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Title: Introduction to Construction Delay Claims

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Introduction to Construction Delay Claims

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Introduction

Talk to most anyone involved in capital construction, including those in municipal construction, or pick up a newspaper and you will discover that problems on construction projects are prevalent, and perhaps on the rise. In the world of troubled construction projects, the most common thread among them is delay and the resulting damages that arise. Given this history, and the volume of construction required by municipalities, sooner or later the municipal attorney will be faced with having to deal with a delay related construction dispute. Knowing basic concepts related to scheduling, schedule delay evaluation and delay damages can help sooth the pain, and enable the more effective management and resolution of such a dispute. Such is the goal of this paper.

Construction Scheduling Basics

Although not part of the physical work, construction schedules are an extremely important tool on construction projects. They serve many purposes – to communicate and document the plan and any changes to it, to influence the timing and speed of action by various parties, to record history as to when things were actually done, to serve notice, and a host of other things. Today, most construction schedules are produced using a personal computer, a scheduling software package and the concept of Critical Path Method or CPM scheduling.

What is CPM scheduling? Describing it is a little like a musician describing what sheet music is (the written notation for audio music), except CPM scheduling is like a score of music for an entire orchestra. Both techniques show the work to be done by various parties, the timing and sequencing of events, rests and slack time. The scheduler is like the composer. While the complexities of each are not learned quickly, the basics can be understood with only a little effort.

In a nutshell, CPM scheduling is a technique whereby the scheduler develops the tasks that need to be done, estimates how long each activity will take to complete, defines when the activity can be worked on (such as Monday through Friday), develops the relationships between the various activities, which is basically the sequencing of the activities, and then computes the earliest time that each activity

can start and finish, based on the start of the project and then computes the latest each activity can start and finish based on the desired completion date. CPM software is used to store all the information electronically in a sort of database, perform the computation of the dates and print out the schedule and various data reports in graphical and tabular forms. Wikipedia currently sums this up as "a mathematically based algorithm for scheduling a set of project activities."

To understand CPM scheduling, one must understand the parts and pieces and nomenclature to it, which are detailed below.

Activities, Activity Descriptions and Activity IDs – Activities of work are the various tasks that need to get done. Since each construction project is unique and contractors go about building things in different ways, the tasks are developed by the contractor's project scheduler. The software will not do it for you. The tasks can be broad based, encompassing many related tasks or broken down into specific tasks. For example, the scheduler could create one activity for building a concrete footing, or could create several activities for the same work – form footing, install rebar, place concrete, strip footing. The scheduler will also assign each activity a unique activity ID, which is basically a series of numbers and/or letters. The scheduler sometimes sets up the unique ID so that it means something. For example, all IDs for activities on the first floor could start with the character 1 and all activities on the second floor with a character 2. How this is done is up to the scheduler.

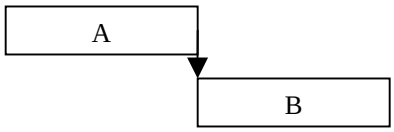
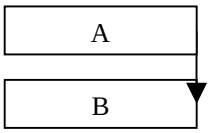
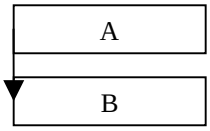
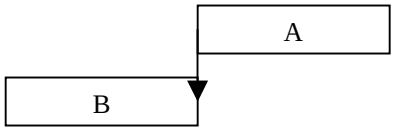
Activity Durations – Activity durations are also set up by the scheduler. Durations are the scheduler's estimates of how long activities will take to complete. In construction, the unit of time measurement is usually days, in other industries, the unit may be months, weeks, hours minutes or something else.

Calendars – Calendars are also set up by the scheduler. For example, there could be two calendars on a project. Calendar 1 is for a five day, Monday through Friday work week. Calendar 2 is for a seven day, Monday through Sunday work week. Each activity in the schedule will be assigned to a calendar by the scheduler, so the software knows when each activity will be worked on. If for example an activity with a five day duration starts on a Wednesday and is assigned to Calendar 1, we will know that the contractor plans on working on that activity on Wednesday through Friday, will not work over the weekend on that activity and will resume work on Monday and finish on Tuesday for a total of five days of work. If that activity was assigned to a calendar 2, seven work days per week calendar, the activity would finish on Sunday.

