Cost Impacts, Scheduling Impacts, and the Claims Process during Construction

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Abstract: Construction mismanagement results in multiple problems that can cascade throughout the work force chain, affecting the schedule and leading to damages to multiple parties. Although the problem may start with a single subcontractor, it can result in all contractors feeling some impact to their work. In this paper, a case study is presented of a project with seven different mismanagement scenarios. A description of each scenario is provided as well as a quantification of the damages that result from the problem. A construction claims section is also included that addresses many of the issues that could result from a claim for each of the seven scenarios. A discussion is presented outlining possible preventative steps to minimize the damages from the problems presented.

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Introduction

Construction projects are often delayed by unforeseen conditions and poor management practices. The drive to build cheaper and faster sometimes results in several problems for engineers and managers on the construction site. First, engineers do a less thorough job in the design and planning phase second, managers try to cut costs by not planning as well as they should or by consolidating efforts. As a result, construction managers are put in a position where they are less likely to anticipate adverse conditions before they arise and are less capable of dealing with them when they do.

One example of this is the process of keeping track of productivity with a cost engineer. On some construction projects, the cost engineer’s responsibilities now fall to the project manager. The project manager is asked to keep track of hours worked, material installed, and how much has been billed on top of his other major responsibilities including the coordination of labor, material, and equipment to meet the schedule. With these added responsibilities, the project manager will keep track of hours worked, material installed, and how much has been billed but will not have the time to compare them to the planned production as the cost engineer would have. As a result, the project manager will not know that he has gone over budget or has installed more material than originally planned until it has already happened.

The ability to anticipate such problems is very important because the problem can then be controlled or even corrected to get the project back on track.

This paper examines seven common scenarios relating to schedule impacts on the construction site. The impacts include realistic scenarios for delay, cost cutting, rescheduling of work, acceleration, change of scope (rework), defective work, and strikes. Some of the scenarios deal directly with how construction management practices affect schedule impacts. Other scenarios deal with issues that are not the result of construction management but do directly affect it. For each of the scenarios, an analysis was performed comparing the impact to the baseline schedule. Impact costs were calculated and compared to the estimated cost for construction and the extent of delay was also calculated. The baseline case and scenarios are available on the World Wide Web (Chester 2003) as Microsoft Project™ files.

Methodology

The purpose of this paper is to quantify the costs and time overrun of specific schedule impact scenarios on a single project and to analyze possible claims for damages. Analysis of cost and time impacts due to changes have appeared before (Thomas and Napoleon 1995; Finke 1998; Thomas 2000; Akpan and Igwe 2001; Chang 2002; Guo 2002). Change orders have received particular attention (Leonard et al. 1991; Ibbs and Allen 1995; Hanna et al. 1999). Claims have also received considerable attention (Asem et al. 2002; Kartam 1999; Kululanga et al. 2001). Our intent here is to integrate the two topics within the context of a single project. Since no one project has experienced all of the various mismanagement scenarios, we simulate impacts on a typical project cost history and schedule. While the results are not validated empirically, we believe they are representative of typical impacts.

For each scenario, a critical path project schedule was created and resource loaded. Using the report features, detailed summaries of hours worked by timeframe, activity, and worker classification were created. By comparing the baseline schedule to each of the scenarios, scheduling impacts could be evaluated and as-

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costs and time impacts of each of the scenarios. It will be presented in the following sections to calculate the base case’s cost will be used with other data when looking at the effects of scheduling impacts. The data used scenarios will use the base case as a standard for comparison 93% and wage escalation is 2% every 6 months. The following shown in Table 2

- **Scenario Definition**

The following sections define the delay scenarios. The first subsection identifies the “Base Case” scenario which is the construction of the building without any factors impacting the scheduling. The “Scenario Analysis” subsection identifies the seven scenarios that were developed. In “Discussion”, the results of the analysis performed is presented identifying the impact of time, money, and various other resources to each of the scenarios.

