

MARCH 1972

House & Home

SECOND ANNUAL MODULAR SURVEY

Profile of a sub-industry in ferment

to in this issue

ow to hire, train and keep good project managers

the Lake Tahoe story: Arch-enemies travel a rough road to compromise

partment vacancies soar...but nobody seems to care



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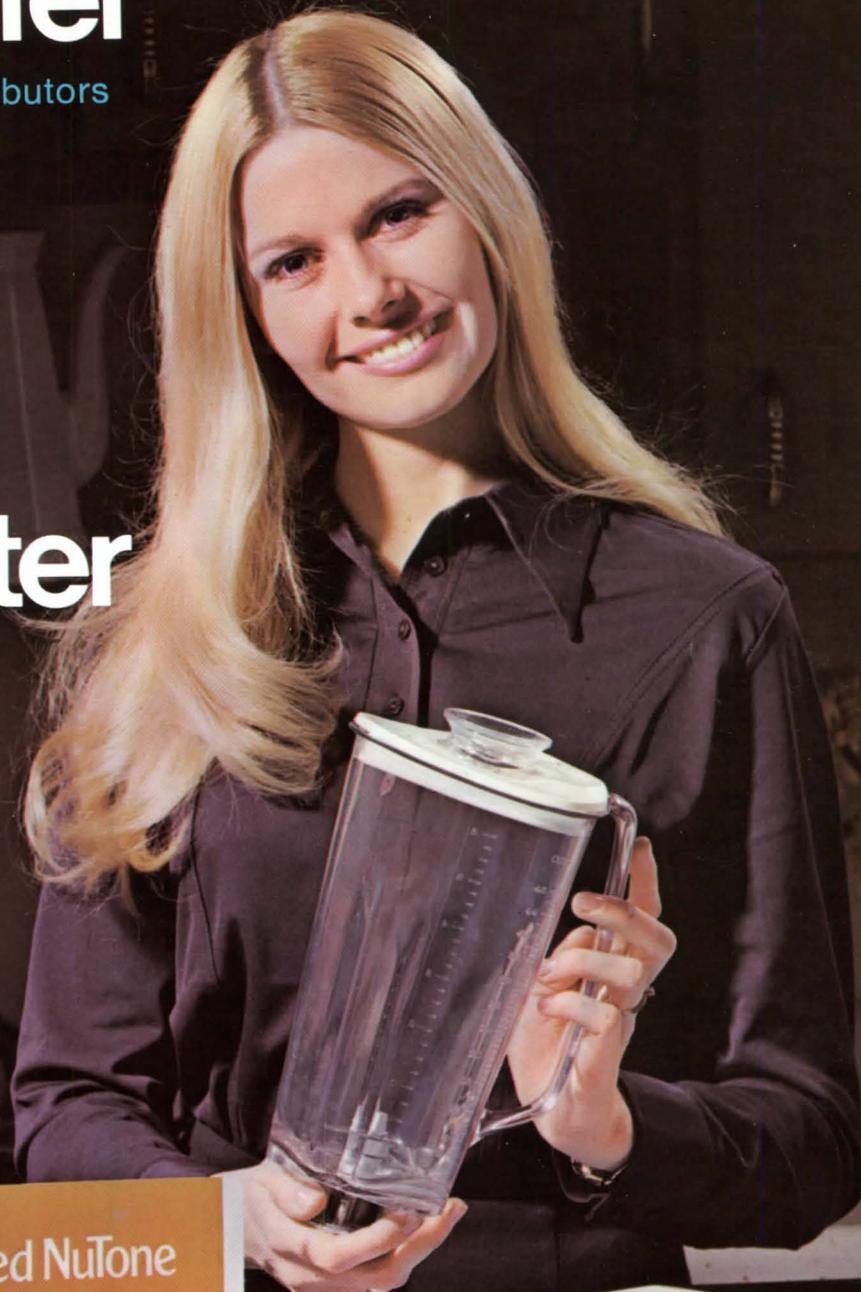
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Houston '72: Builders at peak of prosperity, with signs of more to come

The record crowd of 54,805 that packed Houston's Astrodome for NAHB's '72 convention had ample cause for the unabashed optimism that was everywhere in evidence.

It wasn't because of the 80-degree weather and the clear blue skies, or the Mardi gras atmosphere in the lushly carpeted exhibit sectors—where grass skirts and blonde snake charmers were not uncommon—although all these aspects contributed to the euphoria of the visitors who streamed in from all 50 states and 18 foreign lands.

It was because there were 2,048,000 private housing starts in 1971, and they broke a record that had stood since 1950, when there were 1,952,000. Few people at the convention had to be told more than once that 1972 promises to be an even bigger year—a year that could, according to Housing Secretary George W. Romney, crack 2.3-million starts.

Caution lights. There was only a slight blanching showing beneath all that rosy glow—the barest hint that some of the major problems of the housing industry in 1971 would be around to haunt builders in 1972: construction safety, land use and zoning, pay and availability of labor and financing to name a few.

The out-going NAHB president, John A. Stastny of Berwyn, Ill., set the tone for the convention theme on the opening Sunday. To a question about 1971 housing starts, he promised: "You haven't seen anything yet." He told reporters



Vice President Agnew tells builders packing the Astrodome: "I'm here to express the President's appreciation for the tremendous job you've done." With him, from left, are the NAHB's Nathaniel Rogg, Stanley Waranch and John Stastny, and Secretary Romney.

and editors that the industry could build 3 million units in a year "if we had to," despite such obstacles as spiraling lumber costs (an estimated \$500 increase per house in the last year), and the government's application to homebuilding safety rules that were intended for use in heavy construction—"a situation NAHB is working to correct."

The Agnew visit. The theme was developed at Ellington Air Force Base later that afternoon, when President Nixon's stand-in for the convention jetted in to give homebuilders his chief's personal thanks for their "great cooperation in helping governmental agencies loosen up the money flow so people can buy new homes."

Vice President Spiro T. Agnew reiterated those thanks to convention crowds wedged between

the Astrodome's west entrance the following day. He emphatically predicted that 1972 "will be a record year for the homebuilding industry."

He cautioned homebuilders about creating the future's slums, but at the same time he restated an objective Congress set in the Housing Act of 1949: "A decent home and a suitable living environment for every American family." The objective, he said, is the goal of President Nixon's Administration.

The Nixon Record. The nation has recovered from the 1966-68 housing slump, the Vice President said, and this was particularly apparent in the success in providing homes for low and moderate-income families: 1.48-million such units built in the three years.

"That's nearly three times

the number of subsidized units produced during the four years of the previous administration," Mr. Agnew added.

The number of new homes built each year has surpassed even industry predictions every year since President Nixon's election, the Vice President said.

"So let it be noted by all the news media present, for relay to the doomsayers out on the campaign trail: America's housing industry is healthy and strong and optimistic."

Two anti-war groups had announced plans for a major protest but it failed to materialize. A mere handful of demonstrators appeared at the Astrodome's north entrance, one with a sign that read: "Wage Peace, Not War." The closest thing to an incident occurred when a youthful homebuilder in business suit flashed a V sign, and grinned sheepishly at a companion.

More money. If anyone failed to get the message at the Vice President's talk, there were several seminars where it came through loud and clear. Not the least of these was "Outlook for Housing in 1972," held on Monday and directed by NAHB's president-to-be, Stanley Waranch of Norfolk, Va.

Preston Martin, chairman of the Federal Home Loan Bank Board, predicted another two-million-plus housing starts for 1972, with a Bank Board aim of stabilizing mortgage credit flows and housing activity. He

TO PAGE 9



Convention's featured speakers were Secretary George Romney and Senator John Sparkman (D., Ala.). Builders cheered wildly for Romney when he deplored housing subsidy scandals and laid inner-city problems to the flight of the middle class to the suburbs.

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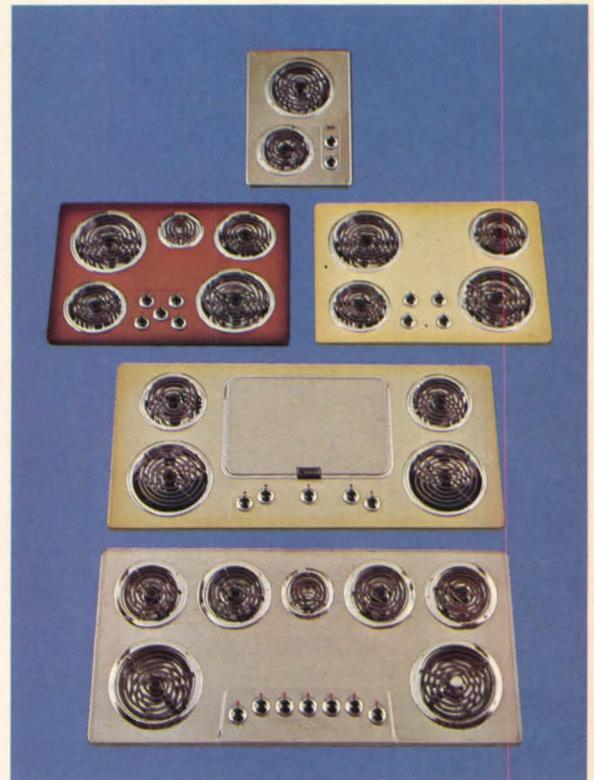


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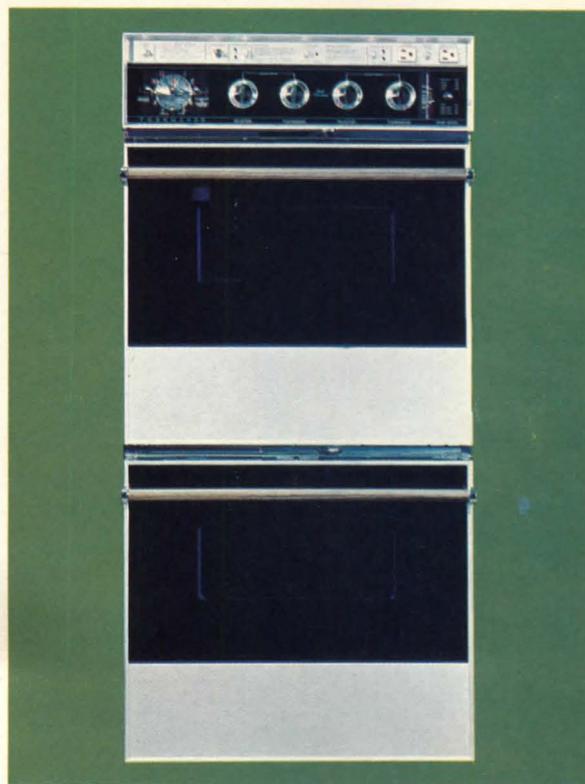
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CIRCLE 32 ON READER SERVICE CARD



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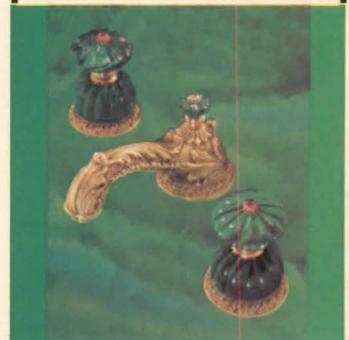
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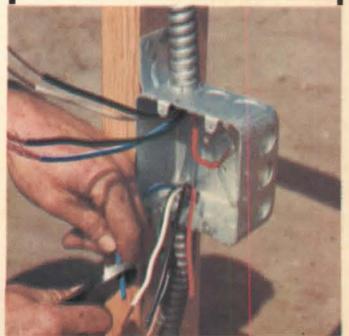
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**CIRCLE 39 ON
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Houston: Builders at peak of prosperity, with more to come . . . continued

BOB LEE



NAHB's '72 team, from left: president Stanley Waranch, first vice president George C. Martin, vice president/treasurer Lewis Cenker, vice president/secretary J.S. Norman Jr.

predicted \$1 to \$2 billion would be provided by the board by the fourth quarter of 1972 to help stabilize credit flows.

A. Oakley Hunter, president and chairman of the board of the Federal National Mortgage Assn., promised that his organization, long known affectionately as Fanny May, would issue \$7 billion in commitments and purchase \$5-billion worth of mortgages in 1972.

Politics. Predictions that housing and the economy in general would jump in 1972 weren't the exclusive property of either political party at the convention, or so it seemed in a good natured fencing match between the GOP's national committee chairman, Sen. Robert Dole of Kansas, and Rep. Hale Boggs of Louisiana, the House majority leader.

In a sparsely attended session dubbed "The Political Scene in 1972," Boggs assured builders that the Democratic Congress will do everything it can to demonstrate the economy can be improved by Democrats. Dole nodded with a wry grin: "There will be a lot of one-upmanship this year. That's a fact of political life."

The Romney warning. Not all speakers were there to tell builders how great the future looks in this Presidential year. Secretary Romney dashed some cold water with a warning that the number of housing starts in 1972 could depend on whether builders meet quality standards, and he left no doubt about where HUD stood on the matter.

On a program with Sen. John Sparkman, (D., Ala.), Romney cautioned that the question of whether the standards are met will mean the difference between HUD approval of as few as 350,000 units or as many as 550,000. He emphasized that the goal of 26-million new units by 1978 will not be attained by sacrificing quality in construction, as has been the case with many inner-city subsidized housing programs that opened the door to "fast buck artists and speculators."

Action on scandals. In an emotional speech wildly applauded by builders, Romney admitted that a survey by his department disclosed wide-

spread corruption in housing in such forms as draft and kick-backs.

The Secretary has come under fire in Congress and in the national press for permitting shoddy workmanship and fraud in several subsidized programs. Vast areas of such housing have been abandoned in such cities as Detroit and St. Louis, creating regions described by congressional critics as virtual wastelands (NEWS, Feb.).

Assigning blame. "Shady get-rich-quick schemes abound," Romney cried, "involving some Realtors, some builders, some developers and even some housing authorities, who line their pockets with the sweat money, yet even the food money, of the uninformed, unsuspecting home buyer or renter."

But Romney, his voice ringing with anger, attributed such problems generally to the flight of the middle class to the suburbs. He insisted that any solution required a wide and coordinated effort on a metropolitan basis, and he said he would convene meetings in five metro areas—Boston, Detroit, Philadelphia, St. Louis

and Wilmington, Del.—to devise joint state, city and suburban efforts.

Romney is calling such sessions TOP meetings, an acronym for The Option Process. They will give state and local governments and private leaders the option of HUD programs for a truly metropolitan attack on the problem of decaying inner cities.

Sparkman critique. Sparkman, too, deplored the housing scandals surfacing in half a dozen cities, but he tended to assign blame to HUD's laxity in policing its programs.

"Brick and mortar shelter is not enough," the Senator warned. "It is a disservice to house a low-income family without regard to its financial capacity and maturity or to the quality of the neighborhood."

Land-use laws. William D. Ruckelshaus, the nation's top pollution control officer, warned the builders to prepare for legislation controlling the use of the land. States must pass land-use laws or face massive federal controls, he cautioned, for the country is rapidly depleting land desirable for development and

is wasting topsoil and vegetation at an alarming rate.

Ruckelshaus advocated passage of President Nixon's land-use bill, which would provide \$100 million to states for land-use planning over five years.

Granting that the idea of regulating use of land flies in the face of short-run convenience and age-old traditions among land developers, Ruckelshaus cautioned:

"By failing to act today, we foreclose future options for our survival and guarantee the imposition of some form of massive federal controls on land exploitations."

Timber tempest. All in all, NAHB officials agreed that the 28th convention was one of the best—if not the best to date—and, that it set attendance and exhibit records.

Controversy was limited to a minor skirmish with the timber industry—set off on the first day when NAHB's outgoing president, John Stastny, told a press conference a congressional investigation of lumber prices was in order.

But shortly after his own election as president, Stanley Waranch oiled the troubled waters.

"They [the timber people] want to work with us on this matter," he said, "and we are certainly willing, even though we might also ask for a congressional investigation if pricing should get out of hand."

"We're going to look into what's happening with lumber prices. I'm personally hopeful that they'll come back down. They're still within the framework of the wage-price freeze as it is."

Asked if he weren't backing away from the relatively tough stand taken on lumber prices by Stastny, Waranch flashed a grin:

"Maybe John is just more excitable than I am." With a fast glance around the room, he added: "And John, if you're watching on closed circuit TV, maybe you'd better come help me on this."

But Stastny, perhaps having had his fill of the harsh light of the presidency of NAHB, was conveniently unavailable for comment.

—BOB LEE

McGraw-Hill News, Houston

Quotation of the convention

Aggressive and successful legislative efforts to obtain one kind of federal aid or another to support housing production . . . has created a subtle and unsuspected backlash that is certain to affect homebuilding and mortgage finance in the mid-seventies. . . . The end result of still further reliance on federal agencies will not be more but less mortgage credit and, of more importance to homebuilders, a limited choice among sources of credit. It will also mean building under rules that determine the size, type and location of the market.

Oliver H. Jones

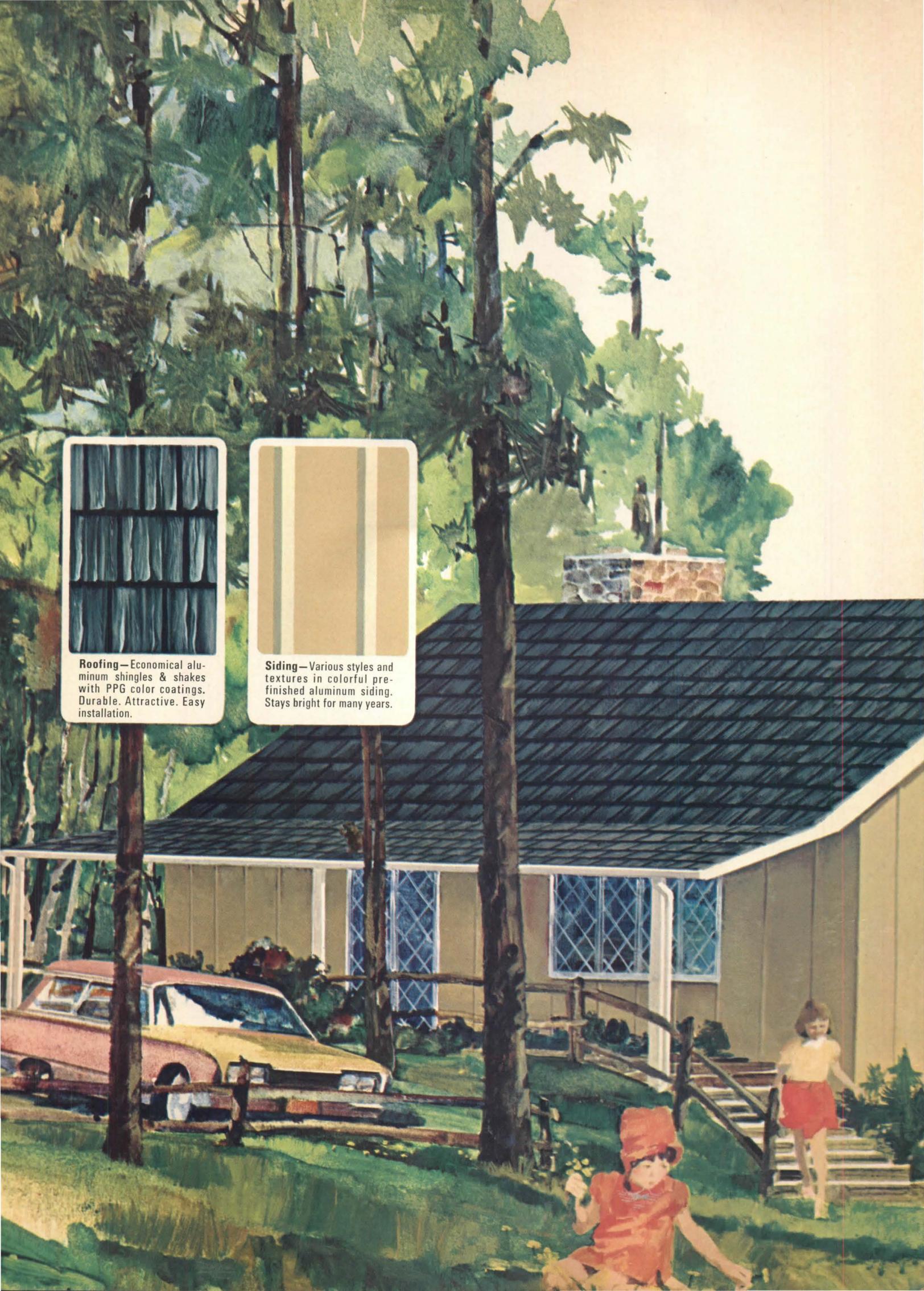
Executive vice president, Mortgage Bankers Assn.
at seminar on The Money Outlook, January 25



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PHOTOS: BOB LEE

After the bands, belles and hullabaloo—it's Mickey as NAHB secretary

James S. ("Mickey") Norman Jr. of Houston stepped aboard the escalator to the NAHB presidency by defeating Merrill Butler of Anaheim, Calif., for the post of vice president and secretary at the NAHB's board meeting in Houston.

Stanley Waranch of Norfolk, George Martin of Louisville and Lewis Cener of Atlanta each moved up one place in the hierarchy in virtually automatic elections as president, first vice president and vice president-treasurer, respectively.

It was Mickey's third try for the secretary's job, and he conducted a low-keyed campaign stressing his NAHB service and experience with all the confidence and timing of an old pro.

Butler, backed by former NAHB presidents Leon Weiner and Lloyd Clark, ran under the slogan "Inspirit our Industry." He pointed out that a Norman victory would put all four top NAHB posts in the hands of Southerners.

Gimmicks. The real battle was more of gimmickry than of issues, however. Butler's supporters donned colorful hard hats early in the week, but on election day the hall was full of Norman boaters, which had been held in reserve until the strategic moment.

Norman's savvy timing was most evident when his fel-

low directors filed into the voting hall and miniskirted girls handed each a big California orange festooned with a "Howdy, I'm Mickey Norman" sticker.

After the votes were tallied, Norman praised his opponent's clean fight and said:

"We've become good friends during the campaign. I have the highest respect for him, and I hope someday he will permit himself to be a leader in the NAHB."

Policy. The board adopted a policy statement calling for a monetary policy that would be anti-inflationary without producing higher interest rates, an end to budget deficits, tighter labor laws, more vocational training, a five-year experiment in revenue-sharing and safety-standard legislation recognizing the difference between light and general construction.

The board also expressed deep reservations on the report issued by the President's Commission on Financial Structure and Regulation and promised to examine it in detail.

Land-use debate. Only land use and low-income housing stirred debate.

"We in the West are running into stop-growth movements in all types of communities," said Jim Duffy of California.

"Zonings are being over-

turned by referendums. This is our war today."

Duffy suggested asking the government to intervene in referendums. He also urged that the NAHB create a task force to go into areas where land-use disputes exist.

"Please don't try to legislate in a policy statement," Waranch told Duffy. "Even with the statement as it stands, NAHB will do the things you're talking about."

This did not mollify Henry Mayer of New Jersey, and he proposed an amendment calling for "a program that will accomplish a reasonable balance between proper use and flagrant abuse of our natural resources" and urging the government to assist the funding.

Squeamish lest they appear to support any degree of "flagrant abuse," the directors defeated the amendment. The statement calling for a challenge to "zoning and other land-use controls not legitimately based on the health, safety and welfare of the public as a whole" remained unchanged.

Subsidy abuses. The statement on low and moderate-income housing was controversial for two reasons: the builders are worried about losing the Section 235 and 236 programs if abuses continue, and they oppose paying a \$100 fee to provide counseling ser-

vices for Section 235 homebuyers, as HUD has proposed.

The final statement was somewhat equivocal:

"This painfully achieved progress [i.e., enactment of Sections 235 and 236] is now threatened by concern over abuses—which can and should be corrected—but, even more, by misinformation and sensationalism which have exaggerated the faults of housing-subsidy programs."

However, the association did pledge its help in eliminating abuses, and the Committee for Housing Low Income Families authorized a study of the two programs by the research consultant Anthony Downs of Chicago.

Interest rates. The NAHB board also passed a resolution urging Secretary Romney to reduce the FHA-VA interest rate after taking into account declines in interest rates in general.

However, Nathaniel Rogg, the association's executive vice president, warned in his report to the board that such a reduction was unlikely.

"Given the kind of economic forecast that is inherent in the Administration's approach, a drop in rate would probably be followed by the need to raise it later in the year, and in a political year that's simply not a very palatable thing to do."

—NATALIE GERARDI

The directors cast their ballots...



A stunned Mickey thanks all...

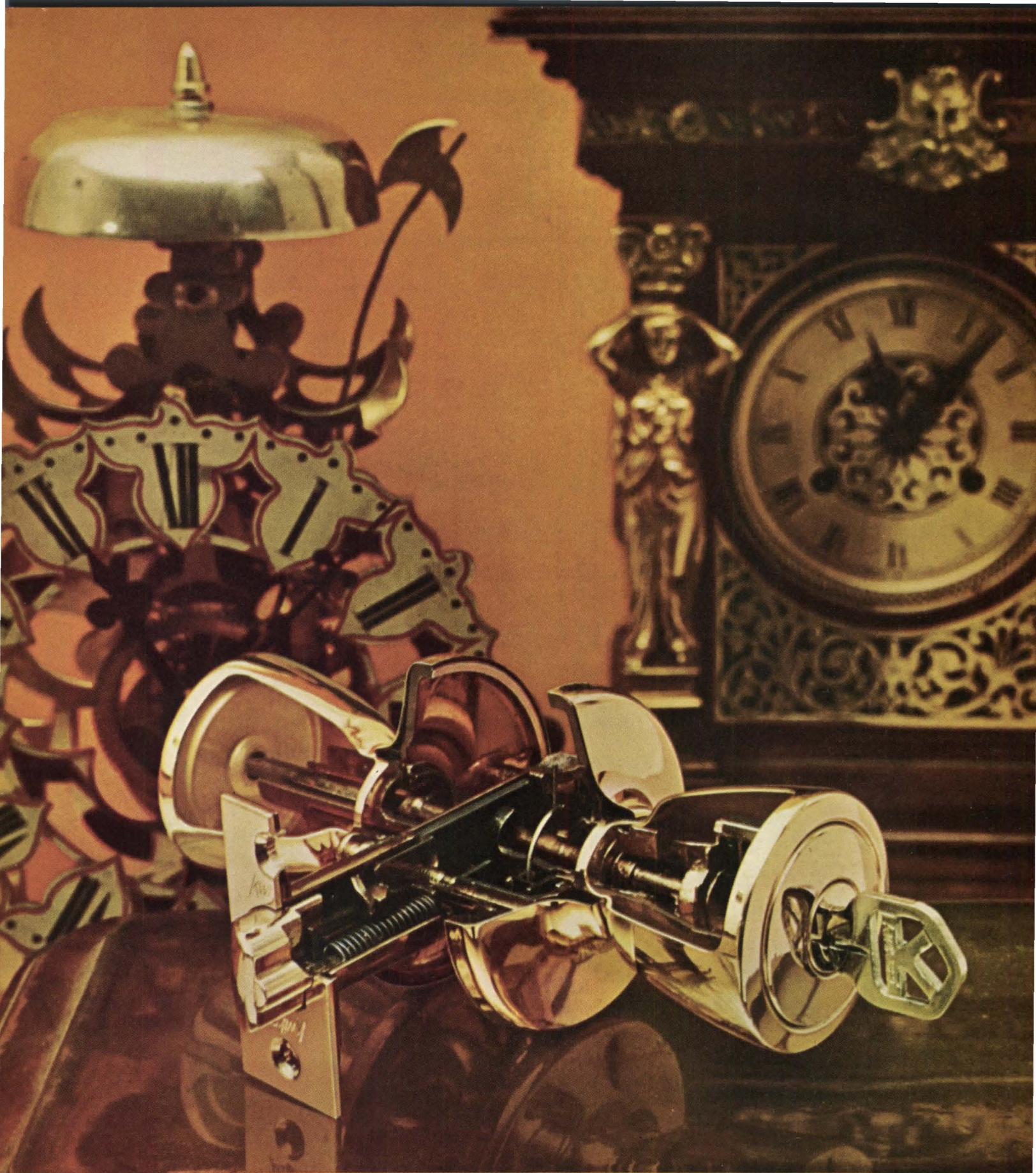


Wife Marian is speechless—almost...



Opponent Butler makes it unanimous.





"Beauty's but skin deep?"

John Davies

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unprimed, or pre-stained in choice of
three colors: Driftwood (shown), Umber
(Deep Brown), and Moss (Earthy
Green).

A breakthrough in prefinished siding!

Two-toned Woodsman^{T.M.} Planked Panels



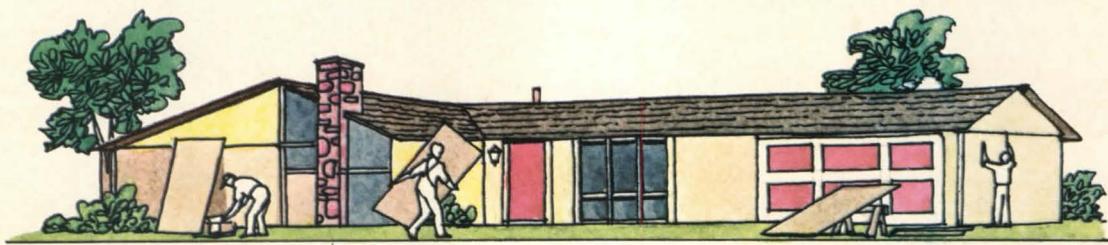
Imagine nailing up individual planks, six at a time... each with its own distinctive grain pattern, yet all with the rustic deep-fissured characteristics of rough-sawn cedar. You can do it with New Woodsman Planked Panel hardboard siding.

Woodsman has depth—dimension—individuality—color. The peaks and valleys of the rugged surface are accentuated by innovative two-tone stains. The effect is something entirely new in siding products.

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build with the brand in demand.





Superbooths such as Anderson Window Wall (above), American Standard (upper right), and Weyerhaeuser (right) line the aisles of Houston's Astrohalla, where thousands of attentive builders and architects have gathered to view the wares of NAHB exhibitors.



The big show—or the glitter and the glamour and the old glad hand

Come one come all to the fabulous, fantastic, stupendous ASTRO-DOMAIN. See magicians who amaze, tumbling beauties in leotards, singers and dancers reminiscent of vaudeville and droves of miniclad models to please the eye.

Yellow balloons drift lazily throughout the brightly decorated Astrohalla, while at the entrance hard-hatted and strawboated standard bearers carry signs screaming BUTLER and NORMAN.

Booted guides in hot pants, red, white and blue, welcome more than 54,000 who have come to see, touch or show. A circus extravaganza . . . a national political convention . . . the world's largest county fair? No, it's an *international happening*—the 28th annual NAHB Convention and Exposition in Houston, Tex.

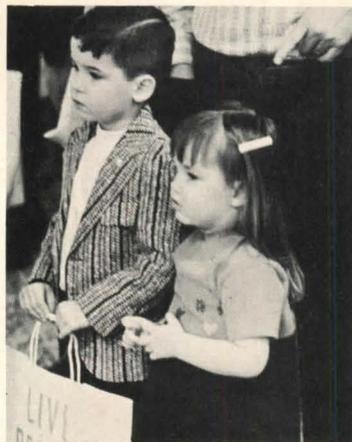
The showmen. More than 450 manufacturers of homebuilding products cover 173,600 sq. ft. of floor with their displays. The sets rival Busby Berkeley's.

For the durable conventioneer forging through a lobby strewn with campaigners and weary footresters, the exhibition center awaits. A flash of bright green stretches unendingly, and streaks of orange and yellow rug veer to the right and left.

The razz-ma-tazz. Here the

super-booths deal in excitement—the Westinghouse Kitchen of Tomorrow cleans itself . . . tumbling cuties demonstrate an American Standard home gymnasium . . . there's Eddie Albert in the flesh for Certain-Teed . . . and magicians, one resembling a mild-mannered Dracula showing the magic of Schlage locks and bolts while another—a Ph.D. in physics—demonstrates the wonders of Hercules chemistry.

A chorister sings the wonders of Certain-Teed's "Super Tub" . . . a Tappan duet belts out ways to compress away kitchen waste . . . Fedders' beauties in Tahitian garb and



Tomorrow's builders intent on work.

setting beckon yearning passers-by to that far-off paradise . . . and the bikini-clad towel-

turbated lass plunges merrily into a steam bath/shower every 30 minutes for Romā Sauna . . .

The chow line. A little after noon a sweet Southern voice resounds, announcing the opening of dining facilities. To the east—The Soup and Sandwich (impossible to find even with the aid of a compass) . . . assorted hot dog and hamburger stands that run out of both and run out of seats . . . and finally—for the gourmet—The Beef and Beer, a parking lot ingeniously converted into a cafeteria-style saloon.

And the big top. Not to be missed is the Astrodome itself, from the Show of Shows in the domeskeller to the elite sky boxes suspended above, offering a panoramic view of bulldozers digging a track for motorcycle races.

Hotels are full all the way to Galveston . . . restaurants booked 'til past 10 p.m. . . cabs precious . . . rental cars an impossibility . . . and Nieman Marcus always crowded.

Is it all worthwhile? . . . To exhibitors, builders and architects it must be . . . They came one came all to the Astro-Domain and saw, touched and were shown the 28th Annual NAHB exposition—the largest show of its kind in the world.

—ELISE PLATT

After '74—Houston or elsewhere?

Edward F. Connors of Washington, D.C., NAHB's exposition director, says he will recommend a three-year extension of the contract that calls for the NAHB to remain in Houston through 1974.

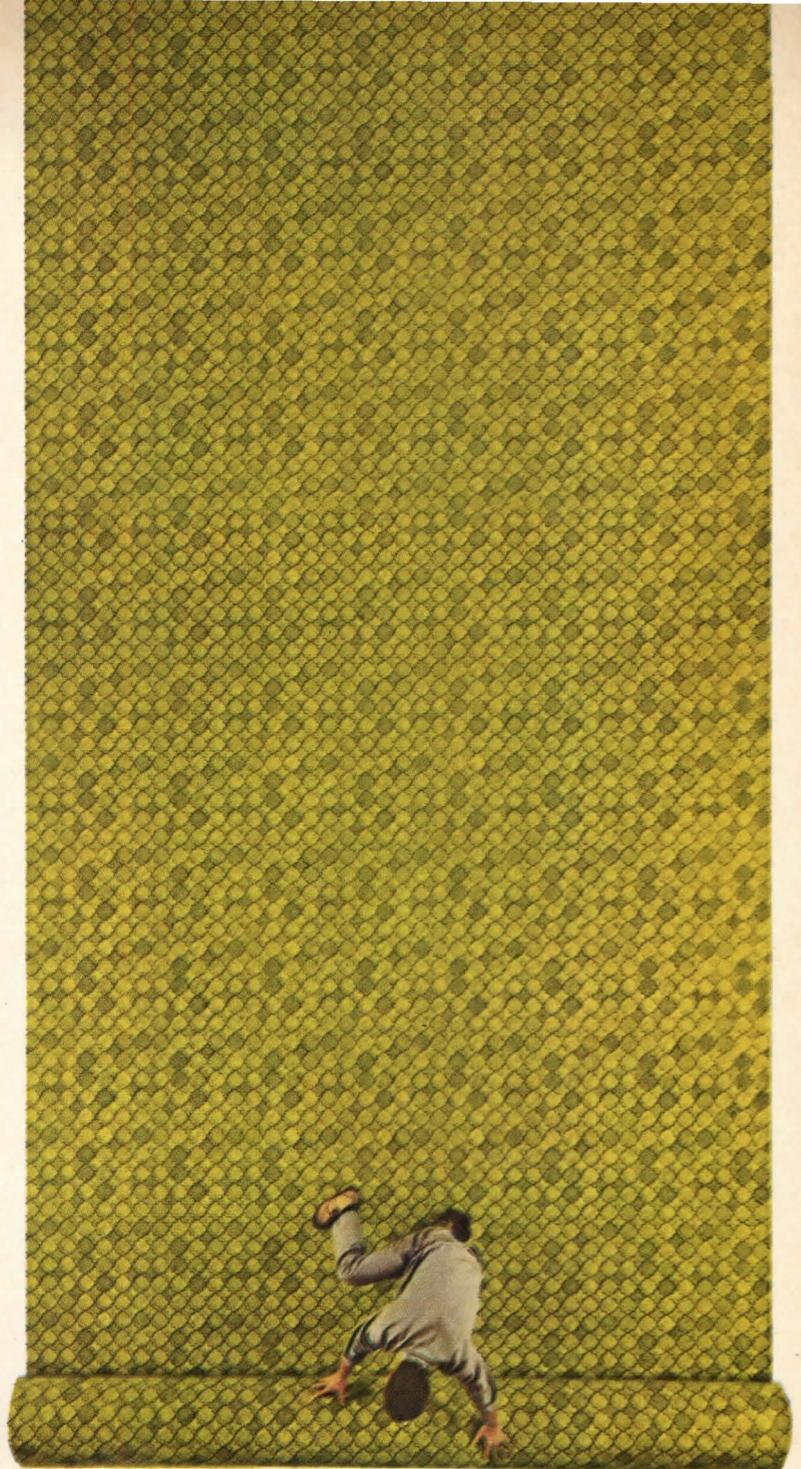
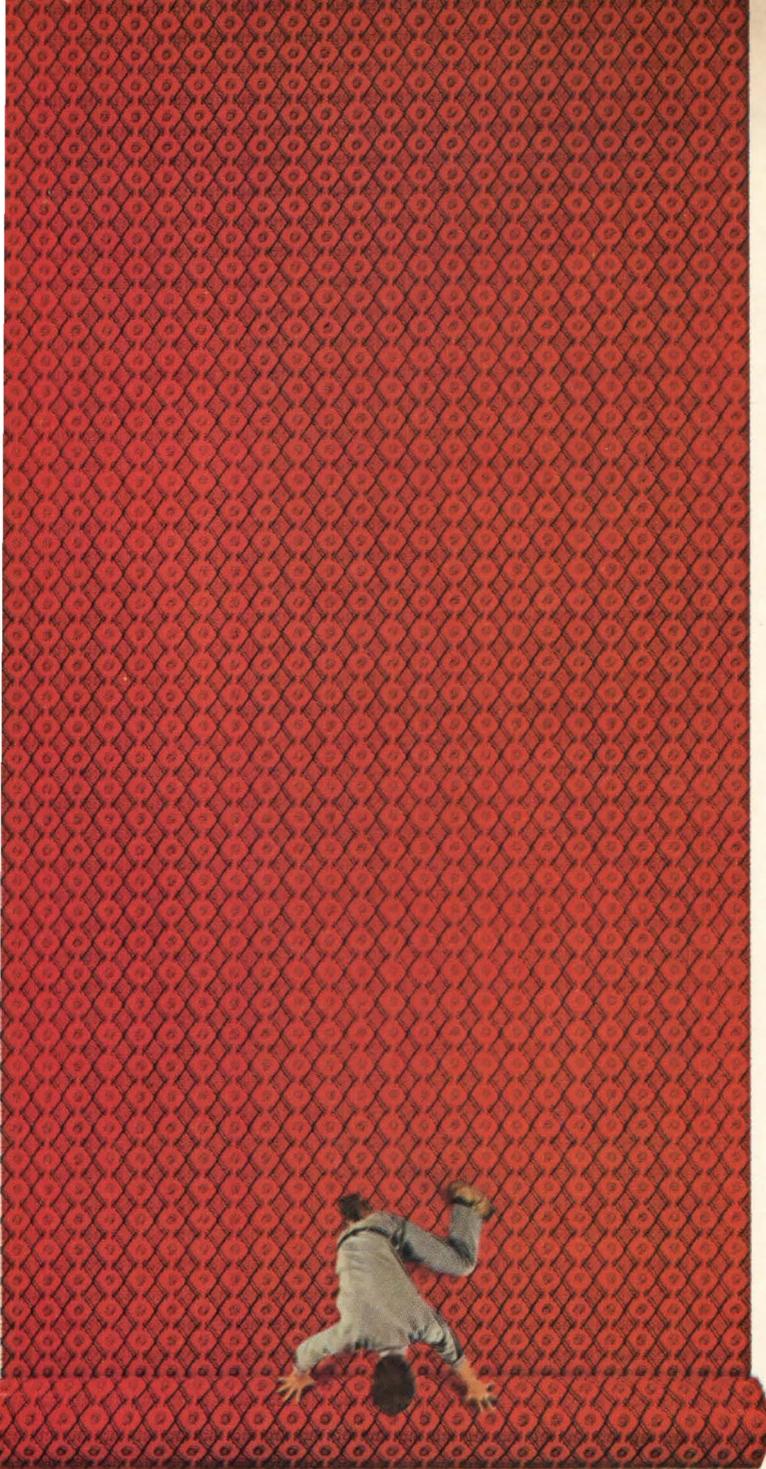
He says there are three cities of the eight bidding that could wrest the rich convention away from Houston, which also has a good chance. Each has or will have the required amount of exhibit space, hotel rooms and entertainment facilities for

50,000 or so people, but each has its own particular drawback.

The three are Chicago, Las Vegas and San Francisco.

"I prefer staying in Houston," Connors said, "not only because the situation here is pretty satisfactory, but also because so much uncertainty would be involved in moving."

The NAHB's directors will decide on where to move at their spring meeting in Washington May 18-24. —B.L.



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VINYL FLOORS

In many places apartment builders are building towering vacancy rates

Maybe it's the gambling instinct of an industry accustomed to cycles of feast and famine.

Or the afterglow of confidence from 1971's record success.

But in many of the areas hit hardest by the high vacancy rates that began to surface last summer [News, Oct. '71], there is little evidence that builders are putting the brakes on apartment building.

Rationale. "An attractive, well located apartment complex will always appeal to buyers, regardless of the general state of the apartment market in the area," says W.N. Kennicott, president of the McCarthy Co. of Anaheim, California. Kennicott has reason for such confidence; his company recently sold a 403-unit apartment-recreational complex in Orange County, where vacancies are over 10%, for \$5.4 million, the largest deal in the firm's 79 years.

And Barbara Kaplan, housing coordinator for the North Central Texas Council of Governments, reports that many new apartments are still being planned "often by builders who believe they can outguess the market and beat statistics."

Sky's the limit. But some statistics are pretty grim. Vacancies are as high as 19% in Tarrant County, Tex. (Fort Worth), 12.2% in Dallas, 15% in Houston.

Southern California vacancies range from 8% to 10%. In Santa Clara (San Jose) they are an overall 7.3%, but submarkets have zoomed as high as 25%, 14% and 10.3%. San Diego is beginning to feel the effects of overbuilding with 6.8%; a year ago the rate was 3.9%, two years ago, 2.7%.

In Seattle the rate is between 10% and 12%.

Detroit, where a firm suburban market fails to offset weakness in the city, registers an overall rate of 14.3%. A year ago it was 10.1%.

In Atlanta the rate stands at 8%. Estimates for St. Louis County range between 7% and 10%. In Cleveland the rate has hovered at 4% despite a virtual halt in construction since April 1970, when a sewer tap ban was imposed.

Even in Pittsburgh and Bos-

ton, where the apartment market is strong, it has begun to soften in the suburbs.

Color TV for all. Some builders have resorted to gimmicks. Atlanta lures tenants with ski trips, color television sets, a month's free rent, two bedrooms for the price of one and use of a washer and dryer for six months.

And in San Jose, where rent rebates and color televisions have become standard, one owner advertises:

"A brand new car will be given free to one of our residents—IT COULD BE YOU."

Money isn't all. Ironically, part of the reason for the high vacancies is easy money, which has had a twofold effect. First, it has contributed to a slackening in demand.

