

PROCEDURE No. AE-5: ESTIMATING

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DRAFT

PURPOSE

The purpose of the estimating procedure is to provide a consistent approach to construction cost estimate preparation, validation and reconciliation.

I. GENERAL

The estimating function provides project budget definition and is the key to cost containment for the Authority. As the project evolves from the scope phase, through design and into construction, estimates shall be prepared at the key scope and design milestones as outlined below. These estimates will enable managers to ensure the projects are designed within the budget or, if needed, to obtain additional funding to properly carry out the necessary scope of work. All SCA estimates are confidential.

II. ROLES AND RESPONSIBILITIES

For the purpose of this section, unless specifically noted as the A&E Estimator, “the estimator” will mean the person responsible for producing the estimate (in-house or consultant). Similarly, the term “project manager” will denote the SCA’s day-to-day manager of the design project, whether a Design Manager/Senior Construction Assessment Specialist (SCAS) on consultant designed projects or a Design Manager/Project Lead on in-house designed projects.

The Architecture and Engineering (A&E) Estimating Unit is responsible for preparing all required cost estimates for projects designed by the SCA in-house design studio. An estimator under contract to the design consultant shall prepare all required estimates for projects designed by consultant design firms. All estimates shall follow the format and guidelines prescribed by the A&E Estimating Unit.

Review of cost estimates is done solely by the A&E Estimator. When requested, the A&E Estimator may perform special cost analyses or cost studies and may recommend cost reduction measures to control project cost. The A&E Estimator will review all cost estimates prepared by consultants for Capacity and CIP projects.

During the Scope phase, the estimator prepares a cost estimate from data provided in the scope report. The A&E project manager shall provide this report to the A&E Estimator for review. The estimate as approved by the A&E Estimating Unit shall be returned to the A&E project manager.

During the Design phase, the estimator shall prepare cost estimates based on the Contract Documents. For in-house projects, the A&E project manager shall submit these design documents to the A&E Estimator for production of the estimate; for consultant designs, the A&E Estimator will review the consultant's estimates. The A&E Estimator shall notify the project manager of any omissions or discrepancies that may impede accurate estimating or bidding. The A&E project manager must obtain the General Requirements and Phasing information (e.g. phasing plan, site safety and security, construction duration, etc.) from the Project Officer. This information is supplied to the estimator for inclusion in the cost estimate of the project prior to Turnover to PM for Bid. All final estimates, in-house and consultant, shall be reviewed for completeness, reasonableness and consistency, and shall be approved by the Manager of the SCA Estimating Unit before they are submitted back to the A&E project manager.

The A&E Estimating Unit shall maintain a database with a history of construction unit costs, based on estimates versus actual awarded costs of each SCA project. The unit prices shall be continually updated to reflect current market conditions. Contract Administration shall supply the Manager of Estimating with a copy of all Bid Tabulations and Notices of Award for each project, as these documents will help in maintaining an up-to-date historical database.

If changes are made to the bid documents via addenda during the bidding process, whether initiated by Project Management, Contract Administration or A&E, the package and/or changes shall be transmitted to the estimator for potential revisions to the estimate. The revised estimates shall be transmitted to the A&E project manager, who shall provide them to the A&E Estimating Unit for review. The A&E Estimating Unit shall submit the approved revised estimate to Contract Administration, with copies to the SCA project manager and project officer.

If a project bid is delayed by more than four (4) months after the final estimate has been prepared, the package shall be returned to the estimator for revision.

If changes are made to the drawings or specifications after the Contract is awarded (by issuance of a Project Bulletin), the estimated cost of such changes shall be prepared by the estimator and forwarded to the A&E project manager, who shall send it to the A&E Estimating Unit for review and approval, and then to Project Management along with the design change Bulletin.

II. ESTIMATING PROCESS

A. Milestone Submissions

1. For CIP projects under \$2,500,000, estimates shall be prepared at the completion of scope phase and 100% construction documents. For in-house designed projects, the estimate shall be prepared within two working days of receipt of complete scope documents. Final Estimates of 100% construction documents shall be prepared within 8 calendar days of receipt of complete documents.
2. For CIP projects of \$2,500,000 and over, estimates shall be prepared at the completion of scope phase, 50% and 100% construction documents. For in-house designed projects, the estimates for 50% documents shall be prepared within 8 calendar days of complete document submission. Final estimates for 100% construction documents shall be prepared within 10 calendar days of complete document submission.
3. For Capacity projects, estimates shall be prepared at the completion of Feasibility, Pre-schematic, Schematic, 30% (Design Development), 60% and 100% Construction Documents. For in-house designed projects, the time frames for completion of estimates at the various phases shall be: for 30%, within 5 working days of complete document submission; for 60%, within 3 weeks of complete document submission; for 100% within 3 weeks of complete document submission.

