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**Counting the Chickens While They Hatch and the Double-Edged Sword of Tracking Project Claims and Delays**

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**Introduction**

At the outset of most projects, there typically exists a contracted scope of work, a defined contract value and a contract duration, or expected completion date. More often than not, projects encounter unforeseen or unanticipated issues that impact scope, cost and/or duration of the project. Increases to the contract amount and/or duration are typically the result of scope changes and/or delays to the progression of work. Any issue that impacts the contracted cost and/or time exposes the project owner to claims and/or requests by the contractor(s) for additional costs and/or extensions of time. Provided that a contract allows for a contractor to recover additional time and costs, proper and/or sufficient project records improve the contractor’s ability to substantiate and recover additional costs and/or time as well as the owner’s ability to defend against unjustified requests or claims by contractors. This paper focuses on the importance of a party’s typical practices of monitoring and documenting the costs and other data associated with changes and impacts to the work in order to maximize the party’s ability to sufficiently substantiate claims for additional time and/or costs, or defend against such claims. This paper also discusses the potential challenges that can occur when a party’s typical practices and contemporaneous records do not support a contractor’s claim or an owner’s defense.

**Overview of Maintaining Proper Records to Substantiate Issues/Impacts**

In order to properly substantiate a claim for additional time and/or costs, a contractor must establish both legal and technical entitlement. Similarly, in order to defend against an unjustified claim, an owner must demonstrate that the contractor failed to establish either legal or technical entitlement. As will be discussed later, when asserting or defending claims for additional time and/or costs, it is critical that the contemporaneous project records support both the legal and technical entitlements to recover time and money or the legal and technical defenses. The following sections discuss the concepts of legal entitlement and technical entitlement.

*Legal Entitlement*

In order for a contractor to recover upon a claim for additional time and/or costs the contractor must be able to establish some basis in the law for its claim. Absent a legal basis for entitlement, the claim will fail and the issue of damages (if any) will never be decided. However, establishing a legal basis for entitlement does not mean that the claim will be successful. A claim which demonstrates legal entitlement may ultimately fail for a variety of reasons, including a failure to demonstrate technical entitlement, a failure to prove damages or a legal defense to the claim.

One of the easiest ways for the contractor to establish legal entitlement is to understand what the contract requires with respect to establishing legal entitlement for a claim prior to proceeding with work on the project. If the contractor understands what is required to establish a claim under the terms of the contract then the contractor can ensure that it has personnel on the project who can monitor and, if required; 1) track events on the project which give rise to claims; 2) ensure that notice of any claim is timely presented to the owner; and 3) ensure that documentation which is required to support the claim has been kept contemporaneously as events giving rise to the claim occur.

For example, imagine a situation where the contractor in question is a foundation subcontractor who is responsible for placing CIDH pile for the purpose of supporting the foundation of a building. Let’s assume that this contractor received a notice to proceed from the general contractor which directed the contractor to start work on casting and placing the piles and that the contractor started its work on time. Let’s further assume that the contractor has performed a reasonable investigation of the site and has reviewed all available geotechnical reports (to include reviewing all rock core samples) prior to bidding its scope of work. However, soon after mobilizing to the jobsite, the contractor suspects that the soil and rock conditions set forth in the geotechnical reports are inaccurate and in fact, the rock which the contractor must drill through in order to place the piles is a lot stronger than what was represented to the contractor in the geotechnical reports. What should the contractor do?

In an ideal situation, the contractor has thoroughly reviewed the contract documents, to include the terms of its subcontract and the terms of the general contract. The contractor is familiar with the Differing Site Conditions Clause (type 1) in the contract documents which requires the contractor to give written notice to the owner (via the general contractor) prior to disturbing the conditions which give rise to the differing site condition. Accordingly, upon discovering that the geotechnical report misrepresents the actual conditions which have been encountered on the project, the contractor notifies the general contractor and owner in writing of the situation and ceases its drilling operations so that the owner can investigate the site and determine whether it agrees that a differing site condition exists, and if so, how the contractor should proceed.

In the ideal situation, the contractor has detailed daily reports which describe the difficult drilling operations, detailed labor and equipment records which clearly show how the contractor has been impacted by the strong rock and a Time Impact Analysis which shows the additional time the contractor spent drilling through the hard rock so that the general contractor and owner may evaluate the contractors additional costs and delays caused by the stronger-than-expected rock.

In reality, the ideal situation does not happen often. Usually, the contractor does not thoroughly familiarize itself with the contract documents prior to bidding its scope of work on the project. Often geotechnical reports are reviewed quickly for obvious anomalies. The site is not thoroughly inspected or tested prior to completion of the bidding phase. The contract is not mapped by the contractor prior to starting the project so that project personnel are brought up to speed on how to handle change order, differing site condition and project delay scenarios pursuant to the language of the contract documents. Notice letters are not timely written. Supporting documentation is not kept contemporaneously. Delays and impacts are not tracked. Lawyers are not consulted while the crisis event is underway; instead they are called upon to resolve an issue after it has already become a problem rather than being called upon at the stage where the issue has not yet become a problem. In reality, the contractor does what it historically does well – it finishes the project – business as usual.

1. **Legal Entitlement for a Differing Site Condition**

The contract documents (to include the specifications) typically set forth what is required to establish legal entitlement for a differing site condition. Typically, if during the progress of the work the contractor encounters preexisting subsurface or latent physical conditions which differ materially from those indicated in the contract (type 1), or encounters preexisting unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract (type 2) it is likely that the contractor has encountered a differing site condition on the project.[[1]](#endnote-1)

In order to establish legal entitlement for a differing site condition claim, most contracts require the contractor to follow a very specific process.

The first step in the process is that upon discovering the differing site condition, the contractor (or the party discovering the differing site condition) must notify the owner (or contractor if the owner or its representatives discover the differing site condition) in writing of the specific differing site conditions before they are disturbed and before the affected work is performed.[[2]](#endnote-2)

The second step requires the owner to investigate the differing site condition and make a determination as to whether an adjustment in the contract price is warranted. Once the owner (or its authorized representative) is notified in writing, the owner (usually through the engineer of record) must investigate the conditions and if the owner (or its representative) determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any contract work, an adjustment will be made and the contract will be modified (typically via a change order). The owner (via the Engineer) is required to notify the contractor of the owner’s determination whether an adjustment of the contract is warranted due to the presence of a differing site condition.[[3]](#endnote-3)

If the parties agree on the equitable adjustment then no further steps are necessary and the contract will be modified accordingly. However, if the parties are unable to agree on whether an adjustment is warranted due to the existence of a differing site condition, then additional steps are necessary. Typically, the owner will unilaterally adjust the contract, if at all, to reflect what it concludes that the contractor is entitled to recover as a result of the differing site condition. If the contractor objects to the adjustment then the contractor must follow the provisions set forth in the contract documents for claim preservation which typically include performing the work under protest and tracking costs, delays and impacts going forward so that these items may be presented as a claim at the appropriate time under the contract.[[4]](#endnote-4) Often, on public projects, the contractor is required to submit the claim to a Dispute Resolution Board (DRB) or some other quasi-judicial/administrative body put in place on the project for the purpose of attempting to resolve disputes. Usually an informal attempt to resolve the claim must be made prior to litigating the claim. Failure to follow the dispute resolution process set forth in the contract usually results in waiver of the contractor’s right to bring its claim. Accordingly, strict adherence to the dispute resolution and claims preservation process set forth in the contract documents is mandatory.

