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This issue of Housing is published in national and separate editions.



You Can Tell a Book by Its Cover



You've probably noticed that our cover has a different look this month, for we have a new logo that's direct and contemporary and that shows off the cover photo to best advantage. We like to think it reflects the directness—and the timeliness—of our contents.

A magazine's logo is a bit like a signature: You don't tamper with it lightly. But our new image is appropriate at this time, for HOUSING has made many changes over the last year. Some, like the logo, are merely typographical: larger, bolder reader service numbers, for example, that should prove convenient when you want more information about new products or literature. Others are more ambitious, like the quarterly construction cost guide that tells what it costs to build a detached ranch house or an attached two-story townhouse in 100 different markets. (The next one is coming up in November.)

You, our readers, now have a chance to express your point of view in *Speaking Out* and *House Calls*. And two late-closing features—*HOUSING Hotline* and the monthly economic barometer we call *Indicators*—bring you last-minute news and statistics.

All of these changes are intended to serve you better and to make us more useful to you in your work. And our editors tell me they won't stop here: There are more new features in the works. (If you have any suggestions about subjects you'd like us to cover, please send them to our editors.)

One subject we know that many of you are interested in is how to manage more efficiently so that you can cut costs without sacrificing quality. Computers offer a way to accomplish this, particularly now that manufacturers are coming out with less-expensive models suitable for smaller businesses. So beginning on page 75 you'll find a special section on "Computers: A Guide for the First-Time User." Associate Editor Fran Donegan spoke to manufacturers, computer experts and builders to find out what you should know if you're contemplating going on computer. And Associate Editor Walter Updegrave explored the dollars and cents of owning, leasing, time-sharing or going to a service bureau, particularly in light of the new tax laws.

Also in this issue is a special portfolio of award-winning designs, the 20 First Honor and Merit Award winners from this year's Homes for Better Living program which HOUSING magazine sponsors in cooperation with the American Institute of Architects. When we started this program 26 years ago, we wanted to make the homebuilding industry aware of the benefits of working with architects. That's hardly necessary these days, but we've found the program is still valuable because so many of the winners offer solutions to design problems that others also face.

A popular radio commentator likes to tell "the rest of the story." We feel there's a "rest of the story" to be told about many of the projects and promising ideas we feature in HOUSING, and we intend to follow up on them regularly. Thus, on pages 50 to 55, you'll see how five energy houses that we published during the past two years worked out. Unfortunately, for a variety of reasons, the test data wasn't as complete as we—and the builders and designers—would have liked. But there's still something to be learned from these houses, and we appreciate the generosity of those who shared their experiences with us, even when there was no success story to tell. This kind of sharing benefits the whole industry.

—G. ROBERT GRISWOLD

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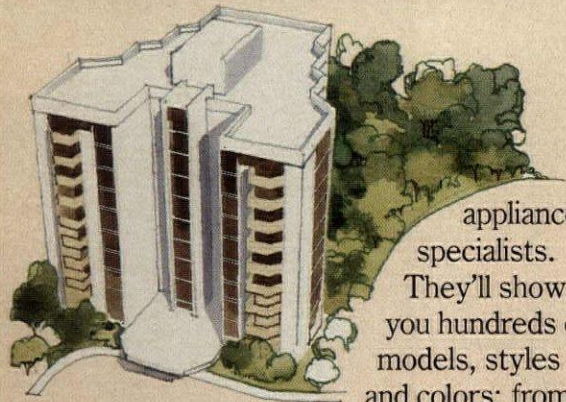
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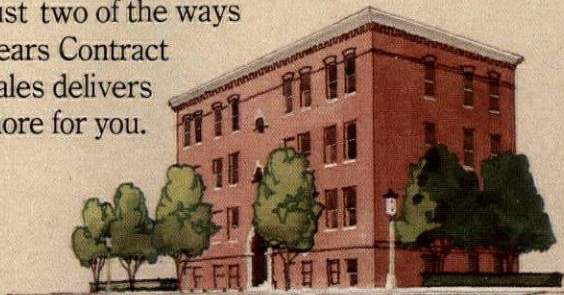
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Two new finance programs from Washington could help ailing thrifts, even though they will have to take losses to take advantage. The Federal Home Loan Bank Board has proposed an accounting change to let S&Ls sell their old low-interest mortgages at a loss and spread the impact of the loss over several years—instead of taking the loss in the same tax year as it occurs, as is now required. And the Federal Home Loan Mortgage Corp. is launching a program to let S&Ls, and other mortgage-issuers, exchange their old mortgages for participation certificates. This will make it easier for thrifts to cash in on their old mortgages—although it will require them to take a bookkeeping loss, since the market value of a low-interest mortgage, in today's high-rate market, is far less than the mortgage's face value. For this reason, the program is likely to be of limited appeal. Nevertheless, Mortgage Corp. President Philip Brinkerhoff expects the program to spur the swapping of some \$15 billion in mortgages next year for participation certificates.

The July rise in housing starts—by 3.3% to an annual 1.06 million—was only one side of the coin. The other side was the third straight monthly drop in permits for future construction—down 4% to an annual 924,000. For analysis—plus an explanation of why July's "good economic news" wasn't so good—see *Indicators*, page 16.

Stalled Section 8 projects can break ground, thanks to a Reagan administration ruling to increase the per-unit subsidy. The reason for the increase: so owners can keep pace with the higher cost of financing. The federal budget totals won't have to be increased, says HUD Secretary Pierce, since the additional funds for the higher subsidy will be "recaptured" from other projects which have been dropped. The ruling will put in motion applications to build some 50,000 subsidized units. Until now, these applications were stuck in HUD's pipeline. When added to the 40,000 units expected to be financed by the expanded mortgage-buying authority of the Government National Mortgage Assn., "This will basically clean out the HUD pipeline," says Deputy Assistant Secretary for Housing Philip Abrams.

U.S. Home and Golden West Homes decided to merge because the timing was right. New York-based housing analyst Ken Campbell, president of Audit Investment Research, Inc., says that U.S. Home feels "a number of institutional barriers are being cleared away to make manufactured housing more available—such as the new California law forbidding localities to discriminate against manufactured housing in their zoning laws." The pending merger—considered all but certain—would join the nation's largest stick builder with California's largest producer of double-wide mobiles (according to each company's assessment of its own market position). U.S. Home Chairman Guy R. Odom said he expects the merger will let each increase its market share more quickly than either could have beforehand. Golden West Vice President Dave Totten said of U.S. Home, "We think they have the expertise that we need in financing and land development."

Threats of defection get the California thrifts what they wanted. It's the right to issue variable-interest mortgages similar to the ones that federally chartered S&Ls now can make. Late last month the California legislature sent to Governor Brown a bill which lets state-chartered thrifts make variable-interest mortgages. Brown seems certain to sign the bill—even though he vetoed a similar measure last year—and a major reason for the switch is that at least eleven state-chartered S&Ls threatened to switch to federal charters if they weren't given more lending flexibility. The only restriction on the new California mortgages: the interest rate cannot change more than two percentage points a year.

Small investors emerge as big lenders in financing construction of rentals. "The developer has learned to look elsewhere (than thrifts and commercial banks) for funds," says Jerry M. Reinsdorf, chairman of the Balcor Co., a Skokie, Ill. investment firm. One growing source is the limited partnership formed by a large group of middle- and upper-middle-income investors, he says. These partnerships often require as little as \$3,000 to buy in, according to Reinsdorf.

HOUSING HOTLINE

Fannie Mae smiles on mobile homes and mortgage investors. Two separate programs will benefit each group. First, Fannie Mae (The Federal National Mortgage Assn.) will now buy mortgages on mobile homes, with these conditions: the units must be permanently installed, the mortgage must be covered by title insurance, the land and home must be financed together, and the unit must be approvable as a site-built house, or under HUD's mobile home standard. In the second program, Fannie Mae plans to offer, before year's end, a security backed by home-mortgage pools as small as \$1 million. A similar program pioneered by the Government National Mortgage Assn. for government-insured mortgage has proved extremely popular. The net effect for the Fannie Mae program would be to make investment in mortgages less risky and more attractive—particularly to institutional investors.

The default rate on adjustable-rate mortgages (ARMS) could be seven times higher than that for fixed-rate mortgages with a 90% loan-to-value ratio, says Max H. Karl, chairman of MGIC. The Milwaukee-based mortgage insurance firm cites two reasons: the inability of borrowers to handle payment increases, and the erosion of equity, due to negative amortization. This risk of default is greatest, says Karl, in periods of high inflation. To counter the risk and make ARMS more acceptable to the secondary market, MGIC has introduced "The Adjustor," a program of insurance against loss due to negative amortization (which occurs when a rise in rates cause the loan balance to increase instead of decline).

Have you heard the one about carrying a used house in San Francisco? It's no joke, but the monthly cost there has doubled since 1978, according to an affordability survey of averaged-priced used houses in 15 cities conducted by the National Association of Realtors. The blame is twofold: both on interest increases and on house-price hikes. Today, the principal, interest, taxes and utility payments would total \$1,731 for an existing house in this most expensive market, say the Realtors; to buy the house would require about two-thirds of the average family income in the area. Other cities surveyed show these monthly payments: Los Angeles, \$1,441; New York, \$1,371; Washington, D.C., \$1,310; and Houston, \$1,166. The lowest increase—a mere 62.2% since 1978—showed up in Detroit, where the average monthly payment on a resale is now \$934, the survey says.

The plan to deregulate interest rates on savings has been thrown off schedule. U.S. District Court Judge Gerhard Gesell ruled that the Depository Institutions Deregulation Committee (DIDC) exceeded its authority when it ordered the removal of all ceilings on deposits with maturities of four years or more [HOUSING, August]. The DIDC had proposed removing all ceilings on four year-plus deposits beginning August 1, and then gradually removing ceilings on shorter-term deposits until all ceilings were phased out in 1985. But Gesell ruled against that because it failed to permit S&Ls to pay a quarter-point differential over the rate commercial banks would pay. For now, say banking industry lawyers, it appears that the best way to raise the current 8% ceiling on four-year-and-longer deposits is to peg the rate to Treasury securities, while allowing the thrifts to pay a quarter-point more than commercial banks do.

"Corporations are liberalizing their real-estate related relocation policies," says George Rathman, president of Merrill Lynch Relocation Management, because "employees are finding it difficult not only to sell their current homes, but also to afford the carrying costs on their new ones." In a study of the *Fortune* 1,000 corporations, the relocation firm discovered that while corporations are now doing more for those they do transfer, far fewer are being transferred: The 605 corporations that responded to the survey reported a 22% decrease in the number of transferees. But today's transferees—select few that they are—get mortgage-interest differential allowances from 61% of the corporations—up from 45% in 1979. And nearly all firms—96%—give their relocated employees help in disposing of their present homes. Nearly half of the firms employ a relocation service or bank to purchase the old home, the survey found.

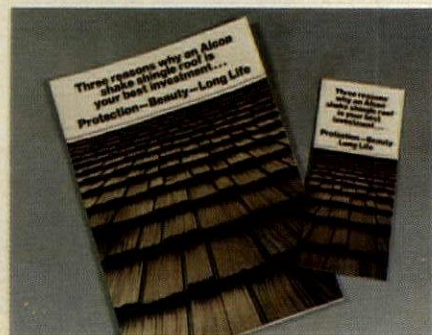


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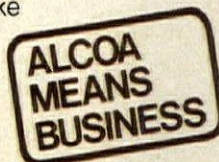
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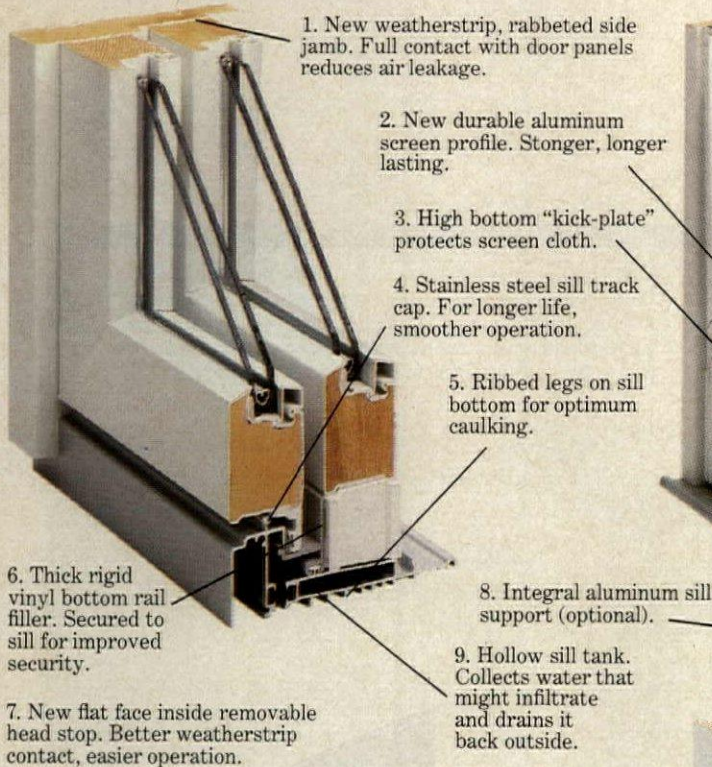
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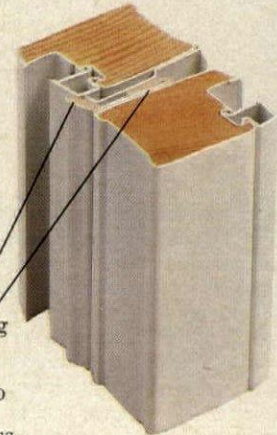
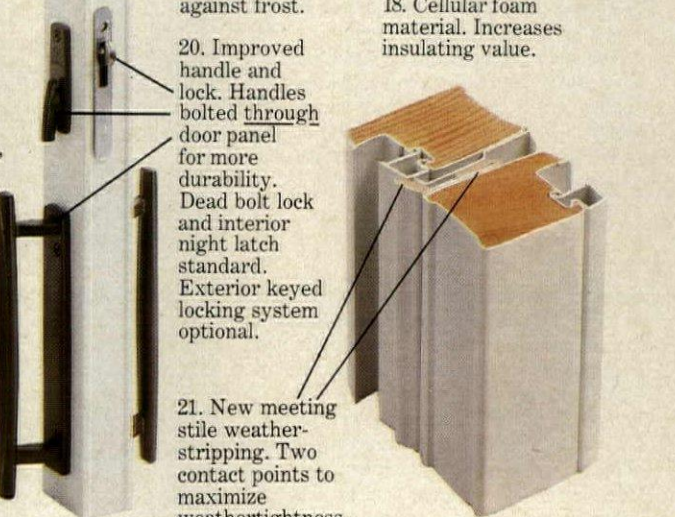
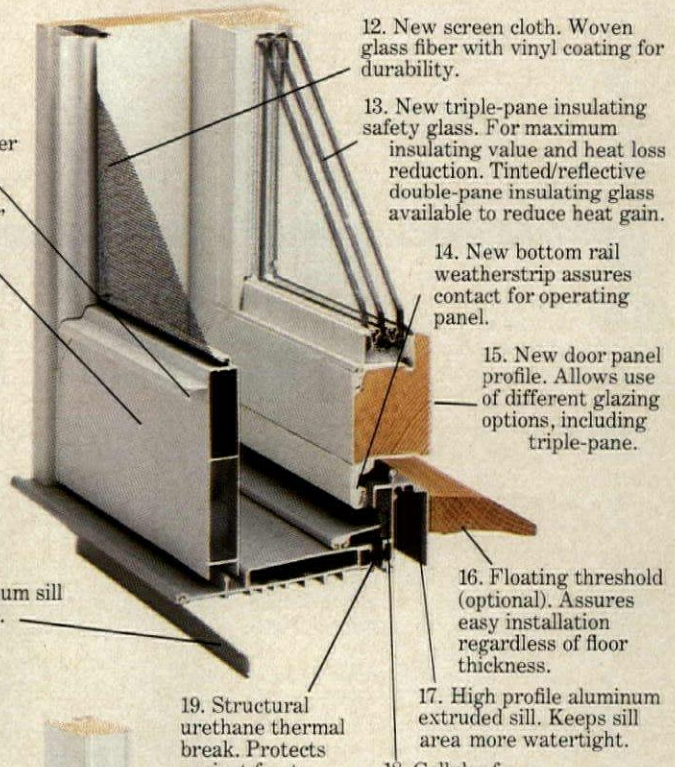
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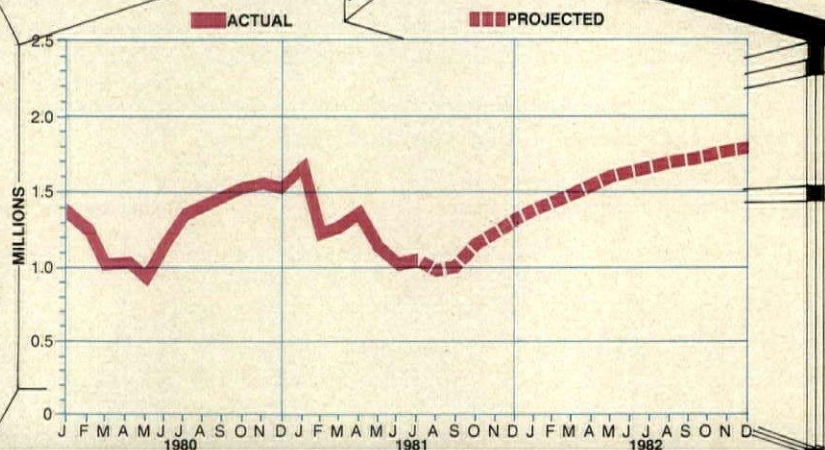
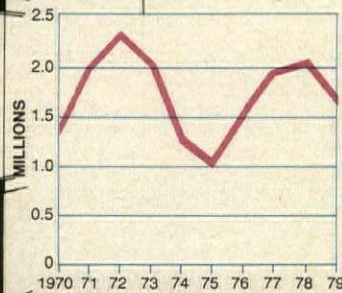


INDICATORS

from McGraw-Hill's Economics Department

Housing Starts

The Long-Term Picture



Our forecast carried since May correctly anticipated a July upturn in starts. And we still look for recovery by mid-1982 to a 1.6 to 1.7 million annual rate. But it's clear that for now, at least, credit market conditions will stunt any quick resurgence. The Fed is sticking to its tight money policies,

with homebuilders and buyers the sacrificial lambs. Nonetheless, they retain the brand of determination that Winston Churchill's fiery speeches extolled. Although some experts predict the imminent demise of the housing industry, we see it quite alive and working hard by the middle of next year.

Homebuilders crossed up the pundits and boosted starts by 3.3% in July. At a 1.055 million annual rate though, activity is obviously sadly depressed. Improvement was concentrated in the North Central and Northeast, while construction activity sank in the South and was little changed in the West. Largest gains, however, were concentrated in the multifamily sector, as single-family starts increased by only 1.8%.

And ominously, building permits sagged by 4% in July, with the bellwether single-family sector slumping nearly 8%. This slippage, together with continued astronomical mortgage rates, likely means the downtrend in starts will resume in future reports.

The rate of completions rose nearly 9% in June. But single-family completions declined slightly. Likewise, private units under construction shrank more than 4% in June. One benefit from this malaise will be fewer units glutting the market in coming months.

Sales of new single-family homes plunged by 17.2% in June, belying May's upsurge. At the current sales pace, there is a 9.3-month backlog of new homes on the market. In addition, the average new-home sales price rose a hefty 4.7% in June, suggesting that the typical American is getting squeezed out of the market. And a slump in mobile-home shipments corroborates a broad decline.

Surprisingly, existing home sales rose a solid 6% in June, hopefully indicating that innovative financing schemes are working. But a 2.2% price rise further narrows the band of buyers in that market.

More optimistically, the rental vacancy rate fell to 5% in the second quarter from 5.2% at the start of the year. This may account for the strength in July multi-family starts.

Construction Activity

In Thousands of Units/Year⁽⁷⁾

	7/81	6/81	7/80	Change From Previous Mo.	Change From Year Ago
Private Housing Starts	1,055	1,021	1,277	+ 3.3%	-17.4%
Single Family	691	679	867	+ 1.8	-20.3
Two-to-Four Unit Bldgs.	99	89	83	+11.2	+19.3
Other Multifamily	265	253	327	+ 4.7	-19.0
Total Building Permits	924	963	1,232	- 4.0	-25.0
Single Family	522	567	763	- 7.9	-31.6
Two-to-Four Unit Bldgs.	100	101	114	- 0.1	-12.3
Other Multifamily	302	295	355	+ 2.4	-14.9
	6/81	5/81	6/80		
Private Housing Completions	1,368	1,260	1,491	+ 8.6	- 8.2
Single Family	859	867	911	- 0.9	- 5.7
Two-to-Four Unit Bldgs.	123	104	122	+18.3	+ 0.8
Other Multifamily	386	289	458	+35.0	-15.7
Private Units under Construction	860	897	878	- 4.1	- 2.1
Single Family	485	507	479	- 4.3	+ 1.3
Two-to-Four Unit Bldgs.	63	65	66	- 3.1	- 4.5
Other Multifamily	311	324	333	- 4.0	- 6.6

Market Activity

Annual Rate

	6/81	5/81	6/80	Change From Previous Period	Change From Year Ago
New Single-Family Sales⁽⁷⁾	408,000	493,000	532,000	-17.2%	-23.3%
Average Sales Price ^{(7)*}	\$88,300	\$84,300	\$76,300	+ 4.7	+15.7
Backlog of New Homes⁽⁷⁾	9.3 mo.	8.0 mo.	7.9 mo.	+ 1.3	+ 1.4
Existing Home Sales⁽⁶⁾	2,650,000	2,500,000	2,570,000	+ 6.0	+ 3.1
Average Sales Price ^{(6)*}	\$80,300	\$78,600	\$74,100	+ 2.2	+ 8.4
Mobile Home Shipments⁽⁷⁾	246,000	255,000	166,000	- 3.5	+48.2
	1981	1981	1980		
	2nd Qtr.	1st Qtr.	2nd Qtr.		
Vacancy Rate					
Rental ⁽⁷⁾	5.0%	5.2%	5.6%	- 0.2	- 0.6

Construction Cost Indices

1967 = 100

	7/81	6/81	7/80	Change From Previous Mo.	Change From Year Ago
Producer (Wholesale) Price Index—					
All Construction Materials ^{(8)*}	290.2	289.3	269.7	+ 0.3%	+ 7.6%
Asphalt Paving ⁽⁸⁾	608.6	610.1	491.9	- 0.2	+23.7
Portland Cement ⁽⁸⁾	329.4	328.9	313.3	+ 0.2	+ 5.1
Softwood Lumber ⁽⁸⁾	349.0	356.1	348.1	- 2.0	+ 0.3
Plywood ⁽⁸⁾	248.1	250.9	252.8	- 1.1	- 1.9
Electrical Products ⁽²⁾	246.4	245.2	231.4	+ 0.5	+ 6.5
Production Index—Construction Supplies^{(4)*}					
Construction Employment(000) ^{(6)*}	4,253	4,274	4,270	- 0.5	- 0.4
Unemployment Rate—Constr. ⁽⁸⁾	15.0%	16.6%	15.8%	- 1.6	- 0.8
Hourly Constr. Earnings Index ⁽⁸⁾	131.8	130.5	121.8	+ 1.0	+ 8.2
	6/81	5/81	6/80		
New Materials Orders (Millions) ⁽⁷⁾	\$13,309	\$12,755	\$10,770	+ 4.3	+23.6
Materials Shipments (Millions) ⁽⁷⁾	\$12,819	\$12,812	\$10,944	+ 0.1	+17.1

Financial Activity*

	6/81	5/81	6/80	Change From Previous Mo.	Change From Year Ago
Net New Deposits, S&Ls					
(millions) ⁽³⁾	(\$ 5,613)	(\$ 70)	(\$ 169)	(\$5,543)	(\$5,444)
Outstanding S&L Mortgages					
(millions) ⁽³⁾	\$18,113	\$18,635	\$15,296	- 2.8%	+18.4%
Mortgage-Backed Securities—S&Ls (millions)⁽³⁾					
	\$29,323	\$29,284	\$22,294	+ 0.1%	+31.5%
Net New Deposits—Mutual Savings Banks (millions)⁽⁵⁾					
	(\$ 1,400)	(\$ 676)	(\$ 176)	(\$ 724)	(\$1,224)
	7/81	6/81	7/80		
Effective Mortgage Commitment					
Rate (Convent., 25-yr., 75%) ⁽³⁾	16.95%	16.82%	12.57%	+0.13	+4.38
Atlanta	16.56	16.81	12.97	-0.25	+3.59
Boston	17.43	17.17	13.18	+0.26	+4.25
Chicago	17.46	17.41	12.25	+0.05	+5.21
Dallas/Ft. Worth	16.52	16.24	12.40	+0.28	+4.12
Denver	17.14	17.09	11.96	+0.05	+5.18
Kansas City	17.01	16.85	12.26	+0.16	+4.75
Los Angeles	17.13	17.01	12.47	+0.12	+4.66
Miami	16.90	16.57	13.05	+0.33	+6.85
Minneapolis	17.39	16.87	12.22	+0.52	+5.17
Portland, Ore.	16.53	16.36	12.18	+0.17	+4.35
Washington, D.C.	17.09	17.15	12.35	-0.06	+4.74
	9/82	3/82	9/81		
Ginnie Mae—8% Futures Contract— % Yield⁽¹⁾					
	15.502	15.659	15.890	- .157	- .388

General Economic Indicators

	7/81	6/81	7/80	Change From Previous Mo.	Change From Year Ago
U.S. Industrial Production Index					
(1967 = 100) ⁽⁴⁾	153.4	152.9	140.4	+ 0.3%	+ 9.3%
Personal Income					
(billions of dollars) ⁽⁷⁾	2,421.7	2,384.7	2,161.2	+ 1.6	+12.1
Savings Rate ⁽⁷⁾	5.5%	5.4%	6.0%	+ 0.1	- 0.5
Total Employment (millions) ⁽⁸⁾	98,962	98,392	96,999	+ 0.6	+ 2.0
Unemployment Rate ⁽⁸⁾	7.0%	7.3%	7.6%	- 0.3	- 0.6
Wholesale Price Index (1967 = 100)^{(8)*}					
	296.0	294.5	270.4	+ 0.5	+ 9.5
Retail Sales (billions of dollars) ⁽⁷⁾	\$88.032	\$86.942	\$79.491	+ 1.3	+10.7
Domestic New Car Sales					
(millions/year) ⁽⁷⁾	5.886	5.302	6.433	+11.0	- 8.5

Sources: (1) Chicago Board of Trade; (2) Electrical Marketing Newsletter; (3) Federal Home Loan Bank Board; (4) Federal Reserve Board; (5) National Association of Mutual Savings Banks; (6) National Association of Realtors; (7) U.S. Department of Commerce; (8) U.S. Department of Labor. All data seasonally adjusted unless marked by an asterisk (*). In most cases latest figures are preliminary, with revisions shown in next month's table.

Wholesale prices for construction materials and supplies edged up by only 0.1% in July, after seasonal adjustment (0.3% unadjusted). That's less than the rise in all producer prices, reflecting soft demand by builders. Favorable price performances were posted by plywood and softwood lumber, asphalt paving materials and cement. Plastic construction products costs are also moderating. But a sharp increase in plastic resin quotes may foreshadow price increases down the road.

More worrisome is the performance of labor markets. The unemployment rate for construction workers fell 1.6% in July. And associated with that improvement was a sharp 1% increase in construction wage rates, twice the rise in manufacturing. Over the last year, construction earnings grew less rapidly than gains by industrial workers. Should an upsurge in building produce a sharp rise in labor costs, homebuilders will face a real obstacle in bringing the industry up to snuff.

Mortgage rates headed farther into the stratosphere in early July, though the increase in a 75%, 25-year conventional rate was just 13 basis points over early June. Likewise, June deposit data from thrifts showed a record outflow. Most recently, the nation's money supply surged by \$3.1-billion, shocking the money market traders.

On the one hand, the picture is bleak. With the new budget just passed, Administration analysts now fear that the deficit in fiscal 1982 could be \$20-billion more than was projected. Likewise, latest readouts on the economy indicate that there is no sharp recession in progress—though homebuilders know better. Without a sizable downturn, private credit demands will continue to grow instead of easing as had been expected.

On the positive side, the Administration is moving quickly to find ways to cut spending. And the new tax cuts mean both increased private savings and investment. The big question is how effectively the Administration can check spending and keep the Treasury out of money and bond markets. One sign of a serious effort: cherished defense spending is now getting a closer look.

Thus, our outlook is for rates to stay high through the fall, but come down thereafter. One positive factor is the genuine improvement in inflation, which the Federal Reserve cannot continue to ignore.

Good news can be very, very bad sometimes — as when financial markets are hoping for recession but all data point to growth. In July, the unemployment rate dropped to its lowest in 15 months. Other setbacks: personal income jumped 1.6% and retail sales 1.3%. And while industrial production grew only 0.3%, a bigger decline had been expected.

In fact, the economy is not strong and is likely to show sporadic slippage through the fall. But the tax cut is now an achievement that will promote growth as of October 1. By that token, our forecast is for a rising economy through 1982 and 1983.

But the near-term outlook is in the hands of the Federal Reserve. Its stringent policies have choked homebuilding and other markets dependent on credit. The Fed indicates that it won't relent soon. Nonetheless, the Fed will have to come around or be charged with obstructing the President's economic program.

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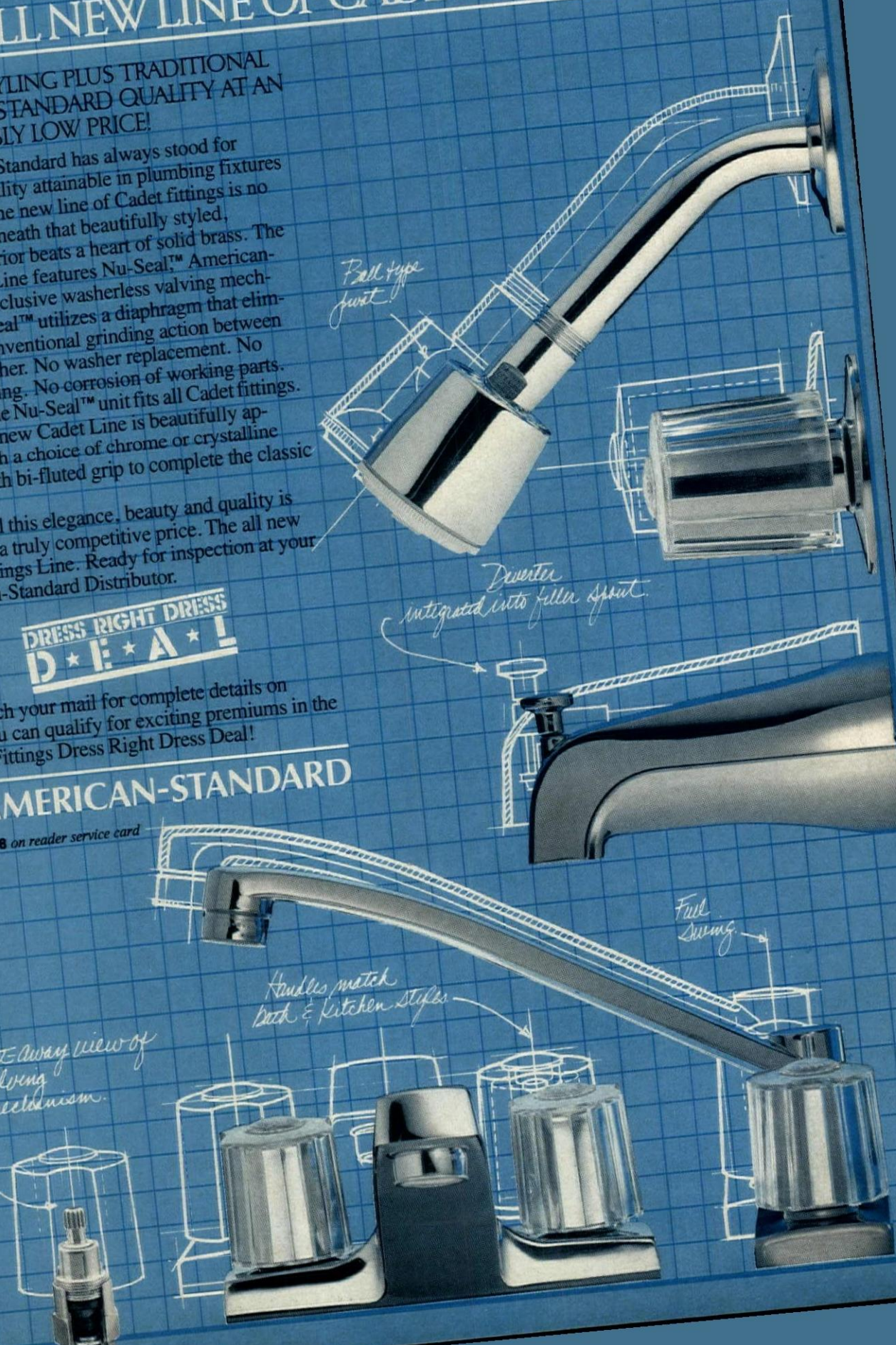
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Tight Money Will Keep Rates High...

The Federal Reserve Board has served notice that it doesn't intend to loosen the money clamp on the economy. Administration economists support this policy, arguing that the result will be lower inflation and falling interest rates—eventually.

The problem is, most private economists say that significant relief on rates is some ways off.

"Mortgage rates will probably not be below 14% by the end of 1981," says Thomas R. Harter, chief economist of the Mortgage Bankers Association of America.

Says Lawrence Chimerine: "We continue to expect that any declines in rates will be relatively modest, confined primarily to short-term instruments." Chimerine is chief economist of Chase Econometrics Associates, an economic consulting firm.

Devastated. Federal Reserve Board Chairman Paul A. Volcker presented the annual midyear review of monetary policy to the House and Senate Banking Committees on July 21 and 22, and Congressional reaction reflected the pain that high rates are inflicting on housing and other interest-sensitive sectors of the economy.

"Housing and related industries are being devastated by this high-interest-rate policy," said Sen. John Melcher (D.-Mont.), "and something must be done to provide some relief."

But Volcker said the Fed has been placed in the position where any attempt to reduce interest rates by pumping money into the banking system—as most critics would have it do—would only drive interest rates higher. He argued that the Fed's only possible course is to press forward in wringing inflation out of the economy by persistently reducing the amount of money available for lending.

Strategy. The Fed uses this reasoning to support its tight control of money growth: Since spending and borrowing require money, reducing the amount of money in the economy restrains people and corporations from bidding up prices. But this tight control makes money relatively more scarce, and in the process makes money harder to get. This drives up interest rates when demand is strong.

The energy, high technology and defense sectors of the economy have indeed remained strong, Volcker said, so "the brunt of the restraint falls on other credit-dependent sectors."

But another important reason interest rates are high is that lenders insist on a return on their money that is



ILLUSTRATION: DAVID G. KLEIN

greater than the rate of inflation. And for interest rates to come down, Volcker said, lenders must be confident that inflation is coming down and will stay down. If the Fed pumps out more money to satisfy sectors where demand is still strong, this will only raise fears of an inflationary progression of events: that the increased amounts of money supply lets people bid up the prices of goods and services. This

prompts lenders to raise interest rates higher in anticipation of future inflation.

"You and I know that after a decade of disappointment, there is persisting skepticism about the ability of the nation to persevere in an anti-inflation program," Volcker told Congress. "I believe that skepticism is unwarranted, but we must make that claim good by our actions."

Support. Administration officials, meanwhile, argued that both spending and monetary policies are on the right course. "We will not weaken in our support of these proposals," said Beryl W. Sprinkel, undersecretary of the Treasury for monetary affairs.

"The administration is committed to policies which will bring a permanent end to high inflation, high interest rates and high unemployment. We recognize there are some immediate costs, but we recognize... much higher costs, if effective action is delayed... [Those would be] the destruction of our economy."

—G. DAVID WALLACE

McGraw-Hill World News, Washington

...As Tax Reform Offers Some Relief

The Reagan administration's massive new tax cut—worth \$749 billion over the next five years—is geared primarily to individuals and capital-intensive "smokestack" industries. But it does contain relatively modest tax changes that could benefit housing.

Write-offs. The centerpiece of the business share of the tax bill—the accelerated cost recovery system—offers owners of residential buildings the option of much faster write-offs than had been allowed. All such property, which now has a depreciation period of thirty years or more, becomes eligible for a 15-year write-off if the taxpayer so elects. The owner will have to depreciate the property as a whole, however—component depreciation will no longer be allowed.

In a bid to help homeowners who are having a hard time selling their houses, the Congress increased the rollover period during which a taxpayer avoids paying capital gains taxes on the sale of a principal residence from 18 months to two years. And it increased from \$100,000 to \$125,000 the one-time exclusion from capital gains taxation on the sale of a house.

All-Savers. In a move nominally opposed by the Reagan administration, Congress added some controversial inducements to savings that were designed to help the savings and loan

industry. The new law authorizes banks, S&Ls and mutual savings banks to issue so-called "All-Savers" Certificates, which on a one-time basis can give depositors up to \$1,000 in tax-exempt interest (\$2,000 for those filing joint returns).

The certificates, which bear a yield of 70% of that of a 52-week Treasury bill, can be issued after Sept. 30, 1981 and before January 1, 1983. At least 75% of the proceeds on certificates issued in any calendar quarter must be used to provide residential financing by the end of the next quarter.

Qualified financing includes:

- any secured loan for a single- or multifamily residence
- any home improvement loan
- any mortgage for single- and multifamily housing insured or guaranteed by any federal, state or local government agency
- any loan for the construction or rehabilitation of a single- or multifamily residence.

The new tax law also includes an additional savings incentive that becomes effective in 1985. It will permit a 15% net interest exclusion on up to \$3,000 of interest (\$6,000 for joint returns). There is no requirement that the thrifts or banks use the funds for housing.

—STUART E. JACKSON

McGraw-Hill World News, Washington

Federal Programs Slashed—as Promised

With the lonely exception of the "All-Savers" Bill designed to help out the S&L industry (see page 19), the housing industry mostly got the back of the hand from Congress and the Reagan administration in this year's appropriations bill.

The housing authorizations adopted for fiscal 1982, beginning October 1, either eliminated, cut back or put a lid on most housing and community development programs. The message of the president and his budget Director David Stockman—"Make do with less"—got through loud and clear.

The reaction of Chairman Henry B. Gonzales (D-Tex.) of the House Housing Subcommittee was that Congress was "succeeding and signing the death knell" for housing programs. And Congress did kill off at least one significant program: Section 235, which subsidizes mortgage payments for low-income buyers. It will end next March 31.

Stripped Section 8. Severe cut-backs were made on the Section 8 rental assistance program for lowest-income families. The House-Senate conferees decided that 153,000 rental units could be added to the present Section 8 program.

That is fewer than the 175,000 that Reagan asked for in March [HOUSING, April], which itself was a sharp reduction from the 260,000 units that lame-duck Jimmy Carter proposed in his budget last January.

Design disciplines were added in this year's Section 8 program. HUD was instructed by Congress that all new Section 8 housing should be "modest

in design," and that the HUD secretary should review "planned amenities" to see to what extent room sizes can be reduced and still meet FHA Minimum Property Standards.

In addition, subsidies are allowed for "single room occupancy" units—units without a bathroom or kitchen—if "there is a significant demand" for such units in a given area. These subsidies would be available from the Section 8 rehab program.

UDAG salvage. One program intended for complete extermination by budget director Stockman has survived, albeit with less funding than last year. The Urban Development Action Grant program—a favorite of the nation's mayors—was kept at a \$500-million level for the next two fiscal years, down from \$675 million for the current fiscal year ending Sept. 30.

Thus, homebuilders who want to continue to provide low-cost housing may now have to search for substitutes for programs using federal money, since in many instances there will be less of it to go around.

Mortgages. On the financial front, the Government National Mortgage Assn. (Ginnie Mae) was given authority to purchase \$1.97 billion of FHA and VA mortgages. The Senate had wanted to give it \$3.2 billion. The \$1.97 billion will be enough to finance "those projects that will reach FHA firm commitment during the fiscal year 1982," the conferees concluded.

Stockman wants the FHA single-family mortgage insurance program phased out [HOUSING, May], but Congress kept it alive—even though it

refused to raise the loan maximum for high-cost areas above \$90,000.

The House-Senate conferees said, however, that when FHA calculates an area's "median sales price" to determine if the insurance ceiling will go higher than the base \$67,500, it should "give greater weight to the sales prices of new homes." Reason: so that "the housing opportunities of moderate- and middle-income persons will be maximized."

Mobile victories. In the face of many federal slaps at site-built housing programs, the manufactured housing/mobile home industry got a few pats on the back. Chairman Richard Lugar [R-Ind.] of the Senate Housing Subcommittee, was instrumental in obtaining these gains:

- Section 8 subsidies may now be paid to families living in mobile home parks, whether the units are existing, substantially rehabilitated, or newly constructed.

- FHA mortgage insurance will be available for loans on manufactured housing as expensive as \$55,000 (house and lot) in high-cost areas. In other areas, the maximum for a unit without land goes up to \$47,500 for a double-wide unit on a lot, up from the current \$40,550. The loan term may go to 20 years, compared to the current 15-year limit.

- FHA insurance will also be available for manufactured home condominiums, whether the units are attached, semi-attached, or detached—provided the units meet FHA Minimum Property Standards.

—DONALD O. LOOMIS

McGraw-Hill World News, Washington

Study Links Tight Construction with Pollution

A prestigious research group cautions that indoor air pollution is becoming more serious as houses, apartments and other buildings are sealed tighter to reduce energy costs.