- **Base Case**

In order to analyze cost overruns from specific scheduling impacts, a base case is created that identifies how the project should have been completed without problems. The base case for this analysis is the construction of a five-floor 100,000 ft² (9,300 m²) office building. The structure is a precast concrete panel exterior wall with a steel frame. The structure also has one basement level, two elevators each with a 2,000 lb (907 kg) capacity, and 20 ceiling type smoke detectors on each floor. The estimated cost of construction for the building is identified in Table 1. Construction of the base line project begins on January 3, 2000 and finishes September 3, 2001 (approximately 20 calendar months). In the project schedule, 142 tasks are included and 32 labor resources are associated with them (a summary of resource loading is shown in Table 2). It is assumed that burden on the labor rates is 93% and wage escalation is 2% every 6 months. The following scenarios will use the base case as a standard for comparison when looking at the effects of scheduling impacts. The data used to calculate the base case’s cost will be used with other data (as will be presented in the following sections) when calculating costs and time impacts of each of the scenarios.

- **Scenario Analysis**

A summary of the analysis can be found in the claims section. With each schedule impact scenario, there is a time impact and cost impact component. The time impact component was quantified by creating a schedule for each scenario and then comparing it to the baseline schedule. Also, with each schedule, labor resources were allocated to every activity. These labor resources were used to determine time impacts and cost impacts. Material and labor impacts were calculated separately for each scenario (see Table 3).

### Table 1. Square Foot Construction Costs for 100,000 Square Foot Office Building

<table>
<thead>
<tr>
<th>Structure</th>
<th>$/SF ($989/m²)</th>
<th>$91.90</th>
<th>Structure subtotal</th>
<th>$9,190,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basement</td>
<td>$/SF ($257/m²)</td>
<td>$23.85</td>
<td>Basement subtotal</td>
<td>$477,000</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>Total cost of construction</td>
<td>$9,884,900</td>
</tr>
</tbody>
</table>

Note: The estimated cost of construction of a 100,000 ft² (9,300 m²) office building are detailed. The costs of the structure, basement, and amenities are shown.

### Table 2. Resource Loading Showing Number of Resources and Associated Manhours

<table>
<thead>
<tr>
<th>Resource</th>
<th>Number of resources</th>
<th>Total manhours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General contractor (G.C.)</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>General management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.C. Project management</td>
<td>11</td>
<td>131</td>
</tr>
<tr>
<td>G.C. Procurement</td>
<td>2</td>
<td>56</td>
</tr>
<tr>
<td>G.C. Scheduler</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>G.C. Accounting</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>G.C. Superintendent</td>
<td>6</td>
<td>53</td>
</tr>
<tr>
<td>G.C. Survey crew</td>
<td>2</td>
<td>64</td>
</tr>
<tr>
<td>G.C. Rough carpenter crew</td>
<td>9</td>
<td>268</td>
</tr>
<tr>
<td>G.C. Labor crew</td>
<td>32</td>
<td>345</td>
</tr>
<tr>
<td>G.C. Concrete crew</td>
<td>9</td>
<td>272</td>
</tr>
<tr>
<td>G.C. Finish carpenter crew</td>
<td>3</td>
<td>420</td>
</tr>
<tr>
<td>Site grading contractor</td>
<td>8</td>
<td>312</td>
</tr>
<tr>
<td>Plumbing contractor</td>
<td>16</td>
<td>893</td>
</tr>
<tr>
<td>Plumbing contractor management</td>
<td>1</td>
<td>80</td>
</tr>
<tr>
<td>Electric contractor</td>
<td>17</td>
<td>989</td>
</tr>
<tr>
<td>Electric contractor management</td>
<td>1</td>
<td>80</td>
</tr>
<tr>
<td>Heating, ventilation, and air conditioning (HVAC) contractor</td>
<td>8</td>
<td>849</td>
</tr>
<tr>
<td>HVAC contractor management</td>
<td>1</td>
<td>80</td>
</tr>
<tr>
<td>Elevator contractor</td>
<td>5</td>
<td>388</td>
</tr>
<tr>
<td>Elevator contractor management</td>
<td>1</td>
<td>80</td>
</tr>
<tr>
<td>Steel erection contractor</td>
<td>11</td>
<td>708</td>
</tr>
<tr>
<td>Steel erection contractor management</td>
<td>2</td>
<td>320</td>
</tr>
<tr>
<td>Drywall contractor</td>
<td>5</td>
<td>609</td>
</tr>
<tr>
<td>Masonry contractor</td>
<td>3</td>
<td>460</td>
</tr>
<tr>
<td>Tile contractor</td>
<td>4</td>
<td>200</td>
</tr>
<tr>
<td>Roofing contractor</td>
<td>5</td>
<td>144</td>
</tr>
<tr>
<td>Roofing contractor management</td>
<td>1</td>
<td>80</td>
</tr>
<tr>
<td>Window contractor</td>
<td>2</td>
<td>360</td>
</tr>
<tr>
<td>Carpet contractor</td>
<td>2</td>
<td>209</td>
</tr>
<tr>
<td>Landscape contractor</td>
<td>1</td>
<td>80</td>
</tr>
<tr>
<td>Paving contractor</td>
<td>2</td>
<td>89</td>
</tr>
<tr>
<td>Painting contractor</td>
<td>3</td>
<td>309</td>
</tr>
</tbody>
</table>