The most common pitfall encountered when dealing with a differing site condition claim is that the contractor fails to give timely and appropriate written notice under the contract of the differing site condition. The rationale as to why such a failure is fatal to bringing a differing site condition claim is readily apparent - the owner should have an opportunity to investigate and evaluate whether there is a differing site condition claim prior to the work going forward because upon discovery of the condition the owner may decide to mitigate its damages by: performing the extra work itself, redesigning the work or suspending work on the project if the magnitude of the differing site condition calls for it.[[5]](#endnote-5) By depriving the owner of its opportunity to investigate the problem and mitigate its damages, the owner is placed in a position where it either has to pay or litigate a bill for work that it wasn’t expecting to be performed. One could argue that the only fair way to deal with the owner’s quandary is to eliminate the responsibility for an owner to pay for damages which arise out of a claim that the owner is not made aware of and/or has not had an opportunity to investigate prior the work in question being performed.

The best way for a contractor to avoid risking waiver of its right to recover on a differing site condition claim is to provide notice of a differing site condition whenever there is a question as to whether a differing site condition has been encountered. It is always better to be cautious than reckless.

1. **Legal Entitlement for a Change in Scope of Work**

The contract documents typically set forth what is required to establish legal entitlement for a change in the scope of work. These rules are usually set forth in the “changes clause” of the contract. Ordinarily, the changes clause permits the owner to do the following: 1) delete any part of the work; 2) increase or decrease quantities; 3) alter the way the work is to be done; 4) alter the specifications and/or the design; 5) add new work; or 6) accelerate or delay the work. Typically, if the owner exercises its right to change the work (in writing) the contractor is entitled to an adjustment in the contract price which is executed in a change order. The changes clause usually provides a mechanism for contractors to propose changes in their scope of work to the owner (typically, via a change order requests). Ordinarily, contracts provide that if the contractor proceeds with change order request work without written authorization then the contractor proceeds at its own risk and without compensation.[[6]](#endnote-6)

It is one thing to understand how the changes clauses functions on paper, however in reality changes often deviate from what the contract requires. The contract usually specifies that the contractor will be required to perform a change only if the change is made in writing by an authorized representative of the owner. To make matters worse, the contract often states that any change order work performed without written direction from the owner and/or authorization from the owner’s representative will be performed at the contractor’s own risk and without compensation. So why do contractors continue to get themselves in situations where despite the clear language of the contract, they perform change order work without a written directive or pursuant to a directive given by someone who is unauthorized to direct the contractor to perform change order work?

Typically, the parties focus on building the project to the exclusion of most formal contractual requirements. Their project-level personnel are particularly adept at building the work, rather than following the strict language of the contract. Contractors usually do not have the time to educate their field personnel on how to deal with situations which arise in the field where failure to follow the language of the contract could jeopardize the contractor’s ability to recover all of its costs to build the project.

In order to establish legal entitlement for owner-directed change order work the contractor first needs to obtain a written directive from a person so authorized to direct the work be performed. When presented with a situation where the owner’s representative has verbally requested that the contractor perform work which is clearly not within the contractor’s original scope of work, the prudent thing to do is to ask for direction in writing from the person authorized to direct the extra work. Absent, a written directive the contractor should not perform the change order work. Armed with a written directive from an authorized person, the contractor is in a better position to recover (at minimum on a force account basis) the cost of performing the extra work.[[7]](#endnote-7) Once the written directive is in place, most contracts permit the parties to negotiate the price of the work or, at a minimum, preserve their arguments regarding what the work costs and resolve those arguments pursuant to the claims and disputes resolution provisions of the contract.[[8]](#endnote-8)

In order to establish legal entitlement for contractor-initiated change order work, the contractor must present a change order proposal which sets forth the nature and character of the proposed work; along with a quote of how much the work will costs to perform. Once the change order proposal is presented to the owners authorized representative, the contractor needs to wait until the work is authorized (in writing) before the work is performed. It is not unusual for the owner to reject a change order proposal in whole or in part and then order the contractor to reprice the work. Likewise, it is not unusual for the owner to reject the change order proposal on the grounds that the owner has determined that the work was within the original scope of the contractor’s contract in which case the contractor must perform the work pursuant to its contract. When this approach is taken a claim situation often ensues between the parties. Since most contracts require that the contractor perform the work regardless of whether there is a dispute between the parties over whether the work is included in the contract, the contractor may find itself in a position where it performs the work pursuant to the protest procedures set forth in its contract and tracks its costs so that they may be presented in a claim at the appropriate time.

Regardless of whether the contractor is faced with an owner-directed change or a contractor-initiated change it is important that the contractor keep and maintain cost and accounting records which substantiate its labor, material and equipment costs incurred to perform any change order work. Until a change order is agreed upon by the parties the price of the changed work remains an issue between the parties and the contractor may be faced with a situation where they were directed to perform the work and still have to prove how much the works costs. Further, most public works contracts give the owner the right to audit the contractors job records, costs regards and file related to the project. Failure to maintain adequate records may be a breach of the contract. Accordingly, it is crucial to the contractor’s success that it keeps project records which are adequate to satisfy the contract requirements.

1. **Legal Entitlement for Delays, Disruptions and Impacts**

The contract documents typically permit the contractor to assert claims for additional payment pursuant to the claims provision of the contract. On public projects, the claims procedures are usually set forth in the applicable standard specifications for the contract. Most claims provisions require the contractor to submit a claim in writing in sufficient detail to enable the owner (the owner’s representative) to ascertain the basis and amount of the claim. Some claims provisions are very specific with respect to what information must accompany a claim. For example, the 2012 Washington State Department of Transportation Standard Specification for Road, Bridge and Municipal Construction requires that, at a minimum, the following information accompany each claim submitted:

1. A detailed factual statement of the claim for additional compensation and time, if any, providing all necessary dates, locations, and items of work affected by the claim.
2. The date on which facts arose which gave rise to the claim.
3. The name of each Contracting Agency individual, official, or employee involved in or knowledgeable about the claim.
4. The specific provisions of the contract which support the claim and a statement of the reasons why such provisions support the claim.
5. If the claim relates to a decision of the Engineer which the Contract leaves to the Engineer’s discretion or as to which the Contract provides that the Engineer’s decision is final, the Contractor shall set out in detail all facts supporting its position relating to the decision of the Engineer.
6. The identification of any documents and the substance of any oral communications that support the claim.
7. Copies of any identified documents, other than Contracting Agency documents and documents previously furnished to the Contracting Agency by the Contractor, that support the claim (manuals which are standard to the industry, used by the Contractor, may be included by reference).
8. If an extension of time is sought:
   1. The specific days and dates for which it is sought,
   2. The specific reasons the Contractor believes a time extension should be granted,
   3. The specific provisions of Section 1-08.8 [extensions of time provision] under which it is sought, and
   4. The Contractor’s analysis of its progress schedule to demonstrate the reason for a time extension.
9. If additional compensation is sought, the exact amount sought and a breakdown of that amount into the following categories:
   1. Labor;
   2. Materials;
   3. Direct equipment. The actual cost for each piece of equipment for which a claim is made or in the absence of actual cost, the rates established by the AGC/WSDOT Equipment Rental Agreement which was in effect when the work was performed. In no case shall the amounts claimed for each piece of equipment exceed the rates established by that Equipment Rental Agreement even if the actual cost for such equipment is higher. The Contracting Agency may audit the Contractor’s cost records as provided in Section 1-09.12 [audits] to determine actual equipment costs. The following information shall be provided for each piece of equipment:
      1. Detailed description;
      2. The hours of use or standby; and
      3. The specific day and dates of use or standby;
   4. Job overhead;
   5. Overhead (general and administrative);
   6. Subcontractor’s claims (in the same level of detail as specified herein is required for any Subcontractor’s claims); and
   7. Other categories specified by the Contractor or the Contracting Agency.
10. A notarized statement shall be submitted to the Project Engineer.

*See* Section 1-09.11(2) of the 2012 WSDOT Standard Specification (emphasis added).

Accordingly, in order to establish legal entitlement for a claim under a specification as stringent as the 2012 WSDOT Standard Specification, the contractor must be able to provide detailed information concerning delays, impacts and disruptions it incurred on the project.

A contractor is typically entitled to extra time for any excusable delay which occurs during execution of its work. The contract will usually set forth which delays are excusable. Acts of God, inclement weather, changes to the work, design issues and differing site conditions are usually excusable delays.[[9]](#endnote-9) Compensable excusable delays are delays for which a party is entitled to both additional time and money. The classic example of a compensable excusable delay is an owner caused delay such as the failure to complete an owner-managed predecessor activity which prevents a contractor from starting work on time or in the manner anticipated under the contract.[[10]](#endnote-10) The contractor is not entitled to compensation for non-excusable delays, and in fact may be subjected to liquidated damages, backcharges or other penalties under the contract if the project is delayed due to the contractor’s failure to complete the project or any of its enumerated milestones in a timely manner. Concurrent delays are excusable and non-excusable delays which occur during the same period of time and impact the critical path of the project schedule.[[11]](#endnote-11) Concurrent delays are typically not compensable to any party.

In order to determine whether there is an excusable delay the project schedule must be analyzed. Project milestones dates and completion dates must be examined in conjunction with daily activities which occurred during prosecution of the work in order to determine whether a delay has occurred, and if so, who is ultimately responsible for the delay. Such analysis can be complex on large projects where there are multiple prime contractors, diffusion of design responsibility and more than one source of responsibility for the project schedule. The most cost effective way to put together such an analysis is to hire a scheduling expert and provide detailed project records regarding each impacted activity. Some contracts or specifications actually set forth the method of scheduling analysis which must accompany the claim, e.g. a time-impact analysis (TIA). It is extraordinarily difficult and expensive to create such an analysis without contemporaneous project schedules, schedule updates, daily reports, project diaries, meeting minutes and project correspondence regarding the events at issue. As set forth in the WSDOT Standard Specification at Section 1-09.11(2), failure to provide the required documentation will result in rejection of the contractor’s claim.

*Technical Entitlement – Level of Proof*

In conjunction with establishing legal entitlement, a contractor must also establish technical entitlement when seeking to recover time and/or additional costs resulting from delays and/or disruptions. Generally, in instances when a party attempts to establish technical entitlement to recover additional time and/or costs, the party must establish the following: (1) that it was impacted as a result of issues that were beyond its control or reasonable anticipation; (2) that it was delayed and/or forced to work in a manner less efficient than it anticipated; and finally, (3) that it incurred additional, or unanticipated, costs as a result of the alleged impacts. On the other hand, when responding to another party’s attempt to establish technical entitlement, the defense would involve disproving, or demonstrating that the claimant failed to establish, any one (1) or more of the three (3) components listed above. In some instances, the contract defines specific methods that must be performed to substantiate delays and/or particular records that must be provided to support a request for additional costs. For example, a contract may require that a contractor perform a time impact analysis (TIA) when requesting an extension of time, or indicate that detailed cost records be provided to support a claim for additional costs. When not defined by the contract, the party may rely upon industry recognized methods to analyze and substantiate its technical entitlement to extensions of time and damages stemming from delays and/or disruptions. While numerous industry-recognized methods exist to substantiate critical path delays and construction related damages, certain industry recognized methods are more acceptable or reliable than others. A party’s ability to utilize a more preferred method of analysis to substantiate its claimed delays and damages, or related defenses of such, can be beneficial in establishing technical entitlement or refuting such entitlement. Likewise, a party’s inability to use a more preferred method of analysis, and resultant reliance on a lesser preferred method can be a disadvantage in establishing technical entitlement to additional time and/or costs. Not to say a party is not entitled to recover incurred time or costs, but rather that, if forced to use a less preferred method of analysis, the party may face significant challenges in substantiating its entitlement or demonstrating the alleged impact(s) to its work and that it incurred additional costs as a result of the alleged impact(s). The use of a more preferred methodology may allow a party to more sufficiently substantiate its claim for additional time and costs. A party’s ability to utilize a more preferred methodology is typically largely dependent upon the available records and project data. Said another way, a party’s ability to utilize a more preferred method of substantiating its claimed delays or costs (or defending against such) is critically dependent upon the data that was tracked contemporaneously during the project and documented in the project records.

*Technical Entitlement for Delay and Acceleration*

Clearly legal entitlements discussed above are closely related to technical entitlement. In this context, technical entitlement corresponds more closely with adherence to recognized technical/analytical methodologies and the ability to establish the factual basis for such technical elements. Generally these practices are recognized by courts and may actually form the basis of admissibility.[[12]](#endnote-12) In the sections below the specific technical requirements are discussed, often with support both from technical sources as well as with noted case citations.

1. **Delay - Recovery of Time**

Delay on construction projects is one of the most common causes of damages to contractors and owners alike. Delay is generally known as a period of time by which some activity is late or postponed. This definition comports with the common understanding that an activity or series of activities took longer or finished later than originally planned or planned prior to the delay event. Within the context of construction five types of delay are recognized: inexcusable delay, excusable delay, compensable delay, concurrent delay and apportioned delay.[[13]](#endnote-13) Of these five types, all need to be considered when establishing technical proof of a delay because, for instance, a failed proof on a claim for excusable delay becomes inexcusable delay.