Singled out were formaldehyde, radon and asbestos—all associated with building materials—as three major pollutants. The study was prepared for the Environmental Protection Agency by the National Research Council, which is affiliated with the National Academy of Sciences.

The study warns also that ventilation alone may not be enough to reduce pollution levels, especially in an era when ventilation rates are being cut back to save energy.

Fumes. Building materials such as plywood, particleboard and urea-form-

aldehyde foam insulation are sources of formaldehyde fumes, which the study calls a common pollutant.

As for radon, which is emitted indoors by soil, building materials and groundwater, the report says radon gas and its radioactive decay products often occur indoors in concentrations ten times greater than outdoors. Although this pollutant is associated with lung cancer in uranium miners exposed at much higher levels, the study says potential health effects at levels found indoors have not yet been determined.

Regarding asbestos, the study said the small amounts found indoors usually pose only a "small health risk," based on present knowledge. But it did voice concern over possible risks to

persons in buildings when efforts are made to reduce asbestos materials, and recommended containment measures in such cases.

Extreme problems. Extremes of temperature and humidity—while not customarily thought of as agents of pollution—can affect human health, especially when they influence the activity and concentrations of gases and particles present in the air.

In particular, the report points out that excess humidity can increase the corrosive effect of absorbed gases, and may promote the growth of molds, algae and fungi. "Thus, humidity control may become an important component of reduced-ventilation strategies," it says.

—HERBERT W. CHESHIRE

McGraw-Hill World News, Washington

GE didn't design a range package that puts three ovens in one kitchen just to impress home builders.

We did it to impress home buyers.

GE Designer Line Range Packages.

Know how to make sure your custom kitchens will look their very best? Easy. Just put in General Electric's very best.

Look at the special GE Designer Line Range Packages we've put together to help you enhance your kitchens.

The Three Oven Collection (pictured): The built-in convenience of two full size, self-cleaning GE ovens plus our counter-saving Spacemaker™ microwave oven and our deluxe cook top with griddle.

The Microwave Collection: team up our Spacemaker™ microwave oven with the TimeMaker™ — the range that uses regular heat, microwaves, or both at once for the same good cooking in less time.

The Modular Collection: The GE Grill/Griddle range has more great ways to cook than you can shake a spatula at—easy-to-plug-in grill and griddle interchangeable elements, two conventional surface elements and a full-sized self-cleaning oven. Plus its own specially designed exhaust hood with a high-CFM, infinite speed fan.

Design the ultimate kitchen around one of our GE Designer Line Range Packages. We'll give you our very best. Just call your local General Electric contract supplier.

We bring good things to life.

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Itemizing the Costs of Regulation

A California coalition of business, labor and concerned citizens calling itself a "sensible pro-growth movement" has lifted an idea from the auto industry and introduced a "sticker price" for new homes. The sticker price itemizes in detail all the costs that go into a new home—everything from labor, materials, marketing and financing to the cost of zoning regulations, permit processing and environmental impact studies.

But there's a major difference between a car's sticker price and a home's. Unlike power brakes and automatic transmission, notes Gil Ferguson, executive director of CEEED, Californians for Environment, Employment, Economy and Development, "there's no option for an environmental impact study." Whether the homebuyer likes it or not, he says, such costs "are all in his mortgage at 16%. He never gets a choice."

Ferguson's group, sometimes referred to as "the Sierra Club of the other side," claims the individual homebuyer shouldn't bear the brunt of the cost of historical surveys, environmental impact studies and archeological digs often required before a building permit is issued. "If bones are so important to the public," says Ferguson, "then all the public ought to pay to study them. Not the poor guy who's buying a home."

Government regulation, particularly exclusionary tactics, "has produced beautiful neighborhoods," says Ferguson, but it's also created "a chasm between the haves and the have nots." First-time buyers' inability to afford a home at today's prices, according to Ferguson, "amounts to parents doing in their children."

CEEED is giving its price stickers to builders, lenders and others in the housing industry to educate the public on the effect of no-growth and exclusionary housing policies. Some builders have put the sticker in model homes. Ferguson feels the sticker brings home that point better than "the nice studies done by Stanford and MIT that have such beautiful-sounding jargon that nobody understands them." The simple lesson imparted by the price sticker: "We can't build Volkswagen homes and Volkswagen communities anymore. Only Mercedes."

—W.L.U.

FORM 001746973... This form must, by law (Ordinance 7596230, in conformance with California State Code 549c3) be affixed to the front window of each new house built and sold within this city or county.

STICKER

PRICE One (1) New House



1 NEW HOUSE (MATERIAL AND LABOR)	\$ 29,212
UPGRADED TO MEET GOVERNMENT'S DEMANDS AND YOURS	\$ 16,482
1 LOT (UNIMPROVED)	\$ 18,741
TOTAL FOR HOUSE AND LOT	\$ 64,435

THE BELOW LISTED OPTIONAL ITEMS AND PUBLIC IMPROVEMENTS, PERMITS AND FEES MUST BE PURCHASED WITH THE HOUSE, IT'S A GOVERNMENT REQUIREMENT:

ENVIRONMENTAL IMPACT REPORT	
HISTORICAL SURVEY	
ARCHEOLOGICAL/PALEONTOLOGICAL SURVEY AND DIG	
SEISMIC STUDY	
SOUND STUDY	
PERMIT PROCESSING FEE	
PLAN CHECK FEE	
AMENDMENT TO GOVERNMENT'S GENERAL PLAN	
TRAFFIC STUDY	
SPECIAL FEES FOR USE PERMITS, HEARINGS AND	
HEARINGS AND APPEALS OF PERMITS	
BUILDERS, CONTRACTORS AND SUBCONTRACTORS LICENSE	
GRADING PERMIT	
BUILDING PERMIT FEE	
STREET, ROAD DIVIDER AND PLANTINGS	
CURB AND GUTTER	
SIDEWALK	
SEWER SYSTEM, PIPE TO TRACT, INTRACT AND HOOKUP	
WATER RESERVOIR, PIPE TO TRACT, IN TRACT AND METER	
GREENBELT	
OPEN SPACE	
PARK OR EQUIVALENT FEE	
COMMUNITY WALL/GATE/PLANTINGS	
COMMUNITY CENTER/SWIMMING POOL/TENNIS COURT	
BIKE TRAIL/HORSE TRAIL/JOGGING LANE, EACH	
UNDERGROUND ELECTRICAL WIRES, TELEPHONE, CABLE TV	
PORTION OF FREEWAY, ON/OFF RAMP, BRIDGE, MAJOR	
ROAD TO TRACT	
SCHOOL SITE/SCHOOL	
LIBRARY SITE	
FIRE STATION SITE	
FLOOD CONTROL IMPROVEMENTS, RETARDING BASINS	
STORM DRAINS AND SEWERS	
YOUR PORTION OF BUILDER'S COST OF SELLING 25%	
OF HOUSES IN TRACT AT LOWER PRICE TO LOW AND	
MODERATE INCOME BUYERS (OR EQUIVALENT FEE TO	
GOVERNMENT)	
TOTAL COST	\$ 34,055*
OTHER BUILDER COSTS:	
MARKETING COST	\$ 4,020
COST OF FINANCING CONSTRUCTION	\$ 6,298
OVERHEAD AND PROFIT	\$ 7,500
EACH NEW HOUSE MUST ALSO ACCEPT ITS PRORATED SHARE OF ADDITIONAL	
INCREASES IN PRICE DUE TO DELAYS (3+ YEARS IS ABOUT AVERAGE TO	
COMPLETE THE GOVERNMENT'S PERMIT PROCESS) PLUS THE ADDITIONAL	
RISE IN PRICE RESULTING FROM AN INSUFFICIENT SUPPLY OF HOUSING	
TO MEET DEMAND. (IF THE GOVERNMENT WON'T LET YOU, YOU CAN'T	
BUILD THEM.) THIS INCREASE IN PRICE IS SPREAD OVER THE LOT	
COST, BASIC STRUCTURE, OVERHEAD, PROFIT AND INTEREST.	
TOTAL PRICE OF HOUSE	\$ 17,692
TOTAL PRICE OF HOUSE	\$134,000**

* Not all local governments require all these, some more, some less.
 ** This form is really not required by law. It is however an accurate depiction of the price of an average house and how the costs are distributed. It is based upon the recently released report, "Housing Cost Analysis" by Dr. Alfred Gobar. This illustrative form is provided by CEEED to help the public understand some of the forces behind the rising price of housing. Copies may be ordered from:
 CEEED, 160 Newport Center Dr., #116, Newport Beach, CA 92660 — (714) 644-9000

THE COURTS

Thumbs Down on Private Sales Restrictions

Courts continue to remind developers and others in the business of selling houses that theirs must not be a tight little club inhospitable to newcomers or companies that want to use more aggressive marketing practices. Three recent decisions in three unrelated cases underscore the danger that policies of exclusiveness can raise under the antitrust laws.

In Tennessee, for instance, the state attorney general got after the Nashville Apartment Association for a membership restriction that barred members from using various promotional gimmicks—free rent, premiums, gifts—to attract tenants.

Such a provision in the code of ethics is a violation of the Sherman Act,

the state charged in a suit brought in federal district court. The association ended the litigation with a promise to drop the prohibition and not to impose sanctions on any apartment manager that advertises giveaways.

Three recent decisions in three unrelated cases show the danger that policies of exclusion can raise under antitrust laws.

Vulnerable. The point of such promises—embedded in court orders—is that if an association later

renegs, it is easier for the government to bring a second case. If the order is violated, the prosecutors no longer have to prove that competition was curbed by the challenged practice—only that a court mandate was ignored.

That's just what happened earlier this summer in Pittsburgh, where the U.S. Department of Justice went after Suburban Multi-List, Inc., a real estate agent alliance which had accepted a federal district court consent decree in an antitrust case in 1973. In that decree, the multi-list group promised not to do anything that would tend to make the fees uniform. But, the government recently

Continued on page 24

HUD Solar Experiment: Cloudy Results

Active solar systems are not measuring up to their promises, says a Department of Housing and Urban Development study, and there are problems with passive systems as well.

A \$20 million HUD demonstration program, designed to encourage homebuilders to use solar technology, is now considered a flop by the department.

David C. Moore, program director, reports nearly three-fifths of the systems in houses under study have failed since installation—and the failure rate is almost as high on 181 systems in multifamily buildings.

Purpose. Congress authorized the demonstration program seven years ago. Its purpose was to provide grants—usually about \$9,000 per unit—to homebuilders. This was intended to involve the builders in solar system selection, to create realistic data on system performance and to provide examples of installations for the public.

But the program did not produce an abundance of shining examples. "The quality of many solar products, designs and installations has been dismal," says Moore. "It is possible to do the job right, but it is not easy."

Moore reports problems with passive system temperature control. He says that while overheating problems and nighttime heat loss are well known and clearly suggest a need for better controls, they are often forgotten by designers. "(In passive systems) careful design is particularly important when overhangs are relied upon for controls," he says.

As for active solar, Moore complains that some of the problems have been with one-of-a-kind installations. However, "the discouraging fact is that these (problems) have been repeated in many different projects."

Too hot. In an unoccupied Boulder, Colo. home, one system even caught fire, presumably because a plywood-backed box used with the system overheated. Moore suspects the plywood was the wrong material to use: "Long-term exposure of plywood to elevated temperatures will dry out the wood," he says, and this lowers its combustion temperature significantly.

Another problem area Moore points to: corrosion in collector loops of liquid systems. Such systems require regular maintenance and replacement of the antifreeze additives such as glycol which, he notes, can deteriorate and break down at high temperatures.

"Most homeowners are unwilling to incur the expense of periodic maintenance," he says.

Active vs. passive. One of the lessons learned in the program is that passive solar has a much brighter future for now than does active, according to Martin Mintz, a trained architect and director of technical services for the National Association of Home Builders.

"With passive, you can do a fairly good job with very little money. We are seeing far more interest in passive. Active is still in a state of infancy, and there is little mass production," says Mintz.

Builder beefs. Although a survey

commissioned by HUD showed that a majority of participating builders were satisfied with the program, not all were. "We wouldn't take part again," says Mary Vickerman of the David Vickerman homebuilding firm in Evergreen, Colo. "There was too much red tape and too many late payments for a firm our size." The company builds five to ten houses a year, she says.

In Santa Fe, N. Mex., Francis Stanley, managing partner of builder Stanley Associates, says he might participate again if HUD made similar grants available, but he criticizes the government for wasting money. For example, he notes that all participants had to travel to distant cities for orientation and briefing sessions before their grants were processed.

Twilight view. Neither Moore nor anyone else at HUD expects a reactivation of the solar demonstration project. This will suit the Reagan administration just fine; it is curbing the Department of Energy research efforts on solar and intends to rely solely on tax credits to encourage utilization of solar technology.

But even builders unhappy with HUD's demonstration program are interested in continued use of solar systems. Colorado builder Mary Vickerman tells why: The demonstration solar home her company built sold for \$92,000 in 1978—and was resold this year for \$159,000. She considers that reason enough to pursue solar technology further—but without government help.

—WILLIAM D. HICKMAN
McGraw-Hill World News, Washington

Private Sales *continued from page 22*

charged, three years ago the organization refused membership to a broker because she did only about half of her business at the normal 6% or 7% commission rate. The rest of her business consisted of working as a sales consultant—at considerably lower rates—to homeowners who wanted to sell their own properties.

North Suburban argued that the sale-by-owner operation was inconsistent with membership in a multi-list organization. But the judge refused to buy the argument. He found the group in contempt of court but imposed no penalty because the organization was already slated to go out of business.

The third case was brought by a lawyer against First Federal Savings and Loan Association of New Haven. He claimed that the lender violated Connecticut state antitrust laws by

maintaining a list of attorneys approved to handle real estate closings—thereby denying business to those not on the list. The plaintiff didn't prove that the practice was in fact a bid to monopolize the business of real estate law. But the Connecticut Supreme Court handed a loss to the entire S&L industry on the more sweeping question of whether similar actions can be brought in the future.

First Federal Savings and Loan argued that since it is regulated by Washington, it is not covered by state antitrust laws. But the justices held that in fact such challenges can go to trial, since the kind of practices they are trying to change in no way jeopardize the objective of federal regulators in guaranteeing the financial soundness of the institutions.

Restriction. In another case, a

court agreed that a development may keep its family atmosphere by not selling to unmarried couples without running afoul of anti-discrimination laws. The Maryland Court of Special Appeal sided with the Greenbelt Cooperative in its refusal to grant membership to a man and a woman who wanted to buy a house in the town, and the decision, in effect, voided the sales contract. The state Human Relations Commission had called the refusal discrimination on the basis of marital status—which is unlawful in Maryland—but the state court held that each applicant was single and there was no evidence that the development opposes singles *per se*—only that it objects when they are living together without marriage.

—DANIEL B. MOSKOWITZ
McGraw-Hill World News, Washington

GE didn't design a Zonal Heat Pump that cuts energy costs room-by-room just to impress builders.

We did it to impress their customers.

See the GE Zoneline III Zonal Room-by-Room Energy-Saver Heat Pump at the M-H World Show, GE Booth #1701.

Enter the exciting world of room-by-room zonal heating and cooling. It's the latest concept in energy conservation, and GE has prepared an impressive show to explain how this concept can save energy dollars for your customers.

As energy costs go higher, builders have to find new ways to cut down on the cost of heating and cooling. That's why GE designed the Zoneline III Extended Range Heat Pump. It can significantly reduce energy usage, when compared to standard electric resistance heating units, and helps keep cooling costs down because of its high cooling-efficiency rating.

In addition, the room-by-room zonal control lets your customers put energy to use in only the rooms they're using. The result is less energy waste, and lower electric bills. A perfect

combination, heat pump and zonal control. No wonder the Zoneline III Heat Pump system may be the ultimate energy saver money can buy.

When it comes to heating economy, consider these energy-saving figures. By itself, the Zoneline III Heat Pump will save an estimated 50% in Las Vegas, 30% in New York, 46% in Dallas, and 55% in Los Angeles over electric resistance heating. It costs more than a standard resistance heating unit, but depending on the location, the Zoneline III Heat Pump can pay for itself in 1 to 5 years.

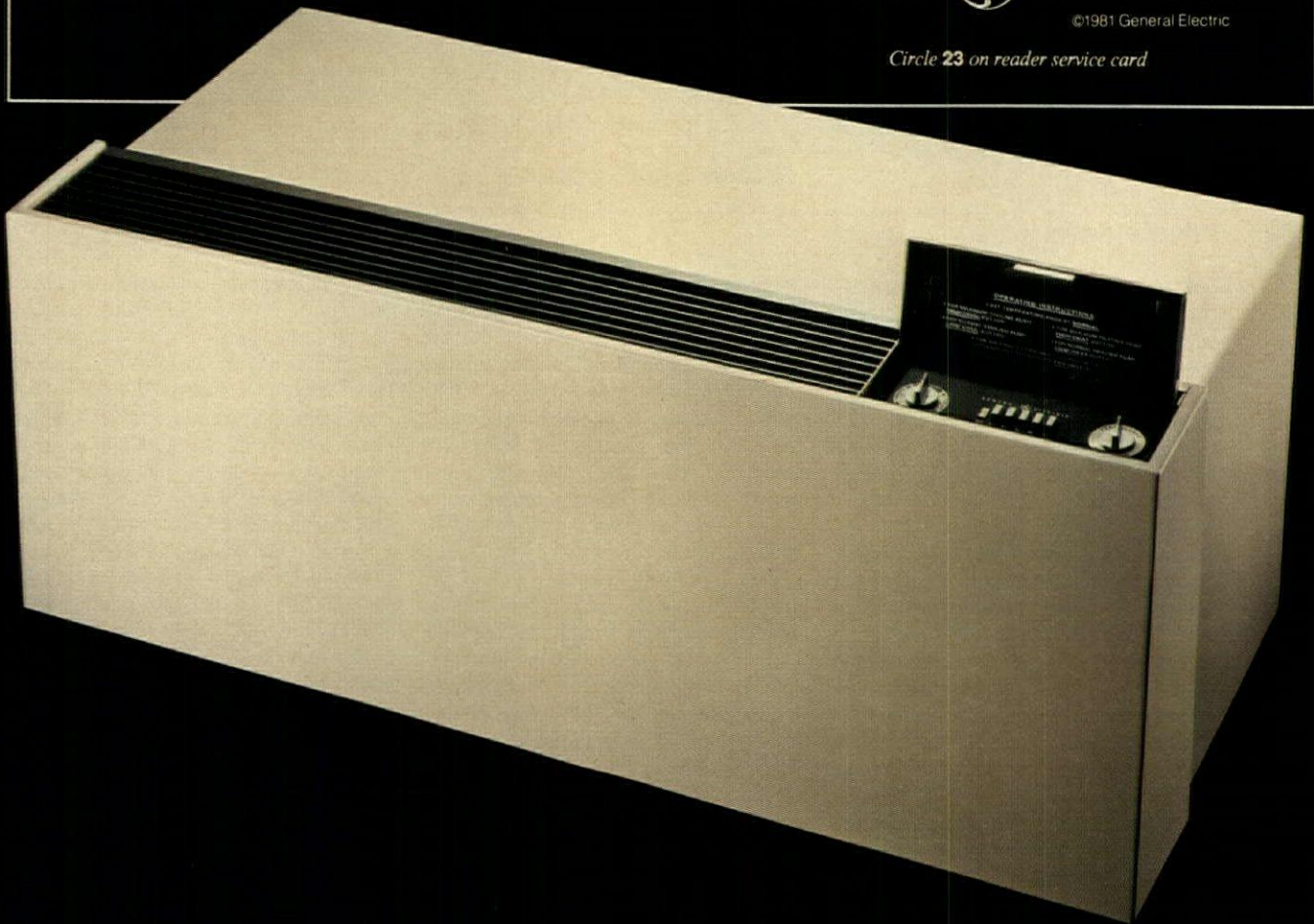
So drop into GE Booth #1701 at the M-H World show and see for yourself how room-by-room Zoneline III Zonal Heat Pumps can help you sell more living units and save more energy dollars for your customers. What else would you expect from GE?

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Now available from Weather Shield Mfg., Inc., an innovative glazing system that puts more of the sun's energy to work for you. Weather Shield SolaireFilm Energy-Efficient wood windows, patio and entrance doors give you a powerful new building component which can significantly reduce heating costs.

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SolaireFilm units from Weather Shield have the same "U" factor and insulate as effectively as triple pane glass, yet are more transparent to solar energy. The combination of "more heat in and less heat out" means you save on heating costs. Few other solar components work as simply, cost as little, or are as maintenance-free as Weather Shield windows and doors with this new transparent solar film.

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WEATHER SHIELD

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Most new homes have glass foundations.

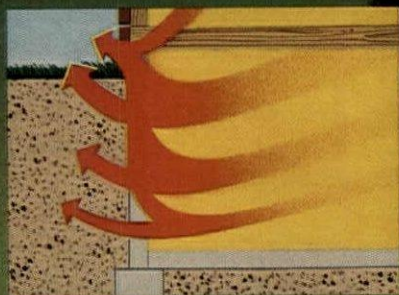
A typical 8-inch concrete block foundation has an R-value of 1.11, very similar to the 0.91 R-value of single-pane glass. It allows the surrounding earth mass to act like a giant heat sink, drawing heat from a basement at a tremendous rate: Up to 22% of a home's total heat loss! But durable, easy-to-install STYROFOAM* brand insulation can cut both foundation and frame wall heat loss dramatically.†

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†Savings vary. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

**Survey conducted September, 1979, by The Opinion Research Corp., commissioned by The Dow Chemical Company.

††Meets requirements of ASTM E 119-79 endurance test criteria for 60 minutes. Further information available from your supplier or from Dow.

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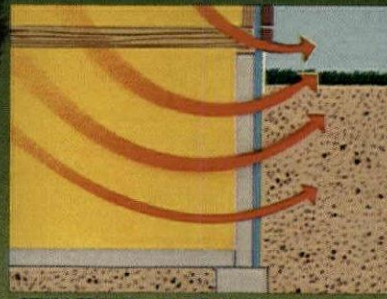
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High-Scoring Ideas for Low-Cost Housing

Practical and fanciful proposals include housing for the three little pigs

In California, this summer's MVPs—most valuable projects—may be the winners of a recent state-sponsored affordable-housing competition.

"They've given us cause for optimism that the affordable housing dilemma can be resolved," says Bob Judd, director of the Governor's Office of Appropriate Technology, which sponsored the competition with the California Department of Housing and Community Development.

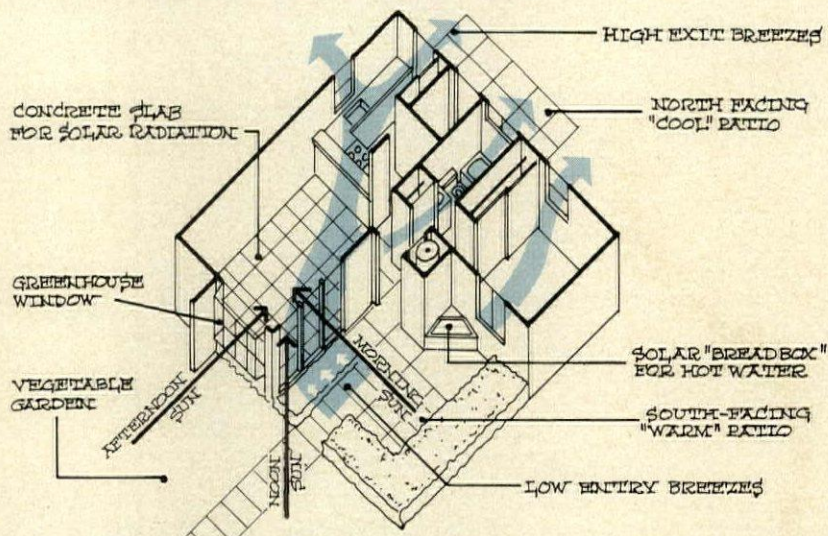
But, as the winners show, solving that dilemma means covering all the bases from cost-cutting construction to energy-efficient design to creative financing. Some even include vegetable gardens so that budget-conscious homebuyers can pare their food bills. In the words of one winner, architect Steven Kodama of San Francisco: "We tried to combine every little advantage we could."

Top projects. His firm, Kurtzman & Kodama, won \$15,000—the maximum award in the cash-prize contest—for a 99-unit project in semi-rural Chico, Calif. To keep construction costs down, floor plans are standardized—both one- and two-bedroom units have the same basic plan, for example. To keep energy costs in line, the units have passive solar features. And there's a garden plot (*see illustration at top of page*).

"Buyers" will be low-income persons who will purchase a share in the project—a limited-equity cooperative—for as little as \$500 or \$1,000. Part of their monthly payments—technically "rent"—will be contributed by HUD, under the Section 8 program. The amount buyers contribute themselves, however, will entitle them to a proportional share in the housing's appreciation.

Like most of the 12 projects which earned cash awards, the Chico Cooperative is still on paper, with construction slated to begin this fall. Two other award-winning designs on California drawing boards are:

•A 36-unit project which will replace a parking lot in Sacramento's downtown redevelopment area. The estimated sales price is \$53,000. One reason it's so low: The city will own the land and lease it to moderate-income buyers for a minimal amount, perhaps as little as \$1 a year. The winning builder, The Hoffman Co. of Sacramento, will put up units with active and passive solar features. According to vice-president Donald McCormick, these should cut buyers' utility bills to



Award-winning design uses warm sun and cool breezes to trim energy costs.

one-half or one-third what they'd be for a conventional 1,000-sq.-ft. home.

•Eighteen-per-acre townhouses buildable for \$18,500 per unit in labor and materials. The prototype units are small—685 sq. ft.—and all alike, but the biggest cost saver is using pre-cast concrete tilt-up party walls—a construction technique usually found only in commercial building. What's more, says Mill Valley architect Michael Moyer, the concrete walls contribute to the units' passive solar heating system. (Structural engineer Tony Doamascole worked with Moyer on the construction concept.)

Imagination and innovation. Awards were also given for "new processes" and "new possibilities"—i.e. ways to cut red tape and any other imaginative way to promote affordable housing. The 16 winning proposals covered everything from brand-new building materials to renovating run-

down "trailer parks". For example:

•Winner Larry Minchau of Rio Linda showed that the three little pigs could have built a wolf-proof house from straw—if they'd only known how. His entry was an outline for the production and marketing of a building material made from surplus rice straw and it included a sample board for judges' inspection. The straw, which is now burned off California fields at the rate of over one million tons a year, could be turned into sub-flooring, 2 x 4s, cabinetry, etc., according to Minchau's proposal.

•The Institute of Future Studies in Santa Barbara earned an award with its proposal for a home-loan lottery: Renters would be given a tax credit and encouraged to apply it toward a chance to win a home loan. The authors estimate the lottery would generate millions of dollars, which would be used to provide low-interest-rate loans.

•D. L. Douglas & Associates of Anaheim suggested that local governments contract with private firms to provide construction inspection services. The firm has done just that for Orange County. "We can save \$10,000 to \$15,000 on a \$75,000 house because the inspector is on site every day," says Donald Douglas. "There aren't any two- or three-day delays waiting for the building inspector to show up."

•San Diego County was recognized for a program to develop ways to encourage mobile-home usage and the Seal Beach (Calif.) Trailer Park won for the revitalization of a delapidated mobile-home community. —B.B.G.

Coming Up: Affordable Reading

The Office of Appropriate Technology (OAT) plans to publish a handbook on affordable housing, covering the winning projects and proposals. Other topics will include creative financing (Is it a long-term solution?) and sweat-equity programs (Is self-help housing the way of the future?). Projected publishing date: December 15, 1981. For information write to OAT's Publications and Information Office at 1600 Ninth St., Suite 330, Sacramento, Calif. 95814.



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Louisiana and Maine in 1979, and Mississippi and New Hampshire in 1980. Add also modernization and expansion projects for wood products facilities in Oregon and Louisiana. All of this gives IP the capacity to produce more than 900 million square feet of plywood and 900 million board feet of lumber a year.

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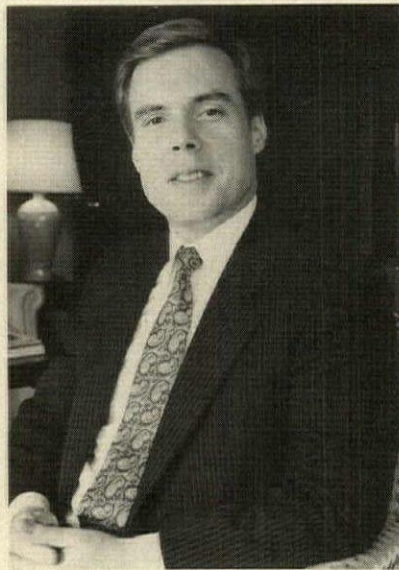
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Why Finance's Future Looks Fine to Me

Economist William E. Gibson foresees a healthy future for the housing and mortgage markets for the balance of this decade. Says he, "If there is any justice in the notion that you get what you pay for, surely the mortgage and housing sectors have paid their dues for something utterly splendid this decade."

Gibson is senior vice president, economics and financial policy, for McGraw-Hill, Inc. in New York. He says that while demographic and social trends point to better business in years ahead, "there are still plenty of clouds on the horizon." But, he adds, "we may well be close to the point of maximum pain now."

These quotes and what follows are excerpted from a speech Gibson gave recently to a meeting of the Mortgage Bankers Association of America.



The decade's basic housing outlook is a healthy one. We are, however, seeing a new negative trend for housing: the notion that benign neglect of housing as a national policy is not an offense to all we hold sacred. The Reagan administration has crystallized this view in its budget changes, but it has been building for some time. To wit:

- When did you last hear the national housing goals mentioned?

- When was the last time the Federal Reserve declined to tighten policy for fear of hurting housing?

- When was the last time other classes of financial institutions were stopped dead in their tracks in order to protect thrifts?

Things are not quite the same. For a number of reasons, housing is not so sacrosanct in national policymaking as before—it no longer seems to be so high on the list of what ails America.

You can label this problem in any number of ways, but it boils down to the reality that the American industrial machine needs a major overhaul. And the resources to solve these industrial problems come from the same pool of capital from which housing gets its funds.

Actually, I think we have already come to grips with this downgrading of priorities, to some degree. Even in good years we have remained well below the 1973 peak for starts. It could get somewhat worse, but I do not expect calamity from this factor.

What about mortgages—is the mortgage as we know it dying? Certainly not. The fixed-rate, long-term real estate mortgage is more attractive for lenders now than it ever has been before. For the first time, usury ceilings do not, in

general, bind—and the resulting yields are most attractive for lenders.

Indeed, now is probably an excellent time for lenders to be loading up on high-yielding fixed-rate mortgages—if they can come out of their bunkers long enough to get quotes, that is.

For the borrower, the mortgage loan remains an efficient way to have all the benefits of home ownership while the homeowner is in the process of

In many ways, alternative financing is another term for market failure.

setting aside the funds to pay for the house—instead of afterwards. The mortgage is far from dead.

And what about alternative, or "creative" financing? In many ways, alternative financing is another term for market failure. That is, the mortgage market is not functioning as it customarily does, or else these techniques would not be so popular. They take all sorts of forms, some old, some new. The list includes second and third mortgages, land contracts, wrap-around mortgages, buy-downs, swaps, balloon payments, shared appreciation, and other more conventional variable-rate inventions.

Will alternative financing take the world by storm? I believe that the blossom is about off this rose. The other side is beginning to be heard from: Lenders are moving to plug the loopholes in mortgages. Institutions with mortgages being wrapped are rapping back: They are invoking "due-on-sale" clauses more and more.

Alternative financings are less efficient than normal mortgage financing,

which, after all, was created to finance houses most efficiently. Alternatives reflect the disrupted conditions in markets and will be less necessary when markets are more settled. They are unlikely to disappear, but I estimate that their growth has about peaked.

Obviously, however, things have not been going as well as they might for the mortgage business. To get things back on a happier track, we need to see solutions to a number of problems:

One problem is that it is very expensive to buy a house. Admittedly construction costs have been rising, but a principal reason why house prices are so high is that most people—of their own free will—have bid them up. They wanted housing units and were willing to pay high prices for them. This has pushed home values very high relative to income levels, with a little help from foreign buying in some areas. The ratio of cost of homeownership to disposable income has climbed more than 50% from 1970 to 1980. I would guess that we need a bit of a breather for a while, while income levels catch up to a more customary relationship with real estate prices.

Another problem is inflation, and a new toughness in monetary policy, together have lifted financing costs sharply. There has seemed no end to this problem. It has hurt buyers' ability to afford homes as well as builders' ability to build them. Prime plus two or three takes on a whole new meaning when prime is 21%—first, fewer units get built. This means fewer units are in place now to restrain house-price pressure at some future point.

Help is probably on the way. For a long time many have said that financing rates will fall someday, and someday may be near. The principal force behind rate hikes is inflation, and this may be on the decline.

Further, the outlook for inflation over the next four years is better than the last four. We may have some inflation excitement next year when taxes are cut, and I am not ready to sign on with the Administration's 1986 forecast of 4.2% rate of inflation.

But do not let a quarrel with a specific figure obscure the reality that inflation is likely to be brought under better control. Monetary and fiscal policies are, on average, likely to be run somewhat more restrictively in the future than in the recent past. While debating the exact impact of the supply-side program is a national sport, I have little doubt it will work and have a beneficial impact on inflation. □

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Blue-Chip Marketing Works With Any Home

The trade secrets of Previews inc. for international real estate marketing can be adapted to your market

His home and office are in Greenwich, Conn., but Bruce Wennerstrom's work takes him around the world. He's president of Previews inc., a real estate marketing firm specializing in "hard-to-sell" properties.

"While we have a reputation for selling castles and mansions and things like that," he says, "We specialize in all types of properties requiring exposure beyond the local market. For example, we are currently marketing a luxury condominium project on Maui, 264 units, at an average price of \$500,000 each."

What qualifies a property to be handled by Previews? "The common denominator is that the seller cannot find a local buyer and has to give the property exposure beyond the local market."

Because the buyer may be halfway around the world, Previews has had to develop some unusual techniques for selling houses—such as videotaped housing tours and direct-mail solicitation. In this Speaking Out, Wennerstrom, 54, explains how builders can use the same techniques, and he also talks about some of the more interesting houses the firm has sold.

Why don't we start with a description of Previews?

Okay. To begin with, Previews specializes in working with brokers, or in some cases builders and developers, in marketing their properties. Our name comes from what we did when we started in 1933: We made 16mm motion pictures of the estates we were

handling. Prospective buyers could come to a private screening room and preview properties before they took the time to go to Southampton or Newport or wherever.

We began as a marketing company specializing in a particular segment of the market. That's still our role, although we've gotten bigger and we do video cassettes on all major properties now, instead of films.

Do you think this technique is unique in its application to your market?

Not at all. Any builder or developer can use the idea effectively, whether with video, motion pictures or slide shows.

Even if he's doing modestly priced tract homes, he can use it as long as the development is large enough to let him spread the marketing costs over a sufficient number of units.

You can begin to produce an acceptable videotape for a few thousand dollars. By this, I mean a tape with a professional announcer and a musical score.

Doing this gives your sales staff a tremendous advantage. You see, a builder or developer can either use a group of salesmen and hope they will all make the same pitch, or he can put his message into a very effective video or movie presentation. Video, by the way, is less expensive. With the videotape, the salesman becomes a partner to the televised message, and each reinforces the other.

You said it would cost a few thou-

sand dollars. Can we pin you down?

Sure. You can get a good video cassette, made by an outside producer, for about \$2,500 to \$3,000. You can begin to put bells and whistles on for another couple of thousand dollars.

In addition to that, you'll need the equipment itself—a television set and a videotape player and the cost of that can vary widely.

What goes into a videotape?

Let's look at what our associates did in San Jose, Calif., for example. They made a tape because a number of employees were being transferred into San Jose by one of the electronics companies.

The tape saved the real estate agents from having to drive miles and miles and miles to say, "This is San Jose and this is what it's all about."

It combined animation and live action. We started with a map of the area, and said, here is the Pacific Ocean on this side, here are the mountains over here. The natural direction of population expansion—new housing—is north and south. And we said, here's where your new plant is going to be. If you drive 20 miles or rather 30 minutes in this direction on the main highway, you can go this far, and \$100,000 buys you so much land and such a size house.

Then we pointed out that 20 miles in another direction would take 60 minutes because you'd be on secondary roads up in the mountains. But in exchange for the longer commute

you'll get more land and more house for your money.

We did this with animation, using a cartoon of a construction worker digging land. Then we gave dollar values and showed how much land you'd get for your money.

After that, we did drive-bys: The car went down the street, and a voice said, "This house sold a week ago for \$79,000, this one sold two months ago for \$128,000," and so on. That segment has to be updated often, obviously, but that's relatively easy to do.

We answered questions that typically come up, like "I have a son who has a paralyzed leg. Can he get a certain kind of medical treatment at the local hospital?" And, "Where are the churches and synagogues in the area?"

All of this can be put into a video cassette. This is a television age we're in, and people are used to watching television. A salesperson can drive a prospect around and do the same thing we did in San Jose. But driving someone around to acquaint them with a community isn't an effective use of a salesperson's time, particularly when a number of transferees are involved.

How would you suggest a builder use videotape presentations as part of his marketing program?

Well, a builder can do the same thing even if he doesn't have much more than street lines and lot lines laid out and a lot of unfinished houses.

He can take what he'd put in a brochure and carry it one step further. He can show the recreational facilities he's planned for the community—maybe it's built around an old golf course and he's going to retain the clubhouse.

He can relate his project to the town: Where is the nearest shopping center? Where is the nearest golf course? Is it public or private?

A builder can make sure a prospect sees all the things a salesperson may forget to talk about, or a buyer may forget to ask about, simply by putting the information on a videotape. Or a local builders' association can decide to do a general tape about an area and then sell it to members, to spread the cost around.

Videotapes work in a number of ways. A salesman can show it to a prospect as part of his sales pitch, or let the prospect see it at leisure. In our offices, we offer people that option. If they want, for a \$25 deposit they can take the tape home to look at it on their own machines.

People tend to be receptive to information that's presented to them in a way that's easy to assimilate. Looking

at television is easier than reading a pamphlet.

Agreed. By the way, do you think a land developer could profit by using videotapes?

Absolutely. In fact, we have a cassette for some unimproved land we are selling in Asheville, N.C. We didn't limit it to showing the large tracts of unimproved land.

First we went to the local Chamber of Commerce and got statistics on Asheville. The tape starts out by locating Asheville on a map, continues by defining population and industry trends, and then presents information



People tend to be receptive to information that's presented to them in a way that's easy to assimilate. Looking at television is easier than reading a pamphlet.

on airports, highways, railroads, transportation and communication.

So rather than just selling a parcel of land, we first gave information on where it was located, what the growth prospects were and then went further. We said that within the Asheville area, this is where the growth will occur, and the particular parcel we have is in a natural corridor of expansion.

We didn't just give factual information on a parcel of land—we told why it was a valuable real estate investment, and what the growth potential was.

You have used direct-mail campaigns to sell properties. Could you talk about that?

Yes, we do a lot of direct mail. If you can pinpoint your market, writing a letter makes more sense than doing broad advertising.

For example, we had a house on the Intercoastal Waterway in Florida a few years back. It had a dock that could accommodate an 85-foot yacht.

It seemed logical that the buyer was going to be somebody who owned a big boat. It wasn't going to be a first-time boat owner, and it wasn't going to be somebody who simply wanted a water view, because you had to pay a premium for the deep water location. The house was priced at \$1.9 million.

We got a list of documented yacht owners from the *North American Yacht Register* and wrote a letter to people who had boats bigger than 50 feet and built later than 1960 and who lived in the southeastern U.S. We even narrowed it down to motor rather than sail. And that was how we found a buyer for that property.

How can builders use direct mail?

Naturally, we'd like to set up the program for them if what they're selling is in the right price range.

But if a builder has bought a tract of land and is building houses, I would hope that he had done some market research to make sure that if he builds 70 houses, there will be a market for 70 houses.

That's fundamental. If he's done that research, he presumably has found out where these people are going to come from and why they would want to move into the house he's built.

This can be tougher than it sounds. A few years ago, a large Florida condominium developer decided—correctly—that a lot of his buyers were coming from New York. The logical way to reach them was to advertise in New York newspapers. Fine!

His mistake was to advertise at the height of the winter season when the New Yorkers he wanted to reach were in Florida.

So he made a correct analysis of where his buyers were probably going to come from, but he was off in deciding how to reach them.

Well, the same principles apply with direct mail. The list is all-important. Unless you're directing your list to a qualified prospect, you might as well print your material, put it in envelopes, stamp them and throw them in the wastebasket.

How do you come up with a list?

There are list brokers, and they advertise in the Yellow Pages. You can buy a mailing list for almost any purpose you want—typically for \$30 to \$100 per thousand names. Or, if you want, you can create your own list through research.

What should you send when you use direct mail?

You should send a brochure with a covering letter, and I think the covering letter is important. You should also make it easy to respond. Throw in a

return-reply card in which somebody can say, "I'd like to know more, please have somebody call me."

Do you suggest a follow-up telephone call if you don't get the card back?

No, I would only suggest a follow-up phone call only if somebody has written for information—not if you've sent someone a brochure and never heard anything more from them.

One of the things everyone in this business should keep in mind is the high cost of generating a single inquiry. If you spend, as we do, \$3,000 for a page in a national magazine, you should make sure you get enough inquiries to justify the cost. Or to scale it down a bit, if you spend \$100 for a local ad and you get five inquiries, those inquiries cost you \$20 apiece and you really ought to treat them as though they're worth \$20 each.

And if you've run an ad in a newspaper or a magazine and somebody has responded and asked for information about your development, you absolutely should follow up with a phone call in a few weeks if you haven't gotten a response.

After all, they were initially interested enough to ask for information.

