 7/8
CBS (Klingbell)	34 1/4	- 3 1/2
Champion Int. Corp. (U.S. Plywood-Champion)	17 1/8	- 3 1/2
Christiana Securities	167	+ 2
Citizens Financial ^d	5	- 1
City Investing (Sterling Forest)	10 3/4	- 5/8
Corning Glass	91 3/4	- 12 1/4
Cousins Properties	16 1/4	- 4
Davos Inc.	1	- 1/4
Dreyfus Corp. ^b (Bert Smokler)	8 7/8	- 1 1/2
Environmental Systems	4 3/4	- 1 1/4
Evans Products ^b	13	- 3 1/4
Ferro Corp. ^b	34	- 3 1/4
First Gen. Resources	5 1/8	- 3/8

Company	June 6 Bid/Close	Chng. Prev. Month
Fischback & Moore ^b	41 1/2	- 1 7/8
Forest City Ent. ^b	8 1/8	- 1 1/2
Flagg Industries ^b	3	- 1/4
Frank Paxton Corp. (Builder Assistance Corp.)	9 1/2	- 1 1/4
Fruehauf Corp.	27 3/4	- 1 1/2
Fuqua Corp.	10 1/2	- 2 1/2
Georgia Pacific ^b	30	- 1 7/8
Glasscock Products ^b	4 1/8	- 1/4
Great Southwest Corp.	3 1/4	- 1/4
Gulf Oil (Gulf Reston) ^b	23	- 2
INA Corp. (M. J. Brock) ^b	32	- 3 1/2
Inland Steel (Scholz) ^b	31 3/8	- 2 1/4
International Basic Econ.	24 1/8	- 1 1/8
International Paper ^b	33 1/4	- 5/8
Internat. Tel. & Tel. (Levitt)	34	+ 1 1/4
Investors Funding ^d	4	- 3/4
Killearn Properties ^b	5 3/4	- 1 1/8
Leroy Corp.	3 1/2	- 1 1/4
Ludlow Corp. ^b	14 1/8	+ 1 1/8
Monogram Industries ^b	5 1/4	- 1 7/8
Monumental Corp. ^b (Jos. Meyerhoff Org.)	28 3/4	- 4 7/8
Mountain States Fin. Corp.	5 1/4	- 3/8
National Homes ^b	5	- 2
Occidental Petroleum (Occ. Pet. Land & Dev.)	9 7/8	- 1
Pacific Coast Prop. ^b	2	- 1/2
Perini Corp. ^b	4 1/8	- 1/4
Philip Morris	115	- 4 3/4
Prosher Corp.	1 1/4	- 1/4
Rouse Co.	11 3/4	+ 1
Santa Anita Consol. (Robt. H. Grant Corp.)	15 1/2	- 2
Sayre & Fisher ^b	1 1/4	- 1/4
Shareholders Capital Corp. (Shareholders R.E. Group)	5 1/8	- 1/4
Temple Industries	15	- 3 1/2
Tishman Realty	16 3/4	- 2 1/8
Titan Group Inc.	1 1/8	- 5/8
UGI Corp.	16 1/4	- 1 1/8
Uris Bldg. ^b	13 7/8	- 2 1/8
Weil-McLain ^b	10 1/4	- 1
Westinghouse	34 1/8	+ 2 1/4
(Coral Ridge Prop.)		
Weyerhaeuser	56 1/2	+ 5/8
(Weyer. Real Est. Co.)		
Whittaker (Vector Corp.) ^b	3 1/2	- 1 1/4
Wickes Corp.	17 1/4	- 3 1/4

SUPPLIERS

Armstrong Cork	24 1/2	+ 2 1/8
Automated Building Comp. ^b	5	- 3/8
Bird & Son	23 1/4	- 2 1/4
Black & Decker ^b	107 1/8	+ 5 1/8
Carrier Corp. ^b	19 1/8	+ 1 1/8
Certain-teed ^b	16 1/2	- 1 7/8
Crane ^b	15 1/4	- 1 7/8

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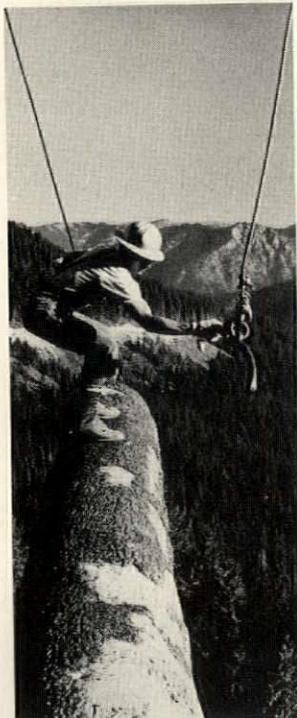


Forget
Them!





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are built for a life of dependable
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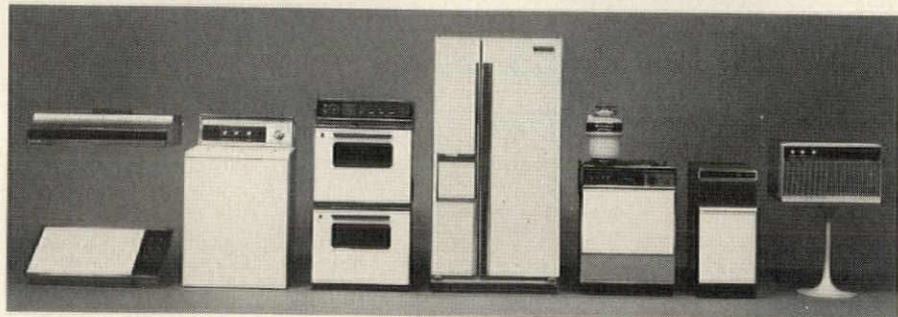
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representative tell you more.
A phone call will bring
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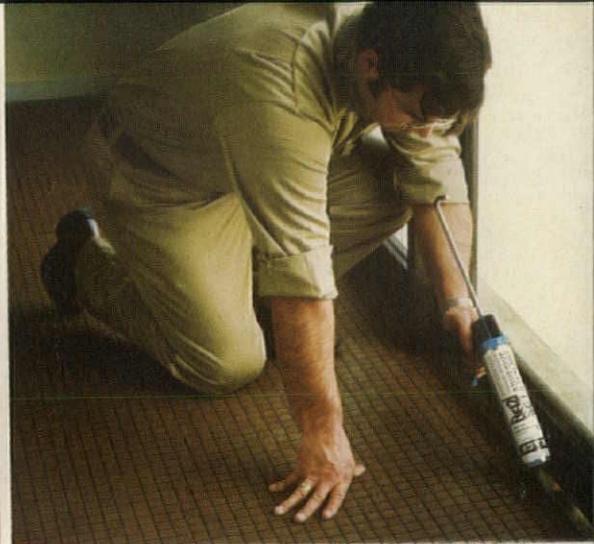
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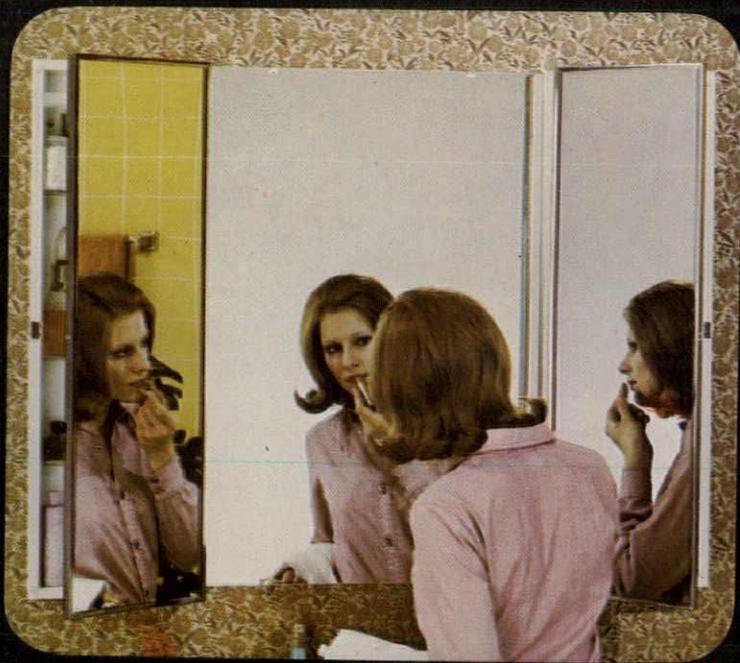
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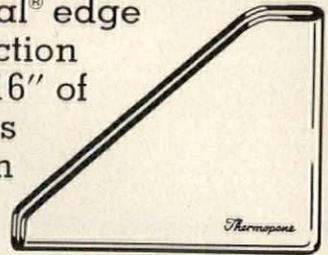
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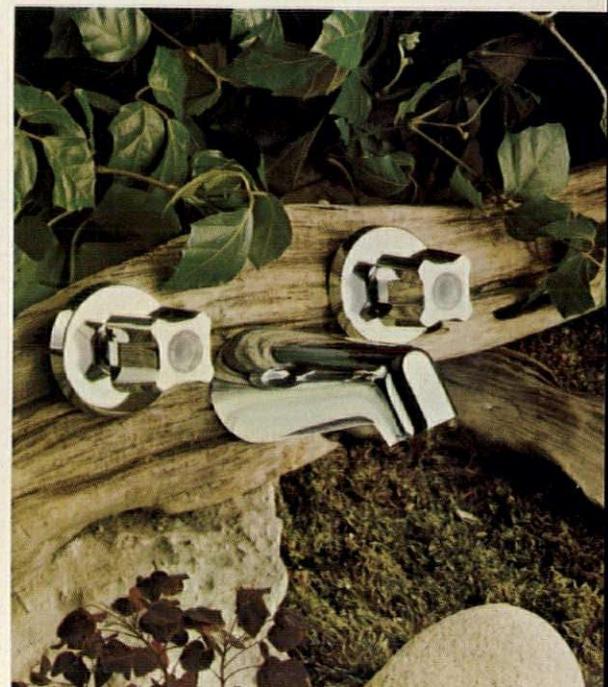
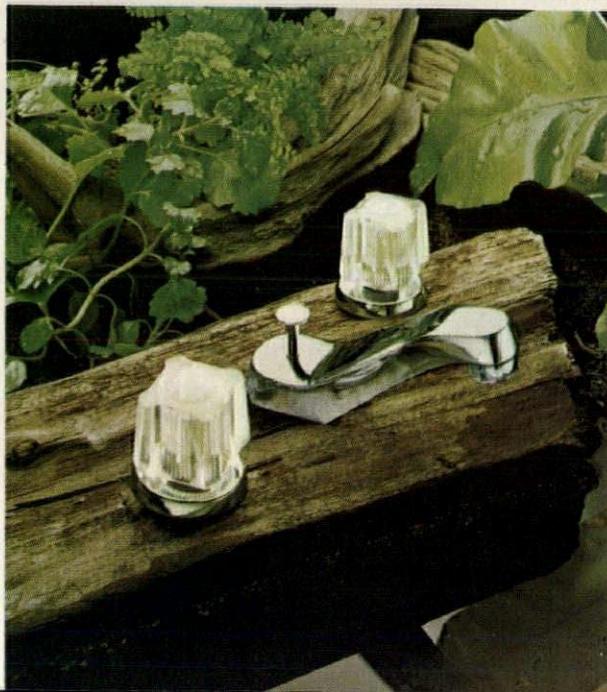
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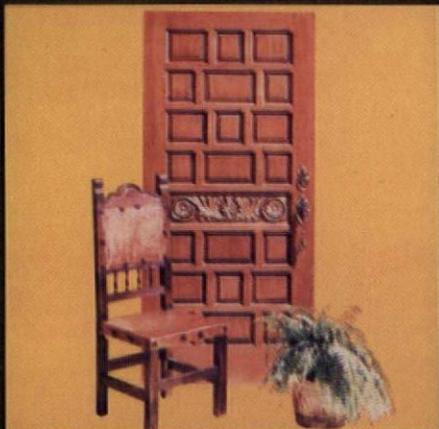
Redwood lumber for commercial decks, patios and stairways



Ruf-Sawn 316 plywood siding overlaid especially for painting



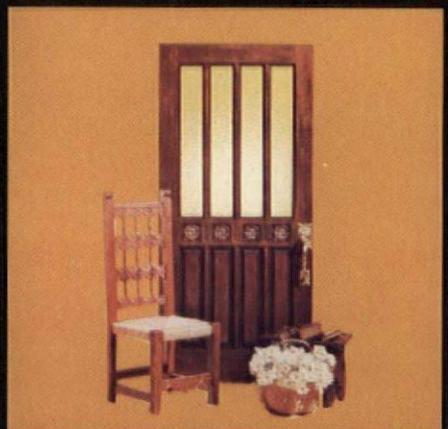
Redwood lumber siding lends lasting warmth to office buildings



Castillo pattern entrance door from the International series



Ruf-Sawn 316 was the answer for low-income housing project



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Types of courts and manufacturers who build them

	Conventional wood (\$7,500-\$9,500)	Marine plywood (\$9,500)	Aluminum and wood (\$12,300 up)	All-aluminum (\$15,000 up)
Dapper Platform Tennis 43 Tokeneke Rd. Darien, Conn. 06820	2			
O'Malley Tennis Court Div. 117 Harrison Ave. Roseland, N.J. 07068	1			
Charles H. Plumb Sr. 5144 Mayview Rd. Cleveland, Ohio 44124	1			
Porta-Court Co. 338 14th St. Ambridge, Pa. 15103	2			
Precision Platform Courts Inc. 3702 Beechmont Court Cincinnati, Ohio 45226	1		2	2
Richard J. Reilly Jr. Inc. 98 Mill Plain Rd. Danbury, Conn. 06810	1		2	2
Sports Marketing Associates Corp. 307 Westport Ave. Norwalk, Conn. 06851		2		

1. Fully approved by APTA
2. Provisionally approved pending 2-year test

FROM PAGE 51

otherwise unusable site areas. The court is small—one-fourth the size of a tennis court—and since it's built on piers it can go on rocky, marshy or sloping ground without extensive site work. Or you can get portable courts to set over tennis courts or parking areas during the winter.

Finally, it's a game that can bring traffic into the project. Last year Parkview Hills co-hosted an invitational tournament that brought a good crowd of spectators into the development.

A long way from Scarsdale. Commonly, though inaccurately, called paddle tennis (a different game), platform tennis was invented in 1928 by two Scarsdale, N.Y. men seeking a winter outlet for their tennis energies. Although national tournaments began as early as 1935, entrants came only from the Northeast until a few years ago.

The game is played on a screened-in 60' x 30' court, which is lined like a tennis court. It's scored like tennis, and most

tennis rules apply. The two major changes are designed to discourage the cannonballer: The server gets only one serve, and the ball may be played off the screen after bouncing fair on the court. These changes, along with the smaller court size, not only tend to equalize varying abilities but also promote more extended volleys than tennis does.

Should you buy or build? Building your own court may be cheaper—as little as \$8,000, depending on area labor costs. (Official plans can be had for \$30 from APTA, c/o R.A. Brown, 235 Madison Rd., Scarsdale, N.Y. 10583.)

The big advantage of buying prebuilt courts from APTA-approved manufacturers (see box) is convenience. Most manufacturers include field assembly in the price, and the court can be set up and ready for play in a few weeks.

Some manufacturers are also working with new platform materials. Until recently, all platforms were of douglas fir planks, which are subject to warping and

splintering and which require periodic refinishing (about once a year, depending on weather and frequency of use). The new materials—aluminum, available from two manufacturers, and marine plywood offered by a third—are an attempt to overcome these problems.

Aluminum courts are said to last indefinitely, needing only occasional surface touchups. Furthermore, they come with subplatform heaters that keep the court free of snow and ice.

But aluminum courts also have drawbacks. The first is relatively high cost—about \$15,000 plus shipping for all-aluminum models, roughly \$12,000 for those with aluminum platforms and wood rigging. Second, they are noisier than wood courts. Finally, they have not been on the market long enough to have final approval of the APTA, which comes only after a manufacturer's courts have successfully withstood two years of use. This could be a problem if you ever want to hold an APTA-sanctioned tournament.

Marine plywood courts carry a tag of \$9,500 plus shipping, making them closely competitive with conventional wood courts. They may be a practical compromise of cost vs. durability, but APTA's secretary, R.A. Brown, points out that not much is known about their maintenance. And, like the aluminum courts, they are still too new to have received the association's final approval.

Especially if you opt for con-

ventional wood courts, it's a good idea to get a quote from all the manufacturers listed. Some have subcontractors in various parts of the country, and a nearby source can reduce shipping costs. Also, be sure the base price includes field erection (not offered by one manufacturer) and lighting (a \$1,000 extra from another manufacturer).

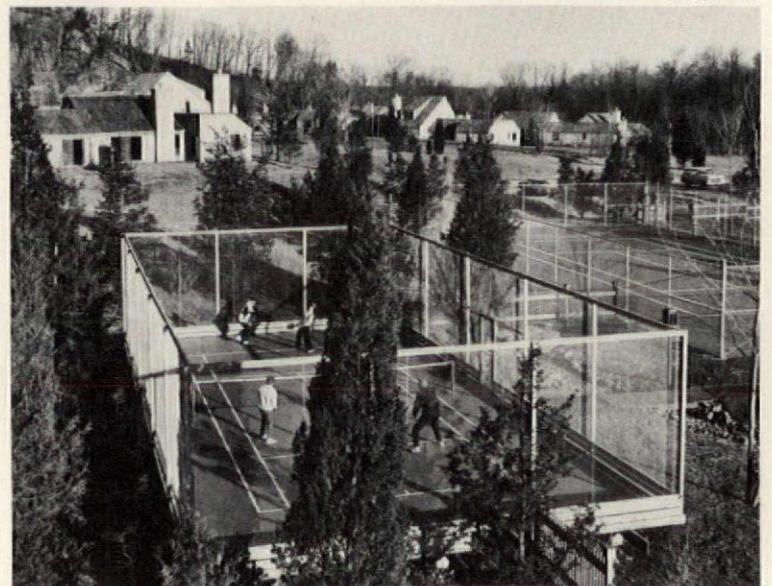
The only other required equipment consists of soft rubber balls and laminated wood paddles—both especially made for the game—which can be ordered through sporting goods outlets. But you may want to consider putting up spectator bleachers and a warming hut to thaw out players—and promote sociability—between and after matches.

Getting it started. There's a good chance somebody in your project—or at least in the vicinity—has played the game and can give what little basic instruction is needed.

And there are two other things you can do. One is to order a book, "How to Play Platform Tennis," by Dick Squires, a top player who is also president of Sports Marketing Associates, a platform court manufacturer. It costs \$6.95 from Devin Adair Co., 1 Park Ave., Old Greenwich, Conn. 06870. The other is to join APTA (address above) and circulate its newsletters among the residents. Voting memberships, for those owning courts, are \$10 per court per year (maximum \$40); nonvoting memberships for players are \$3 a year.

—J. MICHAEL STIMSON

DAVID BROOKS



Heritage Village platform court in Southbury, Conn. is popular new community feature. Here it's used in early spring while tennis court (right) is still idle.

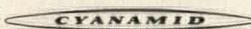
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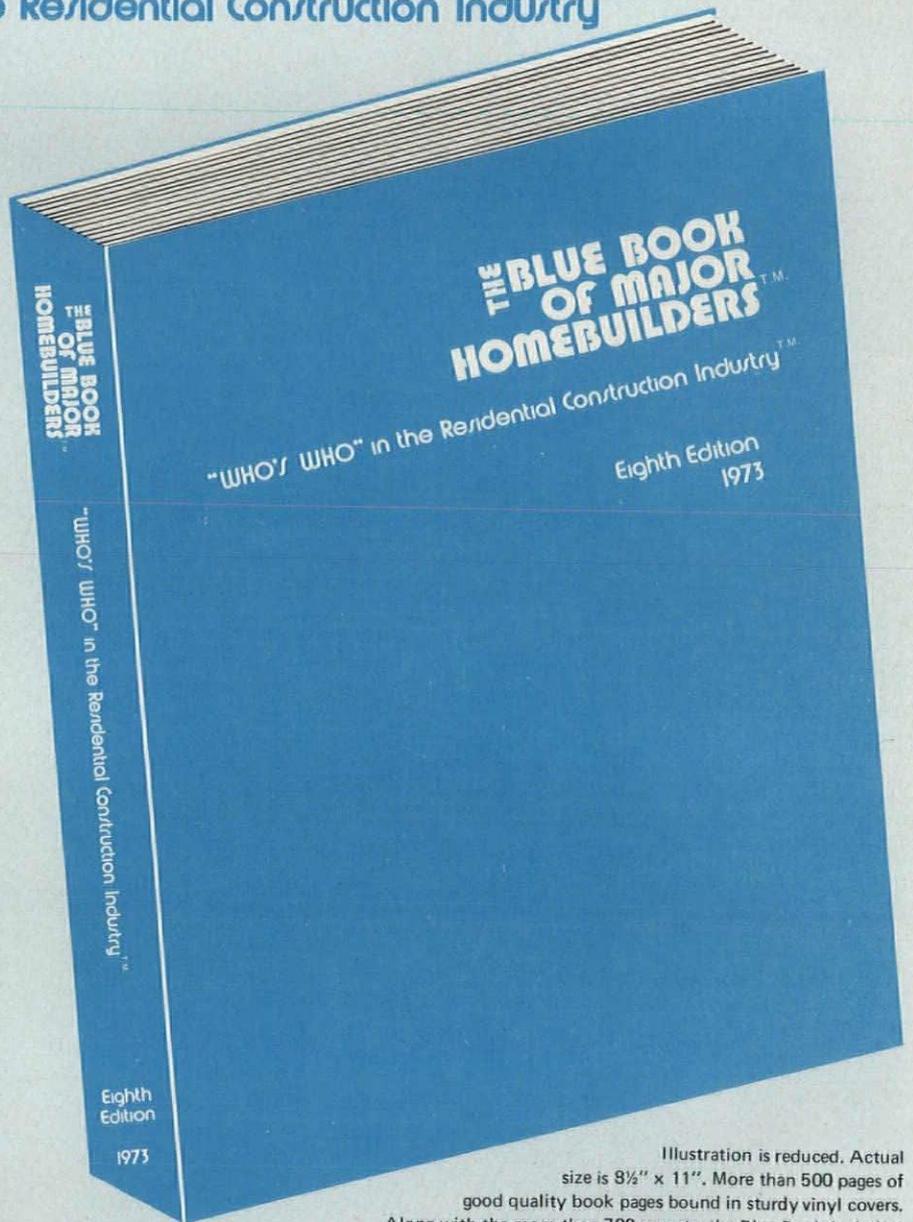


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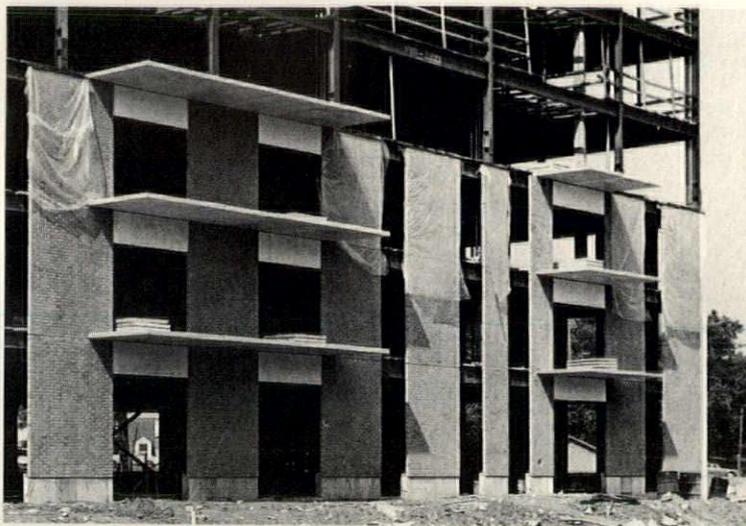
That's the verdict of Philadelphia builder Jay Gross who estimates he saved a total of \$225,000 by using the precast panels instead of conventionally laid-up brick for the nine-story, 161-unit apartment building shown here.

"This figures out to about a 7% saving," says Gross. "And we're convinced there'll also be a substantial reduction in our operating expenses because of the panelization."

Gross and his construction vice president, Irvin Abrams, pinpoint the following areas of savings:

In-place cost. "We saved more than \$2/sq. ft. over the cost of brick in place because precast panels eliminate the need for lintels over windows, brick shelves and slings or scaffolding to support the masons."

Clean-up cost. "Typically, masons dump and drop a lot of mortar and cement all around the job," says Abrams. "With precast there's no clean-up needed, so we saved \$25,000 to \$30,000 here."



High-rise in Willow Grove, Pa. was faced with precast brick panels 9'7" high, in widths of 6', 8', 10' and 12'. Panels were welded to the steel frame.

Time saving. "We knocked off at least 33% from the time it normally would have taken us to enclose the building," says Gross. "The job started in January and in 30 weeks the roof was on. Then we started to drywall."

"Ordinarily, it would have taken us 45 to 50 weeks because of cold weather stoppages and a shortage of skilled bricklayers."

Gross adds that cutting construction time by 33% "obviously reduced our financing cost by a hell of a lot."

Operating savings. "Because we ordered these panels coated with a moistureproof sealer, there is no moisture or air penetration," says Abrams. "Therefore, we don't have any air passing through the panels. This

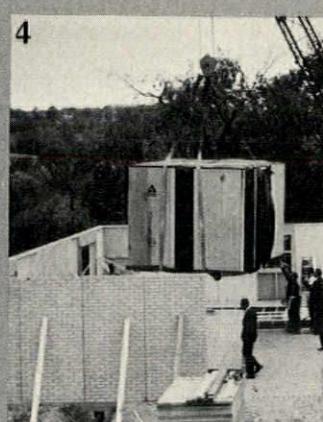
should translate into a tremendous saving in heating and air conditioning costs. Preliminary indicators show that the combination of the panels and a new design heating/cooling system will produce a \$50-to-\$60-per-year cost to heat a 1,000 sq. ft. apartment versus about \$200 for the same unit in a conventional building."

The panels are manufactured by Kurtz Precast Corp., Ephrata, Pa., which has marketed them within a 125-mile radius of its Denver, Pa. plant since 1968.

Beyond this range, says President Jake Kurtz, "cost savings are eaten up by trucking charges."

Kurtz will consider licensing qualified firms to manufacture the panels in other parts of the country.

In addition to a few high-rise buildings, the panels have been used for 250 garden apartments and townhouses, 30 single-family homes and about two dozen commercial buildings including schools, hospitals, banks and stores.



Building a single-family brick house sans bricklayers

After being lifted from the truck (1), panels are positioned by crane and temporarily supported until the perimeter wall is completed

(2,3). A kitchen-bathroom module is lowered into place (4). Only roof trusses are needed to complete the exterior (5).

A small investment that can give you a big return.

When you put additional money into your feature package, you want those added features to help you sell your house, right?

And for a few bucks more per house, we can give you this kind of sell. Moen single-handle faucets and valves.

They're the most-used appliances in the house. Highly visible too. And their good looks speak

for themselves. What's more, they beg to be touched. And when your prospects do, they'll discover how handy a single-handle faucet is.

Odds are, they'll also recognize the Moen name. A name that stands for quality. The kind of quality that reflects well on you.

So when you're looking at features, look at the one that can do a lot to help sell your house. Look

at Moen faucets and valves. For details, see your plumbing sub. Or write Moen, a Division of Stana-dyne, Elyria, Ohio 44035.

There's only one. **MOEN**



Want to save on electrical installations?



NECA study reveals opinions of general contractors.

The National Electrical Contractors Association (NECA) recently completed a study to find out how electrical contractors can help maintain high performance on projects requiring complex electrical system installations. On a question involving project planning, most participants agreed: the professional electrical contractor should have a role as a preconstruction consultant.

Reasons? The electrical contractor is an important member of the building team. And his specialized knowledge, applied early in the project, can be very valuable in assuring overall coordination of the electrical job. Skilled at project scheduling and expediting electrical work, his knowledge of product applications, code requirements, and his installation expertise can help

avoid costly potential problems and delays later in the project.

That's why many construction industry professionals involve electrical subcontractors in preconstruction planning: to make sure the job gets done—efficiently, economically, accurately, profitably. For more information on how you can benefit from the study, mail this coupon today.



National Electrical
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Washington, D.C. 20014

If electricity makes it possible, electrical contractors make it practical.

Please send a free copy of the NECA Preconstruction Conference Handbook, explaining how I can save time, headaches and money through preconstruction planning.

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Address _____

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FIREPLACES

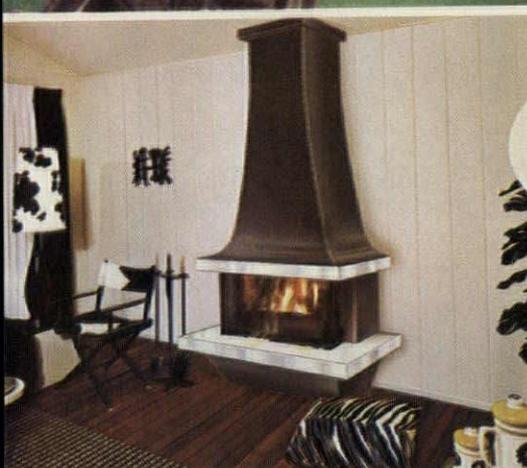
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*in any style,
design or fuel-*



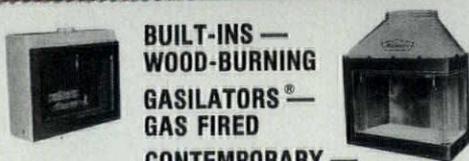
The adaptability of Majestic's extensive line of fireplaces is practically unlimited! Literally a smorgasbord choice in design, motif, style, type, size — and even color! Majestic gives you that "just right" feature for today's living unit.

The simplified and trouble-free design of Majestic prefabricated fireplace units should now be included in every quality house or apartment plan because it is the conventional way to build a fireplace today. Designed for zero clearance to combustibles and framed-in with wood, Majestic Built-Ins are lightweight, eliminating costly footers and masonry work. And the package is complete from hearth to chimney top! Popular sizes of front-opening or corner-opening, up to a commanding 42" model, are available for either wood or gas firing. Built-In Gasilators have the exclusive Majestic feature of an automatic damper which opens when the fireplace is in operation.



If the conventional look of the traditional fireplace is not your "cup-of-tea", then a Contemporary free-standing, wall-hanging or suspended unit will be. And the Majestic full-line of styles, models, colors — as well as fuels — assures an efficient and self-expressive fireplace. And one that can be placed most anywhere!

Bold in concept — imaginative in design — your irresistible urge for individuality is satisfied when you choose from the Majestic Fireplace line. The most complete line from America's leading fireplace manufacturer.



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GASILATORS® —
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ELECTRIC**

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name of Distributor
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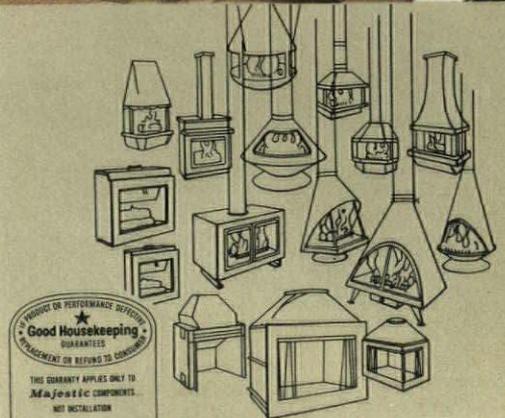


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PHOTOS: HICKEY & ROBERTSON



Front entry of each two-bedroom house is tucked back between high walls of neighboring patios. One-bedroom unit is entered through garage (see plan). Houses were built for the architect/owner by Clifford A. Jackson.

Look what can be done with a tiny (125'x55') urban site

That's less than one-seventh of an acre, yet architect Ralph A. Anderson managed to squeeze in four townhouses and to keep them private not only from each other but also from the surrounding neighborhood.

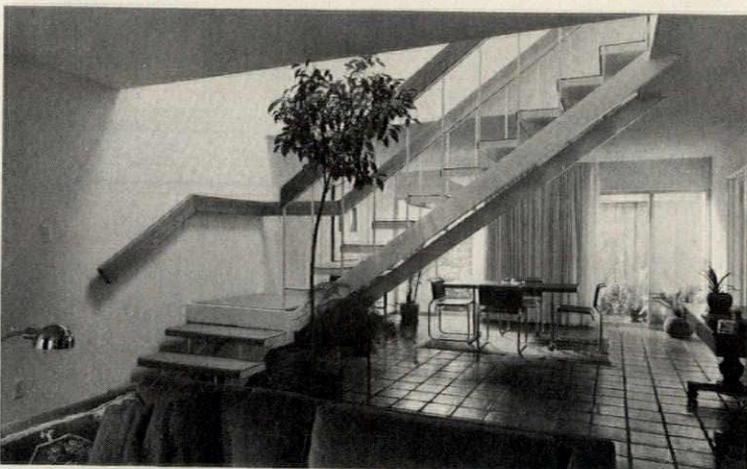
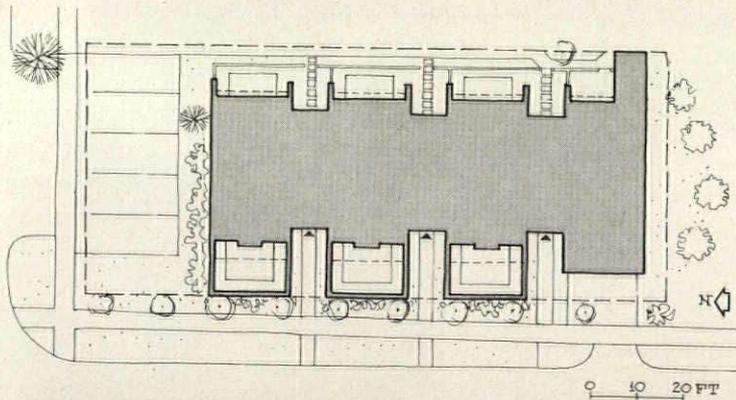
Anderson, who also owns the vestpocket project, designed it to draw childless couples from the

suburbs to downtown Houston. His plan makes for privacy in two ways: First, living and sleeping areas of adjacent units are well separated from each other by kitchen-bathroom cores that serve as buffers between the houses; second, high walls enclose each front patio, and there's a 7' fence running

across the rear of the site.

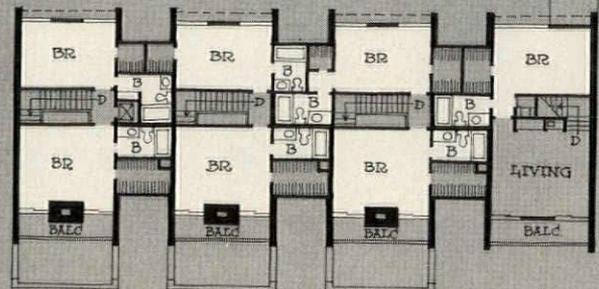
Three of the houses, all identical in plan, have two bedrooms and 1,475 sq. ft. of living area; they rent for \$300. The fourth, modified because of the site's limited area, has one bedroom and 950 sq. ft.; it rents for \$190.

Anderson plans 13 similar houses for sale.

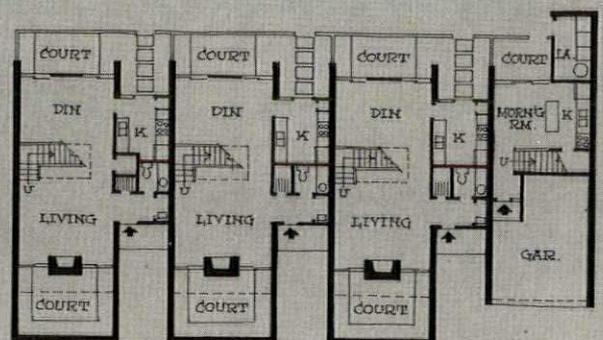


Skylighted stairwell and open stairs brighten first floor of two-bedroom unit.

Floor plan shows how kitchen-bath-closet cores separate each living and sleeping area from neighbors.



UPPER LEVEL



LOWER LEVEL

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THE PERFORMANCE
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AT THE
RIGHT PRICE



Before C-100' came along windows could be a pain. Like having to climb ladders or not being airtight. Our C-100' did away with such nonsense.

The sash lifts out for easy inside cleaning, then snaps back *weathertight*. What keeps it tight is something you get only from

Caradco: *stainless steel weatherstripping* with proven trouble-free performance. So you can forget call-backs, enjoy *reduced on-site labor costs*. Factory treated and primed, too. It looks great. And it's a complete package—grilles, storm panels and screens. Now the clincher: C-100' carries a competitive price. No wonder so many builders are switching to Caradco.



**Caradco
Window and Door Division**

Scovill

Main Plant, Dubuque, Iowa 52001 Eastern Assembly Plant, Hainesport, New Jersey Ohio Assembly Plant, Columbus, Ohio



Help get her out of the racket.

Hear the thump. The bump. The din. It's coming right through the floor. And we dare you to try sleeping with noise like that.

People living in multi-family dwellings

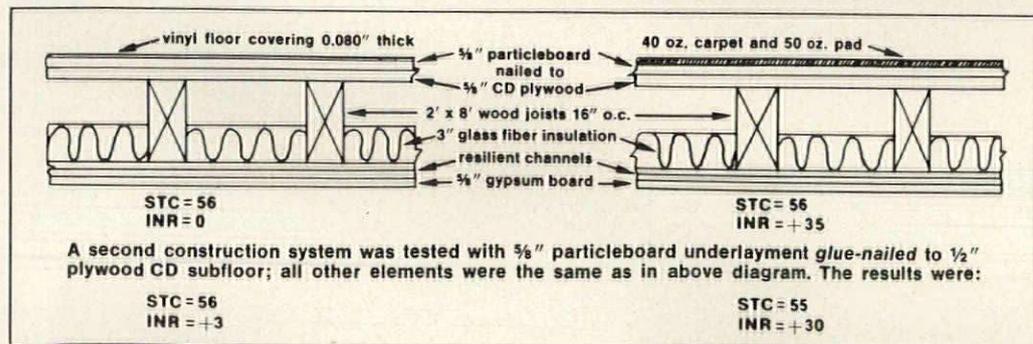
of its particleboard two-floor system. The results were eye popping, not ear shattering.

Using two different types of standard, code approved constructions and testing

Now, compare the numerical ratings with other floor systems. You'll see that particleboard's two-floor system exceeds other wood floor systems by wide margins. While the carpet and pad contribute heavily toward all STC and INR values, particleboard's acoustical properties outperform all other underlayments, and the two-floor system makes a major difference in cutting out the thumps, bumps, and din commonly found in multi-family dwellings.

So, when you're preparing to build, check out the particleboard two-floor system. That way you'll be helping yourself. And you'll be keeping a girl out of the racket too.

For further technical information, write the National Particleboard Association, 2306 Perkins Place, Silver Spring, Maryland 20910.



don't need that racket. They can live elsewhere or keep complaining until you can't stand the racket.

The National Particleboard Association recently ran a series of sound tests at one of the most famous acoustical laboratories in the country to test the sound transmission and impact noise resistance levels

each with both a vinyl covering and a pad and carpet, the STC and INR ratings were extraordinary as shown in the diagrams.



National Particleboard Association
2306 Perkins Place,
Silver Spring, Md. 20910

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Boise Cascade Corp.*
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Hambro Forest Products, Inc.
International Paper Co.*
Louisiana Pacific Corp.*
Mexwood Products, Inc.*
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Temple Industries, Inc.*
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The Pack River Co.
Timber Products Co.*
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"A quality entrance supports a higher price. I use Nord doors."

Builder Chuck Fischer of ModCom Construction Co., Ormond Beach, Florida, builds about 50 homes a year. \$27,000 to \$50,000.

First Impressions Count.

"The entryway makes the first impression on a buyer and sets the attitude for the rest of the house. In the same way, a quality entrance influences the financing."

Nord Says Quality.

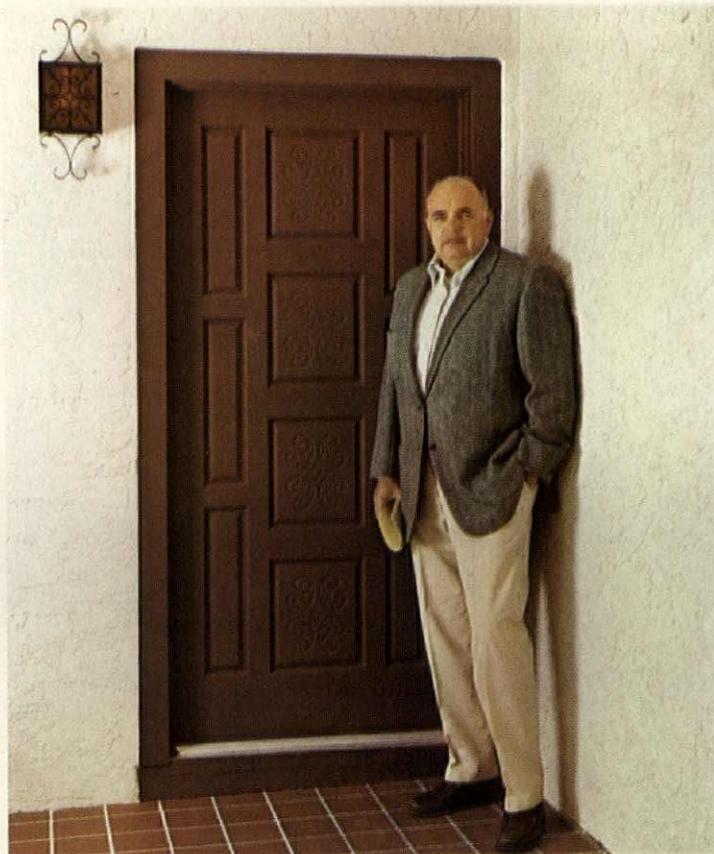
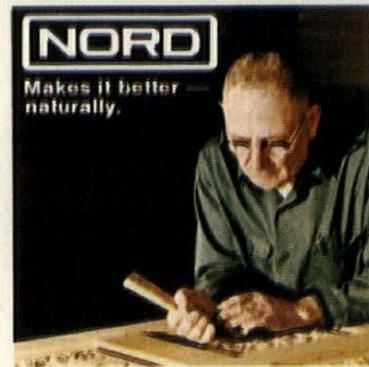
Chuck Fischer uses Nord doors. Like the Crestmont Regency A.

He knows he can count on fine, old-world craftsmanship from Nord. Select Western wood. Rich design. And "commodity" prices, thanks to modern Nord technology.

The Nord Philosophy.

Nord makes the most of man and machine. Electronic gauges assure the correct moisture content of every foot of lumber. Yet, in the end, each Nord door is hand-finished by one of Nord's skilled artisans.

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Florida builder Chuck Fischer and Nord's Crestmont Regency A door.



Tax riddle for apartment developers: How can the Treasury Department wipe out tax incentives for apartment investors without wiping out the investors?

The most repugnant thought to a hard working taxpayer is not the idea of the tax he has to pay but the knowledge that some wealthy person is paying no tax at all. And to the taxpayer's mind, the most obvious way to change the situation is to plug up all the so-called tax loopholes.

That is the Administration's avowed aim in promoting the new tax reform package introduced by Treasury Secretary George Shultz a few weeks ago. The section labeled Limitation on Artificial Accounting Losses would prohibit apartment investors from receiving major tax deductions for certain losses incurred by their investments.

