

# The Canadian Engineer

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## COST KEEPING IN ENGINEERING AND CONTRACTING

IN modern engineering construction the question of how much a dollar will do is one of vital importance. The necessity of cost keeping enters as largely into general engineering and contracting as into industrial business. Shrewd judgment, rule of thumb or "coming out on the right side" are not the factors in success that they may have been in the past, because costs are as important to the engineer as to the manufacturer.

No one cost system can be designed that will be found universally applicable—each job has its own individual peculiarities, and demands an independent treatment. The success of any system depends very largely upon the executive whose administrative ability must plan and put it into execution. The cost records are merely a guide post to him. In the installation of any new method, time and persistence are important elements, while its successful operation calls for loyal co-operation from all subordinates.

Efficiency in engineering construction may be defined as the performance of a given task in the most expeditious, most economical and most substantial manner possible. This does not mean that the cheapest practical structure is sought. A dam may be designed with such emphasis on security and such large factors of safety as to make its cost unnecessarily high, but the dam, once designed, is built with the effort to secure by means of efficient methods of construction the maximum return for each dollar expended. Efficiency is no new invention; but modern industrial conditions have made efficient methods well nigh a requisite for success.

A good cost system should place in the producers' hands a tool far more valuable than any rule of thumb method, for it replaces all guesses, points out leakages and wastes, supplies standards for comparison and provides for accurate estimates being made.

A good system of cost keeping should have three requisites: first, it should be reliable; second, it should be simple; third, immediate. Reliability is unquestionably the first essential and if it is not fulfilled the records may be misleading, in which case they are worse than useless.

The system should also be simple and free from complications. Then, too, the clerical work attendant upon a laborious system of cost keeping must be considered and the best methods adopted for its reduction.

In order to be of practical value the records must be available before the information they portray is cold. It will be of little use at the end of a season to discover a leak that should have been discovered away back in midsummer. Yesterday's mistakes should be found out in time to plan to-morrow's work. Here appears an additional argument for simplicity, for the more simple a system, the easier it should be to obtain prompt returns.

## "NO TIME TO TENDER"

THE construction season will soon be upon us and already the indications are that it will be a very active one. It is to be hoped that the phrase "no time to tender" which has become a rather too familiar one among Canadian engineering and contracting and manufacturing concerns will be heard less frequently than in previous years. Firms are often barred from tendering because of the time element.

There may be, and possibly are times when towns and cities require material or machinery in a hurry, but in most cases the time allowed bidders to secure specifications and arrange for bids could be extended a fortnight or a month without any detriment to municipalities.

It too frequently happens that a council decides at a meeting to call for tenders and instructs the clerk to have tenders in hand by the next council meeting. We have in mind a Canadian municipality that only allowed two weeks for tenders for an engine and then calmly waited eighteen months for its delivery; another municipality left less than two months for the placing of bids on a job amounting to considerably over a million dollars and then took over ten weeks to decide which of two bidders should be awarded the contract. If a little more consideration were shown in this matter it would be found to work to the advantage of both buyers and sellers.

## CONSERVATION OF WATER POWER

EVERY ton of coal used is forever lost as a source of energy. On the other hand, the non-use of any quantity of water power, the development of which is commercially feasible, means a waste of energy that can never be recouped.

The question of conservation has to do with the policy of not only governments, but also the people at large with regard to those natural resources, useful to man, which are supplied by nature in a form easily adaptable to immediate utilization, and particularly with regard to those natural resources, not uniformly distributed, which are limited in extent or in quantity. Among such natural resources are the minerals of the earth, forests upon the earth and waters over the earth. Whether applied to any or all of these, a policy of conservation should manifestly be directed neither to a locking up or withdrawal from use, on the one hand, nor to an indiscriminate or wasteful utilization upon the other hand. Economy, in its best sense, should prevail, but an economy which has regard for both the present and the coming generations.

The two great, natural sources of energy available are coal deposits and water powers. Enough has been written regarding the matter of coal supply to say that, assuming that the present rate of consumption continues, is in fact limited as its cost to the consumer gradually increases as the supply diminishes. While the cost of developing water power is considerable, the development of electrical transmission of energy has made water power development