Ted Gibson, research officer of Security Pacific National Bank in San Francisco, explains:

"Many renters actually wanted single-family housing but couldn't afford the down payments. Because all the apartment units were absorbed between 1966 and 1970, we thought that young people wanted to live in apartments when actually there was a pent-up demand for singles."

Easy money's second effect is overbuilding. Builders have projects on the drawing boards, and savings and loans are bursting with funds to finance, so it's hard to resist the temptation to go ahead.

Anthony Downs of the Real Estate Research Corp. chided San Diego contractors:

"Mortgages are often more important than actual demand for units, for builders who can mortgage out because of easy money would fill the world with apartments even if they were all vacant!"

Condominium fever. Most of the cities surveyed mentioned condominiums both as contributors to the vacancy rate and as one of the solutions owners turn to when apartments are in trouble.

In Houston, for example, Allen Narmore, executive director of the 1000-member Houston Apartment Assn., estimates that from 2,000 to 3,000 families bought townhouse condominiums last year when they might have rented.

In Cleveland, Walter Zaremba Jr., president of Building Systems Housing Corp., explains:

"In many cases a developer can sell condominiums and make money while the buyer's cost per month is actually less than rent would have been."

Pittsburgh, Philadelphia and Boston also report a trend to condominiums.

And in Detroit, Advance Mortgage reports: "Conversions in both Detroit and the suburbs are increasing."

But Richard Cromwell Jr. of Title Insurance and Trust Co. of San Diego warns:

"You can't use the condominium idea to solve the problems caused by a bum apartment."

No turning back. Other factors that raise vacancy rates are the decline in family formations, reduced immigration to California, unemployment and the long lead time required to plan apartment projects.

Bad planning has also contributed:

In Denver, an apartment manager blames the high vacancies in the southeast section, far from the downtown working area, on the bad planning that caused builders to build one-bedroom apartments where larger units were in demand.

Jim Field, vice president of C&S Realty Investors, Atlanta, points a finger at out-of-state builders:

"They come in without good marketing information and try to structure rent as they do in other cities. The Atlanta family is often looking for more value than a glassed-in clubhouse. They want lots of space for little money."

The pocketbook. High vacancies are not the only problem.

In Chicago, for example, a number of big landlords are reeling under the impact of a pre-election tempest several newspapers stirred up when they accused tax assessor P. J. Cullerton of underassessing many buildings. After Cullerton was reelected he kept his promise to clean house. Result: 1971 assessments in much of the Loop area are up 15%.

Closing the door. San Diego's city council recently imposed construction bans on certain areas. It is also considering a measure that would let the

council initiate rezoning.

"This is alarming," said Richard Cromwell. "It probably means that some developing areas, like Mira Mesa, many close down."

In Cleveland, the sewer ban imposed in 1970 has been extended to 31 suburbs.

Soaring costs. The biggest problem facing builders has little to do with the state of the market. The problem is costs.

In the Washington suburb of Prince George's County, Md., a local official, Lee Cellers, says:

"There's all sorts of land already zoned for apartments, but builders just aren't going ahead. A high-cost structure makes it tough for new owners to compete with rents in buildings four or five years old."

Similarly, in Cleveland, Max Williams and Dick Blagdon of Howard S. Bissel Inc. fear that the cost-rent factor is rapidly approaching the point where conventional for-rent development will be impractical.

J.L. Philips, president of J.L. Philips Inc. of Houston, feels the industry needs a 10% to 12% rent hike to offset costs.

And Peter Maggiore, vice president of the apartment division of Henry S. Miller Management of Dallas, sums up:

"We are working twice as hard today as we did two years ago to achieve the same results."

Outlook. Robert Ross, president of the National Apartment Assn., feels that building will slow down because of the slackening demand.

Saul Klamon, chief economist of the National Association of Mutual Savings Banks, agrees. He told the home builders in Houston:

"There could well be a downturn in multifamily construction after midyear, which could carry total starts below the two-million-unit level."

The confident overbuilders are not at work everywhere. Signs of a slowdown have begun to appear in Cleveland, St. Louis, Atlanta and Detroit. Some big California builders have trimmed their starts there and expanded eastward into Arizona, Colorado, Texas, Virginia and Florida.

And in Seattle, not one single apartment permit was issued during all of January. —N. G.

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Dealers in buying mood at Louisville show as mobiles roll up record year

They had plenty to choose from at the annual National Mobile Home Show in mid-January. Fifty-eight manufacturers jammed 240 homes into the mammoth Louisville Fair and Exposition Center and spilled them onto the streets outside.

There were no major design changes, so the manufacturers settled for varying exterior trims and jazzing up the standard colonial, contemporary, Spanish and provincial interiors with optional wood-burning fireplaces, bubble or bay windows, built-in stereo systems, trash compactors, sunken bathtubs—even a water bed.

A dealers' workshop co-sponsored by the Mobile Home Manufacturers Assn. (MHMA) and the Manufactured Housing Assn. (MHA) gave the industry a chance to air its problems and celebrate its success.

Optimism. Much optimism stemmed from the 14-foot-wide homes that had gone into production in 1969 but were exhibited at the national show for the first time, as Kentucky joined the 32 states that now allow them on the road.

"The industry has a record of expanding markets as widths increase," said MHMA president John M. Martin. "The large 14-footers appeal to a new market and now make up about 15% of our sales."

Some 457,000 mobile homes were delivered between January and November 1971, and the industry estimates total shipments for the year will reach 485,000. This is 17.5% over the 1969 record of 412,960 homes. (The Commerce Dept. has estimated mobile home sales, as distinct from shipments, at 500,000 for the year.)

The MHMA forecasts another record year for 1972, with 573,000 shipments.

Some of its reasons: households under the age of 30 and over 55—the two groups that buy 75% of all mobile homes—are increasing, the economy is improving, more communities are accepting mobile homes, and the government has committed itself to solving the housing shortage.

Low-cost solution? This last assumption, at least, may be premature.

"Our basic objective in Wash-

ington has been to seek equity with the position site-built housing now enjoys under federally controlled programs," MHMA's director of Washington affairs, Larry C. Davenport, told the dealers.

However, a study prepared for the First National City Bank of New York by Shiefman, Werba & Associates of Detroit indicates lack of acceptance is not limited to Washington.

"Most of the lower-income families eligible for such subsidies consider mobile homes unacceptable and substandard housing, whether in parks or on city lots," the study reported.

"This is especially true of black families. At the same time most mobile home owners have incomes too high to be eligible for FHA subsidy programs."

Park problem. Some 50% of all mobile homes are put into mobile home parks, and these parks are perhaps the industry's weakest area.

Of the more than 24,000 parks in the country, fewer than 13,000 have even the minimal qualifications for a one-star rat-

ing in Woodall's *Mobile Home and Park Directory*.

As a result many large corporations, builders, professional people, real estate brokers and others have hastily entered the field hoping for a quick return or for retirement income.

Phillip J. Braff of Gates Mills, Ohio, a homebuilder who is also a mobile homes dealer and park operator, warned:

"An experienced land developer or builder is the ideal person to develop a park, but it's unlike a conventional subdivision, so beware! You can't sell out and get out. Today, if you go to California, you'll find that some of those who thought they were selling out and getting out are stuck with parks."

Overbuilding. According to Woodall's, California's vacancy rate in new parks at the end of 1970 was over 66%. In Arizona it was over 75%. The First National City Bank survey also found Atlanta, Ga., West Palm Beach, Fla., and parts of Michigan overbuilt.

One possible solution was offered by the Mobile Home Management Corp. of North-

brook, Ill. The company will lease new mobile homes to park operators so that they in turn can rent them to families who do not wish to buy.

Waiting list. Other cities have the opposite problem.

"The demand is so great that you can have 15 or 20 people who have paid deposits waiting to get a space," said George Searle, whose New Jersey parks are within commuting distance of New York City.

Searle pointed to park financing as the culprit:

"Today the break-even point is not ten or 20 spaces the way it was years ago. You must have a minimum of 250 spaces—and at \$3,000 to \$4,000 a lot, that means a half million dollars. And you need a sewer plant..."

Money trouble. The park operator is not the only one with financing problems. Buyers generally must turn to finance companies or commercial banks to purchase a mobile home. These usually offer seven-year loans at 7% add-on interest, a true interest rate of about 14%.

Better terms are possible through savings and loan associations, which were empowered to finance mobile homes in 1968. In addition FHA insurance became available in 1969 and VA guaranties in 1970. However, the statutory interest rates are too low to make these loans interesting to lenders.

Only around \$35 million in mobile home loans are presently insured by FHA.

And Duane N. Cutler of Citizens Federal S&L, Port Huron, Mich., admitted:

"We backed off on our mobile home program when the mortgage rates went up."

The MHMA is pressing for HUD to regulate interest rates for mobile home purchases just as it does for the FHA and VA conventional housing programs.

In the meantime mobile home shipments continue to soar. In 1961, 90,200 homes were delivered; ten years later, an estimated 485,000.

It seems that despite the problems, some people, at least, agree with the dealer who advertises:

"Buy your wife something sexy to sleep in.

"Buy her a mobile home."

—N.G.



Reynolds fosters new look in mobile homes

Like the Volkswagen, the mobile home has been an economic success, not a thing of beauty.

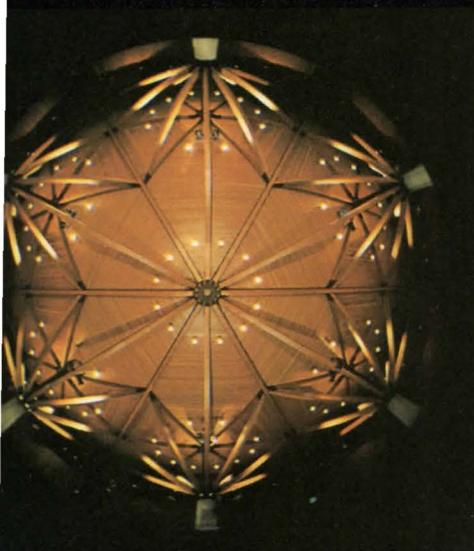
Some manufacturers have settled for making mobiles look like the trailers from which they were born, tacking on a few such conventional features as shutters, bay windows and porches. Others have made them virtually indistinguishable from site-built homes, which is quite easy for double-wides with pitched roofs and exte-

rior accoutrements.

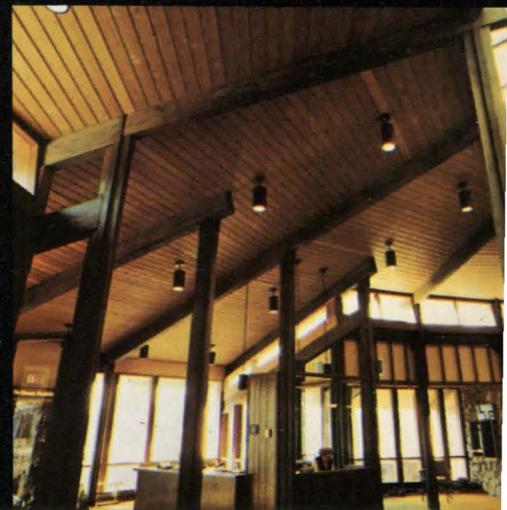
Reynolds Metals, a major supplier of siding for mobiles, sponsored a national competition to encourage designers to take a fresh approach.

Two of the top awards went to a 23-year-old landscape architect, Victor Nelhiebel of Lansing, Mich. (*design above*), and the team of architect Thomas J. Millerbaugh of Sunset Hills, Mo., and designer W. Marion Bammann of Kirkwood, Mo. (*design below*).





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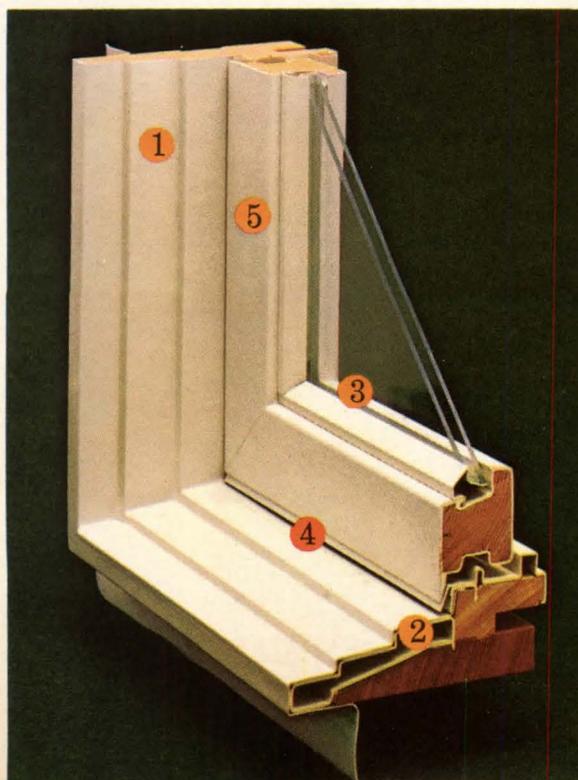
● Removable sash. Both stationary and operating sash can be removed for cleaning from inside by releasing securing screws. This safety feature prevents accidental release of either sash.

● Attractive handle operates spring-loaded rods for positive locking of windows at top and bottom. All factory installed.

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New St. Louis debacle: Showcase renewal project tipping into default

GLOBE-DEMOCRAT PHOTO BY BOB ARTEAGA



Mansion House project is framed by the world famous Gateway Arch in St. Louis.

Of the several American cities scarred by decay and abandonment of housing, few have been afflicted by the type of problems now surfacing in St. Louis.

The latest was the disclosure Feb. 2 by the Department of Housing and Urban Development that it has been asked to take over mortgages totaling \$35 million on an apartment complex only six years old. The loans are held by Mellon National Bank and Trust of Pittsburgh and John Hancock Mutual Life of Boston and were insured in September 1967 by the FHA, a HUD division, under its Section 220 (urban renewal) program.

Housing Secretary George Romney issued a statement in Washington that said in part: "The Hancock-Mellon action appears to be an indication that these mortgagees no longer consider their investments in the Mansion House Center in downtown St. Louis to be safe and sound."

Under the arch. Mansion House Center adjoins the Jefferson National Memorial Gateway Arch and is a major element in the city's big riverfront renewal effort. It consists of three 28-story middle-income apartments and three commercial structures, opened in the spring of 1966 at a cost of \$52 million. There are 1,247 apartments, renting from \$189 to \$400, but at least 25% are empty.

Spokesmen for John Hancock said the center was \$375,000 behind in its scheduled mortgage payments when the insurance company told HUD of its intentions to assign nearly \$25 million in mortgages to FHA. Hancock holds the paper on two of the apartment towers, calling for payments of \$75,000 monthly. The spokesman also said the principal on the Hancock mortgage was reduced only from \$24,440,300 to \$24,206,538 since amortization began in 1967.

The Mellon Bank and HUD refuse to discuss details, with HUD spokesmen saying that until certain paperwork is completed, Mellon and Hancock still own the mortgages.

Another view. Paul Lashly, president, general manager and one of the original developers, insists despite the HUD state-

ment and that of the mortgagees, that Mansion House is up to date in payments. However, Donald E. Lasater, board chairman of the Mercantile Trust, the city's largest bank, which put up \$1,372,000 of \$3,500,000 in unprotected equity capital, declared otherwise.

"Mansion House is not current in its mortgage payments, and so far as we and 19 other limited partners are concerned, a change in management is mandatory. Professional management could still make this property a viable part of downtown St. Louis," said Lasater.

Pruitt-Igoe spectacle. With the powerful Mercantile offering a hand, HUD just might find some solution to its Mansion House problem, but it has some other king-sized headaches in St. Louis.

Probably no city in the coun-

try has a bigger public housing scandal. The prime example is Pruitt-Igoe, a monstrosity of 2,800 apartments in 33 buildings 11 stories high, with all but 10 standing vacant and sealed.

After years of studies and reports, HUD has finally decided to tear down two of the Pruitt-Igoe structures. It still has no concrete answers for the rest.

Each of four other high-rise projects in St. Louis is riddled with broken windows and bullet holes and is stripped of plumbing, hardware and spouting. Only two small low-rise and another project of two and three-story buildings seem to survive in what is otherwise a complete failure of public housing in the city.

Indictments. The U.S. district attorney, Daniel Bartlett Jr., says he's investigating all HUD programs, including the

Architects dispute their own report

The proposal for complete reorganization of the nation's present development strategy is contained in a controversial policy statement by the American Institute of Architects.

The statement has been issued after a year-long effort by an AIA task force.

The statement suggests that the nation's official housing goals may now turn out to be too high, particularly in view of a slowdown in population growth. The authors say no more on this point, although they do indicate they are more concerned with improving metropolitan areas than with find-

ing ways to build more houses.

Dissension. The policy statement won the endorsement of the institute's board, but members can suggest revision at the AIA convention in Houston in May.

Some have already raised strong objections, and the New York chapter went so far as to call for the entire statement to be withdrawn because it was a restatement of familiar generalities.

The architects propose developing or redeveloping areas in terms of neighborhood growth units, which they define as "human communities."

alleged waste of nearly \$100 million spent on urban renewal programs in the city.

The Circuit Court grand jury has already indicted two people in connection with the activities of large scale arson rings. Arsonists have specialized in buying up property in the inner city, taking large fire insurance policies and then burning the buildings. The insurance industry has been criticized for its lack of controls and for repetitive payments to the same individuals.

Flight from city. One of St. Louis' problems, despite some \$200 million spent in all types of construction including the arch, has been that all this effort has not stopped the flight of business tenants to suburban Clayton, center of booming St. Louis county. One new \$12-million, 22-story downtown office building ready for occupancy for months still has announced fewer than three floors occupied.

Last spring St. Louis voters turned down a \$20-million bond issue to build a downtown convention center by a 2-to-1 margin despite a promise the center would generate at least \$60 million in satellite new constructions.

The voters were dazzled recently by the release of a study proposing a \$1.2-billion rapid transit system for the St. Louis area, but they learned this month that unless the Bi-State Transit authority, which operates public transit, finds new tax subsidies, all public transportation could grind to a halt by June.

Loss of hope. It's tough for even the most ardent Chamber of Commerce booster to smile in St. Louis these days.

Romney had more than St. Louis and Mansion House in mind this week when he said in part:

"Just as the rate of spread of inner city rot has reversed this (Mansion House) investment decision, be aware that the advance of rot is spreading into surrounding areas. It will continue to do so until the surrounding areas unite with the cities in developing solutions to common problems."

—TED SCHAFERS
McGraw-Hill News, St. Louis

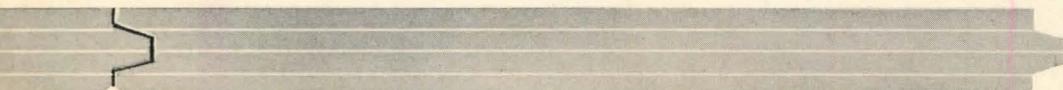
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CIRCLE 25 ON READER SERVICE CARD

2-012

H&H MARCH 1972 25

Lake Tahoe: The long road to compromise between builders and preservers

A classic confrontation between those archenemies produced the innovative master plan that will discipline the development of Lake Tahoe, scenic gem of the California-Nevada border-land.

The development blueprint is based on the capability of the land, and both builders and preservers now concede that they can live with it.

The two-map plan was adopted in December, an acrimonious three months after the September deadline set by the congressionally approved bi-state compact that created the Tahoe Regional Planning Agency in 1969 to draft a plan for orderly development.

The TRPA's executive director, Richard Heikka, calls the plan a pioneering document. "It's the first master plan to relate land use to land capabilities as identified by expert study," he says.

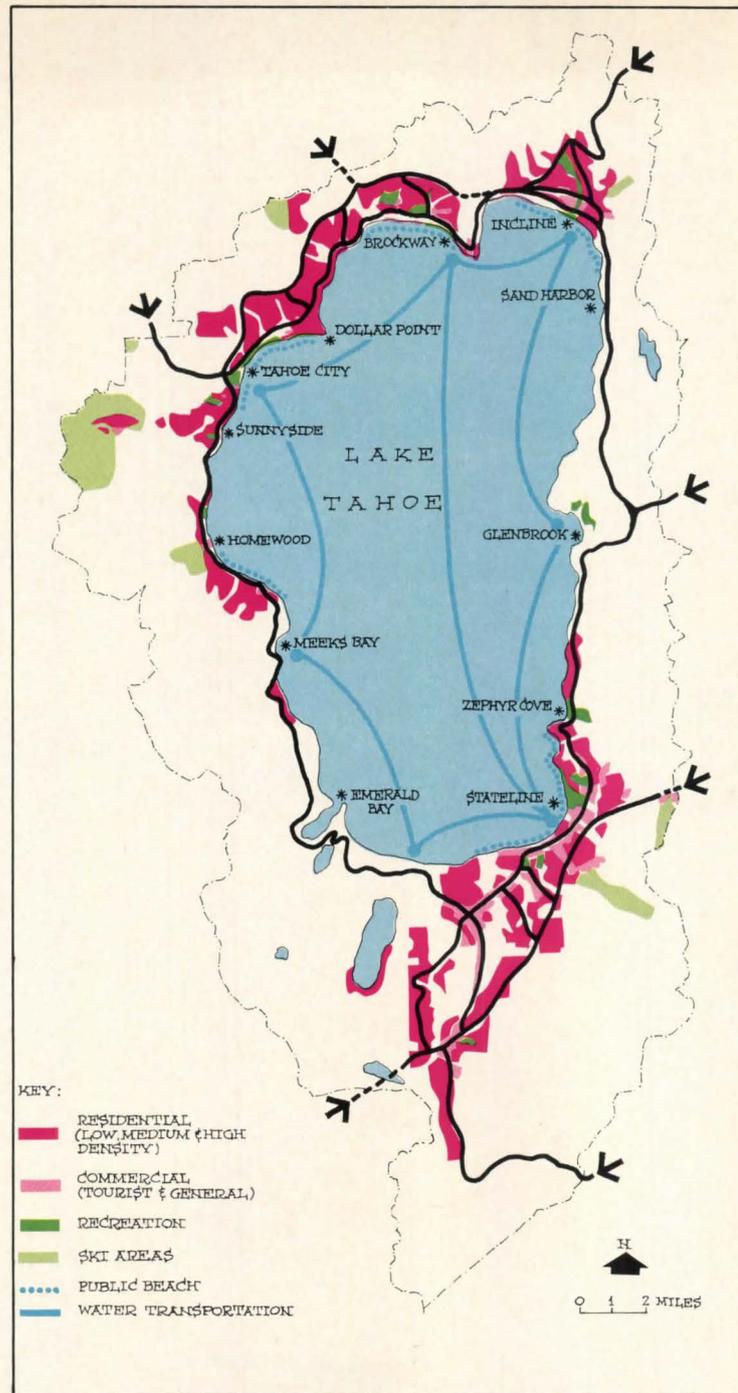
Respect for land. One of the plan's maps is conventional, with zoning according to the usual units-to-acre approach. The other is the result of a computerized report that classifies the 200,000 acres of land in the basin by their ability to withstand development, an assessment based on technical studies of 59 elements such as siltation potential, waterholding capacity, vegetation type, landslide potential, slope and scenery.

This report finds that some 75% of the land is so fragile—so lacking in ability to heal itself when disturbed—that it should not be developed at all. Most of this fragile land already belongs to the government, which owns half the land in the basin—but the plan prohibits further development on 34,000 acres now under private ownership.

Fate of the lake. The master plan has been adopted, but implementing ordinances are still being argued. Until they are adopted, a Federal Housing Administration moratorium set last July on all federally insured mortgage programs in the area remains in force.

Already approved is the most critical among the ordinances, the land-use ruling that details permit issuing procedures for future building around the mountain lake.

As first drafted it would have



Tahoe's preliminary plan (above) became, with minor changes, the zoning map of resort's two-map master plan. The other map, a land-impact chart, is still computerized.

put all permit issuing authority in the hands of the local governments in the five counties that surround the basin, with only limited reviewing power being retained by TRPA.

Both the League to Save Lake Tahoe and the Sierra Club attacked this draft. The league's executive secretary, Steven Brandt, claimed that "to leave the decision-making in the hands of local government is a waste of two years and almost \$600,000 in planning funds. In effect the mice are guarding the cheese."

Sierra Club attorney Reverdy Johnson called the draft "totally inadequate as a means of implementing and enforcing the general plan."

Bowing to this opposition, the agency agreed to review all permits for hotels, motels, apartment houses of five or more units and commercial developments covering more than three acres.

Peacemaker. Heikka explained TRPA's philosophy: "We've got to cool all the animosities that have come out and develop good working

relationships."

With the key ordinance adopted, conservationists have cautious praise for the Tahoe plan overall. "We've won all the battles—within reason," says Brandt. "Now it's a question of how well the agency will enforce the plan."

The controversy on the land use ordinance points up the basic problem of the Tahoe basin—its location between two states and in five counties. The resulting anarchy has permitted runaway construction of subdivisions, roads and commercial buildings that has turned much of the lakeshore into an urban sprawl, and that is threatening—largely through siltation—the famous clarity of the lake.

Preliminary bouts. Everyone agreed—builders and conservationists alike—that some orderly plan for development of the basin had to be formed. So formation of the bi-state TRPA with its ten-member governing board, five from each state, was hailed on all sides as the salvation of the lake.

Putting that plan together, however, was a real donnybrook.

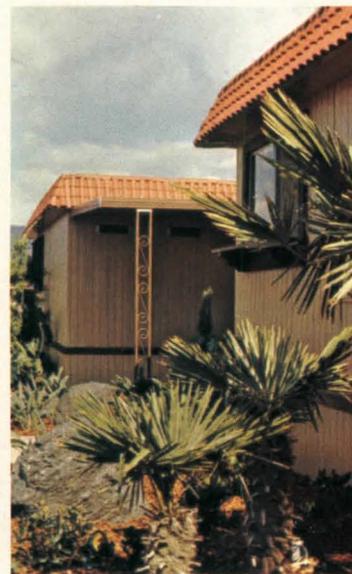
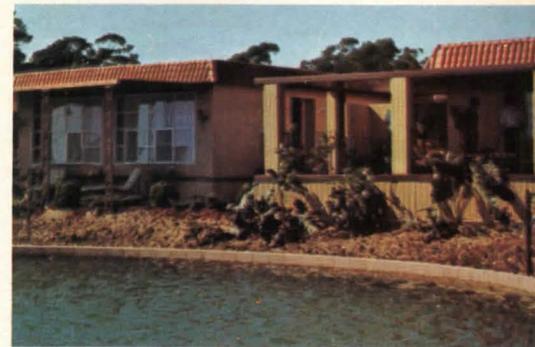
The battles broke into the open last June with TRPA's presentation of a program based on the land-capabilities study and praised by the Sierra Club as a strong regional plan. The \$500,000 blueprint was produced by TRPA's subsidiary advisory planning commission and a professional planning staff working with U.S. Forest Service experts, an impressive array of consultants and Tahoe citizens' committees.

The new land plan. The land capabilities study, which was made without regard to existing zoning and development, established seven usage zones. They range from a 136,630-acre conservation zone to a 17,500-acre urban zone, with 1,594 acres for intensive use.

Instead of the usual units-to-acre formula used in most zoning, the study recommended restrictions for the amount of land that could be covered with an impervious surface.

For the first two zones, making up 75% of the entire basin, only 1% of the land could be covered, and that for trails and

TO PAGE 28



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CIRCLE 27 ON READER SERVICE CARD

H&H MARCH 1972 27

Lake Tahoe: Long road to accord between builders, preservers . . . continued

recreation development. A top 30% coverage is permitted for the urban zones. The study marked for eventual government acquisition some 34,000 acres of private land that falls in the conservation zones.

A key recommendation was a limitation on the basin's peak summer population to 134,000—a figure that had already been exceeded on some weekends.

Builders' outcry. The TRPA plan brought howls of protest from affected developers and from local government officials who still see the basin as a growing source of tax revenues. Commissioners of Douglas County in Nevada attacked the report as violating the right to own and retain property.

Following this outcry, TRPA's board of governors muzzled its planning staff, forbidding the executive director, J.K. Smith, to make presentations to support the plan or to talk to the press. And it appointed a subcommittee made up of planning staff from the counties and headed by Heikka, then Placer County planning director, to develop a workable plan based on the TRPA findings.

The FHA shutdown. Shortly thereafter, in late July, FHA entered the fray, with its two-level moratorium on all FHA mortgage insurance programs in the basin.

This action came in response to a renewed request by the U.S. Forest Service—owner of 50% of the land in the basin—for a halt in federally insured housing north and west of the lake, where sewage treatment facilities were nearing capacity.

The FHA extended the moratorium to all of the basin. Robert H. Baida, regional administrator for the Housing and Urban Development Dept., explained that, since HUD had provided TRPA with \$125,000 in financial assistance, "we have an obligation to do all within our power to discourage development which may be contrary to such plans as are finally adopted by the agency."

Wide federal role. The moratorium on most of the basin will be lifted when the plan and its implementing ordinances are in effect; the ban on the northwest area will stay until new arrangements are made

for sewage treatment facilities serving that section.

The FHA's participation in Tahoe development and its clout there have increased sharply in the last few years. It now insures from 60% to 65% of the development at the north end of the lake and 20% of the south end. Until 1968 participation was limited to 10% or 15% around the lake.

The percentage increase has resulted partly from high interest rates for conventional financing and partly because more than 50% of the new development at the lake is in condominiums and planned unit developments. With units costing between \$16,000 and \$22,500, these qualify for low down payments under FHA financing.

Building gone awry. The Forest Service, concerned about the water quality of the lake and the Truckee River, had first asked FHA to act at Tahoe in the summer of 1970. In November 1970 a Forest Service report protested that "proposals for new developments and building permits for existing developments are being processed at an alarming rate," with no regard to the controls being written into a master plan.

The alarming rate of permit approvals had continued unabated despite the agency's warning. Last July the League to Save Lake Tahoe pointed out that TRPA, in the 15 months since it was formed, had approved 11,788 out of 12,503 dwelling units submitted to its jurisdiction, most of them against the advice of the TRPA staff.

A large percentage increase in dwelling units in the basin was permitted by these under-the-wire approvals; the number existing in 1970 was estimated at some 27,000.

Defeat of one plan. In mid-August Heikka's subcommittee came up with its plan, based on a conventional units-to-acre zoning map, downgrading the land capabilities map to informational status and setting a population ceiling of 280,000.

Like the original plan, it called for prohibiting further development of the 34,000 acres of privately owned land in the conservation zones, suggesting

that most of the land might be acquired for public use through land trades.

This plan satisfied neither side. When the September deadline for adoption of a master plan arrived, the Nevada members of the governing board blocked passage on grounds that any proposal for public acquisition of the 34,000 acres had to be legally defensible before they'd buy it.

Approval of compromise. The TRPA board then put its own freeze on new construction in the basin until a plan was adopted. It ousted the already deposed planning director Smith, and named Heikka to replace him in carrying a plan through to adoption.

In the plan finally adopted in December, TRPA reinstated the land capabilities map along with the units-to-acre map, having approved changes.

Boise's reaction. The compromise is seen as an "overall step forward for the overall benefit of Lake Tahoe" by Robert Desky, attorney for Boise Cascade, whose Incline Village will be markedly affected by the plan. "It puts a financial burden on us, but we can live with it.

"It's still being attacked by both sides. I guess that makes it a good compromise."

Some 3,400 acres of the 9,000-acre Incline Village development, on steep slopes above the lake, fall into the 1% impervious-coverage zone, and the company is exploring the possibility of trading all or part of this acreage for surplus federal property outside the Tahoe basin.

The central part of Incline Village is largely unaffected, although Desky says new development will have to be "more innovative in design and densities may be reduced."

Boise Cascade and other large land owners at Tahoe—Dillingham Corp., Southern Pacific Co. and Fibreboard Corp.—have generally stayed on the sidelines in the conflict over development of the master plan.

League's lesson. Even though the League to Save Lake Tahoe now finds itself—somewhat to its surprise—praising the TRPA plan as a "good job," executive secretary Steve Brandt calls the Tahoe experience "a

lesson in how *not* to set up regional governments in the future."

The TRPA governing board has four at-large members from the two states, but none has taken any leadership in representing the public at large, Brandt charges.

In practice, he declared, the six-man majority of the six local jurisdictions—five counties and the city of South Lake Tahoe—ended up an eight-man majority in favor of local interests, since the two Nevada state representatives live and work in local Tahoe jurisdictions.

A forgotten public. Brandt pleads the case of a broader public, the people of the entire country. They own half the basin through the federal government, he points out, and they have no voice at all.

Brandt also notes that only one board member was elected by the people who actually live at the lake. That was the member from South Lake Tahoe.

The county seats that provided most of the other members, Brandt says, are all some distance from the lake in both a physical and cultural sense, and he adds:

"The people who pay more than 60% of the property taxes at Tahoe, the second-home owners, have no vote other than as the state appointees may represent them."

The winners? "So who is represented by the Tahoe regional planning agency?" Brandt asks.

His answer: "By virtue of its makeup and performance . . . the conclusion must be that those represented are the remote county seats who want more property tax income, the land developers who are organized to achieve their ends and the casino-commercial interests of Nevada."

Meaningful regional government should show representation from three groups, Brandt believes, possibly equally: of residents and taxpayers of the area; of the user public, normally the people of the state and of the broader public—the people of the country.

—MARGARET R. DROSSEL
McGraw-Hill World News,
San Francisco



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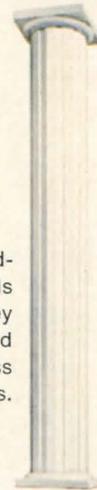
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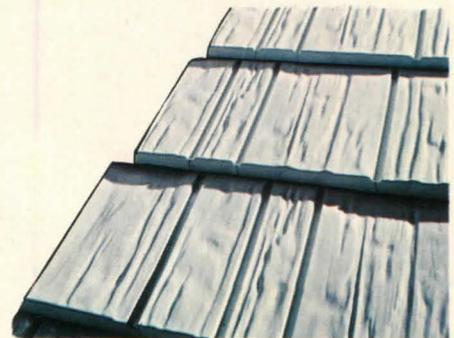
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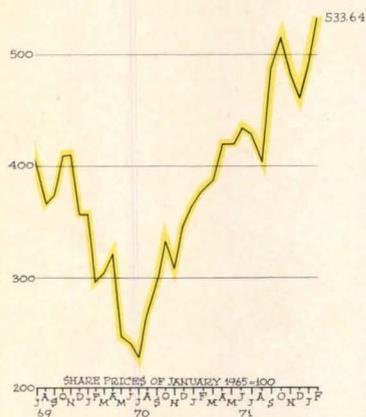
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Housing stocks up

HOUSE & HOME's composite index of 25 leading housing issues jumped to 533.64 from 491.37 in the month ended February 2.

The mobile homes section led the advance again, moving to a new peak of 1,598 from 1,367. The five representative mobile home issues are now worth approximately 16 times their value in January 1965, when share prices for the five were equated with a base figure of 100.

The 25 issues on the composite are overprinted in yellow in the tables at right. Here's the composite trace.



How the top five did in each division:

	Feb. '71	Jan. '72	Feb. '72
Builders	476	574	561
Land Develop.	551	524	615
Mortgage cos.	664	915	994
Mobile homes	700	1,367	1,598
S&Ls	175	194*	197

* Revised from 195, and composite index for January revised from 492.23 to 491.37.

Company	Feb. 2 Close	Chng. Prev. Month
---------	--------------	-------------------

BUILDING

Alodex	8 1/4	
AVCO Community Devel. ^b	5	- 5/8
American Urban Corp. ^d	5 3/8	+ 1/2
Behring Corp. ^b	9 1/4	+ 1/2
Bramalea Cons. (Can.)	4 3/8	+ 3/8
Building Systems Inc.	20	- 4 3/4
Capital Divers. (Can.) ^e	.78	+ 27
Centex Corp. ^f	33 3/4	+ 1
Christiana Cos. ^b	8	+ 1
Cons. Bldg. (Can.)	2.30	+ .65
Dev. Corp. Amer. ^b	35 1/2	+ 3 3/4
Dev. Int. Corp.	10 3/8	+ 3 3/8
Edwards Indus.	8 3/4	+ 7/8
First Nat. Rlty. ^b	2 1/8	+ 3/8
FPA Corp. ^b	1 1/8	+ 2 1/8
Frouge Corp.	3 1/2	+ 1/2
*General Builders^b	5 3/4	+ 1/4
GI Development	1 1/4	+ 1/4
Hallcraft Homes	27	+ 3 3/4
Hoffman Rosner Corp.	10 1/2	- 1 1/4
Homewood Corp. ^b	2 1/2	+ 7/8
Hunt Building Marts	9 3/8	+ 3/8
*Kaufman & Broad^e	42 3/4	+ 3/8
Key Co. ^b	1 1/4	+ 1/2
Leisure Technology ^b	24	+ 2 1/4
McCarthy Co. ^b	5	
McGrath Corp. ^{hd}	6 1/4	- 3/4
McKee Const. ^b	28 1/4	+ 5 1/2

Company	Feb. 2 Close	Chng. Prev. Month
H. Miller & Sons	12 1/4	+ 3/4
National Environment (Sprout Homes)	1 1/2	- 1/4
Prel. Corp. ^{hd}	27 1/4	+ 6
*Presidential Realty^{hd}	12 3/4	+ 1
Presley Development ^{hd}	23 1/2	+ 1 1/8
Pulte Home Corp.	15 7/8	+ 3
Robino-Ladd Co.	18 1/2	+ 1 1/2
Ryan Homes ^{hd}	28 1/2	+ 1/4
Ryland Group ^b	28 1/4	- 1 1/8
Shapell Industries ^c	25	- 1 1/2
Shelter Corp. of America	23 3/4	- 3/8
Standard Pacific ^b	5 3/4	- 1/4
3-H Building Corp.	12	+ 1
Universal House & Devel. ^b	2 1/8	+ 1/8
U.S. Financial ^b	33 1/2	- 1 1/2
U.S. Home Corp. ^f	27 3/8	+ 2 1/8
*Jim Walter^c	35 1/8	- 2 3/4
Washington Homes	21	+ 1/2
*Del E. Webb^b	8 7/8	+ 1/8
Western Orbis ^b	4 1/2	+ 1/4
Wyandotte Indus. ^b (First Hartford)	4 3/4	

SAVINGS & LOAN ASSNS.

