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NAHB may extend its house warranty plan to non-structural items

Members of the Council of Housing Producers—the big guns of the housing industry—were not happy when they suddenly became aware earlier this year that George Martin, the NAHB president, hoped to commit the nation’s homebuilders to a sweeping new ten-year house warranty program. Some of them still are not happy about it and may not join up when the program is finally launched. As James Shapiro, marketing vice president of U.S. Home—who favors the warranty program—says: “Any program not supported by the ten or fifteen biggest housing producers isn’t going to work.”

Objections, but . . . Council members had many complaints. Some were irked because they felt they were being locked into a program about which they had little say. Some felt a warranty limited to structural defects was nearly valueless and did not cover the kind of complaints that consumers make most. Others were critical of adding $50 to the cost of a house. Some felt that the warranty needs of the small builder and the big one are different. Some wanted a volume discount on the insurance/warranty premium for the big producers.

But Shapiro and executives of several other member firms of the council confirmed that there would be no concerted opposition from them. In fact, representatives of the producers group are going to be working with Martin and his staff to fashion a warranty and an organizational structure that will meet some of the objections the big builders have to the original plan laid out by Martin.

Agreement. That council members will cooperate with—rather than oppose—the Martin-NAHB warranty project became clear after a meeting in Washington in late June. Representing the council were half a dozen executives from such firms as LeVitt, Lawr and Perl-Mack—plus the council’s executive director, Rene Henry, and its Washington counsel, Philip N. Brownstein. Officials from the NAHB included Martin, Executive Vice President Nat Rogg, Staff Vice President Charles McMahon, Director of Consumer Affairs Patricia McKinney, and Robert G. Enzel, an NAHB economist who has been shifted to the warranty staff.

Martin and the NAHB staff laid out a detailed status report to council members after receiving a final report on the program from Eugene Gulledge. As a consultant to NAHB, the former NAHB president and former FHA commissioner worked up the proposal for the two-year warranty plus eight-year insurance proposal for Martin. The plan is modeled after a scheme operating successfully in Britain that covers only structural defects and failures.

Coverage. Shapiro and others say, however, that the purely structural defects covered by the NAHB warranty as proposed originally are rare cases and that most consumer complaints involve “the trim that warps, the door that won’t close . . . the materials and workmanship that are guaranteed for a year.” These are the complaints that enrage the consumer, Shapiro notes, particularly when the builder’s response is unsatisfactory.

Edward Cortese, public relations vice president of LeVitt & Sons, says that structural defects certainly have a place in the warranty but that the program might boomerang if it covered only that. Structural defects, he contends, “are probably the last thing the customer is worried about.” “They’re mostly worried,” he says, “about the leaky faucet and the nail pops.”

Costs. The $50 single-shot premium means a large addition to costs, Cortese points out, for a company that is building 10,600 units a year—$500,000, to be exact—and Shapiro asks, “For the sake of argument, does it make sense to pay another $50 for a warranty we’ve already got?” (U.S. Home, LeVitt and several other builders have their own warranties.) But Cortese also says that if NAHB comes up with a warranty “as good or better than what we offer now, we are most willing to consider and reconsider it, and move into the plan.” The warranty scheme, Cortese thinks, “should work out beautifully,” but the question is “how much better will it be than what we are already doing for ourselves?”

Frank Edelstein of Leisure Technology Corp., a council member that builds retirement and second home-recreation projects, suggests that the warranty on structural elements “is a token kind of thing” and that “more has to be done to give the consumer something to hang his hat on.” Edelstein says the warranty does not do enough and suggests that it is not needed by his firm. “Our company feels we deal much more directly with our consumers over a longer period of time,” he says.

Changes. The NAHB staffers suggest that the warranty scheme may be modified and fleshed out in response to these criticisms. For example, the warranty may well include a specific list of so-called minor quality items for which many builders now offer warranties for a year. Some could be covered for two years.

Another modification that may be adopted, NAHB sources suggest, would allow some sort of sliding “volume discount” for the $50 premium that is being used as the amount needed to finance the warranty. The $50 would cover both parts of the scheme—the first two years (when the builder would be responsible for making good on defects) as well as the cost of the premium paid to an insurance company (for covering claims arising from the warranty’s coverage during the remaining eight years when builders are no longer liable.)

$50 and up. Some news accounts have indicated that the eight years of insurance would call for a premium payment on top of the $50—but NAHB officials deny this. The $50 premium isn’t fixed, NAHB officials admit, “none of this is yet set—in concrete.” Privately, there’s admission that the premium might go a bit higher—maybe $60 or $75—but not as high as $100. “It would add too much to the cost of a house,” says one source.

Insurance. The NAHB has been talking to insurance companies interested in the program as a new source of business. Assuming a million units a year are eventually covered, insurance officials see themselves as getting from $15 to $35 of the $50 premium on each house, and $15 million to $35 million a year—or even half that—is worth serious investigation.

“There’s no problem in getting an underwriter,” NAHB sources say. The size and complexity of the financial operation is one reason NAHB officials, admittedly novices in this area, were reportedly seeking a Wall Street financial consultant to advise them on the financial implications of the warranty program.

Martin and the NAHB executive committee have already tentatively committed $1 million of NAHB’s $3.6 million in surplus and reserves to the program—the amount of front-end money estimated to get the program off the ground. A major deadline for Martin was the meeting of the NAHB executive and finance committees set for the end of July. The next step is presentation to the board of directors in October. If the plan is ready by then, the time-table calls for it to be ready for launch by mid-January.

There is some question of whether Martin can do it all by the time his term ends. So much of the task of making the program work may fall to NAHB’s Vice President Lewis Cenker, the Atlanta lawyer-builder who is to become president of the association just as the warranty is scheduled for take-off.

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FHA rate of 7%/8 still expected to leave mortgage discounts at 5 points

The government has cleared the decks for mortgage interest rates to share some of the rise occurring in other interest rates. The actions were forced on reluctant federal agencies in order to keep the supply of mortgage money from dwindling faster, now that the central bank's credit squeeze has been tightened.

Three actions have been taken that either put upward pressure on mortgage rates directly or else affect them indirectly by raising costs mortgage lenders pay for money they re-lend. They are:

- A hike to 7 1/2%, from 7%, in the permissible interest rate on mortgages backed by the Federal Housing Administration or the Veterans Administration.
- A half-point rise in the permissible ceiling rate on passbook deposit accounts maintained at commercial banks and a quarter-point rise on passbook accounts at thrift institutions.
- Increases of from 1/2 to 3/4 in the permissible ceiling yields on other thrift-institution and commercial bank deposits, coupled with increased flexibility in the kinds of savings instruments institutions are permitted to offer.

Impact on housing. The changes, all made at the same time, marked a partial reversal of the government's previous hopes that the housing market might be spared serious impact from tight money this year.

In early April the Committee on Interest and Dividends had set up the so-called dual prime rate to insulate yields on consumer loans from the rise in big business credit costs associated with the credit squeeze. For mortgages, the CID's goal at that time was defined by a very high official as "something like rough stability," with increases of no more than 1/4% in 1973.

Three months later the hope to leave housing relatively unpinched was blasted by the explosion of economic growth and inflation at home and the international monetary turmoil generated abroad by the Watergate scandal. At midyear Chairman Arthur Burns and the Federal Reserve were forced to shift monetary policy to a noticeably more restrictive course.

Mortgages. Since money goes where the yield is, the federal housing agencies lifted their ceilings to make sure the housing market would have a chance to stay liquid despite the steep increases in competing rates elsewhere that followed the Fed's decision to toughen up. The CID, meanwhile, signified it would no longer ask mortgage lenders to hold rates flat, though it still wanted increases to come slowly and not to exceed the increase in lenders' costs.

In fact, builders and savings and loan institutions both voiced alarm that too much scope for increases in rates they had to pay would hurt housing. So the FHA-VA rate increase was not made large enough to fully wipe out the eight discount points mortgage bankers were charging to make below-market yield FHA-VA loans. The 3/4% rate increase should theoretically reduce discounts by six points—two points for each 1/4% of rate increase. But that is pure theory, and in practice the secondary market usually eats up half of any point reduction.

So the rate increase was expected to reduce discounts by three, rather than six, points—leaving the discount on the FHA's 203b new-house loan at about five points. The Loan Bank Board onlly advanced the ceiling on passbook accounts half the distance the Federal Reserve and the Federal Deposit Insurance Corp. were willing to increase the maximum passbook deposit yield commercial banks may offer.

Mortgages actually traded briefly at discounts up to 1/2 points. When Congress recessed July 3 without extending the FHA, the agency said it lost power to set ceilings above the old FHA statute level of 6%. Lenders promptly told borrowers that only 6% money was available, and discounts reached 15 to 22 points in some cases.

Usury rule problem. It is the suspicion of homebuilders that raising ceilings only accelerates the inexorable rise in effective mortgage costs. The government's case for raising FHA-VA was bolstered, however, by the problem created by usury ceilings on conventional mortgage loans in some 13 states. The usury ceilings had been set low enough so they were beginning to choke off conventional loans. At the same time, the accumulation of points paid under the old 7% FHA-VA ceiling were, in the words of the Department of Housing and Urban Development, causing lenders "to avoid FHA-VA mortgages because there is an aversion to the complications which result whenever points must be charged."

Stars. "The situation has not changed so dramatically from earlier in the year despite the notching up of housing ceiling rates and the allied tightening of money," asserts the U.S. Savings and Loan League's economist Kenneth Thygerson.

He's shading down his estimates of housing starts a trifle, from 2.1 million units to 2 million even. Similarly, Thygerson is shifting his estimate of the rise in the year's mortgage rates from a modest quarter point to half a point.

The mortgage men. The president of the Mortgage Bankers Assn., Everett Mattson, praised HUD Secretary James Lynn for his proposal to raise the FHA rate.

"It will reduce housing prices that have been inflated to absorb deep discounts and it will increase the availability of mortgage credit," Mattson said, but he cautioned:

"Of course, the moderate-income buyer who depends on the FHA and the veteran borrower will not benefit from these significant changes in economic policy until Congress renews FHA's authority to establish a rate ceiling above the statutory 6% ceiling—a rate that is hopelessly out of touch with market conditions."

Return of tight money. "The impact of the new rates on deposit flows will depend heavily on the extent to which savings institutions and commercial banks promote the longer-maturity, higher-yielding certificates that can be offered under the new regulations," claims New York's Argus Research Corp. After a gingly start, competition seems to be forcing lenders to push the new higher-cost certificates.

But prolonged tight money could negate their efforts. Thygerson hopes the difference between 1973 and the 1969 crunch will be a much briefer span of tight money this time. However, inflation this year has so far proven far more intractable than anybody expected and there are no bets in Washington on how fast it will give way to monetary restraint.

Says a HUD housing analyst: "What these latest actions signify is that tighter money is here to stay for a while. The Fed has to keep at it as long as it takes."

—STAN WILSON

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So why put up with excess weight, excess time and scrap materials? Instead, start tilting up more feet of paneling with every panel you erect. For more information on the Alumiframe system, call Ken Lally, national sales manager, (412) 553-2853, or write: Alcoa Building Industries Division, 1092-H Alcoa Building, Pittsburgh, Pa. 15219.
Better safe than sorry is the motto of the federal housing agencies. The agencies have just commissioned a study that will weigh the chances the private mortgage insurance industry has of continuing to thrive in an economic slowdown in 1974.

The Federal National Mortgage Assn., the Department of Housing and Urban Development and the Federal Home Loan Mortgage Corp. are funding the study through Arthur D. Little Inc., a research house. The sponsors all hasten to say there is no reason to doubt that mortgage insurers have been prudent or to anticipate that the economy will turn bad enough to overwhelm the companies. State insurance superintendents also regulate the PMIs closely, and the Washington agencies set elaborate capital and underwriting standards for them.

A full house. Given the incentive of a 15% compound growth rate, however, the private insurers are multiplying. Fifteen are already in business and "a lot of other people are ready to throw their hats in the ring," in the words of a reliable mortgage banking industry source.

So Washington wants to take stock of whether the industry is still made up of the viable insurers the federal agencies were requested to deal with in the 1970 Emergency Housing Act.

The Nixon Administration has concentrated much of its strategy for housing in the conventional—or private—mortgage market, whose liquidity has recently come to depend in large part on private mortgage insurance.

If there are no present signs of trouble, there are considerations that make the government curious. It would like to know much more than it does about what is going on with the private insurers and their underwriting of the controversial new 95%-of-value mortgage.

New breed. The 95% conventional loan, requiring a mere 5% in down payment, has brought to the private mortgage market a whole new class of middle-income home buyers who previously would have used the Federal Housing Administration's mortgage program.

While the study's sponsors have standards for the private insurers to observe, they cannot monitor every loan. So there is a desire in Washington to know that the private insurers' reserves are adequate and that their underwriting standards are completely divorced from the insurance-selling side of the business. Such separation lessens the danger that standards will be compromised for the sake of beefing up volume.

Washington also wants to look at whatever data are available on the losses with the new 95% loans, but the study may have to concentrate on loss experience with 90 percenters. The data on the 95% mortgage is not yet extensive.

Recession risk. Foreclosure risks seem to crop up most often in the third year of a mortgage. This would suggest that the newest private insurance companies face their greatest risks in 1975 or 1976.

But there is also the possibility that a recession in 1974 will strain the finances of the young families that have been snatching up the 95% loans. Some industry sources expect that a judgment as to whether private insurers can cope with a recession is really the task facing Arthur D. Little Inc.

Fate of FHA. The opposite view is emphasized by David Engelman, senior vice president of the largest private insurer, Mortgage Guaranty Insurance Corp. of Milwaukee.

"The government must determine the appropriate role for the FHA," he says, and he goes on to say that the study may prove that private insurers can handle much of the old FHA market.

Not, Engelman adds, that PMIs will ever totally take over even the unsubsidized programs the FHA now provides.

Optimism. The government has a big investment in the public's confidence in private insurers, and if the study were to make recommendations, they would be more likely to run along the lines of strengthening rather than disqualifying the companies.

Furthermore, government and industry men say in private, if the 1974 recession should come in combination with inflation—as happened in 1970 and 1971—the rising price of houses could well bail the private insurers out of whatever losses they might otherwise face.

—STAN WILSON
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Miami’s big lock-up: Builders must provide wide range of security devices

The jalousie door and window, familiar architectural features adopted in south Florida to catch the southeast trade winds in a time before air conditioning, have been declared illegal in greater Miami. A building security ordinance enacted by the Dade County Metropolitan Commission, effective Nov. 4, 1973, declares that doors with louvers—jalousies—shall not be installed in the exterior wall of areas requiring security unless the lowered area is protected by intrusion security devices. Jalousie windows are not to be allowed unless they are installed eight feet above ground.

Replacements. In the last five years, as the price became competitive, builders of homes and apartments have generally been using the awning-type window for greater customer appeal. The awning window can be left open during rainstorms, while the four-inch jalousie window must be almost shut.

Builders have also gone to solid decorative front doors, but the jalousie door is still frequently installed in kitchens and in so-called Florida rooms because it admits light and air. Porch additions usually include a jalousie door.

The objection to jalousies is that the panels can be slipped easily from their frames by an intruder.

Locks. The security ordinance also will require dead-bolt locks on all outside doors. Locks on exterior doors must have a minimum of 6,000 key changes or locking combinations. Windows and sliding glass doors in exterior walls, if accessible from the outside, will have to have dead bolts or pins not removable or operable from the outside.

Sliding doors will have to withstand a 300-pound force. Window glass will have to withstand the blow of a five-pound weight dropped from 40 feet and will have to hold against a 150-pound force. Wood doors will have to be solid core in rabbed jambs. Doors in apartment buildings will have to include vision panels or scopes.