B. Format

1. Estimates (CIP and Capacity) produced for Scope, Feasibility, Pre-Schematic, Schematic, Design progress (30%, 50% or 60%) and Final Design shall be standardized to facilitate the review process. These formats will help prevent scope omissions and inadequacies, time delays and over/under budget costs. These formats will also help speed up the budget approval process when applicable. Sample forms are provided as examples in the Exhibits. It shall be noted that many of the numbers or percentages included in the sample for example purposes and are dependant on market conditions. The actual numbers and percentages used shall be based on actual current market condition and shall be subject to review and acceptance by the A&E Estimating manager.
2. Estimates for the Feasibility, Pre-Schematic, and Schematic reports shall not be included in the body of the report but shall be provided under separate cover and marked Confidential. All estimates for Draft, Final Draft and Final Submissions of each Construction

Document phase shall be submitted under separate cover and marked "Confidential".

C. Scope Estimate for CIP Projects

1. The scope estimate for CIP projects shall be in unit cost form with general conditions and overhead & profit markups listed at the bottom of the summary. The detailed cost is to be based on "current" estimated cost. Projection of "escalated" cost shall be a separate line in the cost estimate summary.
2. The estimate shall correspond to the items listed in the scope report so that each line item shall follow the order of the Findings and Recommendations. Each line item shall be quantified wherever possible with the appropriate units of measure (UOM).
3. Unique phasing costs (e.g., accelerated schedule) shall be identified separately and for each Low Level Work Number (LLW#) as appropriate.
4. Design Contingency, Phasing (e.g., Labor Premiums, Custodial Fees, Security) and Escalation shall be listed separately at the bottom of the total cost of each project. CIP projects are typically done after hours, which is to be accounted for in the labor premium. Escalation should be to the midpoint of construction and stated in month and year.
5. The total cost of each line item (e.g. Roofs, Windows) should be rounded appropriately when inserting the number in the Scope Report Summary Table so that it conforms to the estimate.
6. The Scope estimate shall follow the format in [Exhibit 1](#).

D. Feasibility Study Estimates (for Capacity Projects)

1. The cost estimate is predicated on historical data used by the A&E Estimating Unit, in addition to site specific conditions that are apparent at the time of the Feasibility Study Preparation.
2. The estimate shall include the building's Total Square Footage, Cost per Square Foot (based on the Programmed Gross Square Footage), Cost per Pupil (based on the Programmed Capacity), Site Specific Items and a Design Contingency.
3. For Additions, work to be done in the existing building is to be itemized to the extent possible and then totaled on the Summary Sheet of the Cost Estimate. This includes the cost of removing all violations and performing other work required to obtain the

C of O. Although reflected in Total Construction Cost, the existing Building Cost Items should not be included in the Total New Building Cost.

4. Site Specific Cost Items shall be itemized and then totaled on the Summary Sheet of the Cost Estimate. Although reflected in the Total Construction Cost, the Site Specific Cost Items should be separate from the Total Building Cost; do not include them in the Building square footage cost. Site Specific Cost Items shall include the following:
 - a. Demolition of existing structures on site
 - b. Soil Remediation
 - c. Wet-lands mitigation
 - d. Asbestos Removal
 - e. Additional cost due to New York State Historical Preservation Office issues.
 - f. Pile Foundation (Premium Cost)
 - g. Noise abatement (Premium Cost for windows and sound barriers, etc.)
 - h. Other items approved by the Authority (i.e. underpinning and shoring of adjacent properties, phasing (premium costs for additions/existing building work)
5. The Feasibility estimate shall follow the format in [Exhibit 2](#).

