

live. The owner may lose by a contractor being too optimistic, getting a job partly done and then being unable to finish on account of high costs; re-advertising, reletting and delays follow, or else the bondsmen finish the work at a loss to themselves, which loss is passed on to other owners.

If a contractor makes an unexpectedly large profit, however, on Job A, he does not reduce his bid on Job B, in consequence, so that it is only the losses that are passed on to other owners and never the gains.

"Cost Plus" Contracts

In "cost plus" contracts, the owner accepts all risks, all costs, and receives the benefit of all favorable conditions; each job carries its own load only, without the addition of losses on other jobs and without the percentage added by the contractor to offset possibly unfavorable conditions, ambiguous specifications, or captious owners.

The specifications and plans may be as general or as specific as the owner desires; changes can be made, difficulties met, and advantage taken by the owner of special machines, material and methods.

The contractor furnishes the plant, organization and expert knowledge of construction and buying; the owner supervises the work and pays the bills.

In the case of "cost plus" contracts, the contract and not the specifications is the crux of the matter from both the owner's and contractor's viewpoint, but the writing of the contract is more simple than the writing of the specifications. It is necessary first to define what expenses are to be borne by the contractor, as not part of any one job. These may be head office expenses, salaries of chief officers whose time is spent only in part on the job, traveling expenses, except as agreed on, the contractor's auditors, timekeepers, or material checkers. Second, to define what expenses are to be borne by the owner and are to form the basis for the fee. Such expenses would include the cost of materials purchased through the contractor, the cost of labor of all grades, and the cost of rental of plant. Third, to define what expenses are to be borne by the owner, but which are not to be included in calculating the fee to the contractor. These might be engineering services, inspection, owner's timekeepers and auditors, and the cost of specified material which the owner elects to purchase and deliver to the contractor.

The approval of the owner would be required for all purchases of material both as to the necessity for the purchase and the price paid. The owner may reserve the right to enter the market with the contractor, purchase any material he can buy cheaper than the contractor, and deduct such cost from the total cost of the work for fee calculation. The owner would have control of the number, grade and wages of all classes of labor, and, of course, would pay all insurance charges.

The sliding percentage with maximum fee, as used on government work, could be applied to any contract, large or small.

Basis of Contracts

Contracts could be let on the basis of fee demanded, both percentage and maximum, on the size, adaptability and condition of the plant controlled by the bidder, and on his experience, reputation and the size and character of his organization.

It is true that the interest of the owner to keep down the cost, and that of the contractor to receive a large fee, would clash, but that is controlled by the sliding percentage which can be arranged to give an actually larger fee for smaller total cost, and by the maximum fee which is based on the owner's estimate of total cost.

Capable, honest, efficient contractors would fare well under this form of contract; the opposite kind would soon find it impossible to secure work. Engineers of the two classes would meet the same fate as the corresponding contractors. The engineer would no longer be supposed to act as an arbiter when he is paid by one of the parties to the contract to supervise the work of the other and to secure work conforming to specifications and plans which he himself has drawn. The engineer is always biased, and no matter how hard he tries to be fair or how cordial the relation between

himself and the contractor, in case of argument, the latter bears the burden of the proof. For this state of affairs the owner pays, and the successful contractor is one who has added enough to his bid, in one way or another, to make up for the losses he suffers due, not to the work itself, but to the specifications. The writer believes that, given the same men as owner, engineer and contractor, a cheaper and better job can be secured by the owner, and, in the long run, more profitable business to the contractor by the "cost plus" contract than by either the lump-sum or item bids. The owner will not be confronted by bills for extras, vexatious claims for adjustment due to different interpretation of the specifications, lawsuits with their attendant cost, and the perpetual chance that, in spite of inspection, poor work will be done by the contractor in order to secure a profit on an underbid item. The contractor will be sure of a reasonable return on his investment in plant, he will not have to pay for special plant of use to him only on that one job, or to carry the burden of the gamble on unknown or unknowable factors.

Weakness of "Cost Plus" Contracts

The gamble belongs to the owner who gains or loses by the location of the site, the season of the year in which the work is done, the state of the market for men, materials and money and circumstances other than strictly construction work, which affect the cost of the structure; and when contractors are relieved of this gamble, they can bid closer, they can put their energy and knowledge into efforts to turn out good work, and not be constantly on the watch to cheapen the work for their own benefit—maybe salvation—and the owner's harm.

It will be for the owner and his engineer to say where to cheapen, when to spend, to pay extra prices, if they wish, to speed up work, or secure quick delivery. The job is the owner's; he should handle it and take the profits and the losses.

There can be, of course, great dishonesty under "cost plus" contracts, but, if this occurs, it is the owner's fault in lax supervision of his own forces or from incompetent or dishonest engineers.

It is hoped by this paper to obtain an expression of opinion as to the wisdom of substituting "cost plus" contracts for the other forms. At the present time, municipal work is usually required by law to be let to the lowest bidder, and any violation of the custom, even when the law permits, affords a basis for accusations of graft on the part of the officials responsible, no matter how self-evident the lack of ability of the low bidder may be.

If "cost plus" contracts can wisely be substituted for the other forms, the writer conceives it to be a timely occasion to endeavor to have the laws amended so that municipalities as well as individuals can take advantage of it, and also to draft a standard form of contract sufficiently elastic to be adaptable to all usual work, so that the possible disadvantage may be reduced to a minimum and that dishonest officials may be prevented from discrediting a method which, in the hands of honest men, can certainly produce economical, rapid and good construction.

ALBERTA LAND SURVEYORS' ASSOCIATION

THE annual meeting of the above organization has just been held at Edmonton, and the following officers for 1920 elected: President, Lieut.-Col. G. W. McLeod, of Edmonton; vice-president, F. H. Peters, of Calgary; secretary-treasurer, B. F. Mitchell, Edmonton; councillors, J. H. Smith, J. A. Buchanan and W. H. Waddell, all of Edmonton; auditors, R. H. Cautley and H. E. Pearson.

Ald. Herbert Wilson has been elected president of the Builders and Contractors' Association of Windsor. Other officers for 1920 are: Vice-president, William Walker; recording secretary, A. J. Loosing; secretary-treasurer, Charles E. Padden; directors, L. McGill Allen, J. Reid and A. L. Laing.