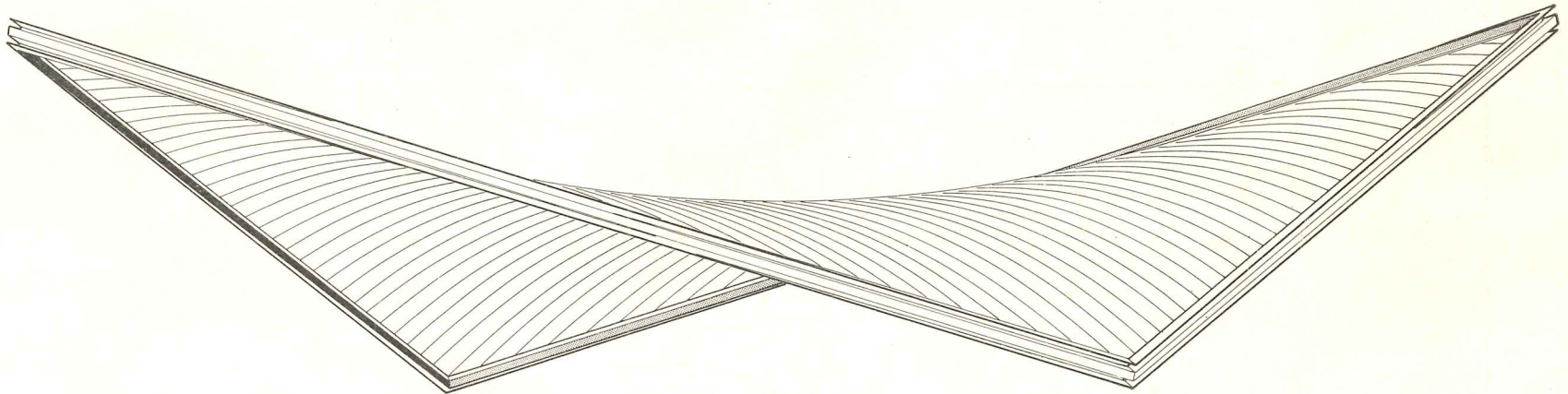




August 1955

house & home

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Round Table report: how to cut bathroom costs page 102

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Why not spend your basement dollars above ground? page 126

Three small builders grow big on fresh design page 118

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State legislatures push through laws on urban renewal and public housing

Wisconsin bill empowering council to kill Milwaukee housing authority awaits signing; licensing and tempo rulings also considered

Chief housing topics before the 46 state legislatures which met or are still meeting in 1955 were urban renewal and public housing.

Also ran: authority to buy or sell tempos, architects' licensing laws and community facilities legislation.

Some turned it down. One of the interesting results of the legislative hassling over whether to pass redevelopment enabling laws was that several states turned such proposals down. Some 19 states dealt with redevelopment or renewal bills. The majority passed them. But there were exceptions and they were spread all over the nation. The New Mexico legislature defeated a motion for an enabling act. So did Texas, Washington and Vermont. An urban renewal enabling bill passed the Colorado House but was defeated in the Senate. In Iowa, a redevelopment enabling bill died on adjournment.

On the more positive side, North Dakota became the 31st state to have laws allowing redevelopment agencies to use the power of eminent domain to acquire blighted areas for resale to private developers. (Five territories also have such enabling legislation.) And two states—Kansas and Georgia—where such laws have been ruled unconstitutional or found unworkable passed legislation bringing the statutes into line.

There were a number of variations in the states' approach to the problem of doing something about blight in their own home towns. At least six state legislatures (and Alaska) had enacted laws to amend redevelopment legislation so that it could be applied to urban renewal plans. The six: Maine (for Portland only), Massachusetts, Minnesota, Missouri, Tennessee and Wisconsin. Colorado defeated such a motion. Indiana passed amendments to its redevelopment law making it effective outside Indianapolis.

Steam-up in Wisconsin. The biggest struggle on a public housing issue occurred in Wisconsin, where the legislature passed two hot bills by a 24-9 vote: one would give the Milwaukee common council the right to run or abolish the Milwaukee housing authority and to sell city housing projects to private operators; the other would require a referendum before the city could construct any housing project which would pay less than full real estate taxes to the city. The bills had not been signed by the governor by mid-July. Observers felt that if he signed them, a court test of their constitutionality would be certain. Lobbying on both sides had been fierce. For passage: the Wisconsin Assn. of Real Estate Boards, Milwaukee County Property Owners Assn. and the realty boards in Madison and Milwaukee. Against: the Wisconsin State Federation of Labor, the

Milwaukee Construction Trades Council, several Milwaukee AFL groups, Mayor Zeidler, Housing Authority Director Richard Perrin and the City of Milwaukee itself, represented by an assistant city attorney on the authority of the common council.

Other action on public housing measures:

▶ Arkansas and Massachusetts killed bills which would have authorized the sale of publicly-aided projects to private parties.

▶ Two states—Minnesota and New York—passed bills prohibiting racial discrimination in selection of tenants in such projects.

▶ New York also passed two bills on relocation of tenants: one permits a family residing in an area to be cleared for publicly-assisted housing to be admitted to another project of an authority or municipality if the income ceiling does not interfere; the other increases from \$100 to \$200 the maximum amount that the state housing commissioner may pay for relocation of any displaced tenant.

Sewer control and tempos. Other developments on the legislative front ran the gamut. An important one was action in Florida empowering counties there to build, buy and operate water and sewer systems in unincorporated areas. The bill was amended to allow private companies to continue to operate systems where they are doing so satisfactorily. Other action:

▶ Tennessee passed a law requiring that local health officers must approve subdivisions for sewage disposal systems prior to final approval by local planning commissions.

▶ California failed to remove the written notice clause from the Architectural Practice Act; passed a bill to regulate brokers' fees in realty loans (title and other paper work costs shall not exceed \$250, for one thing) and approved a measure allowing savings and loan associations to lend for repairs and renovation of homes under Title III of the Servicemen's Readjustment Act.

▶ New Jersey's legislature, still in session last month, was considering a bill to grant municipal conservation officials authority to fight blight, another to permit amortization of savings bank loans at 4%—instead of 5%—for 20 years.

▶ California passed legislation forbidding local authorities to acquire tempos by relinquishment after Sept. 7. The bill validated the relinquishment that has been going on, however, and made it possible for localities to continue running the tempos they have. Montana extended to May 1, 1959, the authority of local agencies, including housing authorities, to operate temporary or veterans' housing they had acquired.

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NY Federal Reserve blinks caution light at mushrooming mortgage warehouse deals

The Federal Reserve Bank of New York last month adopted a cautionary policy toward mortgage warehousing that could effect considerable change in next year's supply of mortgage credit.

It was clear that the central bank officials wished to keep such warehousing operations from getting out of hand. Top echelons of the New York banking fraternity were made aware that the Fed was not fond of helping commercial banks set up large mortgage warehousing arrangements, especially when they involved medium-term or longer commitments. It was possible, in fact, that the big member banks might not be able to discount with the Fed at all for future operations in this field.

Question of inflation. The Fed reportedly felt that the present mushrooming of mortgage warehousing had inflationary potentialities if not held within reasonable bounds. Warehousing is not new, but it has undergone distinct change since the days when it was used primarily to help the home builder's merchandising program through temporary tight money periods. The turning point was the big Prudential Insurance Co. deal last year (Feb. News), an agreement with more than 150 banks to expand the insurance company's mortgage lending capacity to \$350 million.

This type mortgage warehousing is a peculiar example of profit for all under a system in which the participants are playing the wrong parts. Commercial banks are expected

ordinarily to stay in short-term negotiations at low interest. Savings banks and life insurance companies are supposed to make long-term loans at higher interest. But when a bank buys \$1 million of mortgages from an insurance company and agrees to sell them back in, say, two years the end effect is to move the bank into long-term operation. And the insurance company has taken on the role of borrower—not because it is running out of funds but because it can and wishes to expand its investment over ordinary flow of income. The bank gets about 3½% on the mortgages; the insurance company clears about 1% on servicing; the mortgages carry no risk because they are government-insured.

Question of supply. The New York Fed's point of view had apparently changed when warehousing started growing. A limited "diversion" of short-term, low-interest commercial credit into long-term, higher-interest mortgage credit could be tolerated or overlooked. But when the volume began to soar—accentuated by the pressure on New York savings banks to build their mortgage portfolios in order to pay increased dividends—officials thought it was time to put a flag out. The effect of the Fed's signal for a showdown could have an important effect on the mortgage market next year. The question before the house: how much tighter would things get if the insurance companies could no longer leapfrog their holdings through warehouse deals?

dozen renovated houses on view there by Oct. 11, in time for the National Retail Lumber Dealers' convention.

The scheme will work on a before-and-after basis, with each renovated house contrasted with a similar, unmodernized model. One pair of before-and-afters will be moved to Cleveland's Public Square under sponsorship of the local AIA chapter, working with NRLDA and NAHB. Other sponsors will work with the housing editors of national magazines, turning out as fine a renovation job as possible on each old house, within the limits of the style and economic level of the neighborhood in which the job takes place.

General chairman is John C. Maddox, executive vice president of the advertising firm of Fuller & Smith & Ross, Inc. President Loring C. Gelbach of the Central National Bank of Cleveland is chairman of the advisory committee, composed of approximately two dozen of Cleveland's outstanding civic and business leaders.

Bogged-down housing bill threatens basic programs

"I thought Congress killed public housing once and for all last year when we voted to stop the program after a final installment of 35,000 units."

Rules Committee Chairman Howard Smith (D, Va.) voiced this loud complaint last month as the Capitol Hill legislators struggled to put together a decent compromise housing bill from the bits and pieces of suggested legislation bogged down in committee. Even after the House banking committee had stripped the Senate version of its more outlandish provisions—had cut public housing, for example, back to 35,000 units for two years—it was more than the Rules committee could swallow. A tie vote there had held up clearance of the bill for floor action.

HHF Administrator Albert Cole held a press conference and said, "I believe we will have a housing bill and I believe it will be quite close to the President's recommendations." Cole added that there were some basic conditions on which the Administration would not compromise—notably 35,000 units of public housing and a middle-ground policy of leaving part of the brunt of urban renewal up to the cities—and threw in a couple of other matters of concern: college dormitory legislation ("I fear that they will eliminate private lending for that purpose") and the Administration's belief that the Home Loan Bank Board should not be independent.

Meantime, legislation much needed by the building industry was caught in the log jam. An emergency resolution had extended the Title I home repair program to July 31 and pushed along the Wherry and Defense Housing Acts and the remnants of last year's public housing program. But no interim action had been taken to raise the FHA mortgage insurance ceiling. Latest calculations were that the agency would exhaust its insurance authority by early September. Best bet was that the stalemate would be broken in one of two ways. Either the Rules committee would relent and let the House take up the bill or another extension would be prepared, raising the FHA insurance ceiling and continuing other essential portions of the program in their present form. This would keep things going until Congress met again.

Operation Home Improvement ready to go, sets \$100,000 budget for repair program

A giant sales promotion program to make 1956 the biggest year ever for home improvements has picked up speed, talent and money since it was first formulated three months ago.

Operation Home Improvement will coordinate the efforts of manufacturers, dealers, builders and trade associations to make it easy for the home owner to smarten up his house. First steps toward setting up Operation were taken by F. Stuart Fitzpatrick, veteran manager of the US Chamber of Commerce's construction and civic development department, who lined up 27 trade associations (among the early ones: NAREB, NAHB, NRLDA, National Association of Lumber Mfrs., the US and the National S & L Leagues, the Producers' Council, the Portland Cement Assn., the National Electrical Contractors Assn., the Association of Master Plumbers and the National Paint, Varnish & Lacquer Assn.) and 40 manufacturers. Fitzpatrick continues as chairman of Operation's coordinating committee. Executive director of the program is Jack Doscher, formerly an assistant to LIFE Publisher Andrew Heiskell. Doscher is taking a year's leave of absence from LIFE and is setting up a small administrative office in New York. Doscher expects to assemble an administrative staff of six or eight persons, is presently looking hard for a couple of assistants—one from industry, one from a trade

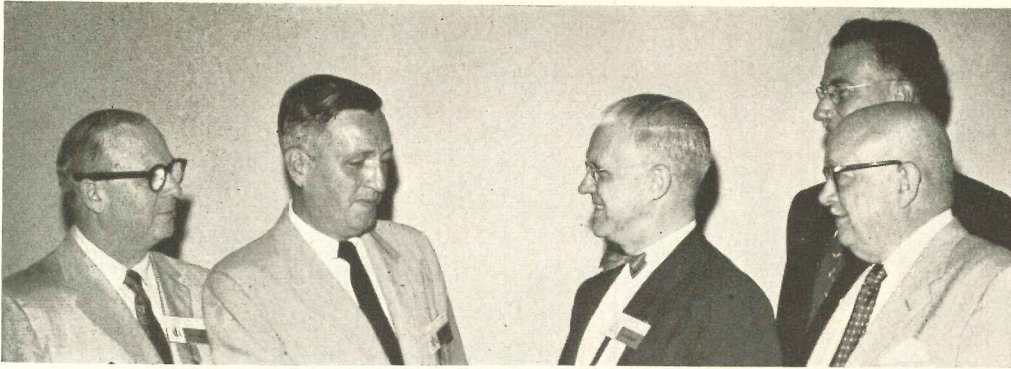
association—whose services could be contributed by their employers, expenses paid by Operation Home Improvement.

Official kickoff ceremonies for Operation Home Improvement will be held Jan. 15, 1956, when the Administration is expected to launch the program. The promotion campaign will last through the year. Last week, HHF Administrator Albert M. Cole, meeting with Doscher, FHA Administrator Norman Mason, Fitzpatrick and association heads in Washington, pledged the Administration's "active support." HOUSE & HOME previously had helped to gain industry support for the idea by holding a lunch for manufacturers in New York, in joint sponsorship with NRLDA and NAHB.

OHI's budget, in the neighborhood of \$100,000, is being underwritten by both associations and manufacturers. To date, \$16,000 has been raised to get the ball rolling, spearheaded by a firm commitment of \$5,000 from National Gypsum Co. An *ad hoc* committee on fund raising has been formed under the chairmanship of A. J. Watt, general merchandising manager with US Gypsum Co.

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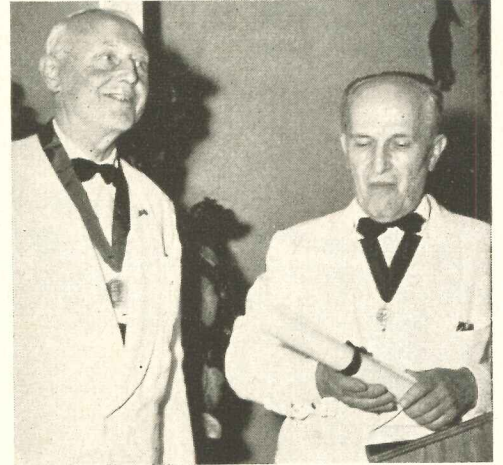
Not directly tied in with Operation Home Improvement, but certainly an auspicious move toward rehabilitation on a local level is a plan shaping up in Cleveland to have at least a



Photos: (top) Reynolds Photography Inc.; (bottom) Robert R. Blanch.

NEW AIA PRESIDENT George Bain Cummings of Binghamton, N. Y. (third from right) shakes hands with John N. Richards of Toledo, elected 2nd vice president, as new Secretary Edward L. Wilson of Ft. Worth (left) looks on. Reelected officers are 1st Vice President Earl T. Heitschmidt of Los Angeles (right foreground), and Treasurer Leon Chatelain of Washington, D. C.

GOLD MEDAL WINNER William M. Dudok (below), pioneer Dutch architect, receives award from outgoing President Clair W. Ditchy.



AIA calls problems of community living 'overwhelmingly pressing'

Convention decries shortsighted remedies for planning troubles; calls for more and closer cooperation between architects and builders

Members attending the 87th annual convention of the American Institute of Architects spent more time worrying about the spaces between buildings—and what went on there—than they did about the buildings themselves.

Some 650 architects meeting in Minneapolis were warned by Keynote Speaker Albert Mayer that problems of community living had become "overwhelmingly pressing" and that single remedies applied singly were only making things worse. Said Mayer: "Glittering opportunities have become splitting headaches. Great tools have become great nuisances . . . [used] to prolong and deepen obsolescence." The much-advertised single remedies, Mayer felt, were unrelated to each other, hence failed to solve the over-all problems: "Brilliant and gifted traffic engineers have injected street widenings, parkways, freeways, parking meters . . . All wonderful, all spectacular, all costly, and all ultimately self-defeating. . . ." His tentative choice for a coordinator for these piecemeal solutions: the architect, both as a professional and as a citizen. Yet Mayer held out little hope. "We may be able," he said doubtfully, "to do a great deal about this gloomy picture . . . I'm not too optimistic."

Urban Renewal Consultant Carl Feiss painted a similarly gray picture: "We are the most potent nation . . . yet we have not proved that we are the most livable. We build big but not well. We criticize others but not ourselves. We are not beautiful." Like Architect Mayer, Architect Feiss suggested action on two levels: as professionals, architects should treat each small problem as a contribution to the greater problem of renewing the community; and as citizens, architects should actively support citizens' committees on planning, zoning and housing.

Cooperation between builder and architect—a perennial talking point at all such conventions—was discussed in a panel session called "The Architecture of Community Ex-

pansion." Talk on both sides was plain. Here was one of the most prominent builders in the US saying: "In my travels around the country I have been appalled by the standard of development housing." And here was one of the most prominent home architects in the US saying: "Our client, the builder, is a very knowing man."

Leading AIA advocate of builder-architect collaboration, Chicago's Morgan Yost, came

to the point at once: "The home builders are there as our potential clients. If we don't develop this field, the industrial designers will—as indeed they have done in other fields." Said Yost: "We must watch consumer reactions, try to improve the product as faults appear. . . . This is not only a field of prosperous architectural practice. It is also a field of singular contribution to our people."

Builders must cut down on the profit motive and upgrade the product, says Tom Coogan

Thomas Coogan, ex-NAHB president, mortgage banker and big builder, also laid it on the line: "From now on the successful builder will have to make his product more attractive and drop the attitude of just wanting to make money fast." Some of the architects could hardly believe their ears.

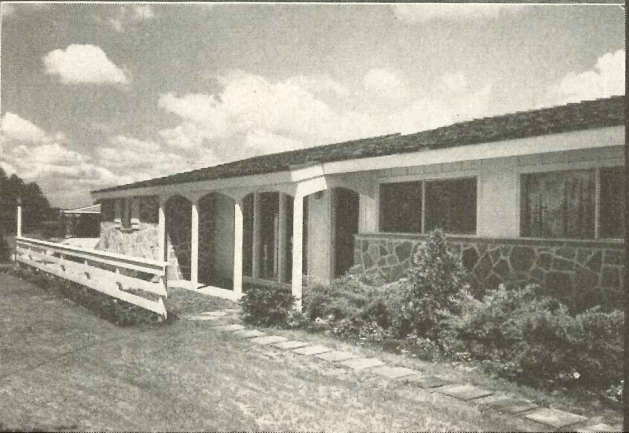
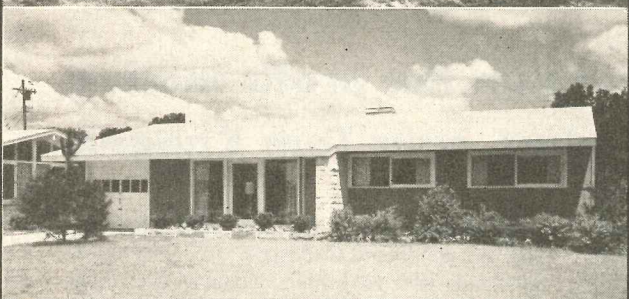
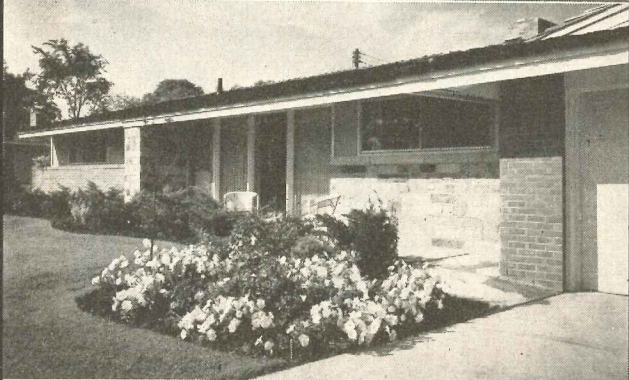
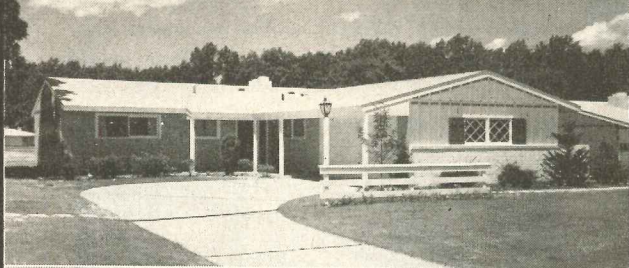
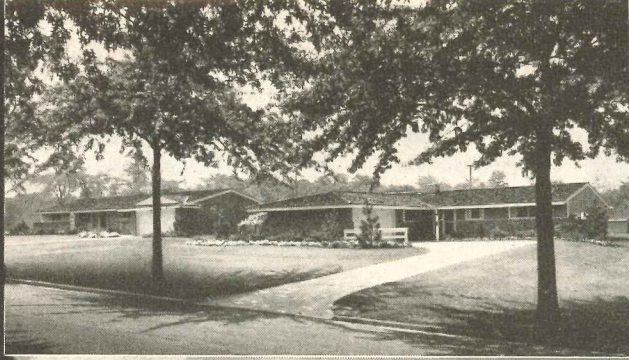
"The builder needs help in land planning and in architectural design . . . his house should be half sold when it leaves the drawing board," said Coogan.

How well can builder-architect collaboration work out in practice? Coogan was not willing to let the architects off too easily on

continued on p. 47

AFTER-HOURS DISCUSSION GROUP includes Carl Feiss of Washington, D. C., Robert E. Alexander and Mrs. Alexander of Los Angeles and John T. Howard, president of the American Institute of Planners.





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that one: "To give architects a completely free hand in working with builders is a mistake. The architect works on a team. He is doing product design, and must consider overall appeal to the mass market. Both builder and architect must learn to compromise. Each must develop recognition and respect for the other's problems." Coogan made it clear that he saw the problem: "I don't think houses should be sold like automobiles, as annual models. Periodic changes will be necessary, but we're not looking for new gimmicks every year—we're looking for better design."



COOGAN

Before adjourning, AIA also:

► Presented its highest professional honor, the Gold Medal, to Willem Marinus Dudok, pioneer Dutch architect, who responded with a plea for more romance, more humanism in contemporary architecture.

► Announced five honor awards to major US buildings, 22 awards of merit. Among the latter: four houses, none of them designed for merchant builders (June issue, News). Said one AIA official: "We can't help it if none of the good builder houses are submitted to the annual competition."

► Elected George Bain Cummings, Binghamton, N. Y., president (he was unopposed). Other new officers: John N. Richards of Toledo, second vice president; Edward L. Wilson of Ft. Worth, secretary. The only officer candidate of the young modernist faction—Hugh Stubbins of Lexington, Mass.—was defeated. Said one young architect before the votes were counted: "If they don't accept at least one of us this time, they may wake up some day and discover they've lost us all." One reason for recurring defeats of *avant garde* architects: the AIA has yet to agree to a more democratic voting procedure by mail ballot. A resolution to poll members on their preference for a ballot by mail was again defeated.

► Made 42 members fellows:

Robert Evans Alexander, Los Angeles; George Boggs Allison, Los Angeles; Harris Armstrong, Kirkwood, Mo.; Donald Barthelme, Houston; Walter Francis Bogner, Cambridge, Mass.; Ernest Born, San Francisco; Frank A. Childs, Chicago; Anthony Salvatore Ciresi, Cleveland; Hervey Parke Clark, San Francisco; Elisabeth Coit, New York; Harry Francis Cunningham, Lincoln, Neb.; William Henley Deitrick, Raleigh, N.C. John Cobb Dennis, Macon, Ga.; Howard Samuel Eichenbaum, Little Rock, Ark.; Louis McLane Fisher, Baltimore; Noel Leslie Flint, Chicago; Raphael N. Friedman, Chicago; Philip Hubert Frohman, Washington, D.C.; Frederick G. Frost Jr., New York; J. Lister Holmes, Seattle; Thomas Worth Jamison Jr., Baltimore; Karl Fred Kamrath, Houston; Theodore Oscar Land, Minneapolis; Ernest Langford, College Station, Texas; Arthur Mann, Hutchinson, Kansas; Lloyd Morgan, New York; Charles H. Nes Jr., Baltimore; Ernest Pickering, Cincinnati; Igor Boris Plevitzky, Miami; Andrew Nicholas Rebori, Chicago; John Lyon Reid, San Francisco; John Noble Richards, Toledo; Isidor Richmond, Boston; Louis Rosetti, Detroit; Donald Kenneth Sargent, Syracuse; Dewey Anderson Somdal, Shreveport; Leonard Adrian Waasdorp, Rochester, N.Y.; E. Todd Wheeler, Wilmette, Ill.; Julian H. Whittlesey, New York; Fred Talbot Wilson, Houston; Samuel Wilson Jr., New Orleans; Henry Lyman Wright, Los Angeles.

FHA eases seven MPRs, tightens rules on concrete block, increases garage sizes

FHA made nine changes in its minimum property requirements last month. Seven were relaxations. Two rules were stiffened.

This was the start of what is proposed as a semiannual overhaul of the standards that govern FHA and VA home building. The revisions—the 53d set in FHA's 21-year life—were signed July 5 by Deputy Commissioner Charles E. Sigety. The relaxations are effective as soon as field offices get copies. Field offices have 90 days after receiving the orders to impose the stiffer requirements.

Building technicians estimated that if a single house took advantage of all the relaxations savings might run as high as \$600. FHA Chief Architect Neil Connor pointed out that the savings could be used to increase the size of a house, or equip it better.

Oversize autos—in one of the stiffer rules, FHA took notice of complaints that auto-garages, growing longer and longer, are outgrowing some garages. It upped its minimum inside-garage length from 19' to 20'. Specifications for concrete block were tightened up "because of evidence of failures due to poor quality of concrete blocks."

Here are the relaxations:

Final acceptance—up to now, FHA has demanded that all equipment be installed and operating, all utility connections completed and working before it will actually deliver insurance on a house. The rule, the agency decided, is not practical. Henceforward, FHA can issue insurance "if assurances acceptable to the chief underwriter are evidenced that satisfactory connections will be made."

Sill and plate anchoring—FHA will permit a wood joist floor without anchoring. FHA said investigation has shown that many wood joist floors have stood up well without anchors.

Corner bracing—FHA now will permit corner bracing to be installed on the inside face of studs. The agency will no longer insist that they be let into the corner post. Corner braces must still be let into studs, sill and plate, however. The agency noted that Forest Products Laboratory data indicated the simpler bracing produces structures that withstand racking adequately.

Nails, trim setting & puttying—FHA's rule had been that nails in exterior wood trim must be set and sealed with putty after the prime coat of paint. Now, the putty seal is required only if builders use nails less corrosion-resistant than hot-dipped galvanized or aluminum nails.

Painting of galvanized sheet metal—FHA dropped its requirement that *unexposed* portions of galvanized sheet-metal, when used for flashing or roofing, must be painted. Several other paint MPRs get new numbers and are shuffled into the painting and decorating section of the MPR manuals. These involve no changes.

Gutters & downspouts—FHA will require them only where soil conditions, drainage of surface water, eave flashing, etc. are likely to produce dampness, flooding, erosion or other water damage. The old rule varied from office to office; in most it was at the discretion of the chief underwriter.

Finish floor—FHA will now accept plywood or other hard-surfaced materials as finish floor in both new and existing housing, if the owner will install wall-to-wall carpet at his expense. (Wall-to-wall carpet remains ineligible for inclusion as part of realty.)

More changes coming. At midmonth, FHA had at least three more MPR changes in the works. They involve insulation, thickness of interior wall plaster, and slabs-on-ground. New rules for the first two had been drafted when reflective-insulation and gypsum manufacturers persuaded FHA to postpone their issuance long enough to let the materials interests submit more evidence. The manufacturers hoped to persuade FHA to amend its views. The slab-on-ground changes were awaiting completion of a technical study by the Building Research Advisory Board.

The nine changes are the first handiwork of FHA's five-months-old architectural standards advisory committee. Its aim was to recommend MPR revisions to make possible "a more livable house that in the long run will cost less money." Its seven members who meet two days every other month in Washington, are: Edward H. Fickett, Los Angeles architect who specializes in small house design; Architect-engineer Harold D. Hauf, head of the department of architecture at Rensselaer Polytechnic Institute, Troy, N. Y.; Leonard G. Haeger, former NAHB technical director who recently joined Big Builder William Levitt; Irwin Jalonack, consulting engineer of Old Westbury, N. Y.; James T. Lendrum, director of the University of Illinois' Small Homes Council; David C. Slipper, technical director for Builder Fritz Burns on leave as field director for ACTION; and Howard P. Vermilya, vice president of American Houses Inc., New York.

House denies funds for Commerce-BLS research

A Senate-House conference committee finally turned down cold last month the Commerce Dept.'s request for \$800,000 to double its building research program. Commerce had hoped to study, among other matters, building material requirements for given volumes of housing and other construction. The Bureau of Labor Statistics was still hoping to get at least \$50,000 of the \$165,000 it had asked Congress for to study housing characteristics and the doings of small and volume builders. Almost certain to be dropped was a BLS plan to gather data on labor requirements for building, a counterpart to the doomed Commerce study.

NEWS continued on p. 49

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HOUSING STATISTICS

Building materials companies among nation's top 500 firms

At least 50 manufacturers of materials for the housing industry and two prefabricated home companies appear in a listing of the nation's 500 largest corporations—in order of sales—published in the July issue of FORTUNE, sister magazine of HOUSE & HOME.

This breakdown does not include several giant firms like General Electric and General Motors, even though their home appliance divisions owe most of their sales volume to the housing boom. Other omissions: manufacturers who contribute to home building whose principal interests lie elsewhere (examples: Remington Arms, whose powder-driven fasteners still are only a sideline, and Aluminum Company of America, whose home-building products are not yet the major part of its business). US Steel should probably not be counted among the estimated 50, for its prefab division, US Steel Homes, was smothered in the enormity of the parent firm's \$3.25 billion sales last year. Sherwin-Williams Paint Co. published no sales figures, but would undoubtedly have qualified for listing among the big 500.

Eighteen of the 50 firms were in the top half of FORTUNE's list, a sure indication that the building industry has not shifted from its position as keystone of the economy. Six building material firms—Briggs, Pittsburgh Plate, American Standard, Crane, Weyerhaeuser, Johns-Manville—had sales totals high enough to put them in the top quarter of the list. Half a dozen lumber companies made FORTUNE's listing: Weyerhaeuser, US Plywood, Diamond Match, Long-Bell, Hines and Georgia-Pacific Plywood. The two prefabbers were Harnischfeger and National Homes, 417th and 480th on the list, respectively.

Among the building material companies that figure prominently on the FORTUNE list, showing comparative sales and net profits in 1954:

	SALES	NET PROFIT
Am. Radiator & Std. Sanitary	\$303,386,000	\$20,423,000
Weyerhaeuser Timber	262,497,000	35,510,000
Johns-Manville	253,152,000	16,656,000
Armstrong Cork	217,557,000	11,914,000
National Gypsum	126,649,000	13,144,000
Flintkote	94,805,000	5,096,000
Yale & Towne Mfg.	87,893,000	1,821,000
Lone Star Cement	84,439,000	12,626,000
Ruberoid	76,424,000	4,629,000
Celotex	62,258,000	3,203,000

MORTGAGE MARKET QUOTATIONS

(Originations quoted at net cost, secondary market sales quoted with servicing by seller)
As reported to HOUSE & HOME the week ending July 15th

City	FHA 4 1/2's		5% equity or more VA 4 1/2's		No down payment VA 4 1/2's	
	Origina-tions	Second-ary	Origina-tions	Second-ary	Origina-tions	Second-ary
Boston local	100-101	a	100-101	a	par-101	a
Out-of-state	a	97-99	a	98-98 1/2	a	96-98
Chicago	97-99	98-99 1/2	96-99	98-99 1/2	a	a
Denver	98-par	98-par	98-99	98-99	96 1/2-99	96 1/2-99
Detroit	97 1/2-99 1/2	98-99 1/2	96-99 1/2	97-99 1/2	b	b
Houston	99-par	99-par	99-par	99-par	97-98	97-98
Jacksonville	98-par	98-par	96-par	96-98	96-97 1/2	96-97 1/2
Kansas City	97-98	98-99	98	99-par	96-97	97-98 1/2
New York	99-99 1/2	99-99 1/2	99-99 1/2	99-99 1/2	66	red-66
Philadelphia	par	par	99-par	99-par	98-99	98-99
San Francisco	par	par	98-99 1/2	98-99 1/2	**	**
Washington D.C.	par	99-par	99-par	98-par	97 1/2-99	97-98 1/2*

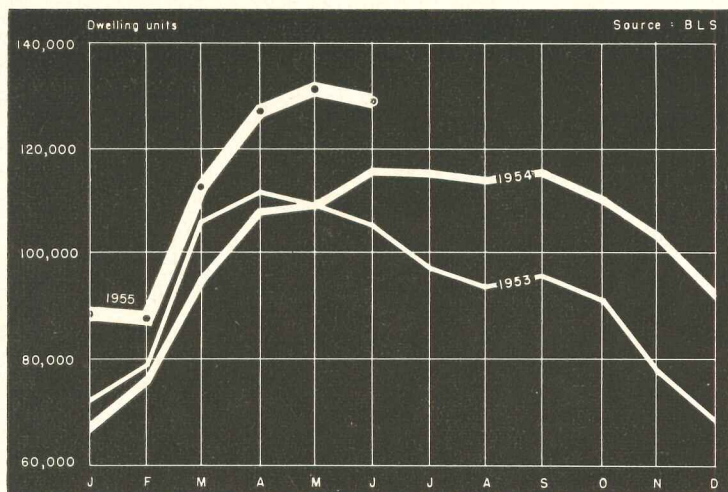
^a No market.
^b Extremely limited volume.
* Typical range; bottom prices slightly lower.

† Very limited.
‡ Without closing costs in cash.
** Information not available.

SOURCES: Boston, Robert M. Morgan, vice pres., Boston Five Cents Savings Bank; Chicago, Maurice A. Pollak, vice pres. & secy., Draper & Kramer, Inc.; Denver, Aksel Nielsen, pres., Title Guaranty Co. Detroit, Robert H. Pease, pres., Detroit Mortgage & Realty Co.; Houston, John F. Austin Jr., pres., T. J. Bettes Co.; Jacksonville, John D. Yates, vice

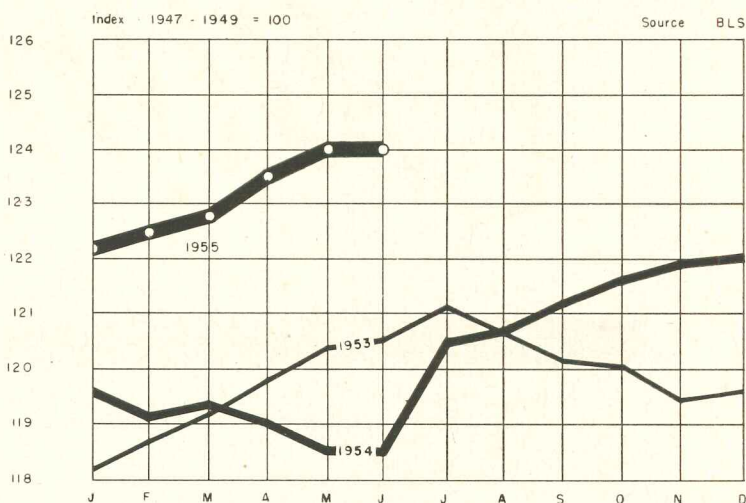
pres., Stockton, Whatley, Davin & Co.; New York, John Halperin, pres., J. Halperin & Co.; Philadelphia, Robert S. Irving, exec. vice pres., W. A. Clarke Mortgage Co.; San Francisco, William A. Marcus, senior vice pres., American Trust Co.; Washington, George W. De Franceaux, pres., Frederick W. Berens, Inc.

NONFARM HOUSING STARTS



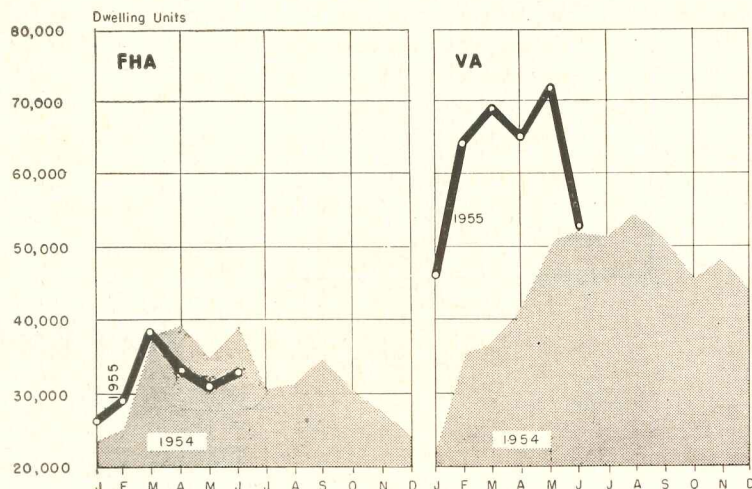
June starts dropped by 3,000 from the previous month to 129,000, but were still plumped-up enough to boost the adjusted annual starts rate to a significant 1,320,000.

BUILDING MATERIALS PRICES



Building materials prices took a fractional dip of .1 in June, the first break in the slow rise that started a year ago. Millwork dropped a whole point and offset small increases in lumber (up .4 point to 124.6) and nonmetallic minerals, which rose to 123.5 from 123.2.

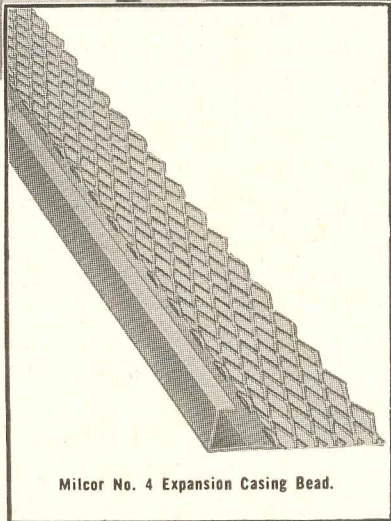
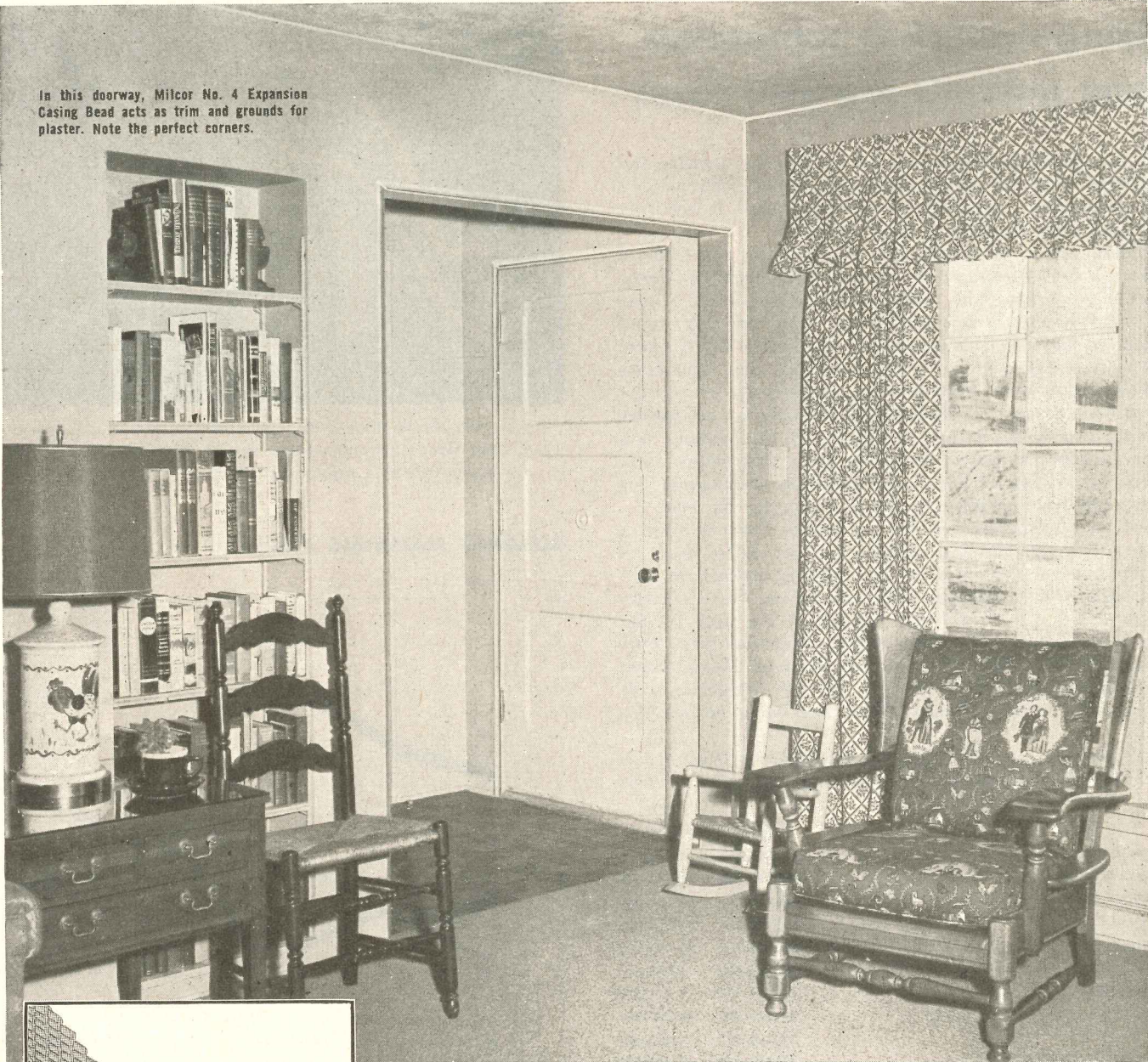
FHA AND VA APPLICATIONS



FHA applications rose in June to 32,440, an increase of 1,329 over the figure for May. One-to-four-family units made up 30,715 of the total. VA appraisal requests dropped by 16,856 to the second lowest monthly point of the year, at 52,424.

NEWS continued on p. 51

In this doorway, Milcor No. 4 Expansion Casing Bead acts as trim and grounds for plaster. Note the perfect corners.



Milcor No. 4 Expansion Casing Bead.

MILCOR CASING BEAD ADDS TO APPEARANCE, PERMANENCE, SALABILITY

PROSPECTIVE owners like the effect of spaciousness achieved by using Milcor Casing Bead around doors and windows. They appreciate the simple beauty that harmonizes with modern interior decoration.

They also like the fact that Milcor Casing Bead doesn't warp or shrink. It's easy to keep clean—there are no

cracks to become dirt-clogged. That's because the expanded metal wing which is part of the Milcor Casing Bead provides a secure plaster bond.

There's a Milcor Casing Bead that fits the homes you're planning — in both solid and expansion-wing types. Milcor Catalog No. 254 shows the complete line. Available upon request.

MILCOR® CASING BEAD

INLAND STEEL PRODUCTS COMPANY
 4057 WEST BURNHAM STREET • MILWAUKEE 1, WISCONSIN
 BALTIMORE 5, MD., 5300 Pulaski Highway • BUFFALO 11, N. Y., 64 Rapin St. • CHICAGO 9, ILL., 4301 S. Western Blvd.
 CINCINNATI 25, OHIO, 3240 Spring Grove Ave. • CLEVELAND 14, OHIO, 1541 E. 38th St. • DETROIT 2, MICH.,
 690 Amsterdam Ave. • KANSAS CITY 41, MO., P. O. Box 918 • LOS ANGELES 58, CALIF., 4807 E. 49th St. • NEW YORK
 17, N. Y., 230 Park Ave. • ST. LOUIS 10, MO., 4215 Clayton Ave.

M-155

SIDELIGHTS

FLLW before the Senate

The day after the House turned thumbs down on funds for the controversial Air Force Academy in Colorado Springs, Frank Lloyd Wright appeared briefly before the Senate Banking Committee, recommended "a fresh start to give the American people something they can be proud of." Wright was not kindly disposed toward plans for the academy advanced by Skidmore, Owings & Merrill. "To me it's just a cliché," he said after the hearing. "It's not modern architecture; it's not architecture at all." Before the committee he proposed that a contest be held, with plans from three winners circulated among the public schools of the nation for a sort of grassroots vote. "They seemed to be agreeable to what I had to say," he said of the Senators. "I think it's time Congress took a hand in our architectural future." A few days later Skidmore, Owings & Merrill showed the Senate committee revised drawings, calling for less glass and more masonry.

Plywood promotion plan

Plywood jobbers meeting in Portland for a convention that ran concurrently with that of the Douglas Fir Plywood Assn. adopted an unusual plan to promote plywood at the retail level.

The scheme, approved by the National Plywood Distributors Assn. and endorsed during the past month by 300 distributing warehouses, calls for a levy of 15¢ a thousand sq. ft., to be paid by jobbers who have warehouses.

The distributors' association set up a corpo-

ration to execute the plan so that non-NPDA distributors could be included. Bookkeeping will be handled by plywood mills. The nation has been divided into 75 market areas to give jobbers the benefit of retail advertising in proportion to what they pay in.

Potential promotional fund: \$500,000 a year from 1,000 jobbers.

Other plywood news from Portland:

▶ Howard B. Garrison, 47, vice president and general manager of Evans Products Co's. western division, was elected president of DFPA, succeeding Eberly Thompson, executive vice president of M & M Woodworking Co.

▶ Leonard E. Hall of Portland was elected president of the 12-year-old, 156-member NPDA.

At the same time in Seattle, 600 US and Canadian lumbermen and wood products makers at a convention of the Forest Products Research Society, heard more reports on the technological advancements in store for the wood products industry. For housebuilders this would mean such new materials as sandwich boards of good quality wood glued to a core of sawmill chips and scrap, and particle boards made from sawdust, shavings and sawmill waste bonded under heat and pressure and surfaced with paper or veneer.

Builders design Japanese house

Cliff May and Chris Choate will have a Japanese-style house ready for fall showing which Choate says "will probably be the most exciting house . . . to be introduced to the housing market in some time." Prime features of the model will be a lounging plat-

form and suspended ceiling—the latter faced on the bottom side with aluminum and onion sacking for informal living, plus the benefits of reflected heat. "Our basic thinking," said Choate, "is to introduce to the American public a house which incorporates some of the functional living features of a Japanese house."

Less work, more dinner

Housewives in Austin Air Conditioned Village save 22 hours of cleaning a month and dish up higher-calory meals than their perspiring neighbors, according to Ned Cole. His definition of comfort, indicated by tests in the village: constant air movement, humidity between 40% and 60% without wide variations and a temperature of 75-78 degrees.

Census puts vacancies at 2.2%

A survey made by the Census Bureau during the second quarter of the year shows a national vacancy rate of 2.2%. This compares with a 1.6% rate in 1950. Census put rental housing at 1.8% and housing for sale at .4%. The Bureau hopes to compile further figures for rental projects of 100 units or more.

Blight blamed on municipalities

American cities are guilty of "shocking neglect" in their approach to slums, according to the President's 25-man Commission on Intergovernmental Relations. The group generally endorsed the administration's housing policies, but laid blame on states and municipalities for not solving their housing problems. Their inaction, said the commission, "has resulted in government subsidies on an increasing scale."

PEOPLE: San Francisco FHA Director Richard Briggs

resigns after five years in office to join Eichler Homes

FHA lost one of the best men in its organization when **Richard W. Briggs**, director of the San Francisco office, resigned late in June to become executive vice president of Eichler Homes. Com-



Smith Studio

BRIGGS

mented NAHB President **Earl Smith**: "You can say anything laudatory about Dick Briggs you want and I'll sign my name to it. He is an outstanding man and a real friend to the industry—in fact, one of the finest men I've ever met." Briggs, in accustomed fashion, was not overelaborate in explaining why he resigned. "For personal reasons . . . not all financial," he told **HOUSE & HOME**. "The administration has been fine. I have no gripes, no complaints or anything. I am happy."

Briggs had been in government service for 21 years, starting with the Home Owners Loan Corp. in Chicago in 1934 and working up to becoming FHA director in San Francisco in 1950. During the past five years the office has handled the largest volume of any FHA office in the country. (Detroit is a close second.) The present monthly case load in San Francisco is 4,000-5,000.

When the FHA investigation stripped the agency of most of its top Washington men 16 months ago, some advisers urged Commissioner **Norman Mason** to name Briggs as deputy commissioner. They felt Briggs' experience would help the agency overcome the loss of men in touch with policy and procedure, combined with an influx of green Republicans to the district offices.* Briggs must have wanted the job. Friends said he held off from accepting several other offers at higher pay because he was dedicated to FHA. The deputy commissionership went instead to **Charles E. Sigety**, 32, a New York lawyer without previous housing experience.

In this context, Briggs' statement that his personal reasons for resigning were "not all financial" is palpably true. But the salary question for FHA's regional men is a tough one. Briggs was making \$11,550 when he resigned. A majority of state directors are in the \$9,600-\$10,600 bracket. Many a housing expert questions whether FHA could ever rebuild a top staff under such Civil Service salary scales when comparable talent in

* An appointment to the Arkansas office was blocked recently by Sen. J. W. Fulbright (April, News) on the grounds that the appointee had previously failed an examination for construction examiner. Turnover in FHA's 76 field offices has been considerable since the last national election. A total of 62 field directors have been appointed by the present administration.

private building can earn so much more.

