Summary:

Upon request, Engineering and Facilities will provide two types of cost estimates to assist departments in budget preparation or project planning. Type 1 is a **Budget Estimate** and type 2 is a **Detailed Estimate**. There will be no charge for **Budget Estimates** as such estimates are based on general University standards and do not include detailed design information in arriving at the cost figures. Since these budgetary estimate figures are not based on a detailed investigation of the project specific circumstances, customers must be aware that there is a possibility of considerable deviations between the estimated and actual costs. Departments will typically use this type of estimate for internal funding requests and budgetary planning. The best point of contact for Budget estimates is the Building Engineer assigned to that area. Requesting departments will be charged for **Detailed Estimates**, as this requires shop or engineering time for detailed investigation. Departments should be encouraged to get detailed estimates for large-scale renovations/projects. They are also highly recommended in instances where deviations greater than 10% between the estimated and actual costs are not acceptable to the department. Charges generally will run between $40 and $250 based upon the scope of the project and the labor required to develop the estimate. To request detailed estimates, an AiM customer request can be filled out on E&F’s website.

http://academicdepartments.musc.edu/vpfa/eandf/services/aim_customer_request.htm

1) **PROCESS FLOW CHART (AND STEP DEFINITIONS):** The process flow chart visually represents the estimating process. It is probably the easiest way to understand the responsibilities, sequence of operations, and logical flow of the process. The Process Step Definitions explain each individual operation in more detail (Each operation has a number that matches a step definition). See Appendix 1 at end of policy document for more details.

2) **BUDGET ESTIMATES:** Budget estimates are rough estimates provided free of charge as a convenience to customers to help them create internal budgets for facilities projects. Customers will contact Building Engineers or Maintenance & Construction Managers to request these estimates.
   a) **General Guidelines**
   i) **Average Time Given to Provide Budget Estimate:**
      1. Budget estimates should take less than 1 hour of a Building Engineer or Maintenance & Construction Manager’s time to complete. (<1hr)
      2. Budget estimates should take less than 60 minutes of each supporting Shop Foreman’s time to complete. (<60 mins)

3) **DETAILED ESTIMATES:** Detailed Estimates are formal estimates that are billable to the requestors department. These estimates generally require E&F staff time to design, take-off, and provide a formal estimate. These estimates should not deviate more than +/-10% from actual costs, unless the scope of work changes or there were unforeseen circumstances during the project that were documented and communicated to the customer. Customers will contact Foreman, Building Engineers, or Maintenance & Construction managers to request these estimates.
   a) **General Guidelines**
   i) **Responsibilities:**
      1. Building Engineers & Construction/Maintenance Managers
         i) Will decide whether requested estimate is single shop or multi shop.
            (a) Single Shop: Requires only one shop to complete scope of work.
            (b) Multi-Shop: Requires multiple shops to complete scope of work.

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1 If it looks like it is going to take considerably more time than mentioned above to accurately estimate the job, the requesting party should be encouraged to obtain a detailed estimate.
(b) Will create the associated estimate type project and or work order(s) and forward to the appropriate shop(s).

(c) Will compile Multi-Shop estimates onto the “Multi-Shop Estimate Form” found on E&F Website², and send them to the requestor.

(d) Will input estimated amount into the work orders that they create after a detailed estimate is approved (this is for multi-shop projects).

(2) Shop Foreman

(a) Will be responsible for completing estimates only for their shop

(b) Will use the “Single Shop Estimate Form: found on the E&F website² to compile their estimates.

(c) Will charge all time taken to estimate to the associated estimate work order

(d) Will link the completed estimate form to the associated estimate work order in TMA.

(e) Will input estimated amount into the work order that they create after a detailed estimate is approved (this is only for their associated shop).

ii) Estimate Accuracy:

(1) For internal control purposes, the deviation between Estimated Cost (EC) to Actual Costs (AC) should be no greater than +/- 10%.

(a) Percent Deviation calculated by: (AC-EC)/EC )*100%

iii) Time to Complete Estimates:

(1) Our goal is to have estimate turnaround time less than 2 weeks³

(a) Turnaround time calculated by: Work order Create Date to Work order Finish Date

iv) Billing:

(1) Detailed Estimate Work orders will be billed to the requesting department.

