

Chapter 3

FINANCING THE NEW HOUSE

IN SPITE of the fact that by building your house yourself, you can save over 60 per cent of the total cost, the chances are that you are going to have to borrow money to buy some or all of the necessary materials. Of course, this is not true in all cases. Some home builders will have enough money saved in the form of saving accounts, war bonds, etc., to pay for all the required materials as well as for any experienced labor that may be necessary. This is the perfect set-up, for when the house is finished, it is all yours, and there are no mortgage payments to worry about in the future.

Pay as You Go

Some builders may prefer the "pay-as-you-go method." Here you pay for the materials as they are used out of your weekly pay check. When the house is finished, it's all yours. But there are several drawbacks to this method. First, the work often goes very slowly because you may not be able to buy certain needed materials until you get your next week's or month's pay check. Another point is that you may be tempted to use less

expensive and, often, inferior materials because the few dollars involved can make so much difference in how you eat for the next week. Then there is the question of delivery. Most local lumber yards will not make a special trip just to deliver a few pieces of studing or a bundle of shingles. Unless you can pick up the materials yourself, you may have to wait until there is a delivery coming your way, when your materials can be included and brought out. And, as everyone knows, there is often a reduction in price when large purchases are made.

Loans

For those who do not have the necessary cash on hand to buy their materials outright, and do not care to pay as they go along, the solution is to get some lending institution to finance the venture.

There are relatively few homes built today on which some of the financing is not handled by one type or another of lending agency. The man who builds a \$5,000 home and the man who builds a \$50,000 home will probably both get some of the money to build

from a bank, savings and loan association, building and loan association, mortgage loan company, or other private lender. In return for the money to build his house, the owner gives to the lending agency a note promising to pay the sum back in a certain length of time, together with interest. The house and the land on which it is built are put up as security for this note. This is a mortgage. Many people are afraid of mortgages, possibly because they saw too many old-fashioned

movies in their youth, in which the villain foreclosed the mortgage on the old homestead and drove the heroine and her parents out into the snow storm. Despite the hero's last-minute arrival with the necessary money, the idea that a mortgage is bad was firmly implanted in their minds. Unless you have some other method of financing your home, you will end up with a mortgage of one sort or another, and if everything is in order from the beginning, you will have no worries.

HOW TO GET A MORTGAGE

Obtaining a mortgage is something else again. Suppose, for example, you have the plot of ground and want to build a home yourself. You have no money to put into the place, but you are willing to do the work. Let us assume that the cost of the materials will be \$3,500 and the value of the finished house will be \$8,750.

It would appear on the surface that any lending agency in its right mind would jump at the chance to get an \$8,750 house as security on a \$3,500 loan. The trouble is that the house isn't built yet and the lending agency isn't interested in the possibility of having to foreclose a mortgage. It is much more interested in having the loan repaid and receiving the interest. This is what it is in business for. The lending agency will probably not show much interest in your proposition until it has checked into the various risks involved. First of all, it will want to find

out if you are a responsible person who, once a job has been started, will finish it. A house that is only half finished after a year or so of construction is of little value to anyone. A person may get enthusiastic about building his own home, start work, and then lose interest after he finds that it cannot be finished over night. The only way the agency could get back its investment would be to finish the house so that it could be sold, and this, coupled with poor workmanship on the part of the original builder, may put the price of the finished house far beyond its actual value.

If you have a member of your family who is in the construction business, or even a friend, it will probably help, for this will reassure the agency that if you get into a spot, you will be able to call on free professional advice.

Apart from worrying about whether or not you will complete the house, the

lending agency will also check to see if you are able to meet the installments and interest on the mortgage. It will check into your financial background to see if you have a reputation for meeting your financial responsibilities. It will probably also want a summary of your present financial position, which will include the amount of your income, for whom you work and how long you have worked there, the amount of money you owe, the value of your insurance policy, and the amount of money you have in savings such as bonds, saving accounts, stocks, etc. In other words, it will want to know about all your financial transactions.

If You Have No Cash to Invest in the House

If it finds that you are a favorable risk, the next question will be what amount of cash you intend to invest in this venture. Most banks today do not care to finance an entire house without the owner's putting up some cash, but in your case you have no money to put up, only your labor. In this case, the bank or agency will probably say, "Get started on the place so that we know you mean business. When you have the foundation or frame up, come back and we'll see what we can do for you." This leaves things pretty much up in the air. The bank won't lend you money until the house is started, and you can't start the house until you have some money to buy the necessary materials. The thing to do now is to go

to the lumber yard or wherever you are going to buy the materials and explain the situation to them. If you have a good responsible record, they will get in touch with the bank and talk things over. If the decision is that you are really in earnest and are going to build a house, and a good one, the lumber yard will advance you the necessary materials to get the job started, by extending you terms of thirty or sixty days on your purchase.

Once you have the foundations in, you go back to the bank with your plans and a list of the materials you are going to need, together with their cost. Now the bank has something concrete to go on. The house is under construction. The bank has looked over your work so far and has found it satisfactory. The officials can assume from that fact that the rest of the job should be satisfactory. They can see from the plans and the work you have done so far what the finished house should be worth, and exactly how much the materials for it are going to cost. And, lastly, they see that you have invested something in the house—your labor. As a result, they will probably be willing to invest the necessary funds so that the job can be finished.

With an arrangement of this sort, it is possible for you to start building without any initial outlay of cash on your part at all. Naturally, if you have some money, you can pay for the necessary materials to get the job started and get the rest of the money from the bank when construction is under way.

Some home builders have been able to go one step further than this. By investing some money of their own in the initial construction, they have been able to get enough money from their local bank to buy the materials they need, and also to pay themselves a small salary while they work. Thus they can devote full time to finishing the house with enough money to live on.

This is a fine arrangement if you are in a profession or trade where you can

take a few months off and then go back again at your former salary. But most amateur house-builders will have to hold on to their jobs and work on the house evenings, on the week-ends or during their vacations.

If you have to borrow money to complete your house, it is not always necessary to take out a mortgage. If the sum required is not too large, you can take out a personal note or borrow on your car.

KINDS OF MORTGAGES

For those who will require a mortgage, there are certain terms as well as facts that should be known and understood. First, there is the *principal*, which is the amount of money that is lent. If you borrow \$3,500, this is the principal. Next, there is the *interest*. This is the money you pay for the use of the principal. Interest is expressed in a percentage and will vary from place to place and from time to time. The interest may be paid yearly or at some other interval, whichever way you and the lending agency agree upon.

