The Pennsylvania State University

BETTER BUILDING REPORT NO. 3

BETTER PURCHASING SAVES MONEY

BY
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C. R. MOSS

BUILDING RESEARCH
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No. 1 SLAB-ON-GROUND CONSTRUCTION FOR HOMES, by F. A. Joy and G. J. Stout. Engineering Research Bulletin B-76, February 1959, 23 pages, 9 figures. Price $1.00.

No. 2 PROBLEMS AND PROGRESS IN HOME BUILDING, papers presented at the Small Builders School at The Pennsylvania State University, March 5-6, 1959. Engineering Research Bulletin B-77, June 1959, 65 pages, 9 figures. Price $1.00.

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FOREWORD

BUILDING RESEARCH is an activity supported by the appropriation of the Commonwealth of Pennsylvania to The Pennsylvania State University. It is centered in the College of Engineering and Architecture but draws upon other colleges of the University in areas of their specialized interests. Its mission is to help the builder of homes to produce a good product efficiently. Better Building Reports are the fruit of this research.

Building a house that someone will buy at a price that leaves a profit for the builder is not a simple job. It is complicated by regulations, financing, availability and cost of materials and labor, local prosperity, and even the weather. A broad understanding of these factors and how to cope with them is the basis for good planning and smooth operations that are vital to success.

This report deals with a phase of the operation that is likely to be neglected. The small builder in many cases was a carpenter only yesterday, with no experience in business details and little inclination to devote time to "paper work." But his new enterprise requires new skills, which will pay him well. The authors show how good purchasing can increase handsomely the net profit on a typical house.

F. A. JOY
Project Supervisor

University Park, Pennsylvania
December 1959

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SUMMARY

Small builders must purchase supplies economically if they are to survive in competition. Most buying problems would be simplified by better and advance planning. Good financing and prompt payment of invoices build an enviable reputation and help secure price concessions and discounts. Control of inventory is important; in lieu of a complicated record system, a well-organized storage room may be adequate for control of limited stock.

BUYING FOR SMALL-SCALE OPERATIONS

Practically all of the largest and finest homes are built by contractors who follow conventional assembly methods. For the most part, these builders construct fewer than 20 houses a year each, and average 10 to 12. Supplies are bought in small or large quanities, depending on circumstances, and usually for only one house at a time. There are scores of individual purchases for each house, ranging in amount from a dollar or less up to four-figure sums.

Good buying starts with recognizing and taking advantage of value. The buyer, who is often the builder himself, must know what, when, and where to buy, as well as how much to pay. He must be able to judge what he is getting for his money. Moreover, he should know what customers demand and are willing to pay, and what the trade is likely to want next month or next year. Well-informed purchasing is so important that the builder, if he cannot give a proper share of his time to it, should assign this function to a capable person.

The buyer should be consulted during planning stages. Conditions vary from place to place, and advice is needed about costs, availability, and qualities of local supplies and new materials. Although decisions about materials specifications are generally the responsibility of the architect, the buyer may be better informed about what can be obtained promptly and economically.

SAVINGS ARE PROFITS

This report is devoted to increasing the profits of the small builder. He generally cannot avail himself of the lower prices that come with big volume buying. There are, however, other ways to make savings. It is the purpose here to discuss methods and ideas that will be helpful.

Savings accrue from (1) better planning of operations, (2) better choice of suppliers, (3) better financing to secure the advantages of cash payment, and (4) control of inventory. In brief, the builder or his buyer needs to know the details of how to buy to best advantage.

IMPORTANCE OF PLANNING

When orders are placed at the last moment, the buyer must take whatever is available and pay whatever is asked. Good purchasing requires foresight and planning. If plans are always made only 24 hours in advance, there is no chance to improve purchasing practices. It is impossible, for example, to buy on bids unless two to four weeks' time is allowed. In fact, better planning and better purchasing are inseparable.

For anyone, the most difficult house to build is the first one. Once the construction pattern has been learned, an experienced builder can determine some time in advance what supplies will be needed and when. Novices and poor planners are at a serious disadvantage. It has been estimated that they may spend as much on materials alone as a big builder, with his experience and purchasing power, spends for materials plus labor. The value of experience is recognized throughout the trade generally. The builder who is a good planner is likely to be a good buyer and will be among those who succeed. Others have a serious handicap, no matter how good they are as artisans.

