

## REPORT OF WINTER CONSTRUCTION COMMITTEE

Mr. Chairman: Your Committee has just concluded a series of questionnaires extending over the last two years which have been submitted to the members of the C.C.A. on the costs and benefits of carrying out the construction on buildings starting between September 1st and February 28th, with construction carried on continuously through the winter.

We wish to express our thanks and appreciation to the members of our association for their generous response to our requests for information. From the returns, covering projects extending from the Maritimes to western Alberta, we selected 106 which reported on contracts valued from \$20,000.00 to \$2,000,000.00 except for three projects valued up to \$2,800,000.00 as it was felt that the larger projects would normally involve some winter time construction.

The purpose of the survey was to confirm our contentions, that it was not only feasible and possible to construct buildings throughout the winter season without lowering the quality of workmanship but, the extra costs incurred would be offset by revenue earned as a result of earlier occupancy and use. In some instances, in fact, there would be an added bonus in the reduction of financing costs during the construction period. Projects started after March 1st were not included in the survey as winter costs are negligible after the building is completely enclosed and permanent equipment is operating.

Due to the uniformity of extra costs and benefits throughout the entire surveyed area, the report has not been classified into types of construction or location. However, the returns do indicate that the relationship of extra winter costs generally vary in proportion to the size of the project.

In the interest of simplicity the following tables show:

A. Average costs and benefits of winter construction for the dollar value of the total survey covering all projects from \$20,000.00 to \$2,800,000.00.

B. Average costs and benefits of projects costing over \$660,000.00.

C. Average costs and benefits of projects ranging in cost from \$20,000.00 to \$660,000.00.

The estimated extra costs of winter construction were taken from the reports, as well as the time saved as a result of continuous winter operation, however, where the return did not set rental or revenue value, we estimated the revenue values as follows:

A. Buildings costing \$10.00 per sq. ft. or less, the annual rental earnings were set at 60¢ per square foot.

B. Buildings costing up to \$20.00 per square foot, the annual rental was set at \$1.20 per square foot.

C. Professional, office and institutional buildings and other buildings costing over \$20.00 per square foot, annual revenue was averaged at \$2.40 per square foot.

A. Total Value of contracts reported, \$49,182,767.00. Est. total extra cost of winter construction, \$479,073.00 or 0.97 percent.

B. Value of contracts reported costing over \$660,000.00, \$32,099,008.00. Est. extra cost of winter construction, \$253,767.00 or 0.79 percent.

C. Value of contracts reported costing from \$20,000.00 to \$660,000.00, \$17,083,759.00. Est. extra cost of winter work, \$225,306.00 or 1.31 percent.

The following comparisons of extra winter costs and estimated revenue earned through earlier completion, were compiled from the returns containing the necessary information. These returns covered 66% of the total volume of reported work.

A. Estimated winter costs in A, \$339,732.00. Estimated revenue as a result of earlier completion, \$834,398.00.

B. Estimated winter costs in B, \$169,556.00. Estimated revenue due to earlier occupancy, \$554,458.00.

C. Estimated winter costs in C, \$170,186.00. Estimated revenue due to earlier occupancy, \$279,940.00.

The above report reflects the tremendous advances made in winter construction in recent years. However, your committee feels that much more can and should be done to promote a greater uniformity in specifications and on site procedure for:

a. Mixing, placing and protection of concrete,

b. Placing of masonry,

c. Preparation of ground to receive footings or pavement with particular attention to frost problems

and suggests that we solicit the co-operation of the N. R. C., the Architectural