Basic Principles of Estimating
Estimating

- A prediction of probable cost.
- Is figuring out how to put the pieces together in the most economical manner.
- Estimating is both art and science.
Estimating (cont.)

- Identify and quantify the pieces-takeoff.
- Identify construction methods.
- Engineering - Will it be stable during construction?
- Productivity
Bidding is NOT the same as Estimating

- Identify RISK
- How do you get paid?
Successful Estimating

- Contractors are not in business to win bids.
- Contractors are in business to make money.
- Estimating is the base of a company’s success.
Estimating for Profit

- Good estimating minimizes contractor’s risk and facilitates project management and defines the scope of work.
- The estimate is the plan that furnishes the field people with all the details in a controlled and prearranged format.
Estimating Requires:

- Skills
- Effort
- Above all, an organized system that will prevent errors and omissions.
Estimating is very expensive; therefore, we must use our time wisely and effectively if we are to be successful.
Cost of Estimating

**Chart 1**

- **A**: Simple project
- **B**: Medium complexity
- **C**: Difficult project

DR. Nabil Dmaid
Cost of Estimating (cont.)

Chart 2

Size of Project in Millions of Dollars

hours

A  Complex
B  Medium complexity
C  Simple

DR. Nabil Dmaidi
Profit Should Correlate to Risk

Job Comparison

Compare two jobs of identical direct cost, yet very diverse in overhead and risk factor:

<table>
<thead>
<tr>
<th></th>
<th>Job “A”</th>
<th>Job “B”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>$200,000</td>
<td>$100,000</td>
</tr>
<tr>
<td>Labor</td>
<td>20,000</td>
<td>230,000</td>
</tr>
<tr>
<td>Subcontractors</td>
<td>100,000</td>
<td>10,000</td>
</tr>
<tr>
<td>General Expenses</td>
<td>30,000</td>
<td>10,000</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>350,000</strong></td>
<td><strong>350,000</strong></td>
</tr>
<tr>
<td>Overhead @10%</td>
<td>35,000</td>
<td>35,000</td>
</tr>
<tr>
<td>Profit @10%</td>
<td>38,500</td>
<td>38,500</td>
</tr>
<tr>
<td><strong>Selling Price</strong></td>
<td><strong>$423,500</strong></td>
<td><strong>$423,500</strong></td>
</tr>
</tbody>
</table>
Profit Should Correlate to Risk (cont.)

- Job Comparison

12 weeks → 65 labors

12 weeks → 65 labors

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Profit Should Correlate to Risk (cont.)

- Materials: Low to medium risk
- Labor: High risk
- Subcontractors: Low risk
- General Expenses: Low risk
Accuracy is Critical for Success

- A typical project can be broken down as follows:
  - Material: 40-45%
  - Labor: 35-40%
  - Equipment Expenses: 8-10%
  - Overhead: 10%
  - Profit: 2%
Common Estimating Mistakes

- Misread or misinterpreted specifications, drawing, or any other contract document
- Takeoff omissions or overlaps
- Missing quotes
- Estimating by unit prices
- Using the percentage method to establish the cost of certain systems
- Prorating indiscriminately
- Crumbling under pressure to procure work
Common Estimating Mistakes (cont.)

- Cutting prices to meet or beat someone else’s quote
- Underestimating the complexity of a project
- Expecting an excessive amount of favorable changes
- Overemphasizing volume purchasing
- Undertaking a project with incomplete bid documents
  - Scaling drawings
How to Improve your Estimating Procedure

- Company labor tables and current material prices should be stored in your database.
- Manual estimating is not cost effective and it is subject to more errors and omissions.
- Computerized estimating should automate and expedite the manual estimating process.
- Establish the company labor unit sand labor factoring tables.
- Maintain current material pricing.
- Establish an estimate review procedure.