Security drive. The move to enact such an ordinance began a year ago when the county sheriff’s department met with civic organizations, representatives of building-material manufacturers and with the building industry as represented by the county’s board of rules and appeals, which has jurisdiction over the building code.

Developer wins over an Eagle Scout

Two San Francisco developers have just won the California Coastal Zone Conservation Commission’s approval of projects opposed by conservationists.

The developers had received permits earlier from a regional commission, but those permits were appealed to the state body by conservationists under provisions of California’s Proposition 20, the coastal protection statute.

Jeremy Ets-Hokin’s multimillion dollar Playland-at-the-Beach project, a residential and shopping center, was approved with modifications by a unanimous vote, Gerson Bakar’s $9 million Lake Merced Hill was upheld 11 to 1.

Scout’s deeds. The appeal against Lake Merced Hill had been filed by 18-year-old Allan Riley. The project ground to a halt last spring.

Riley’s crusade to save the lake began as a project for his Eagle Scout award, long before Bakar’s development was announced. Convinced that Lake Merced Hill would pollute the lake, drive away the swallows, increase traffic congestion and lead to more development, Riley first fought it at City Hall, but lost.

After Proposition 20 was passed last November, Riley got the regional coastal commission to halt construction.

Riley also sued in San Francisco Superior Court and won a temporary restraining order stopping the project until the regional coastal commission granted a permit.

Basis of ruling. The regional commission granted Bakar’s permit May 17, and it was immediately appealed to the state commission, which decided that the 112 townhouses and 88 condominium apartments would have little effect on the lake. Riley, now at the University of California at Santa Barbara, plans to be an environmental lawyer. He was assisted in his campaign by Lowell High School students Jonathan Hoff and George Duesdike, who were co-chairmen of a group called Save Lake Merced (SLAM). They are considering whether to appeal the state commission’s decision through the courts.

—Jenness Keene
McGraw-Hill World News, San Francisco

that this or similar regulations could go a long way in reducing burglary in south Florida."

Municipal police chiefs and the Aluminum Manufacturers Assn. indicated support.

Builders' objections. The building industry resisted the changes, charging that the proposed ordinance would raise costs and affect the ability of the builders to provide much low-cost housing.

The builders say the ordinance will raise costs $400 a house. The county building department thinks this estimate is far too high.

The county manager’s office urged adoption of the ordinance, pointing out that more than $6 million was lost to burglars last year in the unincorporated areas of the county alone, averaging $240 a burglary. The manager’s report concluded: "We feel that the minimal additional cost for implementing this ordinance is far outweighed by the costs associated with criminal acts which the ordinance attempts to prevent."

The effective date was set six months after adoption to give the local aluminum companies time to produce the windows and doors required.

Apartments. Another ordinance that will contribute to higher costs for apartment builders in greater Miami will require sprinkler systems in new buildings 36 feet tall or higher. Most new apartment developments are at least three stories and will be covered by the law, effective July 15. Builders estimate it will add $1.50 a square foot to the cost of construction.

The ordinance had originally been proposed to cover buildings at least seven stories high and the construction industry had felt it was a fair proposal because local fire equipment cannot work above seventy feet. But when the ordinance came up for adoption with no opposition in sight, the sponsor lowered the height figure.

The builders will appeal.

Neighboring Broward County (Fort Lauderdale), which is covered by the south Florida building code, has indicated it will not adopt either the sprinkler or the security ordinance.

—Fred Sherman
McGraw-Hill World News, Miami
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ARI's program also provides public officials with practical data and guides for setting up reasonable sound control ordinances. ARI has a booklet that explains its sound control program to home builders and public officials. Write us and we'll send you a free copy: Air-Conditioning & Refrigeration Institute, 1815 North Fort Myer Drive, Arlington, Virginia 22209.

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*Free! The Bridlecreek Success Story!*
The builders get the word in California—and its a zinger: consumerism

California's homebuilders have just been served with a new notice of an old caveat: "The customer is always right."

It is the customer, advocates who lead the new consumer movement, now fanning over the land like a prairie fire. Overriding all else, the movement galvanized the attention of housing leaders assembled for the Pacific Coast Builders Conference in San Francisco.

One of the industry's own spokesmen was among the first to concede the dimensions of the builders' problems with an aroused consumer class. She was Pat McKinney, director of consumer relations for the National Association of Home Builders.

Selling beware! Public dis­content with builders is spreading, Miss McKinney said, and she cited a California survey indicating that two of every three buyers now believe there has been no improvement in construction quality in the last five years.

Miss McKinney described the no-growth movement as merely one form of consumerism, and she added that builders are coming under attack from many quarters—the courts, legislatures, environmental groups and the general public.

The NAHB's own studies, Miss McKinney said, have uncovered national trends toward more licensing requirements, extension of builder liability periods, substantial bonding rules and a drift toward class-action suits against developers.

Either-or. "Public opinion drives consumerism, and public opinion often becomes law," Miss McKinney cautioned, and she put the builders on notice: Police yourselves or face the option of congressional legislation to control the building business.

Miss McKinney advocated one form of self-regulation—the warranty and insurance program being urged upon the NAHB and its 70,000 members by the association's president, George C. Martin [News, June].

[For more on the warranty program, see page 7.]

Stand-pat barrier. A public relations representative for several California builders and developers supplemented Miss McKinney's warning.

N. Richard Lewis, president of Lewis & Associates of Los Angeles and San Francisco, said that, in a new era of consumerism, most builders are still using advertising and marketing techniques based on business-as-usual. His own survey of 20 California building companies, he said, found that 60% had made no changes in their sales approach or in their programs to orient salesmen to the spirit of consumerism.

Lewis warned that salesmen can now do serious harm by misrepresentation, and he argued a strong case for full disclosure in sales office and model home. He predicted that these four consumer trends would develop in the next year:

- At least one unit in every model home complex will remain unfurnished, showing the consumer exactly what he is getting—no more, no less.
- More builders will require buyers to sign a written release stating that no promises were made to the effect that the house would appreciate in value.
- The industry will adopt a national program for a ten or 15-year structural warranty.
- The class-action suit will fade into disuse as courts recognize that too many are instigated by irresponsible lawyers who encourage litigation for personal profit and publicity.

Despite the severity of his approach, Lewis had kind words for consumerism on balance. He told the builders:

"As the years go by, I think consumerism will result in the rekindling of pride in one's work and one's product—the pursuit of excellence, if you will."

Regard for land. Governor Tom McCall, Oregon's articulate conservationist, warned the builders that the public now demands far better land management and environmental protection than has been the rule.

"There is a new mood in America," McCall cautioned, and he went on to criticize developers "who are turning our wide open spaces into mincemeat."

To control the urban sprawl that devours agricultural land, McCall urged that government and industry join to assemble acreage suitable to development. New state commissions on consumer protection and land development might assure the public that developers' promises would be kept, he said.

The builders' side. The NAHB's Martin said the building industry was indeed mindful of consumerism but that it will not lie down and play dead in the face of attack.

Martin promised that the association would provide legal help to local chapters fighting against building limitations, and he said the NAHB would supply data to convince local businessmen that no community can prosper without growth.

Elections. The Coast meeting drew 6,000 builders, suppliers and wives. The sponsor was the California Builders Council, legislative arm for ten of the state's builder associations.

Ray Lehmkuhl of the Ray Lehmkuhl Co. of Lafayette, Calif, was elected president of the 1974 conference. He succeeded Gordon W. Hanson, president of Challenge Developments of Redwood City.

The council elected Barry Scherman, vice president of the Hofmann Co. of Concord, as president to succeed John B. Clark Jr, president of the San Diego Fence Co.

Freddie Mac gets a new chief...

...and the chief gets a new title.

He is William J. Popejoy, just named as president of the Federal National Mortgage Corp.

The title is new. Popejoy replaces Thomas R. Bomar as the corporation's chief operating officer, but Bomar's old title of executive vice president goes to Philip N. Harrington, the FHLMC's former vice president for operations.

Bomar, now chairman of the parent Home Loan Bank Board [News, May], automatically becomes chairman of the FHLMC. He had been the corporation's chief executive since the FHLMC's inception in 1970, and he announced the Popejoy appointment.

Popejoy, a former vice president of Brentwood Mortgage Corp. of Panorama City, Calif. [now Oxford National Mortgage], had been the FHLMC's vice president for sales.

The FHLMC is the Home Loan Bank System's mortgage purchase arm and is known in the housing industry as Freddie Mac, a kind of sister agency to the Federal National Mortgage Assn. [FNMA, or Fannie Mae].

Raymond T. Popejoy

McGraw-Hill World News, San Francisco
New Maytag D18 Commercial Dryer

1. Drum volume 26% bigger than previous models.
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8. Entire dryer can be serviced from the front.
9. Choice of gas or electric models.
Housing stocks steadier; builder and mobile-home groups manage rallies

House & Home’s price index of 25 housing stocks has firmed after a six-month decline.

The composite closed at 285.43 on July 3, virtually unchanged from the 285.75 of the previous month. The building company and mobile-home groups actually staged minor rallies.

Shapell Industries of California was factored into the index to replace U.S. Financial, which had not been traded since November 1972 [News, May].

Here’s the composite graph.
The copper "life safety" fire sprinkler system makes this landmark hotel one of the nation's safest.

Tucson's Pioneer International Hotel was recently remodeled to become the nation's first with copper "life safety" sprinkler protection in every room.

The system's emphasis is on prompt detection and suppression of fires in compartmented structures using small quantities of water. Because of the system's superiority, costly structural alternates were not necessary.

Copper tube ends the need for oversizing to compensate for pipe corrosion buildup. Copper tubes stay clean inside and also handle the pressures reliably.

Easy joining by soldering and small size make copper tube perfect for snake tube around obstructions when remodeling existing buildings.

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People like Panelectric heating because it's quiet (no motors) clean, (no blowers), and reliable (nothing mechanical to break.) And there are no air vents, radiators or returns to cause design, decorating, or building problems.

Find out more about this constructive material. Call your Gold Bond representative, or write Gold Bond Building Products, Division of National Gypsum Company, Dept. HH-83G, Buffalo, New York 14225.

Friars Village, a luxurious new condominium development in San Diego, is heated entirely by Gold Bond Panelectric radiant heating panels, now extremely popular in the West.

Interiors at Friars Village are colorful and luxurious. Panelectric will keep them clean — there's no soot or dirt. Panelectric can be papered, painted or textured like any other gypsum board ceiling.

Panelectric panels are factory-wired, single-layer 5/8" Fire-Shield Gypsum Wallboard with one-hour fire protection. Available in both 208 and 240-volt models.

Gold Bond BUILDING PRODUCTS

WE'RE CONSTRUCTIVE
Resort condominiums in Mexico: The boom is on south of the border

Or perhaps boomlet is a more accurate word. It's concentrated mostly in one area (Acapulco), by U.S. standards the volume is infinitesimal (some 300 to 600 units per year), and one company (Playasol, SA) is doing the lion's share of the building. But boom or boomlet, the future looks rosy—particularly in light of these two important facts: first, the growing interest in Mexico as a vacation haven and second, an apparently enlightened attitude on the part of the Mexican government towards foreigners.

R&R below the border. The popularity of Mexico—and particularly Acapulco—as a vacation center is evident in the 2 million visitors that are anticipated for 1973. Last year, some 250,000 passengers flew directly into Acapulco itself—an increase of 100,000 persons over the previous year. And since the exchange rate (12.50 Mexican pesos per U.S. dollar) has not changed since the devaluation of the dollar, another increase is expected this year.

But North Americans aren't the only tourists: More and more charter flights are coming into Acapulco from Europe—particularly from West Germany. And West Germans are evincing great interest in Mexican condominiums—particularly in light of Mexico's new overtures to foreign interests.

Government action. These overtures have come in the form of revisions in regulations regarding rights of foreigners to use and benefit from real estate in areas that are closed to direct ownership by non-Mexicans.

It goes back to the Mexican constitution which—for security purposes designed to protect national sovereignty—forbids any foreigner to directly own land or waters within a zone of 100 kilometers (62.5 miles) from the country's international boundaries and 50 kilometers (31.3 miles) from the coasts.

Until 1971 there had been loosely held provisions allowing non-Mexicans to obtain holdings of land through ten-year trust agreements. However, many non-Mexicans had resorted to third-party purchases in order to obtain land rights. But these foreigners could not be sure of the firmness of their holdings.

At the same time Hinojosa's brother-in-law, Jose Riojas R., was looking for new ventures, having decided to pull out of his father's electronics firm. And Riojas shared Hinojosa's enthusiasm about Acapulco. The brothers-in-law became scouts: Riojas for participants (he came up with a total of nine families) and Hinojosa for a location.

In searching out the Acapulco area Hinojosa discovered that most development had been concentrated in the northwest part of Acapulco Bay—close to downtown shopping and the more-popular beaches. There also was a sprinkling of new hotels planned for the southern area of the bay and an increasing number of luxury homes around the higher land-level areas close to the famous Las Brisas hotel complex. But more importantly, Hinojosa also discovered that a vacation development, Club Deportivo de Acapulco (Acapulco Sports Club), had sold some land facing the club along the beach area between less-used Condesa Beach and las Tres Palmas Naval Base. This was land that was easily accessible by road or air; it was located in the center of the bay area and so could dominate one of the best views of Acapulco Bay; it benefited from some of the best bay breezes; and it was available and free of holding ownership by communal farmers, known as ejidos. (Ejido land within one kilometer of the coast is now being expropriated by the Mexican government for use in resort development.)

Hinojosa's idea: Let's pool our resources and build a common home without having to build a house—in other words a condominium apartment building.

Looking back. This was not the first time condominiums had been attempted in Mexico. As far back as 1945, the idea had been tried in Acapulco's early development stages. But it hadn't worked well: Costs had been way above estimates and maintenance had been both high and not too well organized. As a result, units were hard to sell.

Well aware of the previous problems, the brothers-in-law developed a program which called for a 25% advance by each of the nine families on the $25,000 estimated cost per apartment. The balance was to be spread out over the construction period as needed.

In January 1966 the nine families moved into their fully paid for apartments.

Success story. But it was the interim period—between the start and completion of construction—that presaged the ultimate boomlet.

As the nine-family building progressed, passers-by continually inquired as to whether apartments would be available.
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H&H AUGUST 1973 33
Playasol—how it's structured, what it plans

What started out as a small family operation has grown into a complex of inter-related companies identified by the suffix ‘sol’ added to whatever word describes the field of activity.

Playasol, SA is still the parent company. Devoted to developing and building condominiums in Acapulco, it also has begun to operate in Puerto Vallarta and on the Caribbean coast and is organizing in Manzanillo.

Supporting the development operation are: Contrusol, SA, which acts as general contractor, Decorsol, SA, which handles interior design for owners who want their condominiums furnished and which also builds furniture for outside sale; Rentasol, SA, which handles rentals for condominium owners who lease out their units (average daily rents are $50, $80 and $100 for one-, two- and three-bedroom units respectively); and Servisol, SA, which maintains the units.

This complex of companies has an overall declared capital of about six million pesos ($500,000). "You have to remember, Riojas explains, 'that we build condominiums with our clients' money plus good credit. We do not own condominiums.'

Future plans. Looking to broaden its horizons, Playasol expects to expand condominium and apartment hotel operations into new areas. The company's project in Puerto Vallarta—where three apartment hotels and six condominiums are planned—is the most advanced.

In Manzanillo there are tentative plans to joint-venture with Patino International, the head of a group of companies specializing in tourism.

Playasol is constantly scouting for new sites for new condominiums," says Jose Riojas. "And we will stick to our formula." —L. M. V.
Hang this card on your thermostats.
It'll tell buyers you're saving them money with an energy-conserving house.