Total manhours 8,985

Note: The labor resources associated with construction of the office building are shown. The number of resources column is the number of activities that the labor resource will work on. also, the total manhours are detailed in the third column.
his labor force. In addition, this last minute decision made by the project manager is incorrect and not well informed. The new process takes the foundation contractor much longer than originally anticipated (from 2 to 6 weeks) and his labor force is also increased (twice as many men required to finish the work in those 6 weeks). The result is that the project is delayed nearly 1 month (28 days) because the foundation activities affected are on the critical path. The total project cost increases by 5.7% ($561,000) to a total of $10.445 million.

Cost Cutting
By cutting costs and going with a less experienced design firm, the owner saves a significant amount of design cost. Unfortunately, there are delays to the mechanical and electrical contractors. The mechanical and HVAC contractors are delayed as a result of the poor design. Also, the rework and machinery on site are an additional cost to the two contractors and the designer’s clarification of the drawings in requests for information (RFI) costs increase. Although the owner saved by using the less expensive design firm, the resulting costs are far greater. The total cost of the project increases 2.1% ($211,000) to a total of $10.096 million. Although the activities take longer to complete, they are not on the critical path nor do they become the critical path, so there is no overall delay to the project.

Resequencing of Work
As the general contractor is forced to jump from one area to another due to rescheduling, efficiency of the work is lost. This loss is felt in the extended durations in each of the pouring of concrete activities. What was planned to be a smooth transition from one area of work to another is now a rough transition as equipment is moved extensively. Originally, the general contractor would have worked from one end of a floor to the other end, then up to the next floor. Equipment and workers would have followed this smooth transition throughout the building. As a result of the rescheduling, productivity declines by 50% and pouring activities now take twice as long as originally planned. Additional time and cost are incurred not only as a result of the loss of productivity but also in the inefficient use of materials. The result is a 3.8% ($376,000) increase in project cost to a total of $10.261 million.

Acceleration
The acceleration scenario was designed to show the adverse affects of forcing workers to increase their daily production. However, the results of this scenario show cost savings. There is a $5,500/day incentive to finish the project ahead of schedule. The incentive is based on a typical daily rental rate for the building of $2/ft² ($22/ft²) per year of rentable space (Pittsburgh Business Times 2002). In order to finish ahead of schedule, the general contractor increases production on the steel erection activities by working 50 h (five shifts of 10 h) instead of 40 h (five shifts of 8 h). Working 4 weeks at 50 h results in nearly a 5% drop in productivity but also in the inefficient use of materials. The result is a 3.8% ($376,000) increase in project cost to a total of $10.261 million.

