



Contract Scheduling Provisions

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1. INTRODUCTION

The utilization of Critical Path Method (CPM) scheduling techniques to plan, schedule, monitor, and control work has become the accepted standard in the construction industry. Likewise, boards, courts and arbitration panels have shown their willingness and desire to utilize network-based scheduling techniques in terms of evaluating and apportioning responsibility between parties for project delays, disruption or acceleration.

To deal successfully with a construction delay, disruption or acceleration claim, the analyst must determine causation—the link between liabilities asserted and damages claimed. One of the primary ways to determine causation is through the performance of a schedule delay analysis that utilizes the schedule as a tool to evaluate cause and effect. Central to the apportionment of responsibility for delay and determination as to the compensability of same are the issues of float ownership and utilization, and the evaluation of alleged concurrent delay.

Scheduling techniques have legal implications with respect to the contractor's ability to obtain equitable adjustments in the time and cost of performing the contract work, either through prosecution of change orders or claims. Therefore, the contractor must carefully review the scheduling provisions in the contract, which impose duties and confer rights on the parties. Scheduling contract clauses are among the least standardized of all contract clauses and, therefore, require special attention. Scheduling provisions and a clear understanding of the owner's intent are often neglected during contract preparation and performance.

This article presents a brief overview of contract provisions and case law affecting the preparation and updating of schedules, and the preparation of and defense against change orders and delay and disruption claims.



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2. CONTRACT PROVISIONS AFFECTING SCHEDULE PREPARATION AND UPDATES

Because scheduling techniques have legal implications with respect to the contractor's ability to obtain equitable adjustments in the time and cost of performing the contract work, either through prosecution of change orders or claims, the contractor must carefully review the scheduling provisions in the contract.

Contracts impose duties and confer rights on the parties. Scheduling contract clauses are among the least standardized of all contract clauses and, therefore, require special attention. Scheduling provisions and a clear understanding of the owner's intent are often neglected during contract preparation and performance. Too many parties approach scheduling as simply a matter of instinct or a bar chart drawn on the back of an envelope for the short-term weekly meeting. Those involved in the contracting process often fail to recognize the importance and benefits of scheduling provisions and the obligations they impose.

Contractors often ignore express schedule provisions because of the owners' performance on prior projects when the scheduling requirements were considered meaningless and not enforced. The value of schedules is often only recognized when a contractor has a claim. Suddenly, schedules are resurrected as if they were a management tool for the project from day one. The contractor should expect that the contract scheduling provisions will be enforced and, therefore, should be thoroughly familiar with those provisions and be prepared to comply with all of the requirements. Noncompliance with the contract scheduling provisions does not by itself defeat an otherwise valid delay claim but may indicate inadequate planning and work execution by the contractor. Proof of delay may also be complicated by the failure to comply with the scheduling provisions.¹

There is very little standardization in scheduling provisions. Various federal and state agencies, local governments, and private owners have adopted unique scheduling provisions in their respective contracts.² In this regard, the Veteran's Administration (VA) publishes guidelines outlining their method of impacting a CPM schedule to quantify the effect of delays and changes.³ Under the VA's method, the scope of the changed work is first reviewed to determine where and how the revisions should be incorporated into the schedule. The activity revisions and additions are sketched on the current network. Revisions to subsequent activities caused by the

¹ *Lane Verdugo*, ASBCA No. 16327, 73-2 BCA (CCH) ¶ 10,271 (1973); *Edwin J. Dobson, Jr., Inc. v. Rutgers*, 157 N.J. Super. 357, 384 A.2d 1121 (1978), aff'd, 180 N.J. Super. 350, 434 A.2d 1125 (1981), aff'd, 90 N.J. 253, 447 A.2d 906 (1982); *Fortec Constructors v. United States*, 8 Cl. Ct. 490, 504-508 (1985).

² See AIA Document A201-1987, ¶ 3.10; Washington Metropolitan Area Transit Authority, *Progress Schedules* (1988); U.S. Postal Service Network Analysis System Specification, Section 01030 (1988); State of California Department of Transportation Scheduling Specification, Section 8-1.04 Progress Schedule (1988); CSI Network Analyses Schedule Specifications, Section 01311 (1988); Armed Services Procurement Regulations, 32 C.F.R. 7-604.7(c), "Contractor-Prepared Network Analysis System" (1976).

³ Veterans Administration Master Construction Specification, Section 01311, Network Analysis System (1988).



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change or delay are defined and made. The effect of a change or delay on the schedule is determined by comparison of the schedules before and after the delays or changes are incorporated into the schedule. Under the VA's method, the contractor is entitled to a time extension only if the scheduled completion is delayed by government-caused delays beyond the extended contract completion date. The VA's technique is similar to the as-planned impacted schedule analysis technique.

Similarly, the U.S. Army Corps of Engineers (Corps) also publishes a widely recognized technique for evaluating the effect of delay upon the project's completion. In its Modification Impact Evaluation Guide,⁴ the Corps first requires the current, as-built status of the job to be determined. The Corps then recommends that the delay or impact be analyzed to determine what predecessor and/or successor activities will be directly affected by the delays under examination and how the remaining part of the schedule should be revised to accommodate the modification. The remaining as-planned portion of the schedule is then used to determine the new critical path(s) and project completion date. The Corps can then grant time extensions to the contractor based on the newly determined critical paths and revised completion dates. The Corps' technique is similar to the Time Impact Analysis technique.

2.1 BAR CHARTS OR CPM?

The first requirement to be reviewed when analyzing contract scheduling clauses is whether bar charts or a CPM-type schedule must be prepared. If no method or system is specified, and the owner does not retain the right of final approval of the method to be employed, the contractor can schedule the job by any reasonable method according to the contractor's reasonable interpretation of the specification requirements. The contractor should consider a number of factors, however, before selecting a scheduling method, such as the dollar value of the work, the complexity of the operation, the level of sophistication of the parties, and the potential need for claim resolution on scheduling issues. Courts have consistently held bar charts to be less effective than CPM schedules as a scheduling technique to define responsibility for delays.⁵ The bar chart serves best when it is combined with more detailed scheduling methods such as critical path methods. In this capacity, bar charts can provide a visual depiction of activities of a short-term nature. Unfortunately, too many construction superintendents may only look one or two weeks ahead and rely almost exclusively on a short-interval bar chart to manage the project.

⁴ EP 415-1-3, Chapter 3, July 2, 1979.

⁵ *Natkin & Co. v. George A. Fuller Co.*, 347 F.Supp. 17 (W.D.Mo. 1972), reconsidered, 626 F. 2d 324 (8th CIR. 1980); *Minmar Builders, Inc.*, GSBCA No. 3430, 72-2 BCA (CCH) ¶ 9,599 (1972); *Haas & Haynie Corp.*, GSBCA No. 5530, 84-2 BCA (CCH) ¶ 17,446 (1984); *Al Johnson Construction Co. v. United States*, 854 F.2d 467 (Fed. Cir. 1988); *H. W. Detwiller Co., Inc.*, ASBCA No. 35327, 89-2 BCA (CCH) ¶ 21,612 (1989).



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2.2 ADM OR PDM

A CPM schedule can be developed using either an ADM or a PDM approach. Both systems have their advantages and disadvantages; which one is used is normally a matter of personal preference. PDM diagramming techniques, however, allow greater flexibility in defining the logical relationships between activities. Scheduling provisions should be flexible in that either ADM or PDM may be used and leave this decision to the discretion of the contractor.

2.3 WORK SCOPE

Good scheduling provisions should specify, in a general nature, what work, including coordination functions, is to be included in the schedule. Items to look for here are field construction operations, submittal and approval of all compliance submittals including acceptable turnaround times, procurement of material and equipment furnished by the contractor or the owner, interface activities performed by the owner and others upon which the contractor's schedule depends, and equipment installation and testing. A reasonable as-planned schedule must include outside interface activities. These interface activities are often omitted and problems frequently arise because the parties fail to coordinate these interrelationships if they are not properly shown on the schedule.

2.4 SCHEDULE ACTIVITIES

The concept of the activity should be covered in the scheduling section of the contract, including the following:

1. Each activity should be a unit of work that requires an amount of time for its performance.
2. Each activity should be a logically separate part of the work, defined by an observable start and an observable finish.
3. To establish the scope of an activity for CPM purposes, the contractor should form a single activity from the largest grouping of related operations which permit a continuous and measurable flow of work and which can proceed without affecting or being abetted by other activities.
4. The scope of an activity should be small enough to permit a reasonable appraisal of its status.