Today energy conservation is important to your buyers. So let them know you're insulating your homes with at least six inches (R-19) of Fiberglas* insulation in the ceiling and three inches (R-11) in the walls — to save fuel, cut costs.

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Owens-Corning is Fiberglas
Tight squeeze: 24 units, plus parking, on less than half an acre

And the problem was compounded by a 35 ft. height limitation imposed by the city of Newport Beach, Calif.

The solution was a plan that put the parking under the building but only a few feet below grade. This arrangement kept the building within the height limit, held down excavating costs and made the first floor as private as the upper two floors by raising it above eye level.

The oceanfront project, called Rendezvous Condominiums, was sold out before the building was framed. Buyers had a choice of four plans priced from $28,450 to $68,450. The architect was Rolly Pulaski & Associates Inc.; and the builder, JAK Construction Co.
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These building plans may be ordered in any combination desired: 12 sets of drawings for 12 different homes; 4 sets for 3 different homes; or any other way you prefer them.

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set packages—depending largely on the square-footage of
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Drawn to FHA and VA general standards, these blue line
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HH-873
The California look—with a privacy bonus—goes over big in Charlotte, N.C.

So big that these 37 patio houses were sold out last fall before the last ones were in the ground.

The developer, The Ervin Co., was quick to spot and exploit a big change taking place in Charlotte: The city's population has jumped more than 9% since the 1970 census, and many of the new arrivals are young (25 to 35) executives of companies moving to the city. Reasoning that these young people would not be tied down to the area's prevailing traditional architecture, Ervin tested the design in a nine-acre section of its 500-acre Village of Four Seasons project.

A prime selling point of the $25,000-to-$29,000 units is the privacy achieved by minimizing common walls and by separating living and sleeping areas of neighboring units.

A larger and more expensive version of the same design is planned as part of Ervin's Rain-tree project, also in Charlotte. Major changes will be the inclusion of a two-car garage for each unit and a return to a more traditional interior, since the developer now feels that this, with the California-style exterior, will find a wider market.

Architect was William G. Newman; landscape architect, Lee McLaren; and land planner, Robert Ballou, all of Ervin's staff.
Is Temple hardboard siding really better? Judge for yourself.

Temple primed sidings eliminate half the painting job—the prime coat—as well as providing weather protection during construction.

And because Temple hardboard siding is made from 100 percent wood fibers, it can be worked much like wood—in many ways, better than wood. For instance, Temple hardboard siding panels and lap siding don’t split when cut, and there’s no splitting during nailing. Nails can be driven flush without damaging the board surface. Each panel is an identical match, so there’s no hunting to match boards. Temple sidings are free from knot holes, are easy and quick to apply, and have no resins to bake out later in the sun.

Judge for yourself—against whatever siding you’re using. Then check the prices at your Temple building materials dealer—against whatever siding you’re using.
The exploding popularity of condominiums nationally poses new challenges to the builder and decorator alike.

First, from a marketing standpoint, you can't always merchandise a condominium the same way you do a single-family home. Not only are the demographics different, the interior design approach usually also must be different—more distinctive, more individual.

From the decorator's standpoint there are two problems to cope with. First, generally there is less space. But more importantly the nature of this type of shelter means greater pains must be taken to emphasize the feeling of ownership. For although the buyer of a single-family home not only owns the structure but the land his house sits on, this is not true in a condominium. And it's one of the biggest obstacles condominium builders are faced with in selling the concept.

So, once you aren't selling exterior ownership—land with your shelter—you've got to sell interior ownership. And your model decor has to make that sale.

In planning the interiors for a condominium program, it's extremely important, therefore, that no two models bear even the slightest resemblance to each other. While I've long stressed that model homes be distinctive, it's critical that condominium models be completely different in color, furnishings—in short, personality.

There are many other considerations. For example, if you're building high-rise condominiums, your decorator must capture, not obstruct, the view. The view, after all, is a prime selling point and if the models have a closed in feeling, your prospect will not experience the exhilaration of height, of looking out over the surrounding area.

Another example: Condominiums are usually attached so there are fewer windows than in a single-family dwelling. Depending on the architecture, it is normally the kitchen that is windowless. Add to this the fact that most condominium kitchens are smaller and it's easy to see how Mrs. Housewife can become claustrophobic when viewing condominium models.

There are several solutions to this dilemma. If the condominium kitchen is deprived of outside light, you can make up for that with bright colors, plenty of greenery and wallpaper designs (geometrics and plaids) that visually expand the room.

Another determination builders should make is how to decorate extra bedrooms. In lower-priced condominiums secondary bedrooms should be family oriented, and therefore children's rooms. In resort area projects the secondary bedrooms should be decorated as guest rooms or for college age children away at school.

Overall, the resort condominium should project a casual, informal ambience depicting people who have made it—who have the time and financial means to entertain frequently. Here, accessories play an important role in creating that atmosphere.

The dining room table, for instance, can be set buffet style with punch bowls or casually placed bottles filled with colored water that simulates premium liquor. Golf clubs, tennis rackets, sailing magazines (all randomly placed) help to reinforce the feeling that most resort condominium buyers are looking for—a place where they can either get away from the rat race on weekends or where they will enjoy an active retirement in pleasant surroundings.

But the resort condominium accounts for only 15% of all condominiums. The majority are in the low and moderate price range designed for families who find them a practical alternative to the often more expensive single-family home.

Single people are yet another market on which the condominium builder should focus his merchandising. A rapidly rising divorce rate plus the nationwide tendency for people to postpone marriage to a later age has created a market that I feel is being overlooked.

In designing condominium interiors for the single person, keep the following in mind: Not every single man is a swinging bachelor or every single girl, a partying playgirl. Those who fancy themselves as playboys and playgirls usually rent in the singles oriented apartment complexes. The serious single, particularly the divorced individual, wants a home in every sense of the word and responds positively to warm and inviting interior design.

In summary, condominium living has proven to be a viable concept to virtually all segments of the public. Attached housing does, however, have some drawbacks but they are mostly psychological. Shrewd merchandising designed to reinforce the ownership aspects can, I feel, erase any negatives the buyer may be harboring.
If you think these 4 General Electric appliances make the most modern kitchen, you’ve got another appliance coming.

The GE trash compactor.

To impress a woman with your kitchen in today’s market, you’ve got to show her something more than the appliances she’s used to seeing in your competitor’s kitchens.

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Consider the advantages the GE Trash Compactors offer:

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Fewer trips are needed to put out trash—usually only once a week for a family of four. There are no messy trash cans or bins to mar an otherwise attractive area. And no trash cans for animals to overturn.

This could mean fewer pick-ups, fewer dumpsters to rent and possibly more parking area.

The compactor is easy to install. It plugs into any adequate 115 volt outlet—no water lines, no drains, no vents, no bolting.

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LETTERS

Recreation

H&H: Swimming, tennis, golf and skiing are all great fun, but there is one area of recreation that practically all developers are overlooking—that of owning, managing and riding horses.

Most developers probably think there aren't enough horse enthusiasts to consider when planning their developments. Did you know that the latest estimates is that the United States contains about 6.2 million horses? And only a modest number of these is owned by people living in rural areas or operating breeding farms.

A few developers have built horse-oriented developments. One such development is just north of Oklahoma City near Edmond and is called The Trails. I understand that some have been built in California and one is located outside of Washington, D.C., in Maryland. But there should be more such developments—somewhere horses are included with the swimming pools, tennis courts, golf courses, etc., and somewhere there are backyard stables.

Beverly Fearnow
Oklahoma City, Okla.

H&H: I enclose the first three issues of The Western Paddler, official publication of the recently formed Western Platform Tennis Association.

For years paddle, or platform, tennis [H&H, July] was strictly an eastern game played only at the most exclusive clubs. Its governing body, the American Platform Tennis Assn., with which the WPTA is affiliated, was of course more dedicated to the eastern game. Now the game is growing in the Midwest at a fantastic rate.

No longer is it strictly a country club activity as witnessed by the fact that we have installed courts in a state park in Kentucky, apartment complexes in Kansas City, Indianapolis and Detroit, swim clubs, YMCA's and colleges. We also have had inquiries from motels, hotels, trailer parks, etc. The main reason for the tremendous growth of the game is it offers a 12-month outdoor activity, is very exciting to play and no previous racquet experience is necessary. Ages of people who play are from 7 to 70.

Thomas B. Hoffman, general manager
Precision Courts Inc.
Cincinnati, Ohio

Waste treatment

H&H: You may remember Cromaglass Corp. as one of the prime manufacturers of single-home wastewater treatment systems and sewage treatment plants.

As far as we know, we were the first ones to bring to the attention of your editorial department the home aerobic units back in 1968. As one extremely interested in the future of environmental controls, I became Chairman of the Technical Task Committee at the National Sanitation Foundation, which originated N.S.F. Standard 40 and the supplementary Seal of Approval testing program. We have also been instrumental with national associations such as NAHB and the Conference of State Sanitary Engineers in developing programs and policies by which products of our industry can be most efficiently and effectively used.

Upon reading your article on sewerage treatment [H&H, June] we were disappointed to find some inaccuracies. For one thing, it was mentioned that Naysic Sciences Inc. was the only manufacturer to gain the Standard 40 Seal of Approval since the program began in 1970. This is inaccurate since Flygt Corp. of Norwalk, Conn. received the Seal of Approval in late 1972, and two other companies—Cromaglass Corp. and Hitachi of Japan—received the Seal of Approval as of May 2, 1973. Realizing that your June issue overlapped this period, I still think it would have been advisable for your editor to indicate that Cromaglass and Hitachi were completing their testing programs.

Also, we note that you listed Bio-Pure Inc. under single-house plants. This is a great injustice to other manufacturers. The Seal of Approval program has not included Bio-Pure as an efficient single-home unit since they have designated it as requiring daily maintenance.

The Cromaglass system tested at N.S.F. completed the Seal of Approval program with data showing 95% reduction of both BOD and suspended solids, effluent BOD was 16.85 and effluent suspended solids 13.1, influent BOD was 247.20 and influent suspended solids was 250.1. No other home aerobic system approached this degree of treatment, and we are naturally very proud of our product.

Our company has factories and offices throughout the world, with approximately 5,000 installations in all areas, some of which are recycling wastewater for toilet flushing and gardening purposes. Our equipment has been specified by the federal government on FAA installations and Coast Guard stations, and is now being installed by NASA on Cape Kennedy. This makes it still harder to understand why we have been ignored.

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LETTERS

FROM PAGE 44
noted. Is there anything you can do to help us gain our composure?

Alan N. Young Jr., president
Cromaglass Corp.
Williamsport, Pa.

According to Heinz B. Russelmann, NSF's director of wastewater technology, the Cromaglass units were awarded the foundation's seal under Standard 40 on July 5, 1973, not May 2, as reader Young states.

As of July 20, Russelmann said, the Hitachi units had passed NSF's performance tests, but full approval had been delayed pending NSF receipt of warranty data.

The Flygt Corp. was omitted from the list because the company has suspended production of the tested units. The status of the Bio-Pure plants was indicated by a footnote to the list of manufacturers—ED.

H&H: We have seen your roundup of information on sewage treatment facilities, and generally commend you for a useful service to builders and developers.

However, let me comment on several points you made vis-a-vis physical-chemical waste treatment. We may have misled you in trying to provide an all-too-brief synopsis, or you composited interviews which yielded an unfair impression of physical-chemical treatment as we know it.

While regulatory agencies may indeed be slow in approving p-chem plants (as well as other types), the Environmental Protection Agency of the United States has several publications on this treatment technology, including one [A New Process for Treating Wastewater] which says in part:

"This is a representative listing giving an indication of the rapidly spreading acceptance of physical-chemical treatment. The list of municipalities planning this type of treatment system is expanding rapidly." One facility on the list is Niagara Falls, N.Y., planned to treat 60 million gallons of wastewater per day...hardly an experimental size.

That same publication also lists as one of the advantages "greater operational flexibility and control". That statement seems, on the face of it, to contradict your comment that more things can go wrong than with a less sophisticated biological system. Personnel who have operated AWT Systems' p-chem installations and who have also been intimately involved with conventional biological operations tend to believe that day-to-day operations of the p-chem installations are at least as reliable as conventional systems, and much more controllable. When one considers that the treatment yields a higher quality of treated water many times faster than biological plants, you can understand our conviction that p-chem treatment is more dependable than biological treatment.

Capital cost—as is often the case—requires definition. When you include the installation, housing, incineration, personnel training, small acreage requirement and quality of the installation and quality of results, p-chem plants are competitive.

Everything is relative. In smaller plants we produce higher quality effluent water at a somewhat higher cost than conventional plants, but we are very competitive and produce excellent quality water in larger systems.

Operating costs are another ingredient requiring definition. At our demonstration plant data are confused by the cost of on-going studies pursued there. An example, in which detailed estimates have been worked out for a plant treating sewage from 4,000 dwellings, shows operating costs would be under $50 per year per home. Thus, large plants might well be conceived as operating profit centers, in which residents or tenants are charged for sewage treatment service at a rate above the cost of operation.

The National Sanitation Foundation, to which you allude, may well provide a service in its testing program. Our pilot setups are in continuous use, generating data to help improve results and lower costs of installations and operations, so we have not set aside a unit for this application.

Qualified scientists and engineers accrue and analyze data from our systems. We have experienced no challenges from public authorities on the integrity of data and conclusions, although they do often ask very cogent and penetrating questions. Sanitation authorities do sample and analyze effluent periodically. Therefore, we see little need in our case (at this time) to tie up human and material resources in an independent certifying program when we can provide acceptable data, and continue to run pilot studies.

I hope that this discussion helps to round out and clarify some impressions for your readers. Clearly, your article relates to an important area for builders and developers and they rely on you for much of their information.

Allen Baker, advertising
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The village shopping center:

how to make the right move
in the
right place
at the
right time

Every developer dreams about putting a shopping center in his project. It's the thing that will skyrocket the value of part of his acreage, pour forth rental money and ultimately allow him to retire in comfort if not downright luxury.

Maybe.

A shopping center can indeed be profitable. It can also be very unprofitable, and the difference often lies in how realistic the developer is able to be in his original concept.

Take, for example, the scale of a village shopping center (which is sometimes called a neighborhood center). It will range in size from 20,000 to 75,000 sq. ft. of shop and office area, from roughly two to twenty acres of site area, and will have a supermarket as its pivotal tenant. This is all that even a big project can usually support, and attempting something more grandiose will probably end in disaster.

Or take the question of timing. It's great to have shops ready and waiting to attract the first buyers in a project. But who's going to subsidize the stores until there are enough buyers?

And finally, take the ultimate question: Is it economically feasible for you to build a shopping center at all?

These and other questions will be explored in the twelve pages that follow.
3 village centers that answer the key question...

...which come first—the shops or the houses

Wilde Lake Village Center, Columbia, Md. .
... has been so successful that it is being expanded. But it ran into serious problems when it opened in 1967 (see page 59). Developer: The Rouse Co., Architects: Cohen, Haft & Associates.

Monarch Bay Plaza, Laguna Niguel, Calif. .
... is a classic example of how a center learned to swim through a sea of red ink (see page 62). Developer: Cabot, Cabot & Forbes. Architects: Knowlton Fernald, Ricardo Nicol, Arthur Schiller.

The Village Square of Cross Keys, Baltimore, Md. .
... is a unique combination basic and specialty center. Ordinarily, the combination might not work. But some unusual circumstances led to a thriving center (see page 66). Developer: The Rouse Co. Architects: Murray and Fleiss.
like the proverbial chicken-egg conundrum, the question of shops or houses first is vital to developers—particularly as they build farther and farther away from established metropolitan areas.

And like the chicken-egg puzzle, it's a tough question to answer. If there is a shopping center but no houses, how will the shops exist until the houses get built? On the other hand, if there are houses but no shops, how do you sell the houses?

