

# cause & effect

news from CPMI® on construction claims analysis and resolution

## Identifying Concurrent Delay

Mark Boe, P.E.

Properly assessing concurrent delay can be one of the most difficult challenges encountered in resolving delay claims. First, of course, it's essential to understand how concurrent delay is defined.

### What Makes Delays Concurrent?

Simply stated, concurrent delay occurs when a contractor and an owner have both caused independent critical path delays — delays that affect the completion date

of a project — during the same approximate time period.

Consequently, barring a contract provision to the contrary, neither can recover damages without a clear allocation of each party's delay and expense.

The most important question to ask in determining whether delays are concurrent is this: Are the individual impacts *critical* to completion? Often, hundreds of delays occur on a project

that absorb "float" within the schedule, but do not ultimately postpone the completion date. Only delays *that extend completion* can be considered concurrent. These delay situations generally fall into two categories:

▼ *Multiple impacts to a single activity or path.*

In this case, one activity or event is affected by the actions of the owner and the contractor. For example, a contractor experiences delays in the supply of steel to a fabricator. The steel fabricator experiences difficulty getting shop drawings from a

detailer, and the owner initiates several minor changes to the steel. The intertwined relationship between these changes (or multiple impacts) makes delay apportionment very difficult.

▼ *Impacts to two or more critical paths.*

More commonly, concurrent delays involve impacts to two or more independent critical paths. For example, a contractor experiences delays in fabrication of structural

steel. At the same time, the owner redesigns the foundations on which the steel will be set. In such situations, the timing of the delays determines whether apportionment can be made reasonably.

Delay situations become especially complicated when one party attempts to use concurrent delay as a shield against the opposing party's delay damages. For example, an owner causes a critical-path delay due to late owner-supplied equipment. The contractor then asserts that the owner's delay will result in both general conditions damages and

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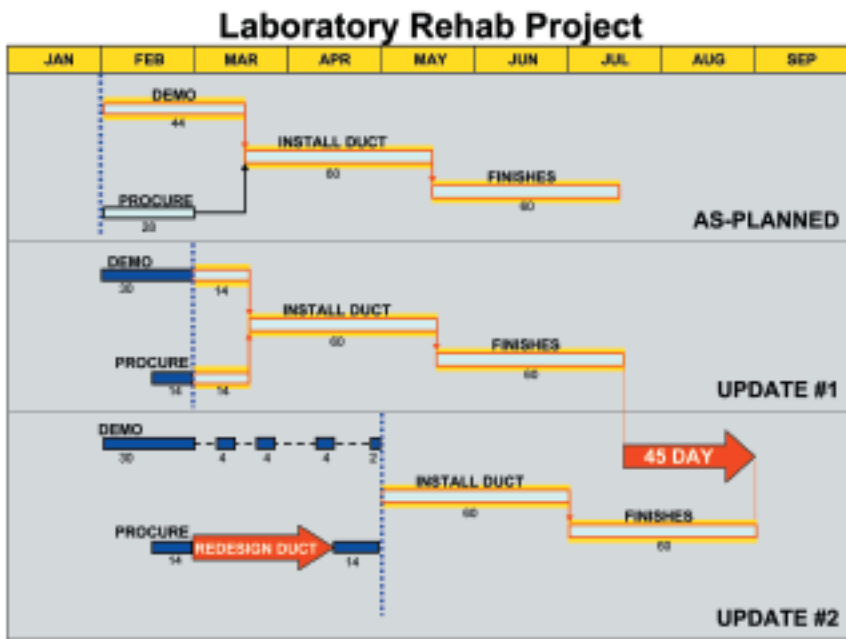
**...concurrent delay occurs when a contractor and an owner have both caused independent critical path delays — during the same approximate time period.**

### Inside this Issue:

Cover Story . . . . .	1 – 3
Contractor's Corner . . . . .	3
Upcoming Events . . . . .	4

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Sample Laboratory Rehab Project As-Planned Schedule

(continued from page 1)

extended home-office overhead damages. The owner responds that it is willing to grant the time, but that some of the contractor's own delays (unspecified) were concurrent with the owner's delays; and therefore, the delay costs are not compensable. It's easy to see the problems that can arise here.