Relationships – Relationships, or dependencies, are the links between the various activities. Relationships have to do with the sequence in which the activities will or need to be done. For example, there would likely be a relationship between sanding drywall and painting it – the sanding needs to be complete before you can

start painting it. With CPM scheduling there are four types of relationships that are used. The relationships are shown in Table 1.

Table 1

Type	Graphical Depiction	Means This
FS: Finish to Start		Activity B can start after Activity A is finished
FF: Finish to Finish		Activity B can finish after Activity A is finished
SS: Start to Start		Activity B can start after activity A is started
SF: Start to Finish		Activity B can finish after Activity A has started

Early Start, Early Finish, Late Start and Late Finish Dates – These dates are calculated by the software after the scheduler inputs all the other required data. To compute the early start and finish dates of all the activities, the software does what is called a forward pass, where it pushes all the activities as early as possible based on whatever project start date is defined by the scheduler – picture pushing all the beads on an abacus to the left hand side and seeing how far left the beads (activities) can go . The computer then computes the late start and late finish dates by pushing all the activities as late as they can be so the project will finish on the prescribed finish date – again picture the abacus, but this time slide the all beads to the other end.

Float – Float is the amount of slack time that an activity has. The amount of float is the number of work days between its early finish date and its late finish date. If the late finish date is the same as the early finish date, the activity has no slack or float and is said to be critical. If the activity has a positive float, there is some spare time available – the activity can start or finish on its early dates, but it

doesn't have to. As long as it is completed by its late finish date, the project will not be delayed. If there is negative float, the project cannot be complete at the prescribed finish date and the project is behind schedule. When this condition exists, the early dates are after the late dates.

Longest Path – The longest path is just that – the longest connected chain of activities in the schedule, from the start of the first activity to the finish of the last activity. When the longest chain of activities has no float or slack time, the chain is said to be the critical path. The critical path is extremely important in CPM scheduling. Activities that are in this chain cannot be delayed without delaying the project completion date.

Data Date – The data date or status date of the schedule is the date which the scheduler is looking forward from. Picture yourself on the project on that date and having to record what has already been accomplished and the remaining work. Looking forward in time from the data date, the schedule shows a forecast of when the remaining work can be done.

Now that you have the basics of CPM scheduling, how is this technique applied on construction projects?

Typical Project Scheduling

Typically, on projects that require CPM schedules, the contractor is required to develop and submit its original as planned schedule at the start of the project or within so many days of the notice to proceed or contract award. The contractor's initial as planned schedule is sometimes called the baseline schedule. The contractor might also be required to submit schedule updates at a regular frequency during the course of the job. Updates are often required on a monthly basis. The monthly schedule updates will show what has been accomplished each month and what the plan is for accomplishing the remaining work. In addition to monthly updates, some contracts also require weekly or biweekly mini schedule showing just the work that is going to be done over the course of the week or two weeks. Finally, there are what's known as recovery or acceleration schedule. These schedules are ones that are developed by the contractor during the course of the job when the project is behind schedule to get the project back on schedule or mitigate delay.

Most construction contracts today have a scheduling specification that address what is expected of the contractor with respect to the project scheduling. This may include such items as, when the first schedule should be submitted, the minimum required qualifications of the scheduler, the deadlines and requirements regarding schedule submissions, the required schedule update frequency, the procedures for making schedule revisions and recovering lost time, and the minimum detail and content requirements.

Delay Evaluation Fundamentals

With evaluating delay claims the first question usually is who caused the delay and how much time was lost? Finding an answer to this question will get you half the way there to figuring out what a claim is worth. Often, if you ask the owner and the contractor to provide an answer to this question, you will get different accounts.

Fortunately there are various delay evaluation techniques that can be applied to sort it all out. In order to understand the techniques, one must first understand several fundamental concepts unique to schedule analysis.

The first concept concerns the use of the float in the schedule and what parties are entitled to use it. The relative question that is often mentioned is "who owns the float?" It is generally recognized that, barring any contract condition to the contrary, float is an expiring resource available to any party on a first come first serve basis, as long as that party acts in a reasonable manner. In other words, no one party has exclusive rights to the schedule float. Many contracts also contain language reinforcing this view.