A growing number of developers are leaning toward putting the shopping centers in first, or at least very early in the development process. They're finding that housing projects built beyond established commercial-retail-social centers must provide their own centers if the housing is to sell at a satisfactory rate.

So the main questions revolve around setting up the commercial centers themselves: whether they should be purely for shopping or whether they should include non-store space as well.

Here is where more controversy develops, although there seems to be a growing agreement that non-retail usage—usually offices for professionals and businessmen—should be included even when the village or neighborhood center has only 30,000 to 80,000 sq. ft. of space. The reason: To attract people into a sparsely settled area, a center needs more than the seven basic merchants (grocer, barber, beautician, druggist, cleaner, banker and liquor store) and even in well settled areas it has been found that a mixed-use center will have broader appeal than a plain-vanilla strip center.

But the controversy is far from resolved. Many experienced shopping center professionals maintain that a small neighborhood center—the kind most likely to be built in conjunction with a residential project—does not attract non-retail tenants in sufficient numbers. "Doctors, lawyers and businessmen in general don't want their offices stuck away in a small commercial center," they say.

In addition, they point out that the builder needs more land, more front money and considerably more expertise to develop a mixed-use center.

And the bugaboo of adequate parking becomes much more complicated. Says shopping center consultant Robert Little of Pren-tiss/Little Inc., Farmington, Conn.: "Because parking is the most difficult aspect of a mixed-use project, planning must be flexible. You can plan 5.5 parking spaces for each 1,000 sq. ft. of retail area and one space for each 300 sq. ft. of office area, but these figures are only a beginning. The best plan is one that includes land held in reserve to cope with probable future increased parking needs. Otherwise, you may have to go above-grade decked parking at $2,500 to $3,000 a space, or below-grade parking at $4,000 to $8,000 a space. That's a lot more than the $600 to $1,000 that's required for regular parking areas.

"But you can't plan sufficient parking spaces for special times—the Christmas rush, for example. If you do, you'll go bankrupt. The optimum number of spaces is what's needed on the usual busiest shopping days throughout the year."

Another drawback with the mixed-use center: Preleasing is more difficult. Not only do experienced and financially sound retail merchants have to be leased up, but an ill-defined assortment of non-store tenants must be found.

Nevertheless, says Little, it is these other tenants who can help make the center an extended-hours hub of the community.

"After all, we don't live our lives just from 8 a.m. to 6 p.m. And it's very important that residents in a new community have a feeling that there's somewhere to go and something to do at the end of the workday. And of course, 24-hour usage is also a good protection against vandalism."

Tenants who can extend the hours of a village center beyond normal retail periods include: a library, community center, indoor swimming pool, police station, city hall, fire house, hotel, lounge, taxi stand, movie theater, apartments over stores and late-hours restaurants.

Medical and general business offices as well as a nursery school also contribute to the feeling that the center is part of the total community—and not just a place to shop.

"It's this added dimension in the shopping center," says Little, "that helps turn a housing development into a sought-after community. And it's the broader-based mixed-use center that's better able to withstand gyrations in the local economy and produce a greater overall return."

But whether or not a center is to contain offices and other usages as well as stores, the biggest problem is making it economically viable. Solving that problem is the subject of the three case studies that follow.

Pre-servicing: It's a painful but often necessary step

There's growing agreement that if a project is a long way from any existing commercial areas, it's essential to set up a shopping center before or at roughly the same time the housing goes on the market. The reason is obvious: Basic necessities of everyday life must be readily available if you're going to attract buyers and tenants.

In shopping center lingo, this procedure is called pre-servicing. And it's one of the toughest jobs a developer faces.

Obviously, most merchants who move into a center in a newly developing area are going to lose money for months—or even years—until the population is large enough to support their stores. Throughout this money-losing period, the merchants not only must pay rent, but they have to eke out a living for their own families. For the small merchant this is a tall order. For the developer who must entice these merchants into his shopping center, it means doing an extraordinary selling job—particularly if the merchant must close up a presently profitable operation to move to the new center.

It isn't easy as witness the numerous centers only partially occupied after being open for long periods of time. However, solutions do exist.

Case in point: Wilde Lake Village Center, a 47,811 sq. ft. enclave on 6.3 acres in the new town of Columbia, Md. [photos, pages 60-61]. While the developer, The Rouse Co., was not 100% successful with its preleasing program, its partial success and its experience provide valuable guidelines.

When Rouse began to develop the rolling wooded hills of Howard County into a planned city for 100,000, there was little to show prospective merchants.

"Wilde Lake was a tough center to lease," recalls Douglas Godine, vice president and director of sales and marketing. "We desperately needed a service center to provide normal conveniences—a grocery, bank, dry cleaner, drug store, barber, beauty shop and liquor store. These would form the commercial hub of the first of seven villages in Columbia. So we embarked on a strong pre-servicing campaign.

"Even so, we still had many small stores vacant when construction began. And it was a year and a half after the center was opened before it was completely leased."

Vacancies notwithstanding, The Rouse Co. had one big thing going for it when construction started: a major tenant in the form of a chain supermarket which signed up for its own 20,000 sq. ft. building.

"In most small neighborhood shopping centers," says Godine, "you first try for a triple-A-rated supermarket, because it's the chains that provide the more financially sound tenants. The problem is that they often lack the friendliness and individuality of the mom-and-pop merchants. So for the rest of your space, you go after the local merchants with one or two stores. These are the people who are most likely to offer the small-town type of service that customers prefer. And these were the qualities we were looking for in Wilde Lake—along with good merchandising ability. To attract this kind of tenant, the Rouse marketing group stressed these four areas:"

The company's track record. Jim Rouse had built a number of successful residential and commercial developments in the area and had an excellent reputation for quality in construction and design.

Environmental quality. "We all had a vision that good architecture and careful land planning would make Columbia a very desirable place to live and work," says Godine. "We were able to transmit this feeling to some of the early merchants through words, an extensive brochure, site plans and renderings."

Visual sales aids. In June 1967 The Rouse Co. opened the Columbia Exhibit Center which showed—through models, films and displays—how the Columbia concept would be executed. And by this time the shopping center was almost complete so prospective merchants could see it for themselves. It opened in August with about 200 or 300
people living in the village, plus about 8,000 others living on scattered parcels of land already developed.

"These people were our primary market for a long time," says Godine. "We all felt that we were building something special, something worthwhile. The merchants, too, felt that their presence would help create an attractive place to live and work. The pioneering spirit was sort of infectious among Rouse people, merchants and customers alike."

'Thersy future. Using an economic model that plotted the future growth of the village, the marketing men were able to project the center's sales volume and anticipated profits. Prices and sizes of the houses and apartments indicated the broad range of income levels and family size per dwelling unit. So a prospective commercial tenant saw that if he survived the initial lean period, he would later have an almost captive market.

"This fact was our most telling argument," says Godine. "We had to convince merchants that eventually they would make a lot of money. Well, today they are making a lot of money. They really have a lock on a population of more than 16,000.

The 18 current tenants reveal much about what a cross-section of moderate to upper-middle income Americans of all ages want and need in a shopping center.

There's the usual supermarket, liquor store, cleaners, bakery, drug store, bank, gift and card shop and florist.

But not so standard are a butchershop, well patronized because of its excellent quality meats; a cheese shop offering many varieties of gourmet items; an ice cream shop catering to the well established habit among residents of all ages to eat ice cream cones as they walk from place to place; a bicycle shop servicing a favorite form of transportation for both adults and youngsters; a dance studio for girls; a quality casual-furniture-and-shelf shop for the not-very-ambitious home decorator; a family-style informal restaurant and cocktail lounge offering dancing and entertainment; and a counseling center tending to marital rifts, generation gaps and other family problems.

"These are not all the original tenants," says Kemp Sullivan, marketing manager for Columbia Development Corp., a Rouse subsidiary. "About a half a dozen shops moved to our downtown mall when it opened. One of these was a small book shop that did well from its first month in Wilde Lake Village Center. It did, and still does carry a good selection of books, but it also happened to be the only bookstore in the county."

A few other merchants went bankrupt because of poor management, Sullivan believes. A recent example is a delicatessen owner who did not realize that her costs were more than 100% of her gross income. And then there was the restaurateur who insisted on presenting a formal, elegant ambiance to his informal, casual patrons.

However, the overall center has been so successful that The Rouse Co. decided the time was ripe for expansion. Some 20,000 sq. ft. of added retail space has been built on 2.6 acres.

Case in point 1: Wilde Lake Village Center

Basic shops—grocery, liquors, etc.—are located in the original shopping center (bottom in plan below) along with some specialty stores—cheese, bicycles, etc. As the village grew, demand developed for a broader mix of stores. So the supplemental shopping area (plan left) was built. Its hardware store has only one competitor for the business of Columbia's 30,000 residents.
acres which was being held for the time when a larger population could support a more varied mix of stores.

The new merchants again reflect the changing times of Columbia. A paint and wallpaper shop caters to the young couples who bought undecorated, stripped houses; a camping, surplus and sporting goods store serves the upsurge in outdoor family activities; a real estate office takes care of sales of new homes for small builders and re-sales of homes for families on the move; a hobby and craft shop offers its wares to youngsters and the elderly; a savings and loan complements the established bank; a veterinarian—Columbia's first—serves the ever-growing pet population. And there are two other free-standing buildings: a dental suite and the town's second hardware store.

Adjacent to the expanded center a nationwide fast-food chain bought land and erected its own building. "Business is booming for them," comments Sullivan, "primarily because people don't have to get out of their cars to order or eat. It's set up so that drive-in customers order through an intercom. Then they pick up their order and drive away. This generates much greater volume than an eat-in fast-food counter."

Wilde Lake's well established success is best shown in its original and current rent schedules. The first merchants in 1966 paid an average of about $3 per sq. ft. against overages. New tenants generally pay more than $5 per sq. ft. or overages.

A two-bay service station, a drive-in bank and 18,600 sq. ft. of offices over the stores also add to the center's income. The offices are fully occupied by businesses such as insurance agents and a taxi company.

Total parking for the nine-acre commercial site is 325 spaces. These spaces also serve people coming to the adjacent community facilities: an assembly hall, a bathhouse, a library and ten tennis courts.

The Interfaith Center is on a contiguous ten-acre site with 218 parking spaces. Also nearby are a high school and middle school.

Thus, within a one-quarter-mile radius, the residents of Wilde Lake have access to social, religious, commercial, cultural and educational facilities. Although everything is within walking distance, the convenience and habit of driving is very much in evidence.

Says an original resident: "I knew that the village center was going to be a success, when a year after it opened, I drove into the parking lot and couldn't find a space."

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Little or no profits:
It's something you may have to live with for a few years

Case in point: Monarch Bay Plaza [photos, this page] which despite a good pre-leasing effort didn’t show any profit for its first three years.

The shopping center was built to serve Laguna Niguel, a 7,000-acre planned coastal community located 55 miles south of Los Angeles. Its two Triple-A anchor tenants, a
Entranceway to the shopping center bank (right) is at the end of a one-story L-shaped building containing 13 stores, which open out on the covered arcade (photos, above and below). At the other end of the L is a supermarket. These high traffic establishments encourage customers to walk past the specialty shops. Site plan, covering 21 acres, shows the variety of buildings that make the complex a mixed-use center. Counter to conventional practice, the rear of the center faces the main highway. This was done to shield patrons from strong winds.
bank and a supermarket, are located at each end of an L-shaped one-story building. In between are 13 retail shops.

In addition, there is a 500-seat movie theater, a 10,000-sq.-ft. medical building, 20,000 sq. ft. of office space and an 8,000 sq. ft. restaurant—all in free-standing buildings as shown on the site plan (previous overleaf).

"We had to build the shopping center to sell the houses," recalls Knowlton Fernald, vice president of Cabot, Cabot & Forbes, the firm that developed the center in 1966. "There was no decent shopping center for 10 or 12 miles, so we had to put in all the basic shops plus some specialty stores to cater to the affluent families settling in the area. The typical newcomer was 45 to 50 years old and making $25,000 to $40,000 a year."

Right from the beginning, Fernald says, the 30,000 sq. ft. supermarket did well because it was the best stocked grocery for miles. It also found favor because of a gourmet liquor section, complete bakery and a coffee shop that will cook steaks bought in the supermarket.

But some of the other shops didn't fare as well, Fernald says, because the surrounding population at the time was too small. And because the area was not yet established, well known and experienced merchants were reluctant to come into the center.

"It took more than two years to complete leasing," he said, "and for the first couple of years the shops were in and out of the red. One gift shop operated by an inexperienced man went under, as did a girl's clothing store. They were too specialized. The restaurant changed hands because food quality didn't measure up to the hefty prices."

Says Jeff Parks, assistant general manager of Avco Community Developers, which is currently developing Laguna Niguel: "The original merchants had to have good staying power. This is typical for all merchants in new shopping centers. The only thing that varies is the length of time they have to hang on."

Some 82% of the center was pre-leased prior to construction: 60% of this was in 20-year leases to major tenants. Only 12,000 sq. ft. remained unrented during and after construction.

Despite the good pre-leasing effort, a combination of problems kept the center from making a profit for the first three years. To wit: some empty space, tenant turnover, postponed rents for failing tenants and low sales volume. However, in the original developer's view this was not serious inasmuch as the center's primary purpose was to help sell houses.

By 1969, population had built up to generate a sales volume sufficient for the center to move into the black. And today, with the continued influx of upper-middle- and upper-income families (who bought homes in the $39,000 to $150,000 range), the merchants are doing very well indeed. "Most of the rents are now far in excess of the minimum," says Parks. "The restaurant, particularly, is doing a land-office business."

Office rents average about $5 per sq. ft. Retail rents range from $3.60 to $4.20 per sq. ft.
Is pre-servicing always painful? Not if your location is right

And at The Village Square just right meant 1) a well established and affluent surrounding neighborhood, 2) no competing center within four miles and 3) good access to two freeways.

The 30,000 sq. ft. center is part of the Village of Cross Keys, a 72-acre PUD in Baltimore which, when completed (it's about 75% done now), will house some 2,000 people in a variety of condominium and rental townhouses and garden, mid-rise and high-rise apartments.

"This wasn't the typical project site," says Douglas Godine, vice president of the Rouse Co. which is developing Cross Keys (as well as Wilde Lake Village in Columbia). "It's built on the site of a former country club, and there were 360,000 people with way-above-average incomes living within a ten minute drive."

So the 30,000 sq. ft. retail center plus 38,000 sq. ft. of office space were started simultaneously with several hundred housing units. Rouse Co. planners had decided that 1) the nearby population base would ease much of the pre-servicing problems, and 2) that by including tenants who featured luxury prestige merchandise, the center would appeal even more to the nearby affluent community.

It worked. With seven basic merchants and eight specialty shops, the center was in the black by the second year. Notes John Seyffert, the project's development director: "This is remarkably fast for a new center."

Indeed, the original project has been so successful that Rouse Co. has just built a 150-room inn and 36,700 sq. ft. more office space on top of 30,000 sq. ft. of new retail area. The retail space formally opens this month.

Right from the beginning the supermarket was in the black. Says Seyffert: "We had a drugstore, bank, bakery, barber, hairdresser, liquor store and specialty shops. The Cross Keys residents alone could not, and cannot today, support the center. It's residents from the surrounding area that make the difference."

"Getting the right mix of merchants in this location was certainly important," Godine says. "But just as important was bringing in specialty merchants who offered something new and different to the luxury market. We looked long and hard throughout the Baltimore area for local quality merchants who would fill gaps and satisfy an existing need."

Examples: a gourmet cheese shop, a couturier salon, art gallery and top-of-the-line book store.