## Where to Start

The proper evaluation of concurrent delay begins with the basic principles of any detailed critical-path schedule analysis. CPMI favors the *contemporaneous method* of schedule analysis because it provides a baseline for measuring delay, the status of the project at the time the delay occurs, and the impact of delaying events on the remaining work, as well as insight into float, changes to the critical path, and revisions to the plan to complete.

Once the delays are identified, concurrency is found if the following is determined to be true:

- 1) The impacts are each critical to project completion

- 2) The impacts are independent
- 3) The time periods are the same (or very nearly so)

## An Illustrative Case

Several years ago, CPMI was involved in a project to rehabilitate a medical laboratory that included a new HVAC system. The diagram (above) shows a summarized as-planned schedule. The critical path of the project began with demolition of ceilings (DEMO), which was scheduled to take a month and a half. The duct submittals and fabrication (PROCURE) were to proceed parallel, followed by the ductwork installation, which required two months, and then by building finishes. Early in the project, the owner discovered a significant design error that forced a complete redesign of the duct system. Update #1 shows that the project was on schedule when the design error was uncovered. Update #2 shows the status of the project when the redesign was complete. The contractor believed it was owed time and delay damages for a month and a half of delay. The owner countered that the contractor's

demolition work wasn't complete until just prior to the ductwork installation; and therefore, the demolition was a concurrent delay.

**Critical Paths:** Our first step was to determine whether both impacts were critical. Evaluating additional time slices was one way to make this determination. As you can see from the lab building diagram, Update #2, the critical path on the day of the update proceeds through the start of duct installation and into building finishes. If a time slice is taken one day before the status date, the demolition activity and the completion of the duct procurement would both be critical (one day of delay to either the demolition or the delivery would delay the completion). If a slice is taken a week before the start of duct installation, the duct procurement activity would still be critical. However, the demolition activity would have almost a week of float here, since the remaining duration is only two days, but seven days time remains to complete the work. If you look at a time slice taken two weeks before the start of the duct, the demolition has almost two weeks of float (two days remaining duration, and 14 days to perform). Thus, the demolition impact did not cause critical-path delay to the completion of the project, it merely absorbed float.

**Independent Impacts:** For delay to be concurrent, the impacts must also be independent — that is, the impacts created by one party cannot be caused directly or indirectly by the other party.

In our medical laboratory case, even if the demolition work were deemed critical to project completion, the contractor may have reasonably claimed that the owner's delay

## Weathering Bad Weather



For the most part, contractors can obtain excusable time extensions for unusually severe weather. Similar to concurrent delay, this time is typically non-compensable. In some cases, however, weather delays *may be* considered compensable if the owner's delay pushes the contractor's performance period into an unfavorable season for the work.

To justify a time extension for weather, the weather must be unusual compared to what normally can be anticipated for the geography and season. Not surprisingly, the first area of contention lies in determining what is "normal." The 5- and 10-year averages compiled by the National Oceanic and Atmospheric Association (NOAA) are the most commonly used sources for this. The data can include factors like precipitation — both by day and by number of days — temperature extremes, humidity, and wind. Recently, owners such as the Army Corps of Engineers have resolved the normal weather question by including in their specifications the number of adverse weather days that can be anticipated during the period.

Also contentious is the actual impact of the weather. An extension can only be granted if weather-sensitive activities on the project's critical path are delayed, thereby extending the project completion date.

In the end, quantification of weather delay depends largely on specific contract language, but two key questions remain the same: 1) What weather can we reasonably anticipate? 2) Is the delay critical to completion?

next week, the delay would be deemed concurrent even though there is no overlap, as the time period during which the delays occurred was reasonably close. However, if the owner's delay occurred in the first week of the month and the contractor's occurred in the last week, there would be room for interpretation as to whether the delays occurred in the same period. If the owner's one-week delay occurred one month, and a schedule update captured that delay before the contractor's delay (say the following month), the time periods probably *could not* be considered concurrent. At some point between the first scenario and the last, the contractor can be said to be absorbing float created by the owner's delay.