(2) If the requesting department would like E&F to proceed with work:

(a) University: They must provide an IIT for the full estimated amount prior to work orders being created.

(b) Hospital: Responsible hospital manager must approve the estimate prior to work orders being created.

APPENDIX 1

¹ Link to Engineering & Facilities Websites In-House Forms Page: http://academicdepartments.musc.edu/vpfa/eandf/ef_staff/forms.htm

³ This is for normal estimate requests. Complicated, design intensive, or requests that have long vendor/contractor lead times will take longer. These longer than average estimates need to be documented and communicated to the customer.
Facilities Estimating Process

Start
1. Customer wants estimate
   2. Shop foreman directs to appropriate B.E or Const. Maint Mgr.
   3. B.E. or Maint./Const. Mgr guides customer through estimate process

3. Customer submits Request for Detailed Estimate
   4. Customer asks B.E. to provide budget estimate.
   5. BE provides customer with budget estimate.
   6. Can B.E. provide budget estimate with <1hr time?
      No
      7. BE or Maint./Const. Mgrs review and revise scope of work with customer.
      Yes
      8. Building Engineers & Maint./Const. Mgrs Review on daily Browse.

10. Is scope of work clear?
    Yes
    11. BE or Maint./Const. Mgrs review and revise scope of work with customer.
    No
    12. Single Shop or Multi-Shop work?
        13. BE or Maint./Const. Mgr creates a Project, associated WO's and forwards to shops or mgr.

14. Converts Req. to Estimate type work order and sends to responsible shop or mgr.
   15. Shop/Mgr. performs estimate and closes work order.
   16. Estimate is sent back to BE or Maint./Const. mgr.
   17. Estimate(s) compiled to Std Estimate form and sent to Customer

18. Queue: Does customer approve?
    Yes
    No
    20. WO's or project created and updated with estimate.

End

Legend
Symbol | Description
--- | ---
[ ] | Process
[ ] | Predefined process
[ ] | Decision
[ ] | Terminator

RESPONSIBILITY
Red=Customer
Blue=BE or Const./Maint. Mgr
Orange=Shop Forman
### PROCESS STEP DEFINITIONS