The Straight Mortgage

There are two types of mortgages, a straight mortgage and an amortized mortgage. A straight mortgage is one where you promise to pay at a certain date the full amount of the loan. You may pay the interest yearly, semi-annually, or quarterly, but you make no payment of the principal until the due date. These are short-term mortgages

running for five years, and they cannot be for more than 50 per cent of the appraised value of the property.

The obvious drawback to this type of mortgage is the possibility that you will not be able to raise the necessary funds on the date that the mortgage comes due. Very few of us have on hand cash equal to 50 per cent of the value of our homes. Under usual conditions, the lending agency will renew the mortgage for another term, but it may require that you pay something on the principal. But if conditions are unusual, if, for instance, there is a depression, the agency may require you to make the full payment of the principal and if you can't, then the mortgage is foreclosed.

When a mortgage is foreclosed, the ownership of the property passes to the agency holding the mortgage. The property is put up for public sale, and the agency lending the money is paid off from the money received for the

house. If there is anything left over, the original owner receives it.

Another drawback to the straight mortgage is that, because it can be only for 50 per cent of the value of the house, it is often necessary to obtain additional funds. This is done through a second mortgage.

If you use a straight mortgage to finance your home, be sure that the date on which it falls due is in writing and is not "on demand." If you have a demand mortgage, you can be called on to pay the full amount of the principal at any time the lending agency asks for it.

The Amortized Mortgage

This is the method used in most of the home financing done today. This type of mortgage runs for as long as it takes to pay off the principal. Payments are made monthly or every three months. Each payment is apportioned among the interest, the taxes, and the principal. In successive payments, the amount allotted to the interest decreases and that allotted to the principal increases because, as the sum is reduced, the interest becomes less and less. However, the amount of the individual payments remains the same. With each payment your equity in the property grows, and this is important in the event that for one reason or another you are unable to meet a payment or so. If you have sufficient equity, there will probably be no trouble.

An amortized mortgage cannot be renewed, nor can the unpaid balance be called in on demand.

Once you have made arrangements with a lending agency to get an amortized mortgage, your next problem is to work out a method of repayment. Everyone likes to get the mortgage paid off as quickly as possible; everyone likes to have the monthly payments as small as possible; and everyone likes to make a minimum down payment on the expenses of their plot and future home. The trick, then is to balance these requirements to your greatest advantage.

A good rule to follow in making the down payment is to pay as much as you can possibly afford at this time, still keeping enough savings in reserve to meet emergencies such as sickness. There is no point to making a large down payment and then not being in a position to pay the first installment. Now there remains the unpaid balance, and the payment of this will be spread out over a period of years in monthly installments. The larger the installments are, the sooner the loan will be paid off. By paying the loan off in ten years rather than twenty-five, you save a good deal of interest charges. On the other hand, it is best not to use over 25 per cent of your monthly income for housing because, in these days of rising living costs, more and more of the family income must go for food and clothing.

There is another factor that must be considered in working out a repayment

budget and this is your present and future earning capacity. If you are just getting started in your profession, you may have to start out with a very low monthly installment and a long-term loan. As your income increases, you can re-budget your payments so that they are larger and in keeping with your greater earning power. You can also pay off the balance of the unpaid mortgage, but there is usually a penalty involved in this. If your income is more or less set at this time, you should take into consideration your estimated earning power over the years until the mortgage has been discharged. For example, if you are thirty-five now and you have a twenty-five year mortgage, the last payment will fall due when you are sixty. At this age you may very well not have the earning capacity that you do today. In this event, you should try to figure out a payment plan whereby you will have discharged your mortgage before there is any decline in your earning capacity. Your local bank or lending agency will

be able to give you a lot of good sound advice in working out a repayment plan.

As a builder-owner you should not have the same difficulties in working out a repayment plan as someone who is purchasing a finished house or one that is going to be built professionally, because you will not need anywhere near the amount of money that he will. You may be able to get sufficient funds for the materials by borrowing on your insurance or from a private individual. Private loans are perfectly all right if the interest rate is not too high, and the date of payment is in writing. Demand notes are not good. If the lender should get into a tight spot, you might have to pay up in full at a time when it is impossible. Before you knew it, you would have a court action on your hands. Don't get the idea that just because you borrow from a friend you can avoid difficulties of this sort. If you make a private loan, even with your best friend or a close relative, be sure all is in order, and in writing.

FHA LOANS

Many home-builders today borrow money under the FHA plan. The Federal Housing Act passed in 1934 created government insurance on home-financing loans and made it available to home-financing institutions. The act also created the Federal Housing Administration to administer the new law. The FHA does not lend the money to home-buyers or home-builders. A per-

son who wants to borrow money to buy or build a home must get it from a private lending agency approved by the FHA. The FHA simply insures to the approved lenders that they will be repaid fully for loans that they make, in conformity with sound standards, to home-buyers and home-builders. The effect, therefore, is to make more money available to people who

wish to borrow it, since the risk is removed for the lender.

Every person who earns a steady income from a job or business and who has a good credit reputation can obtain FHA insurance on a loan to buy or build a home of his own, provided the house is judged to be structurally acceptable, is a sound, long-range value, and is priced within his means.

For the person who wants to buy or build a new home for himself, the FHA will do the following, if the house is built with its inspection and meets its requirements:

If it values a home at up to \$6,315, the FHA will insure a loan on it for as much as 95 per cent of its value. If, for instance, the value is \$6,000, the buyer can obtain FHA insurance on a loan of \$5,700. Loans in this value range must be paid off in thirty years.

If it values the home between \$6,315 and \$11,000, the FHA will insure a loan on it for as much as 90 per cent of the first \$7,000 and 80 per cent of the next \$4,000. For instance, if the value is \$10,000, the borrower can obtain FHA insurance on a loan of \$8,700. This amount is the total of \$6,300 for which he can be insured on the first \$7,000 of the valuation, and \$2,400 for which he can be insured on the remaining \$3,000 of the valuation. Loans in this value range must be paid off in twenty-five years.

If it values the home at between \$11,000 and \$20,000, the FHA will insure a loan on it for as much as 80 per cent of the value. For example, if the

value is \$20,000, the home-buyer can obtain FHA insurance on a loan of \$16,000. Loans in this value range must also be paid off in twenty-five years.