James C. Belda, assistant director in the San Francisco FHA office and formerly with VA there, was named acting director. Briggs' job with Eichler, incidentally, was newly-created. He did not replace anyone.

Other recent changes in FHA field personnel: **John J. Kayetan**, sales manager for the Acme Steel Co. in Phoenix, took over as director of the local FHA office, succeeding **George A. Hillier** (the latter moved to Washington headquarters); **Stratford E. McKenrick** left the Baltimore office to become operations commissioner in Washington for Zones I and II; **Lanham Evans** left his directorship of the west Texas area to become commissioner for Zone 5 in Washington; Builder **Walter A. Russell** of Walla Walla was appointed director of the Spokane office; **Edward J. Dee** moved up from the post of assistant director in Ft. Worth to the vacant director's position; **Arthur M. Cross**, for eight years chief appraiser in FHA's Miami office, resigned to enter private business.

CONGRATULATIONS: to Builder **Jack Beatty**, on his election as mayor of Bal Harbour, Fla. (pop. 224) on the outskirts of Miami; to

NEWS continued on p. 56



World's most glamorously lighted room holds many sales ideas!

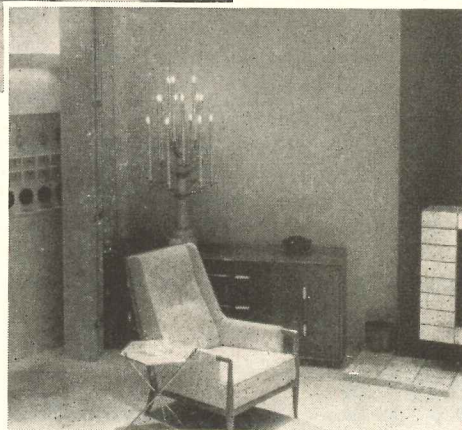
THE lighting concepts in this "Celestial Room", created by General Electric lighting specialists, are far advanced over anything in even today's costliest homes. In daring and imagination, it looks like a room in 2055 instead of 1955. But it's full of down-to-earth, practical ideas you can use (even in the most modest homes) to add the show-off selling points that alert builders use to close sales.

Here are some of the secrets of the "Celestial Room's" beauty and usefulness; It's lighted by ceiling-recessed G-E color reflector lamps—twelve in all, with four pink, four blue-white and four yellow lamps.

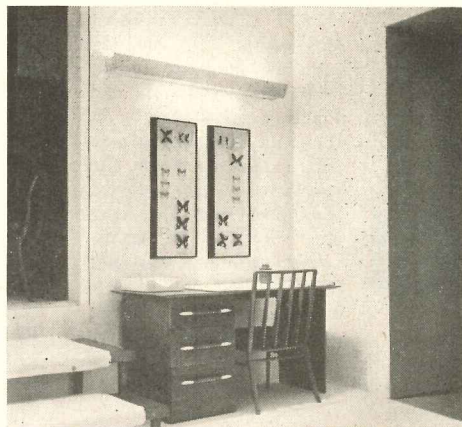
Three dimmers, each controlling ceiling lamps of a single color, can produce an almost unlimited number of changes in color and intensity, ranging from a gentle glow to a blaze of sunlight. The changes in brightness and color values seem to create a new kind of world indoors.

Valance and cornice lighting in the room uses General Electric 20-watt fluorescent lamps, also on dimmers.

Any or all of these General Electric Light Conditioning ideas can add sales appeal to your living, dining and recreation rooms. For more information on these and scores of other light conditioning ideas, write General Electric, Dept. 482-HH-8, Nela Park, Cleveland 12, Ohio.



No, the lamp in the background can't light the chair as well as shown here. Most of the light on the chair comes from a distance—from a G-E 75-watt reflector spotlight recessed in the ceiling, and from a valance on the wall behind the chair.



The desk is lighted by a ceiling-recessed spotlight. In addition, General Electric 40-watt fluorescent lamps are mounted in the wall valance over the desk, to add diffused light to the whole area.

GENERAL  **ELECTRIC**

**first folding door with
all 4 *PLUS* features...
at a cost you get back
many times over!**

Whether you already make your homes more salable by installing folding doors . . . or whether you have been holding back for want of a *better door . . . this news is for you!*

It concerns new FOLDOOR "Beautyline"—with *four* great plus features—now available from FOLDOOR Distributors and Dealers. Consider this combination of exclusive advantages:

1. MORE STOCK SIZES—11 in all—to fit virtually every residential opening, as well as in many stores and offices. With FOLDOOR "Beautyline" you eliminate swing space, give about 7 sq. ft. of extra *living* space (worth \$80-90) around closets, wardrobes, between rooms, etc.

2. EASIEST TO OPERATE—Unlike "accordion type" doors, FOLDOOR is the *slimline* Multi-V door with 61% less hinge friction. The fabric is always back-to-back; it forms no large air

pockets to retard easy operation. Solid nylon trolley wheels assure lifetime feathertouch action.

3. MORE NEW FEATURES—Only FOLDOOR "Beautyline" in the modest price range offers such features as matching cornice, super-rigid Truss-Embossed hinges, all-metal hardware—and many other exclusives.

4. AS LOW AS \$22.45*—list complete. Packed in individual cartons, for easy stocking and reshipping. Complete installation instructions and self-selling tell-all tag on every door.

Compare the space-saving, sales-making advantages of FOLDOOR "Beautyline" for your new homes. Contact your FOLDOOR Distributor or Dealer for *all* the good news on availability, sizes, specifications and costs. Or write:

HOLCOMB & HOKE MFG. CO., INC.,
1545 Van Buren St., Indianapolis 7, Indiana.



**Ask your FOLDOOR distributor
for "Profitunity" sales boosters**

Your FOLDOOR Man will work with you in developing a program to help speed your home sales—with FOLDOOR "Beautyline."

**For quality at rock-bottom cost
... built to retail from \$19.95***

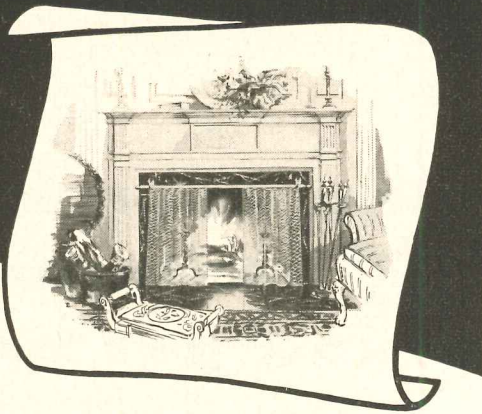
There's room in the cost sheet of even low-budget homes for this quality and value leader. No other fabric-covered door can begin to match it—at the price.

* ALL PRICES SLIGHTLY HIGHER IN WESTERN STATES

In Canada: Foldoor of Canada, Montreal 26

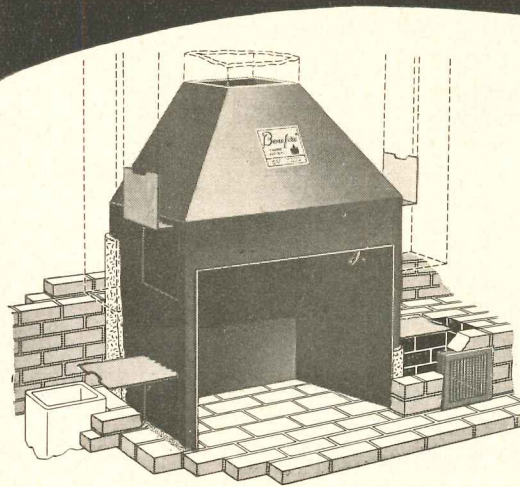


the extra sales appeal of the **OPEN FIREPLACE**
can now be added to
LOWER PRICED HOMES
with *Benefire*... the
COMPLETE FIREPLACE FORM



WITH *Benefire*® THE WHOLE FIREPLACE
COSTS LESS . . . OPENS A WIDE NEW
MARKET IN LOWER PRICED HOMES

Now you can incorporate your customer's "dream" fireplace even in your moderate priced homes. *Benefire* is the complete fireplace form . . . saves up to a ton of costly masonry on each fireplace . . . builds a perfect fireplace quicker and easier . . . New throat damper really closes tight, without packing . . . New "Ductops" make duct work cheaper than laying solid masonry . . . Let's look at some of the new features that now put an open fireplace within the reach of all your customers.



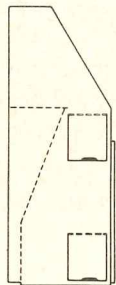
**ARE YOU TAKING ADVANTAGE OF THESE
TIME AND MONEY SAVING FEATURES?**

1. Adjustable Flue Connection . . . where needed, flue connection enlarges to support larger flue tile.
2. Extra Large Smoke Dome . . . gives gradual funneling from throat all the way to the flue.
3. New Tight-Seal Throat Damper . . . seats tightly all around without packing.
4. Exact Draft Control . . . Intermediate settings control excess heat loss, in a simple Ratchet or popular outside "Rotary". Neither relies on short-lived springs or friction.
5. Well Proportioned Opening . . . Depth and height are carefully related to gain broadest view of fire, most radiant heat and fuel capacity.
6. Square-Sides . . . gives larger heating chambers, easier brick lay-up, saves masonry.
7. All-Around Sealing Flange . . . gives quick, permanent leak-seal around hearth as well as front.
8. Air Inlets and Outlets . . . conveniently located, "Ductops" lift to form difficult part of ductwork.
9. Firebox Walls . . . back and side walls angled for greatest heat. Heavy boiler plate . . . double welded for greater than "one-piece" strength.
10. Extra Long Baffles . . . in heating chambers, conduct incoming cool air to heat center at back wall.

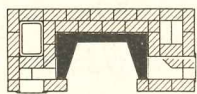
See your LOCAL BENNETT SUPPLIER

for full details and low prices on the new mason designed *Benefire* Unit, and also the complete line of dampers, ash dumps, grilles, grates, lintels, etc.

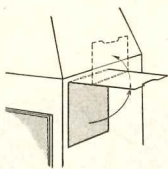
Write to 855 Call Street for complete new catalog.



THE COMPLETE FORM
FROM HEARTH TO FLUE . . .
Benefire is a complete form—all
around and right up to the flue.
Just set the unit on the hearth,
place the flue on the unit, and
lay up the masonry.



NEW SQUARE FORM . . .
Square sides on the new
Benefire eliminates slow,
troublesome diagonal courses.
Incidentally the bigger air
chambers of the new *Benefire*
occupy more space, save ma-
sonry in addition to giving
larger heating capacity. The
average size now "displaces"
116 bricks—half a ton of
masonry.



NEW "DUCTOPS" . . . Here is
a real time saver. Just bend up
the "knock-outs" to the required
angle and you have a form for
the troublesome part of the duct
work. Now with "Ductops" it's
actually faster and cheaper to
build ducts than to lay solid
masonry. If you run the outlets
straight up and have the grilles
near the ceiling (where they
look and work best) you can
save up to another half-ton of
masonry!

BENNETT - IRELAND INC.
Chartered in 1906
NORWICH, NEW YORK

NEWS

continued from p. 51

Robert T. Morrill of Beloit, Wisconsin, elected president of the National Association of Plumbing Contractors; to **Vern R. Huck**, named Builder of the Year by the Building Contractors Association of California; to Architect **J. Warren Platner** of Birmingham, Mich., for receiving the advanced research award under the Fulbright Program and the Rome Prize for architectural research; to **Theodore Irving Coe**, technical secretary of AIA, for receiving the Producers' Council's award of recognition for leadership and outstanding services rendered to the construction industry; to **Fred J. Samerdyke**, formerly with US Steel Homes, who will head Harnischfeger Homes, Inc., new subsidiary of Harnischfeger Corp.

Builder **W. Hamilton Crawford** of Baton Rouge was elected chairman of the board of directors of NAHB's National Housing Center in Washington, succeeding **Nathan Manilow**. Manilow will continue on the seven-man board.

NAMED: Robert Szold, elected president of the United Housing Foundation in New York, succeeding the late **Louis Pink**; Builder **Anthony S. Zummo**, first vice president of the Long Island Home Builders Institute, named national chairman of NAHB's labor committee; Architect **Archibald Coleman Rogers** of Annapolis, Md., appointed executive director of the Greater Baltimore Committee; **E. J. O'Leary**, sales manager of the Ruberoid Co., elected president of the Asbestos-Cement Products Assn.; **Thornton E. Stokes**, former president of Clyde Porcelain Steel Corp., elected president of Lumber Fabricators, Inc.; **Charles Morearty**, officially named president of the newly-formed, 40-firm Sliding Glass Door & Window Institute in Los Angeles.

Robert E. Merriam, defeated in Chicago's mayoralty election last spring, was appointed assistant to Budget Director **Rowland Hughes** in Washington. Merriam served eight years in Chicago's city council, where he gained a close acquaintanceship with housing problems.

Albert C. Crew was appointed director of Federal Home Loan operations, succeeding the late **E. E. Reardon**. Crew has been with the HLBB-supervised Federal Savings & Loan Insurance Corp. since 1935.

Jack W. Sinclear, executive director of the Stanislaus County Housing Authority in California, was under indictment on seven counts of embezzlement of public funds. He was charged with billing the Authority for items for personal use and with cashing checks made out to fictitious persons.

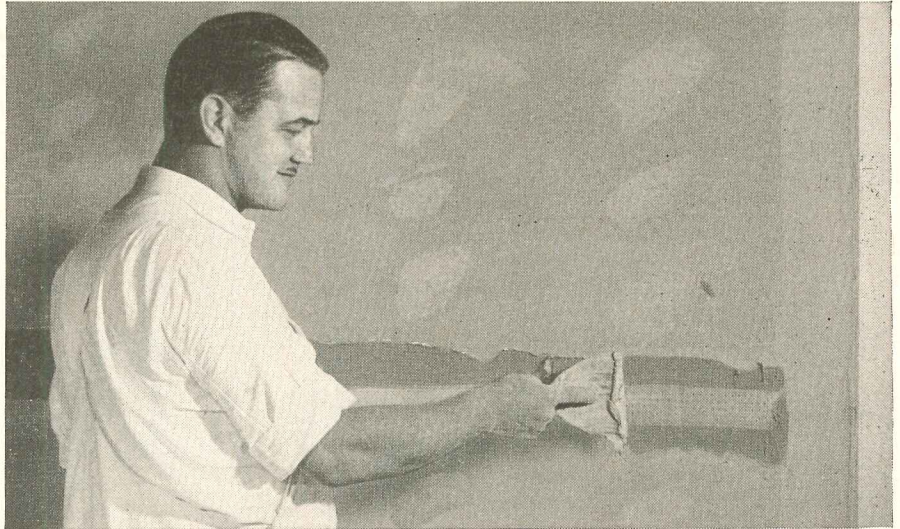
St. Louis Labor Leader **Evan R. Dale**, sentenced last winter to 15 years in prison for attempting to extort more than \$1 million from a contractor at the Joppa, Ill. atomic energy plant, received another 10-year sentence for income tax evasion.

DIED: Albert E. Wilson, 76, architect with the Mamaroneck, N. Y. firm of Wilson & Rahm, who was awarded the Silver Medal for residential design in 1931 by the Architectural League of New York, June 17 in Mamaroneck; **Herbert Bartholomew**, 43, former president of the San Francisco Housing and Planning Association and son of the nationally known city planner, **Harland Bartholomew**, June 24 near Placerville, Calif.; **Lester A. Russell**, 72, a leading realtor in Dallas for more than half a century, member for the last six years of the National Realtors Washington Committee, June 26 in Dallas; **J. Clydesdale Cushman**, 68, New York real estate executive, and a founder in 1917 of the National Association of Building Owners & Managers, June 30 in Upper Montclair, N. J.; **Burton Ashburton Tripp**, 67, landscape architect, July 1 in Alexandria, Va.

NEWS continued on p. 62

**NOW A COMPLETE CERTAIN-TEED BESTWALL® "PACKAGE"
FOR BETTER DRY WALL CONSTRUCTION**

**everything
you need
—from WALLBOARD
to PAINT—
from a
single source**



From Bestwall® Gypsum Wallboard to the new Bestwall Paints, you can now get everything you need for better dry wall construction from a single source—Certain-teed.

Start with the wallboard. You will find Bestwall is light, strong, easy to apply. The first gypsum wallboard to be reinforced with Fiberglas* for easier handling, better nailing, greater flexibility.



Completely New Packaging

Our boxes and bags have been completely redesigned—providing just the right quantities for every use.

For wallboard joints Certain-teed Bestwall Joint System offers you a choice of two different treatments to suit your preference for workability.

The 1-material treatment uses Bestwall Joint System Cement for both embedding the Bestwall Tape and topping over it in finishing joints. The cement is also used for "spotting" nail heads.

The 2-material treatment provides Bestwall Bedding Compound for embedding tape and covering nail heads, and Bestwall Topping Compound to cover bedded tape and to finish joints and nail heads.

In redecorating, use Bestwall Spackling Compound and Patching Plaster for repair work. And finish off with the new Certain-teed Bestwall Paints for the prettiest colors this side of a rainbow.

It's a complete Certain-teed "package" that can save you time and money—make better work quicker and easier to do. See your Certain-teed dealer for complete information, or write direct now.

*TM OCF Corp.

**NEW BESTWALL
PAINT PRODUCTS**



Bestwall Softone Alkyd Flat Enamel and Toners combine the restful, "glare-free" qualities of a flat paint with the durability of high-gloss enamels.

Bestwall Semi-Gloss Enamel and Bestwall Interior Gloss Enamel are the perfect finishes for all interior walls and woodwork where a rich, satinlike luster or high gloss is desired.

Bestwall Bestone Washable Latex Paint produces a tight, smooth surface that won't give dirt a foothold.

PLUS: Bestwall Primer Sealer • Bestwall Casein Interior Wall Paint • Bestwall Powdered Primer • Bestwall Masonry Paint • Bestwall Powdered Colored Texture Paint • Bestwall Powdered Texture

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Quality made Certain . . . Satisfaction Guaranteed



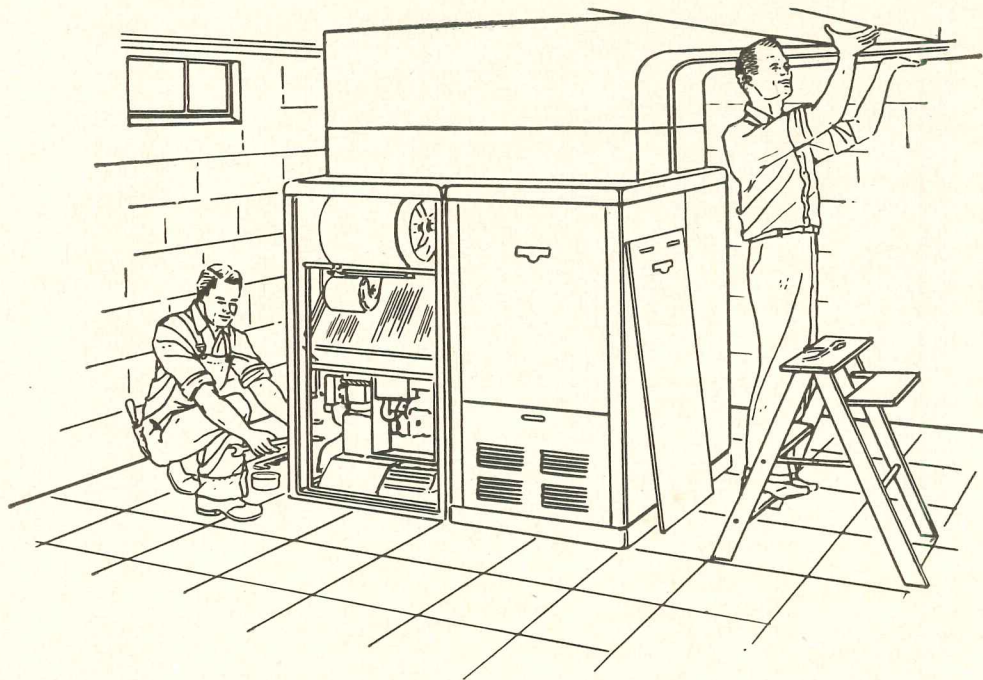
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They are backed by a distribution setup which gives them what they need *when they need it*. A nearby Armstrong distributor with a huge inventory of Armstrong furnaces and summer air conditioners. A distributor who is committed to quick action when home construction is involved—even to the extent of stocking, or having quickly available, standard and special controls, sheet-metal supplies and so on.

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A ship-shape job, too. Craftsmanship which sells.

And after the sale, satisfaction which goes on selling for you, year after year.

Plus straightforward, written guarantees which take the bear off your back if anything *should* go wrong.

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Columbus 8, Ohio or Des Moines 9, Iowa

I'd like to see your New-Home Promotion Kit. If it's the same old run-of-the-mine stuff I can't use it, but if it's real merchandising help I'll consider it.

Name _____

Company Name _____

Address _____

City _____ Zone _____ State _____



NEWS

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OPINIONS

These intellects shed the following light on matters of moment to housing:



Builder **Thomas P. Coogan**, president, Housing Securities Inc.:

"Contrary to popular opinion and many statements, the Housing Act of 1954 has had little or nothing to do with the high volume of housing. The building boom was created and is supported by the easy money policy of the government initiated last year. The no-down payment and the no-no-down have been available for years in a VA program but unusable until the easy money policy created investment pressure that forced investors to buy these loans, heretofore unmarketable. The volume has come from the definite switch from FHA to VA for easier terms."



Arthur Weimer, dean of the school of business, Indiana University, in the *Savings & Loan News*:

". . . While high building rates tend to increase obsolescence rates, their effect is not limited to older houses. Houses completed in recent months may, because of poor location, improper design and inadequate equipment, suffer high rates of obsolescence. By contrast, some of the older houses which have the advantages of favorable location and attractive design have resisted obsolescence rather successfully and are likely to continue to do so. It is a mistake to assume that obsolescence is directly related to the age of houses.

"This suggests that in their mortgage lending policies, savings and loan managers must give special attention to location, design and equipment . . . to avoid high obsolescence. . . A general increase in housing demand over future years cannot be expected to compensate for mistakes by builders in placing houses in poor locations, designing them improperly or using inefficient equipment."



Mayor **Joseph S. Clark Jr.** of Philadelphia, testifying before the Senate banking committee:

"This whole problem of urban shelter is probably the most serious single problem which we face as municipal administrators. Our picture is terribly dismal. Urban blight is getting ahead of us faster than we are able to cure it. We don't have the financial resources to solve the problem on our own feet. The Commonwealth of Pennsylvania . . . is also broke. That is why we are here again, as we are year after year, with a tin cup in our hand asking for federal assistance."

NEWS continued on p. 66

**NOW you can PLAN central
AIR CONDITIONING for
5 or 6 room houses for as little
as 60c a sq. foot INSTALLED**

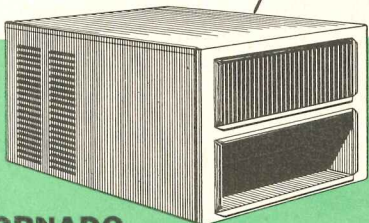
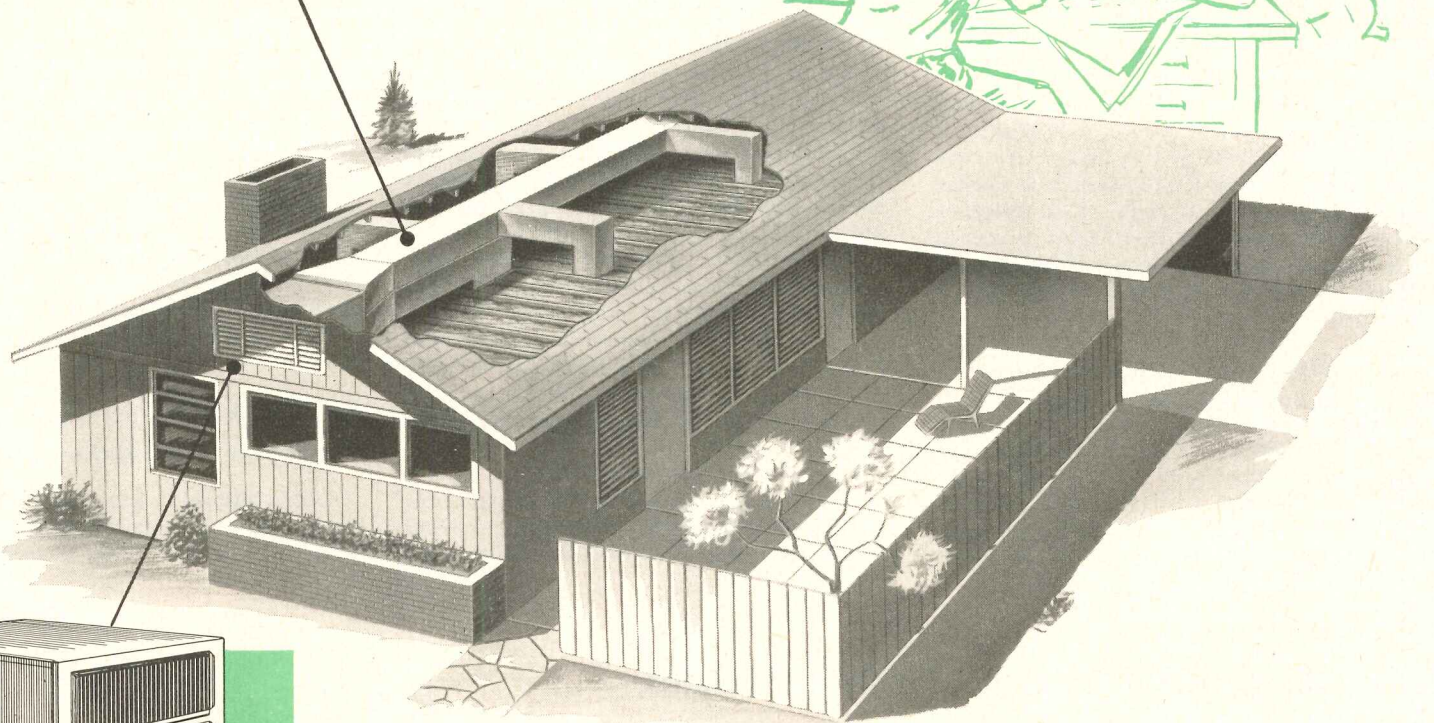
Vornado's[®] new RESIDENTIAL AIR CONDITIONERS

Vornado lets you plan for complete air conditioning in homes of 1,000 to 1800 square feet for as little as 60¢ per square foot.

Vornado air conditioners can be installed with full assurance of owner satisfaction and years of carefree operation.

Vornado's completely self-contained, air-cooled units require no troublesome water towers, or plumbing connections.

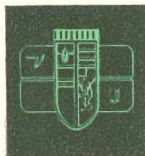
New engineering principles and streamlined production methods have reduced the cost, and made these powerful, yet compact, units possible. Installation is easy, simple, and can be completed in one day. Available in both 2-H. P. and 3½-H. P. sizes, Vornado residential air conditioners have FHA and VA acceptance.



**VORNADO
Residential Air Conditioners**

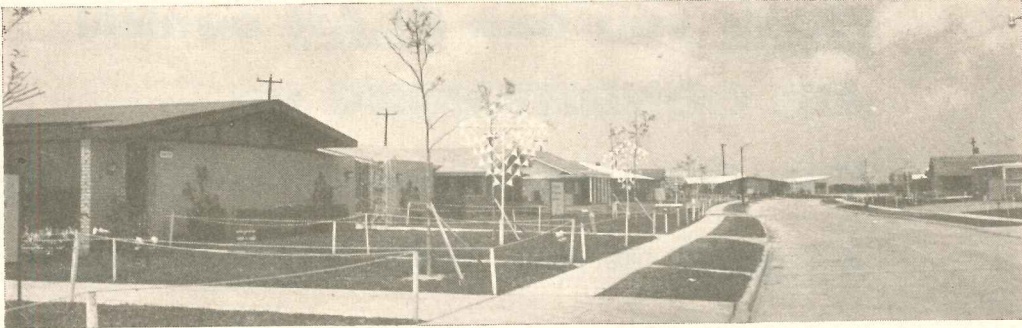
represent the most advanced engineering principles in air conditioning. Available in 2 H. P. and 3½ H. P. Powerful, yet compact, lightweight, and economical to operate. Twin system operation for better humidity control. Thermostatic controls for completely automatic operation. Five-year guarantee on unit.

See your Vornado distributor today. He'll show you how you can put Vornado air conditioning in your homes, and keep your sales prices competitive and well within the reach of the average home buyer.



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Specialists in the manufacture of comfort cooling appliances
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H&H staff photo

SMOOTH STRETCH OF HETEROGENEOUS HOMES AT HOUSTON'S BIG PARADE

BUILDERS AT WORK:

Parade of Homes in Houston draws 75,000 in two weeks

Houston's home builders trotted out 30 houses and a bomb shelter for the near biggest and undoubtedly the best Parade of Homes in the city's history. A crowd of 75,000 circulated through the strip of exhibit houses (see photo, above) during the two weeks they were on view in the spacious, carefully-planned Meyerland subdivision.

Variety was the spice of the parade. The first split level in a Houston subdivision was shown by **Alan Huvad**. **W. K. King** put up a flat-topped structural steel house. **Robert W. Clemens'** *Parents Magazine* and *American Gas Assn.* home was on view. The Houston Home Builders Assn. sponsored a big, L-shaped rancher designed by **Edmund Langwith** and **Robert King**, with **Wilson, Morris & Crain**, AIA, consulting architects. (**Clear Span Engineering Co.** built the sunken bomb shelter that went with the Home Builders Assn. house.)

Architect-developer Clemens was committee chairman of the parade, with **B. F. Williams** vice chairman. Other builders in on the festivities: **Jim West**, **Leroy Walker**, **Krist Hubert**, **D. R. Hamlin**, **V. L. Yarbrough**, **G. A. Fraser**, **S. L. Campbell**, **Paul Wolf**, **Wayne Beckner**, **Ervin Boessling**, **Frank Ogren**, **Sam Johnson**, **Earl Gilbert**, **Wilbur Moore**, **Fred Wall**, **R. A. Tyler**, **S. E. McCrory** and **Phil Cox**.

Big Hawaiian development begun by Fritz Burns and H. J. Kaiser

Industrialist **Henry J. Kaiser** and Big Builder **Fritz Burns** of Los Angeles, who first teamed up for fast-production home building in 1945 with formation of Kaiser Community Homes, are going heavily into resort development in Hawaii. Burns

reports that their investment in land there has passed the \$3 million mark. "We have assembled almost 20 acres in fee simple on the ocean front in the Waikiki area," he noted, "in an area where real estate is usually measured by the square foot and then only a leasehold basis." The developers also purchased the Niumalu Hotel for \$1,262,000 and are at work rebuilding the main part and regrouping the cottages around three new swimming pools. Architect **Welton Becket** is designing a 500-room hotel to be built on the ocean front. The Kaiser-Burns master plan calls for two more hotels of the same size and additional cottages. Other planned improvements: a tropical lagoon 1,000 ft. long, complete shopping facilities and 100 beach cabanas.

New materials center in San Francisco provides exhibits, research and lunch

A first-of-its-kind construction materials center, combining exhibits, a library, workrooms for architects and product testing facilities, was ready to open in San Francisco.

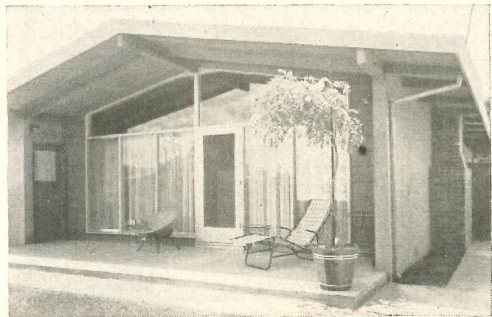
Brainchild of Designer **Victor M. di Suvero** (he has worked with **Joseph Eichler**, **Conway & Culligan** and **Myers Bros.**, among others), the 3,000 sq. ft. center is located in the heart of the "architectural area." (**Wendell Spackman**, president of the Northern California chapter of AIA—which has endorsed the project—has his office across the street.) "The center didn't grow out of thin air," di Suvero said recently. "In our work we'd developed a large sample collection and more and more people were getting interested, asking questions, calling us up. . . ."

Financing of the \$30,000 center will be covered by charter member dues of \$12.50 a month from the first 160 manufacturers displaying their wares and \$25 a month for successive exhibitors. Di

Suvero had close to 200 signed up before opening, expects to have 400 shortly. He calls the place "a three-dimensional Sweet's catalogue." In addition to the new materials section in the San Francisco center, there will be a workroom where architects can bring clients and working drawings to fill in product specifications, space for exhibitors to submit products to builder reaction, a fully-equipped kitchen (architects are supposed to take turns playing guest chef of the week for the luncheon crowd) and a research department to answer specific questions about prices or products. Di Suvero, when he raises more capital, hopes to open centers like this one in half a dozen big cities across the nation.

California builder at work on 225 1,200 sq. ft. homes for \$13,500

Builder **Roy Jensen** of Pleasanton, Calif., who puts up about 100 homes a year, has sold the first 70 of 225 colorful three-bedroomers with 1,200 sq. ft. of open-plan space (see photo). He offers a dozen variations of a basic plan worked out by **J. W. Goodhue & Associates** of Livermore, which includes two baths. Price: \$13,500. The exterior



Elliott H. Dopking

is sage-colored boards and batten with matching stucco and a white rock roof. Interiors have been smartened up by Color Consultant **Nancy V. Rubey** with a number of hot weather hues, including apricot, avocado and turquoise. Pleasanton is a fast-growing community, at least partially because of its nearness to the University of California's radiation laboratory. Jensen's lots are small—65' x 98'—but he has been able to cut down on regimentation by switching angles of house placement and has gained privacy with the customary board fences.

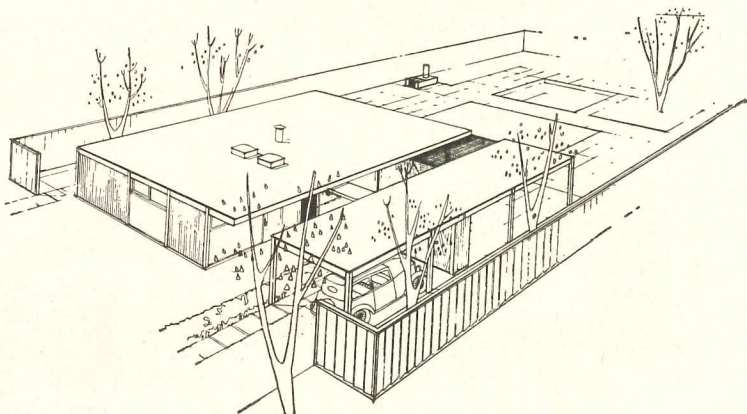
New York architect quits split levels for rancher with jacked-up basement

Architect **Michael D. Schwartz** of New York, who has to date concentrated on split levels in Little Falls, N.J. and New Rochelle, took most of the

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Jury issues views on craze for family rooms

A jury of five St. Louis architects awarded this open-plan home first prize among 41 entries in a contest for a "Missouri House" suitable for subdivision development. Conditions were three bedrooms, a maximum 1,250 sq. ft. and no basement. **Chester Roemer** and **Thomas Baer**, both of Hellmuth, Yamasaki & Leinweber, took the \$1,000 first prize, offered by the St. Louis chapter of the National Society of Arts and Letters. The judges noted that at least 90% of the designs submitted included a multipurpose or family room and questioned the desirability of using up 250 sq. ft. of the allotted space in this manner. They accepted the concept, but argued that a multipurpose room was better used in conjunction with a kitchen than with a living room and that it was poorly used when it served merely as an expanded corridor between bedrooms and baths. Second prize winner: **Edward F. Gordon**.



with their old homes

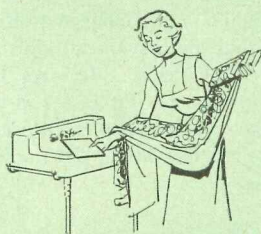
BEAUTYWARE bathroom

The bathroom (like the kitchen) has become one of the most important "showplaces" in the home. Also, it is often in the bathroom that an old home shows its age most.

That means that bathroom fixture design and styling are of greater importance today than ever before. A colorful, modern bathroom with new Briggs Beautyware dramatizes the

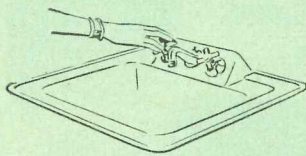
disadvantages of the old home - - adds many powerful *extra* reasons for getting out of the old place, *and into the new one.*

The outstanding features listed below are making Briggs Beautyware the first choice of more and more value-minded builders, architects and plumbers - - more and more quality-conscious home owners and buyers.



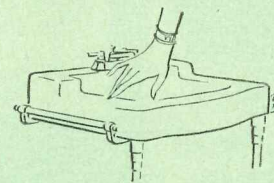
Newest Sea-tone Colors

The fresh, bright, unfading shades of Briggs fixtures add beauty and distinction to any bathroom—make decoration easy, impressive and tasteful.



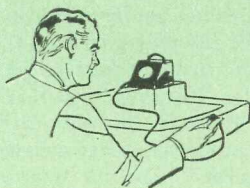
Trouble-Free Fittings

All Briggs fittings are specially designed, precision manufactured and thoroughly tested to assure a long life of enjoyable and dependable service.



Hi-Style Vitreous China

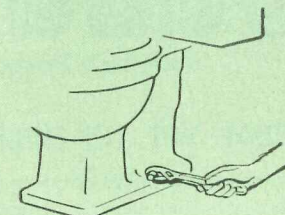
Vitreous china Beautyware is made from carefully selected clays—scientifically worked, glazed and fired to produce ceramics of highest quality.



Glass-Hard Surfaces

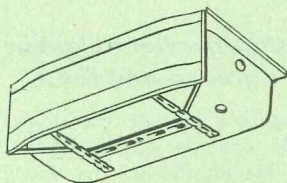
All Briggs fixtures—porcelain enameled steel or vitreous china—have glass-hard surfaces which are stain-proof and fade-proof—and so easy to clean.

Compare features
with any other
fixtures



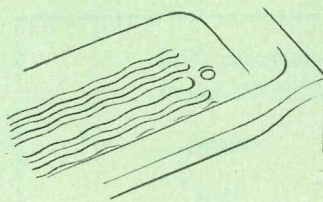
Time-Saving Installation

Beautyware offers builders and plumbers many exclusively designed features which facilitate installation and speed up home building schedules.



Rugged Construction

Beautyware fixtures—from rugged bathtubs of reinforced steel to sturdy fittings of quality brass—give a lifetime of satisfaction and service.



Safety-First Design

The exclusive safety bottom of Briggs bathtubs is a great safety feature. In addition are safety hand-grip, wide rim seat and leak-proof wall flange.



Superior Value

Beautyware quality is also economical—putting finest color fixtures and an extra bath or lavatory within reach of more people than ever before.

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WITHOUT REAL SALES FEATURES?



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suburban

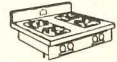
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I'm a Builder of New Homes Kitchen Remodeler

NEWS

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Michael Schwartz

ARCHITECT'S REVAMPED SPLIT LEVEL

split out of his popular model and enlarged it (see photo) to fit the higher-bracket Westchester County trade. "Zoning restrictions call for 100' minimum frontage in many of the better sections," he commented recently, "in addition to minimum cubage requirements of large volume. One answer to this problem is a simple-to-construct, barn-like structure allowing the ease of circulation found in the ranch house as well as the volume economies of the split level achieved by jacking up the basement high enough for windows."

Schwartz extended the living room and bedroom of his New Jersey model 8' apiece and added sliding doors for both rooms giving on a terrace and a roof deck. The front entry is still split level, opens on an upper level of 1,670 sq. ft. and a sunken recreation room of 860 sq. ft. Backed-up baths are about midpoint in the elongated structure. Schwartz has sold his first model and has started construction of 17 more. He says the homes are "selling themselves." Prices are in the \$27,000-\$31,000 bracket without land. Schwartz may work out a smaller version for use in less stringently zoned areas.

Oddstad plans \$10 million project on high ground in Oakland, Calif.

Big Builder **Andy Oddstad**, who has peppered the San Francisco peninsula with his Homes by Sterling (he recently opened Linda Mar to 157 families, who moved in *en masse* in one day) was planning a \$10 million subdivision in Oakland that would be the biggest thing the city had seen in more than a decade. Location in question was a hilltop site offering one of the best views in the entire Bay area. The planning commission had received protests from residents, fearful that the area would not develop "normally" and that the project houses would not fit in with existent homes. But the commissioners seemed anxious to promote the development "within the framework of planning commission rules and city laws."

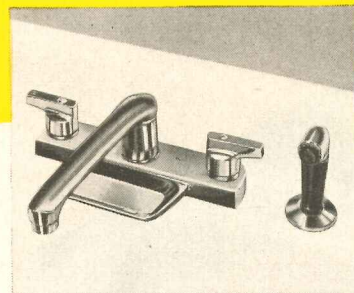
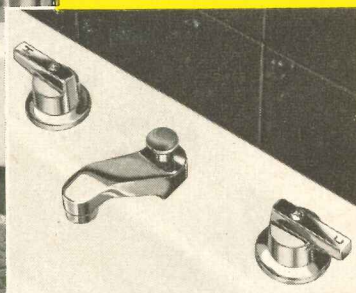
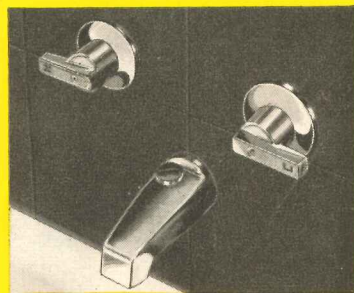
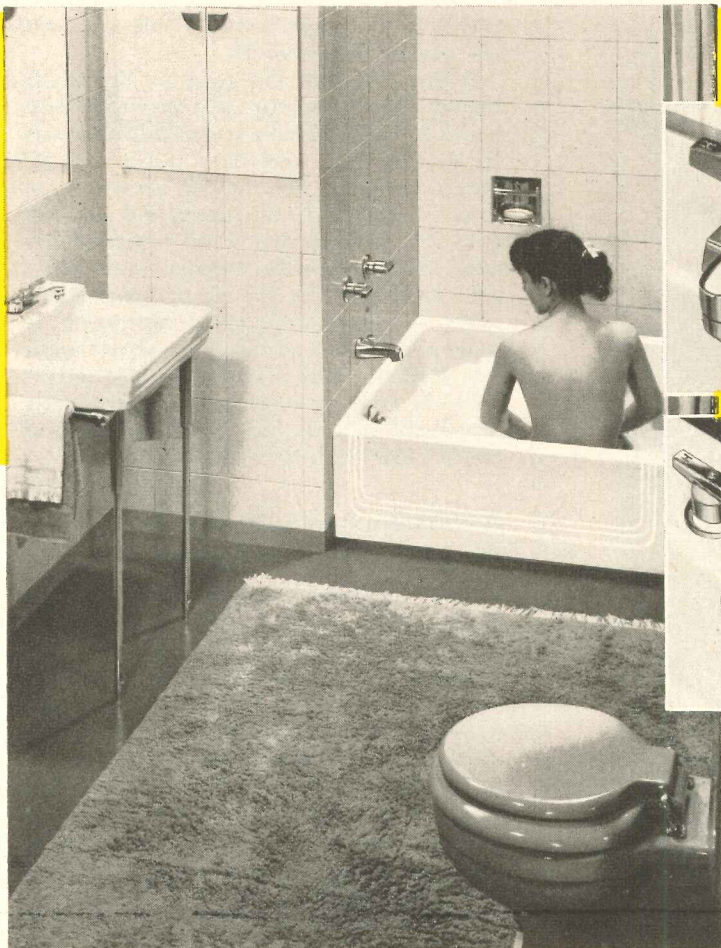
Heat pump for every house in first all-electric village

A 432-home project, billed by the **General Electric Co.** as "the world's first all-electric community," was opened in Fullerton, Calif. by **Kusa, Inc.** Every home has a heat pump. No combustible fuel is used in the project at all.

Nonwhite housing hurdle: neighbor requires vacant ground and fence

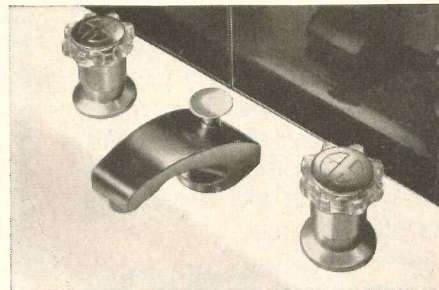
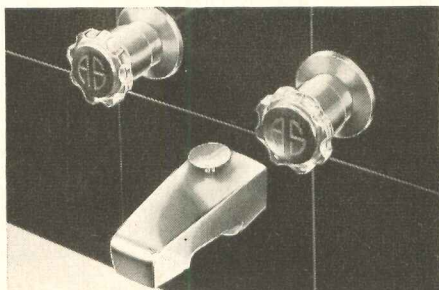
Ex-NAHB President Dick Hughes recently came up against a couple of powerful do's and don'ts of home building. He bit the dust on the first one. Before he could start work on a proposed 200-home project for Negroes on the outskirts of Pampa, Tex.—alongside a Negro school and park—he had to sign a written agreement that the far half of the property would be left vacant during the lifetime of the owner of the adjoining farm. He also had to agree to build a 6' fence down the

continued on p. 76



New Quality Fittings. This new line of fittings feature ultra-modern styling and is finished in polished, non-tarnishing Chromard for permanent beauty and easy cleaning. Shown here are graceful Quality fittings for the bath, lavatory and kitchen. Featured in the bathroom installation is a compact Restal Receptor Bath—the ideal way to add an extra bath in limited space. All new American-Standard fittings have self-aligning escutcheons for neater, easier installation.

New Monogram Fittings. These luxurious fittings, finished in rich satin chrome, can be distinctively personalized with the owner's initials. They are available with clear, crystal-like handles or in five attractive colors to harmonize with handsome American-Standard bathroom fixtures. Handles can be bought separately so homeowners can change the color scheme of their bathrooms if they so desire.



New Dental Lavatory. This useful and sanitary addition to the modern bath helps relieve bathroom "rush-hour" traffic... helps teach children better teeth-cleaning habits. Made of vitreous china with flushing rim and back-flow preventer, the Dentaledge is available in all American-Standard colors. Only 14" x 14" in size.



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Prices on Sun Valley "JUNIOR" Door

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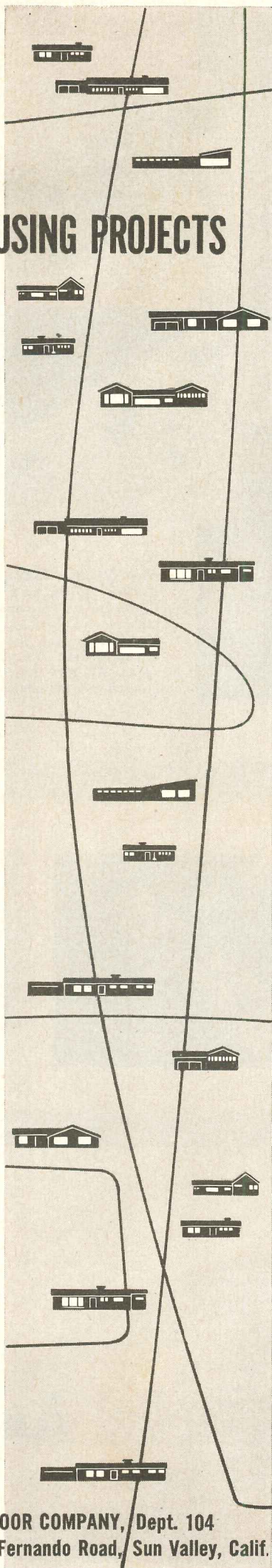
DOOR WIDTH OPENING	LIST PRICE
6' - 0" (2 panel)	\$ 90.00
8' - 0" (2 panel)	\$102.00
10' - 0" (2 panel)	\$114.00
12' - 0" (2 panel)	\$126.00

- locking stiles may be reversed permitting sliding unit to be right or left.
- all aluminum
- aluminum etched for corrosion resistance.
- units will accommodate glass of 3/16", 7/32" or 1/4" thickness.
- quantity discounts available.

For further information on the Sun Valley Junior and Sun Valley Aluminum Sliding Glass Doors, write:



SLIDING DOOR COMPANY, Dept. 104
8354 San Fernando Road, Sun Valley, Calif.



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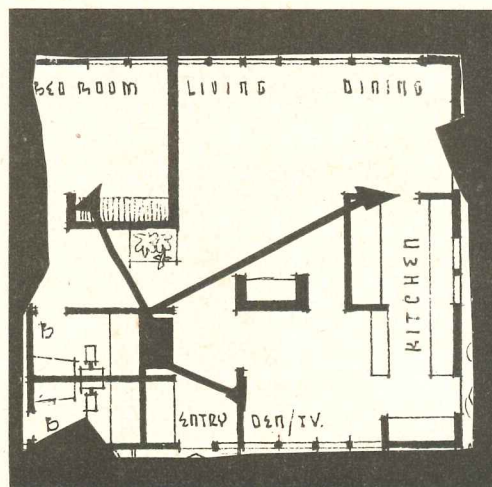
middle of the property. Result: only 100 units now planned, instead of 200.

Hughes solved his other problem. He was confronted with the fact that only three of 50 small houses he had built and priced at \$6,150 had sold. He decided there were three reasons: he had used a car shade (with a trellis, not a roof) instead of a carport; the closets did not have doors; the driveway was gravel instead of concrete. So he paved the driveway (cost: \$100), put sliding doors on the closets (cost: \$125), sawed off the car shade, raised the price of the house to \$8,000 and sold them all in three weeks. Says Hughes: "This proved to me that there is no use breaking my neck trying to build very low cost houses and ram them down the throats of people I don't want to buy them."