<table>
<thead>
<tr>
<th>No.</th>
<th>Process Label</th>
<th>Process Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Customer wants estimate</td>
<td>The customer wants an estimate to have work done.</td>
</tr>
<tr>
<td>2</td>
<td>Shop foreman directs to appropriate B.E. or Const./Maint. Mgr</td>
<td>If the customer contacts a shop foreman directly, it is the shop foreman's responsibility to redirect them to the appropriate B.E. or Construction/Maintenance Manager. For simple projects in areas that do not have a B.E. assigned, the shop foreman may need to help the customer themselves.</td>
</tr>
<tr>
<td>3</td>
<td>B.E. or Const./Maint. Mgr guides customer through estimate process.</td>
<td>When a customer contacts a B.E. or Construction/Maintenance Manager wanting an estimate it is their responsibility to help guide them through their part of the process.</td>
</tr>
<tr>
<td>4</td>
<td>Budget or Detailed Estimate</td>
<td>The customer chooses whether they need a budget (Free educated guess) or detailed estimate. (an estimate that can be within +/- 10% accuracy)</td>
</tr>
<tr>
<td>5</td>
<td>Customer asks B.E. to provide a budget estimate</td>
<td>The customer provides a general scope of work and requests a budget estimate from B.E. or Const./Maintenance Mgr.</td>
</tr>
<tr>
<td>6</td>
<td>Can B.E. provide budget estimate within 1hr time?</td>
<td>If the B.E. feels that they can provide a budget estimate without taking more than 1 hour of his/her time, they do so. If they see that the job is complicated, and do not feel as if an accurate ball park cost can be given without investing more than 1 hour, they let the customer know that they will need to pay for a detailed estimate to be performed.</td>
</tr>
<tr>
<td>7</td>
<td>BE provides customer with budget estimate.</td>
<td>The BE provides the customer with a budget estimate.</td>
</tr>
<tr>
<td>8</td>
<td>Customer submits request for detailed estimate.</td>
<td>The customer submits the estimate request online and indicates at the top of the body of the request &quot;Detailed Estimate&quot;.</td>
</tr>
<tr>
<td>9</td>
<td>BE's &amp; Maint. Const. mgrs review</td>
<td>Building engineers and maintenance/construction mgs review the request log on their daily browse. Any estimate requests are picked up through this browse by the responsible party.</td>
</tr>
<tr>
<td>10</td>
<td>Is the scope of work clear?</td>
<td>Building engineers and maintenance/construction mgs check the body of the request, and make sure the scope of work is clear.</td>
</tr>
<tr>
<td>11</td>
<td>BE or Maint. Const. mgrs review and revise scope</td>
<td>If the scope of work is not clear, then Building engineers and maintenance/construction mgs will contact the customer and review/revise the scope of work to a general understanding.</td>
</tr>
<tr>
<td>12</td>
<td>Single Shop or Multi-Shop work?</td>
<td>Does the scope of work require one shop or multiple shops?</td>
</tr>
<tr>
<td>13</td>
<td>BE or Maint/Const. mgr creates a project, associated work orders, then forwards to appropriate shops or mgs.</td>
<td>If the scope requires multiple shops, a estimate type project is created. Estimate type Work orders (one for each shop required) are then created, and forwarded to the associated shops.</td>
</tr>
<tr>
<td>14</td>
<td>Converts req. to Estimate type work order and sends to the responsible shop or mgr.</td>
<td>If the scope requires only one shop, a estimate type work order is created and forwarded to that shop.</td>
</tr>
<tr>
<td>15</td>
<td>Shop/Mgr. performs estimate and closes work order.</td>
<td>Shop/Mgr. performs an estimate based on the scope of work, and any additional information provided by the customer. Once the estimate is complete, the labor hours and or materials used to provide the estimate are charged to the work order. The completed estimate form is then linked to the work order in TMA and it is closed.</td>
</tr>
<tr>
<td>16</td>
<td>Estimate is sent back to BE or Maint./Const. mgr.</td>
<td>The shop/mgr. inputs the estimate into the single shop standard estimate template, and forwards back to the B.E. or Maint/Const. mgr. it orignally came from.</td>
</tr>
<tr>
<td>17</td>
<td>Estimate(s) compiled to multi-shop Std Estimate form and sent to Customer</td>
<td>If a project, then the individual shop estimates are compiled to the multi-shop estimate form, linked to the project in TMA, then sent to the customer via email. If a single shop WO, then the estimate form is sent to the customer via email.</td>
</tr>
<tr>
<td>18</td>
<td>Queue: Does customer approve?</td>
<td>Wait 30 days to see if the customer approves. If 30 days passes, the estimate has expired.</td>
</tr>
<tr>
<td>19</td>
<td>Customer approves</td>
<td>If the customer approves: University- they will send an IIT to E&amp;F's business services and let their contact (whomever sent the estimate) know that the estimate was approved. Hospital: Appropriate hospital manager will let their contact know the estimate was approved.</td>
</tr>
<tr>
<td>20</td>
<td>WO's or project created and updated with estimate.</td>
<td>If multi-shop, then a construction type project is created with associated work orders for each shop. Each work order is then updated with the total estimated cost for that shop, and the original estimate form is linked to the project. If single shop, then a construction type work order is created, updated with the estimate from that shop, and the original estimate form is linked to that work order.</td>
</tr>
</tbody>
</table>
Note: This Policy, like all other policies within Engineering and Facilities is not a contract and should not be relied upon as such. Questions concerning Interpretation of this document or suggestions for improvement should be directed to MUSC Facilities and Engineering.

<table>
<thead>
<tr>
<th>Approved By:</th>
<th>Effective Date:</th>
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<tbody>
<tr>
<td>Greg Weigle</td>
<td>March 15, 2010</td>
</tr>
<tr>
<td>Chief Facilities Officer</td>
<td></td>
</tr>
<tr>
<td>Engineering &amp; Facilities</td>
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<tr>
<td>Mark Brown</td>
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<td>Director of Facilities</td>
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<tr>
<td>Operations</td>
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