

# WVU DESIGN GUIDELINES & CONSTRUCTION STANDARDS

## DIVISION 0- PROFESSIONAL SERVICES

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### SECTION AE - 005000 – DESIGN PHASE CONSTRUCTION ESTIMATES

#### PART 1: GENERAL

##### 1.1 Scope of Standard

- A. The purpose of this section is to provide guidelines for preparation of design phase construction estimates and to promote consistency and accuracy in the estimates. Construction Estimates should be completed as a deliverable at predetermined milestones or at the end of each design phase (Programming, SD, DD, and 90-95% CD). The estimates should be developed using the procedure below.

##### 1.2 Responsibility

- A. The following people are responsible for following this SOP.
  - 1) Project Managers
  - 2) Cost Consultants (CC)
  - 3) Architects & Engineers (A/E)

##### 1.3 General Requirements

- A. The AE or design professional will be responsible for preparation of estimates for the scope of work under their contract (e.g. all items included in the bid packages they develop). The AE and Owner should agree upon a budget for the “Cost of Work” as defined in the AIA B101. It is advisable for the Owner and AE to review what is included and excluded from the estimate for Cost of Work. In summary, the estimates should predict the dollar amounts for the scope of work included in the bid package(s).
- B. Third Party Estimating: Third party estimating should be used on all projects with construction values over \$1M. Third party estimating is optional for smaller projects. WVU has Open End Task Order contracts with multiple Professional Estimating firms for this purpose. This service will be contracted directly to WVU.

When third party estimating is used, both the AE and the third party estimator will prepare estimates based on the AE’s design submission. Estimates should be done at least three times during design; at SD, DD and 90-95%CD. The AE and the third party estimator should meet early in the project to agree on the format of the estimate to facilitate comparison and reconciling. It is critical that CCs meet prior to developing SD estimates. After both parties have completed their estimates, they will be compared and reconciled. The first step in the reconciliation process is for the two estimators to exchange estimates in order to ensure the format is comparable. After this step has occurred a formal meeting

should be held with the Owner to review and reconcile the estimates. The Owner will make the final determination as to which estimate should be used for any line item where difference exists between the two estimates. If Value Engineering exercises are performed, the estimators should confirm the value of the VE items selected and incorporate them into a revised estimate.

- C. Furniture, Fixtures and Equipment (FFE): The costs for loose furniture, fixtures and equipment should not be included in the estimates for the Cost of Work unless this is part of the AE scope of work or otherwise specifically requested. The AE should bring to the Owner's attention any items they consider questionable for inclusion in its cost estimates.
- D. AV Equipment and Technology: The cost for AV equipment and technology may or may not be included in the Construction estimate. This should be determined with consultation from the Project Manager.
- E. Construction Estimates should be based on the design deliverables available at each design phase. Square-foot estimates are acceptable at Conceptual Stage. Estimates provided at SD, DD and 90-95% CD should be detailed and based on quantity take-offs from the drawings and other design deliverables. The level of detail should increase as the design progresses and detailed unit cost estimates, based on quantity take-offs are expected at CD phase.
- F. All estimates shall be formatted and summarized to WVU's requirements with back-up consisting of:
  - 1. Summary Page with percentages consistent among the two parties (see attached samples),
  - 2. Both the 2004 MasterFormat & UniFormat are acceptable but both parties **must** agree on the format **prior** to estimating.
  - 3. Quantity surveys with the unit prices used for each work item,
  - 4. Assumptions and qualifications, and
  - 5. Allowances where the scope of work is not determined.
- G. The level of detail contained in each estimate should be sufficient to provide WVU with the information necessary to make firm, informed, and cost effective decisions.
  - 1. Schematic Design (SD) Phase:

The Schematic Design cost estimate will be prepared in Construction Specifications Institute (CSI) MasterFormat 2004 (50 Divisions) or UniFormat as long as both parties agree on the same format prior to estimate. Based on the existing documentation (i.e., program requirements, drawings, specifications, etc.), the CC will prepare a detailed line item cost estimate for comparison and reconciliation with the Design Professional's estimate.

2. Design Development (DD) Phase:  
At Design Development, the design of the Project should reach a point where all the elements have been identified and designed. At this time the CC will prepare a detailed construction cost estimate based on quantity take-offs derived from drawings and specifications prepared by the Design Professional.
3. Construction Documents (CD) Phase:  
As the building design continues to develop, WVU requires a final cost estimates at 90-95% Construction Documents. At this stage, the degree of detail in the estimate back-up will enable verification of the CCs in-house estimating through trade contractor input.