Architect urges built-in hi-fi for \$25,000-and-up homes

Architect Edward Fickett of Los Angeles believes that more home buyers are going to want space for high-fidelity music apparatus this year and is building it into his houses. Last year about 15% of families who bought 30 Fickett homes in Bel-Air for between \$25,000 and \$50,000 wanted hi-fi. He thinks one of every four will want it this year.

There is nothing very difficult about making hi-fi arrangements part of a new home. Fickett is perhaps a little more advanced than some others simply because he is willing to take a chance on his customers wanting the extra space in the house. (Architects generally agree that built-in hi-fi space is not feasible in homes priced for less than \$25,000.) But under his method the cost of supplying space for equipment and conduits to wall loudspeakers (see plan) adds up to only \$150. Fickett uses the simplest plan for housing the record-playing equipment—i.e., puts it in a closet. GMB Corp., which is building his \$25-35,000 homes in Bel-Air and the San Fernando Valley, says it can absorb this added cost as an extra service to the buyer. How far a builder could absorb the cost of a less-basic system—a storage wall for the machinery instead of a closet (twice as expensive) or a living-room cabinet for it (three times as costly)—is something else again. Meantime, the cost of a hi-fi system is still higher than for an ordinary record player. Lower costs in the future could create demand so that architectural planning for hi-fi would become a must.



CLOSET POSITION for a three-speaker hi-fi set, as designed by Architect Edward Fickett. (House is his NAHB prize winner.) Fickett places wall speakers in den, master bedroom and dining area, avoids the kitchen because of possible grease damage to the loudspeaker screen.

house + home

AUGUST, 1955

Published by TIME Incorporated

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HOUSE & HOME is published monthly by TIME Inc., Time & Life Building, 9 Rockefeller Plaza, New York 20, N.Y. Yearly subscription payable in advance. To individuals or firms (and their employes) engaged in building—design, construction, finance, realty; material distribution, production or manufacture; government agencies and supervisory employes; teachers and students of architecture and trade associations connected with the building industry; advertisers and publishers: U.S.A., Possessions, Canada, Pan American Union and the Philippines, \$6.00; elsewhere, \$9.50. Single copies, if available, \$1. All copies mailed flat. Please address all subscription correspondence to HOUSE & HOME, 9 Rockefeller Plaza, New York 20, N. Y. When ordering change of address, please name the magazine and furnish an address label from a recent wrapper, or state exactly how the magazine is addressed. Both the old and the new address are required. Allow four weeks for the change. Copyright under International Copyright Convention. All rights reserved under the Pan American Copyright Convention. Copyright 1955 by TIME Inc.

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102 ROUND TABLE REPORT

Continuing a series on dimensional standards, H&H meets with spokesmen for industry groups and manufacturers concerned with bathroom design to explore how standardization can cut plumbing costs.

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On the newsstands this month: a new House of Ideas, a remodeling feature and garden structures.

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First in a series on the builder's No. 1 problem, this article reports ways to find land which have worked for builders across the US.

118 NEW SPIRIT IN ST. LOUIS

Three small building firms grow big on fresh design: Fred Kemp and Robert Edwards, James and George Londoff and Glenn Todd.

126 "GRADEMENT" ROOM REPLACES BASEMENT, MAKES SALES

Andy Place of South Bend, Ind. meets a tough local market by adding a basement equivalent above ground, moving into the quality field.

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Completely adjustable, this hardware is being used successfully by Martin Bartling, Andy Place, Jack Sargent.

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Builder Clayton Powell of Savannah cashes in on HOUSE & HOME cost-cutting recommendations, to develop a flourishing business.

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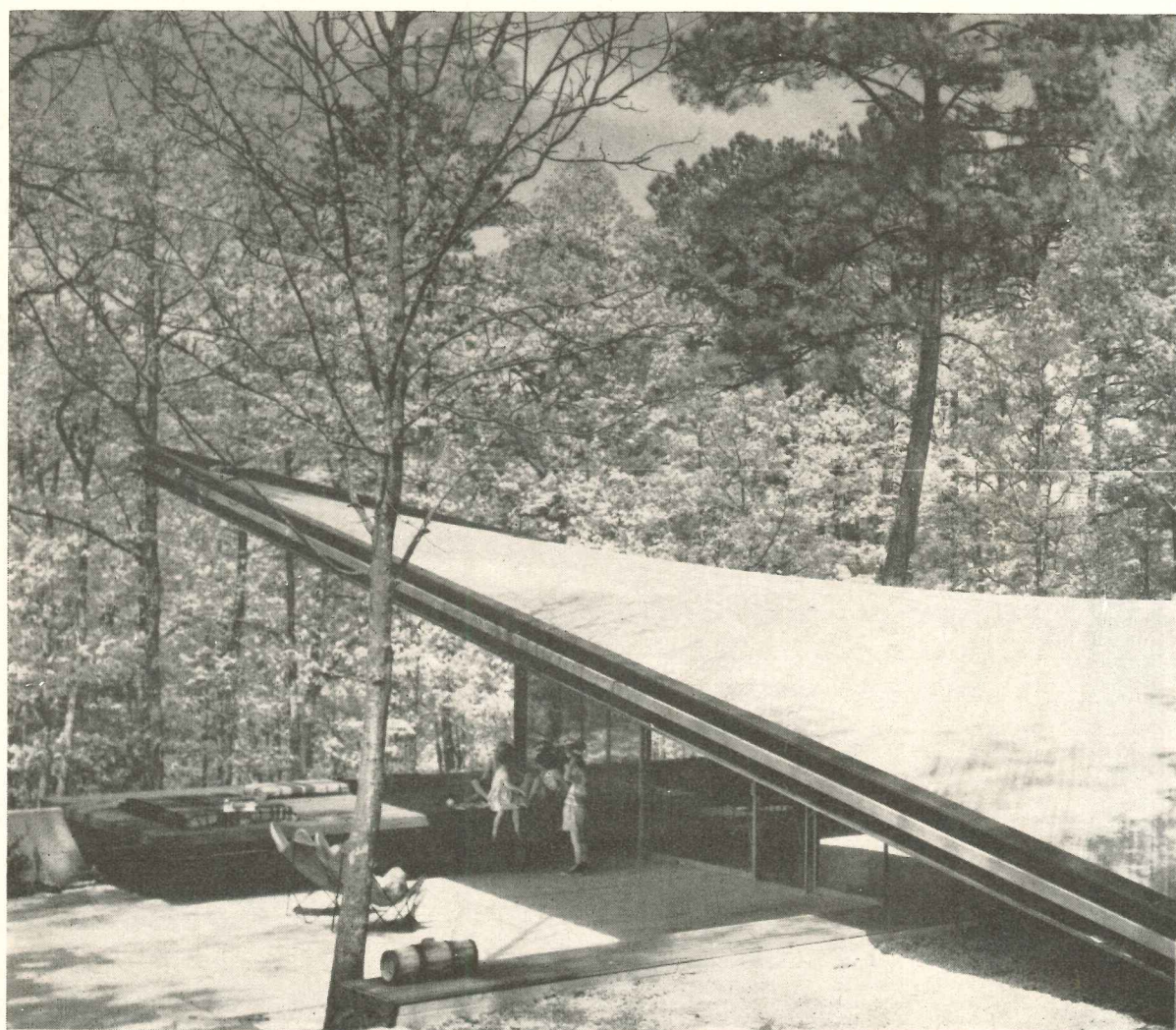
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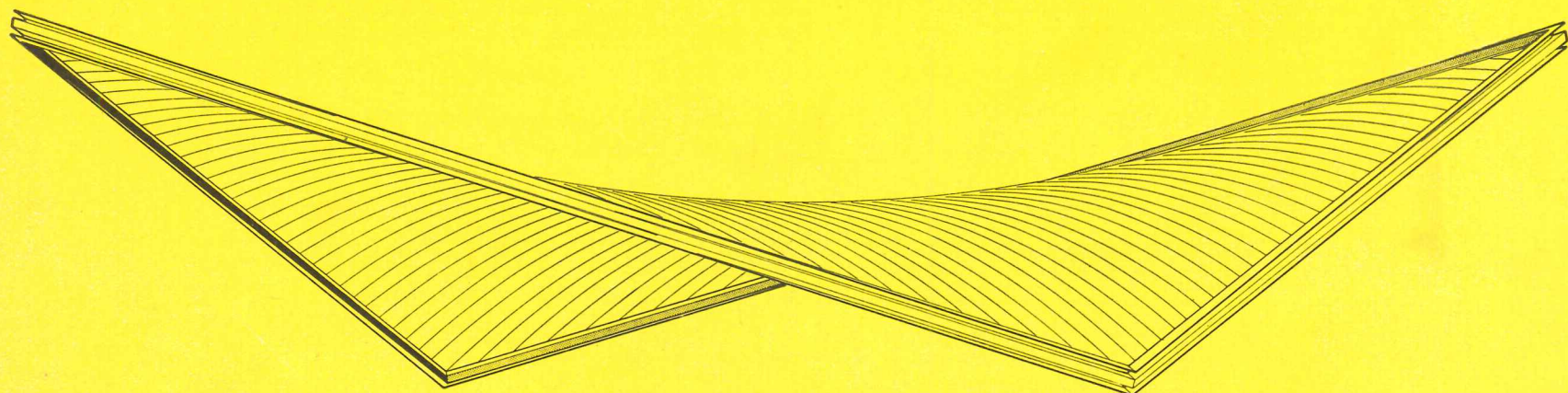
Cover: Architect Eduardo Catalano's experimental house. Photo: © Ezra Stoller.



LOCATION: Raleigh, N.C.
 EDUARDO F. CATALANO,
 architect (Argentina)
 ATILIO GALLO, structural engineer
 FRANK WALSER, general contractor
 FRANK CALDWELL, associate



Drawing (below) explains double-twist of roof shell, seen also in picture at top of page. Roof surface is a glass fiber mat finished off with a plastic coating. Two low points of roof are supported on concrete buttresses. Note carport under roof overhang in picture at right.



WHY ARE PEOPLE TALKING ABOUT THIS HOUSE?



©Ezra Stoller

For three reasons—

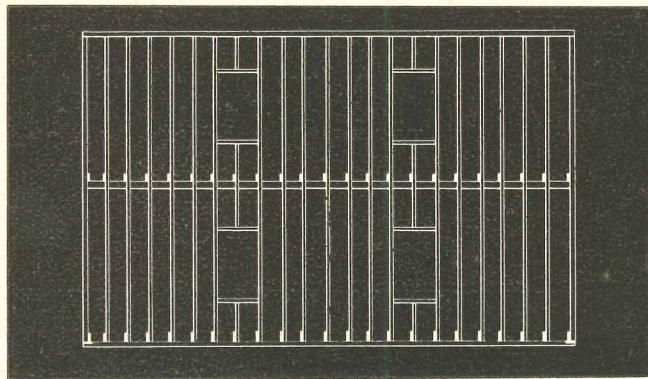
- because the house has a 4,000 sq. ft. roof supported on only two points;
- because its roof is a $2\frac{1}{4}$ " thick wooden "slab" that spans $87\frac{1}{2}$ ' in one fantastic leap;
- and because this is a structure that is all "skin" and no "bones," a structure that reaches into the magic design world of the soap bubble and the cobweb, a structure that reflects the most advanced engineering know-how of our time.

In brief, the house is a glassy square sheltered under a laminated wood shell twisted into the shape of a giant potato chip. The result is a flight of engineering fancy so daring, so nearly unbelievable as to make most structures of 1955 seem ponderous and obsolete by comparison. The house was designed and built in Raleigh, N.C., by the young Argentine architect Eduardo Catalano, for his own use.

But this is not just an essay in science fiction. The implications of Catalano's roof bear directly upon important structural problems of today. For details, please turn the page.



Bettman Archives



Animal skeleton and balloon-frame diagram from 19th Century carpenters' manual symbolize traditional building techniques using a "bone structure" which is then finished off with a nonstructural "skin." Catalano's approach uses the skin only and then structurally.

THE STRUCTURE: FROM BONES...

Most buildings today are "skin and bones"—"bones" of wood, steel or concrete, with "skins" of sheet materials applied to that structural skeleton.

Architects and engineers have known for years that "skin and bones" construction can be both wasteful and inefficient: if the typical one-story frame house were re-evaluated today, chances are that the true structural strength of such materials as plywood sheathing or plate glass would prove to be actually greater (in some respects) than the strength of the "bones"—the 2 x 4s and so on. Yet the "skin" is rarely given structural credit in the engineering of houses: more often than not its weight is considered a structural liability, while its structural assets are completely ignored.

Designers in other fields long ago recognized the tremendous potential strength inherent in the skin, and particularly in the curved skin. And so, step by step, the "bones" started to disappear—and the "skin" was made structural. This is as striking an advance in the history of building as the progress from lintel to arch.

One way to make the skin structural is the way of the egg—a parabolic shell, the dome of old. Another is to twist the skin in such a way that its resistance to bending becomes vastly increased. To explain: a flat shoehorn would bend, but a scooped shoehorn of equal thickness is strong enough to push a size 9 foot into a size 8 shoe.

All of which is by way of an explanation of the significance of Catalano's roof structure. He has taken a ridicu-

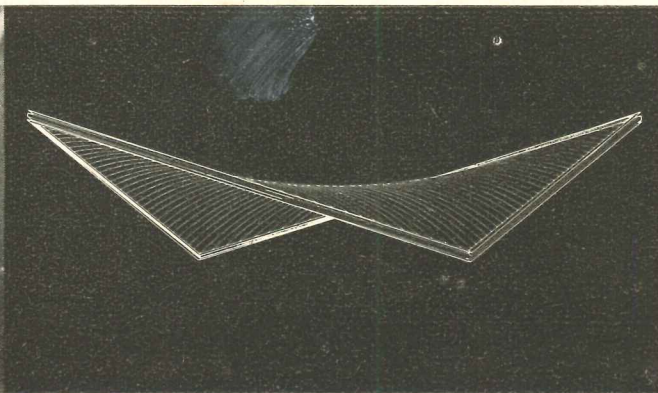
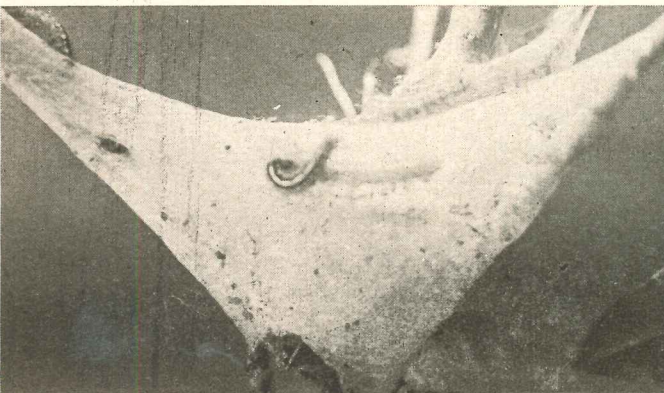
lously ($2\frac{1}{4}$ ") thin wooden "slab," and by giving it a double-twist added enormously to its structural strength: few US codes would permit a span of more than 8' for a $2\frac{1}{4}$ " thick plank deck. Yet Catalano's $2\frac{1}{4}$ " deck has a clear span of 87'-6"!

His double-twisted shell is called a hyperbolic paraboloid, because you will always get a pair of hyperbolas when slicing the shell horizontally, and a parabola when slicing it vertically. In plan, the roof is a 62' square. One of its diagonals is a parabolic arch, while the other is an upside-down parabola. Hence the double-twist.

The entire roof area of about 4,000 sq. ft. is supported on only two points—i.e. at each end of the arched parabola. These two ends are set on hinged steel joints embedded in deep concrete buttresses. Two 4" H-struts in tension balance the other two ends of the roof against high winds. The fascia is made of steel to absorb the outward compression stresses concentrated along the four edges of the roof. The $2\frac{1}{4}$ " thick wood shell consists of three layers of fir flooring strips, laminated with nails and topped off with plastic-on-glass-fiber roofing. The cost of the finished roof with all footings was about \$10,000—only \$2.50 a sq. ft.

The shell was built in place on a scaffold consisting of straight-line members, each one with a different slope. Work on this structure was done by Catalano at North Carolina State College, where he teaches. His house is the first practical application of his experiments.

...TO SKIN

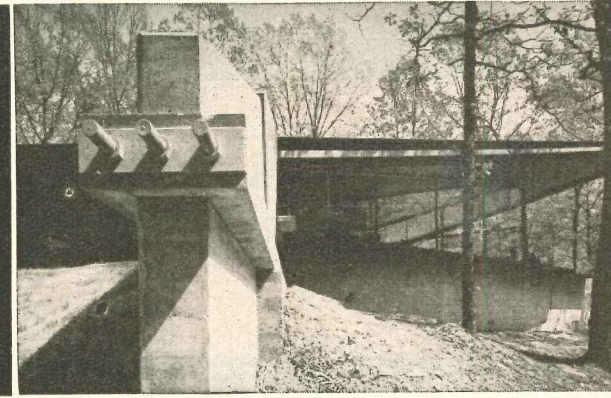
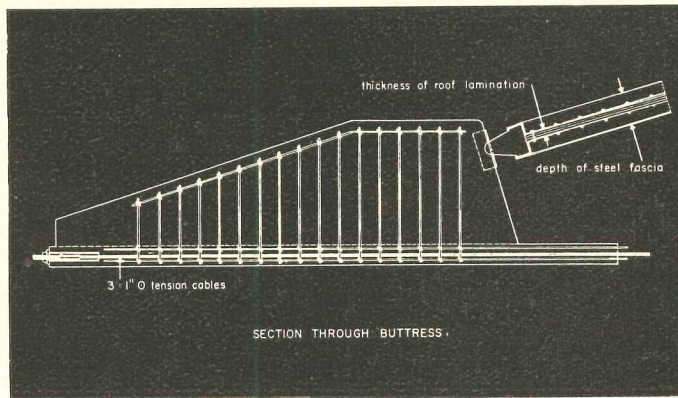


Tent caterpillars build "skin structures" very similar in form to Catalano's hyperbolic paraboloid. In these structures, the skeleton is eliminated altogether and the skin is given tremendous structural strength by being warped in two directions. The diagram at left shows how.

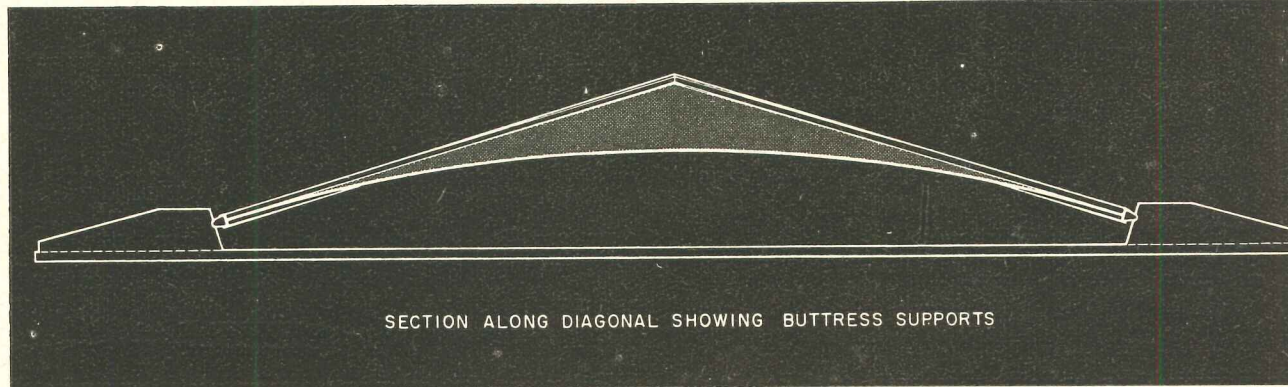
Construction details show (top to bottom): one of two concrete buttresses and wing-shaped roof beyond; section and close-up of buttress, explaining use of three 1" diam. cables to connect the two buttresses underground; section of house along one parabolic diagonal with its 87'-6" clear span between supports; and, at bottom, interior of huge laminated shell balanced on a hinge set into the concrete.



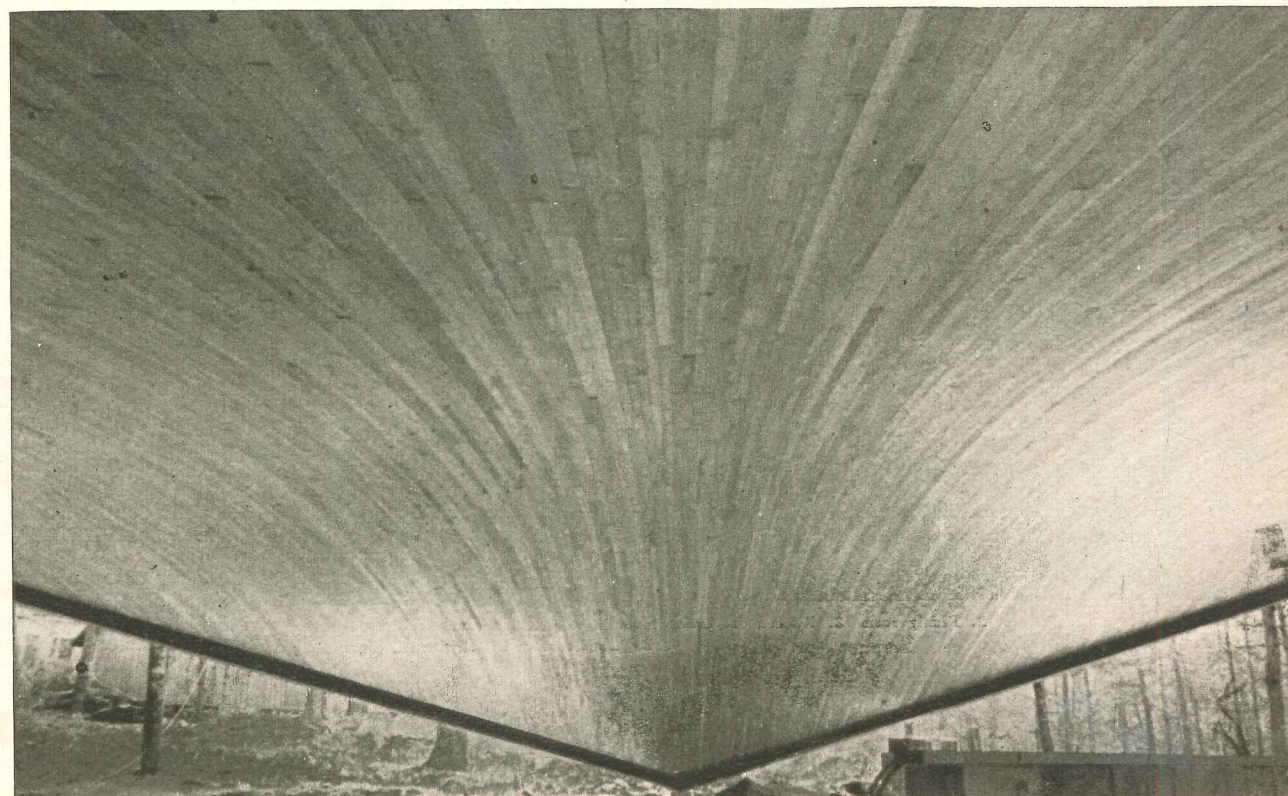
Eduardo Catalano

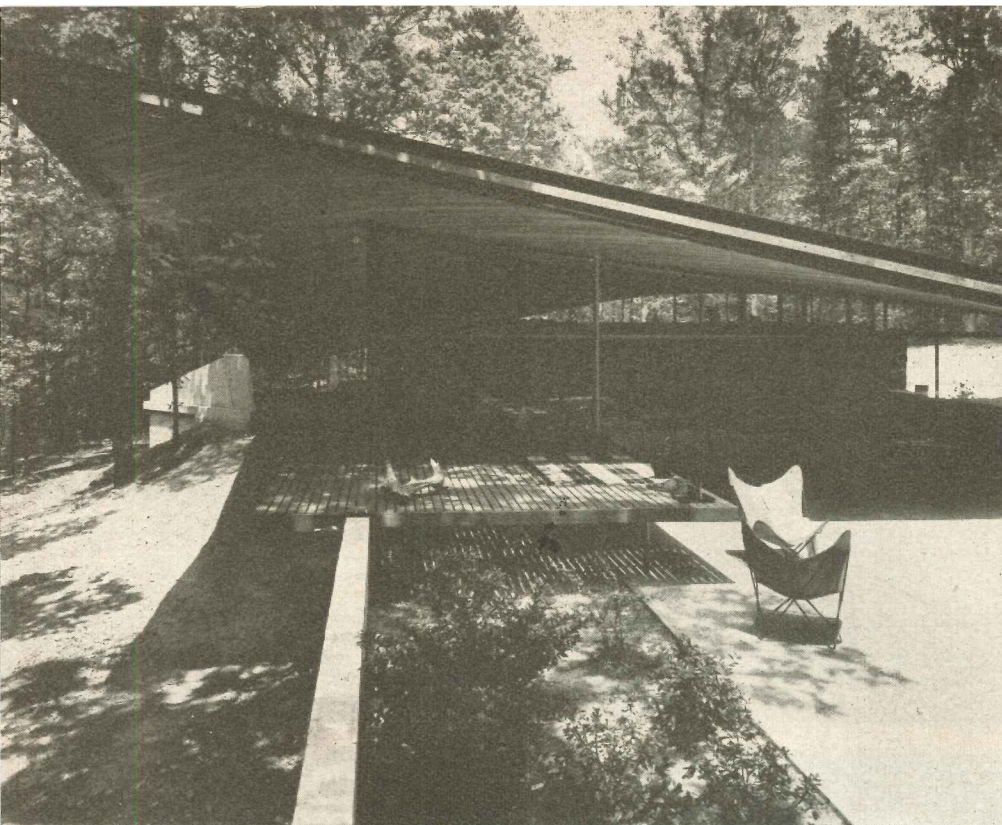


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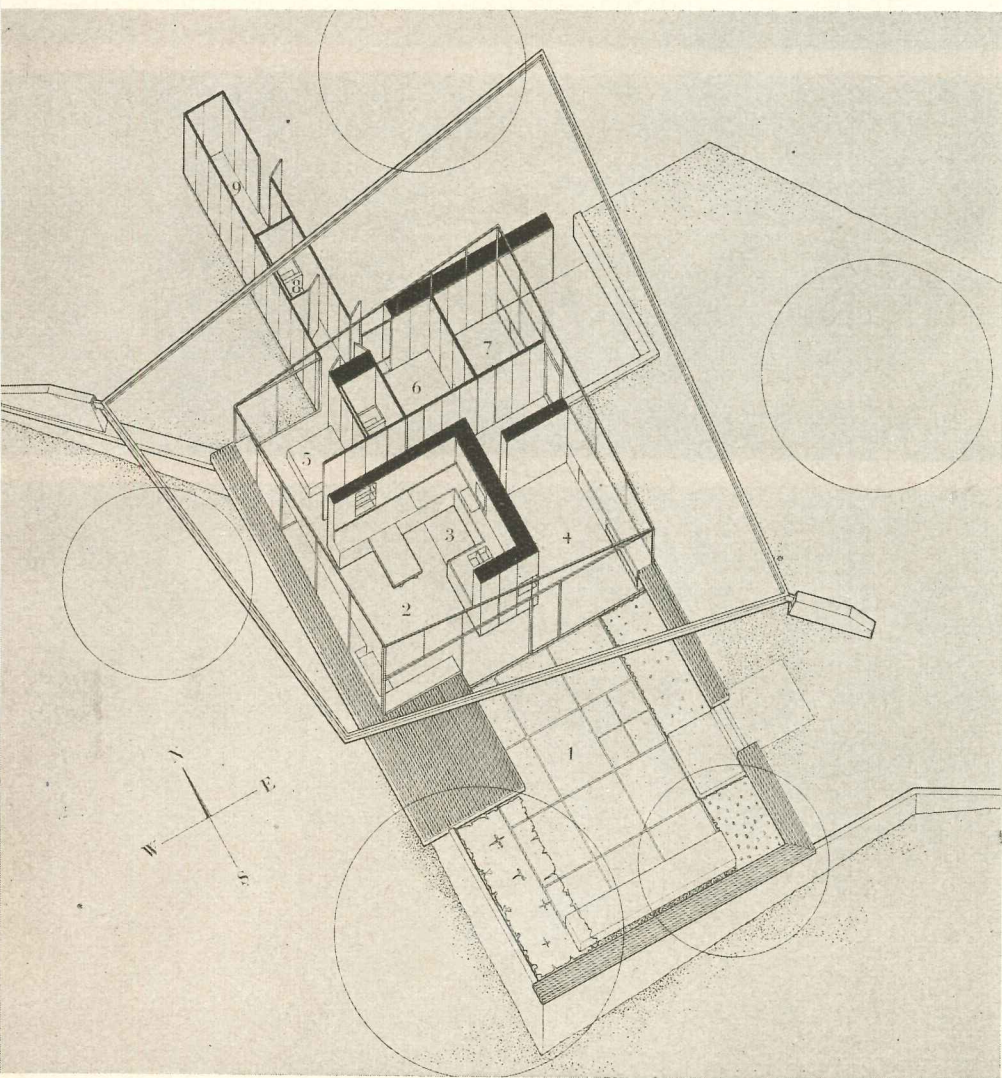
Eduardo Catalano





Gene Heil

THE PLAN: A TERRACE AND A PARASOL



1. Terrace 2. Family room 3. Kitchen 4. Living room 5. Master bedroom 6. Girl's bedroom
7. Boy's bedroom 8. Laundry 9. Air conditioning

Paved terrace (left) is an extension of the family and living rooms at the south end of the house. Most cabinet-work and the sunbathing platform outside were kept at uniform 28" height above floor to establish a continuous line of reference throughout the plastic structure. This line is the sill-height on two sides of the house (opposite).

The 62' square roof covers a square interior that is recessed 12' on all four sides to measure 38' x 38'. To the north, beyond the bedroom areas, there is a narrow spur that projects out from under the roof and contains all utilities; to the south, beyond the family and living rooms, a large, paved terrace forms an extension of the indoors.

Catalano, with his Latin background, brought into this house an almost classical sense of formality: the terrace is really a patio, bounded by low masonry walls. You step down into that patio from above, then find the house proper to your right—in effect an extension of the patio, separated from it only by large sheets of sliding glass, and sheltered by a gigantic parasol.

To emphasize this continuity of indoor and outdoor space, Catalano made one horizontal the dominant plane both in the house and in the patio. This horizontal plane, 28" high, is the sill line on two sides of the house; it is also the level of built-in cabinetwork (see opposite) and the level of the big wooden sunbathing platform that projects out over the terrace (see above).

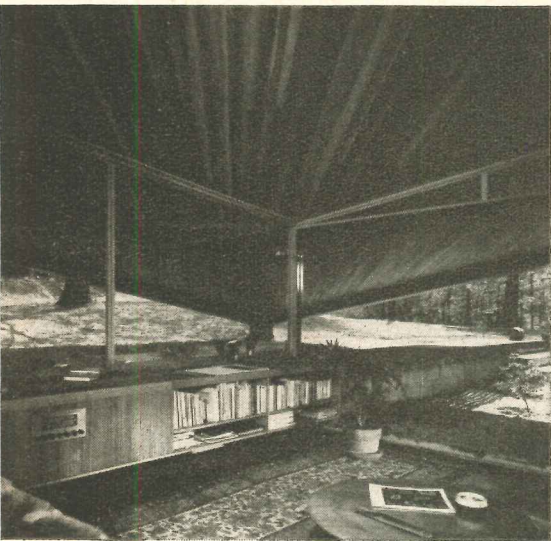
This 28" level is particularly important in Catalano's house because there is no effective ceiling plane—only the undulating shape of the wooden roof. In looking at the plan (left), you should remember that this double-twisted roof dips down over the southeast and northwest corners, rises up on the southwest and the northeast. Large trees on the site provide natural sun protection, help reduce air-conditioning costs. When the leaves are off in the winter, the sun reaches deep into the kitchen at the center of the plan.

continued on p. 99



THE SPACE:

CAVES AND A BOWL OF GLASS



© Ezra Stoller

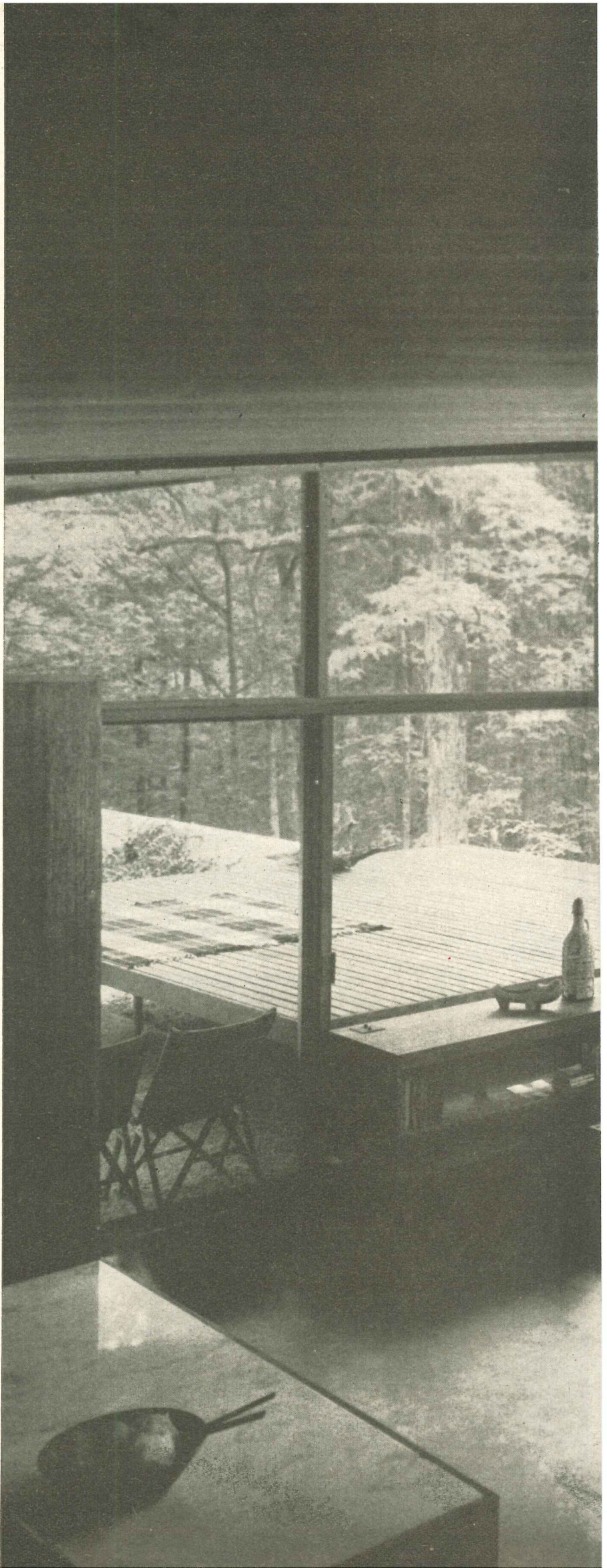
Although this house has walls of glass, it is no glass house in the familiar sense. For Catalano has used the undulations in his roof shell to give glass bowl openness to some of his spaces, cave-like privacy to others.

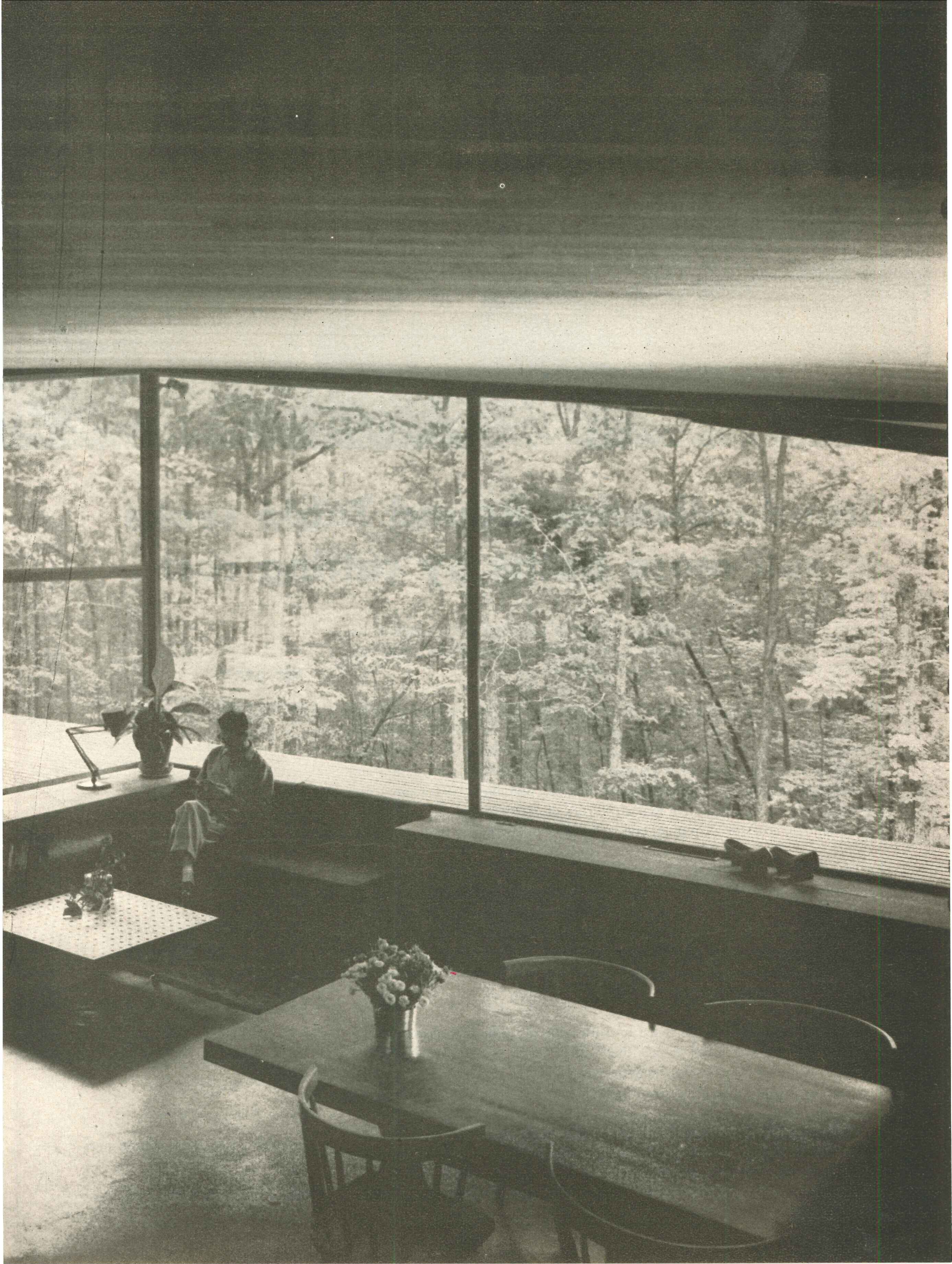
The family room (opposite) is very glassy, very open. The sun floods into it in the winter, and the view out from it shows lovely trees and slopes. Here the roof rises up and points toward a view.

But only a few feet to the east there is a small intimate living room (see above). Its walls are glass also, but here the curve of the roof dips down, encloses the space and gives it privacy. At the opposite corner of the house, where the roof dips down again, it gives a similar sense of shelter and intimacy to the master bedroom. The fourth corner, up and out in the air, makes for a carport at the northeast end of the house.

It is in the nature of a hyperbolic paraboloid that, despite its double curvature, *all lines parallel to its straight edges are straight lines also*. Hence it was quite easy to scribe the glass walls to the soffit of the shell. To preserve the visual integrity of the undulating shell, Catalano kept all interior partitions away from its soffit, filled in the area above such partitions (and above storage walls) with straight-edged strips of clear glass.

For the time being, Catalano's house is still a laboratory test. But let no one shrug off this house as impractical: for whatever form the "skin-structures" of the future may take, there is little question that they may replace much of our present "bone-construction" before many more years are out. When this happens, the world of building will recognize this house as a major experiment in that development.







Standardization Round Table seeks to sell more baths by cutting cost

Here is a unanimous recommendation for cutting bathroom costs by standardizing their dimensions on a 32" module, thereby making possible the great economies of panelized walls and component plumbing.

The recommendation was developed at a Round Table jointly sponsored by the American Standards Association, HOUSE & HOME, and the Research Institute of the National Association of Home Builders. On the panel were spokesmen for all the industry groups most directly concerned with bathroom design and construction—architects, builders, prefabricators, plumbing contractors—and top executives of representative manufacturers of all the products used in the bath—fixtures, accessories, piping, and wall and floor surfacing. Said the panel:

"All our recommendations are designed primarily for the builder's house (which now accounts for well over 80% of all new residential construction). But the savings they offer are so great and the flexibility they permit is so broad that they should serve the custom house almost equally well. They may even help bring down the cost of modernizing old bathrooms and putting new bathrooms in old houses and so stimulate the home improvement market, which now absorbs each year about one-fifth of all the new fixtures.

"Our recommendations are designed to work with any plumbing code, without waiting for the great further savings that will be made possible by the nationwide acceptance of a national plumbing code. All the dimensions we recommend are multiples of the American Standard 4" module.

"As dimensionally coordinated bathroom components are developed, the producers can speed their acceptance by making it easy for architects and builders to find them. To that end a special catalog or directory of modular components will soon be urgently needed." **The full report follows on the next seven pages.**

The panel

TECHNICAL ADVISERS

WILLIAM C. SCHEICK, *executive director*
Building Research Advisory Board
VINCENT T. MANAS, *executive secretary*
National Plumbing Code Coordinating Committee
LEONARD HAEGER, *technical director*
Levitt & Sons, Inc.

FOR THE AMERICAN STANDARDS ASSOCIATION

CYRIL AINSWORTH, *technical director*
S. C. FROST, *civil engineer*

for the customers

AMERICAN INSTITUTE OF ARCHITECTS

L. MORGAN YOST, *chairman*
Homebuilding Industry Committee
JOHN HIGHLAND, *past chairman*
Homebuilding Industry Committee
WILLIAM DEMAREST JR., *secretary*
Modular Coordination Committee

NATIONAL ASSOCIATION OF PLUMBING CONTRACTORS

LOUIS BLOOM, *chairman*
Industry Development Committee

NATIONAL ASSOCIATION OF HOME BUILDERS

DAVID SLIPHER, *chairman*
NAHB Research Institute
ANDREW PLACE, *trustee*
NAHB Research Institute

PREFABRICATED HOME MANUFACTURERS INSTITUTE

HORACE DURSTON, *president*
American Houses, Inc.
RICHARD POLLMAN
Head of Design Committee

Round Table report:

Any family that needs three bedrooms needs at least two baths, and most families with only two bedrooms would be more than glad to have a bathroom for each.

Why then does only one new house in five have the much-needed second bath? Why do some cities have more television sets than bathrooms?

The biggest reason is cost. A minimum bathroom usually costs \$20 a sq. ft. and often more than \$30

In these costs the three main fixtures — tub, water closet, and lavatory — play only a minor part. They cost only a third as much as piecing the walls together and covering them half way up with a second wall for water protection. In most places they cost only half as much as assembling the rough plumbing on the site from a hundred or more small fittings and lengths of pipe.

The one best way to get bathroom costs down low enough to put at least two baths in new houses is to standardize and coordinate enough of their dimensions to permit a great simplification in the way bathrooms are put together.

Until we achieve that simplification thousands of builders who now try to squeeze \$2 out of their bathroom bill by installing lavatories almost too small to wash in will have to go on wasting a hundred times that amount on their rough plumbing and their walls.

The revolution in home building since the war redoubles the importance of standardization. If we were still building houses one or two at a time, as we were just a few years ago, we could afford to spend time on the job making small pieces fit. But as assembly-line methods take a larger and larger part in home building, the need of components sized to fit together becomes urgent.

for the manufacturers

H. R. BARRETT, financial vice president
Philip Carey Manufacturing Co.

C. H. BURCHENAL, chairman of board
Cambridge Tile Co.

KARL M. CLAUS, director of research
The Mosaic Tile Co.

M. V. COFFEY, director of merchandising
Philip Carey Manufacturing Co.

DONALD COUCH, vice president
American Radiator & Standard Sanitary Corp.

A. C. DAPPERT, vice president
Mueller Brass Company

DR. J. VINCENT FITZGERALD
Director of Research

Tile Council of America
LOUIS J. FRANCISCO, vice president
The Formica Co.

JOSEPH GRAZIER, president
American Radiator & Standard Sanitary Corp.

JOHN J. HALL, president
Richmond Radiator Co.

GLENN A. HUTT, vice president
Ferro Corp.

DR. A. L. JOHNSON, director of research div.
Universal Rundle Corp.

R. E. JORDAN, president
The Mosaic Tile Co.

P. W. KERR, president
Henry Weis Manufacturing Co., Inc.

HOWARD S. NILSON, president
Fiat Metal Co.

CARTER T. POLLOCK, vice president
Crane Co.

C. J. RODMAN, president
Alliance Ware, Inc.

CLYDE M. WHITTAKER, president
Universal Rundle Corp.

GOVERNMENT OBSERVERS

NEIL CONNOR, director
Architectural Standards Division
Federal Housing Administration

FRED MCGHAN, mechanical engineer
Architectural Standards Division
Federal Housing Administration

MODERATOR

P. I. PRENTICE, editor & publisher
HOUSE & HOME

The one best way to save money is to standardize on a wall module

To translate into working standards the de facto standardization that has already taken place, we recommend that under a standard 8' ceiling all builders' house bathrooms should be planned on a 32" module and a 16" half module, thereby integrating the spacing of the fixtures with the construction of the house itself. This standardization and integration should be detailed and formalized as American Standards through the American Standards Association.

One 32" module would accommodate the end of a standard tub 30" or 28" wide. One 32" module would provide the wall space needed behind the water closet. One 32" module would provide the wall space needed behind the lavatory.

Two 32" modules would be needed the long way of the tub. With the tub itself 60" long, these two modules would allow the 4" more needed to make the wet wall 8" thick instead of 4". Additional 32" or 16" modules could be added as needed to make room for additional fixtures or just to make the room more spacious.

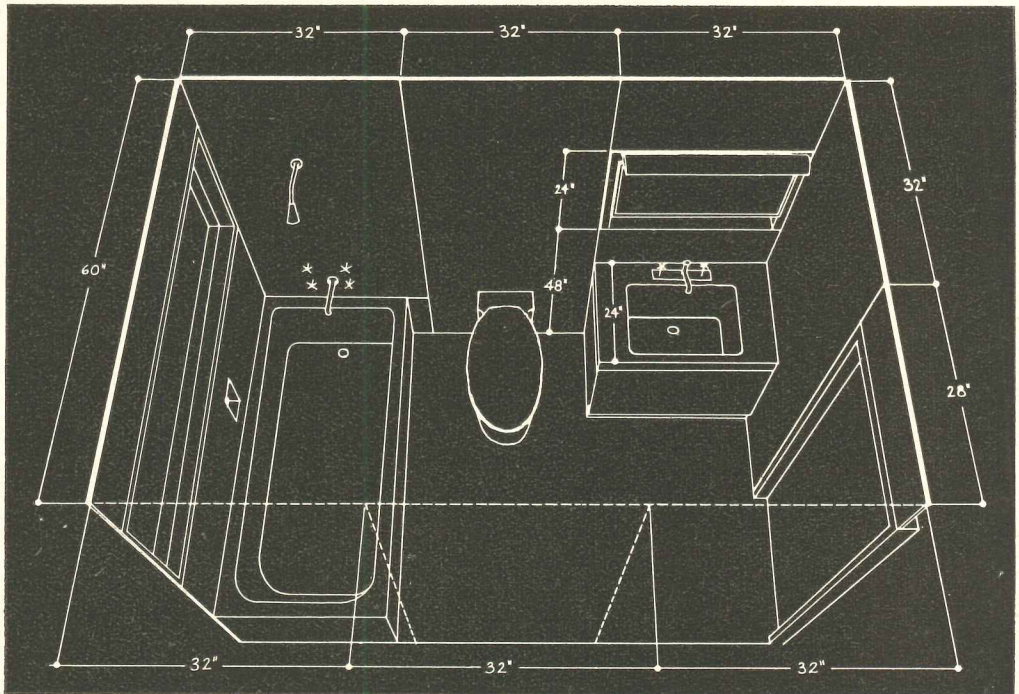
We believe these modules would leave architects and builders all the freedom they need to plan bathrooms large or small with any desired line-up of fixtures. With this flexibility they would combine a much better chance to achieve the economies of dimensional standardization and coordination, including:

- 1. The great economy of panelized walls and ceilings;**
- 2. The great economy of component plumbing;**
- 3. The great maintenance economy of hard-finished waterproof surfaces throughout.**

continued

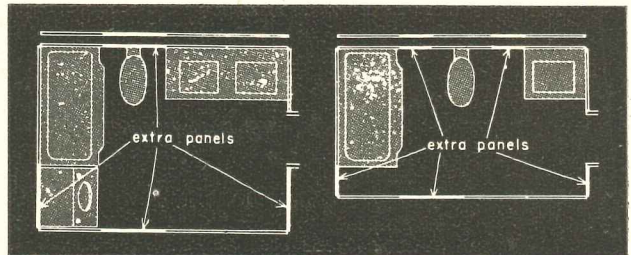
The 32" module we urge would encourage the development of . . .

1. Standard ceiling-high wall panels of ceramic tile, plastic, porcelain enamel or other hard-surfaced material



Not more than 9 of these panels (plus a door) would be needed to enclose a 5' x 8' bathroom. In a 5' x 8' bathroom the door opposite the tub would have to be 24" wide to fit into a 28" wall space—leaving a full 32" module for the wall section between the door and the wet wall. None of us sees any advantage in a larger door. In a small room the less space the door swing takes the better.