HOW MUCH TO BUY

The buyer makes many vital decisions. High on the list, and a real test of his judgment, is deciding the quantity to order at one time. He can place a big order when he has several houses in construction or under contract. But extra materials must be paid for and stored, and use must be found for them later. Each purchase must therefore be considered carefully. Staple items like nails, screws, and paint take little space and are always usable. They can safely be bought in excess of present requirements, but excess purchases of other kinds of materials may be unwise. Before purchasing a large quantity of anything, the possible saving must be weighed against the financial investment, because the saving must pay the interest on the investment.

For a builder near a town with several supply dealers, it is rarely advisable to buy and store bulky materials like dimension lumber, plywood, insulation, roofing, and flooring. Whatever he needs can be obtained promptly. Doors, windows, and other millwork are expensive stock, and no matter how many the builder may have on hand, there is a good chance he will not have the right ones for a particular job.

Speculative builders can purchase supplies in larger quantites, knowing that any extras will be used later. Occasionally a custom contractor will build a house on speculation to turn a profit from "left-overs" he has accumulated in storage. These materials might otherwise have to be held a very long time before use could be found for them. If a custom builder has the necessary capital, a limited amount of speculative building may let him make larger purchases at better discounts, and may also help to keep workmen and construction equipment busy during slack times.

DISTRIBUTION CHANNELS AND PRICES

Supplies for home builders usually pass from factories to builders through the hands of middlemen. Each handler serves a purpose in the distribution system, but each must have a profit. Prices from dealers are therefore higher than factory prices. Distribution from factories is in large units that small builders could not use economically. Large dealers or distributors take factory units, break them down into smaller quantities, and "job" them out to smaller dealers and stores, or occasionally to builders.

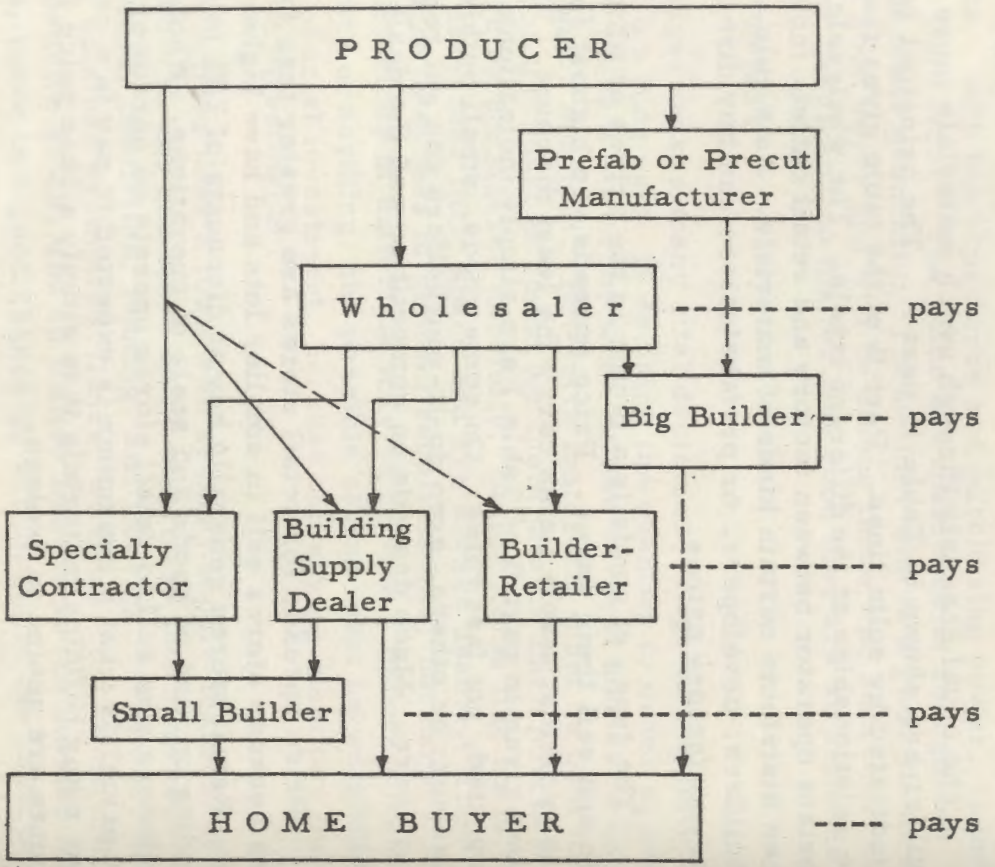
The usual channels through which materials move from producer to builder are shown in Table 1, part A. The principal routes of travel are indicated by solid lines. Part B of the table gives the approximate price relationships at the different levels. The wholesaler is the most important operator between factory and retail outlet, though other middlemen distribute certain kinds of materials. As a rule, only the largest builders, developers, or prefabricators can buy direct from the factory at factory prices.