This leads to the next fundamental concept: Only delays on the critical path delay the project completion. Said in another way, delays that consume float or slack time do not delay the project completion date.

Thus, if one party's delay only consumes float, it will not delay the project and that party will not be responsible for any delay. However, if that Party uses up all the float, on an item of work it will cause the work to become critical, and if that Party causes further delay, the project completion date will be delayed and that Party will be responsible for the extent of the delay.

There are four types of delays that can occur,

1.) Compensable,
2.) Non-Compensable, Excusable,
3.) Non-Compensable, Non-Excusable and
4.) Pacing Delay.

When a compensable delay occurs, the contractor is entitled to a time extension and damages that flow from the delay. Typically, this will happen when an owner causes a delay to the critical path, there is not concurrent contractor caused delay and the contract does not preclude the recovery of delay damages for the delay.

When there is a non-compensable, excusable delay, the contractor is entitled to an extension of time and is not entitled to additional compensation for the delay. Barring any contact provision to the contrary that might designate the delay otherwise, it is generally accepted that a non-compensable, excusable delay

occurs when an owner caused delay and contractor caused delay both delay the critical path at the same time. A non compensable, excusable delay also happens when there is a contractor delay and an owner delay that are so intertwined that they are impossible to separate. When either of these conditions occurs, the delay is known as a concurrent delay. Non-compensable, excusable delays also occur when the delay is covered by a no damage for delay clause and conditions are such that the clause is enforceable.

Non-compensable, non-excusable delays are typically contractor caused delays whereby the recovery or delay damages is not warranted and the assessment of liquidated damages may apply.

Lastly there are pacing delays. The concept of pacing delays came about as a result of disputes where owners had caused delays to projects and contractors had not completed their unimpacted work in accordance with their original schedules. Owners argued that the contractors should not be entitled to compensation if they had not completed the other work on time, i.e. there were concurrent delay. The decisions that came out of the courts, boards, or panels were generally in favor of the contractor's position. The contractor did not have to slavishly follow its original schedule if there was additional time created by owner delay. In other words, the contractor did not have to hurry up and wait. The logic behind the decisions was that the contractor was entitled to apply its resources as it saw fit. If an activity of work no longer had to be started or done by a certain date, the contractor could start that work at a later time, (as long as it didn't delay the project any further), or complete the work at a slower pace with perhaps less resources than originally planned, without jeopardizing entitlement to its delay claim. Pacing delays are still an item of contention, but the dispute is usually about whether the delay was in fact a pacing delay or unanticipated contractor caused delay.

It should be noted that some contracts are now being written so as to preclude recovering of delay damages if the contractor paces its work in the face of owner delays without permission from the owner. This type of requirement has evolved for several reasons. One reason is because the owner will have a more difficult time mitigating its delay, if, before the owner makes the mitigating moves, the contractor paces other unimpacted work and that work falls behind as well. Another reason is because there may be other contracts that depend upon the contractor completing certain non critical milestones on time. Another reason is that when the contractor paces the work, the project is in a riskier position because it has less float, and more susceptible to additional delays than had the contractor not paced its work. Owners find themselves able to include such a clause, because all they are asking for is that the contractor complete its unimpacted work as originally anticipated and bid. Essentially, a no pacing clause such as the one described allocates the ownership of additional float created by owner delays to the owner. It remains to be seen whether the owners that have no pacing allowed clauses will be able to avoid paying delay damages

when owner delays could have been avoided had the contractor not paced its work.

The four various types of delays are summarized below.

	Time Extension	**Delay Damages**	**LDs**
Compensable , Excusable	Yes	Yes	No
Non-Compensable, Excusable	Yes	No	No
Non-Compensable, Non-Excusable	No	No	No
Pacing	Yes	Contract	Contract

There are several techniques that have evolved and been used over the years to evaluate schedules and project delay. The total time approach is one such technique that is the simplest and oldest of all. It is basically a comparison between the total amount of time the contractor planned on working, from its bid or original planned schedule, and the actual time the contractor worked on the project, the difference being the time claimed. The flaws in this technique are obvious: The method does not distinguish non critical delays from critical ones, does not evaluate concurrent delay, and does not tie any excusable issues to the schedule itself in a cause and effect manner. The total time technique is not an accepted delay evaluation technique, but has value in getting the contractor to the negotiating table fast or when there is no dispute over who caused the delay and by how much.