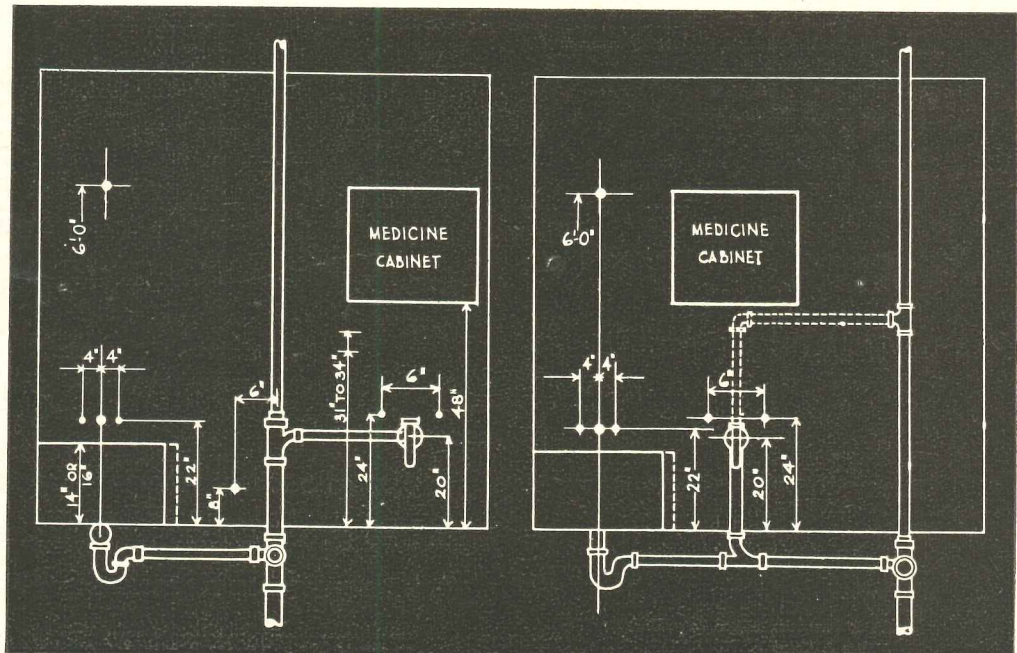
Only four more panels would be needed to enclose a bathroom twice as large



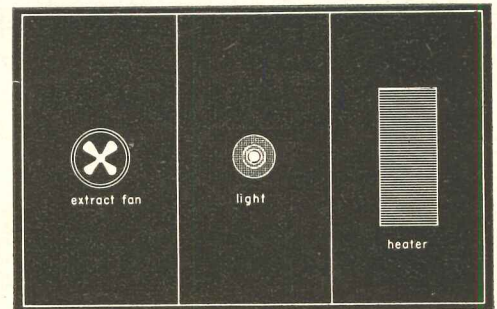
Templets sketched by Round Table Member Vincent Manas

2. Rough plumbing templets, half a dozen of which would meet the needs of all the common bathroom layouts

These templets in turn would encourage manufacturers to develop many combination fittings that are economical only if they can be used in thousands of homes. These would save much of the labor now wasted assembling too many small pieces of pipe. (A single casting used by one large builder eliminates five common fittings that weigh three times as much and take up four times as much space.)



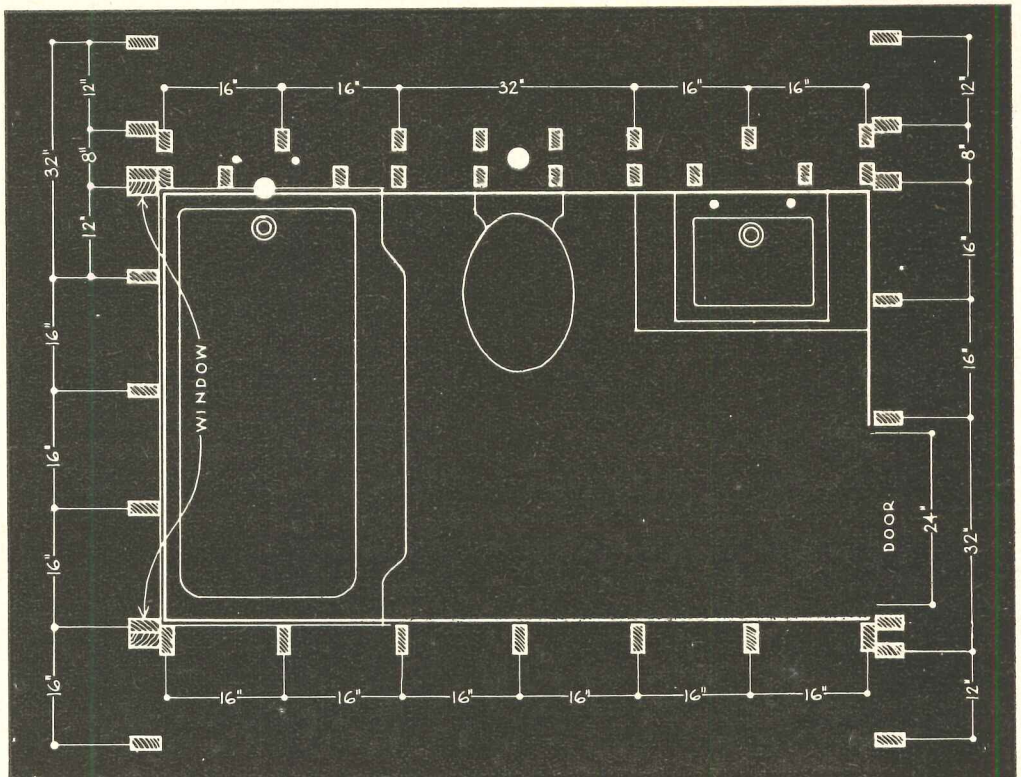
3. Standard hard-finished ceiling panels, luminous or otherwise, into which ventilation, lighting, and supplementary heating units could be preassembled



Only three such ceiling panels 32" x 60" would be needed for a 5' x 8' bath.

4. A standard framing templet

With the major items thus coordinated, it should be easy to coordinate the dimensions of the smaller bathroom items (medicine cabinets, soap recesses etc.)



Plumbing contractors and journeymen plumbers alike can profit by simplified standards

Money is not the only reason we must find some way to put bathrooms together with far less waste.

A bigger reason is the need of saving labor, for (like every other industry) home building will soon find the shortage of labor the No. 1 bottleneck on its expansion.

Between now and 1965 American industry hopes to increase its production 42% with an increase of less than 15% in its labor supply. Industry will be bidding against industry for workers and few industries can meet their production goals without a great increase in the efficiency and economy with which they use the labor they can get.

Already this year builders are finding it hard to get plumbers enough to install

1,600,000 new baths in 1,300,000 new houses. Without a major change in method, how then can we hope to find plumbers to install 4,000,000 new baths in the 2,000,000 new homes we will have to build each year during the sixties?

It is not true that either the plumbing contractor or the journeyman plumber feels he has a vested interest in the present high cost of the way plumbing must now be pieced together.

Contractors could make a lot more money installing two baths economically than they can make installing one bath uneconomically. The more waste they can squeeze out of their costs the better their profit margins should be, for it is seldom possible to pass the full cost of waste along to the customer. What the contractors want more than any-

thing else is standardization that will let them cut their inventory costs and simplification that will enable them to sell more fixtures and handle more business by making better use of their increasingly-hard-to-get-and-keep skilled labor.

Journeymen plumbers in turn will find it easier to get higher hourly wage scales if they do not have to be paid for a large percentage of needless work. In a labor shortage economy such as we are entering nobody stands to gain by make-work inefficiencies which may have helped sustain employment when there were more men than jobs.

The plumbers stand to gain as much as the contractors and builders from the added employment they would get from installing two baths instead of one in every house.

Continued



Johnson: *This industry has had a Standards Committee for many, many years.*



Claus: *An 8" center on the supply would take care of 4, 8, or 12" fixtures.*



Haeger: *With dimensional standardization you could preassemble the plumbing.*



Scheick: *The water protection material should go all the way to the ceiling.*



Yost: *We can't specify what the manufacturers don't put in their catalogs.*

The bathroom has already come half way to the formal standardization we need

The bathroom is already the most standardized room in the builders' house. Three times out of four its dimensions are either 5' x 7' (the FHA minimum) or 5' x 8'. Most tubs are 5' long, 28" or 30" wide, 14" to 16" high, and most builders have pushed the standardization further by preferring the 14" height and the 28" width, which is economical in both steel and cast iron. Most lavatories and water closets require from 24" to 32" of wall space. Most medicine cabinets are 2' high. In most bathrooms all the fixtures are lined up for economy along one wall, backed up against the kitchen or a second bathroom. Even in expensive custom houses few bathrooms are more than 32" longer and 32"

wider, for those few added inches are enough to more than double the area of the basic 5' x 8'.

Planned and coordinated standardization is the one best way to cut costs, but the de facto kind of standardization we find today in the bathroom saves home builders and home buyers hardly a penny, for hundreds of small pieces still have to be cut to size and fitted on the site—in assembling the walls, the drainage system, and the water supply.

Builder members of our panel tell us it takes more on-site labor to put together the walls and plumbing of one small bathroom than it takes to frame a three-bedroom house. And the average bathroom costs

at least five times as much per square foot as any other room except the kitchen.

What we need now is to have the American Standards Association translate the de facto standardization that has already taken place into coordinated American Standards, so that the makers of each bathroom wall and plumbing component can plan it for quick and easy installation in a coordinated whole—often as part of a larger subassembly than is now possible.

These American Standards will save hundreds of millions of dollars a year, permitting very profitable economies in whose benefits home owners and home builders, plumbers, and manufacturers should all share.

Here are five ways fixture manufacturers can help us provide better baths for less

We recognize the high cost of new tooling and equipment and so we do not ask the fixture manufacturers to make any change in their dimensions. Indeed, no change is needed to fit the 32" module we recommend. We do, however, urge them to:

Speed up the standardization of the parts of their fixtures

For lack of producer pressure far too little progress has been made by the American Standards Association Committee that has been working intermittently on this problem ever since 1928.

What sense does it make, for example, that plumbing contractors must carry hundreds of different washer sizes and styles in stock, with a washer inventory that may run into thousands of dollars?

It is encouraging news that some manufacturers have at last standardized on a single washer for all their fittings and have at last developed interchangeable spindles

that will work in any bath, lavatory or kitchen sink fitting of their own make. We can see no reason, however, why this kind of standardization cannot be made industry-wide instead of just company-wide.

Bring out a good wall-hung toilet for the builders' house market

It should carry an installed cost not more than \$40 higher than a floor toilet. Using the 3" connection now permitted by 80% of the codes, a wall-hung toilet could be plumbed and supported (on two pairs of studs connected with a brace) within the 8" thickness builders commonly allow for the wet wall.

The wall-hung toilet offers four important advantages—

1. getting the bowl off the floor makes the floor easier to clean;
2. raising the outlet above the floor makes the fixture easier to install;

3. putting the seat back close to the wall saves space, since the toilet would not extend so far into the room;

4. finish floor material can be laid much more easily and laid after the fixtures are installed, thereby reducing the danger of damage during construction.

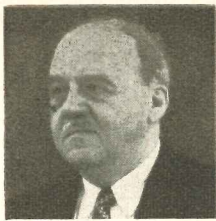
Provide hangers to fasten the tub to the studs right at the rim

Then as the house settles the tub will not pull away from the wall above it. Whenever possible, the tub flange should extend far enough behind the wall to keep shower water from getting through the joint.

Provide matching flanges to attach to the tub apron

These would cover up to tub height the gap left between the 28" or 30" tub width and the width of the 32" module at either end.

Standardize on a 12" roughing for all toilets.



Rodman: *We would much prefer to make all tubs 14" high.*



Pollock: *This is a very important thing for us.*



Francisco: *Is anything wrong with a 48" sheet?*



Jordan: *We'll gamble on getting the top.*



Hutt: *We'd like to tackle the ceiling.*



Hall: *90% of all bathtubs are already standardized on just one length and only two heights.*



Ainsworth: *A pious hope for standardization is not enough.*



Pollman: *Why can't we go right down the line on simplification and standardization?*

We assume that any good home builder will take advantage of these ways to save

In designing any bathroom, and most particularly any dimensionally standardized bathroom, substantial savings can be assured by recognizing that:

1. it is much cheaper to line up all the fixtures along a single wet wall;
2. it is much cheaper not to make the wet wall a bearing wall;

3. it is much cheaper to frame the wet wall as a double wall of 2 x 3's 8" thick to provide a clear space for the pipes and so avoid the cost of cutting holes through the studs;

4. it is about \$30 cheaper to put the toilet between the tub and the lavatory, for that is the only way to branch without any back venting or wet venting.

Manufacturers should consult architects and builders on their design problems

Panelizing the bathroom and carrying the hard surface up to the ceiling will create new and difficult design problems, but they are no more insuperable than the design problems already raised (and solved) elsewhere in the house by the increasing trend to panelization.

The architects among us believe that any attempt to make a succession of 32" panels look like a homogeneous wall would be a mistake; that it would be better to make a feature of the dividing line between the panels than to try to hide it. They are especially insistent that chrome strips should not be used to hide the joints.

In most bathrooms it will be better not to use wall panels the same color as the fixtures (colors are often hard to match in different materials), and some colors should not be carried above a wainscot line 4' up from the floor.

No manufacturer should venture into panelization without getting the advice of a good architect at every step

Manufacturers would also do well to consult with the Research Institute of the National Association of Home Builders before committing themselves to any design.

The module will make ceilings and floors easier too

The 32" wall module will facilitate making the bathroom ceiling as waterproof as the walls; and it will facilitate the development of panels with which a complete ceiling could be erected in either three or four pieces 32" wide and either 60", 76", or 92" long. (Sometimes a 16" wide filler panel will be needed.) These panels will require a vapor barrier jointing (as will the panels on the outside wall).

In like manner the 32" module will give producers of bathroom floor-covering materials a half dozen standard dimensions to which to dimension their products or assemblies of their products.

We believe most bathrooms, inside or

outside, should be ventilated through the ceiling, and where electricity is used the ceiling is the best and most economical location for the supplementary heat source that is so desirable to take the morning chill off the bath. It should be easy to incorporate ventilators and electric heating units in prefabricated ceiling panels. (Built-in gas heaters should be located opposite the wet wall, and for safety they should be not less than 4' above the floor. This is also the best location for electric heaters not incorporated in the ceiling.)

We hope these standard dimensions will encourage the use of luminous translucent ceilings of glass or plastics.

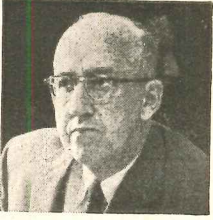
Shower stalls must overlap the module

Even minimum shower stalls will not fit inside the 32" module, and many of them are 36" x 36". Nevertheless the 32" module is wide enough to leave space for them by a slight overlap into the module provided for lavatory or water closet.

The back of a prefabricated shower stall should be so designed that no other wall

will be needed behind it in two 32" corner modules. That means the back of the stall should cover the 8' ceiling height, and it should be so formed that 32" of its width can fit against the studs, but 4" can overlap the adjoining wall panel. If the back is metal it should be coated with sound-deadening material and have a ground coat.

continued



Whittaker: . . . the industry has attempted to standardize on two centers.



Connor: There's nothing in the book to forbid the tub under the window.



Demarest: Can anyone tell us why the standard lavatory has been 31" high?



Bloom: We have to carry about \$5,000 worth of different washers in stock.



Place: The public would be as happy with a 28" wide tub as with a 30".

Medicine cabinets can be standardized most economically at 24" x 32" overall

Thirty years ago medicine cabinets were pretty well standardized on three sizes. Today this standardization is gone, and some companies offer as many as 22.

Producing, distributing, and stocking so many sizes must be expensive and we do not believe it is worth the added cost.

We recommend a standard 2' rough opening height for the recessed medicine cabinet, set into the wall from 4' to 6' up from the floor. The mirror front can extend 6" or even more above the opening if desired without upsetting this standard.

Maximum standard width for the recess would be 28 $\frac{3}{4}$ ", for the cabinet would presumably be centered in a 32" wall module behind the lavatory and allowance must be made for setting the end stud of the wet wall with one face flush with the corner.

If the flanges and mirror front cover the full 32" width there will be no need of any other wall covering over the studs in that module on either side of the cabinet. We hope this saving will make it profitable for builders to standardize on medicine cabinets of this size. The smaller cabinets so

often used for economy do not meet today's growing need for medicine and cosmetic storage space.

We recommend incorporating in the medicine cabinet a double base plug and a low intensity light source (either incandescent or fluorescent) projected far enough to light up the wall behind it and so reduce glare. No matter what other illumination there may or may not be, a supplementary light is needed at the mirror.

Preferably the cabinet will include in its 2' height an open shelf 5 $\frac{1}{2}$ " high.

Bathroom windows raise some special problems

A special window size 5' long is needed to fill the end of a 5' bathroom wall to wall, fastening directly to the studs on either side. Such a wall-to-wall window is the one best way to make a 5' bathroom seem bigger. It is also a good way to cut costs, for it removes the need of patching the wall at either end to fit a shorter window. These 5' long windows should be available to fit rough openings both 2' and 3' high.

The objections to a window over the tub can be minimized if:

1. it is double glazed (in cold climates);

2. the window does not have to be opened;

3. the sill is either high enough so shower water will not collect on it or, better still, is protected by a hard surface of ceramic tile, enamel, plastic or other material which will not be damaged by water.

The two reasons for putting a window in a bathroom are: 1. tradition; 2. daylighting.

Bathroom windows need not be openable, for an openable window is neither the best nor the cheapest way to ventilate even an outside bathroom. An exhaust fan costs less installed and does a better job getting rid

of steam and odors. Even without a fan, a 12" x 24" gravity exhaust in the ceiling should meet FHA requirements for any bathroom up to 50 sq. ft.

Wall panels to cover the studs behind the tub can all be 60" wide, but they will be needed in different heights, depending on whether the window height is 2' or 3', whether the lintel height is 6'-8" or 7', and whether the tub height is 14" or 16" (or 15 $\frac{1}{2}$ "). A 12" or 16" panel will be needed above the window (just as a 12" or 16" panel 28" wide will be needed above the door).

Lavatories for adults should be 34" high; built-in counters should be 32" wide

Today's lavatories are far too low for adults. Our best guess is that their 31" standard height was borrowed from the marble-topped washstands on which washbasins and pitchers stood in the years before they were connected to running water. If that is so, the architects and builders among us believe our ancestors were smarter than we are, for the bottom of a basin sitting on top of a 31" table is more than 31" above the floor, whereas the bottom of a basin set down into a 31" lavatory may be as low as 25" above the floor, forcing most adults to bend way over to get their hands in the water and making it especially inconvenient for women to wash their hair.

Everybody knows that raising the kitchen sinks to 36" has made them much more convenient and easy to use. Now we believe the Plumbing Standard Committee of the American Standards Assn. should explore carefully the desirability of raising to at least 34" the standard height of lavatories for adult use. With a built-in fixture, the extra height can well be used for additional storage. Supply and drainage pipes should come through the walls at a standard height low enough for either 31" or 34" rim levels.

Standardizing the counter width of built-in lavatories at 32", would eliminate the need of any wall surfacing behind them

in the lavatory module. There would be some advantage in standardizing their front-to-back dimensions at the same depth that has been generally accepted for kitchen cabinets; namely, a 25" work surface to give a slight overhang over a 24" deep cabinet.

For anything above minimum houses most of us believe it is poor economy to buy a small lavatory bowl. To do so means sacrificing both sales appeal and utility for too small a saving. The smallest bowl costs a builder only a few dollars less to buy, not a penny less to plumb and install. We believe home buyers are quite smart enough to recognize the many advantages of the larger size.



Barrett: *Too many sizes make inventory troubles.*



Dappert: *It will take Rube Goldberg's half sister to figure it out.*



Fitzgerald: *Can't they use a templet for that?*



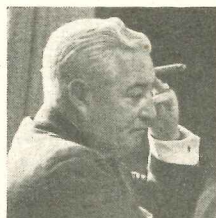
Highland: *Habit can be extremely expensive. Because the horse smelled it took 30 years to get the garage attached to the house.*



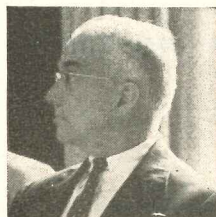
Burchenal: *You can make them any height.*



Manas: *It's perfectly practical to support and plumb a wall-hung toilet in the 8" a builder normally allows for his wet wall.*



Coffey: *Way back in 1923 there were only three medicine cabinet sizes, but look how many we have today!*



Nilson: *We need standardization in the second bath too.*

Pipe size standards should be raised

The $\frac{3}{4}$ " water main found in most builder houses is no longer adequate for the two-bathroom house with its growing numbers of plumbing-connected appliances — dish washers, clothes driers, disposers, etc. and with the increasing use of water for lawns and gardens. This is doubly true where copper tube is used, which has a smaller though smoother bore.

We urge NAHB to assume leadership in a movement for more adequate water mains and promulgate a 1" voluntary standard for the water main (just as NAHB has already assumed leadership in the adequate wiring movement by making the 100-ampere entry box a voluntary standard). The 1" main will bring in 80% more water at the same velocity, but it will seldom add more than a few dollars to the cost of the house, and

there are few ways so little more money can contribute so much to the utility and convenience of a house.

Inside the house the branches should be larger than is now customary. They should be engineered to provide an adequate flow of water to all the fixtures and appliances with a velocity of not more than 8' per second. Otherwise the plumbing will be noisy with water hammer and hissing.

Water pressures above 70 lbs. will be noisy; above 85 lbs. they will wear out the faucets and may damage the pipes and increase maintenance costs. Where the community supplies water at high pressure the builder should put on pressure reducing valves. This is very inexpensive for a group of houses and will soon pay for itself in lower maintenance.



Slipher: *Everybody wants more bathrooms, but today they cost too much.*



Durston: *The trend is to 8' minimum rather than 6'-8".*



Couch: *Every bedroom deserves a bath.*

Pipe holes in the panels should be predrilled

The location of pipe holes coming through the wall panels should be standardized whenever possible, even though tools are available to drill these holes on the site through ceramic tile, plastics, or porcelain enamel.

For the guidance of American Standards Association in standardizing these locations, we suggest that:

Over the tub the faucet and handles should come through the wall with the handles 8" on centers 26" above the floor where they can be reached both by persons standing in the shower or sitting in the tub. This will put the supply nozzle the required 2" above the rim level of both a 14" or a 16" tub. The shower pipe should come through the wall 6' above the floor, permitting a 5'-6" shower head height.

Under the lavatory the supply pipes should come through the wall 8" on cen-

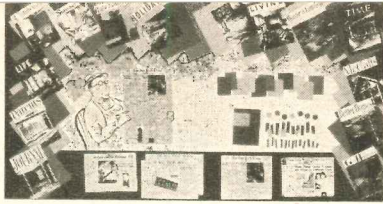
ters. With an offset swivel this spacing will work with any lavatory now on the market with no change except in the tailpiece. The height for the supply opening should be 24"; for the drain opening it should be 20". These heights would work with lavatories set either at the traditional 31" height or the preferable 34".

Behind a floor type water closet the tank supply should come through the wall at a height to be standardized somewhere between 4" and 8" above the floor and 6" to the left of the water closet center.

Towel racks in the walls should be located opposite the fixtures 42" above the floor, to screw into studs 32" or 48" o.c.

We do not recommend recessed soap dishes behind the lavatory. Beside the bath a 6" x 6" self-draining soap dish should be recessed 24" to 30" from the wall at the head of the tub.

On the newsstands



this month —

New design ideas that will influence your prospects

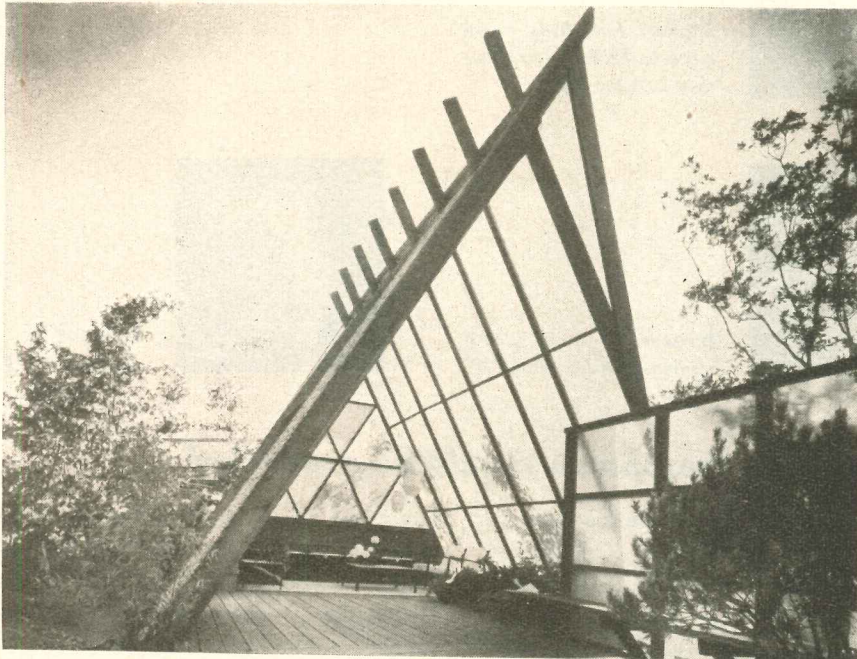
Better and more modern design will get a further powerful boost this month as consumer magazines with a combined readership of 50 million go on sale throughout the country: *American Home* (circ.: 3,074,666) devotes most of its August issue to remodeling—making modern ones out of traditional ones. *House & Garden* (whose 1954 “House of Ideas” was somewhat conservative) has a modern glass house for 1955. *Living* has a story about modern architecture in the Northwest—and so it goes. Even garden shelters have taken on a new look (see below).

Garden shelters for protected outdoor living

Circ.: 622,477

House Beautiful

“Sitting around (in your garden) is no fun if you are getting blown apart, rained on or scorched by the sun . . . (this) garden shelter . . . owes its style to its soaring roof and the dramatic glow of a translucent . . . ‘skin.’”



John Carmak, landscape architect. Photo: Maynard Parker

Photo: G. de Gennaro; courtesy American Home

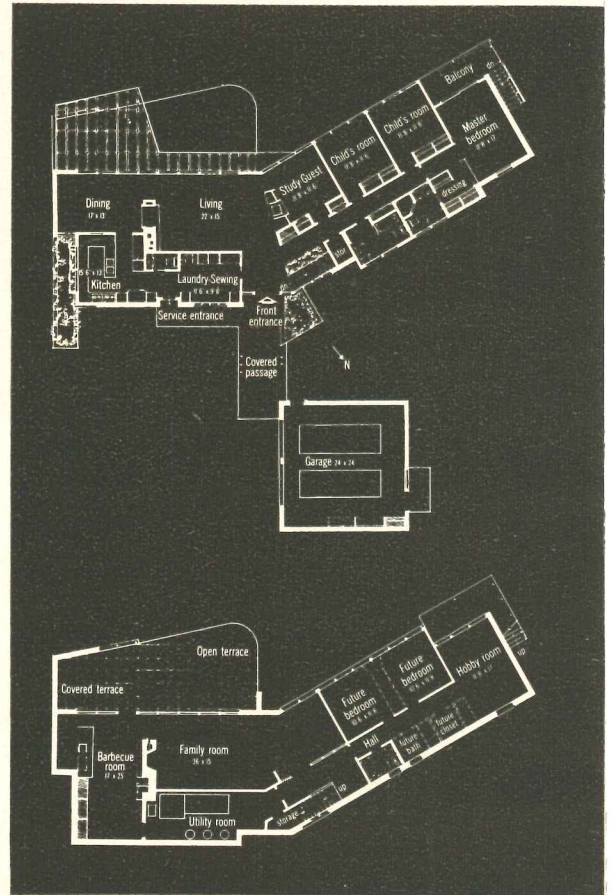


Remodeling

A 36-page portfolio devoted to all aspects of remodeling, including financing. Example (above) by Architect Edla Muir shows how back porch was turned into spacious second living room by extending slab and roof.

Circ.: 3,074,666

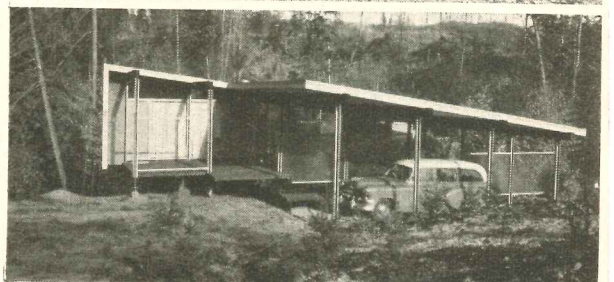
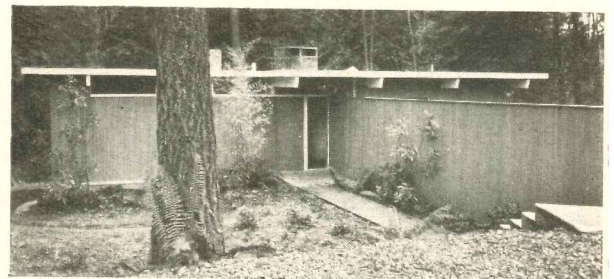
AMERICAN HOME



House & Garden

A prefabricator designed

Circ.: 517,023

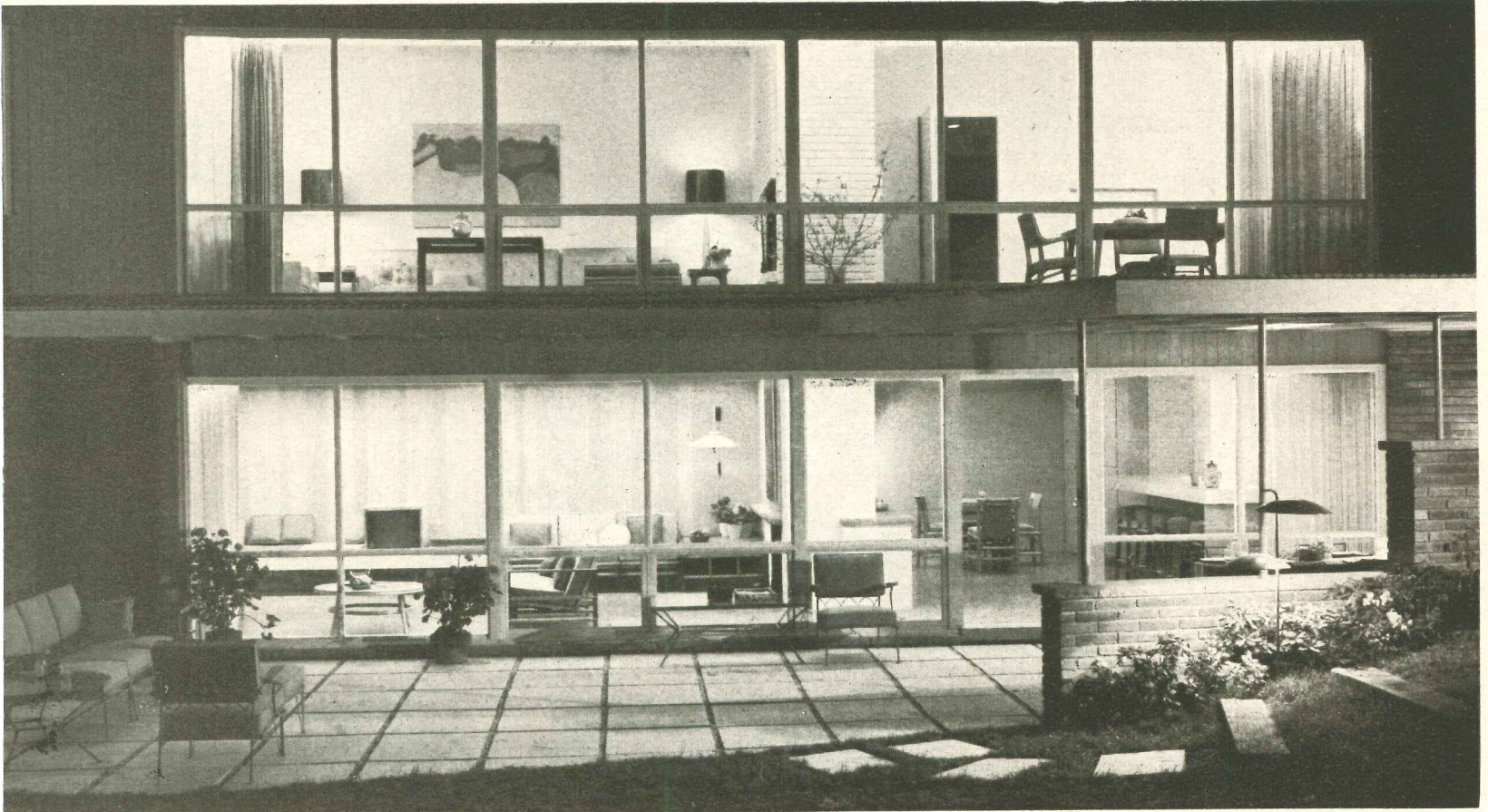


Modern post-and-beam is

LIVING FOR YOUNG HOMEOWNERS

Circ.: 520,303

Photo: Kertesz

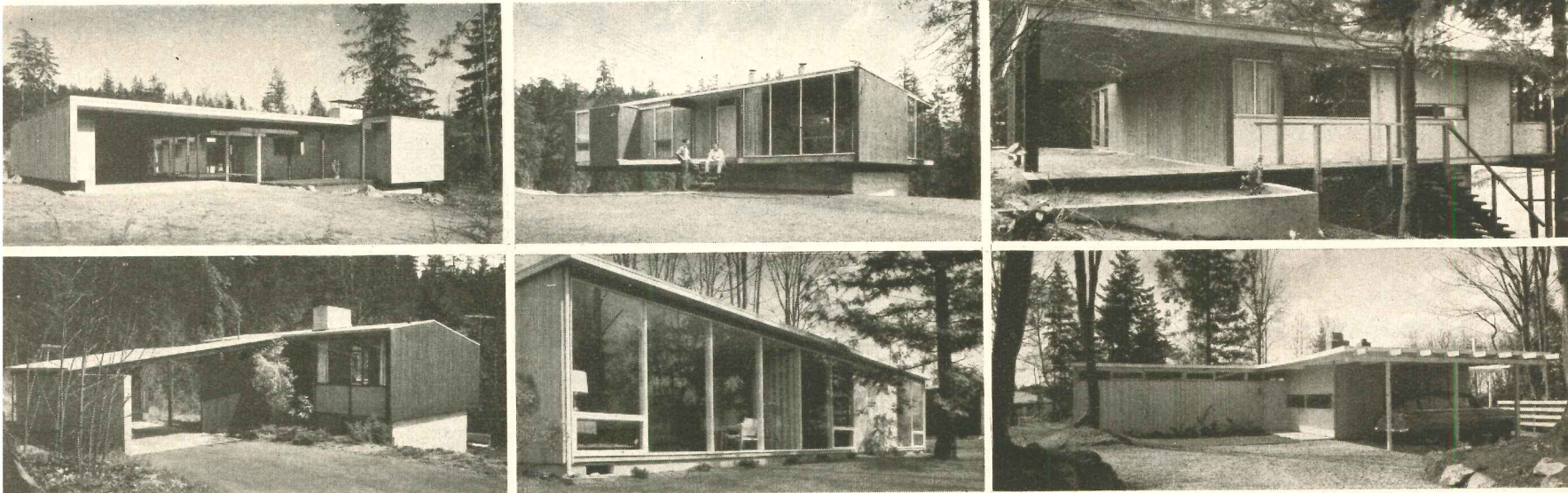


this House of Ideas

H&G asked Prefab Designer, Richard Pollman, and Architects Palmquist & Wright to design its 1955 House of Ideas. Principal idea: two-level living (one for parents, the other for children). Says H&G: "All families must cope with the fact that . . . parents are inclined to relative

peace and quiet, while children are dedicated to noise The solution is a house that permits plenty of freedom for both generations. This house . . . [has] the advantages of two separate, one-story houses under one roof." Because the site slopes, both levels have access to outdoors.

Photos: Charles Pearson



becoming Northwest trademark

In a 14-page story Living shows inexpensive, houses near Seattle and Tacoma. They have large glass walls, post-beam-and-plank construction, flat and shed roofs, panelized exterior walls, etc. Says Living: "An example of Northwestern progress in architectural planning."

Houses top row are by Architects Jerry Gropp, Ralph Anderson & Dale Benedict, Steve Dam, Robert Jones.

Bottom row: by Architects Ralph Anderson, Anker Molver & Robert Marquette, and Paul Hayden Kirk (last two.)

First in a series on land problems



Ten million houses built since 1945 have left almost no close-in land for builders

If you are running out of lots study these

20 WAYS TO FIND LAND

"Without a doubt, the No. 1 problem of all home builders today is land. The problem here is definitely acute."—Leonard Stone, Beaumont, Texas.

"Land procurement here is a tough problem."—John Bellinger, North Syracuse, N. Y.

"Builders everywhere have the same land problems we have in Salt Lake. From 44 years' experience we know that the land problem is like a leaky hose. You plug it one place and it breaks out in another."—Lue Bettilyon, Salt Lake City.

"Builders say there aren't any more fair-priced lots here."—Laurence H. Cook, Mutual Savings & Loan, Bay City, Mich.

Land is a problem for builders because they need a special kind of land. They can't use just any land. They need *buildable* land and *salable* land.

It must be close to main highways, shops, schools, churches, and the right part of town—but not too close to industry, nuisances or houses in a lower price class. And builders in each price class need land whose original cost and developed cost makes sense for them. A \$12,000 house builder cannot use land that may be perfect for an \$18,000 or \$25,000 house. The small-volume builder has problems all his own.

As land gets scarce, builders get desperate, tend to plunge. But in these highly competitive days, they must be more cautious than ever because the public will not buy houses in the wrong location.

Of all their many land problems, the first is to find the land. Here are 20 ways which builders are finding successful. Some are for the little builder, some for the big. Not all will work in every city, but all are worth considering.

1. Best source: the experienced realtor

"There is always one particular realtor in an area who has studied it for purchasable land over a period of years," says builder-developer Clifford Orth of Portland, Ore. "Find such a man and use him. He will save you a good deal of effort and his knowledge of the thinking of land holders makes him a valuable agent."

Lue Bettilyon of Salt Lake agrees. "Our best source of information about land for sale is the realtor. We try to maintain good public relations with all the real estate men in town. When they call us about a piece of land we look at the property. We are careful to respect the rights of realtors and make sure they are paid their commissions."

Ralph Staggs, president of the Phoenix Home Builders, says: "Our most helpful suggestion to builders for finding land would be close cooperation with licensed realtors."

Land Developer Clayton Wyman of Dallas reports: "We find the spot we would like to develop and then use realtors as bird dogs to find owners and to negotiate for the land."

Lester Matlock of Wichita: "Realtors know I am interested in a good land deal and never refuse to examine their suggestions. But it is also good business to know who owns all the prospective properties in your area and be on the prowl for the best. In the 24 subdivisions I have helped develop I generally bought direct from the land owner but I have purchased land from realtors."

2. Ask the owner if it is for sale

Don't believe rumors about land not being for sale, cautions Builder-developer Wm. W. Mullendore of Knoxville. He says: "One of the most important ways to develop land is to find out if it is for sale. This may sound absurd, but many choice pieces are by-passed because the developer failed to deal with the owner direct. He has heard for years that John Smith would never part with his beautiful rolling acres and had refused some ridiculously high offer. This is second-hand information and often it has caused a developer to lose a choice piece of land."

This also means dealing directly with other builders. "Some builders own land they want to dispose of," says Howard A. Webber Jr., of Long Island's Meklenburg Organization, "because they need cash or because they have found a piece of land they like better. They may only be waiting for an offer."

3. Write 500 letters

This idea will come as a shock to some builders or developers, but a letter service will do it for you quite cheaply if you give them your list. Writing letters is the advice of A. G. Bogen, Minneapolis realtor and developer. "Suitable land locations in the suburbs," he says, "can best be found by writing 500 to 2,000 land owners near where you contemplate buying. Combing an area not only helps you find sellers, it is a great help in determining local market values."

4. Let everyone know you want land

In Providence, R. I., James J. Warburton, real estate man who turned to land developing to get the sale of new houses, says: "We let banks, builders, people in various city halls know that we are interested in land. On the first tip we immediately investigate by making personal contacts with owners or their representatives. We also spend any spare time we have driving to various areas, looking for farms or acreage."

"We have our entire sales staff, plus men employed on the outside, constantly alerted to our need of land for developments

and aware that we are always willing to make a bid on any offerings."—Mel Foster, realtor and land developer, Davenport, Iowa and Moline, Ill.

5. Get up in an airplane

"It is amazing how much detail you can see from an airplane," says Chick Wright of Ponca City, Okla. "The quickest way I know to inspect a sizable plot of ground and get a good, over-all picture is from the air." He says his city has let a contract for aerial mapping of surrounding areas and implies that builders may be able to study such photographs. Other builders not only do their scouting for land by plane, but get detailed photos with any camera with a good lens.

6. Study maps of all kinds

Few builders or land developers are aware of the wealth of information already printed on maps. Government topographical maps showing locations of farmhouses, minor roads, contours and grade conditions, drainage, streams and dozens of related factors can be bought for as little as 35 cents a sheet. (For a sample, see July issue, p. 120.) City, county, state and federal governments print maps that are valuable to land buyers. Louis Licht of Lane Realty on Long Island says he uses maps which he gets from land offices and registry offices, also aerial maps he buys from aerial photographers. Most town clerks keep large-scale property maps which can be studied.

7. Large builders sell to small ones

Many large builders sell some lots to smaller builders, but here is a new angle to help the small builder: Clifford Orth of Portland, Ore. suggests that it is good business for a project builder to sell some lots to other builders who are building in a price class just above him. Such builders raise the price level and the prestige of the project, as well as adding variety. For instance a small-volume builder in the \$16,000 class might persuade a large builder of \$14,000 houses to sell him a few lots.

8. Ask your lumber dealer for help

The country is full of builders who use all their spare time searching for land. They should ask their friends for help. Their friends include all the major firms they do business with who are dependent on the home building industry.

Of all such firms, lumber dealers stand highest on the list because many are already helping to find or develop lots for their builder customers. H&H has repeatedly reported such operations.

The individual builder who needs lots, especially the small-volume builder, may have difficulty convincing a lumber dealer that he should go into the land development business. But if several builders got together, they should have some chance for success. The fact that lumber dealers throughout the country are helping builders this way is a precedent to quote.

9. Your mortgage broker can help

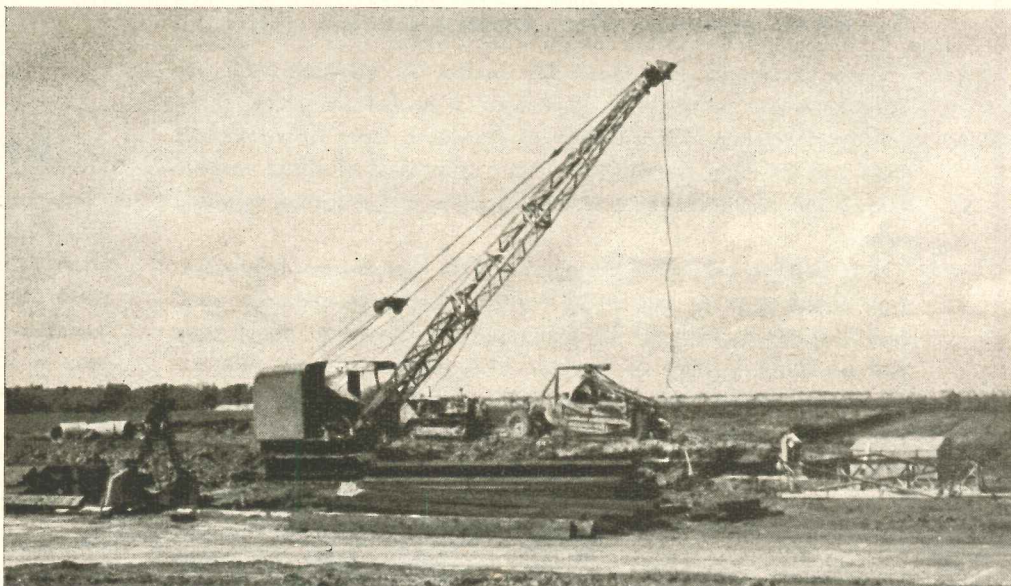
Mortgage brokers want new business and to get it many of them are now developing finished lots for builders. In Houston the huge, 1,200-acre Meyerland development is being handled by the First Mortgage Co. which sells to quality builders.

Outside Denver, the new Broomfield Heights project, which will eventually cover four square miles, is backed by two large mortgage firms. In dozens of other cities brokers now develop lots for their clients. If your broker does not want to go into the land business, he may at least help you find a land developer.

continued



Sawyer Lumber Co. of Worcester, Mass. has developed lots for 28 builders in past few years, prefers small parcels to large ones. "In these days of high costs the small-volume builder needs a lift," says Bill Sawyer, "so he can use his capital to build houses."



Twelve hundred acres of fine residential land are being turned into lots for builders by the First Mortgage Co. of Houston at its Meyerland project opened this year. The mortgage firm is creating a high-class area by maintaining strict architectural control. It has solved land problems for its participating builders, has set an ideal pattern for other mortgage firms.

All over the US, lumber dealers and lenders

10. Savings & loan assns. can help you

Many savings and loan associations are vigorously going after project builders' business. Typical of a fresh, new attitude toward ways to get business is the action of the Mutual Savings & Loan of Bay City, Mich. This progressive firm is developing a 222-lot subdivision, has sold most of its lots to small-volume builders. To get the project off to a fast start, Mutual set a sales price of only a few dollars per lot over its actual costs. Sales went well and Mutual has the mortgage business except for a few all-cash deals. To build good will with all the builders in town, Mutual limited sales to ten lots at a time, five on a definite commitment, five on an optional commitment, then maintained architectural control, required that houses be completed in eight months. Some small-volume builders took one or two lots, made no cash payment for them. This project is an example of what a savings and loan company can do to help local builders. The full story is told by Mutual's executive vice president, Laurence H. Cook, in the *Savings & Loan News* for June.

11. Get a local investor to turn developer

Small-volume builders who have used up all the odd lots and small parcels and who are stymied unless they can find a moneyman to develop new land should not forget the successful businessman who has never dabbled in real estate. Such an investor might not be willing to develop land for just one builder, but he might be persuaded by three, five or more who would guarantee to buy lots once streets, paving and utilities were in. This is an obvious group activity for small-volume builders all of whom are members of the same home builders' association, and who could

use the association's lawyer to draw up whatever contracts were required.

This kind of project involves little risk for the investor if plat plans are drawn by a capable land planner, approved by FHA and VA, a local lending institution and blessed by the city planner, engineer and other officials. This takes time and careful thought, but if done well it becomes a "package deal" which few investors would turn down. A little builder, working alone, is always a little builder, but five or more working together with a careful plan can become a more attractive business organization. For more on cooperative buying, see No. 8 on p. 113 and No. 19 on p. 117.

12. Merchants want more new houses

Shopping centers thrive in fast-growing neighborhoods and their owners often develop land to attract more families. When an owner has lots for sale it is obvious to every land-hungry builder. What is not so obvious is that there are hundreds of small neighborhood centers or strips of stores owned by investors who are not land developers but who might be persuaded to help finance residential land. Likewise, groups of merchants fearing the loss of business to a new shopping center some distance away might combine to develop unused residential land near their stores.

13. There is always the land developer

Greatest source of finished lots for many home builders is the professional land developer. In many cities it is he who keeps the building business going, for the typical builder cannot invest any large sums necessary for raw land and development costs. If



Mutual Savings & Loan of Bay City, Mich. developed 80 houses in this Handy Park project during the war, has now gone on to create another 55-acre tract, selling lots to builders. This is the kind of cooperation with builders which helps the mortgage firm get new business, helps the builder solve his land problem, lets the city grow in an orderly way.



Irvin Blietz of Wilmette, Ill. has produced fine communities like this New England Village by taking land which other builders by-passed. He had imagination to see how a 20' bank of earth and landscaping could shut out a railroad track, how an entrance like this and loop streets could let his neighborhoods turn their backs on less desirable areas.

help builders with land problems

the small-volume builder can buy lots here, he has no problem. But suppose the land developer wants to deal only with his chosen few, won't sell to others?

Builders who need lots may persuade such a developer to sell by working through their home builders' association, by agreeing to improve their designs, submitting to architectural control, and persuading him that his project needs more variety in design and price. The fact that ten builders are at work in one project means diversified advertising in the papers, more publicity and more visitors. Activity breeds activity, as many land developers have learned.

14. Title insurance firms can scout

It would never occur to most builders to ask their title insurance firm to help them find land, yet the California Pacific Title Insurance Co., with branches in several West Coast cities, reports: "We maintain three public relations men who make contact with land owners. Many subdividers, builders and brokers come to our office inquiring about available lands and we have been of material assistance to them."

15. Investigate tax-delinquent property

Tax-delinquent land is worth investigating. It may look worthless, but a builder with imagination can often develop it. The suggestions in No. 13 (p. 116) may be helpful.

A builder needing land should develop a source of information about such tax-delinquent property so that before it is sold at auction, he can decide how to handle it. Perhaps he can buy it from the owner before the auction.