The only trouble is that the deductions for these losses are the investors' sole reason for putting their money into apartments in the first place. And that fact was acknowledged by the legislators who originally made those deductions legal.

Congress further acknowledged the apartment developer's need for tax-conscious investors in 1968 when it authorized setting up The National Corporation for Housing Partnerships. The purpose of tax incentives was spelled out in the initial prospectus:

"It is anticipated that most of the financial benefits, if any, to investors in the Venture would be in the form of income tax savings resulting from the passthrough to each partner of its share of partnership losses in the early years (arising primarily from accelerated depreciation deductions) . . . investment in the Venture would be of little or no financial benefit to investors not having substantial net taxable income from other sources."

Under present tax laws the accounting losses that Secretary Shultz is concerned with—accelerated depreciation, plus loan interest, real estate taxes and other fees that occur during the construction period—may be deducted from an investor's total income in the year his money is invested.

Proposed changes. Under Shultz's tax reform package these losses could be offset only against income earned specifically from real estate investments and only as that income is received in amounts sufficient enough to justify the deduction.

This means that these losses might never be deductible for non-housing professionals like doctors and lawyers—the persons who are now major investors in apartments. The proposed tax changes would make it possible for full-time real estate developers to take the permitted long-term deductions, but not the part-time real estate investor.

So the effect of the changes would be to eliminate the tax incentives that now attract high-income professionals to invest in apartments. And in so doing, the changes would dry up this major source of investment capital throughout the apartment industry.

Apartments are a high-risk business. Yet, like any other business, apartments must compete in the open market for long-term equity dollars. It is the tax incentive that provides the competitive edge.

Another benefit. Besides attracting long-term investors to the apartment industry, federal tax-incentive policies have also accomplished something very important for apartment renters: By allowing investors to receive an investment yield in the form of tax savings rather than through increased profits from the consumer, tax incentives have helped hold down rents.

You would never know it from listening to tenant unions, but rental housing has long been one of the best bargains in the country. In the past ten years apartment rents have risen approximately 35%. Compare that with some other economic necessities that have more than doubled in cost during the same period of time. In 1972 the average apartment rent was only \$108 nationally.

If the Administration's new tax package were to be enacted, the only possible way to continue offering a fair return on capital to the apartment investor would be through increased rents that would counterbalance the lost tax benefits.

Exactly how much are apartment rents reduced by our current tax incentives? The Council of Housing Producers worked out an enlightening illustration with the help of CPA Kenneth Leventhal & Co.

They used a theoretical 144-unit garden apartment complex with a conventional 30-year mortgage at 8%. It was assumed that the occupancy level would reach 95% one year after completion. Total land and building cost is \$2.4 million of which \$2.1 million would come from the mortgage and \$300,000 from one or more investors in the 50% tax bracket. The funds would be used as follows:

Land cost	\$ 180,000
Interest during construction, loan commitment fee, etc.	193,500
Depreciable buildings	2,026,500
	<u>\$2,400,000</u>

Under existing tax rules the projected rents needed to attract investors' dollars to this apartment development would average \$263 per month.

If only accelerated depreciation is elimi-

nated, rents would have to be increased by 12.9% to \$297 per month.

If only straight-line depreciation is allowed, and interest, taxes and other fees that occur during construction have to be capitalized, the rents would have to be increased by 27% to \$334 per month.

Over the 30-year mortgage period the amount of additional rents needed to compensate for the complete loss of tax benefits would amount to \$2,905,000. If accelerated depreciation alone were eliminated, the compensating increase in rents would total \$1,398,720 for the 30-year period.

It is this inflation-reducing aspect of tax-incentive policies that the public—and apparently some legislators, too—fail to understand. If private industry is to do the developing, then equity capital for rental apartments has to be attracted by some form of return either in profits from the product or in tax dollars. But the public doesn't want to pay more rent. And the Administration doesn't want to give tax dollars to the housing industry—either through tax incentives or through government housing programs. Therein lies the apartment developer's dilemma under Secretary Shultz's tax package.

There are abuses of tax incentives. And the practice of paying no taxes at all should be prevented. But to drastically cut down the production of an entire major industry to control one group of individuals doesn't make economic sense.

An optional plan. There is an alternative that would catch the tax cheat without eliminating the apartment investor. Instead of eliminating a person's incentive to invest in apartments, why not limit the amount of income he can invest? For example, why not say that only half of an investor's total income could be used for real estate investment that offered a tax deduction. This would keep the remaining half in the category of taxable income and would insure that even the wealthiest investor would pay a minimum tax.

Tax policies for real estate have already been tightened up considerably by the 1969 Tax Reform Act. The changes enacted there, limiting deductions for interest payment and increasing capital gains taxes, caused economic feasibility problems that many developers still haven't learned to cope with.

What's needed now is not more such legislation, but an understanding by legislators of the true purpose that tax incentives serve—not just in the apartment industry but in the entire national economy.

H. CLARKE WELLS, SENIOR VICE PRESIDENT, L.B. NELSON CORP., MENLO PARK, CALIF.

Please send me information on the following, plus the location of the warehouse nearest me:

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ADDRESS _____
CITY _____ STATE _____
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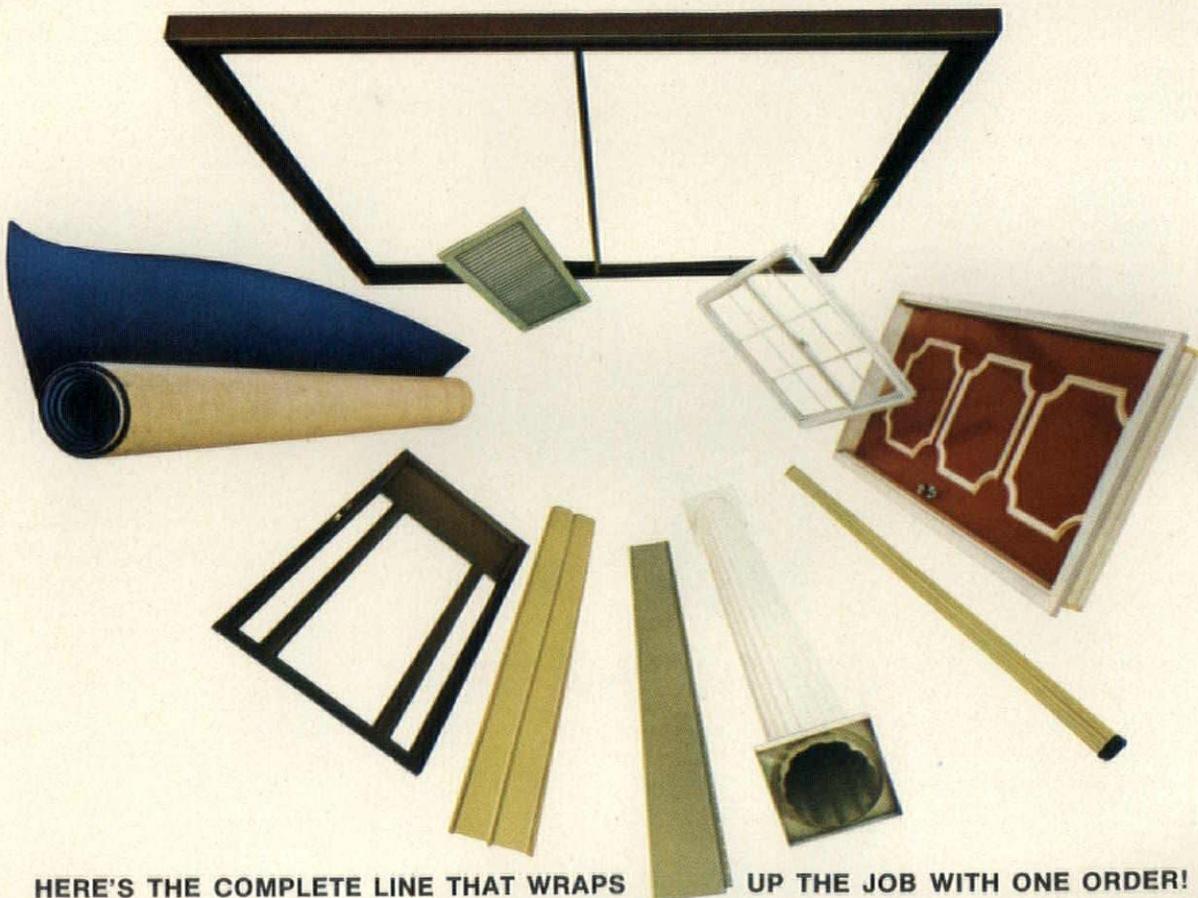
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What you see here is only a sample of the broad range of home remodeling and building products Norandex offers you. *And you can get them from one single source!* That means less shopping around, less paper work, less worry about delivery.

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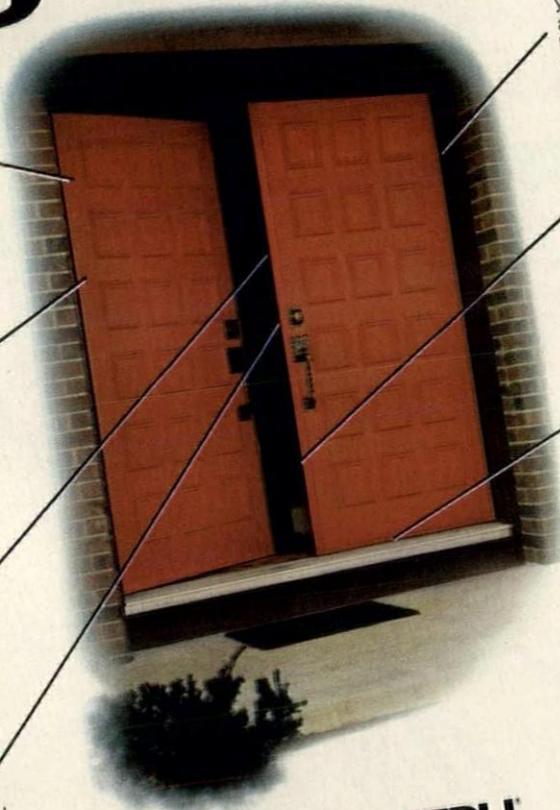
Therma-Tru.[®] At least seven ways better than any other door you're using now.

1 Both steel surfaces are hot-dipped galvanized. They're permanently bonded to the core and wood stiles to create a trouble-free exterior door. **Better because your Therma-Tru[®] doors won't ever warp, swell, bow, buckle, split, delaminate or break down like wood.**

2 Therma-Tru's exclusive polyurethane core injection process packs the door full. The urethane foam expands thirty times, creating twice the density (2.5 to 2.8 lbs.), twice the insulation (13.5 R Factor) of polystyrene... *four times that of wood.* **Better because your Therma-Tru doors will be more solid, more solid sounding... better insulating.**

3 The total thermal break is extra wide so there's no contact between outside and inside metal surfaces, even at the hinges and lockset. **Better because it eliminates cold and inside condensation completely.**

4 The wide wood edge gives you room to use any lockset—easily add any combination of locks. **Better because you have a choice of security systems, simply installed.**



5 The pre-mortised edge lets you use any type butt without affecting the thermal break. **Better because the hinges have a wood entry lock; the thermal break cold barrier remains intact.**

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7 The door bottom is the easiest there is to adjust. Just loosen a few screws and move the sweep up or down for an airtight seal. **Better because it's so simple, you will never be called back to do it.**

One-by-one, they add up to at least seven solid reasons for you to specify Therma-Tru entrances, and one solid fact... with Therma-Tru, you'll probably never have an entrance call-back again. Call us for the name of your nearest Therma-Tru distributor.

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CIRCLE 70 ON READER SERVICE CARD

How far should your building dollar go?

Today, more than ever, money is making the housing-industry headlines. From the developing and building point of view, the big problem is, of course, inflation; housing costs continue to increase faster than the economy as a whole. And from the lending point of view, it's almost a certainty that the cost of money will keep going up—maybe quite a lot—before it comes down.

Obviously it's vitally important for the builder or developer to know what he should be getting for his building dollar, both in his present markets and in other areas where he may be planning to set up operations. So this issue of HOUSE & HOME offers these money guidelines:

- An index of comparative construction costs in 82 major cities, starting on page 73.
- A materials and labor cost breakdown of the key construction jobs, starting on page 75.
- A comparison of mortgage and construction-loan rates in key areas of the country, starting on page 94.

Construction costs across the country

On the next
21 pages
you will find:

A two-page index that compares average construction costs in 82 market areas around the country. Four major construction categories are covered: structural, plumbing, electrical and heating and air conditioning, plus a combined average of all categories. Comparisons are made as percentages—100% (or 1.00) represents a standard derived from building costs in 20 key cities, and the index shows how much costs in individual cities vary above and below this standard.

Nineteen pages of cost tables which break the construction process down into key basic components. The tables give the labor, materials and total cost for each component, plus the average output of a typical crew in one working day.

Source of this data: the world's most authoritatively based construction cost manual

It's the 1973 *Dodge Manual for Building Construction, Pricing and Scheduling*, and it's published by Dodge Building Cost Services, a division of McGraw-Hill Information Systems Co. The material in this issue of *HOUSE & HOME* was selected for its particular applicability to light construction; however, it represents only a small portion of the manual, which comprises 171 pages and is also concerned with heavy construction. By the same token, in addition to the material shown on the next two pages, the city-by-city cost index in the manual includes detailed breakdowns within the general categories. For example, the structural category is broken down in to rough carpentry, roofing, glazing and 20 other trades.

The complete manual is available from Dodge Building Cost Services, Room 2149, McGraw-Hill Information Systems Co., 1221 Avenue of the Americas, New York, N.Y. 10020. To order, send \$14.95 plus your local or state tax where applicable. If you wish to be billed, there will be a \$1 charge.

Before you use the tables, you should know that:

1. Labor costs are based on union scale and are typical of large jobs where supervision is poorer and productivity therefore lower than on most smaller jobs.
2. For jobs done by mechanical and electrical trades, the labor costs include an extra 30% to cover small tools, insurance and taxes.
3. Lumber-cost figures are higher than reported by roughly 10% for plywood and 25% to 30% for framing lumber. The reason: Lumber costs in the manual were estimates based on September 1972 prices, and as everyone knows, actual price increases have far outstripped most predictions. Also, lumber prices—as well as prices of many other products and materials—vary somewhat with the season and the quantity of purchase.
4. There are some unfamiliar abbreviations in the tables. These include the following: CP (carpenter), RF (roofer), WP (waterproofer), BL (bricklayer), LA (laborer), SI (structural ironworker), EO (equipment operator), SM (sheetmetal worker), TS (tilesetter), CM (cement mason), PA (painter), LH (lather).

ADJUSTMENT FACTORS: A CITY-BY-CITY COMPARISON

City	General Adjustment			Architectural and Structural Work			Plumbing Work			H.V.A.C. Work			Electrical Work		
	Mat'l	Lab.	Tot.	Mat'l	Lab.	Tot.	Mat'l	Lab.	Tot.	Mat'l	Lab.	Tot.	Mat'l	Lab.	Tot.
Albany, N.Y.	1.07	0.95	1.02	1.08	0.99	1.03	1.08	0.91	1.03	1.03	0.92	0.99	1.05	0.93	0.99
Albuquerque, N.M.	0.99	0.83	0.91	0.99	0.76	0.87	0.95	0.94	0.93	1.03	0.91	0.97	1.00	0.83	0.91
Anchorage, Alaska	1.10	1.28	1.18	1.12	1.26	1.19	1.10	1.34	1.20	1.10	1.29	1.15	1.07	1.26	1.16
Atlanta, Ga.	1.02	0.89	0.96	0.99	0.88	0.93	1.03	0.86	0.96	1.03	0.87	0.97	1.07	0.98	1.01
Austin, Tex.	0.96	0.76	0.87	0.95	0.73	0.84	0.91	0.79	0.86	0.99	0.78	0.92	1.02	0.80	0.90
Baltimore, Md.	1.02	0.95	0.99	1.01	0.95	0.98	1.03	0.95	1.00	1.00	0.96	0.99	1.04	0.94	0.98
Birmingham, Ala.	0.97	0.78	0.88	0.93	0.74	0.83	0.98	0.86	0.95	0.96	0.85	0.93	1.06	0.77	0.91
Bismark, N.D.	1.00	0.78	0.90	0.98	0.71	0.83	1.03	0.77	0.94	1.01	0.79	0.94	1.01	0.94	0.98
Boise, Idaho	0.99	0.82	0.91	1.02	0.86	0.93	0.99	0.78	0.93	1.01	0.80	0.95	0.92	0.79	0.84
Boston, Mass	1.06	1.04	1.05	1.07	1.03	1.05	1.06	1.04	1.05	1.03	1.02	1.02	1.05	1.06	1.06
Bridgeport, Conn.	1.07	0.97	1.02	1.08	1.00	1.04	1.09	0.98	1.06	1.03	0.97	1.00	1.08	0.88	0.97
Buffalo, N.Y.	1.07	1.07	1.06	1.10	1.10	1.09	1.14	1.02	1.05	1.14	1.03	1.08	0.90	1.06	0.98
Camden, N.J.	1.03	1.06	1.05	1.01	1.07	1.04	1.06	1.05	1.06	1.00	1.07	1.03	1.05	1.05	1.05
Charleston, W.Va.	1.06	0.93	0.99	1.08	0.94	1.00	1.12	0.92	1.01	1.13	0.93	1.06	0.89	0.92	0.89
Charlotte, N.C.	0.99	0.65	0.83	0.98	0.64	0.80	1.00	0.69	0.88	1.03	0.69	0.92	0.99	0.60	0.78
Chattanooga, Tenn.	1.00	0.80	0.90	0.98	0.77	0.87	1.01	0.84	0.94	1.03	0.86	0.98	1.00	0.81	0.90
Cheyenne, Wyo.	1.00	0.82	0.92	1.00	0.80	0.90	0.96	0.81	0.90	1.03	0.84	0.97	1.05	0.85	0.94
Chicago, Ill.	1.03	1.01	1.03	1.01	1.04	1.03	1.06	0.92	1.02	1.01	0.94	0.99	1.06	1.05	1.06
Cincinnati, Ohio	1.00	1.03	1.02	0.98	1.08	1.03	1.01	1.02	1.02	1.00	1.00	1.00	1.03	0.97	1.00
Cleveland, Ohio	1.01	1.13	1.07	0.98	1.18	1.09	1.04	1.09	1.07	0.99	1.09	1.02	1.08	1.09	1.08
Columbus, Ohio	1.01	1.03	1.01	0.98	0.99	0.98	1.04	1.16	1.09	0.99	1.09	1.01	1.05	0.97	1.01
Dallas, Tex.	0.97	0.86	0.92	0.95	0.85	0.91	0.93	0.89	0.91	0.99	0.88	0.95	1.06	0.84	0.94
Denver, Colo.	1.01	0.88	0.95	1.00	0.89	0.95	0.97	0.89	0.93	1.03	0.89	0.97	1.06	0.85	0.95
Des Moines, Iowa	1.03	0.86	0.95	1.06	0.83	0.94	0.99	0.88	0.95	1.02	0.88	0.96	1.01	0.90	0.95
Detroit, Mich.	0.99	1.13	1.06	0.94	1.15	1.05	1.04	1.11	1.06	0.99	1.11	1.04	1.09	1.12	1.11
El Paso, Tex.	0.96	0.68	0.82	0.95	0.64	0.79	0.91	0.70	0.83	0.99	0.73	0.91	1.00	0.69	0.83
Evansville, Ind.	1.00	0.88	0.94	0.98	0.87	0.92	1.02	0.93	0.99	1.00	0.91	0.97	1.04	0.84	0.94
Harrisburg, Pa.	1.03	0.91	0.97	1.01	0.88	0.94	1.06	0.96	1.03	1.00	0.93	0.97	1.04	0.92	0.98
Hartford, Conn.	1.04	1.00	1.02	1.06	1.00	1.03	1.04	1.01	1.02	1.03	0.99	1.00	0.98	0.99	1.00
Honolulu, Hawaii	1.08	0.91	1.00	1.05	0.84	0.94	1.04	0.93	1.00	1.06	0.96	1.04	1.20	1.01	1.09
Houston, Tex.	0.97	0.83	0.90	0.95	0.80	0.88	0.92	0.86	0.89	0.99	0.86	0.94	1.05	0.85	0.94
Indianapolis, Ind.	1.00	0.88	0.94	0.98	0.92	0.95	1.01	0.88	0.98	1.00	0.89	0.97	1.04	0.76	0.89
Jackson, Miss.	0.90	0.71	0.82	0.83	0.67	0.75	0.96	0.78	0.90	0.92	0.74	0.89	0.97	0.70	0.84
Jacksonville, Fla.	1.01	0.84	0.92	0.98	0.81	0.90	1.02	0.91	0.97	1.03	0.86	0.96	1.04	0.81	0.91
Kansas City, Kans.	1.04	0.98	1.01	1.06	0.99	1.03	1.00	0.97	0.99	1.02	0.97	0.99	1.02	0.97	0.99
Lansing, Mich.	0.99	1.00	1.00	0.93	1.03	0.98	1.03	0.97	1.01	0.99	0.98	1.00	1.07	0.96	1.01
Las Vegas, Nev.	1.13	1.03	1.05	1.00	0.96	0.98	1.58	1.15	1.22	1.03	1.10	1.03	1.05	1.05	1.05
Little Rock, Ark.	0.91	0.72	0.83	0.83	0.69	0.76	0.98	0.77	0.91	0.92	0.77	0.91	1.00	0.70	0.85
Los Angeles, Calif.	1.00	1.13	1.05	0.97	1.08	1.03	0.99	1.19	1.06	1.01	1.16	1.04	1.06	1.15	1.11
Louisville, Ky.	1.00	0.94	0.97	0.98	0.90	0.93	1.02	0.98	1.02	1.00	0.99	0.99	1.04	0.97	1.01
Madison, Wis.	1.01	0.89	0.96	1.01	0.89	0.94	1.04	0.89	0.99	1.01	0.90	0.98	1.00	0.91	0.96

ADJUSTMENT FACTORS: A CITY-BY-CITY COMPARISON

City	General Adjustment			Architectural and Structural Work			Plumbing Work			H.V.A.C. Work			Electrical Work		
	Mat'l	Lab.	Tot.	Mat'l	Lab.	Tot.	Mat'l	Lab.	Tot.	Mat'l	Lab.	Tot.	Mat'l	Lab.	Tot.
Manchester, N.H.	1.03	0.88	0.96	1.06	0.85	0.95	1.03	0.91	0.98	1.03	0.91	0.98	0.96	0.89	0.94
Memphis, Tenn.	0.99	0.79	0.89	0.99	0.77	0.88	0.94	0.83	0.90	1.00	0.85	0.95	1.02	0.77	0.89
Miami, Fla.	1.01	1.01	1.01	0.98	0.99	0.98	1.02	1.05	1.02	1.03	1.06	1.03	1.05	1.00	1.02
Milwaukee, Wis.	1.02	0.98	1.01	1.01	0.99	1.00	1.05	0.94	1.01	1.01	0.94	0.99	1.01	1.03	1.03
Minneapolis, Minn.	1.01	0.95	0.99	0.98	0.95	0.96	1.04	0.93	1.01	1.01	0.95	0.99	1.07	0.97	1.01
Mobile, Ala.	0.97	0.83	0.91	0.93	0.79	0.86	0.97	0.87	0.95	0.96	0.86	0.93	1.06	0.84	0.95
Nashville, Tenn.	0.96	0.77	0.87	0.93	0.75	0.83	0.96	0.82	0.92	0.96	0.82	0.92	1.02	0.72	0.87
Nassau-Suffolk, N.Y.	1.08	1.14	1.11	1.08	1.20	1.14	1.10	1.13	1.11	1.03	1.13	1.05	1.09	1.01	1.05
Newark, N.J.	1.08	1.11	1.09	1.08	1.14	1.11	1.09	1.12	1.11	1.03	1.04	1.01	1.10	1.10	1.10
New Orleans, La.	0.91	0.83	0.88	0.83	0.81	0.82	0.99	0.86	0.94	0.92	0.86	0.93	1.01	0.84	0.93
New York, N.Y.	1.08	1.23	1.15	1.08	1.23	1.16	1.10	1.20	1.14	1.03	1.19	1.08	1.11	1.27	1.19
Norfolk, Va.	1.00	0.69	0.86	1.01	0.66	0.83	1.01	0.70	0.90	1.00	0.71	0.92	0.98	0.73	0.85
Oklahoma City, Okla.	0.95	0.82	0.89	0.94	0.78	0.86	0.90	0.83	0.87	0.99	0.84	0.94	0.98	0.87	0.92
Omaha, Nebr.	1.03	0.89	0.96	1.06	0.80	0.93	1.00	0.99	1.00	1.02	0.95	0.98	1.02	0.95	0.98
Philadelphia, Pa.	1.03	1.10	1.07	1.01	1.11	1.07	1.06	1.09	1.08	1.00	1.10	1.03	1.06	1.06	1.07
Phoenix, Ariz.	1.01	0.97	0.99	1.00	0.97	0.99	0.97	0.95	0.95	1.03	0.96	1.00	1.06	0.99	1.02
Pittsburgh, Pa.	1.08	1.05	1.06	1.09	1.06	1.07	1.13	1.01	1.04	1.14	1.04	1.09	0.93	1.09	1.01
Portland, Me.	1.04	0.70	0.88	1.06	0.69	0.86	1.05	0.73	0.93	1.03	0.69	0.92	1.00	0.71	0.86
Portland, Ore.	1.01	0.93	0.97	1.02	0.95	0.98	1.01	0.92	0.99	1.01	0.90	0.97	0.97	0.92	0.93
Providence, R.I.	1.04	0.96	1.00	1.06	0.98	1.02	1.05	0.99	1.02	1.03	0.99	1.01	1.00	0.85	0.93
Richmond, Va.	1.01	0.70	0.87	1.01	0.65	0.82	1.02	0.75	0.92	1.00	0.75	0.93	1.00	0.75	0.86
Rochester, N.Y.	1.09	1.05	1.06	1.10	1.05	1.07	1.14	1.05	1.07	1.14	1.04	1.08	0.97	1.04	1.00
St. Louis, Mo.	0.99	1.04	1.00	0.99	1.01	1.00	0.95	1.05	0.98	1.00	1.14	1.02	1.02	1.03	1.03
Salt Lake City, Utah	1.00	0.87	0.94	1.00	0.84	0.92	0.95	0.86	0.91	1.03	0.86	0.97	1.02	0.96	0.99
San Diego, Calif.	0.99	1.01	0.99	0.97	0.97	0.97	0.98	1.10	1.02	1.01	1.08	1.02	1.02	0.98	1.00
San Francisco, Calif.	0.97	1.08	1.02	0.95	1.09	1.02	0.94	1.06	0.98	0.96	1.06	1.00	1.08	1.09	1.08
Savannah, Ga.	1.00	0.76	0.88	0.98	0.66	0.82	1.01	0.84	0.94	1.03	0.78	0.94	1.03	0.88	0.95
Seattle, Wash.	1.01	0.91	0.96	1.02	0.90	0.96	1.01	0.97	1.01	1.01	0.94	0.98	0.98	0.88	0.91
Shreveport, La.	0.91	0.75	0.85	0.83	0.73	0.78	0.98	0.80	0.92	0.92	0.80	0.92	1.00	0.74	0.87
Sioux Falls, S.D.	1.00	0.80	0.91	0.98	0.77	0.87	1.03	0.78	0.95	1.01	0.81	0.95	1.02	0.86	0.94
Spokane, Wash.	1.00	0.90	0.95	1.02	0.88	0.95	1.00	0.98	1.00	1.01	0.93	0.97	0.94	0.84	0.87
Springfield, Ill.	0.99	0.88	0.94	0.99	0.91	0.95	0.94	0.84	0.91	1.00	0.86	0.96	1.01	0.84	0.92
Springfield, Mass.	1.05	0.97	1.01	1.07	0.98	1.02	1.05	0.95	1.01	1.03	0.98	1.01	1.03	0.96	1.00
Syracuse, N.Y.	1.06	0.99	1.03	1.08	1.01	1.04	1.07	0.95	1.03	1.03	0.95	1.00	1.03	1.01	1.02
Tampa, Fla.	1.01	0.87	0.94	0.98	0.84	0.91	1.02	0.92	0.97	1.03	0.88	0.97	1.04	0.89	0.96
Topeka, Kans.	1.04	0.85	0.94	1.06	0.88	0.96	1.00	0.91	0.97	1.02	0.86	0.96	1.03	0.73	0.86
Trenton, N.J.	1.08	1.08	1.08	1.08	1.06	1.07	1.09	1.07	1.08	1.03	1.04	1.02	1.09	1.18	1.13
Washington, D.C.	1.02	0.98	1.00	1.01	0.98	0.99	1.02	0.97	1.01	1.00	0.98	1.01	1.03	0.98	1.00
Wichita, Kans.	1.03	0.91	0.97	1.06	0.85	0.95	0.99	0.95	0.98	1.02	0.96	0.99	1.03	0.98	0.99
Wilmington, Del.	1.03	0.97	1.01	1.01	1.01	1.01	1.06	0.94	1.03	1.00	0.94	0.98	1.06	0.92	0.99
Youngstown, Ohio	1.00	0.98	1.00	0.98	0.97	0.97	1.03	0.98	1.02	0.99	0.99	1.00	1.03	1.00	1.02

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT		UNIT COSTS			
	Crew	Per Day	Unit	Material	Labor	Total
PRELIMINARY REQUIREMENTS						
TOOLS AND EQUIPMENT						
Generators, 115 volt 60 cycle with 100' of cable-weekly			EACH	27.00		27.00
add \$12.00 for delivery & pick up						
Heaters, 160,000 btu-weekly			EACH	29.00		29.00
Stud drivers, 3/8" barrel-weekly			EACH	17.00		17.00
Tampers, compactors 2500 blows/min.-weekly			EACH	46.00		46.00
Trowels, 4 blade-39" diameter-weekly			EACH	46.00		46.00
Vibrators, 230 volt 180 cycle 3 phase-weekly			EACH	23.00		23.00
TEMPORARY FACILITIES						
Office trailer, w/2 month minimum rental						
8'x20'			MONTH	50.00		50.00
8'x25'			MONTH	60.00		60.00
8'x35'			MONTH	90.00		90.00
10'x40'			MONTH	120.00		120.00
10'x46'			MONTH	130.00		130.00
Portable sanitation units, monthly rental includes delivery, maintenance & removal.			EACH	32.00		32.00
INSURANCE						
Workman's compensation & employers liability (300,000/500,000)						
carpentry	6.75 % labor cost					
masonry	5.45 % labor cost					
concrete	6.47 % labor cost					
cement work	4.31 % labor cost					
excavation	9.38 % labor cost					
plastering	3.39 % labor cost					
supervision	2.37 % labor cost					
clerical	0.13 % labor cost					
executive officers	1.00 % labor cost					
Public damage-300,000/500,000						
carpentry	0.63 % labor cost					
masonry	0.38 % labor cost					
concrete	0.57 % labor cost					
cement work	0.57 % labor cost					
excavation	0.50 % labor cost					
plastering	1.65 % labor cost					
supervision	0.18 % labor cost					
executive officers	0.18 % labor cost					
EARTHWORK						
SITE GRADING						
Earth excavation; average soil on minimum of 5 acre site; equipment shown as material cost						
Balanced cut and fill, w/ max haul of 500' front end loader						
1 cy	1 LA, 1 EO	350	CU YD	0.64	0.44	1.08
2 cy	1 LA, 1 EO	400	CU YD	0.53	0.38	0.91
3 cy	1 LA, 1 EO	520	CU YD	0.41	0.29	0.70
rubber tired scraper						
10 cy	1 LA, 1 EO	720	CU YD	0.36	0.21	0.57
15 cy	1 LA, 1 EO	1000	CU YD	0.27	0.15	0.42

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
SITE GRADING continued						
Balanced cut and fill, w/ 1000' haul rubber tired scraper only						
10 cy	1 LA, 1 EO	600	CU YD	0.55	0.25	0.80
15 cy	1 LA, 1 EO	850	CU YD	0.38	0.18	0.56
20 cy	1 LA, 1 EO	1050	CU YD	0.29	0.14	0.43
scraper with dozer pushing						
10 cy	1 LA, 1 EO	550	CU YD	0.62	0.28	0.90
15 cy	1 LA, 1 EO	800	CU YD	0.45	0.19	0.64
20 cy	1 LA, 1 EO	975	CU YD	0.36	0.15	0.51
tractor scraper only						
10 cy	1 LA, 1 EO	430	CU YD	0.75	0.36	1.11
15 cy	1 LA, 1 EO	600	CU YD	0.58	0.25	0.83
20 cy	1 LA, 1 EO	780	CU YD	0.46	0.19	0.65
Cut and load on trucks with loader; hauling not included. Open site						
1 cy loader (earth)	1 LA, 1 EO	650	CU YD	0.44	0.23	0.67
2 cy loader (earth)	1 LA, 1 EO	1100	CU YD	0.30	0.14	0.44
3 cy loader (earth)	1 LA, 1 EO	1500	CU YD	0.21	0.10	0.31
1 cy loader (clay)	1 LA, 1 EO	450	CU YD	0.68	0.34	1.02
2 cy loader (clay)	1 LA, 1 EO	620	CU YD	0.51	0.25	0.76
3 cy loader (clay)	1 LA, 1 EO	800	CU YD	0.38	0.19	0.57
with power shovel						
3/4 cy shovel (clay)	1 LA, 2 EO	450	CU YD	0.67	0.53	1.20
1 cy shovel (clay)	1 LA, 2 EO	550	CU YD	0.52	0.44	0.96
2 cy shovel (clay)	1 LA, 2 EO	850	CU YD	0.40	0.28	0.68
3/4 cy shovel (hard pan)	1 LA, 2 EO	300	CU YD	0.85	0.80	1.65
1 cy shovel (hard pan)	1 LA, 2 EO	450	CU YD	0.68	0.53	1.21
Less than 5 acre sites, add						
3-5 acres		25% to labor & mat'l				
1-3 acres		50% to labor & mat'l				
less than 1 acre		100% to labor & mat'l				
Highway congestion or road crossings, add 50% to labor & mat'l						
Site grading, overall grading to approx. grade with cut & fill limited to 6" uncongested.						
less than 1 acre	1 LA, 1 EO	800	SQ YD	0.12	0.19	0.31
1-5 acres	1 LA, 1 EO	1000	SQ YD	0.10	0.15	0.25
over 5 acres	1 LA, 1 EO	1200	SQ YD	0.08	0.12	0.20
moderate congestion, add 50% to labor & mat'l						
heavy congestion, add 100% to labor & mat'l						
Truck hauling, including loading time.						
1 mile round trip						
5 cy	1 TM	150	CU YD	0.45	0.44	0.89
8 cy	1 TM	200	CU YD	0.41	0.33	0.74
12 cy	1 TM	280	CU YD	0.35	0.23	0.58
3 mile round trip						
5 cy	1 TM	100	CU YD	0.66	0.66	1.32
8 cy	1 TM	135	CU YD	0.58	0.49	1.07
12 cy	1 TM	200	CU YD	0.48	0.33	0.81
6 mile round trip						
5 cy	1 TM	75.0	CU YD	0.81	0.88	1.69
8 cy	1 TM	110	CU YD	0.72	0.60	1.32
12 cy	1 TM	150	CU YD	0.58	0.44	1.02
heavy traffic, add 50%-100%						
off site disposal, add dump charges.						
BUILDING EXCAVATION						
Basement excavation, machine work only, no shoring, pumping or lay-out excavation						
loaded on trucks; hauling not included						

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT		UNIT COSTS			
	Crew	Per Day	Unit	Material	Labor	Total
front end loader, 1 cy earth	1 LA, 1 EO	400	CU YD	0.61	0.38	0.99
clay	1 LA, 1 EO	300	CU YD	0.85	0.51	1.36
hard pan	1 LA, 1 EO	200	CU YD	1.30	0.77	2.07
front end loader, 2 cy earth	1 LA, 1 EO	600	CU YD	0.42	0.25	0.67
clay	1 LA, 1 EO	450	CU YD	0.55	0.34	0.89
hard pan	1 LA, 1 EO	300	CU YD	0.84	0.51	1.35
power shovel, 1 cy earth	1 LA, 1 EO	500	CU YD	0.49	0.31	0.80
clay	1 LA, 1 EO	370	CU YD	0.66	0.41	1.07
hard pan	1 LA, 1 EO	260	CU YD	0.94	0.59	1.53
power shovel, 2 cy earth	1 LA, 1 EO	750	CU YD	0.35	0.20	0.55
clay	1 LA, 1 EO	560	CU YD	0.42	0.27	0.69
hard pan	1 LA, 1 EO	390	CU YD	0.62	0.39	1.01
Trench or pier excavation, w/backhoe. Earth piled adjacent to excavation; no sheeting or pumping						
to 4' deep						
1/2 cy	1 LA, 1 EO	100	CU YD	1.50	1.54	3.04
3/4 cy	1 LA, 1 EO	140	CU YD	1.15	1.10	2.25
1 cy	1 LA, 1 EO	170	CU YD	0.80	0.91	1.71
4' to 10' deep						
1/2 cy	1 LA, 1 EO	80.0	CU YD	1.80	1.93	3.73
3/4 cy	1 LA, 1 EO	115	CU YD	1.40	1.34	2.74
1 cy	1 LA, 1 EO	140	CU YD	1.15	1.10	2.25
for clay, add 50% to labor & mat'l for hardpan, add 100% to labor & mat'l						
CAST-IN-PLACE CONCRETE						
Cast-in-place concrete, placing costs only. Material cost is for placing equipment						
footings, under good conditions						
20 to 50 cu yds	5 LA, 1 CM	40.0	CU YD	0.50	10.52	11.02
over 50 cu yds	7 LA, 1 CM	70.0	CU YD	0.40	7.93	8.33
footings, under difficult conditions						
20 to 50 cu yds	6 LA, 1 CM	25.0	CU YD	6.00	19.52	25.52
walls, good conditions	5 LA, 1 CM	35.0	CU YD	0.60	12.02	12.62
difficult conditions	6 LA, 1 CM	25.0	CU YD	6.00	19.52	25.52
Slabs with float finish, on grade above grade	6 LA, 2 CM	50.0	CU YD	0.20	11.46	11.66
	6 LA, 2 CM	50.0	CU YD	4.00	11.46	15.46
columns and beams	6 LA, 1 CM	30.0	CU YD	6.00	16.27	22.27
Winter cast-in-place extra costs						
material cost add			CU YD	0.50		0.50
labor cost add 10%						
finishing costs add 20% heat and protect	1 LA	50.0	CU YD	1.00	1.34	2.34
UNIT MASONRY						
BRICK MASONRY						
Masonry prices are for all labor and material including hoisting, scaffolding, and cleaning for straight walls. Productivity shown is based on average output. Since wide variations can occur, estimator should adjust for actual production.						
Common brick, red clay						
4" back up	4 BL, 2 LA	2.0	M	95.00	246.80	341.80
8" back up	4 BL, 2 LA	2.1	M	97.00	235.04	332.04
12" wall struck joints	4 BL, 2 LA	2.2	M	98.00	224.36	322.36
16" wall struck joints	4 BL, 2 LA	2.3	M	98.00	214.60	312.60
4" wall used as face brick	4 BL, 2 LA	1.6	M	96.00	308.50	404.50

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
BRICK MASONRY continued						
Face brick, red clay, standard size running bond, 4" veneer	4 BL, 2 LA	1.5	M	135.00	329.06	464.06
4" cavity wall	4 BL, 2 LA	1.5	M	136.00	329.06	465.06
9" solid wall	4 BL, 2 LA	1.6	M	140.00	308.50	448.50
special bonds, 4" veneer full headers every 6th course	4 BL, 2 LA	1.4	M	138.00	352.57	490.57
snap headers every 6th course	4 BL, 2 LA	1.4	M	143.00	352.57	495.57
Flemish, full header at 6th course	4 BL, 2 LA	1.4	M	137.00	352.57	489.57
Face brick, standard size, special types glazed brick, 4" veneer	4 BL, 2 LA	1.4	M	185.00	352.57	537.57
sand-line brick, 4" veneer	4 BL, 2 LA	1.5	M	130.00	329.06	459.06
scantled brick-moderate	4 BL, 2 LA	1.2	M	145.00	411.33	556.33
Face brick, special sizes, 4" veneer jumbo	4 BL, 2 LA	1.4	M	175.00	352.57	527.57
Norman	4 BL, 2 LA	1.5	M	235.00	329.06	564.06
Roman	4 BL, 2 LA	1.4	M	250.00	352.57	602.57
Face brick, pre-fabricated panels of standard brick & epoxy mortar; costs include hoisting						
4" panel, running bond	4 BL, 1 LA	1.6	M	210.00	266.55	476.55
4" panel, Flemish bond	4 BL, 1 LA	1.3	M	240.00	328.06	568.06
Brick paving, hard red brick standard size laid with mortar joint on prepared concrete bed. Concrete not included.						
common bond	2 BL, 1 LA	170	SQ FT	1.02	1.45	
basket weave	2 BL, 1 LA	100	SQ FT	1.12	2.46	3.58
herringbone	2 BL, 1 LA	65.0	SQ FT	1.16	3.79	4.95
Brick steps, treads and risers on concrete common or stacked laid flat	2 BL, 1 LA	80.0	SQ FT	1.20	3.08	4.28
common or stacked laid on edge	2 BL, 1 LA	60.0	SQ FT	1.62	4.11	5.73
CONCRETE UNIT MASONRY						
Block back-up hollow cinder block, 8"x16" 2" furring "soap"	2 BL, 1 LA	300	SQ FT	0.26	0.82	1.08
3" furring "soap"	2 BL, 1 LA	280	SQ FT	0.29	0.88	1.17
4" block back-up	2 BL, 1 LA	260	SQ FT	0.33	0.95	1.28
6" block back-up	2 BL, 1 LA	230	SQ FT	0.38	1.07	1.45
8" block back-up	2 BL, 1 LA	200	SQ FT	0.44	1.23	1.67
10" block back-up	2 BL, 1 LA	170	SQ FT	0.52	1.45	1.97
12" block back-up	2 BL, 1 LA	140	SQ FT	0.62	1.76	2.38
Block back-up, concrete load bearing, 75% solid 2" furring "soap"	2 BL, 1 LA	295	SQ FT	0.28	0.83	1.11
3" furring "soap"	2 BL, 1 LA	275	SQ FT	0.32	0.89	1.21
4" block back-up	2 BL, 1 LA	255	SQ FT	0.37	0.96	1.33
6" block back-up	2 BL, 1 LA	225	SQ FT	0.43	1.09	1.52
8" block back-up	2 BL, 1 LA	195	SQ FT	0.49	1.26	1.75
Block foundation walls, cinder block, 8"x16" 8" hollow load bearing	2 BL, 1 LA	200	SQ FT	0.50	1.23	1.73
8" full solid	2 BL, 1 LA	180	SQ FT	0.60	1.37	1.97
12" hollow load bearing	2 BL, 1 LA	135	SQ FT	0.72	1.82	2.54
MISCELLANEOUS METAL						
FIREPLACE ACCESSORIES						
Clean-out doors and frames, cast iron 8"x8"	2 SI	50.0	EACH	12.30	3.64	15.94
12"x12"	2 SI	40.0	EACH	15.40	4.55	19.95
18"x18"	2 SI	33.0	EACH	18.50	5.51	24.01
20"x24"	2 SI	27.0	EACH	32.15	6.74	38.89
24"x30"	2 SI	22.0	EACH	45.10	8.27	53.37
Chimney screens, galvanized 8"x8" flue	2 SI	50.0	EACH	5.10	3.64	8.74
13"x13" flue	2 SI	40.0	EACH	12.40	4.55	16.95
24"x24" flue	2 SI	25.0	EACH	30.45	7.28	37.73