"These stores, and others, didn't have to directly compete with somebody down the road—and this is the heart of the center's long-term success," says Godine.

The key measure of that success: The original rents in 1965 averaged $.6 per sq. ft. against 5% to 10% of total gross volume. Today's average rent, which is well above the national average, is $.73 per sq. ft. against the same percentages.

The expanded center has 800 parking spaces, against only 280 in the original center. "The original ratio of parking space to retail space was too low because shoppers liked the center so much that they stayed longer than is usual in centers of comparable size," says John Prentiss, who worked on the Cross Keys' expansion and is now a partner in Prentiss/Little, shopping center consultants. "So we increased the ratio when we expanded."

To maintain open land area, two levels of parking have been built beneath the expanded center. In addition, one parking deck will provide spaces two levels below grade and one above. So, for the estimated 6,000 people who will pass through The Village Square each day, there is a total of 800 spaces. (There is additional parking for 1,100 full-time employees, most of whom work in the 180,000 sq. ft. of office space.

Will this be sufficient? "We sure think so," says Seyffert. "But we don't know for sure until the expanded retail area opens this month."

In retrospect, Prentiss recalls several tangential lessons from the Cross Keys expansion program that could prove valuable to any developer starting from scratch:

- Set up a realistic rent schedule that provides minimum, median and maximum base rents for each location. These amounts should be $50 to $1 per sq. ft. above the break-even point so that the developer does not have to depend on percentage rents to make a profit. It probably will be necessary to adjust the schedule downward in the beginning to speed leasing. But as a center nears completion, rents should harden. The value of a flexible schedule: The developer can use a lower figure to lure a particularly prime tenant into the center. But there is one caveat. Under no circumstances, says Prentiss, should deals be made below the original schedule until it's certain that total average rents will cover financing costs.
- Have leases prepared by a lawyer who is well versed in the special requirements of shopping centers. A typical shopping center lease runs 40 to 60 pages. Says Prentiss, if you make any errors, you'll have to live with them a long time—perhaps 10, 15 or even 20 years. And if you expect to sell the center, prospective buyers will walk away from a deal if they find leases that strongly favor the tenants.
- Keep away from exclusives. There's no reason, says Prentiss, why a solid project can't support more than one tenant in similar businesses. And if you give out an exclusive early in your leasing program—say just to get the leasing program going—there's a good chance you'll lose out on an excellent tenant later on.
- Let one man ride herd on the whole program. Management by committee, says Prentiss, tends to increase costs and waste time since committee members usually wind up with overlapping responsibilities. So let one top executive oversee design, construction and leasing of the project. This also can help eliminate confusion among tenants, each of whom will have his own ideas on location, decor, lighting, parking spaces, etc.
- Don't skimp on costs when you're looking for prestige. Typical shopping center construction costs of $25 to $35 per sq. ft. can rise sharply when you add items like vaulted ceilings and immense expanses of polished wood, says Prentiss. But you'll recoup that extra money if you're in an area that can support the extra outlays required of an more-than-conventional center.

-MICHAEL J. ROBINSON
Should you have a shopping center in your project?

1. What population base can your center draw on?

If the answer is that you can count on 12,000 or more people either living in the project or within a two-mile radius of it, and if there are no competing centers already within that area, you'll probably be able to set up a successful center. For 12,000 is the magic number you need to support a supermarket, the prime store which anchors the center and draws traffic for other shops.

Actually, the number of shoppers required to support a supermarket of 20,000 sq. ft. or so is only about 4,000. But any supermarket will suffer from what is called market segmentation; that is, only about one shopper out of every three will want to shop at a particular chain—A&P, Finast, etc.—while the others will drive considerable distances to reach another kind of market. So you have to multiply the 4,000 shoppers by three to arrive at a realistic population base that a supermarket needs to operate profitably.

Two other terms are often used to describe market segmentation. One is leakage; the other is market penetration, which means the inverse of segmentation—i.e., the proportion of the market a store will capture.

Of course, 12,000 is not the magic number for all types of stores. Many need far fewer customers and also suffer from much less segmentation; a population base of 2,000 may be adequate for them. On the other

Here Alfred Gobar, marketing consultant and commercial development specialist, spells out the general guidelines for 1) making the go/no-go decision, and 2) implementing the center if the answer is go. The guidelines, Gobar says, can be expressed in the answers to four basic questions.
hand, many stores—especially specialty shops—need as many as 60,000 people, or a small city, to support them.

Where should you locate your shopping center?

There are two basic choices; put it in the middle of the project, or out on the edge. There are advantages and drawbacks to each. Specifically:

Putting the center in the middle of the project gives it maximum accessibility from all parts of the project and goes a long way towards creating a captive market. If the project is a very big one which can supply an adequate population base by itself, this is often the best location. On the debit side, unless the center is built at the same time as the surrounding residential units, which creates the problems of pre-servicing, the noise and dirt of later construction may prove very disturbing to residents and hurt referral sales.

Putting the center on the edge of the project allows it to be built with less disturbance and also makes it more accessible to potential customers from outside the project. But this location will lose much of the captive-market advantages of the mid-project center.

Rules of thumb: Shops that will, might and won't work

These are the best bets for your shopping center.

Food stores are your no. 1 tenants. Their population threshold is relatively low, and while market segmentation is high, it's not as high as for many other kinds of stores.

Try to let the demand for a food store mature to the point where you can put in a good-sized one—a supermarket with at least 20,000 sq. ft. of space. If you do have a supermarket, there are two additional aspects that you might consider: 1) The demand for specialty food shops—bakeries, delicatessens, etc.—is very high, particularly in upper-income projects. Such shops can either be sub-tenants of the supermarket or satellite stores to the supermarket. 2) In many new houses, particularly multifamily units, space for food freezers is likely to be inadequate or non-existent. So cold-storage lockers could prove a profitable shopping-center use.

It's important that the supermarket match the socio-demographic profile of your tenants or buyers. For example, don't go in with a super-discount store when the median income of the surrounding residents is $20,000 and you're selling $45,000 units.

Drug stores will do well. And if your center is large enough for a supermarket it's large enough for a drug store. They will compete somewhat and battle a bit about who's going to do what, but they're really compatible.

Market penetration is very high in drug stores because people are primarily interested in convenience, and they won't go out of their way to use a particular pharmacist.

Liquor stores are so good that you should keep them for yourself. Market penetration is very high since all stores carry basically the same brands. And it doesn't take very many people to support a liquor store.

Restaurants and taverns can be very good prospects for a center. The location of a restaurant is somewhat irrelevant, because people will travel quite a long distance to eat really good food. So a really good restaurant can act as a magnet to draw people to your center, and to your project.

Laundries and dry cleaners should do very well if they are run halfway intelligently. They have a very low population threshold, very little market fragmentation and are very much a convenience operation.

Beauty and barber shops are also good services for your center. They will have somewhat more leakage than laundry and dry-cleaning shops because people are more selective as to their barbers or beauticians. But it doesn't take very many people to support either a beauty or barber shop.

In terms of capitalized value, the shopping center should represent no more than 11% of the total land value. (This can rise to 18% if the project has 6,000 acres or more.) Another method of measuring capitalized value is to determine the number of households [not residents] within the two-mile radius and multiply that figure by the amount of capital investment in retail facilities that each household can support ($2,000 is a conservative figure). The result will be the total investment that should be made in the shopping center.

What stores and services should you put in your center?

This is a very iffy question. It depends on such factors as the population base, the degree of affluence of potential shoppers, the eventual size of your project, and the location vis-a-vis other centers.

But assuming that 1) the eventual population base, including both the project and surrounding households, is in excess of 12,000 people; 2) there are no other major shopping centers close by; and 3) the project's price or rental range can be classified as moderate, the rules of thumb listed below will be reasonably accurate.

In terms of capitalized value, the shopping center should represent no more than 11% of the total land value. (This can rise to 18% if the project has 6,000 acres or more.) Another method of measuring capitalized value is to determine the number of households [not residents] within the two-mile radius and multiply that figure by the amount of capital investment in retail facilities that each household can support ($2,000 is a conservative figure). The result will be the total investment that should be made in the shopping center.

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There are other caveats for the edge location. Natural or artificial barriers such as waterways, freeways or railroads may cut off part of the potential outside market you're counting on. A competing center within the crucial two-mile radius will also cut down your market more than for an inside center. And you've got to have the right amount of traffic flow on the road fronting the site—roughly 30,000 cars in a 24-hour period. Much less won't bring in enough drive-by customers; much more will create traffic problems that could keep prospective shoppers from turning in.

Specifically:

1) The demand for specialty food shops—bakeries, delicatessens, etc.—is very high, particularly in upper-income projects. Such communities are especially good because older people tend to be heavy savers, and they like being able to look down the street to see where their money is.

2) In many new houses, particularly in upper-income projects.

3) The demand for specialty food shops—bakeries, delicatessens, etc.—is very high, particularly in upper-income projects. Such shops can either be sub-tenants of the supermarket or satellite stores to the supermarket.

4) The demand for specialty food shops—bakeries, delicatessens, etc.—is very high, particularly in upper-income projects. Such shops can either be sub-tenants of the supermarket or satellite stores to the supermarket.
there's no reason not to have an office within walking distance of his home.

Nurseries can sometimes make sense in fee-simple projects in the higher price range, because some people like to put a lot of money into landscaping. But in condominium projects where an association handles landscaping, nurseries wouldn't be a very safe bet.

Travel agencies can do well if the project is for retired or semi-retired and generally affluent buyers—the kind of people who travel a lot. Travel agencies operate on a pretty high margin, and there isn't very much market segmentation since they're all selling the same product.

These are almost sure to be bad bets.

Women's apparel stores are almost certain to go broke—again and again. Usually an apparel store is started by a woman who stocks and sells the kind of clothes she likes. The trouble is, almost no one else has the same taste. So she runs out of money and closes up. And another woman says, “Oh, I know what she did wrong,” and takes the store over. Pretty soon she goes broke too. The problem is that no store can possibly carry a big enough inventory to appeal to a sufficiently broad segment of the market.

Sporting-goods stores tend to go broke just as fast as the apparel stores. The sporting-goods proprietor is usually a man who likes to hunt and fish. So he quits his job, mortgages his house and starts a sports shop. But he doesn't know what he's doing, the demand for sports equipment isn't very great, and what little there is is met by general merchandise stores. So he goes broke.

Book stores are probably losers, chiefly because the necessary population base is too high. But you might make some space available, because that woman who just went broke in the apparel store may want to try again as a bookseller.

Furniture and home-furnishing stores can't make it in most new projects, and you shouldn't let them try. Because they're big stores, and when they fail they leave a big gap which can hurt the image of both the center and the project.

The problem is that while there's a fairly high demand for home furnishing as people move into the project, for the next few years the demand will be near zero. Then you may get an upswing, but by that time the store will have failed.

Moreover, market penetration is very low because people will travel considerable distances to find furniture styles they want.

Camera stores don't do well. The population base to support them is much too high (it probably takes 55,000 people to support a full fledged camera store). Film processing can be done by the drug store, or you might consider a Fotomat-type of tenant.

Automotive service stations are difficult to justify. Market penetration is low because there are so many brands and so much brand loyalty. Also, people have almost as strong feelings about their auto repairman as they do about their doctors, so they won't necessarily go to the nearest shop.

If you do get a service station, insist that they do about their doctors, so they won't necessarily go to the nearest shop.

Hardware, paint and building-supply stores are usually marginal in any new community, and particularly so in condominium projects. Almost all the housing will be built at about the same time, so repairs and redecorating will be a peak-and-valley situation. And in a condominium project chances are the exterior maintenance will be handled by the condominium association.

Convention hotels are seldom good bets for new projects. They're very tempting because they give the project a good image; and if the project is a long way out of town, a hotel seems like a good place to put up people while you're persuading them to put down their money. But there's seldom a real, logical reason for having a hotel facility. Few people want to stay in a hotel in a residential area; about 30% of all travelers are business travelers, about 30% are conventioneers, and they all want to be downtown where the action is. That leaves about 40% who are tourists. And unless you have a project with a strong resort and recreation orientation, the probabilities are that you won't have a successful hotel.

Bowling alleys and billiard parlors are coming passé. You'd be much better off putting your money into some sort of recreational facility like tennis.

Doctors' offices probably won't work out. Doctors want their offices either near their homes or near the hospital, and the typical new project fulfills neither of these requirements. Also, it's important for doctors to be near other doctors and to clinics and labs.

The exceptions may be projects for older residents, where there is a sufficiently high concentration of potential patients to make it worthwhile for a doctor to have an office in the area.

Legal offices have similar drawbacks. The majority of lawyers want to work near the courthouse, which means downtown.

Stock-brokerage offices are very doubtful. It takes a great many people to support a broker, and most of the people who move into a new project will prefer to stay with the broker they have. This isn't difficult since most transactions are made by phone.

The numbers you need to know

Here is a summary of Gobar's shopping center studies. Population base refers to the number of actual customers each store or service requires for its support. Market penetration is each one's relative ability to withstand competition; a store with low penetration needs a greater number of residents in the area as well as one with the same population base and high penetration.

<table>
<thead>
<tr>
<th>Store or service</th>
<th>Population base</th>
<th>Market penetration</th>
<th>Rental revenue potential</th>
<th>Typical size</th>
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<tr>
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<td>4,000</td>
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<td>20,000</td>
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<td>5,400</td>
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<td>2,000</td>
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<td>Restaurants and taverns</td>
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<tr>
<td>Laundries (coin-operated)</td>
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<tr>
<td>Dry cleaners</td>
<td>3,000</td>
<td>low</td>
<td>1,300</td>
<td></td>
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<tr>
<td>Beauty shops</td>
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<td>Travel agencies</td>
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<td>Stock-brokerage offices</td>
<td>15,000</td>
<td>low</td>
<td>800</td>
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</tr>
</tbody>
</table>

1 Figure is very approximate, depending on whether residents have their own machines.
2 Not applicable; does not depend on residential population.
3 Current figures not available—popularity is declining rapidly.
multifamily winners...

...in the 1973 Homes for Better Living Awards Program* represent the best of 175 entries in the program’s multifamily category. Shown at right and on the following 12 pages, these winners include luxury and subsidy projects and primary and secondary housing. Geographically they represent both coasts as well as the mid-section of the country. Perhaps most interestingly, the only rental winners are two government-sponsored projects, the others are condominiums—a further indication of the continued growth in this segment of the multifamily market [H & H, April ’72].

In selecting winners the following criteria were used: overall land use; siting of units, parking and common facilities; floor plans; use of materials. For subsidy entries economic strictures imposed by this type of housing also were considered.

THE JURY

Claude Oakland, AIA
Chairman
San Francisco, Calif.

Gerson Bakar
Builder
San Francisco, Calif.

June R. Vollman
Associate Editor
HOUSE & HOME

Barry L. Donaldson
Architectural student
University of Kentucky
Lexington, Ky.

Don L. Stull, AIA
Boston, Mass.

Stanley Tigerman, FAIA
Chicago, Ill.

Nick Pappas, AIA
Washington, D.C.

*Winners were chosen in a two-day session at the headquarters of the American Institute of Architects, which sponsors the program in cooperation with HOUSE & HOME and American Home magazines. For custom-house winners, see HOUSE & HOME, May 1972.
FIRST HONOR AWARD

ARCHITECT: Hardy Holzman Pfeiffer Associates
BUILDER: Towne Properties
OWNER-DEVELOPER: Towne Properties & Irwin Management Co.
NAME: The Cloisters
LOCATION: Cincinnati, Ohio

This 17-unit condominium was first cited by HOUSE & HOME in May 1971 as an example of how to handle a difficult site. Its location—a high-income area overlooking the Ohio River and Kentucky countryside—was ideal for an upper-income project. But the nature of the 1.4-acre site—precipitous, odd-shaped and constricted—posed obvious design problems. Here's how these were solved:

1. A foundation of concrete piers was sunk into limestone and tied together at the top with concrete grade beams. This rigid frame supports a pole structure built up to the floor levels of each unit (photos above and right).