What about the properties Previews handles? Who are your more interesting customers?

Right now I'd say Ronald Reagan is our most interesting client. We have his house for sale.

I went out to Pacific Palisades to inspect it last December, and got a personal tour of the house by President and Mrs. Reagan. It's an all-electric house and everything is G.E. because, as he told me, when he was building the house, he was a spokesman for General Electric and so the house became a living showcase for their products.

When I went out there, we were trying to put a price on the house. That's relatively easy to do if your just comparing things like square footage of a house and land. But here we have an "X" factor for the celebrity value.

At one point, Mrs. Reagan turned to the President and said, "Should I show him our heart?" He kind of smiled and nodded, and so she took me over to one corner of the patio and there, when the house was built 25 years ago, he had taken a stick and drawn a Valentine heart in the wet cement. Inside were his and her initials and the date 1/15/57. So you're buying an autographed house—you have a presidential autograph as a permanent part of the house.

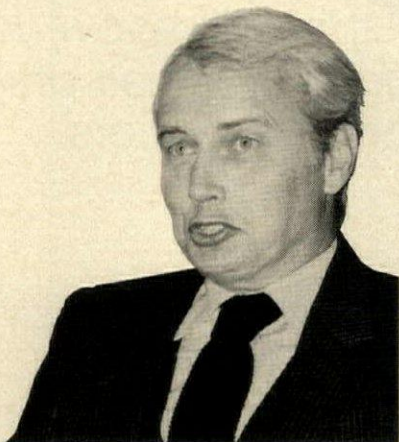
The comment I made at the time was, "Well, that's worth \$100,000 right there!"

That's interesting. Can you recall any unusual houses you've sold?

I'd say all the houses are unusual. When you get into more expensive houses, they reflect the personality of the person who built them.

We had a house in Wilton, Conn., a few years ago that was built on the turret-drive mechanism of a German battleship. The entire house rotated. It weighed 250 tons. The man who built it was an architect, Richard Foster.

The site had a lot of beautiful views: It overlooked a reservoir on one side, a pond on another side, and a pine forest. Usually when you build a house,



Right now I'd say Ronald Reagan is the most interesting client we have.

you orient it toward the best view. Well, he had lots of best views, and he really couldn't make up his mind. So he decided to build a house where he could change the view. This had a lot of interesting fringe benefits. He could rotate the house at rates ranging from one revolution every 48 minutes to once in 24 hours, with a variable speed control.

During the summer, he would rotate it at sun speed, so that the occupied rooms were always on the shady side of the house. In the winter, he rotated at maximum speed so that every room was warmed by the sun all day long.

The house was so carefully balanced that it only required a 1¼-horsepower motor to move it—comparable to running another refrigerator.

Technologically, it was incredible, because in other rotating structures—such as restaurants—all of your utilities are always in the fixed central core.

His weren't. He put his bathrooms out on the part that rotated. So that meant solving the problem of water connections. I asked him why he hadn't put his bathrooms in the core so

he wouldn't have had to go through all that extra trouble? He said, "Well, that could be confusing. If you got up in the middle of the night to go to the bathroom and it had moved twelve feet from where it was when you went to sleep, you might have trouble finding it!"

How did he manage some of the mechanical feats?

For his electrical connections, he used the commutator rings and brushes from a radar antenna, so that as the house rotated, the brushes were always in contact with the rooms. His water supply was pumped up to the peak and then fed down by gravity.

Any other strange houses?

We sold a house in New Jersey a few years ago. It was built in colonial times by a man named Jamie Dawes. Dawes was terrified of ghosts, and the belief 300 years ago was that ghosts hid in the corners of rooms. So he built a house that had no corners. Every room is round, or rounded.

And with the title came a certificate, 300 years old, certifying that the house was free of ghosts.

Are any of your clients homebuilders? Have you ever sold a builder's house for him?

Yes, we've done that a number of times. A good example is a major office-building builder and broker in Port Washington, N.Y., Sigmund Sommer. We sold his house for \$1.6 million—I think it was the biggest sale ever made in Port Washington.

That was a couple of years ago. I was kind of pleased because this man is in the business. He is both a builder and a broker. Yet when it came to selling his house, he realized it wasn't going to be sold through the usual channels.

Do you ever sell properties worth less than a million dollars?

The average value of our listings is currently \$960,000. It really doesn't make sense for us to get involved at less than, perhaps, \$150,000 or \$200,000. But there are exceptions to every rule. We sold a house in Maine a few years back for \$55,000.

And was it worthwhile to you?

I couldn't really justify it as being worth it to us. It was built by a couple who wanted absolute seclusion. They found what they were looking for—a site that was 30 miles from civilization in all directions.

They found their seclusion; and when it came time to sell this house a few years later, there was nobody to sell it to! There wasn't even a broker to list it with. So that was an example of having to give a house exposure beyond the immediate area. □

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Dress Up Your Model Windows

The windows in model homes are more important than ever before. High energy costs mean there may be fewer of them. Or they may be concentrated in one area.

Also, window placement and accessorizing is crucial in today's more compact homes. Properly handled, windows can open up a small room; improperly placed or covered, they can make that room virtually impossible to furnish.

So be sure to pay attention to window treatments. The first rule: Determine what role the treatment will play. Do you want to draw attention to a view—or distract prospects from

another house ten ft. away? Do you want to make the window seem larger? Or should you shutter it to create a furniture wall where none exists? (For ways to handle these and other special problems, see below.)

The second rule: Consider where prospects will want natural light. Most people like sunny kitchens and breakfast nooks, so keep windows uncovered. In bedrooms, the amount of natural light should be controllable because preferences vary. And in the den, many people prefer the cozy atmosphere created with indirect, artificial light, so a room-darkening window treatment may be used.

The third rule: Be practical. Use the same criteria your buyers will when it comes to choosing material for draperies, etc.

For instance, curtains for a kitchen window can be chosen for decorativeness rather than durability: They can be replaced fairly cheaply, and many homeowners enjoy doing so to give the kitchen a fresh look.

Draperies on a large living room window, on the other hand, represent quite an investment and should be long-lasting.

This makes sense for you, too: When sprucing up your models,

you'd rather replace a fading kitchen curtain than a fancy drapery that turned old before its time.

The fourth rule: Keep windows and shades or draperies spotless: Sloppiness can kill a sale.

A once-a-week window washing is in order. Friday—right before the high-traffic weekend—is a good day to schedule it.

At the same time, draperies should be checked to see that they're clean and unwrinkled: A dry cleaning bill costs less than a lost sale.

These four rules are the basics. But there is more to be said when it comes to special window problems—or opportunities. Specifically:

When there's a view. If one of your strong selling points is a scenic view, don't use an eye-catching window treatment. Instead of bold-patterned fabrics, use solids in neutral colors. The draperies shown in the photos below are good examples: They're lightweight, match the wall color and frame the windows rather than covering them. Consequently, the prospect looks right through the windows to the water.

This pair of windows can also be used to illustrate another point—how to handle the accent windows that



Multi-paned windows (left and above) are framed in light-colored open-weave draperies that don't distract prospects from scenery outside. These living areas are in different models at the same project: Seaside Pointe in Huntington Harbor, Calif. Builder: The Christiana Companies. Carole Eichen Interiors project director: Sue Schug.

PHOTOS: LELAND LEE

are sometimes placed above sliders or tall windows. In the room shown at far left below, only the lower window was draped: The upper one is high enough to pose no threat to privacy. In the second example shown, however, a floor-to-ceiling drape covers both windows. The difference: The upper window is too shallow to stand on its own. Prospects will see it as part of the lower window and it should be treated as such.

What size is the room? A little excitement goes a long way when space is limited: Don't overdress your windows if the room is small.

Case in point: The master bedroom window shown at the bottom of this page. The cornice was covered with fabric that matches the bedspread, but white tie-backs were used. If the bold pattern had been repeated on draperies, the room would have seemed much smaller and darker.

This doesn't mean you can use only white on windows in small rooms: Prints are fine—as long as they're small-scale and not too brightly colored.

For a large room, on the other hand, vivid window dressing may be just what the decorator orders.

Take a look at the living room window pictured below, for example. It's at the end of a living area that extends from the front of the home to the back. Repeating an arresting pattern on draperies, pillow and upholstered chairs (*not shown*) helps to give the room a unified appearance.

In this case there was also the problem of too much sun (the model home is in the desert). So we used tinted glass and open-weave underdraperies, which can be pulled across the window when necessary. The underdraperies are the same color as the carpet, so when they're closed they don't detract from the coordinated look of the room.

When a window is unwelcome.

At one time or another most builders have this difficult situation: A desperately needed window can only be placed in an awkward spot.

For instance, we recently worked on a townhouse model where the only living room window was a 6'0" x 2'0" placed horizontally five ft. above where the couch should go.

If left uncovered, that window would cause prospects to squint painfully instead of gaze around in open-eyed admiration of the model.

But we could hardly use draperies right above the sitting area. The solution: stained glass, which created the impression of a piece of artwork above the sofa and let in sufficient light.

The photo below illustrates a similar situation. The only window in a small den was on the only furnishable wall. So we used blinds to create the illusion that the window was part of the wall.

Another way to tame an unwelcome window: Cover it with shutters.

What about the bathroom?

Windows in the bathroom are a plus: Good ventilation and natural light are things most prospects prize.

But—and this is a big "but"—don't scare them off with big expanses of naked glass. They don't want Dorothy from next door to watch them shower.

I'm not suggesting you cover bathroom windows: They add a lot of glamour. What I do suggest is that you show prospects how such windows can be handled—for example, with mini-blinds or shutters that fold back. They'll reassure prospects that buying a home from you doesn't mean they will have to live in a goldfish bowl.



PHOTOS: LELAND LEE

Bright colors are suitable for a large window in a good-sized room, like the one at left. The model shown is in the desert, where sunlight can be quite strong. But underdraperies can be closed to cut down on glare. Project: Los Lagos, Palm Desert, Calif. Builder: Gentry Construction Co.



Decorative cornice (*left*) matches bedspread fabric. Project: Millstream, Huntington Beach, Calif. Builder: Schaffer Development Company.

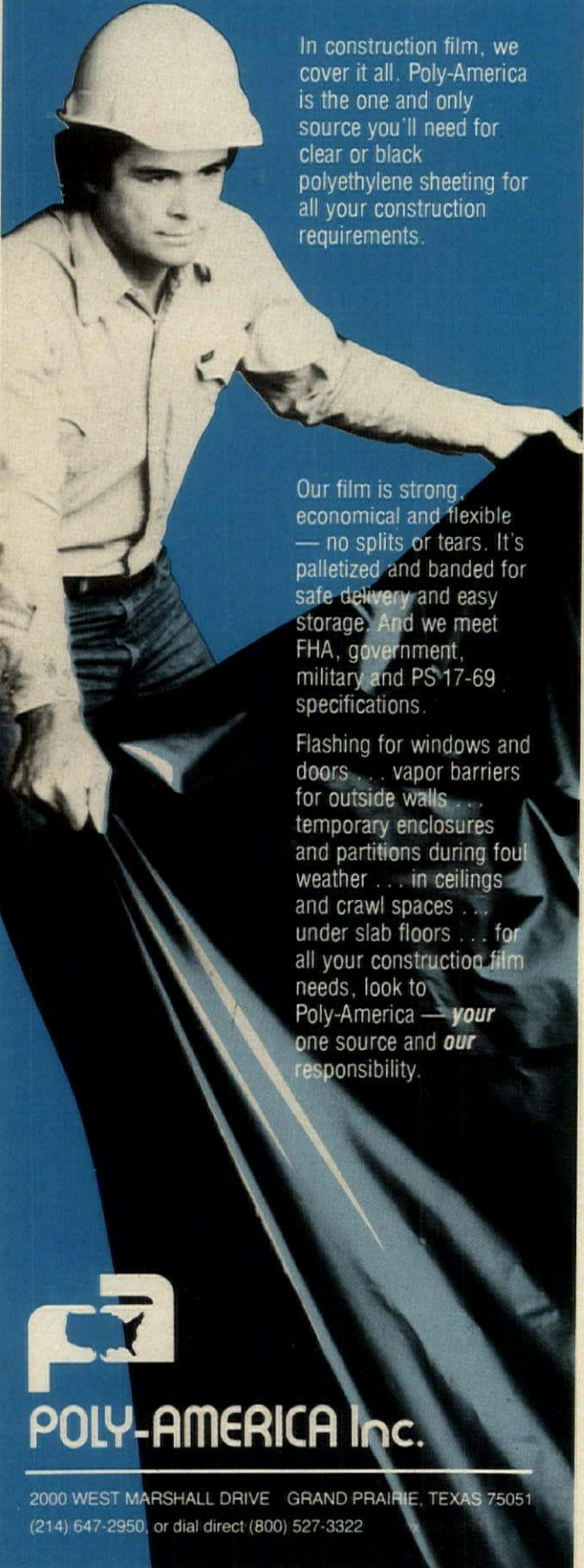
Mini-blind backdrop (*right*) creates a furniture wall in a small den. Project: Seaside Pointe (*see facing page for details*).



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HOUSE CALLS

Is There a Computer in

Steve Platt, president, Paragon Homes, Inc., Moore, Okla. At the moment, I have no plans to use a computer. But I might use one in the future.

The homebuilding industry here is in such bad shape that we're more concerned with where the economy is going than with expanding into new areas like computers. I find computers interesting, but, for me, they have to take a back seat to daily practicalities.

If business improves, however, I can see the possibility of using one. We normally build about 50 units a year, and recently we've gone into a number of other areas to keep the business afloat. I can see a computer being valuable for general accounting purposes, such as job costing, accounts payable, payroll, and jobs of that kind. These days, however, I'm more concerned with dollars and cents. □

James Hemphill, managing partner, C.A. Hemphill & Assoc. Contractors, Northfield, Ill. There is a computer in our future, but I think it may have to wait for a while.

At the moment, my company's volume is so low that we neither need a computer nor do we have the money to buy one. We anticipate making an investment in one, however, when the housing market returns to normal.

We are planning to buy a micro- or mini-computer that will give us information we need in a cost-efficient manner. We plan to use it for general finance and cost control; more specifically, we'll put it to work on accounts payable, general ledger, job-costing and payroll.

Our software is already bought and paid for. Now we are just waiting for the local market to improve. □

Paul Lanini, Lanini Construction, Rhinebeck, N.Y. There's a good possibility there will be a computer in my future; it's without doubt the coming thing.

At my present level of production, I frankly do not need one. I am now building three luxury custom houses a year. However, if I were to decide to expand my operations, I would certainly use a computer.

I would probably get a fairly large system—one with a large memory capacity that could be expanded by adding more discs or additional hardware. I'd be looking for flexibility too.

As for software, I'd look for a system that included cataloging, information filing, and an ability to reproduce reports.

In my opinion, a computer would simplify everything. I can't imagine anyone starting in homebuilding today and not buying one. □

Wyatt Jones, president, Brazoria Construction Services, Clute, Tex. My company has been using a computer for over three years. We own a NCR 499 computer and a NAHB program package for accounting.

I decided to buy a computer relatively early because of my technical background. I was trained as an engineer. As a result, I have a more technical frame of mind than the majority of homebuilders.

Circle 42 on reader service card

Your Future?

I decided to go on computer because I need to know exactly what's happening in my business at all times. I usually have between 30 and 40 jobs in the pipeline, so a computer is the only effective way for me to be able to have up-to-date timely information.

We use the computer primarily to control costs. In the future, we may add a cost estimating program. We plan to expand our uses of the computer downstream.

Mike Roberts, president, Housing Systems Inc., Atlanta, Ga. A computer will give us the information we need in a more cost-efficient manner. Now, we use a timeshare system through an outside service bureau. In the future we plan to buy.

We use the computer for general ledger, rent rolls, payroll, internal reporting and HUD reports. It enables us to handle greater volume without increasing our payroll. On balance, we see it as a cost-effective tool for growth.

We also have developed a new software system, which was custom-designed for us by an outside computer-service bureau. We plan to use the software ultimately as part of an in-house system with our own computer. In the meantime, we're developing plans to capitalize on this software by offering our data-processing services to other small building firms. Eventually, we hope to form a subsidiary division to market this service.

Larry Begs, Sagene Group Ltd., Eugene, Ore. I expect to have a computer in our future, although we have no specific plans at the moment to computerize. I'm familiar with some of the advantages of a computer, and believe it would be a sound investment for the future.

A computer would be particularly useful for job costing and scheduling. I'm mostly involved in the construction end of the business, and I am aware of a computer's value here. I imagine it might be valuable in other areas as well, such as updating records for use in bidding on a job. I have seen records and documents produced by computers, and have been impressed by the way they catalogue and organize data.

I learned about computers, and how they can be applied to our business, by talking to other people already on line. If it works for them, surely it can work for us.

Paul B. Walker, president, Fairway Homes Inc., Sharon, Pa. No, I don't see a computer in my future.

My firm builds 25 to 50 units a year. In my opinion, the systems we now use for general accounting and control, both in-house and externally contracted, are adequate for our specific needs.

Actually, I have looked into computers and given the matter some thought. I am now 70 years old and have been in the business for 44 years. At this point of my career, I don't believe that buying a computer would be a wise investment. However, based on what I've read and seen, I would say that a computer might be a useful tool for others.

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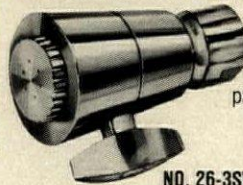
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HOUSING/SEPTEMBER 1981 43

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ENERGY UPDATE

The advances have come in consumer awareness—not technology

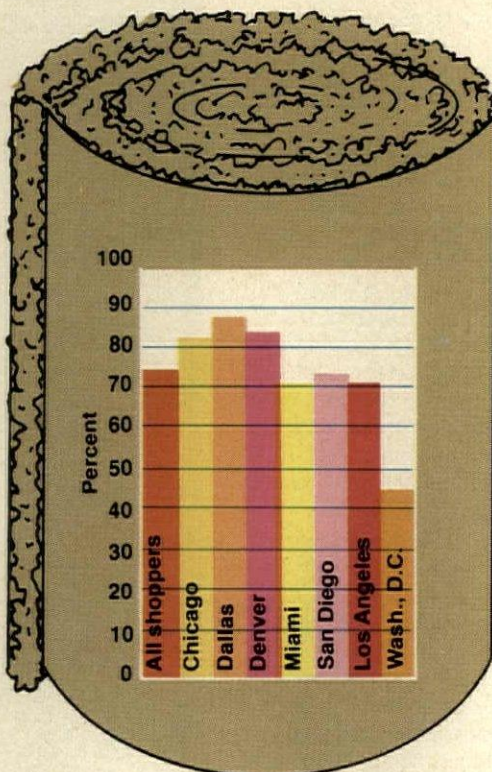
A few years ago, when combatting the energy crisis was being touted as “the moral equivalent of war,” many people assumed that solar energy was the answer to our nation’s ills. So far, it hasn’t worked out that way. In fact, a recent study concluded that HUD’s \$20 million solar demonstration program has been a failure (see page 24). A review of four solar homes published by this magazine in the last two years is somewhat more optimistic (see pp. 50-55), although data collection turns out to be a problem.

For the moment, however, the real advance in energy conservation has been in the public’s increased awareness of its importance. The charts below, from HOUSING’s 1980 Home Shopper Survey, for example, showed that a sizable proportion of the shoppers were willing to pay extra for upgraded insulation and double-pane windows. A smaller but still significant percentage was willing to pay the price for solar water heating and space heating. And, as you’ll see on page 55, even bankers are beginning to factor energy efficiency into their mortgage decisions.

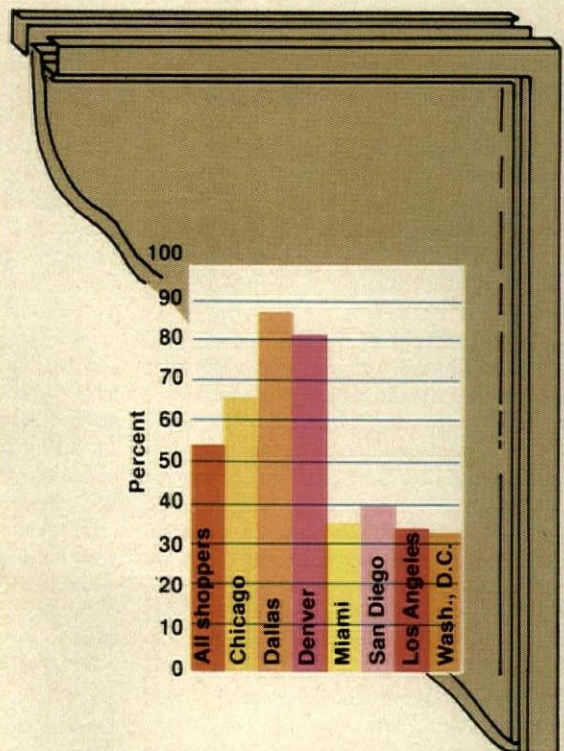
While solar may no longer be seen as a panacea, passive solar in particular has captured the public’s imagination. And builders and remodelers are responding to that interest with projects that range from an in-town passive solar subdivision (see page 46) to home additions and rehabs that include passive solar elements (pp. 48-49).

How Shoppers Rated Two Fuel-Savers

UPGRADED INSULATION (at \$1,500 extra)



DOUBLE-PANE WINDOWS (at \$2,200 extra)



Passive Solar Subdivision Is Feasible Even At 7.3 Units to the Acre

The design of Biscayne, a subdivision located within five minutes of downtown Denver, combines something old and something new for Richardson-Nagy-Martin, Architectural/Planning of Newport Beach, Calif. It's a zero-lot-line project and a passive solar subdivision.

The 134 units planned for Biscayne—models for the patio homes should be completed this month—range between 1,500 sq. ft. and 1,900 sq. ft. and will be priced from \$154,000 to \$168,000.

The houses will take advantage of a number of design techniques to help them capture the sun's energy for heating while still allowing them to be part of a zero-lot-line development. Examples:

- The majority of the units will be built on streets that run from north to south. This allows the widest part of the 52-ft. by 86-ft. lots to face due south, exposing most of the house's surface area to the sun.

- The north wall of each house is one story high, windowless, and more heavily insulated than the other three. This will provide privacy for the adjoining unit's south-facing patio and act as a buffer against outside noise and the north wind.

"We will have over seven houses to the acre and still manage to maintain privacy," says Ed Arnold of Arnold Corp., the builder. "With no windows on the north side, you can't look into someone else's patio."

- North-facing roofs slope at a 26° angle. This allows the winter sun, which rises to 26° above the horizon in this area, to penetrate into each house despite the proximity of the next door neighbor.

"Zero-lot-line and passive solar are compatible," says Leland Iverson, vice president and director of design and development for Richardson-Nagy-Martin. "These houses fit into the fabric of the existing neighborhood. They work out cleanly when the lot line is in the north."

Energy gatherers. All four models feature a greenhouse, or solar room or solar nook as they will be called in promotional literature, that is separated from the living area by sliding glass doors. Iverson says this area will generate heat that can be moved into the house by opening the doors. Or, he says, the energy is drawn through a destratification system to the basement (*see schematic bottom of facing page*).

Overhangs protect most of the interior spaces from the summer sun. It will be at about a 73° angle during the summer. The solar room's glazing will be covered with a screen that will allow only a portion of the solar radiation through the glass. Interior vents will help relieve heat buildup.

"These houses are not solar machines," says Iverson. "We are using solar as an assist to the heating system, not as the a major heating element. We want to minimize heat loss and maximize solar gain. A solar machine might try to get 80% or 90% of the heating out of the sun."

Other energy-saving features include:

- a solar domestic hot water system
- 2 × 6 construction allowing for R-19 insulation in the east-, west- and south-facing walls; R-24, thanks to an extra inch of rigid insulation, in the north-facing wall; R-30 in the ceilings

- triple-glazed windows with thermal breaks in the aluminum frames

- extra caulking by means of a foam sealant that plugs cracks and crevices.

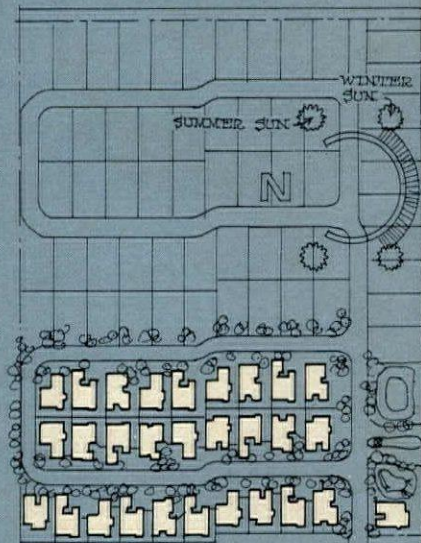
The energy-saving features add a little over \$10,000 to the cost of each house. But Arnold finds it difficult to give an exact cost of energy extras because some of the features, like R-30 insulation in the ceilings, are standard for the company. In any case, he stresses that the federal tax credit, 40% of the cost of energy-saving devices and active solar components, and the Colorado tax credit, 30% of everything, plus a special \$400 credit for insulation above the amount mandated by the state energy code, allows buyers to claim a \$7,400 tax credit.

Explaining tax credits and energy features are one thing, but "we don't make claims on energy efficiency," says Arnold. "If someone asks, I tell them I have to know exactly how they live before I make a prediction: How many showers do they take, how many loads of wash do they do, how many times do they open the door?"

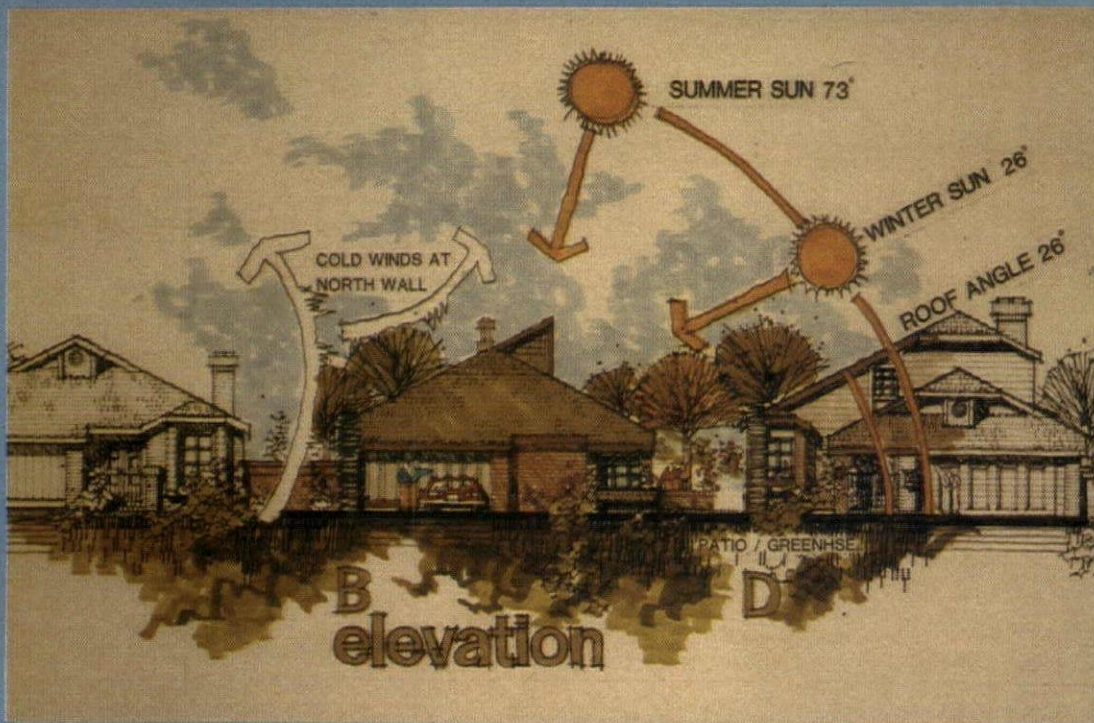
Arnold does, however, discuss the experiences of past buyers with potential customers. Last year in one of the company's condo projects, he held a contest where he paid the lowest heating bill. The highest monthly bill he paid was \$47. With this information he merchandised the project by showing the lowest, the highest and the average bills of past buyers. He will sponsor the same contest at Biscayne once people begin to move in. "But we make a disclaimer that says there may be bills that are higher because not everyone takes part in the contest."

Biscayne is the first passive solar project for both Arnold and Richardson-Nagy-Martin. It won't be the last. The architectural firm recently started work on another passive subdivision.

"Passive solar will definitely be part of our future business," says Arnold. "If builders are not taking passive solar into account now, they are building houses that are already obsolete." —F.J.D.

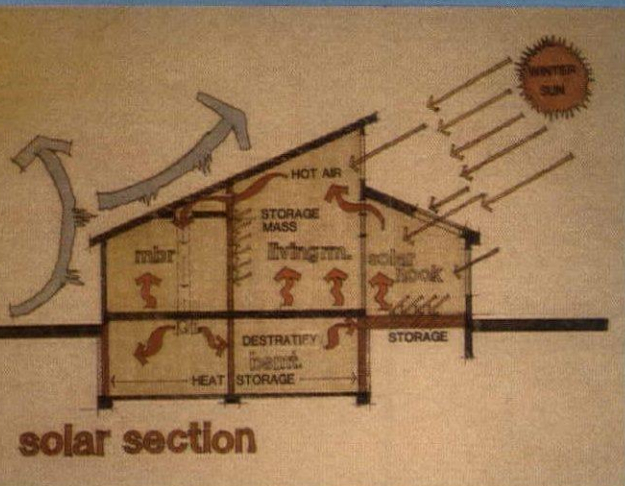
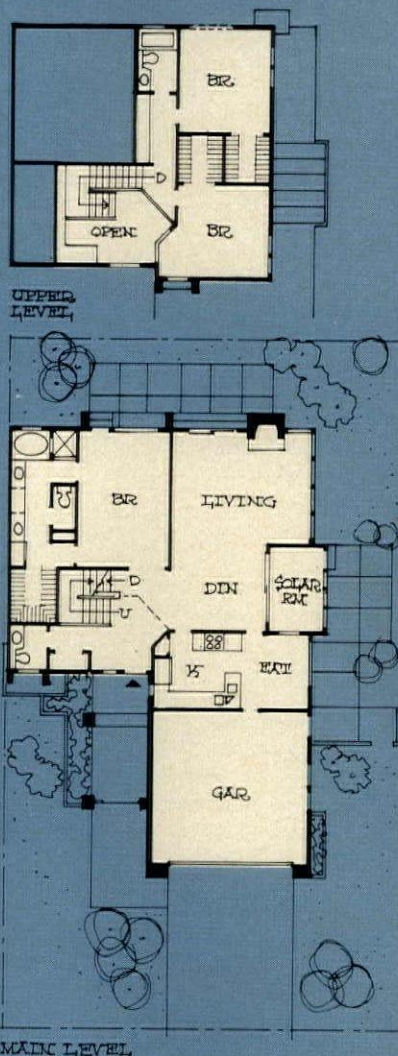
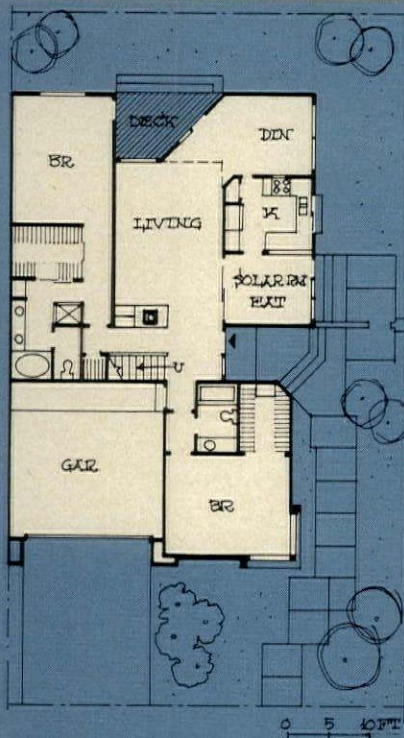


Site plan trade-offs: Curves and cul-de-sacs are difficult to design into a site plan for a passive solar subdivision because all the houses must have equal solar access, says builder Arnold. The architects did add a jog in the street to break up the grid pattern, and they varied entries to change the street scene (*see plans on facing page*). But the grid-like appearance of the project "will not get any site developers excited," Arnold says. However, the builder is willing to swap an exciting site plan for the chance to build at a density of 7.3 units per acre, give each owner privacy and at the same time lower energy costs by having the sun supply a sizable portion of their heating requirements.



Roof angles and overhangs correspond to the angle of the sun during the winter and summer months (shown left). Designing a steep pitch on the north side of each roof gives the sun access to windows, greenhouses and the patio areas on the south side of each unit (see plans for two Biscayne models below). Iverson says the southern exposure of the patios will allow the owners to use them all year round. Since they will be built above the normal snow line, and protected from cold winds, they can be used the same way a sun-drenched deck at a ski resort is used.

De-stratification of the heated air in the upper portion of the house and the greenhouse is accomplished by a fan and duct (see drawing below left). The system pulls the warmed air into the basement where it is stored in the concrete walls and floor. At night or on cloudy days, the stored heat will rise and move through the floor by conduction into the living area.



A 900-Sq.-Ft. Addition With a New Twist On Heat Storage...

The owners of the 50-year-old Dutch Colonial (right) near Albany, N.Y. considered moving, but their attachment to their house, the area, and the price they would have to pay for a new house convinced them to commission a 900-sq.-ft. addition instead.

The architect, Robert Mitchell of Solar Systems Design, Inc., Voorheesville, N.Y. automatically specifies high levels of insulation, maximizes south-facing glass and minimizes north-facing glass. His problem is trying to find out what else the customer wants.

Different clients have different goals, he says. One may want a three-year payback, another isn't concerned with payback but wants to be able to heat his house with a half cord of wood.

Mitchell asks a series of questions to draw out the clients on what they want out of their house. He asks: What is the first thing they do when they get up in the morning? What do they like to do on weekends? This gives him some idea of the lifestyle of the occupants, and how it will affect the thermal performance of the structure.

The owners of the 1,600-sq.-ft. structure wanted good design and additional space, but not a commensurate increase in their oil bill. (The house consumes about 700 gallons of oil a year.) They were familiar with passive solar and felt it would be unethical to build without considering solar.

Mitchell called for R-19 in the walls and R-38 in the ceiling. All the glass in the addition faces south or southeast, except for two windows that bring sunlight into the rear of the addition.

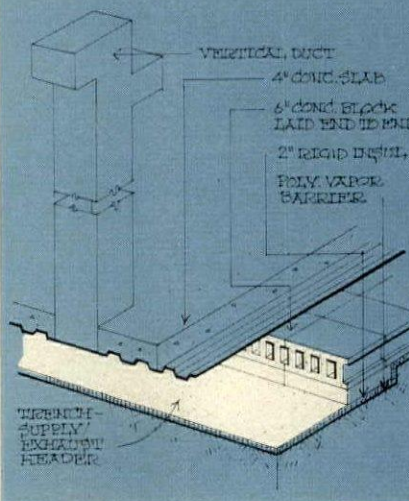
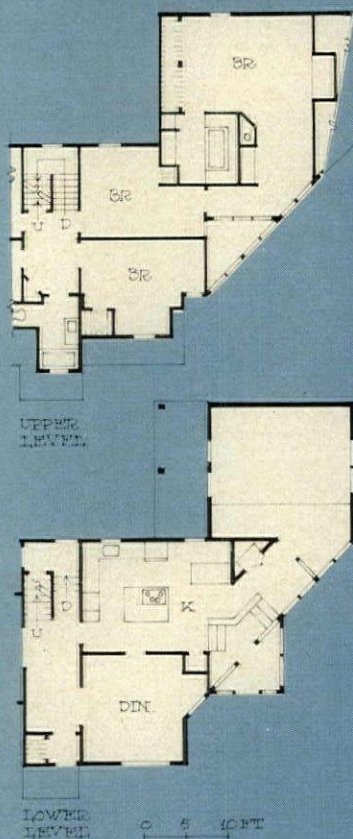
A below the slab system stores energy for use at night or when the sun is not shining (see diagram below). The concrete slab is installed on top of concrete blocks that are placed on their sides. The hollow blocks form a system of tunnels that extend from one end of the 250-sq.-ft. storage area to the other. Trenches at each end of the parallel rows of blocks serve as supply and exhaust headers.

A duct pulls warmed air from the high points of the addition and feeds it into the supply header. The warmed air travels through the blocks by convection and is distributed evenly throughout the storage system.

With this system, less mass is needed than would normally be required in a direct gain system because of the forced-air convection through the blocks. This type of storage costs about \$2.70 a sq. ft. The entire addition came in under \$40,000.

The owners have found that the addition does meet their demands. Mitchell says they will save more energy once they install insulated shutters that his company is designing. He also feels they could get more sun into the new space by cutting down a few trees surrounding the house. They haven't made a decision on this yet since the trees are as old as the house.

—F.J.D.



Complementary clapboard

and similar roof lines help the two-story addition blend into the original structure. The new space (above and left) is built on a 45° angle off the corner of the house to capture as much of the sun as possible. Because it cuts off access to the back door of the house—the one used most often by the owners—Mitchell designed a new entrance adjacent to the driveway.

Concrete block storage

(below left) helps the addition retain heat at night. The blocks rest on top of rigid insulation board. A duct pulls air from the highest point in the house into the supply channel at one end of the storage area. Convection forces warm air through the blocks.

...And a 177-Year-Old House that Serves As an Energy Lab

The owner is Mitchell himself and the building, which was built around 1804, is his office and home. "I decided that if this house were renovated in 100 years it would be because the building had changed functions, not for energy reasons," says Mitchell. "Very few houses are designed with a 100-year time frame in mind. Most only have a five-year time frame.

The 2,500-sq.-ft. structure can be heated with less than two cords of wood a year. If stoves become more efficient that will be reduced to one cord.

Besides being energy efficient, the building will be a solar laboratory for Mitchell's company, Solar Systems Design, Inc.

He will be experimenting with a variety of storage methods such as mini-mass or mini-Trombe walls that extend part way to the ceiling, allowing the glazing to extend the rest of the way. The walls will consist of concrete block, water containers and water-saturated block. Mitchell will monitor the different materials as well as different surfaces on the walls starting in the fall.

Another unusual feature: Eutectic salts have been placed in the first-floor ceiling. Overheat from the greenhouse will be drawn into the plenum between the floors to melt the salts. During sunless periods, the salts will solidify and give up their heat to the air and the floor of the second floor and ceiling of the first floor. Fiber glass reinforced cement panels were placed between the original hand-sawn beams, since wallboard will not support the weight of the salts.

The walls have R-31 insulation, and the ceiling has R-38 insulation. Mitchell specified quad-pane windows on all non-south facing openings.

The price of the conservation-related items, including air locks, heat recovery from bath and laundry and framing to accommodate the additional insulation, came to \$10,000. Solar collection, including ducts and blowers, cost \$12,000. Total rehab costs came to \$61,000, or about \$24.40 a sq. ft.

The building won an award in a passive solar retrofit competition sponsored by the New York State Energy Research and Development Authority.

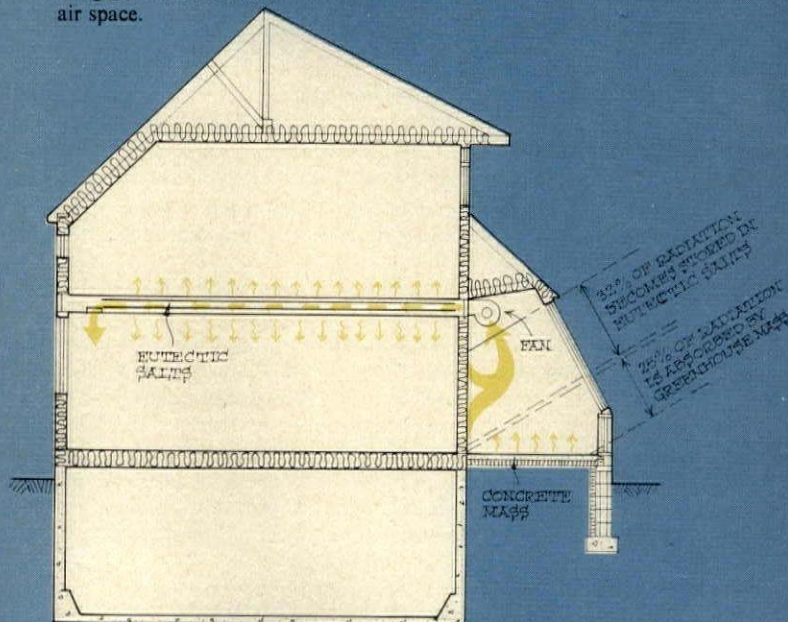
—F.J.D.



Perfect siting for passive solar came with the vintage 1804 building. The south side of the house (shown above) was never architecturally detailed, so Mitchell was able to redesign it for passive with a clear conscience. He did not change the appearance of the north elevation. When he started (what he had to work with is shown at the right), Mitchell had to repair some beams and build up part of the foundation.



Eutectic salts are kept in a plenum between the first and second floor (see drawing below). A fan pulls warmed air from the greenhouse into the air space.



Checking Up on the Performance of Five Energy-Conserving Homes

The five homes in this story were published in HOUSING between October, 1979 and January, 1981. With the exception of the Sun/Tronic house—a dazzling exhibition of the latest in energy-saving technology—each aimed to prove that energy-efficient homes could be built with conventional materials and standard techniques.

Hopes expressed by the builders in the original stories were high. Again, the Sun/Tronic house aside, energy savings were expected to justify extra costs for energy features. And the builders promised to monitor the homes' performance to prove those initial high hopes were realistic.

We decided to go back and take a look at these homes to see if their performance measured up to expectations. This review proved interesting.