### Summary

Distinguishing between delays that are concurrent and those that simply absorb float requires a thorough knowledge of the facts, an understanding of the basics of critical-path schedule analysis, and a determination of whether three key factors exist: 1) the delays are critical, 2) the delays are independent, and 3) the delays occur during the same time period.



**Mark Boe, P.E.** has more than 20 years of experience in design, construction management, project controls, and the evaluation of complex construction disputes. His specialties include CPM scheduling, time impact analysis of complex delay and disruption claims, and detailed disruption and labor inefficiency analyses. He has testified as an expert witness at trials, depositions, and several forms of ADR.

prompted it to re-plan the demolition work. In actuality, the apparent delay to the demolition work was the result of the redesign of the mechanical system. The delay would not have occurred if there were no redesign. When the contractor became aware of the redesign delay, it was not required to strictly adhere to the schedule when it knew that delay had occurred. A contractor is not required to "hurry up and wait," but can reallocate its resources to take advantage of other delays. It should be noted, however, that when a contractor re-levels resources to utilize float created by an earlier delay, the decision must be documented to avoid after-the-fact allegations of concurrent delay.

The importance of knowing the specific facts of a project cannot be over-emphasized. Changing any of the details in this case illustration even slightly can completely change the outcome of the analysis. Referring to Update #2, if the reason for the contractor's extended performance were weather, or equipment breakdown, or labor union slowdown, the as-built portion of the chart would look the same, but the delay could be considered independent; and therefore, the delay *could* be considered concurrent.

**Time Periods:** Timing is the third key determinant.

Delays do not need to begin and end on the same day in order to be considered concurrent. In this case, the time period of the owner's delay began before the contractor's "delay," but both delays ended approximately at the same time. If the owner's delay to mechanical design was limited to one week and the contractor-caused one-week critical delay occurred the



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## Upcoming Events

**April 15-16, 2004**

### Practising Law Institute Seminar

CPMI president Mike D'Onofrio will speak at this seminar titled, "**Handling Construction Risks 2004: Allocate Now or Litigate Later,**" in New York, NY. For more information, visit [www.pli.edu](http://www.pli.edu).

**April 29, 2004**

### Lorman Educational Services

Lorman Educational Services will present "**Construction Law — Can This Job Be Saved? Creative Strategies for Project Completion and Litigation Avoidance.**" CPMI president Mike D'Onofrio will speak as part of an expert panel during this symposium in Philadelphia. For information, visit [www.lorman.com](http://www.lorman.com) or call 888-678-5565.

**May 6-7, 2004**

### ABA Forum on the Construction Industry, Annual Meeting

Visit the CPMI booth at this conference held at the Hyatt Regency Scottsdale Resort at Gainey Ranch, Scottsdale, AZ. For details, see [www.abanet.org/forums/construction/](http://www.abanet.org/forums/construction/).

**May 12-14, 2004**

### Construction Owners Leadership Conference

Join CPMI as we exhibit at this (COAA) Construction Owners Association of America conference held at Disney's Boardwalk Resort in Orlando, FL. For more information, visit [www.coaa.org](http://www.coaa.org).

*For further details, you can also visit our website at [www.cpmiteam.com](http://www.cpmiteam.com).*



### Making Tough Choices...

CPMI engineer **Charles Fournier** (above) and other professional engineers, architects, builders, and designers judged entries at the **Second Annual Build A House...Build A Dream! Contest** for Kids at The Franklin Institute Science Museum in Philadelphia. Hosted by Delaware Valley Habitat for Humanity, the event attracted more than 500 fifth-grade students who built the three-dimensional houses of their dreams. Winners took home cash prizes.