The type of goods is a factor in the prices at which middlemen obtain and sell their wares. Price spreads are highest for finish and specialty items; staple items carry the least discount. The generalizations given in part B of Table 1 are simply indications of what may be expected, not fast rules. On some goods, small builders are given no discount; on others, even do-it-yourselfers can get reductions of 20% or more. Much depends on competition and the dealer's profit margin.

Price spreads for retail stores are greater than for wholesalers because stores sell in smaller lots and have higher handling costs. Retail stores generally buy at discounts of 20% to 40%, depending on kind of goods and scale of operations. Wholesalers or distributors who sell to retail stores operate on narrower margins. "List price" is what a consumer is expected to pay in a retail store, but for many building materials it is simply a base price from which discounts are quoted to dealers.

Table 1. Channels of Distribution for Building Supplies

Part A. Usual Channels



Part B. Approximate Price at Each Level

	Staple Items	Utilities	Specialties
	Lumber	Heating	Hardware
	Brick	Plumbing	Appliances
	Insulation	Wiring	Flooring
	Roofing		Finish
Wholesaler pays	$0.74	$0.57	$0.50
Big Builder pays	.77	.60	.54
Builder-Retailer pays	.80	.65	.60
Small Builder pays	.90	.85	.80
HOME BUYER pays	1.00	1.00	1.00

DISCOUNTS TO BUILDERS

Since builders are middlemen in that they sell to consumers, they are entitled to discounts. It is up to the buyer to secure the best discount he can without incurring expenses or difficulties that cancel savings.

Most retail stores give little or no discount, perhaps only 2% for cash, but some regularly give discounts of 10% to 30% to anyone who qualifies as a builder or contractor. Discounts on staple items are lower than on other supplies, as shown in part B of Table 1.

It would appear that all the buyer has to do is locate suppliers -- jobbers, wholesalers, or retailers -- who will give the largest discounts. He must consider, however, such factors as reliability of suppliers, whether they can deliver promptly, whether materials are of acceptable quality, and whether manufacturers or anyone else will stand back of the goods in event of failure.

A major concern of modern builders is the quality of appliances and prefabricated built-ins. Almost any builder can buy such equipment at a saving through "discount houses," but these suppliers do not provide service on guarantees, and local dealers often refuse to service equipment they have not sold. If appliances purchased elsewhere show defects within a reasonable time, the builder is responsible for repairs or replacements that are sure to be annoying and may be costly.

BUYING WITHOUT BIDS

Much of the buying done by small builders does not involve formal bidding. Informal bidding, which is in fact simply "pricing," is done in casual fashion. A builder may telephone two or three suppliers or distributors and ask prices, then order accordingly. This practice, though by far the most common, lacks inducements that secure the best price and provides little chance to compare qualities or types of materials.

One who purchases supplies in this manner should not delude himself into thinking he is a good buyer. It is the method used by builders who cannot or do not anticipate their needs. Their "bidding" is done late one afternoon, and they expect delivery the next morning. Their main concern is availability, not price.

BUYING ON BIDS

Most supply dealers will reduce prices, if necessary, to secure orders. Builders may take advantage of this situation by getting bids or competitive price quotations from two or more suppliers.

The method is simple. The builder submits formal requests to several dealers, asking for firm quotations. Suppliers understand that these requests for quotations have gone to other dealers. They also know that unless their own quotations will be among the low figures, there is no point in quoting.

The request for quotation should always be in writing to ensure full understanding of what is wanted. It may be typewritten on ordinary business stationery, but a printed form (Fig. 1) is convenient. Such a form, with the builder's name and address inserted at "From," can be set up by any local printer. Standard forms are available from several sources.*

When operations justify it, requests for bids on the larger quantity of material required for two or three houses will sharpen the competition and secure a better discount. Delivery at more than one location and at different times can be specified, but delivery "as requested" within a stated period is also good practice. In the latter case, the seller provides a valuable storage service at minimum cost. A small builder who plans ahead and enjoys good credit will find it wise to secure contracts of this type for a three months' supply of many materials unless the market is falling.