We found that the availability of performance data fell somewhat short of the availability of rosy predictions issued by the builders when the homes were built. In fact, most of the homes had little in the way of concrete data to offer. With the help of some preliminary results, however, the performance of some of the homes began to emerge.

The Brookhaven house seems to be living pretty well up to its billing. A Ryland energy showcase house so far has fallen short of expectation and, in so doing, it provides an interesting sidelight on how an owner's lifestyle affects a home's energy performance. In Boulder, Colo., the passive solar design in townhouses and duplexes is still evolving.

In two cases data collection was a problem. A computer snafu has thus far prevented the Sun/Tronic house from generating as much data as was earlier promised. And the sale of Gene Leger's house effectively terminated a monitoring program on its performance.

For a closer look at the five homes, read on. —WALTER L. UPDEGRAVE

The Brookhaven House: Early Data Shows Promise

A full report on the Brookhaven house, DOE's passive solar prototype at the Brookhaven National Laboratory in Upton, N.Y. [see HOUSING, November, 1980], won't be in until February. But the results of preliminary testing look encouraging and show that a central energy-saving feature, the modified Trombe wall, is performing as predicted.

The strategy behind the Trombe-type wall—triple-glazed panels mounted a few inches away from an 8-in.-thick thermal mass wall made of paving brick—"is to delay the transfer of heat from outside to inside," says Ralph Jones, project manager for the Brookhaven house. By providing a lag between the time the outside surface of the wall and the inside surface hit their peak temperature, the thermal mass wall allows solar energy captured by day to be put to use by night. A greenhouse and south-facing windows provide direct gain of solar heat during the day.

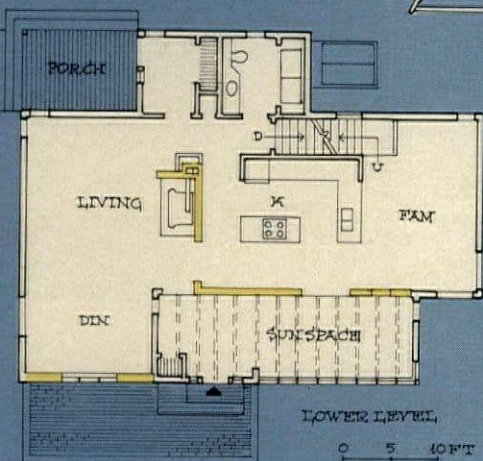
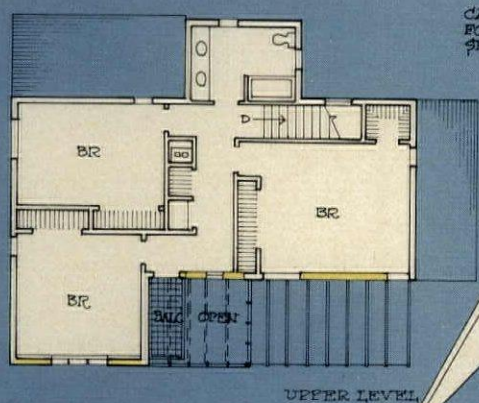
A computer predicted a four-to-five-hour time lag for heat to travel through the wall, ideal for reducing the nighttime heating load, says Jones. "And that's about what we got," he adds. A printout of temperatures recorded via sensors in the wall have shown a three-to-four-hour lag. "The house doesn't need heat until about three a.m.," Jones says. "That's when we've

exhausted the solar heat collected during the day." Around eight a.m. solar heat starts building up again, first via direct gain, later through the Trombe wall.

Solar features are supposed to provide 65% of the space heating for the house. "I think we're pretty close to that," Jones estimates. Over the last winter season, the 2,000-sq.-ft. house used the equivalent of 200 gallons of heating fuel to hold a constant temperature of 68 degrees.

The solar features aren't solely responsible for the home's energy efficiency. "The house also has a very fine thermal envelope," notes Jones, "R-27 walls and an R-36 ceiling." Electrical wiring runs in raceways atop baseboards, rather than in outside walls, which makes the home virtually airtight. With all its energy-conserving features, the house can be built with commonly available construction materials and standard building techniques. Jones estimates its cost about 13% higher than a conventional home, but figures the additional cost would pay for itself in about five years.

Next month, he hopes to issue a preliminary report on the house's performance. This will be followed in February of next year by a full-blown report and analysis which, Jones promises, "will break down the contribution each element makes toward energy savings."



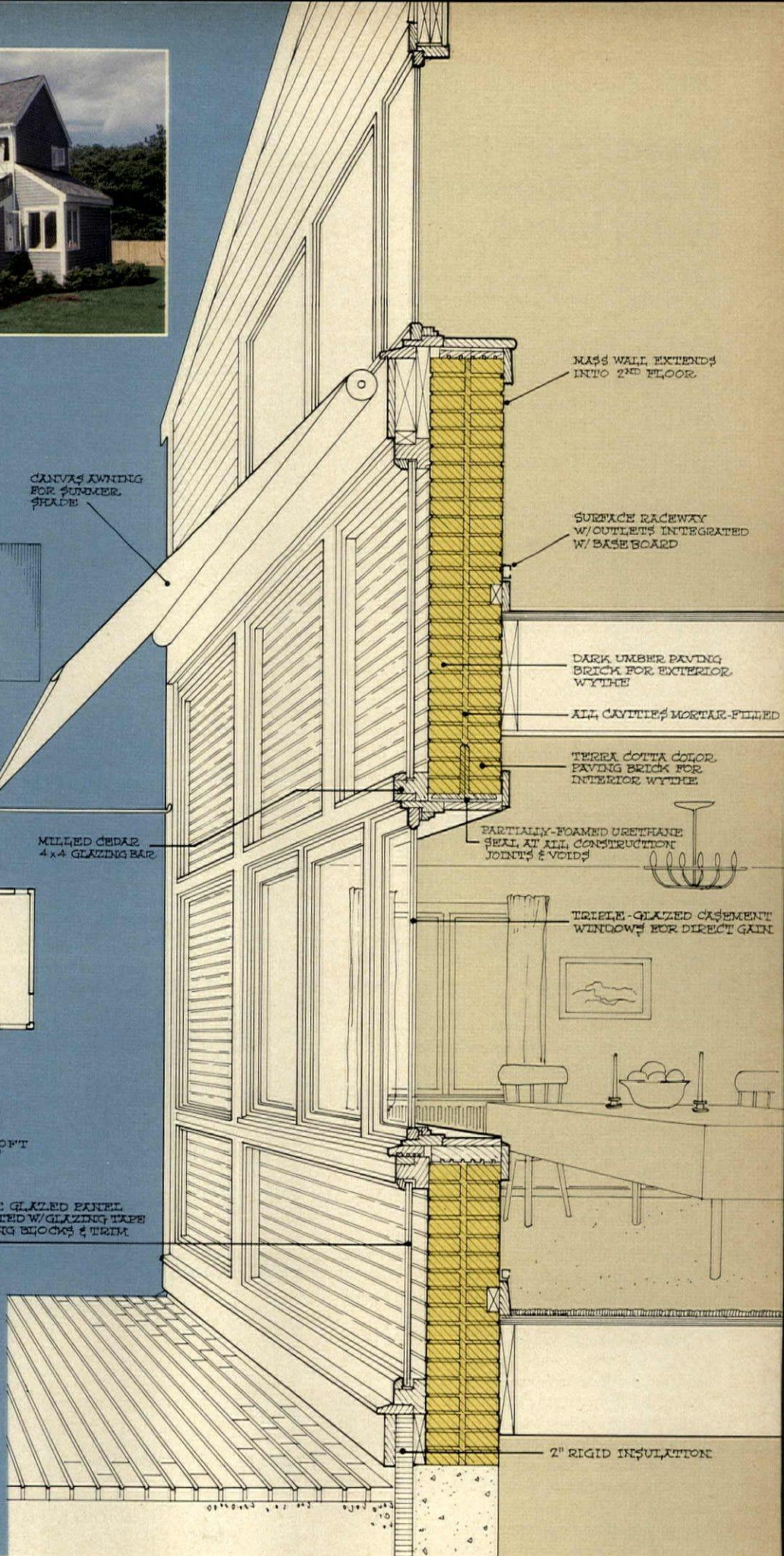
CANVAS AWNING FOR SUMMER SHADE

MILLED CEDAR 4x4 GLAZING BAR

TRIPLE GLAZED PANEL MOUNTED W/ GLAZING TAPE SETTING BLOCKS & TRIM STRIP

Modified Trombe wall (cross-section, right) has performed as expected, according to available computer data. Thermal mass delays transfer of heat from outside wall to inside for approximately four hours, allowing the solar heat collected during the day to be put to use at night. Solar greenhouse and south-facing windows (photo and plans above) provide heat through direct solar gain.

Efficient floor plan (above) puts solar heat to its maximum use. Heated air circulates through open first floor, then rises to the second floor through ceiling grilles.



Mixed Results for Ryland's Showcase Energy House

This 1,756-sq.-ft. Ryland home, adapted from one of the company's best-selling models and equipped with a complete package of energy savers [see HOUSING, November, 1980], was designed to cut heating bills by up to 40%.

But preliminary data, gathered as part of a Ryland-NAHB effort, shows it has fallen far short of that mark. Specifically, between December, 1980 and May, 1981 the Ryland house ran up higher utility bills and kilowatt usage than a control house in the same area, Columbia, Md.

Hugh Winstead, Ryland's Mid-Atlantic product development manager, admits the six months' performance results are less than flattering, but notes "it's hard to draw conclusions" on the available data. "In the winter, the energy features appeared to have a marginal effect on energy savings," he notes. "In the spring, they did not."

One reason for the poor spring showing, says Winstead, is the way in which the home was used. Because of an allergy problem of the owner, the house's air conditioning was on throughout the spring months. Occupants of the control house did not use air conditioning during that period, according to Winstead. The result: The Ryland house used 3,162 kilowatt hours of electricity and had a \$172 electric bill for the months of March, April and May versus 2,428 kilowatt hours and a \$136 bill for the control house for those same months.

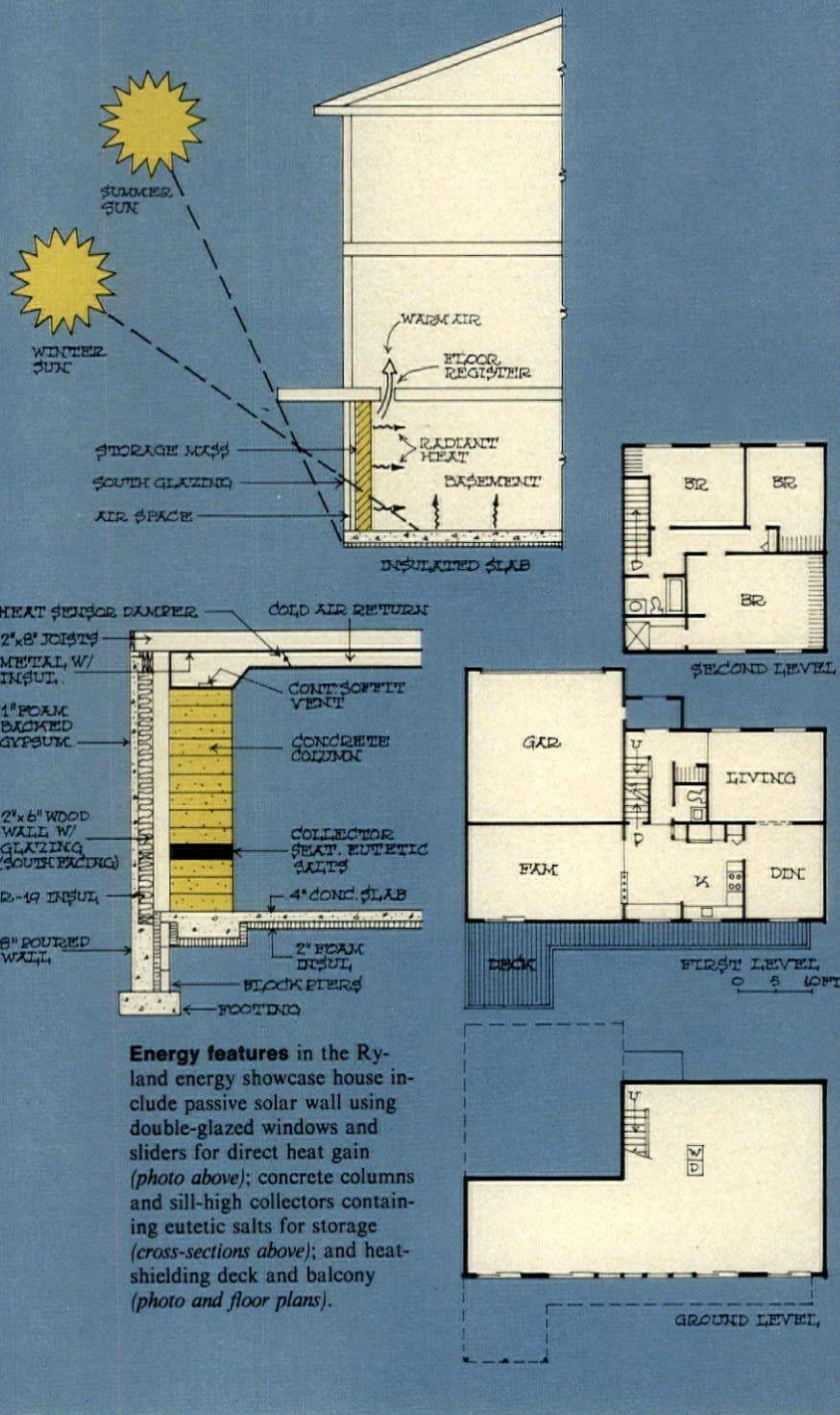
The Ryland home did beat the control house for December, January and February, but the difference was a marginal \$20-\$275 compared to \$255. "Not enough for us to get excited about," says Winstead.

The home was built as part of a nationwide competition to make new homes energy efficient without pricing them out of the market.

The total package of energy-saving features in the home added about \$11,500 in cost, but that includes some features—like the eutectic salt collectors— that wouldn't be used in a production model. A more realistic price tag for doing a similar home for the market: \$5,000 to \$8,000.

Originally, the Ryland-NAHB monitoring effort was to see whether a home built with conventional techniques could meet or supercede the BEPS. Eight sensors were placed throughout the home. When BEPS was bleeped, they stopped monitoring four of the sensors.

Now, Winstead will use the data the home generates to decide whether this design should be used for production houses in the mid-Atlantic region. Looking at the results thus far, Winston says, "my gut feeling is that we would not." This doesn't preclude this passive solar design from being used in other markets, in Texas, for instance, according to Winstead. He says Ryland plans on issuing a full report next February or March which will examine a full year's data on the house.



Energy features in the Ryland energy showcase house include passive solar wall using double-glazed windows and sliders for direct heat gain (photo above); concrete columns and sill-high collectors containing eutectic salts for storage (cross-sections above); and heat-shielding deck and balcony (photo and floor plans).

Passive Townhouses Are Working— And Changing

The duplexes and townhouses of Winding Trail Village in Boulder, Colo. boast a passive solar system that literally stretches from top to bottom of the house. At the top is a "sunscoop," an insulated attic space with clerestory windows for capturing the sun's heat. And at the bottom: a 12-in.-deep bed of river rock located underneath the slab for storing that heat.

The system, predicted Jim Leach, president of Wonderland Development Co., Boulder, Colo., would provide 50% of the space heating and keep heating bills to a low \$150 a year [see HOUSING, November, 1980].

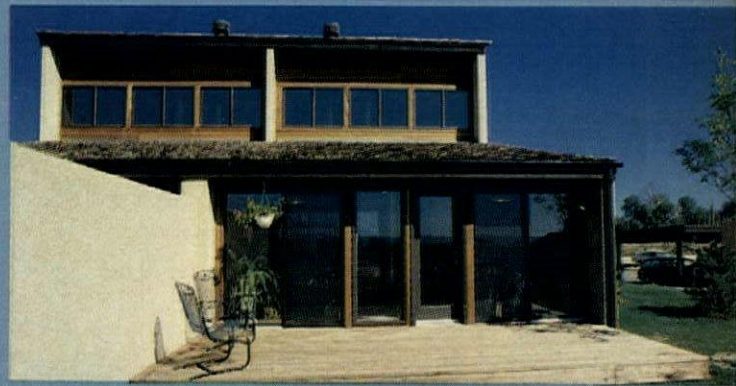
So far, the system—which added about \$8,000 in cost, \$2,500 attributable solely to solar features—has come close to that 50% target, according to developer Leach. "Last winter, no monthly utility bill was over \$35," he claims. "That's gas and electricity." A comparable home without the solar features, he figures, would pay "at least double" that amount.

Despite what he considers the success of the passive solar features, Leach is doing away with one of the features and modifying the other in later units.

"We dropped the rockbed and people don't seem to miss it," says Leach. He found it was the kind of feature buyers take if it's included, but don't get excited about when it's not. Leach does still offer the rockbed as an option for those who want it.

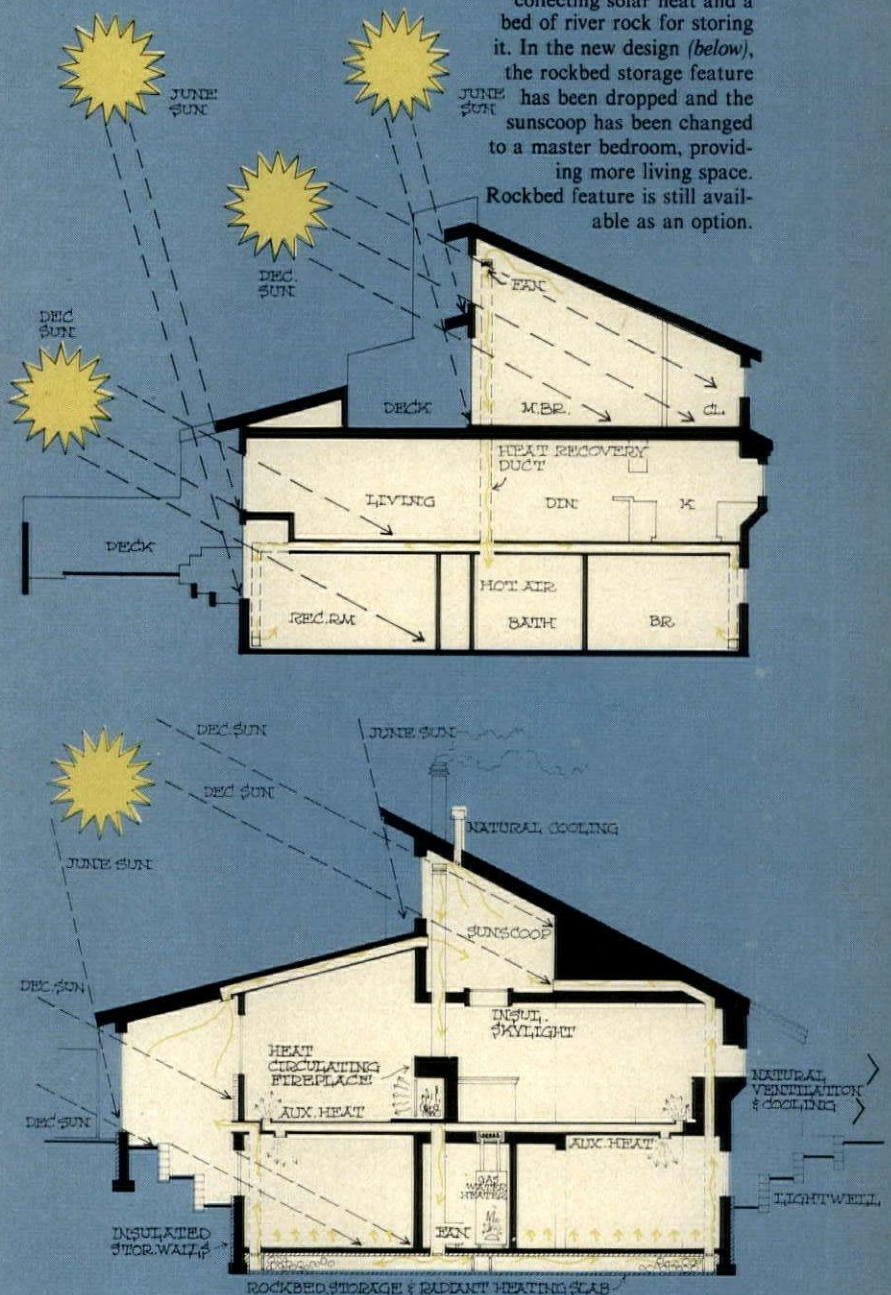
The sunscoop still exists, though in a modified form. "It's now a master bedroom," says Leach (see drawings right). Leach's rationale for this change was to provide more living space, something the sunscoop didn't provide as an attic. Also, Leach opened up the home's basement level by using larger windows than in the earlier design. A heat recovery duct still pulls hot air from the master bedroom (formerly the sunscoop). Only now, instead of taking the heated air to the rockbed and storing it, the air is released in the basement level.

Leach says he hasn't had a problem selling either buyers or lenders on the solar aspects of the Winding Trail Village townhouses. As far as buyers are concerned, says Leach, the greenhouse look with lots of windows is a plus whether it's solar or not. Local lenders have been receptive too, says Leach. He got a conventional construction loan for the passive solar project from Columbia S&L, Denver.



Before-and-after drawings show evolution of passive solar townhouse (photo above).

Original design (bottom of page) had a "sunscoop" for collecting solar heat and a bed of river rock for storing it. In the new design (below), the rockbed storage feature has been dropped and the sunscoop has been changed to a master bedroom, providing more living space. Rockbed feature is still available as an option.



Computer Quirks Delay Data on Sun/Tronic House

When the Copper Development Association's Sun/Tronic house was unveiled earlier this year [HOUSING, January, 1981], engineer Robert Hedden predicted annual heating costs for the 5,400-sq.-ft. home in Greenwich, Conn. would be a scant \$200 a year.

A computer which was set up both to control and monitor the house's highly advanced energy-saving features, promised to make results on the home's performance quickly and easily available on an on-going basis.

Unfortunately, a series of computer snafus has so far prevented the accumulation of data.

"We've had more than our share of difficulties interfacing the computer with the mechanical equipment," says Paul Anderson, CDA vice president-Building Construction Markets. For example: The computer determines when shades will be raised and lowered for the home's passive solar elements. Problem is, says Anderson, running a shade up or down sends out an electrical charge that screws up the computer's temperature readings. "Instead of a reading like 190°, we're getting readings like 260°," complains Anderson.

Since the computer was first hooked up last March, it has monitored the home on an on-again-off-again basis, with the result, says Anderson, that "we don't have anything meaningful" as far as performance data is concerned. He hopes that situation will change in a few weeks.

This doesn't mean the energy-saving systems themselves aren't working. They are. Among those systems are two 320-sq.-ft. active solar collectors and a 150-sq.-ft. panel of photovoltaic cells. This combination was designed to provide 45% of the home's heating needs. Passive solar features provide heat too. A two-story greenhouse with a mass storage floor opens onto the family room on the home's lower level and onto the living room above. Two copper-pipe-storage walls transfer the sun's heat to a bank of 12-in.-diameter copper pipes which release the heat at night. After tapping the sun's heat, the Sun/Tronic house recycles it. A 25-ft.-tall hollow "energy column" reclaims rising hot air via a fan and distributes it throughout the home through a duct system.

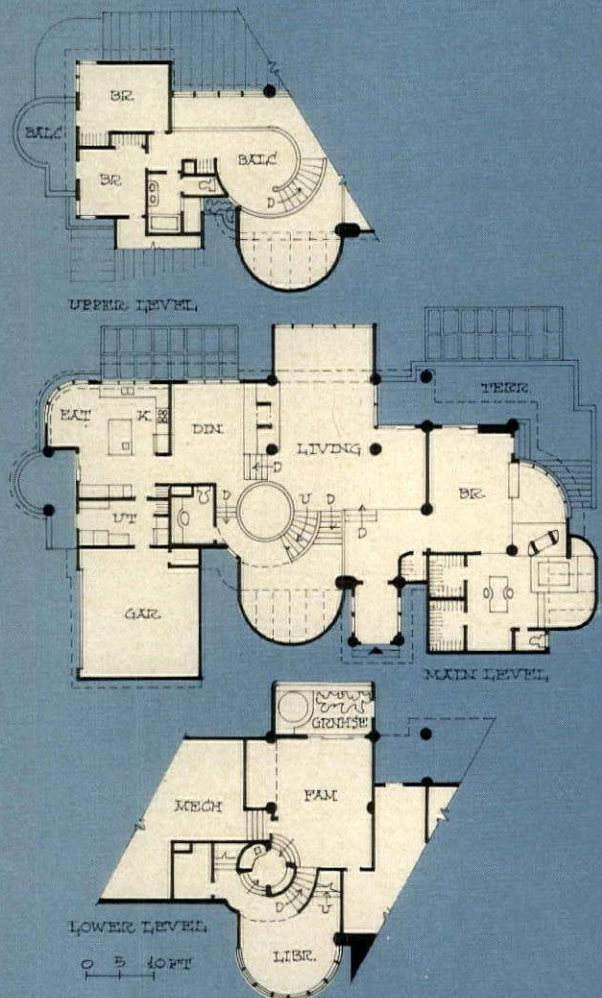
Not all the energy systems in the Sun/Tronic house are cost effective at present. "It's more a demonstration house," says Hedden. "Cost effectiveness was a secondary consideration." He does feel that features such as the energy column and heat-pipe and wall do generate enough energy to justify their cost, although as yet no substantiating performance data has proven this.

The promised data should arrive soon. Anderson says the computer "isn't collecting data right now, but probably will be within a couple of weeks."



Rear elevation of Sun/Tronic house (top photo) faces south and contains two active solar collectors and a two-story passive solar greenhouse whose floor stores heat. Just inside greenhouse are the copper-tube solar collectors.

Front elevation (photo above), with expanse of copper roof, was tucked into hillside to conserve heat.



New Owners Halt Monitoring of Gene Leger House

A change of owners at the experimental Leger house in East Pepperell, Mass. means the monitoring effort there will come to an end.

A few years back, computer specialist and fledgling homebuilder Gene Leger designed and built what looked like just another "basic" house [see HOUSING, October, 1979]. What made Leger's house different, though, was the builder's claim that it would chop fuel bills by 90%.

Leger says the following added little cost to the house but made for big savings in fuel costs:

- The house has a double exterior wall made of two 2×4 stud walls filled with sprayed cellulose insulation for an R-43 rating.

- Windows are triple-glazed and most face south.

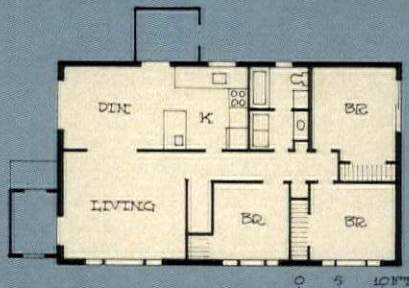
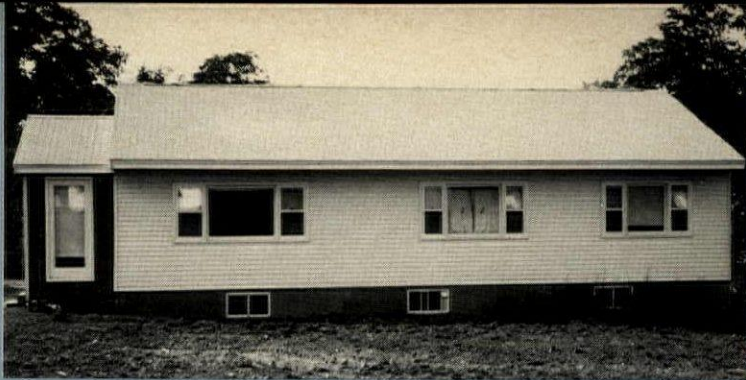
- Vestibules protect front and back doors so heat isn't lost when doors are opened. Doors are insulated steel.

- All plumbing and electrical wiring come up from the basement through interior partitions. With no openings on the outside walls, the home is practically airtight.

A preliminary study showed the home performed well. A winter's gas bills for space and water heating and cooking totaled a mere \$101.51—compared to an estimated \$800 for a same-sized house in the same area.

A full-scale study was planned for the winter of 1979-1980. Dr. Gautam S. Dutt of Princeton University's Center for Environmental Studies, a DOE-sponsored center, was looking forward to gathering and analyzing data on the home's performance when the home was sold. The new owners, said Dr. Dutt, are not interested in participating in the study, which spells the end for a hoped-for comprehensive look at the house.

Still, Dr. Dutt remains excited about the house's possibilities, an attitude he expressed in his conclusion to his preliminary study of the home: "The result is a house that is not only a gas miser, but also inexpensive to build. We believe that this house will fit the needs and pockets of many families."



Basic-looking house, brainchild of novice homebuilder Gene Leger, is a prime example of how simple yet efficient design can produce big energy savings. All but a few of the triple-glazed windows face south (*photo and plans, above*) and vestibules prevent heat loss when doors are opened. The builder claims only 26,000 BTUs are needed to heat the house, but the smallest boiler he could find was a 43,000-BTU Japanese model. Base-board radiators were kept to a minimum—only 46 ft. were used versus the 100 ft. a conventional house would have required.

How Lenders are Banking on Energy-Efficient Homes

They are not using standardized forms or precise methods of calculation. Still, many lenders are factoring expected cost savings in an energy-efficient home into the mortgage lending decision. There's often a gray area between outright approval or rejection on a borrower's application, says Richard Bryan, president of Midland Financial S&L in Des Moines, Iowa. "If a house is more energy-efficient," he says, "we're willing to go further into the gray area."

What this usually means is that lenders may ease the rule that mortgage debt service should not exceed 25% to 28% of the borrower's income—provided the lender can depend on lower utility bills to offset the higher debt-to-income ratio.

Just how many lenders give borrowers a break for energy efficiency is hard to say. Harold Olin, director of architecture and construction research at the U.S. League of Savings Associations, Chicago, says reliable statistics on the number of the association's members figuring energy costs into the mortgage application

aren't available. However, he points out that when a questionnaire was distributed to 500 lending officers attending joint U.S. Savings League-Federal Home Loan Bank Board seminars in four cities in June, 1980, 48% of the officers said energy was considered in their appraisal process and 23% said they took it into account when underwriting a loan.

Marc Schaefer, an energy specialist at Freddie Mac, took a similar poll later in 1980 and found that 59% of the respondents took energy savings into account when making a mortgage loan. Neither Olin nor Schaefer kids himself that lenders come close to agreeing on what weight energy considerations should be given. But they do agree that the financial community's awareness of the energy factor is on the rise.

Richard Bryan of Midland Financial has tacked an addendum onto his standard appraisal documents so appraisers can record such things as insulation levels, the type of windows and doors and whether or not the home has attic ventilation. He requires his appraisers carry a

step ladder with them so they can take a peek into the attic to check the insulation and ventilation system. "We had a problem with our fee appraisers," Bryan says. "They wanted to charge us for having to carry the ladder." As a final symbolic gesture of the importance of energy efficiency, Bryan gives each mortgage borrower a caulking gun at closing.

Borrowers at Home Federal Savings and Loan, Rockford, Ill., got 1/2% knocked off the loan origination fee and 1/4% taken off the mortgage interest rate if the property met the lender's nine-part energy-efficiency program. In addition to covering such items as ventilation, insulation and glazing, the Home Federal program required energy-efficient appliances and heating systems. Because of the estimated \$2,000 in cost the requirements added to a home, builders "weren't very receptive the first time around," says Jim Moore, vice president-marketing, who helped develop the program. But once they saw the dual advantage of being able to offer below-market financing and at the same time market the homes' energy efficiency, the builders changed their minds.

Over 500 single-family homes had been financed under Home Federal's energy-efficiency program when in July, 1981, the city and county adopted six of the nine parts of the program's requirements into the building energy code. Now that builders are required by law to meet most of the guidelines, Home Federal has done away with the interest rate reduction. Still, the S&L does give buyers of energy-efficient homes a break by allowing those buyers to stretch the debt-to-income ratio from the normally observed 25% to a more liberal 30% or higher depending on the individual case.

"We don't let it go wild," explains Moore. "We consider it on an individual basis." Such flexibility, says Moore, helps assure builders they won't eliminate possible buyers by building a slightly more expensive energy-efficient home.

Buyers of mortgages in the secondary market are also taking energy into account. This is important since mortgage lenders like Home Federal and Midland Financial would be less apt to make the higher debt-to-income-ratio loans if they were unacceptable to the secondary market.

Both Fannie Mae and Freddie Mac, two of the largest purchasers of mortgages in the secondary market, have incorporated energy considerations into the underwriting standards they set for mortgage lenders. They also allow lenders a degree of flexibility in approving and rejecting mortgages on energy-efficient homes.

Both institutions, for instance, have identified ten factors which contribute to energy savings in a home. In addition to the usual references to insulation, weatherstripping and glazing, their guidelines note that solar systems, wood-fired heating systems and

design techniques such as earth-sheltering and judicious placement of windows all can contribute to lower energy costs. Freddie Mac, according to Schaefer, even encourages lenders to provide additional documentation which might help support energy- and cost-saving claims. Such documentation, however, is not required.

The results, says Schaefer, is that mortgages with higher than normal debt-to-income ratios are acceptable, provided they still rate as "investment quality"—the loan-to-value ratio doesn't exceed 95% and the borrower has the ability to make timely repayment of principal and interest. The individual mortgage lender, not Freddie Mac, decides how far to stretch debt-service ratios. Freddie Mac, however, retains the right to return the loan.

Schaefer claims less than 2% of the submitted mortgages were rejected for credit reasons in 1980. He adds that another thing Freddie Mac takes into account is that as energy costs rise, the monthly savings on energy-efficient homes will also rise. In effect this decreases the risk of default on those homes' mortgages relative to mortgages on non-energy-efficient homes.

What is needed so lenders can go beyond a seat-of-the-pants grasp of energy efficiency, say Richard Bryan and Harold Olin, is a test, a method of rating energy efficiency in homes. Ideally, the test would be easy to do and accurate.

With that in mind, Bryan and Olin met with Owens-Corning Fiberglas. The result of that meeting is the Owens-Corning slide rule, a device that takes into account approximately 12 variables affecting the energy-efficiency of the shell of a house. According to Olin, the slide rule yields a percentage score after information on ceiling, wall and floor insulation, glazing, infiltration rates and other factors is plugged in. If the score is less than 70%, the house gets a poor rating; 70% to 100% is good; over 100% to the maximum 150% is very good. HUD's Minimum Property Standards are used as a benchmark, and the slide rule is calibrated so 100% equals the MPS.

According to Olin, the slide rule is "thermo-dynamically supportable" and 80% to 90% accurate. He calls it a quick, easy way "to flag an energy miser or an energy hog." Not only that, he claims it's easy to use and is perfect for on-site evaluations. Olin is just now distributing the slide rules to lenders.

Ultimately, says Olin, energy costs may become a standard item in calculating the borrower's ability to repay a mortgage. Instead of the traditional PITI, he says, we might wind up with a PITI + E (principal, interest, taxes, insurance and energy). But before that happens, someone will have to come up with an accurate way of setting a value for the E factor which can vary widely according to the size and location of a home as well as according to the number of people in a household and how they live.—W.L.U.



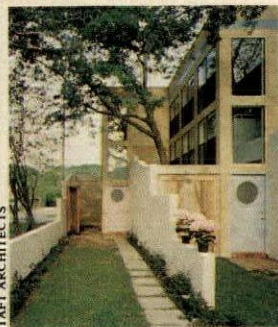
1981 HFBL WINNERS

Just about every type of housing is represented among the 20 First-Honor and Award-of-Merit winners in this year's Homes for Better Living program. There are, for example, tightly sited urban infill projects, units that step up and down steep hillsides, homes, and apartments recycled from non-res structures, sprawling and moderate-size custom homes and remodelings.

Having so diversified a group of winners exemplifies the growth of the HFBL program since its inception 26 years ago. Then, production housing as we know it today was in its infancy—and only one-of-a-kind homes were accepted for judging. Now it takes two juries*—one devoted to production housing, the other to custom homes—to select winners. Site of the two-day judging is the Washington, D.C. headquarters of the American Institute of Architects, which co-sponsors the program with HOUSING.

—JUNE R. VOLLMAN and BARBARA BEHRENS GERS

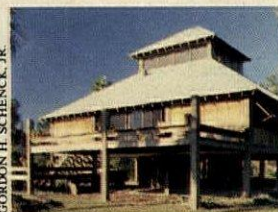
* **Production-housing jury:** Howard J. Backen AIA, chairman; James F. Culpepper, associate member, AIA; Remert Huygens AIA; Yvonne Kearney, architectural student; Peter Sampton FAIA; Philip Sheridan, builder; June R. Vollman, senior editor, HOUSING. **Custom-home jury:** Don Hisaka AIA, chairman; John Field AIA; Barbara Neski FAIA; Linda A. Pinto, associate member AIA; Matthew Eric Poe, architectural student; Jefferson Riley AIA; Walter F. Wagner, editor, *Architectural Record*.



TAFT ARCHITECTS

58

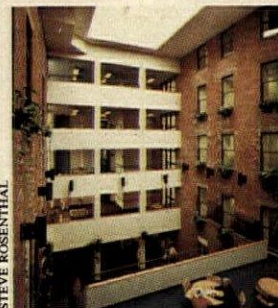
Eight varied multifamily winners: for-sale housing on tight or steep sites; rental units for the elderly; an urban mixed-use project.



GORDON H. SCHENCK, JR.

64

Eight custom winners are drawn from the East, Midwest, South, and West. Included: six new homes, a restoration and a remodeling.

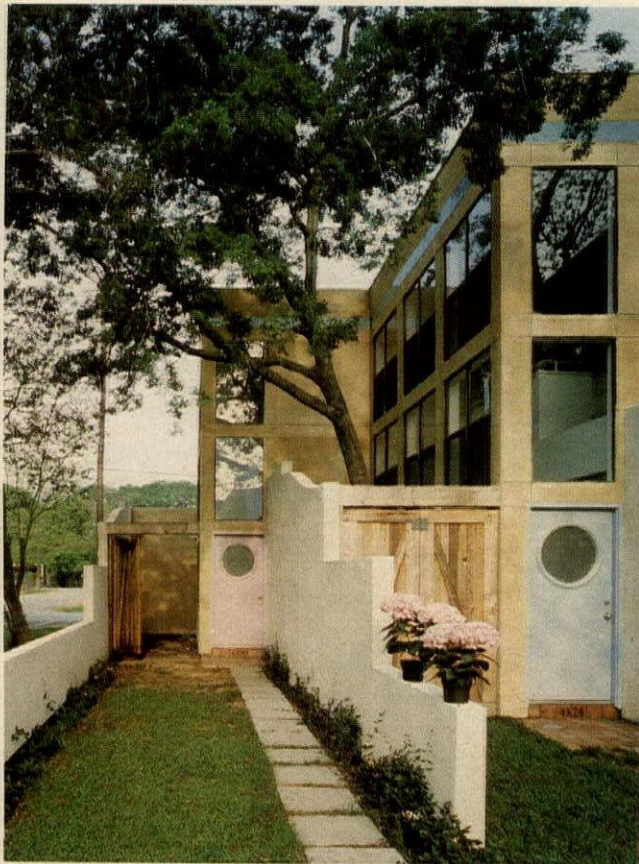


STEVE ROSENTHAL

70

Four rehabilitations—all recyclings from non-res—provide for-sale and rental units. Locations: New York, Pennsylvania, Maine, Illinois.

MULTIFAMILY



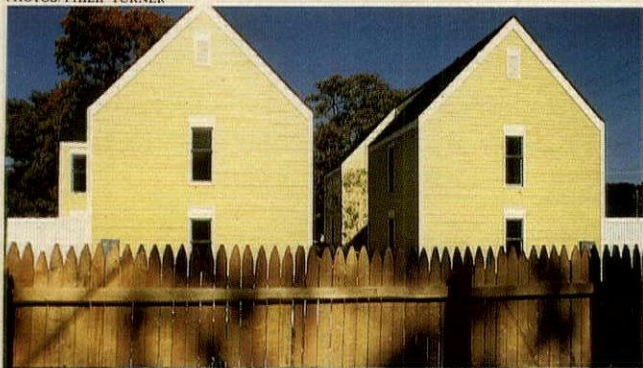
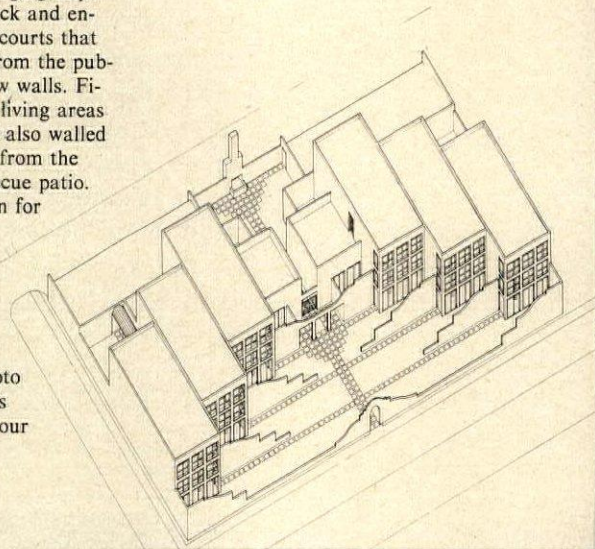
PHOTOS: PHILIP TURNER

Inner-city townhouses—six of them on a 100-ft. by 150-ft. site—offer an unusually high degree of privacy for so tightly sited units. The drawing below shows how this comes about: First, the entire project is ringed by a low wall that defines the townhouses as a mini-neighborhood. Then, the units—split into mirror-image groups—are stepped back and entered through courts that are screened from the public entry by low walls. Finally, outdoor living areas at the rear are also walled off—this time from the common barbecue patio. A major reason for designing the project this way was a desire to save mature trees like the one seen in the photo at left, which is also shown on our cover.



