AID to Questioning # 14
Exhibit # 22
Emerald Group 'cost estimate types guide' web page extract.

Cross Aid: Emerald Group web page for 'Cost estimate types guide.'

The cross aid commencing on the following page was created from a web page found from a web query found at this link https://emeraldgroup-learning.ca/cost-estimate-types-guide/. The query was undertaken by Board staff, who sought a "high level" guide to how companies or organizations working on large or complex construction projects develop cost estimates related to typical stages of project development, and in particular, references made in the application to cost estimates of a specific "class" (e.g. "Class 5").

The purpose of this aid to cross is to facilitate a discussion with the YEC panel to better understand YEC's own system of classifying cost estimates for the advancement of construction projects at different project life-cycle stages.

Note that Board staff created the cross-examination aid through a "cut and paste" of the website and has added page breaks and page numbers for the sole purpose of facilitating questions to the panel.

https://emeraldgroup-learning.ca/cost-estimate-types-guide/.

Demystifying Cost Estimate Types: Choosing the Right Method for Your Project

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Cost estimating is the very foundation of construction because successful project planning and execution depend on accurate cost estimation. Understanding cost estimate types is critical to the success of projects, whether you are a seasoned project manager or just beginning your journey into construction management. This article will explain major cost estimate types to help you decide which is best for your project and its particular needs.

Why Understanding Cost Estimate Types Is Important

Cost estimating is not only a prediction of the cost of the whole project but serves as a basis for decision-making, resource budgeting, and mitigation of risks.

Estimation accuracy is the most critical component that helps you keep your project on track, and different stages of the project require different levels of estimate accuracy. The selection of an appropriate cost estimation method at each phase helps manage overall project risk and ensures cost efficiency. Based on the explanation in this guide, walk through the different types of estimates to arrive at an informed choice.

Different Types of Cost Estimates

Different types of cost estimates at different stages of a project range from conceptual to definitive. Estimates of costs evolve in accuracy and detail as a project progresses, and they include the following:

1. Concept Screening (Class 5).

This is also sometimes referred to as the Order of Magnitude and is done at a very early conceptual stage in a project. It assists in determining the feasibility of a project and can be used to give preliminary approximate cost ranges during a project where very limited information is available. Expected normal accuracy for this type of estimate ranges from -30% to +50%, and this usually finds its best application in rough project budgeting and preliminary feasibility studies.

Key Considerations:

- Purpose: Feasibility and early decision-making.
- Specificity: Very nonspecific; generally used as a screening tool.
- Inputs Required: High-level project scope, benchmark data, and parametric estimating techniques.

2. Feasibility Estimate (Class 4).

The Feasibility Estimate is more detailed than a conceptual estimate but allows flexibility. It is used to secure project funding or refine the financial feasibility of a project once preliminary design information becomes available. The Budget Estimate is typically accurate within -20% to +30% range. It is important at this stage that stakeholder expectations are in concert with the project goals.

Key Considerations:

- Purpose: Project approval, early budgeting, and investment decisions.
- Accuracy: Limited, but more refined than Order of Magnitude.
- Inputs Required: Preliminary design documents, historical data, and similar project benchmarks.

3. Budget Authorization Estimate (Class 3).

A Class 3 Estimate, or a Budget Authorization Estimate, is developed based on the completed FEED (front end engineering design). The accuracy for this estimate class is between -10% and +20%. The estimate provides a valid and sound cost estimate to support the final decision to proceed with construction.

Key Considerations:

- Purpose: Establish a baseline cost to be used for project control.
- Accuracy: Fairly high, thus allowing more confident financial decisions.
- Inputs Required: Detailed engineering designs, vendor quotes, and quantity take-offs.

4. Control Estimate (Class 2).

The Class 2 Estimate, also known as the Control Estimate, is prepared to manage the project during its execution. It is used in developing bids and negotiating contracts, with an accuracy range typically between -5% and +15%. This estimate serves as a foundation for comparing actual costs against planned budgets, providing the owner with enhanced financial oversight throughout the construction phase.

Key Considerations:

- Purpose: Preparation of bids, price negotiations, and contract execution cost tracking.
- Accuracy: High, hence providing good reliability for budgeting and control.
- Inputs Required: Near-complete design specifications, detailed take-offs, and quotations by vendors.

5. Definitive Estimate (Class 1).

This class is also known as the Definitive Estimate or Class 1 Estimate. It is used for final decision-making and to establish firm control budgets. The final estimate should be accurate within -3% to +10%. It provides the basis for construction phase cost management and supports good cost control practices.

Key Considerations:

- Purpose: To establish a final budget and underpin procurement and contract awards.
- Accuracy: Highest among all estimate classes.
- Inputs Required: Fully developed design, supplier quotes, and contract terms.

Key Factors Affecting the Cost Estimates

It is important to understand the factors that will impact the accuracy of your cost estimates. Some of the most critical variables are:

1. Project Scope Definition: The clarity and completeness of the project scope directly affect the estimate's reliability. Undefined scopes introduce risks that result in possible cost overruns.

2. Market Conditions: Changes in the cost of materials and labour given the prevailing mark, given the prevailing market conditions, etc.

3. Complexity and Site Conditions: Project complexities and site-specific conditions (accessibility and environmental concerns) can significantly affect costs.

4. Design and Technology: The detail available in the design and the technologies used to provide the accuracy of your estimate.

Risk Mitigation in Cost Estimating

Cost estimating is inherently risky due to the many unknowns in construction. The following shows how some of that risk can be reduced:

1. Contingency Allocation: Always include a contingency to help cover unforeseen expenses. The amount of contingency typically reduces as the accuracy of the estimate improves.

2. Benchmarking and Historical Data: Use data from similar past projects to enhance the reliability of your estimates.

3. Risk Analysis: Incorporate a risk analysis that weighs the probability of risk events occurring against their potential cost impact on the project.

Benefits of Proper Cost Estimating

Proper cost estimating will reduce or even totally eliminate some of the common pitfalls in construction, such as cost overruns, disputes, and unrealistic budget expectations. Benefits include:

1. Enhanced Budgeting: Better estimates enable better budgeting to plan out the financials and allocate resources accordingly.

2. Better Decision-Making: Knowing what each and every stage of the project may cost allows stakeholders to make informed choices.

3. Stronger Risk Management: Appropriate estimating methods offer early identification of risks so that mitigation planning can be proactive.

Learn More: Introduction to Cost Estimating Course

Accurate cost estimating is more than an important skill; it's an essential capability for every successful construction manager or project professional. To further build your knowledge and develop advanced skills in construction cost estimation, check out our Introduction to Cost Estimating online course.

In this course, you will learn:

- How do you make different types of estimates at each project phase?
- Methods of cost benchmarking and conceptual estimating.
- Approaches to include risk analysis and contingency.
- Real-life examples and hands-on exercises for practical understanding.

This course, with the author having more than 30 years of experience, will guide you through all the necessary steps to lift your cost-estimating skills and value in projects. Learn how to master cost estimation and confidently lead your projects toward cost efficiency and ultimate success.