American Fin.	35	+ 4 3/8
Calif. Fin.	7 7/8	+ 1/4
Empire Fin.	14 3/8	+ 3/4
*Far West Fin.^b	11 1/2	+ 1/8
Fin. Corp. of Santa Barb. ^b	25 3/4	+ 3/8
*Fin. Fed.^c	19 1/8	+ 2 1/8
*First Charter Fin.^c	27 1/8	+ 2 1/8
First Lincoln Fin.	7 3/8	+ 7/8
First S&L Shares ^b	23 1/4	+ 3 1/4
First Surety	4 3/8	+ 3/8
First West Fin.	2 3/4	+ 1 1/4
Gibraltar Fin. ^b	23 3/4	+ 1 7/8
*Great West Fin.^b	28 1/4	+ 3/4
Hawthorne Fin.	15	- 5/8
*Imperial Corp.^b	15 1/8	+ 1/8
Trans-Coast Inv.	5	+ 1/8
Trans World Fin. ^f	12 3/8	+ 1 1/4
Union Fin. ^b	12 1/2	+ 1 1/8
United Fin. Cal. ^c	11 1/2	+ 1 1/2
Wesco Fin. ^c	18 1/8	+ 1 1/4

MORTGAGE BANKERS

Charter Co. ^b	41 3/8	+ 9 3/8
CMI Investment Corp. ^b	58 7/8	+10 1/2
*Colwell^b	23 3/4	+ 1 3/4
Cont. Illinois Rlty.	33 1/2	+ 1/4
Excel Investment	17 3/8	+ 3 3/8
Fed. Nat. Mtg. Assn. ^f	100 3/4	- 2 3/4
First Mtg. Ins. Co.	15	
*Lomas & Net. Fin.^b	21 1/8	+ 7/8
*MGIC Inv. Corp.^c	104	+14 1/2
Midwestern Fin. ^b	24 1/2	+ 1 7/8
Mtg. Associates	44	+ 5 3/4
Palomar Fin. ^b	11 1/2	+ 1/2
UPI Corp. ^b (United Imp. & Inv.)	27 1/8	+ 1/8

MORTGAGE INV. TRUSTS

Alison Mtg. ^b	26	- 3/4
American Century ^b	26 3/8	+ 1/2
Arlen Property Invest. ^b	15 1/2	+ 1
Atico Mtg. ^b	22 1/8	- 1/2
BankAmerica Rlty.	27 1/8	+ 5/8
Bernett Mtg. Tr.	26 3/8	- 1 3/8
Beneficial Standard Mtg. ^b	24 7/8	+ 1/4
Cameron Brown	31 3/8	- 1 1/4
Capital Mortgage SBI	29	- 1 1/4
Chase Manhattan ^c	53 3/4	- 1/8
CI Mortgage Group ^f	24 1/2	+ 1 1/4
Citizens Mtg. ^b	14 1/4	+ 1/2
Citizens & So. Rlty.	31 1/2	- 1 1/2
Cleve Trust Rlty. Investors	19 7/8	- 1/4
Colwell Mtg. Trust ^b	28 3/8	- 5/8
Conn. General ^f	29	- 1/4
*Cont. Mtg. Investors^c	12 7/8	- 1 7/8
Cousins Mtg. & Eq. Inv. ^b	22 1/8	- 1 1/8
Diversified Mtg. Inv. ^f	27 3/8	- 5/8
Equitable Life ^f	27 3/8	- 7/8
Fidelo Growth Inv. ^b	34 3/4	- 2 1/4
Fidelity Mtg. ^b	25 1/4	+ 1 1/4
First Memphis Realty	23 1/4	+ 1/4
*First Mtg. Investors^c	26 1/2	+ 1 1/2
First of Denver ^b	20 1/4	+ 1 1/2
First Pennsylvania ^b	28 1/2	+ 1 1/8
Franklin Realty ^b	9 3/8	- 1/4
Fraser Mtg.	27 3/4	- 1 1/4
Galbreath Mtg.	27 3/8	- 1 1/2
Great Amer. Mtg.	31 1/4	+ 1 1/4
Guardian Mtg. ^b	42 1/4	+ 7/8
Gulf Mtg. & Rlty. ^b	18	- 1/4
Haitman Mtg. Investors	15 3/8	+ 2 1/8
Hubbard R. E. Investments ^c	21 1/8	+ 1/4
Larwin Mtg. ^b	29 1/8	+ 1 1/8
Lincoln Mtg.	9 3/4	+ 3/4
Mass Mutual Mtg. & Realty ^c	28 3/8	- 3/4
Median Mtg. Investors	14 1/4	- 1/2

Company	Feb. 2 Close	Chng. Prev. Month
Medical Mtg.	30 1/4	+ 2 1/2
Mony Mtg. Inv. ^f	12 3/8	- 5/8
Mortgage Trust of Amer. ^c	23 1/8	- 1 1/8
North Amer. Mtg. Inv. ^c	34	+ 1 1/2
Northwestern Mutual Life Mtg. & Rlty. ^c	25 3/4	+ 1/2
PNB Mtg. & Rlty. Investors ^b	26 3/8	+ 1 3/4
Palomar Mtg. Inv. ^b	16 1/4	- 1/4
Penn. R. E. Inv. Tr. ^b	13	+ 1/4
Realty Income Tr. ^b	16	+ 3/4
Republic Mtg. ^b	19 1/2	+ 1/4
B. F. Saul, R.E.I.T.	22 7/8	+ 1 3/8
Security Mtg. Investors ^b	17 7/8	+ 1 1/4
Stadium Realty Tr.	12 1/4	+ 1 3/8
State Mutual SBI ^b	24 1/4	+ 1 1/8
Sutro Mtg. ^b	20 1/4	- 1/4
Unionamerica Mtg. & Eq. ^b	28 3/8	+ 1/4
U.S. Realty Inv. ^b	19 3/8	+ 3/8
Wachovia Realty Inc. ^c	30 1/8	- 2 3/8
Wells Fargo Mtg.	21 1/8	- 1/4

LAND DEVELOPERS

All-State Properties	1 3/8	
American Land ^d	.02	
*AMREP Corp.^b	25 3/4	+ 6 1/2
Arvida Corp.	14 1/2	+ 2 3/4
Atlantic Imp.	4 7/8	+ 5/8
Canaverl Int. ^b	5 1/2	+ 1 1/4
Cavanagh Communities	8 3/4	+ 1 7/8
Crawford Corp.	5	+ 3/8
*Deltona Corp.^b	33 3/4	+ 6
Disc. Inc.	2 3/4	- 1/8
Don the Beachcomber Ent. (Garden Land)	4 1/2	+ 1 1/4
*Gen. Development^c	27	+ 1
Gulf State Land and Ind. ^b	4 1/4	+ 3/8
*Holly Corp.^b	2	+ 3/4
Horizon Corp. ^c	53 3/4	+ 8 7/8
Land Resources	4 1/8	+ 3/4
Major Realty	10 7/8	+ 5/8
*McCulloch Oil^b	32 3/4	+ 5 3/4
Southern Rlty. & Util. ^b	8	+ 3 3/8

MOBILE HOMES & MODULES

Conchemco	18 1/4	+ 3/4
*Champion Home Bldrs.^b	57 3/8	+16 3/8
Commodore Corp. ^b	15 1/2	+ 2
De Rose Industries ^b	11 1/2	+ 2 3/8
*Fleetwood^c	41 7/8	+ 6 3/8
Golden West Mobile Homes ^b	18 3/4	+ 3 1/8
*Guerdon^b	30 1/2	+ 2 1/4
Mobile Americana	16 1/8	+ 6 1/4
Mobile Home Ind. ^b	48	+12 3/4
Monarch Ind.	5 3/8	+ 1/2
*Redman Ind.^c	30 3/8	+ 5 3/8
Rex-Noreco ^b	18 3/4	
*Skyline^b	56 3/8	+ 2 7/8
Town & Country Mobile ^b	13 1/2	+ 3 3/8
Triangle Mobile	8 1/8	- 1/8
Zimmer Homes ^b	19 1/4	+ 3 3/8

Albee Homes	3 1/2	- 1/4
AABCO Ind. ^d	7 1/8	
Brigadier Ind.	6 1/8	+ 2 3/8
Environmental Systems	15 1/2	+ 5
Hodgson House	6 1/2	+ 3/4
Liberty Homes	20 1/2	+ 4 1/2
Modular Dynamics	1	
Modular Housing Systems	15 1/4	+ 2 1/2
National Homes ^c	28 1/2	- 3 3/8
Nationwide Homes ^b	14 1/4	- 1 3/8
Shelter Resources ^b	11 3/4	+ 1 3/8
Stirling Homex	18 3/8	- 1 1/8
Swift Industries	3 3/4	+ 1/4

DIVERSIFIED COMPANIES

Amer. Cyanamid ^c	35 3/8	+ 2 1/8
Amer. Standard (Wm. Lyon)	16 3/8	+ 1 3/8
Arlen Realty & Develop. ^c	20 3/8	+ 3 3/8
AVCO Corp. ^c	18 3/4	+ 1 1/2
Bethlehem Steel ^c	31 1/4	+ 1 7/8
Boise Cascade ^c	19 3/8	+ 1 1/4
CNA Financial (Larwin) ^c	23 3/4	- 3/4
Castle & Cooke ^c (Oceanic Prop.)	19	+ 2 3/8
CBS (Klingbeil) ^c	54	+ 7 3/4
Christiana Securities	134	+12
Citizens Financial ^b	16 3/8	+ 3
City Investing ^c (Sterling Forest)	20 3/4	+ 1
Corning Glass ^c	212	+27 3/4
Cousins Properties	27	+ 1 1/2
Dreyfus Corp. ^c (Bert Smokler)	26 3/8	+ 1 3/8
Evans Products ^c	22 1/2	- 2 3/8
Ferro Corp. ^c	33 3/8	+ 1 7/8
First Gen. Resources	2 1/2	- 1
Fischback & More ^c	47 7/8	+ 4 3/8
Forest City Ent. ^b	26	+ 1 1/4
Flagg Industries ^b	12 3/4	+ 1 1/2

Company	Feb. 2 Close	Chng. Prev. Month
Fruehauf Corp. ^c	39	- 1/4
Fuqua Ind. ^c	24 3/4	+ 2 1/4
Georgia Pacific ^c	43 1/2	- 1 1/8
Glasrock Products ^b	8	+ 1 1/4
Great Southwest Corp.	2 3/4	+ 1 1/8
Gulf Oil (Gulf Reston) ^c	25 1/8	- 2 3/8
INA Corp. (M. J. Brock) ^c	47 3/8	- 1 3/8
Inland Steel ^c (Scholz)	34 1/4	+ 1/2
International Basic Econ.	6 1/4	- 3/8
International Paper ^c	34 3/8	- 1/8
Internat. Tel. & Tel. ^c (Levitt)	64 1/4	+ 6 3/4
Investors Funding ^b	11 1/2	+ 1 7/8
Killearn Properties ^b	15 3/8	+ 2 3/8
Leroy Corp.	2 7/8	+ 1/4
Ludlow Corp. ^c	32 3/4	+ 2 3/4
Monogram Industries ^c	16 3/4	+ 4 1/2
Occidental Petroleum ^c (Occ. Pet. Land & Dev.)	12 3/8	- 1/8
Pacific Coast Prop. ^b	3 3/8	+ 1/8
Perini Corp. ^b	5 3/4	+ 1/8
Phillip Morris ^c	72 1/2	+ 1 1/2
Prosher Corp.	3 3/4	+ 3/4
Rouse Co.	29 1/2	+ 7/8
Santa Anita Consol. (Robt. H. Grant Corp.)	25 1/2	- 3 1/4
Sayre & Fisher ^{hd}	2 3/4	+ 3/8
Temple Industries ^c	24 1/2	- 7/8
Tishman Realty	19 3/8	- 1 1/8
Titan Group Inc.	3 3/8	+ 3/4
UGI Corp. ^c	23 3/8	+ 1 3/4
Uris Bldg. ^c	15	- 1 1/2
U.S. Ply-Champion ^c (Lewers & Cooke)	27 1/2	- 2 1/2
Weil McLain ^b	27 1/8	+ 1 1/8
Westinghouse ^c (Coral Ridge Prop.)	45	- 3/4
Weyerhaeuser ^c (Weyer. Real Est. Co.)	45 1/4	+ 5/8
Whittaker (Vector Corp.) ^c	13	+ 2 3/8
Wickes Corp. ^c	47 1/2	- 3

SUPPLIERS

Alpha Portland Cement ^c	17 1/2	+ 1/2
Armstrong Cork ^c	39 1/4	- 3
Automated Building Comp. ^b	14 3/8	+ 1 1/8
Berven Carpets ^b	31 1/4	+ 2 3/4
Bird & Son	104	+20 1/2
Black & Decker ^c	86 1/2	+ 6 3/4
Carrier Corp. ^c	48 3/4	+ 2 3/4
Certain-tyed ^c	46 3/8	- 1 1/8
Crane ^c	50	+ 6 3/8
Deere ^c	54	+ 3
Dexter ^c	16 3/8	- 1 1/8
Dover Corp. ^c	54 1/2	- 1 1/2
Emerson Electric ^c	81 1/4	+ 1 1/4
Emhart Corp. ^c	32 1/8	- 2 1/8
Fedders ^c	42 1/4	- 3/4
Flintkote ^c	30 1/4	- 1 1/2
GAF Corp. ^c	24	+ 1 3/8
General Electric ^c	61 7/8	- 1
General Motors ^c	79 3/8	
Gerber ^c	40 3/4	+ 1 1/8
Good		

Caradco C-100'

THE PERFORMANCE
WINDOW PACKAGE
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.



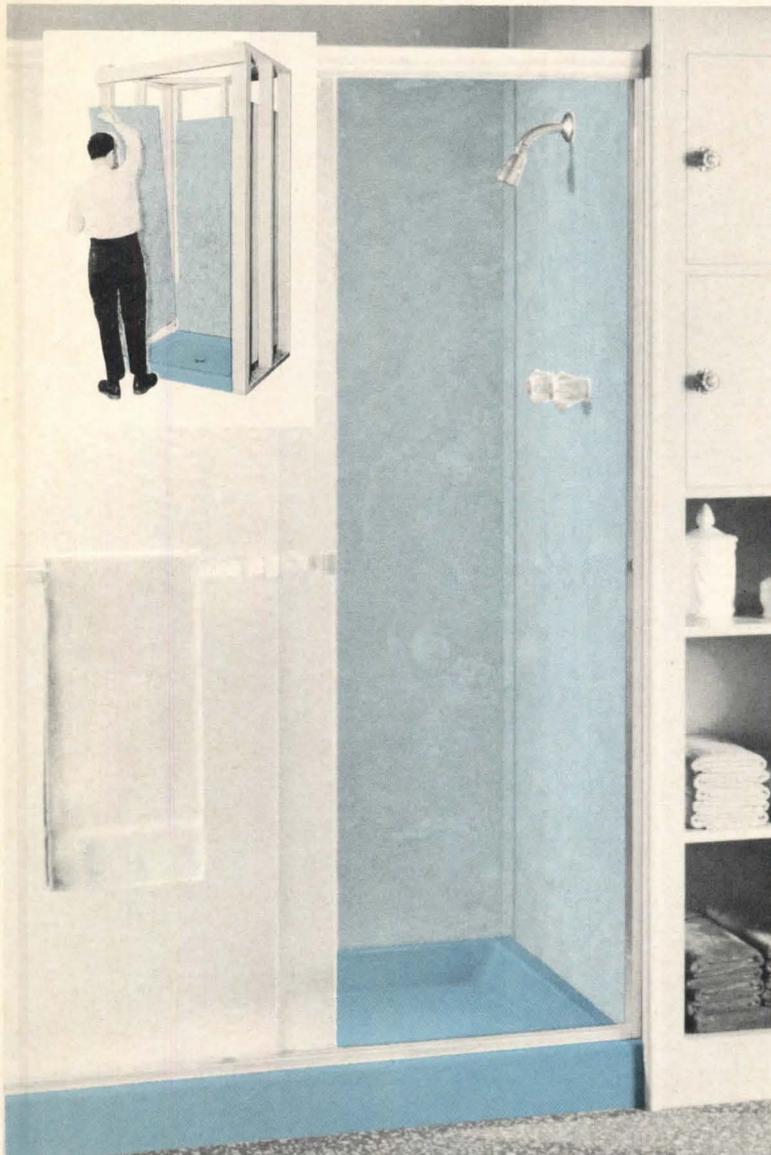
**Caradco
Window and Door Division**

Scovill

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

Trintessa®

The shower one man can
put up in no time flat.



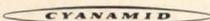
No tile. No grout mess. One man can put up the FORMICA® walls and Molded Stone® base quickly and economically. And leakproof construction gives years of customer satisfaction.

Trintessa® shower units come completely packaged for a fast one-man one-trade installation. The 5/8-inch Formica® brand laminate walls install dry—no mortar, no mess. Molded Stone® base has factory-installed stainless steel drain that can't leak. Simple corner moldings snap in for a finishing touch. And Trintessa showers come in *nine* different color combinations and three sizes for extra customer appeal. Ask about Trintessa . . . the "no-tile" shower. Contact your Fiat representative or write Dept. HH-3.

QUALITY BY DESIGN



FORMICA CORPORATION

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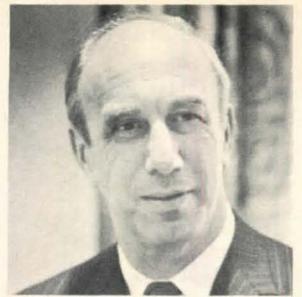
NEWS/PEOPLE

Successor sought for Fed's Maisel

The term of Sherman J. Maisel, often described as the housing industry's closest friend on the board of governors of the Federal Reserve System, expired last month.

Maisel was appointed in 1965, and he would be eligible under the law for a new term of 14 years. President Nixon has indicated, however, that he wants to make another appointment.

Maisel will serve until the President appoints and the Senate confirms a successor. He will then move to the Center for Advanced Study of Behavioral Sciences at Palo Alto, Calif., on the Stanford University campus, to write a book



FED'S MAISEL
He'll linger awhile

on the Fed's operations.

The Senate has just approved the President's nomination of John E. Sheehan of Louisville to replace William W. Sherrill, who resigned from the board Nov. 15.

Two-year term for Jerry Hoffman

Jerome D. Hoffman, who parlayed the 1966 credit crisis into \$1 million in fees from real estate brokers, builders, architects and others desperate for mortgage financing, changed his plea to guilty last month on a 32-count federal grand jury indictment charging Hoffman and his two former New York corporations with using the mails for fraud.

Judge Frederick van Pelt Bryan of the U.S. District Court for the Southern District of New York sentenced him to two years imprisonment and a \$1,000 fine.

The two corporations, Institutional Monetary Corp. and Criterion Marketing Report Inc., were fined \$1,000 each.

Change of plea. Last May Hoffman had pleaded not guilty to the grand jury indictment charging that he, Institutional, and Criterion had defrauded more than 500 persons of \$1 million in the mortgage-financing scheme [NEWS, July '71].

According to the indictment, Hoffman and Institutional Monetary Corp. solicited mortgage applications by mail, charging the applicants fees of \$550 to \$750 to inspect their property.

Non-delivery. When applicants tried to complete the loan, the indictment charged, Hoffman told them they needed a report from Criterion. These studies, conducted by some of the most reputable persons in the mortgage business, cost from \$2,500 to \$25,000. Some

300 applicants paid a total of \$751,000 for them. Payments for these reports plus the application fees came to about \$1 million.

The only catch was that, no matter how favorable the report, Hoffman couldn't deliver the financing. On requests for \$1.1 billion, according to Attorney General Louis J. Lefkowitz of New York, Hoffman arranged only \$4.3 million in financing for three applicants.

All-electric homes win test in Supreme Court

The Supreme Court has refused to act on a gas supplier's challenge to an electric utility's right to use special rates to promote all-electric homes.

The Columbus (Ga.) Gas Light Co. tried to test the rates with an antitrust case against Georgia Power and its holding company, the Southern Co. The suit charged that residential and underground wiring plans and budget billing procedures were intended to promote use of electricity instead of gas and constituted bribes to contractors to build all-electric subdivisions and apartments.

Two lower courts ruled that such rates are immune from attack under federal antitrust laws because they have been approved by state regulators.

The Supreme Court declined to review the next lower court's decision.

Take standard Kitchen Kompact cabinets, add a butcher block top, and what do you have? The Sandwich Bar (inset)—the new star of the kitchen, that's what! We used our Glenwood cabinets and shelving to create this culinary center, just as our standard cabinets and counter tops compose the Wet Bar (shown).

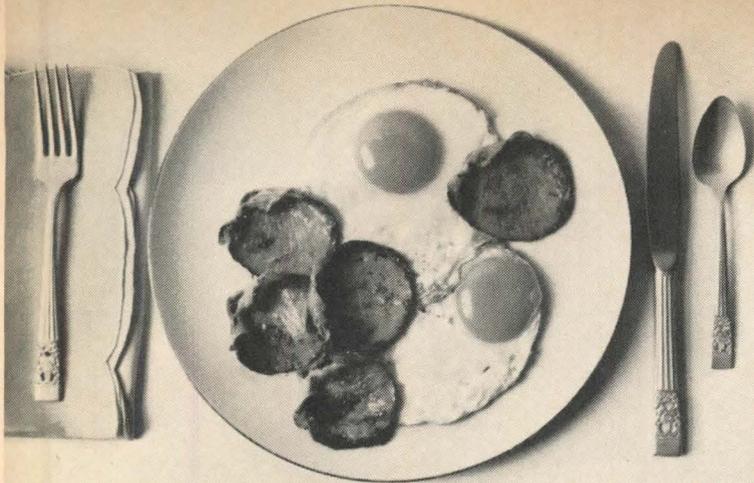
It's easy to put together an imaginative, beautiful kitchen when you start with versatile Kitchen Kompact cabinets. They're strong, sturdy and set to go anywhere at

a moment's notice, in a wide variety of sizes. Available in two "family-proof" finishes, they're practically maintenance-free—you get built-in sales appeal with our pre-built cabinets. Kitchens sell the home or apartment, and Kitchen Kompact cabinets sell the kitchen.

Look for the Kitchen Kompact distributor nearest you in the Yellow Pages, or write Kitchen Kompact, KK Plaza, Jeffersonville, Indiana 47130.

A Bar is Born!





Your Project and Our Financing Can Go Together Like Ham 'N' Eggs

(Or why Associated can bring home the bacon)

You can get all kinds of commercial loans from us. Big loans. Little loans. Construction loans. Permanent loans. All the usual loans—apartments, shopping centers, industrial parks, etc.

We also have the ability to structure "unusual" loans. Like gap loans. And wrap-around loans.

We have the money and the know-how because we have the investors and the skilled people. We're big. Big enough to have over 300 investors nationwide. Big enough to have 41 offices across the nation. Big enough to handle upwards of \$20 million in loan applications on a given day. Big enough to have our own commercial loan placement office in New York. And big enough to finance a project anywhere in the country.

To talk business, talk to Jim Innes at (609) 365-4550. He's our national coordinator. Or call the Associated company nearest you.

You'll like our language. Money talks.



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Associated-East Mortgage Co., Camden, N.J. (609) 365-4550

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Overland Associated Mortgage Co., Kansas City, Missouri
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NEWS/PEOPLE

Bill Levitt stepping out of ITT

William J. Levitt, who has reigned virtually unchallenged as the king of American homebuilders since World War II, is retiring.

Levitt attained his parent company's mandatory retirement age of 65 on February 11.

The parent, International Telephone & Telegraph, announced the retirement and said the successor would be Gerhard R. Andlinger. He takes Levitt's posts as chairman and chief executive of ITT Levitt & Sons Inc., the parent of the Levitt group of six homebuilding concerns and of Levitt & Sons Inc., the subsidiary that builds the group's single-family houses.

The new man. Andlinger returns to ITT from the Esterline Corp. of Boston, a diversified manufacturer of precision and medical equipment. He had been an ITT executive from 1960 to 1968.

ITT acquired the Levitt group in 1968 but, under a consent decree signed July 31, 1971, it agreed to divest itself of the



LEVITT'S ANDLINGER
Into biggest builder's chair

Levitt companies by 1974.

Levitt's return. Levitt himself had been inactive in his companies for three years when Richard M. Wasserman resigned as president and chief executive of ITT Levitt last April. Levitt returned from abroad to become president and chairman. He named Louis E. Fischer as president in September but retained the titles of chairman and chief executive.

Levitt recently disclosed that he was the head of a group that had acquired Parkway Distributors of Boston, a drugstore concessionaire.

Mike Tenzer takes on new Larwin post

He is now president of the company's single-family housing division, which is building communities in California, Illinois and in the New York-Washington corridor.

While holding the newly created post, Tenzer remains president of Larwin Realty and the Larwin Home Center. He is a vice president and a director of the parent, The Larwin Group, itself a subsidiary of CNA Financial Corp. of Chicago.

Tenzer joined Larwin in 1963 as vice president and director of marketing. He was named by HOUSE & HOME as one of the homebuilding industry's top performers in 1968 in recognition of his inventive marketing technique.

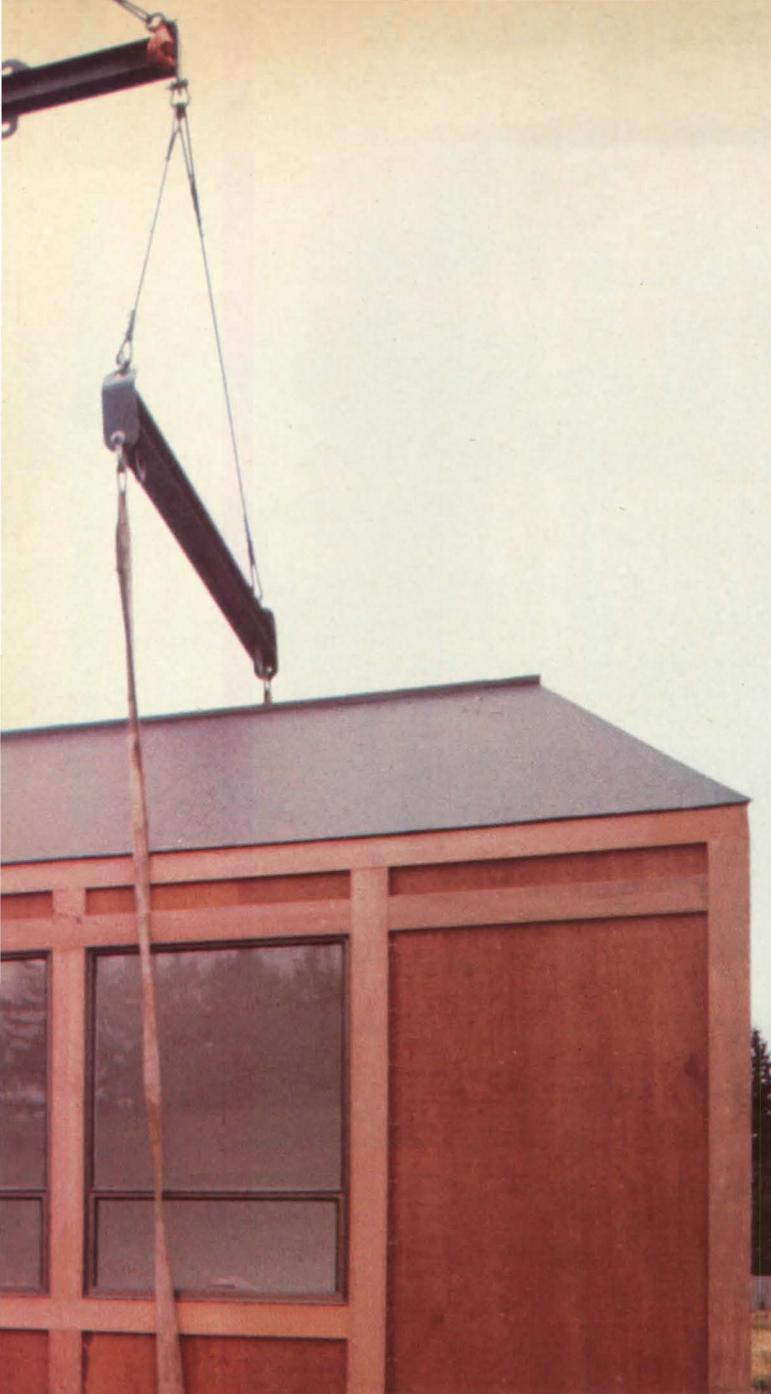
LENDERS: Carter Burgess has resigned as chief operating officer but remains as chairman of the National Corporation for Housing Partnerships, the joint-venture facility set up to help private industry build low-cost housing. The executive committee has recommended George DeFranceaux, the cor-



LARWIN'S TENZER
Another presidency

poration president, as chief executive. . . The Federal National Mortgage Assn. has appointed Lester P. Condon, a HUD official, to the new post of executive vice president for management and operations. Fanny May's executive vice president, William B. Ross, becomes executive vice president for finance.

DIED: Robert W. Murray Jr., 57, HOUSE & HOME associate editor 1954-64; HUD deputy director of public affairs 1966-9, later a HUD information officer, of cancer at home in Washington.



There is a redwood for modulars.

Simpson Ruf-Sawn redwood plywood.

Ruf-Sawn has the rich, natural warmth that has long made redwood the favorite for custom homes and prestige commercial applications . . . plus all the advantages of modular panel application. Because your modules will look better . . . longer . . . when you use Ruf-Sawn, your customers will be easier sold and will remain satisfied, which brings repeat business.

Simpson Ruf-Sawn redwood plywood offers many advantages in addition to handsome appearance. It provides in-transport racking strength without sheathing or corner bracing. It comes in the sizes, grades and patterns to fit your needs, however varied they may be. It has redwood's natural durability and weathering properties, resisting surface checking. And no other wood product takes and holds paints and stains better than Ruf-Sawn.

Find out for yourself how Simpson Ruf-Sawn matches up with your production needs. Call or write: Simpson Timber Company, 2000 Washington Building, Seattle, Washington 98101. Area Code 206-682-2828.



MOD-24 Architect: Donald MacDonald, A. I. A.

Above unit built by:
Person & Person, Inc.

Simpson

CIRCLE 78 ON READER SERVICE CARD

Here are 11 free ideas on high density from PPG.



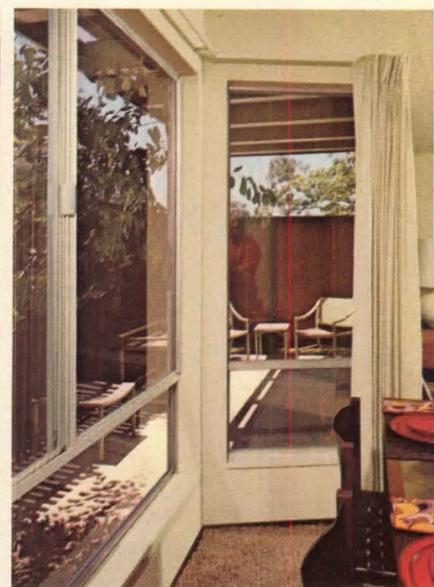
1 The patio kitchen. Kitchens can be given a new dimension with a layout like this to permit serving to the outdoors.



4 The light "stealer." Clerestory glass (upper right) borrows light from this cheerful living room for an adjacent bedroom.



5 The bright bath. Good overhead lighting and canted wall mirrors brighten this bath and give it an illusion of more space.



6 The cheerful dinette. A window wall and a glass return wall offer bright but intimate views of a private court.

You can get hundreds more for just 8¢.

If you'd like more ideas for your high-density plan, send the coupon for PPG's new 48-page, full-color brochure—"PPG Lifestyle/70s." See how PPG *Twindow*® insulating glass, *High-Fidelity*® mirrors, *Herculite*® K tempered safety glass and PPG tinted glass can open up your plans—open up the potential for sales, rental and profits.

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PPG Industries, "PPG Lifestyle/70s"
Department HH-23
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Gentlemen: Please send me a free copy of "PPG Lifestyle/70s" at the following address:

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City _____ State _____ Zip _____



9 The glass A-frame. Glass walls of an A-frame fourplex unit wrap around an enclosed courtyard to provide indoor-outdoor living with complete privacy.



2 The front-door merchandiser. A totally glass enclosed vestibule and waiting room in an apartment building are unique design details that can be a successful front-door merchandiser.

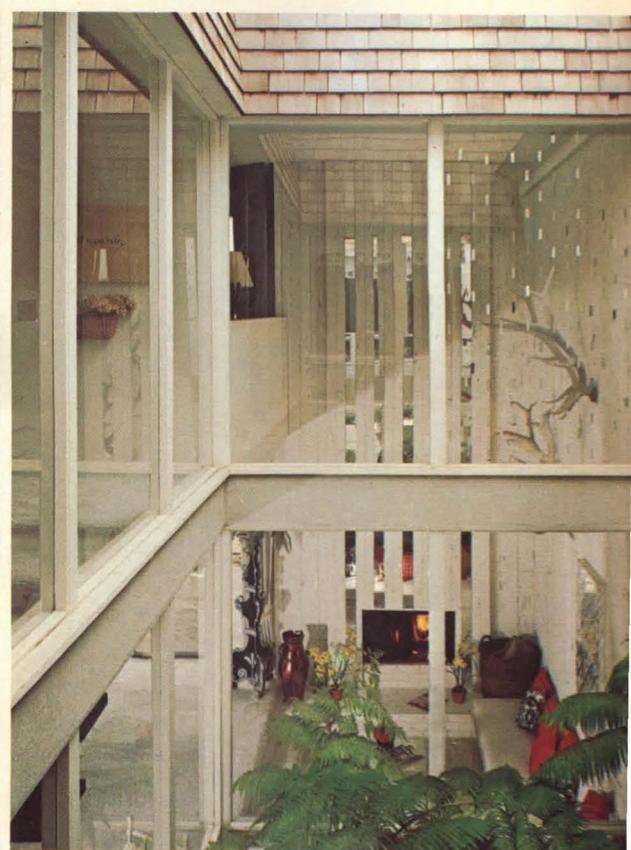


3 The year-round pool. A retractable glass wall creates an indoor-outdoor pool; makes year-round bathing possible.

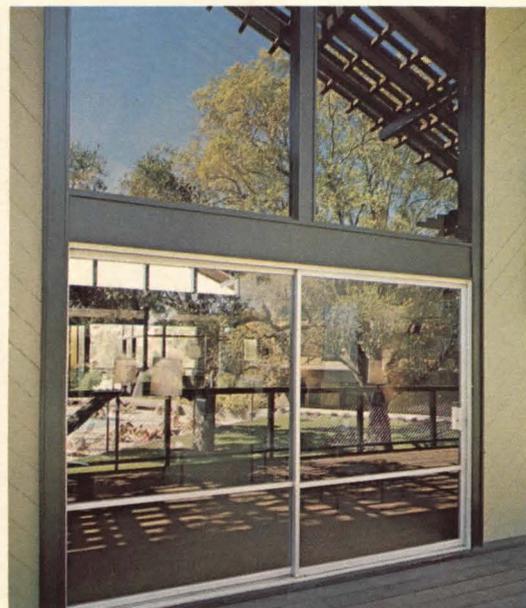


7 The spacious owner's suite. A full structural mirror wall in this townhouse bedroom doubles the spaciousness.

8 The sunlit townhouse. This entire two-story townhouse plan is designed around a glass-enclosed atrium-type courtyard. ▶



10 The dramatic stairwell. A private court turns inward to brighten this entry and stairwell, as well as inside rooms.



11 The effective environment. Glass walls overlook a private patio and pool. An effective technique for merchandising the environment.

KEY TO PHOTOS: 1, 8: Coronado Cays, San Diego, Calif. Developers: Cedric Sanders Corp. and Signal Properties, Inc. 2, 6, 11: Oak Creek, San Francisco, Calif. Developer: Gerson Bakar & Assoc. 3: Sixty-01, Seattle, Wash. Developer: W-O Associates. 4, 5: The Meadows, Los Angeles, Calif. Developer: Ring Brothers Corp. (a subsidiary of Monogram Industries, Inc.) 7: The Bluffs, Newport Beach, Calif. Developer: George M. Holstein & Sons. 9: L'Atriums, Dallas, Texas. Developer: Devane Clarke & Assoc. 10: University Park/Village Three, Los Angeles, Calif. Developer: Stanley C. Swartz Co.

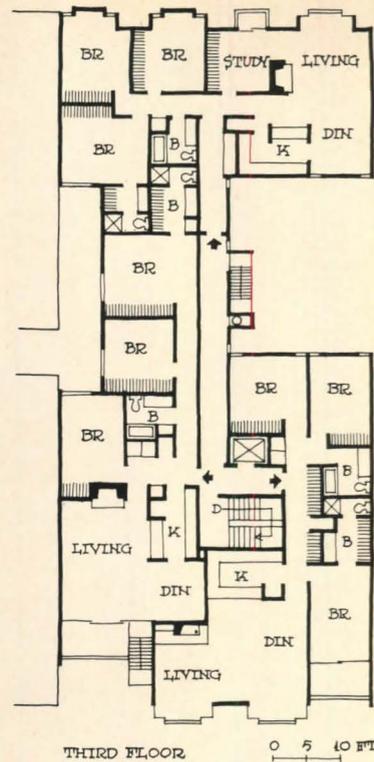
PPG: a Concern for the Future

See you at
Booth No. 312





Bay windows, a San Francisco tradition, are cantilevered over the front garage doors. Other parking is reached via entry at left.



Three-bedroom units are family-size. Note that bay windows are also used for rear apartments.

Nine family-size apartments get built-in privacy on a tight urban site

PHOTOS: JOSHUA FREIWALD



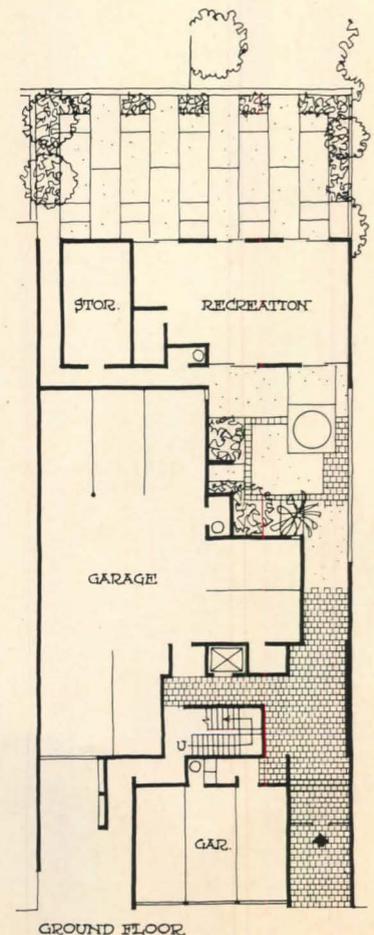
Side courtyard, seen from recreation room (see ground level plan, right) provides a view for six units. It leads to street entrance (background, photo, above).

The privacy stems from the building's shape—a modified *H*, turned on its side—which isolates the apartments from adjoining buildings as well as from each other.

Except for the street elevation all views turn in to the private side and rear recreational courts. So even though the building is tightly wedged into its 52'x137' San Francisco site, its occupants benefit from a much less urban atmosphere than would be possible with a more conventional design.

Each apartment is house-size with approximately 1,400 sq. ft. of living space. And floor-to-ceiling windows and 8½' ceiling heights add dimension to the units. All but one apartment—the one over the building's entranceway—have private balconies. And inside parking is available to each resident.

The building was designed by Robert H. Chan, AIA. Gene Marchi was the builder.



Ground level is used for tenant amenities: indoor and outdoor recreation, garages and storage.



CONGRATULATIONS. YOU'VE JUST RUN INTO THAT BRICK WALL.

That one you've been looking for. **Real clay brick.** But on panels totaling 3/4" thickness.

And at 4.7 pounds per square foot (panel sizes from 14 sq. ft. to 32), it's the kind of wall that's easy to put up, put on.

Put it on in the factory or in the field and no one will be able to tell it from hand-laid masonry. No joints, no "strange" corners, even though the whole wall is tightly jointed and sealed.

Yet, in place, these panels—we call them

"ECONOBRICK"—cost less than hand-laid brick veneer. And because our brick is fired from **real clay**, you get natural non-fading earth tones in a wide variety of colors including dark and pastel tones, as well as a facing that stands up to impact, freeze-thaw and weathering.

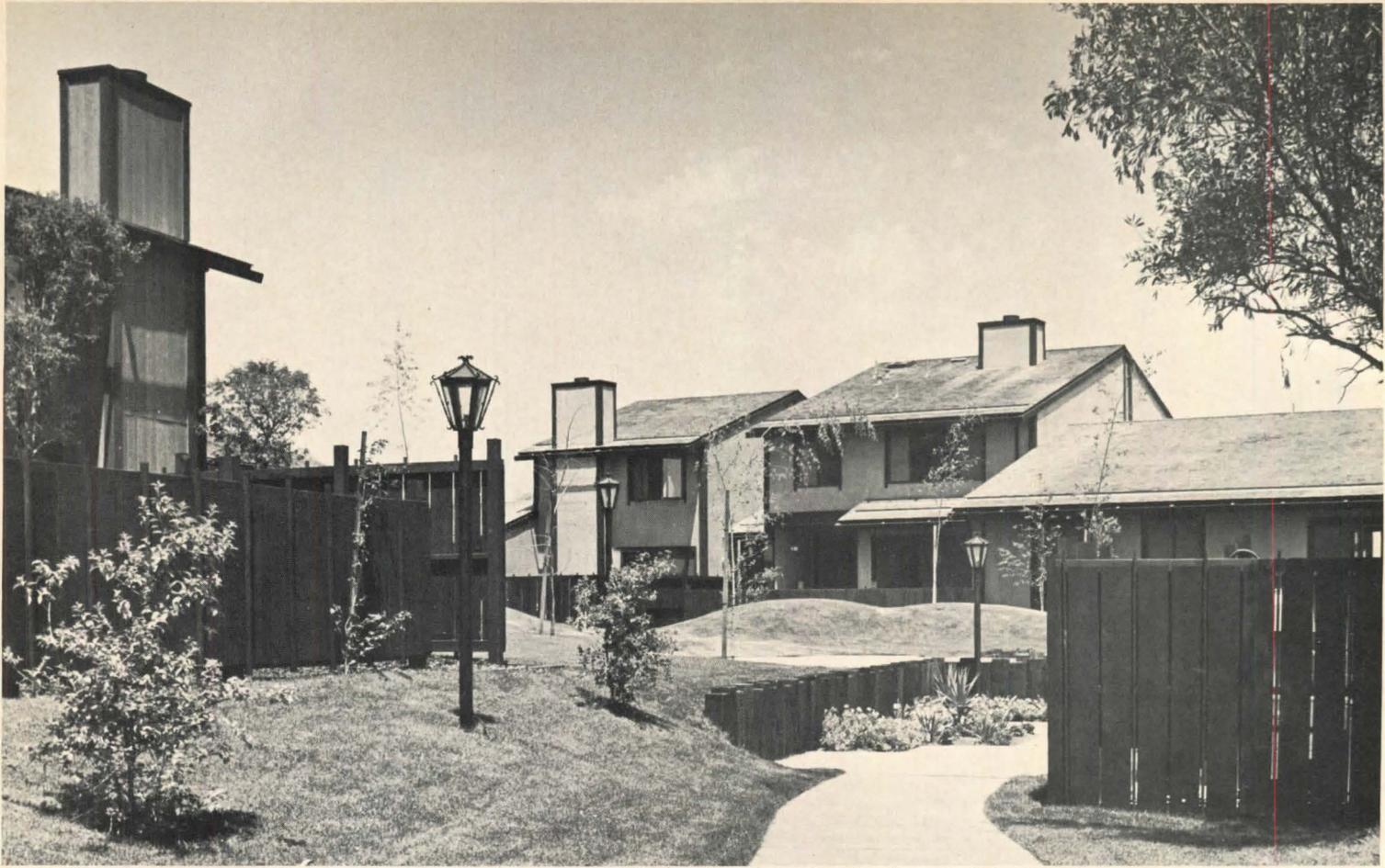
ECONOBRICK panels are approved for use by most government agencies. They are already in use in pre-fabricated installations such as modular housing and have been

equally successful when installed in the field.

We'd be happy to talk to you about our free "in-factory" or job site installation training service. Just give us a call at (404) 722-6831. Or write us at the address below.

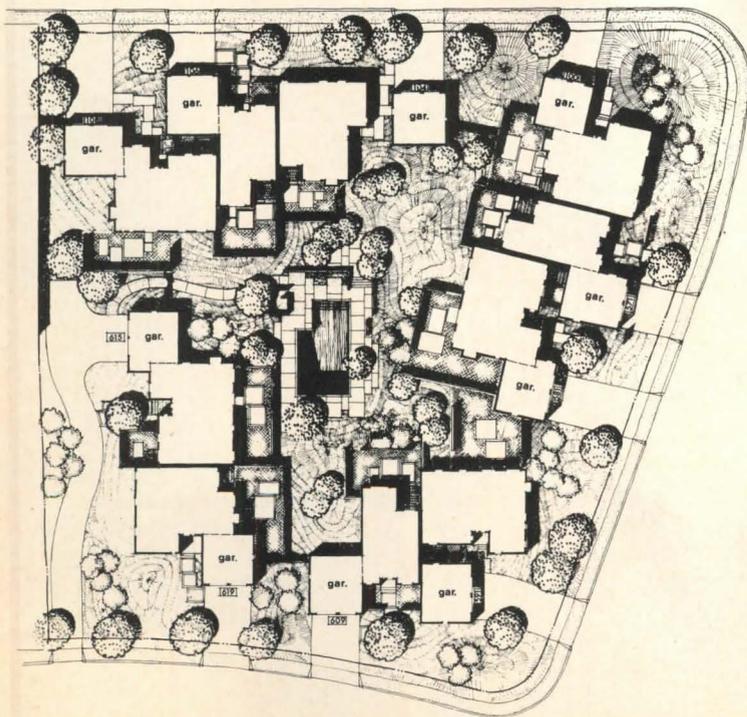
This may be the first time you ran into the proverbial brick wall and it started something. Instead of stopping it.

ECONOBRICK panels from
Merry Companies, Inc.
Box 1474, Augusta, Georgia 30903



Clustered houses, grouped around the common garden and pool area, create the illusion of a multifamily, rather than a single-family, project.

A single-family complex that borrows multifamily concepts



Site plan shows how zero lot-line siting has provided a large area for the central garden and pool (photo, right). Three types of house plans are arranged so that most rooms look out on the common green area or private patios.

At quick glance this Danville, Calif. project could easily be mistaken for a townhouse or condominium complex. But in reality it consists of ten detached homes with shared property lines that eliminate side yards.

The houses are tightly clustered on the perimeter of the 2.3-acre site. And there's a large central garden and pool area—as is common to many multifamily projects.

This concept evolved from a marketing program directed at a specific segment of the empty

nestor market: families who enjoy owning single-family homes but not maintaining them. So, the project provides common exterior maintenance (including facades of the houses) through a home owners' association, plus use of recreational facilities available in the planned unit district development that surrounds the complex. The houses, ranging in size from 1,358 to 1,766 sq. ft., sold for \$43,000 to \$49,000. Architect: Goetz, Hallenbeck & Goetze Inc.; builder: Stephen E. Block Co.



Columbus Carpet of Herculon® got dressed up with Roka by Kraft...



...then got all undressed.

Columbus Mills "Graduate" made with pile of HERCULON* olefin fiber took quite a dressing down. With a load of wet lettuce, juicy tomatoes and good, rich, Roka Blue Cheese Dressing. Result? The "Graduate" passed with flying colors . . . cleaned up quickly and easily.

The stain resistance of HERCULON coupled with uncommon resistance to abrasion and fading, gives you the perfect carpet for any commercial installation.

Roka dressing by Kraft couldn't make a lasting impression on Columbus Carpet Mills 5/64th gauge carpet of HERCULON. But "Graduate" will make a wonderful impression on your clients.

For detailed information on HERCULON olefin fiber see Sweets 5 Light Construction, Architectural, Interior Design files. Or, write Fibers Merchandising Dept. 203, Hercules Incorporated, Wilmington, Delaware 19899 for free 24 page booklet.

Specify carpet of Herculon® by Columbus Carpet Mills



*Hercules registered trademark.

CIRCLE 43 ON READER SERVICE CARD

H&H MARCH 1972 43



"Mrs. O'Leary's cow kicked over the lantern in 1871—and builders have been stuck with the consequences ever since"

As we move deeper into what undoubtedly will be known as the decade of growth for the modular industry, the archaic practices of the construction industry move into much sharper focus.

As the industry has been structured in the past, these restraints to any meaningful progress have been endured. But the nature of the modular industry is such that these same restraints *cannot* be tolerated.

Progress in many areas has been and will continue to be slow, but progress is being made. Stimulated by Housing Secretary George Romney at the federal level, state governments are moving ahead with uniform statewide building codes. Enlightened union leaders have begun to recognize the potential and inevitability of this new factory module form of the construction process. Pennsylvania is an excellent example of a state with progressive leadership and a building code department aware of change and innovation.