AWARD OF MERIT

PROJECT: Grove Court Townhouses, Houston
 ARCHITECT: Taft Architects, Houston
 BUILDER/DEVELOPER: Ted Callaway, Houston



Townhouses in disguise:

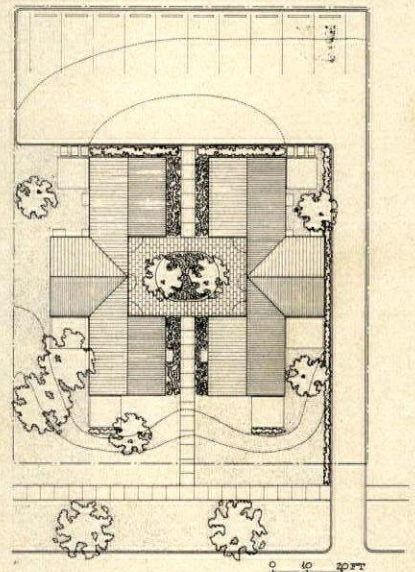
What seem from the street to be large, traditional single-family homes (*lower photo, left*) are actually six attached units, grouped three-and-three on either side of a landscaped courtyard. The reason for the traditional styling is the project's location—a suburban neighborhood where New England-style architecture predominates. So siding is yellow aluminum (in clapboard scale) and detailing is simple white trim.

Like the project shown above, this one occupies a 100-ft. by 150-ft. site. But as the plan and drawing at right show, siting is handled quite differently. Here, all units are entered from the courtyard, and outdoor living areas in four of the six units face the street.

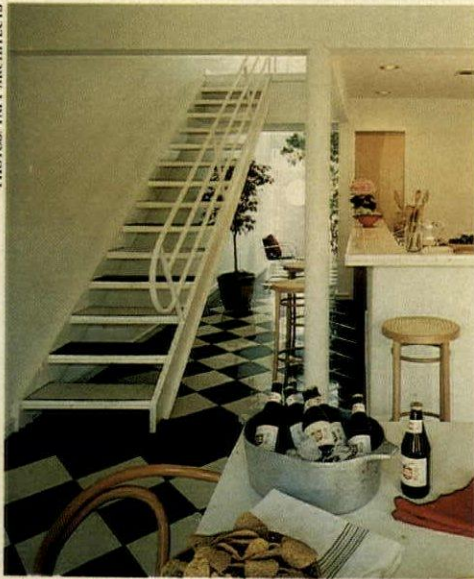


AWARD OF MERIT

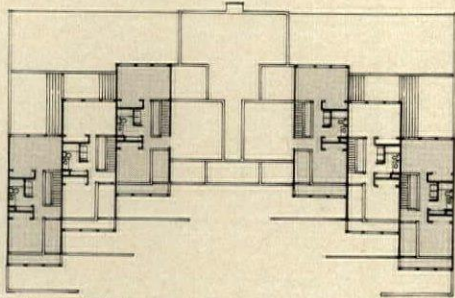
PROJECT: Lake Bluff Townhouses, Lake Bluff, Ill.
 ARCHITECT: Nagle, Hartray & Associates Ltd., Chicago, Ill.
 BUILDER: A.L. Construction Co., Lake Bluff, Ill.
 OWNER: North Ave. Associates., Lake Bluff, Ill.



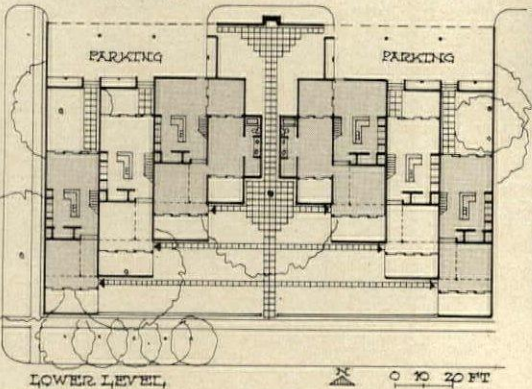
PHOTOS: TAFT ARCHITECTS



Fairly open layouts are achieved by using service cores that include storage space as well as plumbing and air handling systems. Operable windows at both ends of units provide cross-ventilation.

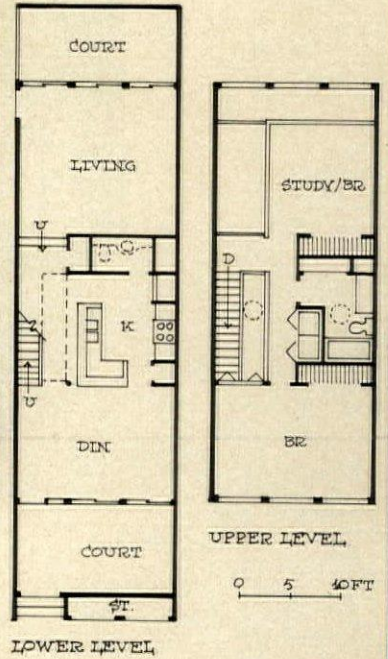


UPPER LEVEL



LOWER LEVEL

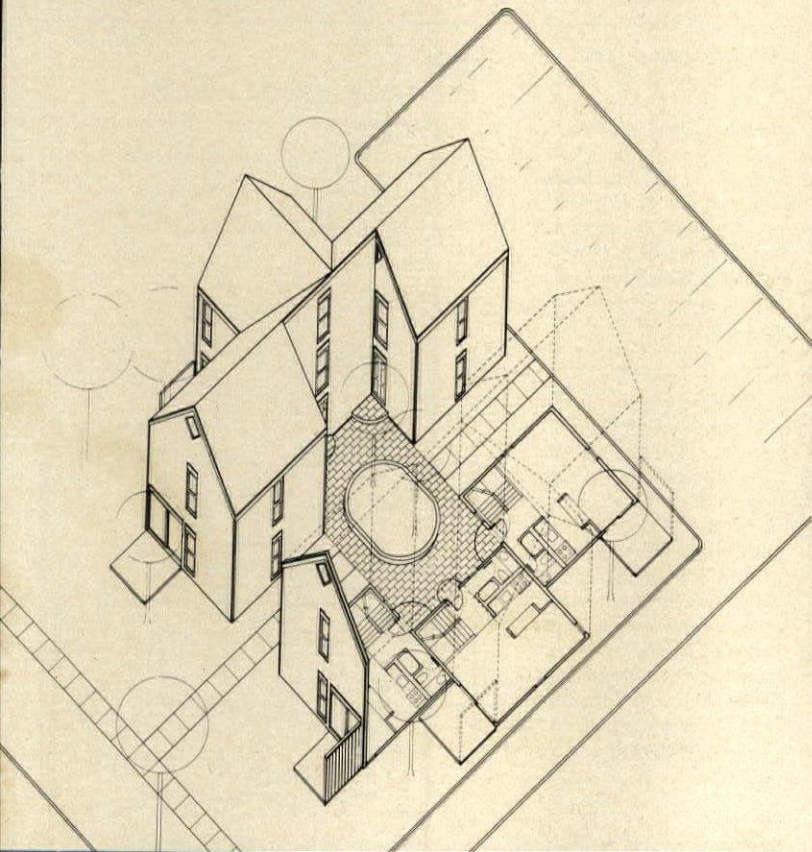
0 10 20 FT



LOWER LEVEL

UPPER LEVEL

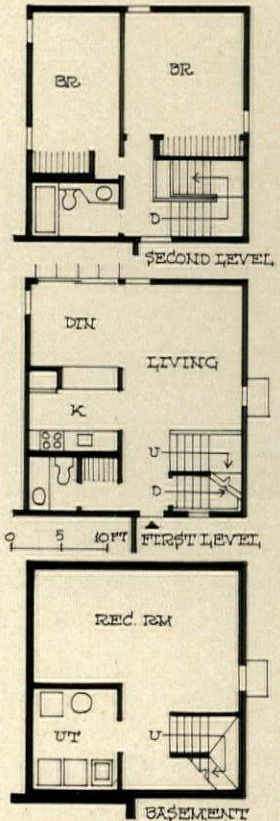
0 5 10 FT



Offset linkup of three units into one building is accomplished by using a square floor plan (right) and turning it so that units can be joined at non-windowed areas. Turning the plan this way also allows each outdoor living area to be private from the others. Another advantage of using the square plan: It wastes little space on circulation. There are 900 sq. ft. of living area on the two main levels, and additional space in the basement and in an attic loft (plan not shown).

Energy efficiency was a primary concern to the architect and developer. So windows and sliding doors are kept to a minimum, yet located where they can provide a maximum of good natural lighting.

Note how parking is handled—through a common driveway at one side of the site.



SECOND LEVEL

FIRST LEVEL

BASEMENT

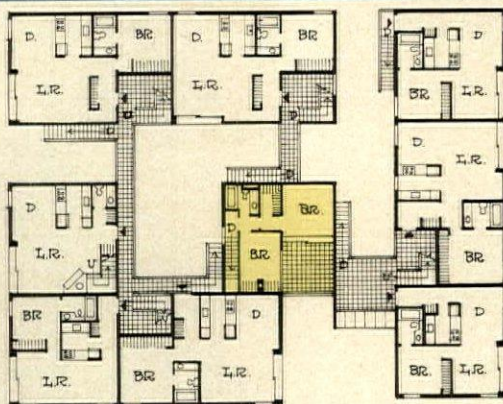
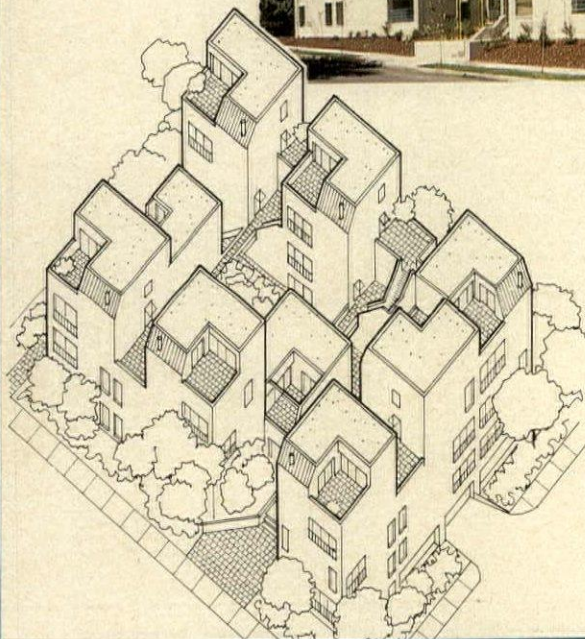


FIRST HONOR AWARD

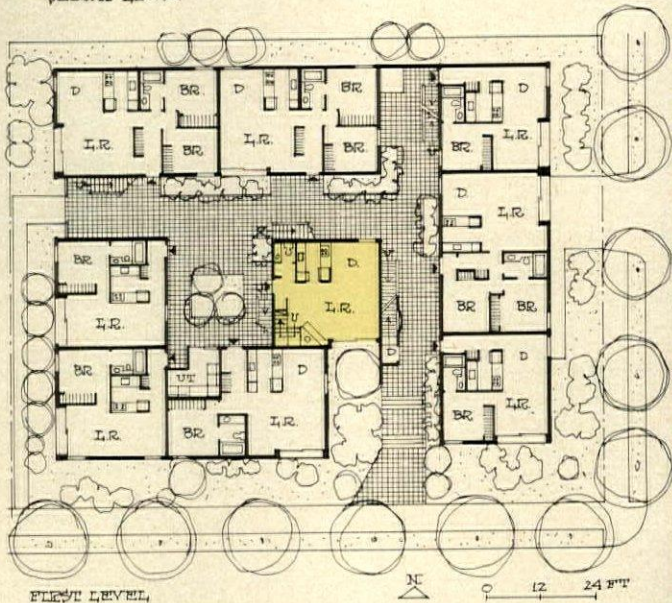
PROJECT: Hoyt Square Condominiums, Portland, Ore.
 ARCHITECT: Robert S. Leeb, Portland, Ore.
 BUILDER: Silco Construction Co., Tualatin, Ore.
 OWNER: RSL Dev. Corp./Silvey Dev. Corp., Tualatin
 LANDSCAPE ARCHITECT: Walker, Macy & Erickson, Portland



ED HERSHBERGER



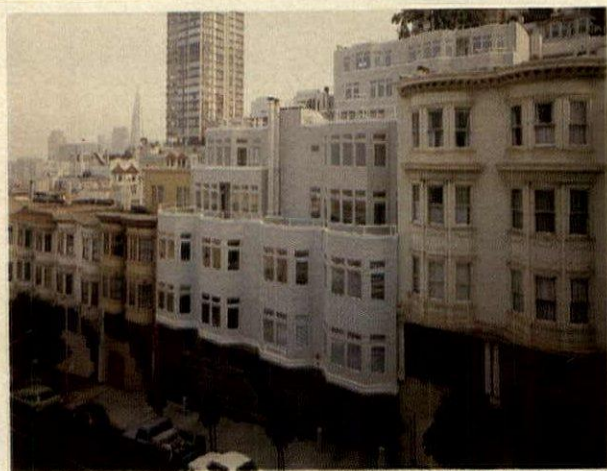
SECOND LEVEL



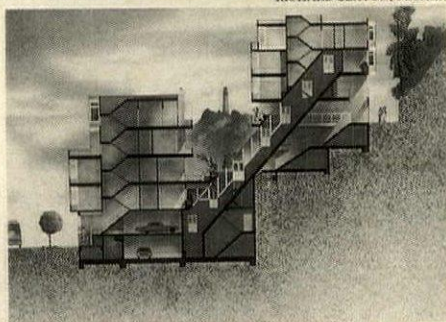
FIRST LEVEL



0 12 24 FT



RICHARD SEXTON, MATRIX

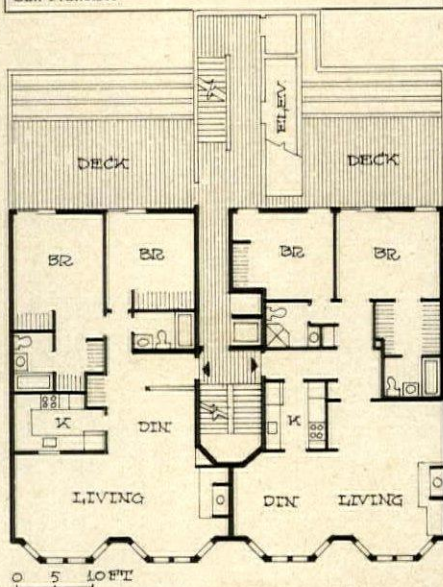


Compact infill project—13 condo units on a 60-ft. by 120-ft. site that is both steep and sloping—is split into two buildings (see section, left) in order to preserve a neighborhood pattern of mid-block open space. As shown, an inclined elevator connects parking levels, both buildings and entrances on both streets that the project faces. To avoid the need for internal garage ramps, cars enter the two parking levels from different entrances—one on the downhill end of the site, the other on the uphill (see photo). Plans shown at right occur only on the first two floors. All other units are one-of-a-kind. (An example is shown at far right.) This was necessary because of setback requirements—some mandated by code, others by the need to increase sunlight for the central garden and to avoid blocking views from surrounding buildings.



FIRST HONOR AWARD

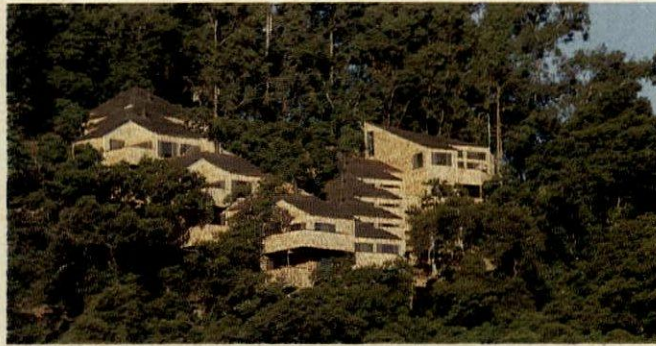
PROJECT: Macondray Terrace Condominiums, San Francisco
 ARCHITECT/DEVELOPER: Hood Miller Associates, San Francisco
 BUILDER/DEVELOPER: Hood Miller Properties
 LANDSCAPE ARCHITECT: Paul Leffingwell, Sausalito, Calif.
 STRUCTURAL ENGINEER: Shapiro Okino & Hom, San Francisco



0 5 10 FT

High-density condos—24 on a 130-ft. by 100-ft. site—are entered through a landscaped court that terraces up and back to various levels (see drawing, facing page). So there is a great deal of entry privacy for each owner. As the plans of the first two levels show (left), the units wrap around the perimeter of the site in a mix of one- and two-bedroom flats and two-story plans (yellow in plans). Two-story units on the upper levels (plans not shown) have private terraces; all units provide narrow balcony space for plants.

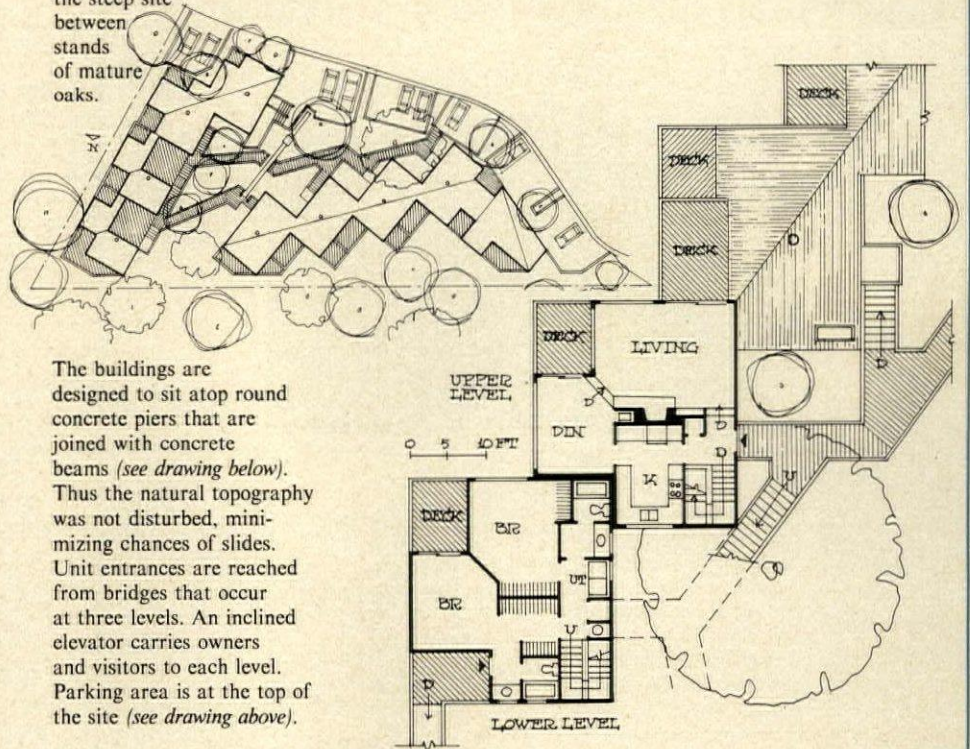
Split-face concrete masonry with precast lintels provide both the exterior finish and the building structure, including the demising wall-and-floor system that provides fire protection and a degree of soundproofing between units. Fenestration is concentrated on the south, east and west elevations and kept to a minimum on the north facade. Parking is located below grade (see ground-level plan).



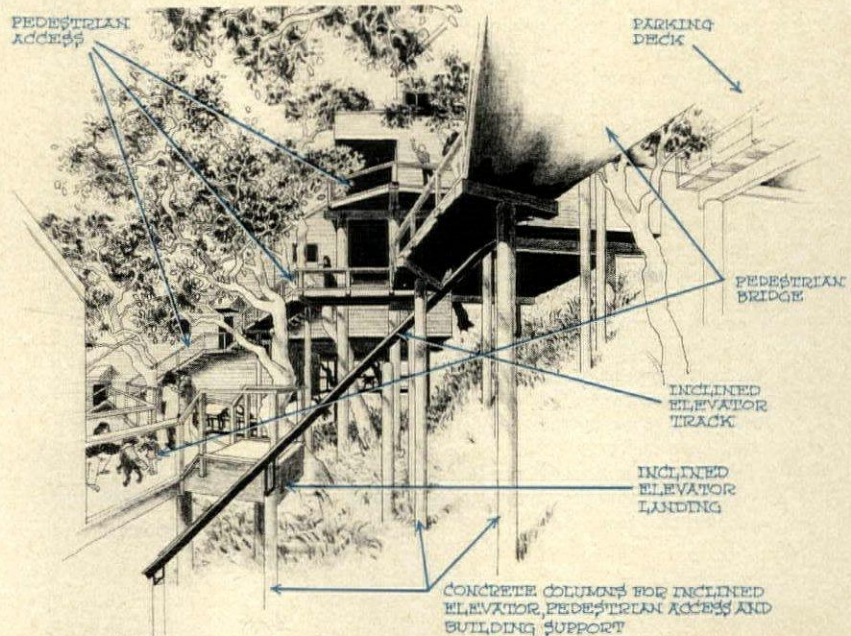
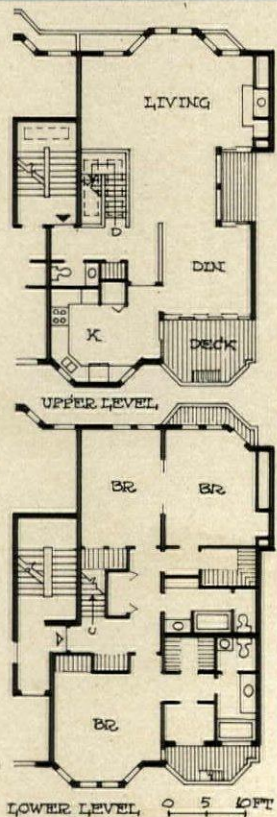
KAZ TSUBURITA

FIRST HONOR AWARD
 PROJECT: Albany Oaks, Albany, Calif.
 ARCHITECT: Edmund Burger, San Francisco
 BUILDER: Williams & Burrows Inc.

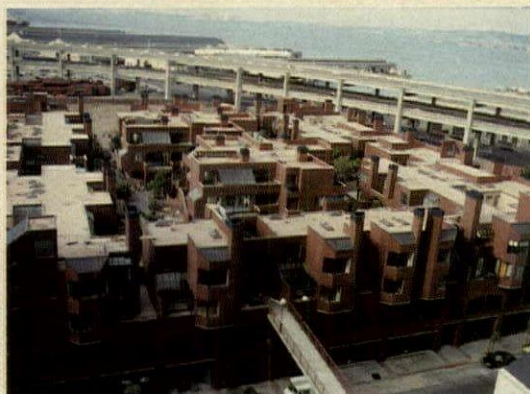
Multi-level condo units—nine on a half-acre site—are connected into two buildings that step diagonally down the steep site between stands of mature oaks.



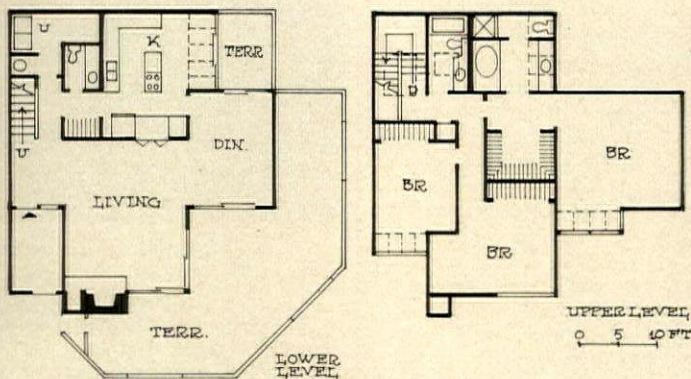
The buildings are designed to sit atop round concrete piers that are joined with concrete beams (see drawing below). Thus the natural topography was not disturbed, minimizing chances of slides. Unit entrances are reached from bridges that occur at three levels. An inclined elevator carries owners and visitors to each level. Parking area is at the top of the site (see drawing above).



MULTIFAMILY



PHOTOS: PHOTO/STEPHENSON



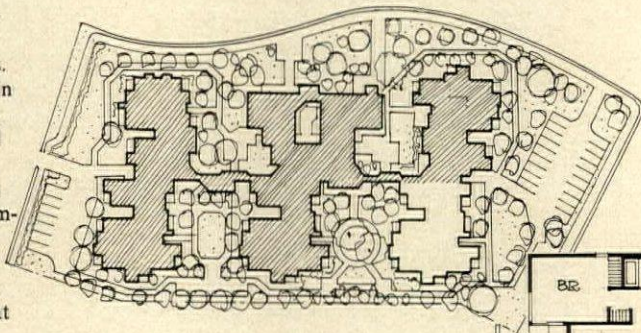
AWARD OF MERIT

PROJECT: Golden Gateway, San Francisco
 ARCHITECT: Fisher-Friedman Associates, San Francisco
 BUILDER/DEVELOPER: Vintage Properties and Perini Land & Development Corp. (joint venture), San Francisco
 LANDSCAPE ARCHITECT: Anthony M. Guzzardo & Associates San Francisco

Senior-citizen housing is designed to ease the residents' move from single-family homes. Thus, the 101 rental units are in 5 three-story buildings, each serving as a mini-neighborhood (*site plan right*).

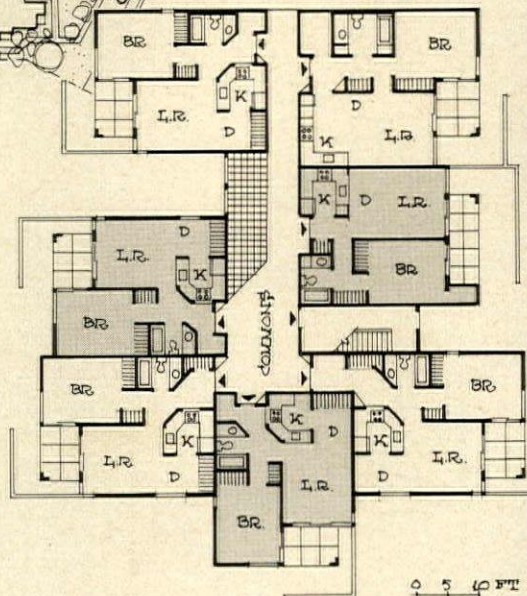
The five apartment buildings are connected to a sixth—a community center—by covered walkways, so residents can use the lounge (*photo far right*), craft room, etc., no matter what the weather.

Each apartment, much like a single-family home, has both a front and a "back" door—though the "backyard" may be a balcony. Individuality is promoted through floor plan variations, exterior color changes, etc. Furthermore, the flats encircle two-story atriums (*plan and drawing right*) which provide space for small, private meetings, impromptu get-togethers or just people-watching. To promote energy saving, the skylights over atriums are operable, so that apartments can be cross-ventilated (*drawing right*) and the buildings are designed to accommodate solar collectors.



FIRST HONOR AWARD

PROJECT: St. Mary's Gardens, Oakland, Calif.
 ARCHITECT: Peters, Clayberg & Caulfield, San Francisco
 BUILDER: W & B Constructors, Belmont, Calif.
 LANDSCAPE ARCHITECT: Richard M. Vignolo, San Francisco



Urban mixed-use project combines for-sale housing with offices and stores. Its low-rise buildings are arranged in three "squares"—one of which is pictured at left below. The lower two levels of each building hold parking and, at the perimeter, commercial space (located behind the arcades shown in the top photo, facing page). Above are 50 one- and two-story condominiums, which are entered from landscaped courtyards created atop garage space. The 914- to 2,048-sq.-ft. units offer skylights, balconies and, in some cases, two-story rooms. (A typical plan is shown at left.) These desirable features—and the downtown San Francisco location—help the condos sell at prices from \$239,000 to \$550,000.

Note how well in tune the project is with traditional San Francisco architecture—thanks to brick exteriors, bay windows, etc. [For a more detailed look at this project, see HOUSING, Jan. '80.]

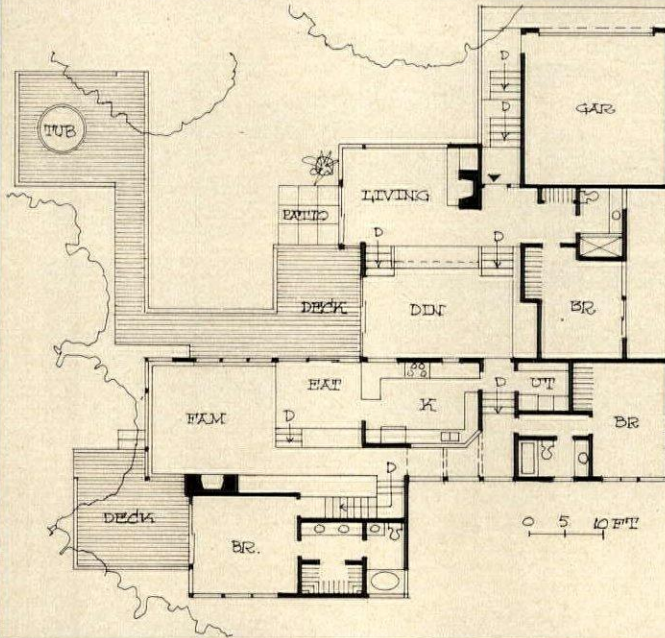


AWARD OF MERIT

PROJECT: Bear Ridge Development, Orinda, Calif.
 ARCHITECT: David C. Boone, Carl Kolbeck, Orinda, Calif.
 BUILDER/DEVELOPER: Boone/McNair, Orinda, Calif.



PHOTOS: ROB SUPER

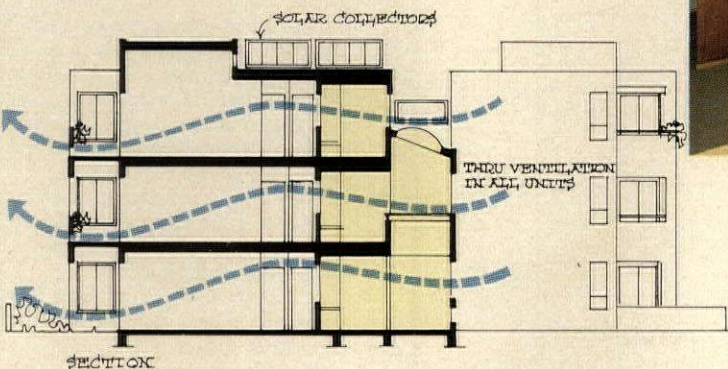


Merchant-built house is one of 23 slated for a hilly, wooded site. Because of the terrain, each house will be individually designed, but materials and construction methods will be standardized. For example: All units will be designed for energy conservation, with major living areas oriented for passive solar heat gain and R-19 insulation installed in roofs and walls; all homes will have dark-colored, sloping roofs, complementing the contours of the land; and all will have natural wood or shingle siding.

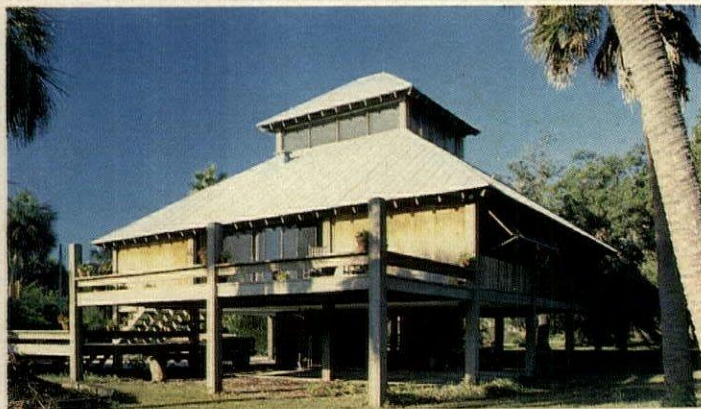
Thus, the hill-hugging house shown at left and above has a south-facing solarium kitchen, multilevel floor plan and earthen-tone exterior.



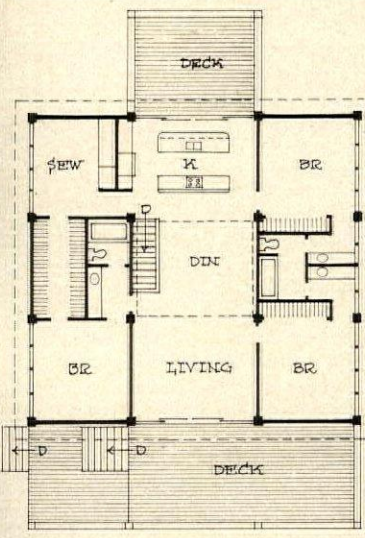
PHOTOS: ANDERS HENCH



CUSTOM

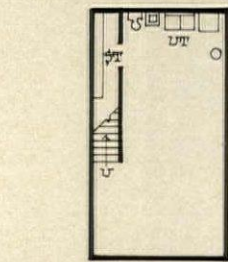
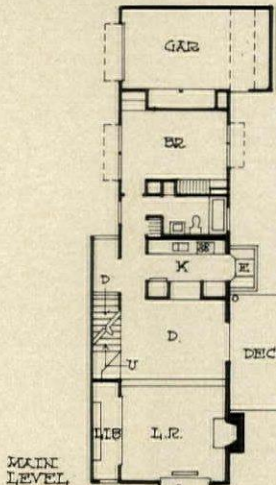
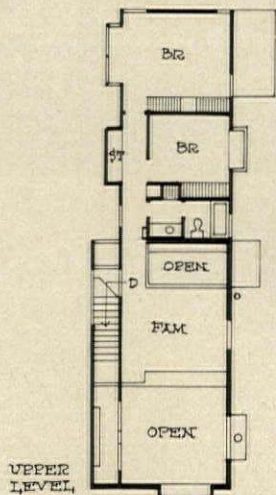
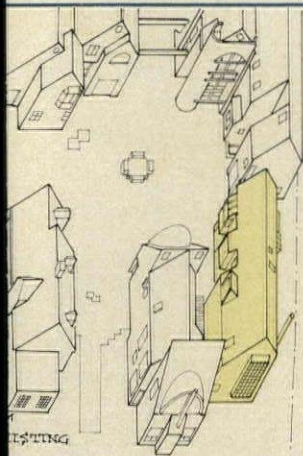


FIRST HONOR AWARD
 ARCHITECT: Rowe Holmes Associates Architects Inc., Tampa, Fla.
 BUILDER: Henry M. Butler Inc., Tampa, Fla.
 OWNER: Mr. and Mrs. Allen W. Logan
 LOCATION: Tampa, Fla.



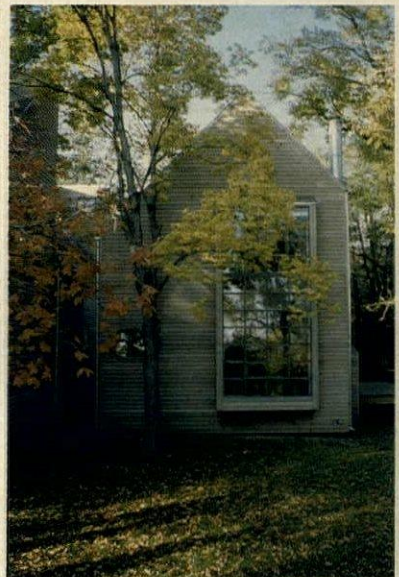
House on stilts (photo above left) is well-suited to its semitropical location. The stilts—actually 10-in. by 10-in. pressure-treated wood poles—hold the house above the path of high water, a necessity since it's in a flood-plain next to a tidal estuary. But there are energy-saving benefits as well: Being 8 ft. above the ground allows the homeowners to make the most of prevailing breezes blowing over low trees. To promote cross-ventilation, the main living areas are designed as one large, high-ceilinged room running from the front of the house to the back (photos left and above left). This arrangement also makes entertaining easy, as do the spacious decks which adjoin both living room and kitchen. Old-time central Florida homes were the inspiration for the steeply pitched roof with generous overhangs—a practical choice since the roof sheds water during frequent heavy rainstorms while the overhangs shade windows and exterior walls on sunny summer days. Parking and a utility room are located in the area beneath the elevated house.


PHOTOS: GORDON H. SCHENCK, JR.



BASEMENT 0 5 10 FT

In-town house is one of ten recently built on a bypassed urban site—1.4 acres of hilltop in Omaha, Neb. The ten homes—and a 50-year-old existing house—are clustered around a common auto court (illustration above left; photo above). They also have a lot in common visually, since architectural guidelines required that the new custom-built homes have a family resemblance. Thus, the cedar lap siding and steeply pitched, asphalt-shingled roof which relate the Bowen house to its neighbors (photo above). Inside, the house seems unexpectedly spacious—its tall, narrow shape creates the opportunity for exciting high-ceilinged spaces. Only the bathrooms and bedrooms are walled off. Public spaces, such as the upstairs family room pictured at right, can be seen from other living areas. The open feeling is enhanced by infusions of natural light. For, as well as standard windows, there are skylights (not shown) and a large, industrial-sash steel window (photo far right) which frames a dramatic view of the city.

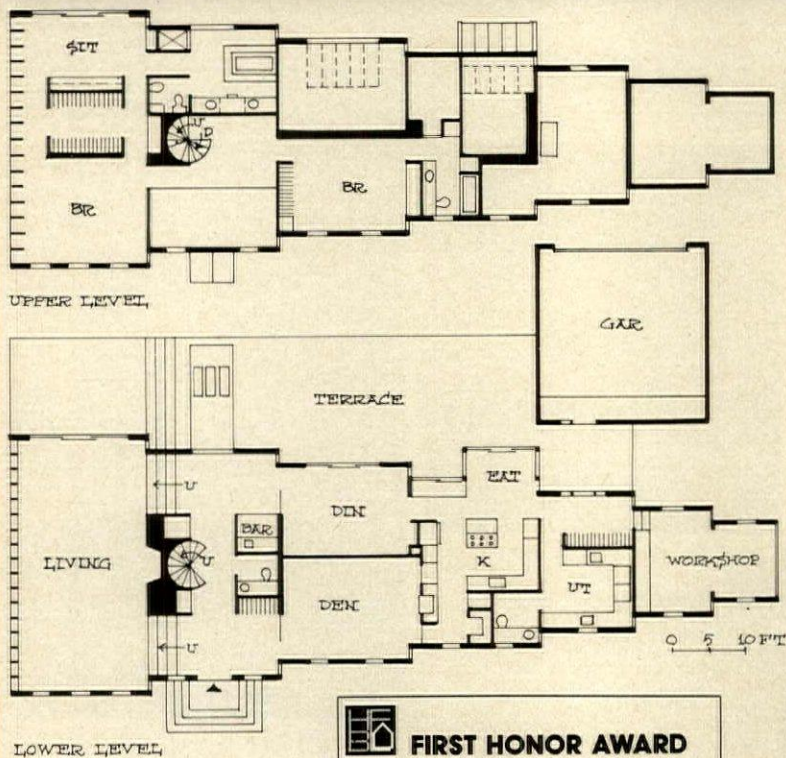
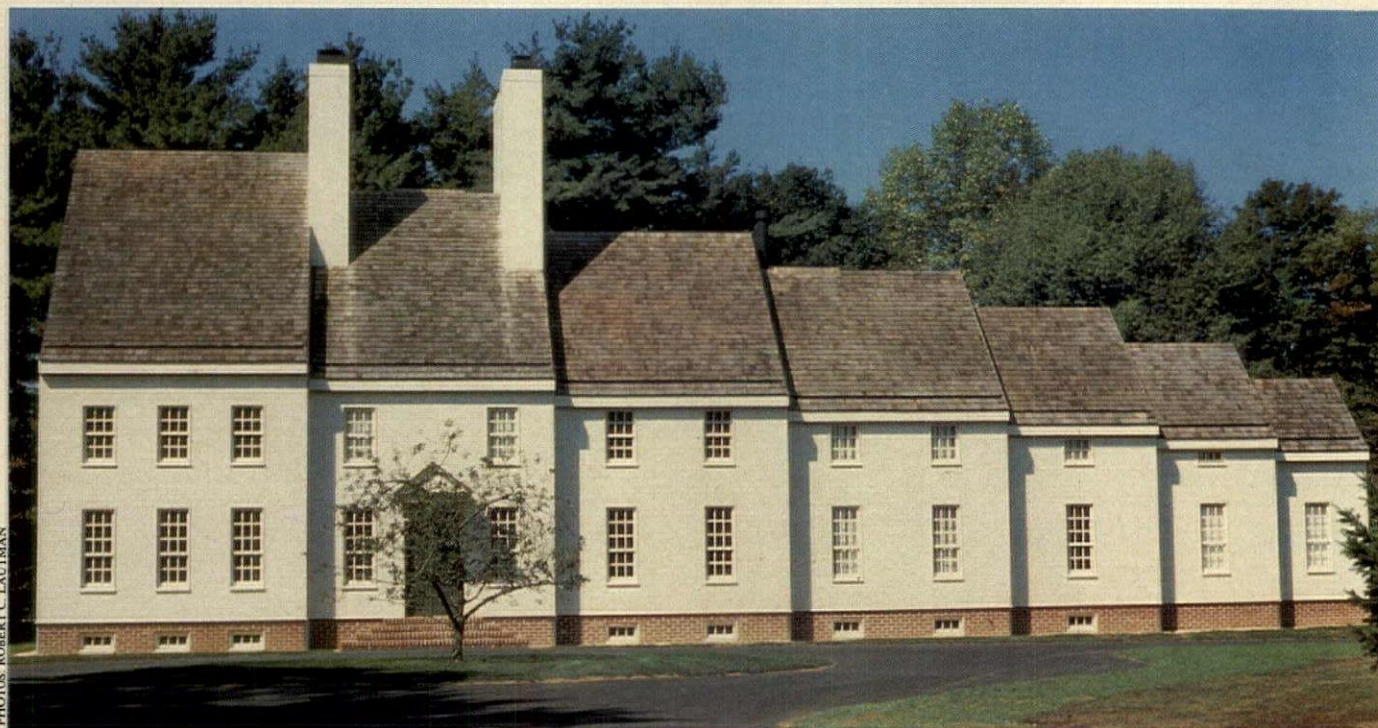


 **AWARD OF MERIT**
 ARCHITECT: Bahr Vermeer & Haecker Architects Ltd., Omaha, Neb.
 BUILDER: Gary Bowen, Omaha, Neb.
 OWNER: Mr. and Mrs. Gary Bowen
 LOCATION: Omaha, Neb.