Some specifications limit the number of workdays that can be assigned to an activity, the most common upper limit being 15 to 20 days. If this limit is used, such items as long-term procurement, certain approvals and submittals, etc., may need to be excluded from this limitation. However, these long-duration activities may be vital to a delay analysis and,



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therefore, should be carefully evaluated before they are excluded. Perhaps a more prudent approach would be to include such longer duration activities in the schedule as exceptions to the duration limits defined in the scheduling requirements. Along with this concept, some thought needs to be given to the number of activities included in a schedule. Although the number of activities is not normally specified in scheduling clauses, a CPM network with too many activities will be difficult to manage. Although the “proper” number of activities varies greatly from project to project, if a schedule exceeds 1,000 activities, one should become concerned over the ability of the parties to control the schedule. However, too few activities may not permit the necessary segregation of work for resource planning and progress measurement. In addition, if the schedule does not identify the work into sufficiently detailed activities, a proper tool for analysis of delays may not be available.

2.5 FRONT-END LOADING

This is a technique used by contractors to increase their cash flow early on in the project. Front-end loading is accomplished by increasing the costs to be assigned to early activities thereby increasing their early project billing. Most contracts attempt to discourage its use. Front-end loading can have an adverse impact on the owner. If a contractor has front-end loaded his billings to the owner and fails to perform thereafter giving rise to a default termination, the owner has a reduced or nonexisting cash margin to cover cost overruns on completion.

From a contractor’s standpoint, the practice can also have disastrous consequences. For example, if a subcontractor has front-end loaded his billings to the prime contractor, which in turn have been passed to the owner and subsequently paid by the prime to the subcontractor, the prime is exposed to the potential of unrecoverable cost overruns if a subcontractor defaults. In addition, the prime may also find itself in the unenviable position of either admitting the inaccuracy of the progress schedule or acknowledging the validity of the schedule and the value of the subcontractor services that the schedule supports.

Owners, upon reviewing schedules and cash loadings submitted by contractors, should look for evidences of front-end loading. Generally, the owner’s estimate is prepared in sufficient detail to allow reviewers to allocate those costs to the various activities to identify evidence of front-end loading. With proper documentation, the owner can then reject the schedule and demand that it be revised to more closely reflect industry standard for cost loading.

2.6 SCHEDULE CONTROL

Normally, the scheduling provisions put the responsibility for preparing, administering and updating the schedule with the contractor. However, at times the owner will wish to control the schedule administration and updating.



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Owner prepared and maintained schedules should be used with caution and probably only these special circumstances:

- When the owner has the adequate staff and skills to monitor and update the schedule and administer the appropriate contracts in a timely manner.
- When the project is of such complexity that there are numerous interfaces and/or activities outside of the construction contractor that must be coordinated by the owner.
- In those cases where an owner has utilized the multiple prime or fast track form of construction for special reasons.

If the owner decides to take responsibility for updating the schedule, the contractor would prepare the initial schedule for its work and then turn the schedule over to the owner for administration and updating. Progress data would be supplied by the contractor but entered by the owner. Changes in logic and provisions for change orders would be handled in the same manner. From an owner's point of view, the advantage to this concept is that the owner can maintain control of the schedule. The big disadvantage is that the contractor may feel that the schedule is no longer "its schedule" and may lose interest in using the schedule as a management tool. Except in very out-of-the-ordinary instances, the contractor should prepare, administer and update the project schedule.

Like any computer program, a CPM schedule is only as accurate or useful as the data upon which it is based. As a result, considerable care should be taken in developing and updating the CPM. Such updated schedules are especially significant since judges jurors, and arbitrators normally give more weight to the schedules in effect during the job than those created for trial.

This was underscored in the Veterans Administration Board of Contract Appeals' decision in *Santa Fe, Inc.*⁶ That case arose from a \$62 million project on the 520 bed VA hospital at Bay Pines, Florida. The VA required the contractor to develop a CPM and update it monthly. The contract required the 27 air handling units (AHU) to sit directly on the floors. However, due to the camber placed in the joists in accordance with the architect's instructions, the floors were too uneven. As a result, the VA ordered a shutdown of the work on the AHUs for about 30 days from November 19 to December 17, while it considered the use of vibration isolator pads. The VA ultimately instructed the contractor to perform some shimming.

When faced with liquidated damages at the end of the job, the contractor claimed a 30-day time extension. It contended that the AHU work was on the critical path of the November schedule—the one in effect when the suspension was ordered. The monthly schedule updated at the first of November had, in fact, shown the AHU to be on the critical path. The VA acknowledged this,

⁶ *Santa Fe, Inc.*, VABCA No. 2168, 87-3 BCA ¶ 20,104 (August 25, 1987).



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but noted that the monthly update for December showed large amounts of float for the AHU work because of certain logic changes which had been agreed to by the contractor and the VA.

The contractor sought to have the VA Board make certain corrections to the December schedule. Those corrections would have placed the AHU work back on the critical path. Also, in a series of alternate CPM schedules produced at the hearing for the first time, the contractor imposed on both the November and December CPM schedules a combination of factors, including changes to the durations of activities, sequencing or trade-bumping activities, interjecting the suspension to the AHU work and accounting for some of the work performed prior to the suspension.

The VA Board refused to make the “corrections” sought by the contractor and gave little weight to the contractor’s alternate CPM schedules. However, the Board also refused to accept the VA’s position that the November schedule be ignored. The board found that each of the monthly updated schedules applied to its relevant time name and granted the contractor an eleven-day time extension for the suspension from November 19 to November 30 – the period the AHU work was actually shown to be on the critical path during the job.

The board said:

“There is a rebuttable presumption of correctness attached to CPMs upon which the parties have previously mutually agreed.... To put it another way, in the absence of compelling evidence of actual errors in the CPMs, we will let the parties ‘live or die’ by the CPM applicable to the relevant time frames.”

Thus, all the parties to a construction project need to recognize that their actions in updating the project schedules will be crucial in later determining the causes of the delays and assessing responsibility for them. As in *Santa Fe, Inc.*, the parties will often “live or die” by what is shown in the schedules as they are updated during the project.

2.7 INITIAL SUBMITTAL OF SCHEDULE

The scheduling provisions should specify the time in which the project as-planned schedule should be submitted. Here again, this is somewhat dependent on the size of the project, and the following discussion relates to a typical project.

The contractor should not be expected to have its as-planned CPM schedule available on day one of the project. Normally, the contractor should expect to submit within 10 to 15 days after contract award a preliminary as-planned schedule that would cover the first 60 to 90 days of a project in detail and include a general outline or concept of the remaining work. Within the first 60 to 90 days, the contractor would develop its detailed as-planned schedule and submit this



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schedule to the owner within that time frame. The contract should specify the submittal date for both the preliminary and detailed as-planned schedules.

There have been many instances where contractors have been very late in submitting the as-planned schedule, which can only be detrimental to the project. Therefore, in many cases there may be a clause that states that the first progress payment will not be made until the owner has approved the as-planned schedule.

Virtually every scheduling provision requires approval of the as-planned schedule by the owner and/or its construction manager and other representatives. However, a contractor is always responsible for means, methods and sequence of its work, and has the obligation to coordinate the work of subcontractors. Approval by the owner does not transfer any of those obligations or responsibilities to the owner.

On the other hand, owner's approval does obligate the owner to meet those durations and milestones that are the owner's responsibilities. Both parties have responsibilities and obligations to keep the project moving forward. The owner may be responsible for these critical activities:

- Funding constraints
- Availability of working areas
- Real estate acquisition
- Access provisions
- Utility relocations
- Milestone dates to interact with other projects
- Deliver dates for owner-furnished equipment
- Approval cycle for submittals and/or requests for information
- Notices
- Permits
- Other schedule requirements

The contractor should recognize that the approval clause also provides a substantial benefit to the contractor. First, the owner's approval essentially "locks" the owner into the as-planned schedule. If owner-caused or excusable delays occur during performance and adjustment of the schedule is requested, it will be more difficult for the owner to claim that the as-planned schedule is wrong and that no extension is merited. Secondly, by its approval, the owner has been placed on notice of its obligations with respect to the schedule, such as timely furnishing of information, timely approval of shop drawings, the need to provide access to the site, the date by which certain permits are required, etc.

The schedule approval clause may lead to a dispute early in the life of the project, in that the owner may not wish to accept the scheduling method utilized, the completion date shown, the



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level of detail provided, or certain other information. The general rule thus appears to be that if the owner approves or does not reject or raise timely objections to a contractor's schedule specifying certain dates for owner performance, the owner will be bound by the schedule and expected to meet its obligations. This is probably why the AIA contract has abandoned the schedule submission and approval requirements. Many owners do not have the skills and/or resources to adequately monitor and/or review schedules.

