

MCX



Member Communication Experience

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A change also can include revisions to the contract's terms and conditions as well as changes to various management and administrative processes.

Changes arise from any of several potential sources, including:

- x Changed owner requirements/project scope
 - o These may occur even before contractor is on site.
- x Changes to long-lead equipment or materials, including owner-furnished equipment and materials
- x Changed geotechnical conditions
 - o Material/hydrological
 - o Hazardous/toxic materials
- x Changed regulatory requirements
- x Delays in permitting, especially environmental permits
- x Delayed approvals from owner
- x Third-party delays outside the contractor's control
- x Owner requested acceleration or slow down
- x Delayed receipt of owner-furnished equipment and materials

The list is far from comprehensive since it focuses on changes from outside the contractor's control. Change orders also can result from initiatives arising from the contractor. These can include:

- x Project acceleration (creating a benefit for owner).
- x Changed means & methods to minimize potential regulatory or third-party concerns and risks.
- x Changed project execution methodology to respond to changes in labor availability or quality.
 - o Offsite fabrication and modularization are examples.

Development of change orders requires a high quality estimate to protect both the contractor (by ensuring that all costs of change have been considered) and the owner (to ensure they are not paying for the same elements of work twice). All project participants should have a comprehensive, workable and agreed to process for identifying and managing change. Well developed estimates of construction change orders become even more important in any dispute resolution process that may result.

High Quality Estimate

Most construction change orders arise as the project work is underway and as such, the estimate quality should be very high. This would tend to be equivalent to a Class 1 estimate as defined by AACE International (Association for the Advancement of Cost Engineering)¹. In some instances, owner driven changes occur early in the project, sometimes between bid and initiation of work, and as such, use of a Class 2 bid type estimate may be more appropriate.

¹ Other cost estimate classification systems exist and are used in various international settings.

- o Change order estimating procedures need to allow for higher contingencies than base estimates to account for disruption. These procedures should be reflected in the contract.
- x Change order estimates must clearly describe the change for which relief is being sought by contrasting the changed state with the contract baseline.
 - o Change order scope suffers from the same challenges as contractual baselines, namely incomplete or inadequate scope definition.
- x Change order estimates must:
 - o Explicitly state the uncertainty associated with an estimate.
 - o Recognize and explicitly state that the expected value does not include unknown risks not explicitly considered by the estimator. Recognize that any sensitivity analyses suffer from the same shortcoming.
 - o Recognize and apply extra effort when multiple changes are occurring simultaneously.
 - o Disruptions caused by single changes are amplified if multiple changes are occurring simultaneously. There is a network effect.
- x Project acceleration sets up new feedback loops with amplifying effects (positive or negative).
- x Projects with high degrees of change experience stress, which limits communication when more communication is required.
- x Trust is essential, but complete and timely records facilitate trust.
- x Change order work must be approved before proceeding.

Summary

Change may be the only constant in construction and, by extension, change orders are a way of life. Both owner and contractor require high quality estimates of change. These estimates are best founded on high quality project scopes and other baselines. The basis for change order estimates begins with a robust description of the change and is ideally undertaken within a framework for change estimates agreed to at time of contract.

About the Author

Bob Prieto was elected to the National Academy of Construction in 2011. He is a senior executive who is effective in shaping and executing business strategy and a recognized leader within the infrastructure, engineering, and construction industries.

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