However, as always there are special interest groups which oppose *any* change, viewing the possibility as a threat to their particular position in the present antiquated structure. This opposition to logical new regulations that permit tested innovations is a sure sign of insecurity and weakness. But such opposition is understandable despite the lack of its ultimate validity.

It is much more difficult to understand opposition from persons and groups with no axes to grind—and where the basis for opposition is lack of up-to-date information. Nowhere is this more evident than in the contradictory state code requirements for fire protection in multifamily units.

It has been a full century since the great Chicago fire in 1871, but many of our existing state and local building codes for protection from fire and panic are still based on that event. History books tell us that Chicago rose from the ashes and rebuilt the city in steel and concrete. So we apparently must assume that Chicago since then has been an ideal community where fires and associated injuries and loss of life do not exist. We all know that's not true. So then, what is the truth about construction for proper fire protection?

Echoes of the past. As children we all learned the value of sturdy construction from *The Three Little Pigs* and *The Big Bad Wolf*. This, plus our old-world heritage of invincible castles, helped create the impression that masonry construction was somehow superior to wood frame.

Certainly castles with 5'-thick walls were necessary during the wars of the Middle Ages; and stone houses and barns were more resistant to the flaming arrows of unfriendly Indians.

But the Chicago Fire Department of 1871 can hardly be compared to today's prompt and efficient organizations. So, isn't it time we put our codes in proper perspective—more in line with today's needs and protections.

Our prime concern, of course, is the protection of human lives. We need to know more about how fires originate, how they spread and how lives can be saved through proper design and choice of materials. We should stop kidding ourselves that just because a structure has steel studs or masonry exterior walls, it is any more fireproof or protective of lives than a standard wood frame building.

Cause and effect. It is no secret that most fires arise from human carelessness and that furnishings, draperies and carpeting are prime initial movers. Very frequently it is smoke and lack of oxygen, rather than flame, that causes death. In fact smoke, fear and panic are probably responsible for more deaths in fires than the lack of fireproof construction or adequate exits.

Let me make it clear that I am not defending old mansions or hotels converted into nursing homes or cheap housing for the aged. The age of most of these buildings, and in some cases, their residents, make these monsters particularly susceptible to potential fire hazards. They definitely should be aggressively inspected and required to meet adequate standards.

It is commonly known that firemen have less fear about entering a burning building if the structure is wood frame than if the structure is built with light gauge steel trusses or if the walls are masonry. Masonry walls and steel framing do not prevent fires, nor do they retard them—after a fire starts—any more than does a fire-rated wall built of other materials.

Eighty percent of the residential buildings in the USA are wood frame. Certainly, they are not unsafe. Most single-family, two-story homes have only one flight of stairs from the second to the first floor. Are they unsafe? Second-floor windows have proven to be adequate secondary fire exits in single-family homes. The same should be true in two-story multifamily units.

It is easy to understand the need for rigid fire protection requirements in high-rise

apartment buildings. But low-rise garden apartments, with adequate fire-spread resistance between every two units, are no more unsafe than millions of single-family and two-family homes. In fact they are safer because of more modern, protective electrical and heating equipment.

The frequent requirement that heating equipment be housed in a fire-protected enclosure is based on impressions of the pre-World War II furnace. Today's equipment—with its built-in safeguards—that utilizes gas or electricity as fuel, hardly requires this superfluous protection.

Illogical requirements. Codes requiring masonry fire walls rather than a performance-rated one- or two-hour wall are restrictive and discriminate against innovation. Other codes which allow a fire-rated wall other than masonry, but which require all structural materials such as light gauge steel studs to be fire resistant, do not take into account the fact that even untreated wood studs will withstand higher temperatures than light gauge steel.

The frequent requirement that exterior walls be solid masonry when a garden apartment building has three stories instead of two does nothing to prevent fires and only adds to costs without providing any additional protection.

There are many similar illogical requirements that can be listed. These vary from state to state, and no one really stops to consider why they exist. The fact that they are in the code usually is sufficient reason for their continuance. What they do or don't achieve is not important!

Standardized performance-oriented codes would help eliminate the changes we must make during the modular manufacturing process to satisfy requirements of different areas. These changes are one reason it's been so difficult to cut costs for modulars.

The hour has never been more timely, with the emergence of the modular industry, to put our multifamily fire codes in modern perspective and still provide the public with equal or better protection.

Since we have 50 states, it is not logical to have each conduct its own tests and arrive at separate conclusions. More research and testing is required at the federal level with results and recommendations disseminated to all states and their concerned agencies. The federal government should immediately take the lead in intensive, objective fire testing and provide all states with meaningful up-to-date information.

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Frank D. Carter, Director-Marketing, Boise Cascade Manufactured Housing Group, Dept. HH3, 61 Perimeter Park, Atlanta, Georgia 30341, (404) 458-9411

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Setback requirements: Part II

"If they weren't so rigid, our single-family subdivisions could be a lot more livable"

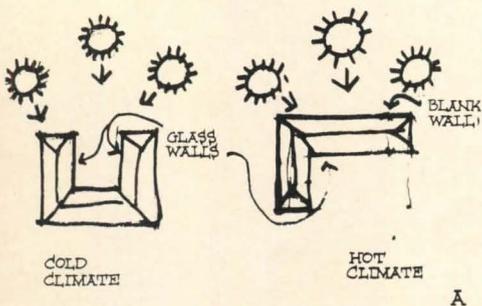
In January we discussed the manner in which dogmatic setback requirements hamper us in the proper consideration of natural terrain and engineering factors when we plan a single-family subdivision. And, we saw how the substitution of performance guides for setbacks would enable the site planner to work more efficiently and successfully.

But what about some of the factors that directly affect us as people? These livability factors break down into two groups: those that affect us physically and those that affect us emotionally and/or mentally. In the first group are the natural elements—sun, wind, rain, snow, fog and sleet.

This month, I'll discuss planning approaches that would allow the use of these elements to create a more livable place for people—again, IF current setback restrictions were eliminated in favor of performance standards.

For the moment, let's concentrate on the sun which, depending on the location of the housing, presents vastly different site orientation requirements.

Obviously, different solutions are needed for a hot climate than for a cold one. A cold climate may suggest a solution that traps the sun as a heat source and a hot climate may inspire a solution that turns its back on the sun (Figure A).

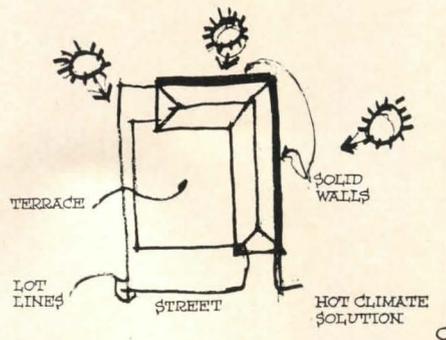
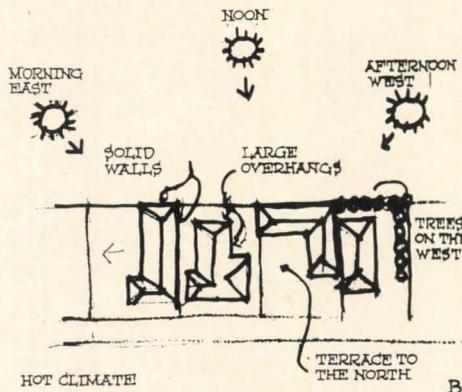


With these solutions in mind, guides can be formulated to describe the desired result for any specific locality. Then a variety of solutions could be devised to meet these guides. For example, suppose a subdivision is in a hot climate where protection from the sun is desirable to insure a pleasant atmosphere. There are numerous ways to meet this basic criteria (Figure B).

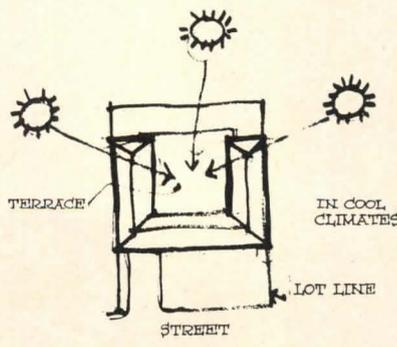
Although a different approach has been used on every lot, each meets the basic criteria of sun guidelines.

How is the house itself affected by this

criteria? The house primarily must be designed to cope with this in various siting conditions. Thus one plan may be completely oriented away from two sides of the site, to the South and West (Figure C). Others could be similar to those shown in Figure B.

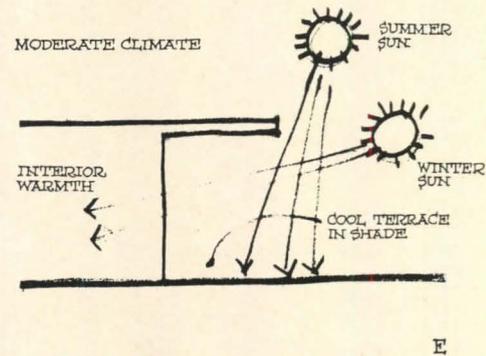


Localities with cold climates should have vastly different criteria—those that encourage the use of the sun's heat. For example, the plan may orient to capture the sun, such as in the atrium house or the terrace house (Figure D).

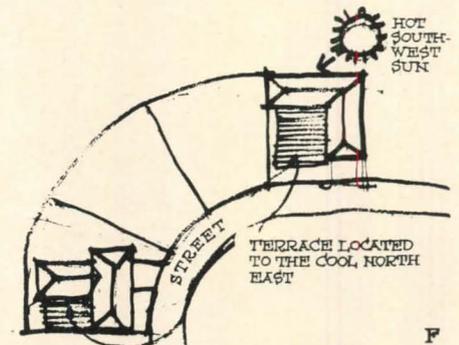


In moderate climates where drastic solutions are not necessary, seasonal factors become more important. Here, the major con-

cern is obtaining the most desirable benefits of both winter and summer sun (Figure E).



The builder may wish to choose one basic solution for a local area or several depending upon how the overall site plan works out. If some of the houses must be oriented 90% from each other on the site plan, quite probably a different house solution will be needed for each (Figure F).



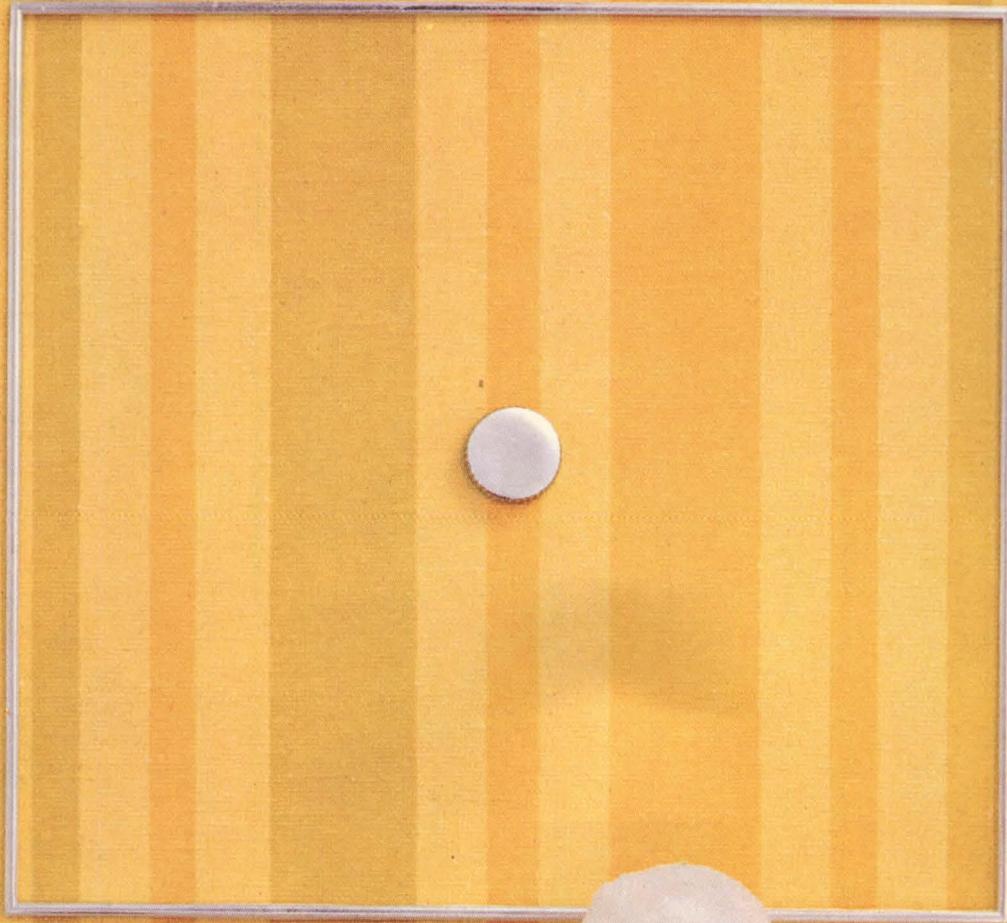
Wind, rain, snow and sleet could all be handled in a similar way. For a hot tropical climate such as is found in Hawaii, a breeze is highly desirable; while in Chicago the cold bite of the North winds from across the lake make it highly undesirable.

All this to replace setbacks, you say! It's getting too complicated. It would be easy for it to get out of hand, so guides that replace setback requirements must be more like a checklist of very basic needs such as those illustrated. The builder then has plenty of flexibility to design a house that fills maximum needs.

Thus if the builder is able to meet many of these guides he knows he is well on the way to meeting people's needs for better living.

In addition to the physical needs, housing should accommodate emotional and mental needs of their residents. We'll take these up in a subsequent column.

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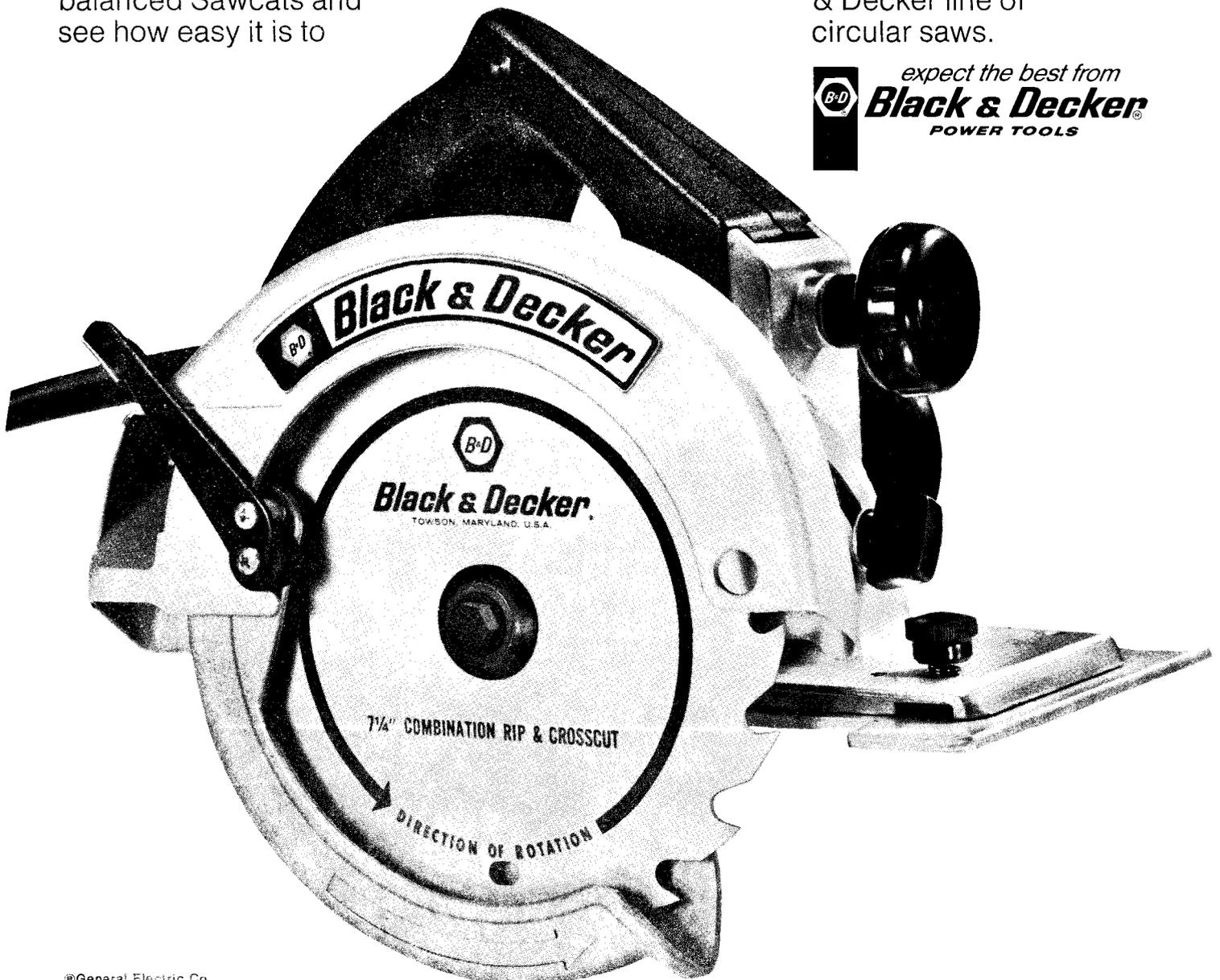
handle; how much more you can cut without tiring. Note the vertical adjusting shoe; the comfortable LEXAN® handle that stays in the same upright position whatever the depth of cut. Each double-insulated Builders' Sawcat is also equipped

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Even the Spacemaker drawers make extra space because of center-mounted slides and the absence of cabinet front frames. They're the largest in the cabinet industry.

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struction. Wall cabinets (including doors) are made completely of $\frac{5}{8}$ " panels, joined by glued dowels. Base cabinets are the same except for a hardboard back that reduces weight.

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Pack that protects it. This unique shipping package is waterproof, corner-cushioned with Polystyrene blocks, see-through and easy to discard. So it's sure to save you time and money.

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"It's smart to pay managers a bonus to stimulate rentals. But be sure you're not just giving your money away"

We're long-time believers in the power of bonuses to motivate people to rent apartments. But in giving, we also make sure we receive.

There is no faster way to give away cash—and get absolutely nothing in return—than through a loosely run bonus program. So if you're new at motivating apartment managers, keep this in mind: bonus offers must be structured so the extra money you pay your managers also pays off for you—in rentals.

Apartment managers are essentially salesmen; and salesmen need the incentive of commissions and bonuses to keep them working harder than other people. But different apartment complexes have different problems, so all managers can't be motivated the same way. For example, if you're renting up new apartments at the same time you're operating established complexes, you need two bonus programs.

Consider the difference in problems: in the established projects you're trying to minimize operating expenses caused largely by tenant turnover; in new projects you're simply trying to fill up a flock of unoccupied apartments against a deadline.

Older projects need quick re-rentals. Managers in your established complexes need to be motivated to replace move-outs with move-ins as quickly as possible. Move-in delays mean lost rent.

A manager may re-rent an apartment five days before a move-out, but if the new tenant doesn't move in until five days after the move-out, the landlord loses five days' rent. Many landlords overlook that five days' rent loss, commonly known as slippage. They calculate vacancies by counting unoccupied apartments once a week or perhaps only once a month. And they give their managers the impression that because they're getting apartments re-rented, they're doing a good job.

But any incentive bonus paid on the basis of a periodic vacancy count is strictly a giveaway. The manager gets extra money for a job he would have done anyway.

To pay off in established projects incentive bonuses must be based on dollar income rather than vacancy counts. The only sensible way to measure a manager's rental performance is to calculate actual rent loss, or slippage, by comparing monthly rental receipts with a project's income standard, i.e., income at 100% occupancy.

You can make managers concerned about slippage by paying them incentive bonuses

that increase as slippage decreases. A typical approach is to offer a percentage of all rental income produced above a certain level, say 20% of income over 95%. This approach is feasible for smaller projects of 80 to 100 units, where monthly income ranges from \$16,000 to \$20,000, and a manager's bonus at full occupancy would be limited to a reasonable \$200 a month.

But in larger projects, e.g., 500 units with a monthly income of \$100,000, you either have to adjust your percentages drastically or change the bonus scale to specified dollar amounts. We lean toward the latter approach because it permits uniformity from project-to-project and precludes speculation among managers as to who's being offered what.

A typical large-project incentive bonus starts at 95% occupancy (based on actual monthly income) and increases at the rate of \$50, \$100 or \$200 increments for each additional percentage of occupancy. For example, using \$100 increments, a manager could earn \$100 bonus for 95% to 95.9% occupancy, \$200 for 96% to 97% and on up to \$500 for 99% or over. For the sake of accounting convenience we calculate and pay out occupancy bonuses for established projects on a quarterly basis.

New projects are another story. When used to rent up new apartment projects before completion, incentive bonuses are more effective based on numbers instead of percentages. The object in a new complex is to convert whole buildings of vacant apartments into revenue-producers as soon as they become available. But even here slippage can be a problem because a rentup manager may lose sight of the difference between renting an apartment and actually having it occupied the day it's available. The slippage occurs between the date the apartment is released for occupancy by the building inspector and the date the tenant moves in.

Rentup bonuses are commonly paid for apartments rented before construction is completed, i.e., simply obtaining the renter's holding deposit. But unless the bonus program is based on the move-in date, an owner/investor will find himself giving away a lot of potential rent dollars plus wasted bonus money.

You can minimize slippage in new-apartment rentals through incentive bonuses that reward managers at a *modest* rate for early rentals and at a *high* rate for early move-ins. For example try offering

\$20 for each new apartment rented *and occupied* no later than three days after completion, \$10 for each apartment rented *but not occupied* within three days of completion and \$5 for each apartment rented (with or without actual move-in) no later than 30 days after completion.

The reason for the 30-day margin is to avoid taking apartments out of the running too soon. One of the problems with bonuses paid on individual apartments is that once a unit is no longer eligible for a bonus payment, the manager tends to bypass it. He concentrates on those he can still earn money from.

Allow flexibility on move-in dates. Another problem in paying rent-up bonuses based on move-ins lies in determining the precise date a new apartment becomes officially available for occupancy.

Because construction schedules are so vulnerable to weather delays, labor slowdowns and delivery holdups, rentup managers are accustomed to adding a week or more to the construction company's anticipated completion dates. This protects them against move-in delays. But it means that whenever the construction people complete apartments according to schedule, the rentup manager is a week or two late with his move-ins and the owner loses potential rent money. If you go by the book and use actual completion dates, the manager loses bonus money.

Our policy is to go along with the manager's revised move-in dates. We okay his dates at the outset of renting and pay his bonus accordingly, regardless of whether construction is finished earlier. We think it's better to have a safety margin against missed completion dates than to have disappointed renters and cancellations. So we don't penalize the manager when his dates are improved on.

Otherwise, the best policy is not to relax bonus rules. Always set a clearly defined cut-off date for a bonus program and stick with it. Don't get in the habit of extending bonus expiration dates at the last minute or your bonus programs eventually will lose their effectiveness.

If managers have done poorly under a bonus program, play it through to the end. Then come up with a new program that will make more sense and be more effective. If you go soft and break your own rules to pay out a bonus, you're not only throwing away money, you're also spoiling your managers.

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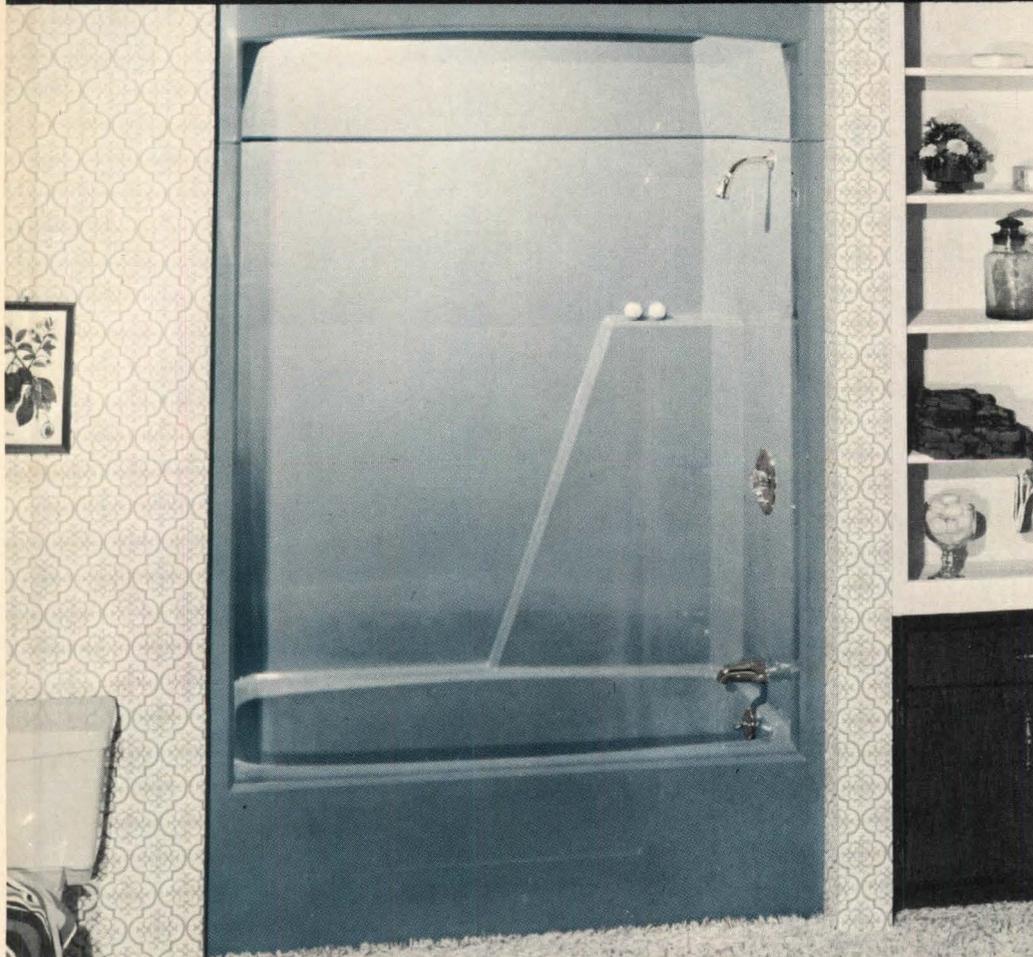
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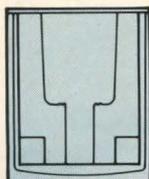
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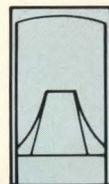
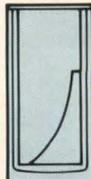
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LETTERS

Building definitions.

H&H: Good definitions are necessary for the clear understanding of any subject. But you have confused building construction systems with industrialization.

Building construction systems may be categorized as follows:

One dimensional. The one dimensional system uses posts, beams, studs, planks, boards, sticks, etc.

Two dimensional. The two dimensional system uses panels to make walls, floors, roofs, partitions.

Three dimensional. The three dimensional system is the volumetric approach to building in which a box (or similar three dimensional shape) is fabricated and placed on a foundation or structural frame, prebuilt at the site.

Industrialization implies the use of a variety of labor saving tools and techniques, a continuing market for the house, making high production of a repetitive character possible, and a continuing research and development effort.

Thus, industrialization may be possible using any of the three building construction systems. Your story on Fox and Jacobs [Dec. 1971] suggests a highly industrialized two dimensional system, although your writer says nothing about F&J's research and development effort, nor the market that makes all of this possible.

LEONARD G. HAEGER, professor
School of Architecture
California State Poly-
technic College
San Luis Obispo, Calif.

Houston market

H&H: The January article on the Houston market was right on target. So far the chips have been raked in by the large volume, low-margin builders. Innovative design has taken a back seat.

There are several signs, however, that dramatic change is on the horizon. First, dozens of second-home communities are being completed around Lake Conroe and Lake Livingston, and Houston is growing out to these leisure areas where more stylish designs are evident.

Secondly, we know that several cluster communities are on the boards. They too will place a premium on contemporary, functional design.

Houston's land prices and home costs have been below average but now seem to be catching up. To enter this market will require larger and larger commitments, not only of money but also of marketing know-how.

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Management consultant
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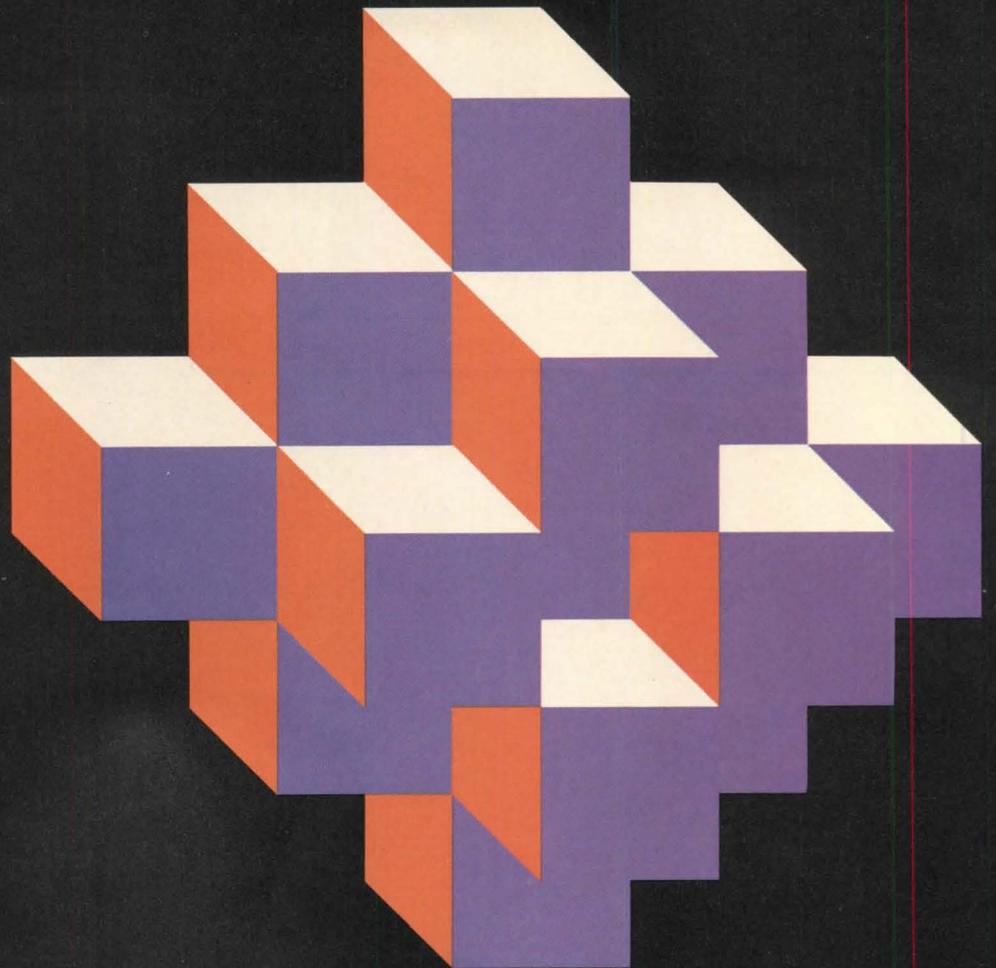
Fresh facts on actual 1971 production and 1972 estimates supplied by the modular manufacturers themselves . . .

. . . all from continuing House & Home research designed to keep pace with frenetic change in the fast-growing modular industry!

With additional firms added right up to press time, House & Home's new '72 Directory updates the modular marketplace for supplier, producer and buyer of modular housing who want to do business with each other.

A handy Reader Inquiry Card gives easy access to further information both from suppliers, who are indexed alphabetically, and from modular producers, who are indexed both alphabetically and geographically.

The new '72 Directory of Modular Housing Producers includes the following data on virtually every known company active in modular housing production:



Modular Housing Producers

1971 Modular Production: Single-Family Units, Multi-Family Units.

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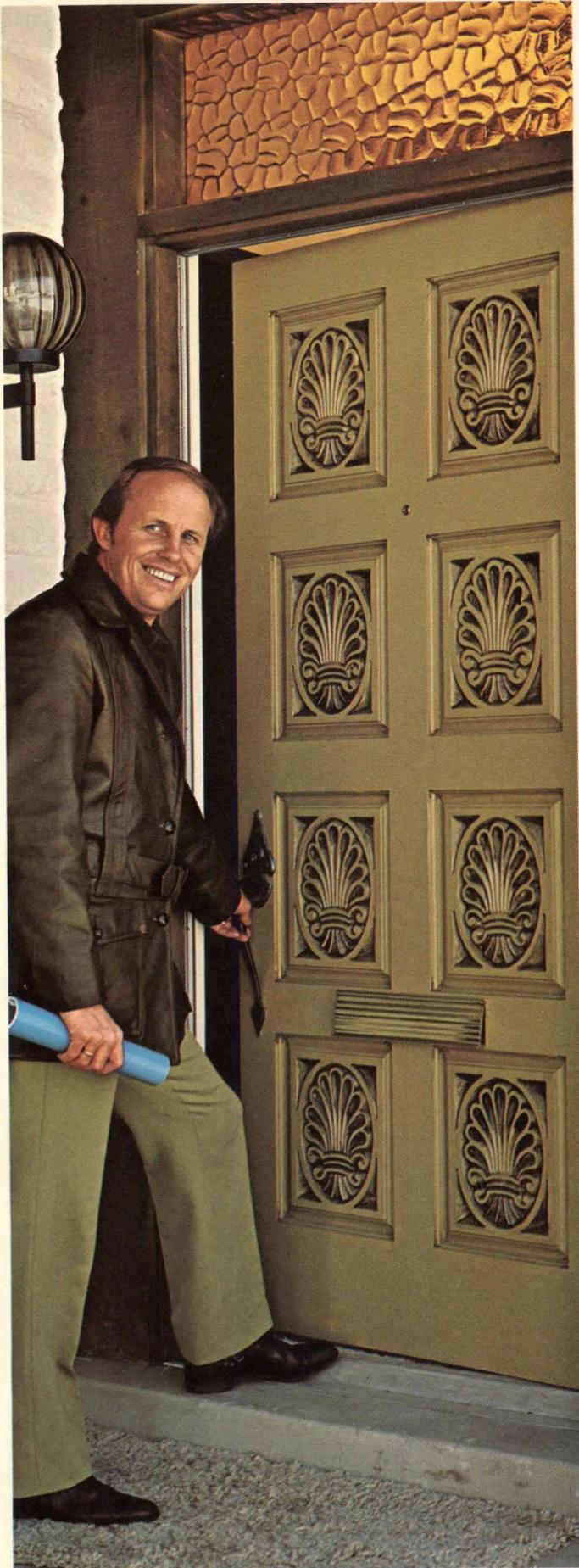
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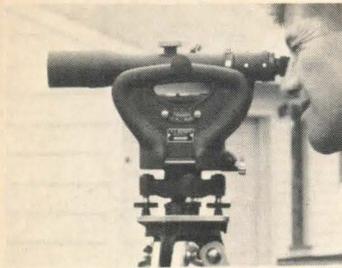
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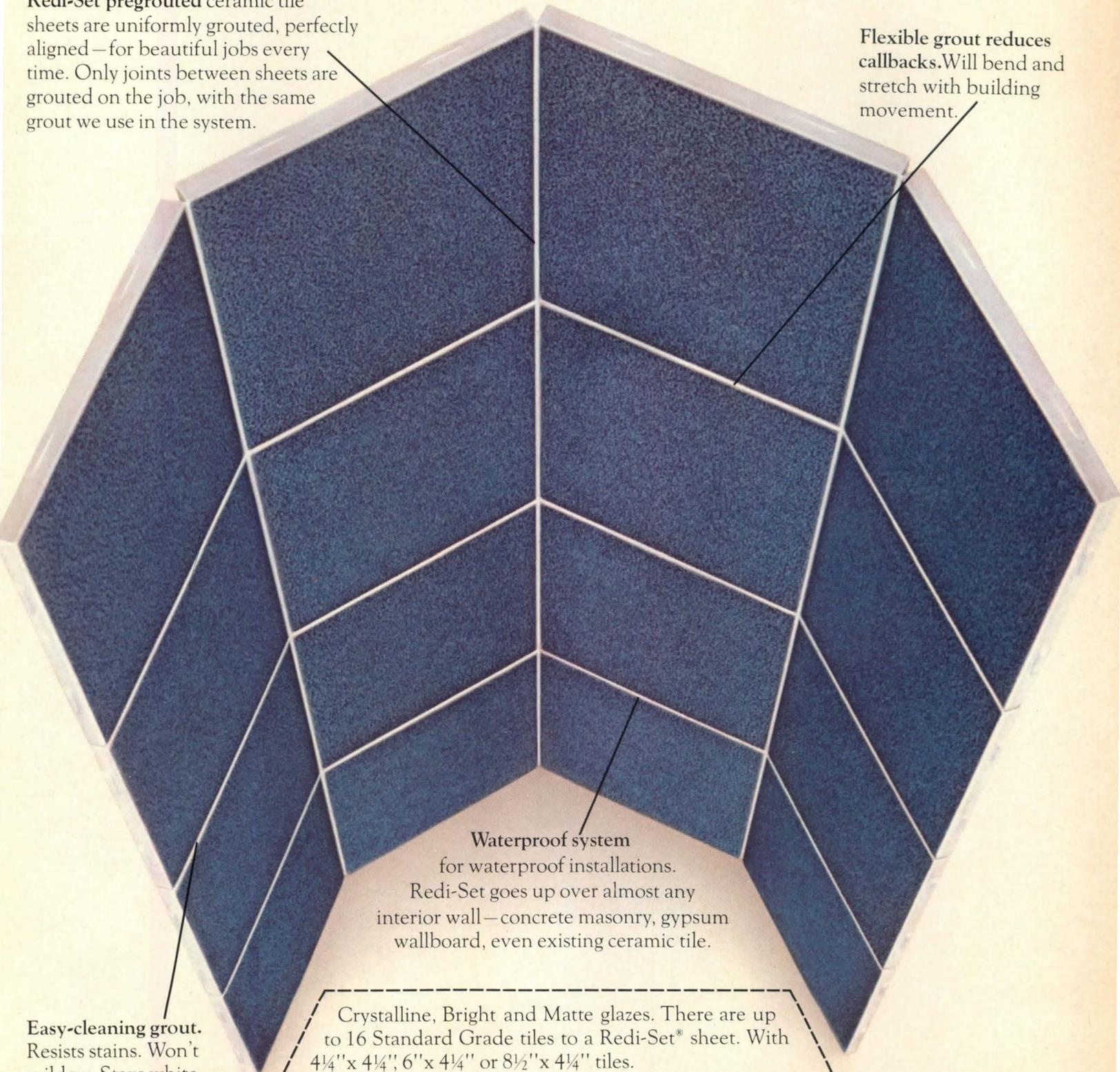
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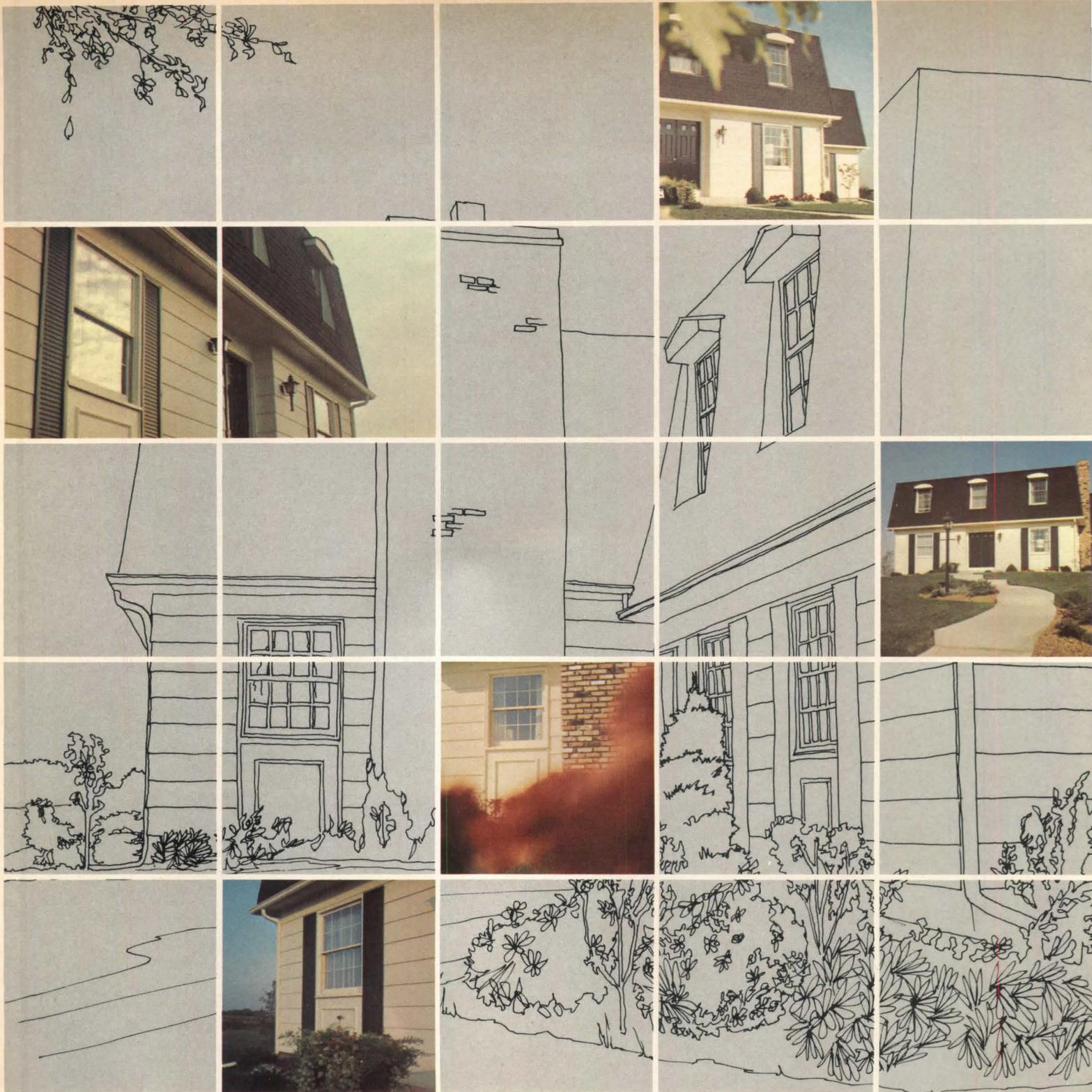
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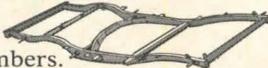
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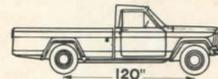
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GENERAL  ELECTRIC

New 24-inch wood system

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Side by side construction comparisons prove that the new 24-inch lumber and plywood modular framing system can reduce labor and material costs by more than \$200 for a 2140 sq. ft. house. Tests were conducted in Pleasanton, California, by the NAHB Research Bureau with the



help of Morrison Homes, Inc. Two identical houses were constructed by the same construction crew, on similar sites. The only difference: one home used 24-inch floor and wall framing, the other 16-inch. The results are in, and they're worth studying.

Comparative Cost Summary, 16" o.c. vs. 24" o.c.