To establish technical entitlement the claimant must establish that the delay was on the critical path of the project execution.[[14]](#endnote-14) There are numerous schedule delay methodologies available for establishing the critical path of the project that allows determination of technical entitlement. Various experts and commentators have identified anywhere from three[[15]](#endnote-15) to nine[[16]](#endnote-16) to as many as fourteen[[17]](#endnote-17) basic schedule delay methodologies. Regardless of the number of different methodologies identified, there are three fundamental elements to any delay methodology that must be present when performing a competent technical analysis: 1) the As-Planned Schedule; 2) the As-Built Schedule; and, 3) Measurement Procedure (methodology).

**The As-Planned Schedule.** Virtually all methodologies require some sort of as-planned schedule. This schedule might be developed at the outset of the project,[[18]](#endnote-18) but could be reconstructed from actual data if no contemporaneous as-built schedule exists.[[19]](#endnote-19) The planned schedule provides half of the necessary comparison between what was planned and what happened, with the difference between the two generally considered to be delays. These schedules are typically CPM schedules, or could be one of the other types of schedule used in the construction industry today.[[20]](#endnote-20)

**The As-Built Schedule.** The second major requirement for establishing technical entitlement to delay is an as-built schedule or a schedule that represents the experts’ best estimation of the as-built schedule. As discussed below, all the forensic CPM methodologies compare these two schedules in some form. The As-Built schedule can be either the schedule effective at the end of the job or as an intermediate schedule with only work completed to date reflected. At its simplest, the as-built schedule could be the final update of the CPM schedule used throughout the project. As such, it needs to accurately reflect the start and finish of the activities listed in the schedule. Sounds simple, but it’s not. Frequently, particularly on projects where there are delays, the schedules are modified to reflect actual occurrences on the job and to revise the planning for its completion. Often the as-built schedule has an entirely different list or sequence of activities than the original as-planned schedule. Further, frequently members of the project staff believe it is more important to manage the project in an on-going manner, rather than documenting occurrences on the project and maintaining an accurate as-built record. When this happens, the contemporaneously maintained schedule can become inaccurate. It may fail to reflect either the actual start or finish dates of the activities, and reflect a series of activities and related execution logic that does not reflect actual contemporaneous planning.

**Measurement Procedure.** The third requirement to perform a schedule delay analysis is termed Measurement Procedure. Procedures are commonly called schedule delay methodologies, and as previously discussed, experts have identified numerous methodologies, the exact number depending on how detailed the methodology is characterized. Many experts believe that schedule delay methodology has four major groups, detailed as follows.[[21]](#endnote-21)

The first is generally called the As-Planned v. As-Built, although the methodology is also entitled differently.[[22]](#endnote-22) As the name implies, it directly compares an original or subsequent plan with the actual events on the project. Through an expert evaluation using both professional judgment and arithmetic calculation, the analysis identifies the delays. Usually in the course of this analysis, conclusions are reached as to assigning responsibility for the identified delays. The strength of these opinions is predicated on the strength of the underlying facts and the ability of the expert to cogently explain those facts. There are many variations of this methodology.

The second widely recognized methodology group is the Contemporaneous Period Analysis, although this group too is known by many names, including the Windows Methodology.[[23]](#endnote-23) This methodology compares periodic as-planned CPM schedules, usually developed as part of a regular schedule updating process, with a subsequent contemporaneous schedule that reflects additional progress. By performing this comparison serially throughout the project with no time period missed, a comprehensive view of the delays and responsibilities for these delays can be identified. This methodology strength is that it uses the schedule updates on a regular basis thus reflecting the contemporaneous understanding of criticality.[[24]](#endnote-24)

The third major group of schedule delay methodologies is generally referred to Time-Impact Analysis. It was one of the earliest CPM–based methodologies intended to identify delays and dates from the same schedule experts who developed CPM scheduling in the1950s.[[25]](#endnote-25) This methodology uses contemporaneously generated schedule updates and inserts fragnets (small portions of CPM logic systems) into the CPM schedule to *forensically* mimic delays and actual events on the project. The method, if properly implemented, can be extremely accurate and comes in many different forms because of its complicated nature.[[26]](#endnote-26) This methodology has also been criticized because it is more susceptible to expert manipulation that is not necessarily apparent to anyone but the expert analyst.[[27]](#endnote-27) This method may be the most well-known of schedule delay methodologies because its shares its name and its general methodology with a common contractually required system for establishing entitlement to a potential schedule delay *prospectively*.[[28]](#endnote-28) One variation of this methodology group – the impacted as planned – is generally not accepted as adequate proof of delay.[[29]](#endnote-29) This methodology is considered defective because it only recognizes one party’s impacts to the schedule, and does not reflect a comprehensive picture of the fact of the case.[[30]](#endnote-30)

The fourth major group of methodologies is generally known as Collapsed-as-Built. Notably, the Collapsed-as-Built[[31]](#endnote-31) does not require an original as-planned schedule. It does however require a reconstructed after-the-fact as-planned schedule, one developed by the expert to provide a basis for measuring delay. In this methodology, the expert reconstructs an as-built schedule based on the records available in the case. The more detailed the records, the more accurate the as-built reconstruction. Once the recreated as-built schedule is finalized through expert development, the delays of one of the parties are removed to create an after-the-fact as-planned schedule. This is not of course the actual original as-planned schedule, but it is an expert reconstruction of how the finished project should have been planned. Many courts and Boards of Contract Appeals have concluded that this methodology’s shortcoming make it unreliable. Nevertheless it is still accepted in certain circumstances.[[32]](#endnote-32)

1. **Acceleration – Recovery for Time Not Spent**

Acceleration is the inverse of delay, but the methodology for recovery of damages for acceleration has both elements of delay entitlement and cost entitlement. Acceleration occurs when all or a portion of the contractual work is required to be completed prior to the then effective schedule.[[33]](#endnote-33) The work need not be on the critical path of the project nor must it actually cause any of the work to be completed earlier than otherwise planned. This definition reflects that the work that needs to be completed may be different than originally contracted for and the required completion time may be more or less than original, but is less than the completion date on the then-effective schedule. In addition to the time component, the establishment that the work was finished earlier than it would have but for the extra efforts of the contractor, the contractor has to establish that such accelerated activities cost additional money and that the owner benefits and is therefore responsible for these additional costs. Acceleration generally has four forms: 1) voluntary acceleration; 2) directed acceleration; 3) constructive acceleration; and 4) acceleration to recover from concurrent delay.

**Voluntary Acceleration.** The most common form of acceleration is voluntary. This is work undertaken by the contractor for its own benefit. It usually occurs when the contractor is recovering for prior delays that were the contractor’s responsibility or when the contractor is attempting to complete a portion of the work earlier than originally planned to facilitate later activities. Voluntary acceleration is so common that it is nearly invisible in the day-to-day activities of a construction site. Simple re-sequencing of activities that requires some to be performed more quickly than before, does not generally amount to acceleration. The contractor should receive no additional compensation for such acceleration.[[34]](#endnote-34) Contractors often maintain records of such efforts so that they are able to understand additional costs.