JOSHUA FREIWALD

PHOTOS: PHOTOGRAPHERS ASSOCIATED

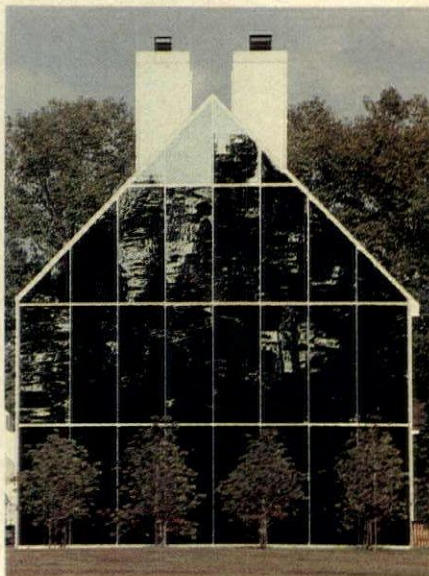
PHOTOS: ROBERT C. LAUTMAN



FIRST HONOR AWARD

ARCHITECT: Hugh Newell Jacobsen, F.A.I.A.,
Washington, D.C.
BUILDER: Buckwalter Construction Co.,
Lancaster, Pa.
OWNER: Name withheld
LOCATION: Lancaster, Pa.

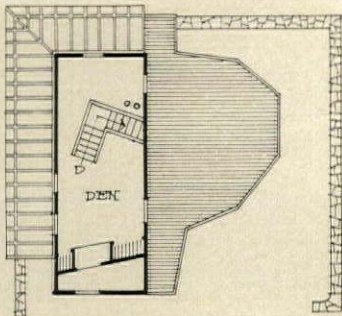
'Telescope' house mimics the eighteenth-century farmhouses of central Pennsylvania: Their owners progressively added rooms as families grew. This traditional theme was chosen to blend the custom home into a neighborhood of period houses. But its demure appearance is deceiving: Dramatic contemporary touches dominate all but the street side of the house. The largest gable end, for example, is walled with reflective glass (photo below) and the spaces between each section of the house and its smaller "neighbor" are filled in with ground-to-roof-ridge slit windows. The interior (not pictured) also reflects twentieth-century preferences: It's characterized by stark white walls, cathedral ceilings and contemporary detailing, such as a white-painted metal banister.



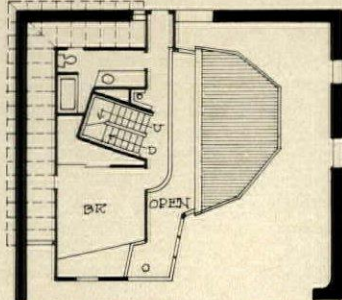


FIRST HONOR AWARD

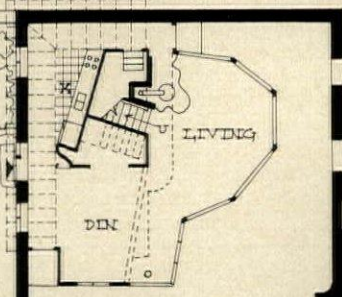
ARCHITECT: Bohlin Powell Larkin Cywinski,
Wilkes-Barre, Pa.
BUILDER: Grant Benham, Glen Mills, Pa.
OWNER: Norman Gaffney
LOCATION: Coatesville, Pa.



THIRD LEVEL



SECOND LEVEL



FIRST LEVEL

0 5 10 FT



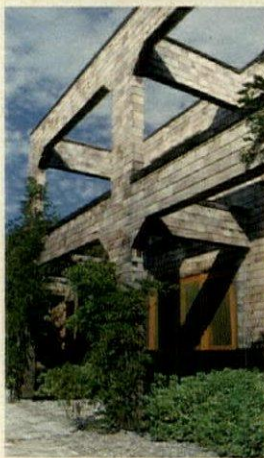
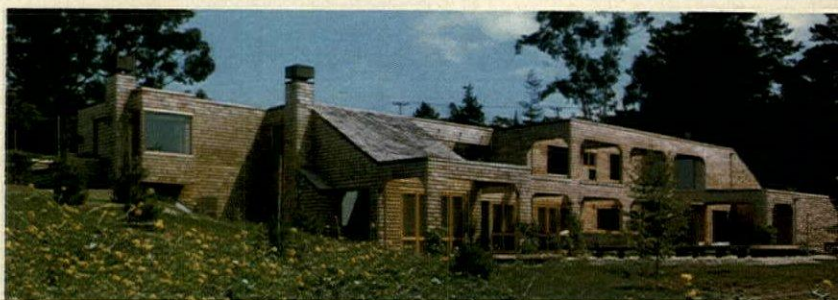
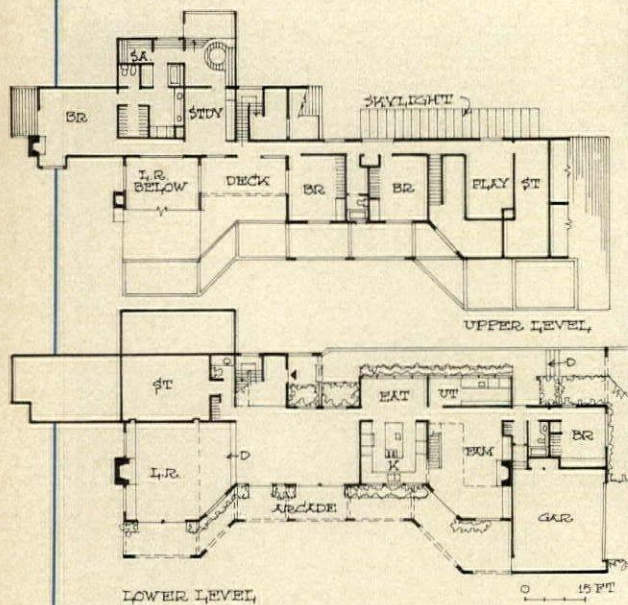
PHOTOS: JOSEPH MOLLITOR

Rural bachelor's quarters is sited within the foundation of a burned barn (plan above left). At the south and east, the house is set back from the barn's stone walls, creating a private grassy enclosure (photo above). What's more, there are views of a meadow and a woods through existing slots in the old barn's foundation and over the low stone walls which enclosed the barn's courtyard (photo left). At the west and north, the building is closer to the old foundation. In fact, the old rough stone walls are tied to the home by means of a sloping glass roof. This 4-ft.-wide skylit area serves as a foyer (a front door was installed in an opening in the stone wall) and as hallway between dining room and kitchen. Though not a working farmhouse, the home's profile, wood siding and red roof echo the look of local farm buildings. But its proportions are smaller—the 1,430-sq.-ft. home is only 13-ft. wide at the third-story level.



AWARD OF MERIT

ARCHITECT: Fisher-Friedman Associates
 BUILDER: Vintage Construction Co.
 OWNER: Name withheld
 LOCATION: Santa Clara County, Calif.



PHOTOS: PHOTO/STEPHENSON

Hillside residence is set into a gentle slope. Main living areas are on the downhill side (photo above) and overlook a creek running through the one-acre site. The eye-catching arbors on this side of the home are designed to screen it from late afternoon sun and to create a pleasant shady area for outdoor activities. Climbing vines have been planted which will soften the lines of the arbors and blend the house even more with the grassy slope. The impression that the rambling home is part of the hillside will be further strengthened as the cedar-shingled exterior darkens with time.

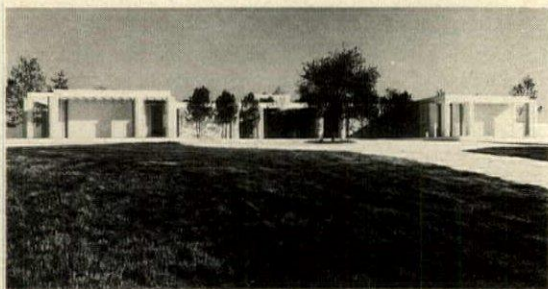
Bedrooms are located on the uphill side (plan left). The master suite (at far left in plan) is quite private. For one thing, it is well away from the street: The house is sited perpendicular to the road (note garage location). Furthermore, the master suite is located in the "adult" wing of the home: The entry divides the home into separate zones for children and parents. Thus, the master bedroom is above the formal living room and is well separated from the children's bedrooms located above the kitchen and family room.

The result in the words of the jurors, is a home that is "extremely livable."

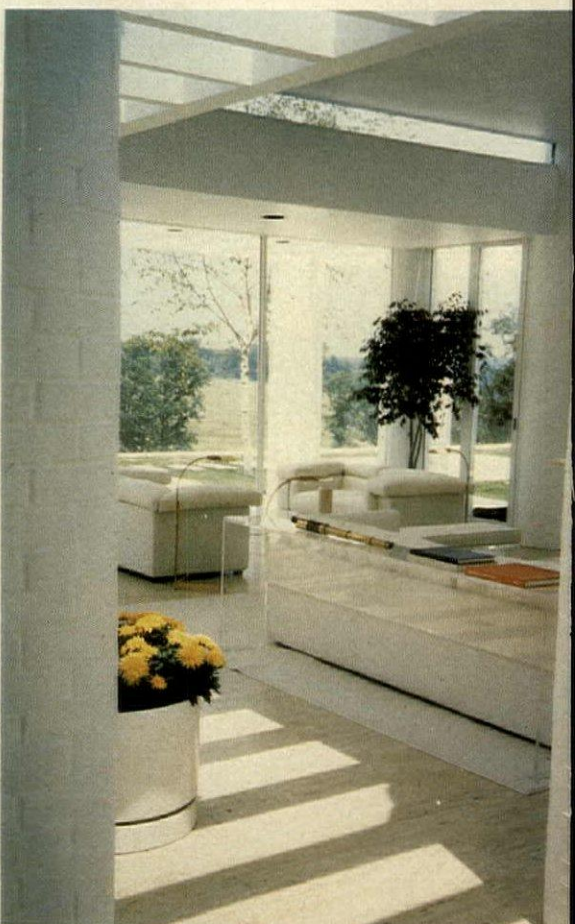


FIRST HONOR AWARD

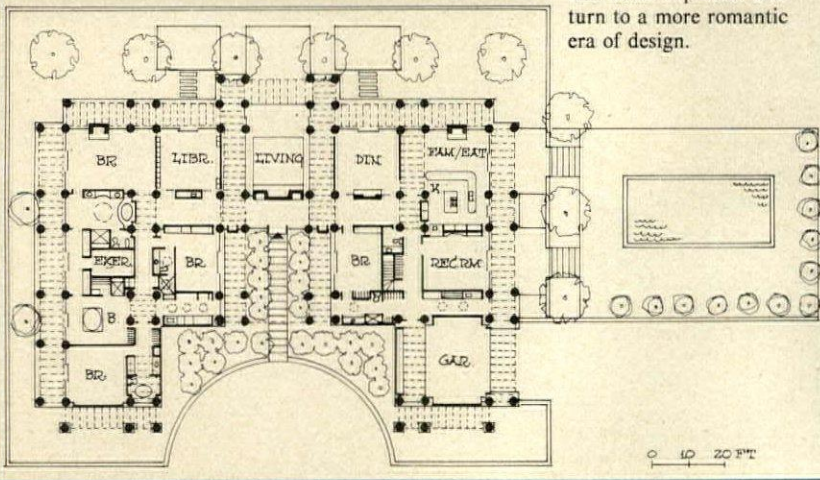
ARCHITECT: Hugh Newell Jacobsen, F.A.I.A., Washington, D.C.
 BUILDER: Name withheld
 OWNER: Name withheld
 LOCATION: Lexington, Ky.



Southern mansion sits atop a bluegrass-covered hill in the center of a 1,000-acre horse farm. The massive size of the home—it has 7,500 sq. ft. of living space—is visually reduced by restricting it to one story and by oversizing the columns that frame it. Those columns, reminiscent of Greek temples as well as of traditional antebellum mansions, are part of a sunscreen system, which shades the broad expanses of glass that wall the home (photo right). The jury felt this home expresses a return to a more romantic era of design.



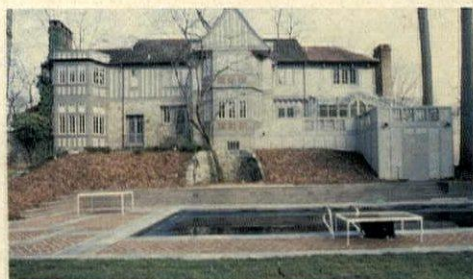
PHOTOS: © 1980 KNAPP COMMUNICATIONS CORPORATION courtesy Architectural Digest



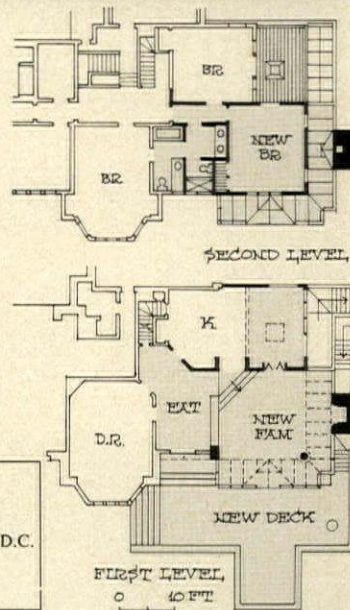


Glass-walled room (left) is part of an addition to an existing Tudor-style residence (photo right). The two-story extension, which includes a bedroom, two baths, a family room and a kitchen remodeling (plan right), is distinguishable from the rest of the house, but not distractingly so. The harmony is in part a result of careful matching of materials on the upper level of the addition. (The addition is at far right in photo.) But it's also due to careful attention to the proportions of the glass-walled lower level.

Inside, the new living area (left) has a contemporary flavor: It's a light-filled, open space, barely separated from the spacious deck. (The deck and a swimming pool seen in foreground of photo at top right are also new.)

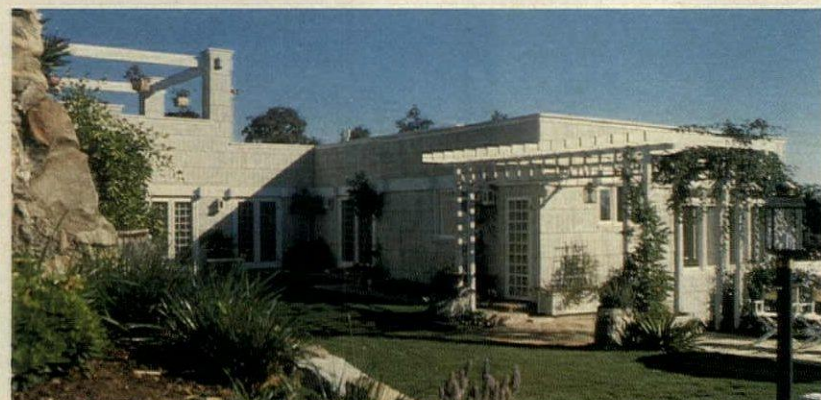


PHOTOS: WARREN COX



FIRST HONOR AWARD

ARCHITECT: Hartman-Cox Architects, Washington, D.C.
 BUILDER: E.A. Baker Co., Silver Spring, Md.
 OWNER: Name withheld
 LOCATION: Washington, D.C.



JOSHUA FREIHALD



AWARD OF MERIT

ARCHITECT: Goodwin B. Steinberg Associates, San Jose, Calif.
 RESTORER: Mr. and Mrs. M. Levine, Santa Cruz, Calif.
 CONTRACTOR: Wesley Otis, San Jose, Calif.
 OWNER: Mid-Peninsula Regional Park District, Calif.



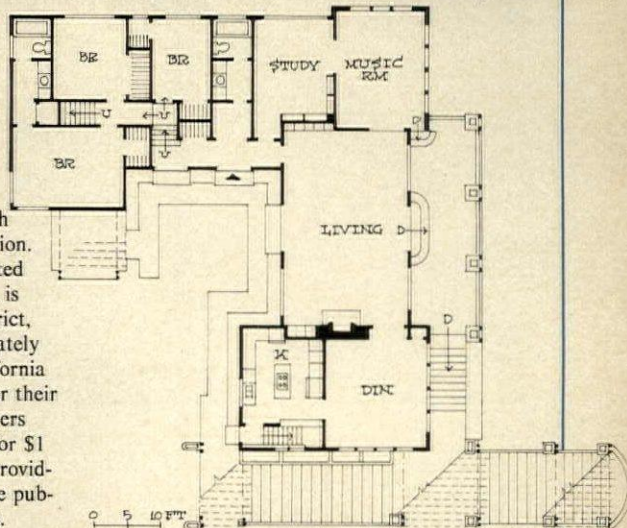
WILLIAM ZIEGLER

Restored home (above) was originally constructed in 1908. The flat-roofed residence, extremely modern-looking for its era, had been carefully sited and landscaped. Planter boxes, terraces, etc. extend from the house to a swimming pool added in the 1920s.

The house had been allowed to deteriorate badly (photo above right). At first, the architect wasn't certain the structure could be salvaged. Ultimately, restoration was possible and was aided by old photographs showing the house in mint condition. During renovation, particular attention

was given to the detailing, such as the trellis work pictured above, which gives the house its character. Floor plan alterations were limited to closet and bathroom adaptations such as compartmentalization.

The home, designated an historic landmark, is owned by a park district, but was restored privately under a state of California program. In return for their investment, the restorers may lease the home for \$1 a year for 25 years, providing they open it to the public at appointed times.



REHAB



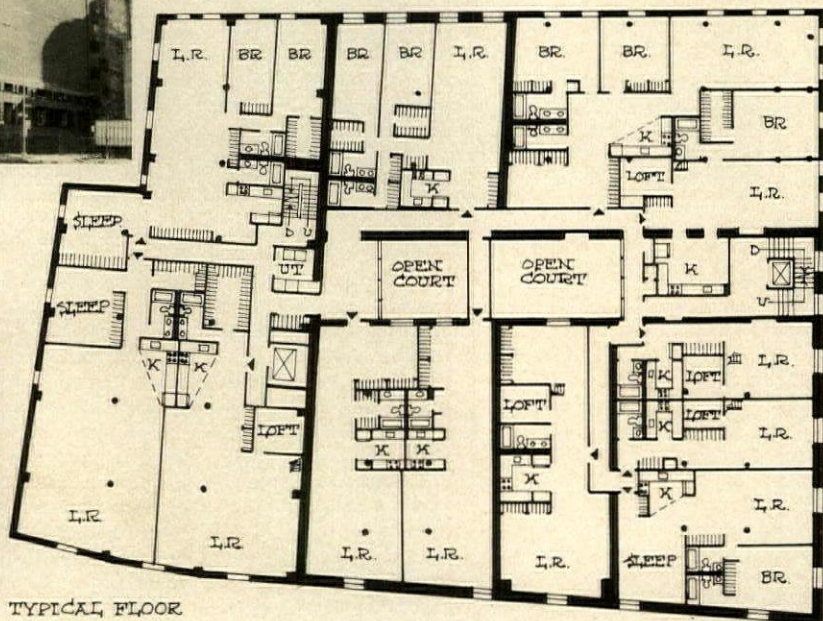
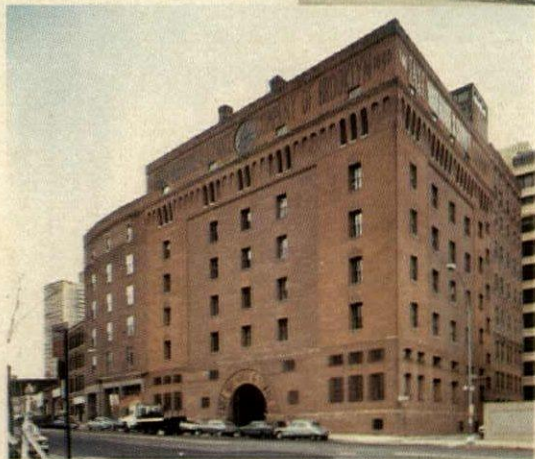
AWARD OF MERIT

PROJECT: The Bangor House, Bangor, Me.
 ARCHITECT: CBT/Childs Bertman Tseckares
 & Casentino Inc., Boston
 BUILDER/DEVELOPER: Myerson/Allen & Co., Boston

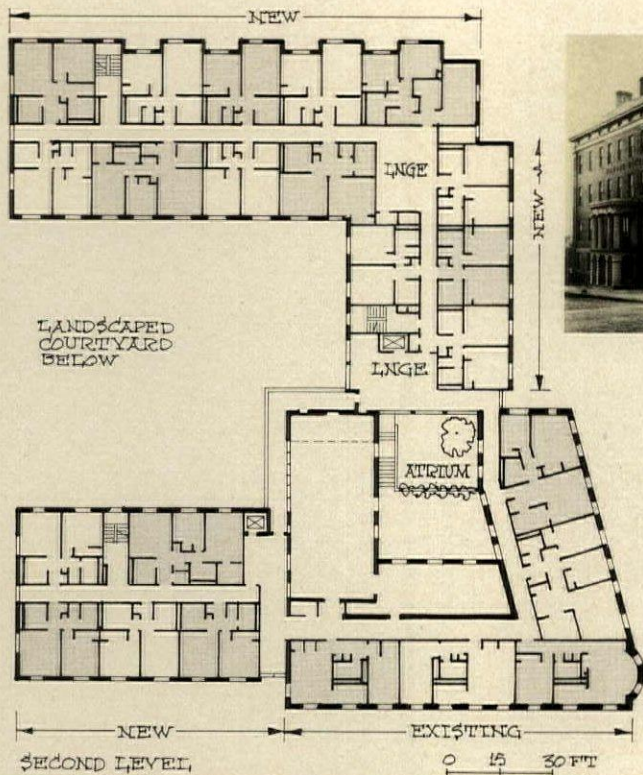
Housing for the elderly rarely provides so pleasant an amenity as the public space in this 121-unit Section 8 project. As the photo at left shows, lounges on several levels of the three-wing project overlook a skylit atrium, offering residents a choice of outdoor-like meeting places that are especially welcome when weather is inclement. And many other community facilities—a library and the arts-and-crafts rooms, for example—also look out on the multilevel space.

The atrium was created by enclosing a shaft that used to funnel light and air into a restored landmark that forms part of the project (*see plan right*). Two new wings, completing the project, wrap around a “protected” landscaped courtyard that overlooks a nearby river.

In restoring the landmark, it was necessary to undo a previous alteration—the addition of a fifth floor—which had resulted in the destruction of the original sloping roof and trim seen in the before photo on the facing page. The new wings were kept visually compatible with the existing building by facing them with matching brick. But the new structures are steel frame with concrete floors, while the older building has masonry bearing walls and wood frame flooring. Fourteen of the project's units are designed for handicapped residents.



TYPICAL FLOOR



PHOTOS: STEVE ROSENTHAL

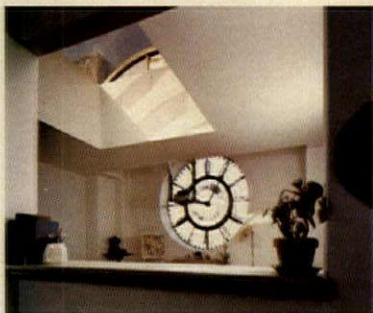


AWARD OF MERIT

PROJECT: The Eagle, Brooklyn, N.Y.
 ARCHITECT: Rothzeit Kaiserman & Thomson P.C., N.Y.C.
 BUILDER/DEVELOPER: Ben Fishbein, Brooklyn, N.Y.
 MECHANICAL ENGINEER: Mayer Associates, N.Y.C.
 STRUCTURAL WORK: Sadler Associates, N.Y.C.

Luxury rental units in a recycled landmark warehouse became feasible from a marketing standpoint only after extensive facade alterations were okayed by the Landmark Preservation Commission. The major change—adding extensive fenestration—was achieved by breaking through up to 36 inches of masonry in the almost blank west elevation (*see before photo, facing page*) and by adding and enlarging windows elsewhere. The windows were needed to assure dramatic views of the New York City skyline and/or Brooklyn Bridge from all 85 new units.

The existing building—actually three unrelated structures linked during previous alterations—had already undergone extensive structural changes before being listed as part of an historic district. For example, six floors were added to a three-story section, necessitating the insertion of load-bearing columns, which had to be retained in the recycling (*plan, facing page*). To supplement light and air, an open atrium was cut into the building. An 11-ft. clock, a reminder of the building's heritage, is incorporated into a top-floor window (*photo above*).



PHOTOS: JOHN PARSELIAN



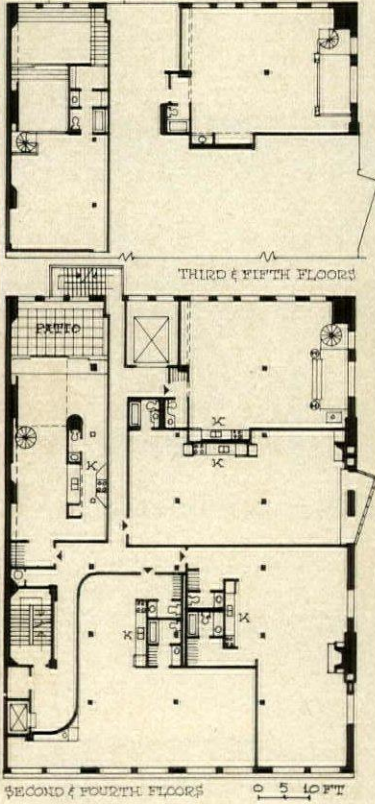


FIRST HONOR AWARD

PROJECT: Mergenthaler Linotype Lofts,
Chicago, Ill.
ARCHITECT: Ken Schroeder & Associates,
Chicago, Ill.
BUILDER/OWNER: Harper Realty/Bill Levy,
Chicago, Ill.



PHOTOS: RON GORDON/SADIN KARANT





FIRST HONOR AWARD

PROJECT: Fitzwater Factory Court, Philadelphia
ARCHITECT: Baker Rothschild Horn Blyth, Philadelphia
BUILDER/DEVELOPER: BRHB Developers, Philadelphia
LANDSCAPE ARCHITECT: Jack Larimore, Philadelphia

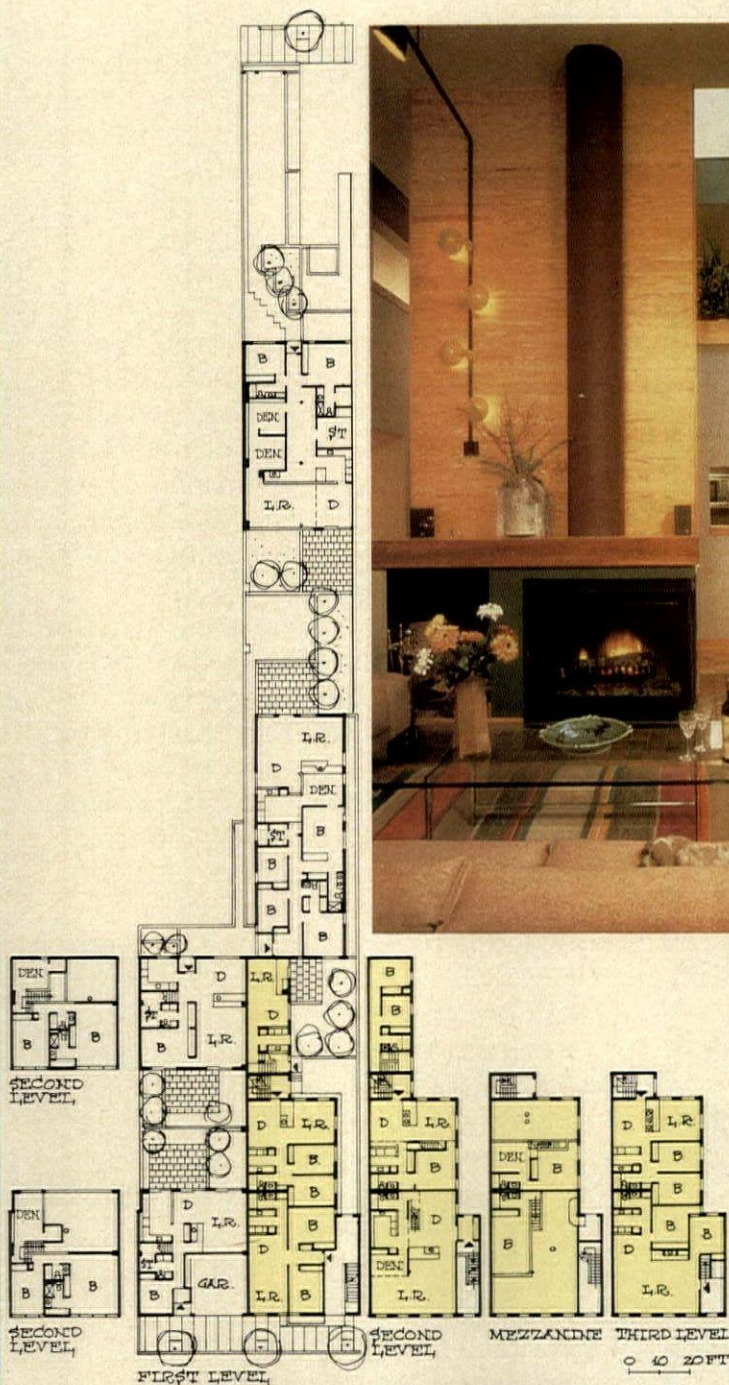
Flexible loft-type units, recycled from space in a former printing-shop building, feature open plans with only kitchens, baths and dressing areas in place.

The building's 21 flats and two-story units are laid out so that sleeping spaces are "indicated" in the "L" of the single-level plan or on the upper level of two-story units. Kitchens, as the layouts on the facing page indicate, seem to be free-floating.

Delivering "bare-bone" floor plans like these gives owners almost unlimited freedom to customize their 1,100- to 1,800-sq.-ft. units. They need only work around existing structural members. For example, in the unit shown at right, owners have installed a tiled, sunken conversation area.

That unit provides a showcase of the rich array of materials that can be retained to enhance recycled units: Brick walls, wood floors, load-bearing columns, industrial windows—all are highly valued by the kind of prospects who seek this type of unit.

Very little exterior change marks this recycling, which is in a National Register district. The major additions are bay windows, fashioned to match existing industrial sash. They provide owners with a broad view of a newly landscaped area behind the sign seen in the photo at the top of the facing page.

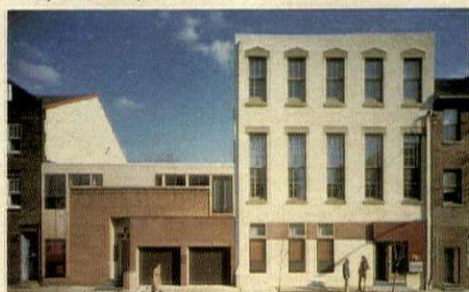


PHOTOS: TOM CRANE

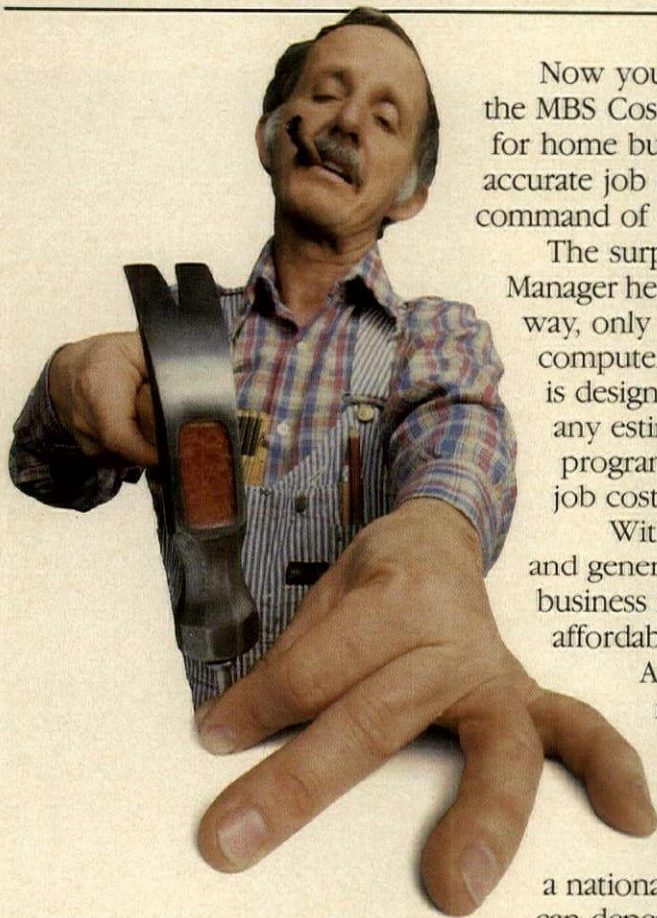
Recycled mattress factory, consisting of a three-story, loft-type building, a garage and a one-story structure, was recycled into a combination of one-of-a-kind for-sale and luxury rental housing.

The for-sale units—4 one- and two-story homes with gardens—were created from the former garage and one-story building. Seven rental units were constructed in the three-story building. (Floor plans for the rental units are shown in yellow at left.)

Two-level units—both rental and for-sale—feature two-story-high living and dining areas like the one shown above. In most units, the original steel framing and decorative cast-iron columns are incorporated into the new spaces. To keep costs as low as possible, standard equipment was specified.



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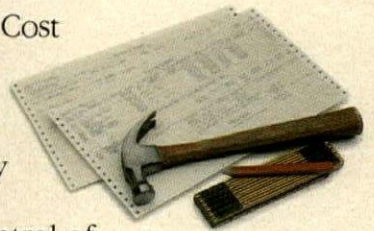
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SPECIAL
SECTION



COMPUTERS

A GUIDE FOR THE FIRST-TIME USER

The computer revolution is already being compared to the Industrial Revolution. Computers, some sociologists say, are changing our lifestyle dramatically. Nevertheless, only a handful of the country's homebuilders and remodelers—a mere 5% to 18%—use a computer system, although another 40% of those polled by HOUSING say they're on the brink of joining the revolution.

The problem is—what they see confuses them. The computer phenomenon sweeping the country is really an industry in flux. Companies with easily recognizable names share the field with people who operate out of their homes; one company's program won't work on another's equipment. Even terms take on different shades of meaning depending on who's speaking. The following 11 pages try to clear away some of the haze for those standing on the edge.

—FRAN J. DONEGAN

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Thinking of Buying a Computer? Here's What You Should Know

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A Guide Through The Computer Jargon Jungle

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Bringing the Computer Down to Earth

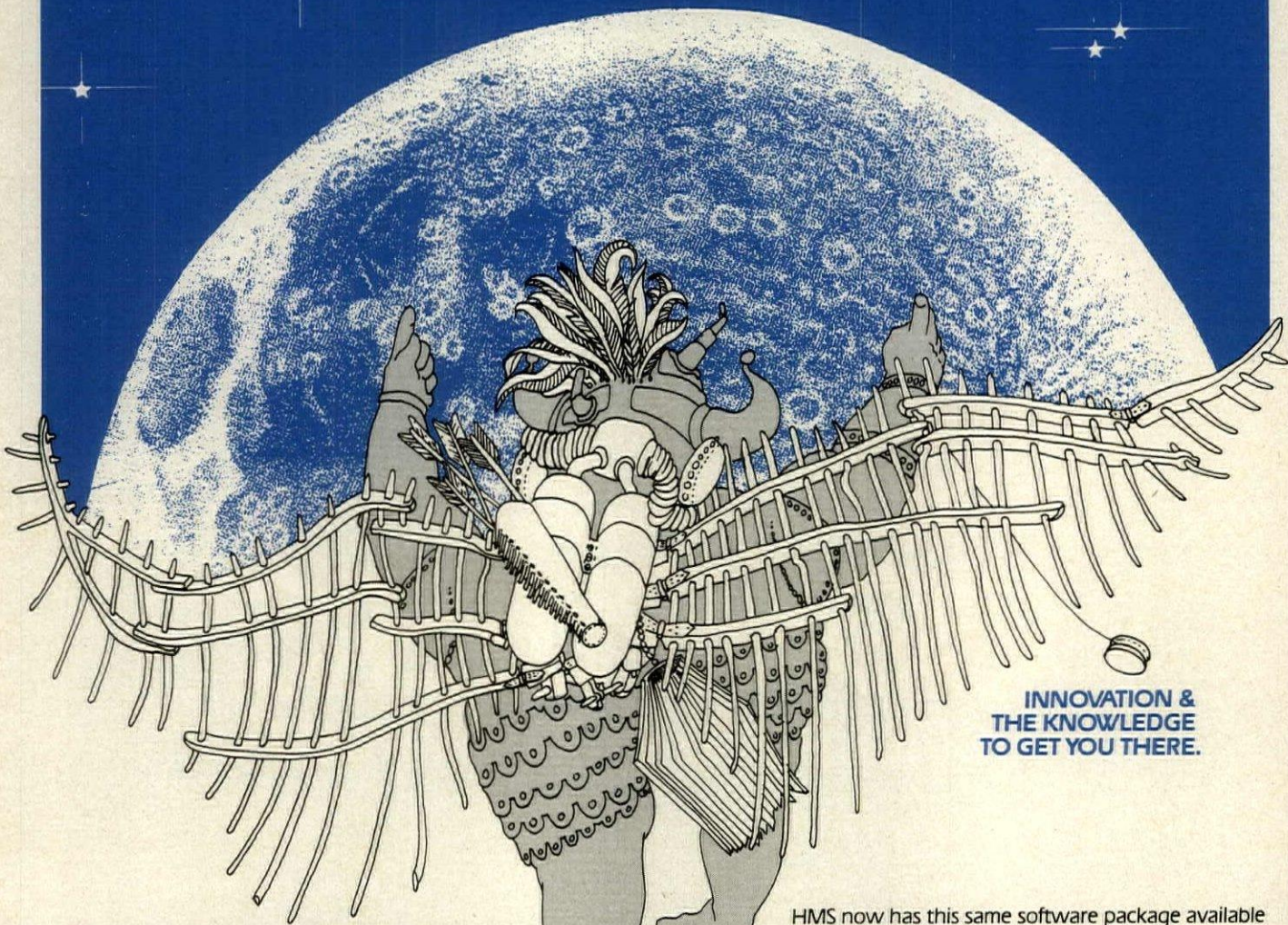
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Builder's Computer Log

86

Computers: Buy, Rent, Lease or Lease-Purchase?

JOB COST



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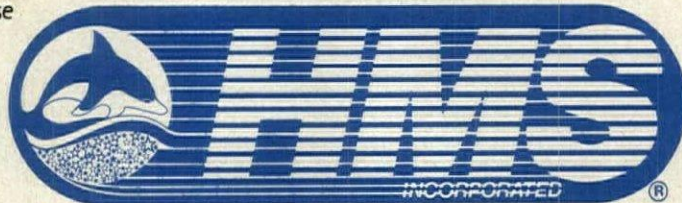
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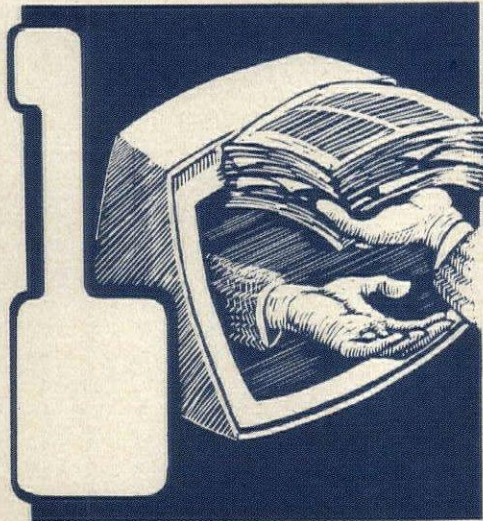
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Thinking of Buying A Computer? Here's What You Must Know

Computer enthusiasts like to point out that computers are really nothing more than tools. Of course, that is easy for them to say, since they've already gone through the learning process and the initial buying experience. But most people find it hard to think of a \$20,000 computer the same way they think of a \$10.98 pocket calculator. They're full of questions, not confidence when searching for their first system.

What follows are some of the questions a novice might ask. The answers have been supplied not only by computer experts, but also by builders and remodelers who have gone through the buying experience.



Why should I put my business on computer?

Maybe you shouldn't. While computers are becoming less and less expensive and more and more people are turning to them to help run their business, they are not for everyone.

By the same token, the procrastinator may be missing an opportunity to increase profits by running his operation more smoothly.

Unfortunately, there are no set boundaries that separate the companies that are ready for computers from those that are not. Needs vary from user to user. Builders have to keep track of things like the weather, cost of money, government regulations and subs on a day-to-day basis. They need immediate information on job costing and estimating. Property managers need up-to-the-day records on rents, dues collected, maintenance schedules and vacancies. Remodelers look for information on scheduling and inventory control.

Scott Sloan offers a rule of thumb to help companies decide if they are ready for a computer system. Sloan is a builder from Reston, Va. and chairman of the NAHB's data processing committee. He says a large building company needs a computer to increase its

management capability. If information is getting into the hands of company managers late or not at all, and this causes delays in making decisions, the company needs a computer.

Sloan feels smaller companies generally need computers for accurate estimating programs to develop more bids.