To secure the maximum percentage loans on a new home, plans must be submitted to the FHA before construction starts and a commitment to insure must be obtained. Otherwise, loans are limited to 80 per cent of the value. The interest rate on an FHA insured mortgage may not exceed 4½ per cent, plus an FHA insurance charge of ½ of 1 per cent on declining balances.

Considerations of the Property

In determining whether the FHA can insure the proposed mortgage loan, FHA gives consideration to the location of the lot and such related matters as suitability of the neighborhood, access to schools, and adequacy of utilities.

FHA has set up certain minimum property standards to determine whether the property is acceptable as security for an FHA insured-mortgage loan. It makes a valuation of the property based on long-term use. If construction is completed, an appraiser inspects the property and places a valuation on it, including the lot. If the property is proposed construction, plans and specifications are analyzed for conformity with FHA minimum property standards, and after an FHA appraiser has visited the site, valuation will be placed upon

the land and the proposed improvements when erected on the site. While the house is being constructed, the FHA makes three or more inspections.

Benefits to the Buyer

The precautions taken by FHA as insurer of the mortgage result in the following benefits to the borrower:

FHA's valuation of the property represents an objective estimate of its long-term value. This provides the borrower with a conservative guide in determining how much he should agree to pay under his purchase contract.

The examination of the relationship of monthly payments to the borrower's present and anticipated income and expenses helps protect him from entering a transaction beyond his means. The FHA does not insure a mortgage un-

less there appears a reasonable likelihood that the borrower can maintain the payments.

Through the minimum property standards and inspections, the borrower benefits from an objective check and review of the property as to its basic construction and conformity to essential property standards. This is not, however, a guarantee of the house, but it does provide the borrower reasonable insurance that the property has met at least the minimum FHA requirements.

The table on Pg. 32, prepared by an official of the United States Housing and Home Finance Agency in Washington, shows you how much you must pay each month on homes valued from \$6,000 to \$20,000 that are bought with FHA-insured mortgages.

A GI LOAN

Many veterans are confused as to just what the so-called GI Loan for buying a house is all about. This is actually nothing more than a loan that is made by a private lending institution, such as a bank, and is guaranteed by the Veterans Administration. The government does not lend you any money; it merely insures your loan.

A GI Loan will guarantee up to 50 per cent of the loan, but the guaranteed amount cannot be more than \$4,000. This loan may be used to buy, build, or improve a home. The loan must bear interest at a rate of not more than 4 per cent per year, and must be paid off in

twenty-five years. In addition, the Veterans Administration pays to the lender, for credit to the veteran's loan account, a sum equal to 4 per cent of the guaranteed portion of the loan. This credit is a gift to the veteran and not a loan. Veterans may apply for GI Loans until July 25, 1957.

At this point, you may begin to wonder just what the advantages of this type of loan over an FHA-insured mortgage may be. In the first place, you get a lower rate of interest. While this may not seem like a great deal, it can add up in twenty-five years or so. Another advantage of the GI Loan is

FINANCING THE NEW HOUSE

TABLE I

FHA-INSURED MORTGAGES ON NEW SINGLE FAMILY,
OWNER-OCCUPIED HOMES

(National Housing Act, Title II, Section 203)

Appraisal Value	Maximum loan as percentage of value	Maximum amount of loan	Minimum down payment	Maximum maturity (yrs.)	Monthly payment				Total
					Interest and principal	Mortgage insurance premium (1st yr.) ¹	Hazard insurance (est.) ²	Real estate taxes (est.) ³	
\$ 6,000	95%	\$5,700	\$ 300	30	\$28.90	\$2.32	\$1.00	10.00	\$42.22
6,500	90	5,850	650	25	32.53	2.36	1.08	10.83	46.80
7,000	90	6,300	700	25	35.03	2.54	1.17	11.67	50.41
7,500	90%	6,700	800	25	37.25	2.70	1.25	12.50	53.70
	on \$7,000, 80%								
	over \$7,000								
8,000		7,100	900	25	39.48	2.86	1.33	13.33	57.00
8,500		7,500	1,000	25	41.70	3.02	1.42	14.17	60.31
9,000		7,900	1,100	25	43.92	3.18	1.50	15.00	63.60
9,500		8,300	1,200	25	46.15	3.34	1.58	15.83	66.90
10,000		8,700	1,300	25	48.37	3.51	1.67	16.67	70.22
10,500		9,100	1,400	25	50.60	3.67	1.75	17.50	73.52
11,000		9,500	1,500	25	52.82	3.83	1.83	18.33	76.81
11,500	80	9,500	2,000	25	52.82	3.83	1.92	19.17	77.74
12,000	80	9,600	2,400	25	53.38	3.87	2.00	20.00	79.25
12,500	80	10,000	2,500	25	55.60	4.03	2.08	20.83	82.54
13,000	80	10,400	2,600	25	57.82	4.19	2.17	21.67	85.85
13,500	80	10,800	2,700	25	60.05	4.35	2.25	22.50	89.15
14,000	80	11,200	2,800	25	62.27	4.51	2.33	23.33	92.44
14,500	80	11,600	2,900	25	64.50	4.67	2.42	24.17	95.76
15,000	80	12,000	3,000	25	66.72	4.84	2.50	25.00	99.06
15,500	80	12,400	3,100	25	68.94	5.00	2.58	25.83	102.35
16,000	80	12,800	3,200	25	71.17	5.16	2.67	26.67	105.67
16,500	80	13,200	3,300	25	73.39	5.32	2.75	27.50	108.96
17,000	80	13,600	3,400	25	75.62	5.48	2.83	28.33	112.26
17,500	80	14,000	3,500	25	77.84	5.64	2.92	29.17	115.57
18,000	80	14,400	3,600	25	80.06	5.80	3.00	30.00	118.86
18,500	80	14,800	3,700	25	82.29	5.96	3.08	30.83	122.16
19,000	80	15,200	3,800	25	84.51	6.13	3.17	31.67	125.48
19,500	80	15,600	3,900	25	86.74	6.29	3.25	32.50	128.78
20,000	80	16,000	4,000	25	88.96	6.45	3.33	33.33	132.07

¹ Decreases each year since the 1/2 of 1% premium is based on the declining outstanding balance of the loan.² Assumed annual rate of \$2 per \$1,000 of appraisal value.³ Assumed annual rate of \$20 per \$1,000 of appraisal value.

