

should be equally as just and fair if used in connection with the "Quantity System" as without.

The only way in which the "Quantity System" could affect the Nelson Form would be to reduce the bidder's compensation, because some of his work and service would be absorbed by the "Surveyor," and, of course, if the quantities are guaranteed by the surveyor, it would more materially reduce the bidder's compensation, if not eliminate it.

Many of the best, most successful and responsible contractors are opposed to "Quantity Systems" and "Unit Systems" for the reason that their universal and complete use would place the sale of building material in the hands of manufacturers and jobbers, and take it out of the contractor's hands altogether; and, therefore, the contractor under such

right, and that altogether the time consumed between getting the commission for the architectural work and letting contracts would be two or three times as much time as the architect can get from his client.

And again it is contended that "Quantity Estimating" is essentially a new profession, and that it will be necessary to train men especially for that work; that while it may be possible to have the work done in the next few years in metropolitan cities, it will be many years before it can be accomplished in more sparsely populated centres.

The writer feels that from an ideal standpoint, "Quantity Survey" is something to be looked forward to with earnest eagerness, and is progressive enough to feel that there is great hope.

However, it will take time to bring it into practice, and when we have educated the public to appreciate that in the majority of times they get just what they pay for, and when we have converted the impulsive, impetuous, careless, "plan-nothing-ahead" present-day American builder into a safe, conservative, "plan-everything-ahead" builder, then we will have the more efficient, safe and sane method—"quantity system," and the quantity estimator will be here. Then, perhaps, the present-day American contracting gambler's successor will be the conservative quantity engineer. And that is all the subject really amounts to. Reduce the gamble and do more engineering. For "quantity estimating" is a professional engineering service.

In the meantime, during this generation, why not do everything we can to protect ourselves and the deserving present-day contractor from the unscrupulous ones by adopting a just method of competing which will not interfere with a higher and better class of engineering, such as the "quantity system" will give.

#### The Contractor Who Bids for Nothing

I am also frequently asked the question, "How are you going to prevent contractors from evading the practice if it is established?" By educating the contractor to better business methods, and by educating the architects and owners for their own good to refuse to consider contractors whose business methods are not correct. Those who can't be educated can do no good anyway. How could you prevent a man from giving his clothes away if he were foolish enough to do it? But when consumers and their representatives learn that they are really paying less for competition and getting a better class of competition one way than another, they will soon adopt the former. It was a long time before the "one-price-to-all" idea was adopted in selling merchandise. It came all at once and is now in almost universal use. Some merchants still dicker, but the better ones do not. Some contractors may bid without charging, but the better ones will not when they understand the advantages of this plan to them. Some contractors would also like to see their competitors charge for bidding so that they themselves can offer to bid and figure free of charge. But such men harm themselves mostly. At least, they or their practices are not the ones we should follow.

I believe the only solution of the problem is to have a national association of some kind, which is not organized for personal profit, take hold of it. They could inaugurate a system whereby the local organizations could, through their secretaries, put the system in force and collect compensation. The national organization in this way could collect from each local organization a small percentage of the compensation, and, I believe, thereby build up a very strong national organization financially, and in that way could keep the contractors together.

#### THE NELSON FORM

##### Rules and Methods of Procedure

##### PUBLIC WORK

##### 1. Procuring Applicants to Bid Upon Public Work

If the work is of a public character, it is conceded that every public citizen who is qualified to bid shall be given consideration. Therefore, the buyer shall advertise in all recognized local newspapers simultaneously for a fifteen-day

EXHIBIT A

Average of all bids or estimated net cost of contract	Approximate square root of figure in column one	Number of bidders to be selected Figure in column two multiplied by .04	*Amount to be paid each bidder Figure in column two multiplied by .7	Total cost of competition Figure in column three multiplied by figure in column four
\$ 50,000.00	224	9	\$156.80	\$1,411.20
60,000.00	245	10	171.50	1,715.00
70,000.00	265	11	185.50	2,040.50
80,000.00	283	11	198.10	2,179.10
90,000.00	300	12	210.00	2,520.00
100,000.00	316	13	221.20	2,875.60

#### Explanation

†Not less than two. As many more bidders may be selected as the buyer wishes to compensate.

To determine the total number of bidders, estimate the amount of the contract in dollars sufficiently high (Clause 3, Public Work); compute the square root and multiply by .04.

To determine the amount to be paid each bidder, add all bids (including any and all alternate figures asked for and received), divide the sum by the number of bids to get the average, then take the square root and multiply by .7. In case of fractions, the next highest whole unit number shall be used. Carefully read Clause 11, "Paying for the Competition."

\*The multiplication factor .7 is not set or established. It is the intention of this form that this factor should be determined or established by the seller individually or collectively in the same manner in which he sets the price upon any merchandise or service.

Where it is necessary for the bidder to incur travelling or other incidental expenses it is the intent of this form that he shall receive remuneration for same in addition to regular compensation provided for in Exhibit A. The bidder shall, however, make arrangements with buyer for such special compensation, and have same accepted before bidding.

conditions would be reduced to a contractor of labor only, if, indeed, he could exist at all. And when it is understood that the handling of labor is generally fraught with more trouble and less profit than anything else in the contracting business, it can be readily understood that many of the good contractors say, that when that time comes, they will use their investments and ability in some other business.

Many architects are opposed to the "Quantity System" in this country at this time, because they think its use would delay the preparation of plans and specifications. They say that the American builder is inclined to wait until the very last minute before deciding to build; that he will plan and figure upon erecting his building for two years, then go to the architect and expect to move into it the next week.

The architect rarely has half enough time to do his work and do it as well as he wants to.

They say that if a quantity survey were to be made of each set of building plans and specifications, it must be nearly correct in every detail, and that the quantity estimator would require as much time as the architect to do his work