OPERATION	Labor Cost		Material Cost		Total Cost		Difference	
	16" o.c.	24" o.c.	16" o.c.	24" o.c.	16" o.c.	24" o.c.	Cost	%
WALLS								
1. Frame & Erect Walls	\$ 451.58	\$ 373.59	\$ 794.15	\$ 688.65	\$1,245.73	\$1,062.24	\$183.49	14.7
2. Siding	383.17	341.22	386.32	471.76	769.49	812.98	-43.49	-5.6
Total Walls (545 lin. feet)	834.75	714.81	1,180.47	1,160.41	2,015.22	1,875.22	140.00	6.9
FLOORS								
1. Frame Floors	84.91	66.60	315.78	265.10	400.69	331.70	68.99	17.2
2. Subfloors	64.22	57.94	174.30	225.32	238.52	283.26	-44.74	-18.7
Total Floors (900 sq. ft. floor surface)	149.13	124.54	490.08	490.42	639.21	614.96	24.25	3.8
TOTAL WALLS AND FLOORS	983.88	839.35	1,670.55	1,650.83	2,654.43	2,490.18	164.25	6.2
Estimated Dry Wall	346.67	300.00	358.33	357.33	705.00	657.33	47.67	7.7
Estimated Electrical	32.00	25.07	—	—	32.00	27.07	6.93	2.2
GRAND TOTALS					\$3,391.43	\$3,174.58	\$218.85	6.45%

saves more than \$200 per house

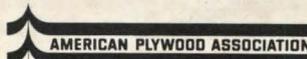
In comparative studies, the NAHB learned that 24-inch spacing netted a 15.2% labor savings on walls, and a 12.3% savings on floors. This adds up to 19 man hours overall labor time reduction, which really makes sense with today's labor costs.

In terms of dollars and cents this adds up to a healthy \$165 total savings on wall and floor construction. Combine that with the additional savings you enjoy on drywall and electrical installation, and the total comes out to more than \$200 for a 2140 square foot house. And could add up to over \$300 per house, depending on local labor and material costs.

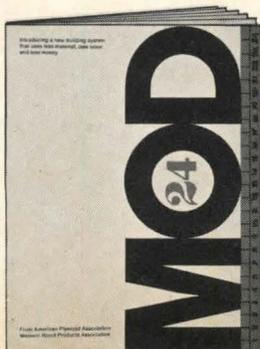
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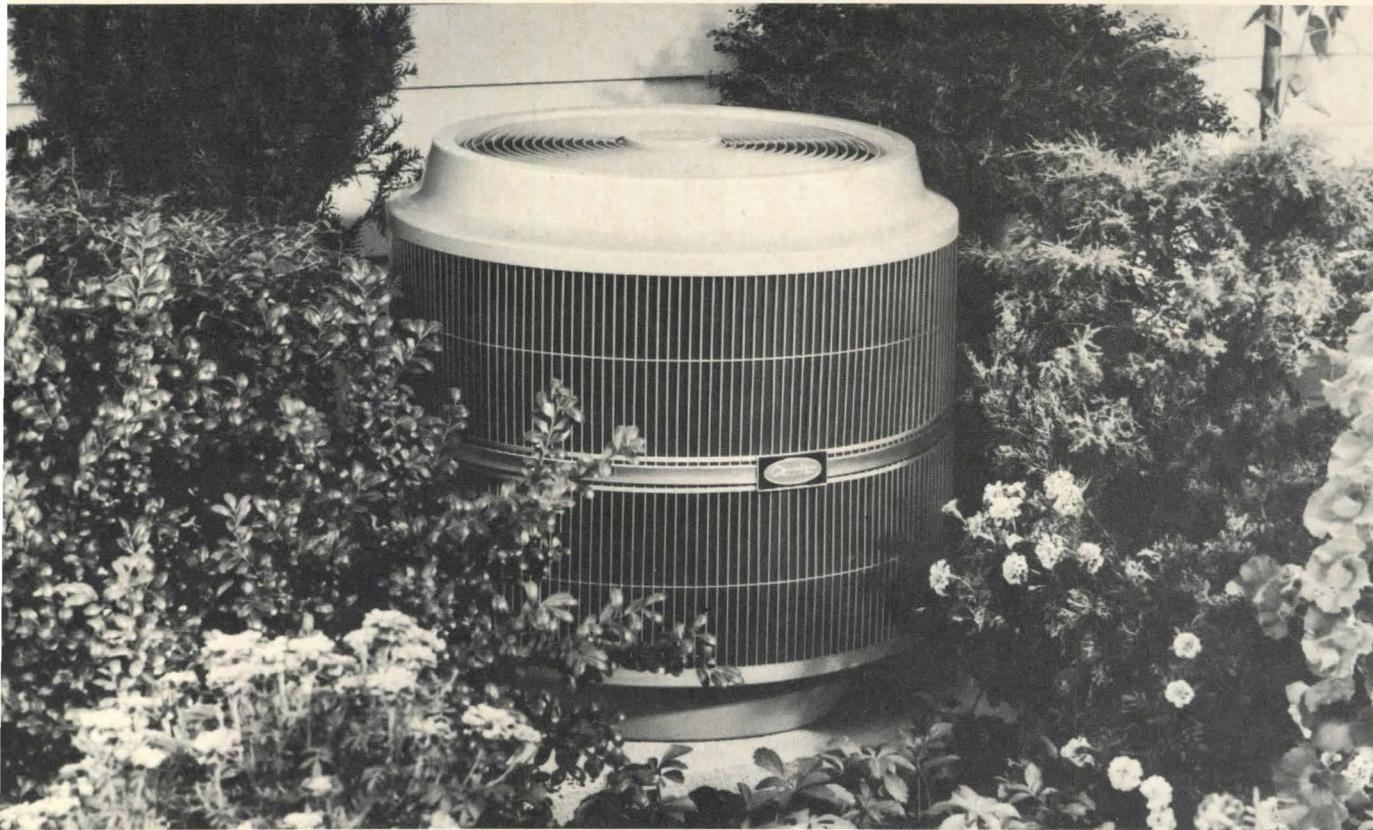
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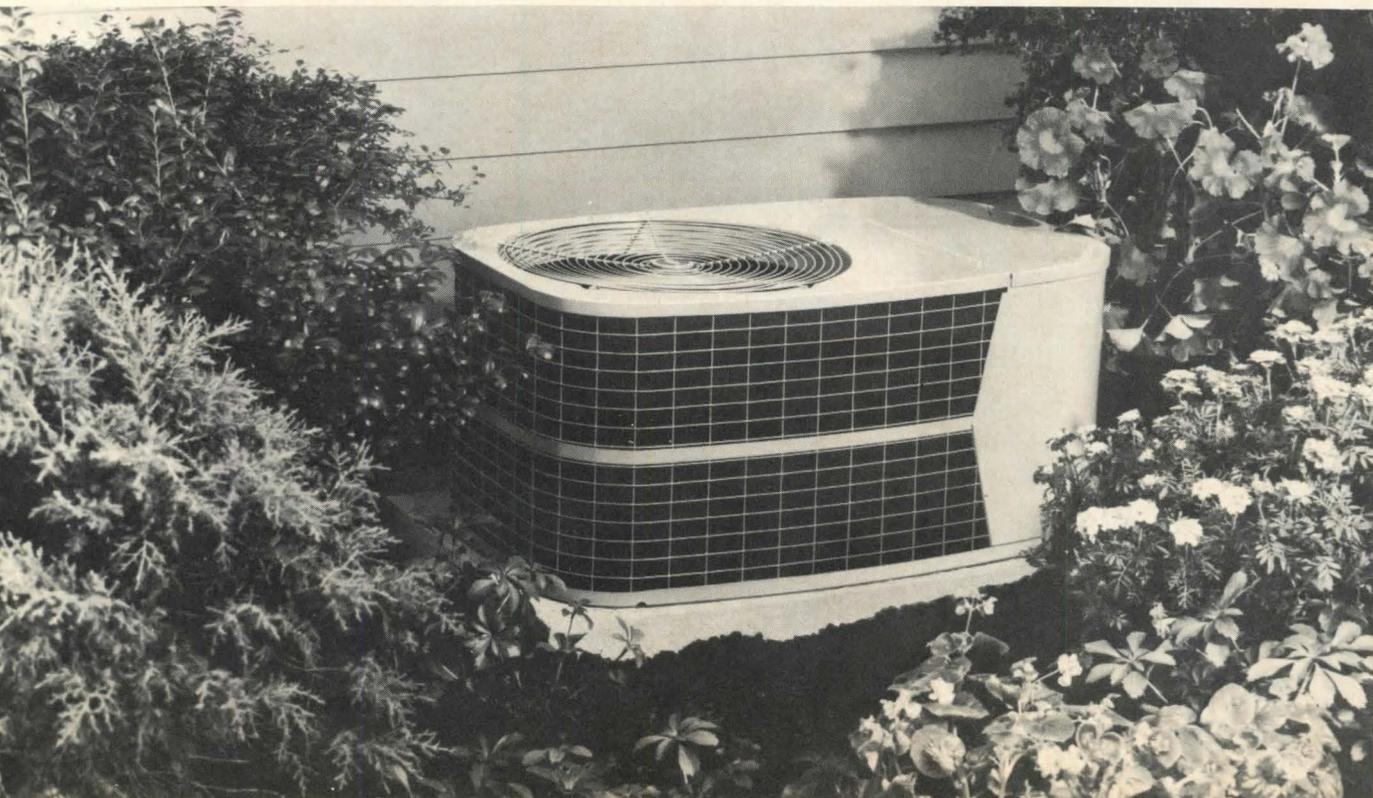


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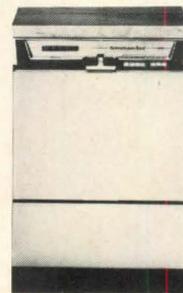
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Ben Deane (right) and Larry Deane
Deane Development Co., Newport Center, California

HUD, FHA and bureaucratic snarls

If we don't find a way to start cutting the red tape—and do it quickly—a lot of government housing programs are going to be strangled

At HOUSE & HOME's recent modular housing conference (*see p. 88*), two points were raised that concern not just modulars but all housing built under government programs.

First, it was announced that a participant in an earlier conference couldn't attend this one because his modular company was about to enter bankruptcy proceedings. One major cause of his troubles was that a local FHA clerk had put an incorrect wage figure on a form relating to one of the company's projects. By the time the error was corrected—which took several weeks—the project had been delayed beyond the company's credit limit.

Second, HUD Assistant Secretary Harold Finger told the conference that when it came to figuring cost certification for modulars versus conventional housing, the bottom-line cost should be the determining factor, rather than the many and various sub-costs that add up to the bottom line.

We submit that these two items represent, on the one hand, a chilling example of the lethal potentialities of government red tape, and on the other, the beginning of a way out.

Anyone who has worked with FHA or HUD programs knows how much wasted time, wasted money and frustration they can create. One result is that the housing itself, much of it intended for low-income families, costs far more than it should. Another is that many good builders either stay out of the programs entirely or work with them only when they have to. It's quite conceivable that government housing programs will die, not because they don't produce housing, but because builders can no longer deal with the bureaucratic mess.

Mr. Finger's comment, however, offers hope of a new direction—providing someone is willing to act on it. Briefly, the approach we favor would give the builder an absolute minimum of supervision, check his work at key points and let the bottom-line cost be the only determining factor in decid-

ing whether the project is economically feasible.

Thus, it would not matter if, say, a builder's land costs were too high for an FHA 236 project as long as other lower costs balanced things out. With proper inspection there should be no corner cutting. And the builder, freed from much of the red tape, would be able to work faster and more efficiently.

This is not a new idea, of course. It is the same basic operating method that underlies HUD turnkey programs, and generally it has worked well. Granted, it covers only the construction portion of a project. But if it will work there, it can also be made to work in other areas—in the management of finished projects, for instance—and, gradually, the mass of red tape that has accumulated over the years might begin to recede.

Undoubtedly, the loudest argument against such a procedural change would be based on the question of fraud: take away the safeguards, and builders will begin cheating all over the place.

This is nonsense. In the first place most builders don't cheat. In the second place competent inspection, not red tape, is the best guaranty against cheating. All our present bureaucratic safeguards have failed to prevent the recent 235 scandals.

It would be unrealistic not to put in a word of warning at this point: some bureaucracies simply cannot be put back in efficient working order. As Parkinson's Law points out, at a certain stage a bureaucratic organization becomes less interested in the job it was created to do than in perpetuating itself. It then becomes useless, and must eventually be set aside in favor of a new and, for the moment anyway, more vital organization.

It would take a super Parkinson to determine whether our present housing bureaucracies have reached this stage. Let's hope not; the thought of creating a new HUD or FHA is mind-boggling. Let's make what we have work, and let's get going.

MAXWELL C. HUNTOON JR.

SECOND ANNUAL MODULAR SURVEY

Profile of a sub-industry in ferment

Let's say right off the bat that modular housing is growing at a furious pace. Last year's survey showed 1970 production to be about 27,000 units; this year's survey shows that 1971 just about doubled that figure. (If we can be forgiven a moment of immodesty, that's just what we predicted would happen when we analyzed last year's survey results.)

But the manner in which that growth has taken place should make everyone with a past, present or future stake in modular housing stop and think very deeply.

The turnover has been colossal

Last year's survey, including some companies that reported

in too late to be published in our June issue, turned up 196 producing companies. This year's survey shows, to date, 274. At first blush this looks like a nice, healthy 40% growth.

But let's look a little deeper. Of those 196 companies on last year's list, only 146 are still producing modulares. About 26% are no longer in the business—a pretty brutal fallout rate.

On the other hand companies are still falling all over themselves to get into the business. There are 128 new modular producers listed on the pages that follow. That means that taking the survey as a whole, 53% of the listed companies are hold-overs from last year, and 47% are new. And it explains why we say modular housing is in a ferment.

It's too early in the game to make any in-depth analyses of the reasons for the heavy turnover, but a few general points can be made.

First, any new field of business is bound to have a high failure rate in its early stages.

Second, modular construction is easy and relatively inexpensive to get into on a small scale (as we showed in the August 1970 issue of H&H). All it takes is a large rented shed, some power tools and overhead hoists and a certain amount of guts. So a lot of people take the gamble—and lose.

Third—and most important in the long run—too few potential modular manufacturers realize that theirs is not an industry but a sub-industry.

It's hard, and getting harder, to market modulars without having control of the whole housing process, from land acquisition to final disposition. A lot of the dropouts are companies that thought buyers would be waiting for modulars when they came out the factory door. They weren't.

But production shot way up

Total production in 1971 was 52,160 units, according to the survey; that's an increase of 104% over 1970.

There was a noticeable shift in the type of production too. Single-family modulars accounted for 36,324 units in 1971, and, as was the case in 1970, they accounted for the bulk of the total. But their share of the total dropped, from 75% in 1970 to 70% in 1972, and of course the multi-family share rose correspondingly, from 25% to 30%. Thus it would seem the generally accepted theory that multi-family will eventually be the biggest portion of modular production is on its way—albeit slowly—to becoming fact.

There's another statistic that bears this out. By and large, the future of modular housing will almost certainly lie with the bigger companies—those with plants of over 50,000 sq. ft. And 90% of all multifamily modulars were built by companies in this category.

It's also interesting to analyze the role that mobile-home manufacturers are playing in the modular picture. In 1970, 25% of the modular producers were mobile manufacturers, and they produced 40% of the total modular production. In 1971 only 15% of the modular producers were mobile manufacturers (the

actual number declined from 45 to 41), and they produced only 23% of the modular total. So for the moment at least, it seems that mobile makers are becoming less interested in the modular field. (However there are mitigating factors here; they'll be covered further on when we talk about how the survey itself was made.)

Factory area is the key to modular growth

As we pointed out last year, a rough but reasonable rule of thumb is that for each 100 square feet of factory, a modular company can turn out one complete living unit per shift per year. Last year's survey showed there was about 15 million square feet of plant area available at the end of 1970; in theory this would allow production of 150,000 modular units on a one-shift basis. The fact that actual production was but a fraction of this meant that most companies were just getting their assembly lines underway.

By the end of 1971 available factory space had risen to about 20-million square feet—a 33% increase. But at the same time, production, as noted earlier, increased more than 100%. So plants are moving a little closer to their potential—although they still have a long, long way to go. Based on the rule of thumb, 200,000 units is a possibility with the plant space now in existence.

It's interesting too to look at the plant space represented by the bigger companies—those with factories of 50,000 square feet and over. They have more than 17-million square feet of the 20 million total, and thus could conceivably turn out 170,000 units—when and if they

reach full capacity. This points up the fact that the bigger companies' share of the total market—already a whopping 75%—will almost certainly get even bigger.

The 1972 estimates: Another big jump

Not all companies who responded to the survey were willing to go on the record for the current year. But most of them did, and their estimates total just over 117,000 units.

This is almost certainly overly optimistic. Last year the estimate was 80,000, and actual production fell 38% short of that.

It's tempting to take that same proportion of 117,000 and predict that 1972 production will hit about 75,000. But there's reason to believe that the figure will go higher. For one thing the estimates are in a more reasonable range than they were last year; instead of predicting a 300% increase, they predict only a 135% increase. Also, a lot of the bigger plants have now begun to shake out the bugs; with any luck and good management, they should start showing some impressive numbers.

So the guess here is that 1972 could see 90,000 modulars come out of the factory doors.

A few words about the survey

We sent out questionnaires to 810 companies that we thought might be in the modular business; as far as we can determine, 274 are. Several companies refused to divulge some or all of the statistics we asked for. In such cases either a dash has been put in the appropriate col-

umns, or the note "1970 data" has been put next to the company's name. This data includes no production figures, but does include such things as number of plants and plant area as reported in 1970.

We found it more difficult to collect data this year, chiefly because there were more firms to trace—some of them by telephone if they didn't return their survey forms.

Another problem was that the line between what mobile home companies call modulars and what actually are modulars is getting fuzzier than ever. Our definition is that a modular must meet FHA specs and typical local building codes, and this was often an almost impossible distinction for the mobile manufacturer to draw. Some of his double-wides, for example, use 2x4 studs, but fall short on other specifications. We have insisted on our original definition, but we have no way of knowing exactly how many mobile manufacturers followed suit.

Obviously, in any business with the turnover that modular housing has experienced, there are day-to-day variations. Between the time the survey was completed and its publication, several companies may have come into the field, and several others gone out.

Finally, a few questionnaires were received too late to go into this issue. Our apologies are extended to those companies.

To any modular firms that don't appear in the next twelve pages and who haven't sent in a late questionnaire, we cordially issue an invitation to write and let us know of their existence. We'll be more than happy to include them in next year's survey.

State	Company	Parent company	Publicly held company?		Types of housing produced			
			Yes	No	Mobile	Single-fam. modular	Multifam. modular	Non-residential modular
Companies with plants of 50,000 sq. ft. or more								
S.C.	AABCO Industries 1970 data		✓		✓	✓		
Mich.	Active Homes Corp.	Active Tool & Mfg. Co.		✓		✓	✓	✓
Ga.	Adrian Housing Corp.			✓		✓		
Can.	Alcan Design Homes Ltd.	Aluminum Company of Canada		✓		✓		
Ind.	American Fidelity Corp.			✓	✓	✓	✓	✓
Cal.	American Homes Industries Corp.		✓			✓	✓	✓
N.C.	Americana Homes of N.C. Inc.	Hodgson Houses Inc.	✓		✓	✓		
Ala.	American Industrialized Dwellings Co.			✓			✓	✓
Ala.	American Modular Homes Corp.	Hoover Ball & Bearing Co.	✓			✓		
Pa.	American Modular Homes Inc.	Hodgson Houses Inc.	✓		✓	✓		
Ill.	Anvan Corp.			✓			✓	✓
Conn.	Arbor Modules (in bankruptcy proceedings)			✓		✓	✓	
Okla.	Atkinson Industries, Inc.	W. P. Bill Atkinson Entprs.	✓			✓		
Pa.	Atlas Homes Corp.			✓	✓	✓		
Fla.	Behring Corp.		✓			✓		
Ore.	Bohemia Lumber Co., Inc.		✓			✓		✓
Idaho	Boise Cascade		✓			✓	✓	✓
Cal.	Building Block Investment Group			✓			✓	
Ala.	Builders Homes, Inc.	Wm. Lyon Development Co.	✓			✓		
Mich.	Buc Kin Homes, Corp.			✓		✓		
Ohio	Cardinal Industries			✓			✓	
Colo.	Century Modular Homes Inc.			✓	✓	✓	✓	✓
Mo.	Clark Bilt Homes, Inc.	Clark Mfg. Co.		✓		✓		
Cal.	Christiana Western Structures	The Christiana Companies, Inc.	✓			✓	✓	
Mont.	C&M Homes			✓		✓	✓	✓
Md.	Coastal Mobile & Modular Corp.	Kirk Corp.	✓			✓		✓
N.C.	Conner Homes Corp.		✓			✓		
Fla.	Contemporary Bldg. Systems, Inc.	Florida Gas, Inc.	✓			✓		
Ind.	Continental Homes Div.	Weil-McLain Co., Inc.	✓			✓	✓	✓
Ill.	Creative Buildings, Inc.			✓		✓	✓	✓
Conn.	Crown Bldg. Systems, Inc.			✓		✓	✓	
Pa.	Cubex Corporation	Matthews-Phillips, Inc.		✓		✓	✓	
Cal.	Custom House Buildings, Inc.			✓		✓	✓	✓
Fla.	Deltona Corp.		✓			✓		
Mich.	Deluxe Homes, Inc.	Fleetwood Enterprises, Inc.	✓		✓	✓	✓	
Pa.	Designaire Modular Home Corp.			✓		✓	✓	
Wis.	Design Homes, Inc.			✓	✓	✓	✓	

1971 modular production					Field erection provided		% in government subsidy		Factory data			Est. 1972 production
Single-fam.	Multifam.	Total	% of production built in own projects	% of production sold to builders or consumers	Yes	No	1971	1972	No. of plants	Location	Total plant area (sq. ft.)	
—	—	—	—	—	—	—	—	—	(2)	(S.C.)	(140,000)	—
300		300	30	70		✓	35	55	1	Mich.	260,000	800
400		400	50	50	✓		60	60	1	Ga.	100,000	450
1,175		1,175	80	20	✓		0	20	2	Ontario, Hawaii	249,000	1,800
9	6	15	40	60		✓	0	0	1	Ind.	110,000	112
350	100	450	60	40	✓		60	60	4	Cal.	—	750
75		75		100		✓	0	0	3	N.C., Pa., Mass.	187,000	150
—	—	—	—	—	✓		0	0	1	Ala.	50,000	—
300		300		100	✓		25	25	1	Ala.	56,000	—
300		300		100	✓		0	0	1	Pa.	90,000	700
	140	140	90	10	✓		0	70	1	Ill.	125,000	500
—	—	—	—	—	—	—	—	—				—
160		160	100		—	—	90	100	1	Okla.	60,000	750
—	—	—		100	—	—	0	0	2	Pa.	130,000	—
—	—	—	—	—	✓		—	—	1	Fla.	330,000	—
87		87	10	90	✓		0	20	1	Ore.	50,000	300
1,229	140	1,369		100	✓		37	28	7	Idaho, Utah, Ga., Ala., Ohio	330,000	2,535
—	20	20	100		—	—	0	0	1	Cal.	100,000	300
160		160	85	15	✓		80	65	1	Ala.	120,000	1,000
400	—	400		100	✓		0	0	2	Mich.	59,000	600
—	400	400	15	85		✓	15	25	1	Ohio	85,000	1,000
620	96	716		100		✓	0	0	1	Colo.	120,000	950
100	—	100		100	✓		15	25	1	Mo.	60,000	125
50	350	400	100		—	—	100	100	1	Cal.	86,000	1,100
200	8	208	10	90	✓		30	40	3	Mont.	65,000	320
62	—	62		100	✓		0	0	1	Md.	97,000	240
100	—	100		100	✓		0	0	1	Ga.	50,000	200
110	—	110		100	✓		60	—	1	Fla.	120,000	—
1,090	38	1,128		100	✓		40	40	3	N.H., Va., Mo.	350,000	550
100	1,000	1,100	90	10	✓		100	90	1	Ill.	52,000	1,300
75	2	77		100	✓		1	0	1	Conn.	56,000	250
126	92	218	40	60	✓		65	80	1	Pa.	90,000	550
125		125		100	✓		100	100	1	Cal.	250,000	400
250		250	50	50	✓		0	0	2	Fla.	170,000	850
360	140	500	25	75		✓	7	7	2	Pa., Mich.	193,000	—
82	4	86		100		✓	70	80	1	Pa.	50,000	600
210	8	218		100	✓		30	30	2	Wis., Iowa	50,000	370

State	Company	Parent company	Publicly held company?		Types of housing produced			
			Yes	No	Mobile	Single-fam. modular	Multifam. modular	Non-residential modular
Ohio	Thomas J. Dillon & Co.	Forest City Enterprises, Inc.	✓				✓	
Fla.	D & M Modular Homes Co.	Florida D & M Co.	✓			✓		
Mich.	D.M.H. Company	Nat'l Gypsum Co.	✓		✓	✓		
Cal.	Dukor Modular Systems	Penn-Tech Corp.	✓			✓	✓	
Ga.	Dynamic Industries, Inc.		✓			✓		
Mass.	Elite Module Systems, Inc.			✓			✓	
Cal.	Environmental Communities		✓		✓	✓		
Mont.	Environmental Development Corp.			✓		✓	✓	✓
Wisc.	Marshall Erdman & Assocs., Inc.			✓		✓	✓	✓
Fla.	Everglades	J.D. Manley Construction Co.		✓		✓	✓	✓
Mich.	Fruehauf Buildings	Fruehauf Corp.	✓				✓	
Pa.	General Electric (R & E Systems)		✓			✓	✓	
N.Y.	General Shelter Corp.		✓				✓	✓
Md.	Gibraltar Industries, Inc.			✓		✓		
N.Y.	Grumman Modular Buildings	Grumman Corp.	✓				✓	✓
Ky.	Guerden Industries		✓		✓	✓	✓	✓
Ga.	Gulf-Atlantic Modular Homes, Inc.	International Modular Industries, Inc.	✓			✓	✓	
Cal.	Hallamore Homes		✓			✓	✓	✓
Pa.	Hanley Consolidated, Inc.		✓			✓	✓	✓
Pa.	Hanover Modular Homes of Pa., Inc.			✓		✓	✓	✓
Tex.	Hanover Modular Homes 1970 data	International Shelters, Inc.	✓			✓	✓	
Pa.	Hauser Homes, Inc.	Poloron Products, Inc.	✓		✓	✓		
Del.	Hercoform, Inc.	Hercules, Inc.	✓				✓	
N.Y.	Hodgson Houses, Inc.		✓		✓	✓		
Tenn.	Holiday Mfg. Co.	Holiday Inns, Inc.	✓			✓		
Mo.	Home Building Corp.			✓		✓	✓	
Ind.	Indiana Uniment	Stressed Structures, Inc.		✓			✓	✓
Ohio	Inland Scholz 1970 data	Inland Steel Co.	✓		✓	✓	✓	
Ohio	Inland Systems, Inc.		✓			✓	✓	
Utah	Interstate Homes, Inc.			✓		✓	✓	✓
Ohio	Jal-Donn Modular Bldg., Inc.	Jones & Laughlin Steel	✓				✓	
Wis.	Kenwood Homes, Inc.			✓	✓	✓		✓
Ohio	Kit Mfg. Co.		✓			✓		
Ind.	LCA Modular Enterprises, Inc.			✓	✓	✓	✓	✓
Cal.	Lear Siegler, Inc.		✓			✓	✓	✓
Mich.	Levitt Bldg. Systems, Inc.	ITT Levitt & Sons, Inc.	✓				✓	
Cal.	Matisohn Modulares 1970 data			✓		✓		
Pa.	McCann Homes Inc.			✓		✓	✓	✓
Wash.	McGrath Corp.		✓			✓	✓	✓

1971 modular production					Field erection provided		% in government subsidy		Factory data			Est. 1972 production
Single-fam.	Multifam.	Total	% of production built in own projects	% of production sold to builders or consumers	Yes	No	1971	1972	No. of plants	Location	Total plant area (sq. ft.)	
	250	250	25	75	✓		50	75	2	Ohio	66,000	4,500
150		150	80	20	✓		0	0	1	Fla.	52,000	200
1,800		1,800		100		✓	0	0	6	Mich., Pa., Kans., Cal., Ga.	550,000	2,000
50	200	250	90	10	✓		50	60	1	Cal.	180,000	1,000
0		0		100	✓		0	10	1	Ga.	87,000	700
	267	267	25	75	✓		0	50	2	Mass.	87,900	1,500
30		30	50	50	✓		—	20	1	Cal.	100,000	360
9	174	183	50	50	✓		40	20	2	Mont., N.D.	89,000	661
7	6	13	50	50			0	0	1	Wisc.	200,000	107
150	—	150	5	95	✓		75	60	1	Fla.	65,000	330
	100	100	50	50	✓		0	0	2	Mich.	400,000	300
	248	248		100	✓		20	50	2	Pa., Cal.	130,000	2,000
0		0		100	✓		—	0	1	N.Y.	75,000	200
320		320		100	✓		0	0	1	Md.	125,000	450
0	0	0		100	✓		0	0	1	Pa.	50,000	100
374	700	1,074		100		✓	70	70	33		1,650,000	—
57		57	60	40	✓		40	50	1	Ga.	50,600	576
—	—	—		100		✓	0	0	3	Cal., Fla., Colo.	273,500	760
210	50	260	5	95	✓		0	30	2	Tenn., Pa.	90,000	425
41	56	97	20	80		✓	55	50	1	Pa.	70,000	600
—	—	—	—	—	✓		—	—	(13)		(500,000)	—
427		427		100		✓	70	70	1	Pa.	100,000	1,500
	380	380	75	25	✓		—	—	1	Pa.	80,000	800
1,500		1,500		100	✓		0	15	4	Pa., N.C., Mass.	255,000	2,500
92		92	95	5	✓		100	—	1	Ark.	85,000	—
98	105	203		100		✓	98	99.5	1	Mo.	68,000	660
	150	150	80	20	✓		80	60	1	Ind.	75,000	500
—	—	—	—	—		✓	—	—	(1)	(Mich.)	(60,000)	—
612	30	642		100	✓		80	90	3	Ohio, Ky., Fla.	175,000	886
300		300		100	✓		50	50	2	Utah	50,000	400
	100	100		100	✓		20	40	1	Ohio	80,000	500
500		500		100		✓	0	0	1	Wis.	68,000	550
350		350		100		✓	50	—	1	Ohio	70,000	500
600		600		100	✓		—	—	3	Iowa, Wis., Ind.	170,000	1,000
34	342	376	97	3	✓		0	0	4	Hawaii, Iowa, Cal.	277,000	935
	332	332	32	68	✓		33	40	1	Mich.	140,000	1,385
—	—	—	—	—	✓		—	—	(1)	(Cal.)	(100,000)	—
—	—	—		100	✓		0	0	3	Pa., Va., N.Y.	—	—
187	150	337	80	20	✓		99	99	1	Wash.	140,000	650

State	Company	Parent company	Publicly held company?		Types of housing produced			
			Yes	No	Mobile	Single-fam. modular	Multifam. modular	Non-residential modular
Ohio	Midland Co.		✓		✓	✓		
Ohio	Modulage Homes	Albee Homes, Inc.	✓			✓	✓	✓
Mass.	Modular Constructors, Inc.			✓			✓	✓
Wash.	Modular Housing Industries			✓		✓	✓	✓
Pa.	Modular Housing Systems, Inc.		✓				✓	
Fla.	Modular Industries, Inc.		✓			✓		
Minn.	Modular Structures, Inc.	Countryside General, Inc.	✓			✓		✓
Colo.	Multiport, Inc.			✓		✓	✓	✓
Can.	Muttart Industries, Ltd.			✓	✓	✓		✓
Ind.	National Homes Corp.		✓		✓	✓	✓	
Ala.	National Structures, Inc.			✓		✓	✓	
Va.	Nationwide Homes, Inc.		✓			✓	✓	
Tex.	N.B.C. of Texas, Inc.	Lone Star Industries, Inc.	✓			✓	✓	✓
N.H.	New England Homes, Inc.			✓		✓	✓	
Cal.	North American Bldg. Technology, Inc.			✓		✓	✓	
Md.	North American Housing Corp.			✓		✓	✓	✓
Tex.	Otis International, Inc.			✓		✓	✓	✓
Mo.	Ozark Homes			✓	✓	✓	✓	
Minn.	Pemtom, Inc.			✓	✓	✓	✓	
Fla.	Perry Building Systems, Inc.			✓			✓	
Tex.	Precision Structures, Inc.			✓		✓	✓	✓
Mich.	Prestige Structures, Inc.	Alco Universal, Inc.		✓		✓		
Tex.	Redman Industries, Inc., Modular Div.	Redman Industries, Inc.	✓			✓	✓	
N.Y.	Roblin Homes, Inc.	Roblin Industries	✓				✓	
Tenn.	Rockwood Modular Industries			✓		✓		
Mich.	Roycraft Industries, Inc.			✓		✓		
S.D.	Rushmore Homes	Clary Corp.	✓		✓	✓		✓
Iowa	Sandler Bilt Homes	U.S. Homes, Inc.	✓			✓		
Kans.	Savina Home Industries, Inc.			✓		✓	✓	✓
Fla.	Scotty's Homes, Inc.	Scotty's Home Builders Supply, Inc.	✓			✓	✓	
Tex.	Service Technology Corp.	L.T.V. Aerospace	✓				✓	
Minn.	Shelter Homes Corp.	Shelter Corp. of Amer.	✓			✓	✓	
Pa.	Shelter Modular Corp.	Shelter Resources Corp.	✓			✓	✓	✓
Cal.	Speed Space Corp.	Potlatch Forest, Inc.		✓		✓	✓	✓
Wash.	St. Regis Paper Co.		✓			✓	✓	✓
N.Y.	Starret Modular Construction	Starret Bros. & Eken	✓				✓	
Mich.	Stiles-Hatton, Inc.			✓			✓	
N.Y.	Stirling Homex Corp.		✓				✓	
Ind.	Stylemaster Mfg. Corp.			✓		✓	✓	

1971 modular production					Field erection provided		% in government subsidy		Factory data			Est. 1972 production
Single-fam.	Multifam.	Total	% of production built in own projects	% of production sold to builders or consumers	Yes	No	1971	1972	No. of plants	Location	Total plant area (sq. ft.)	
500		500		100		✓	0	0	2	Va., Ga.	366,000	1,000
200	300	500	20	80	✓		50	50	1	Ohio	72,000	900
	24	24	100		—	—	0	—	1	Mass.	102,000	100
9	—	9	5	95	✓		14	0	1	Wash.	50,000	34
	1,012	1,012	90	10	✓		25	10	2	Pa.	140,000	1,700
—	—	—		100	✓		—	60	1	Fla.	58,000	300
70		70		100	✓		0	1	1	Minn.	77,000	750
0	0	0	40	60	✓		0	10	1	Colo.	130,000	400
160		160		100		✓	0	0	3	Canada	270,000	300
550	100	650	50	50		✓	20	45	1	Ind.	220,000	1,325
200	50	250		100	✓		90	90	1	Ala.	64,000	750
475	50	525	5	95	✓		0	0	2	Va.	150,000	900
150	10	160	25	75	—	—	40	60	4	Tex., Okla.	80,000	640
192	10	202		100	✓		20	20	1	Maine	52,000	320
125	75	200	25	75	✓		80	70	2	Cal.	54,000	725
150		150		100	✓		0	0	1	Md.	64,000	300
—	—	—	5	95	✓		85	90	2	La., Tex.	125,000	350
18	8	26	25	75	✓		0	0	1	Mo.	525,000	300
10	5	15		100		✓	85	60	1	Minn.	52,000	150
	2	2		100	✓		0	25	1	Fla.	120,000	400
80		80	50	50	✓		90	30	1	Tex.	50,000	300
166		166	50	50		✓	95	98	1	Mich.	110,000	400
0	0	0	—	—		✓	0	0	1	Tex.	60,000	650
	0	0	100		—	—	—	100	1	N.Y.	230,000	600
20		20		100	✓		75	75	1	Tenn.	60,000	150
406		406		100		✓	60	65	1	Mich.	68,000	500
100		100		100		✓	0	0	1	S.D.	65,000	155
140		140	100		✓		0	20	1	Iowa	55,000	175
37		37		100	✓		60	60	1	Kans.	70,000	152
110	2	112		100	✓		75	75	1	Fla.	80,000	200
75		75		100		✓	0	0	1	Va.	78,000	610
27	188	215	75	25	✓		0	10	1	Minn.	61,000	410
550	50	600		100	✓		20	20	3	Pa., Ala.	225,000	1,650
80	2	82		100	✓		0	0	3	Pa., Cal., Ind.	342,000	310
120	60	180		100		✓	0	—	1	Wash.	100,000	280
	500	500	100		—	—	50	75	2	Pa., N.Y.	225,000	—
	620	620	90	10	✓		100	80	1	Mich.	50,000	900
	3,507	3,507	—	—	—	—	75	50	3	Miss., N.Y.	298,000	5,500
90		90	30	70	✓		0	0	2	Ind., Minn.	60,000	300

State	Company	Parent company	Publicly held company?		Types of housing produced			
			Yes	No	Mobile	Single-fam. modular	Multifam. modular	Non-residential modular
N.Y.	Stylex Homes, Inc.		✓			✓	✓	✓
Ind.	Suburban Homes Corp.			✓		✓	✓	
N.C.	Summey Building Supply, Inc.	Wix Corp.		✓		✓		
Ariz.	S.W. Forest Homes	S.W. Forest Industries, Inc.	✓		✓	✓		✓
Pa.	Swift Industries, Inc.		✓		✓	✓	✓	✓
N.C.	Taylor Homes			✓	✓	✓		
Ind.	Tek Homes			✓		✓	✓	✓
Ore.	Timber Structures, Inc.			✓		✓	✓	
Tex.	Town & Country Mobile Homes, Inc.		✓		✓	✓		
Mich.	Travelo Homes Corp.			✓		✓		
Tenn.	Tuftco Homes, Inc.	Tuftco Corp.	✓			✓		
Pa.	UGI Corp.		✓			✓	✓	✓
Ky.	UNEX Building Systems			✓			✓	✓
Va.	Unitized Systems Co., Inc.	Universal Leaf Tobacco Co.	✓		✓	✓	✓	✓
Cal.	U.S. Financial Mfd. Housing Group	U.S. Financial	✓		✓	✓	✓	✓
Pa.	Valley Forge Corp.		✓			✓		
Ohio	Vindale Corp. 1970 data		✓			✓		
Kans.	Volks Homes, Inc.			✓		✓	✓	
Nebr.	Westland Modular Home Co.			✓	✓	✓		
N.H.	Westville Homes Corp.	Amoskeag		✓		✓	✓	
Mich.	The Wickes Corp.		✓		✓	✓	✓	✓
Fla.	Zimmer Homes Corp.		✓		✓	✓	✓	
Companies with plants of 25,000 to 50,000 sq. ft.								
Mo.	American Eagle Homes, Inc.	Tamko Asphalt Products, Inc.		✓		✓		✓
N.Y.	American Modular Home Corp.	Poloron Products, Inc.	-	-		✓		
Ohio	Amotek Inc.			✓		✓	✓	
N.Y.	Architectural Specialities, Inc.			✓		✓		
Tex.	Atlas-Portable Building Co.			✓	✓	✓	✓	✓
N.H.	Avco Modular Homes	Avco Systems Div.	✓			✓		
Va.	Better Living, Inc.			✓		✓		
Ga.	Bradley Homes Div.			✓		✓		
Tex.	Building Systems, Inc.			✓		✓	✓	✓
Va.	Building Systems, Inc.	O'Neill Enterprise, Inc.		✓		✓	✓	✓
Mich.	Carpentry Engineering, Inc.	Haggerty Lbr., Co.		✓		✓		
Tex.	Cary-Way Portable Bldgs.			✓		✓		✓
Mo.	Century Industries, Inc.			✓		✓		
S.C.	Chateau Homes, Inc.	Southeastern Modular Industries	✓			✓		
Ky.	Coleman Homes			✓		✓		✓

1971 modular production					Field erection provided		% in government subsidy		Factory data			Est. 1972 production
Single-fam.	Multifam.	Total	% of production built in own projects	% of production sold to builders or consumers	Yes	No	1971	1972	No. of plants	Location	Total plant area (sq. ft.)	
287	41	328		100	✓		2.7	5	2	N.Y., Pa.	172,000	575
300	12	312		100	✓		95	95	1	Ind.	50,000	500
240		240		100	—	—	75	75	1	N.C.	40,000	300
200		200	25	75		✓	0	0	1	Ariz.	123,000	700
200	400	600	20	80	✓		50	50	2	Pa.	260,000	1,150
200		200		100		✓	0	50	2	N.C.	113,000	500
—	—	300	—	—	✓		0	0	1	Ind.	50,000	400
15		15		100	✓		0	0	1	Cal.	60,000	450
93		93		100		✓	90	90	2	S.C., Miss.	171,400	—
650		650		100	✓		10	15	2	Mich., Tex.	96,000	900
90		90	30	70	✓		90	80	1	Tenn.	56,000	150
650	100	750	20	80	✓		25	25	2	Pa., N.Y.	325,000	2,000
	32	32		100	✓		0	40	1	Ky.	80,000	500
300	175	475	25	75	✓		15	15	1	Va.	150,000	700
81	56	137	50	50	✓		0	10	3	Cal.	181,000	450
80		80	20	80		✓	0	0	3	Ala., Mo., N.C.	198,000	200
—	—	—	—	—		✓	—	—	(3)	(Fla., Ohio, Okla.)	(275,000)	—
40	10	50	10	90	✓		0	0	1	Kans.	145,000	450
185		185		100	✓		0	0	1	Nebr.	60,000	350
250	115	365	50	50	✓		55	60	1	N.H.	80,000	590
560	366	926	5	95		✓	5	10	3	Pa., Mich., Can.	325,000	1,550
—	—	—	5	95	✓		—	—	9	Fla., Ind., Pa., Kans., Ga.	630,000	—
—	—	—		100	✓		15	15	1	Mo.	30,000	—
174		174		100	✓		70	75	1	N.Y.	30,000	400
	175	175	75	25	✓		0	30	1	Ohio	35,000	500
150		150		100	✓		0	0	1	N.Y.	30,000	250
50		50	—	—	✓		0	—	1	Tex.	40,000	100
260		260		100	✓		5	5	1	N.H.	32,000	300
31	0	31	100		—	—	20	20	1	Va.	30,000	75
44		44		100	✓		6	40	1	Ga.	44,000	271
75		75	—	—	✓		0	0	1	Tex.	25,000	150
—	130	130	30	70	✓		0	10	1	Va.	32,000	1,180
125		125		100		✓	0	0	1	Mich.	44,000	300
25		25		100	✓		0	0	1	Tex.	30,000	55
50		50		100	✓		80	70	1	Mo.	40,000	120
178		178	20	80	✓		95	30	1	S.C.	48,780	1,592
60		60	75	25	✓		15	20	1	Ky.	36,700	100