Table 3. Analysis Scenarios of Management Problems

<table>
<thead>
<tr>
<th>Case</th>
<th>Activity focus: characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay</td>
<td>Excavation contractor instructed to handle situation differently than planned</td>
</tr>
<tr>
<td></td>
<td>Doesn’t meet planned productivity</td>
</tr>
<tr>
<td></td>
<td>Additional machinery and material needed to complete task</td>
</tr>
<tr>
<td></td>
<td>In order to cut costs, owner subcontracts the mechanical engineering design to a less expensive</td>
</tr>
<tr>
<td></td>
<td>firm with little experience</td>
</tr>
<tr>
<td></td>
<td>Mechanical drawings deficient</td>
</tr>
<tr>
<td></td>
<td>Many requests for information</td>
</tr>
<tr>
<td></td>
<td>General contractor (GC) forced out of sequence by the manager thinking that schedule duration</td>
</tr>
<tr>
<td></td>
<td>can be decreased</td>
</tr>
<tr>
<td></td>
<td>Instead of working one floor to the next, the GC must move throughout the building as soon as</td>
</tr>
<tr>
<td></td>
<td>areas become available</td>
</tr>
<tr>
<td></td>
<td>Efficiency of work is decreased affecting the duration of activities</td>
</tr>
<tr>
<td></td>
<td>Steel erection on the critical path has more labor resources committed</td>
</tr>
<tr>
<td></td>
<td>Work efficiency is lost</td>
</tr>
<tr>
<td></td>
<td>After erecting steel columns, beams, and joists on the fourth floor, the contractor is informed</td>
</tr>
<tr>
<td></td>
<td>that the owner and architect have made a major design change to the third floor</td>
</tr>
<tr>
<td></td>
<td>Steel contractor must rework some of the steel that has already been installed on the third and</td>
</tr>
<tr>
<td></td>
<td>fourth floors</td>
</tr>
<tr>
<td></td>
<td>Delivery of new steel also affects the schedule</td>
</tr>
<tr>
<td></td>
<td>Foundation contractor’s work is defective and on the critical path</td>
</tr>
<tr>
<td></td>
<td>Foundation contractor must remove 25% of work that has already been completed, reform, and pour</td>
</tr>
<tr>
<td></td>
<td>Activity focus: foundation work</td>
</tr>
<tr>
<td></td>
<td>Union strike shuts down the workforce in May 2000</td>
</tr>
<tr>
<td></td>
<td>GC unable to look outside of unions for workers due to contract obligations</td>
</tr>
<tr>
<td></td>
<td>No work is completed during the month delaying the overall completion of the project</td>
</tr>
</tbody>
</table>

Note: A summary of the impact scenarios to be discussed is provided. For each of the seven scenarios, the cause of the impact is also discussed. In addition, the activities, equipment, and labor resources affected are shown.
Change of Scope (Rework)
The change of scope scenario is perhaps one of the most common in construction management. In this scenario, a new design is developed after part of the design has already been implemented. In the scenario, after the fourth floor steel has gone up, the construction crew is informed that there has been a redesign on the third floor. This means that almost all of the steel on the fourth floor already in place has to come down as well as some of the steel on the third floor. As a result, steel erection, previously planned to finish in 70 days now completes in 84 days. Also, the last minute redesign means that engineers must order the steel and the steel erectors must wait for its arrival. Because the erection of steel activities is on the critical path of the schedule, the project is delayed. When the project is finally complete, there has been a total of 39 calendar days of delay to the schedule. Steel erection crews work additional hours. The additional cost of material and the equipment to install it also increases. The result is a 4% ($395,000) increase in cost to a total of $10.280 million.

Defective Work
Once the general contractor realizes that 25% of his foundation work is defective, he must demolish it and repour. The foundation work is on the critical path for the project and as a result directly delays the completion of the project. In order to fix the problem, the general contractor must demolish the defective work, reform column piers and spread foundation, set reinforcing and anchor bolts, and pour column piers and foundations. After this, he must allow time for the concrete to cure and then strip the wall forms. Once completed, steel erection can commence. The extra work requires additional hours, material, and equipment to install. In total, the defective work will increase the project cost by 1.5% ($153,000) and will result in 22 calendar days of delay to the project bringing the project total to $10.038 million.

Strike
Although the strike does not directly affect project costs (although there are indirect costs), there are several other problems that arise. Because all work stops in the month of May 2000, the completion of the project is pushed back 1 month. The project is assumed to pick up and continue right where it left off. There are several problems that could arise from the strike. First, as workers come back to work, they will start a new learning curve. According to the baseline schedule, workers would be performing at a specific productivity during that month. Workers would have already learned the site as well as their tasks and would be working quickly. When they come back on site after the strike, however, they will not be working at that productivity and will be forced to learn the site and their roles again before they are working at top productivity. Although 257 h were planned in May 2000, it is assumed that workers are only 75% efficient so that it takes longer to complete the same amount of work. As a result, the contractor will have added costs for the lengthened durations of the tasks. A second effect, although not quantified, is the loss of efficiency working in cold months. With the strike, work shifts so that activities that were planned to be completed in 1 month are now completed in the following month. This shift could have an affect on productivity and the costs associated with it. In this scenario, when completed, the project is delayed 1 calendar month. The strike will increase the project cost by 1.8% ($174,000) bringing the project total to $10.058 million.