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT		UNIT COSTS			
	Crew	Per Day	Unit	Material	Labor	Total
ROUGH CARPENTRY						
DECKING						
3" cedar plank	1 CP	150	SQ FT	1.00	0.58	1.58
4" cedar plank	1 CP	125	SQ FT	1.20	0.70	1.90
3" white fir plank	1 CP	150	SQ FT	0.90	0.58	1.48
4" white fir plank	1 CP	125	SQ FT	1.10	0.70	1.80
3" laminated plank	1 CP	150	SQ FT	0.80	0.58	1.38
4" laminated plank	1 CP	125	SQ FT	1.00	0.70	1.70
Floor planks t&g (fir)						
2"x6"	1 CP	500	BD FT	0.25	0.17	0.42
2"x10"	1 CP	600	BD FT	0.25	0.14	0.39
3"x6"	1 CP	600	BD FT	0.28	0.14	0.42
LIGHT FRAMING						
Girders						
10"x16"	1 CP	850	BD FT	0.30	0.10	0.40
12"x12"	1 CP	800	BD FT	0.29	0.11	0.40
Headers						
2"x8"	1 CP	230	BD FT	0.17	0.38	0.55
2"x10"	1 CP	260	BD FT	0.17	0.33	0.50
Joists						
2"x6"	1 CP	350	BD FT	0.17	0.25	0.42
2"x8"	1 CP	360	BD FT	0.17	0.24	0.41
2"x10"	1 CP	380	BD FT	0.17	0.23	0.40
2"x12"	1 CP	400	BD FT	0.18	0.21	0.39
Plates						
2"x4"	1 CP	200	BD FT	0.17	0.43	0.60
2"x6"	1 CP	250	BD FT	0.17	0.35	0.52
Post & girders						
4"x4"	1 CP	350	BD FT	0.18	0.25	0.43
4"x6"	1 CP	390	BD FT	0.19	0.22	0.41
Rafters						
2"x6"	1 CP	340	BD FT	0.17	0.25	0.42
2"x8"	1 CP	355	BD FT	0.17	0.24	0.41
2"x10"	1 CP	370	BD FT	0.17	0.23	0.40
Rafters hip & valley	1 CP	300	BD FT	0.18	0.29	0.47
Roof cants						
4"x4"	1 CP	350	LN FT	0.24	0.25	0.49
6"x6"	1 CP	300	LN FT	0.36	0.29	0.65
Roof curbs						
2"x6"	1 CP	210	BD FT	0.17	0.41	0.58
2"x8"	1 CP	230	BD FT	0.17	0.38	0.55
2"x10"	1 CP	260	BD FT	0.18	0.33	0.51
Rough stair stringers						
2"x8"	1 CP	100	BD FT	0.17	0.87	1.04
2"x10"	1 CP	120	BD FT	0.17	0.73	0.90
2"x12"	1 CP	140	BD FT	0.18	0.62	0.80
Rough bucks-doors						
2"x6"	1 CP	200	BD FT	0.18	0.43	0.61
2"x8"	1 CP	250	BD FT	0.18	0.35	0.53
2"x10"	1 CP	300	BD FT	0.19	0.29	0.48
Rough bucks-windows						
2"x6"	1 CP	200	BD FT	0.18	0.43	0.61
2"x8"	1 CP	250	BD FT	0.18	0.35	0.53
2"x10"	1 CP	300	BD FT	0.19	0.29	0.48
Sills & plates						
4"x6"	1 CP	350	BD FT	0.19	0.25	0.44
Sleepers (treated)						
2"x4"	1 CP	200	BD FT	0.24	0.43	0.67

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
LIGHT FRAMING continued						
2" x 6"	1 CP	280	BD FT	0.24	0.31	0.55
2" x 8"	1 CP	360	BD FT	0.24	0.24	0.48
Studs						
2" x 4"	1 CP	335	BD FT	0.17	0.26	0.43
2" x 6"	1 CP	435	BD FT	0.17	0.20	0.37
2" x 8"	1 CP	470	BD FT	0.17	0.18	0.35
Wood firestops						
2" x 8"	1 CP	280	BD FT	0.18	0.31	0.49
2" x 10"	1 CP	310	BD FT	0.18	0.28	0.46
2" x 12"	1 CP	340	BD FT	0.19	0.25	0.44
SHEATHING						
Sheathing walls						
3/8" plyscore	1 CP	560	SQ FT	0.18	0.15	0.33
1/2" plyscore	1 CP	535	SQ FT	0.22	0.16	0.38
5/8" plyscore	1 CP	500	SQ FT	0.24	0.17	0.41
fiber board-insulated	1 CP	470	SQ FT	0.19	0.18	0.37
1" x 8" t&g	1 CP	450	MF BM	0.17	0.19	0.36
Sheathing roof						
1" x 8" boards	1 CP	440	MF BM	0.17	0.19	0.36
1/2" plyscore	1 CP	500	SQ FT	0.22	0.17	0.39
5/8" plyscore	1 CP	480	SQ FT	0.24	0.18	0.42
3/4" plyscore	1 CP	440	SQ FT	0.26	0.19	0.45
SUBFLOORING						
Subfloor						
1/2" plyscore	1 CP	630	SQ FT	0.22	0.13	0.35
5/8" plyscore	1 CP	600	SQ FT	0.24	0.14	0.38
3/8" particle board	1 CP	550	SQ FT	0.08	0.16	0.24
5/8" particle board	1 CP	520	SQ FT	0.10	0.16	0.26
3/8" wood fiber board	1 CP	550	SQ FT	0.10	0.16	0.26
5/8" wood fiber board	1 CP	520	SQ FT	0.15	0.16	0.31
FINISH CARPENTRY						
WOOD TRIM						
Moldings & trim						
casing door or window-2 1/2" pine	1 CP	240	LN FT	0.16	0.36	0.52
-3 1/2" pine	1 CP	220	LN FT	0.20	0.39	0.59
-2 1/2" oak	1 CP	180	LN FT	0.32	0.48	0.80
chair rail-2 1/2" pine	1 CP	240	LN FT	0.26	0.36	0.62
-2 1/2" oak	1 CP	180	LN FT	0.55	0.48	1.03
cove molding-1"	1 CP	300	LN FT	0.10	0.29	0.39
-2"	1 CP	300	LN FT	0.15	0.29	0.44
-3"	1 CP	280	LN FT	0.20	0.31	0.51
cornice-1" x 2" pine plain	1 CP	240	LN FT	0.10	0.36	0.46
-1" x 4" pine plain	1 CP	230	LN FT	0.18	0.38	0.56
-1" x 6" pine plain	1 CP	220	LN FT	0.30	0.39	0.69
-1" x 8" pine plain	1 CP	210	LN FT	0.38	0.41	0.79
-1" x 10" pine plain	1 CP	200	LN FT	0.45	0.43	0.88
-1" x 12" pine plain	1 CP	200	LN FT	0.54	0.43	0.97
picture molding-3/4" x 1 5/8" pine	1 CP	180	LN FT	0.22	0.48	0.70
-3/4" x 1 5/8" oak	1 CP	120	LN FT	0.45	0.73	1.18
shoe molding-3/4" pine	1 CP	300	LN FT	0.12	0.29	0.41
-3/4" oak	1 CP	240	LN FT	0.21	0.36	0.57
base board-1" x 4" pine plain	1 CP	200	LN FT	0.18	0.43	0.61
-1" x 6" pine plain	1 CP	180	LN FT	0.30	0.48	0.78
-1" x 4" pine molded	1 CP	175	LN FT	0.32	0.50	0.82
-1" x 6" pine molded	1 CP	145	LN FT	0.50	0.60	1.10
-1" x 4" oak plain	1 CP	140	LN FT	0.34	0.62	0.96

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
MILLWORK						
Cabinets						
hardwood-prefinished base						
kitchen-no counter top-24" deep, 35" high	1 CP	18.0	LN FT	30.00	4.86	34.86
wall-12" deep, 30" high	1 CP	24.0	LN FT	20.00	3.64	23.64
drawers for base units	1 CP	10.0	EACH	16.00	8.75	24.75
corner base unit	1 CP	8.0	EACH	65.00	10.94	75.94
corner base unit w/lazy susan	1 CP	8.0	EACH	90.00	10.94	100.94
84" broom closet	1 CP	12.0	LN FT	60.00	7.29	67.29
corner china cabinet-unfinished pine	1 CP	3.0	EACH	125.00	29.17	154.17
vanity base cabinet						
30" high w/drawer & door	1 CP	6.0	LN FT	25.00	14.58	39.58
w/door only	1 CP	6.0	LN FT	15.00	14.58	29.58
Beams & columns						
hand hewn pine-4"x6"	1 CP	80.0	LN FT	1.30	1.09	2.39
-6"x8"	1 CP	80.0	LN FT	2.25	1.09	3.34
-8"x8"	1 CP	70.0	LN FT	3.00	1.25	4.25
-6"x10"	1 CP	75.0	LN FT	2.65	1.16	3.81
-6"x12"	1 CP	75.0	LN FT	3.25	1.16	4.41
simulated hand hewn beam-2"x6"	1 CP	110	LN FT	1.50	0.79	2.29
-4"x6"	1 CP	100	LN FT	1.65	0.87	2.52
rough sawn cedar-4"x4"	1 CP	80.0	LN FT	0.55	1.09	1.64
-4"x6"	1 CP	80.0	LN FT	0.75	1.09	1.84
square column-3 1/2"x3 1/2"	1 CP	50.0	LN FT	1.15	1.75	2.90
-4 1/2"x4 1/2"	1 CP	50.0	LN FT	1.80	1.75	3.55
solid round fir-3 1/2"	1 CP	46.0	LN FT	1.40	1.90	3.30
hollow round fir-6"	1 CP	36.0	LN FT	3.20	2.43	5.63
-8"	1 CP	32.0	LN FT	3.95	2.73	6.68
-10"	1 CP	28.0	LN FT	4.70	3.12	7.82
Counter tops						
factory formed stock unit w/4" backsplash						
economy type-3/4" thick	1 CP	30.0	LN FT	3.50	2.91	6.41
custom made-7/8" thick						
plastic top-aluminum molding						
no backsplash	1 CP	24.0	LN FT	5.50	3.64	9.14
w/cove backsplash	1 CP	24.0	LN FT	7.50	3.64	11.14
1/4" thick no backsplash	1 CP	24.0	LN FT	6.50	3.64	10.14
1/4" thick w/backsplash	1 CP	24.0	LN FT	8.00	3.64	11.64
7/8" plastic, edge no backsplash	1 CP	24.0	LN FT	7.00	3.64	10.64
7/8" plastic edge, w/backsplash	1 CP	24.0	LN FT	9.00	3.64	12.64
Fireplace mantels-built in place-plain						
prefabricated colonial-economy	1 CP	3.0	EACH	35.00	29.17	64.17
-deluxe	1 CP	4.0	EACH	40.00	21.88	61.88
	1 CP	2.0	EACH	150.00	43.76	193.76
Fireplace mantel beams-3"x10" hardwood						
4"x8" rough type	1 CP	24.0	LN FT	4.00	3.64	7.64
4"x10" rough type	1 CP	24.0	LN FT	2.50	3.64	6.14
	1 CP	24.0	LN FT	3.00	3.64	6.64
Paneling						
prefinished-1/4" thick-4'x8'						
birch	1 CP	260	SQ FT	0.65	0.33	0.98
oak	1 CP	260	SQ FT	0.65	0.33	0.98
walnut	1 CP	260	SQ FT	0.65	0.33	0.98
cherry	1 CP	260	SQ FT	0.65	0.33	0.98
chestnut	1 CP	200	SQ FT	2.00	0.43	2.43
mahogany-African	1 CP	275	SQ FT	0.68	0.31	0.99
mahogany-lauan	1 CP	275	SQ FT	0.26	0.31	0.57
knotty pine	1 CP	260	SQ FT	0.40	0.33	0.73
Pegboard						
untreated-1/8"	1 CP	260	SQ FT	0.09	0.33	0.42
-1/4"	1 CP	240	SQ FT	0.12	0.36	0.48
tempered-1/8"	1 CP	240	SQ FT	0.16	0.36	0.52
-1/4"	1 CP	220	SQ FT	0.21	0.39	0.60

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
MILLWORK continued						
Hardboard						
plastic faced-1/8"	1 CP	240	SQ FT	0.55	0.36	0.91
-1/4"	1 CP	200	SQ FT	0.75	0.43	1.18
plain-1/8"	1 CP	260	SQ FT	0.07	0.33	0.40
Shelving						
1"x8" pine	1 CP	120	LN FT	0.35	0.73	1.08
1"x10" pine	1 CP	110	LN FT	0.50	0.79	1.29
1"x12" pine	1 CP	100	LN FT	0.60	0.87	1.47
3/4"x12" plywood-edged	1 CP	80.0	LN FT	0.45	1.09	1.54
12" closet shelf & rod	1 CP	32.0	LN FT	1.00	2.73	3.73
Stairs						
prefabricated-3' wide						
oak treads, no handrail	1 CP	16.0	LN FT	20.00	5.47	25.47
prefabricated-3'6" wide						
oak treads, no handrail	1 CP	14.0	LN FT	22.00	6.25	28.25
prefabricated-4' wide						
oak treads, no handrail	1 CP	12.0	LN FT	24.00	7.29	31.29
prefabricated-open-3' wide						
w/oak treads & handrails	1 CP	10.0	EACH	50.00	8.75	58.75
prefabricated-open-4' wide						
w/oak treads & handrail	1 CP	10.0	EACH	55.00	8.75	63.75
handrails	1 CP	35.0	LN FT	12.00	2.50	14.50
balusters-1 1/4"x30" pine	1 CP	16.0	EACH	1.10	5.47	6.57
balusters-1 1/4"x30" birch	1 CP	16.0	EACH	1.50	5.47	6.97
WOOD SIDING						
Siding, 1/2"x6" cedar beveled	1 CP	360	SQ FT	0.26	0.24	0.50
1/2"x8" cedar beveled	1 CP	400	SQ FT	0.24	0.21	0.45
Wood cedar shingles w/15# felt	1 CP	250	SQ FT	0.28	0.35	0.63
16" cedar shingles	1 CP	320	SQ FT	0.26	0.27	0.53
1"x4" redwood t&g	1 CP	290	SQ FT	0.48	0.30	0.78
1"x12" board and batten	1 CP	240	SQ FT	0.35	0.36	0.71
WATERPROOFING & DAMPPROOFING						
WATERPROOFING						
Membrane waterproofing-on foundation wall						
1 ply felt	1 WP	330	SQ FT	0.05	0.24	0.29
2 ply felt	1 WP	260	SQ FT	0.07	0.31	0.38
3 ply felt	1 WP	230	SQ FT	0.09	0.35	0.44
1 ply fabric	1 WP	300	SQ FT	0.09	0.27	0.36
2 ply fabric	1 WP	240	SQ FT	0.12	0.34	0.46
3 ply fabric	1 WP	210	SQ FT	0.16	0.39	0.55
1 ply felt on slabs	1 WP	360	SQ FT	0.05	0.22	0.27
2 ply felt	1 WP	285	SQ FT	0.07	0.28	0.35
3 ply felt	1 WP	260	SQ FT	0.09	0.31	0.40
1 ply fabric	1 WP	340	SQ FT	0.09	0.24	0.33
2 ply fabric	1 WP	265	SQ FT	0.12	0.31	0.43
DAMPPROOFING						
Asphalt mastic, sprayed on						
1 coat	1 WP	1100	SQ FT	0.03	0.07	0.10
2 coats	1 WP	600	SQ FT	0.06	0.13	0.19
troweled on, 1/16"	1 WP	400	SQ FT	0.07	0.20	0.27
1/8"	1 WP	290	SQ FT	0.14	0.28	0.42
brushed on	1 WP	300	SQ FT	0.08	0.27	0.35
VAPOR BARRIERS						
Polyethylene						
.004"	1 CP	35.0	CSF	0.80	2.50	3.30
.006"	1 CP	35.0	CSF	1.00	2.50	3.50
.008"	1 CP	35.0	CSF	1.30	2.50	3.80

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT		UNIT COSTS			
	Crew	Per Day	Unit	Material	Labor	Total
BUILDING INSULATION						
INSULATION						
Wall insulation						
2 1/2" batt fiberglass	1 CP	1000	SQ FT	0.05	0.08	0.13
3 1/2" batt fiberglass	1 CP	1000	SQ FT	0.06	0.08	0.14
6" batt fiberglass	1 CP	1000	SQ FT	0.12	0.08	0.20
1" fiberglass-3.25 #/sf	1 CP	650	SQ FT	0.07	0.13	0.20
2" fiberglass-3.25 #/sf	1 CP	650	SQ FT	0.14	0.13	0.27
1" fiberglass-6 #/sf	1 CP	650	SQ FT	0.13	0.13	0.26
2" fiberglass-6 #/sf	1 CP	650	SQ FT	0.25	0.13	0.38
1" fiberglass	1 CP	650	SQ FT	0.18	0.13	0.31
2" fiberglass	1 CP	650	SQ FT	0.29	0.13	0.42
1" foamglass	1 CP	650	SQ FT	0.16	0.13	0.29
2" foamglass	1 CP	650	SQ FT	0.30	0.13	0.43
2" mineral fiber batts	1 CP	770	SQ FT	0.05	0.11	0.16
3" mineral fiber batts	1 CP	770	SQ FT	0.07	0.11	0.18
4" mineral fiber batts	1 CP	770	SQ FT	0.09	0.11	0.20
1" polyurethane	1 CP	650	SQ FT	0.21	0.13	0.34
2" polyurethane	1 CP	650	SQ FT	0.40	0.13	0.53
Perimeter insulation						
1" fiberglass	1 CP	690	SQ FT	0.18	0.12	0.30
2" fiberglass	1 CP	690	SQ FT	0.29	0.12	0.41
1" polystyrene	1 CP	690	SQ FT	0.13	0.12	0.25
2" polystyrene	1 CP	690	SQ FT	0.26	0.12	0.38
1" polyurethane	1 CP	690	SQ FT	0.21	0.12	0.33
2" polyurethane	1 CP	690	SQ FT	0.40	0.12	0.52
Roof insulation						
1" mineral fiberboard	1 CP	600	SQ FT	0.10	0.14	0.24
1 1/2" mineral fiberboard	1 CP	600	SQ FT	0.14	0.14	0.28
2" mineral fiberboard	1 CP	600	SQ FT	0.19	0.14	0.33
3/4" fiberglass sheets	1 CP	600	SQ FT	0.09	0.14	0.23
1" fiberglass sheets	1 CP	600	SQ FT	0.12	0.14	0.26
2" fiberglass sheets	1 CP	600	SQ FT	0.24	0.14	0.38
1" polystyrene sheets	1 CP	600	SQ FT	0.12	0.14	0.26
2" polystyrene sheets	1 CP	600	SQ FT	0.24	0.14	0.38
1" urethane	1 CP	600	SQ FT	0.22	0.14	0.36
2" urethane	1 CP	600	SQ FT	0.40	0.14	0.54
1" sprayed urethane	1 CP	250	SQ FT	0.35	0.35	0.70
2" sprayed urethane	1 CP	200	SQ FT	0.60	0.43	1.03
ROOFING & SIDING						
SHINGLES						
Asphalt shingle roofing, w/15# felt	1 RF	5.0	CSF	13.00	16.41	29.41
Asbestos shingle roofing, standard						
325 #/csf	1 RF	2.7	CSF	32.00	30.40	62.40
500 #/csf	1 RF	1.7	CSF	56.00	48.28	104.28
540 #/csf	1 RF	1.6	CSF	65.00	51.30	116.30
colored						
325 #/csf	1 RF	2.7	CSF	35.00	30.40	65.40
500 #/csf	1 RF	1.7	CSF	59.00	48.28	107.28
540 #/csf	1 RF	1.6	CSF	68.00	51.30	119.30
hip & ridge roll	1 RF	50.0	LN FT	0.80	1.64	2.44
Asbestos shingle siding, 9"x32"	1 CP	240	SQ FT	0.30	0.36	0.66
12"x24"	1 CP	240	SQ FT	0.25	0.36	0.61
Wood shingle roofing, #1 red cedar						
16" w/5" exposure	1 RF	2.0	CSF	26.00	41.04	67.04
18" w/6" exposure	1 RF	2.2	CSF	28.00	37.31	65.31
18" w/7" exposure	1 RF	2.3	CSF	32.00	35.68	67.68

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
SHINGLES continued						
16" fire rated	1 RF	2.0	CSF	105.00	41.04	146.04
18" fire rated	1 RF	2.2	CSF	107.00	37.31	144.31
hand split red cedar shakes	1 RF	2.5	CSF	32.00	32.83	64.83
white cedar, standard	1 RF	1.9	CSF	25.00	43.20	68.20
white cedar, select	1 RF	1.9	CSF	29.00	43.20	72.20
Wood shingle siding, #1 red cedar						
16" w/5" exposure	1 CP	1.5	CSF	26.00	58.34	84.34
18" w/6" exposure	1 CP	1.7	CSF	28.00	51.48	79.48
18" w/7" exposure	1 CP	1.8	CSF	32.00	48.62	80.62
16" fire rated	1 CP	1.5	CSF	105.00	58.34	163.34
18" fire rated	1 CP	1.8	CSF	107.00	48.62	155.62
hand split red cedar shakes	1 CP	1.8	CSF	29.00	48.62	77.62
white cedar, standard	1 CP	1.4	CSF	25.00	62.51	87.51
white cedar, select	1 CP	1.4	CSF	29.00	62.51	91.51
Slate shingles, Penna. ribbon						
clear	1 RF	1.2	CSF	50.00	68.40	118.40
	1 RF	1.2	CSF	65.00	68.40	133.40
Vermont, black	1 RF	1.2	CSF	95.00	68.40	163.40
gray	1 RF	1.2	CSF	95.00	68.40	163.40
green	1 RF	1.2	CSF	95.00	68.40	163.40
red non-fade	1 RF	1.2	CSF	180.00	68.40	248.40
ROOFING TILE						
Clay tile						
flat red, 11" exposure	1 RF	1.4	CSF	55.00	58.62	113.62
colored glazed interlock	1 RF	1.4	CSF	80.00	58.62	138.62
Spanish tile	1 RF	1.4	CSF	80.00	58.62	138.62
mission tile	1 RF	1.2	CSF	90.00	68.40	158.40
Greek tile	1 RF	1.0	CSF	220.00	82.08	302.08
Concrete tiles						
flat standard	1 RF	2.0	CSF	33.00	41.04	74.04
flat selected	1 RF	2.0	CSF	36.00	41.04	77.04
interlocked	1 RF	2.0	CSF	35.00	41.04	76.04
PREFORMED ROOFING AND SIDING						
Aluminum siding, horizontal plain						
insulated	1 SM	240	SQ FT	0.40	0.42	0.82
	1 SM	240	SQ FT	0.45	0.42	0.87
Epoxy panels, aggregate mounted on plywood	1 CP	80.0	SQ FT	1.95	1.09	3.04
Felt underlayment						
asbestos 15#	1 CP	50.0	CSF	2.50	1.75	4.25
asphalt felt 15#	1 CP	50.0	CSF	0.90	1.75	2.65
asphalt felt 30#	1 CP	50.0	CSF	1.60	1.75	3.35
coated asphalt 30#	1 CP	50.0	CSF	2.30	1.75	4.05
coated asphalt 40#	1 CP	50.0	CSF	2.75	1.75	4.50
MEMBRANE ROOFING						
Built-up roofing						
3 ply	1 RF	480	SQ FT	0.11	0.17	0.28
4 ply 10 year bond	1 RF	400	SQ FT	0.13	0.20	0.33
4 ply 20 year bond	1 RF	400	SQ FT	0.15	0.20	0.35
5 ply 10 year bond	1 RF	370	SQ FT	0.14	0.22	0.36
5 ply 20 year bond	1 RF	370	SQ FT	0.16	0.22	0.38
for gravel surfacing add			SQ FT	0.02		0.02
SHEET METAL						
Flashings						
aluminum .019	1 SM	150	SQ FT	0.30	0.68	0.98
aluminum .032"	1 SM	150	SQ FT	0.35	0.68	1.03
aluminum .040"	1 SM	150	SQ FT	0.40	0.68	1.08
aluminum .050"	1 SM	150	SQ FT	0.50	0.68	1.18
copper 16 oz	1 SM	150	SQ FT	1.30	0.68	1.98

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
copper 20 oz	1 SM	150	SQ FT	1.60	0.68	2.28
copper 24 oz	1 SM	150	SQ FT	2.00	0.68	2.68
fabric backed copper 5 oz	1 SM	320	SQ FT	0.60	0.32	0.92
fabric backed alum. .005"	1 SM	320	SQ FT	0.28	0.32	0.60
mastic backed copper 3 oz	1 SM	320	SQ FT	0.35	0.32	0.67
mastic backed copper 5 oz	1 SM	320	SQ FT	0.55	0.32	0.87
mastic backed alum. .004"	1 SM	350	SQ FT	0.25	0.29	0.54
mastic backed alum. .016"	1 SM	350	SQ FT	0.40	0.29	0.69
fabric 17 oz	1 SM	360	SQ FT	0.18	0.28	0.46
fabric 40 oz	1 SM	360	SQ FT	0.24	0.28	0.52
plastic .020"	1 SM	300	SQ FT	0.13	0.34	0.47
plastic .030"	1 SM	300	SQ FT	0.18	0.34	0.52
plastic .060"	1 SM	280	SQ FT	0.29	0.36	0.65
Gutters						
galvanized steel, 4" wide	1 SM	100	LN FT	0.50	1.02	1.52
aluminum, 5" wide .027"	1 SM	100	LN FT	0.50	1.02	1.52
aluminum, 5" wide .032"	1 SM	100	LN FT	0.60	1.02	1.62
copper, 16 oz 4" wide	1 SM	100	LN FT	1.40	1.02	2.42
copper, 16 oz 6" wide	1 SM	100	LN FT	1.95	1.02	2.97
Downspouts, aluminum .025"						
2" x3"	1 CP	150	LN FT	0.35	0.58	0.93
3" x4"	1 CP	150	LN FT	0.45	0.58	1.03
copper, 16 oz						
3" diameter	1 CP	150	LN FT	1.55	0.58	2.13
4" diameter	1 CP	125	LN FT	2.10	0.70	2.80
2" x3"	1 CP	150	LN FT	2.20	0.58	2.78
3" x4"	1 CP	125	LN FT	2.80	0.70	3.50
galvanized steel						
3" diameter	1 CP	150	LN FT	0.22	0.58	0.80
4" diameter	1 CP	150	LN FT	0.30	0.58	0.88
2" x3"	1 CP	150	LN FT	0.42	0.58	1.00
3" x4"	1 CP	150	LN FT	0.54	0.58	1.12
Louvers						
aluminum eave vents	1 SM	175	LN FT	0.35	0.58	0.93
attic vent 12" x24"	1 SM	11.0	EACH	5.00	9.29	14.29
foundation vents 12" x6"	1 SM	50.0	EACH	1.00	2.04	3.04
brick vents	1 SM	6.0	EACH	16.00	17.04	33.04
ROOF ACCESSORIES						
Metal skylights						
48" x30"	1 SM, 1 LA	5.0	EACH	140.00	33.87	173.87
48" x48"	1 SM, 1 LA	3.3	EACH	155.00	51.32	206.32
60" x60"	1 SM, 1 LA	2.2	EACH	200.00	76.98	276.98
120" x60"	1 SM, 1 LA	1.1	EACH	300.00	153.96	453.96
Plastic domes						
2' x2'	1 CP	5.0	EACH	25.00	17.50	42.50
4' x4'	1 CP	3.0	EACH	50.00	29.17	79.17
18" diameter	1 CP	6.0	EACH	30.00	14.58	44.58
24" diameter	1 CP	5.0	EACH	35.00	17.50	52.50
30" diameter	1 CP	4.0	EACH	40.00	21.88	61.88
CAULKING						
Butyl caulking						
1/2" x1/2"	1 WP	200	LN FT	0.12	0.41	0.53
3/4" x3/4"	1 WP	180	LN FT	0.20	0.45	0.65
3/4" x1"	1 WP	160	LN FT	0.26	0.51	0.77
Polysulfide caulking						
1/2" x1/2"	1 WP	200	LN FT	0.14	0.41	0.55
3/4" x3/4"	1 WP	180	LN FT	0.22	0.45	0.67
3/4" x1"	1 WP	160	LN FT	0.30	0.51	0.81
Silicone caulking						
1/4" x1/2"	1 WP	140	LN FT	0.38	0.58	0.96

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
DOORS AND FRAMES						
WOOD DOORS AND FRAMES						
Wood frames, exterior						
stock unit w/o sill	1 CP	8.0	EACH	16.00	10.94	26.94
stock unit with sill	1 CP	6.0	EACH	22.00	14.58	36.58
stock unit with sidelights	1 CP	4.5	EACH	55.00	19.44	74.44
Wood frames, interior stock units						
3'x7'	1 CP	14.0	EACH	11.00	6.25	17.25
6'x7'	1 CP	13.0	EACH	36.00	6.73	42.73
3'x10' w/transom	1 CP	12.0	EACH	16.00	7.29	23.29
6'x10' w/transom	1 CP	11.0	EACH	46.00	7.95	53.95
custom units						
3'x7'	1 CP	14.0	EACH	20.00	6.25	26.25
6'x7'	1 CP	13.0	EACH	45.00	6.73	51.73
3'x10' w/transom	1 CP	12.0	EACH	26.00	7.29	33.29
6'x10' w/transom	1 CP	11.0	EACH	52.00	7.95	59.95
Prehung door, including frame, sill, & hardware						
exterior	1 CP	7.0	EACH	133.00	12.50	145.50
interior	1 CP	9.0	EACH	50.00	9.72	59.72
Pocket door frame w/hardware	1 CP	6.0	EACH	20.00	14.58	34.58
Flush type door, hollow core 1 3/8" thick						
birch face						
2'0"x6'6"	1 CP	2.0	EACH	13.00	43.76	56.76
2'6"x6'8"	1 CP	2.0	EACH	15.00	43.76	58.76
2'8"x6'8"	1 CP	2.0	EACH	17.00	43.76	60.76
3'0"x6'8"	1 CP	2.0	EACH	18.00	43.76	61.76
lauan face	1 CP	2.0	EACH	19.00	43.76	62.76
2'0"x6'6"	1 CP	2.0	EACH	10.00	43.76	53.76
2'6"x6'8"	1 CP	2.0	EACH	12.00	43.76	55.76
2'8"x6'8"	1 CP	2.0	EACH	15.00	43.76	58.76
3'0"x6'8"	1 CP	2.0	EACH	16.00	43.76	59.76
3'0"x7'0"	1 CP	2.0	EACH	18.00	43.76	61.76
Flush type door, hollow core 1 3/4" thick						
birch face						
2'8"x6'8"	1 CP	2.0	EACH	20.00	43.76	63.76
3'0"x6'8"	1 CP	2.0	EACH	22.00	43.76	65.76
3'0"x7'0"	1 CP	2.0	EACH	24.00	43.76	67.76
3'0"x8'0"	1 CP	2.0	EACH	28.00	43.76	71.76
lauan face						
2'8"x6'8"	1 CP	2.0	EACH	15.00	43.76	58.76
3'0"x6'8"	1 CP	2.0	EACH	18.00	43.76	61.76
3'0"x7'0"	1 CP	2.0	EACH	20.00	43.76	63.76
3'0"x8'0"	1 CP	2.0	EACH	24.00	43.76	67.76
Flush type door, with particle board filler						
1 3/8" thick, birch face						
2'8"x6'8"	1 CP	2.0	EACH	22.00	43.76	65.76
3'0"x6'8"	1 CP	2.0	EACH	25.00	43.76	68.76
3'0"x7'0"	1 CP	2.0	EACH	28.00	43.76	71.76
3'0"x8'0"	1 CP	1.8	EACH	35.00	48.62	83.62
lauan face						
2'8"x6'8"	1 CP	2.0	EACH	18.00	43.76	61.76
3'0"x6'8"	1 CP	2.0	EACH	21.00	43.76	64.76
3'0"x7'0"	1 CP	2.0	EACH	24.00	43.76	67.76
3'0"x8'0"	1 CP	1.8	EACH	31.00	48.62	79.62
Flush type door, with particle board filler						
1 3/4" thick, Birch face						
2'8"x6'8"	1 CP	2.0	EACH	32.00	43.76	75.76
3'0"x6'8"	1 CP	2.0	EACH	35.00	43.76	78.76

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
3'0" x 7'0"	1 CP	2.0	EACH	37.00	43.76	80.76
3'6" x 7'0"	1 CP	1.5	EACH	50.00	58.34	108.34
4'0" x 7'0"	1 CP	1.5	EACH	54.00	58.34	112.34
3'0" x 8'8"	1 CP	1.5	EACH	52.00	58.34	110.34
3'0" x 8'0"	1 CP	1.5	EACH	68.00	58.34	126.34
4'0" x 8'0"	1 CP	1.5	EACH	72.00	58.34	130.34
Iauan face						
2'8" x 6'8"	1 CP	2.0	EACH	28.00	43.76	71.76
3'0" x 7'0"	1 CP	2.0	EACH	30.00	43.76	73.76
3'0" x 8'0"	1 CP	1.5	EACH	42.00	58.34	100.34
Flush type door, fire-rated with particle board filler, 3/4 hr						
2'8" x 6'8"	1 CP	2.0	EACH	40.00	43.76	83.76
3'0" x 6'8"	1 CP	2.0	EACH	42.00	43.76	85.76
3'6" x 7'0"	1 CP	2.0	EACH	44.00	43.76	87.76
3'6" x 7'0"	1 CP	1.5	EACH	60.00	58.34	118.34
4'0" x 7'0"	1 CP	1.5	EACH	65.00	58.34	123.34
Plastic laminate doors, add 35% to birch prices						
Flush type solid doors, pine						
2'8" x 6'8"	1 CP	2.0	EACH	73.00	43.76	116.76
3'0" x 6'8"	1 CP	1.5	EACH	75.00	58.34	133.34
3'0" x 3'7"	1 CP	1.5	EACH	80.00	58.34	138.34
Panel type doors, 3' x 7' x 1 3/4", raised panel						
oak	1 CP	1.5	EACH	60.00	58.34	118.34
walnut	1 CP	1.5	EACH	75.00	58.34	133.34
Exterior wood doors, 3' x 7'						
birch 1 3/4"	1 CP	2.0	EACH	60.00	43.76	103.76
birch 2 1/4"	1 CP	1.5	EACH	70.00	58.34	128.34
pine paneled	1 CP	1.5	EACH	50.00	58.34	108.34
colonial design, w/frame & trim	1 CP	1.0	EACH	110.00	87.52	197.52
Bi-folding, pre-hung louvered, pine						
3' x 6'8"	1 CP	4.0	EACH	30.00	21.88	51.88
6' x 6'8"	1 CP	3.5	EACH	48.00	25.00	73.00
pine paneled						
3' x 6'8"	1 CP	4.0	EACH	34.00	21.88	55.88
6' x 6'8"	1 CP	3.5	EACH	60.00	25.00	85.00
birch						
3' x 6'8"	1 CP	4.0	EACH	30.00	21.88	51.88
6' x 6'8"	1 CP	3.5	EACH	53.00	25.00	78.00
hardboard						
3' x 6'8"	1 CP	4.0	EACH	28.00	21.88	49.88
6' x 6'8"	1 CP	3.5	EACH	48.00	25.00	73.00
SPECIAL DOORS						
French doors, 5' x 7'						
wood	1 CP	0.5	OPG	150.00	175.04	325.04
steel	1 CP	0.5	OPG	165.00	175.04	340.04
Sliding doors, glass 6' x 7'						
standard	1 SI	1.7	EACH	155.00	53.55	208.55
deluxe	1 SI	1.7	EACH	340.00	53.55	393.55
Storm and screen combination doors, residential						
aluminum	1 CP	3.5	EACH	75.00	25.00	100.00
wood	1 CP	3.5	EACH	60.00	25.00	85.00
Overhead doors, w/o frames						
wood, sectioned 1 3/8" thick						
8' x 7'	1 CP	0.8	EACH	90.00	109.40	199.40
16' x 7'	1 CP	0.5	EACH	190.00	175.04	365.04
fiberglass and aluminum						
8' x 7' standard	1 CP	0.8	EACH	90.00	109.40	199.40

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT		UNIT COSTS			
	Crew	Per Day	Unit	Material	Labor	Total
FIBERGLASS AND ALUMINUM OVERHEAD DOORS continued						
8'x7' deluxe	1 CP	0.8	EACH	125.00	109.40	234.40
16'x7' standard	1 CP	0.8	EACH	160.00	109.40	269.40
16'x7' deluxe	1 CP	0.8	EACH	190.00	109.40	299.40
steel						
8'x7' standard	1 CP	0.8	EACH	80.00	109.40	189.40
8'x7' deluxe	1 CP	0.8	EACH	100.00	109.40	209.40
16'x7' standard	1 CP	0.5	EACH	150.00	175.04	325.04
16'x7' deluxe	1 CP	0.5	EACH	170.00	175.04	345.04
wood with hardboard panels						
8'x7' standard	1 CP	0.8	EACH	80.00	109.40	189.40
8'x7' deluxe	1 CP	0.8	EACH	95.00	109.40	204.40
16'x7' standard	1 CP	0.5	EACH	160.00	175.04	335.04
16'x7' deluxe	1 CP	0.5	EACH	180.00	175.04	355.04
WINDOWS						
STEEL WINDOWS						
Basement sash						
2'8"x1'2"	2 SI	15.0	EACH	12.00	12.13	24.13
2'8"x1'6"	2 SI	15.0	EACH	14.00	12.13	26.13
2'8"x1'10"	2 SI	15.0	EACH	18.00	12.13	30.13
ALUMINUM WINDOWS W/O GLAZING						
Average cost per sq ft						
fixed	1 SI	70.0	SQ FT	1.40	1.30	2.70
casement	1 SI	70.0	SQ FT	3.40	1.30	4.70
projected	1 SI	70.0	SQ FT	4.40	1.30	5.70
sliding	1 SI	70.0	SQ FT	2.70	1.30	4.00
screens	1 SI	550	SQ FT	0.80	0.16	0.96
Awning type						
3'1"x2'2"	2 SI	10.0	EACH	49.00	18.20	67.20
4'5"x2'2"	2 SI	10.0	EACH	57.00	18.20	75.20
3'1"x3'3"	2 SI	9.0	EACH	52.00	20.23	72.23
3'1"x4'3"	2 SI	7.0	EACH	58.00	26.01	84.01
4'5"x4'3"	2 SI	6.0	EACH	67.00	30.34	97.34
4'5"x5'3"	2 SI	5.0	EACH	72.00	36.41	108.41
Casement, standard						
3'1"x2'2"	2 SI	14.0	EACH	26.00	13.00	39.00
4'5"x2'2"	2 SI	11.0	EACH	41.00	16.55	57.55
3'1"x3'3"	2 SI	11.0	EACH	30.00	16.55	46.55
5'9"x3'3"	2 SI	7.0	EACH	50.00	26.01	76.01
5'9"x4'3"	2 SI	7.0	EACH	57.00	26.01	83.01
5'9"x5'3"	2 SI	6.0	EACH	63.00	30.34	93.34
7'7"x5'3"	2 SI	6.0	EACH	67.00	30.34	97.34
Double hung, standard						
2'4"x3'1"	2 SI	8.0	EACH	52.00	22.76	74.76
WOOD WINDOWS						
Average cost per sq ft, w/o glazing						
sliding	1 CP	55.0	SQ FT	2.50	1.59	4.09
double hung	1 CP	50.0	SQ FT	2.20	1.75	3.95
casement	1 CP	60.0	SQ FT	3.00	1.45	4.45
picture	1 CP	55.0	SQ FT	3.00	1.59	4.59
Bow window, w/glazing						
7'0"x5'0"	2 CP	2.0	EACH	132.00	87.52	219.52
8'9"x5'0"	2 CP	1.5	EACH	180.00	116.69	296.69
7'0"x6'6"	2 CP	1.8	EACH	175.00	97.24	272.24
8'9"x6'6"	2 CP	1.4	EACH	220.00	125.02	345.02
Basement sash, w/o glazing fixed						
2'8"x1'4"	2 CP	16.0	EACH	15.00	10.94	25.94

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
2'8"x1'10" top hung	2 CP	15.0	EACH	17.00	11.67	28.67
2'8"x1'4"	2 CP	12.0	EACH	18.00	14.58	32.58
2'8"x1'10"	2 CP	10.0	EACH	22.00	17.50	39.50
Casement windows, w/glazing						
2'0"x2'6"	2 CP	8.0	EACH	40.00	21.88	61.88
3'6"x2'6"	2 CP	6.5	EACH	77.00	26.93	103.93
5'0"x2'6"	2 CP	4.8	EACH	101.00	36.46	137.46
3'6"x3'0"	2 CP	6.0	EACH	88.00	29.17	117.17
Picture window, w/glazing & d.h. side sash						
10'3"x4'6"	2 CP	3.0	EACH	286.00	58.34	344.34
12'3"x4'6"	2 CP	2.4	EACH	355.00	72.93	427.93
12'3"x5'6"	2 CP	2.0	EACH	400.00	87.52	487.52
12'3"x6'6"	2 CP	1.8	EACH	480.00	97.24	577.24
Double hung, pine w/o glazing						
2'0"x3'2"	2 CP	7.0	EACH	33.00	25.00	58.00
2'0"x4'6"	2 CP	6.0	EACH	37.00	29.17	66.17
2'8"x3'2"	2 CP	6.0	EACH	35.00	29.17	64.17
2'8"x5'2"	2 CP	4.2	EACH	44.00	41.67	85.67
3'4"x5'2"	2 CP	3.8	EACH	50.00	46.06	96.06
Window trim						
1"x4" pine molded	1 CP	180	LN FT	0.33	0.48	0.81
1"x6" pine stool	1 CP	100	LN FT	0.44	0.87	1.31
1"x4" oak molded	1 CP	130	LN FT	0.39	0.67	1.06
1"x6" oak stool	1 CP	90.0	LN FT	0.55	0.97	1.52
1"x4" birch molded	1 CP	110	LN FT	0.50	0.79	1.29
1"x6" birch stool	1 CP	80.0	LN FT	0.66	1.09	1.75
Storm windows, to 12 sf						
12 to 20 sf	2 CP	9.0	EACH	13.00	19.44	32.44
Screens, to 12 sf						
12 to 20 sf	2 CP	11.0	EACH	12.50	15.91	28.41
WEATHERSTRIPPING						
Doors, 3'x7', zinc						
bronze	1 CP	4.0	OPNG	8.00	21.88	29.88
6'x7', zinc	1 CP	3.0	OPNG	9.50	29.17	38.67
bronze	1 CP	3.0	OPNG	19.00	29.17	48.17
Windows, 3'x5', zinc						
bronze	1 CP	6.0	OPNG	6.00	14.58	20.58
3'x7', zinc	1 CP	6.0	OPNG	12.00	14.58	26.58
GYPSON DRYWALL						
Gypsum drywall, including taping						
3/8"	1 CP	780	SQ FT	0.08	0.11	0.19
1/2"	1 CP	750	SQ FT	0.10	0.11	0.21
5/8"	1 CP	700	SQ FT	0.11	0.12	0.23
3/8" + 5/8" laminated	1 CP	420	SQ FT	0.18	0.20	0.38
5/8" + 5/8" laminated	1 CP	400	SQ FT	0.20	0.21	0.41
Suspended drywall ceiling-incl. channel						
Drywall nailed to wood joists	1 CP	250	SQ FT	0.22	0.35	0.57
Drywall partitions complete	1 CP	300	SQ FT	0.10	0.29	0.39
2 1/2" metal studs with						
1/2" drywall	1 CP	150	SQ FT	0.31	0.58	0.89
5/8" drywall	1 CP	150	SQ FT	0.33	0.58	0.91
5/8" + 3/8" laminated drywall	1 CP	90.0	SQ FT	0.47	0.97	1.44
5/8" + 5/8" laminated drywall	1 CP	90.0	SQ FT	0.51	0.97	1.48
3 5/8" metal studs with						
1/2" drywall	1 CP	150	SQ FT	0.32	0.58	0.90
5/8" drywall	1 CP	150	SQ FT	0.34	0.58	0.92
5/8" + 5/8" laminated drywall	1 CP	90.0	SQ FT	0.48	0.97	1.45
5/8" + 5/8" laminated drywall	1 CP	90.0	SQ FT	0.52	0.97	1.49