TABLE II

LOAN TERMS ON NEW OR EXISTING SINGLE FAMILY, OWNER-OCCUPIED
HOMES ASSUMING 100% LOANS AVAILABLE UNDER
SERVICEMEN'S READJUSTMENT ACT,
TITLE III, SECTION 501

(\$4,000 or 1/2 of the loan, whichever is less, would be guaranteed by the Veterans Administration)

Reasonable value	Maximum loan as percentage of value	Maximum amount of loan ¹	Down payment*	Maximum maturity (yrs.)	Monthly payment			Total
					Interest and principal	Hazard insurance (est) ²	Real estate taxes (est) ³	
\$ 6,000	100%	\$ 6,000	0	25	\$31.68	\$1.00	\$10.00	\$42.68
6,500	100	6,500	0	25	34.32	1.08	10.83	46.23
7,000	100	7,000	0	25	36.96	1.17	11.67	49.80
7,500	100	7,500	0	25	39.60	1.25	12.50	53.35
8,000	100	8,000	0	25	42.24	1.33	13.33	56.90
8,500	100	8,500	0	25	44.88	1.42	14.17	60.47
9,000	100	9,000	0	25	47.52	1.50	15.00	64.02
9,500	100	9,500	0	25	50.16	1.58	15.83	67.57
10,000	100	10,000	0	25	52.80	1.67	16.67	71.14
10,500	100	10,500	0	25	55.44	1.75	17.50	74.69
11,000	100	11,000	0	25	58.08	1.83	18.33	78.24
11,500	100	11,500	0	25	60.72	1.92	19.17	81.81
12,000	100	12,000	0	25	63.36	2.00	20.00	85.36
12,500	100	12,500	0	25	66.00	2.08	20.83	88.91
13,000	100	13,000	0	25	68.64	2.17	21.67	92.48
13,500	100	13,500	0	25	71.28	2.25	22.50	96.03
14,000	100	14,000	0	25	73.92	2.33	23.33	99.58
14,500	100	14,500	0	25	76.56	2.42	24.17	103.15
15,000	100	15,000	0	25	79.20	2.50	25.00	106.70
15,500	100	15,500	0	25	81.84	2.58	25.83	110.25
16,000	100	16,000	0	25	84.48	2.67	26.67	113.82
16,500	100	16,500	0	25	87.12	2.75	27.50	117.37
17,000	100	17,000	0	25	89.76	2.83	28.33	120.92
17,500	100	17,500	0	25	92.40	2.92	29.17	124.49
18,000	100	18,000	0	25	95.04	3.00	30.00	128.04
18,500	100	18,500	0	25	97.68	3.08	30.83	131.59
19,000	100	19,000	0	25	100.32	3.17	31.67	135.16
19,500	100	19,500	0	25	102.96	3.25	32.50	138.71
20,000	100	20,000	0	25	105.60	3.33	33.33	142.26

¹ Not reflecting VA gratuity payment to veteran's loan account, amounting to 4% of the guaranteed portion of the loan. For example, on \$6,000 loan, gratuity payment would be \$120 (4% of \$3,000).

² Assumed annual rate of \$2 per \$1,000 of reasonable value.

³ Assumed annual rate of \$20 per \$1,000 of reasonable value.

* Down payment will be required if valuation of the home is less than price for which it sells.

that you do not have to make as large a down payment as you would on other types of loans, and you can pre-pay part or even all of your loan whenever you feel like it, without penalty. To get this type of loan, your property must meet with the Veterans Administration minimum property requirements and the property will have to be

inspected by an inspector to be sure that these requirements are met. If your home has met the FHA requirements, that will be accepted for a GI Loan.

The table on Pg. 33 shows you how much you must pay each month on homes valued from \$6,000 to \$20,000 covered by 100 per cent GI Loans.

COMBINATION VA-FHA LOANS

Under the provisions of the Servicemen's Readjustment Act (the GI Bill), a veteran of World War II may obtain a secondary loan up to 20 per cent (but not in excess of \$4,000) of the approved purchase price or construction cost under a VA guarantee to cover all or part of the difference between an FHA-insured mortgage and the price of the house. These secondary loans are guaranteed in full by the Veterans Administration. This is the only case in which additional financing may be added to an FHA-insured mortgage.

In effect, the FHA-insured mortgage is a first mortgage, covering from

80 to 95 per cent of the value of the home, depending on the value of the home. The GI Loan covers a second mortgage, which cannot exceed 20 per cent of the purchase price. Under the law, therefore, the veteran is entitled to obtain financing up to, but not exceeding, naturally, 100 per cent of the purchase price. In practice, however, down payments, somewhat lower in amount than would be required in either a straight FHA or straight VA loan, are commonly called for.

The table on Pg. 35 covers the payments under FHA-VA loans to veterans in the most inexpensive interest-charge combination possible.

CONSTRUCTION LOANS

Since you are planning to build your own home rather than purchase it, the plans outlined above must be modified somewhat to fit your special case. To build a home rather than purchase it, it is necessary to obtain a "construction" loan from the bank before you commence building in order to meet costs of

labor and material. In your case, it will be mainly material. The Veterans Administration is authorized to guarantee construction loans for veterans. The Federal Housing Administration, however, does not insure construction loans as such on individual homes. However, a conditional FHA commit-

TABLE III

LOAN TERMS ON NEW SINGLE FAMILY, OWNER-OCCUPIED HOMES,
ASSUMING 100% LOANS AVAILABLE UNDER COMBINATION
FHA-INSURED FIRST MORTGAGE AND VA-GUARANTEED
SECOND MORTGAGE

(National Housing Act, Title II Section 203; Servicemen's Readjustment Act, Title III Section 505a)