**Directed Acceleration.** Directed acceleration is the most common type of acceleration for which recovery is possible. It happens when the owner directs the contractor in some manner to perform the work faster than currently planned. Three elements are needed to establish entitlement for this acceleration. First, there must be an order, either in writing or verbal, depending on state law.[[35]](#endnote-35) Contractors are advised to confirm both written and verbal orders it believes are acceleration orders to secure their understanding of the order and to establish that such an order was given with the intent to accelerate the work. In many contracts, it is common to issue such acceleration orders as official changes. Confirmation of an acceleration order that does not include a change order must be confirmed immediately.

The second element of recovery for directed acceleration is that the contractor must attempt to perform the work more speedily. The contractor must do one or more of the following activities: have his crews work overtime, bring on more labor, bring on more supervision, or add additional equipment. It is important to recognize that the actual acceleration, completing the work earlier than otherwise planned is not needed for recovery. Attempting to accelerate is sufficient.

The third element of acceleration is expenditure of money that would not otherwise have been expended. This is typically in the form of additional labor, management and/or equipment. Contractors must maintain careful records of such costs to establish that they were incurred. Further, they must be able to show that these costs were in addition to those originally planned. For example, if the contractor accelerated by having twice the number of crews working on a portion of the project, it will only be acceleration if the total labor of the crews exceeded the original planned labor and that the lower than planned productivity was associated with that work. The most common form of acceleration damages is the payment of overtime. In such circumstance, it is often only the premium cost that is eligible for additional payment. Again, detailed records of actual manpower activities are essential to establishing proof.

**Constructive Acceleration.** Constructive acceleration occurs when a contractor attempts to maintain scheduled completion dates undertaken as a result of an owner’s action or inaction, and the owner’s failure to make a specific direction to accelerate.[[36]](#endnote-36) There are six court established requirements needed to recover for constructive acceleration.[[37]](#endnote-37)

First, the contractor experiences an excusable delay.[[38]](#endnote-38) The proof of this is essentially the elements required for proof of delay previously discussed.

Second, the contractor must request an extension of time.[[39]](#endnote-39) The theory is that the owner must have the opportunity to make the acceleration a directed acceleration; that is, one done at the owner’s direction.[[40]](#endnote-40) The owner does not always recognize that a certain order to the contractor will result in acceleration, unless they are notified of same. Prudent contractors will clearly notify owners of possible delays and make prudent request for time extensions. This does however create the difficult problem of how the contractor supports its request for as time extension. Generally, the contractor must follow the contractual provisions for an extension of time request. Those are often in the form of TIAs in government contracting.

Third, the owner must wrongfully deny the contractor’s request for an extension of time.[[41]](#endnote-41) The refusal can be either expressed through the rejection of such a request, or through the protracted delay in deciding. If the owner grants the time extension after the acceleration has occurred, it still constitutes a denial for the purposes of proof,[[42]](#endnote-42) but a mere delay in approving a change order granting time is not sufficient to constitute constructive acceleration.[[43]](#endnote-43)

The fourth requirement required for recovery of constructive acceleration is the expressed or implied demand that that the contractor accelerate project activities.[[44]](#endnote-44) The obvious case is where the owner requires the contractual completion date be met or some similar affirmative action. However, the implied direction to accelerate has also been found where the owner did nothing in the face of repeated requests for time extensions,[[45]](#endnote-45) and when the owner threatened liquidated damages if the contractor did not complete on time.[[46]](#endnote-46) It is advisable that contractors who feel they have been constructively accelerated because of a denial of a time extension, immediately inform the owner that its actions constitute constructive acceleration and that the contractor will undertake actions to meet the accelerated schedule. Such notices are not always required, but failure to send such a letter might leave the contractor as a volunteer.[[47]](#endnote-47)

The fifth requirement required for recovery of constructive acceleration is actual or attempted acceleration.[[48]](#endnote-48) As discussed in the previous section on Directed Acceleration, there is no requirement that the attempt actually succeed. In fact, constructive acceleration often occurs in cases where the delay was substantial delay.[[49]](#endnote-49)

The sixth and last requirement requires that there be actual damages. The best proof would be detailed records showing the additional manpower and equipment were engaged in comparison to the originally planned set of project activities.

**Acceleration to Recover from Concurrency.** A special case arises when a contractor has to accelerate to recover for a concurrent delay. Concurrent delay occurs when both the owner and contractor delay the project, or when either party delays the project during an excusable but non-compensable delay (e.g., abnormal weather). The delays need not occur simultaneously but can be on two parallel critical path chains.[[50]](#endnote-50) For delays to be considered concurrent, there are four major elements: 1) Two or more delays that are unrelated, independent, and would have delayed the project even if the other delay did not exist; 2) Two or more delays that are the contractual responsibility of different parties, but one may be a force majeure event; 3) The delay must be involuntary; and, 4) The delayed work must be substantial and not easily curable.

After a project has been delayed due to concurrent events, contractors are often faced with accelerating to recover this lost time. Since a concurrent delay is an excusable but non compensable delay, it might be considered that subsequent constructive acceleration could be established.[[51]](#endnote-51) This is not the case. In Hemphill Contracting Co., ASBCA found that the contractor did not have an excusable delay within the context of Constructive Acceleration in saying “*a contractor cannot recover acceleration costs flowing from a concurrent delay, unless the record supports a clear apportionment of the delay and expense attributable to each party*.”[[52]](#endnote-52)The clear take-away for contractors in this situation is to apportion the concurrent delay to the maximum amount possible and to identify the portion of time that was the owners fault.

Proving delay when acceleration is claimed is a case of discussing imaginary numbers.[[53]](#endnote-53) Part of the proof needed is to show that but for the extra efforts associated with the acceleration, the project would have finished later than it actually did. The only recognized CPM delay methodology that can provide such a calculation is the TIA.[[54]](#endnote-54) The contractor must insert fragnets into the schedule that replace or augment actual activities, but are adjusted for a longer duration. For example, if twice the crews were used to complete a particular activity, thus accomplishing a reduction in project duration, the TIA would depict that same work but with a longer duration, adjusted for the fewer resources. While this methodology specifically shows the accelerations impact on the project critical path, the same methodology looking only at intermediate activity completions would work for claimed acceleration on activities that are not on the critical path.

*Evidentiary Weight of Contemporaneous Records*

A contractor’s ability to recover time and/or money or an owner’s ability to defend unjustified claims depends heavily on the sufficiency and consistency of the contemporaneous records. While evidence other than contemporaneous records may exist or may be generated after the fact, the greatest weight is typically placed on the documentation created contemporaneously for the primary purpose of progressing and managing the contracted scope of work. More often than not, other types of evidence (such as records created after a claim was filed or the project was completed) raise questions regarding reliability, competency and bias. For example, a schedule created after project completion with the intent of demonstrating a party’s plan for the project is not as reliable as a schedule created at the outset of the project with the express objective of coordinating a plan for completing the project. It is even more challenging to rely upon evidence created after-the-fact, if that evidence contradicts the contemporaneous records. In such cases, and perhaps at the expense of establishing technical entitlement, the contemporaneous evidence is almost always considered more reliable. Thus, it is critical that the unaltered contemporaneous records be sufficient to substantiate legal and technical entitlements and/or defenses.