A second delay evaluation method is called the impacted as planned, also known as the “What If” method. With this method, the analyst identifies owner caused delays, and inserts schedule activities representing those delays into the as planned schedule or baseline schedule. The schedule is then recalculated to create the impacted as planned schedule. The completion date of this schedule is compared with the planned schedule and the difference claimed as compensable owner delay.

The first glimpse of the short comings with this method comes when comparing the impacted as planned completion date to the actual completion date. The two dates often don’t match leaving one to wonder if the method captured all of the delays that occurred. Problems with the technique include that it does not evaluate contractor caused and concurrent delay, it assumes the logic of the baseline schedule would have been followed and that there would have been no logic adjustments made to mitigate the delay. Owners should be aware that if presented with a delay claim that uses this technique that they may not be getting the full picture.

As a result of the problems with this method it is generally not accepted by the courts. This is not to say that the technique should never be relied on because it can serve as a useful tool in certain circumstances. A version of this technique, whereby anticipated owner caused delays are inserted in the schedule can be used to agree in advance to delay impacts and damages caused by anticipated future

change order work. Another possible use would be to show impacts that were mitigated by acceleration efforts. In other words, to demonstrate what delays would have occurred had there been no acceleration.

A third technique is called the collapsed as built method, or "But For" method. This technique gets around one of the shortcomings of the impacted as planned schedule by using the as built schedule, which is a schedule that shows when all the activities of work were actually done. With this method, the analyst prepares a full as-built schedule containing all delays by all parties from the project records. The analyst introduces the relationships he believes should apply into the schedule and identifies all the project delays. The practitioner then removes only the contractor's delays from the as-built and recalculates the various dates creating a new "But For" schedule. The completion date of the "But For" schedule is compared to the as-built schedule and the difference claimed as owner delay.

Contractor delays are evaluated in a similar manner, except that owner delays are removed (as opposed to contractor delays) to create a schedule showing when the project would have completed, "but for" contractor delays.

There are several challenges to using the collapsed as-built technique. First, its use is exclusively limited to after the fact analysis, meaning the work must be complete. Second, with creating a fully logical as-built the analyst will typically be required to create relationships between work activities after the fact, because typical CPM schedules generated during the course of a job are usually not sufficiently detailed for this type of analysis. As such, the various analyst determinations regarding activity relationships can be a point of contention.

Finally and most importantly, the technique does not provide an adequate picture of concurrent delay and may measure delays of one party that were not on the critical path due to delays by the other party. Additional analysis may be required to sort these issues out.

Contemporaneous Period Analysis is another delay analysis technique, which is widely used and when properly applied, accepted by courts and panels. With this technique the analyst compares two schedules, one at the beginning of the delaying event showing what should have happened if the plan at the point in time was achieved, and one right after the delaying event showing how the schedule was impacted. The variances between the two schedules are used to quantify the delay caused by whatever events happened during the time period between the two schedules. The analyst can perform the analysis on the entire project by breaking the total actual project duration into a series of smaller time periods and evaluating the schedule at the beginning and at end of each period. Delays are evaluated on an incremental basis and are evaluated in accordance with the schedule that existed at the time the delay actually occurred. Thus, the technique

can be used to evaluate delays on an ongoing basis during the course of the job using the contractor's schedule updates.

An advantage to this technique is that it can be easier to present and for the non-scheduler to understand, because with breaking up the project into time periods, the viewer can be lead chronologically, step by step, through the project by building upon what happened in the prior periods.

Contract Issues Regarding Delay

Early Completion Schedules - One of the ways contractors can reduce costs, win bids and be more competitive is to find ways to build a project faster than the other guy, and perhaps even faster that the time allowed by the contract. When the contractor's as-planned baseline schedule shows it completing the project before the contract completion date, the schedule is said to be an early completion schedule.