State	Company	Parent company	Publicly held company?		Types of housing produced			
			Yes	No	Mobile	Single-fam. modular	Multifam. modular	Non-residential modular
Ohio	Community Homes, Inc.		✓		✓	✓		✓
Cal.	Community Technology Corp.	TRW, Inc.	✓			✓	✓	
Iowa	Component Homes, Inc.			✓		✓		
Colo.	Continental Mfg. Co.	MSI Industries, Inc.		✓		✓	✓	✓
N.Y.	Craftmark Homes, Inc.			✓		✓		
Fla.	Cypress Homes Div. Inland Systems	Inland Systems, Inc.	✓			✓	✓	
Wisc.	Dadco Modular, Inc.	Dadco Diversified	-	-		✓	✓	✓
Md.	Delmarva Modular Housing Corp.			✓		✓		
Mich.	Domino Homes, Inc.	Hessee Industries		✓			✓	
Minn.	Dynamic Homes, Inc.		✓			✓	✓	
N.J.	Educational Industrial Facilities, Inc.		✓			✓		
N.Y.	Erie Module Corp.			✓		✓	✓	✓
Mass.	Fontain Modular Structures	Lifestyle Companies	✓				✓	
Wisc.	Four Seasons Structures, Inc.	N.E. Isaacson Assocs.		✓		✓		✓
La.	Gain, Inc.			✓		✓	✓	
Nebr.	Geer, Co.	Swett Homes Inc.		✓	✓	✓		
Ind.	Globe Industries		✓			✓		
Mich.	Hamill Homes, Inc.			✓		✓		
Mich.	Happy Homes, Inc.			✓		✓	✓	
Ind.	Heckaman Industries, Inc.			✓		✓	✓	✓
Minn.	Hellwood Corp.			✓		✓		
N.D.	Highland Homes, Inc.	Robertson Cos., Inc.	✓			✓		
Pa.	Homes by Keystone, Inc.			✓		✓		
Wisc.	House of Merrill, Inc.	Semling Menke, Co.	✓			✓	✓	
Tex.	Industrial Laminates Corp.			✓		✓		
Ind.	Insta-Housing, Inc.			✓		✓	✓	
N.Y.	Intermodulex MDH Corp.		✓			✓	✓	
Utah	Intermountain Precision-Bilt Homes, Inc.			✓		✓	✓	
Fla.	Interstate Structures, Inc.	Stump Corp.		✓		✓		✓
HI	Kal Hawaiian Homes			✓		✓		
Iowa	Kalonial Industries, Inc.			✓	✓	✓	✓	✓
Ky.	Kentucky Construction			✓		✓	✓	
Ala.	Lakeshore Homes, Inc.			✓		✓		
Ohio	Lakewood, Inc.			✓		✓	✓	
Tenn.	Lenoir Inds., Inc.			✓		✓	✓	✓
Can.	L'Islet Industries, Inc.		✓		✓	✓		✓
Ind.	Manufactured Homes, Inc.			✓	✓	✓	✓	
N.Y.	Merrol Industries, Inc.			✓		✓	✓	
Wisc.	Mill-Craft Housing Corp.			✓		✓		

1971 modular production					Field erection provided		% in government subsidy		Factory data			Est. 1972 production
Single-fam.	Multifam.	Total	% of production built in own projects	% of production sold to builders or consumers	Yes	No	1971	1972	No. of plants	Location	Total plant area (sq. ft.)	
107		107	75	25		✓	0	0	1	Ohio	48,000	200
6	14	20	40	60		✓	100	75	1	Cal.	30,000	400
5		5		100		✓	0	0	1	Iowa	37,000	85
175	25	200	10	90	✓		35	40	1	Colo.	45,000	380
40	—	40		100	✓		80	80	2	N.Y.	26,000	382
210	30	240	20	80	✓		50	60	1	Fla.	30,000	450
100	50	150		100	✓		0	50	1	Wisc.	28,000	400
0	0	0		100	✓		0	—	1	Md.	35,000	180
	202	202	100		—	—	80	25	1	Ind.	31,000	700
90	5	95		100	✓		0	0	1	Minn.	35,000	220
35		35	100	—	—	—	100	100	1	N.J.	34,000	100
2	8	10		100	✓		0	25	1	N.Y.	42,000	196
	275	275	20	80	✓		50	80	1	Mass.	40,000	400
40		40		100	✓		0	0	1	Wisc.	30,000	150
130		130		100	✓		90	90	1	La.	30,000	380
60		60		100		✓	0	0	1	Nebr.	40,000	100
15		15		100		✓	0	20	1	Ind.	37,000	200
110		110		100		✓	85	85	1	Mich.	25,760	250
—	—	—	40	60	✓		60	75	2	Mich.	43,000	—
200	20	220		100	✓		30	50	1	Ind.	36,960	310
40		40		100	✓		0	50	1	Minn.	30,000	150
35		35		100	✓		60	60	1	N.D.	28,000	90
130		130		100	✓		0	0	1	Pa.	26,250	250
140	35	175		100	✓		10	—	1	Wisc.	47,400	225
5		5	25	75	✓		0	25	1	Tex.	25,000	70
120	2	122	5	95	✓		0	0	1	Ind.	30,600	220
80	40	120	25	75	✓		60	40	1	Tenn.	40,000	650
31	4	35		100	✓		0	10	1	Utah	25,000	150
115		115	40	60	✓		98	80	1	S.C.	47,500	350
114		114		100	✓		3	5	1	Hawaii	32,000	340
—	—	—		100	—	—	0	10	1	Iowa	25,000	175
100	20	120	75	25	✓		85	75	1	Ky.	35,000	300
150		150	5	95	✓		90	75	1	Ala.	27,000	250
16		16	90	10	✓		0	0	1	Ohio	33,000	131
	6	6		100	✓		0	0	1	Tenn.	40,000	400
115		115		100	✓		5	10	1	Canada	48,000	250
110	15	125		100		✓	0	15	1	Ind.	40,000	275
80	—	80	80	20	✓		0	15	1	N.Y.	30,000	350
120		120		100	✓		20	20	1	Wisc.	33,600	300

State	Company	Parent company	Publicly held company?		Types of housing produced			
			Yes	No	Mobile	Single-fam. modular	Multifam. modular	Non-residential modular
Pa.	Mobile Modular Ind., Inc.			✓		✓		
Iowa	Modcomp Homes, Inc.	Spahn & Rose Lbr. Co.		✓		✓		
Del.	Modular Systems Dynamics, Inc.			✓		✓		
Ohio	Modular Systems, Inc.	Weakly Mfg. Co.		✓		✓	✓	✓
Ga.	Mullins Homes, Inc.			✓		✓		✓
Miss.	National Modular Co.	Ceco Corp.	✓			✓	✓	
Cal.	Pacific Home Industries		✓		✓	✓		
Fla.	Panama Modular, Inc.			✓		✓	✓	✓
Wash.	Person & Person Homes			✓		✓	✓	✓
Conn.	Polyarch Housing Systems	Rudkin-Wiley Corp.		✓		✓		
Pa.	Post Coach, Inc.			✓		✓		✓
Cal.	Princess Park Estates			✓		✓		
Wash.	The Quadrant Corp.	Weyerhaeuser Co.	✓			✓		
Ill.	Reasor Corp.			✓		✓	✓	
Idaho	Regal Mfg. Co.	Idaho Investment Corp.	✓			✓	✓	
Mich.	Squire Homes, Inc.	Wolverine Industries	✓		✓	✓		
Mo.	Thrift Homes Corp.			✓		✓	✓	
N.C.	Transamerica Homes Co.	Transamerica Corp.	✓			✓		
Mich.	Tri-Par Div.	Nat'l. Mobile Development Co.	✓			✓		
Ill.	United Module, Inc.			✓		✓	✓	✓
Tenn.	Universal Modular Industries			✓		✓	✓	
Cal.	U.S. Factory Built, Inc.	U.S. Affiliates, Inc.		✓		✓		
Ariz.	U.S. Modules, Inc.		-	-		✓	✓	
Pa.	U.S. Systems Corp.	Universal Shelter Corp.		✓		✓	✓	✓
Ind.	Village Square by Delta Homes Corp.	Sheller Globe Corp.	✓			✓		
Ga.	Welbilt Homes, Inc.			✓		✓		
Wisc.	Wisconsin Homes, Inc.	RolloHome Corp.		✓	✓	✓		✓
Tex.	W.M.W. Corp.			✓		✓		
Companies with plants of 10,000 to 25,000 sq. ft.								
Colo.	Allen Building Systems			✓		✓	✓	
Colo.	Allied Builders Corp. 1970 data		✓			✓	✓	
Ind.	Burco, Inc.			✓		✓		
Tex.	Camelot Homes, Inc.			✓	✓	✓		✓
Iowa	Cardinal-Craft, Inc.			✓	✓	✓		
Fla.	Davenport Homes Corp.			✓		✓		
Mass.	Diamond International Corp.		✓			✓		
Mich.	Dickinson Homes, Inc.			✓		✓		
Fla.	Dyna-Flex Modular Homes			✓		✓		✓

1971 modular production					Field erection provided		% in government subsidy		Factory data			Est. 1972 production
Single-fam.	Multifam.	Total	% of production built in own projects	% of production sold to builders or consumers	Yes	No	1971	1972	No. of plants	Location	Total plant area (sq. ft.)	
165		165		100		✓	0	0	1	Pa.	26,000	220
32		32		100	✓		30	30	1	Iowa	30,900	100
50		50	100		—	—	100	75	1	Del.	40,000	175
100	6	106	20	80	✓		70	70	1	Ohio	30,000	200
240		240	25	75	✓		75	75	1	Ga.	30,000	250
25	60	85		100	✓		80	80	1	Miss.	40,000	175
30		30		100		✓	0	0	1	Cal.	36,000	300
4	108	112	30	70	✓		90	20	1	Fla.	25,000	250
5	4	9		100	✓		0	0	1	Wash.	25,000	200
2		2		100	✓		0	0	2	Conn., Pa.	45,000	200
65		65		100	✓		0	25	1	Pa.	30,000	120
850		850	90	10	✓		0	0	1	Cal.	30,000	1,100
0	0	0	50	50	✓		—	35	1	Okla.	44,000	500
128	36	164		100	✓		30	25	1	Ill.	37,800	400
32	30	62	100		—	—	60	70	1	Idaho	28,000	156
4		4		100		✓	0	—	1	Mich.	32,000	40
350	100	450		100	✓		0	—	1	Mo.	30,000	550
—	—	—		100	✓		50	50	1	N.C.	40,000	—
65		65	30	70	✓		0	35	1	Mich.	33,000	150
167	28	195	90	10	✓		53	80	1	Ill.	38,000	225
73	6	79	50	50	✓		92	30	1	Tenn.	32,000	280
160		160	25	75	✓		25	35	1	Cal.	42,000	720
57	64	121	25	75	✓		70	60	1	Ariz.	40,000	375
80	20	100	65	35	✓		60	40	1	S.C.	30,000	300
0		0		100		✓	0		1	Ind.	25,000	200
318		318	100		—	—	60	—	1	Ga.	43,000	300
205		205		100	✓		—	—	1	Wisc.	40,000	275
91		91		100	✓		90	60	1	Tex.	30,000	250
42	11	53		100	✓		0	—	1	Colo.	12,000	280
—	—	—	—	—	—	—	—	—	(1)	(Colo.)	(18,000)	—
12		12	100		—	—	100	100	1	Ind.	14,000	50
200		200		100		✓	0	0	1	Tex.	20,000	250
12		12		100		✓	0	0	1	Iowa	15,000	50
60		60		100	✓		60	60	1	Fla.	18,000	84
10		10		100	✓		90	50	1	Maine	10,000	150
26		26		100	✓		20	20	1	Mich.	12,800	100
43		43		100	✓		95	90	1	Fla.	18,000	200

State	Company	Parent company	Publicly held company?		Types of housing produced			
			Yes	No	Mobile	Single-fam. modular	Multifam. modular	Non-residential modular
Fla.	Endure Products			✓		✓		✓
Pa.	Foremost Industries, Inc.			✓		✓		
Colo.	Fort Lupton Modular Builders			✓		✓	✓	✓
Ohio	General Homes Corp.			✓			✓	
Tex.	Home Marketing, Inc.			✓		✓		
Ala.	Industrialized Building Industries, Inc.			✓		✓	✓	
S.D.	Knecht Industries, Inc.			✓		✓		✓
Nebr.	Midland Wood Products			✓		✓	✓	
Mo.	Mid-Low Corp.			✓		✓		✓
S.C.	Mobile Bldg. Mfg., Inc.	Litco, Inc.		✓		✓	✓	
Fla.	Mo du Fab, Inc.		✓			✓	✓	✓
Cal.	Modular Component Systems, Inc.	Gimbel Industries	✓			✓		
Va.	Mod-U-Kraf Homes, Inc.		✓			✓		
N.Y.	National Modular Systems, Inc.		✓			✓	✓	
Mich.	Northland Homes, Inc.			✓		✓		
Cal.	Omni Housing, Inc.	Philip Morris	✓			✓		✓
Pa.	D & J Palmer, Inc.			✓		✓	✓	
N.H.	Pembroke Homes, Inc.			✓		✓		
Ind.	Prairie Schooner, Inc.			✓	✓	✓		✓
Wash.	Pre Built Structures, Inc.			✓		✓	✓	✓
Ohio	Production Homes, Inc.			✓		✓	✓	✓
Nebr.	Rite-A-Way Ind., Inc.			✓		✓		✓
Cal.	Serendipity Homes, Inc.			✓		✓		
Ala.	Sigma Industries, Inc.			✓		✓		
Idaho	Starcraft Homes, Inc.	Publishers Paper Co.		✓		✓		
Minn.	Stearnswood, Inc.			✓		✓	✓	
Wyo.	Stylhomes, Inc.			✓		✓		
Mo.	Superior Modular Home, Inc.			✓		✓		
Tex.	Tacco (Truss & Component Co.)	Wilson Companies		✓		✓	✓	✓
N.Y.	Taconic Industries			✓		✓		✓
Iowa	Timbercraft Homes, Inc.			✓		✓	✓	
Tex.	Timely Corp.			✓		✓		
Ohio	Unibilt Industries, Inc.		-	-		✓		
Colo.	Union Mfg. & Supply Inc.			✓		✓	✓	✓
N.C.	United Durham, Inc.			✓		✓		
Va.	Urban Systems Devel. Corp.-B.S.P.	Westinghouse Electric	✓			✓	✓	
Va.	Virginia Homes Mfg. Corp.			✓	✓	✓	✓	
Mich.	Whitman Industries, Inc.		✓			✓		
	TOTALS							

1971 modular production					Field erection provided		% in government subsidy		Factory data			Est. 1972 production
Single-fam.	Multifam.	Total	% of production built in own projects	% of production sold to builders or consumers	Yes	No	1971	1972	No. of plants	Location	Total plant area (sq. ft.)	
0	0	0	70	30	✓		0	100	1	Fla.	17,000	50
65		65		100	✓		3	5	1	Pa.	20,000	80
12	1	13		100		✓	60	60	1	Colo.	22,000	200
0	0	0	100				—	65	1	Ohio	20,000	200
156		156	25	75	✓		95	95	1	Tex.	22,000	208
30	6	36	90	10	✓		75	60	1	Ala.	20,000	120
175		175	30	70	✓		45	45	1	S.D.	22,000	200
8	50	58		100		✓	0	0	1	Nebr.	14,000	50
0	0	0	100		✓		0	50	1	Mo.	16,000	30
14		14	100		—	—	100	60	1	S.C.	10,000	198
10		10		100		✓	0	70	1	Fla.	22,000	800
20		20	20	80	✓		0	2	1	Cal.	18,000	400
12		12		100	✓		90	75	1	Va.	20,000	200
25	52	77	100		—	—	66	60	1	N.Y.	15,000	334
35		35	90	10	✓		0	33	1	Mich.	14,500	65
9		9		100	✓		0	0	2	Cal.	93,000	470
40	1	41		100	✓		5	5	1	Pa.	10,000	102
53		53		100	—	—	20	10	1	N.H.	9,600	135
10		10		100		✓	0	10	1	Ind.	24,000	15
18	1	19		100	—	—	0	0	1	Wash.	20,000	40
3		3	100				0	—	1	Ohio	10,000	74
36		36	60	40	✓		1	2	1	Nebr.	18,500	24
10	20	30		100	✓		0	0	1	Cal.	21,000	20
109		109	30	70	✓		98	95	1	Ala.	21,000	300
130		130		100	✓		80	80	1	Idaho	22,050	190
10	20	30	100		—	—	80	—	1	Minn.	19,800	20
70		70	80	20	✓		35	75	1	Wyo.	17,500	125
175		175	20	80	✓		—	—	1	Mo.	20,000	200
5	0	5	50	50	✓		80	60	1	Tex.	15,000	60
52		52		100	✓		0	0	1	N.Y.	10,000	100
6	25	31	50	50	✓		0	0	1	Iowa	20,000	112
176		176	50	50	✓		10	50	1	Tex.	20,000	500
70		70		100	✓		90	90	1	Ohio	14,000	140
150	10	160		100	✓		10	10	1	Colo.	15,000	300
10		10	50	50		✓	50	75	1	N.C.	11,000	52
—	—	—	—	—	✓		—	—	1	Va.	20,000	—
96		96		100	✓		75	80	1	Va.	15,000	175
175		175		100	✓		50	50	1	Mich.	20,000	225
35,460	15,123	50,583									23,776,400	116,879



The modular producers air their problems ... and

Clockwise from left, above: Charles Biederman, Ira Gordon, Jack Dahl, Thomas Stokes, Joseph Grasso, June Vollman, Gerald Mason, Harold Finger, Roger Holloway, Maxwell Huntoon.



Representing HOUSE & HOME: Maxwell Huntoon, managing editor; June Vollman, associate editor.

The airing took place in Ft. Lauderdale late in January. HOUSE & HOME brought together top executives of seven leading modular companies, then asked HUD assistant secretary Harold B. Finger to sit in. The result was: 1) a free and sometimes strong discussion, 2) assurance by Finger that in each of the problem areas, steps were being—or would be—taken towards solutions, and 3) general agreement that meetings like this can go a long way towards clearing up mutual misunderstandings.

The seeds for the meeting were sown at a similar session of modular executives held last year [H&H, Oct., '71]. At that get-together there was a unanimous feeling that modulars, by their nature, have special needs and special problems, and further, that HUD, which has a special stake in modular housing through Operation Breakthrough, apparently didn't know enough about these needs and problems.

The obvious conclusion: Ask Operation Breakthrough's boss to sit in at the next meeting and tell him in person.

Highlights of the two-day Florida meeting are presented on the next three pages. They offer the hope that HUD, through Operation Breakthrough, might play a much broader role in the future of modular housing.



◀ *Harold B. Finger, assistant secretary, HUD.*

HUD gets the message

FINANCING

Back at their first meeting the panel said: What we really need is a new kind of interim financing to cover the gap between the time modules leave the plant and the time they're put on the site. When the boxes leave the factory, more than 80% of the work has been completed; so we've got a bundle of money tied up. But red tape, weather conditions and a lot of other snags can delay their erection—sometimes for days, weeks or even months. Then we've got to borrow against our line of credit. And that hurts. The stick builder has received a big chunk of his construction financing by the time he's 80% completed. Why can't there be a special construction-type loan for the modular builder?

At their second meeting the panel told Finger: The situation is basically unfair. Gordon pointed out that a modular manufacturer has to pray everything will go smoothly; if the weather goes bad or a truck breaks down, a company's hung up. The conventional builder also can get in trouble, but he can usually get his releases and get paid for the work done up to the time of the problem.

Biederman warned that if something isn't done, a modular company could go under. And it was noted that Creative Buildings of Urbana, Ill., a participant in last year's H&H modular meeting, is about to enter bankruptcy proceedings thanks to bureaucratic delays that lasted a little longer than the company's cash structure could stand.

Grasso spelled out a major problem: it's usually impossible to take his units out the door and ship them right to the site. The reason is that the erection sequence is almost always different from the manufacturing sequence. Thus, his company usually has to build and inventory a whole project before shipping it. This, of course, ties up a lot of money.

So the panel put it on the line: what about funds for modules after they're built but before they're in place?

And Finger answered: We proposed this over a year ago but couldn't get it into the last housing bill. I don't think the committee understood how important it is. For one thing there wasn't time to debate it. We resubmitted the proposal last year, and we're awaiting action. It calls for payment when the module is completed—as long as there is a commitment for delivery. In other words a progress payment on completed units that haven't been sent to the site. This means there will have to be a change in the definition of a mortgage—it won't be tied so closely to real land.

Of course there will have to be safeguards to make sure the units really get to their intended site. For example a bonded warehouse to guarantee that units consigned will go where they're

supposed to. And the fact that a unit is completed will have to be certified.

The panel agreed it wouldn't be difficult to set up such safeguards. Grasso's firm already puts serial numbers on all units so there can't be any question about which ones go to which site. And Biederman has field warehouses at the site.

Mason opts for a bonded warehouse—preferably in the factory yard since the units can best be protected there against weather and vandalism, and necessary repairs can be made easily when it comes time for shipping.

These are the only methods that would work, Holloway believes. Other systems would only add to costs, mean extra work: for example if units had to be shipped to a warehouse, removed from trucks, reloaded on trucks for shipping to the site.

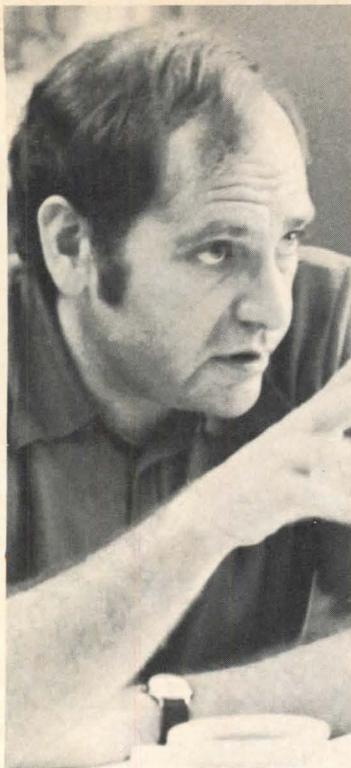
TRANSPORTATION

Back at their first meeting the panel said: What we really need is liberalization and uniformity among state transportation laws so that at least some over-the-road shipping costs can be cut. It's an expense that stick builders don't face, and it can be the determining factor in whether or not a modular project is economically feasible.

At their second meeting the panel told Finger: States have too many differing laws about which roads trailers can use—and when—as well as rules about types of loads. For example Biederman cited a Michigan rule that prohibits divisible loads on trailers; one 60' module is legal, but two 30' modules are not. What, the panel wanted to know, can HUD do?

And Finger answered: We're prepared to take action in any state where there's a real over-the-road problem. We'll do something about it. But we need specific data from you for each problem. As for uniformity, right now we're pushing for universality for 12'-

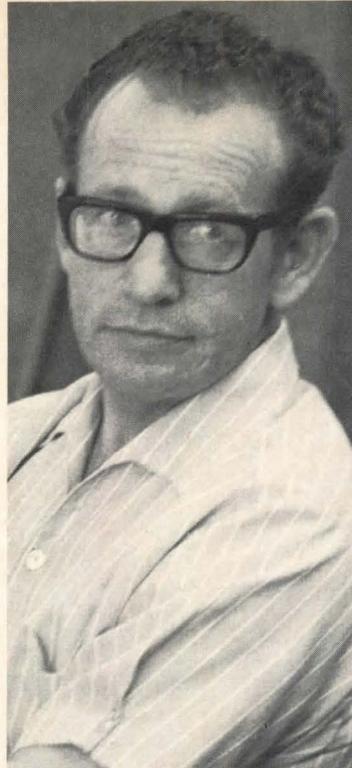
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Joseph Grasso is executive vice president of Modular Housing Systems, Northumberland, Pa. The company has two plants: one of 90,000 sq. ft. at Northumberland and one of 40,000 sq. ft. at Ringtown, Pa. which was opened late last year. The company produced about 1,200 units last year, expects to produce 1,600 in 1972. Grasso, formerly the president of Presidential Homes, founded MHS in 1969 with Curtis Tomlinson, currently president of MHS. The company went public late in 1969.



Thomas M. Stokes is executive vice president, general manager and a director of Unex Building Systems Inc. of Louisville. The company's 75,000-sq.-ft. plant manufactures multifamily residential and commercial units. In 1971, its first year of operation, the plant turned out 70 units; the projection for this year is 700. Unex's first modulars were used in a Louisville restoration area apartment project. The company was founded in 1969 by its president, Katherine Graham Peden, and a group of prominent Louisville businessmen.



Jack Dahl is president and a director of Fleetwood Enterprises of Riverside, Calif. which he joined nine years ago as comptroller. Fleetwood entered the modular industry about two years ago through the acquisition of DeLuxe Homes. The company's two modular plants—one of 75,000 sq. ft. in Quincy, Mich. and another of about 100,000 sq. ft. in Berwick, Pa.—produced 450 single-family units and about 120 multifamily luxury units last year. Substantially more are projected for 1972, especially since the company has opened a 100,000 sq. ft. plant in Ashland, Ohio.



Gerald Mason is vice-president and general manager of the Behring Home Division, Behring Corp. of Fort Lauderdale. He joined the company in 1970 as financial vice president after having spent 21 years with General Electric. As HOUSE & HOME went to press, Behring Corp. (in which Cerro Corp. recently bought a majority interest) announced it was getting out of the modular housing business. Fate of Behring's 350,000 sq. ft. plant was up in the air; sale or leasing arrangements were being discussed with several other firms.

wide loads—working on it with state highway officials. We know modular manufacturers would like to have universality for 14'-wide loads too, but if we push for that right now, we may get everything knocked down.

The panel agreed that uniform laws for 12'-wide loads would be a big help. And when Holloway asked if Finger thought it would be possible to get all 50 states to approve 12'-wide, 60'-long loads, Finger said he thought so. But the panel also is hoping for some action on 14'-wides. As Dahl pointed out, his company can go along with 12'-wides if it has to. But 14'-wides are preferable because of the larger rooms they make possible.

CODES

Back at their first meeting the panel said: What we really need are statewide codes—something like California's, where modulars that meet state requirements must be accepted by any community within the state. Right now we're saddled with an uncountable number of conflicting local requirements. They're tougher on us than on stick builders because they force us to redesign and make a lot of changes in production almost every time we move from one community to another—even when they're just a few miles apart. That really hits us in the pocketbook. With statewide codes and reciprocity be-

tween states, we'd have a whole new ballgame.

At their second meeting the panel told Finger: Admittedly, the code problem is also a big headache for the stick builder. But it hurts the modular company much more—particularly those companies that build multifamily units. Fire regulations are a particular problem, said Grasso. And state-wide codes, which included fire requirements, would help enormously.

But even state-wide codes won't solve the problem, the panel asserted, unless the code really has teeth. In the words of

Holloway: if you'd pick one of the major codes and use it everywhere there'd be no problem—as long as you had a way to transmit it right down to the on-site inspector. He's the guy who too often walks on the job and says: "I don't care what the law says, we don't do it like that here."

And Finger answered: We have a way to make sure codes aren't used to block housing. For example to get HUD money for urban renewal, an area needs a workable program approval. We won't give it if, say, plumbers insist on cast iron. And we'll use this means any time anything really unreasonable



Ira Gordon is president and chairman of the board of Swift Industries Inc. of Pittsburgh which he founded 22 years ago. Swift is a publicly-owned company with two plants in Pennsylvania: a 60,000-sq.-ft. operation at Belle Vernon which manufactures single-family modulars and a 200,000-sq.-ft. plant at Monaca which produces office, apartment and commercial units. Swift also deals in pre-cut, pre-fab, sectional and mobile homes. The company produced 450 modulars in 1971, is projecting 1,600 for 1972. Gordon is currently serving as president of the National Association of Building Manufacturers.



Roger Holloway is president of Environmental Systems Industries, a subsidiary of Environmental Systems International of Los Angeles. His company first set up a 10,000-sq.-ft. pilot plant in Los Angeles in 1969 [H&H, Aug. '70], later designed and put into operation Levitt's present 77,000-sq.-ft. plant in Fountain Valley, Calif. Esr is now a consultant to both Unex and Fleetwood Enterprises as well as several other companies. Holloway started working in modulars in 1968 after a career as a California home builder.



Charles Biederman is president of Levitt Building Systems Inc., a subsidiary of ITT Levitt & Sons Inc. The firm's 136,000-sq.-ft. facility in Battle Creek, Mich. produced 1,000 modulars in 1971 and expects to do double that in 1972. Biederman, a registered architect, joined the Levitt operations in 1959 and served the company in Puerto Rico and France before taking on his present assignment.

RED TAPE

Back at their first meeting the panel said: What we really need is more cooperation from local government offices, and a lot less red tape when we try to get project approval and cost certification. Almost every office you deal with has different ideas about what's worth what. Even within the same office, whenever you make a minor change, the whole red tape process starts all over again. Actually, we're being treated like the stick builder who comes in with different plans each time.

At their second meeting the panel told Finger: We can't understand why there's so much

delay in getting approvals and why there's also so much variation from office to office. Our product is usually the same from project to project. Why, asked Biederman, can't we have a system similar to the one used in France? Their equivalent of our FHA office must say yes or no within 30 days. Otherwise the application is automatically approved. If you get a no, there's a formal grievance procedure, and you have 72 hours to appeal. The system works great.

The question of allowable costs also got a going over. Stokes said his company, concerned with quality, put two layers of drywall on walls and ceilings, only to have the FHA office say, "Who needs it?" and give no credit.

Biederman cited transportation

costs as another problem. Some offices, he said, allow it, others don't. And Grasso complained that the last time he made a number of changes, his company was docked for decreased specs, but not credited for increases.

The panel agreed that this kind of red tape leads to costly delays for the modular producer whose plant must be kept going. So, in essence they wanted to know what's being done to eliminate this problem.

And Finger answered: The problem of red tape is chiefly the problem of work load. But government processing offices should be able to work on the basis of a standardized factory product like modular housing. To that degree Finger indicated that information on different companies' modulars should be included in the data bank used by FHA offices to establish comparable costs. Local offices should gather the figures, then pass them on to other FHA offices.

Such a procedure, he believes, would help solve two problems: first, there could be speedier approval for any small changes a modular manufacturer might make from a basic design that already had been approved; second, it would eliminate variations in values from one office to another.

The panel, in general, approved of the data bank idea: Anything that would minimize delays in approval, processing, etc. could only work to the modular producer's advantage since all offices would be using the same criteria for the same units.

The panel also made it clear that such items as transportation and plant-burden rate should be included in a revised 2013 form—since these items are peculiar to the modular industry. And they also asked for something else: a formal grievance procedure to get them off the hook with local offices. Like the stick builder, the modular producer is worried about going over the heads of local offices. He's afraid he'll get a frosty reception when he comes in with a new project. ■

Help Wanted:

Project Manager

College grad, preferably MBA, to take total responsibility for major single-family subdivision. Will be paid well because he's hard to find, train and keep.

As any homebuilder knows, the project manager is a very important man. He must be an executive, administrator, salesman, often a politician, and he has to have at least a working knowledge of land developing and construction. As the head of a primary profit center, he bears a heavy load of responsibility. And as the moving force behind what is essentially a marketing operation, he has to have a touch of the entrepreneur in his makeup.

Consequently he is also a very rare bird—as expanding developers have found to their sorrow. He is hard to find, and once found, hard to keep from the clutches of other predatory developers.

One company that found a sound way to deal with this problem is National Homes Corp., Lafayette, Ind. National is known chiefly as a prefab manufacturer, but it is also in the development business through a subsidiary—National Homes Construction Corp.—which is currently building in 34 subdivisions in Indiana, Ohio, Illinois, Georgia, Texas and Washington, D.C.

Obviously, such a far-flung operation is absolutely dependent on its project managers. So David Price, president of National Homes Construction Corp., has set up a precise program for identifying, attracting, training and keeping project managers. Price's program is based on his own three-year experience as an independent builder-developer of National's houses in Kokomo, Ind. According to Price, it works very well indeed, which makes it vitally interesting to other developers with expansion in mind.

Who makes the best candidate?

Price sketches this profile of the man he wants as a project-manager trainee.

He's *hungry* and would be in business for himself if he had the money. To some degree he's the entrepreneurial type, and be-

cause of that he may leave National after a few years and enter the housing field on his own. But Price is happy to take that risk because "that's the kind of man we need."

He's *well educated*, usually holding an M.B.A. in marketing. "We need men who think management, marketing and controls," says Price. "Housing today is more a matter of cash flow than hammers and nails."

He's *young*—around 27 or 28 years old. A man that age, says Price, is willing to take the chance that he may flunk out during the year-long training period. He's also willing to risk the up-and-down nature of the housing industry and finally, a man of that age has some maturity.

He's *married*, and probably has one or two children. The reason: a man with responsibilities will tend to stick out a job rather than grab a greener-grass offer.

He's *experienced*, usually having worked for a major company for three or four years. "By the time we get him," says Price, "he'll have had all the textbook philosophy jolted out of him." But Price is not interested in finding men with housing experience. "We don't want people to tell us why something we've suggested can't be done."

He's *frustrated*, and desperately wants a chance to make his own decisions. "We've learned that this kind of man has previously been shunted away from his company's firing line, and he's just raring to go," says Price.

He's *strong*, because he'll need the stamina and the will to work 60 to 70 hours a week. Price believes that the inexperienced man who's willing to work seven days a week will outrun an experienced builder-developer who doesn't work as hard.

He's *personable* because he's in a "people" job and has to be able to deal with prospective buyers, homeowners, construction superintendents and the community

at large. And as a corollary, he has to act and dress according to the standard of the community where he lives and works.

"We're not looking for any mod types in beards," says Price.

How do you reach him?

"We advertise in a national business newspaper about four times a year," says executive vice president John Conley, one of whose responsibilities is recruiting and training.

The ad's headline tells in bold capitals precisely what Conley wants: M.B.A.s (Masters of Business Administration). The text states that the company needs profit-oriented men with exceptional drive and intelligence who want the chance to become a general manager within a year.

National is not named, but is described only as a large home-building company with construction divisions in a half-dozen cities.

Candidates respond to a box number, submitting their resumes and salary requirements. Conley screens the resumes in terms of Price's requirements and the candidate's willingness to work for \$12,000 to \$13,500 in the first year.

This first screening eliminates about 150 of the approximately 200 resumes Conley gets each time he runs the ad.

Conley then goes over the remaining resumes looking for men with market-oriented backgrounds and, ideally, with some actual selling experience.

When a resume sounds encouraging, Conley sets up a job interview immediately. If the candidate passes his first interview, another one is held—this time at a model house in one of the subdivisions so the candidate can get a good picture of his potential working environment.

During these early interviews Conley

constantly measures the man against the company's profile. Is the drive there? What's motivating him? Can he handle himself with others? What impression does he make on people?

Conley stresses the drive factor because the candidate who gets the job will indeed be working long and hard with little or no time to himself.

"Nobody takes two weeks off back-to-back for vacation," he explains. "They take a day now and a day then—long week-ends occasionally.

"I can get a good idea of the man's drive by watching his reaction to a question like this: 'What would you say if I called you up on a Sunday around 7 a.m. and asked you to come in and work all day on a crash program—when you and your wife had planned to go to the beach?'"

Another yardstick is whether or not the candidate worked through college. If he did, it's a sure sign that the man has the needed initiative, Conley says. Some 75% of the men he's hired have worked for at least three-quarters of their college expenses and a few paid all of their college costs by working during summers and at nights during the school year.

Conley's favorite question: what do you expect to be doing ten years from now? "The answer I like to get is: 'Something where I'm controlling the situation, responsible for the results.'" Conley is turned off by a candidate who answers that he has no future plans. "I'd much rather he'd tell me he's going after my job than to say, in effect, 'I don't know what I want to do.'"

Since the wife is the first person to feel the effects of a hard-working husband's schedule, Conley usually sees her too during one of the interviews.

"I need to know what kind of gal is behind that guy," he says.

A handful of the more obvious personality traits in the wife that will wash out the husband:

The complainer: She resents her husband's total involvement in the job, moans and groans because she never knows when he's coming home for supper.

The dictator: She's overly aggressive, will push her husband into the background and practically run his subdivision from her kitchen:

The brain: She is especially interested in the fine details of her husband's job because—unwittingly—she intends to evaluate his performance, coach him and out-guess his project manager at every turn.

Ideally, the wife should come across as a woman who supports her husband and shares his goals. Typically, she praises him openly in a quiet, self-assured manner and says we more often than I.

Interestingly, Conley does not use psychological testing to help select trainees: "There's nothing wrong with the tests, I just don't trust the interpretations."

Surprisingly, Conley has to interview only three or four men to find a man he's prepared to hire. In a year's time he hires roughly eight trainees.

PHOTO: DENNIS W. RIZZO



Jerry Pitstick, 31, holds an M.B.A. from the University of Cincinnati. After four years of college he became an auto salesman, later joined General Motors Corp. so he could work days and get his graduate degree at nights. Once he had his M.B.A., he left G.M. because he was fed up with "the corporate mess—dead-end jobs for young, up-tight executives."

Now Pitstick supervises Tamarack Hills, a 500-house

subdivision in a Dayton suburb. He's held this job for six months. He fits in easily because he trained at the same project for 16 months.

Pitstick works about 70 hours a week to make Tamarack work well. "But," he says, "if I'm a good manager, I ought to be able to get that down to 50 a week.

"I was far more beat working 50 hours a week at General Motors than I ever have been here at National," says Pitstick. "It's not how many hours you're home, but the quality of those hours. When I'm home today I'm not an ogre. I'm in good mental and physical shape. By contrast i'd say 95% of the young men in large companies are extremely dissatisfied. They know they're in a trap, and they don't know how to get out. And that has to affect their home life."



Charles Holle, 31, alternated between two jobs for about five years after he graduated from Purdue. He was a pharmacist for an Indianapolis drugstore chain, and he played triple-A baseball.

When he realized he wasn't going to make it to the major leagues, he got out of the ballpark and headed back to the drugstore. But the money wasn't there. So he decided to look elsewhere. Today he's a project manager at Belaire, a 1,500-house subdivision in a south Chicago suburb.

Holle considers himself primarily an administrator and salesman. He says he was "scared to death about construction" when he joined National because he knew nothing

about it. But he learned enough to get through his trainee days by watching and asking questions of the subs, and gradually discovered that he didn't need extensive construction knowledge. "Basically all I need to know is whether the subs are giving me a good price."

Holle's job would be harder were he working for a conventional company rather than a prefabricator, he says, because there are many more constrictions and scheduling variables in stick building.

At his subdivision Holle is currently facing an unusual problem: how to get his salesmen to sell more non-subsidized houses. "The salesmen are in a rut," he says. "It's just too easy to sell FHA 235 housing. Last year 95% of my sales were in subsidized units."

To solve the problem Holle now pays a higher commission on non-subsidy sales. He also has been giving his sales people pep talks, warning that the local authorities will close down the project if some 450 of the 480 houses in the subdivision turn out to be subsidized.

How do you train him?

"We toss him into on-the-job training the day he starts to work," says Conley. His first job: selling houses from 1 p.m. to 8 p.m.

Selling is the first job he gets because while the trainee will eventually be responsible for just about all facets of his subdivision's operation, marketing is the most important. "Any trainee who can't sell houses will wash out eventually," says Conley. "So we might as well know right away."

The trainee's program varies somewhat depending on whether he's working in a large subdivision (150 units or more) or a small one (50 units or less).

In a large project the trainee will stay in sales for about six months; during this time he also learns the ins and outs of processing FHA and VA loans. He then advances to assistant project manager, where he learns how to handle such matters as factory orders (National's prefab houses are built in all the subdivisions), construction schedules, mortgage closings and in general how to deal with mortgage companies.

In the smaller subdivisions where there are no assistant project managers, training is much less formal but it nevertheless follows the same pattern as in the larger projects.

All trainees must be sticklers for detail. For example an error in a factory order—a document that runs on for four pages—can be costly because National schedules and ships its prefabs on the strength of those orders.

In fact, says Conley, it's a lack of attention to detail, more than anything else, that washes out a trainee.

Once a trainee has started his course, Conley keeps close tabs on him.

"I call on him a few days after he's started on the job. I want to discover how fast he's catching on and to get his reactions to his work. And I also talk with his project manager to get the manager's early impressions."

Conley returns some six or seven times throughout the trainee's year. During those visits he especially looks for the trainee's reactions to the people he works with—his project manager, the construction superintendent, Price and Conley himself.

Conley also looks at details—the trainee's desk, for example. Because he's meeting people, Conley says, the desk must be attractively neat and orderly.

The trainee should not have to take a pile of brochures off a chair so that someone can sit down in his office.

There is also a formalized evaluation procedure. Every two months both the project manager and the regional manager must fill out and submit to Conley a trainee-progress report. It asks such things as these: how has the trainee responded to specific assignments? How well does he take direction? Can he see why he has to do it National's way? What's his attitude? Has his attitude changed since he joined

National? What is his sales ability?

Further, each trainee is called into the home office twice during his training period. There he is interviewed privately for half an hour by each of five or six National executives, including Price. Each executive asks his own questions; there is no delegating of specific topics. At day's end, the executives meet and review their impressions.

If a trainee appears to be failing in one job area—and selling is usually the area—his actions in all other job-related areas will immediately be closely watched. The question: is he a total washout, or is he just having a rough time over one particular part of the job?

Finally, all trainees are brought to headquarters twice a year—spring and fall—for two-day seminars. One is on selling, the other on construction.

Once a trainee graduates to a project manager's job, he leaves Conley's supervision. He becomes answerable to a regional manager whose job is to supervise a half dozen or so project managers.

How do you keep him happy?

"We pay him \$14,000 to \$21,000 a year in salary, plus 10% of his subdivision's profits before taxes," says Price. "That way we're treating him as though the subdivision—which has its own set of books—were his own business."

The profit-sharing plan is somewhat unusual in that the project manager doesn't have to wait five or ten years to get his hands on the money. His share of the profits is paid to him in three annual installments, starting immediately.

For example if his subdivision's profits before taxes totaled \$300,000 in 1971, he'd be paid \$10,000 just as soon as the figures were in—early 1972. He'd get another \$10,000 at the end of 1972 and the final \$10,000 at the end of 1973.

Such a profit plan has a snowballing effect. After three years the project manager will be getting three installments a year.

If a project manager quits after a few years, what happens to those yearly installments he's yet to receive?

According to the formula, the project manager is permitted to take 10% of what's still owed him for each year he's worked for National. So, after 10 years he can walk away with all of his outstanding profit-sharing money.

The profit-sharing plan is structured as it is for two reasons. First, paying the profits in three installments tends to level out the project manager's annual income so he doesn't have to live through high and low income extremes. And second, paying the profits in installments helps keep the project manager with the company. Few men want to walk away from \$20,000 or more. Also, it makes it harder for competitors to pirate good men. A future employer might have to make up that uncollectable profit if he wanted to lure the project manager a way. ■



PHOTOS: DENNIS W. RIZZO

Jim Atkinson, 31, is a Bradley University graduate who, as a district sales representative for Texaco, helped solve service station owners' problems in his district.

His trouble-shooting background landed him a job helping National's builder-customers solve their problems. Still later, he joined Price's subsidiary as a project-manager trainee.

Today he's project manager of Seasons Four, a brand-new, 367-house subdivision in Roselle, Ill., a suburb northwest of Chicago.

"I have a tremendous amount of competition," he says. "I'm surrounded by projects of companies such as Boise-Cascade and Kaufman & Broad. So I have to show the people who visit us that we can offer a better home and that we will do a better follow-up job on complaints."

Because of the tough competition, Atkinson has hired unusually hard-sell salesmen. But he says he's watching them closely, and if the hard sell doesn't work, he'll replace it with something softer.