*The Role of Perspective*

Construction projects are frequently run by individuals with the explicit objective of completing the contracted scope of work. Therefore, it is not surprising that these individuals typically have experience that focuses on construction management and execution. These project personnel frequently have less experience in the formal substantiation and pursuit of claims, which typically occurs after project completion. As a result, from the perspective of typical project personnel, the technical and legal aspects of supporting claims for additional time and/or costs are relatively unfamiliar or unknown. However, the individuals responsible for executing the project are also responsible for preparing and maintaining the contemporaneous project records. Therefore, the individuals that have direct responsibility for the availability and quality of the evidence that form the basis for establishing technical or legal entitlement oftentimes do not have adequate perspective; and thus, may not focus on maintaining records that are sufficient for doing so. To enable the creation of contemporaneous records that will better serve to support or defend against a claim for additional time and/or costs, it may be beneficial for the project team to include individuals who have experience relying on contemporaneous records to substantiate legal and technical entitlement to additional time and/or costs or defend unjustified claims. Individuals with this type of experience understand the data required to properly analyze and substantiate delays and assess additional costs and can provide insight into creating effective and useful records during the project.

*Common Challenges and Potential Oversights*

Individuals on the project execution team are typically focused on the events of today and planning for tomorrow. These individuals typically have limited involvement in the process of resolving claims. Therefore, from the perspective of the typical project execution personnel, the technical aspects of defending and substantiating claims are unfamiliar. As a result, the records they create contemporaneously may not sufficiently serve to substantiate a party’s legal or technical entitlement to additional time and/or costs. Said another way, when contemporaneous records are created without the benefit of knowing what kinds of records serve to more sufficiently support legal or technical entitlement, the available evidence can easily create challenges for a party substantiating or defending a claim. The following sections will address some common challenges and potential problems that can occur when contemporaneous documentation does not sufficiently serve to support a party’s claim for additional time and/or money or defense against unjustified claims.

In some instances, a party’s contemporaneous project records can be inconsistent with, or even contradict, aspects of the party’s claim or defense of a claim. For example, suppose a contractor asserts that an issue caused by the owner resulted in months of delay to the contractor’s work, yet the contractor’s own schedule updates, prepared at the point in time when the owner issues were occurring, shows the project completing on time. As an additional example, consider that the contractor makes a claim for damages totaling $2,000,000; however, the contractor’s cost report shows a total out-of-pocket loss of only $20,000. From an owner’s perspective, presume that an owner asserts that a contractor is not entitled to additional costs for claimed extra work because it was part of the contracted scope of work; however, the owner’s representative for the project contemporaneously approved extra work tickets related to the contractor’s claimed additional work. While these hypothetical example inconsistencies may not necessarily negate the contractor’s ability to establish technical entitlement, or the owner’s ability to refute entitlement, they do challenge the integrity and reliability of the contractor’s claim or owner’s defense.

Perhaps one of the most challenging issues that can occur is when the contemporaneously created records are insufficient to support the requisite technical analysis to properly substantiate claims for additional time and/or costs, even if legal entitlement exists. In other words, a party may have legal entitlement to a claim for additional time and/or costs, but cannot utilize an industry accepted methodology, or cannot otherwise sufficiently or properly demonstrate the delay(s) or impacts to its work due to a lack of information (or data). For example, consider that a contractor is claiming it was delayed as a result of issues beyond its control, yet the contractor failed to prepare a baseline schedule or schedule updates during the course of the project. The unavailability of schedules (and the related data regarding its plan for the work and progress achieved throughout the project duration) will likely limit the contractor’s ability to perform a reliable or preferred industry recognized schedule analysis to establish technical entitlement to additional time and any delay related damages.[[55]](#endnote-55) As another example, assume a contractor is entitled to claim for costs associated with additional work directed by the owner, yet the contractor’s cost reports fail to segregate the related hours and charges. The lack of discrete costs would likely limit the contractor’s ability to sufficiently or properly substantiate any claim for additional work.

In other cases, the sufficiency or insufficiency of the contemporaneous project records creates challenges with respect to meeting the contract’s requirements for establishing notice. These challenges can include notice not being provided timely (per the timeframes required under the contract) or notice being provided in the wrong format. When the contemporaneous documents do not adequately establish that the notice requirements in the contract were satisfied, it can mean that legal entitlement cannot be established.

Most contract documents and/or project specifications (for public works projects) set forth requirements concerning the contractor’s obligation to give timely notice of any claim to the owner. There are several things to consider regarding the contractor’s obligation to provide timely written notice to the owner of any claims.

First, the contract documents will define what constitutes adequate notice. The contract will typically have a section which defines proper notice and specifies whether such notice needs to be given in writing and to whom notice needs to be provided. Further, the sufficiency of notice is also described. For example, most contracts require that all notices between the parties be given in writing the to the parties’ designated representative. The contract will often specify who the parties designated representatives are and set forth which address the notice is to be provided, as well as the manner in which the notice is to be provided, e.g., first class mail, facsimile, etc. In most cases, notice given in a manner other than the manner specified does not satisfy the notice requirement of the contract. Notice given to a party other than the authorized representative listed is also insufficient.

Second, the contract documents will define when notice must be given.[[56]](#endnote-56) Typically, notice must be timely given or it is waived. Notice requirements may vary under the contract depending on why notice is given. For example, the differing site conditions clause may prescribe one time period for notice to be given, e.g. prior to the conditions giving rise to the differing site condition being disturbed, while the claims provision may require that notice of a claim be given within 14 days of the event giving rise to the claim.[[57]](#endnote-57) It is critical that prior to starting the work the contractor go through the contract and map out all of the deadlines for when notice must be given and meet with their project personnel to ensure that they are up to speed on all requirements to give notice.

Lastly, depending on where the project is located, the law may strictly enforce the notice requirements of a contract. In some jurisdictions, courts will strictly enforce the terms of the contract so that if a contractor fails to strictly comply with the terms of the contract, to include notice provisions, the contractor risks its claim being forfeit.[[58]](#endnote-58) In other jurisdictions, courts will apply an actual prejudice standard so that if the party claiming lack of notice is not actually prejudiced by the lack for formal notice the courts will waive the notice requirement in order to avoid forfeiture of the claim in its entirety.[[59]](#endnote-59) It is important for all parties to be aware of whether they are working in a strict compliance or an actual prejudice jurisdiction and to take measure to ensure compliance with the applicable standard.

**Conclusion**

Projects routinely encounter unanticipated issues that impact scope, cost and/or duration of the project. The best way to plan for these issues is to anticipate that they will occur on each project and formulate a plan to deal with each possible issue prior to starting work on the project. Every plan should start with a review of the contract documents, to include all contracts, plans, drawing, specifications, and information relevant to the project. A review of the contract documents will give the parties an idea of how to resolve issues which commonly occur and put the project team in a better position to resolve those issues before the issue grow to be problems.