2.8 MILESTONES AND PROJECT COMPLETION

The contract should clearly specify the start and completion dates of the project. The start is normally the date of the notice to proceed, and the completion is defined by specifying the number of calendar days from the notice to proceed. In other words, the clause might read, "This contract shall be completed within 730 calendar days of the notice to proceed with day one being the date of the notice to proceed." If a contract interfaces with other contracts in an overall project, then it may be advisable to use interim milestone dates when completion of specific portions of the work may be required at specific times. The wording here would be similar to that shown above; however, the description of the work to be included in a milestone must be very clear and well defined. If a liquidated damages clause is included in a contract, the contractor should verify if the intent of the clause is that liquidated damages apply to the milestones as well as the final completion.

2.9 PROGRESS REPORTING

Contractors and owners utilizing a scheduling system must have a method to reflect current developments on the project. Progress reporting serves the purpose of monitoring progress and providing documentation in the event of a claim.

Schedule updating is normally done monthly, and the specified frequency should be included in the scheduling provisions. The contractor should have the responsibility for preparing completion percentages against each activity; however, these completion percentages should be reviewed and agreed to monthly at a joint meeting between the contractor and the owner. Most government contracts contain a clause stating that if there is disagreement between the contractor and owner over the status of an activity, the owner's determination will prevail.

In addition to assigning percent complete, the monthly update should also specify actual start dates for those activities that have started since the last report and completion dates for those that have completed. Should there be logic changes to the as-planned schedule, these changes should be reflected in the monthly updates as well.

The type of progress reports required should also be stated in the scheduling clauses. Narratives, trend reports, float reports, progress "S" curves showing planned early start, planned late start



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and actual progress, resource curves, photographs, identification of problem areas, etc., are all items often included in monthly progress reports.

Progress updating is vital to the health of a project. Without updating, neither the owner nor the contractor knows where they are. If a contractor does not update its schedule on a monthly basis and a claim situation arises, proving delay due to a lack of historic information may be difficult if not impossible.

2.10 PROBLEMS WITH THE INTERRUPTED PERFORMANCE OF A GIVEN ACTIVITY

The usually assumed “continuous” progress for an activity in real life is often misleading because activities may have been interrupted once or twice, and sometimes even more often during the life of a project. This problem is usually encountered when examining schedule updates where some activities are in progress while others are halted but not yet completed. The impact of such interruption can be addressed in a detailed analysis of the activity or through fragnet analysis, if required.

Assuming continuous progress of a repeatedly interrupted activity can give rise to a totally distorted conclusion; nevertheless, it is frequently done primarily because of inadequate information. However, the analyst could be forced to work with incomplete information, such as in the case where the CPM schedule data only includes the actual start date and the actual finish date, without percent complete data. Such a presentation implies that the activity continued from start to finish without interruption. Such simplistic presentation could easily destroy the credibility of the analysis. In those situations, the analyst should give more weight to information prepared in a quantitative format (such as percentage complete) if available.

2.11 SCHEDULING GUIDELINES

The following guidelines are suggested to an owner who has more than a cursory interest in the power of scheduling in contract administration:

- Develop and implement standard policies, criteria and procedures for use of scheduling clauses. Communicate that intent to the construction industry.
- Be consistent in the administration of those clauses.
- Use a scheduling clause that is appropriate for the size and complexity of the project involved.
- Write the clause in clear and unambiguous terms.



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- Allow the contractor time for preparation of schedules consistent with the level of detail required.
- Carefully identify all owner-related activities that might impact a contractor prior to advertisement and be prepared to furnish contractors with information as to delivery times and approval durations for those activities.
- Understand the basic warranties and obligations that apply to all parties which are:
 - Once a schedule is approved, it is binding on all parties.
 - All parties to a contract have an implied duty to refrain from delaying, hindering or interfering with others in the performance of their contract.
 - The duty to cooperate is primary. The duty to not interfere or delay is a negative sort of obligation but the duty to cooperate is affirmative. All parties must cooperate with one another whenever such cooperation is necessary for the other's performance.
 - Coordination obligations. The primary duty for coordination rests with the contractor in terms of coordinating his subs. However, owners who implement multiple prime fast track forms of construction likewise assume that same duty to coordinate and must understand those obligations.
 - Superior knowledge. Owners must not withhold information which impact upon the schedule. Bidders should be given complete and accurate information on which to base contract schedule and performance. If information that should have been given to the contractor at the time of bid is withheld and causes a delay, then an equitable adjustment for this type of construction change will probably be entitled.
- Clearly identify requirements for updating the schedule.
- Clearly establish criteria for activities that will determine the level of detail in the contractor prepared schedule.
- If the schedule is to be maintained by the owner, clearly identify the format, method, program, etc. by which contractor submitted data is to be provided.
- Specify whether schedules are to be computerized or may be submitted on a manual system.
- Establish those reports that you may require in the provisions or you may not get them.



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- Address whether or not time extensions for delays are to be granted only if on the critical path.
- Specify whether the schedule is to be used for progress payments and in what manner.
- Specify whether time extensions and changes are to be part of the schedule update and when.
- Provide sufficient resources and systems to respond to requests for information, changes, submittals, request for time extension in a timely manner. Failure to respond in a reasonable manner could be a basis for a delay claim.
- Have the resources to render in writing, within a reasonable time, decisions on all submitted claims.
- Monitor the review and approval of shop drawings and samples to ensure that any agent of the owner is responding to their obligations in a reasonable time and in accordance with any schedule agreed upon at the time the schedule was approved.
- In all other respects ensure that any agent of the owner is acting in a timely fashion and is performing his duties so as not to interfere with, hinder or delay in any manner the performance of the contractor and specifically is meeting any specific warranties for approvals and/or delivery which may be part of the schedule.



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3. CONTRACT SCHEDULING PROVISIONS AFFECTING CHANGE ORDERS AND CLAIMS

Because the issue of liability for delay is so complex, the parties to a contract may find it useful to go into great detail to define responsibilities, assign risks, provide specific time requirements, and establish procedures for resolving disputes. The contract must deal with delay and provide a basis to provide an equitable adjustment to the time and cost of performance according to the risks that have been allocated or shifted among the parties. These scheduling provisions may include delay classification, the “no damage for delay” clause, disruption, float ownership, early finish, liquidated damages, contractor progress and acceleration, termination, notice requirements, owner-furnished materials, approvals, coordination responsibilities, and subcontractor responsibilities.

Contract provisions related to scheduling and risk allocation can vary considerably. Hence, it is a mistake to quickly review a scheduling provision and assume that it is the same as provisions that have previously been encountered. Risk-shifting or exculpatory clauses may by their very nature relieve one of the parties from obligations that it would ordinarily have at law. As a general rule, exculpatory clauses that shift risks from one party to another have been accepted by the courts, but provisions that relieve a party from its legal responsibilities have not.

A discussion of certain key scheduling provisions is presented below.

3.1 DELAYS

Most construction contracts include clauses covering delay in performance and time extensions. Delays are classified as excusable/compensable, excusable/noncompensable or nonexcusable/noncompensable. Typically, these clauses provide that, for causes of delay that are not under the control of either party (excusable delay), such as strikes, weather, and other acts of God, the contractor is entitled to an appropriate time extension for the resulting delay, but the owner is not responsible for any delay-related additional costs incurred by the contractor. Likewise, the clauses generally provide no relief to the contractor for contractor-caused (noncompensable) delays and expressly require the contractor to pay the owner damages for such delay, when liquidated damages for delay in performance are stipulated. See Section 3.6 for a discussion on liquidated damages. With respect to owner-caused (compensable) delays, however, the contract provisions vary. Some state that regardless of the owner’s responsibility, the contractor is not entitled to damages for delay; others either expressly or impliedly indicate the contractor’s entitlement to monetary relief.



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Concurrent delays are more complex. Black’s Law Dictionary (West, 5th Addition) defines concurrent as:

“Running together; having the same authority; acting in conjunction; pursuit of same course; contributing to the same event; contemporaneous. Cooperating, accompanying, conjoined, associated, concomitant, joint and equal, existing together, and operating on the same subject.”

Additionally, Black’s Law Dictionary defines concurrent causes as:

“Two distinct causes operating at the same time to produce a given result, which might be produced by either, are concurrent causes.”