The request for quotation should specify quantities desired, delivery dates, quantities to be delivered at one time, and terms of payment for goods and transportation. Since a formal bid is really a type of contract, bid requests must include detailed specifications. There are so many different grades or qualities of lumber, plywood, paint, and the like, that without explicitly defined grades it is impossible to compare prices. The best grades of plywood cost five times as much as the cheapest grades, and high-grade millwork two or three times as much as the poorest.

Requests for quotations should be submitted a month before delivery is required. For large orders or inquiries to firms at great distance even more time should be allowed. Two copies of the request are sent to each dealer. The dealer (vendor) fills in his prices and returns one copy as his quotation. This is a simple arrangement for him and ensures that he is bidding on the exact material requested. If he wishes to bid on a substitute material, he may write his exception in the space at the bottom of the bid form or on an attached sheet of his own stationery. The buyer must satisfy himself that the bidder's substitution would adequately meet is requirement.

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*Information on sources of standard forms may be obtained from Building Research, College of Engineering and Architecture, The Pennsylvania State University.

QUOTATION REQUEST

Inquiry No. _____

Date _____

From •
•
•

To ⌜ ⌝
⌞ ⌟

VENDOR-Fill in ALL Spaces Below

Shipping Date _____

F. O. B. _____

Terms of Payment _____

Company _____

Signed _____

Date _____

THIS IS AN INQUIRY — NOT AN ORDER

Please quote us your best prices on items listed below. If you cannot furnish these items as per specifications, give complete description of what you propose to furnish. This inquiry is in duplicate. Fill in the original and return to us. Keep duplicate yourself.

Delivery of order must be not later than _____
Your quotation to be considered must be in our hands not later than _____

Item No.	Quantity	DESCRIPTION OF MATERIAL	Unit Price	Extension

By _____
Purchasing Agent

Fig. 1. Quotation request form.

PURCHASE ORDER

From

_____

_____

_____

PURCHASE ORDER No.
Put this number on all shipments and papers relating to this order.

Date _____

Our Job or Plot No. _____

Deliver at _____

_____

Ship Via: _____

Required Delivery Date: _____

Deliver the following items in accordance with prices and terms quoted on our Inquiry No. _____ by your Mr. _____, on _____
(date)

Quantity	Description	Unit Price	Extension

Notes:

Fig. 2. Purchase order form.

DETAILS OF ORDERING

After quotations have been received, ordering involves only accepting a vendor's bid. The actual order may be placed by telephone or letter, "in accordance with terms and prices on your quotation of (date)," unless terms or conditions were changed with the vendor's written approval.

A printed purchase order form (Fig. 2), when properly completed, saves time and ensures understanding. Standard forms of this kind also are available. If it is an acceptance of a quotation, the inquiry number and date are shown. When materials are to be delivered in installments, the purchase order is written for the full amount, with delivery "as requested." A purchase order presented as a letter should include all the essential elements of the form shown in Fig. 2.

A bid sometimes includes several items with separate quotations. If the order does not include all the items on the list, acceptance by the bidder is necessary. Dividing the order among two or more bidders is good purchasing only when it produces a significant saving.

Usually the buyer chooses one of the two or three lowest bidders, but his decision may involve many factors other than just the lowest price. Buyers generally prefer not to patronize vendors whose dealings appear irregular or who use unscrupulous methods to ascertain the price someone else has quoted.

COMPLETING THE TRANSACTION

A deadline date for delivery is usually specified. Delays are costly, and buyers must keep check to be certain that operations will not be held up for lack of supplies. Checking may be done by requesting confirmation, securing the bill of lading of the carrier, or obtaining other assurance that shipment has gone or will go forward as scheduled.

Checking is more necessary in some cases than in others. If previous dealings with a supplier have indicated that orders are cared for promptly, checking may be superfluous. But if orders are placed with new suppliers or with firms whose reputation for promptness leaves something to be desired, it may be essential to check very carefully by wire or other means to make certain that shipments will be made on time.

Carefully drawn-up details and specifications on bids or orders are useless unless grade, quality, quantity, and sizes of materials received are checked against those specifications. Whenever possible, checking should be completed before the invoice is approved for pay-

ment. Routine checking of sizes and quantities should be done during unloading, so that shortages or damage may be noted and reported at once. Prompt checking is essential if invoices are to be processed promptly in order to secure cash discounts. If shortages are not discovered until later, they are always open to question. Concealed damage is a responsibility of the carrier and may be reported several days or weeks later.