Differing site conditions, changes, delays and schedule impacts are all manageable issues with proper planning. As discussed in this paper, understanding what gives rise to legal entitlement to recover if one of these issues should arise on a project is just the first step in a process. Establishing technical entitlement for a claim is equally important. A claim is only as effective as the documentation which supports it. Accordingly, it is critical that contractors develop practices which enable them to track and monitor all potential claims on a project. Project records need to be maintained and developed contemporaneously so that sufficient documentation of the additional cost associated with differing site conditions, changes, delays and scheduling issues can be presented to the owner in a timely and sufficient manner. Special attention needs to be paid to the notice requirements for claims pursuant to the contract documents. Absent compliance with the contract documents, contractors face the prospect of forfeiture of their right to bring a claim in certain jurisdictions. Even in jurisdictions which do not require strict compliance, contractors can find their claims partially compromised due to a failure to present timely and sufficient claims.

1. *See* Smith, Currie & Hancock’s Common Sense Construction Law: A Practical Guide for the Construction Professional 259 – 266 (4th Ed. 2009); *see also* Kenneth C. Gibbs and Gordon C. Hunt, California Construction Law § 16.11 (17th Ed. 2011). [↑](#endnote-ref-1)
2. *See* ConsensusDocs 200 Standard Form of Agreement and General Conditions Between Owner and Contractor (Lump Sum)(2007 ed.) at Paragraph 3.16.2. *See also* Federal Acquisition Regulation § 52.236-2. *Contrast*, Section 3.7.4 of the AIA A201 (2007 ed.) Form Contract requires that notice of a differing site condition be given to the owner within 21 days after first observance of the conditions. [↑](#endnote-ref-2)
3. *See* FAR § 52.236-2. [↑](#endnote-ref-3)
4. Note that the initial notice which is required to obligate the Owner to investigate a differing site condition claim is not sufficient to prevail on a differing site condition claim. In order to prevail on a type one differing site condition claim the contractor must establish the follow: 1) that the conditions at issue are indicated by the plans, specifications or other contract documents (soils reports, boring logs, etc.); 2) that the contractor relied upon the physical conditions at issue as indicated in the contract documents; 3) the actual conditions encountered materially vary from the conditions indicated in the contract documents; 4) that proper notice was timely given pursuant to the contract; and 5) that the condition at issue resulted in additional performance costs, additional time, or both. *See* Smith Currie & Hancock’s Common Sense Construction Law: A Practical Guide for the Construction Professional 259 (4th Ed. 2009). Project records such as daily reports, meeting minutes, the contract documents (to include soils and subsurface information provided to the contractor by the Owner), costs records, labor records, schedule analysis and project correspondence are all relevant to proving a type one differing site condition claim. [↑](#endnote-ref-4)
5. *See* Gibbs, Kenneth C. and Hunt, Gordon C., California Construction Law § 16.11 (17th Ed. 2011). [↑](#endnote-ref-5)
6. *See* Article 8 of ConsensusDocs 200; *see also* AIA A201 § 7 (2007 ed.). [↑](#endnote-ref-6)
7. ConsensusDocs 200 ¶ 8.2.1 (2007 ed.). [↑](#endnote-ref-7)
8. Some public works specifications require that in order to establish legal entitlement for a change order the changed work must significantly alter the character of the work. A significant change usually occurs when the character of the work as altered differs materially in kind or in nature from the work originally proposed; or there is a significant price or quantity adjustment (typically 125% upward or 75% below the original contract value) to the original contract quantity. Here the issue is not whether a change and work has occurred, but rather was the change significant enough to warrant compensation, and if so, how much compensation is warranted. [↑](#endnote-ref-8)
9. *See* AIA A201 § 8.3 (2007 ed.). [↑](#endnote-ref-9)
10. Other examples include failure to provide access or improper site preparation, failure to supply materials or labor, failure to provide plans or timely approve shop drawings, failure to coordinate prime contractors on a multi-prime contract, design defects and change order work. [↑](#endnote-ref-10)
11. One example of a current delay would be when a contractor cannot start work because an owner-controlled activity is not completed, but at the same time, materials ordered by the contractor which the contractor needs to start the work have not been delivered. Both delays last the same duration of time. Under such a scenario, neither the owner nor the contractor would be compensated for the delay. [↑](#endnote-ref-11)
12. *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed. 2d 469 (1993). [↑](#endnote-ref-12)
13. Bruner, P. and O’Connor, J., Bruner & O’Connor On Construction Law, Section 15:29, p. 321, West Thompson Reuters, New York, 2007. [↑](#endnote-ref-13)
14. *George Sollitt Construction Company v. U.S*., 64 Fed.Cl.229, (2005). [↑](#endnote-ref-14)
15. Bramble, B. and Callahan, M., Construction Delay Claims, (2000), (3d ed.) p.11-1, Aspen Publishers, New York. [↑](#endnote-ref-15)
16. Hoshino, K, Livengood, J., Carson, C., AACE International, Recommended Practice 29R-03 (2011), “Forensic Schedule Analysis Practice Guide”, AACE International, Morgantown, WV. [↑](#endnote-ref-16)
17. D’Onofrio, R.M., P.E. & Meagher, A.L., “What is a Schedule Good For? A Study of Issues Posed by Schedules on Complex Projects,” Constr. Law., Winter 2013 [↑](#endnote-ref-17)
18. Wickwire, J., Driscoll, T., Hurlbut, R., & Hillman, R., Construction Scheduling: Preparation, Liability and Claims, Wolters Kluwer (3rd ed. 2010), Section 10.02. [↑](#endnote-ref-18)
19. Hoshino, K, et al, Recommended Practice 29R-03 (2011), Section 3.8. [↑](#endnote-ref-19)
20. Zack, J., Collins, S., “Forensic Schedule Analysis – Chapter 2: Delay Analysis on Non-CPM Scheduled Projects,” AACE International, Annual Meeting Proceedings, 2012. [↑](#endnote-ref-20)
21. There is effectively only one delay “methodology” that does not require an as-planned schedule, either original or reconstructed. It is most widely known as the “as-built critical path methodology.” This is not generally considered a CPM based methodology and is not recognized as a methodology by any of the recognized compilers of methodologies. Nevertheless, it is frequently encountered in cases where there is no effective CPM schedule because it was never developed at the outset of the project, or more commonly, when there was no use of the schedule s that were developed. This methodology relies on the experience and knowledge of the expert who reviews the as-built data (see the next section for a discussion of this requirement) and identifies what he or she believes drove the project events and in the process identifies the quantification of the delay. While this is not a recognized methodology, it can be quite effective if the expert bases his opinions on the carefully considered as-built and can convince the trier of fact of his expertize. [↑](#endnote-ref-21)
22. Hoshino, K, et al, Recommended Practice 29R-03 (2011),Section 3.1. [↑](#endnote-ref-22)
23. Hoshino, K, et al, Recommended Practice 29R-03 (2011),Section 3.2, through 3.4 [↑](#endnote-ref-23)
24. Wickwire, J., et al, Construction Scheduling, Section 9.05. [↑](#endnote-ref-24)
25. Ottesen, J., Martin, G., “CPM’s Contribution to Forensic Schedule Analysis, ” Cost Engineering, (February, 2011). [↑](#endnote-ref-25)
26. Hoshino, K, et al, Recommended Practice 29R-03 (2011),Section 3.6 and 3.7 [↑](#endnote-ref-26)
27. Livengood, J. "Retrospective TIAs – Time to Lay them to Rest," AACE International Annual Meeting Proceedings, 2007. [↑](#endnote-ref-27)
28. Ronald M., Winter, R. Calvey, T., AACE International Recommended Practice No. 52R-06 (2006)