16. Read the papers

Will Rogers used to say, "All I know is what I read in the papers." Many a paper-reading builder has found tips which led to a good land buy. Some one dies, some one gets married or leaves town or moves or inherits. Someone buys a farm, or sells, or a new factory is announced, or a citizens' group denounces a slaughter house or some other nuisance which will have to be moved, and so on. A skilled realtor can find hidden meanings in trivial news items, many of which may lead to land ownership changes. A busy builder cannot spend his time following every lead, but the small-volume builder may have to.

17. Watch for tips from city hall

When some of the most successful realtors are asked how they find land they say, "We have friends." They make it their business to know someone in authority who knows when new sewer or water lines are about to go in. These may open up a whole new residential area. New roads, or the paving or widening of an old road may be the key to some new land. Similarly a new park, the widening of a river, filling low land, city action on a dump or sewage disposal plant may be significant.

Bribery is not a part of getting such information. A good newspaper reporter can ask the right questions and get the thinking of city or county officials, and a builder, too, can learn a lot by asking questions. From the city or county planner he may get clues available to anyone asking questions or stating frankly that he wants to buy some land. Although it is not FHA or VA business to give land tips, their field investigators travel a lot, often can make helpful suggestions.

continued



Photo: Julius Shulman Designer: Gordon Drake

Steep hillsides can often be used by builders with imagination

18. How to use the problem lot

In city after city the small-volume builders are saying, "The easy lots are all used up." What they mean is that the easy-to-build-on lots are gone. There are still plenty of problem lots which no builder was willing to bother with. They cost more to get in shape, but with land prices high they can pay off.

The steep hillside lot is a problem to builders who have always built on level ground. A hillside takes a different house, a different foundation, a whole new approach to design. But it pays off for the builder (see "How to strike paydirt on a hillside," Dec. '53 issue) and for the buyer who gets an interesting house. The hillside house may be a split level with an entrance midway between floors. Or it may be a two-story house with a midlevel entrance. There is one set of problems for the house above the street, another for houses below the street.

When a builder has problem lots he should consult the experts, for here the professional architect, engineer, earth mover really pay off. They have solved these problems before, know what to do. A builder may spend weeks puzzling over a problem site when a bulldozer man can give the right answer in ten minutes.

The rock-ledge site is another problem. Blasting out a basement may cost too much, yet local finance institutions or public opinion may be unfavorable to nonbasement houses. Here an engineer or architect may suggest a fresh approach to siting the house, or to using slab or crawl-space design so that a minimum of blasting is necessary. But when basementless houses are built in a basement-minded town, builders must be extra sure they provide plenty of storage space above grade (see p. 126).

The odd-shaped site, especially a pie shape with narrow frontage and enough land at the rear for several houses is a problem which a builder should discuss with an imaginative architect or site planner. Sometimes a cul-de-sac or a loop street may solve the problem. FHA planners can usually make helpful suggestions if they can study a contour map. Or a small-volume builder may get help from a big builder who has built on difficult sites.

The low site has several solutions. The first is usually to bring in fill, and this may be relatively cheap if done at a time when someone else wants to get rid of earth. A way to find fill is suggested by Wm. Mullendore of Knoxville who says, "Much

fill dirt can be obtained by scooping it out of selected places before the sewer and water mains are installed, or before blacktop is laid on streets. We find that about 10% of the lots of each subdivision are undesirable due to terrain. By using earth moving equipment these lots can be salvaged."

Much low land has been drained and made into good lots. When a drainage ditch needs to be left, it can sometimes be faced with stone or brick and turned into a neighborhood asset. The low wet site is an engineering problem and a builder should get expert advice. Any builder with low land could profit from a trip to Minneapolis, where much of the remaining land inside the city is on the site of a very old lake. For years these lots were too expensive to develop but now builders are putting in deep piles, erecting foundations on them.

"The upgrading of low land is becoming quite popular in this area," says Chek Eide, vice president of the Knutson Co. of Minneapolis. "Most suburban areas prohibit building on filled land without specific inspection, subsequent permit and recommendations by the building inspector. It is possible, however, to secure permit on compacted fill, particularly if several years elapse between the time of the original fill, cutting and grading, and the application for permit. As a result, the usual arrangement made with the land owner is as follows: the building contractor furnishes the earth moving equipment and pays for cut and fill, all labor and any machine rental. The land owner enters into a long-term option for the sale of individual lots, if and when they are approved by the building inspector."

A good lot in a poor location is another special problem. Such a lot might require a house to be close to a noisy street, have run-down barns or other buildings next to it, or be too close to some other nuisance. Usually FHA or VA would not approve such a site, but local financing can often be found if the problem is solved. A quick growing hedge or a high fence may screen out the nuisance, or a combination of a screen and a pleasant paved or landscaped garden may turn the liability into an asset. A high wire screen planted with fast growing vines may shut out an unsightly object. It should never be forgotten that what seems unattractive to conventional buyers may seem "quaint and charming" to a couple of ex-art students who are not bothered by unconventionality. Here, again, the builder can get imaginative help from an architect or a landscape architect.

19. Cooperation may be the best answer

The parade of homes in many cities has taught builders how easy it is to work together to buy land. There are many examples of teamwork among large builders. But it is still news when two, three, five or more really small builders get together. Yet the small builder has far more to gain from such a cooperative effort than the big builder.

An inspiring example of joint effort is the action of builders in Tyler, Texas. They wanted to build some minority houses, but no one had the money, influence or inclination to tackle the job alone. So a dozen builders got together, worked through the local home builders' association, got a fine piece of property which probably could not have been bought under other circumstances, got good plans, FHA approval and, for the first time, got three local savings and loan associations to handle the mortgages. Tyler, as a result, will get about 100 fine houses and a new neighborhood that is a credit to the city.

Builders Holmes & Jensen of Salt Lake point out that land buying partners must have a clear-cut agreement on record keeping, on what happens if one partner slows down his share of the building, on who pays for curbs, gutters, street surfacing when two builders work on opposite sides of streets, on payment for special assessments. Greatest advantage that each partner gets is the elimination of competition for land.

Much of this part of Colorado Springs was worthless to builders until entire area was unified by land planners. New streets were tied in with existing streets, schools and a shopping center located, a golf course laid out, drainage problems solved, and decisions made about an old coal mine. One land firm bought 360 acres as soon as master plan was accepted.

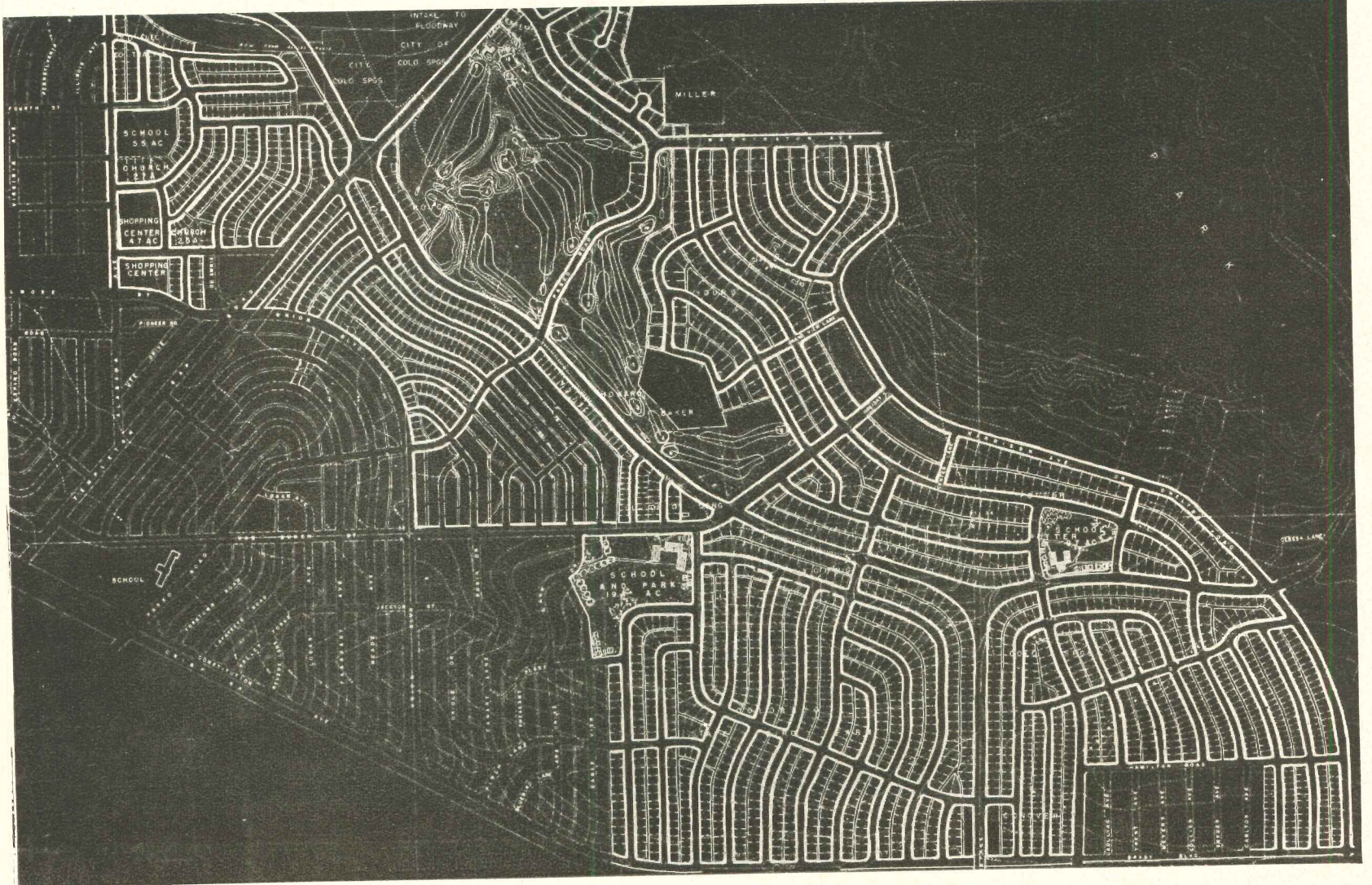
20. Get professional planners to help

This is so important it will be covered in detail in a later issue. There is space enough here only to say that one of the best, and sometimes the only solution to finding land lies in developing an over-all master plan of an area. The planning firm of Harmon, O'Donnell & Henninger of Denver has done master plans in several cities, showing how an area could be developed and worked with builders and land developers in presenting such ideas to a city or county planning board. Once such a well-conceived plan is accepted, land which is almost worthless may suddenly become usable because it will be integrated into a desirable community.

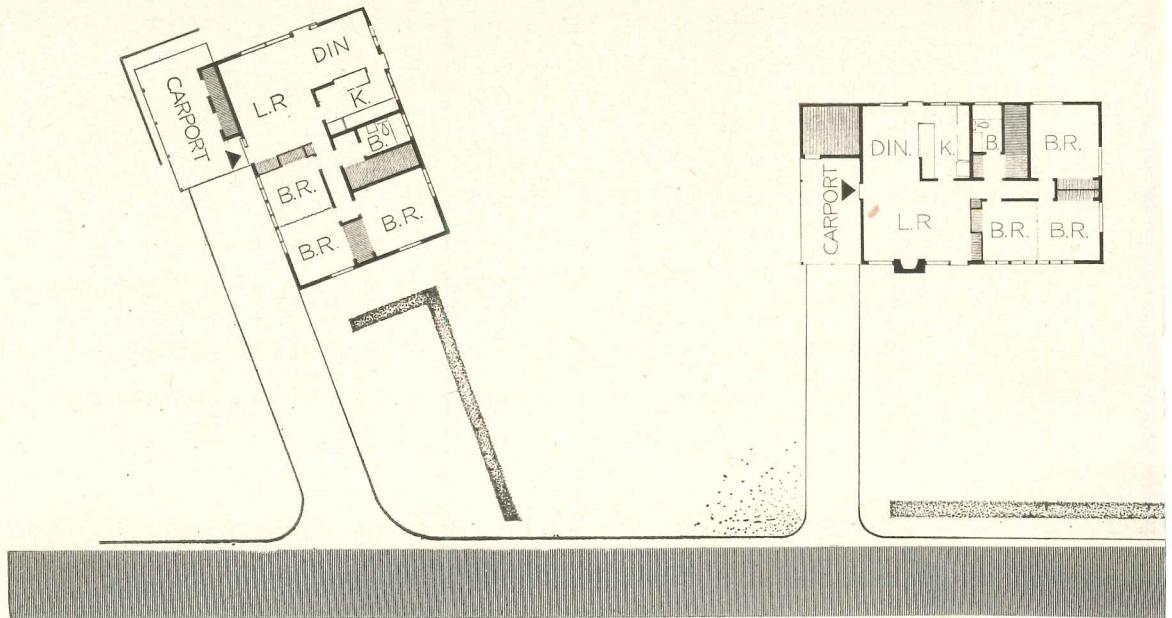
Such a plan was prepared by this firm for a large area in Colorado Springs. It created order out of disorder. It brought in men with money who were willing to develop land for builders. It gave builders with their own money confidence to go ahead and develop land and build houses. It is bringing new houses to Colorado Springs where they are needed, keeping builders in business, creating good residential areas, golf courses, parks and orderly growth. (See plan below.)

There are similar areas in many cities with a potential of hundreds or even thousands of lots. But this potential cannot be realized until builders and land developers get together, hire skilled planners, and create workable plans.

Harmon, O'Donnell & Henninger

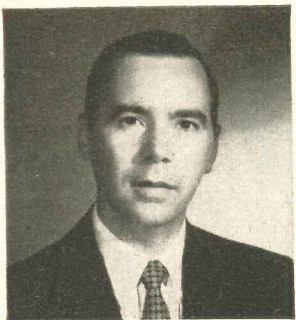


Site planning

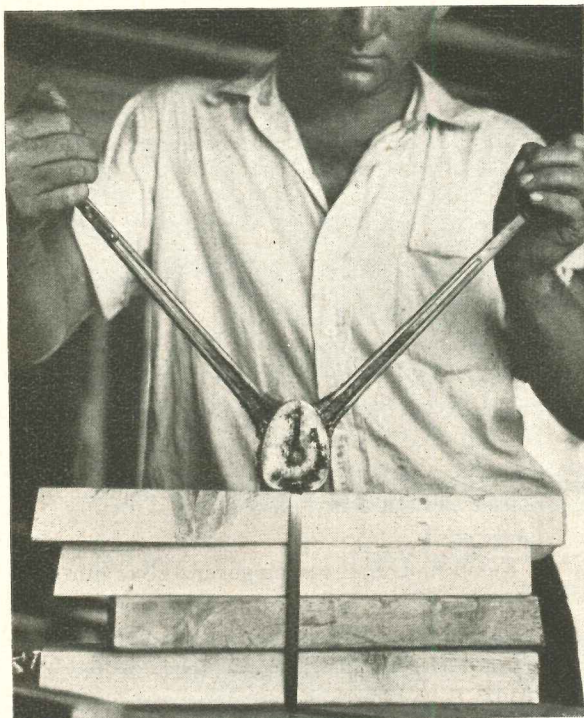


In St. Louis . . . Example No. 1 (cont'd.) Kemp has lessons for every builder

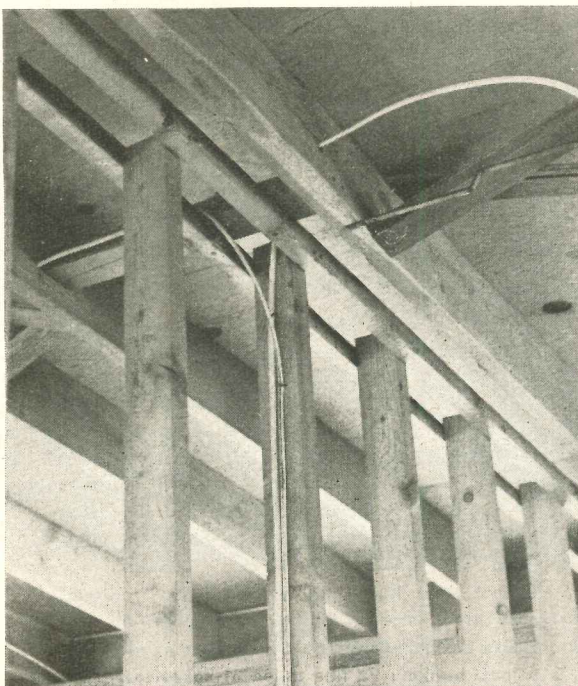
Efficient production techniques



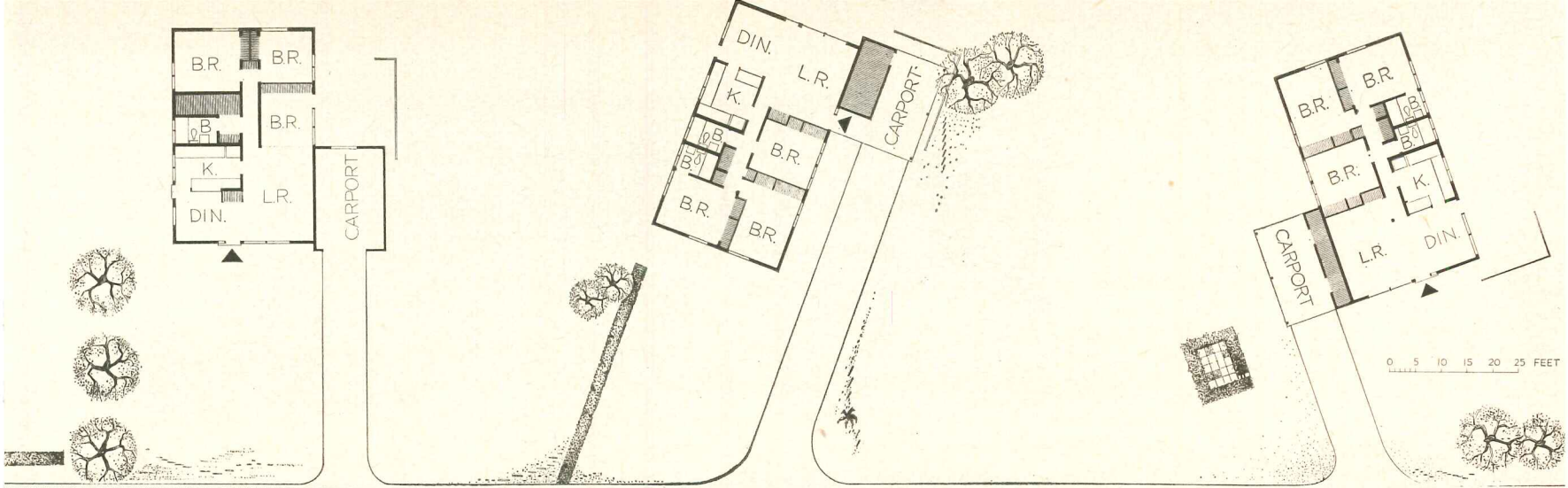
Far-sighted Mortgage Lender **John W. Blood**, vice president of Roosevelt Federal Savings & Loan Assn. says: "Kemp & Edwards have succeeded the hard way. When they ran into financing trouble they refused to take the easy way out and build conventional houses. I'm glad we let them sell us on their new ideas. They are making possible a pleasant way of life never before offered to home buyers in this area. Their success has proved the soundness of their ideas."



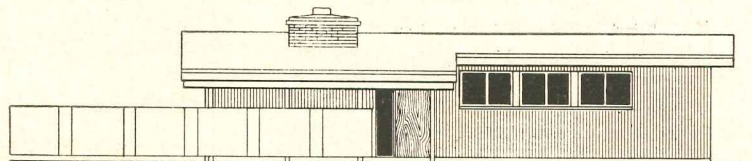
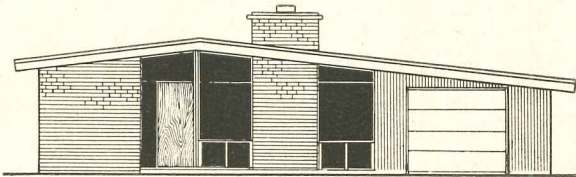
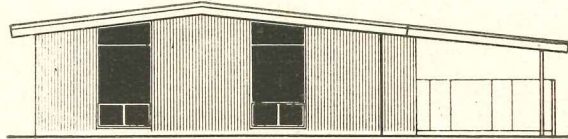
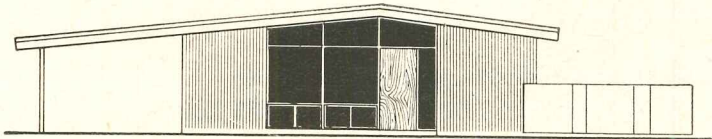
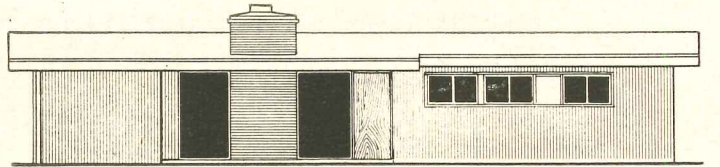
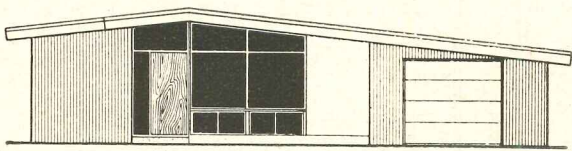
Biggest economy factor is precutting. After careful study on the drafting board, Kemp builds a pilot house, recording all lumber dimensions. These cutting lists are bound in a notebook for the saw man. The cut studs and plates are then bound with a strapping machine (left) for delivery to the building site. A complete house is brought to the job on a flat-bed trailer pulled by a four-wheel-drive Jeep (which operates in the worst mud).



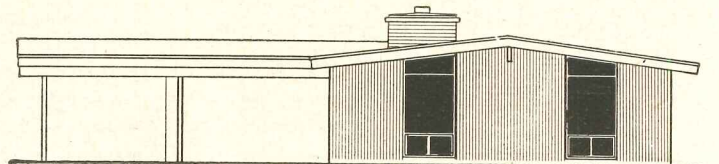
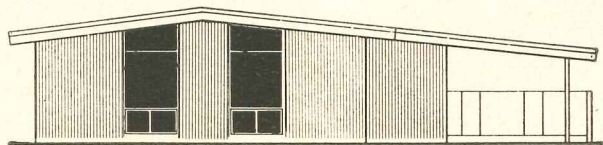
Studs run wild into framing of sloping ceiling. Two 2 x 2's are used as nailing grounds. This speeds construction two ways: 1) tops of studs need not be cut to roof pitch or accurately fitted under rafters and 2) wiring is easily installed since no drilling is required through a top plate.



0 5 10 15 20 25 FEET

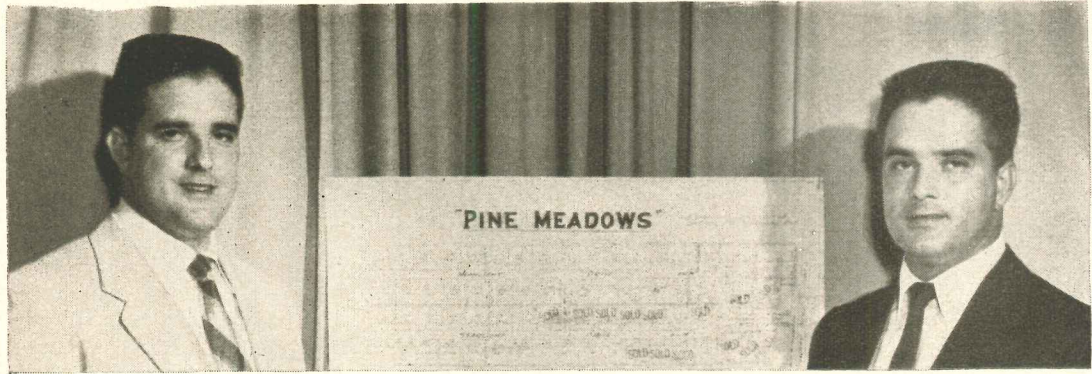


Multiple-choice exteriors



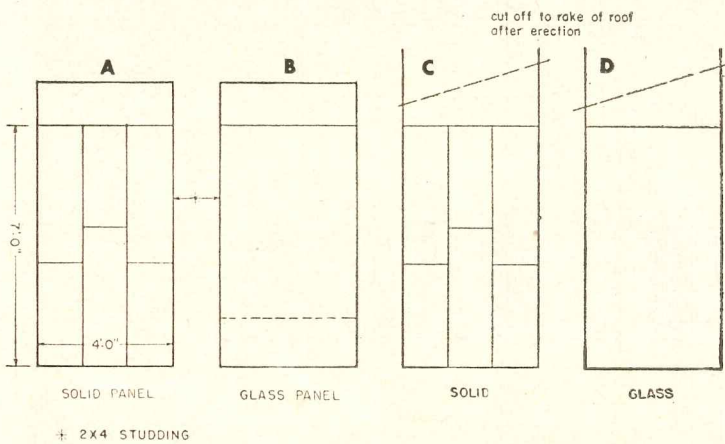
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THREE BUILDERS



In St. Louis . . . Example No. 2

The Londoff brothers and Builder Disch believe big lots help sell contemporary houses



Four standard panels are shown here. Panel A is either solid (entirely covered with insulating sheathing board) or a vent panel. The vent is a 44" wood window mounted above the 7' horizontal framing member. Panel B has a vent above fixed glass. With the addition of framing (dotted line), a lower vent can be used. Panels C and D are similar to A and B, but are for use with exposed plank-and-beam construction.

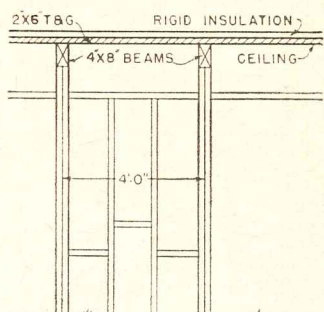
"Our crews balked. They wouldn't change their ideas"

Like every builder who has tried contemporary, Disch had trouble getting his crews to learn unfamiliar ways. So he had his designer limit the floor plans used to three basic types. From these, six house variations were developed. The houses fit on flat or rolling ground, and because there are few plan types, workmen quickly became accustomed to the new methods.

Disch's workmen found several techniques new to them. The ceilings are exposed 2 x 6" T&G planks on 4 x 8" beams (girders range from 4 x 10" to 5 x 18"). Over the roof decking insulation is laid and a hot asphalt and gravel roof applied. Exterior walls are dry-wall construction inside, V-joint redwood boards outside. The boards are applied vertically or diagonally. The slab houses are heated with hot-air perimeter ducts.

Biggest change for crews is the 4 x 8' wall panels. The 4' wide panels (used only in exterior walls) are designed to be made of standard 4' building materials, and to fit the 4' module used throughout Disch's houses. All lumber for the panels is precut and assembled on a jig. The four standard panels (shown, left) can all be made on the same jig.

When the panels are in position in the walls, a 4 x 4" post is formed every 4'. These posts support the 4 x 8" ceiling beams, which are also 4'-0" o.c.



Panels fastened together form 4 x 4" posts on 4' centers. This modified post-and-beam technique saves supervision at the site because panels align easily and accurately.

Two brothers James (far left) and George Londoff, 25, have been in real estate for several years. They formed the Contemporary Development Co. last year, have sold 17 houses in their first subdivision, Pine Meadows. Together with their builder, Robert Disch III, they are forging ahead with plans to develop the remaining 53 lots. The Londoff brothers handle sales and development, retain an industrial designer, Russell Hughes, to design their houses.

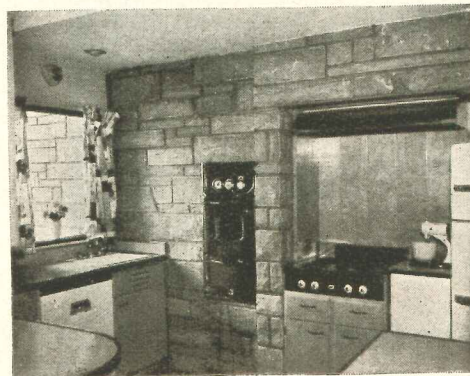
Lots in Pine Meadows average an astonishing one-half acre, with a distance of 80' to 120' between houses. Prices range from \$16,950 for a three-bedroom, one-bath house, to \$30,000 for four-bedroom, two-bath hillside. Many extras are available.

Biggest problem Contemporary Development has faced is getting FHA financing. Because Pine Meadows has been built on a minimum budget, improvement of the entire tract was difficult, but FHA wants it that way before approval for loans. Contemporary also feels that FHA does not give enough consideration in their appraisal for the excavation necessary to make hilly ground into interesting lots. Rough land cost \$700 per acre, but improvements (roads, grading, etc.) brought the cost up to \$2,200 per acre.

Already looking to the future, Contemporary Development hopes to build a subdivision of low-cost contemporary houses. The firm is convinced that St. Louis is swinging in direction despite the present demand for "ranch" houses.



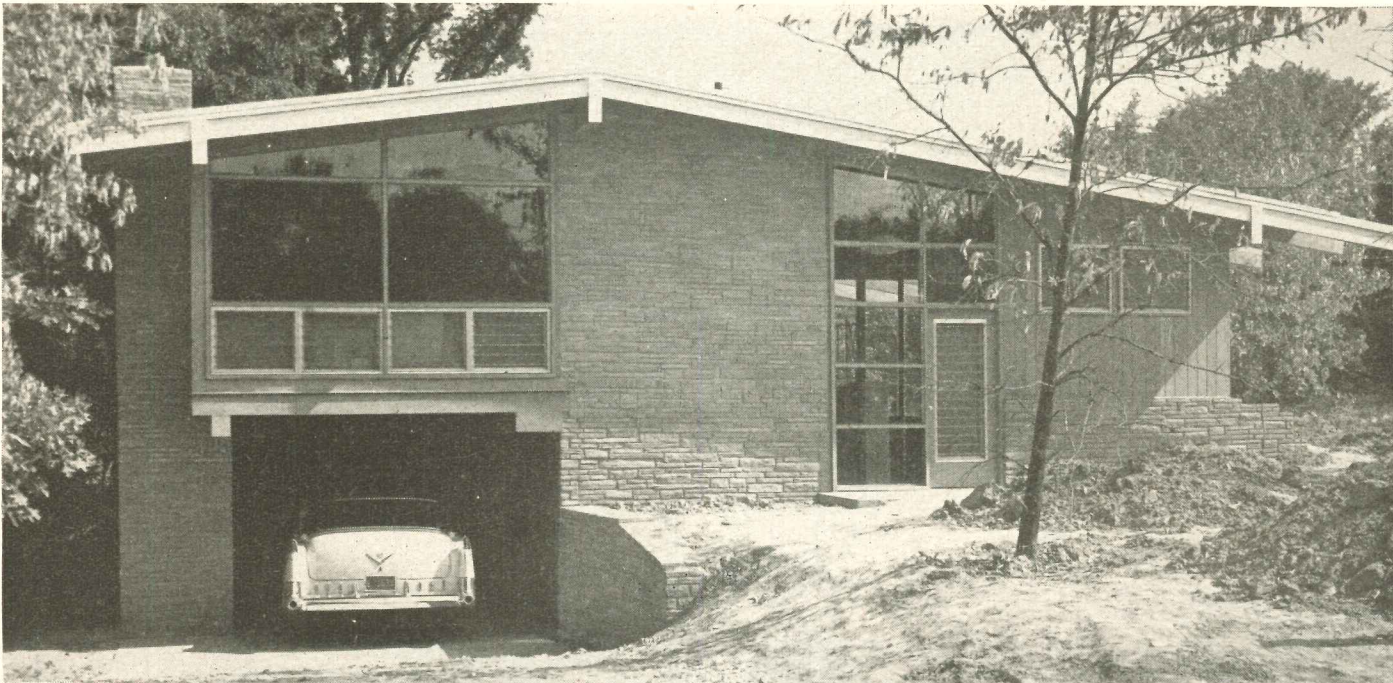
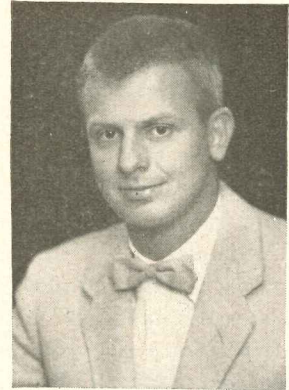
Biggest seller has rustic sales appeal. Stone chimney sets theme of house on outside, holds built-in range and oven in kitchen. House shown above costs \$21,950, including washer and drier, dishwasher and garbage disposal unit. Carport is enclosed by storage wall that houses 600 cu. ft. of workshop and storage. Living area in this model is 26' long, 20' wide. Another version of the same plan has a 36' long living room.



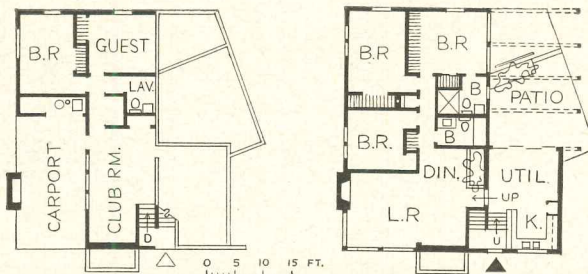
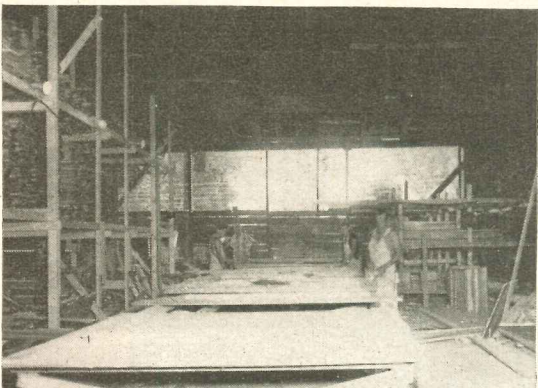
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In St. Louis . . . Example No. 3

Glen Todd gave up colonial houses, turned to contemporary with prefabbed parts—and cleared \$14,000 in three weeks



Prefabbed panels for split level will be manufactured in shop Todd bought recently from local ice and fuel company. Panels are 6'-4" wide (entire house is laid out on a 4" module). Variations include solid panels and panels with windows preset in unit. Methods for panelizing split level are being studied. Todd is already on the market with two prefabricated houses, one package costing \$3,850, the other \$6,950.



Interest in his split level has been "fantastic." Todd has high hopes for his huge (five-bedroom, three-bath) split level (photograph and plan above). He had so many inquiries on the pilot model, begun as an experiment, that he now plans to prefab as much of the house as possible to make the price competitive. Todd hopes to hold sales price for the house, in production, to \$29,500. For a partly finished model (lower level rooms not finished) he plans to ask \$22,500.

This is a lavish split level. It has two terraces, two fireplaces and *two all-purpose rooms*. Best of all, it takes a crack at solving the cold floor problem in splits. The lower level has radiant heat in the slab; the upper level has hot-water baseboard heat.

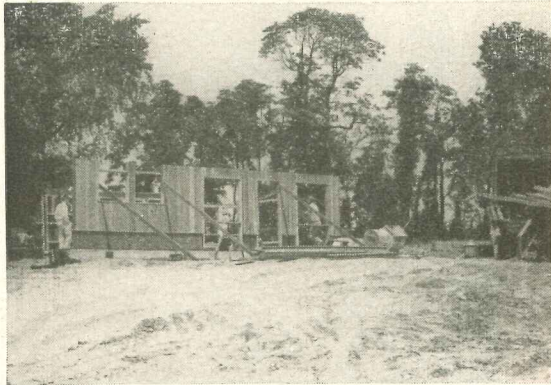


Spain Studios

Three years ago: colonial houses

Youth is the keynote of the Todd Construction Co. Its owner, Glen Todd (opposite), just 25 himself, prides himself that he is the oldest man in his organization. Todd was engaged in his family's real estate business, decided to get into building in 1952 to handle trade-ins to better advantage. He had moderate success with colonial houses, saw a brighter future in contemporary.

"I saw unlimited possibilities for a contemporary house in staid and realistic St. Louis, provided such a house was introduced on a wave of showmanship," says Todd. "I decided I could give the home buyer more in style and more for his money with a pre-fabricated contemporary unit." Growth from 11 houses per year to his anticipated 520 is Todd's goal.



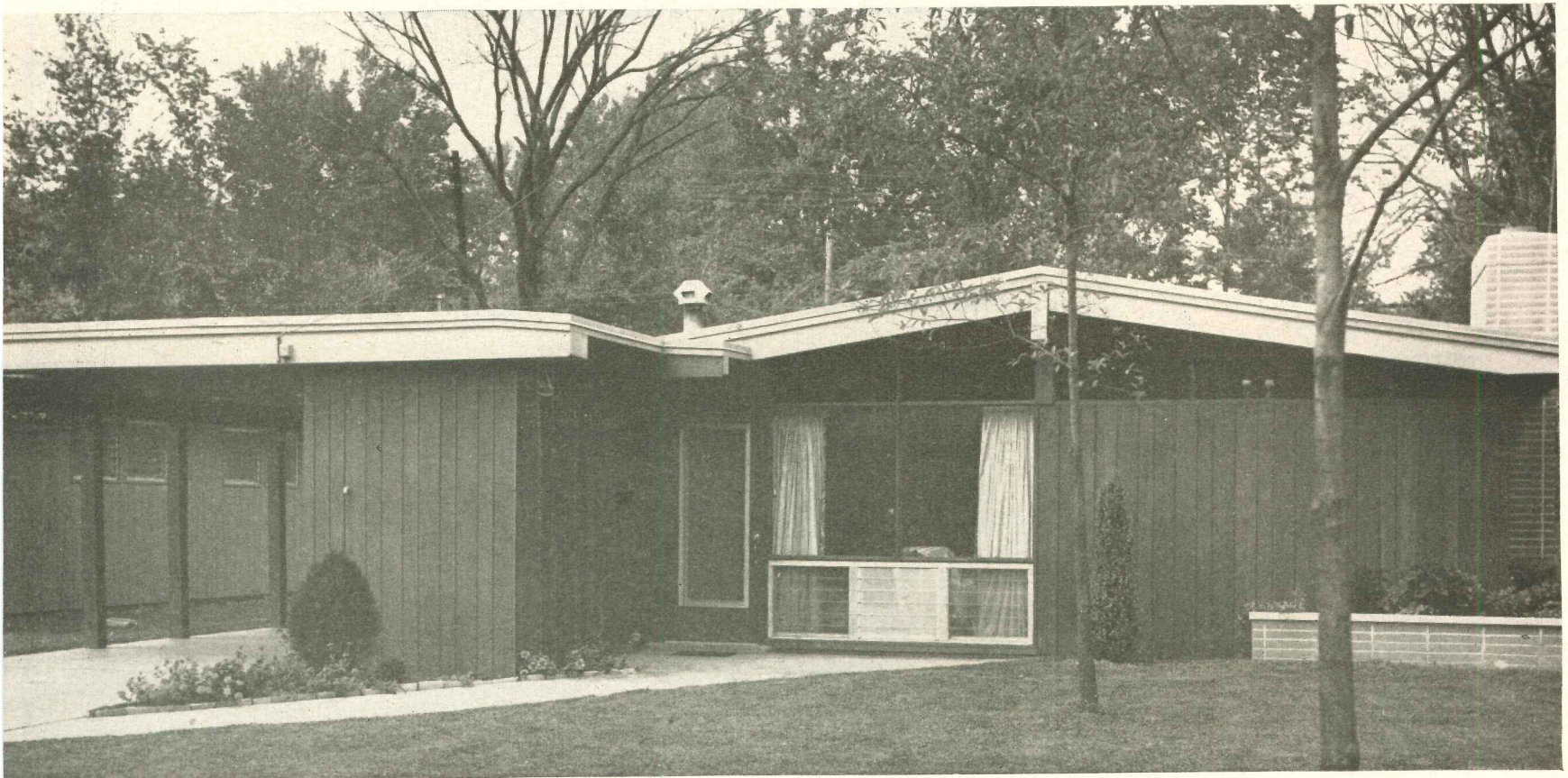
Spain Studios

"Cooperating with the weatherman," Todd gets a house roofed in between 7:30 A.M. and 4:30 P.M. only on days when the weather report is favorable, uses six carpenters and two laborers (total wages: \$190) to perform the day's operation. Precutting, panelizing and swift erection, according to Todd have cut his total building costs to less than his former material costs alone.

"**Nothing short of phenomenal.**" That is how Glen Todd describes his success. His most popular houses have been his Floridians (below). One Sunday in 1954 Todd sold 16 Floridians in his office from drawings, prior to construction. Although the square foot price is high (about \$15), there are several luxury features, including a fireplace and radiant heat. A 5 x 9' storage closet opens into the carport.

A remarkable extra is the swimming pool. These pools are built by Todd's men, offered to owners for a small \$975 (including accessory pool equipment) over the cost of the house. After the 30' x 16' excavation has been made, Todd lays reinforcing rods and mesh, then has his men place the cement mortar bottom. This is 4" of 6-sack mortar, well compressed, steel troweled and kept moist until well cured. Todd decided to build pool himself after getting bids for as much as \$3,500 from pool contractors in St. Louis.

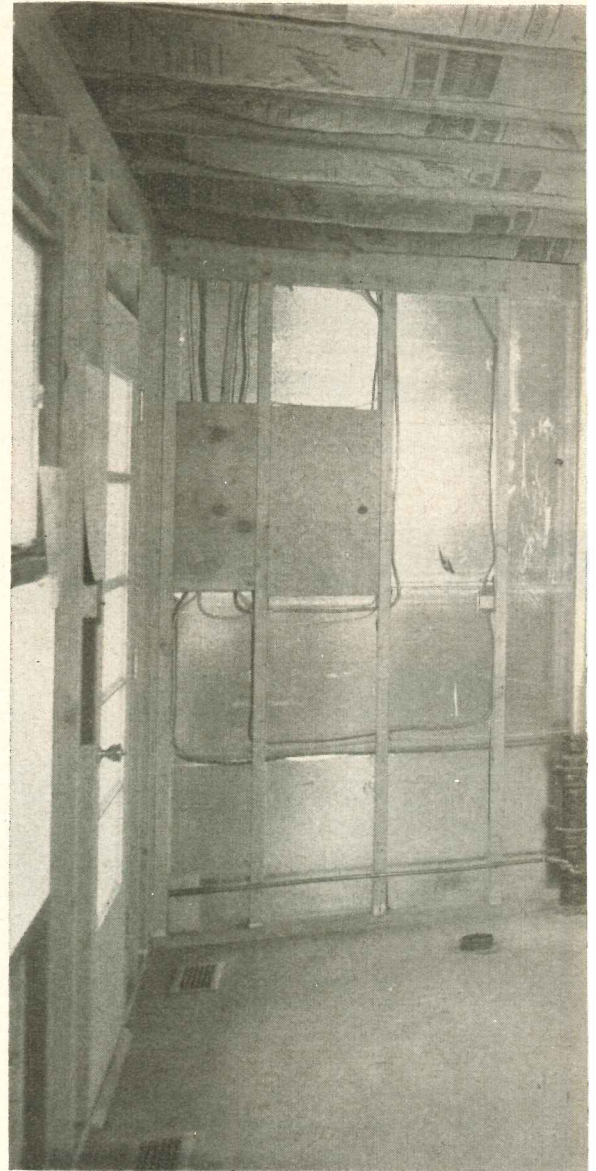
At the rear of the Floridian is a 14' x 16' covered patio, which is off the kitchen. Owners use it for dining, but may plan to enclose it later as an all-purpose room. Todd finds this do-it-yourself feature an excellent sales booster.



Question: Why do so many buyers say they want a basement?

Answer: Because so few builders offer a true "basement equivalent" when putting their houses on a slab or crawl space.

Andy Place is the first builder to give home buyers a fair choice. He has taken the same money it would have cost to put a full basement (at \$1.75 a sq. ft.) under a 1,040 sq. ft. house and spent it to add 520 sq. ft. of partially finished space above ground. His on-grade space, finished like the room at right, costs \$3.65 a sq. ft. But it is a better room than a basement: heated, insulated, it has four double-glazed windows, roughed in plumbing for a toilet. So buyers' costs for it are \$1,898 vs. \$1,820 for a basement.



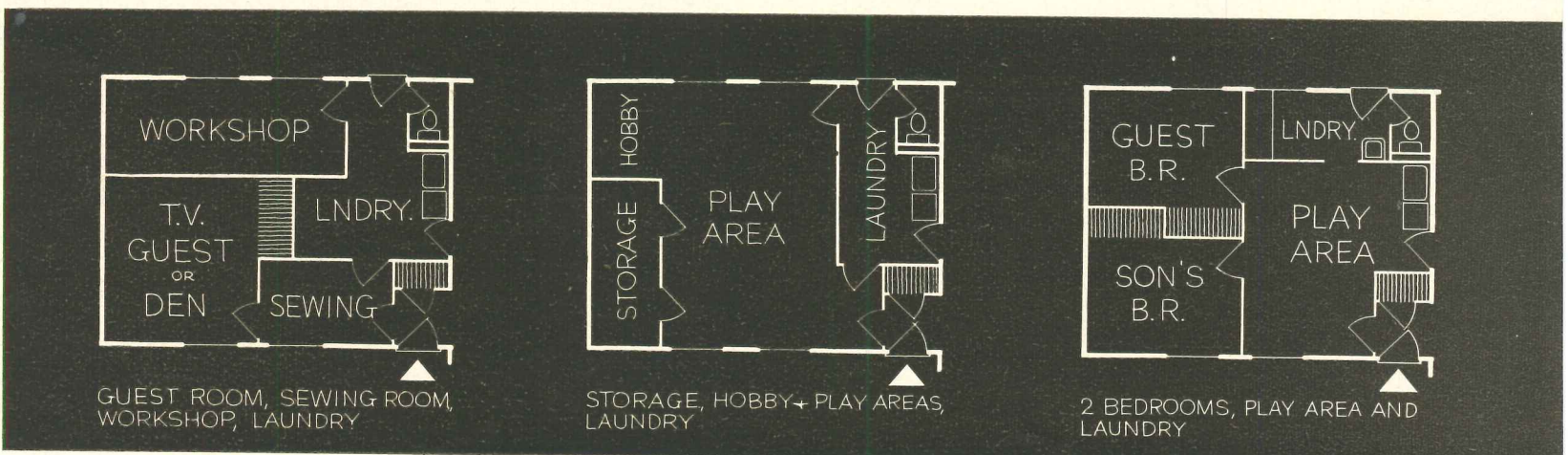
Now Andy Place

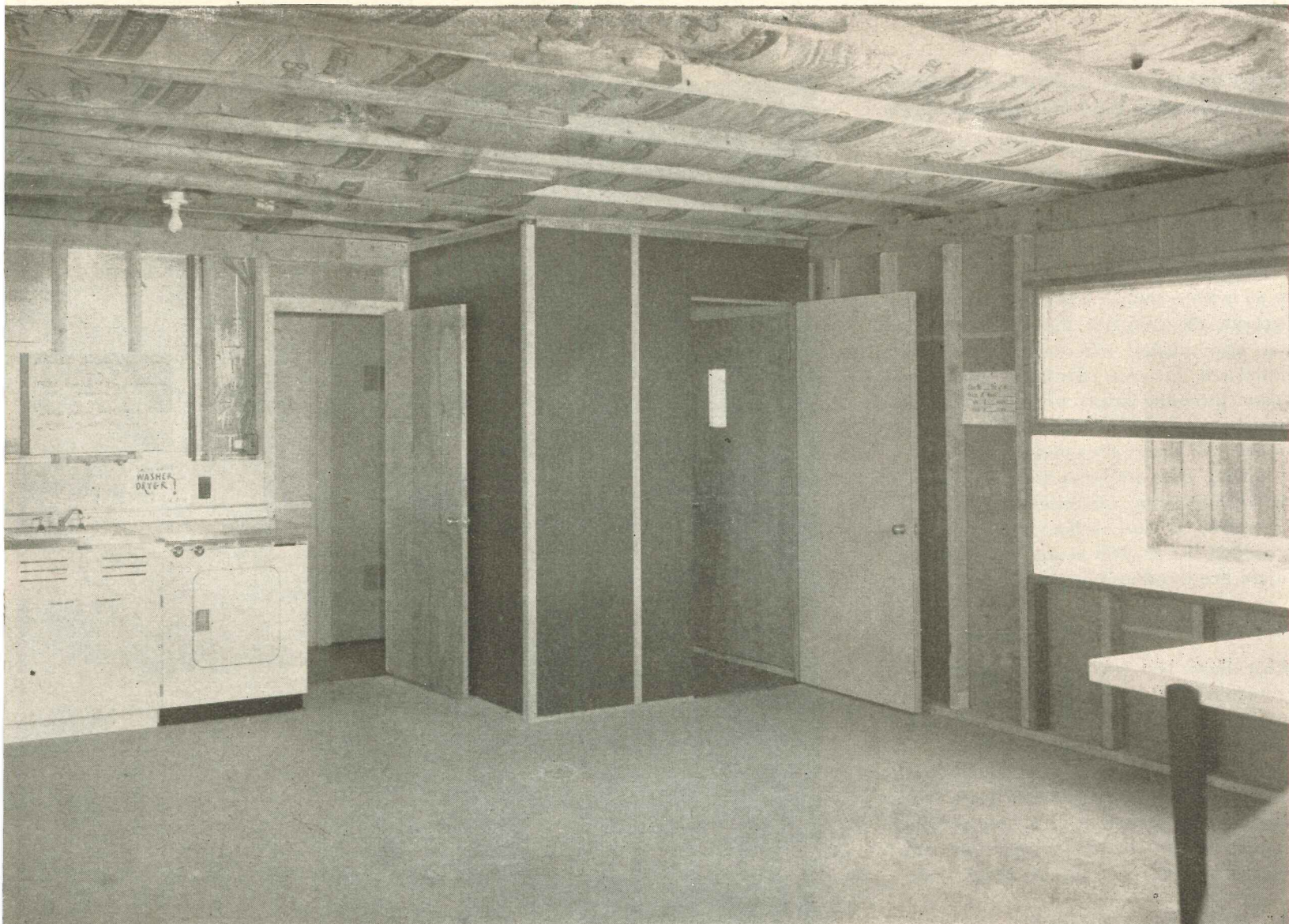
is restating the basement question in another way:

**For the same money,
would your customers
choose a basement . . .**

or 520 sq. ft. above ground

. . . and look at all the other ways to use this "gradement room" space . . .