2. Two basic townhouse layouts were created—A units (plans at far right and photos at left) for the site's flat area and B units (not shown) stepping down the hillside. In the latter, bedrooms are on the lower level and living areas are on the second level and there is a third-level balcony that looks down into the living area. Parking for B units, at the top level of the site, is reached via a glass-enclosed elevator. Average price for the 17 condominium units was $64,000.
MULTIFAMILY WINNERS CONTINUED
FIRST HONOR AWARD

ARCHITECT: Frank L. Hope & Associates
BUILDER: Williams & Burrows Inc.
OWNER-DEVELOPER: Weyerhaeuser Venture Co. & Hare Brewer & Kelley Inc.
NAME: Shorebirds Condominiums
LOCATION: Watsonville, Calif.

As the site plan at left shows, this oceanfront project exemplifies good cluster orientation, excellent siting, parking that works with the land and commendably low land coverage (20%).

For example: V-shaped building clusters occupy the dune-crested, oceanfront portion of the 47-acre site. They are oriented so that each of the 312 units looks out on the water and also has a view of an agricultural valley that stretches to the rear of the development.

Parking areas on the flatter portion of the site are convenient to—but relatively isolated from—the units themselves; there is virtually no intrusion of vehicles into the residential area. These parking areas also serve as a buffer zone between the units and the extensive recreation facilities that make up the balance of the second-home community.

These latter facilities were planned to appeal to a broad market. There are ten tennis courts, lawn-game areas, bicycle paths, a large lagoon for boating, a wildlife preserve and a community recreation building.

A series of boardwalks tie the beach, buildings and parking and recreation areas together. Other boardwalks, together with bridges and stairs, provide access to each unit (photos, left).

Unit mix consists of one-, two- and three-bedroom condominiums ranging in size from 900 to 1,400 sq. ft. Prices were $39,500 to $43,500.
FIRST HONOR AWARD

ARCHITECT: Robert Billsbrough Price, FAIA
BUILDER: Contractors Inc.
OWNER: Conifer Co.
NAME: Evergreen Villages
LOCATION: Olympia, Wash.

This FHA sec. 236 development is broken up into nine village-like communities. Each faces inward on planted and paved courts, the latter serving as play areas where the activities of pre-school children can be easily watched from inside the units. The result is a series of small neighborhoods (bottom site plan, facing page) connected by a pedestrian pathway that runs throughout the 18-acre site (upper plan). Automobiles are confined to the periphery of the site and parking is grouped in small bays, hidden by the trees, but convenient to each group of units.

To create visual interest within the project, each interior court was designed in a different manner. And each of the nine villages, while identical as to unit mix, was altered to conform to existing terrain and trees so that there is a diversity of roof lines, offsets and general configuration throughout.

The 180-unit project contains one-, two-, three- and four-bedroom apartments, all in two-story buildings. Square footage runs from 540 to 1,050 and rents range from $98 to $145. All units, other than those with one bedroom, have private, paved patios. Each cluster has its own laundry and service facility and there is a central community building for project-wide activities.
AWARD OF MERIT

ARCHITECT: Crites & McConnell
Builder: Connor-Crites Development Co.
Owner-Developer: Connor-Crites Development Co.
Name: Blackbriar
Location: Danville, Ill.

Hiding behind the simple, straightforward facades of these condominiums is an exciting multi-level plan that lends itself to high-ceilinged living rooms and entry foyers and platform-like dining rooms (photos and plans, opposite page). And it's also a plan that offers a maximum amount of view-oriented outdoor living.

The design evolved from two factors: first, the obvious marketing value of facing major living areas toward an adjacent country club's golf course; and second, from the gently rolling nature of the 2.5-acre wooded site, which allowed the garages and entries to be at the rear, or downside, of the units.

The plans and photos on these pages are of a three-bedroom-plus den apartment located at near end of the building shown in the site plan. The six apartments in this building comprise the first phase of the projected 26-unit project. In addition to the three-bedroom plan, there are five two-bedroom apartments. In these the second-level den and fourth-level bedroom and half-bath are eliminated.

The overall building design provides a high degree of privacy between units. Ground-level patios are separated by extensions of brick walls in the living rooms, while upper-level balconies of abutting units are divided by wood walls. Two-bedroom units contain 1,800 sq. ft.; the three-bedroom plan has 2,400 sq. ft. Prices range from $50,000 to $72,000.
AWARD OF MERIT

ARCHITECT: Donald Goodhue
BUILDER: Keeton-King General Contractors
OWNER-DEVELOPER: Brooks Resources Corp.
NAME: Country House Condominiums
LOCATION: Sisters, Ore.

The colony-like siting of this project’s units, parking and recreational buildings represents a deliberate attempt to create a sharp contrast with the openness of the surrounding area and with the spread-out housing that surrounds the four-acre project.

The condominium’s village-like feeling is strengthened by the series of boardwalks (site plan, opposite page) that links the units to secluded parking bays and the common areas.

Privacy, for family members within the units as well as between adjoining units, was also a strong design criterion. The interior plans demarcate youth and adult spaces—openness and flexibility for the former, and the latter more formal and intimate. Outside, each unit has a completely private deck, and many of the units have patios that are enclosed on three sides.

The one-, two-, and three-bedroom plans contain from 898 to 1,804 sq. ft. Prices range from $35,000 to $55,000.
AWARD OF MERIT

ARCHITECT: Gilbert Switzer & Associates
BUILDER: Giordano Construction Co. Inc.
OWNER: Middletown Housing Authority
NAME: Sbona Tower and Senior Center
LOCATION: Middletown, Conn.

This HUD turnkey project for the elderly provides much more than basic shelter: There is a formal, central, landscaped court for quiet community gatherings (photo, left), a separate area for outdoor games such as horseshoes and bocce, some private balconies and terraces, a community center and a choice of housing styles: low- or high-rise buildings.

There's also an overall plan that allowed the project to blend into the surrounding neighborhood through a gradual rise in scale. At the foot of the 2.5-acre site (which is bordered by low-rise buildings) is a terraced plaza developed by the city. The project continues up a hill to the two-story community center and step-back low-rise apartments. The 12-story tower forms a right angle to the low-rise units (site plan, facing page).

The ground-level floor plan (facing page, top) shows typical low- and high-rise units. Tenants in the two-story buildings each have a private terrace or balcony as do some units on the upper floors of the high-rise (photo, above). There is a total of 129 apartments, which rent from $50 to $60 per month. Each unit has a complete masonry enclosure which is both fire- and soundproof.
AWARD OF MERIT

ARCHITECT: Mithun & Associates
BUILDER: Swanson-Dean Corp.
OWNER-DEVELOPER: Swanson-Dean Corp.
NAME: Sahalee Village
LOCATION: Redmond, Wash.

Although this is a condominium project, it was planned to convey a decided single-family feeling. The reason: its location. The 25 units are part of a residential subdivision surrounding a golf course and are also adjacent to single-family neighborhoods.

So instead of conventional rows of similar units lined up around a large common open area, the project consists of a series of mini-colonies. Each is worked into the site's natural landscaping and joined together by a meandering path that also leads to three small common recreational areas (site plan, facing page).

The units themselves have many of the attributes of single-family homes. They are spacious—1,650 to 1,950 sq. ft.; they provide a maximum amount of light, views and outdoor living areas; and by their staggered placement, they offer a great amount of individual privacy.

As shown in the floor plans on the facing page, there is actually one basic layout with variations to adjust for two-, three- and four-bedroom requirements. Many rooms are two-levels high, and under-building parking relegates the car to the rear of each group of units. The condominiums sold for $35,000 to $44,000.

H&H AUGUST 1973 83
Products that meet specialized needs of the commercial market

As this issue of HOUSE & HOME points out, more and more new residential communities include shopping centers, offices, etc. Consequently, more and more residential builders and developers find themselves involved with construction that may be to some degree unfamiliar to them. Not the least of these are the special characteristics of products designed and engineered for commercial use, for example: integral safety features required for public-use buildings and long-wearing, low-maintenance qualities that withstand the rigors of heavy transient traffic.

On this and the following pages, HOUSE & HOME presents a round-up of such products—ranging from structural to decorative—geared to the commercial market.
Floor-to-ceiling windows (1) are fabricated of break-resistant solar-controlled Plexiglas® acrylic plastic. Installed in a college in the Southwest, the panels provide an open space environment while enhancing the architecture of the building. Rohm & Haas, Philadelphia, Pa.

Automatic-closing steel fire window, "Fyre-Tec" (2) is UL approved. Designed to prevent fire from spreading, the unit features a patented closing mechanism recessed within the window frame. The unit exerts a steady closing action on the horizontal slide when temperatures reach 160°. Rusco, Los Angeles.

Prefabricated equipment screen (3) encloses unsightly rooftop mechanical equipment. The all-steel unit is designed to withstand up to 45 psf wind load. Easy-to-install panels feature a guaranteed, factory-baked-on finish in a choice of colors. Childers Mfg., Houston, Tex.

Sliding window wall (4) is ideal for an enclosed mall. The track-and-guide system features a diverter that permits sections to slide open parallel or stack at 90° angles along the wall. A top-track floating pin compensates for out-of-level openings. Amarlite/Anaconda, Atlanta, Ga.

Concealed vertical-rod exit device (5) is suitable for installation in 1%-inch aluminum or hollow metal doors. It is available in a satin-aluminum, brass or bronze finish. The actuator link can be placed on either side so that the device is non-handed. Jackson Exit Device, Los Angeles.

Safety-oriented entrance, "Safetyline" (6) is an aluminum-framed glass door that eliminates potential hand and finger injuries. Featured are an exclusive cylinder guard at the pivot side and a flexible vinyl protector on the leading edge. Amarlite/Anaconda, Atlanta, Ga.

Hydraulic power door closer (8) is suitable for use on corridor doors. The surface-mounted, easy-to-install unit is designed for solid core wood or medium-weight metal doors up to 85 lbs. in weight. The sealed steel device comes in four standard finishes. Ives Div., Leigh, New Haven, Conn.

Faucet (9) utilizes a light source and photo-cell in the spout to actuate a flow of water. The light source directs a 3"-to-4" beam, known as the wash zone, into the sink. Hands placed within this zone reflect light onto the photo-cell's surface, turning on the water. Chicago Faucet, Des Plaines, Ill.

Fire-retardant cedar shingle roofs add to the natural rustic look of a contemporary office park (10). Designed to resemble residences, the buildings are combinations of brick, wood siding and wide glass expanses. Kopper, Pittsburgh, Pa.

"Planar" aluminum ceiling system (11) provides a low-maintenance interior ceiling/soffit. Easy-to-install aluminum panels in unlimited lengths and widths have a wear-resistant, baked-on enamel finish. Adaptable to any building, ceiling can be insulated for sound absorption. Alcan, Pittsburgh, Pa.
Panels are fabricated of steel C-channel panels bolted at each corner to up of steel-framed seamless particleboard. They can be tapered steel support girders. The Industrial roofing system (1) is made of door operating equipment and an air compressor with a dryer mounted on it. The dryer removes moisture from the operating device to minimize maintenance and reduce freeze-ups. "Pyro-Kure 615" insulation bonded to steel slats, the partitions provide excellent sound absorption. Holcomb and Hoke, Indianapolis, Ind. CIRCLE 277 ON READER SERVICE CARD

Prefabricated steel double stairway (2) is suitable for all types of indoor/outdoor commercial applications. Dual units come in 5', 6' and 8' widths in any height. Easy-to-assemble stairways meet OSHA and Uniform Building Code safety requirements. Equipto, Aurora, Ill. CIRCLE 274 ON READER SERVICE CARD

Automatic door package (3) performs well regardless of weather. System consists of door operating equipment and an air compressor with a dryer mounted on it. The dryer removes moisture from the operating device to minimize maintenance and reduce freeze-ups. Stanley, New Britain, Conn. CIRCLE 275 ON READER SERVICE CARD

Modular ceiling (7) is designed to enhance interiors while providing all the necessary functions. "Five plus Five" ceiling utilizes a pattern of 60" x 60" modules with built-in acoustical panels and light sources. An air bar permits ventilation through the grid without disrupting ceiling appearance. Conwed, St. Paul, Minn. CIRCLE 279 ON READER SERVICE CARD

"Pyro-Kure 615" insulation bonded to steel slats, the partitions provide excellent sound absorption. Holcomb and Hoke, Indianapolis, Ind. CIRCLE 277 ON READER SERVICE CARD

Heather tweed carpet for heavy traffic areas (6) is of continuous filament, soil-hiding nylon. "Finish Line" is a level loop floorcovering with almost 13 tufts per inch. Yarn is locked into place with a latex coating to which a jute or high density foam rubber backing is applied. Armstrong, Lancaster, Pa. CIRCLE 278 ON READER SERVICE CARD

"Pyro-Kure 615" insulation bonded to steel slats, the partitions provide excellent sound absorption. Holcomb and Hoke, Indianapolis, Ind. CIRCLE 277 ON READER SERVICE CARD

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"Pyro-Kure 615" insulation bonded to steel slats, the partitions provide excellent sound absorption. Holcomb and Hoke, Indianapolis, Ind. CIRCLE 277 ON READER SERVICE CARD

Heavy weight carpet, "Graduate," (11) tufted of Du Pont Antron nylon, covers the public areas of the University Mall, Orem, Utah. The carpet, glued directly to the subfloor without padding, is made extra thick to maintain a feeling of comfort underfoot. Wellco, Calhoun, Ga. CIRCLE 283 ON READER SERVICE CARD

Traditional floral print carpet, (12) "Royal Court," captures an old world tapestry look. A level loop construction, the fabric is tufted of Allied Chemical continuous filament nylon. Available in six colorations with a jute backing, the carpet is easy to maintain. Trend, Champion International, New York City. CIRCLE 284 ON READER SERVICE CARD

Wagon wheel lighting fixture (13) with a Western look is ideal for any wide open space. The dark-stained oak wheel is topped by five chains and copper and glass lanterns. Copper-plated shades have white baked enamel undersides to direct the light. Virden, Cleveland, Ohio. CIRCLE 285 ON READER SERVICE CARD

Outdoor luminaire (14), "TDA," is designed for lighting large areas. The heavy duty unit features twin-door assembly for swift servicing of the integral ballast and the light source. The factory-wired fixture can be used with mercury, metal-arc or high pressure sodium lamps. GTE Sylvania, New York City. CIRCLE 286 ON READER SERVICE CARD

"Lawnaire" luminaire (15), for walkways, outdoor malls and small parking areas, offers both symmetrical and asymmetrical lighting patterns. The unit, equipped with special reflectors, is constructed of spun and cast aluminum. All electrical components are concealed. McGraw-Edison, Racine, Wis. CIRCLE 287 ON READER SERVICE CARD

Flexible folding partitions (5), shown here in a hospital room, can change the size and character of a space. Constructed with a blanket of latex foam-rubber backing. Viking Carpet, New York City. CIRCLE 282 ON READER SERVICE CARD

Electric hand and hair dryers (4) for public rest- and locker rooms, are attractively styled in durable stainless steel. Units, which can be fully recessed or surface mounted, feature pushbuttons and air baffles in a vandalproof design. Electric-Aire, South Holland, Ill. CIRCLE 276 ON READER SERVICE CARD

Electric hand and hair dryers (4) for public rest- and locker rooms, are attractively styled in durable stainless steel. Units, which can be fully recessed or surface mounted, feature pushbuttons and air baffles in a vandalproof design. Electric-Aire, South Holland, Ill. CIRCLE 276 ON READER SERVICE CARD