Appraisal and reasonable value ¹	Maximum loan as percentage of value	Maximum amount of loan ²	Down payment [*]	Maximum maturity (years)	Monthly payment				Total
					Interest and principal	Mortgage insurance premium (1st yr.) ³	Hazard insurance (est) ⁴	Real estate taxes (est) ⁵	
	100% (FHA, 80%; VA, 20%)			{FHA-30 VA-25	\$30.68	\$1.95	\$1.00	\$10.00	\$ 43.63
6,000	"	\$6,000	0	25	35.77	2.10	1.08	10.83	49.78
6,500	"	6,500	0	25	38.53	2.26	1.17	11.67	53.63
7,000	"	7,000	0	25	41.28	2.42	1.25	12.50	57.45
7,500	"	7,500	0	25	44.03	2.58	1.33	13.33	61.27
8,000	"	8,000	0	25	46.79	2.74	1.42	14.17	65.12
8,500	"	8,500	0	25	49.53	2.90	1.50	15.00	68.93
9,000	"	9,000	0	25	52.29	3.06	1.58	15.83	72.76
9,500	"	9,500	0	25	55.04	3.22	1.67	16.67	76.60
10,000	"	10,000	0	25	57.79	3.39	1.75	17.50	80.43
10,500	"	10,500	0	25	60.55	3.55	1.83	18.33	84.26
11,000	"	11,000	0	25	63.29	3.71	1.92	19.17	88.09
11,500	"	11,500	0	25	66.05	3.87	2.00	20.00	91.92
12,000	"	12,000	0	25	68.80	4.03	2.08	20.83	95.74
12,500	"	12,500	0	25	71.55	4.19	2.17	21.67	99.58
13,000	"	13,000	0	25	74.31	4.35	2.25	22.50	103.41
13,500	"	13,500	0	25	77.05	4.51	2.33	23.33	107.22
14,000	"	14,000	0	25	79.81	4.67	2.42	24.17	111.07
14,500	"	14,500	0	25	82.56	4.84	2.50	25.00	114.90
15,000	"	15,000	0	25	85.31	5.00	2.58	25.83	118.72
15,500	"	15,500	0	25	88.07	5.16	2.67	26.67	122.57
16,000	"	16,000	0	25	90.81	5.32	2.75	27.50	126.38
16,500	"	16,500	0	25	93.75	5.48	2.83	28.33	130.21
17,000	"	17,000	0	25	96.32	5.64	2.92	29.17	134.05
17,500	"	17,500	0	25	99.07	5.80	3.00	30.00	137.87
18,000	"	18,000	0	25	101.83	5.96	3.08	30.83	141.70
18,500	"	18,500	0	25	104.57	6.13	3.17	31.67	145.54
19,000	"	19,000	0	25	107.33	6.29	3.25	32.50	149.37
19,500	"	19,500	0	25	110.08	6.45	3.33	33.33	153.19

¹ Assuming FHA appraisal and VA reasonable value are the same.

² Not reflecting VA gratuity payment to veteran's loan account for first year only, amounting to 4% on VA guaranteed second loan. For example, on \$6,000 loan, credit for the year would be \$48 (4% of \$1,200).

³ Applies to FHA-insured first loan. Premium decreases each year since the ½ of 1% premium is based on the declining outstanding balance of loan.

⁴ Assumed annual rate of \$2 per \$1,000 of appraisal value.

⁵ Assumed annual rate of \$20 per \$1,000 of appraisal value.

* Down payment will be required if valuation of the home is less than price for which it sells.

ment on a permanent loan can be secured before you start construction, and will make it easier to secure a construction loan from the bank.

All this simply means that the bank will be more willing to make a construction loan if it knows that the loan will be picked up by an FHA permanent financing loan when the house is completed. It is necessary to secure an FHA commitment before beginning construction so that you can be certain that FHA will insure a loan for the

required amount when the home is completed. By checking your plans before construction, and inspecting the home during construction, the FHA determines that the house measures up to the standards it requires of all homes on which it makes loans.

The disbursements on a VA-guaranteed construction loan are made during the course of the construction of the home. The final execution of the FHA permanent loan, of course, is made only after the home is finished.

THE LONG-RANGE VIEW

In the long run, the most important question in buying a new home is: Are you going to be able to keep it up once you have built it?

Experts in the mortgage field say that you should figure your monthly payments as the amount of rent you can afford to pay, and that your rent should be no more than 20 or 25 per cent of your monthly take-home pay. This figure should cover all the charges for interest, amortization of the mortgage, taxes, insurance, and maintenance. Some experts suggest that you

figure the yearly maintenance costs—which include painting, repairs, and similar expenses—at 1½ per cent of the buying price. In the case of an owner-built home, this figure would be the appraised value. In other words, if the house is worth \$10,000, the annual maintenance costs should be figured at \$150. You will probably not spend that much every year, but it will average out. A house does not have to be repainted every year, for example, but when it is, the cost will probably be over the year's average.

CHECKLIST ON FINANCING

Price
 Estimated Value
 Amount of
 Mortgage
 Interest Rate
 Term of Mortgage.....

Prepayment
 Privilege?
 Down Payment ..
 Closing Charges:
 Title Search and Clearance.....
 Legal Fees

Other Charges	_____	Monthly Payments	_____
TOTAL INITIAL COST =====		on Insurance .	_____
Monthly Payment	_____	Total Monthly Payment...	_____
on Mortgage .	_____	Upkeep and Repairs.....	_____
Monthly Payments	_____	Probable Cost of Fuel.....	_____
on Taxes and	_____	Probable Cost of Utilities..	_____
Assessments .	_____	Taxes	_____
TOTAL MONTHLY			
COST		=====	

Chapter 4

CUTTING COSTS; THE BASIC MATERIAL; NECESSARY TOOLS

THERE are two ways to cut costs in construction work. One is to use inferior-grade materials and the other is to use the better quality stuff and make every piece and penny count.

As one of the reasons you are building your own home is to save money, cutting costs where possible should be given plenty of thought.

Saving Materials

You will be able to save a great deal just by not wasting materials. For example, take a small item like nails. If you keep the nails where they will not become wet and rust and if you take only enough to do the job and do not toss them around, you will find that you will save \$10 or \$20. A very substantial way in which you can save is by conserving lumber. Don't ever cut up a long piece of material if there is a short one somewhere about that can be used. Professional builders usually allow 10 per cent or more for waste, but you can cut down on this considerably and at the same time not take up too much extra time. When you use a piece of lumber for a temporary brace, don't,

when you are finished with it, knock it off with your hammer or hatchet. The chances are that if it is light you will split it and it will have no further use except as firewood. Take the time to pull out the nails and put the lumber away. Then, when you need it, it will be there ready for use.