Concurrent delay exists when two or more separate independent delay events occur during the same time period. The traditional view of the Courts and Boards has been that when owner-caused delay is concurrent or intertwined with contractor-caused or excusable/noncompensable delays, neither party should be able to recover from the other for that period of delay. Thus, the owner cannot recover liquidated damages and the contractor cannot recover costs of delay.⁷

This traditional view, however, was satisfying to neither the contractor, the Government, nor the adjudicative body:

“[W]here each party delays the other, it follows that each should be able to recover to the extent of the injury caused by the other’s delay. Such a rule protects each party from losses due to the delay of the other throughout the period of performance. It also induces each party to avoid imposing such losses on the other at any time during the period of performance. In contrast, a rule precluding a party from recovering damages for delay, once the party itself delays, would leave the parties to a contract unnecessarily vulnerable to delay by the other. We see no wisdom in, nor authority for, such a rule of preclusion. Therefore, when both parties to a contract breach their contractual obligations by delaying performance, a Court must assess the losses attributable to each party’s delay and apportion damages accordingly.”⁸

In order to apportion damages, a Court or Board must be in the position to apportion concurrent delays between the parties. This point is made taking into account the possible outcomes when it is impossible to apportion delays:

⁷ *Morrison-Knudsen Co.*, ENG BCA Nos. 3856, 3857, 79-1 BCA ¶ 13,798; *Framlau Corp.*, ASBCA No. 14479, 71-2 BCA ¶ 9082; *Hardeman-Monier-Hutcherson*, ASBCA No. 11869, 67-2 BCA ¶ 6522.

⁸ *United States ex rel. Heller Electric Co. v. William F. Klingensmith, Inc.*, 670 F.2d 1227, 1231 (D.C. Cir. 1982).



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“Where contractor-caused delay is concurrent with owner-caused delay, the contractor may not recover its increased costs resulting from delay. See, e.g., *Blinderman Constr. Co. v. U.S.*, 695 F.2d 552 (Fed. Cir. 1982). Where noncompensable delays are concurrent with Government-caused delays, a contractor may not recover its increased costs resulting from the delay. *Beckman Constr. Co.*, ASBCA No. 24725, 83-1 BCA ¶ 16,326. Where the owner has contributed to project delay and such contribution cannot be separated from other causes of delay, liquidated damages may not be enforced by the owner. *Aetna Casualty & Sur. Co. v. Butte-Meade Sanitary Water Dist.*, 500 F. Supp. 193 (D.S.D. 1980).”⁹

Although, the traditional view of neither party having damages liability for concurrent delay has, generally, passed from favor, a party asserting entitlement to a delay-based claim must still offer proof reflecting a clear apportionment of the delay. In this regard, there are two questions that are central to the issue of concurrent delays. First: Is a contractor obligated to satisfy the same standard to establish its right to time extensions (entitling it to relief from the assessment of liquidated damages) as that required to establish entitlement to a claim for delay costs? And, second, as relates to the evaluation of concurrent delays: How are Courts and Boards apportioning concurrent delays taking into account critical path method scheduling principals and techniques?

There are numerous decisions that address the differences and proof, and these decisions reveal that there is a difference in the proof required.

In *Cline Construction Co.*,¹⁰ the Board, in discussing the effect of concurrent delays, noted:

“Concurrent delay does not bar extensions of time, but it does bar monetary compensation for daily fixed overhead costs of the type claimed by Cline because such costs would be incurred on account of the concurrent delay even if the Government-responsible delay had not occurred. *Commerce /International Co. v. United States* [9 CCF ¶72,781], 167 Ct. Cl. 529, 338 F.2d 81 (1964).... Cline has presented no evidence that those segments of the work which were delayed by the Government-responsible causes cost more to perform in a later period than they would have cost if performed at the time originally schedule....”

⁹ John Cibinic, Jr., et al., *Construction Contracting* 670 (The George Washington Univ., National Law Center, 1991).

¹⁰ *Cline Constr. Co.*, ASBCA No. 28600, 84-3 B.C.A. (CCH) ¶ 17,594 (1984).



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In *Titan Pacific Construction Corp. v. U.S.*,¹¹ the Board, in evaluating the record regarding various delays, stated:

“Although our findings establish that appellant incurred many delays through its own fault and that of its subcontractors which prevented it from completing Phase II until 30 October 1978... they also establish that the Government contributed to the delays by issuing change orders, modifying Phase II requirements, as late as 20 July 1978,... 31 August, 1978,... 20 September 1978,... and 19 October 1978....

Under those circumstances, the delays are not compensable so as to entitle appellant to delay damages therefore, but the Government’s actions relieve appellant from liability for liquidated damages. *Myers-Laine Corporation*, ASBCA No. 18234, 74-1 BCA ¶ 10,467. Consequently, the Government’s assessment of liquidated damages amounting to \$8,787 for Phase was improper and must be set aside.”

Likewise, in *Utley-James, Inc.*,¹² the Board stated:

“A delay for which the Government is responsible is excusable by definition, and it may also be compensable. The rule is that for a delay to be compensable under either the Changes clause or the Suspension of Work clause, it must result solely from the Government’s action... If a period of delay can be attributed simultaneously to the actions of both the Government and the contractor, there are said to be concurrent delays, and the result is an excusable but not a compensable delay....”

Based on the above, it is evident that in terms of establishing entitlement to a time extension alone, a contractor need only demonstrate that concurrent causes of delay resulted in a specific amount of delay to completion of the work.

In *Freeman-Darling, Inc.*,¹³ the Board addressed the issues of a contractor’s compensable delay claim and the owner’s assessment of liquidated damages. In denying the contractor’s entitlement to the recovery of delay costs, while at the same time finding that the contractor should not be assessed liquidated damages, the Board stated:

“That delay was concurrent with delays due to changes and strikes. The law is well settled that where both parties contribute to the delay neither can recover

¹¹ *Titan Pacific Construction Corp. v. U.S.*, 17 Cl.Ct. 630 (1989).

¹² *Utley-James, Inc.*, GSBCA No. 5370, 85-1 BCA ¶ 17,816 (1984).

¹³ *Freeman-Darling, Inc.*, GSBCA No. 7112, 89-2 BCA (CCH) ¶ 21,882 (1989).



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damages, unless there is clear evidence by which we can apportion the delay and the expense attributable to each part. *Blinderman Construction Co. v. United States*, [30 CCF ¶ 70,619], 695 F.2d 552, 559 (Fed. Cir. 1982); *Active Fire Sprinkler Corp.*, GSBICA No. 5461, 85-1 BCA ¶ 17,868, at 89,484 (1984). Since no method is apparent for apportioning the delays, appellant may not recover increased costs for the period of June 25 to August 2, 1982. Correspondingly, for purposes of liquidated damages, appellant must be credited with an extension equal to the delay that occurred during that period.”

3.2 THE “NO DAMAGE FOR DELAY” CLAUSE

An example of a “No Damage for Delay” clause is shown below:

Except as provided elsewhere in this Agreement, the Owner shall not be obligated or liable to the Contractor for, and the Contractor hereby expressly waives, any claims against the Owner on account of any damages, costs or expenses of any nature which the Contractor may incur as a result of any delay which may occur, regardless of its cause. It is understood and agreed that the Contractor’s sole and exclusive remedy in the event of an excusable delay for which Contractor is entitled to an extension of time shall be an extension of the Scheduled Mechanical Completion Date.

In the same contract, however, the Changes clause provides the right of the Contractor to request increased compensation for costs due to delay caused by Changes. Therefore, when the Contract is read in its entirety, a “No Damage for Delay” clause that may limit or deny any relief for delay damages may be offset by other clauses which provide specific relief for delay damages.

The intent of a “No Damage for Delay” clause is clear—a desire by the Owner to allocate a financial risk to the contractor. Unless acceleration is directed to overcome delay, the Owner is willing to accept the late completion of the project if it (or its agents) is responsible for the delays. The Owner wishes to avoid paying for those delays.

From the standpoint of risk assessment, such a clause in the contract should put the bidding contractor on notice that serious financial trouble could lie ahead. Except for states including Colorado and Washington in which the clause has been barred, the clause is usually enforced.¹⁴ The potential exceptions that could negate the effect of the clause are:

¹⁴ A thorough analysis and discussion of the validity of no damage for delay clauses is found in Annotation, *No Damages for Delay Clauses*, 74 A.L.R.3d 187, § 3 (1976).



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1. The delay was not covered by the terms of the clause.¹⁵
2. The delay was so inordinate in duration,¹⁶ thus equivalent to contract abandonment, or was of such a nature that it was not within the contemplation of the parties at the time the contract was entered into, such as delays in obtaining rights-of-way,¹⁷ delays caused by the default of other contractors,¹⁸ and delay caused by unavailability of the contemplated method of transportation of material.¹⁹
3. The delay was due to the owner's (or owner's agent) active interference with the contractor's work activities or by an act of bad faith by the owner.²⁰
4. The delay was caused by the owner's breach of inherent obligations, such as not providing right-of-way, etc.²¹

Despite these exclusions, the clause enforcement trends are substantial. The following examples are illustrative of the legal decisions being rendered on the enforceability of the "No Damage for Delay" clause:

1. An HVAC contractor in New York was delayed 28 months because of numerous revisions to the plans and the owner's failure to coordinate the other prime contractors. The court ruled that although the owner actively interfered with the contractor's activities, there was an absence of a deliberate intent to delay. Therefore, the clause was enforced.²²
2. A contractor was awarded a contract to build a new high school in Illinois. Due to delayed completion of precedent work, the contractor was not provided timely access to the site. After work began, the contractor was inundated with changes. The court upheld the validity of the clause saying it was a risk agreed to by the contractor when it accepted the contract.²³

¹⁵ *Giammeta Assocs., Inc. v. J. J. White, Inc.*, 573 F.Supp. 112 (E.D. Pa. 1983); *Wright & Kremers, Inc. v. State*, 263 N.Y. 616, 189 N.E. 724 (1934).