E. Pre-schematic and Schematic Estimates for Capacity Projects

1. The Pre-schematic and Schematic estimates shall be in unit cost form (by Division) with general conditions and overhead and profit included at the bottom of the summary page. Each estimate is to have a summary sheet that follows the Construction Specifications Institute (CSI) format primary accounts. The cost is to be based on "current" (not escalated) estimated cost.
2. The estimate shall correspond with the scope of work indicated in the Pre-schematic and Schematic report so that all site specific or other special items unique to the construction of this particular school shall be listed separately from the building cost. Each line item shall be quantified where possible with the appropriate units of measure (UOM). The site specific items are the same as for those indicated in II.D.4 above. For Building Additions projects, work in the existing building shall also to be listed separately from the building cost. This includes the cost of removing all violations and performing other work required to obtain the C of O.

3. Design Contingency and Escalation shall be listed separately at the bottom of the total cost. Escalation should be to the midpoint of construction and stated in month and year.
4. The Pre-schematic and Schematic estimate follow the format in [Exhibit 3](#).

F. Progress (30%, 50% or 60%) & Final Estimates for CIP and Capacity Projects

1. Progress (30%, 50% or 60%) & Final estimates shall follow the Construction Specifications Institute's (CSI) format. Each phase of the project shall have appropriately detailed code of accounts with material, labor, equipment and total cost columns where applicable.
2. The Subcontractor's mark-ups (overhead & profits) for all Subcontract work (e.g. HVAC, plumbing, electrical) are to be incorporated in each subcontract estimate. The Prime contractor's mark-ups (overhead & profit) shall be listed at the end with the project's total construction cost.
3. Unique phasing costs and hazardous materials costs for CIP Projects shall be identified and quantified. For Capacity projects, site specific costs listed in paragraph II.D.4 above and work in the existing buildings for Addition projects are to be identified and quantified separately from the building cost. This includes the cost of removing all violations and performing other work required to obtain the C of O. For both consultant designed Capacity and CIP projects, the cost of hazardous material removal will be provided to the estimator by the SCA's Industrial & Environmental Hygiene consultant.
4. Each estimate shall have a summary sheet that follows the CSI format primary accounts.
5. Each completed estimate shall have a cover page that completely identifies the project including school name, project name, Design Number, Low Level Work numbers, borough, estimate type, total rounded cost, name of estimator, date on which the estimate is completed, assumed bid date and any other information pertinent to the project. The amounts of the estimate that are attributed to hazardous material and abnormal phasing considerations for CIP projects and site specific items and for existing building work for project involving additions for capacity projects shall be indicated on the cover sheet.

6. The final estimate "total" for projects with multiple LLW's shall be broken down by LLW number on the cover sheet. To determine the breakdown, percentages for each llw# in the scope report can be used as a guide, with adjustments made based on changes from the scope to design.
7. Design Contingency and Escalation costs for each project shall be separately identified and quantified, even if they are "0". Escalation shall be to the midpoint of construction and stated in month and year.
8. Design Contingency (progress estimates only) and escalation shall be added separately at the bottom of the estimate summary page.
9. The 30%, 60%, and Final Documents estimate for Capacity projects shall follow the format in [Exhibit 4](#).
10. The 50% and Final Documents estimate for CIP projects shall follow the format in [Exhibit 5](#).

G. Validation Review Process - CIP and Capacity

The A&E Estimator shall review the estimate for completeness, reasonableness, and consistency. Validation is typically accomplished by checking unit prices and applying parametric cost estimating to selected items. Validation may include the preparation of independent estimates for certain line items or combinations of line items where costs appear to be inappropriate. The A&E Estimator shall perform validation of the consultant's estimate as part of the design review process.

H. Reconciliation Process - CIP and Capacity

1. The reconciliation process, done by the estimator, is a review of the design estimate versus the Bid breakdown when warranted by the differences between bids received and the final estimate. The variances are to be reviewed to determine if the basis of the delta is due to unit cost or quantity differences. A comparative analysis of the estimates is then prepared to identify deficiencies or suspect items. For Consultant designed projects, the A&E estimator shall review the Consultants bid analysis and the approved analysis submitted to Contract Administration by the A&E Estimating Manager.
2. The bid analysis shall follow the format in [Exhibit 6](#).

I. Document Control – CIP and Capacity (For in-house designed projects only)

The A&E Estimating Unit shall maintain a log, categorized by design phase, of all estimates requested and prepared. The log shall show dates of submission, resubmission or revision, reconciliation or validation, and approvals of estimates that have become the basis of revised budgets.

J. Confidentiality

All estimates are to be considered confidential at all stages of development. Estimates are for official SCA/DOE use only to confirm that the design is within the budget.