Risk – Probability of danger, harm or loss associated with the physical (construction) phase of a construction project.


Risk Management – Risk management is a process used to identify non-monetary risk mitigation measures with the goal being to eliminate potential risk through better design, effective permit terms, increased planning, coordinated working schedules, proper resource allocation and team participant cooperation.
How Risk is Traditionally Addressed

- Assignment of additional costs
- Baking of concerns into pricing assumptions (quantities and production rates)
- Shifting or transfer of risk exposures via contract language to other parties, traditionally Contractor
- Assigned to the party most capable of managing it
- Development of a Risk Management Program
  - Risk Registry or Matrix
    - (McMillen Jacobs Associates - Preferred Method)
Compounded Risk

- Different parties add to their risk assumptions – Multiplying on the same risk exposure
- Assignment by Parties
  - Developer – Pro Forma – additions and outcomes
  - Designer – Increasing safety factors
  - Contractor – cost, quantity, deflated production rates and schedule (time)
  - Owner – Increased capital budget and reduced return rate assumptions
Identification of Risks and Exposures

Risks are commonly assessed using a risk matrix or similar tool

- List all concerns (there are no unwarranted concerns during development of the risk registry)
- Involve all parties during the risk charette
- Identify the likelihood and severity of each exposure
- Prepare the Risk Registry based on findings
- Financially account for the risk exposure via contingency or allowance
### The Risk Register

**Reference Design and Permitting Risks (D)**

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<tbody>
<tr>
<td>1</td>
<td>D</td>
<td>Delay to the project caused by re-consultation with agencies</td>
<td>Failing to comply with permit requirements or conditions during construction.</td>
<td>Significant schedule delay to the project, based on re-consultations, re-preparation of permit documents, and re-review/approval time periods delaying the ability to begin or continue work. Potential of 6 to 9 months of schedule impact.</td>
<td>2</td>
<td>7</td>
<td>14</td>
<td>CMGC, Engineer</td>
<td>Incorporation of CMGC into permit development process, to capture desired means and methodologies to be used during construction.</td>
<td>Quality control plan to incorporate permit requirements, pre-work meetings with affected subcontractors, readiness reviews prior to beginning work.</td>
<td>1</td>
<td>7</td>
<td>7</td>
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How to Consider and Price Contingency

- Contingency is assessed by key members of the project team, and includes the analysis of all elements of a project / estimate / schedule. Key questions in the evaluation might include:
  - How sound/firm is the technology, the overall design basis and the engineered equipment performance basis?
  - How sound/firm are the execution strategy and the staffing plan?
  - How sound/firm are the schedule durations and logic, etc.?
  - How sound are the estimate quantities and prices?
  - How firm are the production rates and labor availabilities?
  - How well defined and documented are the site conditions?
  - How volatile are the market conditions (local, national, global)?
  - How reasonable / negotiable are the contract terms, conditions and owner representatives?
### How to Consider and Price Allowances

**Allowance** – A dollar amount that the project team includes in a construction contract for a particular item. Used when a client hasn’t finished defining or selecting a given scope of work. Also used to ensure all bidders carry the same value for an owner defined item.

<table>
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<tr>
<th>Allowances typically take one of two forms:</th>
<th>A material allowance may cover a material of varying cost/quality while the installation remains relatively fixed (i.e. carpeting or tile)</th>
<th>An installation allowance may cover anything from a piece of equipment to a finishes buildout budget. i.e. backup generator, or office space furnishings</th>
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<tr>
<td>• Material allowance</td>
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<tr>
<td>• Installed allowance</td>
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The Truly Unforeseen

- Differing Site Conditions
- Change of Conditions
- Rampant Escalation
- Delays

- Change Orders
- Force Accounts (Time & Materials)
- Contract Modifications
Contracting for Success - Contractual Transparency

- All project team members participate in and develop the risk registry
- Risks are assigned to:
  - Owner (Contingency)
  - Contactor (Allowances)

Scheduled reviews of the risk registry as events pass, potential budget savings are realized and new risks, previously unknown risks are identified and added. Contractual Transparency allows all project team members to acknowledge, view and manage project risk as one collective

*This is how you can prepare a project for:*

**CONTRACTING FOR SUCCESS**