¹⁶ *American Bridge Co. v. State*, 245 A.D. 535, 283 N.Y.S. 577 (1935); *Cunningham Brothers, Inc. v. City of Waterloo*, 254 Iowa 659, 117 N.W.2d 46 (1962).

¹⁷ *McGuire & Hester v. San Francisco*, 113 Cal. App.2d 186, 247 P.2d 934 (1952); *Franklin Contracting Company v. New Jersey*, 365 A.2d 952 (N.J. Super. Ct. 1976).

¹⁸ *People ex. rel. Wells & Newton Co. v. Craig*, 232 N.Y. 125, 133 N.E. 419 (1921).

¹⁹ *Ozark Dam Constructors v. United States*, 127 F.Supp. 187 (Ct. Cl. 1955).

²⁰ *Johnson v. State*, 5 A.D.2d 919, 172 N.Y.S.2d 41 (1958); *Grant Constr. Co. v. Burns*, 443 P.2d 1005 (92 Idaho 1968); *Peter Kiewit Sons' Co. v. Iowa Southern Utilities Co.*, 355 F.Supp. 376 (S.D. Ia. 1973); *United States Steel Corp. v. Missouri Pacific Railroad Co.*, 668 F.2d 435 (8th Cir. 1982).

²¹ *McGuire & Hester v. San Francisco*, 113 Cal. App.2d 186, 247 P.2d 934 (1952).

²² *Kalisch-Jarcho, Inc. v. City of New York*, 58 N.Y.2d 377, 448 N.E.2d 413, 461 N.Y.S.2d 746 (1983).

²³ *M. A. Lombard & Son Co. v. Public Building Commission of Chicago*, 101 Ill. App.3d 514, 428 N.E.2d 889 (1981).



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3. A highway contractor in Iowa was delayed in starting its work because of the late completion of precedent work by another contractor. The court found that a two-year delay was not uncommon in the highway construction business, and upheld the clause.²⁴

These are a few examples of the considerable lengths to which the “No Damage for Delay” clauses are being enforced. On the other hand, there are cases where general “No Damage for Delay” clauses have not been upheld. The more the clause orients toward a specific event that could cause delay, the greater chance it has of being upheld. For example, if the owner knows that there is a good chance that certain major equipment for which it is responsible might not be delivered by the contractual date, the owner might insert a specific clause saying that if the equipment is up to 60 days late, the owner would give an equitable time extension but would accept no damages. A clause this specific would almost without doubt be enforceable.

3.3 DISRUPTION

Damages resulting from schedule disruptions and impacts are generally recoverable under the same clauses that provide for compensable delays. If a contractor is directed to suspend all or any portion of its work, or if constructive suspension of work occurs, and if such suspension results in loss of labor efficiency or increased material and equipment costs, these additional costs are generally recoverable under the suspension of work clause.²⁵

Impact and disruption damages may also be recoverable under the changes clauses.²⁶ Directed changes may result in stacking of trades, congestion, or changed sequence of performance, resulting in higher than anticipated costs due to lost labor productivity or additional material and equipment costs. These increased costs may be recoverable even if the overall time of performance has not been extended.

Disruption damages may also be recoverable if the contractor encounters differing site conditions, defective drawings and specifications, as well as other causes.²⁷

Because the owner and contractor may have caused delays and disruption to the work, both parties may be responsible for the acceleration and loss of productivity resulting from these delays and disruptions. An analysis of the schedule to allocate responsibility for delays may provide the basis for allocating the acceleration and loss of productivity damages.

²⁴ *Dickinson Co., Inc. v. Iowa State Dept. of Trans.*, 300 N.W.2d 112 (1981).

²⁵ *Pathman Constr. Co.*, ASBCA No. 22003, 82-1 BCA (CCH) ¶ 15,790 (1982). *C.R.F. v. United States*, 624 F.2d 1054 (Ct. Cl. 1980).

²⁶ *Pan-Arctic Corp.*, ASBCA No. 20133, 77-1 BCA (CCH) ¶ 12,514 (1977).

²⁷ *J. F. Shea Co. v. United States*, 4 Ct. Cl. 46 (1983); *J. B. Williams Co. v. United States*, 450 F.2d 1379 (Ct. Cl. 1979).



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3.4 OWNERSHIP OF FLOAT

In an attempt to prevent the contractor from gaining the full benefit of the “float” in its schedule, some owners have used clauses to deal with the issue of ownership of the “float.” Such a clause might read:

“Float or slack is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the schedule. Float or slack is not time for the exclusive use of or benefit of either the owner or contractor. Extensions of time for performance required under the contract general provisions entitled “Changes,” “Differing Site Conditions,” “Terminations for Default,” “Time Extensions,” or “Suspensions of Work” will be granted only to the extent the equitable time adjustment for the activity or activities affected exceeds the total float or slack along the channels involved at the time notice to proceed was issued for the change.”

Float ownership clauses may not always be found in the contract terms and conditions. Instead, float ownership clauses may be contained in the scheduling procedures, as shown below:

A Schedule Assumption Narrative (synopsis) shall be submitted documenting the assumptions, agreements, and any qualifications (i.e., labor productivity, weather constraints, equipment delivery durations, etc.) made to create the Master Project Schedule (MPS).

- (1) The MPS shall be provided to Owner’s Project Manager or designee for review and approval.
- (2) Float belongs to the Project, not the Contractor. Owner must approve the use of the float.

Float is flexibility, and flexibility is important to the contractor. A network analysis can identify those paths and activities that contain float. The owner and the contractor are aware of those paths where flexibility is permissible. Some owners write contracts to the effect that they own the float.

Float may even be a means of avoiding critical path delays in that resources committed to a path containing float can be reassigned to the critical path to prevent overall project delay. Thus, a contractor faced with a known cause of delay to a specific activity may be able to maintain the project schedule and mitigate the delay by making use of the available float flexibility.²⁸

Thus, when the owner uses valuable float time by requesting a change to the scope of the contract work, the flexibility of the contractor is reduced which may result in additional

²⁸ *Joseph E. Bennett*, GSCBA No. 2362, 72-1 BCA (CCH) ¶ 9,364 (1972).



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contractor costs in terms of a later delay, acceleration or liquidated damages. To the extent that the contractor uses its own float time, the contractor cannot complain. But when the owner causes some delay or interferes or asks for a change on the float path, such actions ultimately may have an impact on the contractor's flexibility. When float time is thus used, any further contractor-caused delays are critical. Thus, there is often a dispute between owners and contractors as to who owns the float.²⁹

The law on float ownership is indicating that contractors no longer have exclusive use of float. Most public contracts include clauses that provide that float is not for the exclusive benefit of any party, such as the following:

“Float or slack is not time for the exclusive use or benefit of either the owner or the contractor. Extensions of time for performance...will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total float or slack along the channels involved.”

Typically, no time extensions are provided until the float is gone on the activity in question. Thus, the party who uses the float first gains the benefit of the float.³⁰

If the contractor wants to maintain its right to float time in the approved schedule, it should include a specific provision in its contract stating that float time is for the contractor's exclusive use and that time extensions will be granted for excusable delays which affect its performance and planned work sequence regardless of the fact that critical activities may not be affected. Otherwise, the contractor may waive its right to float time and will have to suffer the consequences of its bargain.

The concept of float is also important in addressing the dependence or independence of delays. When an owner causes delay to the critical path, it may be permissible for the contractor to relax its performance of noncritical work to the extent that it does not impact project completion. However, from a retrospective viewpoint, this deliberate slowdown by the contractor may appear to be concurrent delay. A more proper determination would be that the contractor's actions were dependent delays resulting from the owner's delay, and the contractor was just using the available float created by the owner-caused delay.

²⁹ *Fischbach & Moore International Corp.*, ASBCA No. 18,146, 77-1 BCA (CCH) ¶ 12,300 (1977); *Brooks Tower Corp. v. Hunkin-Conkey Constr. Co.*, 454 F.2d 1203 (10th Cir. 1972); *Weaver-Bailey Contractors, Inc. v. United States*, 19 Cl. Ct. 471, 474, 481-2 (1990).