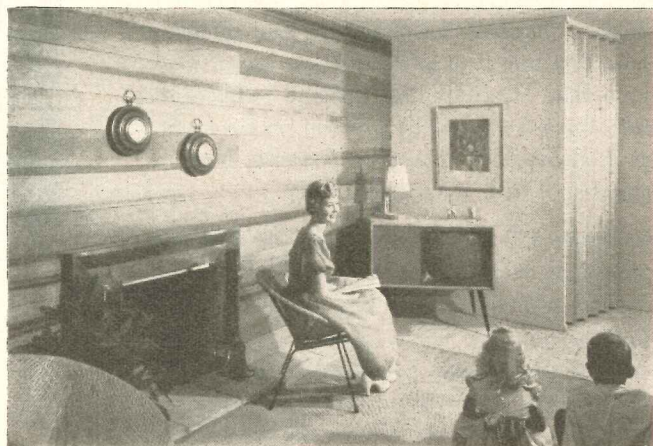




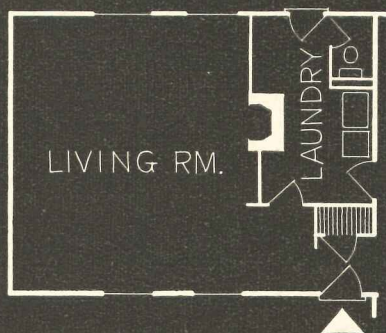
The Lattimer Studios

↑
like this?

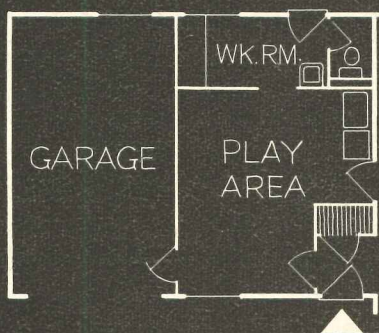
... that could be finished like this?



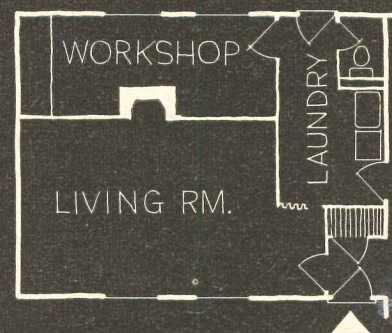
Hedrich-Blessing



LIVING ROOM, LAUNDRY



GARAGE, WORKROOM AND PLAY AREA



LIVING ROOM, WORKSHOP, LAUNDRY

continued

BASEMENTLESS HOUSE

Smart builder uses quality features and new ideas when local market gets tough

Even in boom times some local markets go soft for a few months. Here is how Place Homes increased sales in South Bend after Studebaker and two other plants laid off men and depressed the housing market.

These shrewd builders did not cut prices or go in for a cheaper house. Doing the exact opposite, they dropped their \$9,000 houses, put more quality into their \$13,000 line, introduced the new \$16,500 "gradation" house (preceding pages), filled it with quality features and pushed their \$22,000-and-up houses even harder than they did last year.

Results: sales are better than last year and the \$16,500 house (which most buyers pay an extra \$900 or more to have Place finish) is outselling the \$13,000 house. And the high-priced line is selling better than ever.

Second-time buyers want quality

What these best sellers prove is that the second-time buyer wants quality and will pay more to get it. His first house did not satisfy him. Now he wants something better.

After Place had put an extra \$1,000 worth of quality items in the \$16,500 house, Sales Manager Jim Peacock held his breath while waiting to learn if people would pay extra for quality items. The answer: people will.

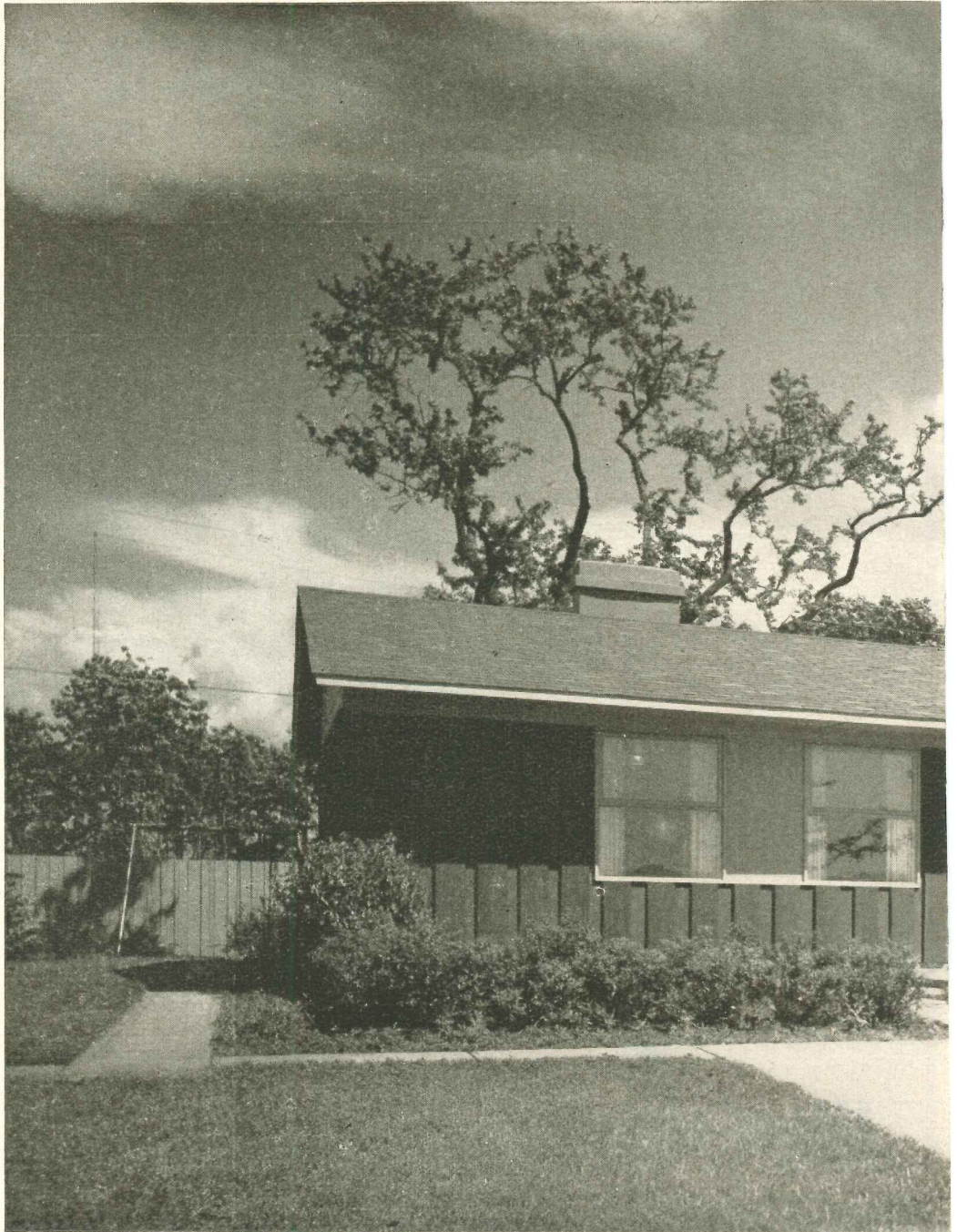
The quality items included:

Plumbing: combination shower and tub filler which is handier for children (see photo); about \$30 more for a 10-year hot water heater; a floor drain in the furnace room; \$13 more for a better mixing faucet in the kitchen; higher-priced plumbing fixtures, built-in wash basin with long-life counter.

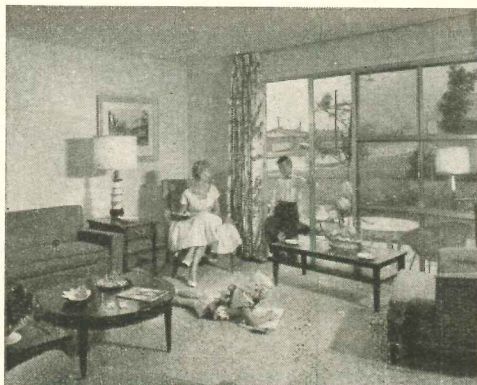
Heating: 125,000 Btu furnace (enough for expansion) with 10-year heat exchanger; \$22 more for a quality diaphragm gas valve which operates quietly; freon duct from furnace room to outside and a housing assembly below furnace for future air conditioning; asbestos cement or glazed clay tile heat ducts.

Wiring: 100-amp., 20-circuit system with circuit breakers, plug-in strips all over house (probably more circuits and outlets than any house at this price) with 220 v. to points where needed. Gas leads to drier, range, refrigerator, water heater.

Foundations and framing: reinforced slab of 3,000 lb. concrete with a .006" plastic vapor barrier beneath; framing of No. 1 kiln-dried Douglas fir, two 2 x 6 top plates, 2 x 6 trusses with split ring connectors, $\frac{3}{8}$ and $\frac{1}{2}$ " plywood sheathing; 5/16" back-sealed pressed fiberboard siding; all exterior doors and window frames of $1\frac{5}{8}$ x 6" redwood; double glazing throughout with vinyl weatherstripping; vinyl tile in kitchen and bath.



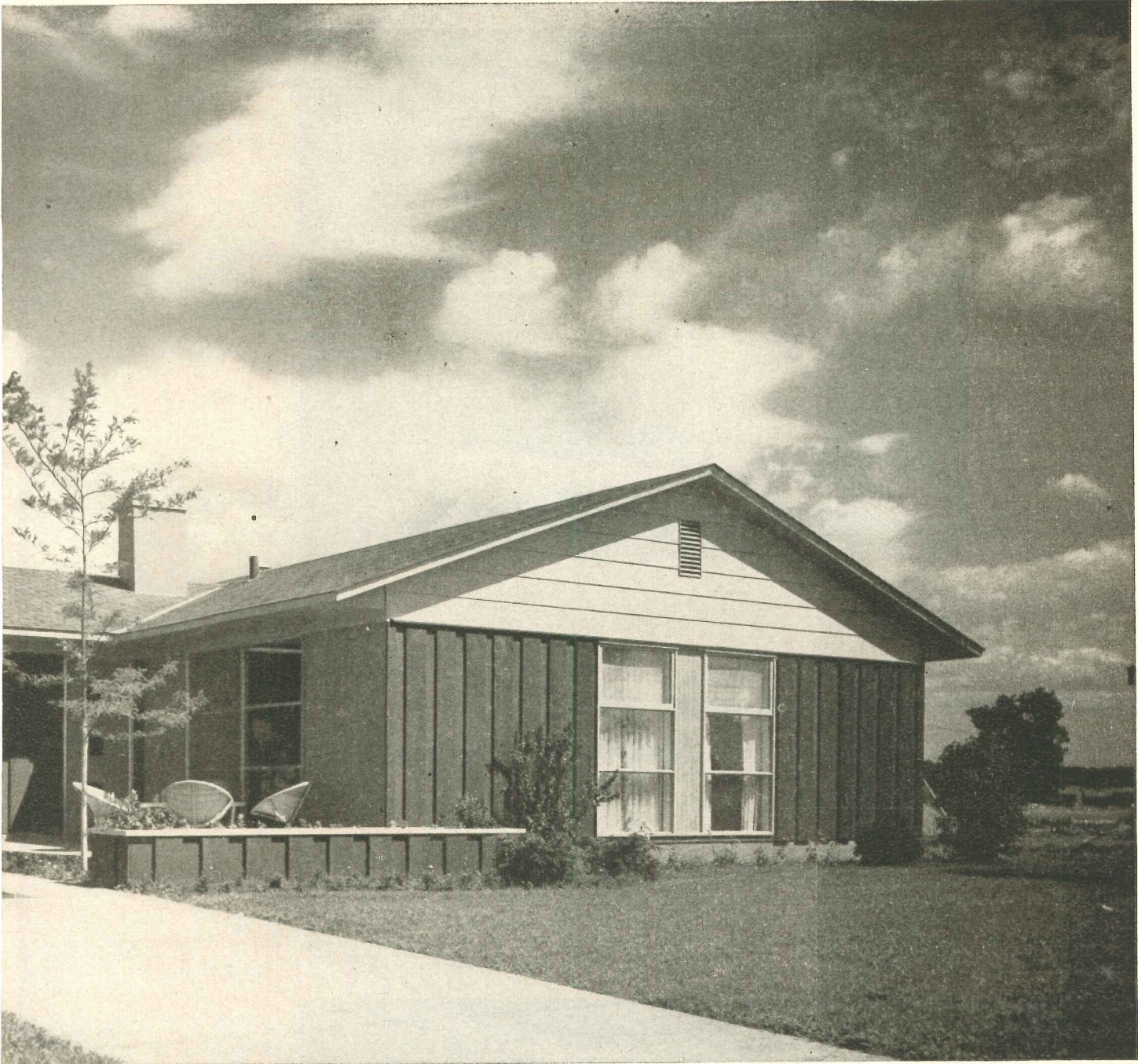
Here is the basementless house which



Large sliding door from living room to front terrace is first in town in \$16,500 house. This becomes a den or even a dining room if gradement room is finished off as a larger living room.

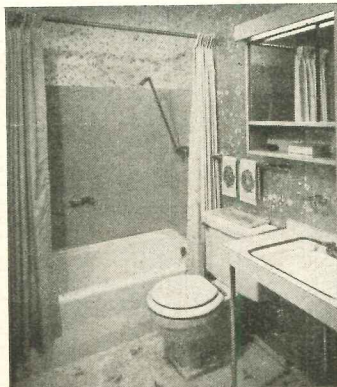
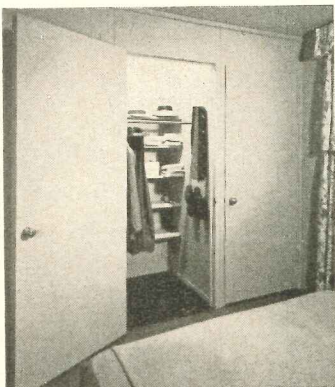


Living room looking through hall to kitchen with door to bedroom wing at right. Built-in book shelves and birch panel partition (right) are popular.

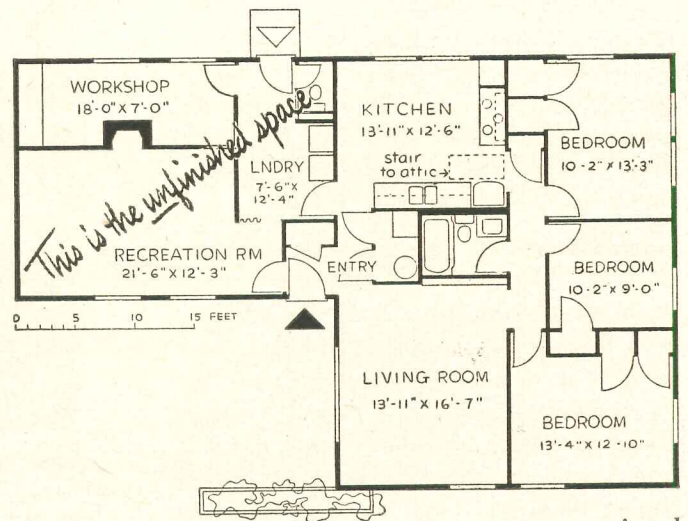


families are buying in South Bend

Unfinished "gradement" room takes almost entire left wing in photo and plan below, is a candidate for best "design-it-yourself" room in the US. Full 32" overhang on four sides and nicely lined up windows add to smart appearance. Attic is used for storage, reached via a folding stair.



Bedroom closets with five shelves, washable paint on all inside walls, and bathroom (right) were quality features which helped sell houses. Bath medicine cabinet is 36" square, has 2-way light. Tub has heat duct underneath, double grab bars, "Queen Anne" shower and tub filler.



continued

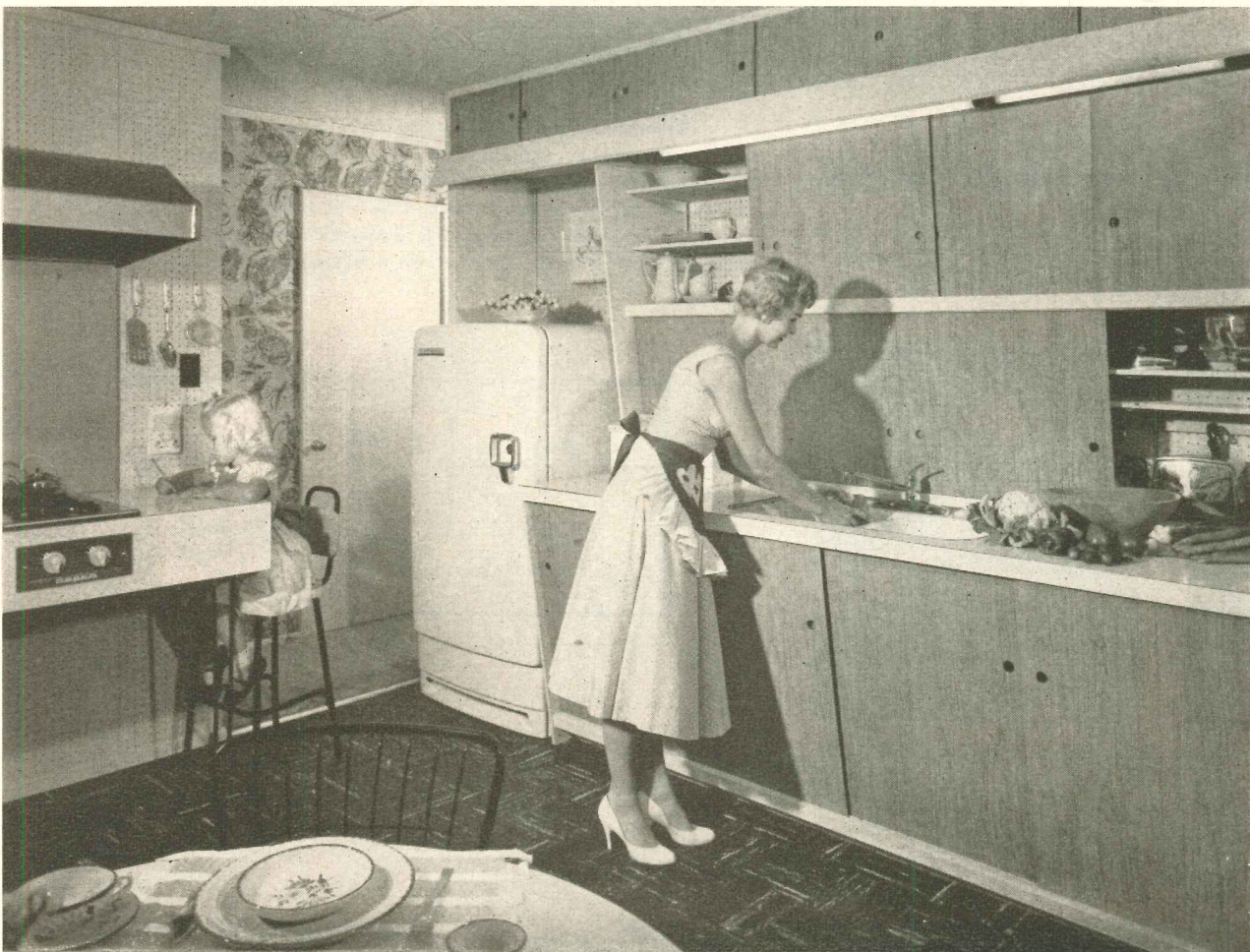
Photos: Hedrick-Blessing

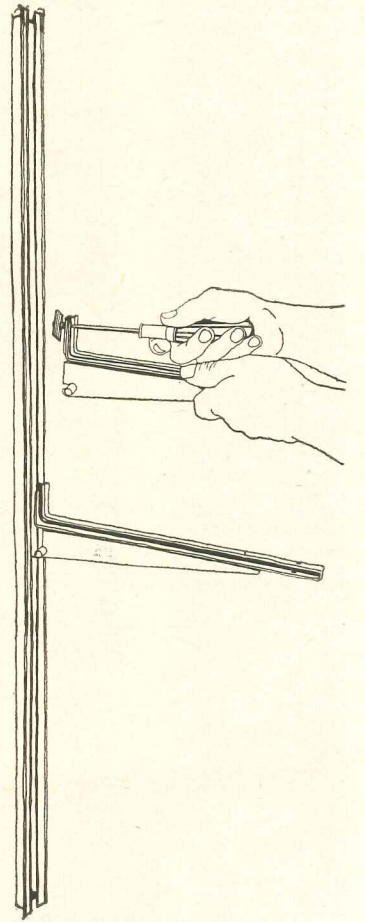


Newest idea in big 14' x 12'-6" kitchen is a novel hardware system (see story beginning opposite) which lets a housewife move shelves up or down to suit herself. This shows how lower shelf is moved up to clear electrical equipment, which is connected to plug-in electrical strip. Pegboard here is not essential.

Kitchen cabinets have twice as much shelf space and it is all adjustable

Cabinets reach from floor to ceiling, utilize top space with separate shelf for storing little-used items like turkey roaster and other things usually stored in basement. These cabinets have approximately one-third more cubage than cabinets in typical kitchen and over 100% more shelf space. Sliding fronts are a bright color on one side, can easily be reversed to change kitchen color scheme. At left is glimpse of handsome built-in counter top with range and thermostatically-operated fan.





Secret of new hardware is shown above. Brackets which hold shelves are supported in vertical channel slot, cannot slip out. This hardware can carry far greater weight than perforated board. Combination of pegboard and new hardware is ideal, as shown in photograph.

Could your house profit from this new store fixture hardware?

It adjusts easily, holds anything, works anywhere

Here is a new kind of hardware which lets every family arrange storage to suit itself.

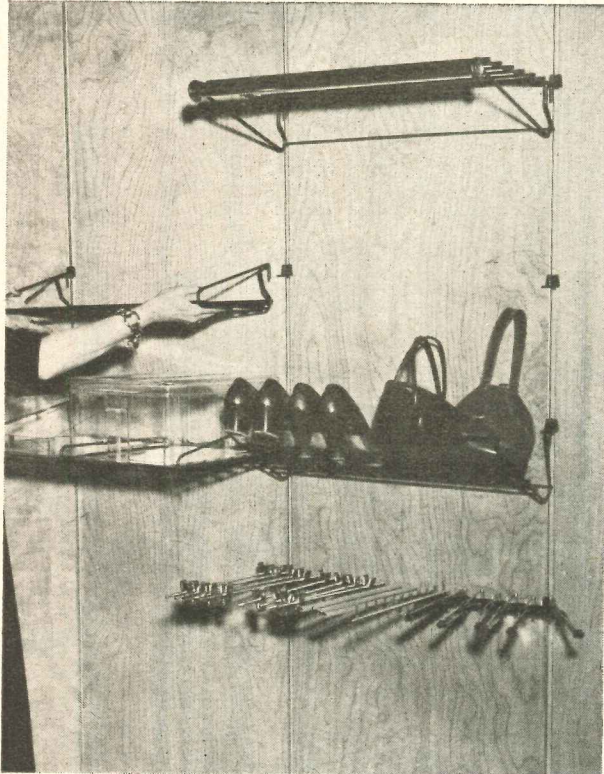
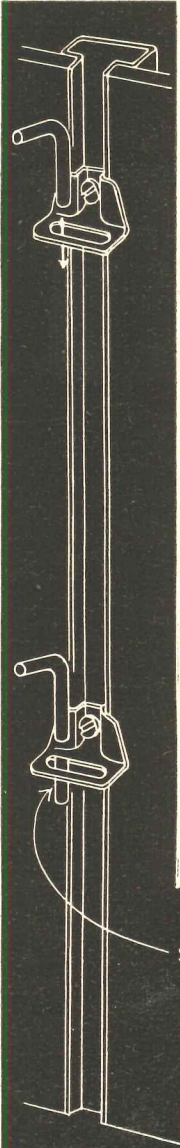
It is so strong, so adjustable to many purposes, that it can be used in kitchen cabinets, bedroom closets, for books, garage or hobby-room shelves or to support built-in furniture. It is one of the really new ideas in housing.

Although it is brand new for homes, it has been used successfully in retail stores for years. Best testimonial for its practicality is that three progressive builders (Martin Bartling,

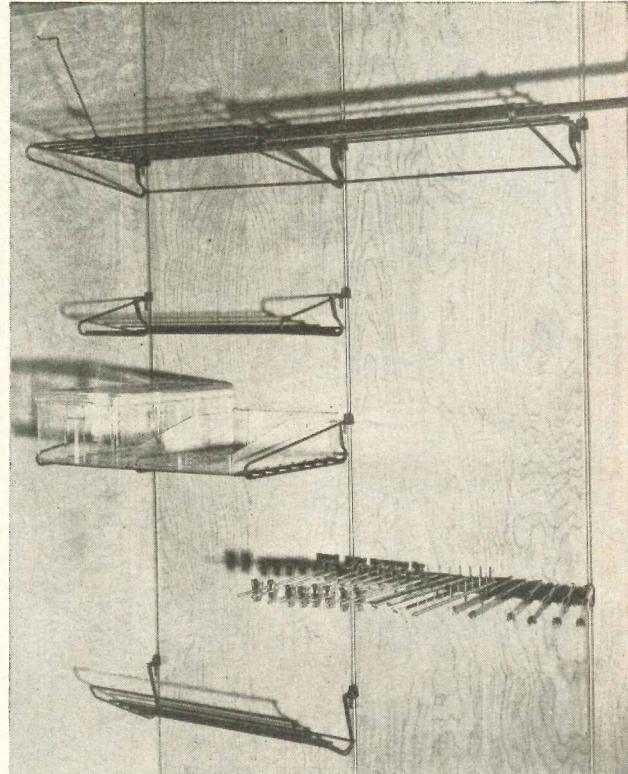
Andy Place and Jack Sargent) learned of it last spring, liked the idea, tried it out and are now using it.

How it works is shown in these five pages. Called "Adjust-a-bilt," it is basically a system of vertical steel channels into which steel brackets fit. The brackets or other fixtures are locked into the channels and held there by tightening a screw. Shelves or anything hanging on the channels can easily be raised or lowered. This adjustability is the hardware's greatest asset, as storage shelves can be quickly moved to suit any needs.

For more photos, turn the page

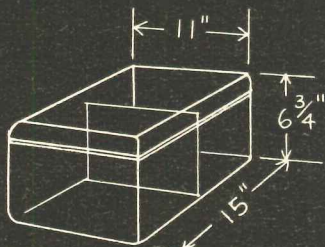


Shelves and closet hardware fit into metal clips fastened in vertical channels, as drawing at left indicates.

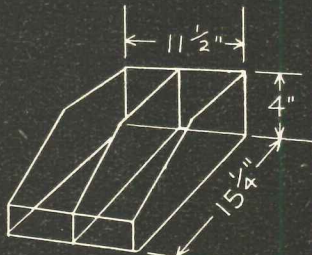


This arrangement was made to show variety of hardware available, which requires that the channels be 24 3/4" o.c.

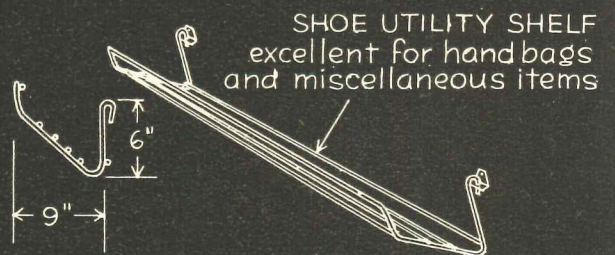
shelf hooks drop into clips



CLEAR PLASTIC BOX



CLEAR PLASTIC TRAY

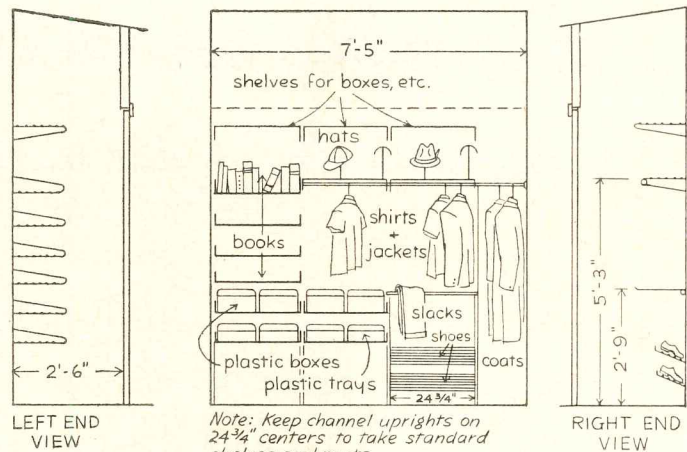


SHOE UTILITY SHELF excellent for hand bags and miscellaneous items

In bedrooms, new hardware and many accessories make closets

When builders Martin Bartling of Knoxville and Jack Sargent of Topeka first saw this hardware they decided to try it out in their bedroom closets. This is where most builders will probably use it first. While most bedroom closets have space only for hanging garments and one or two shelves above the clothes pole, this new hardware provides for storing clothes of many kinds. Not only is there space for coat, trouser and skirt hangers but provision can also be quickly made for shirts, blouses, house coats or long dresses, shoes, hats and other items. A special feature is supports for plastic boxes of several sizes for many small items. This is ideal closet equipment for children as it can be adjusted from year to year as they grow and need different heights for hanger poles to accommodate their changing kinds of storage.

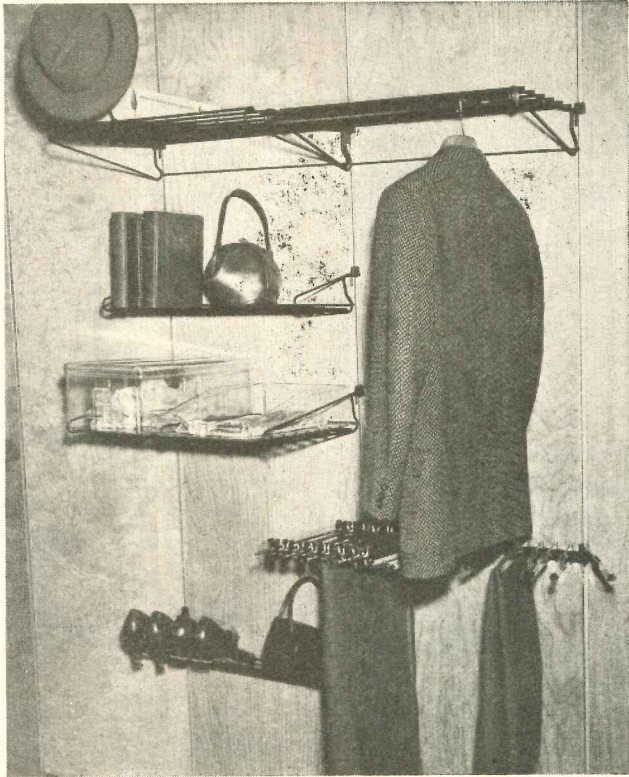
As the hardware has just been put on the housing market, prices cannot yet be given. Builders using it say it is "comparable in cost to similar quality closet fittings." Manufacturer is the L. A. Darling Co., Bronson, Mich.



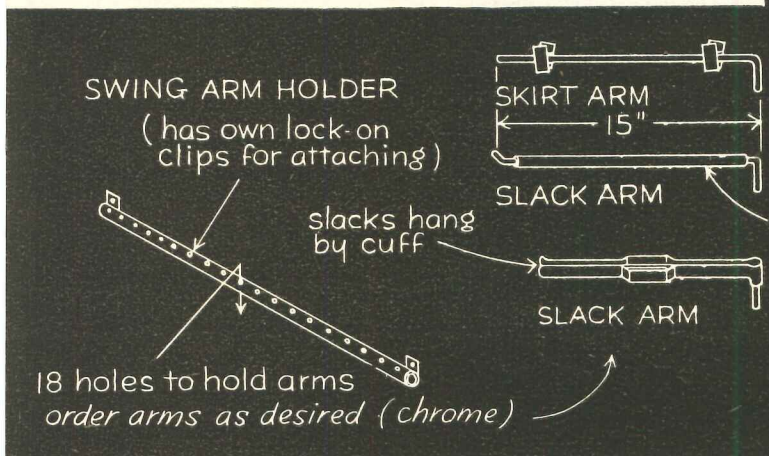
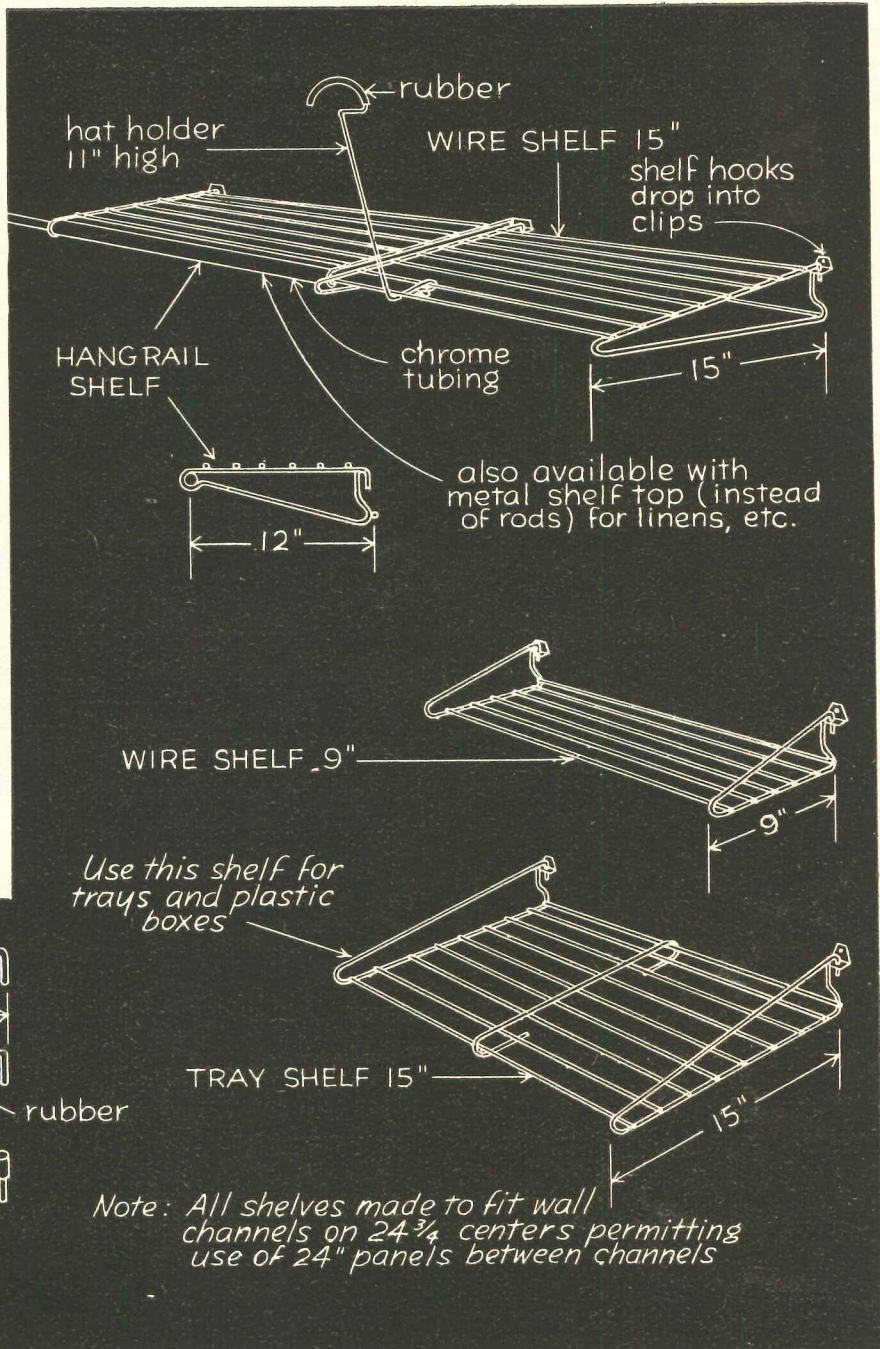
LEFT END VIEW

RIGHT END VIEW

Holding far more than a standard closet, this plan for a 7'-5" closet suggests how much can be stored neatly. When two closets are back to back, double channels can be used, flush mounted to hold either plasterboard, plywood or other thin wall materials.



Neat metal shelf replaces old-fashioned clothes pole. Quick adjustability lets any housewife remake her closet easily.



work twice as well

Wolfe's Commercial Photos

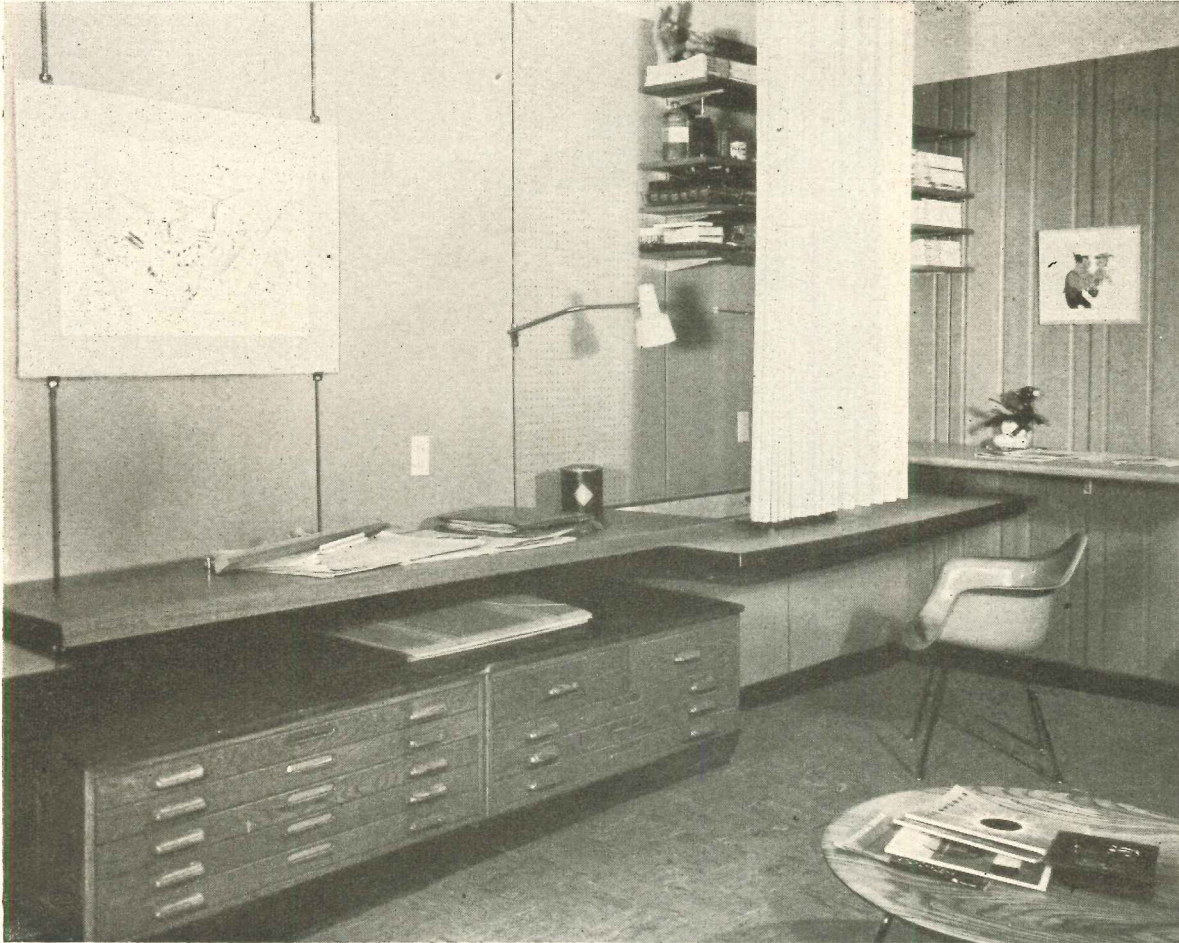


Jack Sargent's model house closet at Topeka, with suggested arrangement from the Darling Co. Women particularly liked the variety of storage facilities were quick to appreciate its value. Closet doors omitted for photo.



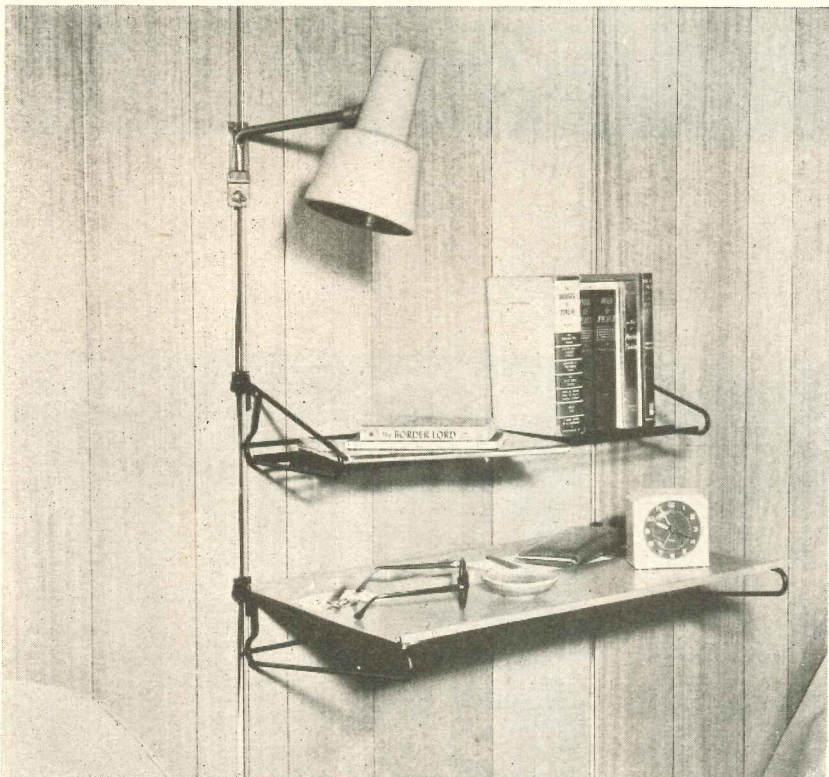
Martin Bartling's bedroom closets are much like Sargent's. Bartling is one of the most enthusiastic backers of this hardware, believes it has a great future throughout the house. He used it first in his Hotpoint exhibition house.

For more photos, turn the page

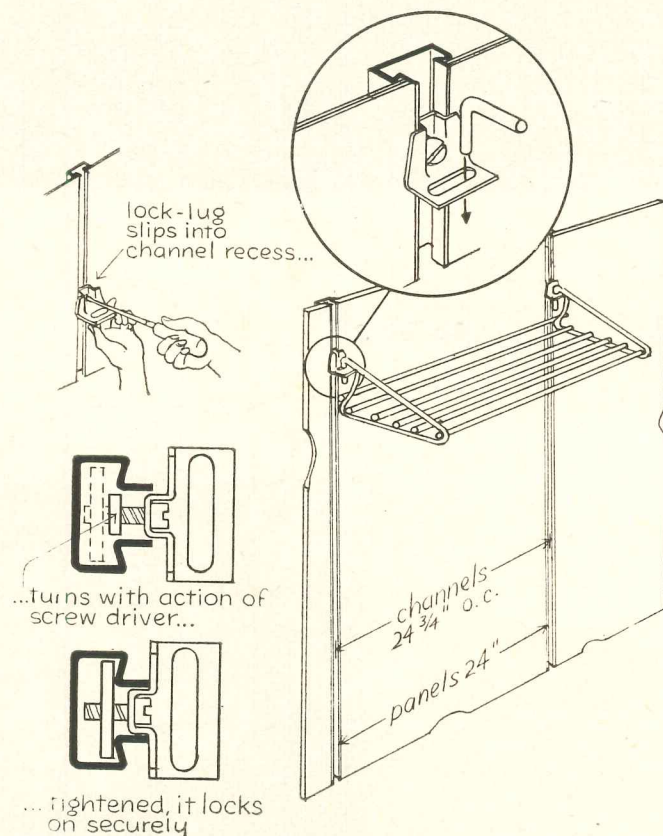


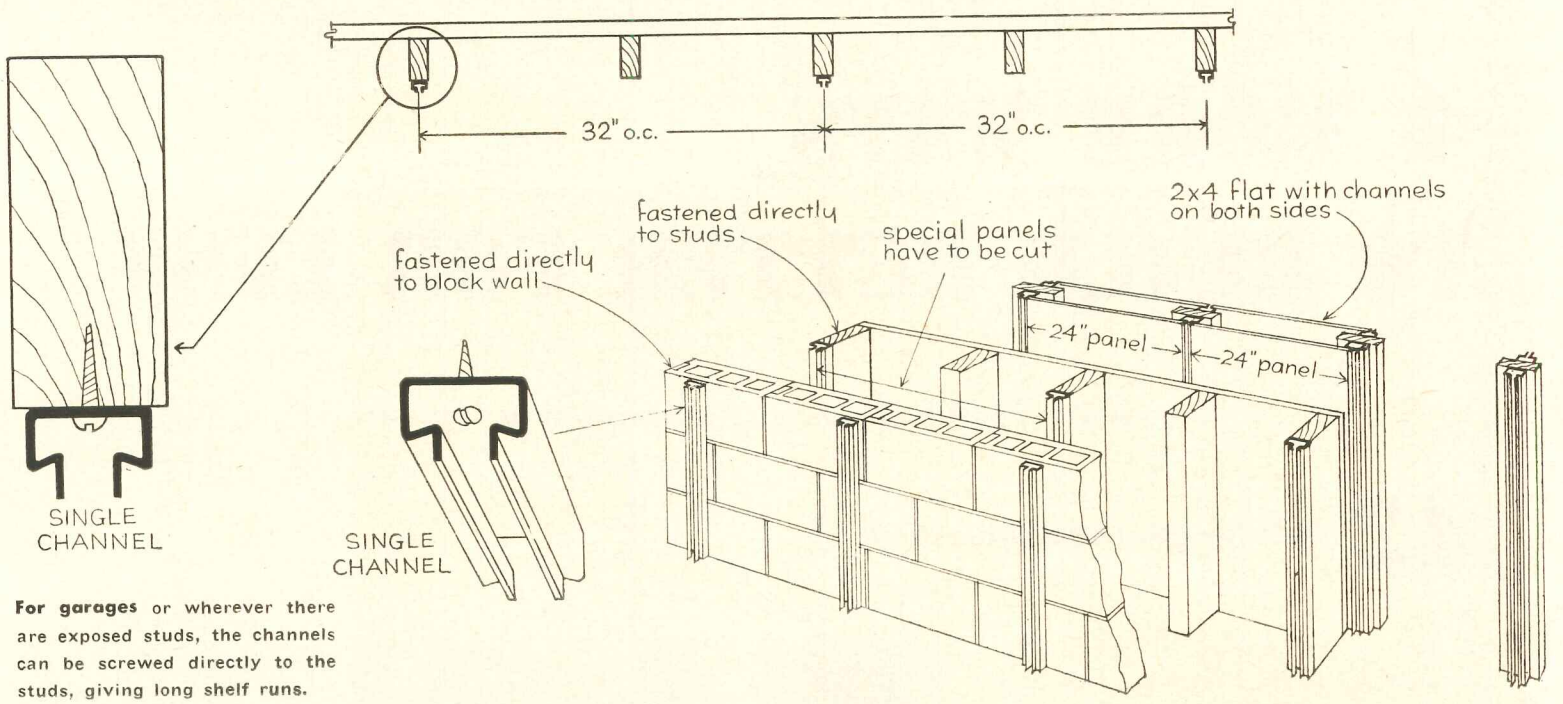
Designer-inventor Alfred G. Parke experimented with this installation in his own home. He has desks, cabinets, lights, shelves and pictures hanging from the channels. One of best uses is for living room shelves.

Everything hangs on the wall



In bedrooms two channels like these will hold reading lamps, shelves for miscellaneous equipment. Lower shelf here is a plastic tray handy for a man to empty his pockets at bedtime. Channels can be painted to match room color schemes, are practically hidden in paneled room. At right: operating details.