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT		UNIT COSTS			
	Crew	Per Day	Unit	Material	Labor	Total
TILE & TERRAZZO						
CERAMIC TILE						
Ceramic wall tile, glazed on mud set one color 1"x1"	1 TS	75.0	SQ FT	0.85	1.09	1.94
2"x2"	1 TS	75.0	SQ FT	0.80	1.09	1.89
4 1/4"x4 1/4"	1 TS	75.0	SQ FT	0.75	1.09	1.84
multi-color 1"x1"	1 TS	75.0	SQ FT	0.95	1.09	2.04
2"x2"	1 TS	75.0	SQ FT	0.90	1.09	1.99
4 1/4"x4 1/4"	1 TS	75.0	SQ FT	0.85	1.09	1.94
Ceramic wall tile, glazed on thin set one color 1"x1"	1 TS	105	SQ FT	0.85	0.78	1.63
2"x2"	1 TS	105	SQ FT	0.80	0.78	1.58
4 1/4"x4 1/4"	1 TS	105	SQ FT	0.75	0.78	1.53
multi-color 1"x1"	1 TS	105	SQ FT	0.95	0.78	1.73
2"x2"	1 TS	105	SQ FT	0.90	0.78	1.68
4 1/4"x4 1/4"	1 TS	105	SQ FT	0.85	0.78	1.63
Ceramic tile on floors, mud set one color 1"x1"	1 TS	95.0	SQ FT	0.85	0.86	1.71
2"x2"	1 TS	95.0	SQ FT	0.80	0.86	1.66
multi-color 1"x1"	1 TS	95.0	SQ FT	0.95	0.86	1.81
2"x2"	1 TS	95.0	SQ FT	0.90	0.86	1.76
Ceramic tile on floors, thin set one color 1"x1"	1 TS	120	SQ FT	0.85	0.68	1.53
2"x2"	1 TS	120	SQ FT	0.80	0.68	1.48
multi-color 1"x1"	1 TS	120	SQ FT	0.95	0.68	1.63
2"x2"	1 TS	120	SQ FT	0.90	0.68	1.58
Add for epoxy grout			SQ FT	0.20		0.20
Add for abrasive non-slip tile			SQ FT	0.17		0.17
Ceramic tile cove base, mud set						
4 1/2"x4 1/4"	1 TS	38.0	LN FT	0.65	2.15	2.80
6"x4 1/4"	1 TS	38.0	LN FT	0.70	2.15	2.85
6"x4 1/4" sanitary	1 TS	38.0	LN FT	0.75	2.15	2.90
6"x6" sanitary	1 TS	38.0	LN FT	0.85	2.15	3.00
Ceramic tile cove base thin set						
4 1/2"x4 1/4"	1 TS	46.0	LN FT	0.65	1.78	2.43
6"x4 1/4"	1 TS	46.0	LN FT	0.70	1.78	2.48
6"x4 1/4" sanitary	1 TS	46.0	LN FT	0.75	1.78	2.53
6"x6" sanitary	1 TS	46.0	LN FT	0.85	1.78	2.63
Ceramic tile bullnose trim 4 1/4"						
mud set	1 TS	34.0	LN FT	0.70	2.41	3.11
thin set	1 TS	42.0	LN FT	0.70	1.95	2.65
QUARRY TILE						
Quarry tile floors, 1/2" thick mud set						
2 3/4"x2 3/4"	1 TS	38.0	SQ FT	0.85	2.15	3.00
4"x4"	1 TS	40.0	SQ FT	0.80	2.04	2.84
6"x6"	1 TS	45.0	SQ FT	0.60	1.82	2.42
4"x8"	1 TS	44.0	SQ FT	0.65	1.86	2.51
6"x12"	1 TS	52.0	SQ FT	0.80	1.57	2.37
12"x12"	1 TS	46.0	SQ FT	1.45	1.78	3.23
thin set 2 3/4"x2 3/4"	1 TS	45.0	SQ FT	0.80	1.82	2.62
4"x4"	1 TS	48.0	SQ FT	0.75	1.70	2.45
6"x6"	1 TS	55.0	SQ FT	0.60	1.49	2.09
4"x8"	1 TS	53.0	SQ FT	0.60	1.54	2.14
6"x12"	1 TS	63.0	SQ FT	0.75	1.30	2.05
12"x12"	1 TS	55.0	SQ FT	1.40	1.49	2.89
mud set epoxy grout 2 3/4"x2 3/4"	1 TS	32.0	SQ FT	1.60	2.56	4.16

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
4" x 4"	1 TS	35.0	SQ FT	1.55	2.34	3.89
6" x 6"	1 TS	36.0	SQ FT	1.35	2.27	3.62
4" x 8"	1 TS	35.0	SQ FT	1.35	2.34	3.69
6" x 12"	1 TS	43.0	SQ FT	1.50	1.90	3.40
12" x 12"	1 TS	36.0	SQ FT	2.00	2.27	4.27
thin set epoxy grout 2 3/4" x 2 3/4"	1 TS	36.0	SQ FT	1.60	2.27	3.87
4" x 4"	1 TS	38.0	SQ FT	1.50	2.15	3.65
6" x 6"	1 TS	39.0	SQ FT	1.30	2.10	3.40
4" x 8"	1 TS	38.0	SQ FT	1.30	2.15	3.45
6" x 12"	1 TS	47.0	SQ FT	1.45	1.74	3.19
12" x 12"	1 TS	40.0	SQ FT	1.95	2.04	3.99
for abrasive surface add			SQ FT	0.15		0.15
CAST-IN-PLACE TERRAZZO						
Divider strips, zinc light for thinset floors			LN FT	0.10		0.10
12 gauge-1 1/4" deep			LN FT	0.30		0.30
solid 1/4" x 1 1/4" deep			LN FT	0.95		0.95
w/ galvanized bottom 1/2" x 1 1/4"			LN FT	0.60		0.60
brass						
light for thinset floors			LN FT	0.25		0.25
12 gauge-1 1/4" deep			LN FT	0.50		0.50
solid 1/4" x 1 1/4" deep			LN FT	2.05		2.05
w/ galvanized bottom 1/2" x 1 1/4"			LN FT	1.40		1.40
Terrazzo, bonded to concrete 2" thick-gray cement white cement	1 CM	50.0	SQ FT	0.60	1.70	2.30
	1 CM	50.0	SQ FT	0.75	1.70	2.45
not bonded, on sand cushion 3" thick-gray cement white cement	1 CM	40.0	SQ FT	0.65	2.13	2.78
	1 CM	40.0	SQ FT	0.80	2.13	2.93
monolithic, 3/4" thick, base slab complete topping 1" thick	1 CM	35.0	SQ FT	0.70	2.43	3.13
	1 CM	45.0	SQ FT	0.75	1.89	2.64
abrasive 1 1/4" thick	1 CM	45.0	SQ FT	1.15	1.89	3.04
Epoxy terrazzo, 1/4" thick	1 CM	50.0	SQ FT	1.20	1.70	2.90
conductive 1/4" thick	1 CM	50.0	SQ FT	1.40	1.70	3.10
Coved base 6" high	1 CM	32.0	LN FT	0.40	2.66	3.06
Coved curb 6" high	1 CM	17.0	LN FT	0.80	5.02	5.82
PRECAST TERRAZZO						
Floor tiles, non slip 12" x 12" x 1"	1 CM	50.0	SQ FT	1.95	1.70	3.65
12" x 12" x 1 1/2"	1 CM	50.0	SQ FT	2.60	1.70	4.30
for white cement, add			SQ FT	0.20		0.20
Stair treads, diamond pattern non slip	1 CM	30.0	LN FT	3.50	2.84	6.34
	1 CM	30.0	LN FT	3.20	2.84	6.04
Stair risers, to 6" high with cove	1 CM	65.0	LN FT	1.55	1.31	2.86
	1 CM	65.0	LN FT	3.70	1.31	5.01
Stair landings, non slip 1 1/2"	1 CM	40.0	SQ FT	5.00	2.13	7.13
Stair stringers 2" thick	1 CM	19.0	LN FT	2.20	4.49	6.69
Coved base, 6" high	1 CM	120	LN FT	1.65	0.71	2.36
Straight base, 6" high for white cement, add	1 CM	120	LN FT	1.25	0.71	1.96
			LN FT	0.15		0.15
ACOUSTIC TREATMENT						
ACOUSTIC TILE						
Mineral fiber tile						
12" x 12" x 5/8"	1 CP	300	SQ FT	0.20	0.29	0.49
24" x 24" x 5/8"	1 CP	420	SQ FT	0.20	0.20	0.40
24" x 48" x 5/8"	1 CP	470	SQ FT	0.20	0.18	0.38
12" x 12" x 3/4"	1 CP	300	SQ FT	0.23	0.29	0.52
24" x 24" x 3/4"	1 CP	420	SQ FT	0.23	0.20	0.43
24" x 48" x 3/4"	1 CP	470	SQ FT	0.23	0.18	0.41
Fiberglass tile						
12" x 12" x 5/8"	1 CP	300	SQ FT	0.19	0.29	0.48

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT		UNIT COSTS			
	Crew	Per Day	Unit	Material	Labor	Total
FIBERGLASS ACOUSTIC TILE continued						
24" x 24" x 5/8"	1 CP	420	SQ FT	0.19	0.20	0.39
24" x 48" x 5/8"	1 CP	470	SQ FT	0.19	0.18	0.37
12" x 12" x 3/4"	1 CP	300	SQ FT	0.23	0.29	0.52
24" x 24" x 3/4"	1 CP	420	SQ FT	0.23	0.20	0.43
24" x 48" x 3/4"	1 CP	470	SQ FT	0.23	0.18	0.41
Wood fiber tile						
12" x 12" x 1/2"	1 CP	300	SQ FT	0.23	0.29	0.52
24" x 24" x 1/2"	1 CP	420	SQ FT	0.23	0.20	0.43
24" x 48" x 1/2"	1 CP	470	SQ FT	0.23	0.18	0.41
12" x 12" x 5/8"	1 CP	300	SQ FT	0.25	0.29	0.54
24" x 24" x 5/8"	1 CP	420	SQ FT	0.25	0.20	0.45
24" x 48" x 5/8"	1 CP	470	SQ FT	0.25	0.18	0.43
12" x 12" x 3/4"	1 CP	300	SQ FT	0.29	0.29	0.58
24" x 24" x 3/4"	1 CP	420	SQ FT	0.29	0.20	0.49
24" x 48" x 3/4"	1 CP	470	SQ FT	0.29	0.18	0.47
12" x 12" x 1"	1 CP	300	SQ FT	0.34	0.29	0.63
24" x 24" x 1"	1 CP	420	SQ FT	0.34	0.20	0.54
24" x 48" x 1"	1 CP	470	SQ FT	0.34	0.18	0.52
SUSPENDED CEILINGS						
Lay-in suspension system including T-bar and 1 1/2" black iron at 4' oc.						
24" x 24" grid	1 LH	200	SQ FT	0.39	0.42	0.81
24" x 48" grid	1 LH	225	SQ FT	0.36	0.37	0.73
Concealed spline suspension system including Z bar and 1 1/2" black iron at 4' oc.						
	1 LH	160	SQ FT	0.78	0.53	1.31
Luminous panels, including suspension system						
	1 CP	240	SQ FT	1.25	0.36	1.61
Wood suspension system 2" x 4" grid & hangers w/ 1" x 4" stripping, up to 3' 6" drop						
	1 CP	190	SQ FT	0.29	0.46	0.75
FLOORINGS						
WOOD STRIP FLOORING						
Fir, no finish 1" x 4" t & g						
1" x 6" t & g	1 CP	230	SQ FT	0.63	0.38	1.01
White or red oak, no finish 25/32" x 2 1/4" prefinished						
	1 CP	135	SQ FT	0.75	0.64	1.39
with pegs	1 CP	130	SQ FT	0.85	0.67	1.52
	1 CP	120	SQ FT	1.13	0.73	1.86
Sanding & finishing						
	1 CP	225	SQ FT	0.07	0.38	0.45
WOOD BLOCK FLOORING						
Hardwood blocks 25/32"						
	1 CP	120	SQ FT	0.75	0.73	1.48
Parquet flooring, no finish 5/16" thick						
oak	1 CP	120	SQ FT	0.82	0.73	1.55
walnut	1 CP	120	SQ FT	1.13	0.73	1.86
teak	1 CP	120	SQ FT	1.00	0.73	1.73
prefinished						
oak	1 CP	110	SQ FT	0.92	0.79	1.71
walnut	1 CP	110	SQ FT	1.23	0.79	2.02
teak	1 CP	110	SQ FT	1.10	0.79	1.89
RESILIENT TILE FLOORING						
Asphalt tile cemented to slab						
9" x 9" x 1/8" color group "b"	1 CP	400	SQ FT	0.16	0.21	0.37
color group "c"	1 CP	400	SQ FT	0.23	0.21	0.44
color group "d"	1 CP	400	SQ FT	0.29	0.21	0.50
9" x 9" x 3/16" color group "b"	1 CP	400	SQ FT	0.23	0.21	0.44
color group "c"	1 CP	400	SQ FT	0.30	0.21	0.51

BREAKDOWN OF CONSTRUCTION COSTS

DESCRIPTION	OUTPUT			UNIT COSTS		
	Crew	Per Day	Unit	Material	Labor	Total
grease proof 1/8"	1 CP	400	SQ FT	0.36	0.21	0.57
corktone or tweed "c" group 1/8"	1 CP	400	SQ FT	0.24	0.21	0.45
Felt underlay on wood subfloor	1 CP	3500	SQ FT	0.03	0.02	0.05
Vinyl asbestos tile 9"x9"x1/8"	1 CP	400	SQ FT	0.33	0.21	0.54
9"x9"x1/16"	1 CP	400	SQ FT	0.41	0.21	0.62
Vinyl tile 9"x9" type a .08" thick	1 CP	400	SQ FT	0.45	0.21	0.66
9"x9"x1/8" type b	1 CP	400	SQ FT	0.73	0.21	0.94
9"x9"x1/8" travertine	1 CP	400	SQ FT	1.00	0.21	1.21
9"x9"x1/8" Florentine	1 CP	400	SQ FT	1.32	0.21	1.53
RESILIENT SHEET FLOORING						
Linoleum standard gauge 3/32"	1 CP	275	SQ FT	0.49	0.31	0.80
heavy gauge 1/8"	1 CP	275	SQ FT	0.55	0.31	0.86
Sheet vinyl flooring	1 CP	325	SQ FT	0.65	0.27	0.92
PAINTING						
Exterior, 2 coats applied with brush wood-oil base	1 PA	500	SQ FT	0.05	0.15	0.20
metal-oil base	1 PA	450	SQ FT	0.05	0.17	0.22
masonry-latex	1 PA	450	SQ FT	0.05	0.17	0.22
shingles-stain	1 PA	410	SQ FT	0.03	0.19	0.22
windows & doors-enamel	1 PA	300	SQ FT	0.05	0.26	0.31
Exterior, 3 coats applied with brush wood-oil base	1 PA	400	SQ FT	0.07	0.19	0.26
metal-oil base	1 PA	350	SQ FT	0.07	0.22	0.29
masonry-latex	1 PA	350	SQ FT	0.07	0.22	0.29
shingles-stain	1 PA	325	SQ FT	0.05	0.24	0.29
windows & doors enamel	1 PA	240	SQ FT	0.07	0.32	0.39
Interior walls, brush applied on plaster or drywall, 2 coats flat						
3 coats flat	1 PA	500	SQ FT	0.05	0.15	0.20
2 coats enamel	1 PA	400	SQ FT	0.07	0.19	0.26
3 coats enamel	1 PA	450	SQ FT	0.05	0.17	0.22
wood, 2 coats enamel	1 PA	375	SQ FT	0.07	0.21	0.28
3 coats enamel	1 PA	410	SQ FT	0.06	0.19	0.25
filler, stain, & varnish-2 coats	1 PA	320	SQ FT	0.08	0.24	0.32
filler, stain, & varnish-3 coats	1 PA	240	SQ FT	0.11	0.32	0.43
masonry or concrete, 2 coats latex	1 PA	190	SQ FT	0.13	0.41	0.54
3 coats latex	1 PA	110	SQ FT	0.05	0.71	0.76
Ceilings, brush applied on plaster or drywall, 2 coats flat	1 PA	425	SQ FT	0.05	0.18	0.23
3 coats flat	1 PA	350	SQ FT	0.07	0.22	0.29
2 coats enamel	1 PA	400	SQ FT	0.05	0.19	0.24
3 coats enamel	1 PA	325	SQ FT	0.07	0.24	0.31
wood, 2 coats enamel	1 PA	360	SQ FT	0.06	0.22	0.28
3 coats enamel	1 PA	270	SQ FT	0.08	0.29	0.37
2 coats filler stain & varnish	1 PA	205	SQ FT	0.11	0.38	0.49
3 coats filler stain & varnish	1 PA	160	SQ FT	0.13	0.49	0.62
masonry or concrete, 2 coats latex	1 PA	360	SQ FT	0.05	0.22	0.27
3 coats latex	1 PA	270	SQ FT	0.07	0.29	0.36
Wood floors, 2 coats enamel	1 PA	520	SQ FT	0.06	0.15	0.21
3 coats enamel	1 PA	390	SQ FT	0.08	0.20	0.28
stain & varnish 2 coats	1 PA	430	SQ FT	0.10	0.18	0.28
stain & varnish 3 coats	1 PA	340	SQ FT	0.12	0.23	0.35
Concrete, 2 coats enamel	1 PA	400	SQ FT	0.07	0.19	0.26
3 coats enamel	1 PA	300	SQ FT	0.09	0.26	0.35
SPECIALTIES						
DISAPPEARING STAIRS						
Pine folding, 8'6" high	1 CP	3.0	EACH	22.00	29.17	51.17
9'6" high	1 CP	3.0	EACH	31.00	29.17	60.17

The cost of money:

It's probably about as high as it's going to get

Both bulls and bears on the housing-finance outlook tend to agree at mid-year that mortgage yields won't rise enough to be worth talking about during the rest of 1973. Yet pessimists still have a suspicion that a looming money shortage this year could cause 1974's housing starts to slip below two million units.

It all depends on whether the Federal Reserve continues to be satisfied that inflationary psychology can be kept at bay in the financial markets by the Nixon Administration's Phase IV restrictions.

If the central bank decides to get tough, it will reduce its 5% target for annual growth in the money supply.

Lower credit availability will translate into fewer mortgage loan commitments this year by thrift institutions, and in 1974 into fewer starts.

Most forecasters see this year's mortgage yields peaking at no more than a quarter point above current levels, with the odds favoring an arrest of the climb in the bank board's yield on conventional single-family mortgages by the time it reaches 7 7/8% (see graph, below right). In fact, say the analysts, by December 31—providing by that time the economy has successfully gone through its adjustment to a more moderate rate of growth—mortgage rates may be on the way down.

Confidence in the relative stability of housing-loan costs—as distinguished from the supply of mortgage money—stems in part from the directive from Washington's Committee on Interest and Dividends "urgently requesting all mortgage-lending institutions to exercise restraint on establishing rates."

Washington can command the price of money to stand still, or the availability, but not both. However, it continues to try, as both the Home Loan Bank System and the Federal National Mortgage Corp. inject ever larger amounts of credit into thrift institutions.

Government data for all of 1973 project total lending by thrift institutions (on a basis net of loan repayments) as down from \$49 billion in 1972 to around \$35 billion, the decline tracing to disintermediation. And so savings and loan associations and savings banks have already adopted a ruthlessly negative stance toward new borrowers. Deposit flows at the S&Ls are targeted at about \$28 billion. The National Association of Mutual Savings Banks is revising its estimate of new-deposit growth to \$8 billion as against \$10 billion in lush 1972.

Advances from the home loan banks and secondary-market mortgage purchases by Fannie Mae, this year, will contribute a lot, even if not enough by any means to close the gap created by the reduced deposit flows at thrift institutions. Fannie Mae might add an extra \$2 billion in mortgage credit, and the home loan banks a hefty \$6 billion—compared with only \$4 billion in 1969, their biggest previous year.

One drawback of aggressive pursuit of money-market funds by the federal agencies is that it drives up interest rates generally,

to the detriment of thrift institutions trying to hold onto deposits without flexibility to raise rates.

But the building industry's financial specialists realize that, however frail a reed they may be, the housing agencies are the best support they have right now, and they watch them with a jealous eye. Says one industry man, "We're somewhat concerned. There is no evidence of a 1969 crunch, with starts way down. But we see a tightening here, a tightening there, and we wonder if Fannie Mae and the bank board will be there when we need them, at reasonable rates."

It seems clear that Washington authorities are aiming their manipulations of the housing market to see that it takes at least some of the brunt of cooling the economy, even if a 1972 starts level in excess of 2 million units seems fixed in concrete.

Maurice Mann, president of the San Francisco Federal Home Loan Bank, says his agency is digging in against new commitments by institutions of that state. Starting from the shock of the poor April level of deposit inflows at S&Ls, California suddenly flip-flopped from a mortgage borrower's market to a mortgage lender's. Says Dallas Bennewitz, vice president of the U.S. Savings & Loan League: "Ordinary individuals in California can get a loan, but large lenders particularly are beginning to say no to major projects."

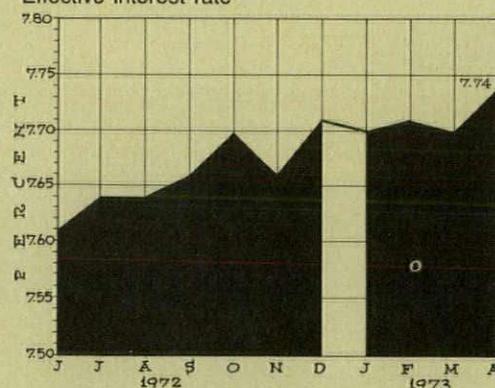
A strongly better deposit performance in May was reflected widely in much of the country, however.

Meanwhile, overcommitted lenders who want to discourage borrowers but cannot freely raise rates because of Arthur Burns' CID, are instead cutting the loan-to-price ratio. And in doing so, they may have found an even more effective way to dampen demand than marking up yields.

Observes one Federal Reserve economist: "If you buy the premise that the earlier shift to 95% loans borrowed housing demand from the future, maybe we'll get a very interesting test now as to whether 80% loans do not cause a sharp drop in our housing starts."

—STAN WILSON
McGraw-Hill World News,
Washington

FHA-VA NEW-HOUSE MORTGAGES
Effective interest rate



HUD's new survey, begun in June 1972, covers FHA 203b and VA section 1810 and is based on actual loan closings. Yield is based on price paid for mortgage, and price reflects discount points paid by builders. (Yields are gross. For net, subtract .25% or .375% for servicing.)

THE COST OF MORTGAGE MONEY

NEW SINGLE FAMILY HOUSES

	CONVENTIONAL LOAN RATES INTEREST (+ FEES) BY LOAN-TO-VALUE RATIOS PRIME RATE			FHA SECTION 203B MIN. DOWN, 30 YEAR IMMED. DELIVERY (COMPARABLE FOR VA'S) FACE RATE 7%		CONSTRUCTION LOANS INTEREST (+ FEES)
	UP TO 80%	81 TO 90%	91 TO 95%	DISCOUNT (%) PAID BY BUILDER	CHANGE FROM PREV. MONTH	
EAST						
BOSTON	7¾	7¾ (+¼)	8¼	2-X	-	8¾ - 9¾
NEW YORK	7¼ (+½)	7½ (+¾)	X	X		8¾ - 9¼ (+½ - 1)
WASHINGTON	8¼ (+2)	8¼ (+2)	8½ (+2) - X	6-8	UP 1	9¾ (+½)

SOUTH

ATLANTA	7¾ (+3)	8 (+3)	8¼ (+3)	6-6½	STEADY	9¼ - 10¼
MIAMI	7¼ - 7½ (+3)	7¾ - 8 (+3)	8¼ (+3) - X	7-8	UP ½	9¾ - 10¼ (+1)

MIDWEST

CHICAGO	7¼ - 7½ (+1 - ½)	7¾ (+1½ - 2)	7.9 (+2½)	7-8	UP ½	9 - 10¾ (+1)
DETROIT	7½ (+0-1)	8 (+0-1)	8¼ (+1) - X	6-8	UP ½	9¼ - 10¾ (+1-2)

SOUTHWEST

DALLAS	7¾ (+1)	8 (+2)	8¼ (+2-3)	7-8	UP 1	9¾ - 10¼
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WEST

LOS ANGELES	7¾ - 8 (+1 - ½)	8 - 8½ (+1½ - 2)	8 - 8½ (+2½ - 3½)	6-8	UP ½	8¼ - 9¼ (+0-2)
SEATTLE	7½ - 7¾ (+1½)	8 - 8¼ (+1½)	8 - 8¼ (+1½ - 3)	6-8	UP ½	9¼ (+2)
SAN FRANCISCO	7¾ (+1½)	8 (+2)	8 - 8¼ (+1½) - X	6-8	UP ½	8¾ - 9¼ (+1-2)

APARTMENTS

CONVENTIONAL LOANS INTEREST (+ FEES) PRIME RATE	FHA 221 D4 FACE RATE 7% DISCOUNT (%) PAID BY BUILDER	CONSTRUCTION LOANS INTEREST (+ FEES)
8½ - 8¾	FNMA	8½ - 9 (+½ - 2)
8½ - 8¾	DISCOUNT	9½ - 9¾ (+¾)
8½ - 8¾	IS	10¼ (+1)

8½	4%	9¼
8½	THERE	9¼

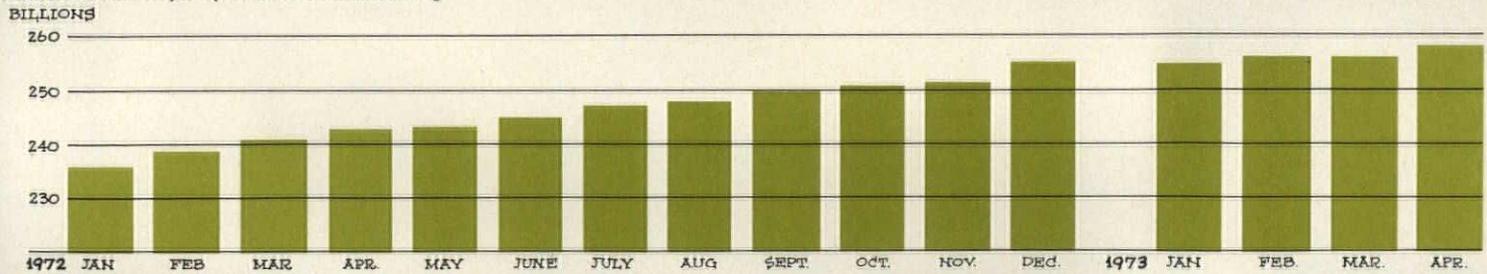
8½ - 8¾ (+0-1)	IS	9¾ (+1)
8½ - 8¾ (+0-1½)	NO	8¾ - 9¾ (+1-1½)

8¾ (+0-1)	EFFECTIVE	9¾ - 10¼ (+0-1)
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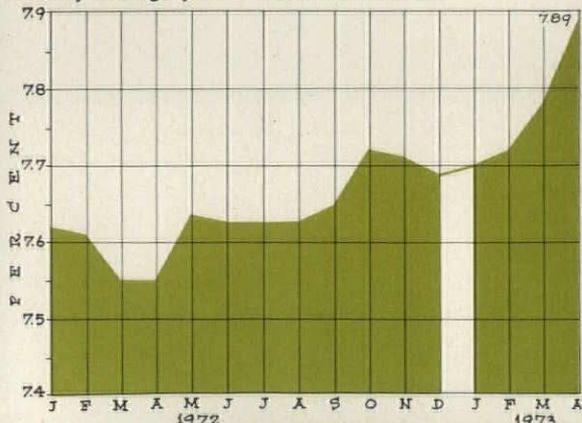
8½ - 8¾ (+1)	PRIVATE	9¾ (+1)
8½ - 8¾ (+1)	MARKET	10¼ (+1)
8½ - 8¾ (+1)		9¾ (+1)

Prices are for prime-credit loans June 1 • Fees include all one-time costs to buyer—origination and closing fees, discounts, etc. • In addition to quoted prices most 90% and 95% loans carry insurance charge of ¼% a year until insured portion is amortized, plus fee of ½% (for 90%) or 1% (for 95%). • Construction loan rate is for loan with takeout. • Apartment loan rate is for proposed construction. Immediate-delivery long-term loan ¼% lower. • X = loan not available June 1. • Data: Advance Mortgage Corp., Detroit.

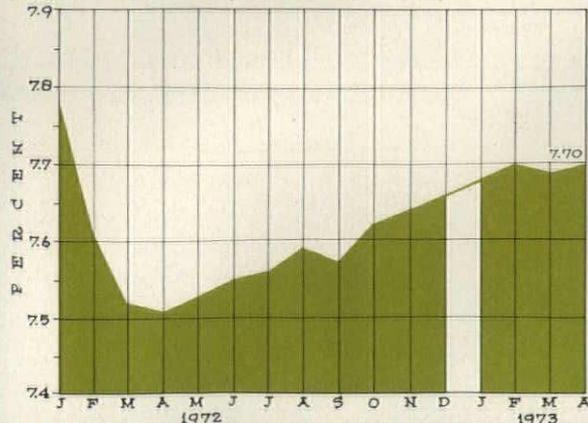
MONEY STOCK (M-1) In billions outstanding



FNMA's FHA-VA AUCTION
Monthly average yield 4-month commitment



CONVENTIONAL NEW-HOUSE MORTGAGES
Effective interest rate (Contract rate + fees)

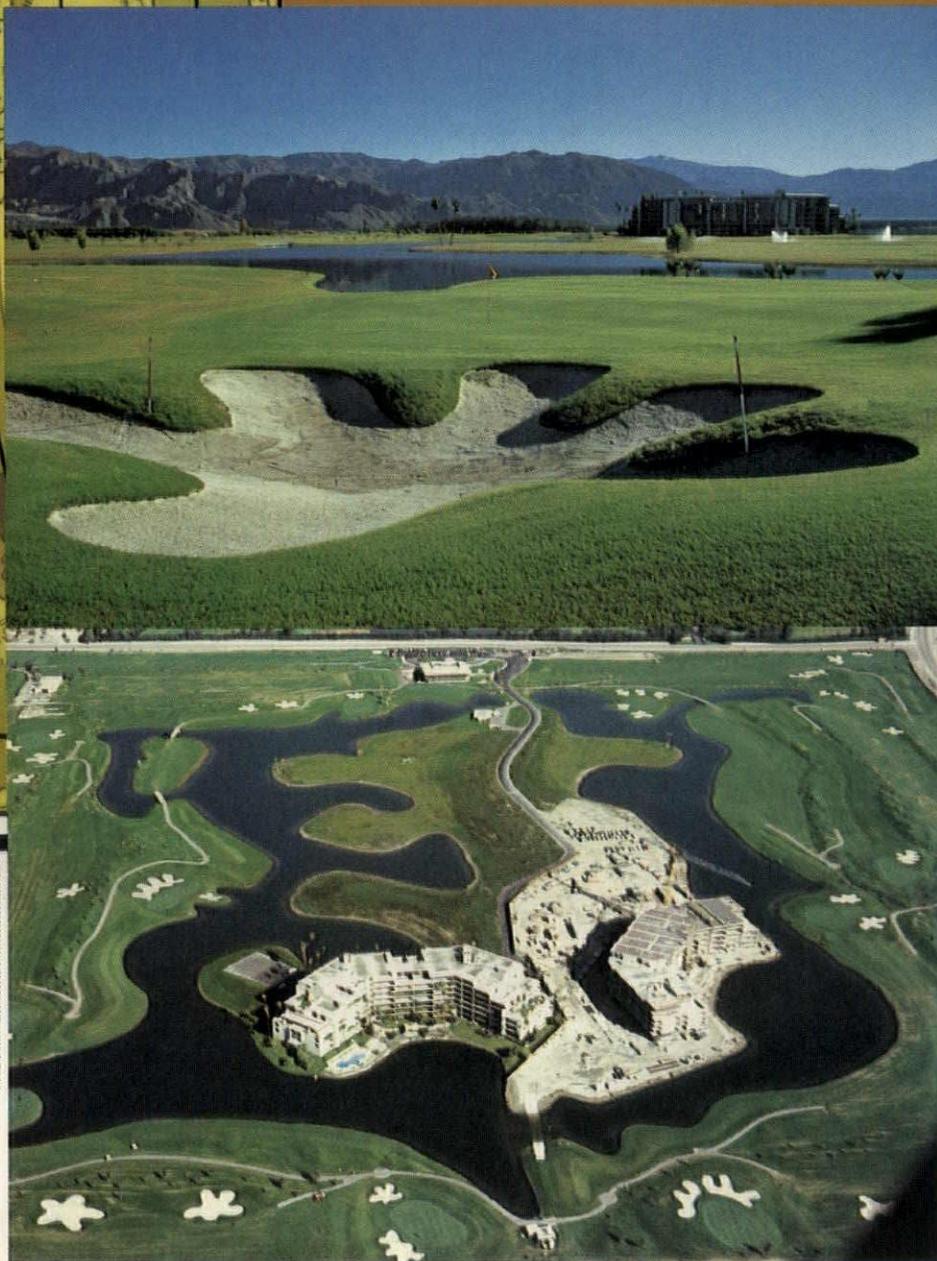
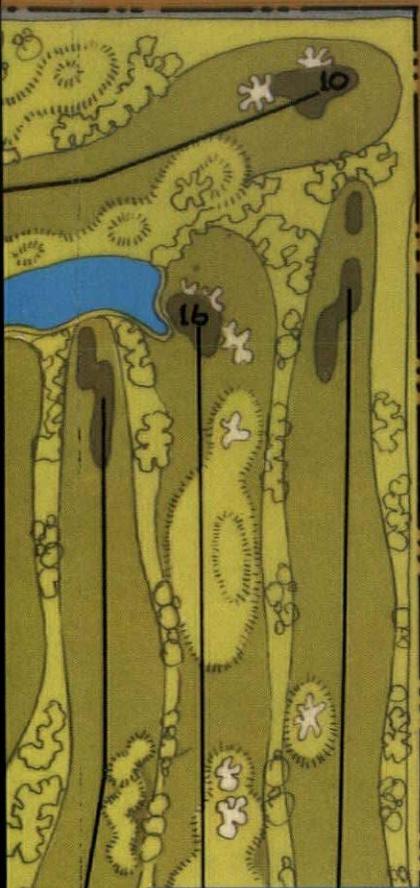


PROJECT
PORTFOLIO

13



Project: Desert Island.
Location: Palm Springs, Calif.
Developer: Winmar of the Desert Inc.
Planners and architects: Desmond Muirhead Inc.
Golf course architect: Desmond Muirhead
Engineers: Webb Engineering Co.
Site area: 155 acres
Number of units: 388 condominium apartments
Price range: \$55,000 to \$155,000



As a lesson in getting the most out of a site, Desert Island is in a class by itself. Its 155 acres (a quarter section minus five acres of road easement) include an 18-hole golf course, a 27-acre lake and an eventual 388 units in five 7-story mid-rise buildings.

Furthermore, the project's density—four units per acre—is deceptive. The units are enormous (some have more than 4,000 sq. ft. of area including their balconies), so it is entirely conceivable that with smaller apartments, the project's density could be doubled without changing the basic concept or impairing the openness which is Desert Island's most salient feature. (The only problem would be how to increase permanent parking, which is now provided under the buildings.)

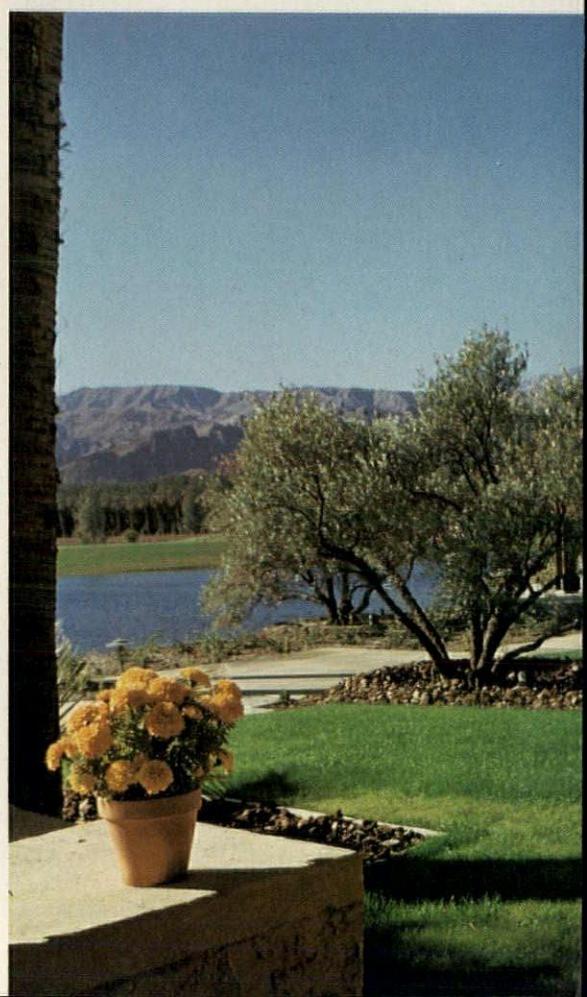
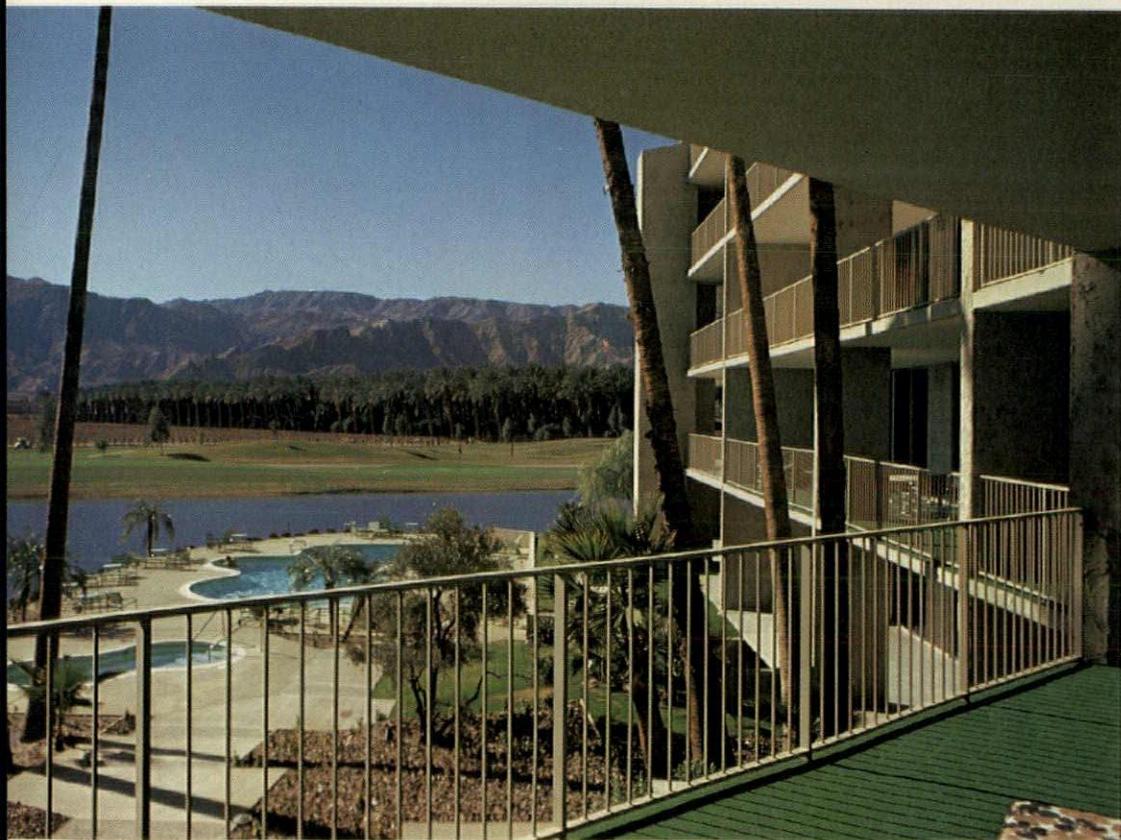
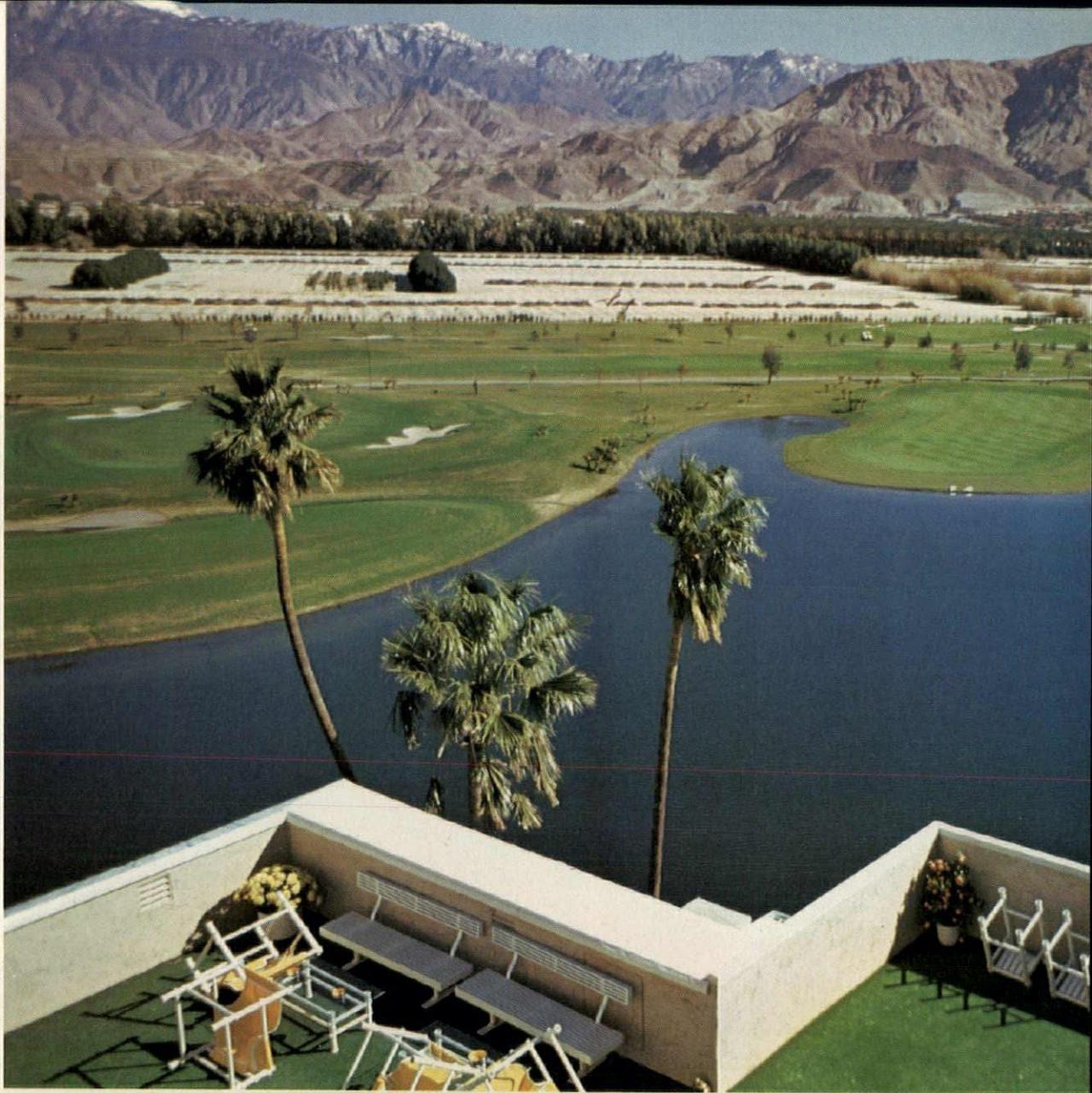
The golf course is the project's key. Its 105 acres rim the site and provide both a buffer and a spectacular view. The lake creates five fine water holes, augments the view and adds an invaluable sense of security for the island where the units themselves are located.