Patterned carpet, "Omnibus-Flourish," (9) is a tufted design that combines solid and three-ply color Herculan® Olefin in a Wilton look. The dense pile carpet, shown in a men's store, is suitable for residential or commercial use and comes in six colorways. Mohawk, Amsterdam, N.Y. CIRCLE 281 ON READER SERVICE CARD

"Lawnaire" luminaire (15), for walkways, outdoor malls and small parking areas, offers both symmetrical and asymmetrical lighting patterns. The unit, equipped with special reflectors, is constructed of spun and cast aluminum. All electrical components are concealed. McGraw-Edison, Racine, Wis. CIRCLE 287 ON READER SERVICE CARD

Oriental-inspired carpet "Bachara" (10) is shown here in an office reception area. Tufted of Anso® soil-hiding nylon by Allied Chemical, the carpet is available in six colorations. The easy-to-maintain level loop, printed fabric comes in 12' widths with a
Clusters of spherical lights (1), for illuminating pedestrian walkways and parks, add architectural interest. Vandalproof acrylic plastic globes come in a variety of sizes in clear or opal. Siemens, Iselin, N.J. CIRCLE 288 ON READER SERVICE CARD

Mercury vapor lantern (2), for outdoor use, incorporates luminaire and ballast. The vandalproof, traditionally styled fixture is constructed of cast aluminum with polycarbonate panels. Arrolyer, Garfield, N.J. CIRCLE 289 ON READER SERVICE CARD

High intensity discharge luminaires (3), available in closed or open models, can use mercury vapor, metal halide or high pressure sodium lamps. Three different reflector sizes are offered. Day-Brite, St. Louis, Mo. CIRCLE 290 ON READER SERVICE CARD

Commercial lighting (4) permits the use of mercury vapor and metal halide lamps in fluorescent configurations. The 2' x 2' troffers are available for all types of ceilings. Smithcraft, Keene, Wilmington, Mass. CIRCLE 291 ON READER SERVICE CARD

Emergency lighting system (5) blends batteries and fluorescents. A small inverter changes battery power from DC to AC making it compatible with a fluorescent lamp. As many as eight inverters can be linked into one system. Exide, Philadelphia, Pa. CIRCLE 292 ON READER SERVICE CARD

Battery-powered emergency lighting (6) is maintenance free. Batteries are always at full charge and never need refilling. Operational checks can be made using an exterior test switch. Tork Time, Mt. Vernon, N.Y. CIRCLE 293 ON READER SERVICE CARD

Hospital lighting fixture (7) is designed for psychological security, easy maintenance and peak efficiency. The unit offers general room and down light illumination. Benjamin, Thomas, Louisville, Ky. CIRCLE 294 ON READER SERVICE CARD
Builder Raymond Diehl doesn't horse around when it comes to dishwashers.

His hobby is Tennessee walking horses.

But he makes his living building houses on spec in suburban communities near Harrisburg, Pa.

While the homes range in price from $28,000 to $38,000, Ray insists that everything that goes into them be of the highest possible value and quality.

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Plywood prevents
Where's the plywood, Martha?

You can help. The American Plywood Association has nine suggestions on how to build homes with fewer pieces, less labor and less money than ever before. Read the next page.
How plywood prevents overdesign:

1. Plywood over lumber framing spaced on a 24-inch module (Mod 24) saves about $200 a house, according to a time and methods study by the NAHB Research Foundation. Less lumber is needed because all framing for floors and walls as well as roofs is spaced 24 inches on center. Less labor is required because there are fewer pieces to order, inventory, handle and install.

2. The 2-4-1 Single Floor is still one of the fastest, simplest floor systems ever invented. One layer of extra thick 1½-inch plywood usually over 4-inch joists at 48 inches. Makes a smooth, solid surface for resilient floorings, carpeting and other nonstructural finish flooring. Nice basement ceiling, too.

3. Cross bridging between floor joists is just a lot of extra work. Plywood distributes loads between joists, eliminating any need for bridging.

4. APA® Glued Floor system combines subflooring and underlayment into a single-layer floor. The plywood is glued to wood joists. Many contractors are using 1/3 fewer joists. And some are getting stiff enough floors with plywood glued to 2x8 joists instead of 2x10's.

5. APA® Single Wall Construction eliminates the entire sheathing process. Nail the plywood siding right on the 2x4's. And cut costs 30-40% compared to double-wall construction.

6. Plywood corner bracing cuts labor costs compared to 1 x 4 let-in corner bracing commonly used with some of the other sheathing materials.

7. Plywood lintels or headers over doors and windows is a lower cost system compared to conventional lumber headers.

8. About roof sheathing. All major model codes will okay 3/8-inch plywood sheathing as long as the identification index reads 24/0. Builders using 1/2-inch sheathing with an identification index of 32/16 are overbuilding.

9. Plywood componentized construction cuts time and labor to the bone. Plywood is lightweight, strong and easy to work. No big tool-up costs or conversion investment. And components are growing. Fifty-three percent of both single and multifamily units built last year were put together with prefab components. That's a lot of plywood preventing overdesign.

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☐ Please send me the following booklets so I can prevent over-design.
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American Plywood Association
92 H&H August 1973
CIRCLE 92 ON READER SERVICE CARD
Electronic security system makes keyholes obsolete

The Proximity Device security system (PDI) provides extraordinary protection against break-in by totally eliminating visible external points of attack. There are no vulnerable keyholes, card slots or lock tumblers. The location of the release mechanism does not affect the exterior appearance of the door. The system consists of four components: (1) a central control unit (left), housing circuitry and a master reference key, a transformer (top right), a sensor (center right) and an electronically coded key (lower right). The sensor and central control—shown on a swing-away mock-up (2) as they would look installed—are located in proximity to the door at a point known only to keyholders. When the key enters the field of the sensor, the electronic unit reads the code and compares it with the reference key. If codes match, the door is released. If not, the door remains locked and an alarm circuit is activated. A demonstration unit (3) is used to show how easily the lock code can be changed by simply inserting a different reference key. A plastic wall box, seen in the foreground, is used to conceal master key and wiring. The system, which can be linked to intrusion alarm devices, is available with standby power sources for emergency use. In addition to the extra security provided, the PDI makes opening the door easy (4) by eliminating the need to fumble with conventional keys. Schlage, San Francisco. CIRCLE 200 ON READER SERVICE CARD
Welcome to the condominium field.

This is no place like home-building. Or any other kind of development or construction.
So if you've never been here before (or even if you have) you'd better bring along someone who's been around condos from the beginning.
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Economy-priced one-speed washer, Highlander® Fabricmatic™, features three separate washing programs: delicate, permanent press and regular. The delicate cycle is achieved by interspersing short periods of regular agitation with long periods of soak. Dryers are also offered. Maytag, Newton, Iowa.

Electric cooking surface section features plug-in Calrod® units, a Teflon-coated griddle and a barbecue grill. The 36"-wide, brushed-chrome unit installs between countertop sections, eliminating costly cut-outs. A backsplash adjusts to 24"-25" countertop depths. Vented and non-vented hoods are available. Hotpoint, Louisville, Ky.

Automatic water softener is designed to boost laundry cleaning power in hard water areas. "Thrift-O-Matic", offered in three sizes to coordinate with washer-dryer sets, carries a three-year warranty on controls. Easily installed with a quick-connect kit, the appliance features a rust-free fiber glass resin tank. Speed-Queen, Ripon, Wis.

Gas double wall-oven is equipped with a "Compu-timer" oven control that provides perfect cooking results every time. Both continuous cleaning, 19" ovens operate independently and can be simultaneously set at different cooking temperatures. Unit has an Infra Ray® broil burner and rotisserie in the upper oven. Modern Maid, Chattanooga, Tenn.

Built-in undercounter dishwasher offers quiet operation. The top-of-the-line unit, with ten programmed cycles, features a stainless steel liner, three-level cleaning action with two counter-rotating spray arms and a hi-wash diffuser arm, four indicator lights and a triple detergent dispenser. Norge, Fedders, Edison, N.J.

Under-the-sink water filter, "Aqua-Pure", consists of a compact filter housing and two-stage filter cartridge. A cellulose stage traps dirt and rust and a second activated charcoal segment removes tastes and odors. AMF Cuno, Meriden, Conn.

Popularly priced oak cabinet line, Mark XIV, features a soft luster fruitwood finish. Bold-grained, raised, beveled panels are removable to permit customized decorative treatment. Designed to blend with any kitchen decor, the line features a three-coat baked-on finish, dovetailed sides, adjustable plastic-edged shelves and self-closing adjustable hinges. Excel, Lakewood, N.J.
The big boys go with the leader!

John Odegaard, v.p. of Mayhill Homes in Georgia says, "Ninety-eight percent of the builders who buy built-in tubs and showers specify fiberglass. And for our panelized homes, we specify U/R.

"We know if we use U/R fiberglass, we'll never have quality problems. And the U/R fixtures show such thoughtful design, they actually help sell homes to consumers. In fact, we now design U/R fiberglass showers into many of our new models."

Builders all over the country agree with Odegaard. They know they can count on U/R for the newest product designs. Rigid structural checks and impartial load and impact tests. They also like the light weight, chip-resistant and leakproof features of U/R tubs and showers. Plus the seamless construction that eliminates tiles and grouting. And on-time delivery from a nationwide network of plants and field representatives.

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No wonder the biggest builders in the country go with the leader.

See what U/R fiberglass can do for you. Write for our new booklet, "Facts you want to know about Universal-Rundle fiberglass bathtubs and showers." Bob Sieger, Universal-Rundle Corporation, 217 N. Mill Street, New Castle, Pa. 16103.

*R HttpStatus of tests conducted by independent laboratories available on request.

Universal-Rundle
First in the bathroom with fiberglass fixtures
PRODUCTS/KITCHENS

Side-by-side refrigerator/freezer, with full length door handles, has interior colors of celery and olive. Among the special features in the unit are a sealed seven-day meat compartment, a chill compartment that cools warm food and beverage quickly without freezing and a convenient automatic icemaker. Westinghouse Electric, Pittsburgh, Pa. CIRCLE 208 ON READER SERVICE CARD

Complete cooking center features two ovens that automatically cook and self-clean at the same time. The 30” wide “Charmette” is equipped with a waist-high broiler, a powered rotisserie and Cook & Keep feature in the lower oven and Tem-trol automatic top burners. Unit comes in four colors. Roper, Kankakee, III. CIRCLE 209 ON READER SERVICE CARD

Drop-in electric range features a self-cleaning oven with a built-in smoke eliminator. The 30” wide unit, offered with or without a backguard, is equipped with an easy-to-clean lift-up cook top. Available in a choice of popular colors, the range has an automatic oven cooking control. Magic Chef, Cleveland, Tenn. CIRCLE 210 ON READER SERVICE CARD

Modular cabinet line, “Brittany,” features doors of a polyester laminate with a finish harder than vinyl. The scratch-, mar- and chemical-resistant surface permanently retains its natural-looking wood color and grain. Easy-to-assemble cabinets have interchangeable doors for left or right opening. Noblecraft, Hillsboro, Ore. CIRCLE 211 ON READER SERVICE CARD

Low-cost kitchen cabinets are attractively styled to blend with any decor. Deeply paneled, simulated woodgrained doors and drawers are of molded plastic construction. Interiors feature a fully washable finish. A choice of golden oak or mission oak exterior is offered. Welsh Kitchens, Martinsville, Ind. CIRCLE 212 ON READER SERVICE CARD

No-frost refrigerator/freezer in a small, low-cost model offers 9.94 cu. ft. capacity in the refrigerator section and a 2.49 cu. ft. freezer compartment. The two-door unit features two slideout crispers, two fixed shelves and in-the-door deep shelves, egg storage and butter chest. Kelvinator, Grand Rapids, Mich. CIRCLE 213 ON READER SERVICE CARD
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Stays in the track. Precisely engineered to give the dimensional stability of steel—no call-backs due to warping. Time tested hardware. Quiet operation.

Add wall-to-wall accessibility, floor to ceiling. Which means extra storage room, easy to get to.

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Contemporary-styled dining ensemble consists of a pedestal-base round table, six chairs and a coordinated buffet-server. All pieces are constructed of white plastic and the table and server feature white arbolite tops. The buffet provides counter space as well as drawer and cabinet storage. Treco, St. Romuald, Quebec, Canada. CIRCLE 214 ON READER SERVICE CARD

Porcelain enamel drum table, for indoor and outdoor use, is easy to maintain. The drum surface, much like that of a porcelain sink, has a high sheen and is unscratchable and heat resistant. Available 18" diameter by 18" high and 22" diameter by 22" high, the tables come white, red and black. Habitat, New York City. CIRCLE 215 ON READER SERVICE CARD

Upholstered seating collection, shown here in an L-shaped arrangement, is made of molded polyurethane foam with an integral steel frame. Pictured are two- and three-seater single-arm sofas covered in a herringbone wool. A "Kill" lounge chair completes the setting. Harvey Probber, Fall River, Mass. CIRCLE 216 ON READER SERVICE CARD

Contemporary wrought-iron patio set, "Christina," includes a 42"-diameter umbrella table and four arm chairs. The series features another group that consists of a loveseat, two arm chairs and a coffee table. Frames, offered in eight colors, have a specially developed corrosion- and rust-resistant finish. Plantation Patterns, Birmingham, Ala. CIRCLE 217 ON READER SERVICE CARD

Tables with mitered, square, chrome legs are offered with a variety of top surfaces. Five standard woods and five lacquered colors are available, as well as a plastic finish, "Sidetor-skin." Tables come in a full range of sizes. Shown are an occasional table (right) and a coffee table (below). Introx, New York City. CIRCLE 218 ON READER SERVICE CARD

Classic leather lounge chair is designed by Paul Tuttle for the Straessle International Collection. The gracefully curved base, made of bar stock steel with highly polished chrome plating, serves as a natural spring. Thonet, York, Pa. CIRCLE 219 ON READER SERVICE CARD

Round butcher block table features seamless sides and 2½" fluted legs and aprons. A variety of Formica and colorful plastic finishes are available. The table comes in the 24" diameter shown or in a larger 42" dining size. Danielle, Philadelphia, Pa. CIRCLE 220 ON READER SERVICE CARD
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Two ceiling tiles reflect Far Eastern design influence. "Seraglio" (left) features a delicate tracery of gold in an intricate pattern. Butted tiles form their own design creating a monolithic appearance. "Arabesque" (right) is a 6"x6" Moorish pattern imprinted on a white background. Tiles have washable finishes. Simpson Timber, Seattle, Wash. CIRCLE 221 ON READER SERVICE CARD

Two colorful wallcoverings, "Good Looking Tomato" (left) and "Strawberry Lattice" (right), are designed with the kitchen in mind. Both scrubbable patterns are heavily coated in vinyl to resist dirt and grease. The prepasted materials are strippable as well so that they can be easily applied and removed. United-Desoto, Chicago. CIRCLE 224 ON READER SERVICE CARD

Ceramic wall-tile line consists of five patterns. Designs in the Romany Flair series range from contemporary—such as "Graphic" shown—to traditional. Each pattern is fired-in so that the design surface resists marring from abrasive cleaning agents and chemicals. U.S. Ceramic Tile, Canton, Ohio. CIRCLE 222 ON READER SERVICE CARD

Colorful wall paneling for a boy's room, "I'll Be A Drummer" is a vinyl pattern laminated to a lauan substrate. Designed for quick, easy installation, the panel can be nailed to existing studs or attached to a flat surface with adhesive. The easy-to-maintain surface is tough and durable. Panel Products, Lithonia, Ga. CIRCLE 223 ON READER SERVICE CARD

Simulated replicas of cut stone, "Stone-Craft," are molded of high impact polystyrene. Proportioned for indoor use, the rough-textured stones of various shapes and sizes come in natural beige or gray. Installation is simple with the special "Applicon" adhesive application system. Decro-Wall, Elmsford, N.Y. CIRCLE 225 ON READER SERVICE CARD

Weathered-look vinyl material for prefinished wall panels, "Barn Door," can be laminated to lauan, plywood or other rigid substrates. The flexible, washable and abrasion-resistant vinyl provides the aesthetics of a woodgrained panel without the maintenance problems of natural boards. Stauffer, Westport, Conn. CIRCLE 226 ON READER SERVICE CARD
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massive study of 584,874 sales leads from House & Home readers confirms that sales action in housing & light construction comes from every segment of the industry

To identify all the important people in housing and light construction who are active in the selection of building products, materials, and equipment, House & Home followed up 584,874 advertising inquiries from its reader service cards and received a 33% return involving 195,200 inquiries.