    Time Impact Analysis – As Applied in Construction, AACE International, Morgantown, WV. [↑](#endnote-ref-28)
29. *Titan Pacific Construction Corp. v. U.S*., 17 Cl. Ct. 630 (1989). [↑](#endnote-ref-29)
30. Wickwire, J., et al, Construction Scheduling, Section 9.08 [F]. [↑](#endnote-ref-30)
31. Hoshino, K, et al, Recommended Practice 29R-03 (2011),Section 3.8 and 3.9. [↑](#endnote-ref-31)
32. Wickwire, J., et al, Construction Scheduling, Section 9.06 [B]. [↑](#endnote-ref-32)
33. Bruner, P. and O’Connor, J., Construction Law, Section 15:90. [↑](#endnote-ref-33)
34. *Bat Masonry., Inc. v. Pike-Paschen Joint Venture III*, 842 F. Supp. 174, 182 (D. Md. 1983). [↑](#endnote-ref-34)
35. Wickwire, J., et al, Construction Scheduling, Section 7.10A. [↑](#endnote-ref-35)
36. Hoshino, K, et al, Recommended Practice 29R-03 (2011), Section 4.4A. [↑](#endnote-ref-36)
37. Wickwire, J., et al, Construction Scheduling, Section 7.10 B. [↑](#endnote-ref-37)
38. Bruner, P. and O’Connor, J., Construction Law, Section 15:95. [↑](#endnote-ref-38)
39. Bruner, P. and O’Connor, J., Construction Law, Section 15:96. [↑](#endnote-ref-39)
40. An exception to this rule is when the course on dealing shows that the owner would not even consider a request for a time extension and thus submitting one would be a waste of time. Contractors should not rely on this exception. See Gibbs Shipyard, Inc., ASBCA No. 9809, 67-2 BCA 6499 (1967). [↑](#endnote-ref-40)
41. Bramble, B., Construction Delay, Section 6.05[C]. [↑](#endnote-ref-41)
42. Continental Heller Corp, 84-2 BCA 17275 (1984). [↑](#endnote-ref-42)
43. *Nello l. Teer Co. v. Washington Metropolitan Transportation Authority*, 695 F. Supp. 583 (D.D.C. 1988). [↑](#endnote-ref-43)
44. Bruner, P. and O’Connor, J., Construction Law, Section 15:98. [↑](#endnote-ref-44)
45. *Norair Engineering Corp. v. U.S*., 229 Ct. Cl. 160, 666 F.2d 549 (1981). [↑](#endnote-ref-45)
46. Pathman Construction Co., ASBCA No. 37351, 93-1 BCA 25893 (1993). [↑](#endnote-ref-46)
47. Bruner, P. and O’Connor, J., Construction Law, Section 15:101. [↑](#endnote-ref-47)
48. Bruner, P. and O’Connor, J., Construction Law, Section 15:100. [↑](#endnote-ref-48)
49. *Mobile Chem. Co. v. Blount Bros. Corp.* 809 F2d. 1175 (5th Cir. 1987). [↑](#endnote-ref-49)
50. Hoshino, K, et al, Recommended Practice 29R-03 (2011), Section 4.2B. [↑](#endnote-ref-50)
51. Dale, S. and D’Onofrio, R., “*Reconciling Concurrency in Schedule Delay and Construction Acceleration*,” (2010) 39 Public Cont. L.J. 161. [↑](#endnote-ref-51)
52. Hemphill Contracting Co., 94-1 BCA (CCH) ¶ 26,491, at 131,842. (1994). [↑](#endnote-ref-52)
53. Livengood, J., Bryant, C., "*Calculating Imaginary Numbers: Time Quantification in Acceleration*”, AACE International, Annual Meeting Proceedings, 2004. [↑](#endnote-ref-53)
54. Some experts use the Contemporaneous Period Analysis methodology (Recommended Practice 29R-03 (2011), Section 3.3 and 3.4) to establish acceleration. In these cases they are performing the methodology as if it were TIA, with but-for considerations. [↑](#endnote-ref-54)
55. *See* endnote 21. [↑](#endnote-ref-55)
56. *See* ConsensusDocs 200; *see also* AIA A201 (2007 ed.). [↑](#endnote-ref-56)
57. See ConsensusDocs200. [↑](#endnote-ref-57)
58. *Marriot Corp. v. Dasta Construction Co*., 26 F.3d 1057 (11th Cir. 1994); *A.H.A. General Construction, Inc. v. New York City Housing Auth*., 92 N.Y.2d 20, 23-24, 699 N.E.2d 368 (1998); *F. Garofalo Electric Co., Inc. v. New York Univ*., 270 A.D.2d 76, 78, 705 N.Y.S.2d 327 (N.Y. App. Div. 2000), ; *McDevitt & Street Co. v. Marriot Corp*. 713 F. Supp. 906, 916 (E.D. Va. 1989) *aff’d in part, rev’d in part*, 911 F.2d 723 (4th Cir. 1990), ; *Mike M. Johnson, Inc. v. City of Spokane*, 150 N.W.2d 375, 379, 78 P.3d 161, 163 (2003). [↑](#endnote-ref-58)
59. *See Ayers v. City of New Castle*, 10 Pa. Super. 559, 564 (Pa. Super. Ct. 1899*); D.A. Parrish & Sons v. Cnty. Sanitation Dist. No. 4 of Santa Clara*, 174 Cal. App. 2d 406, 410, 344 P.2d 883, 885 (Cal. Ct. App. 1959); *Brinderson Corp. v. Hampton Roads Sanitation Dist*., 825 F.2d 41, 44 (4th Cir. 1987); *Neal & Co., Inc. v. City of Dillingham*, 923 P.2d 89, 92 – 93 (Alaska 1996); *Sutton v. Metropolitan District Commission*, 423 Mass. 200, 208, 667 N.E.2d 838, 843 (1996); *Roger J. Au & Son, Inc. v. Ne. Ohio Reg’l Sewer Dist*., 29 Ohio App. 3d 284, 291 – 292, 504 N.E.2d 1209, 1216 (Ohio Ct. App. 1986). [↑](#endnote-ref-59)