Receiving Deliveries

It will always pay you to be on hand when deliveries of materials are made. Some of the drivers of trucks are just as apt to dump the whole load off as not, and this is almost sure to damage some of the material. If the driver and his helper are not in the mood to take the materials off by hand, do it yourself. Items such as masonry blocks, steel-casement windows, glazed-window sashes and so on, should be handled with care, since, if they are tossed around too much, they will either break, crack or get sprung out of line.

Items that can be damaged by the weather should be brought in under cover as soon as they are delivered. Even if there is no sign of rain, dampness from dew can harm items such as

hardwood flooring or interior trim. Cement should be taken inside, and sand should be kept covered because if there is a hard rain, a large amount can be washed away.

Supervising Help

Whenever you have any hired help working around the place, try to be on hand, not only to help out when you can, but to give the necessary directions. This does not mean that help, professional or otherwise, is just going

to sit down the minute you leave the site, but it is sometimes difficult to plan an entire day's work for a man, and if he does not have proper instructions, he can do nothing else but loaf around on the job until you show up and tell him what to do next.

Don't make the mistake that one home builder did of hiring a bulldozer to put in a driveway and then going off somewhere and forgetting to tell the driver where the driveway was supposed to be placed.

WHAT MATERIAL TO BUILD WITH

One of the first things that you must decide before you break ground is just what materials you are going to use to build your house. As far as the frame or the shell of the house goes, you have a choice between wood and concrete masonry-blocks. Let us take just a minute here to see the advantages and disadvantages of each type.

Wood

As far as a wood-frame house is concerned, you have a medium—wood—that most of us have had some experience in working with. Almost anyone who plans to build a house by himself probably knows how to saw and nail wood and perhaps has even done a little construction work of a heavy nature, such as building a garage, fences, or something else. Almost everyone knows that wood is an easy medium to work in. If a board is cut too long, it is a simple matter to plane or saw it down

so that it fits just right. Most of us can guess what size nail is about right and which size is too large and will split the board. These are all important points to consider about wood. Wood is something that most of us have the feel of.

Of course, wood has certain disadvantages. First of all, it can be damaged by the weather, insects or decay. It will shrink some unless it is very well seasoned, and this means that cracks may appear in the plaster or wallboard interior walls, windows and doors may stick, and there will be a lot of small maintenance jobs that must be done, even after the house has just been completed. If the exterior siding is of wood, it will have to be repainted at least every five years, perhaps more often. Special care will have to be taken to check and make sure that decay has not set in at various points. A house built entirely of wood is very inflammable, and once it gets on fire it may be totally

ruined before the fire is put out. This may be a very important point to keep in mind if you are building far out in the country where the fire department is some distance away.

Masonry-Blocks

Concrete masonry-blocks, on the other hand, are very resistant to fire. They will not be damaged by moisture, insects or decay. If you do not care about appearance, they do not need any sort of paint or finish to protect them from the weather. Many persons don't care for masonry houses just on general principals, but most of them cannot tell the difference between a house made of masonry blocks and one of wood until they are near enough to see the texture of the siding. You can have just as attractive a home made out of masonry as out of wood—if the job is done correctly.

Probably the greatest point against masonry blocks is that most of us are just not used to working with masonry. There are different skills required for this sort of work and few persons care to go into a new element. Of course, there will be a few who have watched a group of skilled masons erect the walls of a concrete house in almost no time at all and, as they work with ease, the ill-informed will assume that building with these blocks is as simple as these skilled craftsmen make it appear. Don't let this fool you. Lifting a block and putting it down in a bed of mortar is not difficult, but making sure that all your measurements are correct, that

the wall is level and true, is something else again. There is no easy way to build a house in a hurry. Any type of construction you choose is going to require time and a little skill. So keep this in mind when you begin to think about materials. As far as the actual cost is concerned, there isn't much choice between wood or masonry.

Exterior Siding

If you decide to build a wood-frame house, you can have a wide selection in the type of materials used for the outside walls. While wood siding requires such maintenance as painting, stucco or asbestos shingles do not have to be painted until they become so soiled from soot that they can no longer be cleaned. The same holds true of brick veneer, but this is both a very difficult and a very expensive type of construction.

Naturally, when we say that stucco, for example, does not require much maintenance, it is assumed that the stucco is properly applied. If it is not, you will be forever patching cracks or spots where the stucco has fallen off the lath, and you will probably begin to long for a house with wood siding that only requires a little paint from time to time.

The Basement

The next point that you have to think about is whether you are going to have a house with a full basement, no basement but crawl space under the first floor, or a concrete slab poured on

the ground with or without radiant heating in it.

The main purpose of a basement in many homes is to provide a place for the heating system. This was because old-fashioned heating plants had to be below the lowest radiator or register. This is no longer true. Another reason for basements was storage room. This may still hold true in some cases, but most of the basements you run across are so damp and dirty that they do not make a suitable place to store anything except fuel and a few pieces of gardening equipment, etc., which will not be harmed by a little moisture and dampness. A basement can add 15 per cent to the cost of a house, and if this investment is only going to be used for a heating system and a damp, dirty storage space, it not worth your money. If you want a basement, then let it be used for some useful purpose, such as a game room or den, and build it with care so that it will be dry and properly ventilated and can be used for livable rooms.

Omitting the Basement

If you decide to get along without a basement, you can build your house either on a continuous wall foundation with a wood floor or with a concrete slab floor. Of course, in either case, you will not have quite as much room, as in the house with the basement because the heating system and hot-water heater and other utilities will have to be placed in the utility room. On the other hand, you save a good deal of time and money, which is pretty important too. You will not have any place in which to build a recreation or game room, and this may cramp your style later on, unless you want to build a detached building for this purpose. Personally, if there is going to have to be a rumpus room somewhere, we would just as soon have it as far away from the main house as possible.

A slab floor with radiant heating panels in it has one advantage over a wood floor off the ground, which is that you save space that would be taken up by radiators and registers.

TOOLS REQUIRED FOR THE JOB

In theory, a man can build himself a house with no tools other than a saw, a hammer and a framing square. You probably can build a house with only this minimum amount of equipment, but it probably won't be too good a house when it is finished. To do a good job, you will need quite a sizable collection of tools and they should be good tools. The right tool for the job not

only does a better job but makes the work go faster. For example, you can rip a board lengthwise with a crosscut saw, but the cutting will take time and you won't get the same nice, even cut as you will by using a rip saw.