Survey questions were designed to determine what, if any, "sales actions" were taken as a result of readers having seen advertisements in several issues of House & Home.

For the purpose of this study, "sales actions"—that is, those actions bringing products and prospects closer to a sale—have been defined as specifying, recommending, approving, purchasing, and still investigating further.

For each sales action, of course, the unknown multiplier is the number of residential or other units for which the sales action was taken. For example, a single purchase mention could involve a 10-house development, a 280-unit apartment complex, or anything in-between.

As shown in the table below, results indicate in the clearest possible manner that sales action comes from every segment of the industry and only House & Home—with its industry-wide circulation—offers all the sales action in the market.

<table>
<thead>
<tr>
<th>Reader Classification</th>
<th>Literature Requested by Readers Surveyed</th>
<th>Literature Requested by Survey Respondents</th>
<th>Literature Received by Survey Respondents</th>
<th>Specified Product</th>
<th>Recommended Product</th>
<th>Approved Product</th>
<th>Purchased Product</th>
<th>Still Investigating Product</th>
<th>Total Sales Actions</th>
<th>Sales Actions as % of Literature Received</th>
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<tbody>
<tr>
<td>Architects &amp; Designers</td>
<td>117,716</td>
<td>43,545</td>
<td>37,942</td>
<td>5,442</td>
<td>6,351</td>
<td>3,834</td>
<td>996</td>
<td>9,447</td>
<td>26,070</td>
<td>68.7%</td>
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<tr>
<td>Builders &amp; Contractors</td>
<td>248,906</td>
<td>77,961</td>
<td>66,624</td>
<td>5,489</td>
<td>7,666</td>
<td>7,057</td>
<td>7,227</td>
<td>22,890</td>
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<td>4,024</td>
<td>281</td>
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<td>209</td>
<td>1,361</td>
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<td>Engineers</td>
<td>15,321</td>
<td>6,087</td>
<td>5,340</td>
<td>381</td>
<td>599</td>
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<td>229</td>
<td>1,822</td>
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<td>3,832</td>
<td>206</td>
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<td>276</td>
<td>182</td>
<td>1,351</td>
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<td>4,977</td>
<td>308</td>
<td>537</td>
<td>355</td>
<td>219</td>
<td>1,641</td>
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<td>609</td>
<td>381</td>
<td>2,569</td>
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<td>6,010</td>
<td>5,243</td>
<td>351</td>
<td>644</td>
<td>604</td>
<td>515</td>
<td>1,665</td>
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<td>Wholesale Distributors</td>
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<td>2,284</td>
<td>1,963</td>
<td>141</td>
<td>248</td>
<td>124</td>
<td>130</td>
<td>696</td>
<td>1,339</td>
<td>68.2%</td>
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<td>Others not identifying self</td>
<td>102,047</td>
<td>33,493</td>
<td>28,983</td>
<td>1,883</td>
<td>2,766</td>
<td>2,052</td>
<td>1,296</td>
<td>8,713</td>
<td>16,710</td>
<td>57.7%</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>584,874</strong></td>
<td><strong>195,200</strong></td>
<td><strong>168,396</strong></td>
<td><strong>15,125</strong></td>
<td><strong>20,687</strong></td>
<td><strong>15,682</strong></td>
<td><strong>11,620</strong></td>
<td><strong>53,222</strong></td>
<td><strong>116,336</strong></td>
<td><strong>69.1%</strong></td>
</tr>
</tbody>
</table>

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"Duo-Row" shelving system makes the most of filing or storage space. A front row of mobile stack units is attached by an overhead channel to rear stationary stacks. The front row is always one stack shorter than the back to permit easy access to rear units. Front row is on ball bearing wheels. Dolin Metal, Brooklyn, N.Y. CIRCLE 232 ON READER SERVICE CARD

Print clamp wall racks are designed for use in areas where filing space is at a premium. Available in parallel and perpendicular mounting models, the units hold up to 12,000 sheets in sizes up to 48" wide by any length. Racks are equipped with 12 clamps in an exclusive suspension system that permits each clamp to be slipped in and out without disturbing others. Stacor, Newark, N.J. CIRCLE 233 ON READER SERVICE CARD

Central heating system calculator determines heat loss from a range of factors, total air change in cu. ft. per hour, radiator size, pipe sizes, boiler size and circulating pump size. Device comes with instructions. Industrial Scientific, Rouses Point, N.Y. CIRCLE 234 ON READER SERVICE CARD

Self-contained printer and developer, "Diazo-Jet Mark II," incorporates the latest roller assembly that eliminates the few studs that were subject to failure. The whiteprinter/blueprinter can make copies of tracings, drawings, plans and other originals to 42" wide by any length at dramatic speeds. Teledyne, Rotolite, Stirling, N.J. CIRCLE 236 ON READER SERVICE CARD

Three triangular scales for architectural use provide a full range of calibrations on one instrument. Each is 12" long with a variety of open divided graduations and a scale divided 16 parts to the inch. C-Thru Ruler, Bloomfield, Conn. CIRCLE 237 ON READER SERVICE CARD

A handy slide calculator is designed to assist in determining preliminary sizes of glu-lam beams. The device includes deflection and shear stress checks of the beam selection as determined for bending requirements. AITC, Englewood, Colo. CIRCLE 238 ON READER SERVICE CARD
Keep production moving with the Spotnails TL Series Spotbradder. Quick loading coil cartridges get you in and out of the "pit" fast. Fewer stops, too, because it carries a load of 925 Spotbrads —largest in the industry. Weighing in at just 3 lbs., the TL Series drives 18-gauge Spotbrads™ ¾" to 1". Also 18-gauge Spotpins™ ¾" to 1⅜" in loads of 1500 pins per cartridge. The ideal tool for decorative moldings, paneling, trimwork and cabinetry. Start your next production race with the fast finisher —the TL Series from Spotnails.

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Designer line of rocker switches, receptacles and wall plates is available in decorative colors with matching or contrasting borders. Quiet-type switches feature an exclusive frame that insures proper wall-plate fit and shields against dust. Matching grounded receptacles come in single or duplex configuration. Leviton, Brooklyn, N.Y. CIRCLE 239 ON READER SERVICE CARD

Weatherproof power outlets are prewired for easy installation. Units are available with standard or corrosion-resistant receptacles or with the latter plus a corrosion-resistant Cavalon finish on enclosures. A slanted front panel allows the cover to be closed while outlet is in use. GFI circuit breakers and junction mounting posts are optional. Midwest Electric, Mankato, Minn. CIRCLE 240 ON READER SERVICE CARD

Load center combines a fusible main in a 10,000 amp interrupting capacity with branch circuit breakers. The branch breakers are available in capacities of 5,000 or 10,000 amp. Unit comes in one model with a 100 amp main that can accommodate 20 branch circuits and another version with a 200 amp main that services 40 branch breakers. 1-T-E Imperial, Spring House, Pa. CIRCLE 241 ON READER SERVICE CARD

Light dimmer features a knob that glows in the dark. Dim-N-Glow™, a solid-state unit, is designed to be easy to find. A halo of light provides a sure path to the switch. A neon light behind the knob glows when the switch is off or at low light levels. Dimmers are rated at 600W, incandescent. Single pole or three-way models are offered in rotary or push switches. Lutron, Coopersburg, Pa. CIRCLE 245 ON READER SERVICE CARD

Adhesive marker strips are for identification of electric cables, multi-wire circuits, conduit, pipe and tubing up to 1" in diameter. The pressure-sensitive strips, available in numerals 0 through 9 in eight NEMA colors, are printed for legibility and coated for smear resistance. Backing card prevents adhesive from drying up. AMP, Paoli, Pa. CIRCLE 243 ON READER SERVICE CARD

Insulated-case circuit breakers are available in interrupting capacities up to 4,000 amps. The Power-Break™ features the highest interrupting capacity available without fuse assistance. The breaker can be front or rear connected. UL listed units, for manual or electric operation, feature dual-magnetic, non-ambient sensitive trips. General Electric, Plainville, Conn. CIRCLE 244 ON READER SERVICE CARD

Raintight disconnect switch is designed for air conditioners and in areas where the National Electrical Code requires an H.P.-rated disconnect means within sight of the motor (N.E.C., 430-86). Device is factory installed in zinc-coated gray steel cabinets. Boxes with hinged doors at the top can be sealed or locked and are designed for easy mounting. Wadsworth, Covington, Ky. CIRCLE 242 ON READER SERVICE CARD
A classic doesn't come along too often. But when it does, it sets the pace for years to come. Rolls did it with their Classic 33. And Valley's new Starburst Series has done it, too.

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CIRCLE 115 ON READER SERVICE CARD
**PRODUCTS/HEATING, COOLING**

**Split system area air conditioner** provides clean, quiet cooling. An indoor, wall-hung evaporator contains a two-speed blower fan that discharges cool air. It is connected to an outdoor unit that houses a compressor, a condenser and a condenser fan. Operating noises are isolated outside. Addison, Addison, Mich.  
[Circle 246 on Reader Service Card]

**Automatic power attic ventilator** features an adjustable thermostat. The automatic exhaust unit, which is designed for areas up to 1,200 sq. ft., is quick and easy to install. An optional human-hair-element adjustable humidistat draws out potentially damaging moisture-laden air. Kool-O-Matic, Niles, Mich.  
[Circle 247 on Reader Service Card]

**Power attic ventilator** automatically exhausts superheated air from attics or crawl spaces. By removing this heat-load, an entire structure stays cooler and the regular air conditioning system operates more efficiently. The unit is designed for installation behind existing gable louvers or under roof vents. It is controlled by an adjustable thermostat. Butler Engineering, Mineral Wells, Tex.  
[Circle 248 on Reader Service Card]

**Flexible cast-iron gas-fired boiler,** available in 29 sizes, is for water and steam applications. Designed for the multifamily and commercial market, the boiler allows for a choice of piping and flue arrangements. A steel jacket with a beige and brown finish is lined with fiber glass insulation. American Standard, New Brunswick, N.J.  
[Circle 249 on Reader Service Card]

**Blower coil units** come in 1 1/2, 2 and 2 1/2 ton nominal cooling capacities with a wide range of heating options available. Units, which can be installed either vertically or horizontally, feature balanced, three-speed, twin-direct-drive blowers. Valve-free Refrigerant Flow Control™ is standard. Lennox, Marshalltown, Iowa.  
[Circle 250 on Reader Service Card]

**Compact forced-air electric furnace** with an unusually low silhouette is adaptable to practically any installation. Units, ranging from 34,150 to 119,550 BTUH, can be installed upflow, downflow or horizontal without alteration. Units feature element sequencers, fusible links that can be replaced without removing the elements and a slide-out blower. Radiant-Aire, Quincy, Ill.  
[Circle 251 on Reader Service Card]

**Series of condensers** is engineered for use with 1, 1 1/2 and 2 ton central air conditioning systems. Units feature an externally accessible wiring compartment. Refrigerant lines are equipped with quick disconnect fittings for easy installation. A balanced fan-motor combination provides quiet operation. Fasco Industries, Fayetteville, N.C.  
[Circle 252 on Reader Service Card]
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Bassett Hall, Ferrum College, Ferrum, Virginia

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Comfort Conscious?
The same springs which permit quick removal of sashes for cleaning, paint­ing or glazing also assure snug fit of sash guides for year-around positive weather protection and easy operation.

R•O•W SALES CO.
1393 Academy, Ferndale, Michigan 48220
Lightweight emergency power handsaw cuts every construction material including masonry, brick, block, stone, concrete, tile, metals and wood. The unit is offered in a 4 1/2 hp model with a 12" blade capacity and a 6 1/2 hp version with a 14" blade capacity. An all-steel safety blade guard is featured. Cardinal, Conshohocken, Pa. CIRCLE 253 ON READER SERVICE CARD

Heavy-duty power trowels are available in 42" and 46" diameters. Units feature strong spider legs and stabilizer rings to assure a smooth finish. "Posi-loc" blade pitch controls, located on the handle assembly, provide seven positions. Machines are equipped with safety features to meet federal requirements. Kelley, Buffalo, N. Y. CIRCLE 256 ON READER SERVICE CARD

Clamper device, with a patented design, produces ten times as much grip when tightened by hand as a standard C-clamp tightened with a wrench. The pressure is achieved by a differential screw—an insert screw within the rustproof spindle. "Gator-Grip" holds any shape object. Cosner Machine, Strasburg, Mo. CIRCLE 254 ON READER SERVICE CARD

Shaver tool features a convex click-on blade for good cutting action on flat, convex or concave surfaces. A pull shaving direction assures good control and easy handling. The 7"-long, molded plastic tool can be used to smooth, shape, file or rasp a variety of building and decorative materials. Stanley Tools, New Britain, Conn. CIRCLE 255 ON READER SERVICE CARD

Cordless electric hedge trimmer, to maintain large areas, features an interchangeable battery pack. The tool will deliver 2,200 strokes per minute with its double-edged blade, for up to 45 minutes on a single battery charge. Freshly charged batteries may be inserted on the spot for additional trim time. Disston, Pittsburgh, Pa. CIRCLE 257 ON READER SERVICE CARD.

Utility loader features an earth drill attachment for installing fences, power-poles, guard-rails or foundations. The hydraulic, motor-driven drill attaches to the loader in about one minute. The loader, with a patented boom action, directs the attachment straight down into the ground without realignment. New Holland, New Holland, Pa. CIRCLE 259 ON READER SERVICE CARD.

High-torque wrench screw-driver easily inserts or removes screws, bolts and nuts in corners or other hard-to-reach areas. When not in use a power arm, which can be inserted in the socket of the tool to provide extra leverage, is stored in the hollow shock- and breakproof handles. G.C.A. Mfg., Pittsfield, Mass. CIRCLE 258 ON READER SERVICE CARD.
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Penny-to-inch nail converter is a pocket size chart. The guide also breaks down nail gauges into decimal equivalents and nearest sizes. A seven-inch measuring guide is printed on the margin. Maze Nails, Peru, Ill. CIRCLE 311 ON READER SERVICE CARD

Acoustical grid suspension systems are shown in color photographs of actual installations in shopping centers. Seven projects shown include malls and single stores, theaters and parking garages. Text descriptions of each photograph include names of contractor and architect and type of ceiling shown. Etern Products, Columbia, Md. CIRCLE 313 ON READER SERVICE CARD

Vertical solid waste compactors are described. Product versatility, safety and ease of use are discussed. Specifications are included. G & W Auto Pak, Red Lion, Pa. CIRCLE 314 ON READER SERVICE CARD

Fastening methods, recommended for storm resistant construction, are presented in this six-page folder. Detailed diagrams help explain how wood-frame buildings can be anchored and tied together more securely than is generally possible by the use of special fastening devices. TECO, Washington, D.C. CIRCLE 308 ON READER SERVICE CARD

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