Checking other details of the specifications requires more time and the services of qualified personnel. The grades of such materials as lumber and plywood can be checked competently only by an expert, but marked inferiority can be spotted by the experienced builder. In practice, the quality or composition of paint or other processed materials can be checked only by comparing the label with the specifications. A small builder can do little more than depend upon the supplier or manufacturer's reputation or guarantee that the material meets the specifications.

DIRECT DOLLAR SAVINGS

Some estimates of direct dollar savings on the purchase of materials for an average house are given in Table 2. These estimates emphasize the importance of good purchasing practices.

Table 2. Estimated Materials Costs for Four Classes of Builders, for a $15,000 House*

(Based on price structure shown in Table 1)

Class of Builder	Staples	Utilities	Specialties	Total	Saving
1. Do-it-yourself builder					
Retail prices, no discounts	$2000	$2500	$3000	$7500	
2. Small builder					
Discounts of Table 1	10%	15%	20%		
Poor planning, day-to-day purchasing	$1800	$2125	$2400	$6325	$1175
3. Small builder					
Discounts available	15%	25%	33%		
Good purchasing and 3-job bids	$1700	$1875	$2010	$5585	$1915
4. Large builder					
Discounts of Table 1	23%	40%	46%		
Volume buying	$1540	$1500	$1620	$4660	$2840

* Land cost not included.

The character, quality, and design of a given house, as well as prices of supplies and labor in the locality, influence what percentage of the total cost goes for materials. The ratio between materials and labor costs varies considerably, but a 50/50 relationship is normal. The figures in Table 2 are for a $15,000 house with materials costing $7500. The breakdown into costs for three classes of materials (staples, utilities, specialties) is typical. Discounts indicated in Table 1 for three classes of builders were used in making these estimates of costs and savings.

Because of his better purchasing practices, a small builder of Class 3 (not shown in Table 1) should save $740 more than the Class 2 builder, the man who does not plan his operations or take advantage of all economies. Since small builders generally figure their net profits on completed houses at 5% to 10%, the extra savings made by the Class 3 builder may actually double his profit.

CONSTRUCTION FINANCING

Problems of financing during building are outside the scope of this report. Supplies that are ordered must be paid for, however, and prompt payment not only saves money but also helps to establish credit, making future purchasing simpler and easier. A good credit rating is indispensable to a builder who does not have ready cash.

Getting money to meet payrolls and to pay invoices during construction is a difficult problem for the small contractor. He rarely has assets that allow him to operate entirely on a cash basis. Someone must carry all or part of his financial burden or assume the risk for him until the house is completed and final payment is received from the owner.

The most costly way of financing purchases is to depend on the supply dealer to sell "on account." This credit arrangement should be avoided because it rules out discounts for cash and lower prices obtainable through competitive bids.

A small builder with a good credit rating can borrow money from a bank on a personal note, with collateral deposited as security. Some contractors have other real estate they can mortgage. Local lending agencies will sometimes make temporary loans as liens against the property. The home owner may be willing to put up cash in advance or make periodic payments during construction in order to share the savings on cash purchases.

By means such as these or any other reasonable expedient, the builder should secure the advantages of cash operations for both himself and his client.

STORAGE AND INVENTORY

Even with the most careful and judicious estimating and purchasing, some materials will be left over from every building job. The practice of having a few pounds of nails here, an assortment of screws and bolts there, and other materials sitting around in a array of paper bags, where the only way to find what is wanted is to hunt for it, is expensive and inefficient.

Unless remainders and materials purchased in advance are stored in such a way that the builder knows what is available and can find what he wants when he needs it, accumulated supplies might better be thrown away. Delays may occasionally be avoided by having odds and ends on hand, but paying skilled labor to sort out items in jumbled storage or to adapt something to a different purpose is usually more costly than buying new materials.

To know what he needs, the buyer must know what he has. Large firms spend a great deal of time and money maintaining elaborate stock control systems because they have found that it pays. Such systems are not necessary for small builders, but no system at all is a poor alternative. A simple paper inventory, recording materials received and placed in stock and items taken out and used, prevents delays caused by shortages and is a reliable buying guide.

A well-organized stockroom with properly designed and plainly labeled shelves, drawers, and bins goes a long way toward eliminating oversights and time-wasting confusion. In fact, a small builder is likely to find that an orderly and adequately controlled storage room will keep him as well informed as a paper inventory. The buyer can locate and estimate his stores almost at a glance -- which, after all, is the purpose of any inventory record.

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