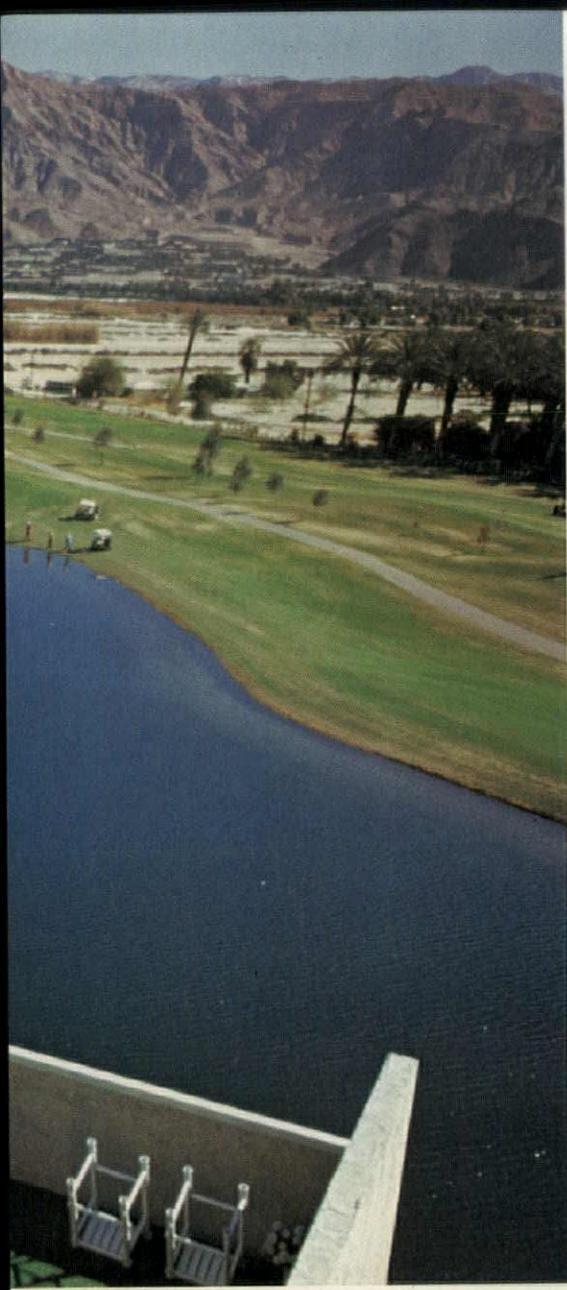
The project began in October 1970 and opened last fall. As of June 1, some 40 units had been sold.

Site plan shows four apartment buildings on the 23-acre island in the center of the project; a fifth building will be located somewhere in the center of the island. Photos show present stage of development from ground and air.

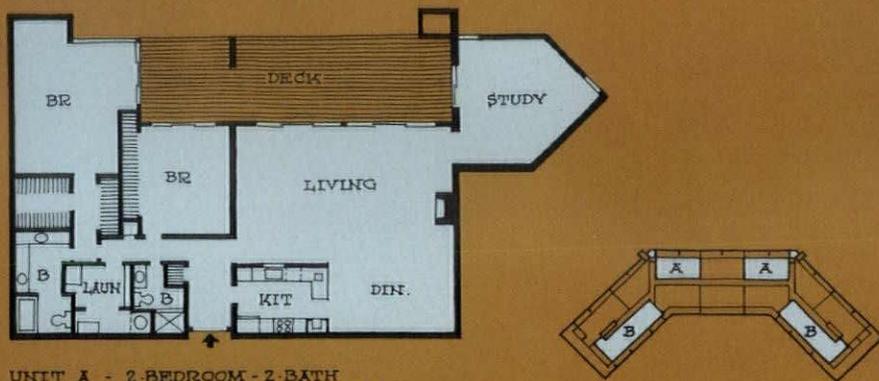
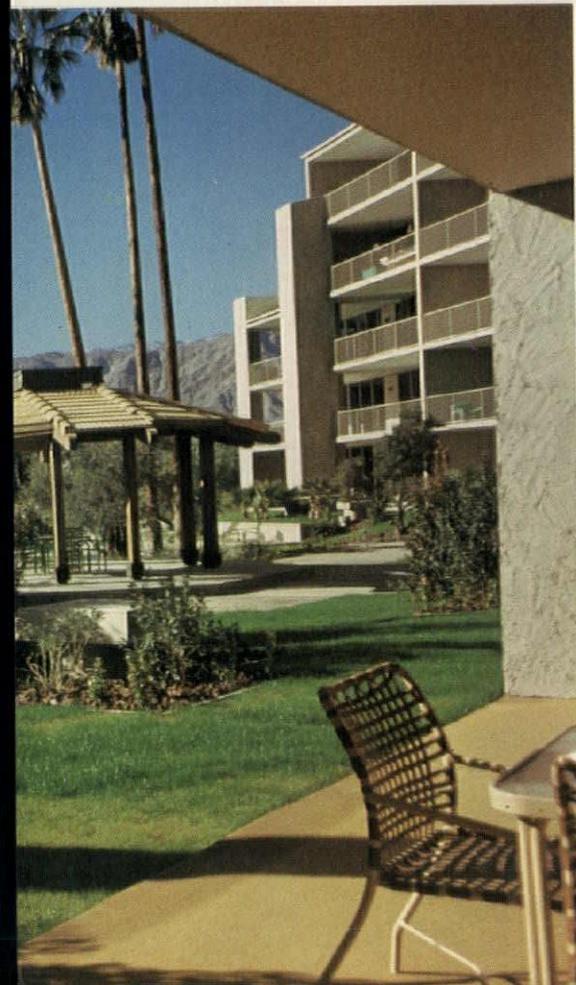
PHOTOS: GRAHAM WARRINGTON

Views from different levels are shown in these three photos. Every unit has a view of both golf course and lake, and this has been one of the two top marketing features of the project. The other is security. (Says Desmond Muirhead, who planned and designed Desert Island: "No burglar can swim across the lake with a color television set on his back.") There has been no discernible sales pattern except that first-floor units, which are the least expensive and have the least spectacular view, have been the slowest movers. Half of the first building's 80 units are sold and there are a few reservations in for the second, which is now under construction.





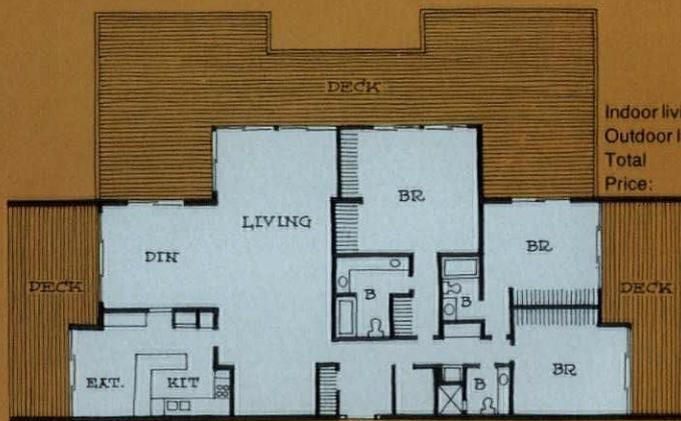
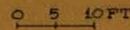
PHOTOS: GRAHAM WARRINGTON



UNIT A - 2 BEDROOM - 2 BATH
 Indoor living area: 2,242 sq. ft.
 Outdoor living area: 510 sq. ft.
 Total: 2,752 sq. ft.
 Price: \$66,000-\$72,000

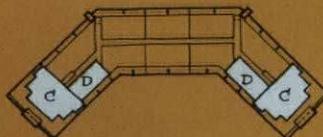


UNIT B - 3 BEDROOM - 3 BATH
 Indoor living area: 2,620 sq. ft.
 Outdoor living area: 1,302 sq. ft.
 Total: 3,922 sq. ft.
 Price: \$92,500

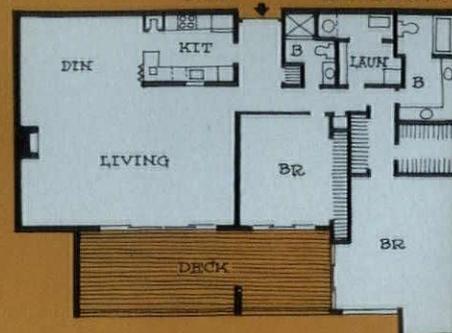


Indoor living area: 2,430 sq. ft.
 Outdoor living area: 1,713 sq. ft.
 Total: 4,143 sq. ft.
 Price: \$92,500

UNIT C - 3 BEDROOM - 3 BATH



Indoor living area: 1,910 sq. ft.
 Outdoor living area: 401 sq. ft.
 Total: 2,311 sq. ft.
 Price: \$59,000-\$63,500



UNIT D - 2 BEDROOM - 2 BATH

Four of the project's eight basic models are shown here, along with location plans showing where they occur in the building. There are also six penthouse units in each building, which sell for \$125,000 to \$150,000.

The first of Desert Island's five apartment buildings is shown at right from across the lake. Every care has been taken to keep the structure in scale with its environment. Each end is angled in to avoid a flat, monotonous look; the building's height is stepped down from seven stories to four stories at the ends; and balconies are recessed a full 12' to obviate any slab-like feeling. The design was an important factor in getting zoning approval for the first mid-rise project in the Palm Springs area.

The picture below shows the pool and terrace area in front of the building; each of the other buildings will be similarly equipped.



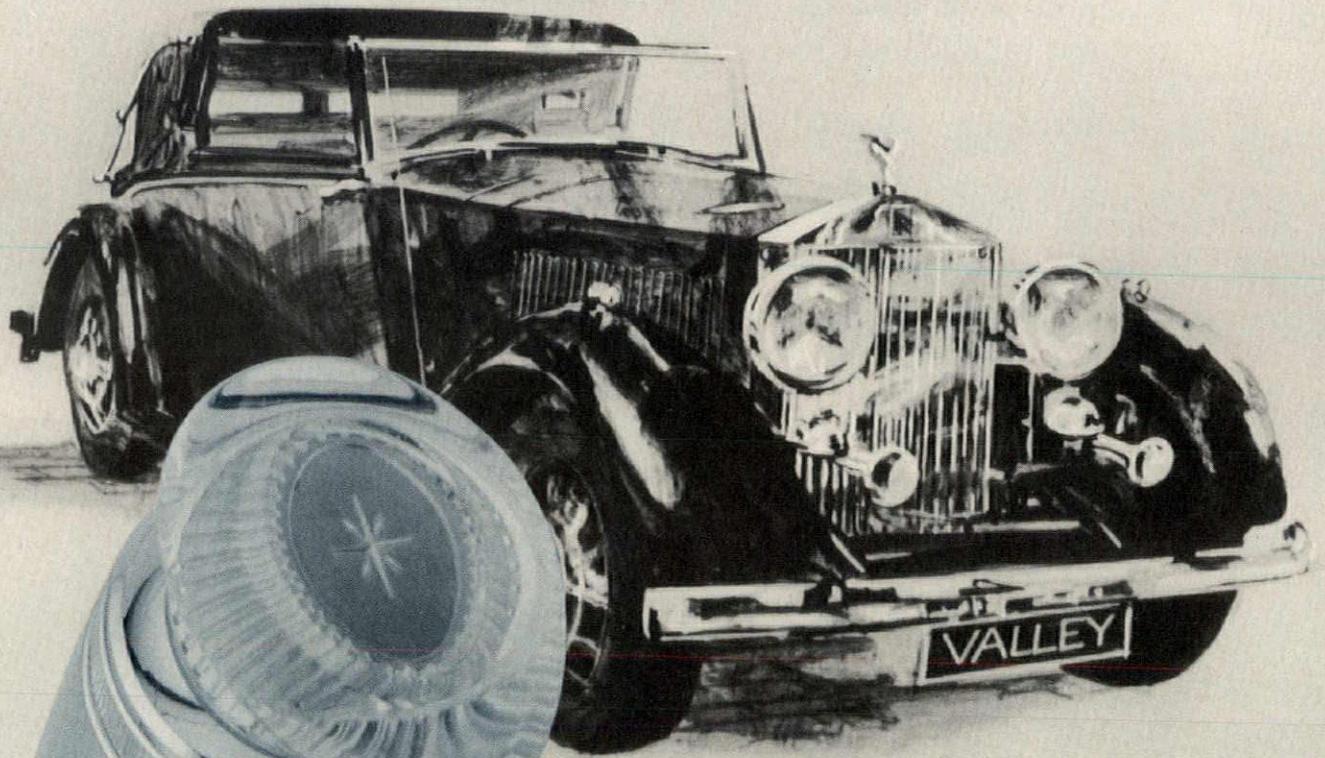
PHOTOS: GRAHAM WARRINGTON



Clubhouse, shown at right, is close to the entrance of the project so that non-resident members will not intrude on the privacy and security of the residential area. The clubhouse is modest in size at 20,000 sq. ft. and includes a big main dining room, bar and lounge, the project's executive offices, plus golf essentials such as pro shops and locker rooms. At present the club has 135 outside members who paid \$3,000 each to join. New fee is \$4,000, and outside memberships will soon be limited so as not to crowd resident members.







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ARI has a booklet that explains its sound control program to home builders and public officials. Write us and we'll send you a free copy: Air-Conditioning & Refrigeration Institute, 1815 North Fort Myer Drive, Arlington, Virginia 22209.

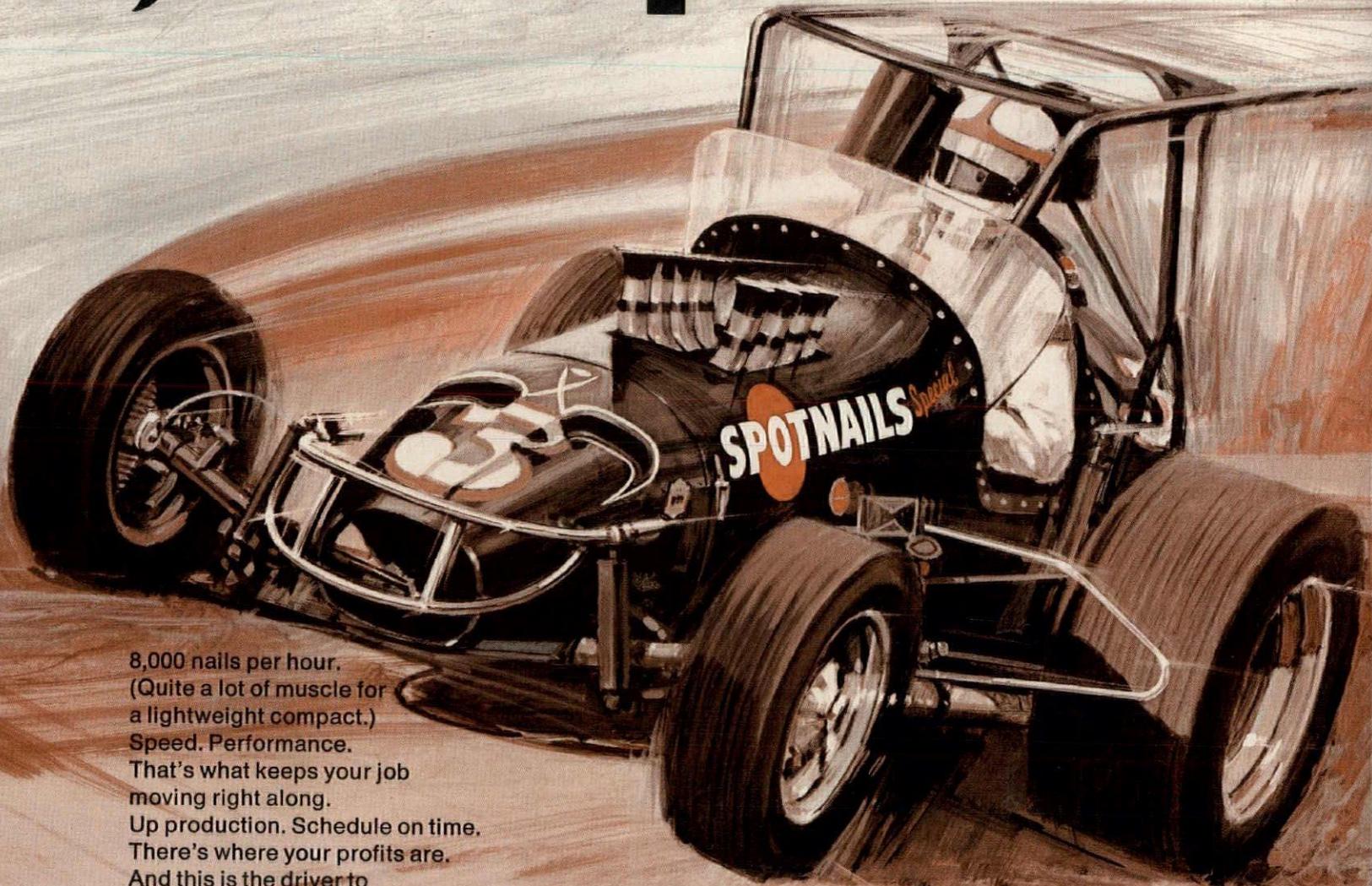
*Sound-rated central air-conditioning units are listed in the ARI Directory of Certified Equipment. Nearly all air-conditioning contractors have the Directory. Ask your contractor to show you the sound rating of the units he plans to install.

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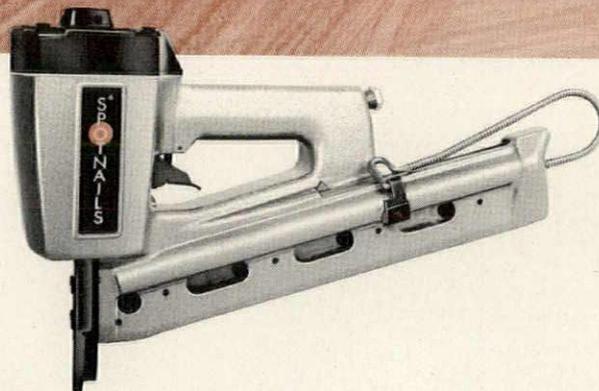
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H&H JULY 1973 105

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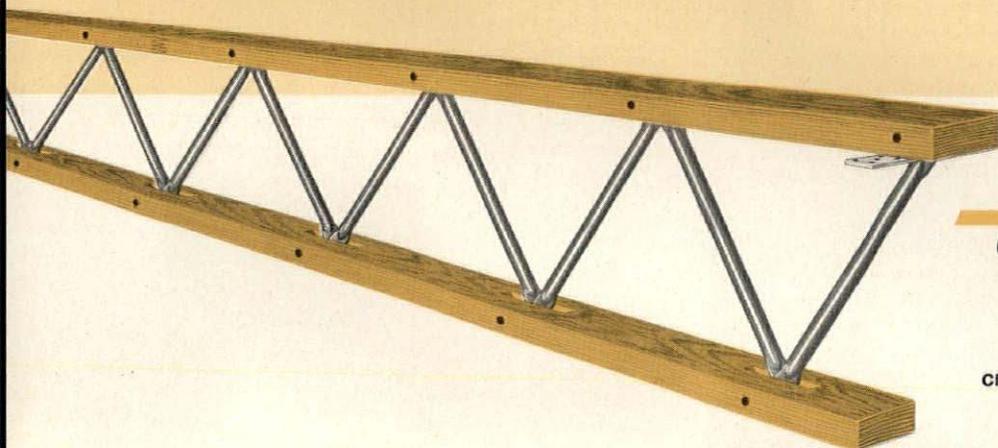
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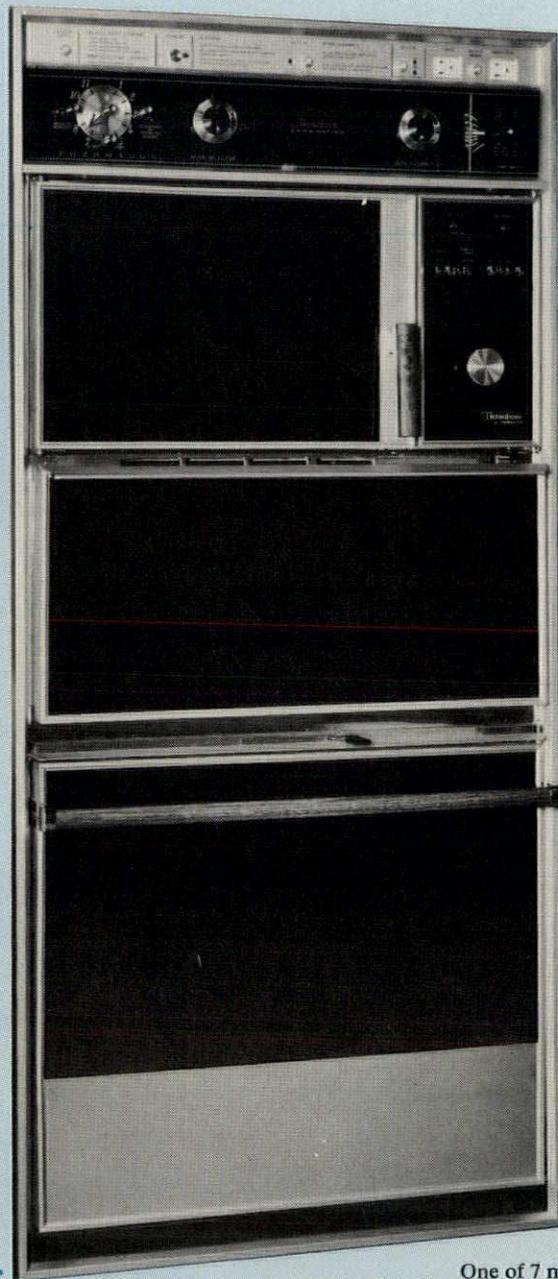
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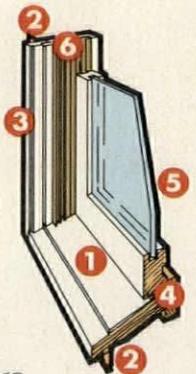
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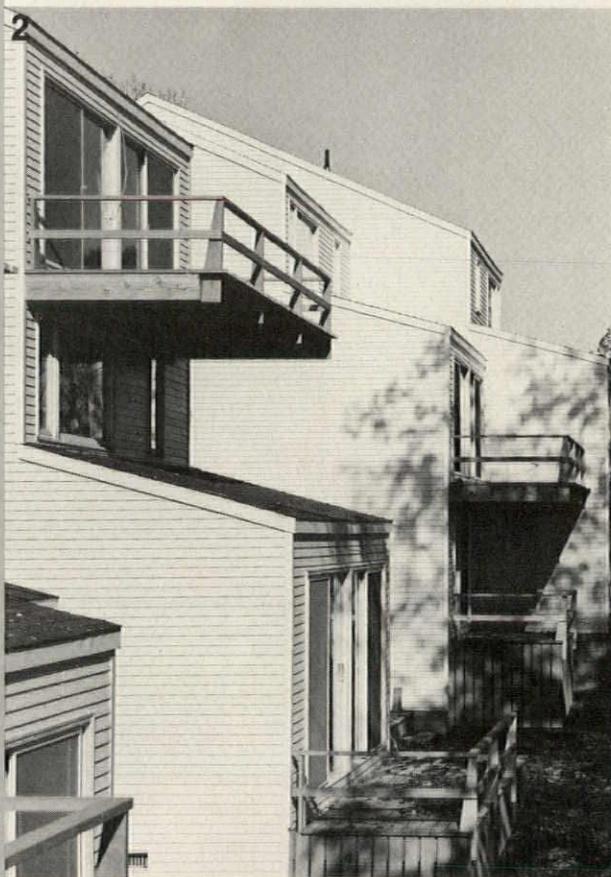
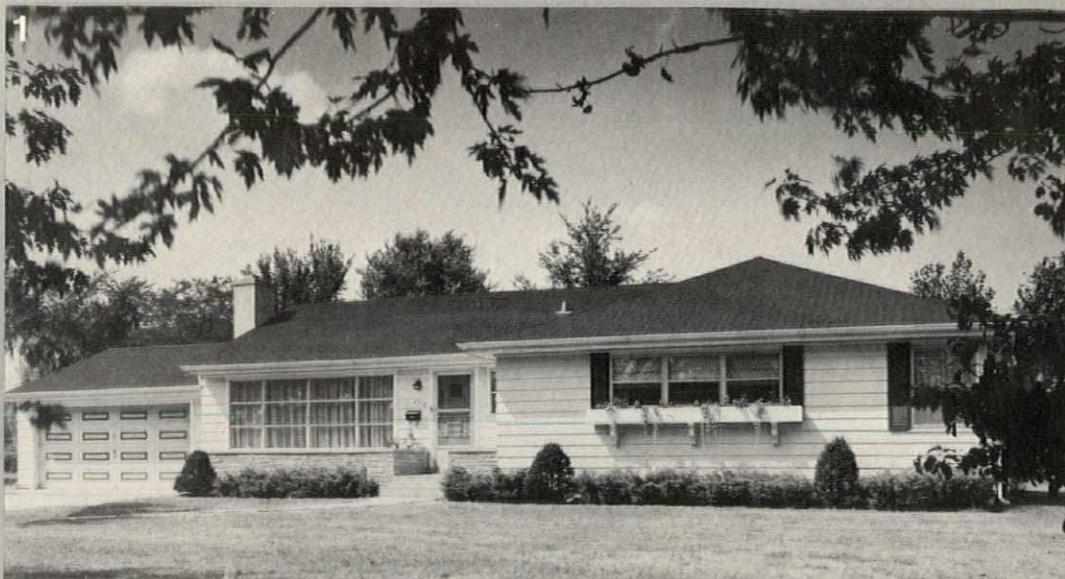
... and durability and low maintenance, increasingly important to owner-builders and home buyers, are the common denominators.

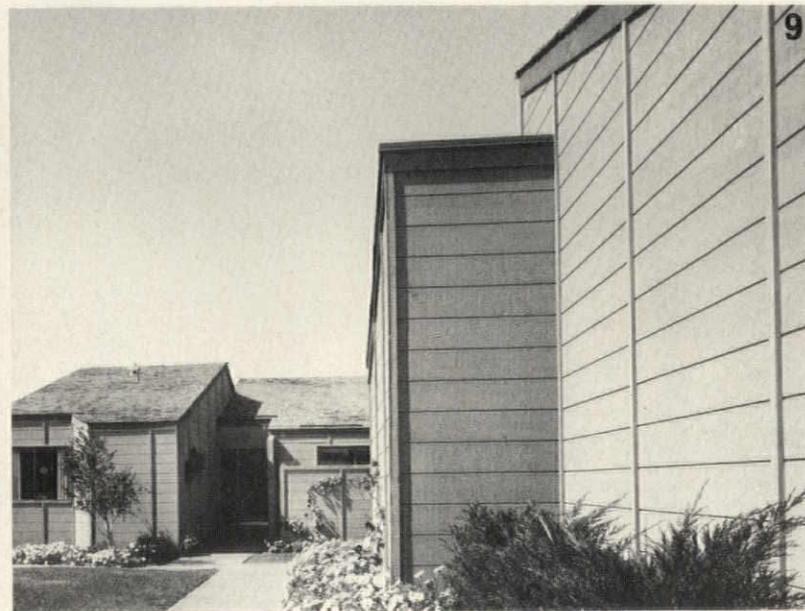
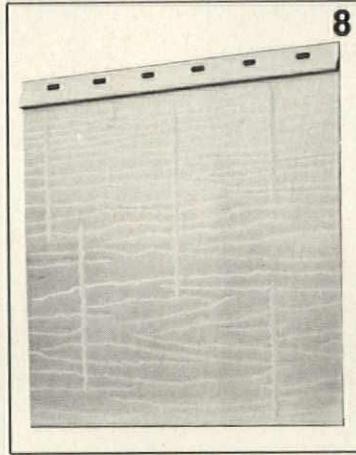
With the help of man-made materials manufacturers of siding, roofing and exterior accessories have succeeded in developing familiar products that possess superior performance characteristics.

For example, frequent paint jobs are no longer as necessary as they used to be. Thanks to the advent of long-life, plastic-based paints and finishes and the widespread use of vinyls, many natural exterior products such as wood siding are virtually maintenance-free. Others that appear to be wood, stone or other natural material are actually either solid vinyl or metal with a bonded-on, protective plastic coating.

These low-maintenance, easy-to-care-for materials are highly resistant to weathering, air pollution, wind, corrosion, pests and general deterioration.

On the following pages HOUSE & HOME presents selected sidings, roofing and exterior accessories that live up to the long-term performance standards required of today's exterior building products.





Siding

Prefinished steel siding (1) features a Du Pont Tedlar® polyvinyl fluoride film. "Superstar" is durable and easy to maintain. Dirt and stains can be removed with household detergents. The siding resists weathering, is not affected by pollution, salt-water air or temperature and will not crack, chip or peel. Mastic, South Bend, Ind. CIRCLE 270 ON READER SERVICE CARD

Clapboard-style solid vinyl siding (2) is shown on the exterior of an award-winning condominium. The material will not blister, peel, flake, warp, corrode or dent. It is impervious to air pollutants, termites and fungi. The siding, in white, gray, green or yellow, never needs painting. Bird & Son, East Walpole, Mass. CIRCLE 271 ON READER SERVICE CARD

Embossed aluminum sidings (3), with a deep woodgrain effect, are highly resistant to weathering and are unaffected by temperature or environmental conditions. "Vinyl-Tuf" has an easy-to-maintain PVC coating that is impact and corrosion resistant. "Shadow-Grain", with an acrylic finish, features two-tone painting to accent the woodlook. Reynolds Metal, Richmond, Va. CIRCLE 272 ON READER SERVICE CARD

Roughsawn hardboard siding (4) is available in 24 factory-finished colors. The back-sealed material features a flat, full-hiding solid color stain that is resistant to sunlight and fading. Fabricated of Douglas fir, the siding will not crack, curl or split and resists moisture and impact. It comes in lap or panel in lengths to 16'. Forest Fiber, Forest Grove, Ore. CIRCLE 273 ON READER SERVICE CARD

Woodgrained plywood siding (5), "Ruf-Sawn 316", comes in 4'x8', -9' and -10' panels. The pattern is embossed into the surface of a resin-saturated medium-density fiber overlay that is bonded to the plywood. Siding, which can be painted or stained, will not chip or peel. Simpson

Timber, Seattle.

CIRCLE 274 ON READER SERVICE CARD

Structural siding/sheathing, with a stone aggregate surface (6), utilizes exterior grade plywood, fireproof asbestos board or Homasote structural insulation board as substrates. The prefinished material comes in 4'x8', -10' or -12' sizes or can be ordered precut in specified shapes. Modular Materials, South Plainfield, N.J. CIRCLE 275 ON READER SERVICE CARD

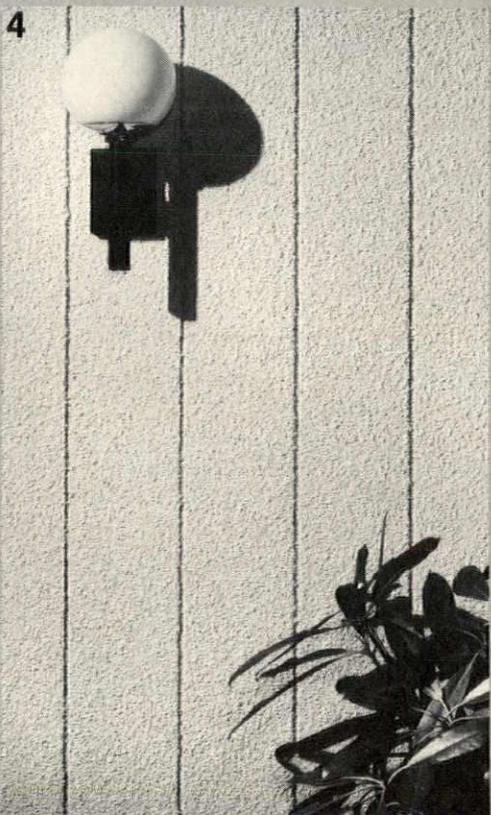
Tempered hardboard siding (7) features a textured woodgrain look. Available in lap and vertical panels up to 16' in length, the material is prime-coated and back-sealed. Vertical panel siding comes in V-groove, channel groove and reverse board-and-batten patterns. Material will not split, splinter or crack. Georgia-Pacific, Portland, Ore. CIRCLE 276 ON READER SERVICE CARD

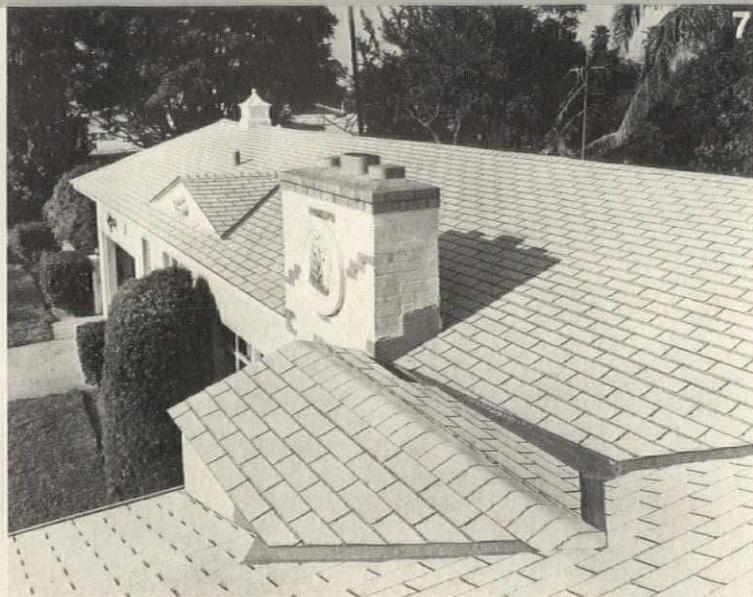
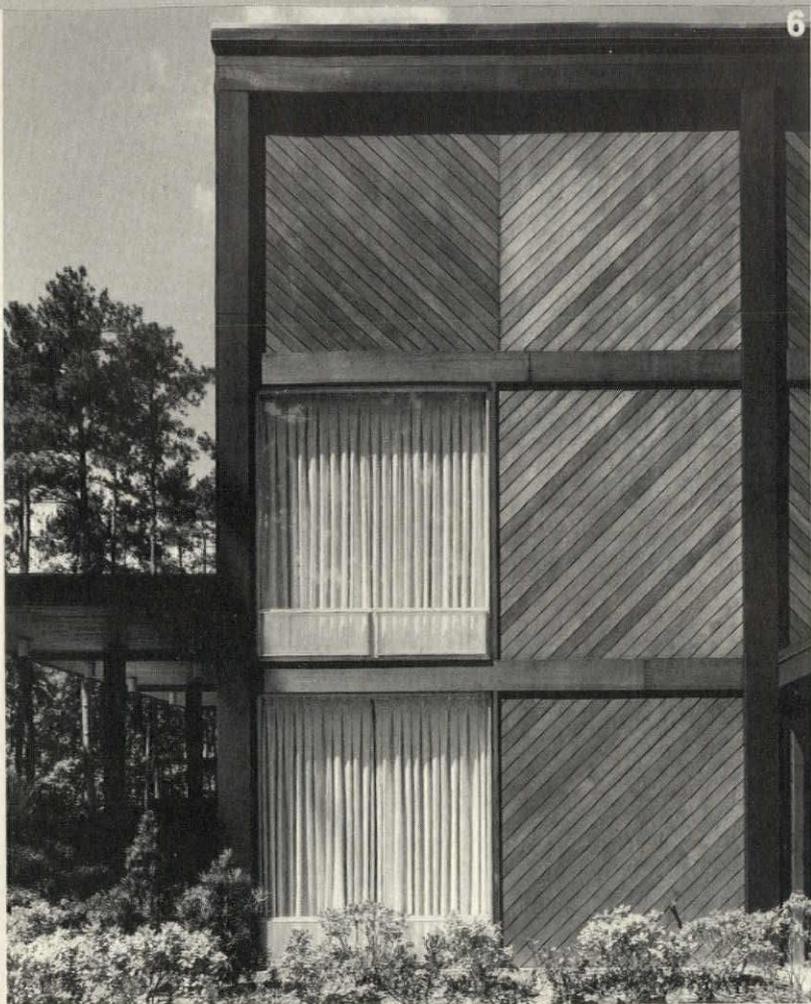
Embossed aluminum siding (8) simulates the look of rough-sawn lumber. "Timber Cutt" is available with an acrylic finish or in a vinyl-clad version. Offered in lap and panel sidings, the back-sealed material is easy to maintain and unaffected by weathering. It is available in 14 colors. Alsar, Southfield, Mich. CIRCLE 277 ON READER SERVICE CARD

Textured plywood siding (9) can add architectural and visual interest to a project. Shown here in a horizontal application, the material serves as both decorative siding and structural sheathing. Textured plywood, available in large panels, accepts a full range of stains and finishes. American Plywood Assn., Tacoma, Wash. CIRCLE 278 ON READER SERVICE CARD

Mineral fiber siding, "Heavytex" (10), is installed by a special aluminum channel method that eliminates the need for sheathing. The woodgrain-look material comes in 9"x32" shingles. Rot- and vermin-proof "Heavytex" is available in 12 colors. Suprador, New York City. CIRCLE 279 ON READER SERVICE CARD

marketplace





Beveled siding (1), fabricated of Western wood, adds warmth to an entryway. The wide variety of available patterns and styles include board and batten, channel rustic and T&G. Wood siding accepts any stain or finish or can be left to weather naturally. Western Wood, Portland, Ore. CIRCLE 280 ON READER SERVICE CARD

Rough-textured hardboard, in a simulated woodgrain pattern (2), is factory prime-coated on the face and edges to provide 120-day protection against the weather. The $\frac{7}{16}$ "-thick, 4'x8' or -9' medium-density panels are constructed of long fiber Southern pine. Temple, Diboll, Tex. CIRCLE 281 ON READER SERVICE CARD

Fire-protected lumber and plywood (3) is pressure impregnated with mineral salts that react chemically

at temperatures below the ignition point of wood. The heated material forms an insulating char surface that protects the wood. "Non-Com" comes in interior and exterior grades. Koppers, Pittsburgh, Pa. CIRCLE 282 ON READER SERVICE CARD

Textured stone-on-plywood cladding (4) is suitable for single-wall construction or for use over sheathing. "Shadow-Line" features a regular size aggregate surface scored 8" on center with $\frac{3}{8}$ " deep, $\frac{1}{4}$ " wide grooves. Panels in 4'x8', -9' and -10' come in 12 colors. U.S. Plywood, Champion, New York City. CIRCLE 283 ON READER SERVICE CARD

Thatched mineral siding (5) offers the look of wood shingles without the maintenance problems. "Stratalite" is available in 11 factory-

applied colors, all permanently sealed with a baked acrylic finish. Material will not peel, blister, split or rot. GAF, New York City. CIRCLE 284 ON READER SERVICE CARD

Redwood clear all-heart lumber in 1'x6' planks (6) is used to achieve an interesting herringbone effect. Siding shown is slightly stained to contrast with the dark stain of the trim. Redwood, in lumber or plywood panels, accepts stains well. California Redwood Assn., San Francisco. CIRCLE 285 ON READER SERVICE CARD

Roofing

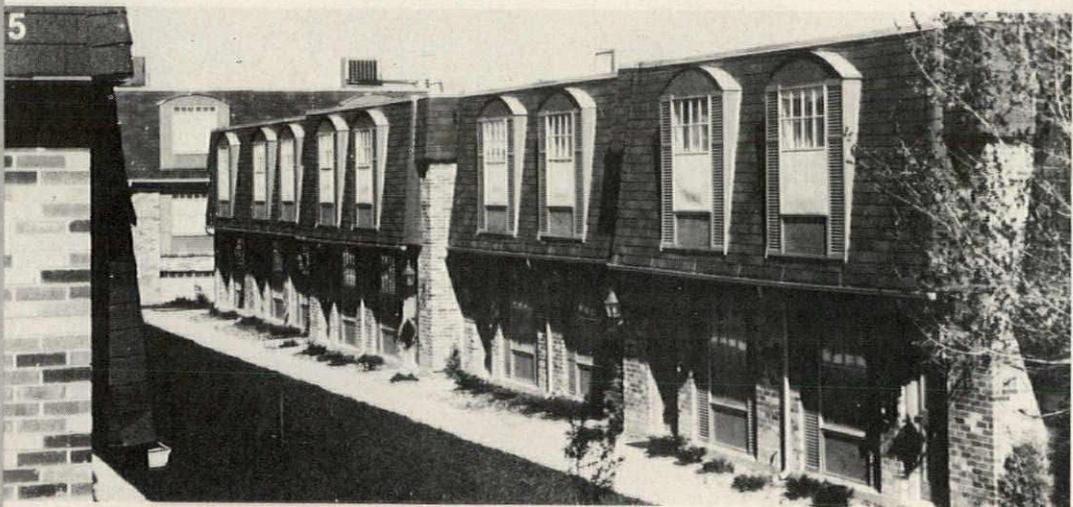
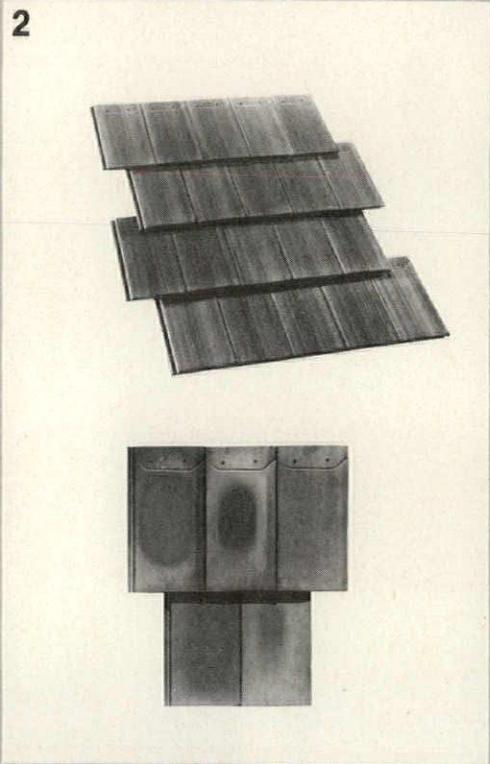
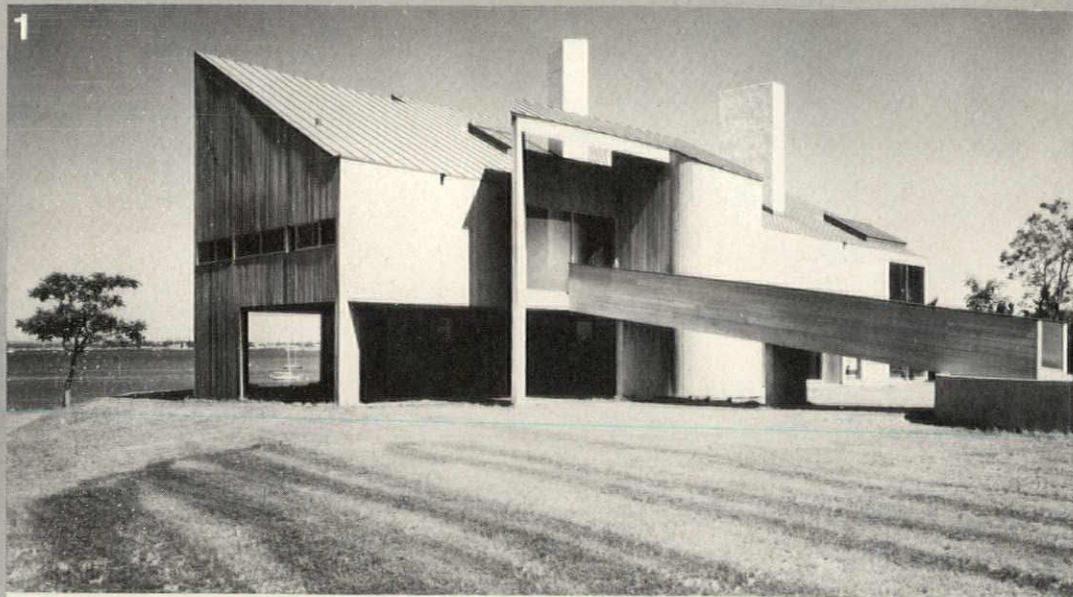
Fungus-resistant roofing shingles (7) have a zinc granule formulation imbedded into them. Material offers protection against fungus-blackening and streaking of white roofs in warm, humid climates. Insulation is pro-

vided since the white shingles reflect the light. Celotex, Tampa, Fla. CIRCLE 286 ON READER SERVICE CARD

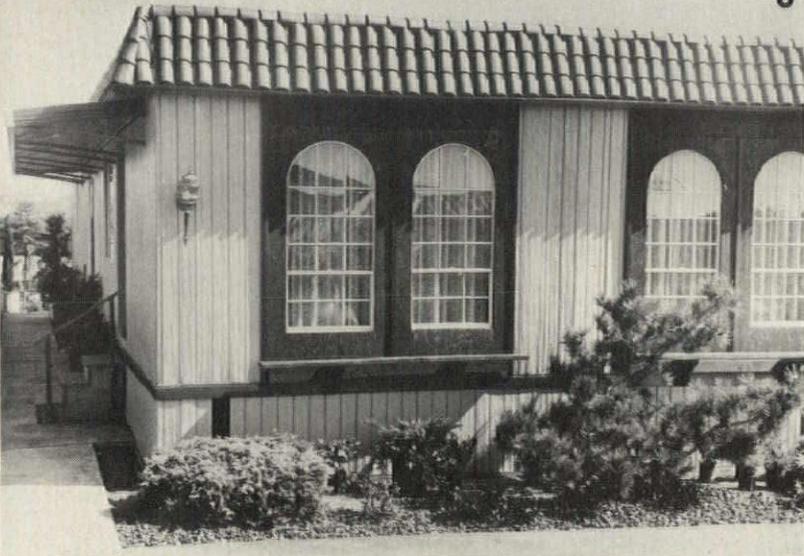
Mineral-fiber panel roofing (8) features a textured ceramic granule surface that simulates wood shingles. The roofing carries a 30-year warranty and a UL Class "A" flammability rating. Shingles, shown in a mansard application, never discolor. Suprador, New York City. CIRCLE 287 ON READER SERVICE CARD

Mansard roof (9), with the rustic look of cedar shakes, is constructed of "Bayside" hardboard lap siding. The easy-to-install material is supplied in 16' lengths. Siding is available unprimed or painted in a two-tone pre-stained surface in a choice of three colors. Masonite, Chicago. CIRCLE 288 ON READER SERVICE CARD

marketplace



8



9



Terne-coated stainless steel (TCS) (1) is used on the salt box roof and canopy shown. TCS accepts paint without the need for undercoating or can be allowed to weather naturally. The versatile metal is resistant to salt air and weathering. Follansbee Steel, Follansbee, W. Va.