Table 4. Summary of Scenario Costs and Days Delayed

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Cost Increase</th>
<th>Increase (%)</th>
<th>Days delayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay</td>
<td>$561,000</td>
<td>5.7</td>
<td>28</td>
</tr>
<tr>
<td>Cost cutting</td>
<td>$211,000</td>
<td>2.1</td>
<td>0</td>
</tr>
<tr>
<td>Resequencing</td>
<td>$376,000</td>
<td>3.8</td>
<td>57</td>
</tr>
<tr>
<td>Acceleration</td>
<td>$4,000</td>
<td>0.1</td>
<td>(12)</td>
</tr>
<tr>
<td>Change of scope (rework)</td>
<td>$395,000</td>
<td>4.0</td>
<td>39</td>
</tr>
<tr>
<td>Defective work</td>
<td>$153,000</td>
<td>1.5</td>
<td>22</td>
</tr>
<tr>
<td>Strike</td>
<td>$174,000</td>
<td>1.8</td>
<td>31</td>
</tr>
</tbody>
</table>

Note: A cost impact summary compared to the baseline is provided. The cost increase from the base contract price is given as well as the corresponding percentage increase. The number of days delayed is also shown reflecting the additional time on site and the lost rental revenue.

Claims
The scenarios described in the preceding section each have direct costs associated with them. These direct costs include additional material, labor, and machinery. Table 4 summarizes these direct costs showing the percentage cost increase from the base contract as well as the number of days delayed.

It is also important to address the indirect costs. With the scenarios described, there is sometimes additional home office overhead, wage escalation, and various other elements that affect the contractor. These indirect costs can appear both during the work in the form of a change order or after the contractor has finished in the form of a claim. The following subsections detail possible claims for the scenarios presented.

Delay
The delay scenario could result in added direct and indirect costs. The direct costs revolve around the additional labor, equipment, and material that were necessary to complete the job. The indirect costs could be site and home office overhead as well as wage escalation and additional engineering. In this scenario, the excavation subcontractor was told to handle the excavation differently than planned. As a result, planned productivity is not met and additional material and machinery is needed to complete the work. The subcontractor may choose to seek damages for the lost productivity and the additional material and machinery. The subcontractor may also choose to seek damages for additional engineering that was required to complete the excavation with the technique that was asked of him. In addition, the added duration allows the subcontractor to claim for the extra costs associated with keeping the trailer running and the staff at the home office that worked on the project during that extended time. The machinery that was used during that extended time could also be claimed as damages because it could have been put to use on another job. On the other side, the owner could claim for lost rent depending on the contract.

Cost Cutting
One of the largest costs in the cost cutting scenario revolves around the RFI. With deficient engineering design, the contractor will be forced to submit as many RFIs as necessary to clarify the drawings. The main problem however is in the inefficiencies of submitting RFIs. For example, the contractor is not going to notice that the engineering drawings are deficient when he receives them. More likely is that the craftsmen on site will run into the
problem as they begin construction. What follows is a series of
time delaying steps that further impact the schedule. After field
checks, a supervisor will prepare a RFI and send it to the engi-
neer. On a large project, the turn around for the engineer could be
weeks, resulting in delays to the contractor. The RFI process takes
considerable time as there is a series of checks all along the way.
While it is going on, the contractor must make the best of the
situation by working in other areas or working around the prob-
lem. The result will likely be slowed productivity and extended
costs in submitting RFIs. All of the steps described could result in
a claim against the owner or owner’s representative.

Resequencing of Work
As the result of being delayed by and slowing productivity by the
manager, the contractor may attempt to quantify the extent of the
cost and seek damages. The contractor could start with a critical
path method analysis comparing the baseline schedule to the ac-
tual schedule. By detailing the extended duration on site and the
labor force that was necessary to complete the contract work, the
contractor could quantify the resulting damages. Also, the added
equipment costs could be claimed because if they had not been on
site they could have been used at another location. The additional
site and home office overhead could be claimed.

Acceleration
In this scenario, workers are forced to work five 10 h days instead
of five 8 h days. The resulting inefficiency could be claimed as
damages by the contractor. If extra work crews are brought in to
accelerate a project then crowding may occur leading to other
inefficiencies. Although the general contractor (GC) made
$66,000 for finishing 5 days ahead of schedule, the contractor
may try to take advantage of that by claiming that he incurred
damages so that the GC could make more money.