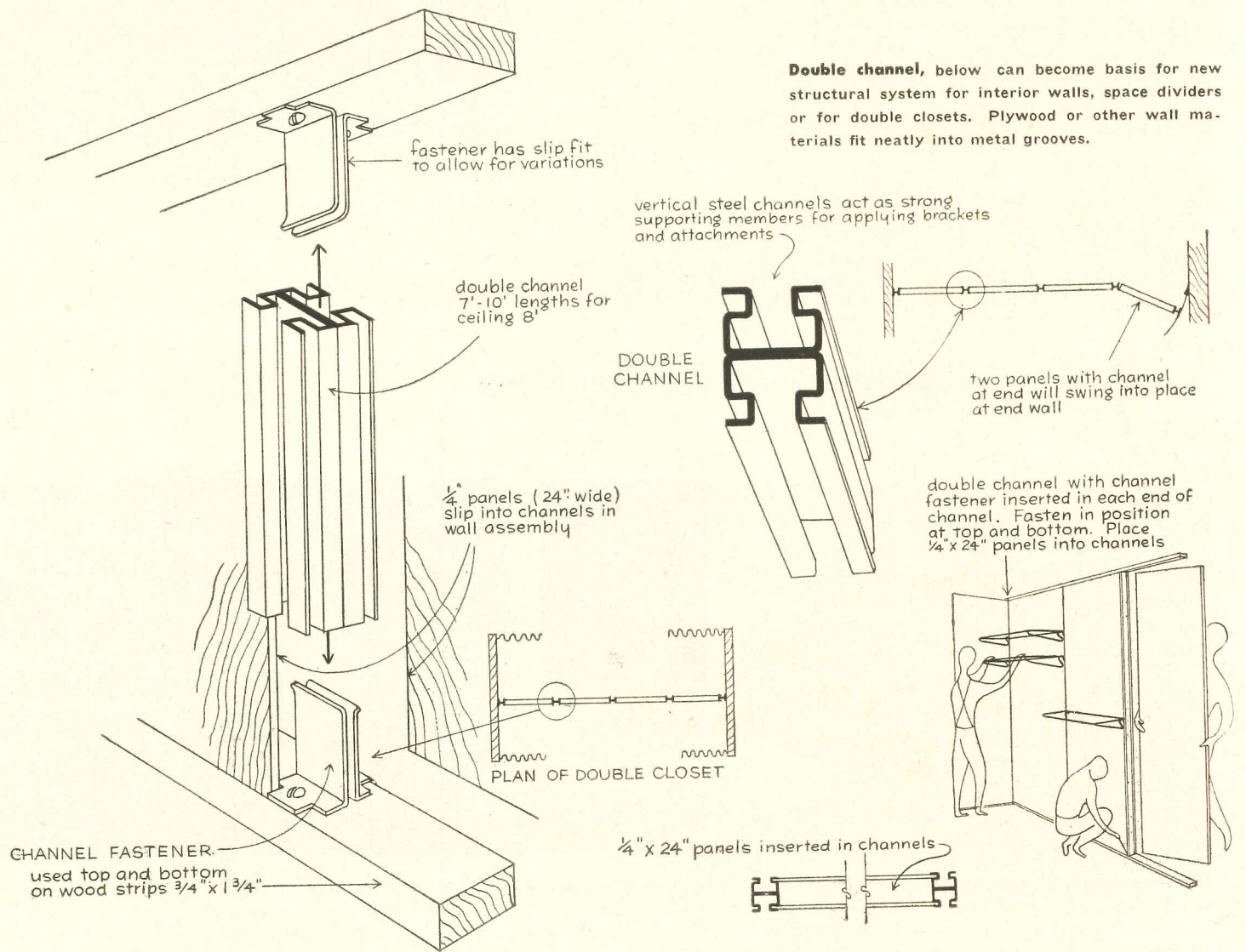




For garages or wherever there are exposed studs, the channels can be screwed directly to the studs, giving long shelf runs.

Against basement or other concrete walls the channels can be fastened directly. Probably no more versatile system has been designed for adding basement storage to little-used space.

All you need for installation: one screw driver



Double channel, below can become basis for new structural system for interior walls, space dividers or for double closets. Plywood or other wall materials fit neatly into metal grooves.

vertical steel channels act as strong supporting members for applying brackets and attachments

two panels with channel at end will swing into place at end wall

double channel with channel fastener inserted in each end of channel. Fasten in position at top and bottom. Place 1/4" x 24" panels into channels

PLAN OF DOUBLE CLOSET

CHANNEL FASTENER used top and bottom on wood strips 3/4" x 1/4"

1/4" x 24" panels inserted in channels

4 MORE WAYS TO BUILD BETTER FOR LESS

This is the fifth of a series of cost-cutting articles appearing regularly in HOUSE & HOME

42 Full-length joists save \$10

A sharp eye for efficiency has helped Minneapolis Builder W. D. Coffman build better for less. One-house-per-week Builder Coffman pays a premium for 24' floor joists, but finds he has saved \$10 per house after installation.

The big saving is in labor for placing and nailing joists, because the king-size joists go in much more rapidly than half-length ones. Additional speed comes from precision precutting of the joist lengths in the mill. Bridging in center is replaced by a 2 x 4" plate over the center steel beam.

Coffman is impressed with the rigidity of this framing system, finds it is sturdier than the conventional method he used to use.



W. D. Coffman



Crown in full-length joists draws down to beam when flooring and partitions are installed.

43 Save \$35 when enlarging your house

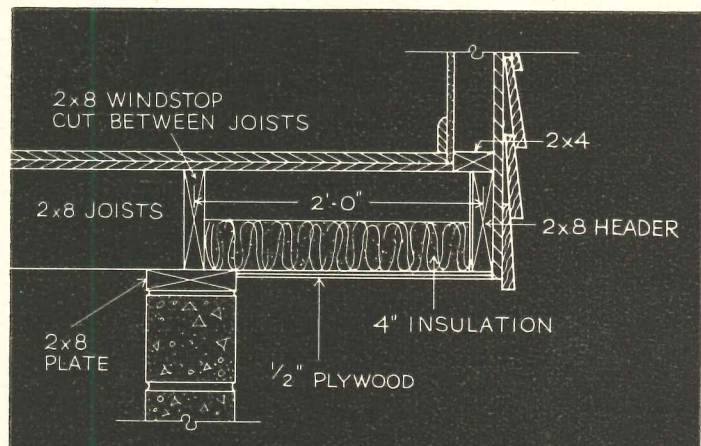
"I save on foundation costs and have greater design possibilities by cantilevering," says Architect Herman York, who uses the technique in 60% of the houses he designs for Long Island builders.

Bays can be projected or entire floors widened by cantilevering over the foundation. There are no expensive foundation breaks, and joists need not be thickened. Assuming a 2' cantilever 30' long and 2 x 8" joists (because span is no greater):

Saving over 3 x 8" joists..	\$45.00
Saving extra foundation...	+11.70
(less cost of extra finish, painting and insulation) ..	-22.50
Total saving	\$34.20



Herman York



Section drawing shows 2' cantilever over foundation wall. Extra space is gained in house with no additional foundation costs. Detail is especially appropriate in two-story or split-level construction.

44 Multiple savings with "one room"

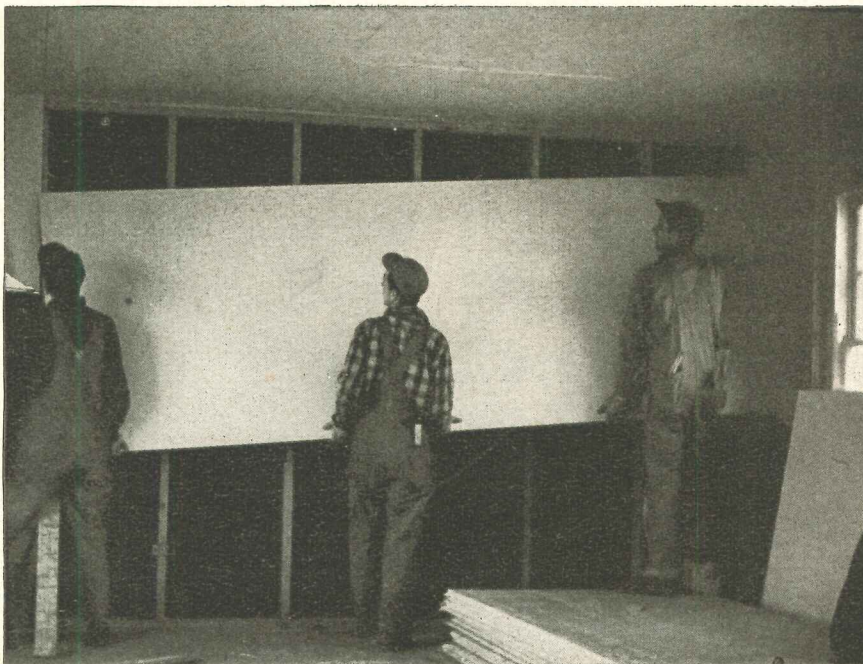


Knudson Bowers

H. M. Sloan

An enthusiastic proponent of the "one-room" technique for home building (Jan. '53 issue) is H. M. Sloan, of Colorado Springs. Builder Sloan saves 2 cents per sq. ft. in flooring costs alone by laying the entire floor before erecting partitions. Because cutting and fitting at partitions is eliminated, flooring time is speeded.

Even greater savings come from lessened labor costs on interior wall board application. The Small Homes Council discovered that a whopping 50% can be saved on labor costs by applying dry wall to ceiling and walls before the house is divided up into separate rooms.



Just one saving with "one-room" technique is rapid wall board installation

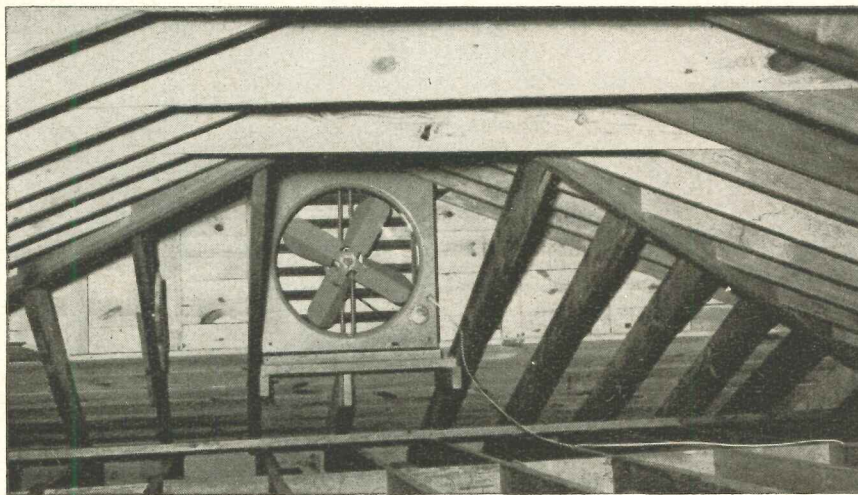
45 Save \$200 on air conditioning

In Dayton, Ohio the Sieber Realty & Development Co. originally were cool to air conditioning because their \$40,000 houses needed large 5-ton units. The cost, they felt, was prohibitive. A heating engineer suggested using a 24" attic ventilating fan, pulling air in one gable, blasting it out the other. By thus cooling the attic—the biggest heat source in the house—the over-all cooling load was sharply reduced. A smaller 3-ton unit was installed, at a cost \$400 less than for the 5-ton size. Since the fan cost \$200 installed, the net air-conditioning saving was a neat \$200.

(Note: experts point out that extra heavy ceiling insulation, plus good attic ventilation, might produce similar savings.)



One 24" exhaust fan mounted over garage . . .

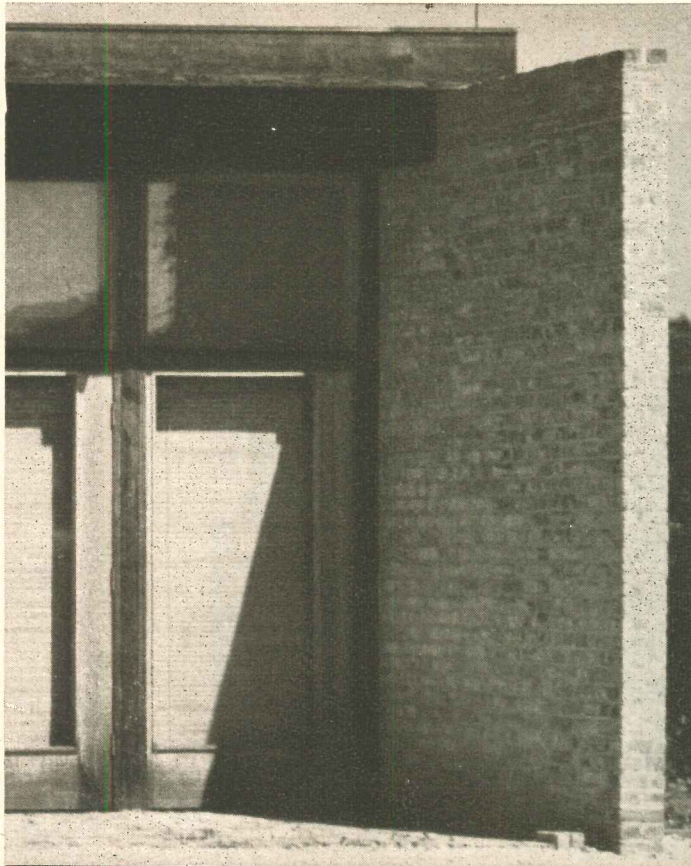


. . . pushes hot attic air through louvered gable end

Photos courtesy Lau Blower Co.

CORNER DETAILS

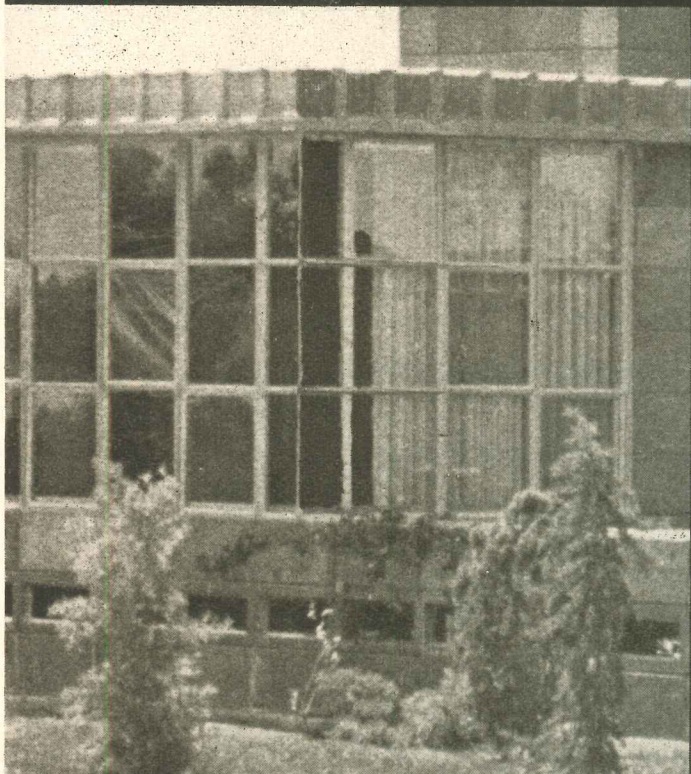
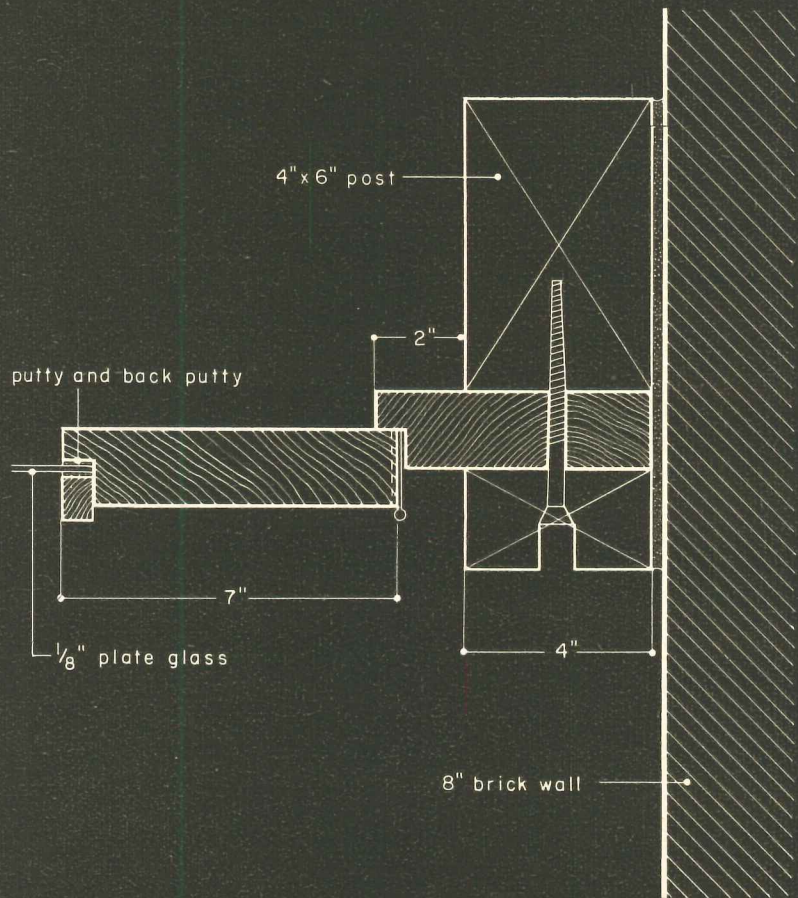
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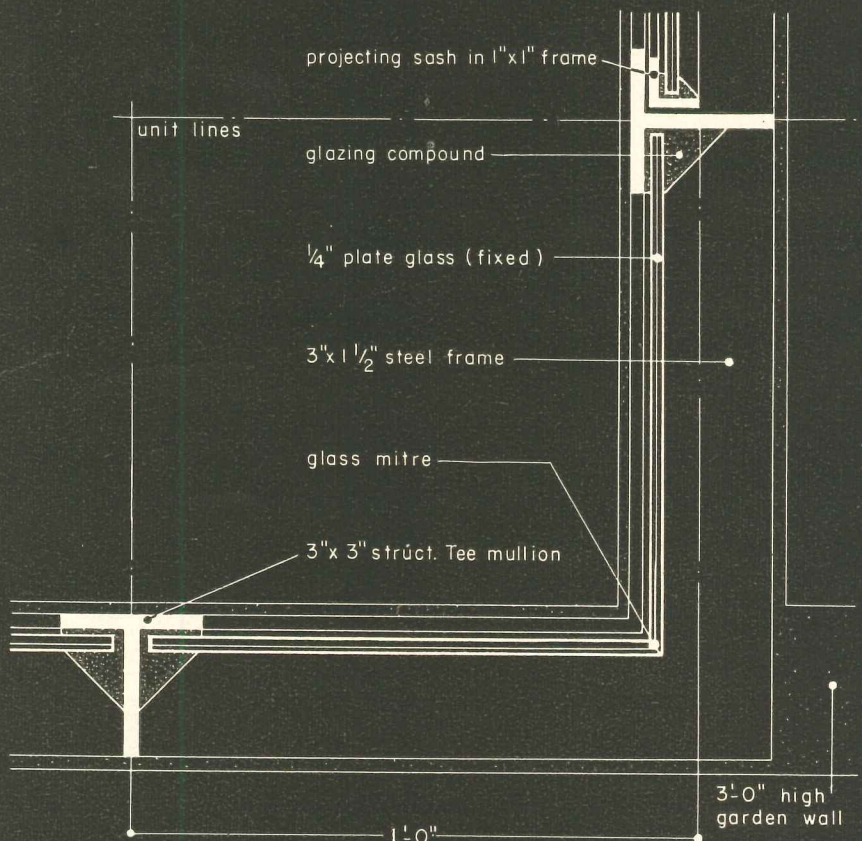
Hedrich-Blessing

Glazed doors meet a projecting brick wall in this house designed by Architects Schweikher & Elting for suburban Chicago. Brick wall affords protection to patio into which doors open. Post assembly is set in mastic and anchored securely to masonry.

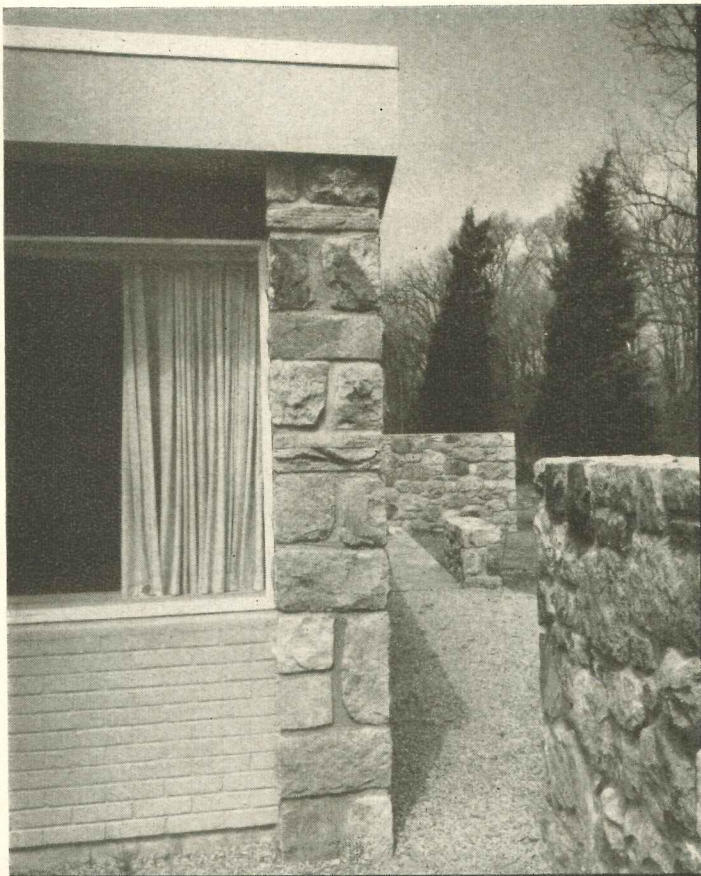
Photo: courtesy Horizon Press



Mitered glass corner designed by Frank Lloyd Wright for a "Usonian Automatic" house in Phoenix. Structural mullions are set back from corner to give sense of spatial freedom. Wall below window continues as garden enclosure.

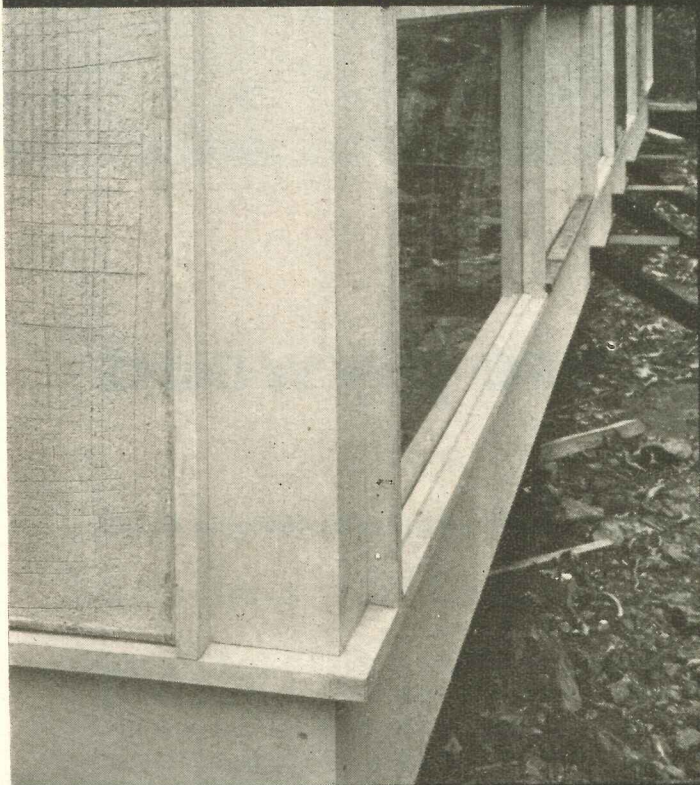


CORNER DETAILS Scale: 3"=1'0"



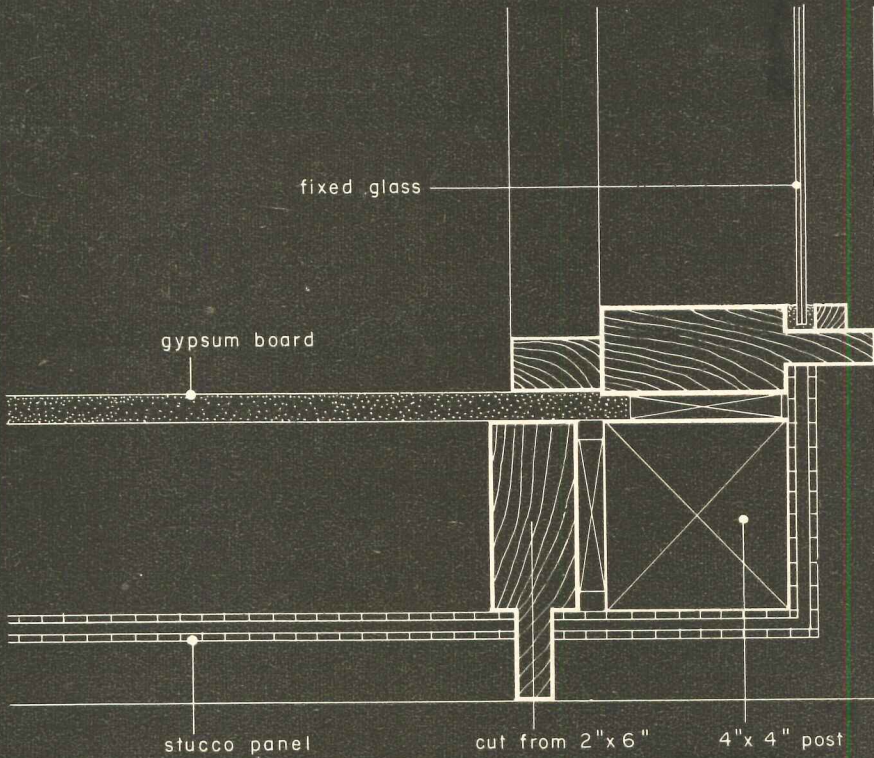
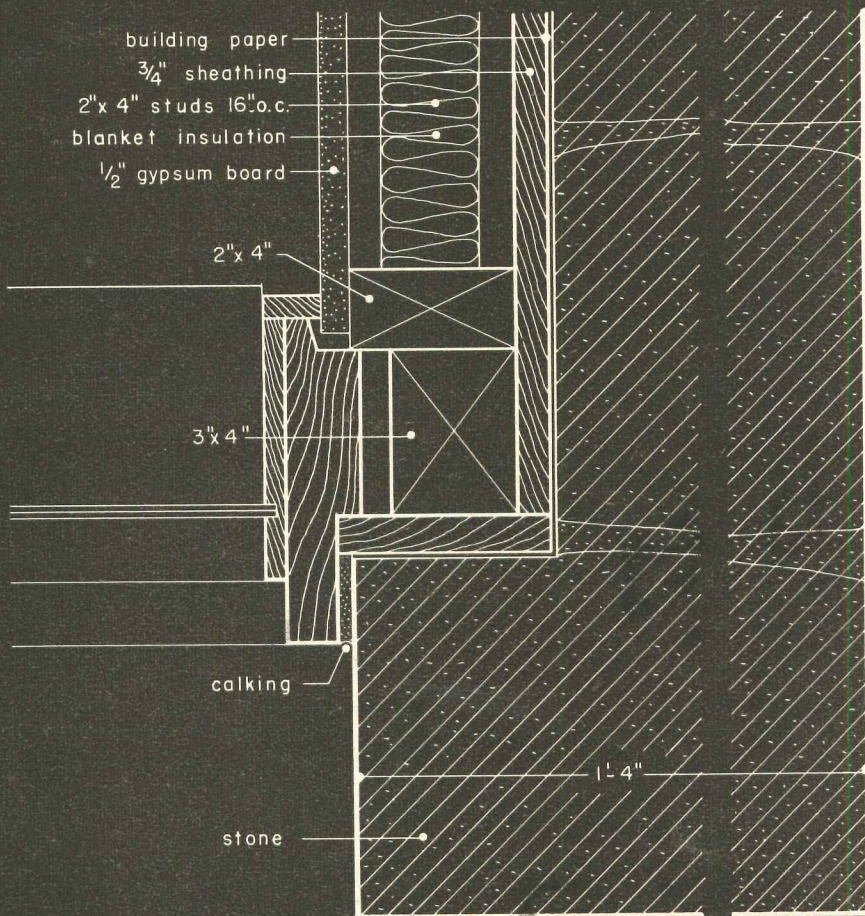
Designed by Architect Marcel Breuer, this corner has fixed glass intersecting an insulated stone wall. Note how return on stone wall closes insulating "cavity," at the same time giving wall massive look appropriate to stone. At New Canaan, Conn.

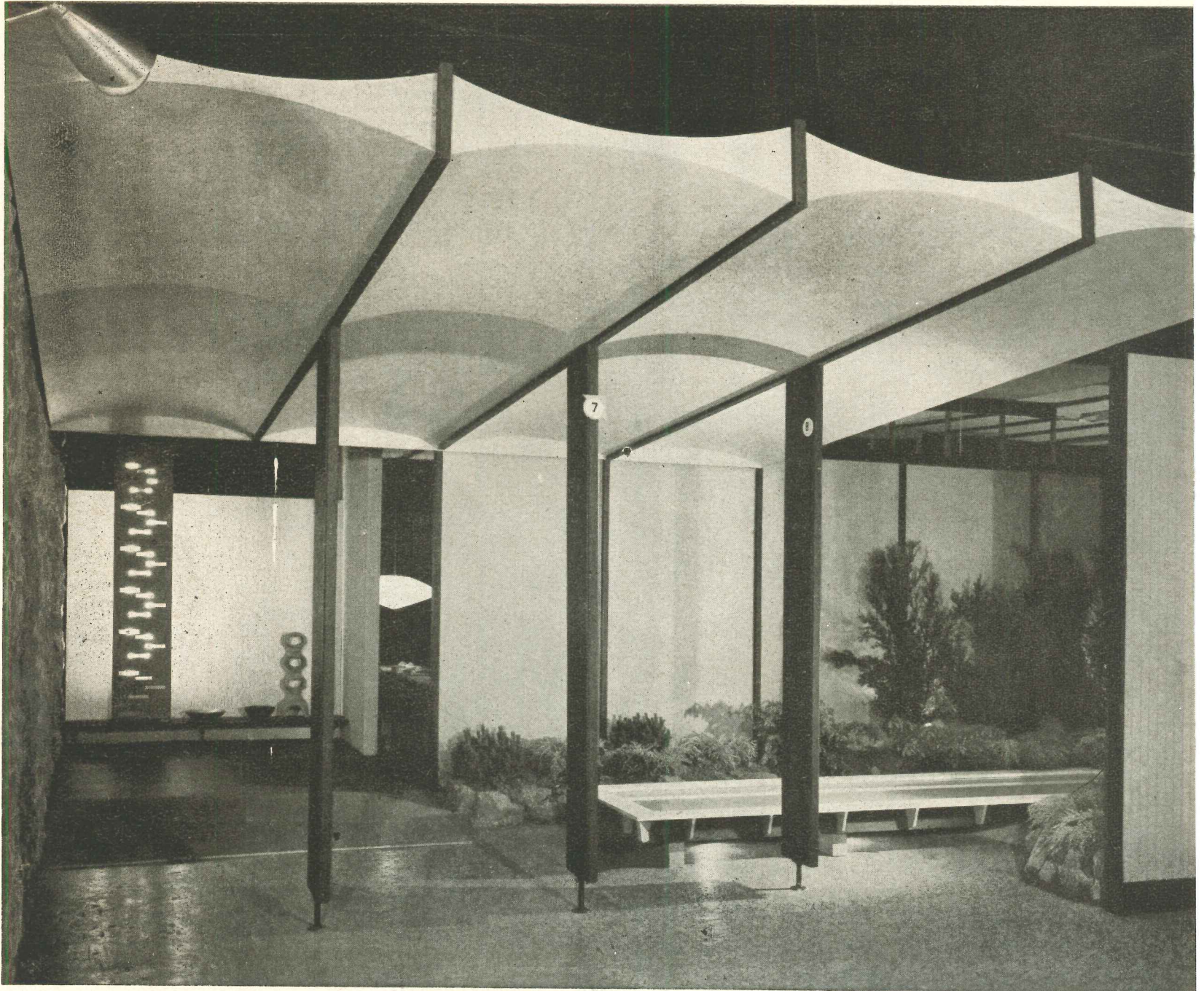
LIFE photo by Richard Meek



This corner offers identical faces to both walls, but either will receive glass, wallboard or plaster. Similar detail is used at structural posts along wall, where milled "stops" flank the post. John Johansen, architect. At New Canaan, Conn.

Ben Schmitt





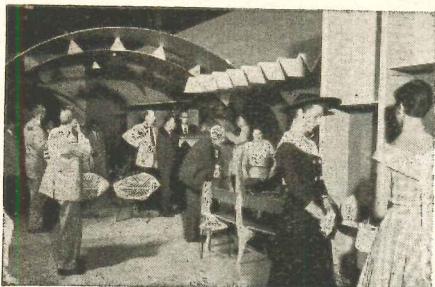
Concave and convex plywood sheets form strong roof panel with scalloped edge (see detail at right)

Photos by Photo-Art Commercial Studios

Here are 15 new ways to use plywood

Golden jubilee meeting of Western plywood industry

unveils striking designs by five top architectural firms

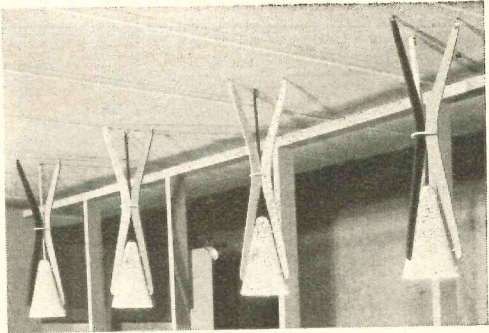


Show was seen by 1,300 industry people

The sales of plywood have tripled since the end of World War II. No end is in sight to the number of ways it can be used in home building.

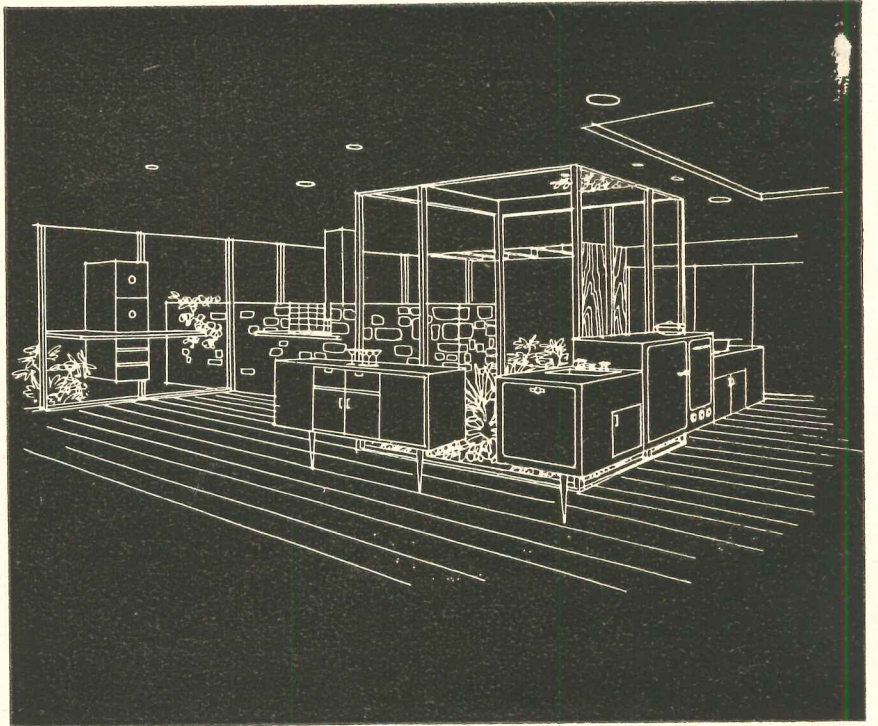
That much becomes certain following a remarkable display of 50 design ideas staged in Portland, Ore. at the Douglas Fir Plywood Assn.'s annual meeting (see p. 53). No less than 50 designs were shown—some for the future but many readily adaptable now. The ideas are the work of five well-known Western architectural firms commissioned by the industry—Anshen & Allen, Campbell & Wong, Jones & Emmons, Smith & Williams and Chris Choate (who staged the show).

Builders and architects who have stepped up their use of plywood tremendously in the past few years will get an idea of what is in store for the future by studying 15 of the widely varied ideas shown on these pages.



Decorative spotlights

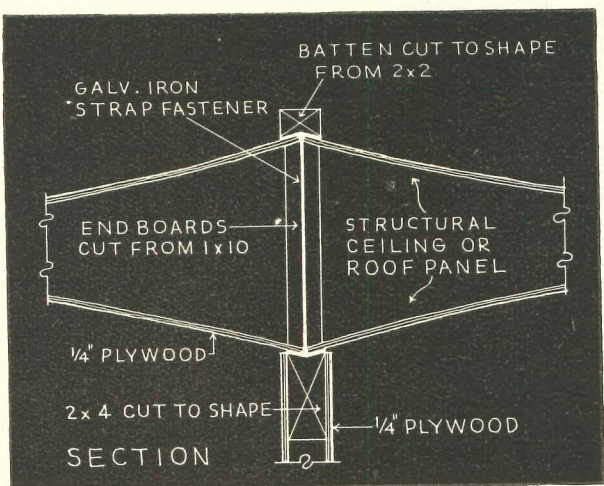
Metal hooded spotlights (to use in kitchens or any room where direct downlighting is needed) can be changed with this plywood fixture to fit better with other plywood materials in the room. The hood is set inside three plywood fish-tails, joined above hood. Anshen & Allen, designers.



Carrying indoor-outdoor relationships a step further: a garden patio closed off by glass

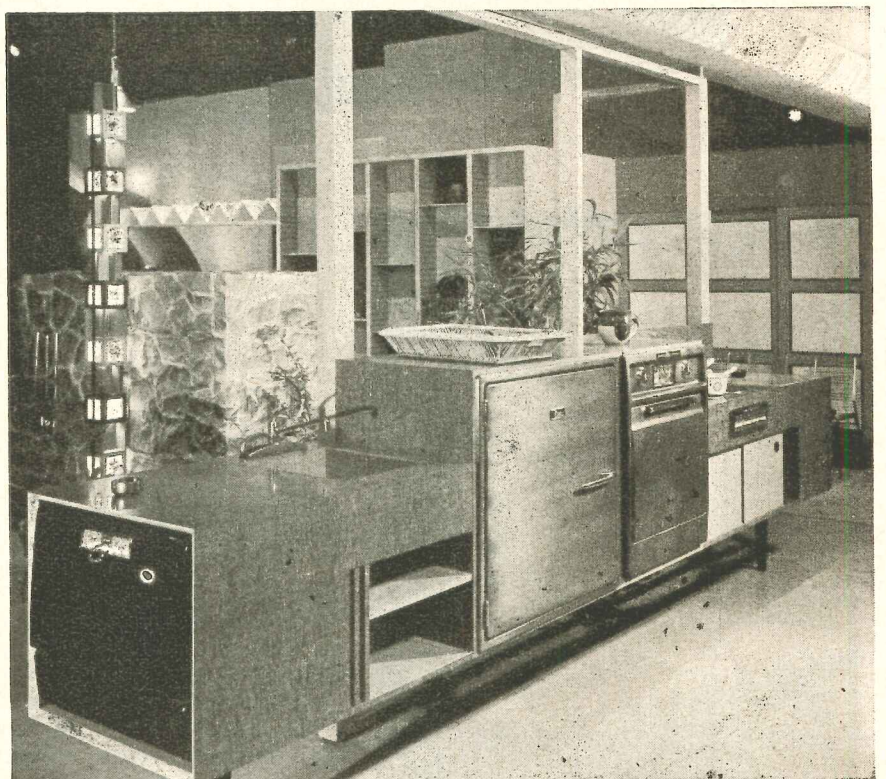
This conception of integrating the interior of a home with its outside area was worked out by Anshen & Allen and adapted to the exposition by Chris Choate. The patio is open to the sky but separated by glass on all four sides from the kitchen-family room area surrounding it. Arranged around it in a U shape are kitchen appliances, TV set and bar fixtures and an indoor stone barbecue (the stone extends into the garden patio a short distance). All units are arranged so "that you can see from outdoors through the entire setting to the outdoors beyond the other side. Thus it provides a living-dining-working area in which one has the true feeling of the garden patio without the irritations of insects or direct sun rays."

Among the plywood design ideas around the glass-walled patio (see above) are a lighting fixture (far left below) consisting of 6" plywood boxes with open sides covered with translucent parchment alternating between sets of plywood baffles, a long series of appliances and work units raised to a convenient height above floor, and (in the ceiling) an eggcrate fixture around fluorescent lights. Vertical plywood brackets surrounding the tubes are set into grooved plywood in the ceiling.

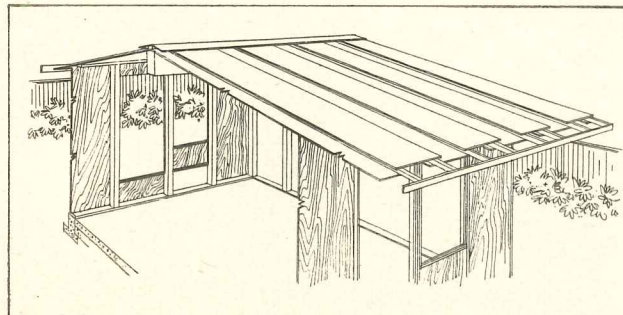


← Barrel-vault roof panel

Great rigidity is claimed by Anshen & Allen for this semistressed-skin roof construction. Concave panels consist of thin plywood sheets nailed and glued to end and middle framing members to form the hollow skin. The panels were used for a decorative overhang in the exhibition (opp. page) but the designers believe the principle has many design possibilities. "The plywood arch creates additional strength and creates a place for water to run away from the joints," Robert Anshen explains. "Sandbag tests show the panels can span at least 16' without interior supports, and they may span 32' with further research. Flashing or lumber caps along horizontal top edges and shaped supports to fit bottom edges would seem to present no real construction difficulties."



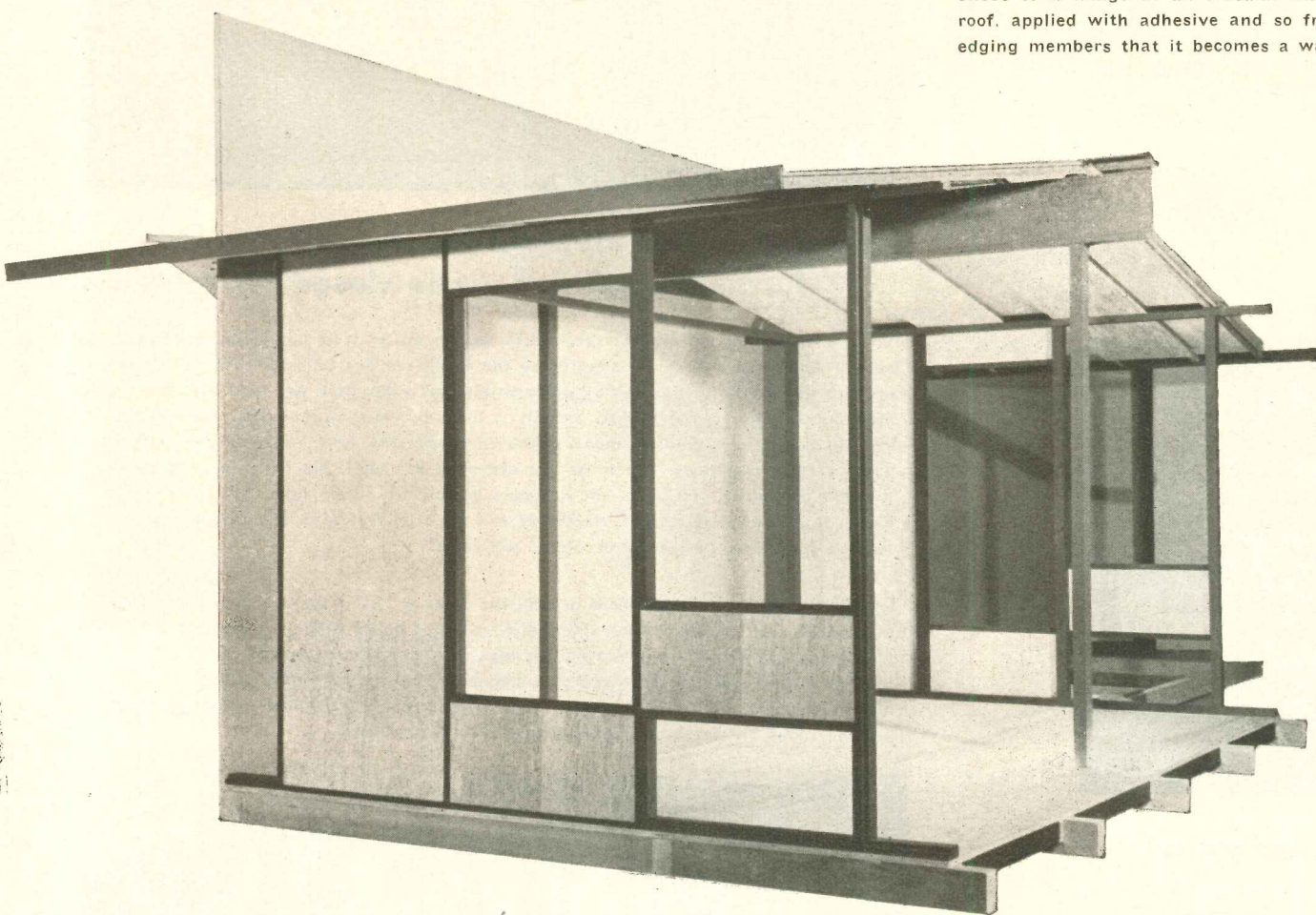
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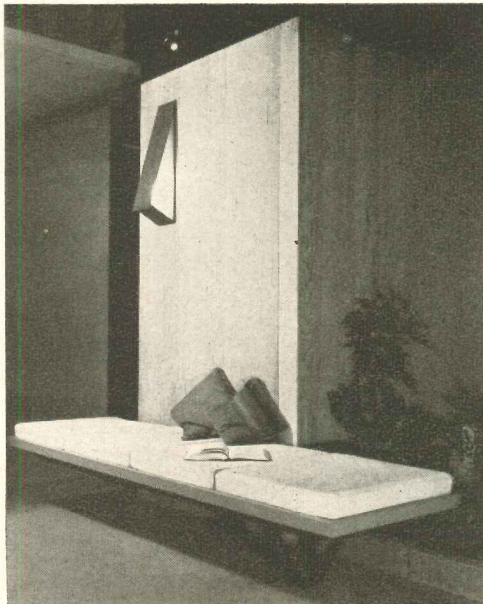
Architect Choate suggests this radical roof system as a practical cost-cutting building method. The roof has a two-level effect, achieved through use of 2'-wide, half-inch plywood sheets separated by stringers running the length of the sheets. The 2 x 4 spacers permit a 16' span and give the plywood the effect of a flange in an I-beam. Thin aluminum covers the roof, applied with adhesive and so framed around the 1 x 2" edging members that it becomes a waterproof roof seal.

A wall for warm climates

and an economical roof



The plywood wall in this small house frame designed by Chris Choate consists of posts on 3' centers with random rectangles of plywood rabbeted into the posts. These alternate with glass in random sizes to give a Mondrian-like pattern. Aluminum extrusions take the place of horizontal cross members. On vertical borders, half-inch-square stops are used.



**Cantilevered seat and
a novel lighting fixture**

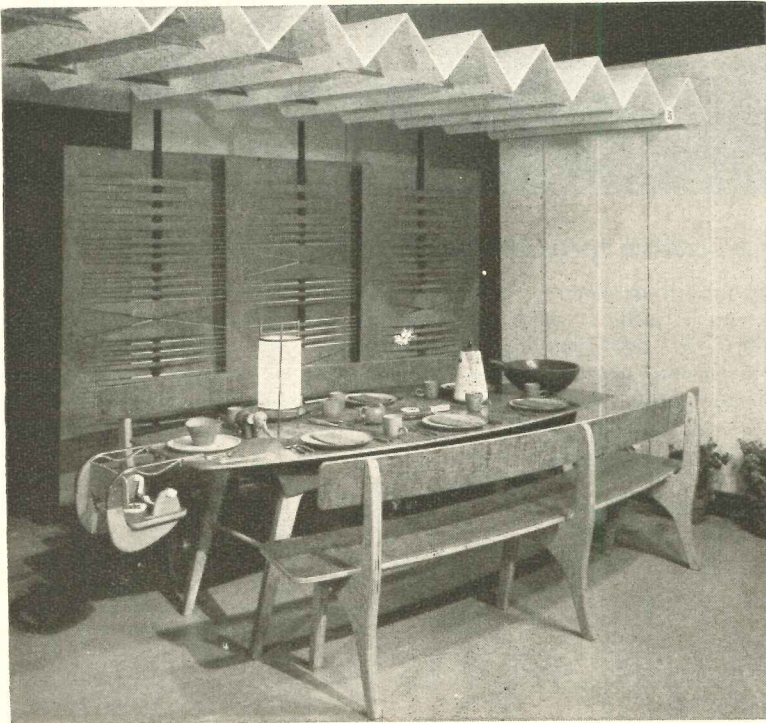
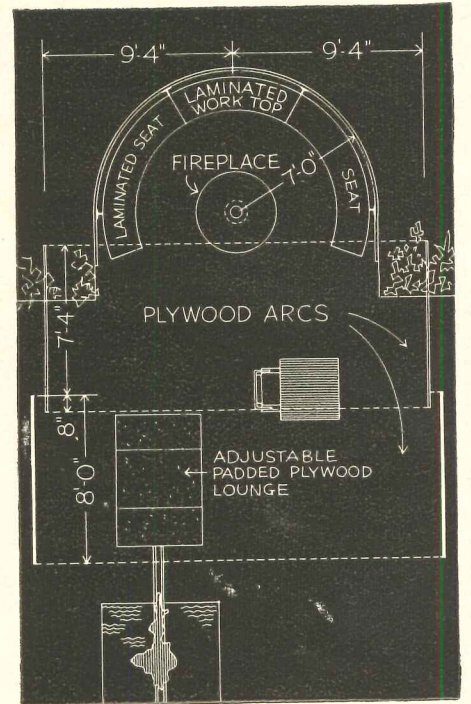
These two designs are easily made and could fit into most modern houses. Anshen & Allen designed the cantilevered seat, which is simply a plywood slab fastened to the wall with metal brackets. The 3/4" plywood surface is braced with longitudinal runners and has a simple edge treatment. The light fixture by Campbell & Wong throws light through its irregular triangular sides and out a pattern of holes drilled at top and bottom.