³⁰ *Dawson Construction Company, Inc.*, GSBCA No. 3998, 75-2 BCA (CCH) ¶ 11,563 (1975); *Titan Pacific Construction Corp.*, ASBCA No. 24148, 24616, 26692, 87-1 BCA (CCH) ¶ 19,626 (1987); *Williams Enterprises v. Strait Manufacturing & Welding*, 728 F.Supp. 12 (D.D.C. 1990); *Ealahan Electric Company, Inc.*, DOTBCA No. 1959, 90-3 BCA (CCH) ¶ 23,177 (1990).



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3.5 THE CONTRACTOR'S RIGHT TO FINISH EARLY

The contractor can save large sums of money in time-related variable costs and overhead if a project can be finished ahead of the contract completion date. Correspondingly, a contractor is damaged and may have a valid claim when the owner causes delay and prevents the contractor from accomplishing an early completion.³¹ Although a contract will normally not include a clause relating to early completion, the contractor normally enjoys the right to finish early. In addition, certain agreements may contemplate a bonus to the contractor if it finishes its work earlier than the Scheduled Completion Date.

Many owners believe that a contractor cannot successfully assert a delay claim as long as the work to be performed under the contract is completed within the scheduled contract duration. When a contractor asserts in a claim it could have finished early absent the owner's interference, the owner counters by contending that the contractor completed its work within the allowed contract time and, therefore, the contractor has not suffered any damages. A CPM network analysis, if properly done, will permit the contractor to support its case.

The general rule appears to be that early finish claims must pass the following tests:

1. The contractor must have communicated to the owner an intention to complete early and must provide the proper documentation.³²
2. The schedule indicating an early finish must be feasible and obtainable and prepared in accordance with industry standards.
3. Owner actions or inactions that interfere with the contractor from completing early in accordance with the approved schedule must be demonstrated.

Owners reviewing schedules do not commonly look for intentions of early completion. If the owner, for reasons pertaining to schedule, wishes to encourage early completion, then the owner must ensure itself that the schedule is reasonable and must, by its actions, do nothing to interfere with that early schedule. The owner must ensure that its required approvals and actions are feasible within the time limits suggested by the schedule. At the same time, the contractor must not be responsible for any actions that would create concurrent delays thereby nullifying owner interferences. If a schedule showing early completion is accepted without question, a contractor's delay claim may be upheld even though the contractor completed its work within the original contract period.³³

³¹ *Owen L. Schwann Constr. Co.*, ASBCA No. 22407, 79-2 BCA (CCH) ¶ 13,919 (1979); *Metropolitan Paving Co. v. United States*, 325 F.2d 241 (Ct. Cl. 1973).

³² *VEC, Inc.*, ASBCA No. 35988, 90-3 BCA (CCH) ¶ 23,204 (1990).

³³ *Housing Auth of Texarkana v. E. W. Johnson Constr. Co.*, 264 Ark. 523, 573 S.W.2d 316 (1978).



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If the owner does not wish to encourage early completion, then specific provisions pertaining to float may be included in the general requirements or special conditions. Early completion says, in effect, that there is float on all paths and that there is no critical path except that path leading to the early completion date. Generally, one would not endorse a clause such as this. If the contractor feels it could complete early, the contractor may be discouraged from using the project schedule and use a modified schedule that will only cause confusion.

Schedules in support of early finish claims should be based on contemporaneous documents prepared in the normal course of business. In any event, contractors must comply with milestone dates for owner-provided equipment, materials, services, etc. Owners whose projects must fit within a closely coordinated overall program schedule must ensure that such dates are adequately communicated to all contractors in the bid documents.

3.6 LIQUIDATED DAMAGES

Liquidated damages provisions are often specified in construction contracts as a daily amount to be withheld from the contract price for each day of delay to the contract completion date. However, the primary objective for specifying liquidated damages is to secure the timely performance that is promised by the contractor rather than to obtain the specified sum. Because liquidated damages provisions are commonly upheld by the courts, the party breaching the contract completion time requirements has an uphill battle to refute damages without a persuasive argument about the cause of the delay.

From a historical perspective, penalty bonds were originally used as a security device for failure to perform. However, a breach of performance would often carry consequences far in excess of the damages incurred. Equity courts intervened to prevent unconscionable consequences and the law courts soon followed. The modern view is that if the amount specified for liquidated damages is being used *in terrorem* to secure performance rather than as a reasonable quantifying measure of convenience or is disproportionate to the value of the performance promised and consideration paid, the liquidated damages provision will be viewed as a penalty and held unenforceable. Otherwise, the contract provision is most often literally enforced if the court is convinced of the following:

1. The amount specified is a genuine pre-estimate by the parties of the extent of the damages that will be caused by a breach of the contract completion time requirements.
2. The actual damages are incapable or very difficult to accurately be determined.

If the court determines that the specified amount of liquidated damages is a penalty, the contractor or subcontractor is still subject to actual damages. An owner, or a general contractor seeking damages against a subcontractor, should be prepared not only to show how the specified



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liquidated damages amount was calculated but also be prepared to show through its cost records the extent of the actual damages. If the actual damages are negligible, a growing number of courts are ruling that liquidated damages would be unconscionable.

The party specifying liquidated damages should do so with care. If the specified amount is too high, qualified contractors may be scared away from bidding. Another consequence is that an unreasonable amount may cause contractors to include a high contingency figure in their bids to cover the possibility of delay damages. In such a case, the owner bears the extra cost whether or not the project is delayed.

Liquidated damages may be estimated as a daily rate for the period of late performance based on one or more of the following:

1. Extra maintenance, operational or utility costs in continued use of an old or inefficient building or facility.
2. Maintenance of a new building or facility before its beneficial use.
3. Extra rental of other buildings because of late completion of the new building.
4. Interest on investment or borrowed capital of the project.
5. Costs for extra personnel who are on standby waiting for completion.
6. Extended supervision, inspection or engineering costs.
7. Loss of revenue, bridge tolls, sale of product, rental value of property, etc.
8. Moving costs.
9. Impact costs related to follow-on contracts or concurrent contracts affected by delay.
10. Wage/material cost increases.
11. In the case of a subcontractor's delay to a general contractor, the liquidated damages owed by the general contractor to the owner.

Inclusion of a liquidated damages clause in a contract is generally deemed to be in lieu of actual damages for delay. If there is no liquidated damages clause, however, the contractor may be liable for and the owner may withhold actual damages.

The owner is not entitled to collect both liquidated damages and actual damages except where liquidated damages are limited to certain specified types of owner damages, such as extended engineering, interest, taxes, etc., and where other damages which may occur are specifically excluded in the liquidated damages calculation, such as claims of other contractors affected by



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the delay. Likewise, the owner cannot circumvent the liquidated damages clause because its actual damages are greater unless the liquidated damages are qualified by such exclusions.

In case of a delay caused by a subcontractor, the prime contractor may not only have to pay the owner liquidated damages for delay but also pay additional costs for its own damages, such as extended overhead and field indirect costs and delay claims of other subcontractors affected by the delay. Because these liquidated damages and other damages are separate and distinct, the prime/subcontractor agreement should be specific to the prime contractor's entitlement to collect both types of damages.

The date of commencement of liquidated damages is the contract completion date as adjusted by any appropriate time extensions for compensable and excusable delays. Liquidated damages are recognized by the courts to stop when substantial completion is achieved or the date the owner takes beneficial occupancy. To avoid uncertainty, the liquidated damages clause should specify if weekends and holidays are to be included in the delay calculation.

In the case of abandonment by the contractor, the courts have held that it is not reasonable for the daily sum to be paid forever, but commensurate with the period or amount of actual injury.

Liquidated damages are not enforced without taking into account a reasonable time for the contractor to complete increased work or without considering excusable delays.³⁴ Letters or oral directives by the owner or its agents threatening liquidated damages or demands that the contractor meet the contract completion date despite excusable delays can be interpreted as directed or constructive acceleration.

Excusable delays may include formal change orders, constructive changes, labor disputes, unusual delay in transportation of equipment or materials, unanticipated adverse weather conditions, unavoidable casualties, or any causes beyond the contractor's control.

If the owner interferes with the contractor's performance, or the general contractor interferes with its subcontractor, the owner or general contractor may have lost its only right to assert liquidated damages. In addition, if the owner caused any delays, the owner may not be entitled to withhold liquidated damages even if its contractor failed to request a time extension within the specified time limit in the contract.³⁵

In a complicated project, there may be overlapping or concurrent delays which may be attributable to both the owner and the contractor. The owner must sort out such concurrent delays before the owner can be certain liquidated damages are due. The owner must be able to demonstrate that the delays were not excusable. Also, the owner must demonstrate that there

³⁴ *Titan Pacific Construction Corp.*, ASBCA Nos. 24148, 24616, 26692, 87-1 BCA (CCH) ¶ 19,626 (1987); *Utley-James, Inc.*, GSBCA No. 5370, 85-1 B.C.A. (CCH) ¶ 17,816 (1985).