CIRCLE 289 ON READER SERVICE CARD

Low-cost clay roofing tiles (2), "Biscayne", are available in smooth or combed coral red and smooth or combed fireflash. Supplied in large, flat, 9"x18" pieces, the easy-to-install tiles are colorfast, fireproof and highly resistant to weathering. Ludowici-Celadon, Chicago.

CIRCLE 290 ON READER SERVICE CARD

Wood-Lume roofing (3) is .019 gauge aluminum that is roll-formed and laminated to exterior-sheathing grade plywood. Offered with a baked-on finish in white and four colors, the easy-to-install material will not peel, crack, blister or craze. Wood-Lume, Hastings, Neb.

CIRCLE 291 ON READER SERVICE CARD

Laminated fiber glass shingles (4), "Woodlands", are designed to simulate wood. Available in four colors, the shingles carry a Class "A" flammability rating and feature "Seal-O-Matic" bonding strips. Easy-to-install roofing will not crack or rot. Johns-Manville, Denver, Colo.

CIRCLE 292 ON READER SERVICE CARD

"Jet" asphalt roofing shingles (5) combine an exclusive wind-seal feature and heavy-duty construction to make the material impervious to wind and weathering. Fire-resistant shingles are bonded into place by thermo-plastic cement dots that are activated by the heat of the sun. Bird & Son, East Walpole, Mass.

CIRCLE 293 ON READER SERVICE CARD

Shake shingle (6), with the look of genuine wood, is molded of reinforced fiber glass. The easy-to-install, 17"x60" panels interlock on four sides to provide weather protection. Shakes, suitable for use on

mansard roofs, come in brown, white or green. Alsie, Akron, Ohio.

CIRCLE 294 ON READER SERVICE CARD

Fiber glass based asphalt shingles (7) have the deep sculptured lines of woodshakes. Twice as thick as ordinary asphalt shingles, heavy-duty "Glasstex" resists weathering and rotting. Shingles, with a Class "A" UL fire rating, are self-bonding to protect against wind damage. Certain-teed, Valley Forge, Pa.

CIRCLE 295 ON READER SERVICE CARD

Spanish roof tiles (8), in easy-to-install, lightweight, sheets, are fabricated of ModutexSM. Roofing is made to simulate clay tiles but cuts down on the breakage and weight problems. Flexible material resists weathering, rotting and termites. Modular Fixtures, Irvine, Calif.

CIRCLE 296 ON READER SERVICE CARD

Roof tiles, with the look of clay or stone (9), are of formed galvanized steel sheets coated with a bituminous emulsion and covered with ceramic chips. "Decramastic" tiles, with a fungus-resistant sealer, have a Class "A" fire rating. Automated Building, Miami, Fla.

CIRCLE 297 ON READER SERVICE CARD

"Timberline" asphalt roof shingles (10) provide the rustic appearance of wood shakes as well as the durability and protection of ceramic-surfaced mineral granules. Available in a choice of shades, the weatherproof roofing features a wind-resistant, thermo-plastic bonding agent. GAF, New York City.

CIRCLE 298 ON READER SERVICE CARD

Accessories

"Weathermate" shutters (11) are a molded polymer construction, coated with an acrylic finish that withstands weathering. A unique clip system provides easy installation. Available in black and white in three different styles, the durable shutters are easy-to-maintain. Modernfold, New Castle, Ind.

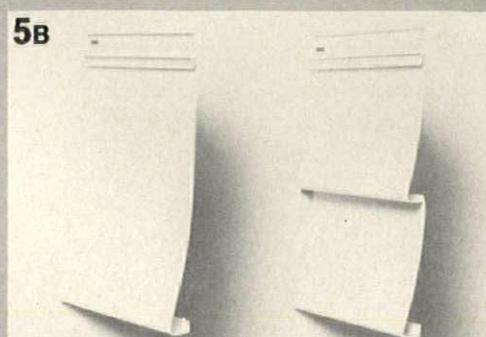
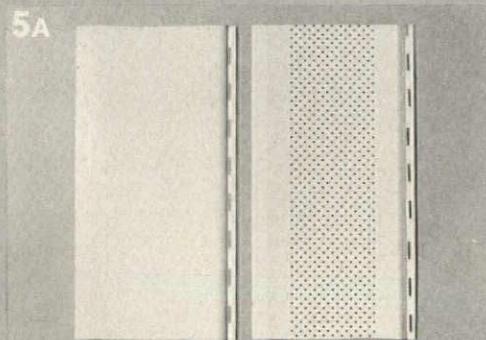
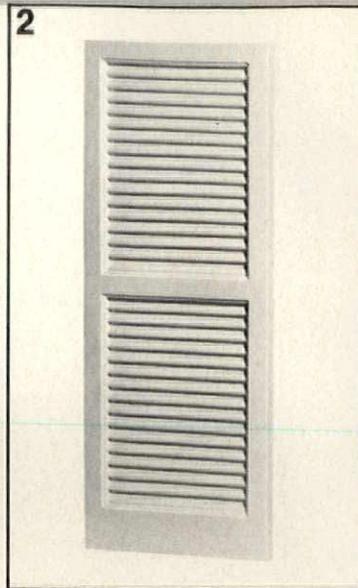
CIRCLE 299 ON READER SERVICE CARD

10



11





Shutters, of rigid vinyl bonded to a preservative-treated wood subframe, come in the panel style shown (1) or in a louver version. The easy-to-maintain shutters, with authentic-looking hinges, are in black or white. Andersen, Bayport, Minn.
CIRCLE 350 ON READER SERVICE CARD

"Wood-lyk" ABS plastic shutters (2) feature a deep shadow three dimensional design. Shutters, with a simulated woodgrain, have a Korad[®] acrylic finish that never needs painting. The easy-to-install units come in 15 sizes in black or white. Lomanco, Minneapolis, Minn.
CIRCLE 351 ON READER SERVICE CARD

All-aluminum railings (3) are available in an unlimited choice of colors. Designed to specifications, railings come in a variety of panel styles. Easy-to-install units will not crack, chip, peel or corrode even after prolonged exposure to the elements. Sun Control Products, Hialeah, Fla.
CIRCLE 352 ON READER SERVICE CARD

Soffit and fascia system (4) and accompanying raincarrying equipment are of lightweight aluminum with a rugged polyvinyl chloride coating. Designed to withstand weathering, the units will not rust, blister, crack, peel or chip. Crown Aluminum, Pittsburgh, Pa.
CIRCLE 353 ON READER SERVICE CARD

Vinyl soffits (5A) and **fascia** (5B) protect the base structure of a house. Vented soffits provide proper air circulation. Suitable for use on any style home, the units will not peel, flake, blister, corrode or dent and are unaffected by moisture and pollutants. Certain-teed, Valley Forge, Pa.
CIRCLE 354 ON READER SERVICE CARD

Load-bearing aluminum columns (6) feature a fluted design. Lightweight columns are 9' long and 15" in diameter. Easy-to-maintain units have a gloss enamel finish that blends with exterior colors. Reynolds Metal, Richmond, Va.
CIRCLE 355 ON READER SERVICE CARD

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Austrian poufs, shirred curtains,
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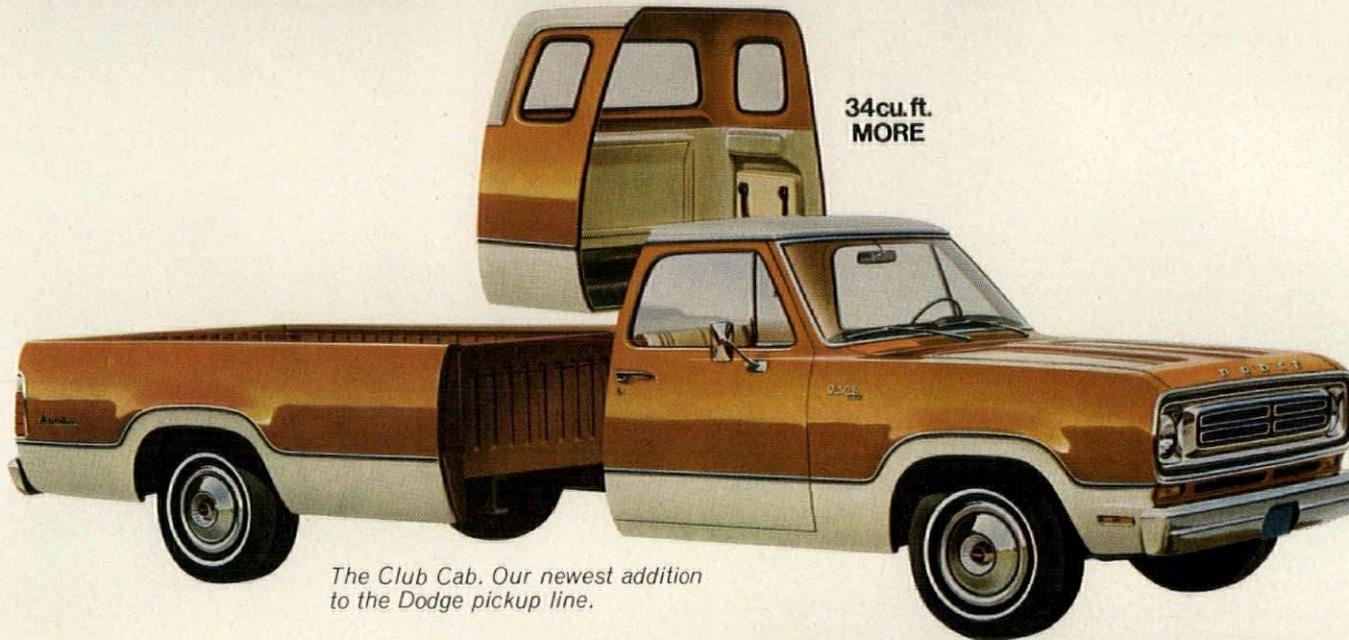
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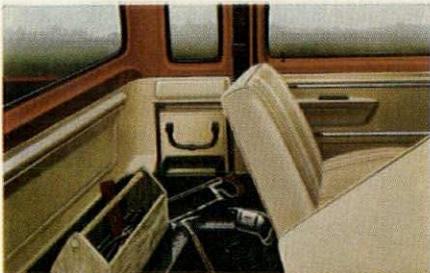
Truly, a tremendous value! Door is constructed from solid blocks of pine. Each individual block is tongue and grooved on its entire perimeter to ensure solid, sturdy construction. Door has stiles and rails on its outside perimeter. Thickness: 1½".

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The Club Cab. Our newest addition to the Dodge pickup line.

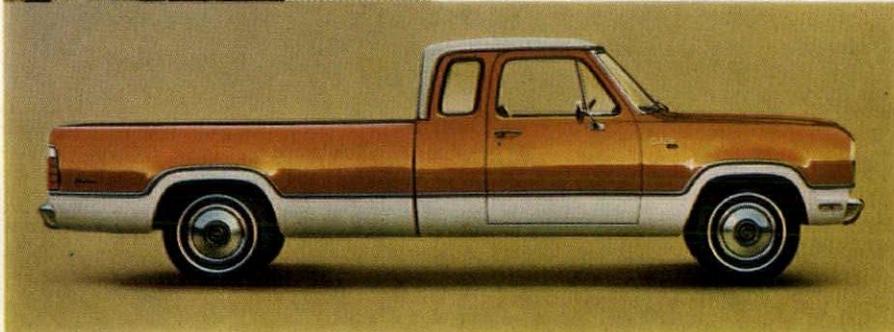
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PRODUCTS

Two whirlpool showerheads massage as they spray



Easy-to-install showerhead (above) combines the benefits of a massage with the stimulation of a shower. The "Shower Massage", based on the same principle as the "Water-Pik" oral hygiene device, fits most standard shower outlets. An adjustable lever controls 2,400 to 9,000 jets of water per minute. Teledyne Aqua Tec, Fort Collins, Colo.

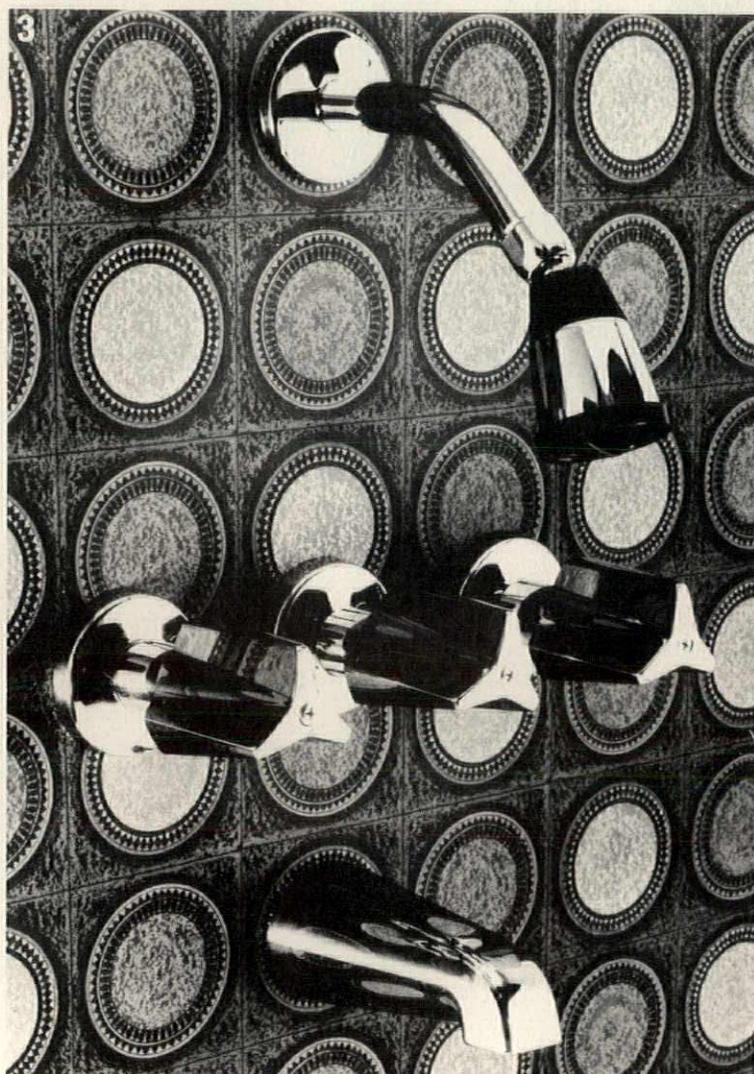
CIRCLE 200 ON READER SERVICE CARD

Rotary massage showerhead has a spray action similar to a whirlpool bath. A constantly rotating inner nozzle discharges streams of swirling water. The intensity of the spray can be controlled at any temperature by sliding an adjustable cone forward over the chrome-plated brass unit. Head fits any standard 1/2" diameter pipe. Rain Jet, Burbank, Calif.

CIRCLE 201 ON READER SERVICE CARD

Brass plumbing fittings feature a Celebrity U/R-Pak™ cartridge control constructed of corrosion-resistant Celcon® plastic. There are no metal washers to cause friction and wear. Available in lavatory (1&2) and tub/shower (3) models, fittings come with sparkling acrylic or chrome-plated metal handles. Units, with built-in aerators and long spouts for comfortable washing, are rated for long term operation at water temperatures up to 180° F. Universal-Rundel, New Castle, Pa.

CIRCLE 202 ON READER SERVICE CARD



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Although Stratalite Mineral Fiber Siding has the beautiful appearance of wood, it doesn't have to be painted, won't rot, shrink, curl, split and can be put up with the same carpenter's tools as wood. (It's also fire-resistant and termite-proof.)

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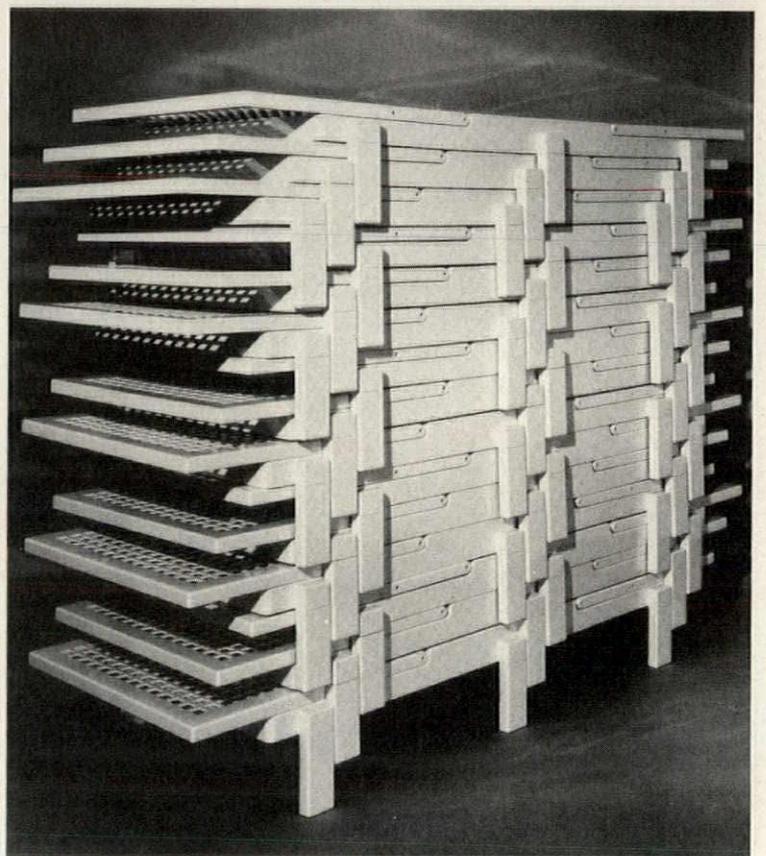
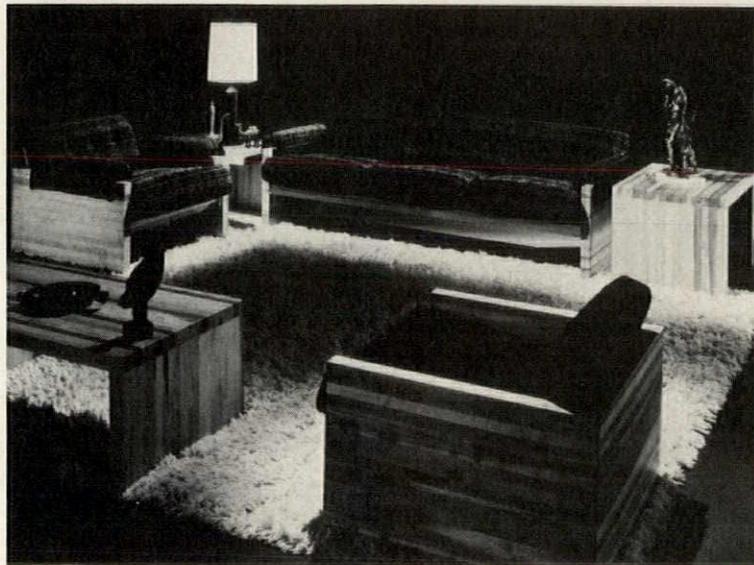
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 **Stratalite**
THATCH SIDING

PRODUCTS/FURNITURE

Geometrically styled furniture is made of butcher blocks and building blocks. Upholstered seating group—a sofa, loveseat and lounge chair with a squared-off building block look—features foam construction over a wood frame. Cushions are of Dacron-foam. Butcher block tables of solid laminated oak strips with a natural finish come in cocktail, end and 16" cube sizes. Marden, Chicago. CIRCLE 203 ON READER SERVICE CARD

Seating group (below) integrates butcher block and loose cushion upholstery for a casual look. The furniture is constructed of solid lumber with a natural finish. Chairs and sofa feature reinforced rubber webbing on seats and backs with reversible cushions of foam wrapped in Fortrel. Avanti, Montreal, Canada. CIRCLE 204 ON READER SERVICE CARD



Outdoor chaise lounges (right) stack up to a compact high rise for easy storage. Each chaise is molded of durable ABS plastic and has rustproof aluminum supports at each end. Lounge adjusts to four positions. The flexible-grid design of the frame adds extra resiliency and comfort to loose cushion pads. Syroco, Syracuse, N.Y. CIRCLE 205 ON READER SERVICE CARD



Corner display unit is part of a modular furniture line constructed of recycled paper and flexible plastic joints. Paper tubes are laminated for strength. "Set-Ups"—tables, shelves and displays—come in five solid colors and check or polka-dot patterns. Environmental Concepts, Beverly Hills, Calif. CIRCLE 206 ON READER SERVICE CARD



Upholstered furniture collection (left) designed by Mario Bellini, "Le Mura", consists of an armless chair, right and left arm models and ottoman (shown) plus a two-arm version, and single and double beds. A broad range of designs can be achieved through unlimited combinations of these basic components. Classic sofas, chaise lounges and loveseats are easily executed by attaching "Le Mura" elements using the buckle fitting affixed to each piece. Units are constructed of foam polyurethane on wooden frames and feature Dacron fiberfill cushioning. A striped alpaca, cotton and acrylic plush velvet upholstery has been designed for the collection. A choice of fabrics, vinyls and leathers is also offered. Atelier, New York City. CIRCLE 207 ON READER SERVICE CARD



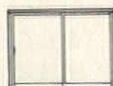
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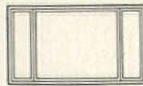
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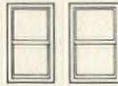
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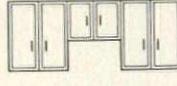
Reversible Aluminum Patio Doors



Wood Casement & Bow Windows



Wood Double Hung Windows

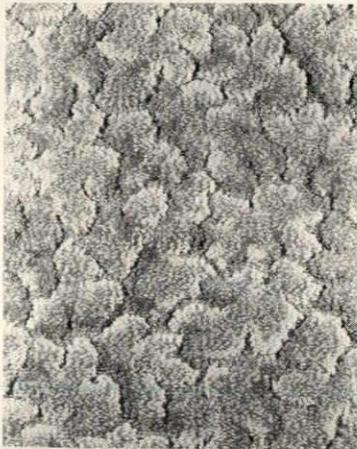


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PRODUCTS/FLOORING

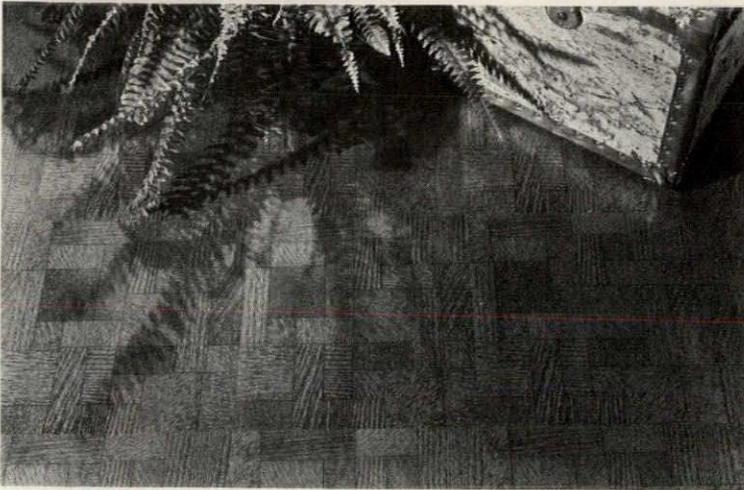


Random-sheared carpet of continuous filament nylon, "Keepsake" is a modern abstract leaf pattern. The soil- and static-resistant carpet comes in 11 colors and retails for about \$6.95 a sq. yd. Downs, Willow Grove, Pa.

CIRCLE 233 ON READER SERVICE CARD

Sculptured reinforced vinyl flooring, "Parquette", is a warm woodtone. Woodgraining is embossed into each 12"x12" tile simulating natural hardwood. Random-width blocks and varied tones add authenticity. Flintkote, East Rutherford, N.J.

CIRCLE 234 ON READER SERVICE CARD



Duo-tone shag tufted of 100% Dupont polyester complements traditional as well as contemporary decor. Available in 14 colorations in a 12' width, the "Shagtique" resists wear and has excellent shape retention and cleanability. Patcraft Mills, Dalton, Ga. CIRCLE 236 ON READER SERVICE CARD

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Full 1 1/4" thickness means extra rigidity to outperform ordinary bi-folds. Deep-molded panels shaped from a single sheet of steel. Completely smooth surface—no applied trim to rattle and work loose. Nylon-quiet glide ride. Choice of five styles—two that match Benchmark Entrance Doors for the ultimate in elegance!

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 Bi-Folds and Entrance Systems
 Air-Jet Venting Systems**

CIRCLE 126 ON READER SERVICE CARD





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Make MGIC mortgage insurance part of your financing package.

You'll broaden your market. Expand your sales opportunities. Because the down payment can be as low as 5% — well within the reach of most any family. Every house you build becomes more sellable. And the increased leverage makes trading up easier than ever.

With MGIC insurance there's no red tape. No approval delay. We

normally phone your lender our approval of a qualified loan the same day we receive the application. And the cost is only about half that of government-sponsored insurance.

Maybe you've been missing sales because of financing. If so, make a date with your nearby MGIC-approved lender. Learn how the mortgage can actually help you make the sale. Dial toll-free 800-558-9900; in Wisconsin the toll-free number is 800-242-9275.

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HH-7

Please send me your new brochure on high-ratio conventional mortgage financing.

Name _____

Organization _____

Address _____

City, State, Zip _____

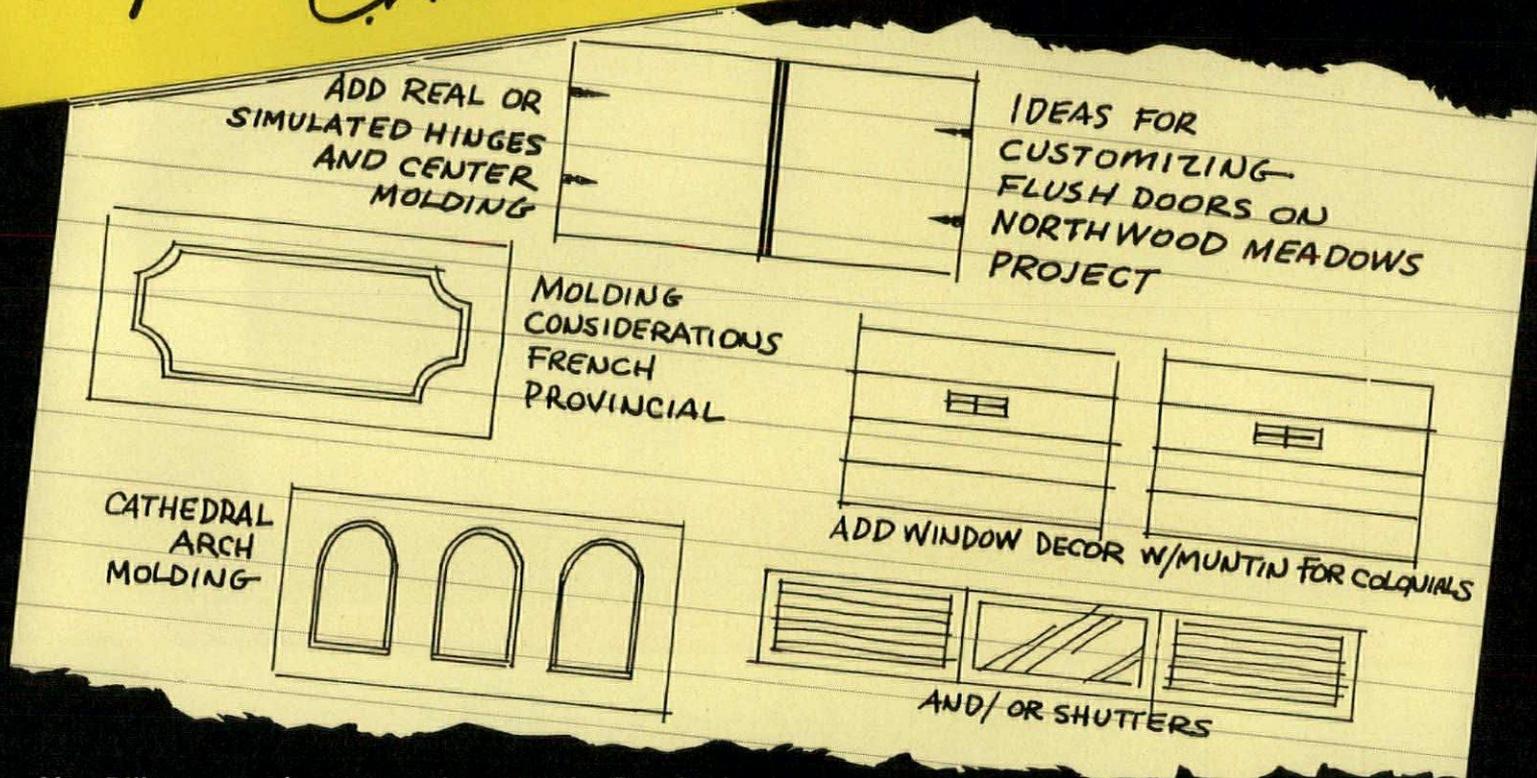
Mortgage Guaranty Insurance Corporation, MGIC Plaza, Milwaukee, WI 53201

CIRCLE 127 ON READER SERVICE CARD

Bill—
 Have you checked
 on Crawford flush
 garage doors?
 Any advantages? Any savings?
 C.M.

"Ahead of you, C.M.! Talked to Crawford distributor yesterday. Their flush door looks good. It has plenty of advantages -- the price is more than right and it can be easily customized. I've sketched a few ideas we might use on the new Northwood Meadows project. It might be time to switch to a flush door. What do you think?"

Bill

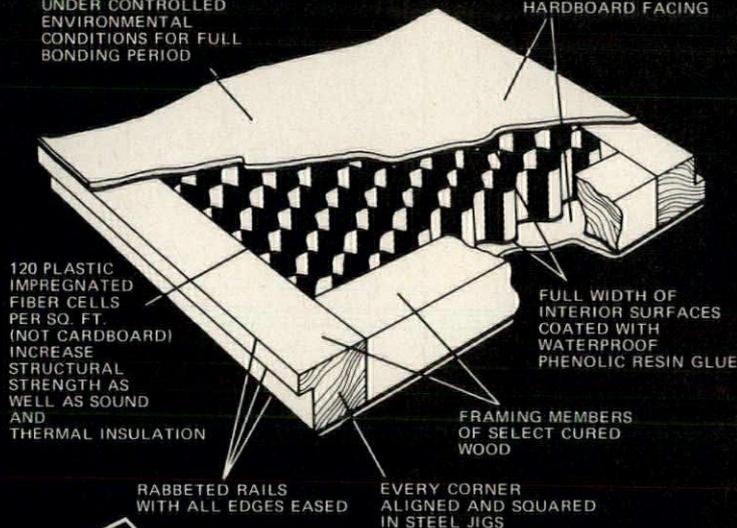


Yes, Bill, you won't go wrong boosting the Crawford Model 466 Flush Garage Door. C.M. will recognize you're on top of things when you and your Crawford distributor show him samples and go into detail about these benefits. . .

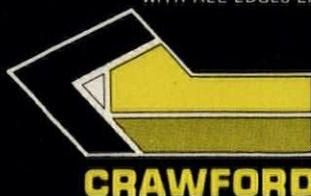
- Unitized Construction.
- Blends With Any Architectural Design.
- Easy To Add Inexpensive Customized Decor.
- Flat Surface — Easy To Paint.
- Sound Deadening — Good For Over The Garage Bedrooms.
- Minimum Heat Loss.
- No Warping, Twisting, Crowning, Sagging, Separating, Cracking, Splitting, Checking or Delamination.
- No Water Trapping or Moisture Leaks.
- Unlimited Glass Options
- and
- Competitively Priced!

100-125 LB. PER SQ. IN. PRESSURE APPLIED UNDER CONTROLLED ENVIRONMENTAL CONDITIONS FOR FULL BONDING PERIOD

TEMPERED MARVEL-LIFE HARDBOARD FACING



Join C.M. and Bill! Contact your local Crawford Door distributor (check your Yellow Pages) and see for yourself how the Crawford Flush Garage Door can fit into your program — a low-priced door with unlimited design possibilities. Or write. . . . Crawford Door • 4270 High Street • Ecorse, Michigan 48228 • Area Code 313/383-5000



CRAWFORD

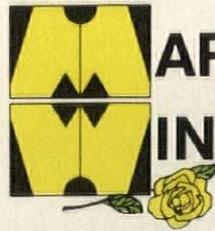
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 A subsidiary of **Jim Walter CORPORATION**

Pre-finished windows cost less in the short run, too

You pay more for a pre-finished window than for an unfinished window. But by the time you get the first coat of stain or paint on the unfinished one, the pre-finished unit is winning. The more finish you apply on the job, the more the "inexpensive"

window costs. Marvin pre-finish is available on every window we make. All you do is remove the protective material, put the unit in the opening, and apply the inside trim (also available pre-finished). The inside can be walnut, fruitwood, or white. The exterior is

Marvin's super-tough XL-70, in white. And the quality has to be seen to be appreciated. Write for our complete catalog and pre-finish samples. Marvin Windows, Warroad, Minn. 56763. Phone: 218-386-1430.



**MARVIN
WINDOWS**

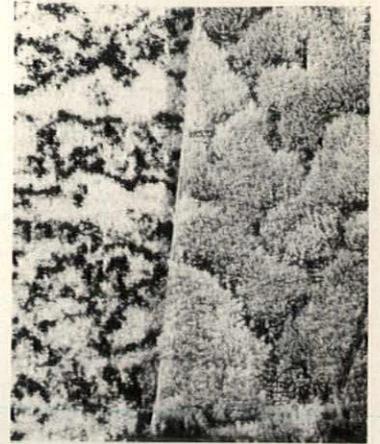
CIRCLE 129 ON READER SERVICE CARD



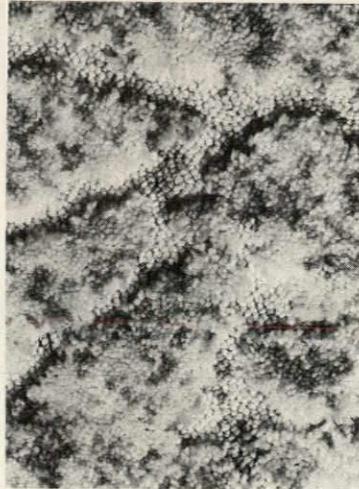


French tile pattern, "Voltaire", is a delicate design that blends tracings of leaves, vines and fleurs-de-lis. Each 12"x12" vinyl tile has a border on two sides providing for pattern versatility. Design is available in five colorations. Armstrong, Lancaster, Pa. CIRCLE 235 ON READER SERVICE CARD

Plush carpet, "Modesty Blaze" (left), is available in 12 colorations and features a marbled design created by a TAK dye system. "Shaggy Billow" (right), a sculptured shag of Dacron polyester, comes in 14 multicolor combinations. Celotex, Tampa, Fla. CIRCLE 237 ON READER SERVICE CARD



Nylon cut and loop shag, "Cloudburst" (below left), comes in 12 colorations for about \$10.95 a sq. yd. Textured-loop of Marvess Olefin, "Show Off" (below right) retails for around \$5.95 a sq. yd. Walter Carpet, City of Industry, Calif. CIRCLE 238 ON READER SERVICE CARD



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World's largest selling authentic Finnish Saunas.



Built by the people who discovered sauna 2000 years ago.

The hottest item in the building industry is the in-home sauna. HELO offers pre-fabricated models with Helo heaters that can be installed virtually anywhere. Saunas in every size for every need...from small closet or bathroom saunas to large, luxurious cabana models. The widest variety of superbly designed UL listed in the U.S. Handrubbed redwood rooms. Authentic "Konno" rock heating units with the largest rock capacity of all sauna heaters, for controlled, even heat. Automatic control panels. Custom or pre-fab—all at healthy, down-to-earth prices.

SPECIAL! 4' x 4' x 6'6" high pre-wired sauna pre-fab with 110 volt "plug-in" heater. Floor, 2 benches, guard rail around heater, vision window, pre-wired light, and UL listed heater. Now only: \$395.00 to builders. Incredibly priced. Assembles in less than 30 minutes.

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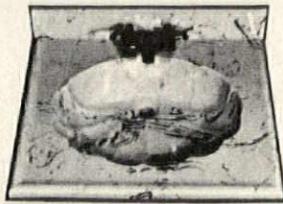
Bring a splash of summer sunshine into the baths of the homes or apartments you build. Ask your plumbing contractor to show you Sunnygreen. Or write for our "Splash of Summer Sunshine" brochure: Eljer, Dept. HH, 3 Gateway Center, Pittsburgh, Pa. 15222.

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CIRCLE 72 ON READER SERVICE CARD

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They're called Ansafones. You can buy one outright or possibly lease it for about what you're paying your answering service now. And it works for you 24 hours a day, 7 days a week.

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Please send me full details of the Ansafone line.

