Forecasting escalation in building costs Calculating, documenting and reviewing allowances

The Department of Housing and Public Works is pursuing a strategy aimed at improving the quality of building cost estimates associated with government building projects. The strategy is designed to, among other things, introduce a more rigorous approach to estimating cost escalation for building projects.

In line with this strategy, the Capital Works Management Framework (CWMF) includes a requirement (policy requirement 2) that departments, after prior consultation with the Department of Housing and Public Works, declare their provision for building cost escalation when presenting budget submissions for building projects to Government. The purpose of this policy advice note is to provide departments with information regarding the process of calculation, documentation and ongoing review of allowances for building cost escalation.

Calculating allowances for escalation in building costs

'Building cost escalation' refers to the anticipated increase, over a defined period, in the cost of constructing a building. Building cost increases usually occur as a result of market forces, and reflect increases in the cost of labour/materials and higher levels of construction activity. Departments should ensure that the budgets set for government building projects are achievable, allowing where appropriate for building cost escalation. When forecasting cost escalation:

for projects up to \$50 million in value, departments are to use the Building Price Index (available on request from the Department of Housing and Public Works)

Department of Housing and Public Works



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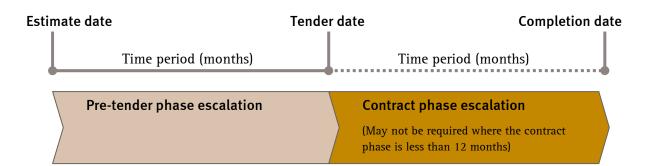
- for projects exceeding \$50 million but less than \$200 million in value, departments are to use escalation figures determined by the Department of Housing and Public Works for that range of projects (i.e. the Major Projects Building Price Index), which will be made available upon request
- for projects exceeding \$200 million in value, departments are to consult with the Department of Housing and Public Works, which will review the proposed escalation allowances and moderate them against other such projects where necessary.

The Building Price Index (BPI) is produced by Project Services quantity surveyors and is based primarily on tenders for typical government buildings to a maximum value of \$50 million (excluding GST). Forecasts are determined by examining recent tenders and future construction activity, reviewing relevant publications and obtaining feedback from contractors and quantity surveying practices. The index reflects the level of competitiveness of tenders, which is largely dependent on the amount of available building work and the availability of resources.

The Major Projects Building Price Index (MPBPI) is produced by Project Services quantity surveyors and is relevant to major government building projects in South East Queensland (e.g. hospitals, correctional centres, courthouses, office buildings) with a construction cost between \$50 million and \$200 million (excluding GST).

When formulating a project budget, departments must consider cost escalation that may occur prior to the tender date and during the term of the contract (refer to Figure 1). Escalation calculations should allow for price increases that are likely to be incurred by the head contractor, sub-contractors and suppliers. These anticipated increases in cost should be built into the project budget and used when preparing budget submissions for funding approval.

Figure 1: Phases of building cost escalation



Pre-tender phase escalation

Departments must forecast and allow for the likely increase in cost between the time a building cost estimate is produced and the tender date for the project. This allowance is required in all cases where an estimate has been prepared prior to the tender date, and requires the identification of the following fundamental factors:

- date the estimate was produced
- expected tender date

- expected escalation rate (as a percentage of the cost estimate)
- length of time between the estimate date and the tender date.

For those projects where options are being considered with respect to commencement, staging and completion, 'sensitivity analysis' (i.e. examination of how sensitive the project's financial and economic outcomes are to specific variables such as the commencement date or a construction program that involves staging) may assist in forecasting cost escalation. Further information on this analysis technique is available in the *Cost-Benefit Analysis Guidelines* under the *Project Assurance Framework*.

Contract phase escalation

Where it is likely that costs will increase during the contract phase, an allowance should be included for cost escalation between the expected tender date and the expected date of practical completion. An allowance for contract phase escalation may not be required where the contract phase is relatively short (i.e. less than 12 months).