#### H. Escalation and Contingencies

1. Escalation: The estimate should include an escalation factor to account for changes in construction labor and material costs from the time of estimate to the midpoint of the construction phase. Escalation factors should be based on market indicators or trends such as the Engineering News Record Construction Cost Index or other approved indices. All estimates should be dated.
2. Contingency
  - a. Design Contingency: A design contingency should be included to account for unknown design elements and uncertainties in the design. The design contingency can be decreased as the design progresses; for example 10% at SD, 5% at DD and 1-2% at 90-95% CD.
  - b. Bid Contingency (or Market Contingency): A market contingency may be used to account for the potential differences between the construction estimates and the bids. Market volatility or market conditions should be considered when setting this contingency. A recommended value is 2%. The market contingency shall remain at CD.
  - c. Owner's Contingency: The Owner will maintain an Owner's Contingency outside of the budget for the Cost of Work to cover the Errors, Omissions, Unforeseen Conditions and potential changes in the work after bidding. This should not be included in the AE or CCs estimates.
- I. Taxes: Construction estimates should reflect the 6% WV State sales tax on materials purchased by contractors. Estimates should also include the local Business and Occupation Tax (B&O). Morgantown's B&O tax is assessed at 2% of each contractor's gross receipts and is compounding, therefore a factor of 4% is

typically used on total construction costs. Materials and equipment purchased directly by the University are not subject to sales tax or B&O tax.



# Design Estimates Summary Sheet (MasterFormat)

PROJECT NAME:		DATE:	
LOCATION:	Morgantown, WV	FILE:	
CLIENT NAME:	West Virginia University	WVU PROJECT#:	
ARCHITECT:		EST#:	
ESTIMATE TYPE:	Detailed Take-Off	S.F.:	
ESTIMATE PHASE:	75% Construction Document	REV.:	

TRADE SUMMARY	%	\$/SF	AMOUNT
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- 01. GENERAL REQUIREMENTS
- 02. EXISTING CONDITIONS
- 03. CONCRETE
- 04. MASONRY
- 05. METALS
- 06. WOOD, PLASTICS, AND COMPOSITES
- 07. THERMAL & MOISTURE PROTECTION
- 08. OPENINGS
- 09. FINISHES
- 10. SPECIALTIES
- 11. EQUIPMENT
- 12. FURNISHINGS
- 13. SPECIAL CONSTRUCTION
- 14. CONVEING EQUIPMENT
- 21. FIRE SUPPRESSION
- 22. PLUMBING
- 23. HVAC
- 26. ELECTRICAL
- 27. COMMUNICATIONS
- 28. ELECTRONIC SAFETY & SECURITY
- 31. EARTHWORK
- 32. EXTERIOR IMPROVEMENTS
- 33. UTILITIES

TRADE TOTAL	0	0	0
GENERAL CONDITIONS, 8%			
DESIGN CONTINGENCY, 2%			
ESCALATION, 2%			
OH + PROFIT, 10%			
BOND, 2%			
BUSINESS TAX, 4%			
TOTAL ESTIMATED CONSTRUCTION COST			



# Design Estimates Summary Sheet (UniFormat)

PROJECT NAME:		DATE:	
LOCATION:	Morgantown, WV	FILE:	
CLIENT NAME:	West Virginia University	WVU PROJECT#:	
ARCHITECT:		EST#:	
ESTIMATE TYPE:	Detailed Take-Off	S.F.:	
ESTIMATE PHASE:		REV.:	

TRADE SUMMARY	%	\$/SF	AMOUNT
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- FOUNDATIONS
- BASEMENT CONSTRUCTION
- SUPERSTRUCTURE
- EXTERIOR CLOSURE
- ROOFING
- INTERIOR CONSTRUCTION
- STAIRS
- INTERIOR FINISHES
- CONVEYING
- PLUMBING
- HVAC
- FIRE PROTECTION
- ELECTRICAL
- EQUIPMENT
- FURNISHINGS
- SPECIAL CONSTRUCTION
- DEMOLITION
- SITework

TRADE TOTAL	0	0	0
GENERAL CONDITIONS, 8%			
DESIGN CONTINGENCY, 2%			
ESCALATION, 2%			
OH + PROFIT, 10%			
BOND, 2%			
BUSINESS TAX, 4%			
TOTAL ESTIMATED CONSTRUCTION COST			