If you are building a house yourself, it is well worth the money to invest in a set of carpentry tools right at the start. If you do this, you will have them

right on hand when you need them and not have to put off doing an essential job until you get down to a hardware store or over to a friend to buy or borrow the equipment you need. And anyway, there will always be some work to be done around the house after it has been completed, so investing in tools at this time is really a long-term affair. On the other hand, it is hardly worthwhile to invest in a lot of tools for specialized work. Plumbing tools, for example, will probably be used only during the installation of the plumbing system. After that, with the possible exception of a pipe wrench, they will be of no further use, so don't buy tools of this sort unless you have to. The same holds true of the specialized tools you may need for the electrical and heating systems. If you can possibly get by without buying them, do so.

The tools you will need for the carpentry end of the job are, a crosscut and a rip saw, a hammer, a shingle hatchet, a plane, a screwdriver, a brace

and assorted bits, a level, a framing square, a rule, a plumb line and bob, a nail set, a chisel, and two solid saw-horses (these you can make yourself easily enough). Of course, there are many more or less specialized tools that could be added to this list, but this is about the minimum requirement for house building.

For masonry work you will need a small and large trowel, which you will find use for later on in many different jobs.

If you are using BX cable for the electrical system, you must use a hacksaw to cut the cable—and a hacksaw makes a useful addition to any tool kit.

The other tools required for some jobs can be rented or borrowed. Use the money that you would otherwise invest in something like caulking irons to buy the better and more expensive grades of tools, because you will find that good quality equipment is much superior to the cheaper grades, which soon become worthless.

THE FRAMING SQUARE AND ITS USE

It is virtually impossible to do much in the way of house construction without a working knowledge of the framing square. This tool has many important uses besides that of checking to find out if the end of a board is square or if the joint between two boards forms a right angle. The steel framing square contains a quantity of information on both its sides that enables you to figure out, for instance, how rafters should be

cut for almost every possible condition or how a flight of stairs can be laid out.

The rafters for the basic house described in this book can be made according to the pattern given in illustration, but some of those for the other homes covered in this book will have to be figured out by the home-builder himself. Therefore, it is important that you know how to use the framing square.

The framing square is made of steel with a tongue that is $1\frac{1}{2}$ " wide and usually 16" long. The blade is 2" wide and 24" long. Stamped on the front and back face of the square are all the necessary figures required for laying out various types of rafters.

Before you can go ahead with marking and cutting rafters, there are a few important terms that you should be familiar with. First of all there is the *span*. The span is the distance between the outside surfaces of opposing wall plates, and therefore, it is the shortest distance between two opposite rafter seats. The *rise* is the vertical distance from the wall plate to the ridge of the roof. The *run* is the shortest horizontal distance that the rafter must cover, and therefore, it is one-half the span, if the building has equal pitch on both sides of the roof.

The *pitch* of the roof is the amount of slope and it is equal to the total rise (the vertical distance of the ridge from the wall plate) divided by the span. For example, if the house has a span of 24 feet and a total rise of 8 feet, the pitch can be found by dividing 24 into 8, which gives $\frac{1}{3}$. Therefore, this particular house has a roof with a $\frac{1}{3}$ pitch. It is sometimes necessary to find the rise of a roof when only the span and pitch are known. This is simple enough to do. If the span is 24 feet and the roof has a pitch of $\frac{1}{3}$, divide the pitch into the span and you get the rise. In this case it would be 8 feet, of course.

The *unit of run* is the unit of measurement used with a framing square

for measuring the rafters. It is always taken from a level plane and is always 12 inches. The *unit of span* is always twice the unit of run and, therefore, is always 24 inches.

The *rise in inches* is the number of inches that the roof actually rises for every foot of run. If the rise in inches is not given, you can find it by multiplying the pitch by the unit of span. For example, if the pitch is $\frac{1}{3}$ and the unit of span is 24 inches, the total rise in inches per foot of run is 8.

Now, if you look at the tongue of the framing square you will find the number 12. This is the unit of run and is used for roof-framing purposes. Run a diagonal line from this point to "4 inches" on the blade of the square. This shows a 4" rise per 12" run, which results in a roof with a $\frac{1}{3}$ pitch. If the line were to run from "12 inches" on the tongue to "8 inches" on the blade, the pitch would be $\frac{1}{3}$. If the line runs from "12 inches" to "12 inches," you get a $\frac{1}{2}$ pitch, and if it runs from "12 inches" on the tongue to "24 inches" on the blade, the pitch is 1.

The *cut* of the roof is the rise in inches and the unit of run, which is the constant 12 inches.

Now, let us assume that you want to find the length of a main or common rafter, using a steel square with a rafter table. You will find stamped on the blade of the square "Length of Main Rafters Per Foot Run," and the table that follows gives the unit lengths of main rafters from a 2" to an 18" rise. As the roof we are discussing has a $\frac{1}{3}$

pitch and an 8" rise, you should look for the figure under 8. This is 14.42, which is the length of the rafter in inches and hundredths of inches per foot of run. To find the actual length of the rafter, multiply 14.42 (the foot-run) by the number of feet in the run. As the span of the roof is 24, the run is 12, and this times 14.42 gives 173.04 inches. Dividing by 12, the total length of the rafter turns out to be 14.42 feet. This is the total length of the rafter from the middle of the ridge board to the outside edge of the wall plate. If there is going to be a ridge board, one-half the thickness of this ridge board should be deducted from the total rafter length; if the rafter is to extend beyond the wall plate, the amount of the extension must be added to its length.

Once you have the right length of rafter, the top and bottom cuts are made. The top cut, where the rafter joins the ridge board, is called *the plumb cut*. It can be made by placing the rafter on its side and then placing the square over it so that the rise per foot—8 inches in this case—is at the top of the rafter while the number 12 on the tongue is on the same edge of the rafter but below the 8" mark. Now a line can be drawn along the edge of the square to give the angle of the cut. The same general procedure is used

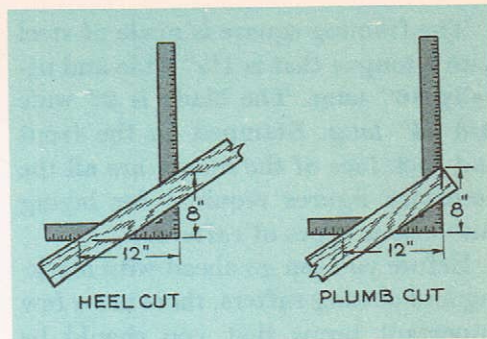


Fig. 1. How the framing square can be used to mark out the rafters for the plumb and heel cut.

to determine the heel cut. See Fig. 1 above.