Name _____

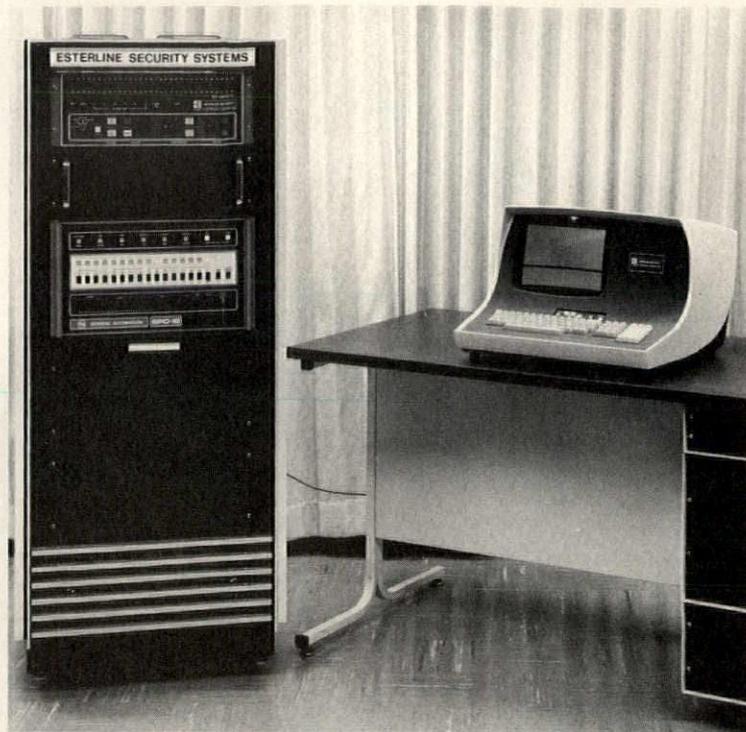
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Address _____

City _____ State _____ Zip Code _____

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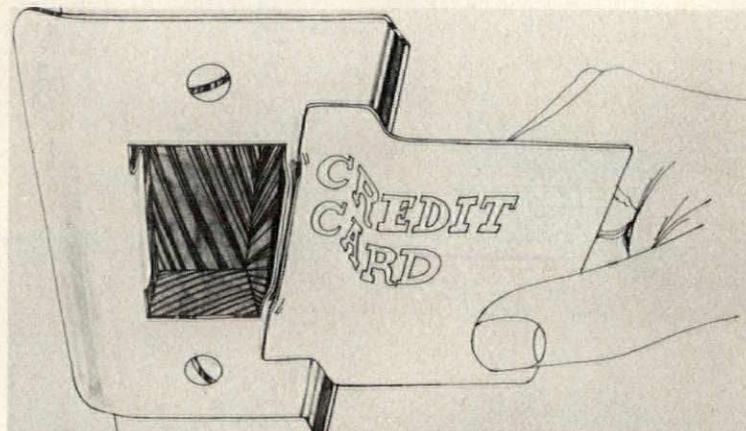
PRODUCTS/SECURITY



Security system provides 24-hour multi-zone monitoring for intrusion, fire, smoke, flooding or other unusual conditions. Utilizing the latest in sensing and data handling equipment, the system scans the sensor network every 3.8 seconds and reports the status of each sensor to a master control panel. Esterline, Costa Mesa, Calif. CIRCLE 217 ON READER SERVICE CARD

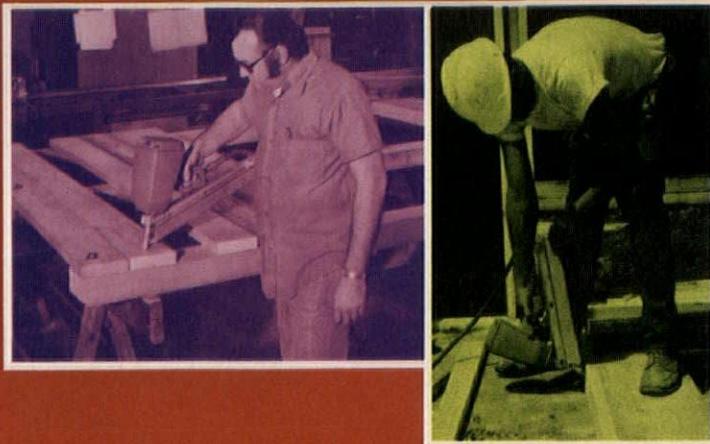


Monitor panel for central surveillance of security equipment and fire alarms has a color coded display panel that signals alarm or secure status. Capable of monitoring an unlimited number of zones, the system provides for testing of lights and horns on the master panel. An automatic standby battery is included. Continental, Oceanside, N.Y. CIRCLE 218 ON READER SERVICE CARD



Burglarproof striker plate that replaces regular door lock striker plate helps prevent thefts and break-ins. It stops credit cards or sharp instruments from slipping the latch on a door lock and blocks entry. The easy-to-install unit is finished in a light brass color to blend with most fixtures. Multi-Products, San Antonio, Tex. CIRCLE 219 ON READER SERVICE CARD

New Paslode® SKO-35 power drives nailing costs down fast

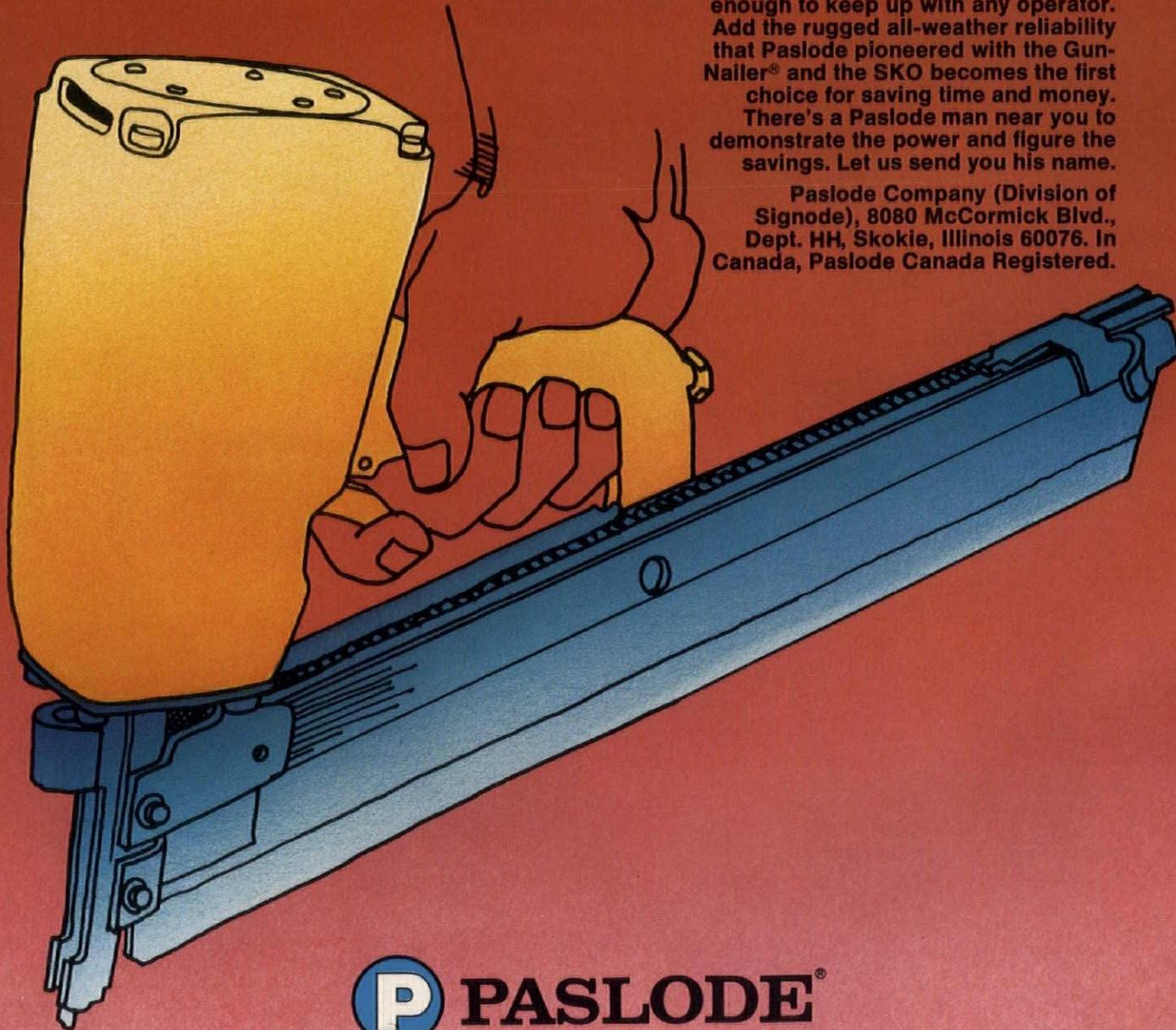


A new weight-saving power source design with wafer piston makes the SKO-35 the most powerful tool on the market, pound for pound. It drives nails home in hardest woods.

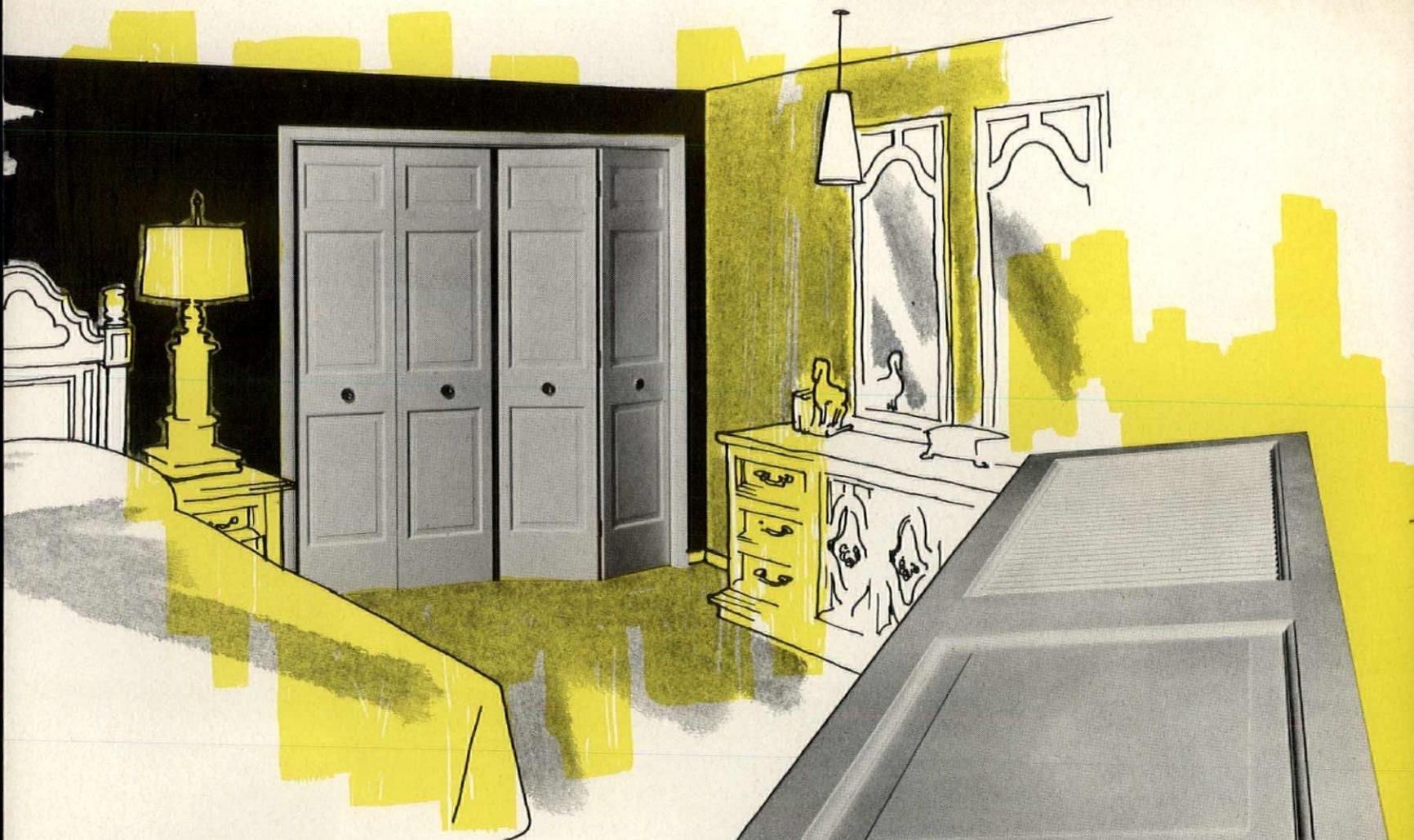
And the SKO-35 drives nine different nails, 6d to 16d—helps get the right nails used in the right places, and might just be the only nailing tool you'll need. Nails come in quick-loading strips. Safety bottom trip is standard.

The SKO-35 has the nice balance and easy handling that minimize fatigue and improve work quality. It's fast enough to keep up with any operator. Add the rugged all-weather reliability that Paslode pioneered with the Gun-Nailer® and the SKO becomes the first choice for saving time and money. There's a Paslode man near you to demonstrate the power and figure the savings. Let us send you his name.

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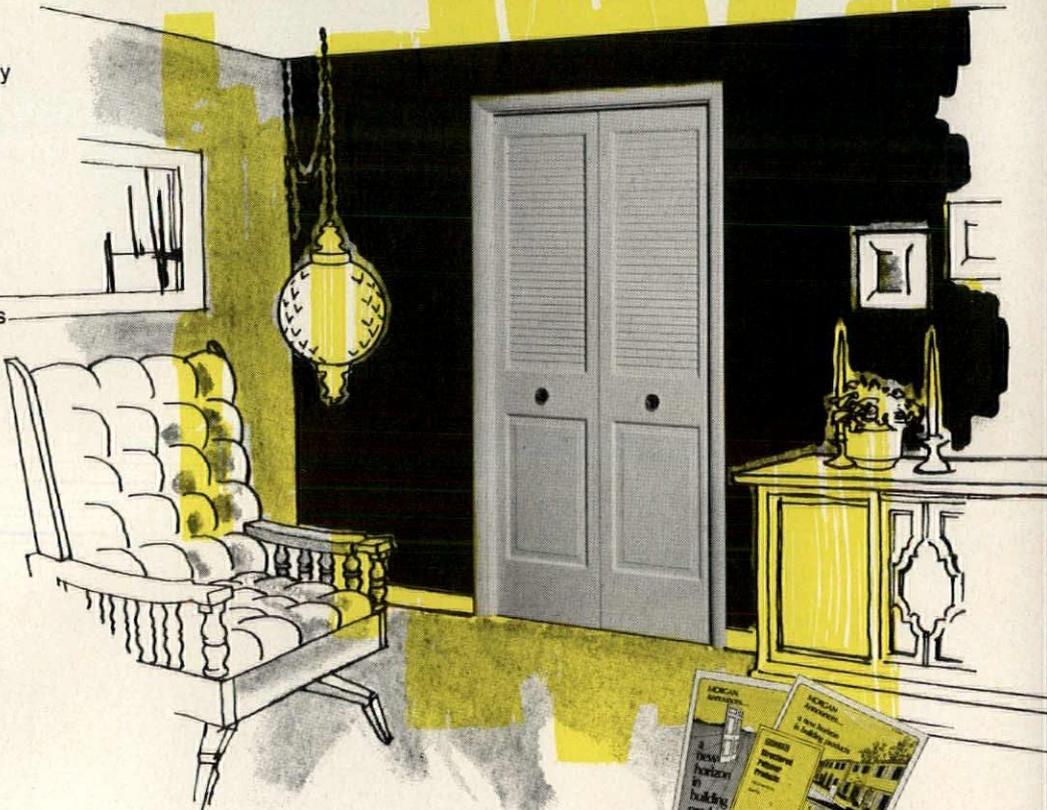
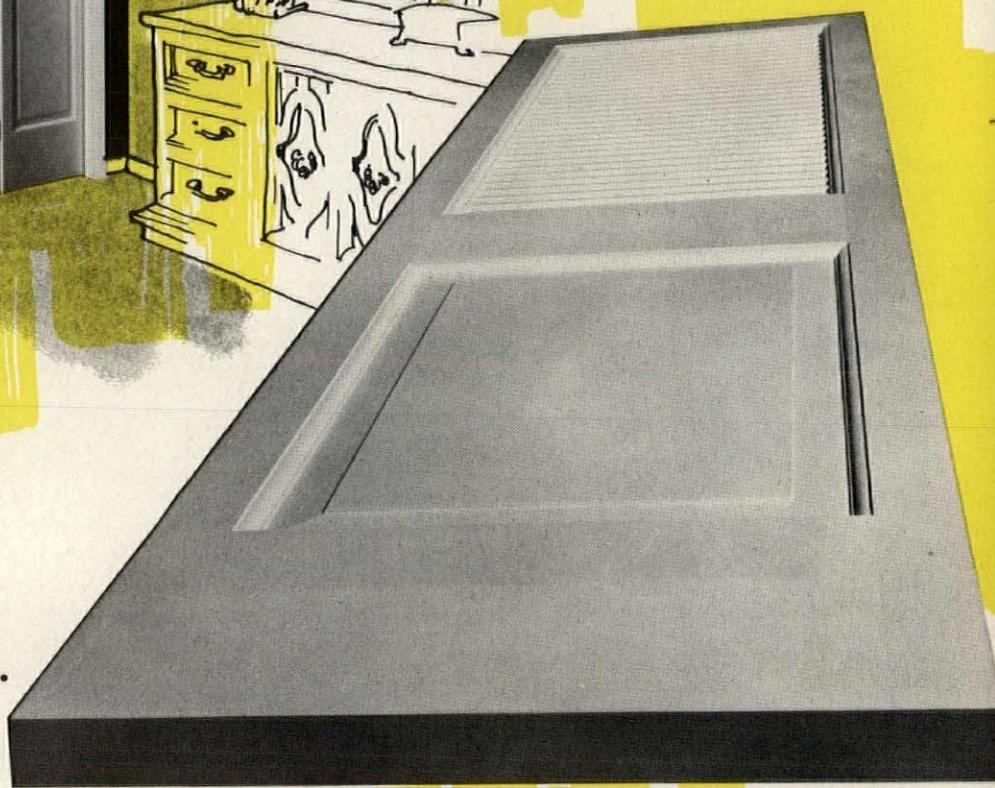


Bi-fold Doors by C-E Morgan
 The look, the feel, the beauty
 of wood and something more ...
 the permanence of
Structured Polymer

The best qualities of wood, the exceptional durability of Structured Polymer . . . C-E Morgan has combined all these to produce a dramatic difference in bi-fold doors. Your choice of two designs, each having solid, unitized construction. No reinforcement needed. Come complete with hardware, ready to be installed. Attractive white factory prime finish . . . install as is, or paint if desired. Trimmable in height for perfect fit.

Structured Polymer is a unique material which offers a variety of advantages. Dimensional stability. Rich, warm appearance. Impact resistance. High density. These are proven facts; write for details.

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Excel can solve your cabinet problems. Completely versatile. Style. Wood. Plastic. Colors to choose from. Kitchen cabinets and bathroom vanities of the finest furniture construction. Pre-designed for easy installations. All the features to satisfy your every need. On time delivery, all the time. You'll get it when you need it. Popular prices suit all budget requirements—with high value on every dollar. You name it! Excel "can do" it!

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Please send more Excel information immediately!
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The need: \$80 The packager: First



The Mall at Echelon. Two giant anchors. More than 100 other shops. 1100 apartments, and 47,000 square feet of office space.

Eventually it will become a complete community with 3900 dwelling units, a 100-room inn and conference center, and 1,000,000 square feet of office space. Plus 48 acres of parks, lakes and open space—and a variety of institutional facilities and services.

The developers: Affiliates and subsidiaries of the Rouse Company of Columbia, Maryland.

We can package First Pennsylvania Bank

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Million for Echelon. Pennsylvania Bank



The loan packager: First Pennsylvania Bank.

At Echelon, we put together the land loan, the construction loan, the permanent financing, and worked out a joint venture with the sponsors and the lender in the ownership of the property.

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the whole deal. Real Estate Department

A beautiful job of bookkeeping: red cedar R&R shingles for a New England library.

A deep mansard dominates this Westport, Massachusetts, library. Appropriately, it is clad in warm-looking red cedar rebutted/rejointed shingles.

For more than a century red cedar shingles have articulated the Northeastern clapboard style of residential architecture. On this library, they lend a reassuring touch of tradition to the striking contemporary design. The shingles are practical, too. They are highly insulative, important in the often harsh New England climate.

They withstand hurricane winds. And they retain their beauty for decades with little or no maintenance. For details and application tips on Certigrade shingles and Certi-Split handsplit shakes, write us at 5510 White Bldg., Seattle, WA 98101. In Canada, write 1055 West Hastings Street, Vancouver 1, B.C.



Red Cedar Shingle & Handsplit Shake Bureau

One of a series presented by members of the American Wood Council.

Architect: Drummey Rosane Anderson, Inc.
Builder: Troy Construction Co., Fall River, Mass.

CIRCLE 81 ON READER SERVICE CARD

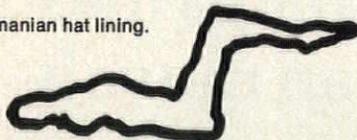
Petroleum and You (A History of the Former)

Chapter Three: A Giant Awakens

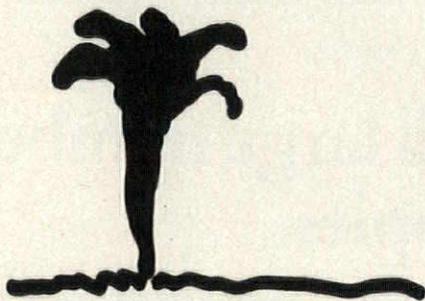
In 1852 a Canadian chemist named Abraham Gesner succeeded in distilling a new fuel from petroleum which, by a clever rearrangement of the letters of his name, he dubbed kerosene. This created an important new demand for petroleum, thus setting the stage for the emergence of a burgeoning industry. (See forthcoming Chapter titled "Stage Settings of the 1850s.")

Many historians of note credit Rumania with the establishment of the first oil industry, citing the fact that in 1857 the country produced 2000 barrels of oil. Of course in later years this output came to be looked upon as laughably small, and any Rumanian who contended otherwise was likely to be in for a round of good-natured kidding in which his face would be mocked, his beard tweaked, and the lining ripped out of his hat.

Rumanian hat lining.



Also in 1857 James Miller Williams discovered oil at Oil Springs, Ontario and set up a small refinery. However, his endeavor brought him only a limited amount of recognition since many people felt—some resentfully so—that to find oil in a place named Oil Springs was something almost anyone could have managed.



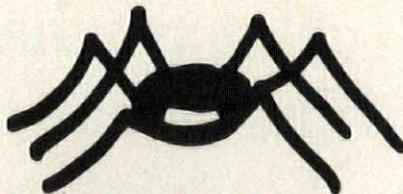
Oil Springs, Ontario, circa 1857.

Consequently the majority of informed historians prefer to trace the beginning of the oil industry to the well drilled in 1859 at Titusville, Pennsylvania by Edwin L. Drake. Drake, who was hired to drill the well by a consortium of businessmen, was a retired railroad conductor, and therein lies

an exciting tale. Early on, there was a bold move afoot among the businessmen to hire a retired optician for the job, while, on the other hand, an opposing faction plumped strongly for a retired piano tuner. Hence, the happy compromise.

In any case, on August 27, 1859, Drake struck oil after drilling to a depth of 69½ feet, and from this well it is reported that he was able to produce 10 to 35 barrels a day.

Also it is interesting to note that a neighbor of this same Edwin L. Drake was the inventor of the rubber spider.



A real laugh-getter in the Drake neighborhood.

This is the third chapter in a seven-part series presented as a salute to the industry. In addition we would like you to know that we offer a full line of lube oils, greases, cutting oils, fuels, motor oils, white oils, LP-Gas, and specialty products, with a complete network of service facilities.

For further information and for a booklet of all seven chapters of the *Petroleum and You* series write to Mr. Frank Laudonio, Atlantic Richfield Company, P.O. Box 71169, Los Angeles 90071. (You might also indicate any product interest and your business.)

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So we present the Xerox 3100 compact copier.

When you add it all up, maybe 3100 is too small a number for a copier that's going to be so big.

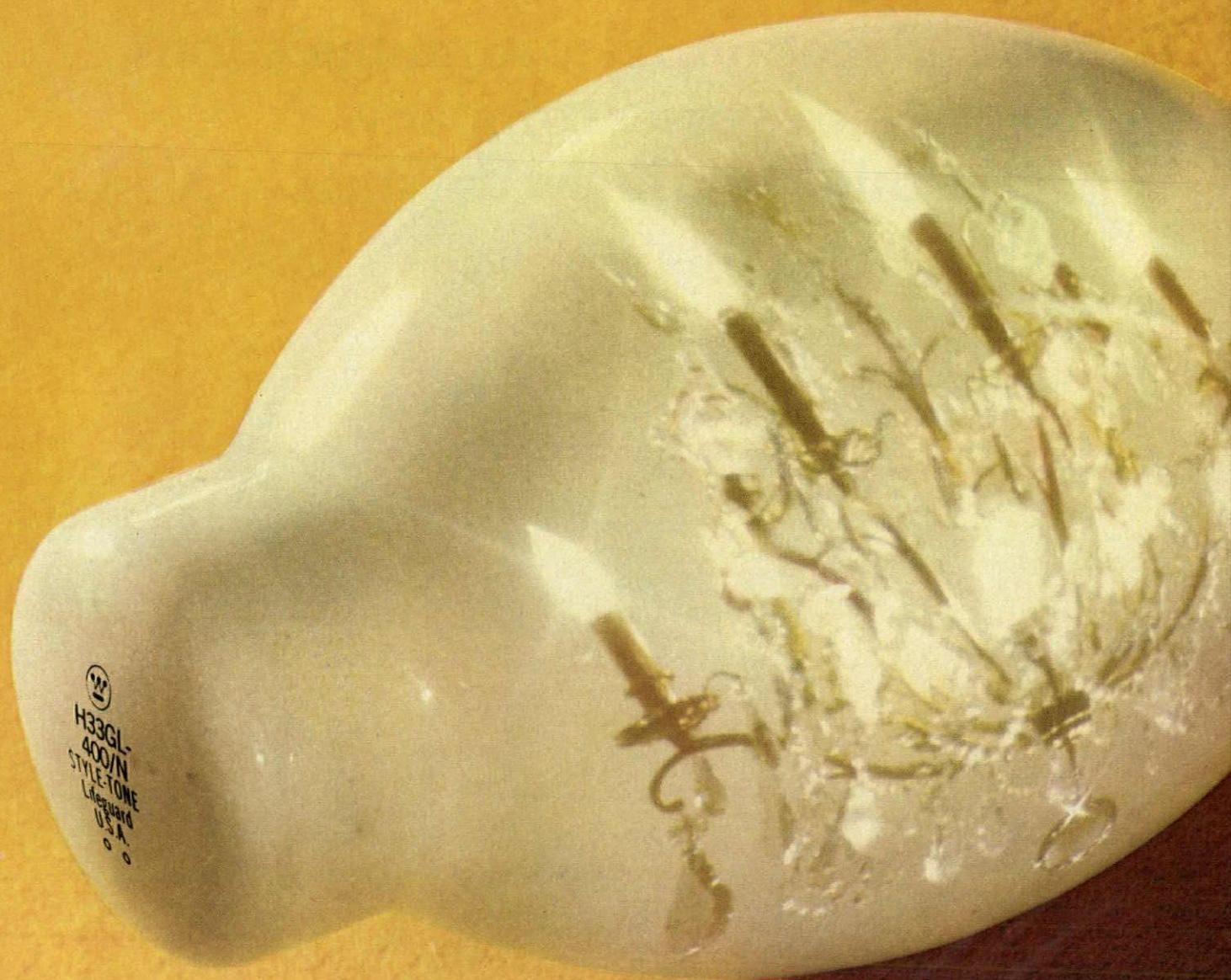
Xerox. The duplicating, computer systems, education, telecommunications, micrographics, copier company.

And to think you knew us when. XEROX



CIRCLE 702 ON READER SERVICE CARD

**Style-Tone...the first
mercury lamp with the
warm color of an
incandescent.**



Westinghouse has put the extraordinary savings of highly efficient mercury vapor lamps in a warm new light. All the color appearance you'd expect to find in an incandescent lamp has been captured in our exclusive Style-Tone™ Mercury Vapor lamp.

Style-Tone is the ideal mercury vapor lamp for use anywhere you want to impart a warm atmosphere. The way it flatters people and makes merchandise come alive—you'd think it was incandescent lighting. But the maintenance records tell a different story; our Style-Tone lamp is rated to last more than 24,000 hours, *with twice the light output of incandescent lamps.* And

with Style-Tone lamps, you can now place mercury vapor fixtures adjacent to incandescent fixtures and achieve a pleasant, warm blend throughout. That's how little color difference there is. (You can also substitute Style-Tone for any phosphor-coated mercury vapor lamp now being used in your present fixtures.) Available in 400, 250 and 175 watt sizes that operate on regular mercury lamp ballasts.

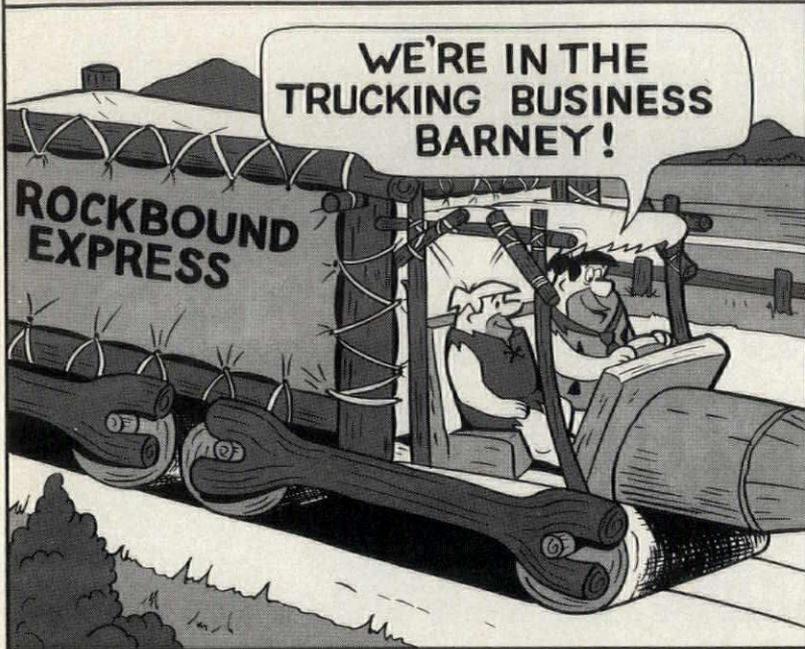
Call or write your Westinghouse representative to find out how this new lamp color can create new lighting opportunities for you. Ask, too, about Beauty Lite,™ Merchandising White and Supermarket White, the other exclusive Westinghouse vapor and fluorescent lamps developed to answer specific lighting requirements. Westinghouse Electric Corporation, Fluorescent & Vapor Lamp Division, Bloomfield, N.J. 07003.

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We're for that.

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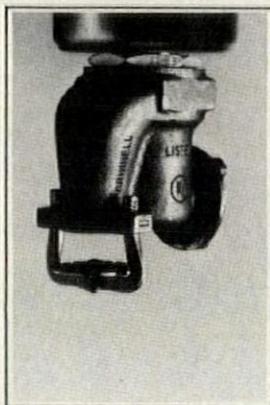
EAT•N Truck Components

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But Grinnell's new Aquamatic On-Off sprinkler does more. It shuts itself off when the fire's out. It puts the water only where it's needed—on the fire, and not outside the fire area. So it keeps water discharge to a minimum.

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- Send your Aquamatic brochure (no obligation).

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Company _____

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European Headquarters:
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GRINNELL

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**NEW 42" MODEL
 NOW AVAILABLE!**

Martin "Build-In-Anywhere" Fireplaces build in easier because they're engineered for ZERO CLEARANCE. You can locate them anywhere, on any floor, against any wall, combustible or not! And you can stack them directly above each other for multi-level installations, thanks to simplified chimney offsets.

Martin "Build-In-Anywhere" Fireplaces perform better because each is a carefully-engineered system, complete in itself, with factory-built, hearth-to-chimney-top components including round contemporary or simulated brick roof-top terminations. And because the outer walls of each Martin firebox are insulated with 1" compressed insulation. Minimum heat loss from room when fireplace is not in operation!

Martin "Build-In-Anywhere" Fireplaces boost profits because they're easy and economical to install, yet add immeasurably to the competitive appeal, saleability, or rentability of any residential property. It's good business to install fireplaces ... good sense to install "Build-In-Anywhere" Fireplacing by Martin.

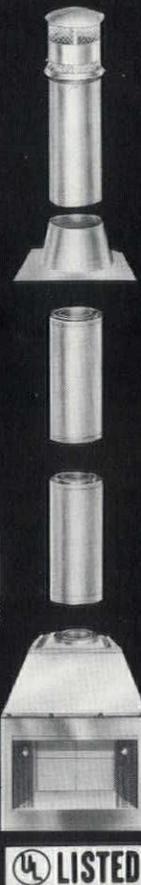


Features:

- 1. Flush front design ... no holes or air intakes. Unlimited trim possibilities.
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- 4. Round 3-wall pipe with 30° & 15° offset elbows.
- 5. Round contemporary or simulated brick roof-top terminations.
- 6. 1" compressed insulation around outer walls of firebox.
- 7. Simple, fast installation requiring no foundation.
- 8. Designed for single or multi-story installation.
- 9. UL listed.

Martin offers a complete line of quality fireplaces, such as: Free-Standing, Built-In, and Wall-Hung, in gas, electric, and wood-burning models.

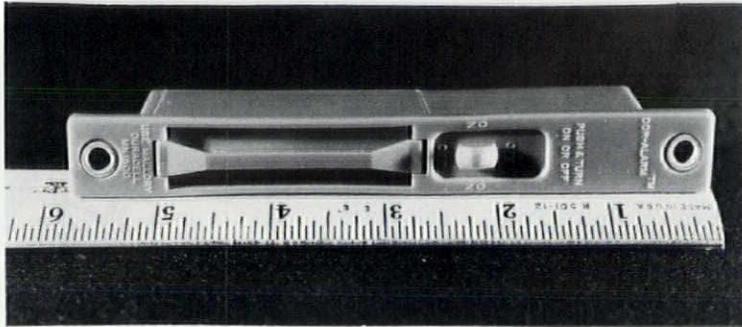
SEE CATALOG IN SWEET'S LIGHT CONSTRUCTION FILE.



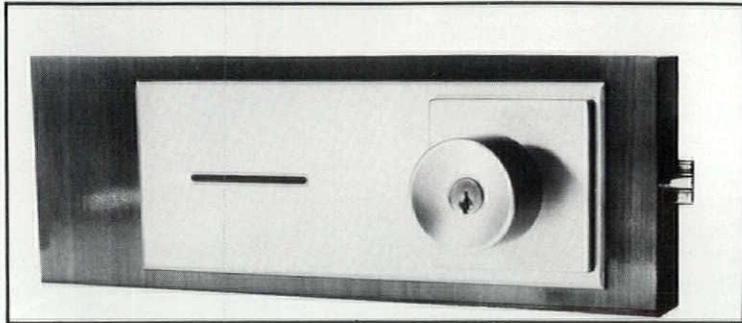
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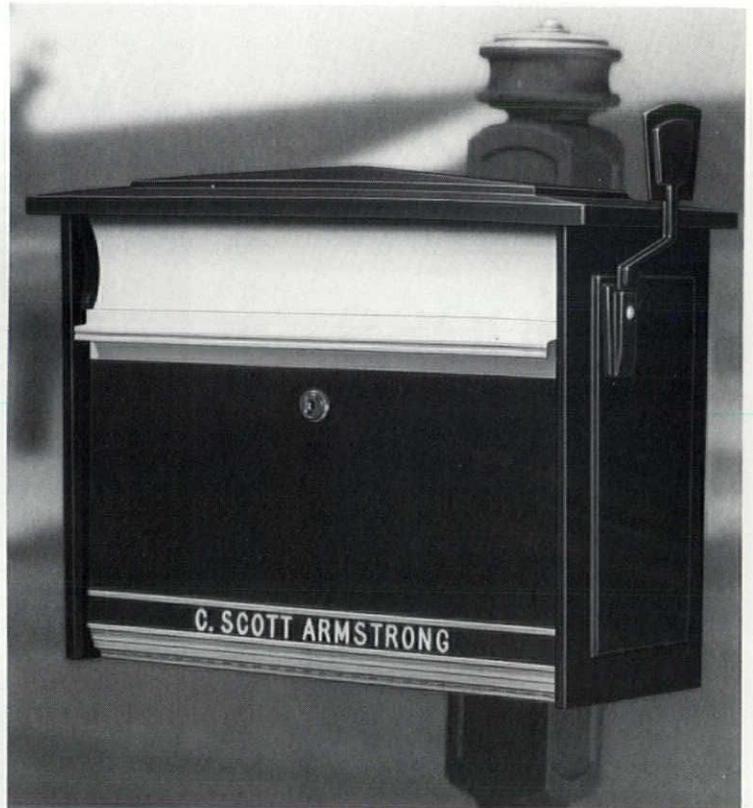




Individual security system, Dor-Alarm™, is the first such device designed exclusively for combination aluminum screen and storm doors. The compact unit, measuring less than 6" in length, is engineered for doors with factory prepared cut-outs. Battery-operated molded-plastic device is fully concealed and tamperproof. Evans, Portland, Ore. **CIRCLE 209 ON READER SERVICE CARD**



Mechanical card-operated lock and door knob set works without electricity. No modifications to the door jamb or strike are required. The one-piece assembly consists of a door knob set and a programmable lock that prevents the outside door knob from being turned. Insertion of a properly coded card triggers a release bar opening the door. Removal of the card locks it. Cardkey, Chatsworth, Calif. **CIRCLE 210 ON READER SERVICE CARD**



Full security mail box, "Mail Guard", is designed for single-family housing. The contemporary unit, which can be either house-front or curbside-post mounted, has a woodgrain and black or all black finish. It is constructed so that mail is accessible only through a locking front panel. Weatherproof box cannot be disassembled or removed from its position when door is locked. Leigh, Coopersville, Mich. **CIRCLE 213 ON READER SERVICE CARD**

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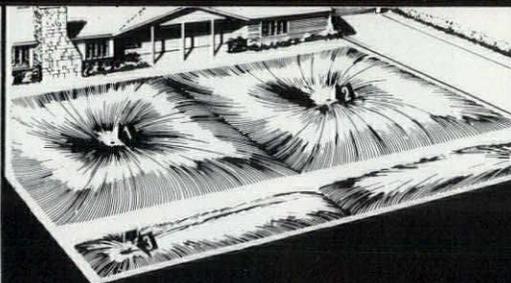
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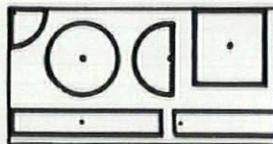
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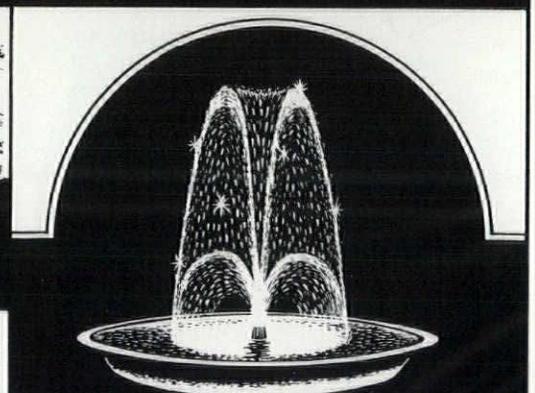


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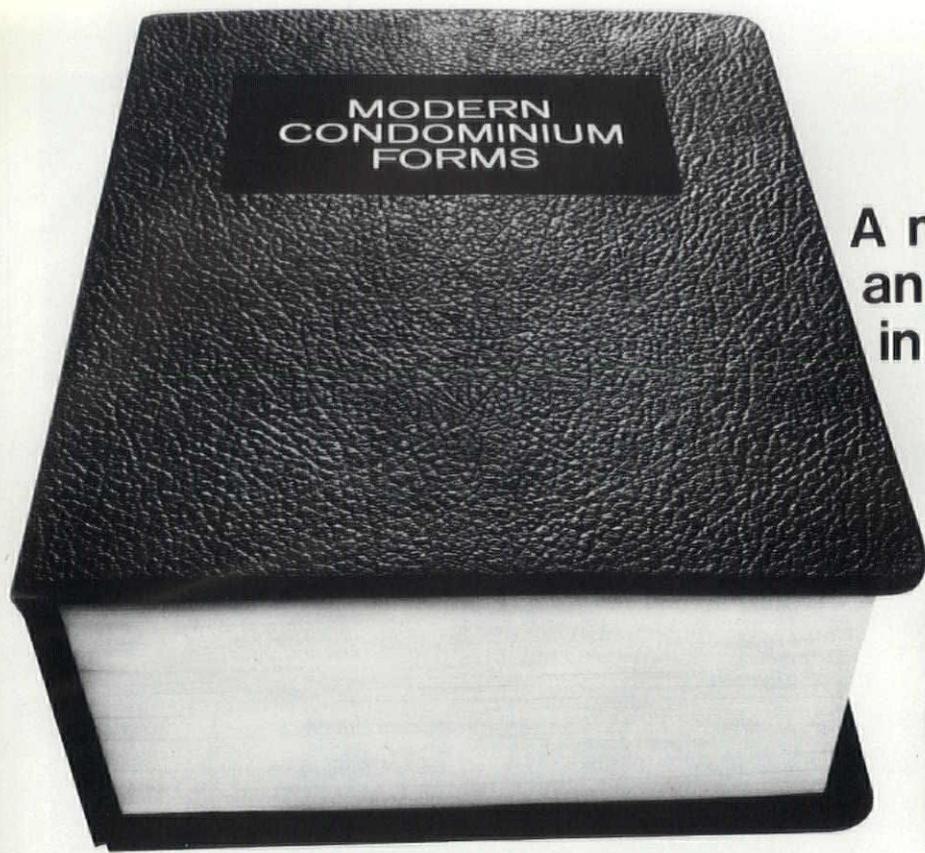


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Easy-to-install burglar and fire alarm system provides four fire sensors and intrusion detectors for six doors or windows. System consists of a master panel containing the solid state electronic mind, a control unit with time delays and an ultra-loud warning horn. Wire connectors and wire are also included. Crismar, Plainville, Conn. CIRCLE 212 ON READER SERVICE CARD

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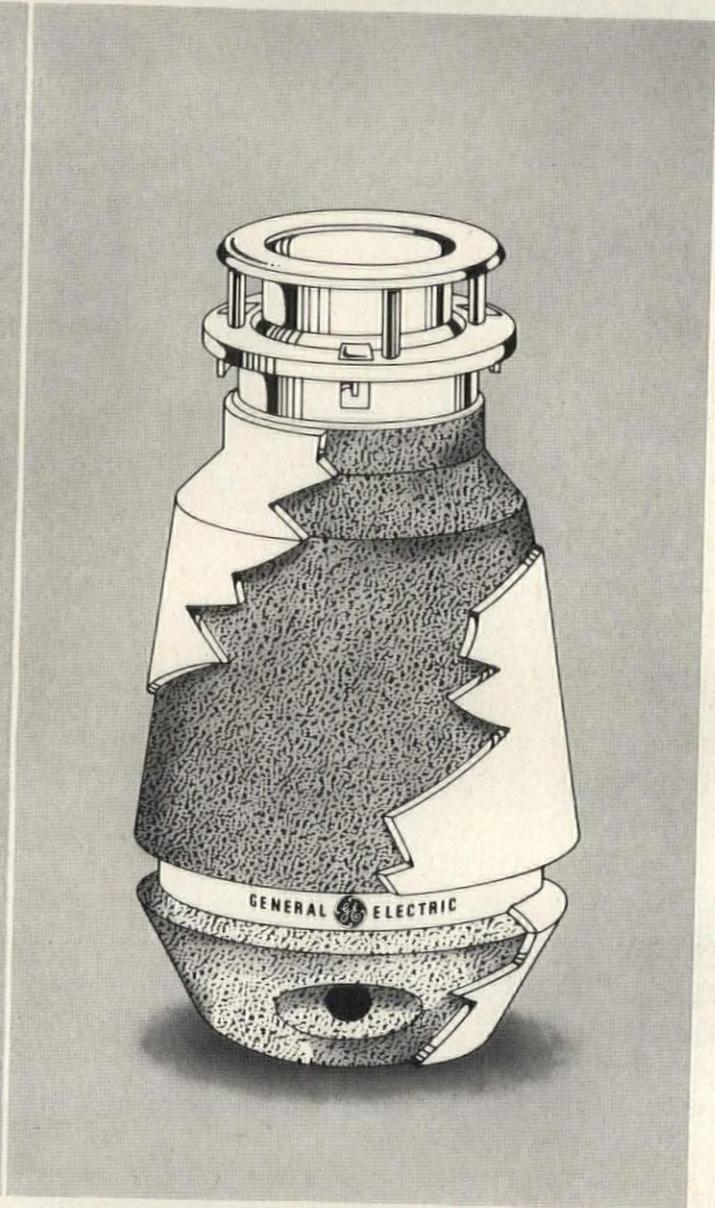
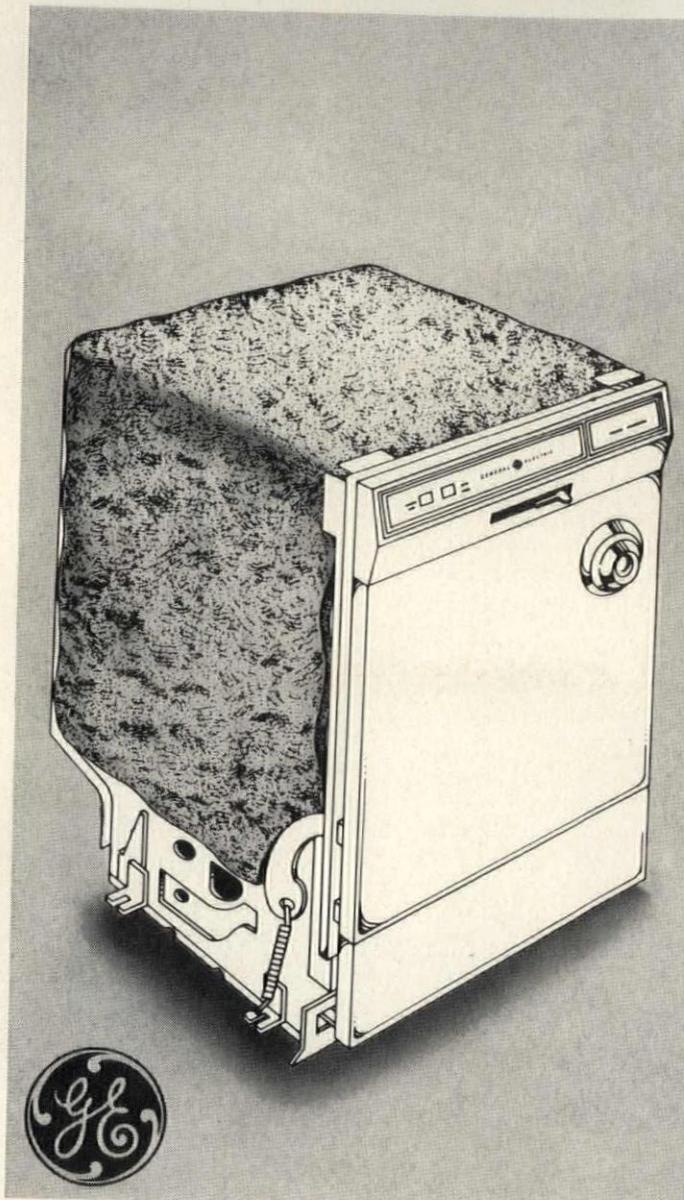
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CIRCLE 229 ON READER SERVICE CARD



Multi-color embossed paneling is printed on plywood. "Images" features random-spaced vertical stripes that eliminate the need for battens as joints blend naturally with pattern. All four color choices offered feature thin black stripes on a white ground separated by random bands of color. U. S. Plywood, New York City.