Allowing for contract phase escalation is particularly important at times when the cost of building is rising rapidly, and also on large projects where high project values and long contract periods are likely to incur significant escalation.

Risks involved with allowances for building cost escalation

To those using or interpreting a building cost estimate (or a budget based on such an estimate), it may not always be clear how the allowance for cost escalation included in that estimate has been calculated. If the amount of the allowance (e.g. \$150,000) is communicated without reference to the expected rate of increase (e.g. 0.5% per month) or the time allowed for the escalation (e.g. six months), then users of the estimate will have no real understanding of the basis for the allowance.

Without this additional information regarding the escalation calculation, users of the cost estimate may find belatedly that the allowance for building cost escalation has not been sufficient to cover the actual escalation. In other words, they may be relying upon an inadequate project budget.

The risks of relying upon an unqualified or outdated allowance for escalation include:

- the need to seek additional funding, which may, in turn, cause project delays
- issues with building functionality resulting from a reduction in the scope of work to bring the project within budget
- compromised service provision arising from buildings constructed to a reduced scope of work.

Documenting allowances for building cost escalation

Officers responsible for formulating cost estimates for government building projects should ensure that they clearly document how allowances for cost escalation have been calculated.

Capital Works Management Framework

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When preparing submissions for funding approval, responsible officers should record the date of preparation of the cost estimate, the expected tender date, the time between these two dates, and the expected rate of cost escalation. Figure 2 presents an example of appropriate **documentation** of an allowance calculation¹. As the construction time for the project in Figure 2 is not expected to exceed 12 months, no allowance is required for contract phase escalation.

Base estimate of building cost		\$5,000,000
Date of cost estimate	1 October 200x	
Expected tender date	1 April 200x	
Time period	6 months	
Escalation rate	0.5% per month	
Allowance for escalation		
Cost estimate x escalation rate x time	\$5,000,000 x 0.5% x 6 months	\$150,000
Total building cost estimate		\$5,150,000

Figure 2: Documentation of an allowance calculation¹

Reviewing allowances for building cost escalation

Project proponents have an obligation to seek updated building cost estimates, including updated allowances for cost escalation, as a project proceeds through the various stages of planning and procurement. The building industry supply-demand ratio may have changed since the initial cost estimate was produced, necessitating an adjustment of the expected rate of increase in building cost. A change in the expected tender date will also trigger the need for an adjustment to the allowance calculation. If, for example, the expected tender date for the project documented in Figure 2 has changed to 1 July, then the calculation should be adjusted and documented accordingly (refer to Figure 3¹).

Allowances should be reviewed periodically, especially during periods of rapid cost escalation. If all assumptions were disclosed when the allowance was documented (as per Figure 2), it will be easier to identify if/when the allowance is no longer adequate.

¹ The examples presented in Figure 2 and Figure 3 are not intended to illustrate the precise method of allowance calculation (which would involve use of the relevant price index, in accordance with CWMF policy requirement 2). Responsible officers should consult with the Department of Housing and Public Works for further guidance as to calculation methodology.

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Base estimate of building cost		\$5,000,000
Date of estimate	1 October 200x	
Revised expected tender date	1 July 200x	
Revised time period	9 months	
Escalation rate	0.5% per month	
Revised allowance for escalation		
Cost estimate x escalation rate x time	\$5,000,000 x 0.5% x 9 months	\$225,000
Revised total building cost estimate		\$5,225,000

Figure 3: Documentation of a revised allowance calculation¹

Benefits of this approach

By using the approach to calculating, documenting and reviewing allowances outlined in this policy advice note, departments will:

- simplify the identification of outdated allowances for cost escalation
- facilitate improved understanding of how allowances have been calculated
- improve communication regarding the status of allowances, thereby helping to ensure that building cost estimates align more closely with the scope of works for each project
- reduce the risk of having to seek approval for further funding for the project
- enhance transparency and accountability with respect to budgets for government building projects.

For further information

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