There are a good many types of rafter that you may run across, and naturally, all are not so simple to work out as the common or main rafter, which extends from the ridge of the roof to the wall plate. However, if you look again at the framing square, you will note that under the information given for the common rafter there is similar information for a hip or valley rafter, a jack rafter at 16 inches on center and at 24 inches on center, and also the necessary data for making side cuts on all these.

A hip rafter is one that runs diagonally from the corner of a building to the roof. A valley rafter is one used where two roofs intersect, as when the garage roof joins the breezeway.

Chapter 5

WORKING WITH CONCRETE, MASONRY BLOCKS AND BRICKS

It is virtually impossible today to do much building without sooner or later having to use concrete in one place or another. Concrete—good concrete—is a vital building material; likewise the knowledge how to mix it properly.

MIXING CONCRETE

Concrete is made of Portland cement to which are added aggregates such as sand and gravel. The cement itself comes in sacks weighing 94 pounds and, unless it has been exposed to moisture, it will not give you any trouble. If the cement in the bag is lumpy and you cannot break these lumps with your fingers, it should not be used. Always store cement in a dry place, even if the bags are sealed tight.

Aggregates

A lot of concrete is ruined by using poor quality aggregates. Sand should be clean and free from dirt or any other organic matter. If you have a sand pit on your lot or one near by, you might save a few dollars by taking the sand from there rather than buying it from a lumber yard, but unless you take the time to wash and screen the sand before use, it will make inferior cement. Con-

sidering the cost of sand, it is hardly worthwhile to go to all this trouble. Sand is referred to as the "fine aggregate," gravel or crushed stone is the "coarse aggregate." It is just as important that the gravel or crushed rock is free of dirt and organic matter as that the sand is.

You can test the quality of the aggregates easily enough with a milk bottle or quart fruit-jar. Put in about 2" of the dry aggregate and then fill the bottle with water about three-quarters full. Shake it for about a minute and then allow it to stand quiet for an hour. Any dirt or silt will form a layer over the top of the aggregate in the bottle.

If this layer is over $\frac{1}{8}$ " thick, the sand is too dirty to use and must be washed.

To test the sand for vegetable matter, a 12 oz. prescription bottle is used. This is filled to the $4\frac{1}{2}$ -oz. mark with

sand. A 3% solution of caustic soda is then added. This can be made by dissolving 1 oz. of household lye in a quart of distilled water. Be careful when you handle this solution because it is very corrosive to clothes and skin. When this solution has been added to the sand, shake the bottle thoroughly and then let it sit for twenty-four hours. If, at the end of that time, the liquid inside the bottle is clear, the sand is clean and good to use. If the liquid is straw colored, there is some vegetable matter but it is not enough to produce an inferior grade of concrete. If the liquid is darker than this, the vegetable content is too high and the sand should be washed before it is used.

Sometimes sand and gravel are used just as they come from the gravel bank with the sand mixed in with the gravel. This is not satisfactory because there is usually too much sand in with the gravel to produce the desired grade of concrete.

Water

The water you use for mixing the concrete should be pure enough to drink. This means that it should be pure enough to drink when it is added to the cement and sand and not just when it comes from the tap. There is no point to worrying about the quality of the water and then carrying it to the mixer in an old bucket that is full of dirt, oil and what not. The water should be free from oil, acid and alkali. Beach sand and salt water are not suitable for concrete under most circumstances.

The strength as well as the watertightness of concrete depends upon the amount of water used for mixing each bag of cement. In recent years, it has been found that the less water used the better. Of course, you have to use a sufficient amount of water to get a workable mixture, but if more water than is required is used, the finished concrete will be inferior.

It is seldom possible to get sand that is absolutely dry. In most cases, it will be anywhere from slightly damp to very wet. The amount of moisture in the sand must be taken into consideration because there will usually be enough to have a marked effect on the final mix. Sand is usually classed as damp, wet or very wet. You can make a very simple test yourself to see what category the sand you have on hand falls into. Take a handful of sand and press it together. If the sand falls apart when you open your hand, it is damp. If it holds its shape, it is wet, and if it actually wets your hand, it is very wet. It is reasonable, then, to use less water when working with wet sand than when working with sand that is only damp.

Mixing

Table I, on Pg. 47, shows the various types of mixture, along with the amount of water required for each bag of cement, depending on the condition of the sand.

If you are making up a small amount of concrete, that is, when you are using less than one sack of cement, Table II, on Pg. 48, can be used.

The first step in mixing up a large amount of concrete is to make a trial mix using the proportions given in Table I. When this mixture has been completed, it should be workable but not too soupy. If it is too wet or too

TABLE I
RECOMMENDED MIXTURES FOR VARIOUS KINDS OF CONSTRUCTION

Quantities of cement, fine and coarse aggregate, required for 1 cu. yd. of compact mortar or concrete

Kind of Work	U. S. gallons of water to add to each 1-sack batch			Trial mixture for first batch			Maximum aggregate size in.
	<i>Damp sand and pebbles</i>	<i>Wet sand and pebbles</i>	<i>Very wet sand and pebbles</i>	<i>Cement sacks</i>	<i>Sand cu. ft.</i>	<i>Pebbles cu. ft.</i>	
Foundation walls which need not be watertight, mass concrete for footings, retaining walls, garden walls, etc.....	6¼	Average sand 5½	4¾	1	2¾	4	1½
Watertight basement walls, walls above ground, lawn rollers, hotbeds, cold frames, etc. Well curbs and platforms, cisterns, septic tanks, watertight floors, sidewalks, steppingstone and flagstone walks, driveways, play courts, outdoor fireplace base and walls, refuse burners, ash receptacles, porch floors, basement floors, garden and lawn pools, steps, corner posts, gate posts, piers, columns, etc.....	5½	Average sand 5	4¼	1	2¼	3	1½
Fence posts, grape-arbor posts, mailbox posts, etc., flower boxes and pots, benches, bird baths, sun dials, pedestals and other garden furniture, work of very thin sections.....	4½	Average sand 4	3¾	1	1¾	2	¾