Garden shelter bent with 32' plywood section

This garden shelter for a contemporary home might also be used for a builder's model house sales office. In either case, this design by Jones & Emmons is for the future. The unit is based on an arc formed by a 32' scarf jointed plywood panel, which the plywood industry has not yet put on a production basis. The 32'-long, 8'-wide piece is bolted

down at each end. A shorter second piece is joined beneath it with triangular members to eliminate side sway. At one end, the area of the shelter is defined by a similar plywood arc set on edge as a curved wall or fence. Benches, table and sculpture are all made of plywood. One advantage of plywood for bents: it ships flat.



Outdoor furniture, shading device and a new plywood texture idea

The plywood industry has coined the word "moké" for Architect Whitney Smith's way of cutting plywood in patterns and inserting dowels into the cuts to form three-dimensional effects. The fence behind furniture at left was one of many moké designs shown at the exposition. The plywood "habachi" table with charcoal warming brazier built into its center was designed by Anshen & Allen (as were the detachable high chair and curved benches). Chris Choate designed the overhead shade, its soffit consisting of 12" widths of plywood joined at right angles, held rigid with wooden dowels.

continued

For remodelers

Campbell & Wong suggest this approach for modernizing high-ceilinged rooms. The pattern is achieved by alternating 2' x 8' plywood panels on two planes in a three-dimensional checkerboard. Panels are hung on rods that screw into metal brackets on ceiling surface and into straps glued to a simple wooden frame on underside of plywood. Fluorescent tubes over panels would create a soft pattern of illumination.

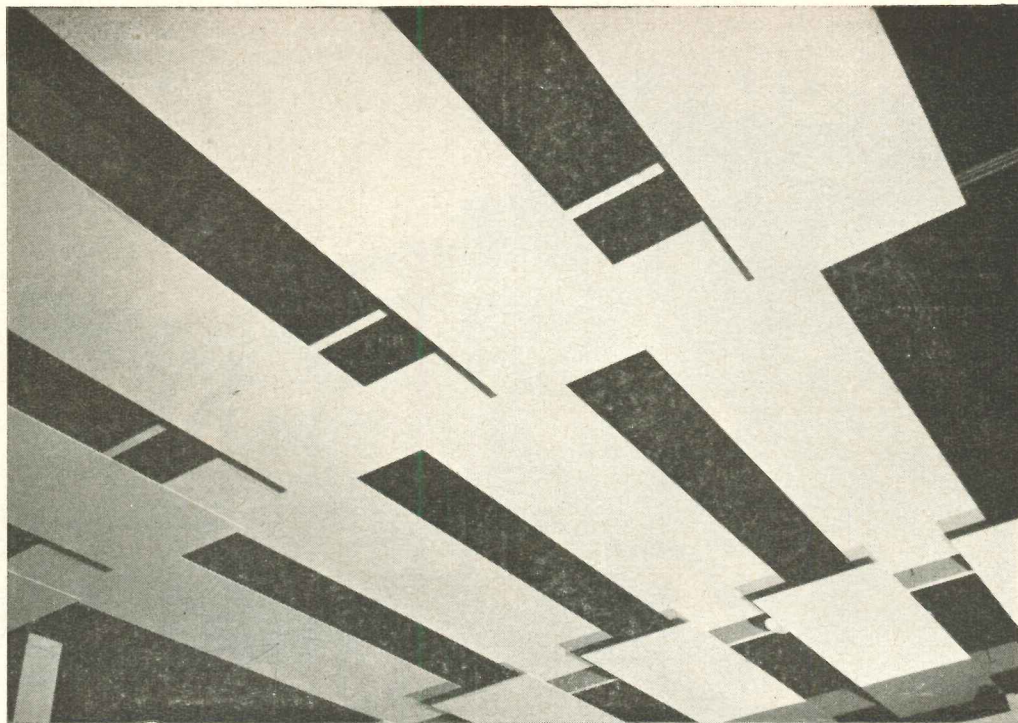
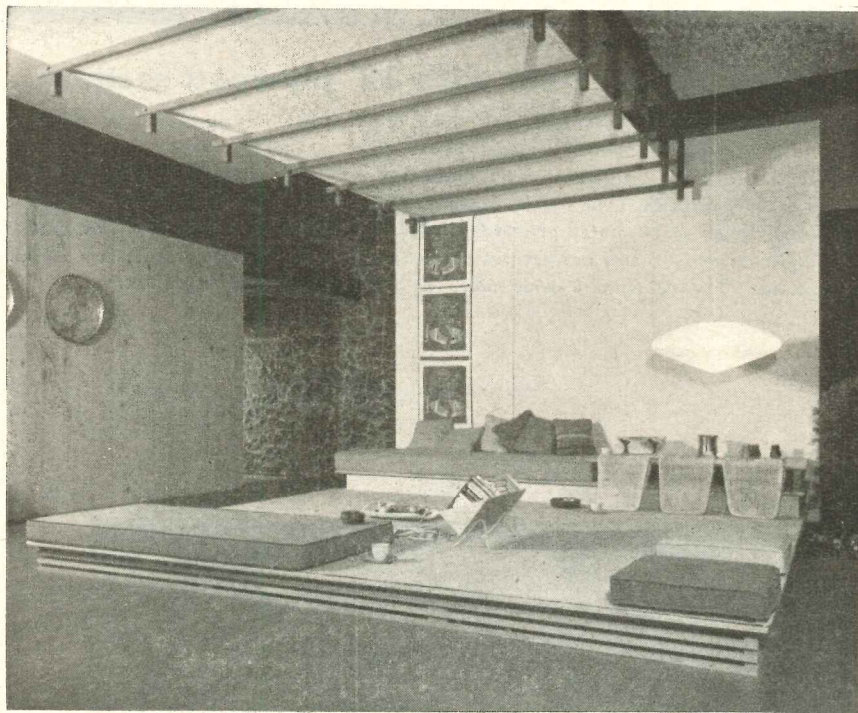


Photo-Art Commercial Studios



Wall volume storage

Grooved plywood is used here to provide supports for shelves at any height desired. Architect Choate makes the point, also, that by thickening the wall space slightly, the volume within it can be made into storage space.

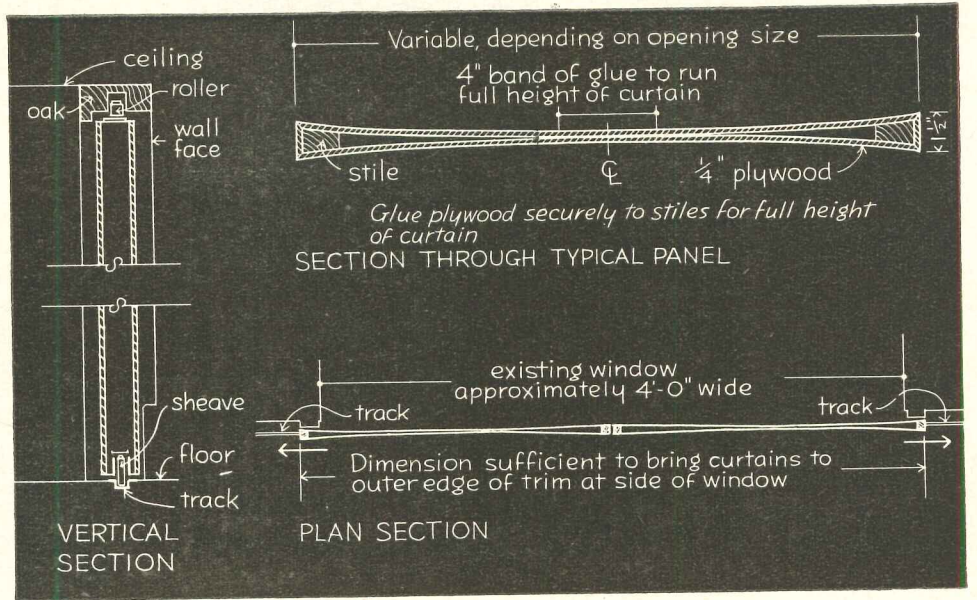


Conversation platform and lighting soffit

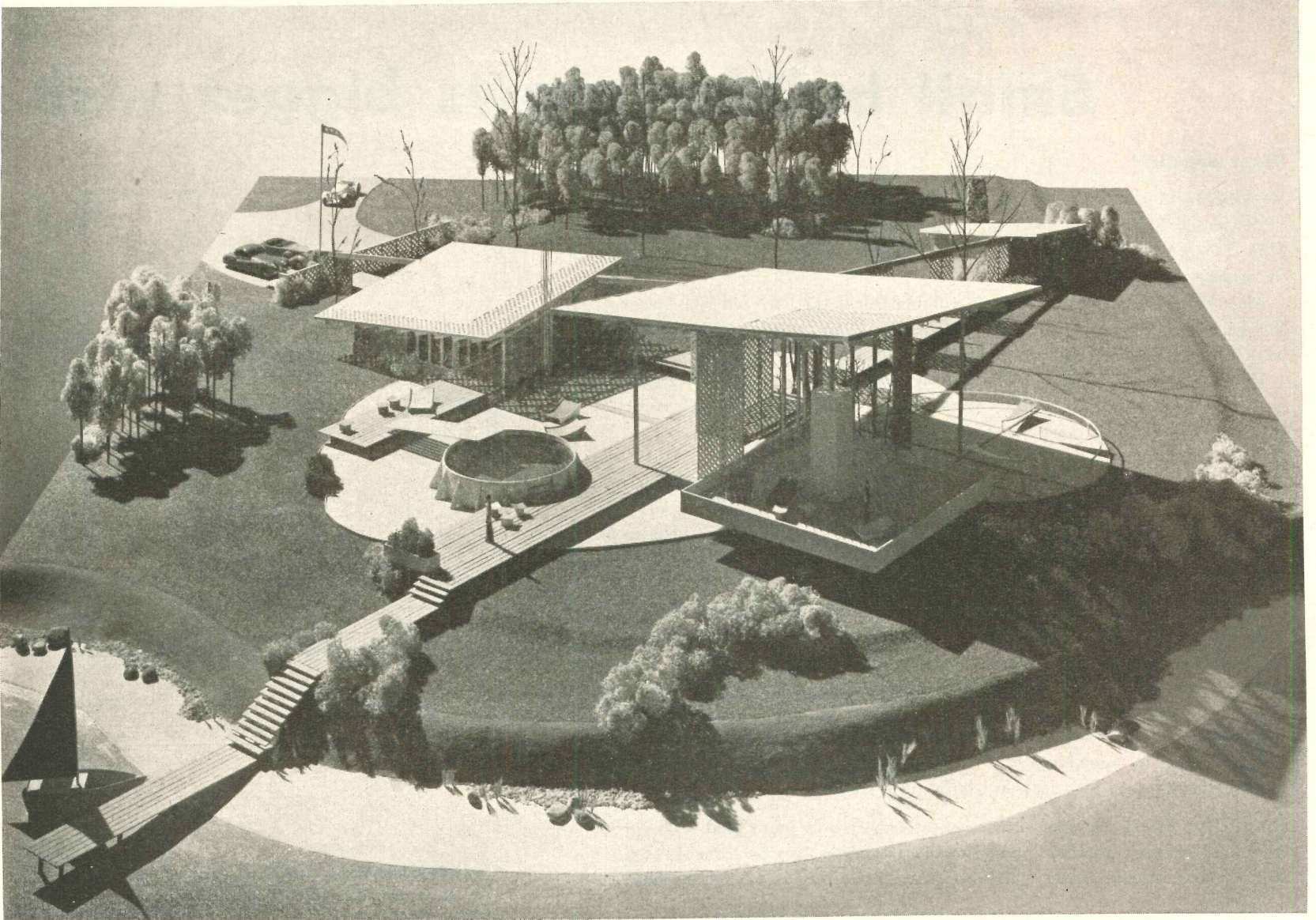
A completely fresh approach to small house design is offered by Architect Choate in his "conversation platform" concept. His premise: each area of a house has a certain function, therefore each should have a functional mass or unit. The platform substitutes for a furniture grouping. Here it consists of a 3/4" plywood surface raised 6" above the floor. Above is a soffit of plywood inside exposed linear framing members, providing an inexpensive method of indirect lighting and pulling the ceiling down for better relationship to platform.

Sliding plywood curtains

These plans for a slightly curved plywood panel were the basis for sliding window curtains at the exposition. Two panels of $\frac{1}{4}$ " plywood are glued back to back at their centers and bowed slightly away from each other at the ends with $\frac{1}{2}$ " stiles or spacers. This Campbell & Wong idea could serve as a closet door. The treatment might go a long way toward control of one of home building's major problems, that of twisting and warping doors.



Morley Baer



Leisure house expands into three sections

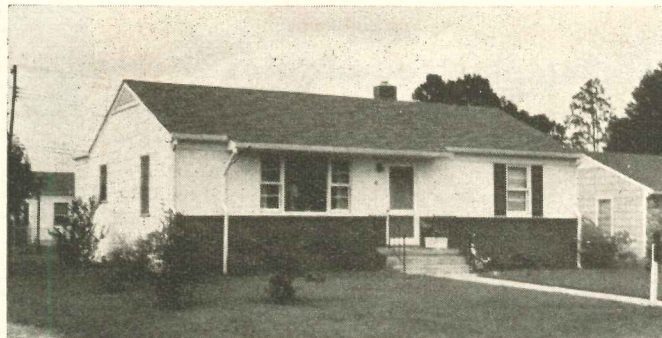
People are lazy. On that assumption, Campbell & Wong have designed this model of three units to provide the utmost in relaxed living. One element (left) is 24' square and houses bath, kitchen and a small living area. A second (rear) is a small 12'-square, cave-like structure containing the only fireplace. The third (foreground) is a modern version of the old back porch. It has a sundeck and is close to a swimming pool. The designers say that plywood would be used extensively throughout.



Builder Clayton Powell started as a contract builder on \$1,500 in 1951. An organizational wizard, he parlayed his building know-how into a flourishing Savannah business within 15 months, organized the Home Builders Assn. of Savannah of which he is now president.



Architect Ralph Thomas, Georgia Tech graduate, is guaranteed 5% of sales price for a single plan and is paid \$100 per start for repeats. "Design," says Powell, "is the cheapest thing I buy. Many builders pay as much as \$35 for a building permit, less for an architect."



1951: Crawl-space house, hiked high on its foundation, was first kind of house Powell built, conventional "just like everyone else's."

Small builder grows bigger with

"Easy does it."

With that philosophy Builder Clayton Powell has started a small revolution in Savannah home building, built himself a business that will see him do from 50 to 60 houses this year, set an example every small builder would be smart to follow.

Most builders go on year after year doing things the hard old way because the hard way is easier and cheaper at first than learning more efficient methods and teaching them to unenthusiastic crews and subcontractors.

But Powell says: "Before I finished my first house I was sure there must be easier ways to build. If they were easier, they must be faster. And if they were faster, they must be cheaper."

So he set out to find new ways to build better for less.

He got his first big ideas at the NAHB convention and exposition in Chicago in January, 1953. He got more from HOUSE & HOME's report on "Ten proven ways to save 10% in construction" in February, 1953. He used eight of the ten ways and still saves himself 10%. He got more from HOUSE & HOME's study of post-and-beam construction in June, 1954. He gets still more from working with his Georgia Tech-trained architect, Ralph Thomas.

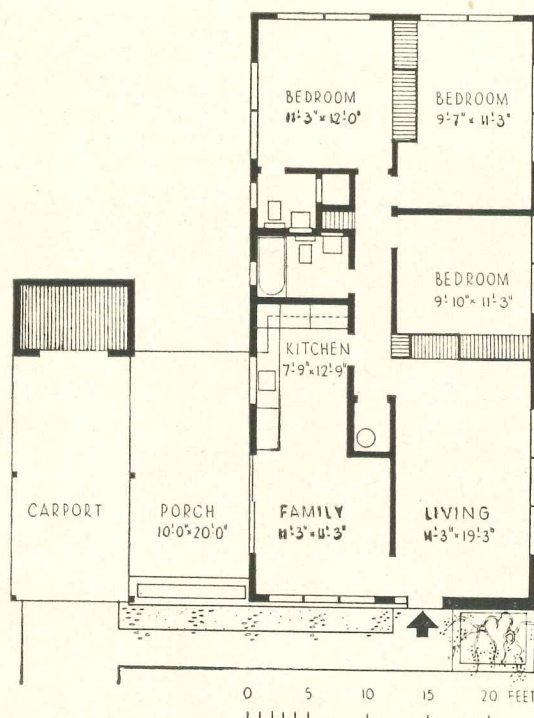
As a result, Powell—in less than 16 months—has one of the most flourishing building businesses in Savannah. He is president of the local home builders association which he organized. And he has a 24-day construction schedule that saves money every day.

On any given day Powell has no more than five houses to check; yet is always assured of completing each of them in about 24 days, sometimes 27. Three elements form his successful building formula:

Simplicity: Powell (lumber dealers, please note) uses more lumber to save labor and simplify erection. Occasionally he wastes two or three 4x4's in building six different plans, "but the important thing is we never change the system."

Scheduling: his 24-workday schedule (p. 150) is synchronized with FHA inspection, his own crew capabilities and subcontractor availability.

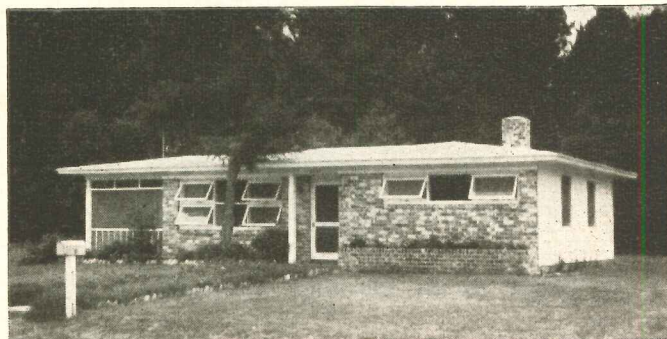
Subcontracting: Powell subcontracts all specialty work (dry walling, plumbing, heating, electrical) but since he can control his post-and-beam carpentry and its costs, he uses his own crews for the major structural operations.



1954: Post-and-beam house was Powell's first venture as a merchant builder. Structural windows align on all four sides under continuous lintel reflecting basic framework of post and beam in an organized way. Though house has narrow end to street, long low look is maintained by screened porch and carport at side; still elevation, plan can stand improvement. Plans by Architect Thomas also reflect broadening living needs of today's home buyers: have two baths, family room. House has 1,056 sq. ft., 300 sq. ft. of screened porch, sells for \$13,450 on \$1,800 lot.



2 1952: Powell dropped house off crawl space and onto slab, gave an even longer lower look to an already enlarged house.



3 1953: Lower pitch to roofs, larger glass areas were next design steps. Though hip roofs are popular, Powell also built gabled roofs.

easier, better ways to build

4

W. H. Bond

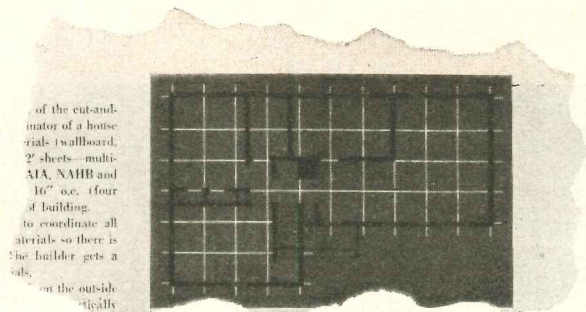


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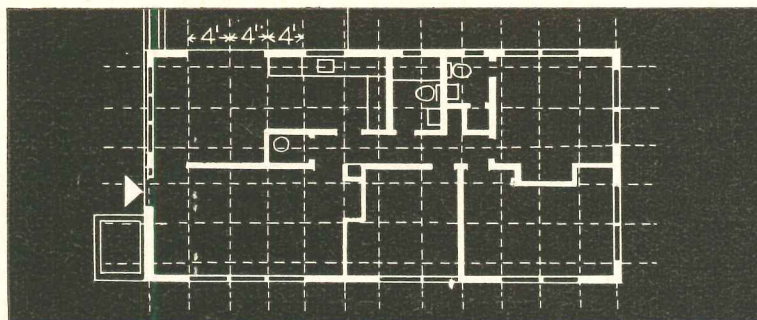
Powell uses eight of the "10 ways to save 10%" — still saves 10%

WHAT HOUSE & HOME SAID IN JAN. '53:

WHAT BUILDER POWELL NOW DOES:

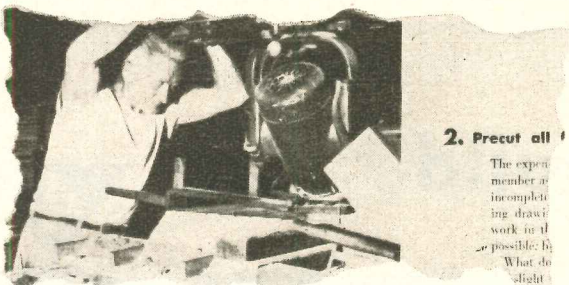


of the cut-and-paste method of a house-rials (wallboard, 2" sheets—multi-MA, NAHB and 16" o.c. (four of building. to coordinate all materials so there is the builder gets a sals, on the outside, gically

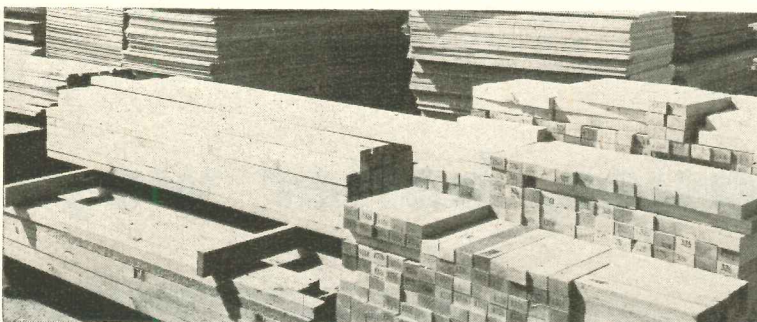


1. Build on an interior module builds post and beam on a 4' module

"Dimensionally standard sheet materials inside and out reduce cutting"



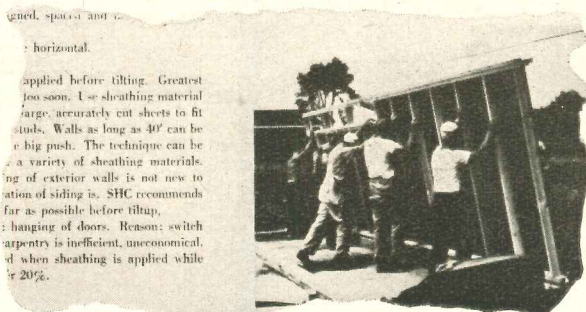
2. Precut all
The exper- member a incompleting drawi work in th e possible by What do s light



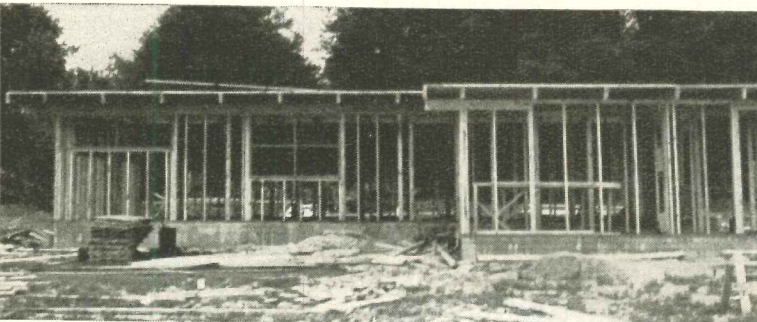
International News Photo by Dave Cicero

2. Precut all lumber buys lumber precut and/or milled

"Studs precut to 7'-1/4" and 8'-1/4"; ridge beam is beveled"

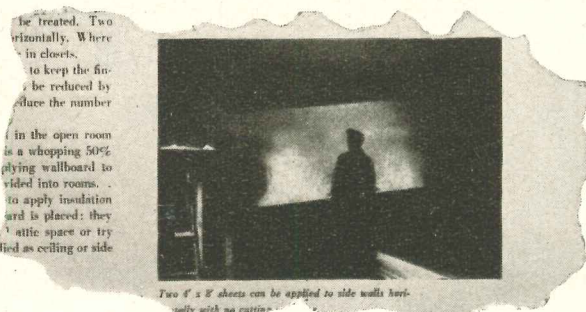


igned, spaced and horizontal. applied before tilting. Greatest too soon. Use sheathing material large, accurately cut sheets to fit studs. Walls as long as 40' can be a big push. The technique can be a variety of sheathing materials. ing of exterior walls is not new to ation of siding is. SHC recommends far as possible before tiltup, hanging of doors. Reason: switch carpentry is inefficient, uneconomical, of when sheathing is applied while or 20%.



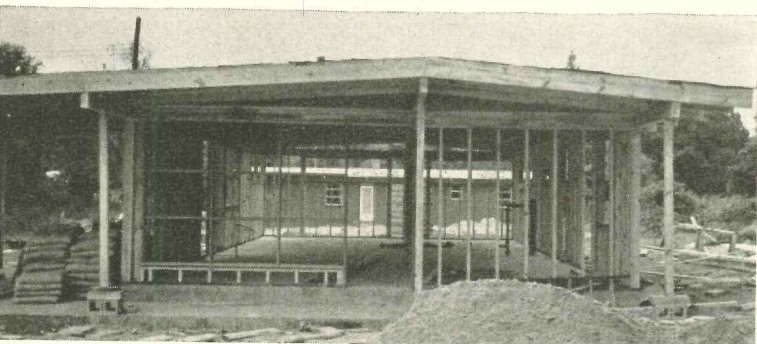
3. Tilt up exterior walls prefers to tilt up without sheathing on

"Small crew wants light walls to lift, applies sheet materials upright"



be treated. Two rizontally. Where in closets. to keep the fin- be reduced by reduce the number in the open room is a whopping 50% plying wallboard is sided into rooms. to apply insulation and is placed; they stic space or try sried as ceiling or side

Two 4' x 8' sheets can be applied to side walls hori- ally, with no cuttin-



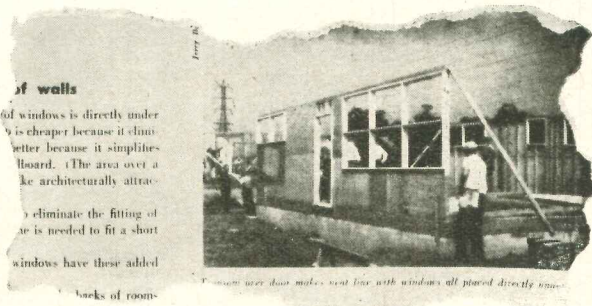
4. Apply wall board before partitioning uses open-room principle in "two" big rooms

"Dry wall sub applies 14' sheets to ceilings before partitions are in"

5. Use roof trusses cannot, roof pitch is 1-in-12, ceilings slope

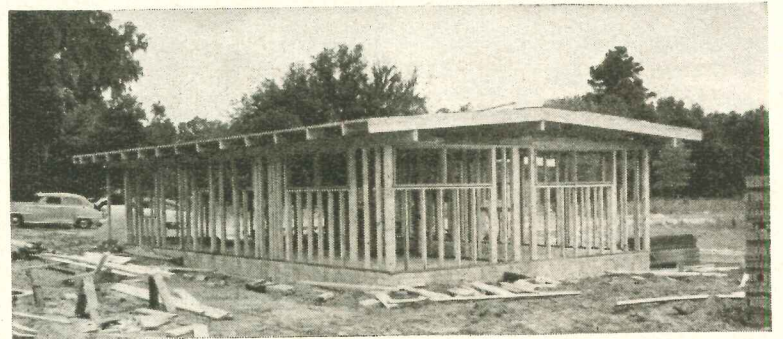
"Architectural beauty is enhanced by sloping ceilings at little extra cost"

WHAT HOUSE & HOME SAID IN JAN. '53:



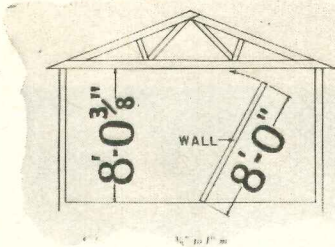
of walls
of windows is directly under
is cheaper because it elimi-
better because it simplifies
board. (The area over a
ke architecturally attrac-
to eliminate the fitting of
is needed to fit a short
windows have these added
banks of rooms

WHAT BUILDER POWELL NOW DOES:

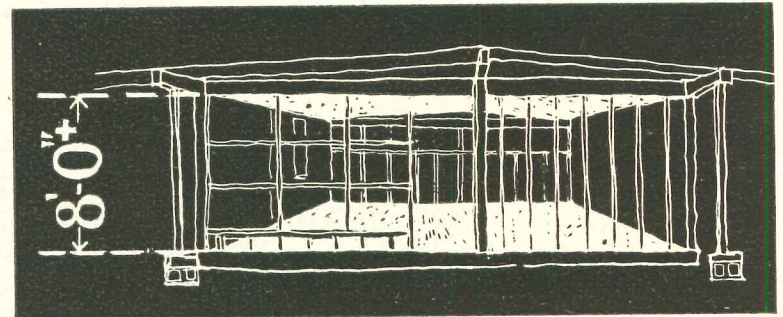


6. Place windows at top of wall sets windows under continuous lintel

"Nailing of jacks and cripples over windows is completely eliminated"

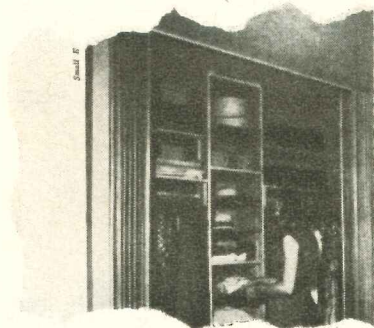


8. Make ceiling heights 8'-0 3/8"
Since partitions do not bear the roof load, they can be precast and assembled on the floor and tipped into place. For efficient partitions should be cut 3/8" shorter than the full 8'. Collaborative NAHB and AIA builder house design have recommended a ceiling height of 8'-0 3/8" for all small house designs for themselves just how much over heights should be, depending on the tolerance in working to close tolerances.
Partitions 8' high allow application of wallboard vertically or horizontally.

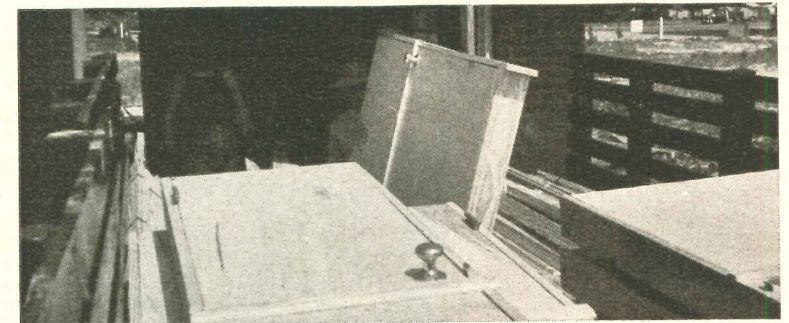


7. Make ceilings 8' plus tolerance ceiling height at side walls is 8'

"Room-size dry wall sheets applied horizontally eliminate vertical joints"

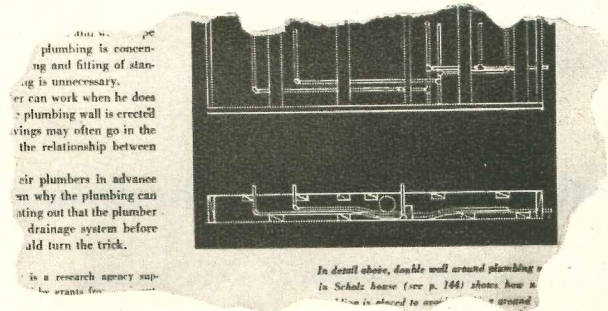


need for more
the neatest building trick
the dual purpose of closets
April '52, p. 138).
Closets being built by
measured and expensive. They
necessary and often result in
tional door-in-a-wall from
space near the ceiling area.
Improved closet design
of full-access closet from
factory as a complete
Industry is producing
less than the most eco-
costs only half as much.
8' high closet in half an
A variety of storage
country.



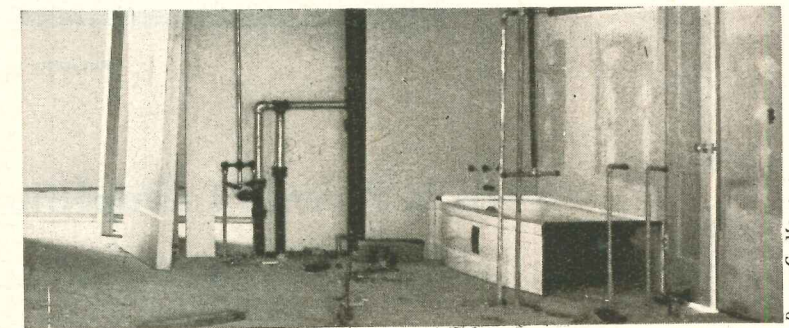
8. Use storage walls buys prehung doors, KD closets, prefab cabinets

"Never put anything together in building you absolutely don't have to"



plumbing is concern-
ing and fitting of stan-
ing is unnecessary.
er can work when he does
plumbing wall is erected
ings may often go in the
the relationship between
eir plumbers in advance
en why the plumbing can
ating out that the plumber
drainage system before
uld turn the trick.
is a research agency sup-
erants for

In detail above, double wall around plumbing in Schultz house (see p. 144) shows how it is placed to avoid ground



Dewey C. Mears

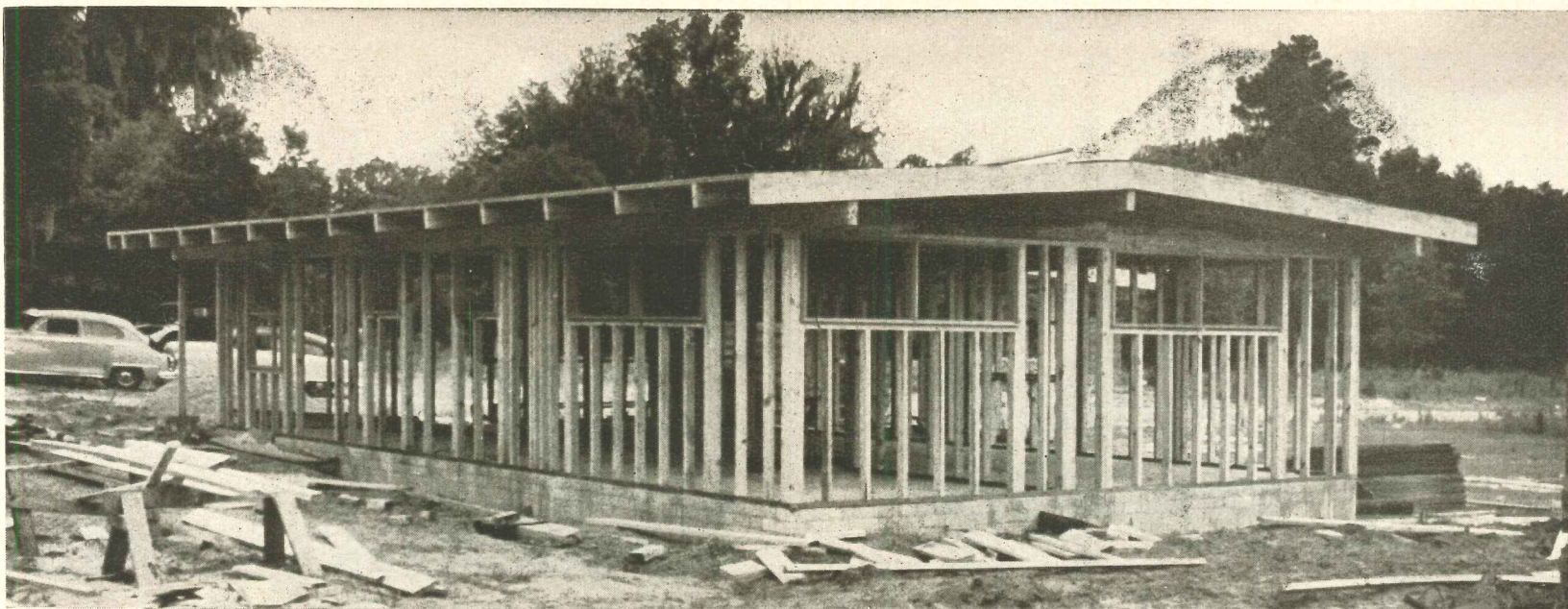
9. Use double wall around plumbing builds his wet wall around the plumbing

"Post-and-beam framing avoids cutting bearing partitions for pipe"

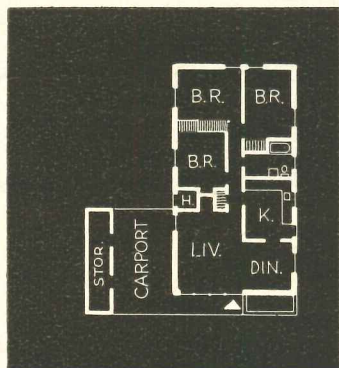
10. Lay floors before partitioning gains flexibility by laying floors last

"Customers want a wide range of choice in floor materials before buying"

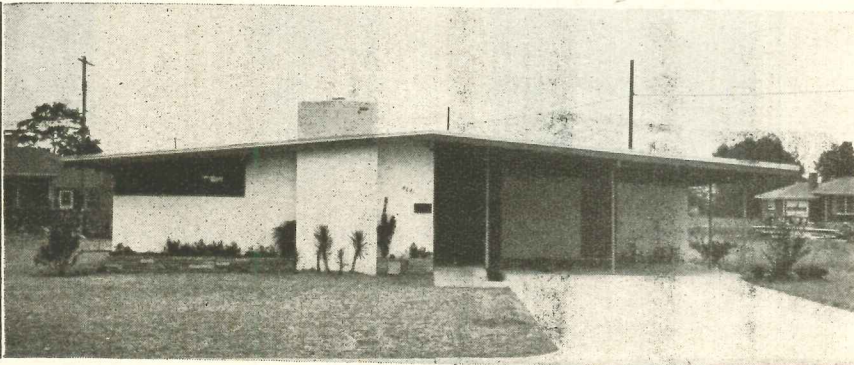
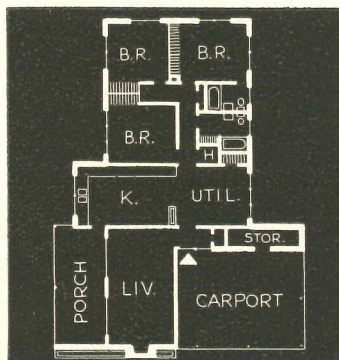
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Simplified post-and-beam houses are completed in 24 working days



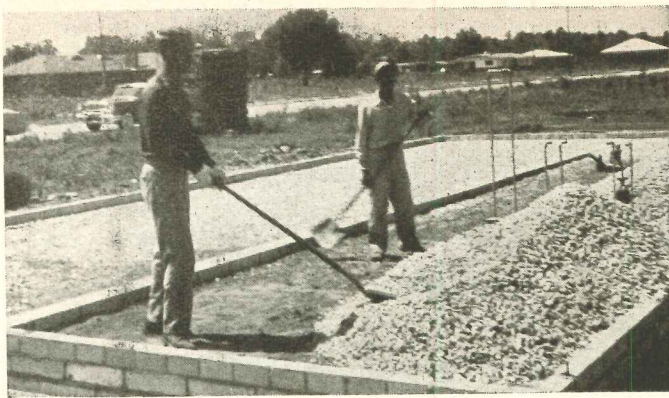
Oversized "Savannah gray" brick veneer on 1,056 sq. ft. house sells it fast at \$13,750



Powell's entry into quality house bracket is via this \$17,900 house with 1,430 sq. ft.

Here is Powell's simplified "month-completion" schedule

WORKING DAYS	WORK COMPLETED BY POWELL'S OWN CREW	WORK COMPLETED BY SUBCONTRACTORS
1 — 5	Excavation, footings, foundation	Rough plumbing topped out, cement finishing
6 — 12	Wall framing, roof decking	Insulation, brick veneer, electrical wiring
13		Dry wall exterior walls only
14 — 18	Interior partitions, closet walls, prefab cabinets, prehung doors, plywood panels	Dry wall partitions, tape joints, weatherstripping, heating, tiling, glazing
18 — 21		Exterior painting
21		Interior painting
22 — 24	Clean up shoe molding	Floor covering
		Electrical outlets, fixtures, landscaping,



Two-man crew excavates, puts in footings

Plumbing subcontractor tops out rough work, cement sub lays slab within five-day period. Scheduling, though firm, is realistic enough so all subs can work within it. They are seldom delinquent.

Mass production

with a ten-man crew



Four-man crew rough frames house in seven days

Key to Powell's operation is post-and-beam system which eliminates pieces under 8' by remarkable 85%. Posts are 4 x 4's on 4' centers interspersed with 2 x 4 nailers. Windows fit neatly between posts and under 4 x 8 continuous lintel around entire perimeter. Most cutting is on 2 x 8 roof decking.

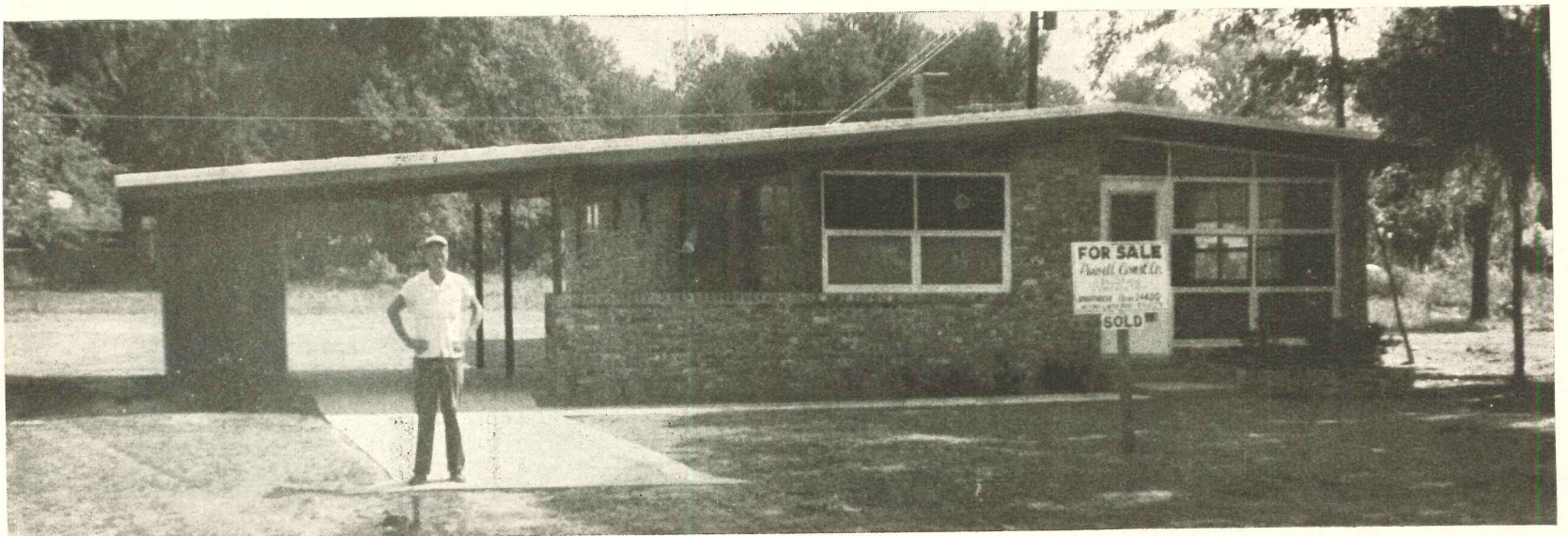


Three-man crew installs prefab parts

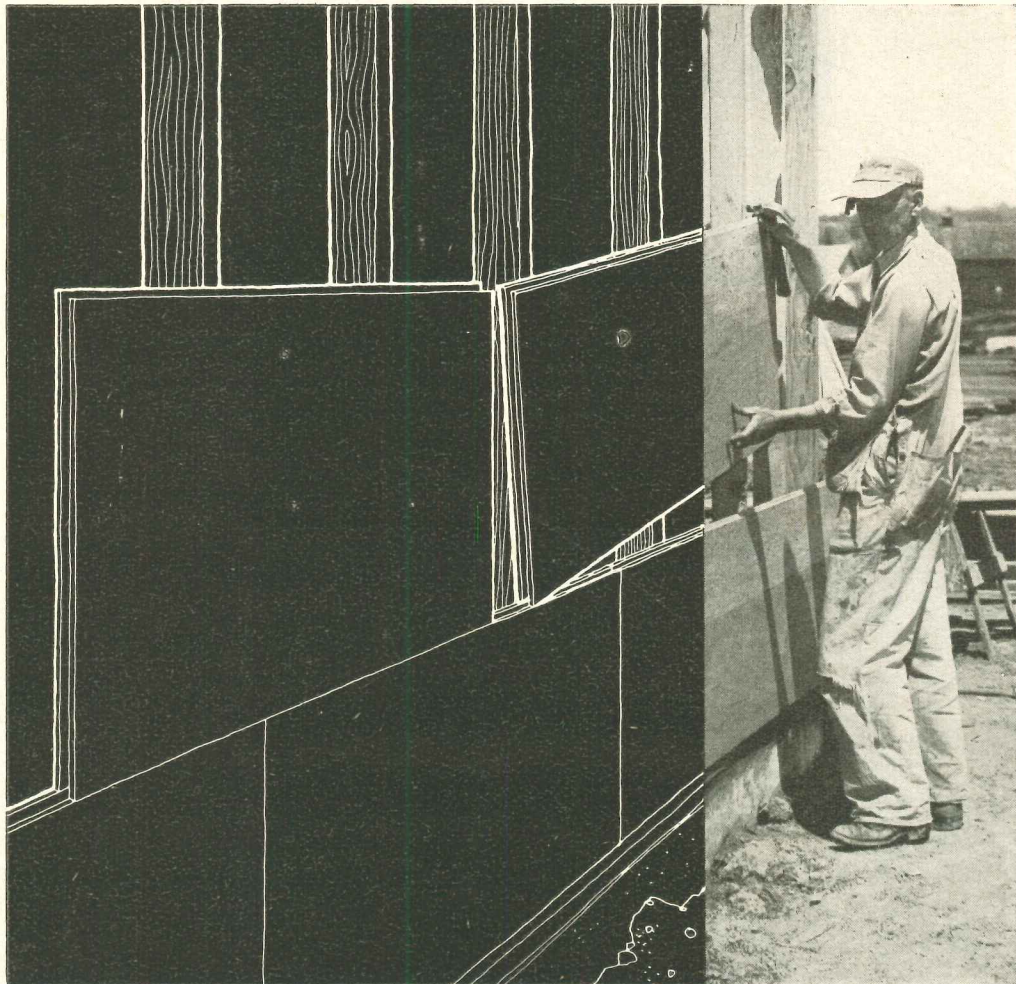
Two carpenters, helper easily erect few interior partitions, install storage walls, prefab cabinets, prehung doors under roomy post-and-beam frame. Bigger pieces, fewer parts overcome handicap of today's less experienced labor.

Single superintendent oversees entire operation

Powell's 28-year-old super has a flexible mind about new methods: "He can't tell me how things were done 20 years ago because he wasn't building then." Super really acts as expeditor and troubleshooter since simple post-and-beam frame is a simple pattern which men follow easily.



NEW PRODUCTS



Interlocking strength of T&G joint permits panels to be installed at random, without butting on studs

Between-stud joints, no saw waste with T&G plywood

Fast, economical sheathing of walls, roofs and floors is the first obvious advantage of a new T&G plywood, but there are several others not so apparent. Self-supporting joints may occur anywhere, instead of panels being cut to hit directly on studs or joists. Lengths cut off at corners or wall openings are used to begin the next course. And tests are now being made to determine if the tight T&G joint will eliminate the need for building paper under shingles or shakes.

Builder John LaPorte, Portland, Ore., one of the first to use the sheets, noted that one man could handle them easily (he used 2' widths) and that the T&G held the sheet firmly in place while it was being nailed. His men went straight across the side of the house, disregarding stud

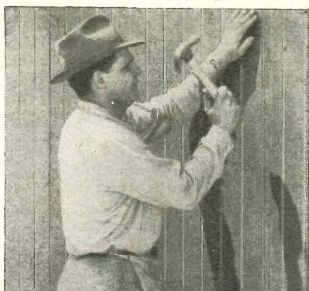
locations, sawed off the excess, then brought it back to start the next course.

With the exception of the machined T&G edge, the product is regular Douglas Fir plywood. The tongue is 3-ply, and the lands are 2-ply to prevent splitting of the interlocked edge, and to provide a solid joint.

Three thicknesses are made: $\frac{1}{2}$ ", $\frac{5}{8}$ ", and $\frac{3}{4}$ ", and the 2' and 4' wide panels are 4', 6', and 8' in length. For side walls, where concentrated or flexing loads are light, or for roofs with 16" o.c. rafters, the $\frac{1}{2}$ " thickness is ample. Subflooring, on 16" joists, requires only the $\frac{5}{8}$ ", even when used under nonstructural finish flooring. The $\frac{3}{4}$ " sheets are strong enough for roof decking on 48"

continued on p. 158

Other NEW PRODUCTS in this issue



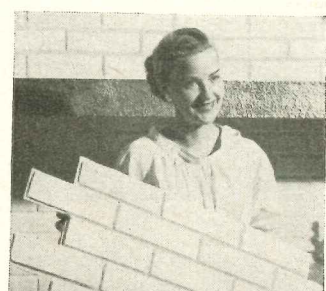
Grooved hardboard panels for exterior walls . . . p. 158



clip-on paneling . . . p. 162



dustproofing for walls . . . p. 168



plastic brick paneling . . . p. 174