PROJECT
PORTFOLIO

6



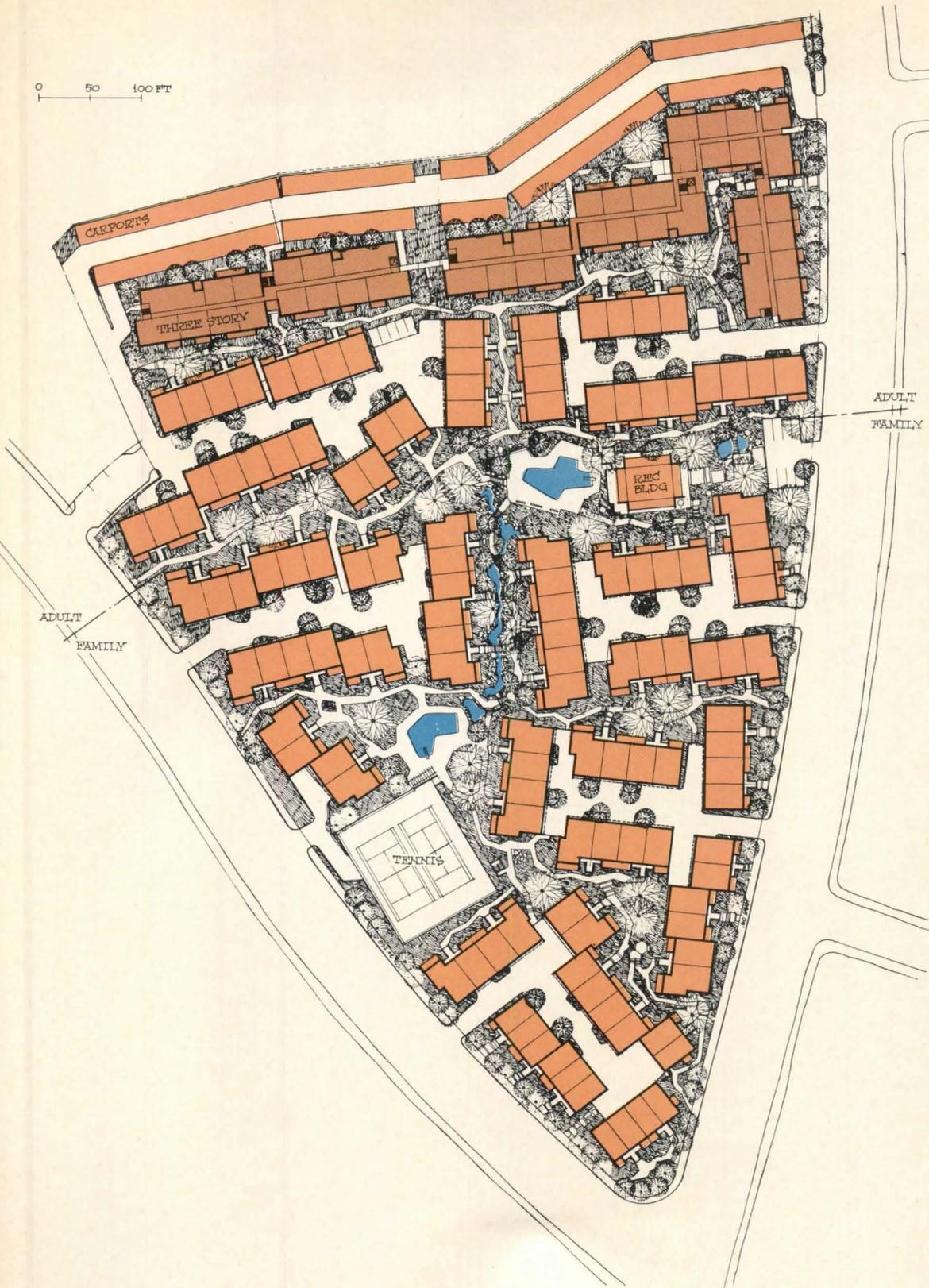
PROJECT: Brookside Village
LOCATION: Redondo Beach, Calif.
DEVELOPER: Landmark Communities Inc. (formerly Kimberly Pacific Corp.)
ARCHITECT: Kamnitzer/Marks & Partners
LANDSCAPE ARCHITECT: Emmet Wemple & Associates
SITE AREA: 11.8 acres
NUMBER OF UNITS: 385 apartments
RENTALS: \$150 to \$350



PHOTO: JORDAN LAGMAN

Brookside Village is an excellent example of environmental planning within tight physical limits. For a predominantly two-story project the density is high—more than 32 units per acre. So open space was saved by under-building parking, then enhanced by landscaping—plantings, artificial brooks and winding walks—that produces vistas like the one above. The project's market is mixed—mostly families with children but also empty nesters and young couples.

TO NEXT PAGE



Brookside's plan divides the triangular site into two areas, which are separated by one of the project's green strips and one of two recreation areas. The original idea was to reserve the section north of the buffer for adults only and the section south of it for families with children. The family market turned out to be so strong, however, that some families had to be moved into the adult area. For the most part this is a two-story project, but

there are six 3-story buildings (see p. 101) at the north end of the site, where they capitalize on the view (the north-to-south slope is roughly 50'). Except for two rows of carports behind the three-story buildings, tenant parking is at least partly underground—under the carports and beneath the two-story buildings (see p. 100) and the two tennis courts shown at lower left in the plan. Parking courts accommodate guests.

Total landscaping is an integral part of the Brookside Village plan—not only to make the most of available open space but also to create changing vistas throughout the project. Landscaping ingredients, well illustrated in the photo below, include shrubs, rock gardens, pedestrian bridges, artificial pools and even a small waterfall. At night ground-hugging lamps set off the plantings and provide just enough illumination for pathways.

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PHOTO: JORDAN LAGMAN

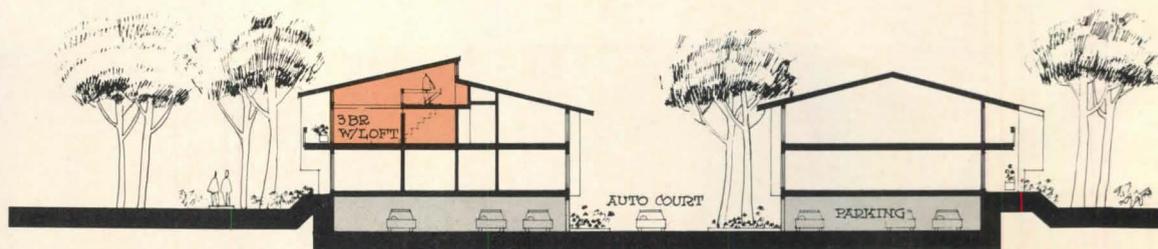
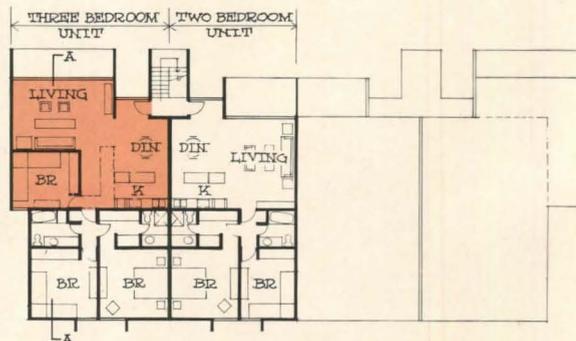
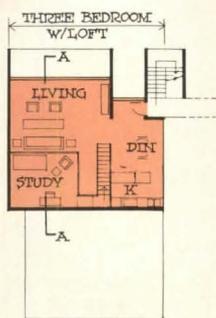




PHOTO: JULIUS SHULMAN

Brookside's two-story buildings (plans and sections, right) were designed primarily for tenants with children. So the bulk of the apartments—232 out of 256—have two or more bedrooms. Most popular—and also most expensive at \$330 to \$350 a month—is a three-bedroom unit with a loft (photo above) that can be used as a study or fourth bedroom. The typical two-story building has four apartments per floor, eight basement parking spaces and a pair of exterior stairways which are roofed but open in front and at the sides. Each basement garage is semi-depressed—open to grade in front and below grade in back. That arrangement was helped by the sloping nature of the site, but also required some cutting and filling.

TWO-STORY UNITS



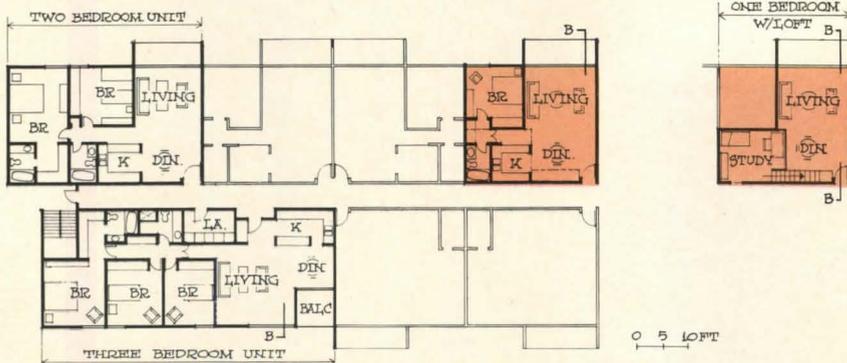
SECTION A-A

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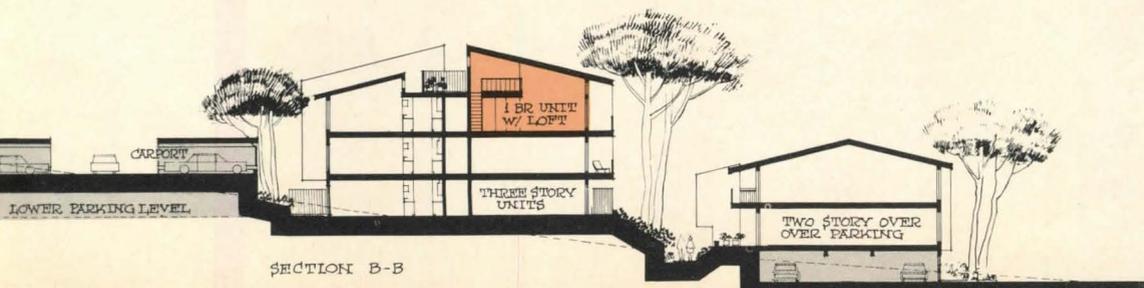


PHOTO: JORDAN LAGMAN

THREE-STORY UNITS



Unlike the two-story buildings on the facing page, Brookside's three-story structures (*plans and section at left and interior above*) were planned for tenants without children—either empty nesters or young couples. Hence, 96 of their 129 apartments have only one bedroom. Furthermore, apartments are entered from central corridors rather than from outdoors, and there is no basement parking. Instead, tenants use carports or an underground garage beneath the carports. But the most popular feature of the two-story buildings—a loft with a strip of clerestory windows—is equally popular in the three-story structures. In this case it goes with a one-bedroom unit that rents for \$220.



SECTION B-B

TO NEXT PAGE



PHOTOS: JORDAN LAGMAN

Prospective tenants enter Brookside Village through the tile-roofed building at left—a fully equipped recreation center where space has been set aside for a rental office. The glass-walled rear of the center overlooks one of the project's two swimming pools (*below*). The other pool adjoins a pair of tennis courts (*see site plan, p. 98*). ■



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CIRCLE 103 ON READER SERVICE CARD

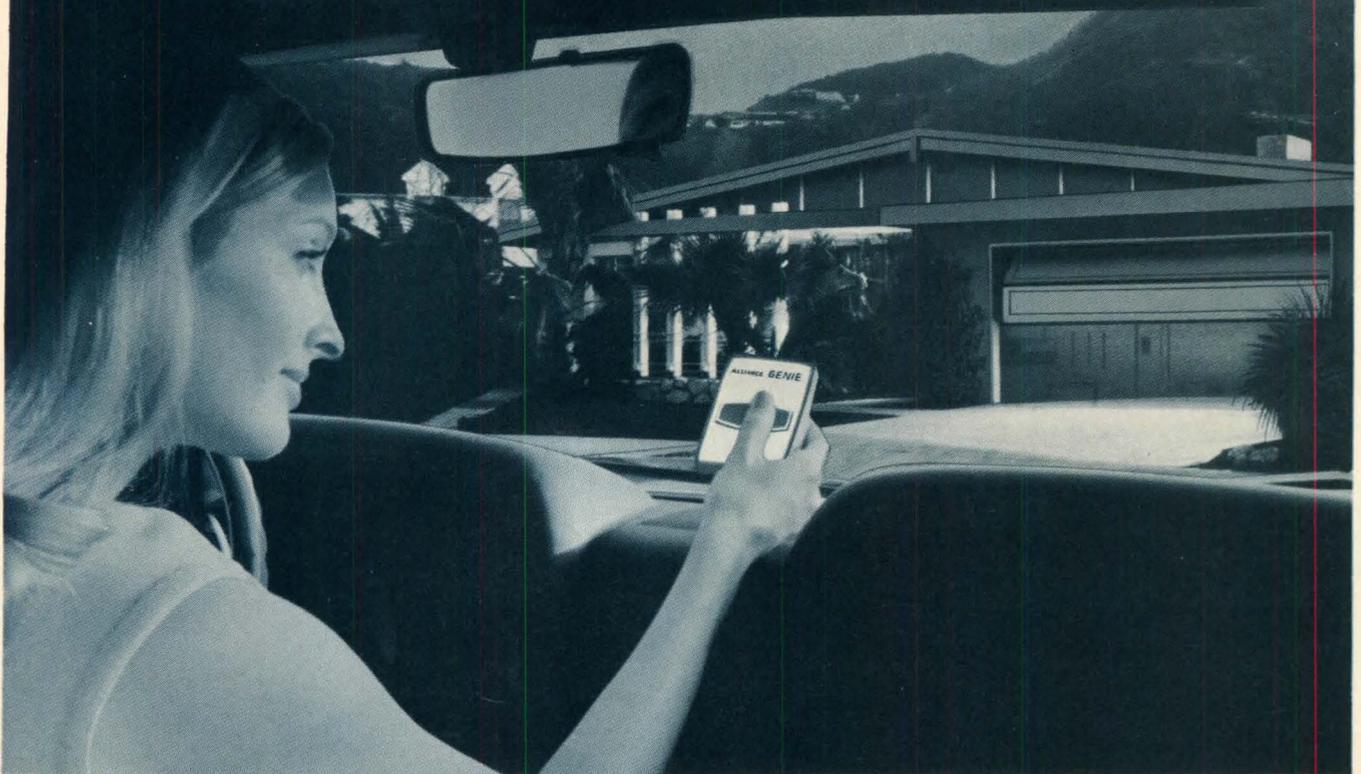
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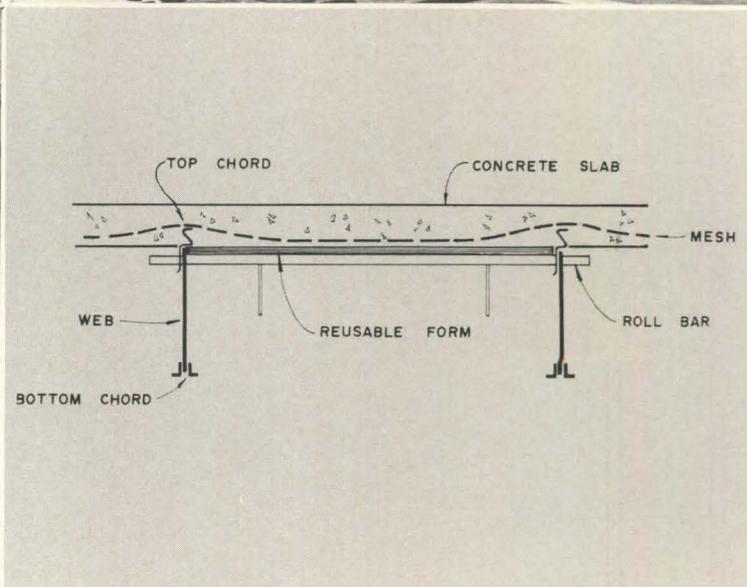
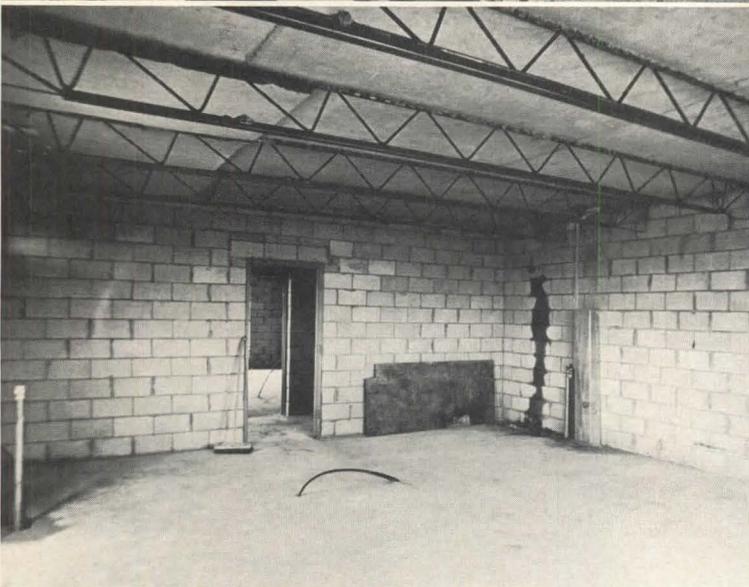
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CIRCLE 105 ON READER SERVICE CARD

H&H MARCH 1972 105



Concrete floor system has reusable forms

Key elements of the system are: 1) bar joists with a specially designed top chord that becomes an integral part of the concrete slabs and 2) what are termed roll bars—cross-pieces that fit between the joists to

support reusable forms (see diagram, lower right). The roll bars are snapped into place (upper left) and ½" plywood forms are inserted from above (upper right). After mesh is set, 2½" of concrete is

poured and vibrated into position. Two days later, roll bars and plywood are removed from the underside leaving clean-surfaced solid concrete slabs (lower left) and forms ready to use again. The joists are

set 4' 1¼" on center to accommodate 4' wide plywood sheets. The system is suitable for residential or commercial construction. Hambro Structural Systems, Ottawa, Ont. CIRCLE 260 ON READER SERVICE CARD



Acoustical tiles, designed to conceal perforations, offer a smooth wall-to-wall look. Squares fit closely so that seams are barely visible. Tiles available in new patterns, "Highcliffe" (shown) and "Barbary". Armstrong, Lancaster, Pa. CIRCLE 261 ON READER SERVICE CARD

Cool/heat countertop range uses electromagnetic induction to produce cooking heat. Smooth ceramic top conceals induction coils that generate oscillating magnetic fields which, coupled with pots or pans of magnetic material, heat the cooking vessel. The heat from the pan cooks the food leaving the range top cool and easy to clean. Westinghouse, Pittsburgh, Pa. CIRCLE 262 ON READER SERVICE CARD

There will be a lot more where this Peachtree Door came from...

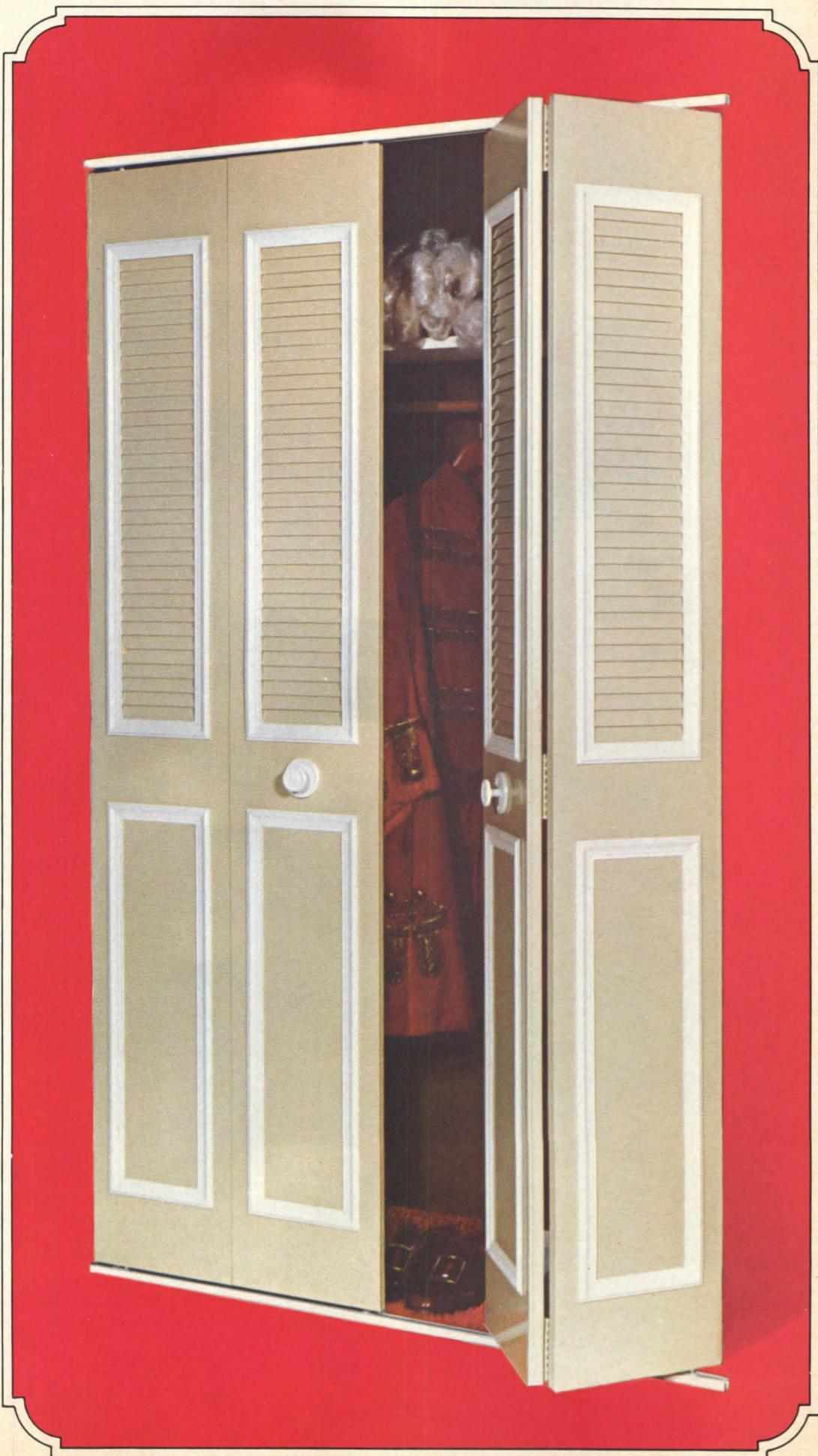
If you're worried about where your next order of closet doors is going to come from, you can relax. Peachtree Door is building another closet door facility that will be in full production early this spring. We expect to quadruple our bi-fold closet door output.

Royal Ambassador

To go with our new plant, we've added a new door to our full line of bi-fold closet doors. The Royal Ambassador. The louvers are tastefully framed in our exclusive one-piece molded trim. No unsightly spot weld marks or open miters. The Winter White trim complements or accents our six standard colors of baked-on enamel.

We could talk about our new panel heights and their more realistic range of adjustment.

How easy it is to install a Peachtree Door. How economical they are. But, we've got a 12-page brochure that covers all that. Why don't you write for it or give us a call. Then get your order in as our second plant swings into production.



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Result? Orders for total-electric models rose rapidly from 35% in the first section to 100% in the last section. When the development was

completed, more than 500 of the 597 homes had *the electric climate*.

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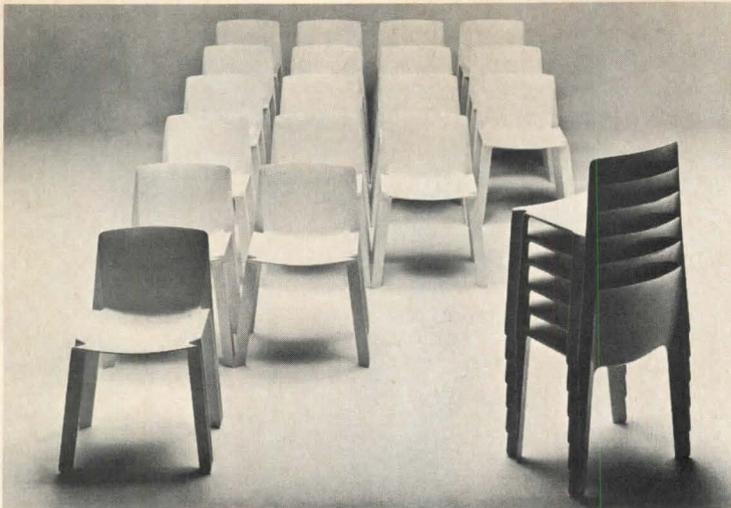
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CIRCLE 109 ON READER SERVICE CARD

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Plastic side chair, of molded fiberglass, stacks, gangs and is offered in a wide range of finishes including black, tan, grey, brown and dull or glossy white. Integral colors are solution mixed insuring fade re-

sistance and evenness of tone. Contemporary-styled chair stands 28.4" tall and 21.7" wide with a 17.7"-deep seat. Atelier International, New York City.

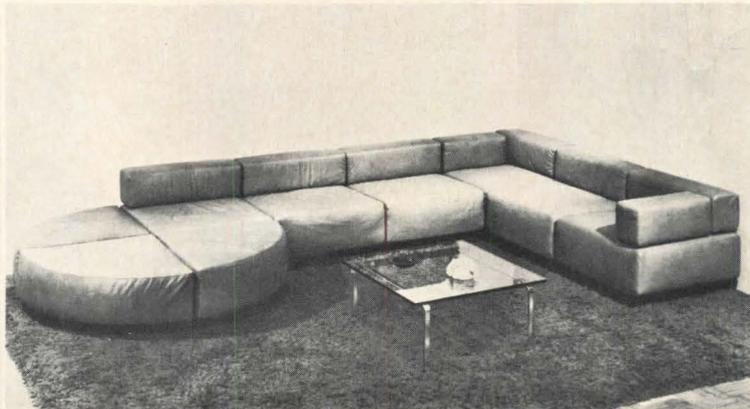
CIRCLE 222 ON READER SERVICE CARD



Modular seating and tables for outdoor use are of "Rubicast," a rigid urethane by Uniroyal. Each chair is a freestanding lounge that can be linked to others in a wide variety of arrangements. Tables, arms

and connectors slip into V-grooves on chair sides. The chair, six table styles and a footstool are offered in ten low-luster finishes. Vaungarde, Owosso, Mich.

CIRCLE 223 ON READER SERVICE CARD



Group seating system, "Cubo", is based on a modular concept of geometric forms. Squares and quadrants combine to create an endless variety of seating clusters. Floating back and arm sections that lock into place with steel connectors add design flexibility and eliminate troublesome dust traps between seats and backs. System is constructed of reinforced urethane foam with a puffy filling of dacron

—maintenance free, inherently fire-retardant and self-extinguishing materials. Covers, offered in a choice of colors and materials, can be easily changed at will. Coordinated tables in a full range of sizes are available in polyurethane enamel with rounded edges and plastic laminate with square ones and with satin brass, bronze or chrome finish. Harvey Probbler, Fall River, Mass.

CIRCLE 224 ON READER SERVICE CARD

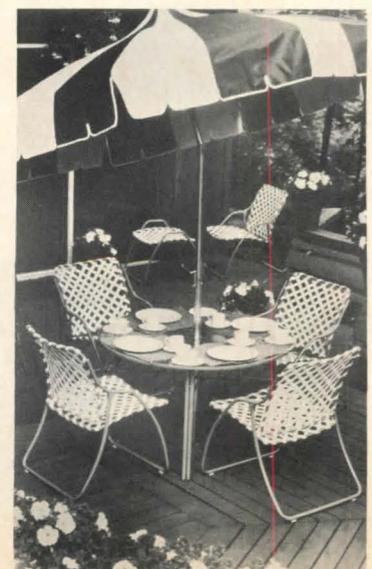


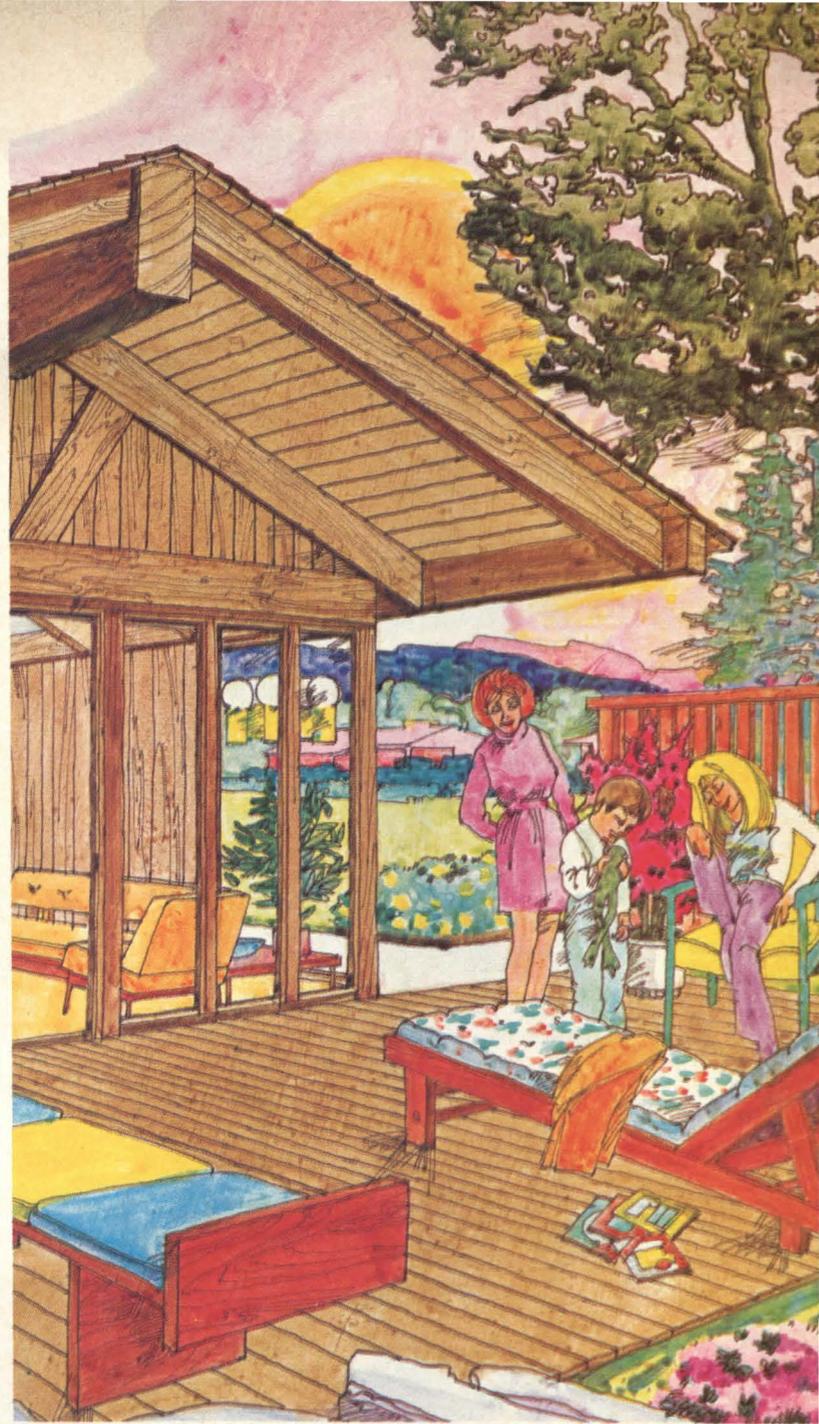
Easy-to-assemble furniture consists of glass tops and 1" square, pre-cut, chrome-plated steel tubes that can be easily joined with the tap of a mallet. Instruction book gives the exact number of coded tubes and wedge-lock fittings needed for different pieces. Integral Cubics, Long Island City, N.Y.

CIRCLE 225 ON READER SERVICE CARD

Outdoor furniture of tubular steel with a baked-on finish is economical as well as functional. The line of dining and lounge pieces including folding chairs for easy storage, is in green or brown with white vinyl straps. Table shown is 48" in diameter. General Housewares, Cincinnati.

CIRCLE 226 ON READER SERVICE CARD





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NEW Interior Latex Stains—formulated for color uniformity.

There are 30 colors in this REZ line and they've been especially developed for uniform color "take" on

various species of wood. So, if you want a color-matched finish on oak paneling and pine bookcases, for example, there's no problem.



NEW Solid Color Latex Stains—great for exterior or interior.

REZ offers 36 new *solid color* latex stains, too. While they're ideal for highlighting ceiling beams, wall

panels, doors, etc., they are particularly suited for the rough sawn or textured exterior siding that is so popular today.

Whatever the mood you plan to create—whether it be contemporary, rustic or even antique—REZ has the fashion-right colors to match. And, these colors are available in a brand new selection of finishes that go on easy and dry fast (30 minutes). Soap and water clean-up.

For literature on REZ Latex Stains write The REZ Company, One Gateway Center, Pittsburgh, Pa. 15222; or P.O. Box 363, Torrance, California 90505.

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Our stock model in Antique Brick fits the Thulman Majestic L36A metal fire box . . . many other sizes and styles available on special order.

Call or write The Readybuilt Products Company and find out how you can put in a complete fireplace and not take out the profits.

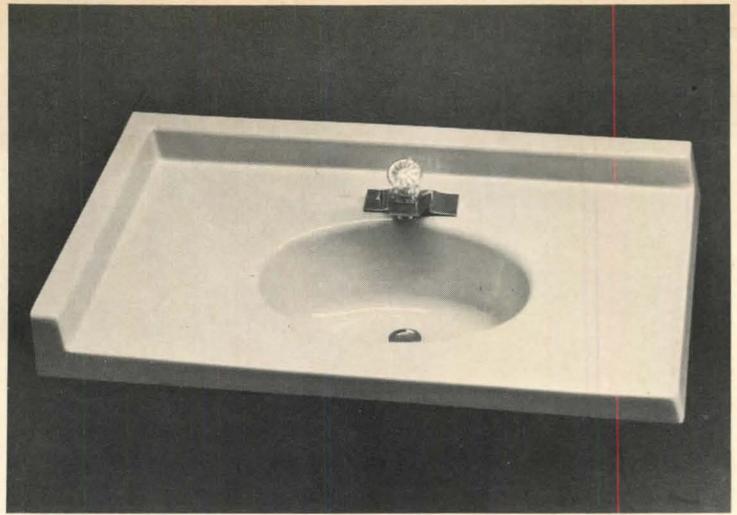
 **Readybuilt**

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Phone: (301) 233-5833



CIRCLE 81 ON READER SERVICE CARD

PRODUCTS/BATHS



Fiberglass vanity top has molded end return splash to eliminate the usual dirt-catching crevice. Available with left- or right-hand corners on 31" and 37" tops and both corners

on a 60" long double bowl model. Avocado, gold, beige, blue, natural, white. Wyoming Sand and Stone, Falls, Pa.

CIRCLE 214 ON READER SERVICE CARD



Marbleized china fixtures have their beige-on-bone coloration swirled right into the clay before firing so the design goes all the way through, will never wash away. "Marble/China" fixtures include the lavatory and toilet shown, plus a 20"x17" oval lavatory. American Standard, New Brunswick, N.J.

CIRCLE 215 ON READER SERVICE CARD



Side-lighted cabinet has a gold-brushed white frame around a 14"x22" plate glass mirror. Door swings open to reveal cabinet—with two adjustable glass shelves—that fits a rough opening 14"x18 3/4"x3 1/2". "Jeffersonian" comes with or without two globe lights. NuTone, Cincinnati, Ohio.

CIRCLE 216 ON READER SERVICE CARD



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H&H 3-72



Sunburst-topped faucets have snap-in reflective acrylic buttons to denote hot or cold. "Aquatique" line includes lavatory, bath, kitchen and bar fittings plus shower and tub valves. All are made for durability with brass working parts, valve chambers and passageways. Harcraft Brass, Torrance, Calif.

CIRCLE 217 ON READER SERVICE CARD



Low-cost gold faucets are plated by a new process that makes them resist abrasion longer than conventionally plated gold fixtures available at higher prices. Fixtures for lavatory or bath include faucets, tub and shower combinations, showerheads, tub fillers and pop-up drains. Crane, New York City.

CIRCLE 218 ON READER SERVICE CARD

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Rustic shingles let your imagination soar to new heights without pricing yourself out of the picture. The random pattern design of Rustic shingles gives your roof the rugged, natural look of wood shingles at a reasonable cost. And, they're available in three harmonious colors that blend well with

any architectural styling and surrounding landscape. Our Rustic Tan, Rustic Brown and Rustic Gray simulate the appearance of natural wood at various stages of weathering.

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Bring your imagination to your building materials supplier and try it on our 250 Rustic shingles. Or return the coupon for our catalog. Philip Carey Company, Division of Panaco Corporation, Cincinnati, Ohio 45215.

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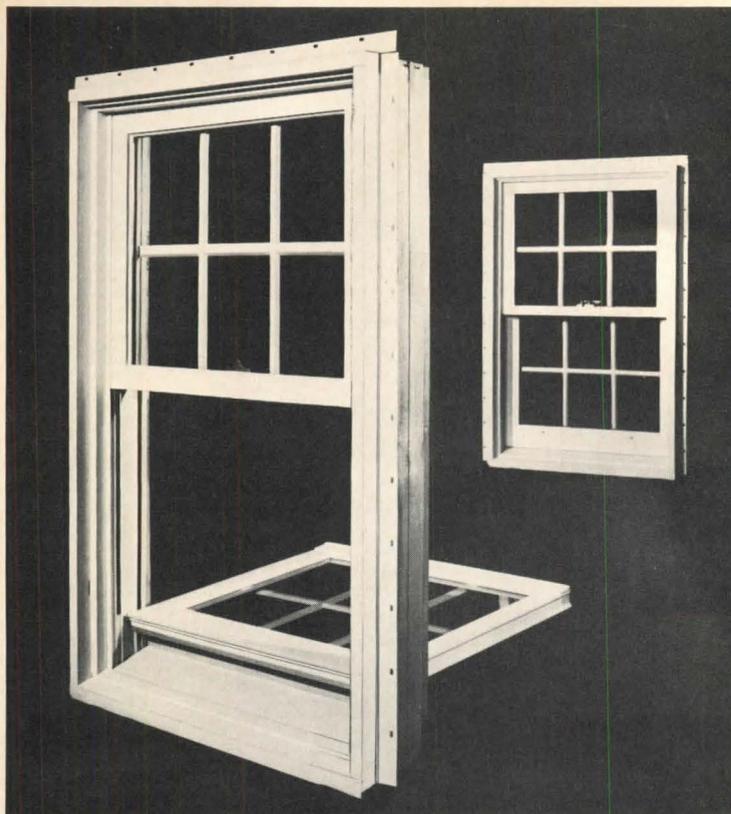
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CIRCLE 113 ON READER SERVICE CARD



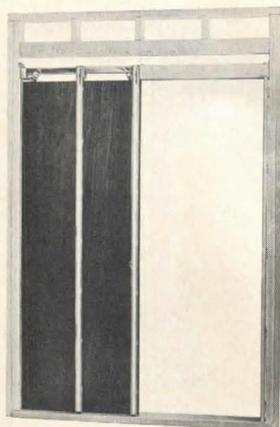


Maintenance-free window has vinyl-clad frame and sash protected by a new white polyurethane exterior paint by Sherwin Williams that is expected to last twice as

long as standard paints. Double-hung units tilt in, have insulated glass and rustproof screens. Malta, Gahanna (Columbus), Ohio. CIRCLE 206 ON READER SERVICE CARD

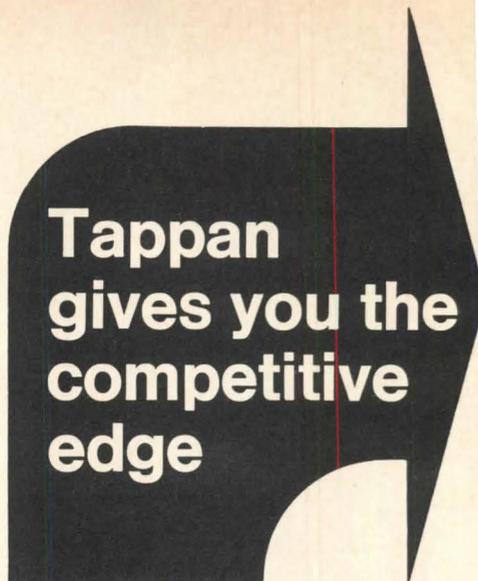
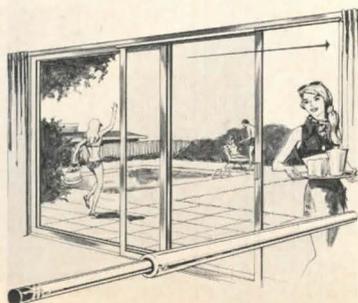


Aluminum window features ventilation without drafts through a sill-height hopper and an upper awning vent. A concealed mechanism opens and closes both simultaneously. "Hoppermatic" is one of nine new windows including solid vents, double-hungs, etc. Amarlite/Anaconda, Atlanta, Ga. CIRCLE 207 ON READER SERVICE CARD



Pocket door set needs no special tools for insulation because it isn't necessary to cut metal rails, bore holes in door top or remove trim. Premarked wood header nailing strip cuts to desired width. One frame fits all sizes from 2' to 3' wide, 3/4" to 1 3/4" thick, and up to 6'8" high. National, Sterling, Ill. CIRCLE 208 ON READER SERVICE CARD

Sliding screen door closer can be installed inside or outside a home, apartment, townhouse or sales office. "Sure Close" automatically slides screen door shut after a forgetful child or careless adult. Rust-free aluminum blends with door frames. S-T-K Tool, Park Ridge, Ill. CIRCLE 209 ON READER SERVICE CARD



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Look at many different brands. Get all the facts. Ask questions. If the store you're in handles only one brand, go to a retailer who offers you a choice of brands. If the salesman you're talking to wants to talk about only one brand, go to another salesman.

The important thing is that this time the decision is completely up to you. We hope your choice is Tappan. But even more importantly, we want you to have the opportunity to make a choice.

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And remember that when you buy any new Tappan product, you receive a one year warranty from Tappan that guarantees free replacement of defective parts including the cost of labor by **Tappan's National Certified Service Organization.**

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Design stations provide flexible storage space above and below a private work area. Horizontal and vertical dividers on both levels adjust to accommodate personal needs. Legs can be adjusted at 1" in-

crements from 28" to 36" to match height of drafting tables. Height can be increased another 6" by using optional legs. Kwik-File, Minneapolis, Minn.

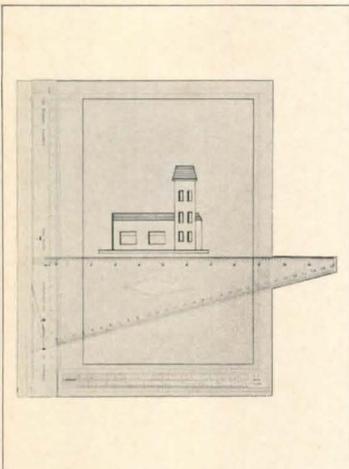
CIRCLE 238 ON READER SERVICE CARD



Portable microfilm reader operates on 120-V current or can be plugged into an automobile cigarette lighter. Daylight readability makes for easy on-sight information retrieval. Offered with a variety of magnifica-

tions, the 5 lb. unit is approximately 11" sq. by 6" deep and is constructed of high impact, molded plastic. Retail price is \$159. 3M, St. Paul, Minn.

CIRCLE 239 ON READER SERVICE CARD

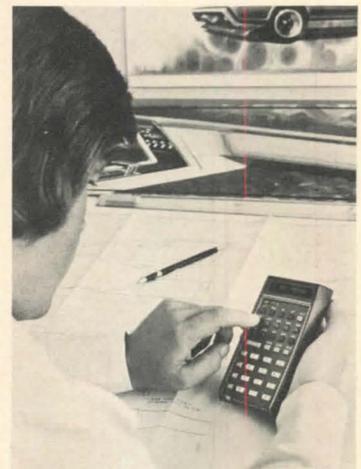


Portable drafting board with two-position angle has a magnetic clamping rail for easy insertion of paper. Rail is moveable from top to bottom. Scale and ruler are graduated in both millimeters and inches for easy conversion. The plexiglas ruler with non-blotting edge is adjustable to two positions offset by 15°. The 10"x13" board sells for \$13.85 or \$16.85 with carrying case. Hunter Associates, Orange, N.J.