³⁵ *General Insurance Co. of America v. Commerce Hyatt House*, 5 Cal. App 3d 460, 85 Cal. Rptr. 317 (1970).



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were not concurrent excusable delays and nonexcusable delays, or apportion the concurrent excusable delays from the nonexcusable delays. If the owner is unable to distinguish and apportion concurrent nonexcusable delays from excusable delays, the owner is not entitled to either liquidated damages or actual damages.³⁶

Some courts have held that delay damages will not be apportioned to each party and, if the owner causes some delay, no liquidated damages can be recovered. More often, however, the courts will accept apportionment.³⁷ To avoid such uncertainty, the liquidated damages clause should specifically provide for apportionment and that the contractor will not be assessed damages for excusable delays.

Contractors should be aware that the owner's issuance of a change order after the original completion date will not serve to waive liquidated damages for contractor-caused delays prior to the date of the change order.³⁸

Change orders can, however, cause problems to owners with respect to liquidated damages. If the owner includes a reservation of rights for liquidated damages in one change order but fails to do so in subsequent change orders, this inconsistency may indicate a waiver of liquidated damages. A prudent owner should reserve its rights for liquidated damages in all change orders, especially if the change orders are dated after the contract completion date.

The owner may waive liquidated damages if no claim for such damages is made prior to final payment. Liquidated damages may also be waived if the owner failed to put the contractor on notice that it intended to enforce the liquidated damages provision after a delay has occurred, if the owner allowed the contractor to complete the work after the scheduled completion date had passed,³⁹ or if the owner continued to make progress payments without a deduction for liquidated damages.⁴⁰

3.7 CONTRACTOR PROGRESS AND ACCELERATION

Improper administration of a construction contract in terms of its schedule by an owner can have dire consequences. For example, an owner who fails to act in a timely manner on a valid request

³⁶ *Sutton Construction Co.*, ASBCA No. 12322, 68-2 BCA (CCH) ¶ 7,250 (1968); *Blinderman Construction Co. v. United States*, (30 CCF ¶ 70,619), 695 F.2d 552, 559 (Fed. Cir. 1982); *Active Fire Sprinkler Corp.*, GSBCA No. 5461, 85-1 BCA (CCH) ¶ 17,868 (1985).

³⁷ *Southwest Engineering Co. v. United States* 341 F.2d. 998 (8th Cir. 1965); *Williams Enterprises v. Strait Manufacturing & Welding*, 728 F.Supp. 12 (D.D.C. 1990); *H & S Corporation*, ASBCA No. 29688, 89-3 BCA (CCH) ¶ 22,209 (1989); *Sierra Blanca, Inc.*, ASBCA No. 32161, et al., 90-2 BCA (CCH) ¶ 22,846 (1990); *Utey-James, Inc.*, GSBCA No. 5370, 85-1 BCA (CCH) ¶ 17,816 (1985).

³⁸ *Thomas E. Schroyer*, GSBCA No. 3465, 72-1 BCA (CCH) ¶ 9,181 (1972).

³⁹ *Parish Mfg. Corp. v. Martin Perry Corp.*, 285 Pa. 131, 131 A. 710 (1926).

⁴⁰ *Dillion Construction, Inc.*, ENGBCA, 81-2 BCA (CCH) ¶ 5,416 (1981).



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for a time extension may force a contractor into acceleration. At times, however, an owner will want to emphasize that if the contractor falls behind schedule due to its own fault, required acceleration, in that case, is at the cost of the contractor. An example of this provision is shown below:

Should Owner have reason to believe that the Contractor will not achieve Mechanical Completion by the Scheduled Mechanical Completion Date, Owner shall have the right (but not the obligation) to so notify Contractor, whereupon Contractor shall, at no cost to Owner, work such additional overtime, engage additional personnel and/or take other measures as necessary to achieve Mechanical Completion by the Scheduled Mechanical Completion Date.

3.8 *TERMINATION*

A termination claim raises the question of whether the termination was proper at the time. Has the owner properly interpreted the schedule and the contractor's performance? Assuming that the grounds for termination is an alleged failure by the contractor to proceed on schedule, another question becomes whether the contractor was proceeding in accordance with the schedule as it should have been extended as of the date of termination. Were there legitimate requests for time that the owner should have acted upon?

Proof that the contractor was not proceeding properly is done in the same manner as that of an acceleration claim. The contractor will attempt to show that he either had some float and was not behind schedule or would have been on schedule had he been granted time extensions to which he was entitled.

3.9 *FAILURE TO PROVIDE NOTICE*

Contractual requirements for timely notification, should extra costs be anticipated, are not employed for exculpatory or punitive purposes. If an owner is going to be held liable for a contractor's additional costs, logic and equity would point to the owner's right to control or mitigate those costs. A differing site condition, a directed or constructive change, etc., should not give rise to unbridled cost overruns. To place some form of check and balance on this concern, a notification clause such as the following is often used:

“Notification for Additional Compensation: Upon the occurrence of an event during the course of the work which is beyond the Contractor's control and for which the Contractor intends to submit a claim for extra compensation in addition to the Contract Price, the Contractor shall, as a condition precedent to owner's consideration of such claim, give owner notice in writing of such intent within



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seven (7) business days after the occurrence of such event, failing such notice the claim shall be deemed to have been waived by the Contractor.”

Another example of a notice provision pertaining to actions by the Owner, which the Contractor believes are changes, is shown below:

Other Changes: If Contractor receives any other directive, instruction, interpretation or determination from Owner which will cause a change in the Contractor’s cost or time to complete the Work, Contractor shall promptly (and in any event, within 5 days) notify Owner in writing, which notice shall describe the directive and the anticipated effect on the Contractor’s cost or time to complete the Work. Within 14 days after receipt of any such directive, Contractor shall submit to Owner in writing a more detailed statement of its claim that a change has been directed, including the estimated increase or decrease in Contractor’s cost to complete the Work as a result of such alleged change including all direct, indirect and impact costs on the unchanged Work, the estimated increase or decrease in the time required to achieve the Scheduled Mechanical Completion Date as a result of the alleged change, the estimated cost attributable to the increase in time and the estimated cost, if any, of recovering any time delay, and a description of what steps Contractor has taken and plans to take to minimize the effect that such alleged change will have on any increase in costs to complete the Work or any delay in the schedule. Contractor shall thereupon undertake to diligently pursue those steps and use its best efforts to mitigate any adverse effects caused by the alleged change.

In the event Contractor is entitled to an adjustment to the Contract Price as a result of any such directive, such adjustment shall be made in accordance with the paragraph above.

If written notice as required by the clause is not provided by Contractor within the aforementioned 5 days and 14 days, respectively, the alleged change for the purpose of this Agreement shall be deemed to have no effect upon the cost to complete the Work or upon the schedule and Contractor will be deemed to have waived the right to any increase in the Contract Price or adjustment to the Scheduled Mechanical Completion Date.

Compliance with a notice provision, while doing little to provide the contractor with immediate compensation, will satisfy a fundamental duty – the duty to protest. This duty extends to both directed and constructive changes. Although exception to the notice requirement is often considered when a constructive change has, as its cause, a defective specification, the correction of such defect may result in a dispute as to whether or not it is a directed change. If the owner directs a change in the specifications (despite the fact that the owner may consider the change as



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part of the original contract), the contractor is advised to lodge a protest as quickly as practical so as to provide the owner time to reconsider or maintain the said direction.

Failure to provide proper notice may invalidate an otherwise meritorious acceleration claim. Even if the contractor is entitled to a time extension due to an excusable delay, the contractor's failure to notify the owner may invalidate a constructive acceleration claim, and the contractor's actions to accelerate may be deemed voluntary.⁴¹ Such decisions by the courts are based on the owner's right to investigate the relevant information and mitigate the potential cost impact before additional costs are incurred.

Defenses most commonly employed by contractors to circumvent failure to provide notice are:

1. The owner's position or options were not prejudiced by lack of notice.⁴²
2. The specifications were defective resulting in a constructive change not subject to the notice requirements set forth in the changes clause.⁴³
3. The owner "knew or reasonably should have known" that a claim would be forthcoming.⁴⁴
4. The owner had constructive notice even though a formal notice letter was not written and provided to the owner.

In both the first and second of these potential defenses, the matter of the owner being prejudiced by lack of notice bears consideration. Constructive changes, even if caused by defective specifications, will often be subject to the prejudice argument prohibiting contractor recovery for costs that may have been avoided or mitigated had the contractor given timely notice.

