# Controlling Construction Project Costs

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# The issue

- Project costs at both construction award and completion exceed the funds allocated!!

# What has changed recently?

- The significant recent impacts are:
  - material cost escalation
  - limited competition
  - fuel costs

# What are the same old issues?

- Design Scope
- Procurement
- Construction

# Scope

- Scope is settled before design starts
- Scope is controlled during design
- Scope creep is avoided during construction

# Procurement

- Market interest is stimulated prior to procurement
- Owner has positive image with contractors
- Contractor selection involves past performance
- Delivery method results in at least three contractors

# Construction

- Differing conditions
  - Usually due to inadequate site investigation
- Change Orders
  - Design clarification
  - Scope creep
- Delay
  - Change orders
  - Slow decision making by the owner

# What are the keys to success?

- Leadership by experienced knowledgeable project managers
- Reconciliation of the various budget estimates by each element, not by dollars alone.
- Avoiding delay – "Cost without any benefit"

# What to do differently?

- Use the Construction Industry Institutes – Project Definition Rating Index (PDRI) (Used by GSA since 2003)
- Select a designer with a great past performance
- Manage the design to ensure each A/E design submission is on time and within the established budget.
- Require that scope changes (not corrections) be approved at a higher level than the team to avoid delays.

# What to do differently? (cont.)

- Include current escalation rates in projects
- Know which materials in the local area are too expensive for the budget.
- Market project to ensure adequate competition—a USACE study revealed that less than three contractors results in added cost.
- Ensure you are not viewed as an undesirable client:
  - Non-collaborative with contractors
  - Difficult to work with
  - Unreasonable in expectations
  - Late paying for completed work and changes

"After all if the contractor fails you fail"

# What to do differently? (cont.)

- Resolve issues promptly—Biggest reason for delays and the associated added cost.
- Manage the schedule and request for time extensions monthly (not at the end of the job) to avoid unreasonable delays and added delay costs.
- Utilize Risk Management during project delivery. (Utilized on the US Capitol Visitor Center in 2006)

# Contingencies

- Design contingencies: 15% at the beginning of design and reduce to 0% at the completion of design documents. Not a straight line reduction, depends on quality and complexity of the documents.
- Construction contingencies: 10% for new construction and 15% for repair and alteration.
- Contingencies spending lags construction, so if you have used half the contingency at 50% you are in trouble.
- **Scope increases require bringing their own new funding to the project for direct <u>and indirect (delay) costs</u>, <u>DO NOT</u> use existing design or construction contingencies for new scope.**

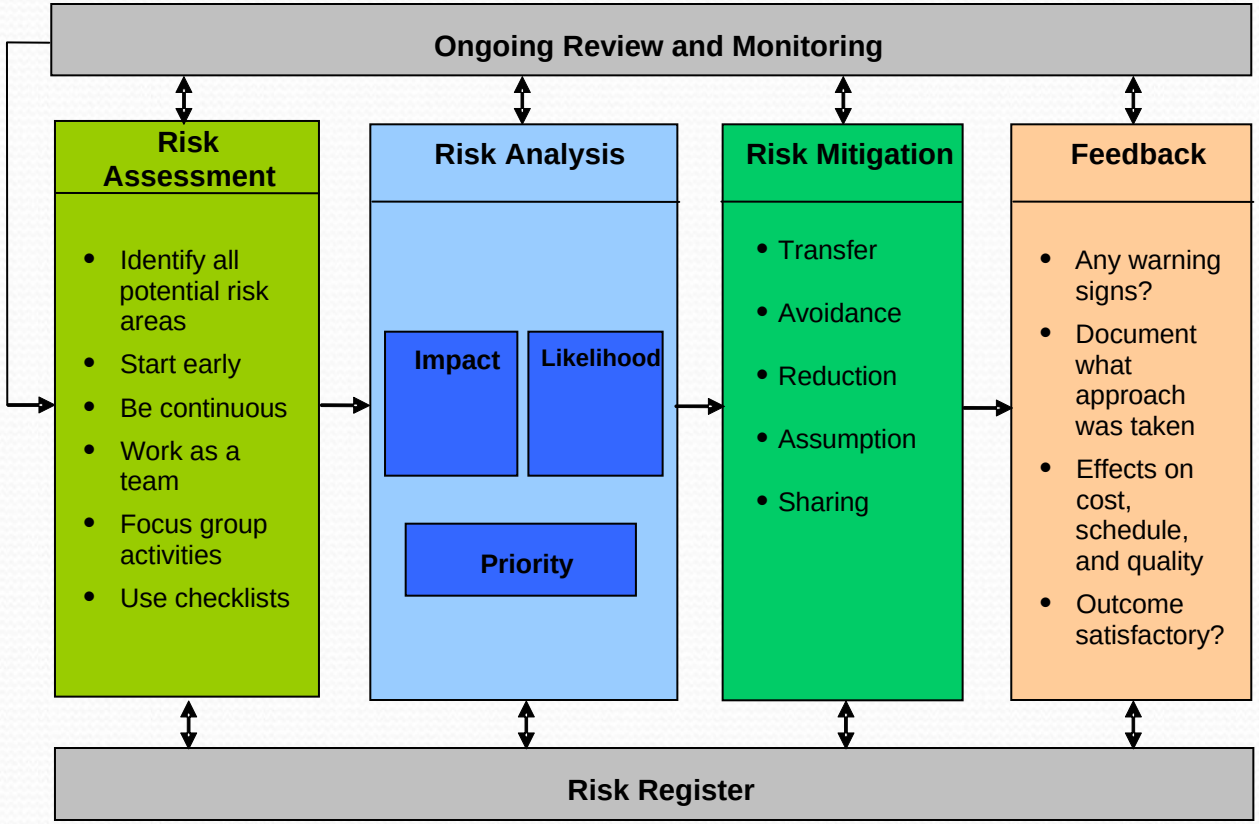
# Escalations

- Ensure you are using the correct geographic escalation rate, (not a national rate) for your area. Six percent currently for the DC area?
- These "guesstimates" for escalation go to the projected midpoint of construction. Delays to the project during design or construction increase this number.
- The contract needs to address the issue of unreasonable escalation (that no one anticipated) if you want to place the risk of escalation on the contractor and still get reasonable prices.