CIRCLE 240 ON READER SERVICE CARD

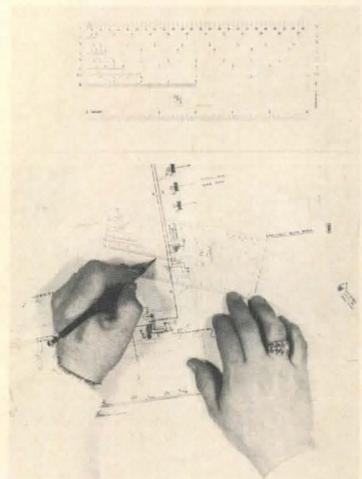
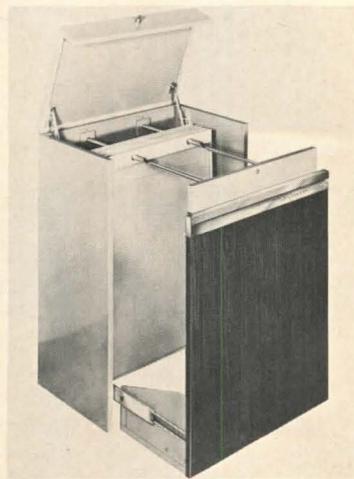
Mini-electronic calculator weighs only 9 oz. and fits easily into a shirt pocket. The battery-operated unit can perform all trigonometric and logarithmic functions, square roots, arithmetic functions and several other mathematical operations. Each is done with a single stroke of one of the unit's 35 keys. Answers appear automatically on the calculator's red-light-emitting-diode display. Hewlett-Packard, Palo Alto, Calif.

CIRCLE 241 ON READER SERVICE CARD



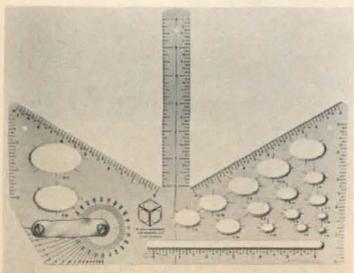
Master filing system for retrieving and protecting vellum, film and linen originals permits intermixing of drawing sizes within the indexing system without disturbing plan groupings. With a capacity of up to 40 flat drawers, the system includes self-adhesive drawer hangers, out guides and index guides to combine advantages of vertical storage with retrieval speed. Standing height makes for fatigue free use. Plan-Hold, Carson, Calif.

CIRCLE 242 ON READER SERVICE CARD



Flat scale rule, with all scales running in a left to right direction, slips easily into a pocket. The 6"-long architectural scale, with all printing on one side, has a separate slot for each different scale from 1/8" to 3", eliminating the need to turn the tool. The transparent plastic rule reduces mistake potential and eliminates hidden areas. Depending on volume, rules are priced from 25¢ to \$1 each. Plasti-Scale, Kewanee, Ill.

CIRCLE 243 ON READER SERVICE CARD

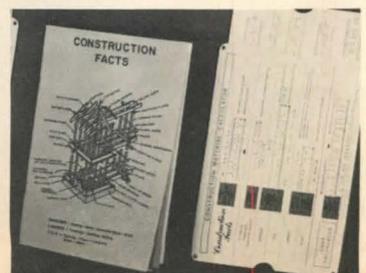


One-piece drawing instrument, combines all the separate pieces needed to draw isometric, three-dimensional pictorial and orthographic views eliminating shifting and rotating motions. The tool attaches easily to most standard drafting tables. David Miller, Beverly Hills, Calif.

CIRCLE 244 ON READER SERVICE CARD

Construction material calculator gives exact amount of every material needed for a job from sheets of wall board to gallons of paint. At the same time the handy slide chart tells the cost of each material. Also offered is a real estate rule and mortgage calculator. Handy Manuals, Dewitt, N.Y.

CIRCLE 245 ON READER SERVICE CARD





The long and the short of Palco-Loc Redwood

LONG IN LENGTH—up to 20 feet—where it counts the most; for fascia, soffits, rake, frieze boards, corner boards, trim.

SHORT ON COSTS—the long lengths reduce application costs and trim waste.

Here's a knot-free clear grade of Certified Kiln Dried Redwood. It stays flat and straight, holds finishes longer. Can be ordered in vertical grain to eliminate grain raise.

Palco-Loc fascia patterns are single or double-plowed to receive either 1/4" or 3/8" soffits. Palco-Loc is also made in S4S finish, in tongue and groove, and most standard patterns. Available paint-primed and paper-wrapped.

Palco-Loc is finger-jointed with exterior waterproof adhesive and complies with FHA requirements for exterior and interior uses (non-structural).



PALCO

Architectural Quality Redwood

THE PACIFIC LUMBER COMPANY

1111 Columbus Avenue, San Francisco 94133

2540 Huntington Drive, San Marino, California 91108

BUILDING MODULARS? We'll make Palco-Loc to fit your specifications.



The Full Proof Doors

Warp proof
Shrink proof
Crack proof
Sag proof
Swell proof

Sta-Tru® doors are so full proof, in fact, that you'll never go back to the gripes and headaches of conventional wood doors again. Or, any other metal-clad door, as far as that's concerned, if you compare it feature by feature, dollar for dollar, with our Sta-Tru door.

And, this is one beautiful door to live with. Not only in looks, but in installation, too. Check Sta-Tru's lower in-place costs. You'll enjoy every dollar-saving minute.

Ask your Sta-Tru man about these full proof doors today. Let him show how Stanley helps you sell homes. Stanley-Berry, Division of The Stanley Works, 2400 E. Lincoln Road, Birmingham, Michigan 48012.

STANLEY
helps you do things right

General Electric puts things into its builder models that no one else puts into their builder models.

The idea of a builder model central cooling unit is to build a quality unit for an economical price. The difference between our condensing units and others is the quality features that only General Electric puts into a builder model.

To start with, there's the General Electric Climatuff™ compressor.

What's special about the Climatuff compressor is the special things we put into it. Things like super-strong motor insulation that resists refrigerant contamination and helps to withstand unusual voltage surges.

The Climatuff compressor also has Swedish steel valves, and a centrifugal oil pump for complete lubrication of all moving parts.

In addition each 230-volt compressor is tested at the factory to start with a power input of only 170 volts—about 75% of rated voltage.

The Climatuff compressor is so good, more than 500,000 of them have been installed with a remarkable record of reliability.

Top air discharge in cooling unit design is an idea that was pioneered by General Electric. And we still are unique because we bring air in from four sides at a low velocity which helps to prevent clogging of condenser surface with leaves and grass clippings.

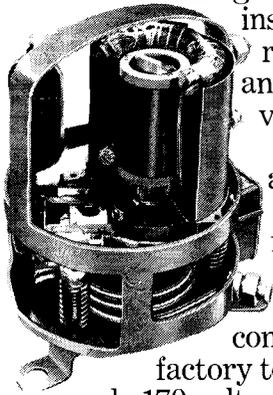
Only GE models have Spine Fin™ condenser coils. The big advantage here is that this eliminates over 90% of brazed joints, where leaks can occur and cause failures.

And then there's our National Service Contract. This plan offers customers an

established cost for service from the second through the fifth year of ownership including both parts and labor required as a result of normal usage. (See contract for normal maintenance requirements and exclusions.)

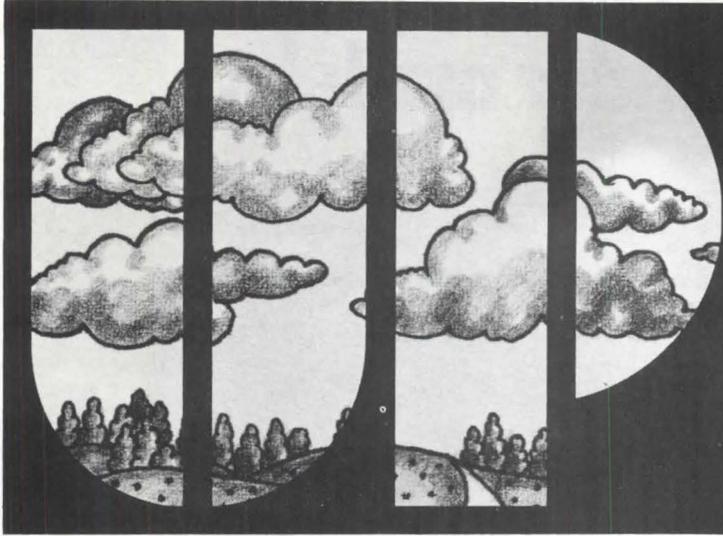
The contract, obtained at the time of installation, is between the purchaser and General Electric. For a 36,000 BTU/H unit the cost is only \$109, plus state and local taxes. The work is done by the General Electric franchised dealer or authorized servicer.

For the full story on quality and dependability, phone your GE central air conditioning dealer. He's listed in the Yellow Pages under "Air Conditioning Equipment and Systems."

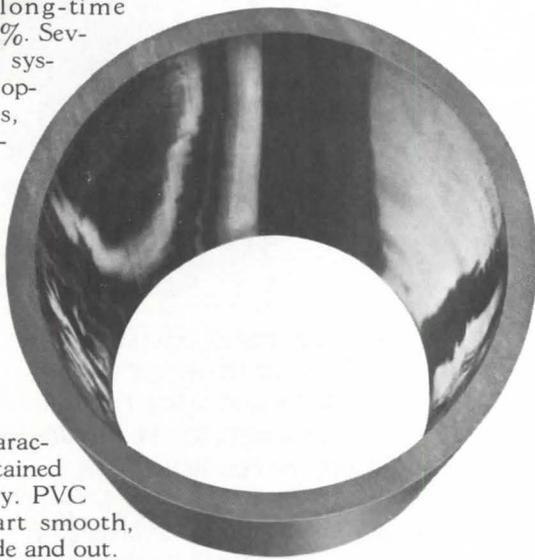


GENERAL  ELECTRIC

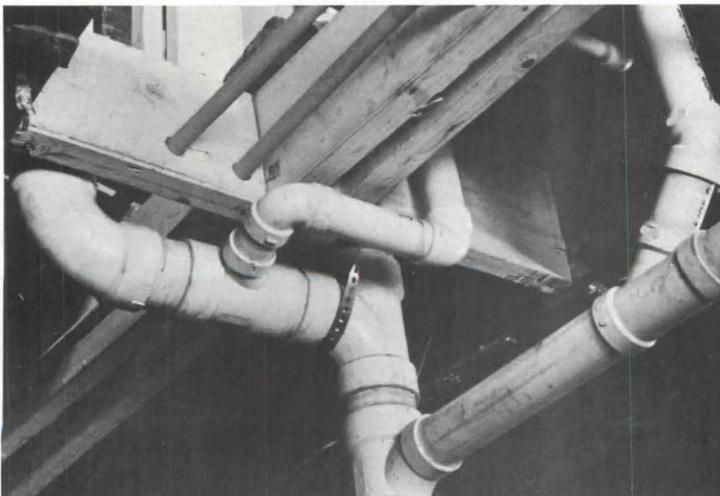
Why 70 million pounds of PVC went into DWV last year.



If DWV is any part of your business, chances are you'll soon be working with PVC. In DWV systems, PVC is currently far surpassing its long-time growth rate of 35%. Several million such systems are now in operation: In codes, the trend is toward acceptance; some 1500 to 2000 codes in all the states now say it's okay to use PVC for DWV.



Superior flow characteristics are maintained almost indefinitely. PVC pipe surfaces start smooth, stay smooth, inside and out.



Solvent welding also eases installation. Cutting is much easier, too. An ordinary hand saw or pipe cutter zips through PVC in a fraction of the time required to cut metal.



There are several reasons for the growth of PVC in drain/waste/vent systems. Corrosion resistance is one. PVC is not affected by the many household chemicals encountered daily in DWV. It is also impervious to sewer gas.



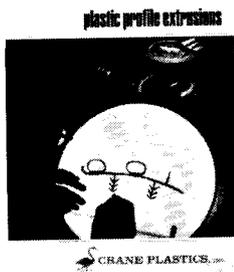
Light weight means easy installation. Easy to carry, easy to handle.

PVC pipe made of Geon® vinyl is backed by 21 years of experience in providing high quality raw materials to PVC pipe and fitting manufacturers. Geon vinyl is made by **B.F. Goodrich Chemical Company**, the people who started it all in PVC pipe. For facts, figures or answers to questions, contact us at Dept. H-26, 6100 Oak Tree Blvd., Cleveland, Ohio 44131.



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The inside story
on using plastic
extrusions for
outside
applications.



It's yours for the asking. A 31-page data kit crammed full of design ideas and helpful product information.

You'll see that plastic profile extrusions have been successfully used in many applications. Like vinyl siding and accessories. Roofing edge strips. Fascia and soffet panels. Window and door components. Thresholds, reglets and concrete water stops, to name just a few.

They go in lots of places because they have a lot going for them. Like design flexibility, which can give you faster assembly and low installation costs. And properties like excellent weatherability, attractive appearance, strength, long life and resistance to dents and scratches.

So don't be left out in the cold when it comes to knowing all about plastic profile extrusions. Send for your free kit now. Write Crane Plastics, 2141 Fairwood Ave., Columbus, Ohio 43216. Or call (614) 443-4891.



Pollution
control:
A corporate
responsibility



Pollution and pollution abatement have become important aspects of every business. They affect budgets, profit and loss, position in the community, corporate image, even the price of stock in some cases.

Pollution is a now problem that is receiving now attention from astute businessmen. Water treatment plants, fume scrubbers and filtration systems, land reclamation, plant beautification, litter prevention, employee education programs, are all types of things industry is doing to help in the pollution fight.

But regardless what a businessman is doing today he must be considering pollution control efforts for tomorrow.

One thing he can do is write for a free booklet entitled "71 Things You Can Do To Stop Pollution." It doesn't have all the answers on pollution. But it might give a businessman a few ideas for both today and tomorrow.

People start
pollution.
People can stop it.



Keep America Beautiful

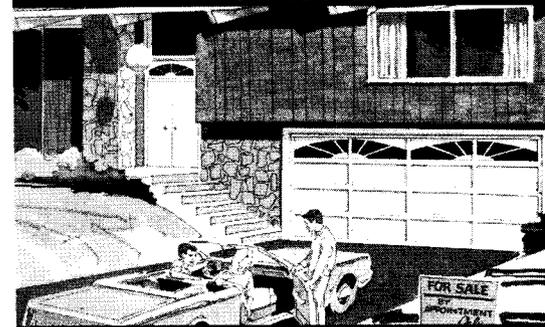


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doors
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harmonize



Cathedral Lites



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Custom Co-ordinated Panels

From the Crawford Design Team

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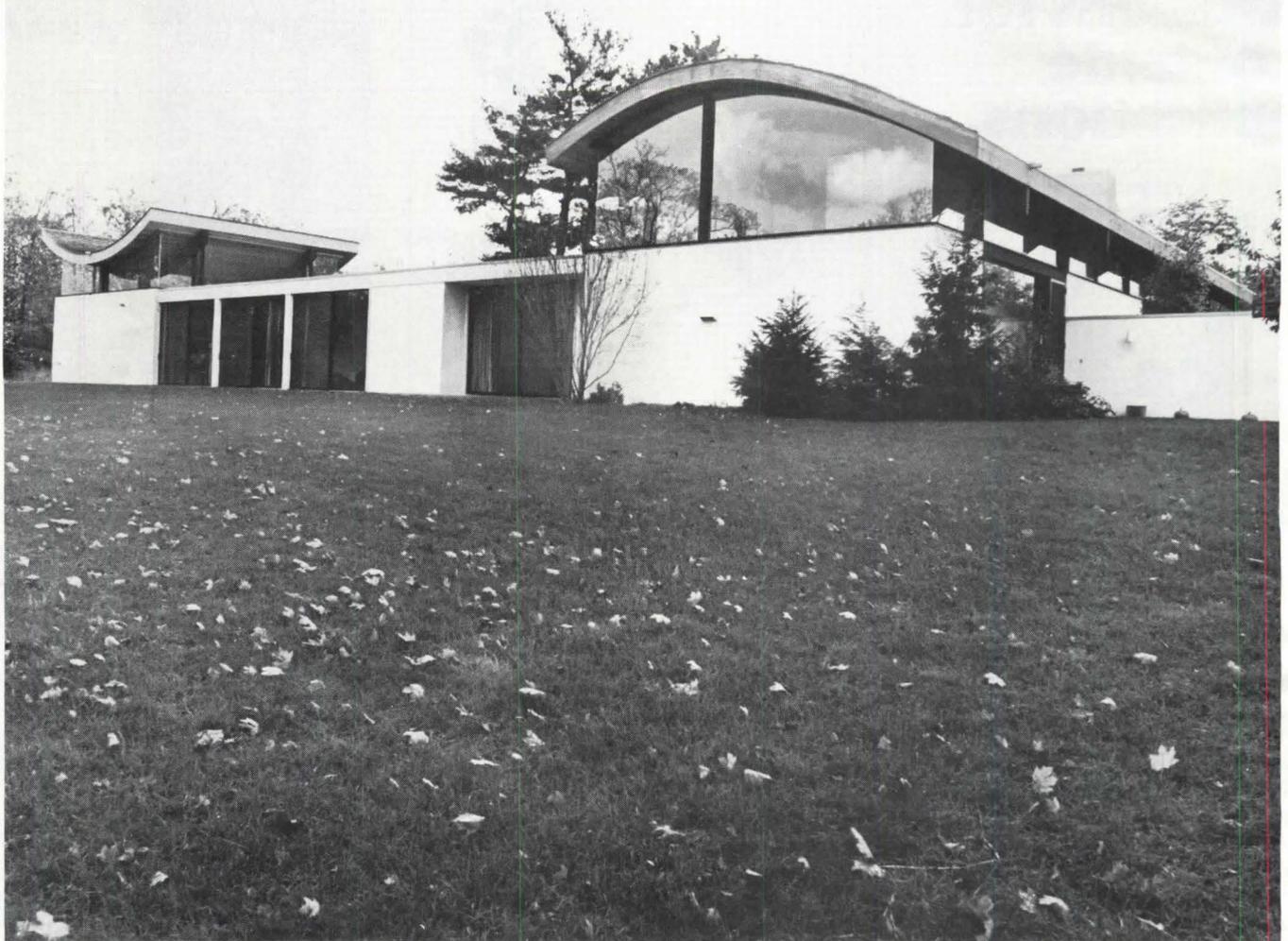


CRAWFORD

Crawford Door Company, 4270
High Street, Ecorse, Michigan
48229.

division of The Celotex Corp.

Today's buyers want more than a new home, they want a new world.



Today's Americans want a world that's clean and pollution free. They're creating a heavy demand for natural gas. Because gas is clean-burning energy. In fact, there is no cleaner burning fuel. That's why gas is such a great way to heat a house, and cool it, too.

While in some areas there are restrictions in new homes, we want you to know the gas industry is working very hard to meet the growing demand for clean gas energy. We're sinking

deeper wells than ever before. Drilling under the ocean bed. Piping in gas from Canada. Importing LNG (liquefied natural gas) from overseas. Even researching to turn things like coal and oil into clean gas energy.

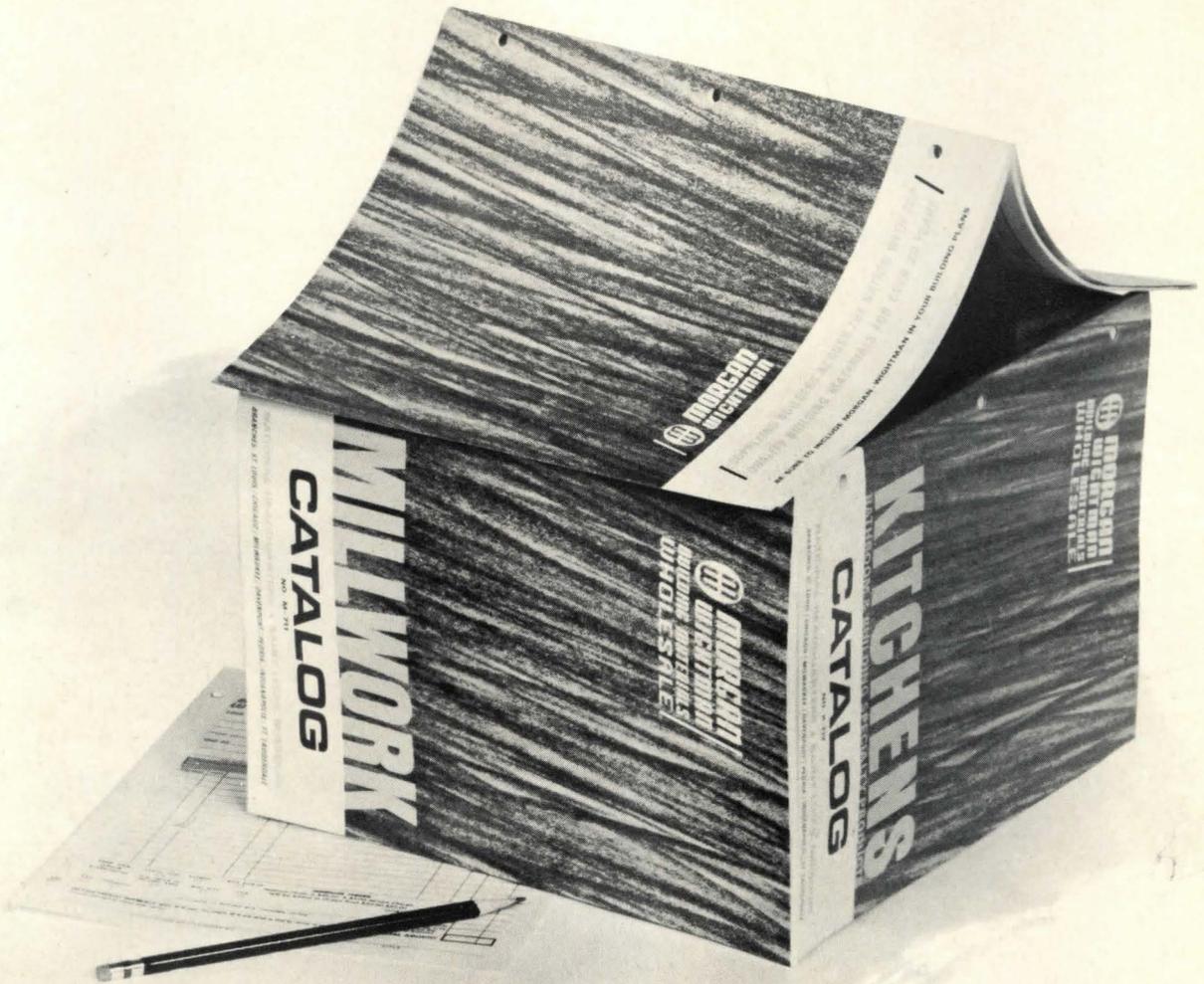
It's a lot of work, and it's expensive. And it's going to mean somewhat higher prices in the future. But all forms of energy will be going up. So gas will continue to be the most economical for your customers.

Gas, clean energy for today and tomorrow

AMERICAN GAS ASSOCIATION



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When you order your building materials from a M-W Catalog, you eliminate stacks of paper work, better utilize labor at a lower cost and make more accurate estimates because you know your delivered material cost in advance. If your order is \$350* or more and the delivery is within the Continental U.S., we pay the freight charges. One order, one invoice, one source of supply . . . it all adds up to savings in your bank . . . and we're as close as your phone or mail box.

Join the thousands of builders throughout the nation who buy from M-W and find out how easy and profitable it is to buy by mail. The M-W Building Material Catalogs are jam-packed with a wide range of top quality products — all at Low wholesale prices. Send for your FREE set of catalogs TODAY.

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CIRCLE 121 ON READER SERVICE CARD

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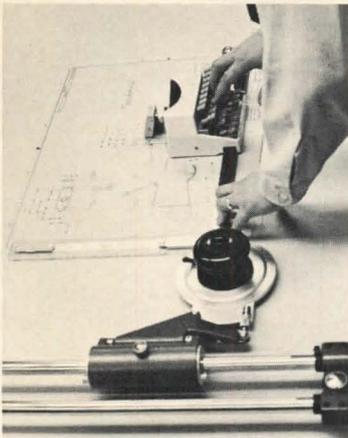
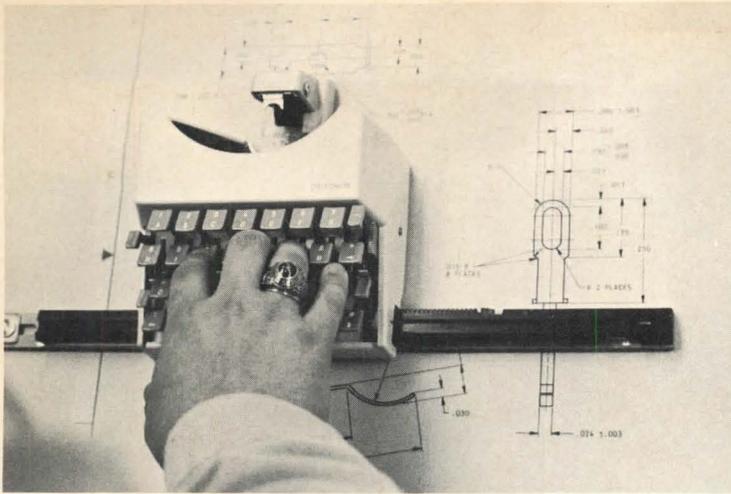
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City _____

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TYPE OF BUSINESS — CHECK ONE

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|--|------------------------------------|
| <input type="checkbox"/> Building Materials Dealer | <input type="checkbox"/> Remodeler |
| <input type="checkbox"/> Builder or Contractor | <input type="checkbox"/> Architect |
| <input type="checkbox"/> Other _____ | |



Lettering typewriter makes machine lettering available to designers and architects. The unit, positioned by drafting machine or parallel bar, moves freely over the drawing surface to provide lettering wherever necessary. Weighing 2 lbs, the machine has a board of 30 keys that provides 60 type symbols. Letters are in alphabetical order eliminating the need to memorize a keyboard. Rubber type available in three sizes, provides block letters suitable for reproduction. The machine retails for \$197.50. Mechanical Enterprises, Alexandria, Va.

CIRCLE 232 ON READER SERVICE CARD



Battery-run dictating machine is effective in environments with high background noise levels such as cars, planes or street level offices. The 29 oz. unit has an optional switch that allows recording time

to be increased from 10 to 20 minutes, a review switch which allows for playback at 6- and 12-second intervals, and an erasable magnetic belt. IBM, Franklin Lakes, N.J.

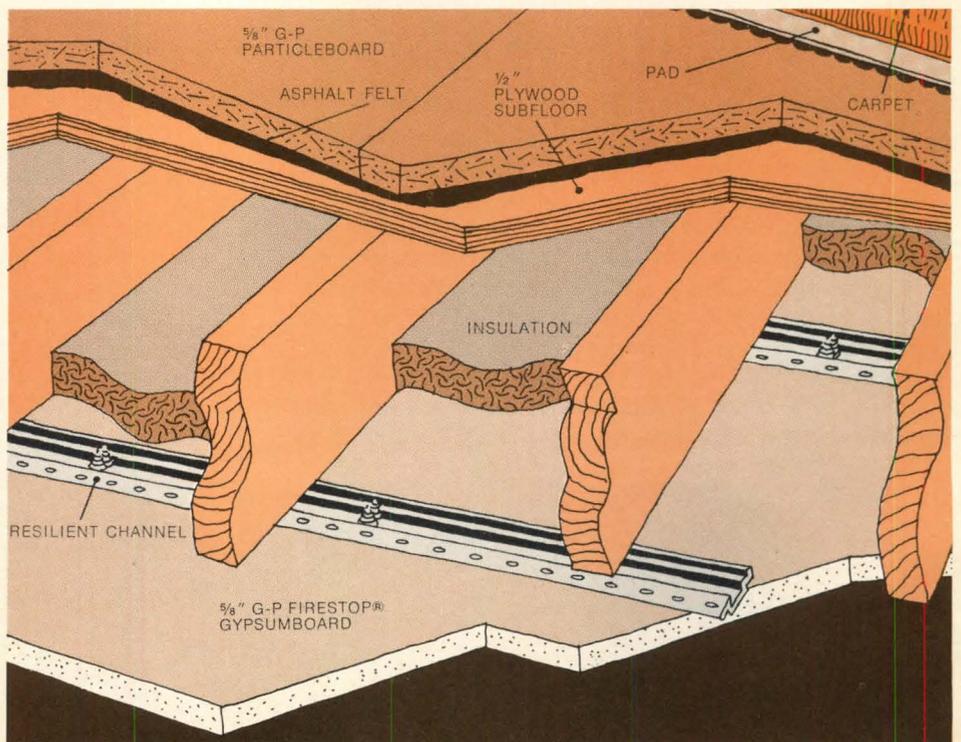
CIRCLE 233 ON READER SERVICE CARD

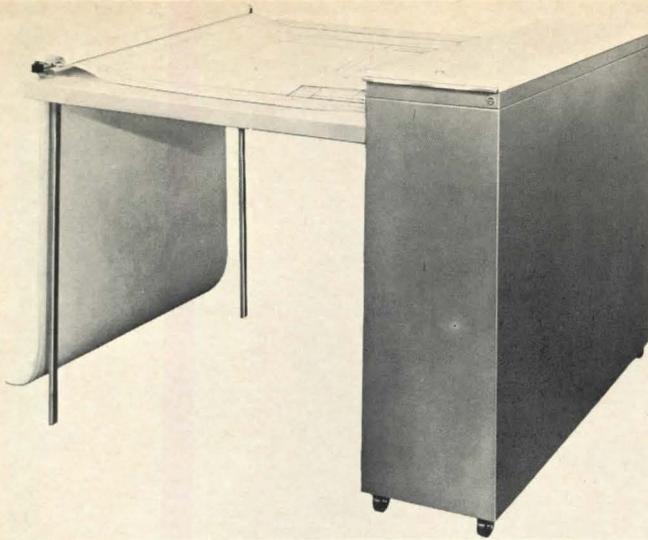
G-P has the answer sound control in

"Floor and ceiling systems cause me trouble... and cost me money."



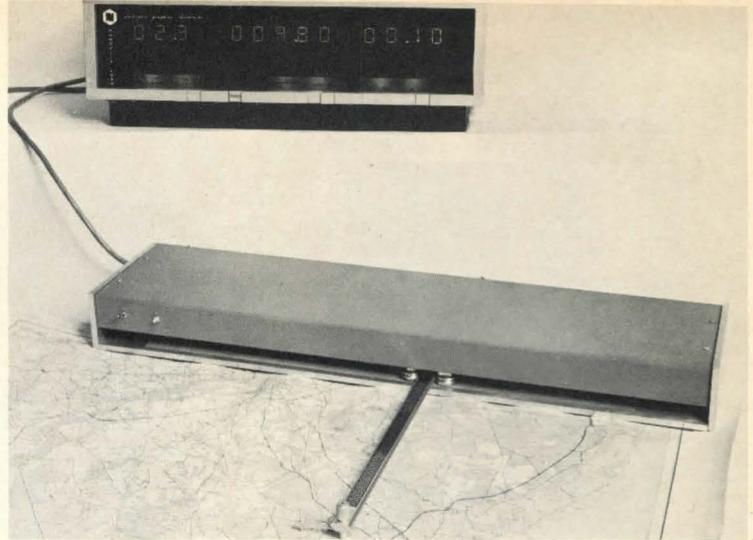
Use G-P's floor/ceiling system. Just have a 1/2" plywood subfloor installed over 2" x 10" wood joists, 16" on center, with insulation. A layer of asphalt felt is added. Then 5/8" G-P Particleboard is installed. And the pad and carpet can be laid down. For the ceiling of the lower unit, a resilient metal channel is nailed to the joist. And 5/8" G-P FIRESTOP® gypsumboard is applied. This system gives you an STC of 50, an INR of +18, and an IIC of +68. Also a 1 Hour Fire Rating.





Vertical tub file and reference table for on site or in-plant storage of blueprints and drawings is available with three size tubs and three size tables. The heavy duty steel

unit with baked enamel finish is mounted on casters for accessibility. The table folds flush for storage. Stacor, Newark, N.J.
CIRCLE 234 ON READER SERVICE CARD



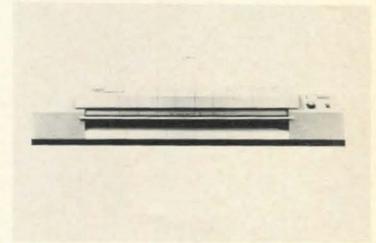
Electronic graphic calculator accurately measures the area of any shape to direct scale by tracing its perimeter. It can automatically multiply this result by a factor for

volume or cost calculations. Teamed with a computer or calculator, it can solve complex problems. Numonics, North Wales, Pa.
CIRCLE 235 ON READER SERVICE CARD



Electronic printing calculator multiplies and divides, using constants, in milliseconds and adds and subtracts with comparable speed. Answers, accurate to the decimal up to 12 digits are delivered on a two-color printed tape. Sells for \$499. Commodore, Santa Clara, Calif.
CIRCLE 236 ON READER SERVICE CARD

Fluorescent lamp whiteprinter with automatic separation and vapor development does not require ventilation, operates from 120-V current. Suitable for the office, the 42" unit can be operated on a 5'x24" table or with its own stand for high production use. Diazit, Youngsville, N.C.
CIRCLE 237 ON READER SERVICE CARD

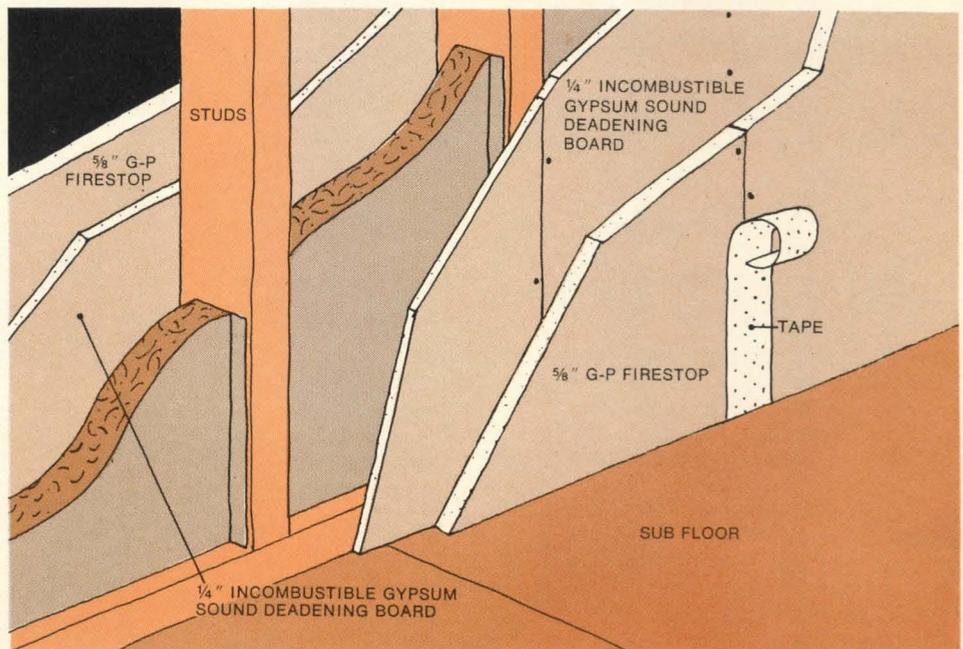


to economical fire and low-rise construction.

"How can I get sound control that works in interior walls?"



It's easy. Just have wall studs with 2½" insulation installed. Then over both sides of the studs, have Georgia-Pacific's ¼" (U.L. labeled) Gypsum Sound-Deadening Board attached and then covered with ⅝" FIRESTOP™ gypsumboard. That's it! Gives you an STC of 50 with a one-hour fire rating.



Georgia-Pacific
GYPSUM DIVISION, Portland, Ore. 97204



NEW two-way

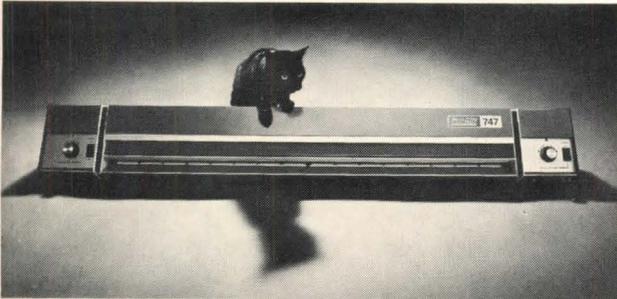


The Premiere Custom Line Roman Bath has twin adjustable recessed Whirlpool heads under built-in armrests, and a third centered at one end of the tub to massage back, neck and shoulders. Face the other direction for equally comfortable reverse whirlpool action. All plumbing contained inside 3' x 6' module. Write for complete catalog and price list.

JACUZZI RESEARCH, INC.
1440 San Pablo Ave., Berkeley, Calif. 94702
(415) 526-0334



CIRCLE 82 ON READER SERVICE CARD

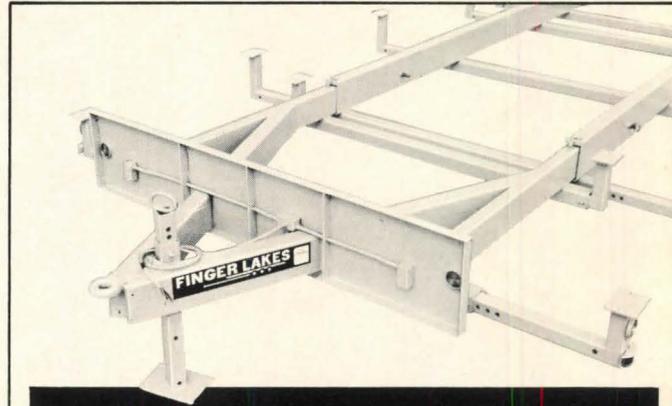


We're Big in Copycats

We sell more tabletop, diazo copiers than anybody else. And we do it with soft sell, not soft soap. Because our precision engineered whiteprinters practically sell themselves. They're dependable quality - no question. They have to be - they're the only tabletops backed by a 1-year warranty.

The whiteprinter shown here, our Model 747, has a 47-inch throat, gives you printing speeds up to 15 feet per minute, offers a selective 3-speed vapor development system which eliminates liquids in the machine. It's one of the three reasons we're the biggest in copycats. The other two: Model 146, Model 1042. Our full color brochure tells about all three. Please send for it. Blu-Ray, Incorporated, 84 Westbrook Road, Essex, Connecticut 06426. Telephone (203) 767-0141.

BLU-RAY



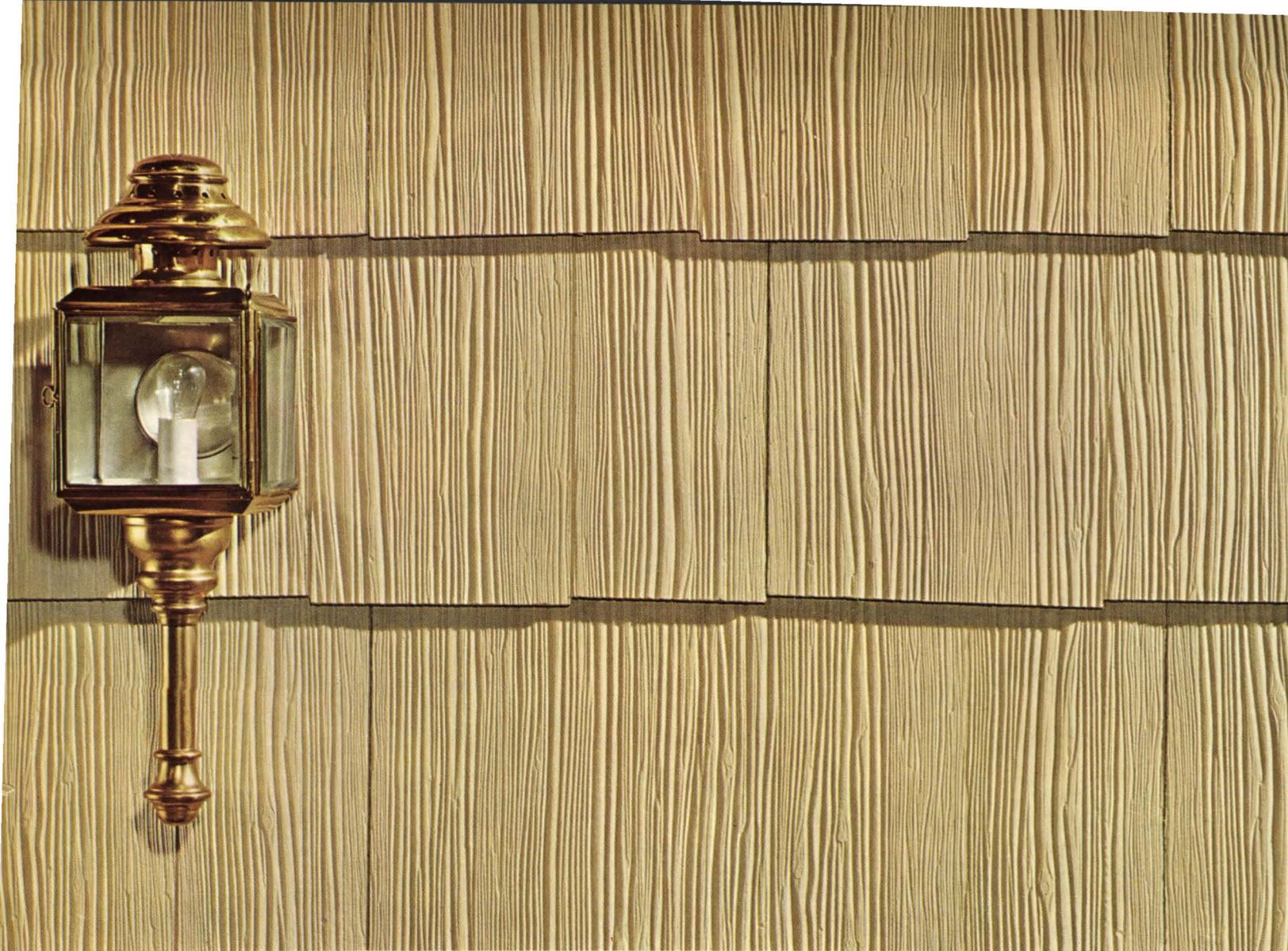
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Beautiful successor to wood shakes.



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CONCORDE SHINGLES and all-new **Barn Shakes** are better than wood. More authentic-looking than other man-made materials. Keep their natural woodgrain texture and charm almost indefinitely... to preserve their lasting beauty...give weathertight protection for 20 years. U.S.G. warrants it! Won't burn, rust or dent, either. Won't give an inch to termites. And resist rotting, warping, blistering and peeling. Choose from 8 no-fade decorator colors in CONCORDE Shingles and 3 natural weathered wood colors in the new Barn Shakes line. Elegant on sidewalls and mansard roofs—on homes, apartments, townhouses and shopping centers. Can be applied conventionally or with new U.S.G. noncombustible metal stud systems. Get full details from your U.S.G. man. Or write us: 101 S. Wacker Drive, Chicago, Illinois 60606, Dept. HH-32.

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BUILDING AMERICA

CIRCLE 3 ON READER SERVICE CARD

*It's for wood.
It costs less than paint, goes on easier, lasts longer.
It won't ever crack, peel or blister.
It's trouble-free for re-do over paint or stain.
It comes in 30 solid colors and
36 semi-transparent.
That's the beauty of it.*



CIRCLE 4 ON READER SERVICE CARD

For samples on wood, write on your letterhead Box 5433 Seattle, Wa. 98107. Olympic Stain. A division of COMERCO, INC. 

Architects:
Wilmsen, Endicott, Greene, Bernhard & Associates