"I became interested in computers because of the estimating system," says Peter Donatelli of American Designs and Construction Co., Sewickley, Pa. "It used to take me 40 to 60 hours to develop a bid for one of our custom jobs. Now I can do one in 2½ to 3 hours, and I am sure that it is accurate."

Besides giving him a quick first bid, the estimating program allows Donatelli to make changes right in front of the customer.

Estimating and job costing are only part of what a computer can do. Many users have found that a system can solve other company-related problems.

"I went to computers because the turnover in bookkeepers was causing internal stress," says Robert Cooper of Cooper Exteriors, St. Louis, Mo. "Our company was growing rapidly and it took four to six months to train a new bookkeeper properly in all the accounting functions.

"I also realized that our manual system left a lot of room for error," Cooper continues. "We would have to make an entry for a certain job and then make the same entry in general ledger and another in inventory. Our computer system lets us make one entry to cover all the different categories, so there is less room for error."

A computer can help a builder get by with less personnel, which means that as the company grows he will not have to hire additional people to shoulder the load. People already on staff can turn to more creative work.

Bruce Franklin, president of Enterprise Computer Systems, Jacksonville, Fla., a firm that develops software packages for builders, points to some indirect benefits a computer offers.



A Guide Through the Computer Jargon Jungle

Acoustical coupler—A device that connects a phone line to a computer and converts data to sound waves. See Modem.

Application(s) software—A sequence of computer instructions that perform a specific function, such as job costing.

Auxiliary memory—Information that is kept on disks or tapes.

Batch processing—An input technique in which a group of data is processed after being collected over a period of time. This is compared to on-line updating.

Baud—A transmission speed given in bits per second (9600 baud is fast).

Bit—The smallest data unit with which a computer can deal. They can represent either a 0 or a 1 in the binary system.

Byte—A term that means eight bits of computer storage capacity. Generally interchangeable with "character."

CPU (central processing unit)—Portion of the computer that performs calculations and interprets and executes instructions.

CRT (cathode-ray tube)—A video screen that displays either information the user is inputting into the system or the computer's responses. Often used to refer to an entire unit that includes a keyboard.

Custom software—Computer instructions developed for a specific customer.

Data base—A group of stored information files that is treated as a unit.

Debugging—Finding and eliminating errors in the program or malfunctions in the hardware.

Disk—A flat round plate that is coated with a magnetic substance on which computer data is stored.

Disk drive—A mechanical device that allows for the reading and recording of data on a disk.

Documentation—Manuals that describe how to use and maintain software.

Enhancements—Improvements in software that are made available at an additional cost.

Field—An individual piece of data such as a subcontractor's name or address. A field is an item in a record.

File—A collection of related records. (A file is equivalent to a stack of papers, a record to one piece of paper in the stack, and a field to a fact on one piece of paper.)

File maintenance—To keep a file up to date by adding or deleting data.

Floppy disk—A small flexible disk used for storage. Available in either 5¼-in. or 8-in sizes, they cannot hold as much material as a hard disk.

Hard copy—Computer reports printed on paper.

Hard disk—A rigid magnetic disk used for storage. They can hold more data than a floppy disk and are more expensive.

Hardware—The actual computer and any related equipment such as printers and CRTs.

Input—Data the user enters into the computer.

Integration—Tying together software modules so information from one flows into another, reducing duplicate entries.

Interactive processing—A system that gives the user immediate feedback and allows him to set up a dialogue with the computer, which makes it possible to review and correct errors within seconds.

Interface—The connection of hardware devices to one another or of software modules to one another.

K—This is an abbreviation for 1,024 characters of information, although many people find it easier to round it off to 1,000 or a kilobyte of information.

Main memory—The part of the CPU that holds information presently being processed. Contrasted to auxiliary memory.

Maintenance—Servicing the hardware or software to keep it working and up to date.

Menu—A display on the CRT that lists the tasks the computer can perform.

Modem—A device that converts computer data into electrical impulses for transmission over phone lines. Faster than the acoustical coupler.

Module—A program that performs a specific function, such as accounts receivable. They can be combined to form a complete software system.

Non-interactive processing—The opposite of interactive processing.

OEM (Original Equipment Manufacturer)—An organization that provides a turnkey system consisting of hardware from one manufacturer and software from another source.

Off-line—Refers to equipment or devices such as storage disks not under direct control of the CPU.

On-line—Refers to equipment and devices that are under direct control of the CPU. Can also be said of a builder's business or a particular job that is on the computer.

On-line updating—The user processes every entry immediately as opposed to batch processing.

Output—Data that comes from the computer.

Password—A code word that allows the user access into the computer system.

Peripheral—Computer hardware other than the CPU.

Programs—See software.

Programmer—The person who writes the software.

Prompt—A message the computer sends to the user requesting information, giving directions or indicating an error.

RAM (random access memory)—The computer's ability to go directly to a piece of information in the system's storage medium rather than searching through all the data in sequence. Also refers to the part of the system's memory that can be changed by the user.

ROM (read only memory)—Computer instructions that come with the system and cannot be changed.

Record—A collection of related fields.

Sequential access—A method of searching through each piece of data in sequence until the desired information is found. It is usually the method used when tapes are the storage medium, and it is much slower than random access.

Service bureau—A company that runs programs for a client. The customer usually doesn't have any computer equipment on his premises.

Software—A set of instructions that tell the computer to accept data, process it and supply results. The software controls the hardware.

Storage media—This refers to the system's external devices such as disks and tapes that store data and programs.

Support—Services provided by software vendor provides operator training, enhancements and ongoing maintenance. The hardware manufacturer provides service for the equipment.

System software—Instructions that control the internal operations of the computer, such as the translation of input into a form the CPU can understand.

Terminal—Hardware that allows for the input and output of data, such as a keyboard and a CRT.

Time-sharing—A process where users lease space on a large computer at a different location. The user's terminal is connected to the main system via telephone lines.

Turnkey system—An entire computer system, including both hardware and software, that is supplied by one vendor. There is also turnkey software that is ready to function as soon as it is installed. It meets the needs of many users as opposed to custom software.

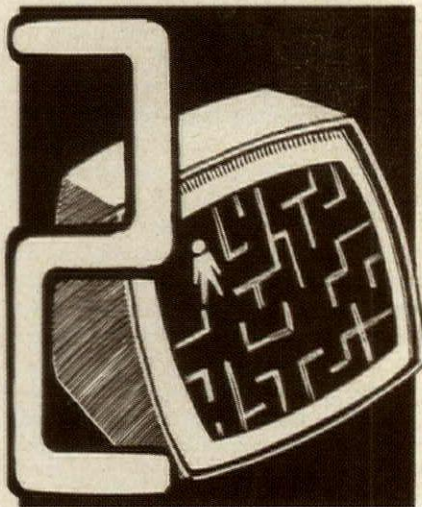
Utility routine—Software that performs repetitive tasks.

"There are benefits to altering an accounting system to put it on computer," he says. "It helps the user see mistakes or waste that may not have shown up on the old system." A computerized company appears more professional than a company that uses a manual system. It may not be true, but to the general public, that is how it looks.

A computer system offers a degree of security that a manual system can't. Computer records are stored on tape or disks that can easily be duplicated and kept at another location to protect against fire or theft.

On the other hand, though a computer can solve a lot of a company's problems, it can also cause problems. Computers are not in the miracle business; they will just aggravate problems that already exist by giving the wrong answer faster than the old system.

"A computer will not solve problems for people who still keep their records in a shoe box," says Howard Bing of The Office Manager, Inc., a Seattle-based software vendor that features a package for builders.



How do I get started?

Decide what you need and then find the program—the software—that meets those needs. To many this sounds like buying the system backwards, since most people tend to purchase the hardware first and then the application software. But all programs do not run on all computers. It is possible, and in fact common, for a company that buys hardware to dis-

cover that the program it needs cannot run on that equipment.

The hardware does the actual work, but the software controls the system (see *Bringing Computers Down to Earth* page 82) and should dictate the type of equipment the company needs.

"I'm amazed at the number of people who purchase a computer system based on the bells and whistles of the equipment," says Ron Hintz, systems consultant for Pulte Homes, W. Bloomfield, Mich.

Most computer experts suggest that top management of the company become involved with the project from the beginning. This will tell them what a computer can and cannot do, and it will give them some idea of how long it is going to take to put the company on line.

When it comes down to selecting the programs, a user has a number of options open to him: He can write his own programs, have someone design an application system for the company, or he can buy turnkey or prepackaged software.

If designing an application system, a builder has to remember that the information he wants to store has to fit in a finite space. For instance, if developing a list of 1,000 names, the programmer will have to remember there might be 200 characters with each listing: name, address, phone number, market designation, profession, etc. He'll need room to store 200K of material.

But if he wants to work with the list, say have the computer put it in alphabetical order or arrange it by zip code, he'll require room on the program to work. He may need as much as three times more space, according to Richard Van Auken of the Information Technology Center in New York City. The center is a non-affiliated clearing house for all types of computer information.

Most builders, however, do not write their own programs. They either have software designed for them or they purchase a turnkey system.

In either case, they should make sure that the program matches their need and is easy enough for a non-computer person to operate.

"Our philosophy has always been that the builder doesn't want to become a data processing expert, he

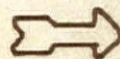
just wants another tool," says Bruce Franklin. "The software should be compatible with the way he does business now. The user should consider things like entering invoices into the system. Does he have to enter invoices from his subs on a daily basis, when in the past he found it easier to deal with all that at the end of the week? The system should suit him." For more information on what to look for in prepackaged software see the box on page 80.

Charlottesville, Va. builder Bob Humphrey is a good example of a builder who found what he needs in a computer system. He put only part of his company, Historyland Homes of Virginia, on line. All of his financial material, such as his general ledger and job costing, is handled by his accountant, who incidently has his own computer. Humphrey's system is used only for estimating. When he was thinking about going to computer a year and a half ago, he realized he didn't have to put his whole company's operations on a system to make it a worthwhile investment.

The best place to get information on a particular software package, or for that matter any component of a system, is from other builders.

"Builders usually make one of two mistakes when investing in a system, depending on where they are in the selection process," says Scott Sloan. "If they are trying to decide if they want one or not, they decide it is too much trouble and bypass computers altogether. But if they decide they need one, they go right to the vendor and ask about the system, instead of checking with other builders."

Estimating and accounting packages are probably the most popular applications builders use. But some users have grown a little more creative with their systems. Remodeler Robert Cooper uses his system for tracking leads through the sales process. He can tell which advertising medium generated the lead and if it ended in a contract or rejection. With this information, he sets his advertising priorities and checks on his salesmen.



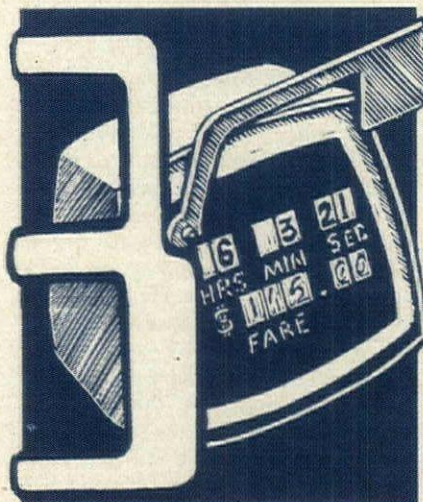
'Once a builder gets used to computers through time-sharing, he may be ready to buy his own system.'

—Forbes

Look for these features on all software*

- English-language operator prompts that are simple and easy to understand.
- An audit trail. Transactions should be easy to trace through the system when searching for human or machine errors.
- Menu-Driven. A simple list should display all your options. You should be able to exit to the menu at any time to see a list of available commands.
- A report generator. With this feature users can create new reports without hiring a programmer to make the changes. The operator simply specifies headings, descriptions, totals and sub-totals, etc. to define the new report. A report generator will increase the usefulness of any program, and extend its lifespan as well, since it gives users the ability to modify the output to meet changing conditions and needs.
- Strong documentation. Don't be satisfied with a one-time training course from the vendor. At some time down the road you will want to train new operators, and the documentation will become very important. Look for an overview that spells out the program, an instruction section that takes the user step-by-step through the process, a technical section with source code so the program can be modified and an index for quick reference. And insist on adequate explanation of error messages. If the documentation doesn't explain how to correct mistakes you are in for certain frustration.
- Error-trapped entry. The program should use the power of the computer to minimize the chances for human error. It should refuse to accept input that is obviously wrong (e.g. a four digit zip code).
- Integrated. A single entry to the program should automatically update all files. For example, when an order comes in, a single entry should (1) reduce the inventory file, (2) post to accounts receivable, (3) post to general ledger, (4) create a sales tax record, (5) be recorded in the salesperson's commission file and so on.

* Reprinted with permission of the Association of Computer Users from the Small Computer Section Newsletter. For more information and a copy of the article "How to Avoid the Pitfalls of Packaged Programs For Small Computers" write to the Association at P.O. Box 9003, Boulder, Colo. 80301.



Must I buy or lease a system?

There are two other options. A builder or remodeler can get computer-type benefits through a service bureau or by time-sharing.

A service bureau receives information from a user, processes it on its computers and then returns the results. The bureau will usually supply the user with standard forms to record the information or, in some cases, the builder or remodeler can develop his own method of recording data.

There is usually a time lag before the builder gets the results in his hands. And if there is a mistake, the user has to send the material back to the bureau to have it processed again.

"I considered a service bureau," says Donatelli, "but I ended up buying a system because I liked the idea of having my own system in my office. Nobody can take my information. My software is locked in my safe."

Because it has more sophisticated systems, a service bureau can often offer certain applications an ordinary computer system cannot handle. Builder Jim Forbes of Bellevue, Wash. [HOUSING, Nov., 1980] has started a service bureau called Decision Support Corp. for builders who want to keep track of certain projects. The company offers a critical path program. This is a list of tasks in a project, the time frame and priority of each task. This information is compared to a calendar. The program shows a builder or developer what parts of a project are on or behind schedule, and how it will affect

the overall project. Forbes believes the service can help anyone involved with a project that is worth \$500,000 or more. And, he says, a mini or micro computer can not accommodate the critical path program.

Another way a builder can gain access to a computer system is to rent time from a large computer at another location. This is called time-sharing. The company keeps one or more terminals, which it rents, at its office and has them hooked up to a large system via telephone lines.

"Once a builder gets used to a computer through time-sharing, he may be ready to buy his own system at a later date," says Forbes, who offers time-sharing as well as the service bureau. "There is a point where it is more expensive to time-share than to buy a system, but right now it is difficult to expect a builder to invest in a computer system. With time-sharing he can get organized and be ready for the next wave of building."

Critics, however, see a few flaws in the time-sharing scheme. For one thing, all of a company's financial records are in the hands of someone who is not part of the company.

Also, costs tend to multiply quickly. Users are generally charged by the terminal. If one terminal costs \$800 a month and another is added, costs double. Forbes says the first terminal, complete with hookup and training, costs a little under \$1,000.

"We started with time-sharing but quit for a number of reasons," says Robert Cooper. "The response time over the phone linkage was too slow for me. And when there was a mistake, it was too difficult to correct. We would have to correct it on our end, then they would have to do the same thing at the main location. It was too much of a hassle."



Where do I buy a computer system?

Before the small computer revolution, most systems were marketed directly to the user. A computer company sent a salesman to a potential customer and vied for his business. Large manufacturers had a three-piece-suit approach to sales: They talked to the customers' data processing staffs and designed systems around the information they were given. But needs are different now.

A computer company cannot wine and dine the number of people who are interested in computers—they can't justify the cost against the lower price tags on newer systems, either. They also need people who can roll up their sleeves and help the inexperienced buyer. Thus more and more computers are being sold through new types of outlets: computer stores, software specialists, and OEMs (a vendor that supplies a turnkey system consisting of hardware and software).

Companies like IBM, Xerox and Digital have opened stores that feature their equipment and the applications that run on the hardware. Other stores sell equipment from a variety of manufacturers. Some software specialist and OEMs have packages designed specifically for the homebuilder.

In the future, computer outlets will be popping up in more and more places. Stereo stores, office equipment retailers, department stores and even bookstores will all feature computers and software. Most of these products, however, will be geared toward person-

al and not business uses.

No matter where the system is purchased, the buyer should ask for references from similar users before signing a contract. Questions to ask: How does the software fill the company's needs? Is the equipment easy to work on? How complete was the in-the-office training? How does the manufacturer support its equipment?

Few people purchase or lease a computer and then never have a question about the program or a problem with the hardware. Some stores provide service and maintenance, and many OEMs and software vendors have licensing agreements with people across the country to service their products.

When it comes to hardware, "I'm skeptical anytime a dealer or OEM says they will perform the service," says Robert Cooper. "I think it is best to make sure the manufacturer provides the service."

The rule of thumb: When buying from a company that is not local, make sure national support is part of the agreement.



What will I have to spend?

A lot of money and a lot of time. That is what it takes to make a computer system an integral part of a builder's business.

The NAHB used to say forget about any system that did not cost at least \$15,000. That will change.

Hardware costs are coming down and they will continue to do so. IBM

recently entered its smallest system in the micro computer marketplace. The stripped down version retails for about \$1,500 but is designed for use in the home, a builder will have to spend about \$5,000 or \$6,000—for additional storage disks, CRTs and printers—before the new computer is of any use to his business. The system, should be sophisticated enough to fill the 60-to-100-house-a-year builder's needs.

Most builders pay between \$10,000 and \$100,000. The personal machines on the market, which some builders find are suited to their needs, retail for \$7,000 or \$8,000. When a builder adds in the cost of software, which in some cases can be 30% to 60% of the cost of the hardware, additional disk systems, printers, etc., the price goes up.

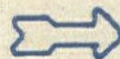
Pete Donatelli spent \$12,000 for his Radio Shack hardware and estimating program. Tom Divine (*see Builder's Log p. 84*) spent \$25,000 for his mini computer system. But that was two years ago. The newer IBM hardware is less expensive than the equipment Divine purchased.

Whatever system a builder decides on, it should be able to economically justify itself. Bruce Franklin has broken down the cost of a system consisting of an IBM 5120 and an applications package of job costing and general ledger and compared it against the cost of a bookkeeper.

The computer, including interest, insurance, maintenance, supplies, and the cost of a builder's time, costs \$29,338.20 over a five-year period. That is \$488.97 a month. The original hardware costs \$13,500 and the program costs \$3,900.

A bookkeeper earning \$5.00 an hour who receives a 6% raise a year will cost \$83,208.58 over five years. That is \$1,386.81 a month. Those statistics include social security, employee compensation, taxes, training costs and turnover costs, but they do not include pension plan contributions, medical insurance and other fringe benefits.

When considering the cost of a computer, a builder should plan on keeping the system at least five years, says Bruce Franklin.



Bringing The Computer Down to Earth

New systems hit the market every year, but most manufacturers will provide support for their equipment for at least ten years. And Franklin says it is difficult to justify the cost of a system when it will be used for less than three years. After five years, the usual time it takes the equipment to depreciate, the technology will be far enough advanced to justify a new investment.

Most people agree that a system should allow a builder to expand his business and still keep it on the computer. Standard advice is to make sure that there is room to grow. However, Scott Sloan feels people spend too much time worrying about growth. He says if a business is going to increase its volume by 100%, then the user should keep an expandable system in mind. But he also says "There are so many computers on the market for such a low price that the first system can be used as a learning tool. Builders can experiment with it, and then use the experience when buying a larger system."

Sloan goes on to say that the original computer can be used for other things, such as in another office or in the owner's home.

Besides spending money, the builder will also be devoting a lot of time to researching and making the transition to a computer system. Again it all depends on the type of program he purchases and how his company is set up in the first place.

"But even a company that is fairly well organized should expect to spend three or four months to get up on computer," says Howard Bing.

It took Tom Divine about three months to get accounting and estimating in sync with his business. Pete Donatelli says he spent 100 man hours putting his company's information into his estimating program. He did the work himself without a background in computers. Scott Sloan suggests hiring a programmer for the initial start-up stage.

The important thing is not to rush the transition period. Ron Hintz says that when working on Pulte's system that will be used by all 16 of its operating divisions, it took them nine months just to define what they wanted the system to do. They approached the transition period "one division at a time."

The space shuttle would never have lifted off without the help of computers. Columbia had five on board to guide it through takeoff, maneuvers in orbit and a landing in the California desert. But malfunctions in those five computers also helped delay the original liftoff date.

That says something about computers: They are amazing, but they are not perfect. Actually, they are just sophisticated tools, devices that are only as good as the people who operate them. Like any tool they break down, need maintenance and perform correctly only in the hands of someone who knows how to use them.

To the uninitiated, however, computers are shrouded in mystery. They are frightening: frightfully expensive, powerful and complicated. A builder who routinely fights a battle of nerves with lenders and code officials, and who is willing to risk everything on one project, may be intimidated by a computer terminal.

The following is a peek into the mystery, a quick overview of a computer's functions. It isn't the only instruction a neophyte will need, but it is a start.

Computer systems perform these four functions.

1 *They compute.* A device called a central processing unit (CPU) adds, subtracts, multiplies, divides and evaluates material. It can interpret and execute instructions. The CPU contains thousands of circuits that are either conductors or nonconductors. In other words, they are either on or off, or they can answer a question yes or no. This arrangement corresponds to the binary system, a method of using two digits, 1 and 0, to write all numbers. For example, seven would be 0111. There is also a method to use the binary system to write letters. Builders don't have to learn the system: The computer does the translation.

2 *They receive information from the user.* This is referred to as input and means the operator can put data into the processing system or ask it a question. Today, the most common way a user enters a system is through a keyboard, like the kind on an electric typewriter. In the past, operators used punch cards and tape. Some research-

ers are now meeting with some success in perfecting voice input, but the state of the art is still the keyboard.

3 *They produce information.* This is called output. A builder can get the answer to a question or retrieve information that is in the system by seeing it displayed on a CRT (cathode-ray tube). The CRT is like the picture tube on a television set. In fact, some personal computers are designed to work with a conventional television set. If the user wants a permanent, written copy of the information on the screen, the system can transfer it to a high-speed printer that makes up part of many computer systems.

4 *They remember information.* The data a computer handles has to exist in a given space. The smallest information unit is called a bit. Since they are so small, they are lumped together in groups of eight called bytes. The more bytes in a computer memory, the more powerful the system.

There are two types of memory: main and auxiliary.

Main memory is activated by turning the computer on. Some information, called Read Only Memory (ROM) in some models is part of the computer system. The CPU can read it but it cannot change it. The other type of main memory is called Random Access Memory (RAM), which the CPU can change.

Users store additional information in the auxiliary memory, usually on disks, but magnetic tapes are also used. When the disk is placed in the computer, its information becomes part of the system's main memory.

Two types of disks are used for storage: hard and floppy. Hard disks can hold over five million bytes of information, floppy disks, which come in either 5 1/4-in. or 8-in. sizes, can hold up to a million. The amount of information any disk can hold will vary from manufacturer to manufacturer because some write the characters closer together than others.

At the heart of the system is the program, known as the software, which tells the hardware how to accomplish its tasks. A program asks the user to type certain information into the system, then tells the CPU to search out a piece of data in memory

and compute it, and finally instructs the system to flash the answer on the screen.

Programs have their own language. Over the years, a number of computer languages have developed to solve specific problems. FORTRAN (formula translator) turns scientific formulas into language the computer can understand. There is a different language for mathematics, one for business and even one for beginners called BASIC (Beginners All-purpose Symbolic Instruction Code). However, pre-packaged software usually features English-language prompts: The system asks and the user answers questions in English, so there is no need to learn a special language.

Computers come in different sizes, price ranges and are even called by different names. Depending on whom you talk to, there are mainframe, large, mini, midi, and micro. The boundaries between these types blur as

you go from one computer expert to another. But there is a short guide to what is available on the market.

Mainframe, or Large: These are the computer systems an airline uses to keep track of reservations. They cost \$200,000 and up and can be used by a large number of people at one time. They can store trillions of pieces of information.

Mini: Sometimes called midi, these systems start at about \$15,000 to \$20,000 and can be used by 4 to 16 people at once. Storage memory is measured in the millions.

Micro: These are the personal computers, used by only one person at a time. While some systems can cost as little as \$250, the ones that can handle a builder's business start at \$7,000.

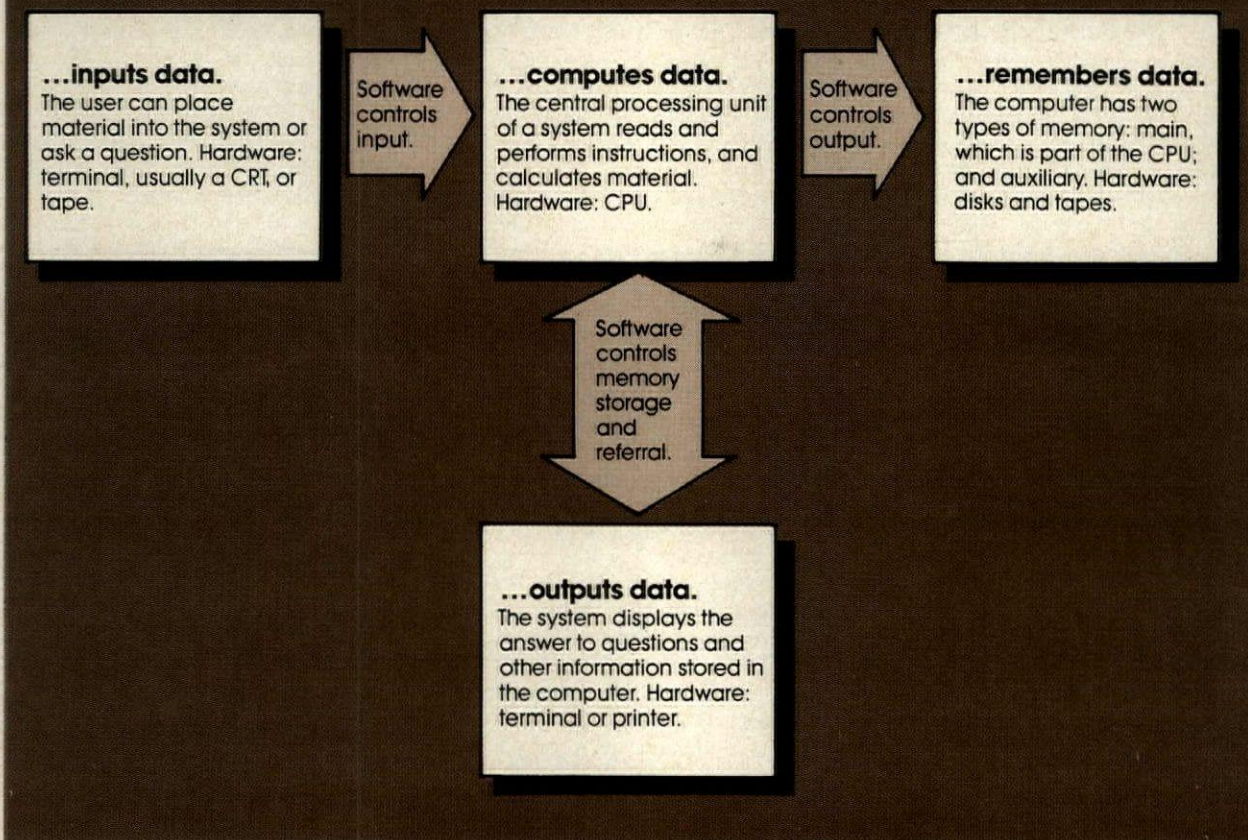
Another way to divide the different size computers is by the personnel needed to run the system. The Association for Computer Users, Boulder, Colo., says a large system costs more

than \$250,000 and must be run by an experienced data processing crew. A midi system costs between \$50,000 and \$250,000 and does not need a data processing professional, but there should be someone on staff who fully understands computer systems. A small system—mini and micro computers by the other definition—costs under \$50,000 and does not require any special staff.

All of the above systems will require software applications that are designed for a builder's business. The price will vary according to the function the program performs. The more complicated the software, the more expensive the package, and the larger the hardware needed to run the program. Prices for a builder's accounting package start at about \$2,000 and can go up to \$50,000. The majority of builders, however, can meet their needs by staying at the lower end of the scale.

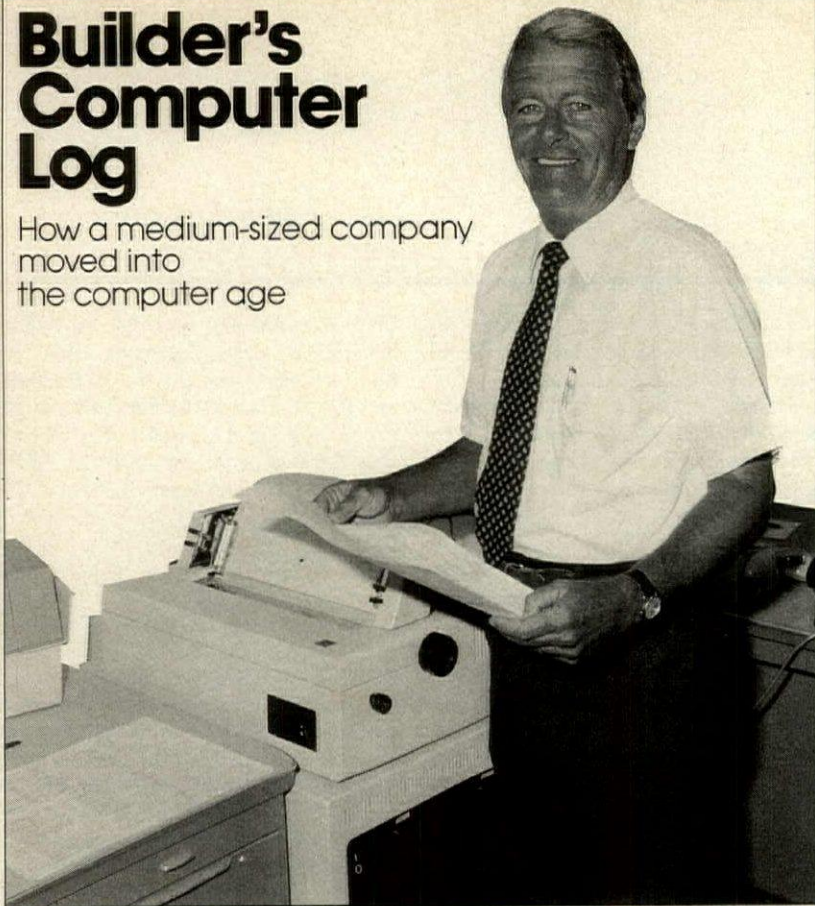
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The Computer System...



Builder's Computer Log

How a medium-sized company moved into the computer age



Back in the summer of 1978, Memphis builder Tom Divine (above) realized that his manual bookkeeping system did not provide him with timely job costing data. He wanted to know how each house his company, Faxon, Inc., built compared to its budget at different stages of construction. Divine suspected a computer might help him obtain this information.

Thus began a 16-month hunt for a computer system that would satisfy the company's needs. Starting with no computer experience, but a background in accounting, Divine moved his 100-to-150-house-a-year company into the computer age.

His experience shows one way to choose a system. It isn't the only way. Your company has different requirements that should be considered when selecting a computer. But Divine's experiences and his comments that carry the benefit of hindsight may provide you with a plan of action.

Here is how he did it, along with how long it took him to put his company on line. Some of the time spans may seem unnecessarily long, but remember Divine, like most builders going into computers, was running a building company while looking for a system. He didn't devote full time to the search. Other intervals show how important it is to take the time to make an organized transition from a manual system to computers.

August, 1978. Divine feels a computer system might help him make his accounting system more efficient. He begins reading literature on computers and how they can be used by medium-sized builders. He doesn't know what to look for, how much he will have to spend, or even what kind of equipment he needs, but he makes a decision.

"A high-level official—in my case it was me the owner—has to get involved in the computer selection from the beginning," says Divine. "This will help him understand what the programs can and cannot do. And it will help him make decisions if there are any problems later on."

September, 1978. Divine attends an NAHB seminar on computers in Florida. At the seminar he meets Scott Sloan who is chairman of the association's computer committee and who has developed an estimating program for builders. After the seminar, a computer demonstration and talking to Sloan, Divine is convinced that a computer will help him run his company more efficiently.

Summer, 1979. Divine has been talking to computer people and reading everything he can get his hands on concerning computers during the past year. After another demonstration, this time in Memphis, he decides to purchase Sloan's program. Further investigation, through personal recommendations, leads him to Enterprise Computer Systems, Inc. of Jackson-

ville, Fla. The company supplies him with an accounting software package. He settles on the IBM 5110 because it can handle both programs.

"At the time, everyone told me to go with a company that would be able to provide me with support if I needed it," Divine says. "I've since found out how important that is."

September, 1979. Divine takes delivery on the hardware and the estimating program, but asks Enterprise to hold off until the first of November before delivering the accounting program. He wants time to get estimating on line and allow his staff to get used to the equipment.

Sloan visits Faxon and gives Divine and company vice president Wesley Hays a day's training on the estimating program.

For the next three months the two men are busy adapting the program to Faxon's needs. The estimating program was originally designed for custom builders, and Faxon is strictly a spec builder. But the company routinely builds about 30 different models and has to constantly update the cost of those plans. A computer will allow it to develop budgets for the models that can be compared against their actual costs, which will be part of the still undelivered accounting program. Divine and Hays adapt the program to give estimates for cost categories that will be identical to the costing system in the accounting software.

Some of the information in the program isn't necessary for Faxon's needs. For instance, Sloan developed the system based on his own building business. He builds in Reston, Va. where there are a lot of basements. There are no basements in Memphis. So Divine doesn't need the basement data in the program, but he does need more data on concrete slabs. The program is flexible enough to make the necessary changes.

October, 1979. Divine begins preparing for the accounting system while still working on the estimating program. He develops a chart of accounts, categories for the accounts in the general ledger.

"Had I known what I know now, I would have spent longer than two or three weeks preparing for the system," Divine now says.

In October, 1979, Divine also makes

up a list of job cost categories for the program. This will tell him things like the cost of concrete in the footings or the price of lumber in the walls as compared to how much it was estimated to be. He breaks the company's jobs into 100 categories, but later decides it was too many.

"It's important to hold job cost categories to a minimum," Divine says. "If you don't, you produce data you don't need and you produce reams of paper you don't know what to do with. We had to go into the computer and cut the number to 70 categories. Had we realized we didn't need 100 categories, we would have saved a lot of time."

While preparing for the arrival of the accounting program, Divine passes on what he has learned about computers to Rebecca Goodpasture who will eventually be running the system full time.

November, 1979. Enterprise gives Faxon a three-day training session to help it convert its books to the system. When the people from Enterprise leave, the building company goes into "about 30 days of chaos," Divine says.

The problem: mistakes the staff makes in just getting used to the system and mistakes in the program itself. When a problem develops, Enterprise solves it over the phone.

"They told us to punch certain buttons on the computer that would flash things on the screen that were unintelligible to us," Divine says. "By explaining what we saw, they were able to analyze and correct the problem on the phone."

The company runs into problems with the printer. It keeps stopping or

overprinting payroll checks. For a while the service people are not sure if the problem is in the printer or the main body of the computer. But they eventually work the bugs out.

Divine owns two companies and decides that the smaller one goes on line first. The company keeps two sets of books: one on computer, the other manually.

December, 1979. The transition is complete. By the end of the month, the company stops keeping a parallel set of books.

January, 1980. On the first day of the year Divine begins to put his second company on line. This time he does not use a second set of books. The company is still running into minor problems with the program, but they are solved over the telephone.

October, 1980. Faxon enters a joint



Faxon's Rebecca Goodpasture (above) runs the system on a day-to-day basis.

venture with a land developer to build townhouses. Divine will keep the books and has to add the new company to the computer system. He soon realizes the software does not have the capacity to accommodate the number of jobs the new company generates. Divine mentions this to Enterprise and the software company begins to expand the program.

March, 1981. The new program is delivered and Faxon begins to run into problems. "There were errors in the program," Divine says, "but we were one of the first people to try it, so that has to be expected. The problems were worked out, but that leads to a suggestion I would make to anyone getting a computer: Get a system that will handle anything you expect to be into for the next five years."

Rebecca Goodpasture takes charge of adapting the new company to the computer. She runs the system on a day-to-day basis. A secretary/receptionist fills in for her when necessary.

"It's important to have that back up," says Divine. "If something should happen to Rebecca or she goes on vacation, I wouldn't be completely shut down."

Faxon now has a system that can estimate, keep its books and print all its checks for the 150-to-200-house-a-year collection of companies. It cost Faxon about \$25,000 and hundreds of man hours to get the system on line. But Divine feels the investment was worthwhile. Why?

July, 1981. In the morning of the first day of the month, Goodpasture puts the June profit and loss statements for all three companies on Divine's desk.

TO NEXT PAGE

For more information on computers contact:

Association of Computer Users
P.O. Box 9003
Boulder, Colo. 80301

The association is a non-profit organization that gathers and disseminates information on all types of computer systems, including time-sharing. However, most of the information is available to members only. The association will gladly send information about the organization and a membership form to anyone who writes to them.

Information Technology Center
Two World Trade Center
Mezzanine Level
New York, N.Y. 10048

The center does not specialize in builders' problems but it can put a builder or remodeler in touch with manufacturers or consultants. There are also directories of computer equipment on hand.

Scott Sloan

1762 Wainwright Drive
Reston, Va. 22090

Besides being chairman of the NAHB's Data Processing Committee, Sloan is also head of the Users Group, a body of builders who share their computer experience with one another. Builders with some background in computers and those just starting out are welcome to write for information.

You want a computer, but...

Should You Buy, Rent, Lease Or Lease-Purchase?

Once a builder has found a computer system that suits his needs, he's then got to decide whether he's financially better off buying, renting, leasing or lease-purchasing the equipment. "The only way to really evaluate that," says Charles Perrine, a CPA with Kenneth Leventhal & Co.'s Washington, D.C. office, "is on an after-tax basis."

The Economic Recovery Tax Act of 1981, signed into law last month by President Reagan, will significantly affect that evaluation.

Before examining the four options and their tax ramifications, here's a rundown on how the new tax bill has changed two important variables in the tax equation: depreciation and the investment tax credit.

Depreciation. The Accelerated Cost Recovery System in the new bill allows a business to write off investment in machinery and equipment more quickly than before. Such assets are divided into a three- or a five-year category and depreciated over that number of years. According to Doug Banks, a CPA with Touche Ross & Co., computers fall into the five-year category. Previously, IRS guidelines generally allowed such equipment to be written off over ten to twelve years.

Accelerated depreciation on computers and other equipment is available, although the old 200% declining balance method has been replaced. This method allowed high depreciation expense in the early years of an asset. The new bill allows 150% declining balance that will again reach 200% in 1986. Because of the shorter asset lives, the new bill's 150% declining balance will still often result in an initially higher depreciation allowance than the old 200% method.

The new bill also allows for modest amounts of equipment to be directly expensed: \$5,000 in 1982-3; \$7,500 in 1984-5; \$10,000 after 1985. Directly expensed equipment is not eligible for the investment tax credit.

Investment credit. Computers and other equipment in the five-year asset category are eligible for a 10% investment credit. This is figured by taking 10% of the cost of the asset and applying it as a direct reduction against one's tax bill. Previously, only equipment depreciated over seven or more years got a 10% credit while other

equipment received a smaller credit.

The new bill also increased the length of time the investment credit can be carried over to future years. Now such credits can be carried forward for 15 years instead of the previous seven. This greatly enhances the attractiveness of the investment credit for builders.

Builders should consult an accountant or tax attorney to see if the tax credit can be applied to the cost of software as well as the hardware in a system. Rulings on this vary, usually depending upon whether hardware and software are considered one bundle whose cost can't accurately be divided up. Also consult a tax expert on the number of years the software should be amortized.

Four options. Below is an analysis of the options a builder has in bringing a computer system in-house. Keep in mind that the viability of each option differs according to a builder's tax and cash flow circumstances.

RENT: A short-term arrangement of a year or less, this is usually the most expensive way of having a computer in-house. Monthly rents, according to Scott Sloan, Contractors Management Systems, Reston, Va., range between 4% to 6% of the computer's selling price. Rental payments are immediately expensed against income the same as any other business expense. The builder can't depreciate the cost of computer or take investment credit. While this arrangement is most expensive, it offers a builder the most freedom to end the arrangement.

LEASE: A builder may lease a computer from a vendor or a leasing company. In either case, the lease payment will reflect the lessor's cost of financing the equipment, plus a spread for profit and risk. According to Sloan, this results in an effective finance charge of between 18% and 23% on lease deals. Leases usually run three to five years and monthly payments amount to about 3% of the computer's selling price, according to Sloan. The lessee doesn't get depreciation benefits, but can expense the full lease payment. According to Banks, the lessor can pass through the investment credit to the lessee, in this case the

builder, but the lease payment charged the builder will be higher. The builder must decide whether his tax situation makes the tax credit justify the higher lease payment. "If you're a corporation with losses," notes Banks, "you don't want that credit." A corporation or individual with income to shelter, however, might take the credit and pay the higher rate.

LEASE-PURCHASE: This arrangement, according to Perrine, costs less than the straight lease and the lease payments go toward the purchase of the computer. At the end of the lease-purchase term, the builder buys the computer at an agreed-upon price, usually somewhere around 10% of the original price, according to Sloan. Lease payments are tax deductible and the investment credit can be passed through to the lessee. Builders thinking of sheltering personal income by buying a computer and leasing it to their own companies had better consult a tax expert to make sure the transaction qualifies as a lease. According to Banks, the new tax bill cracks down on such arrangements performed by individuals, although he notes corporations may now find it easier to structure such deals.