CIRCLE 230 ON READER SERVICE CARD



Simulated stones fabricated of plastic are made to look and feel genuine. The stones, available in three colors—natural, gray and white—have a rough texture like that of real stone. No two surfaces are exactly alike. Easy-to-install stones are pressed onto a mortarlike adhesive background. Design Images, Manchester, N.H.

CIRCLE 231 ON READER SERVICE CARD

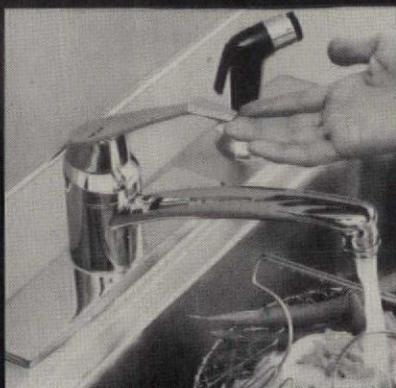


Wallcoverings, available in paper or vinyl, come in a wide range of stock colors or can be custom ordered. "Bibliotheque" (left), a firm geometric, is a subtle and sophisticated blend of shapes and colors. "Wilderland" (right), a pattern inspired by a Tolkien landscape, is imaginative and fanciful. Pippin Papers, New York City.

CIRCLE 232 ON READER SERVICE CARD

Symmons' new lav and sink trim: they're the best way to sell houses next to our shower.

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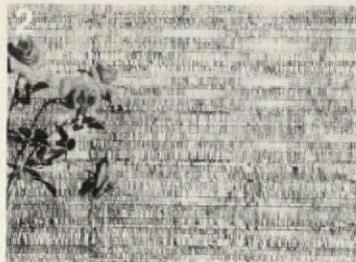
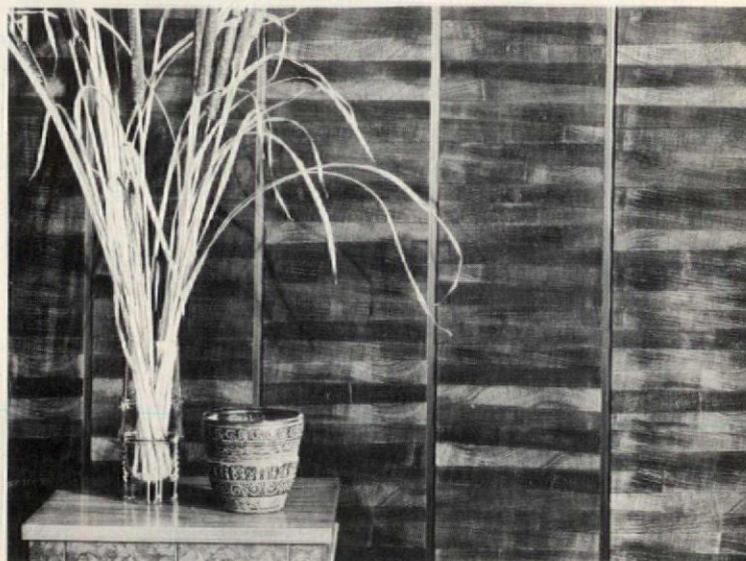
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CIRCLE 73 ON READER SERVICE CARD



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CIRCLE 227 ON READER SERVICE CARD

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Architect: Wight & Co.*

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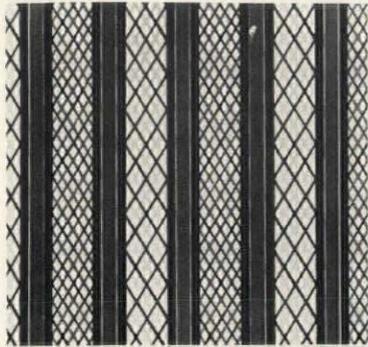


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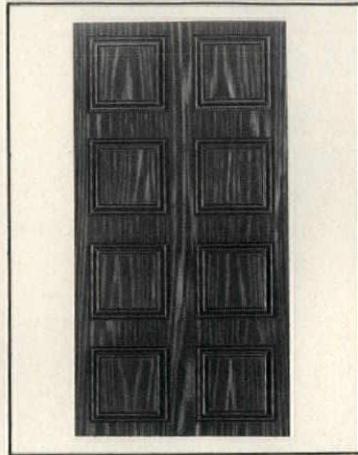
PRODUCTS/INTERIORS



Flocked stripe wallcovering, "Criss Cross", is available in three colorways. Part of the Glendura Blue collection of prepasted, vinyl-surfaced, cloth-backed materials, it is scrubable, strippable and stain resistant. Imperial, Cleveland, Ohio.
CIRCLE 220 ON READER SERVICE CARD



Corklike high pressure laminate features a surface veneer of real cork. "Natural Cork" has a genuine appearance and texture coupled with a practical mar-resistant melamine finish. The material is suitable for use on walls, cabinets, furniture and in places where real cork is not practical. Nevamar, Odenton, Md.
CIRCLE 221 ON READER SERVICE CARD



Simulated wood paneling, with a Mediterranean look, is of lightweight polyurethane. Easy-to-install material, with the detail of wood, can be applied to any surface with adhesive, nails or screws. It comes in 2'x4' panels in walnut, avocado or burnished gold. Urethane Fabricators, Red Hill, Pa.
CIRCLE 223 ON READER SERVICE CARD



Paneling, with the look of wormy chestnut wood, provides a warm background for a bathroom with an Early American decor. The prefinished, textured hardboard material comes in 16"x8' planks with T&G edges. It installs with wallboard adhesive and simple metal clips. Only damp wiping is required. Marlite, Dover, Ohio. CIRCLE 226 ON READER SERVICE CARD

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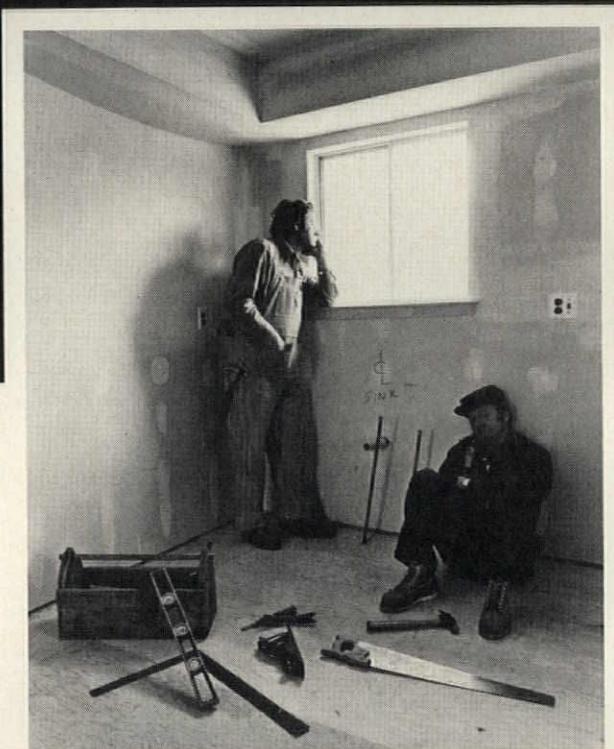
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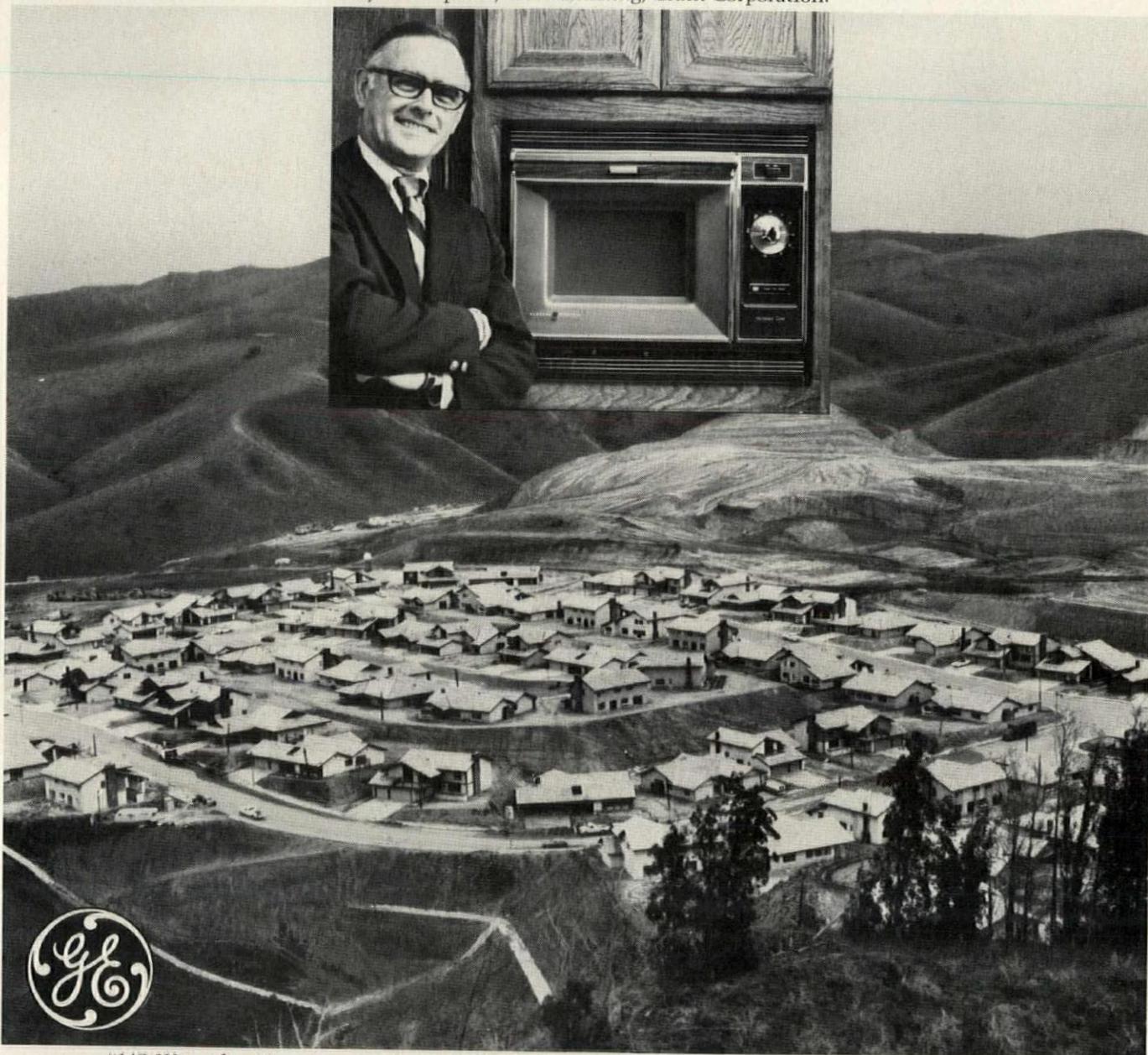
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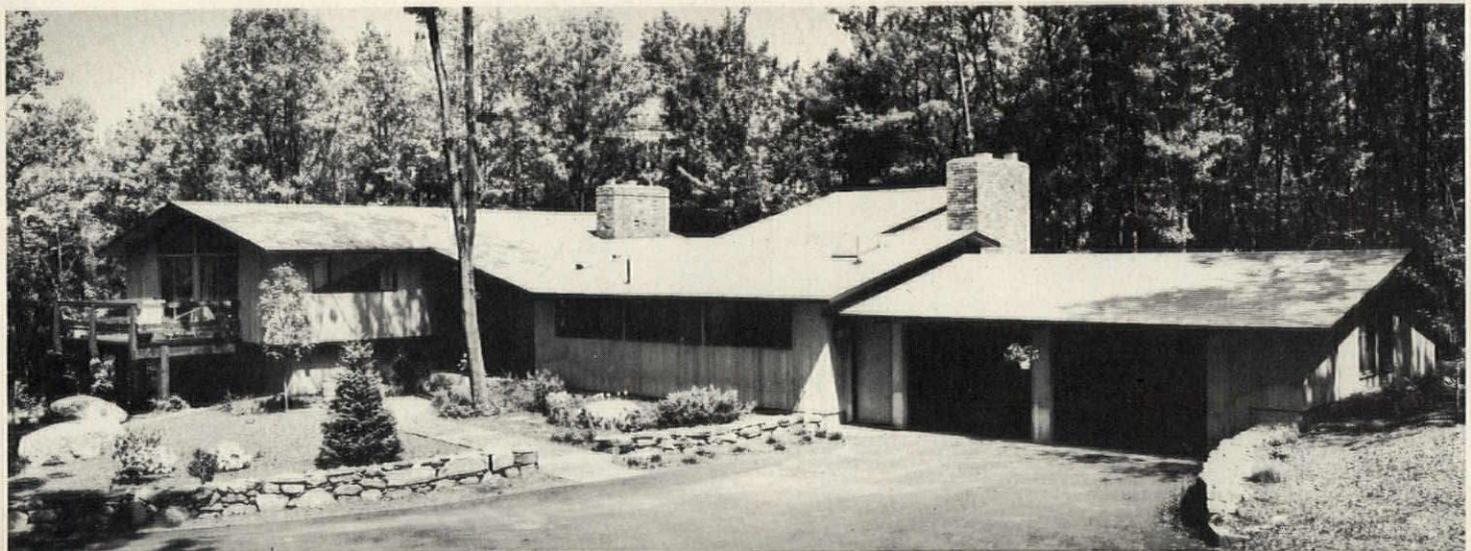
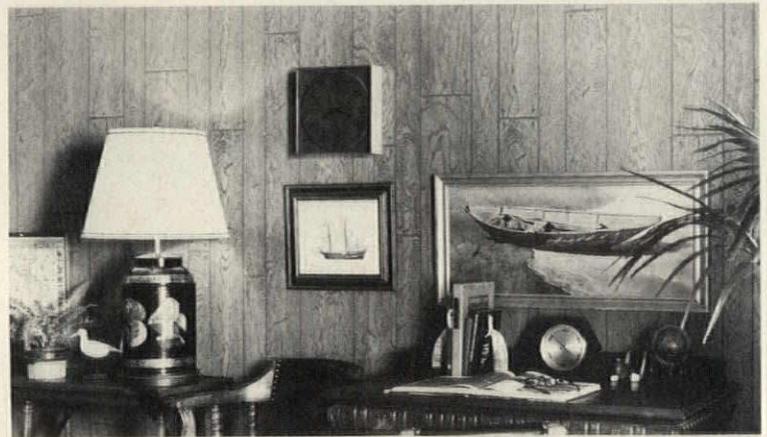


Rosewood woodgrain paneling is ideal for semi-formal living areas or distinctive offices. The hardboard paneling features a plank effect achieved by a roll-embossing process that produces narrow inserts of different shadings to simulate in-laid strips. Panels have a baked-on, washable melamine-silicone finish. Barclay Industries, Lodi, N.J. CIRCLE 224 ON READER SERVICE CARD

Jungle-inspired wallcovering, is a vinyl-surfaced material. "Cheetah", design of leaping cats, is a dramatic projection of the animal kingdom. Available in custom colorations, the wallcovering comes in a 28" width. Verde, New York City. CIRCLE 222 ON READER SERVICE CARD



Woodgrained wall paneling, "Portsmouth", features a planked and pegged effect. Cross-scored sections with simulated square nails produce a decklike look. The pattern embossed on a hardwood face veneer is protected by a low-maintenance finish. Available in three wood colors. Georgia-Pacific, Portland, Ore. CIRCLE 225 ON READER SERVICE CARD



The Deck House designed by Richard Berkes, Deck House Inc., Wayland, Mass.; Cabot's Stains on all wood surfaces, exterior and interior.



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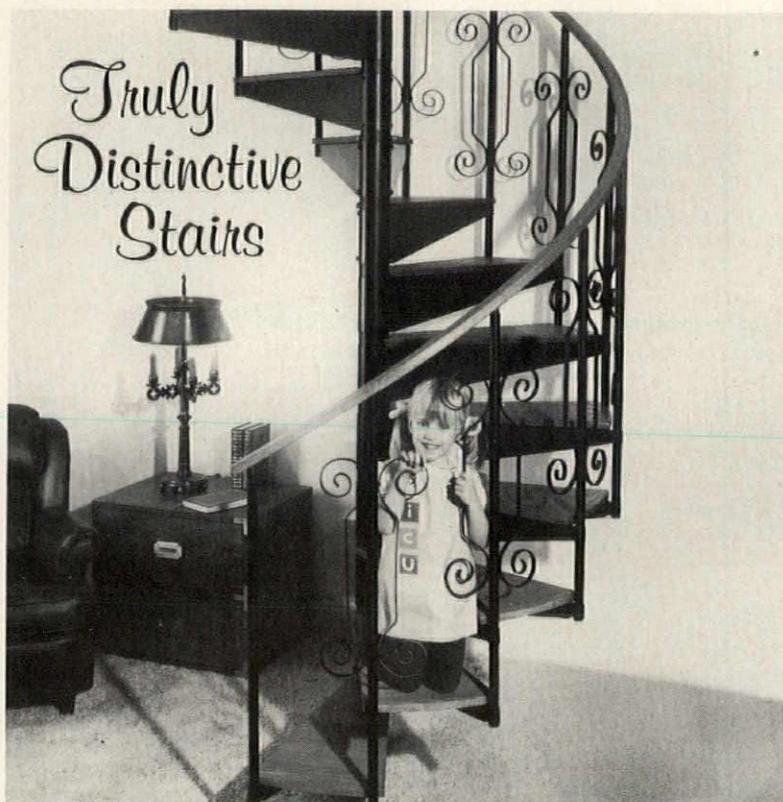
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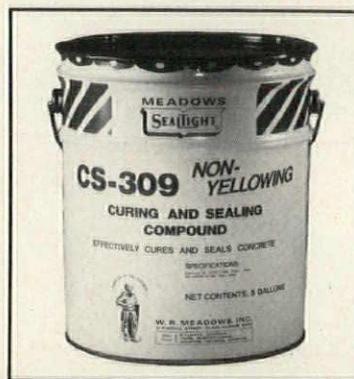
by AMERICAN GENERAL PRODUCTS, INC.
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CIRCLE 160 ON READER SERVICE CARD



Panel adhesive is made specifically to install prefinished paneling, wall-board, hardboard and plywood. Packaged in easy-to-use cartridges, the adhesive installs panels faster than nails with less labor. Miracle Adhesives, Bellmore, N.Y.

CIRCLE 243 ON READER SERVICE CARD



Sealing and curing compound is non-yellowing. "Sealtight" seals and hardens concrete surfaces and provides a durable, long-lasting finish. The substance resists the effects of de-icing salts, making it ideal for use on public walks and parking areas. W.R. Meadows, Elgin, Ill.

CIRCLE 244 ON READER SERVICE CARD



Color coordinated latex caulks are available in six decorative colors including gold, white, olive, gray, brown and woodtone. Acrylic-based material, suitable for interior or exterior applications, will not fade, crack or bleed through the paint. Franklin Glue, Columbus, Ohio.

CIRCLE 245 ON READER SERVICE CARD



Roofcoating is suitable for repair applications in all types of weather. Thick, heavy, cold-process "Barrow-kote" is a plastic-type product that can be applied by brush or spray. The roofcoat penetrates only enough to lock into the old roof base without disturbing the composition to which it is applied. Consolidated Paint, Cleveland, Ohio. CIRCLE 246 ON READER SERVICE CARD

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Patrick Forte, President of Auburn Mill Corporation, believes in the Scholz philosophy.

Scholz is a key to his success as a profitable, growing builder in the Washington, D.C. area.

Before becoming a Scholz builder, Patrick worked for the National Association of Home Builders as Assistant Director of Seminars. His experience in this field gave him "a broad overview of all aspects of the building business." And when he decided to become a builder, he chose a company that has a proven track record for success . . . he chose Scholz!

Why Scholz?

Let Patrick tell you in his own words:

"First, the Scholz Program gives me the best materials and construction techniques for all of their award-winning designed homes. The 10 'Young America Series' Homes I've built and sold so far were in the highly competitive \$40-50,000 price class. Those extra quality and design features made the difference.

"The proven panelized building system saves me time and on-site labor costs. And weather delays are cut to a minimum with this fast construction system. There's also less chance of theft at the building site because our homes are closed in so fast.

"And Scholz has flexibility. Right now I'm building the 'Young America Series' Homes for the middle and upper middle income family. But if I find a better market developing in apartments, condominiums or luxury cus-

tom homes, Scholz has a package for me to build."

Patrick Forte likes what Scholz has done to build his business. And we can do the same for you.

Send in the coupon. We'll send you information on our Builder Program . . . it will help build business for you!



SCHOLZ HOMES, INC.

The world's foremost producer of luxury homes.

A subsidiary of  Inland Steel Urban Development Corporation.

Mr. Carl Mann, Director of Marketing
Scholz Homes, Inc.
P.O. Box 3475
Toledo, Ohio 46207

HH 773

Tell me more about the Scholz philosophy of success and how I can be a part of it. Send me free information on Scholz Homes' Builder Program.

NAME _____

TITLE _____

COMPANY NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____



**Specify Alsons
... the shower
system that's
a feature.**

Alsons Personal Shower Systems give you a feature to sell... make your bathrooms more attractive... and give your buyers something extra... all for a modest cost. New designs include hand showers with push button water-saving control in systems to fit every bath need, design and decor.

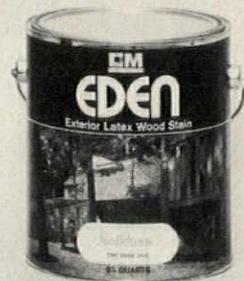
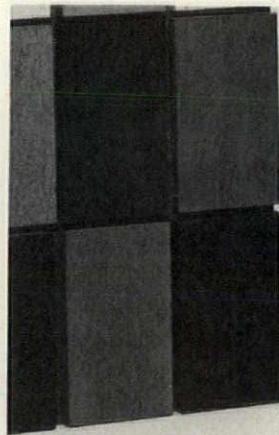
Write Alsons, The Personal Shower Specialists, for color Catalog No. 183.



Somerset, Mich. 49281
Covina, Calif. 91723
Canada: Waltec Industries

CIRCLE 74 ON READER SERVICE CARD

PRODUCTS/COATINGS, ADHESIVES



Exterior wood stain is suitable for use on siding, paneling, beams, shakes, shingles and fencing. "Eden" will not chip, blister or peel on new wood. Solidtone stains in 12 colors are heavily pigmented for an opaque look. Valspar, Minneapolis, Minn.

CIRCLE 239 ON READER SERVICE CARD



A line of caulking compounds consists of "Pro-Calk", "Butyl-Bead", "Flexi-Calk" and "Valu-Calk". Each compound is tailored to meet specific job requirements ranging from heavy-duty architectural work to light wood and glass applications. Synkoloid, Compton, Calif.

CIRCLE 240 ON READER SERVICE CARD



Acrylic rustic stain for wood surfaces, "Rain-Stain", is available in 56 semitransparent, 90 solid and 8 western outdoor-stock colors. It also comes in a semigloss clear finish. Practically odor free, the stain will not crack, blister or peel. Pabco Paints, Emeryville, Calif.

CIRCLE 241 ON READER SERVICE CARD

DEALERS WANTED FOR



**FIBERGLASS HOME
SHAPED FOR THE 70's.**



Dealerships are now available for O'Dome, the exciting and successful year round vacation home that sells for the price of a car. The O'Dome has 510 square feet of living space and features tough, durable fiberglass and urethane foam construction, providing excellent insulation and maintenance-free living. Low-cost shipping anywhere. Prospective dealers must be able to demonstrate an

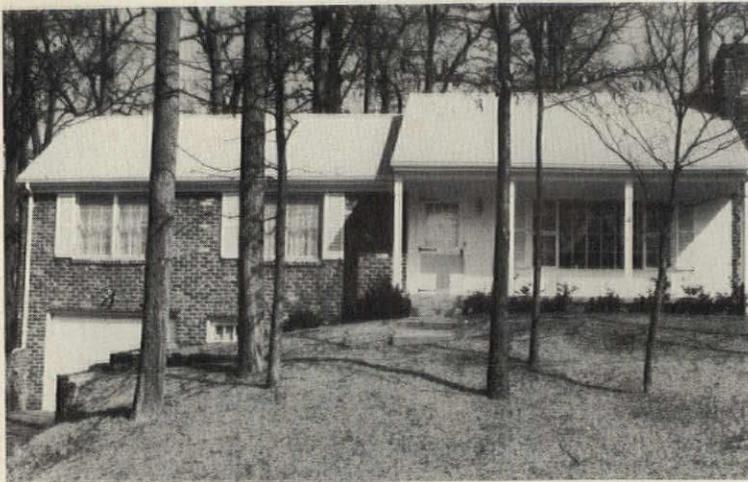
established business reputation, a selling capability and financial responsibility. Information for becoming an O'Dome dealer can be obtained by writing or calling:

Tension Structures Inc.
9800 Ann Arbor Road
Plymouth, Michigan 48170
Phone: 313 / 455-5800
U.S. Patent No.'s.
3,562,975 3,636,676

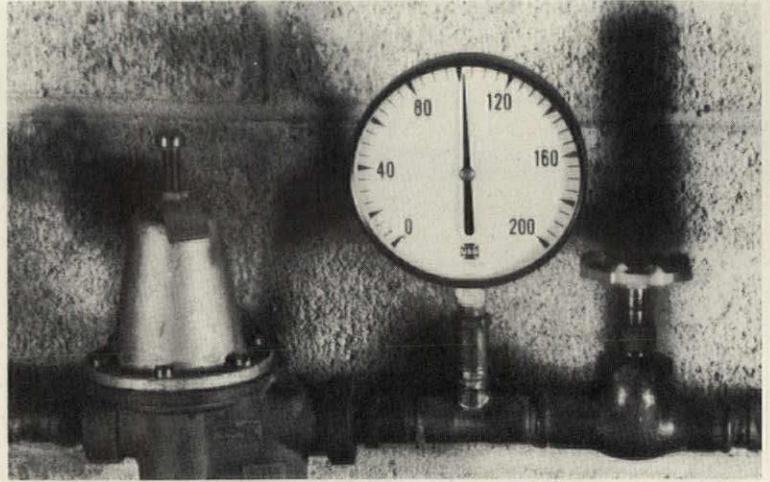
CIRCLE 162 ON READER SERVICE CARD



Clear crystallite wood coatings provide total protection for any wood surface. "Zar" coatings will not ring or mark and require no waxing or polishing. Available in three types—imperial, gloss and satin—"Zar" is free flowing and self leveling. It is available in half-pint, pint, quart and gallon containers. United Gilsonite, Scranton, Pa. CIRCLE 242 ON READER SERVICE CARD



After 6 trouble-free years
carrying hot & cold water in
this Virginia home...



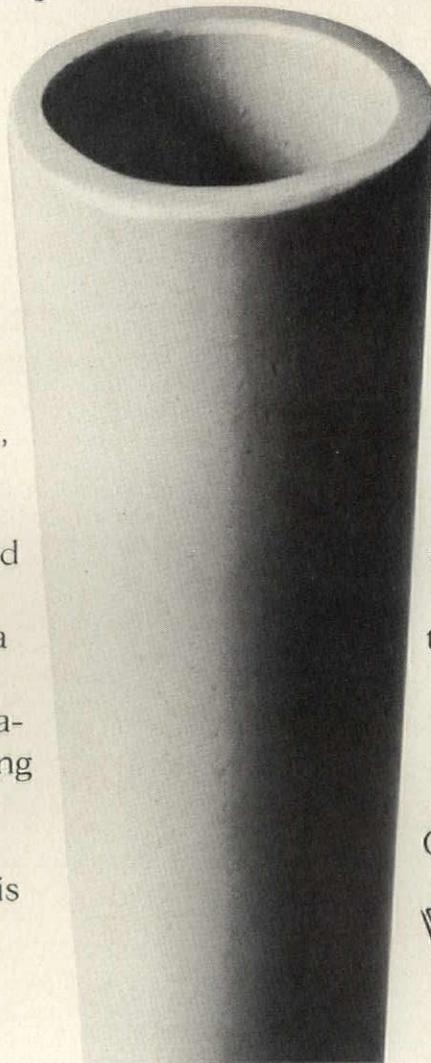
...at pressures surging
many times daily
to 150 psi...

This CPVC pipe still performs like the day it went in.

There are three hundred and seventy five feet of CPVC pipe and 131 CPVC fittings in the hot and cold water system at the Ron Sizer residence in Lynchburg, Virginia. All the pipe and fittings are of hi-temp Geon® CPVC.

Because the home is located on a dead end street (at the end of a water line which also serves a large hospital) the pressure frequently surges to 150 psi and occasionally to 160 psi. Normal incoming pressure is 100 psi.

Half the time, Mr. Sizer keeps full incoming pressure on his



CPVC line. The other half of the time a reducing valve in his basement keeps house pressure at 40 psi. Water from the heating tank is supplied at 150-158°F.

For 6 years there have been no failures in the system, no service problems, no leaks.

If you want a pipe or tubing that performs—ask us about hi-temp Geon vinyl (CPVC).

B.F. Goodrich Chemical Company, Dept. H-28, 6100

Oak Tree Boulevard,
Cleveland, Ohio 44131.

B.F. Goodrich

Fire-resistance manual—a list of assemblies referenced by three major codes

PARTY WALLS AND INTERIOR PARTITIONS, WOOD FRAMED									
Fire Rating	Sound Rating STC	Construction Type	GA & Company Codes	Thickness	Limiting Height	Weight psf	Fire Test Ref.	SKETCH	
								Fire	Sound
1 HR	50 to 54	Wood Studs Gypsum Wallboard Mineral Fiber	WP 3240 (I)	5 3/4"		7	UL R1319-93 94 129 Design 27-1 or U311		
			WP 3260 (G, K)	5 3/4"		9	See WP 3340		

The 1973-74 edition of the Gypsum Association's *Fire Resistance* manual provides builders with a single list—referenced by the BOCA Building Code, the ICBO Uniform Building Code and the SBCC Southern Standard Building Code—of fire-rated construction assemblies. This unique list—said to be the

first in the building industry to lend uniformity to national codes—includes classifications such as walls and partitions, floor-ceilings, columns, beams and roof decks. Information is provided on fire rating, sound classification, construction type, Gypsum Association code numbers, assembly thickness and

weight per square foot. Rough cross-section illustrations accompany each listing (see sample page above). The chart portion of the manual is comprised of over 240 assemblies using gypsum board and plaster and is preceded by 12 pages of text and illustration on noncombustibility, flame spread, impact noise tests, per-

formance of plaster, etc. The book also includes sections on use of the manual, definitions of abbreviations, Gypsum Association code specifications compared with federal specifications and other available association publications. The Gypsum Assn., Chicago. CIRCLE 301 ON READER SERVICE CARD

Ceramic tile patterns, shapes and colors are shown. Full-color photos feature room settings incorporating floor, wall and countertop tile installations. A chart suggests color coordinated designs for walls and floors for use with popular bathroom fixture colors. American Olean, Lansdale, Pa. CIRCLE 302 ON READER SERVICE CARD

Redwood fences, for use in single- and multifamily projects, are described and illustrated in a 12-page booklet. Full-color photos feature actual installations and include four new fence designs. Specifications and construction information are provided. California Redwood, San Francisco. CIRCLE 303 ON READER SERVICE CARD

Plexiglas™ mirror is fully discussed in an illustrated brochure. Cutting, forming, finishing, handling and storage instructions are given. Information on installing, cleaning, framing and decorating is also provided. Specifications are included. Rohm and Haas, Philadelphia, Pa. CIRCLE 304 ON READER SERVICE CARD

Kitchen cabinets are shown in color photographs. Extras—such as lazy Susans, hostess carts and glide-out towel racks—are featured. Complete specifications accompany simplified illustrations of standard and special cabinets. Long-Bell, Portland, Ore. CIRCLE 305 ON READER SERVICE CARD

Spring hinge catalog covers recommended uses, construction, finishes, and applications for several models of single and double acting spring hinges and other related door hardware. Product illustrations, size and weight tables and specifications

are included. McKinney/Chicago, Scranton, Pa. CIRCLE 306 ON READER SERVICE CARD

Murals, in 14 designs and 63 colorways, are shown in full color. Brochure is accompanied by a fact sheet which contains sketches, stock numbers, number of panels and background rolls within each set, companion ground numbers, suggested retail prices, design height and other specifications. James Seeman, Garden City Park, N.Y. CIRCLE 307 ON READER SERVICE CARD

Vinyl and vinyl asbestos flooring colors and patterns are displayed. Each style is accompanied by short descriptive text and a chart lists tile sizes, gauges and minimum orders accepted. A brief section provides maintenance data. Amtico, Trenton, N.J. CIRCLE 308 ON READER SERVICE CARD

Hand-carved doors catalog, in full color, contains photographs of eight solid mahogany and rosewood models with suggested matching side panel combinations. Measurements and prices for each door are listed. Installation and shipping information is furnished. Elegant Entries, Worcester, Mass. CIRCLE 310 ON READER SERVICE CARD

Bathroom cabinetry and accessories—including vanities, decorative mirrors and cabinets, cultured marble tops with integral bowls, special storage units and lighting—are cataloged in full color. Each cabinet model is pictured in room settings with specifications listed on the same page. Rutt-Williams, Elkhart, Ind. CIRCLE 313 ON READER SERVICE CARD

Proper concreting practices, for use in warm and hot weather, are presented on an illustrated page for posting on jobsites. Information is listed under three subheads: before placing, during placing and finishing and after finishing. Master Builders, Cleveland, Ohio. CIRCLE 312 ON READER SERVICE CARD

Vinyl wallcovering patterns are displayed in full color. Thirty-six designs are shown—some as backgrounds for room settings. Two charts, one for walls and one for ceilings, show how to estimate the number of rolls required for a job. Specifications are included. ICI America, Wilmington, Del. CIRCLE 314 ON READER SERVICE CARD

Ceilings are pictured in full color room settings. Types listed include decorative tiles for formal rooms, those installed mainly for sound absorption or ease of cleaning and suspension ceilings with accompanying grid systems and accessories. Product attributes and installation are briefly mentioned. Armstrong, Lancaster, Pa. CIRCLE 315 ON READER SERVICE CARD

Closet doors, shelves and accessories are cataloged. Photos of installed doors plus illustrations of door mechanics accompany detailed specification charts. Shelves and their installation are also discussed. Leigh, Coopersville, Mich. CIRCLE 316 ON READER SERVICE CARD

Storm doors, available in stock colors, are described in text and shown in illustrations. Model features are listed and custom kits and French door openings are briefly mentioned. Hole-punched brochure

includes specifications. Anderson, Owensboro, Ky. CIRCLE 309 ON READER SERVICE CARD

Fundamentals of Machine Specifications explains basic specs common to machinery such as small dozers, loaders, motor graders and scrapers. The booklet discusses the various elements of small machinery in general terms so that prospective purchasers can better interpret product information supplied on manufacturers' spec sheets. Topics discussed include horsepower, engine configuration, transmission and final drive, brakes, tires, undercarriage, steering and axles, hydraulics, etc. Illustrations complement the text. Ask for form AEC13010 at your local Caterpillar dealer.

Stains, available in solid and semi-transparent finishes, are reproduced in color chips and illustrations. Instructions for staining previously finished wood are included. Shaker-town, Winlock, Wash. CIRCLE 320 ON READER SERVICE CARD

Mineral fiber siding and roofing products are featured. Illustrations show close-ups of siding textures, and a selection guide displays the 12 colors available. Installation and accessories are discussed. Supradur, New York City. CIRCLE 317 ON READER SERVICE CARD

Ceilings, fabricated of tiles which simulate hand-carved wood, are shown in full color. Eight sculptured designs are shown with reproductions of the ten available colors. Installation and maintenance are briefly discussed. Marcus, Danville, Ill. CIRCLE 318 ON READER SERVICE CARD

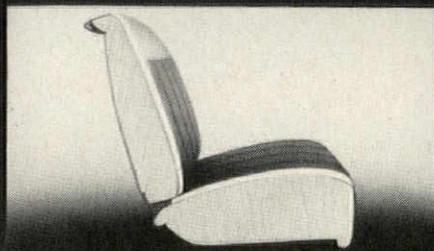
'73 Ford pickups
start the better
ideas coming
all over again!



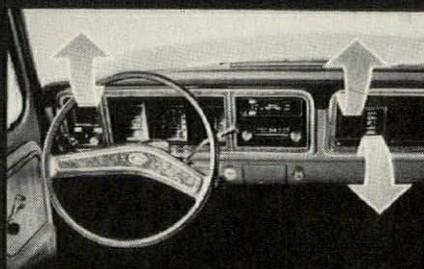
Behind seat is storage space
not gas tank on most models.



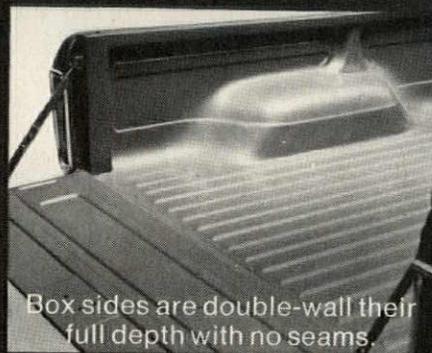
Ford box cover looks and fits
right, protects your cargo.



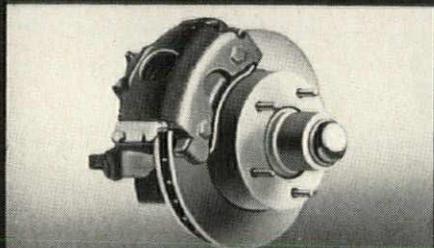
Full-foam seat over 5 in. deep
is standard in every cab.



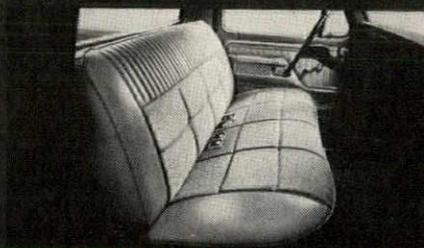
Heater is modern blend-air type;
optional "air" is all built in.



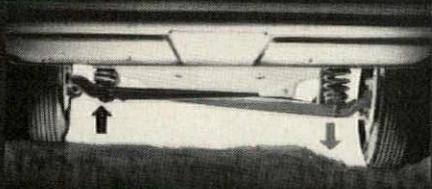
Box sides are double-wall their
full depth with no seams.



Front disc brakes are standard
on Ford pickups (except 4x4).



Roomiest Ford pickup cab ever
offers unusual quiet, comfort.



Ford's famous Twin-I-Beam
suspension... smooth, strong.

A better idea for safety:
Buckle up.



FORD PICKUPS

FORD DIVISION



Works like a truck/rides like a car.

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