# CII Project Definition Rating Index

- Weighted score sheet that evaluates the development of a project in the following areas:
- Basis of Project Decision
  - Business strategy (8) – including economic analysis
  - Owner philosophies (4) – maintenance philosophy
  - Project requirements (6) – Project design criteria
- Basis of Design
  - Site information (8) – environmental assessment
  - Building programming (13) – room data sheets
  - Building/Project Design Parameters (8) – electrical design
  - Equipment (3) – equipment list
- Execution Approach
  - Procurement strategy (2) – identify log lead critical equipment & materials
  - Deliverables (2) – CADD/Model requirements
  - Project control (5) – risk management
  - Project Execution Plan (5) – project delivery method

# Elements of Risk Management




*Courtesy of Michael Dell'Isola*

# List for Weekly Risk Management Meeting

10/3/2006

| Status | ID | Clr Code | Title | Last Meeting Date | Action Officer | Assignee | Time Horizon | Impact | RiskProb | Strategy |
|---|---|---|---|---|---|---|---|---|---|---|
| Open | 62 | | Fire/Life Safety Pre-testing | 9/26/2006 | Gary | CM | Near Term | High | 90 | Pretesting Planning |
| Open | 64 | | Fire Alarm Acceptance Testing Process | 9/26/2006 | Marvin | CM | Near Term | High | 90 | Clearly define a detailed coordination plan |
| Open | 121 | | Floor Stone Installation | 9/26/2006 | David | Contractor | Near Term | High | 90 | Use wall stone crew to floor installation toward the end |
| Open | 132 | | Atria Stair Construction | 9/26/2006 | David | Contractor | Near Term | High | 90 | Act immediately on the three mitigation strategies outlined. |
| Open | 18 | | Schedule Management | 9/26/2006 | Jim | CM | Near Term | High | 80 | Monthly schedule reviews |
| Open | 20 | | Completion of Ceilings | 9/26/2006 | David | Contractor | Near Term | High | 80 | Provide sufficient skilled labor |
| Open | 122 | | Custom Lighting Fixtures | 9/26/2006 | Marvin | CM | Near Term | High | 80 | Resolve Escalation Request from Manufacturer |
| Open | 124 | | Summer's Relocation | 9/26/2006 | Nabeel | Contractor | Near Term | High | 80 | Resolve ASIs |
| Open | 23 | | Millwork Installation | 9/26/2006 | David | Contractor | Near Term | High | 70 | Address temporary dehumidification |
| Open | 25 | | Installation of Custom Bronze Elements | 9/26/2006 | David | Contractor | Near Term | High | 70 | Detailed Completion Schedule |
| Open | 114 | | Plaza Paver Acceptance | 9/26/2006 | Tim | Designer | Near Term | High | 70 | Press for approval |
| Open | 5 | | Trade Stacking | 9/26/2006 | David | Contractor | Mid Term | High | 80 | Define finish schedule relationships |
| Open | 35 | | Installation of Security Systems | 9/19/2006 | Doug | Owner | Near Term | High | 60 | Assist USCP by providing cable installation |
| Open | 73 | | Expansion Space Construction | 9/26/2006 | Bill | Owner | Near Term | Medium | 70 | Expedited delivery of materials to expansion spaces |
| Open | 118 | | Interior Stone Quality Control | 8/29/2006 | Gary | CM | Near Term | Medium | 65 | Develop a specific quality control/ acceptance program for stone work. |
| Open | 11 | | Architect's Special Instructions | 8/15/2006 | Tim | Designer | Near Term | Medium | 50 | Review and Prioratize |
| Open | 45 | | Training of Operational Personnel | 8/1/2006 | Carlos | Owner | Mid Term | Medium | 50 | Joint Pretesting and Startup |
| Open | 112 | | Temporary Project Facilities | 8/29/2006 | Ted | Contractor | Mid Term | Medium | 50 | Develop alternates sites and relocation plans |
| Open | 90 | | Conflicts in the Exhibition Gallery | 8/29/2006 | David | Contractor | Near Term | Low | 50 | Coordination |

| COLOR INDEX | | | | |
|---|---|---|---|---|
| Probability | 21 - 40 | 41 - 60 | 61 - 80 | 81 - 100 |
| Impact | Unlikely | Possible | Likely | Almost Certain |
| High | Blue | Yellow | Red | Red |
| Med | Green | Blue | Yellow | Red |
| Low | Green | Green | Blue | Yellow |

U.S. CAPITOL VISITOR CENTER PROJECT

| TIME HORIZON | |
|---|---|
| Near Term | [<= 90 Days] |
| Mid Term | [91 - 180 Days] |
| Far Term | [>180 Days] |





Thursday, October 05, 2006

# Questions?