PURCHASE: When a builder buys the computer outright, he gets the investment credit and right to deduct full depreciation. Assuming the purchase is financed, the interest expense is also deductible. The loan for the computer shows up on the builder's books as a liability, unlike a leasing arrangement which does not affect the builder's balance sheet in most circumstances. This may or may not be a factor for the builder contemplating a purchase. Balance sheet considerations do not normally play as large a role for small privately held corporations, proprietorships and partnerships as they do for large public corporations. However, a builder may prefer to save his borrowing power for other purposes, especially if a debt obligation can easily be avoided through a lease.

Whichever route the builder chooses, his decision should be made after consulting a tax expert who takes into account the builder's tax situation, his borrowing capacity, credit rating and his cash flow needs. —W.L.U.

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Compact Furnace Squeezes into Spare Spaces

Today's economics make "smaller" look better every day. We've already witnessed the coming of age of the energy-efficient compact car, designed to get more mileage from each gallon of increasingly expensive fuels and also to better suit the needs of smaller families. Now we're watching the homebuilding industry go compact, with floor plans shrinking by the square foot and structures getting tighter to save on energy costs.

That's why Suburban Mfg. Co. developed its own "compact"—Dynaceil, a gas-fired, forced-air furnace.

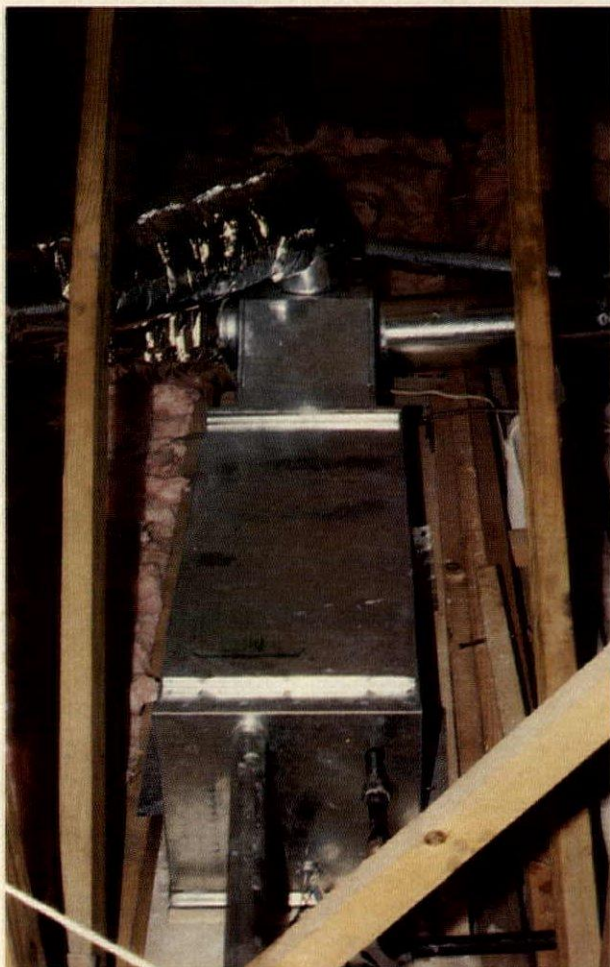
Dynaceil was developed for use in new multifamily projects, and its design responds to problems common to multifamily construction. Dynaceil assumes that space is at a premium. Hence its small size, 26"×14"×13", and its relatively light weight, only 60 lbs. And hence its mode of installation—into typically unused space. Dynaceil is designed to rest between 16" o.c. ceiling joists. Since the unit is zero-clearance, it can be placed nearly anywhere.

And ease of installation, according to Suburban vice-president Larry Belt, is also one of the product's major advantages. Dynaceil vents horizontally rather than vertically, eliminating a traditional problem in apartment construction. A pair of tubes, one for venting, the other for drawing in outside combustion air, are run side-by-side for up to 20 ft. along the joists. And once gas lines and ducting are hooked up, all that's left to do is to screw the furnace into place by its installation tabs.

Dynaceil comes in two sizes: The smaller supplies 24,000 BTUs to heat from 400 to 600 sq. ft.; the larger can provide 30,000 BTUs, suitable for up to 900 sq. ft. These capacities accommodate typical apartments. If the living area exceeds 900 sq. ft., two units can be used.

The AGA-approved product has been enthusiastically received by HUD officials, according to Belt. HUD had been seeking a viable alternative to electrical resistance heating systems, which had been placing excessive loads upon electrical power plants in some areas of the country. One of those areas was the Pacific Northwest, where Dynaceil was successfully test-marketed.

For more information, circle 200 on reader service card



Dynaceil is shown installed above between 16" o.c. joists. This unit heats a living area of about 800 sq. ft. The owners report that they are "extremely satisfied" with its performance.



Access panel, shown in hallway at left, and register, in child's bedroom above, are only evidence of the furnace. Access panel allows for easy servicing; when panel is removed, innards of Dynaceil can be lifted out.

Casing the Computer Market

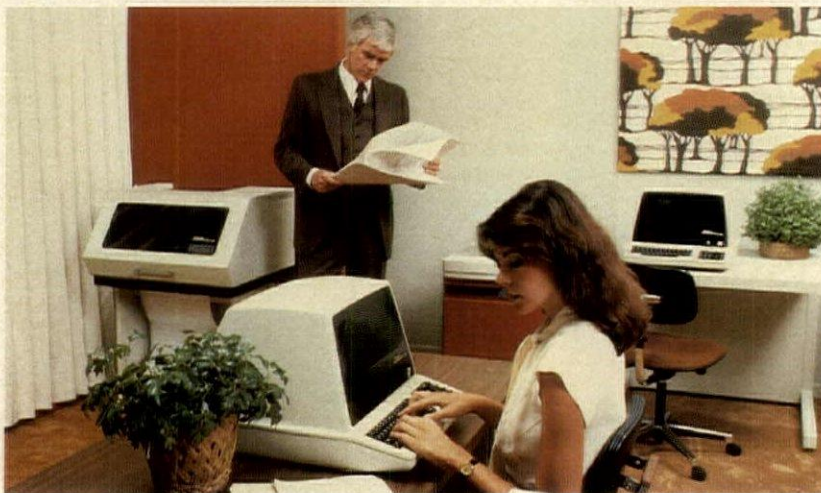
Computers are beginning to find their way into builders' offices—and for a lot more purposes than just keeping track of the bills. For example, you'll see more and more CAD (computer-aided design) and cost estimation programs. And an increasing number of these systems are being designed specifically for builders and contractors.

Here and on the opposite page are only a few of the hardware and software systems available for use by home-builders. Some software systems can be used on a number of hardware systems, whereas others can only be used in conjunction with the manufacturer's machinery. It's worth examining hardware and software packages separately—a sort of mix n' match process—to tailor the complete system to your needs.

For more detailed information on how computers can help you, see pages 75-86.



SuperBrain™ (above), a self-contained desktop computer, has two memory drives which can hold nearly 350K bytes of disk storage. Also featured is a CP/M® disk-operating system to insure compatibility with the wide variety of software available from manufacturers. Intertec Data Systems. Circle 209 on reader service card



System 210 (above) is an information processing system for first-time computer users, or for businesses that need to upgrade their present systems. Hardware shown includes a keyboard, video/display terminal and magnetic tape cartridge drive, and printers. Basic Four. Circle 206 on reader service card

The Apple II personal computer system (below) is compatible with the manufacturer's many accounting and word-processing programs. The unit can be expanded as business needs grow. Standard features include eight accessory expansion slots, color graphics and sound capabilities Language: BASIC. Apple Computers. Circle 202 on reader service card



Construction management system (above) runs on the WS78 word/data processor shown above. The system—which includes job costing, accounts payable, accounts receivable and payroll modules—also includes such equipment as the video display terminal with keyboard, two dual-diskette drives, and a choice of printers. Digital. Circle 205 on reader service card

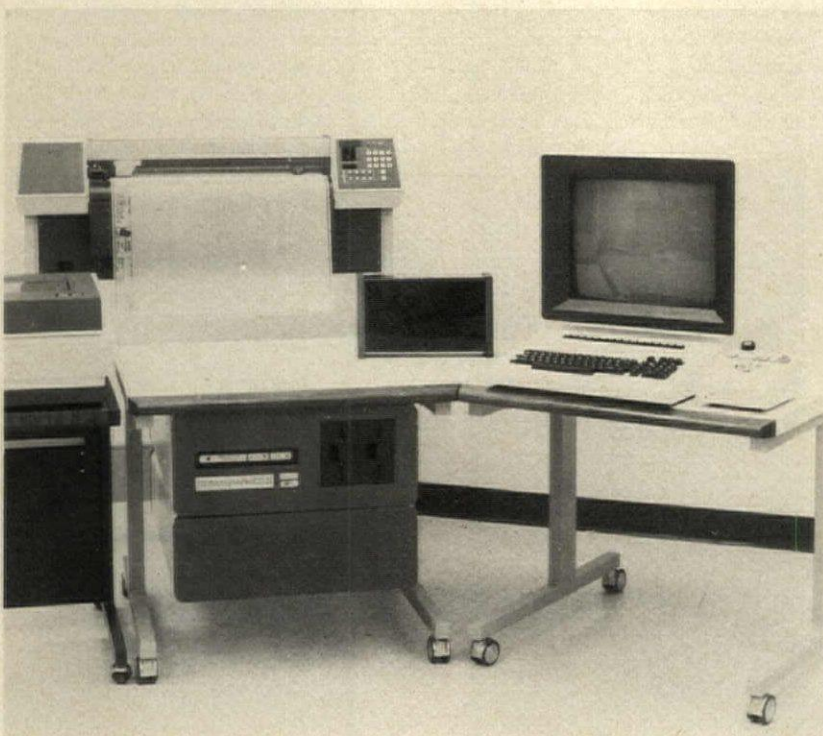




EasyDraf² (above), a low-cost CAD system, can increase drafting productivity from three to 20 times. Components shown above include the desk-top computers, keyboard and plotter. A.M. Bruning. *Circle 203 on reader service card*



Heathkit H89 All-in-One Computer (left) features two Z80 microprocessors, floppy disc storage, video display terminal and keyboard. Computer can run programs written in two BASIC or Assembler languages. Manufacturer offers software. Heath Co. *Circle 208 on reader service card*



Sigmagraphics II CAD system for space planners and interior designers can produce floor plans and three-dimensional drawings, architectural elevations and schematics of heating and electrical systems. The system's keyboard, display and plotter components are shown above. Sigma Design. *Circle 204 on reader service card*

Software

"The Controller" is a management and accounting system for small businesses. The program can plan payment schedules and generate reports on the firm's financial status. The system consists of three modules—accounts receivable, accounts payable, and general ledger functions. Apple. *Circle 220 on reader service card*

CBS IIITM, a Comprehensive Business SystemTM, consists of interrelated programs designed to offer a range of business functions, such as general ledger, accounts payable and fixed asset functions. Basic Four Corp. *Circle 221 on reader service card*

PeachtreeTM accounting system is comprised of four programs—general ledger, accounts receivable, accounts payable and payroll. Also available from this manufacturer: an inventory management software package. Intertec Data Systems. *Circle 222 on reader service card*

Job Control SystemTM is a management tool for job estimating and cost control. Program runs on the Apple II computer hardware. High Technology Software Products. *Circle 223 on reader service card*

Execu-Data is an accounting/inventory program designed specifically for builders. System can calculate per-sq.-ft. costs for each building product. Execu-Data. *Circle 224 on reader service card*

Home Builder Management System (HBMS) is a program designed for use with the manufacturer's 5110 or 5120 small-business computer. Functions include accounts payable, job costing and general ledger. IBM. *Circle 225 on reader service card*

VisiCalc PLUS program analyzes complex financial and planning problems, and instantly recalculates results as variable values change. Program generates income and cash flow statements and other reports, graphs and pie charts. The manufacturer's hardware is recommended. Hewlett-Packard. *Circle 226 on reader service card*

LS-2000 includes software packages for management systems, labor reporting, payroll and other accounting functions helpful to the contractor. Estimation. *Circle 227 on reader service card*

The KLAS accounting system is designed specifically for homebuilders. It operates on Hewlett-Packard's 3000 mini-computers. Services include general ledger, job costing, accounts payable, scheduling and fixed asset and equipment accounting. Kenneth Leventhal & Co. *Circle 228 on reader service card*

"The Framing Calculator" is a program for estimating construction materials and labor requirements. Mendocino Software. *Circle 229 on reader service card*

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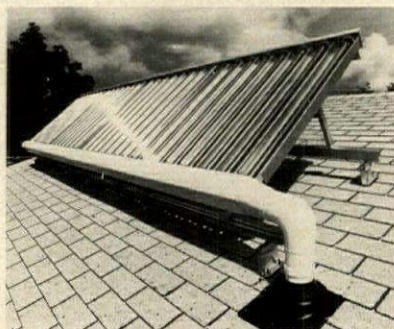
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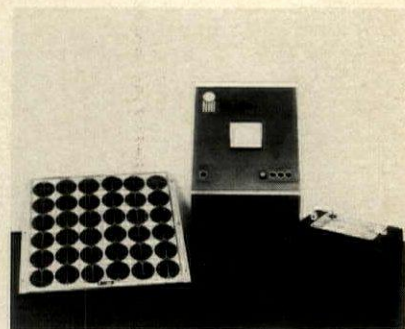
Circle 96 on reader service card



Flat-plate collectors, shown installed, are part of a heating/cooling system which also heats domestic hot water and a swimming pool. System is controlled by a computerized HELIO-PAK module. Heliodyne. Circle 239 on reader service card



Evacuated tube collector, part of a hot water- and space-heating system, is constructed of a series of glass "receiver tubes." According to the manufacturer, this collector absorbs and retains energy up to four times more efficiently than comparably-sized flat-plate collectors. Sunmaster. Circle 240 on reader service card



Photovoltaic power system converts solar energy directly into electricity, which may be used immediately or stored in a 12v battery which comes with panel and console; all three components are shown above. Modules are designed for easy installation and interconnection. Solarex. Circle 241 on reader service card

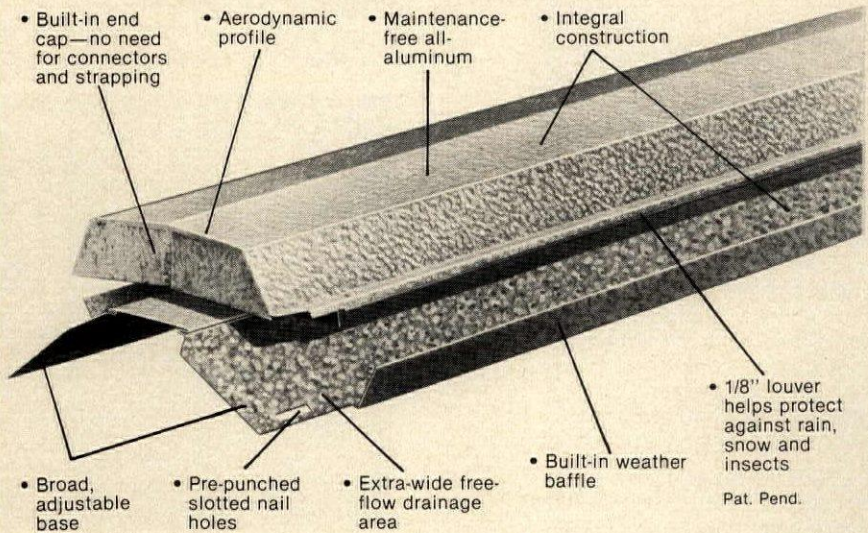


Solarcrete™ system (the white section of wall shown above) is said to eliminate air infiltration, and to create a heavily insulated wall. System consists of a framework of steel bars, wire mesh, and polystyrene insulation boards, all covered with high-density concrete. Solarcrete. Circle 242 on reader service card

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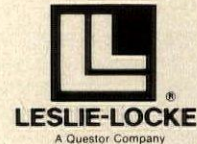


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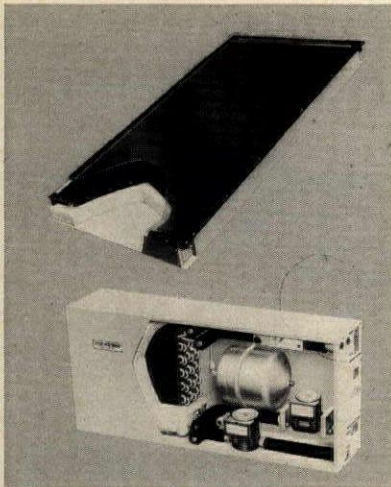
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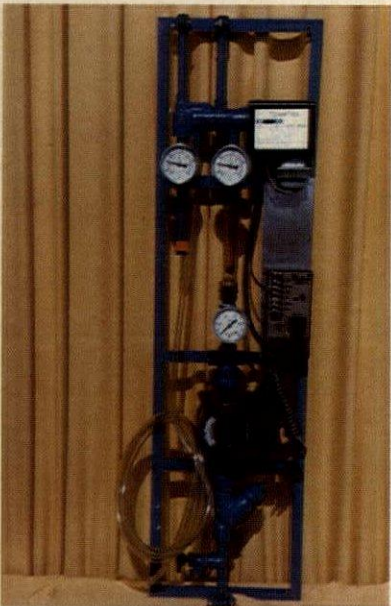
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Phone _____ Best time to call _____

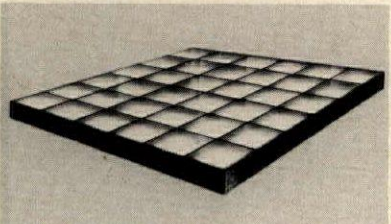
Mail coupon to: Leslie-Locke, Dept. H, 2872 West Market Street,
Akron, Ohio 44313



Domestic hot water system is designed to be used with a conventional water heater. Available in one or two collector capacities, the system includes the 32-sq.-ft. collector and "transfer" module (shown), which houses pump, valves and heat exchanger. Lennox. **Circle 243** on reader service card

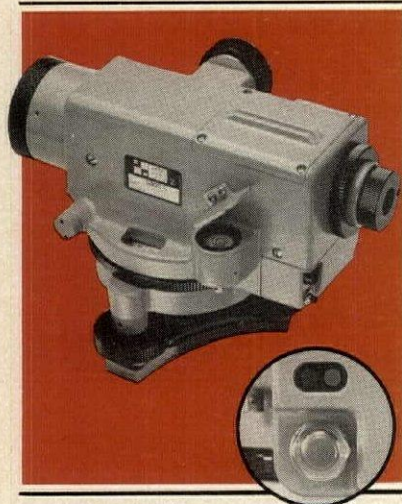


Solar control module is part of a domestic or industrial hot water heating system. Unit prevents "freezedowns" in cold weather, and will shut system off when preselected water temperature is reached. Tech-nitrek. **Circle 244** on reader service card



Insulating skylight, constructed of 1½-in.-thick sandwich panel, prevents excessive heat loss or gain. The skylight is offered in a range of standard sizes; custom units are also available. Solartron. **Circle 245** on reader service card

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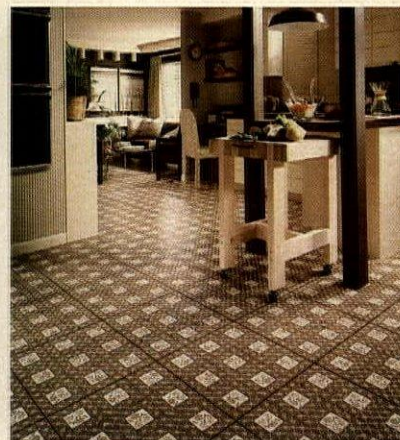
Circle 98 on reader service card



"Quadrille" carpeting, from the "Royalax" collection, is 80% wool and 20% nylon. Carpeting is suitable for heavy-traffic and commercial applications, as shown above. Couristan. Circle 266 on reader service card



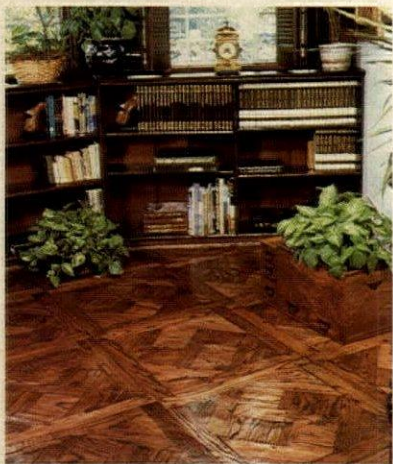
"Woodstock" vinyl flooring has a random-plank pattern, with 36-in. "planks" ranging from 2½" to 5½" in width. Flooring needs no waxing and comes with an adhesive backing. Armstrong. Circle 267 on reader service card



"Legacy" vinyl flooring has a pattern of stylized tile-like borders with a floral inset. "Legacy" is part of the "Contempora" collection, and comes in 12-ft. widths. Six colorations are offered. Congoleum. Circle 268 on reader service card



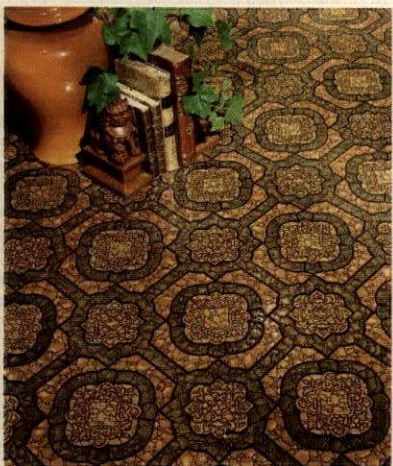
No-wax poured flooring, a combination of 100% epoxy and quartz aggregate, is available in a wide variety of colors and can be used in commercial, industrial and residential applications, as shown. Dur-A-Flex. Circle 269 on reader service card



Elegant parquet flooring shown installed is constructed of 1/2-in.-thick sections made of stained solid oak. "Brittany" flooring comes in patterns that are 28" sq., covering 5.44 sq. ft. Chateau Floors. **Circle 270** on reader service card



"Quest" carpeting is made of "Anso IV" nylon. The carpeting has a sculptured surface, with a VersaColor™ pattern. "Quest," from the "10+" collection, comes in 15 colors. Alexander Smith. **Circle 271** on reader service card



Sheet vinyl flooring, "Jefferson Manor," is available in two widths and five textured colorations: tapestry beige, golden wheat, cocoa brown, almond and terra cotta. GAF. **Circle 272** on reader service card

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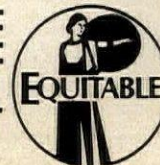
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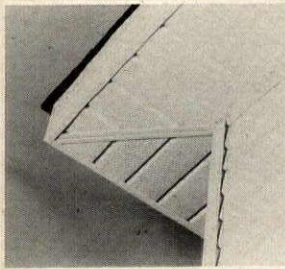
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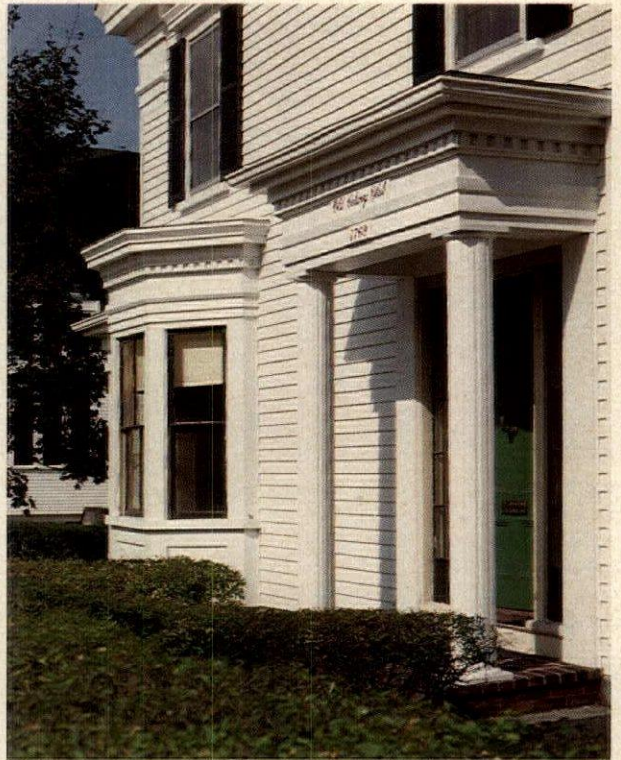
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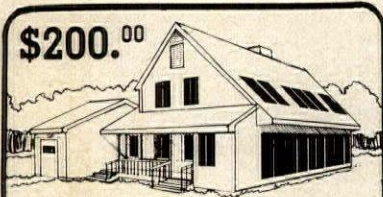
"Fairfax" triple-lap siding comes in 12' x 16' panels, and is self-aligning. Textured hardboard panels are factory-primed for finishing on site. Champion. Circle 281 on reader service card



Soffit/fascia system (left), constructed of textured, vinyl-coated aluminum, is offered in a variety of earthtone colors. Matching rain-carrying systems are available. According to the manufacturer, minimum maintenance is required. Aluminum Industries. Circle 282 on reader service card



Solid vinyl horizontal siding requires little maintenance and will not, according to the manufacturer, peel, rot or blister. The siding is offered in a wide range of colors. Accessories are available. Bird & Son. Circle 285 on reader service card



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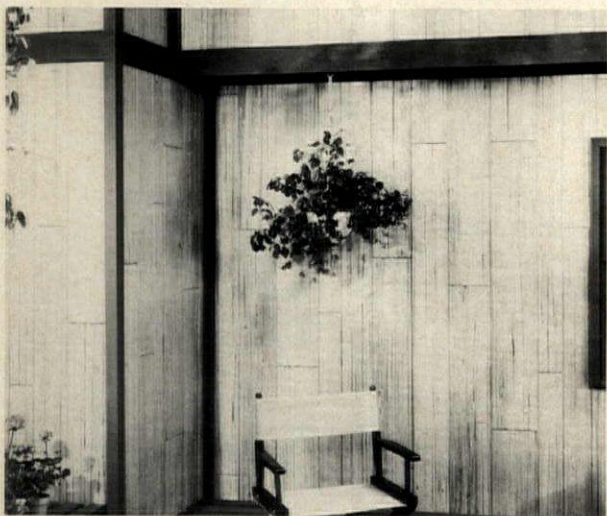
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Shingle-Wood® siding (right) has the look of hand-split shingles. Made of treated aluminum, the siding needs little maintenance. The panels are prenotched and self-aligning for a tight, precise installation. Alcan Building Products. Circle 283 on reader service card



New finish gives aluminum siding the look of aged wood planks, as shown at right. "Pattern No. 45" is fire-resistant, and will not rot, split or chip. The finish is available in several brown tones, white, yellow and green. Alumax. Circle 286 on reader service card



"PlankSide" hardboard siding simulates textured redwood planks. Panels come 3' x 8' or 4' x 9' and in two colors. Masonite. Circle 284 on reader service card



Tight-knotted siding is one of a variety of redwood products offered in channel, tongue-and-groove and board-and-batten styles. Calif. Redwood Assn. Circle 287 on reader service card



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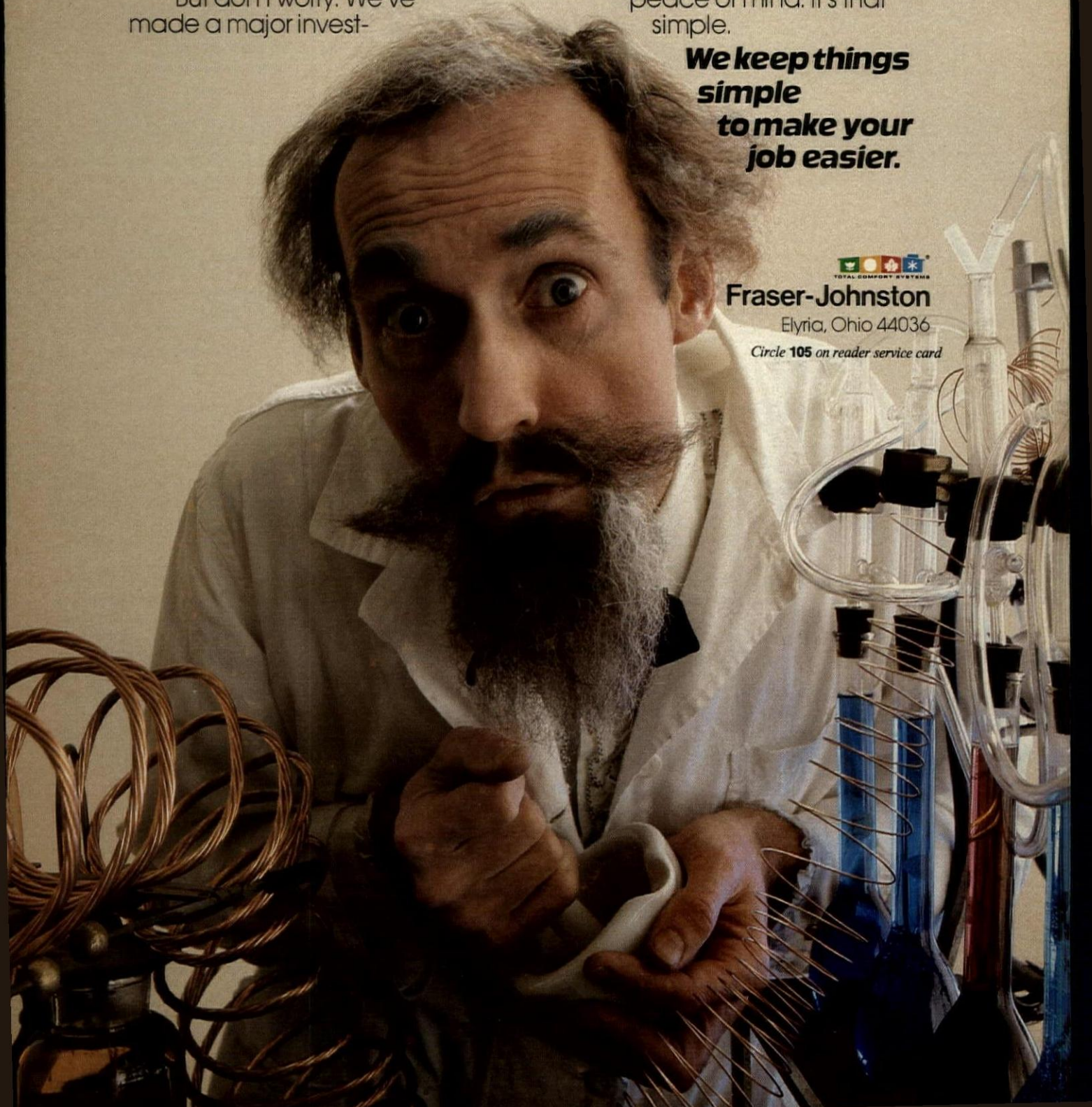
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Update on Energy-Saving Products and Design

An expanded 1981 catalog of **solar collection and storage products** is available. The publication is 68 pages long, and includes such products as collectors, sealants and fasteners, installation accessories, absorber plates and coatings, insulation, circulation and controller devices, storage containers and hardware. Products are fully described and illustrated. Educational materials, such as books and pamphlets are also listed.

The expanded components catalog is offered for \$3 from the Solar Components Corp., PO Box 237, Manchester, N.H. 03105.

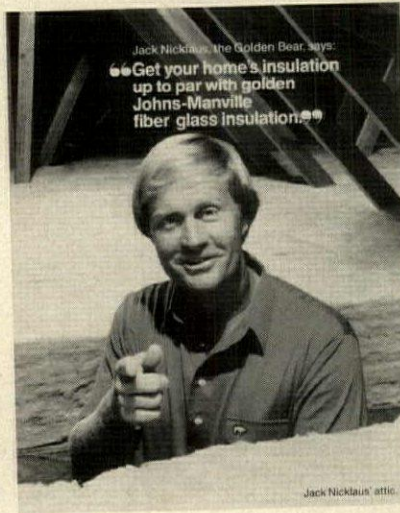
A **multi-fuel heating system**, called "the Slumbering Giant," is described in a two-color flyer. Copy discusses the economic advantages of using this unit, as well as other benefits. System components are pointed out in illustrations. Specifications are included. Multi-Fuel Systems. **Circle 301 on reader service card**

A series of **boilers** is introduced in a four-page brochure. According to the publication, advantages include easy installation and servicing, energy-savings and superior boiler water circulation. Output, main dimensions and domestic hot water production capacities are presented in tables. AB CTC. **Circle 302 on reader service card**

A flyer describes the "CF 100A" **heat exchanger**, a module which houses all components required for a solar domestic hot water system. Suitable for new or retrofit systems, the module is, according to the flyer, compatible with conventional hot-water systems. Components are described in copy and illustrations. Grumman Energy Systems. **Circle 303 on reader service card**

A four-page brochure describes a PVC-coated, woven-fiberglass **sunscreen**. Designed for exterior mounting, the screen admits light and air while reflecting about 85% of the sun's radiation. Four-color photo "swatches" illustrate fabrics, and diagrams show how the screening system works. Typical performance comparisons are made in tabular form. Specifications are included. Halu-Rolscreen. **Circle 304 on reader service card**

According to an eight-page pamphlet, "the efficient partnership" for future **heating systems** is solar energy and natural gas. The copy describes how solar heating systems can be used in



conjunction with a gas furnace, for example, to provide an efficient and economical method of heating a home. Also discussed: hot water and swimming pool heating, air conditioning. A glossary of solar terminology is included. The American Gas Assn. **Circle 305 on reader service card**

The results of the three-year **research and demonstration program** called "EER: The Energy Efficient Residence," are summarized in a 25-page booklet. Prepared by the NAHB Research Foundation for HUD, the booklet describes in detail the EER I house, which was designed and built with a package of energy-conservation techniques and devices thought to be cost-effective.

The booklet comments on and evaluates many of those conservation measures, some of which were cost-effective, and some of which were not.

On the basis of these findings, design tips are suggested with "brief comments intended to aid in their interpretation and use." Tables and graphs report on the measured energy usage throughout the year during which the house was occupied. Schematics clarify the design tips.

To obtain a copy of the EER research results from HUD, **circle 306 on reader service card**

The **second phase of the EER program** is now underway. A detailed fact sheet explains the progress thus far. The publication includes floor plans of the EER II house, a list of design and planning criteria, drawings of the ventilation system and solar heating system, and cross sections of one wall. EER II specifications are also listed. For this eight-page fact sheet, **circle 307 on reader service card**

The family of **Sempatap® insulating wallcovering** and substrates is the subject of a 16-page brochure. Tables provide a guide to the selection of the correct products for each type of application. Four-color photographs show a variety of residential and light commercial installations. Sempatap. **Circle 308 on reader service card**

The National Bureau of Standards (NBS) has issued an 81-page report giving guidelines for the **retrofit installation of solar collectors** and related equipment on low-sloped roofs of commercial and industrial buildings. The guidelines focus on waterproofing the roofing system, access of collectors, and safety. A number of photographs and drawings illustrate and clarify findings and suggestions. The research was conducted by the NBS Center for Building Technology, and sponsored by the U.S. Dept. of Energy.

For a copy of "Guidelines for the Installation of Solar Components on Low-Sloped Roofs (TN 1134)," send \$4 to the Superintendent of Documents, U.S. Govt. Printing Office, Washington, D.C. 20402. Order by stock number 003-003-02261-6.

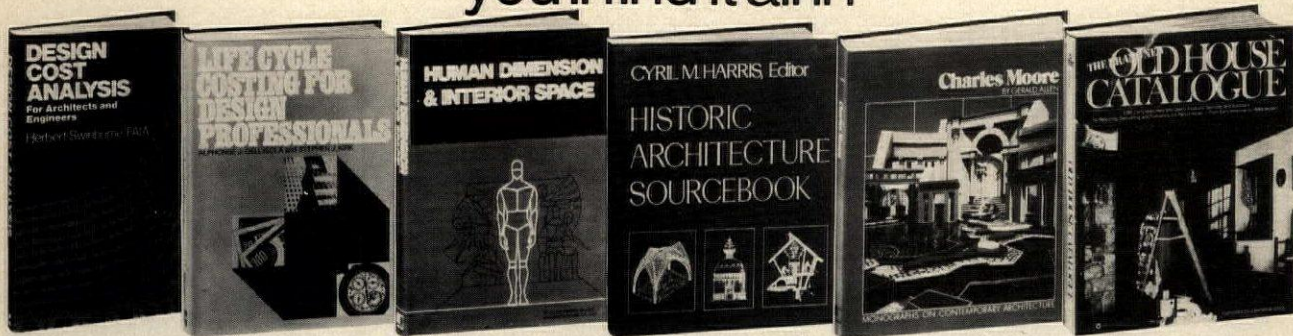
A foldout introduces a **heat pump** which recovers heat from the air surrounding the pump. The publication describes how the homeowner can save at least 50% of water heating costs. Specifications are included. The Oregon Water Heating Co. **Circle 309 on reader service card**

A four-page color catalog exhibits a line of **golden fiberglass insulation** (see photo above). The catalog lists the characteristics and advantages of each product, including faced and unfaced batts, blankets and loose fill. A chart details product thicknesses and R-values, and a map shows recommended insulation levels for ceilings, walls and floors of buildings in each area of the country. Johns-Manville. **Circle 310 on reader service card**

A four-color, 30-page booklet details the properties and advantages of Thermax® **sheathing**. Contents of the publications include discussions of comparative insulation values of several types of sheathing, the history of the product's development, recommendations on its use in wall, foundation, exterior retrofit systems.

Also included: information on building code approvals. Celotex. **Circle 311 on reader service card**

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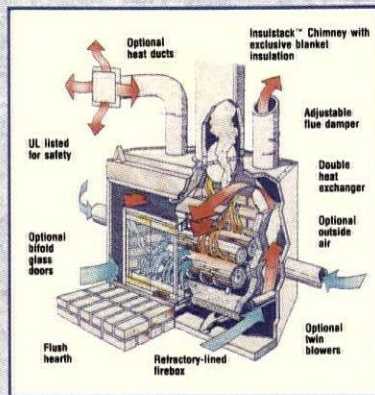
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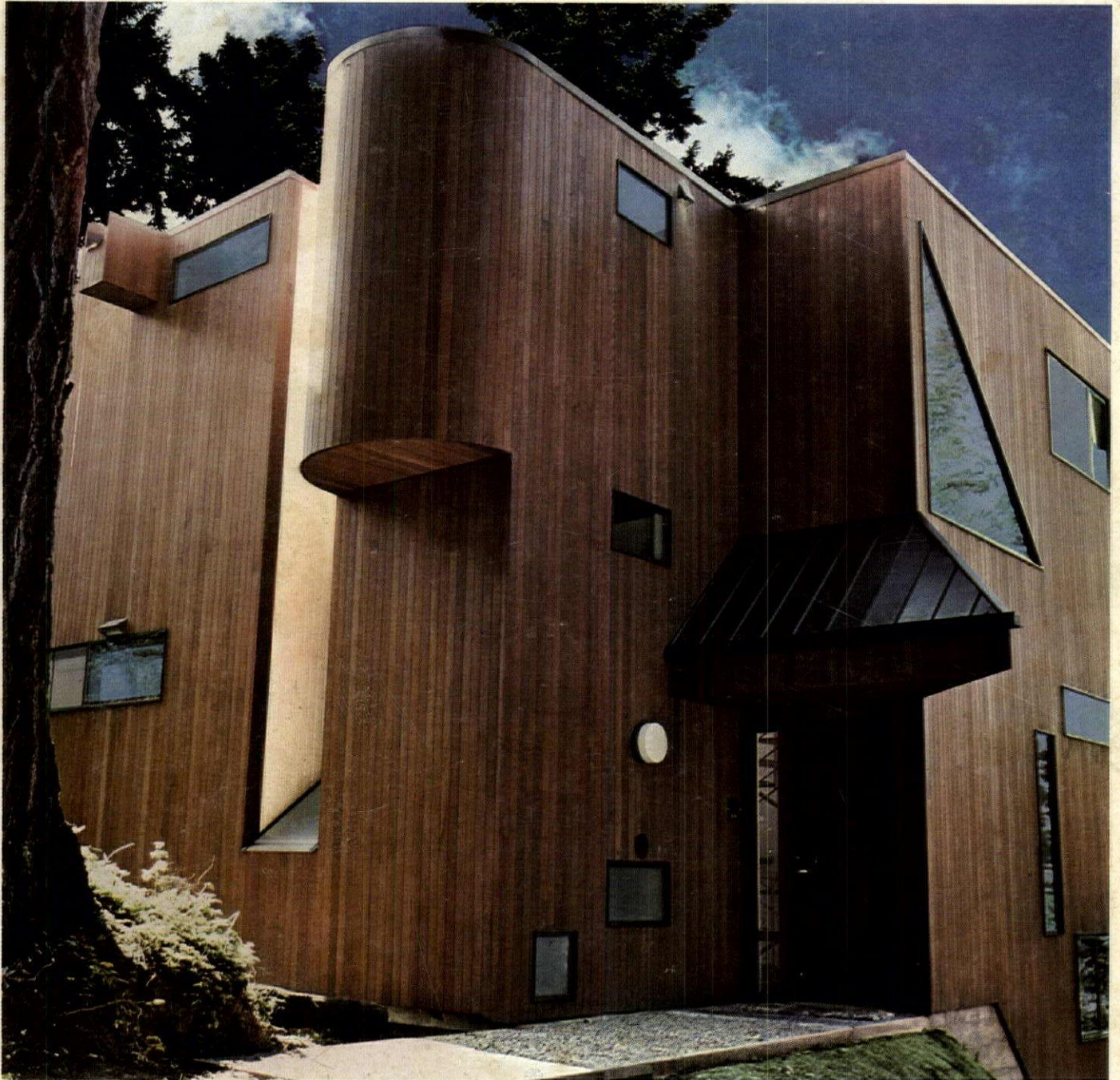
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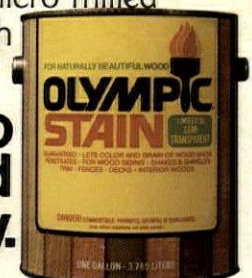


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