3.10 REQUIREMENTS OF OWNER-FURNISHED MATERIAL

The contractor has the right to assume that the owner has secured owner-furnished material, permits, rights-of-way, approvals, etc., so that the project can proceed based upon any dates or durations provided to meet the contract requirements. A contractor cannot claim delay when it inappropriately bases its construction schedule, sequences and progress on owner actions that are earlier than those originally planned by the owner and properly communicated to the contractor. Thus, the owner must properly plan and think through its obligations prior to communicating same to the contractor in the bid documents. The owner must permit the contractor to have the

⁴¹ *Johnson Controls, Inc. v. National Valve & Mfg. Co.*, 569 F. Supp. 758, 760 (E.D. Okla. 1983).

⁴² *C. H. Leavell & Co.*, ASBCA No. 16099, 73-1 BCA (CCH) ¶ 9,781 (1973).

⁴³ *John F. Cleary Construction Co.*, GSBCA No. 3158, 71-2 BCA (CCH) ¶ 9,127 (1971); *Kelly Electric, Inc.*, DOTCAB No. 71-34, 71-2 BCA (CCH) ¶ 9,097 (1971); *Chaney & James Construction Co. v. United States*, 421 F.2d 728 (Ct. Cl. 1970).

⁴⁴ *Vanderlinde Electric v. City of Rochester*, 54 A.D.2d 155, 388 N.Y.S.2d, 388 (1976).



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maximum flexibility in planning its construction, unless the owner notifies the contractor of restrictions and allows the contractor to so plan.

How is the above best accomplished? The owner should want to convey delivery dates for owner-furnished material, but at the same time, the owner will want to keep its exposure to a minimum, should the delivery dates not be met. These two objectives are somewhat incompatible; however, the contractor should request that the owner specify anticipated delivery dates.

If the owner does specify material delivery dates, the contractor should ensure that these dates are included in the contract. The contractor would then build its schedule around these dates and, if the dates are missed, the owner may be liable for a time adjustment. However, the mere fact that the material was not delivered by the indicated date does not mean an automatic time extension. If the material were delivered after the specified date but prior to the date that the contractor's schedule showed that the material was needed, there would be no time extension. Likewise, should the contractor have self-inflicted delays and could not have used the material prior to the actual delivery date, even though the specified owner delivery date was missed, there would only be a basis for a time extension if the contractor-caused delays were concurrent to the owner-caused delays. However, the contractor would not be entitled to delay damages for concurrent delay. Thirdly, should the contractor insert the specified delivery dates in its schedule as the dates it requires the material, but in actuality it can be demonstrated that the contractor did not require the material that early, there may be no basis for a time extension should the material be delivered late, but prior to the demonstrated actual needed date.

The owner can easily specify dates for major pieces of equipment simply by stating that pump "A" will be delivered not later than April 30, 2000. Bulk materials, such as structural steel, piping, reinforcing steel, etc., are more difficult to handle, as this type of material is normally not delivered in one shipment, but spans a period of time, and often a considerable period of time. In this case, it is reasonable for the owner to give a span of time for delivery. For example, the owner may state that major structural steel will be delivered between January 1, 1997 and June 30, 1991. To further tie this down, an owner may want to specify that deliveries of major structural steel will start on January 1, 2000 with 50 percent delivered by February 25, 2000, 90 percent delivered by April 1, 2000 and 100 percent by June 30, 2000. The contractor, however, is concerned with not only having sufficient quantities of steel delivered in a timely manner, but also receiving the correct sequence of delivery of the various steel members according to the planned erection schedule. These types of statements serve to prevent disputes from arising as to the anticipated rate and sequence of delivery where bulk materials are involved.

In summary, when an owner is to supply material, the anticipated delivery dates should be specified by the owner in the contract and these dates built into the schedule. Absent this information, the contractor may tend to show owner-furnished equipment in its schedule earlier than needed. This carries the built-in potential for a dispute.

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3.11 APPROVAL TIME

A contract should specify the length of time the owner requires for approvals of submittals such as shop drawings, procedures, samples, etc. The schedule should contain activities for these items that reflect these durations. Contractors frequently allege that late review of shop drawings result in construction delays. If the designer unreasonably delays the shop drawing review process, which in turn delays construction, the contractor may be able to recover delay damages.⁴⁵

3.12 COORDINATION RESPONSIBILITIES

In the event of a multiple prime situation, the contracts may be written so as to designate one of the prime contractors as the general contractor for purposes of coordination and/or scheduling. The choice as to whether to have the construction manager, owner, or one of the prime contractors provide scheduling and coordination services is a complex legal question. Nevertheless, owners and contractors should be aware that multiple prime forms of contract place obligations and duties upon the owner for coordination—duties and obligations generally assumed by the general contractor.⁴⁶

Some of the other indirect legal implications of using a multiple prime form of contract include the following:

- The role of the construction manager who acts as an agent of the owner and the liability of the owner for his actions.
- Problems created by unclear divisions in the work as reflected in the plans and specifications.
- Project scheduling and coordination responsibilities assumed by the owner or his construction manager.
- Job site safety.
- Shop drawing submittal and coordination.
- Approval of time extensions of the various subcontractors and the ripple effect of those time extensions.

⁴⁵ *E. C. Ernst, Inc. v. Manhattan Constr. Co.*, 387 F. Supp. 1001 (S.D. Ala. 1974), aff'd in part, rev 'd' in part, 551 F.2d 1026 (5th Cir. 1977).

⁴⁶ *Shea-S&M Ball v. Massman-Kiewit-Early*, 606 F.2d 1245 (D.C. Cir. 1979); *Paccon, Inc. v. United States*, 399 F.2d 162 (Ct. Cl. 1968); *J. A. Jones Constr. Co. v. City of Dover*, 372 A.2d 540 (Del. Super. Ct.), aff'd, 377 A.2d 1 (1977).



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- Handling substantial and final completion on a project area, trade or subcontract basis.
- The ramifications of the termination of a trade contractor.
- The problems associated with taking work from one contractor and assigning it to another – a solution often available to a general contractor who has overall responsibility and who has the resources to do the work himself.

Owners should think twice of the advantages of multiple prime contracting and understand that they have a legally imposed duty to schedule and coordinate the work and activities of all of those prime contractors as if they were the general contractor.

3.13 SUBCONTRACTOR PROBLEMS

The subcontractor is in a particularly unenviable position with regard to scheduling problems. The subcontractor is bound by the project schedule both from a practical and legal standpoint. Its services are required at specific points. A subcontract usually imposes damages for later uncoordinated performance. While a subcontractor is bound by the schedule, it usually has little to say about its drafting, and it may have trouble enforcing its provisions against owners or the prime. Nevertheless, subcontractors have many enforceable rights.

The contractor has an implied obligation to keep the work moving. The contractor must coordinate so as to enable the subcontractor to perform within a limited time. A detailed progress schedule may be the best evidence of the extent of those implied obligations. A subcontractor's right to have its timely performance ensured by the prime includes the right to timely site access, the right to complete work during the period specified by the contract, and the right to proper coordination with other subcontractors. A subcontractor may then reasonably rely upon the project schedule when making decisions concerning allocations of labor, ordering of materials, and procurement of equipment.

If the owner interferes by not meeting its obligations under an approved schedule, the subcontractor, even though it does not have privity of contract with the owner, has certain rights against the owner.⁴⁷ In government contracts, the subcontractor may secure the cooperation of the prime contractor in prosecuting its claim or the prime contractor may allow the subcontractor to prosecute its claim itself.

Infrequently, the prime contract and the subcontracts are silent as to any obligations relative to scheduling and coordination. When this occurs, the prime still has obligations to that subcontractor. The implied duty to cooperate and not to hinder can create liability for the prime.

⁴⁷ *Phoenix Contractors, Inc. v. General Motors Corp.*, 135 Mich. App. 787, 355 N.W.2d 673 (1984).



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In addition to these implied obligations, the courts could also invoke the doctrine of superior knowledge. The contractor had a duty to disclose any superior knowledge it possessed such as anticipated access dates, production rates, owner approvals, etc.

The owner looks to the prime to prepare and enforce the schedule as it pertains to means, methods, sequence, etc. Once the schedule has been approved, the prime must then represent to the subcontractors that the prime will attempt in a reasonable fashion to adhere to the schedule and that the subcontractor can reasonably rely upon it and the dates shown therein including activities of the owner.

If the prime contractor or general contractor failed to consult with its subcontractors during preparation of the schedule, or supplied erroneous data to the scheduler in the preparation or updates, or arbitrarily or unreasonably changed a schedule or sequence, then the prime contractor or the general contractor may be liable to the subcontractors for its resulting increased costs.

About the Author



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<i>Blinderman Construction Co. v. United States, (30 CCF ¶ 70,619), 695 F.2d 552, 559 (Fed. Cir. 1982).</i>	26
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