Change of Scope (Rework)
The design change for the structural steel would result in multiple
change orders from the contractor. The change orders would in-
clude additional material, labor, supervision, and equipment costs.
What the steel contractor may attempt to submit a claim for
would be the loss of productivity. This inefficiency may have led to
damages on other activities because the contractor was forced out
of his plan and needed to learn the rework as the job moved
along. The loss of productivity would result from the crew not
working as quickly as they could be as they were establishing a
new learning curve for the redesign.

Defective Work
Although the foundation contractor is at fault in the defective
work scenario, there is a possibility that a claim will be filed
against the GC. If the contractor attempts to claim the damages
that resulted from his own defective work then there is also the
possibility that the GC will file a counterclaim. First, the founda-
tion contractor facing losses on the job may submit a change
order request. When that request is denied he may claim damages
resulting from unforeseen conditions or that the defective work
was not his fault. If the contractor is already facing a loss then he
may claim enough damage to make him even on the job. If the
contractor lost his profit with the defective work then he may
claim enough damages to get that profit back. The foundation
contractor would claim both direct and indirect costs that resulted
from the defective work. The counterclaim would likely be based
on a critical path method (CPM) analysis showing how the foun-
dation contractor (whose activities were on the critical path) de-
layed the entire project.

Strike
A loss of labor on the job for 1 month pushed the entire schedule
out 1 month. Aside from starting a new learning curve, there
aren’t many direct costs that result from the delay from the strike.
Contractors that worked the job and were affected by the strike
would file a claim for damages because they may have lost the
ability to start their next job. The contractor’s could attempt to
gain damages from the GC claiming that the GC’s inability to
mobilize a workforce adversely affected the contractor’s perfor-
ance on the site. If the job was extended during winter months
then the contractors may seek loss of productivity costs from the
GC claiming that they had not planned on working for so long
during poor conditions. The owner could claim for lost rent as the
building was opened 1 month late.

Discussion
As detailed in the scenarios described, construction mismanage-
ment often results from changing plans at the last minute. A
change of plan is felt not just by the project manager but can be
by all of the contractors on the job whose tasks are intercon-
ected. A premature decision made by a manager can have expen-
sive effects, especially if the activities are on the critical path. If a
manager feels that a last minute change of plan or construction
strategy is warranted, then it is important that the manager isolate
all of the impacts associated with that change. The biggest mis-
take the manager can make is assuming that the decision will be
isolated to one construction team. A CPM analysis, labor produc-
tivity, and cost analysis should be performed to isolate the effects
of the decision. If after these things have been done and the con-
tractor feels that the benefits of the decision outweigh the costs,
then it can be implemented. The change of plan should include
not just direct costs but also indirect costs. Wage escalation,
crowding, and weather are some of the conditions that should be
considered as well as the possibility of claims resulting from
them.

Conclusion
The scenarios described detail specific examples of mistakes in
construction or unforeseen conditions. For each of the seven sce-
narios described, a project cost was calculated and the extent of
delay was determined. Costs were based on the amount of work
that was need to be performed, the efficiency of that work, the
extra material, and the extra equipment. Table 4 summarizes the
percentage increases in cost mentioned in the “Claims” section of
this paper as well as the days delayed associated with it. Although
most of the outcomes show delays resulting from the issues de-
scribed, this is not always the case. There is the possibility that
other variables will come into play that try to cope with the
schedule impact. For example, in the delay scenario, it is not
unlikely that later on in the project workers will be forced to
accelerate to make up for delay that resulted from the extended
completion of the foundation. The scenarios presented isolate
single schedule impacts in the project with the associated time and costs.

In the cases described, common damages resulting from problems on construction sites include direct costs of material, labor, supervision, and equipment. Indirect costs include office overhead and inefficiencies. The construction claims process is not a science. Claims targeting delay issues can be formulated multiple ways. This occurs because the claims process could involve settlements, mediations, arbitrations, and juries. The claim process may start with the intention of settling so the damages may be exaggerated in hopes of bringing the settlement cost up. Other times, contractors may seek damages for exactly how much is needed to break even on the job or to regain their profit. Smaller contractors could face bankruptcy if they face large losses on a single job.

References