What if the owner delays the project and prevents the contractor from finishing early? Can the owner be held responsible for delay related damages that result from missing the early completion date? The answer is yes, as long as the contract does not preclude the recovery of such damages and the contractor demonstrates at a minimum, 1) it intended to finish early, 2) it was capable and had the wherewithal to finish early, and 3) there was a compensable owner delay. Using these tests, owners can be on the hook for delay damages even if the project finished on or before the contract completion date.

Owners that have a hard time accepting this answer need to consider that the contractor's price and cost are typically linked to the amount of time it planned on constructing the job and that owner may have benefited from the contractors early completion in the form of a lower priced job. When the contractor cannot finish the job as originally planned due to no fault of its own, its cost may increase, and the party responsible for the delay may also be responsible for the excess costs.

Owners should consider the prospect of early completion schedules when the job is bid. Faced with an early completion schedule, an owner will likely have to staff and maintain whatever is being built sooner, turnover areas for renovation earlier and pay for construction faster than planned. If early completion affects are not acceptable to the owner, it should place restrictions on the contractor's ability to complete early in the contract.

Owners wary of possible pie in the sky early completion schedules and having to battle contractors over whether they are capable of achieving an early completion can draft contracts that dissuade this behavior, by including language that revises the contract completion date to the date of planned early completion and tying the assessment of liquidated damages to the new date. With such language

contractors will think twice about submitting early completion schedules that they are not confident they can achieve.

Liquidated Damages - Many construction contracts include a liquidated damage clause, which allows the owner to assess damages of a given rate should the contractor delay the project. An LD clause informs all the bidders up front what monetary impacts they are facing should they delay the project. It also prevents the owner from having to prove its actual damages, whether it be lost revenue, additional construction staffing, interest expense, etc. With liquidated damages, a formula (days x rate) is used to compute amount the owner can withhold from payment to the contractor, should the project experience inexcusable delays.

Contractors seldom take the assessment of LDs without a fight and have found ways to avoid them. Generally the assessment of LD's will be upheld if the owner can prove two key facts: 1) the actual damages are difficult to evaluate and 2) the LD rate is based on a reasonable estimate of the owner's damages and not just a penalty used to influence the contractor to finish on time. In addition, with an LD clause, the owner's recovery of damages is likely limited to the amount of LDs computed by the formula, even if its actual damages are greater.

Given the importance of an LD clause, careful consideration should be given to drafting such a clause and if one is desired, the owner should prepare a reasonable estimate, prior to bid, of the damages it will incur should the project be delayed. The estimate should be in writing and securely filed away in several places so that it can be found years later, when the LD amount is being challenged by the contractor.

No Damage for Delay Clauses - No damage for delay clauses preclude the contractor from recovering delay damages in the event of an owner caused or third party delay. No damage for delay clauses shift the risk to the contractor for a delay that might normally be compensable or at least excusable.

One of the problems with these types of clauses is that contractors often don't price the risk that has been put upon them with no damages for delay clauses because pricing such risks can be difficult and because doing so reduces their chances of submitting a winning bid. Contractors that do not price the risk are left vulnerable, with no contingency to cover a delay covered by the clause. As such the consequences of enforcing a no damage for delay clause can be severe.

As a result of possible harsh results, contractors have disputed these clauses and found ways to have them not be enforced. There are four generally accepted exceptions to enforcement of a no damage for delay clause:

1) The delay was caused by the owner's bad faith or its willful, malicious or grossly negligent conduct,
2) The delay was an uncontemplated delay,

3) The delays were so unreasonable that they constitute an intentional abandonment of the contract by the owner,
4) The delays result from the owner's breech of a fundamental obligation of the contract.

Constructive Acceleration - Constructive acceleration is when a contractor accelerates to overcome an excusable delay that it did not receive a time extension for. With a constructive acceleration claim, the contractor typically claims the additional costs associated with speeding the project up. In order to prevail on such a claim, a contractor must show the following

1) There was an excusable delay,
2) It gave time / notice of the delay to the owner and issued an adequate time extension request,
3) No time extension was granted,
4) The contractor was required or requested to complete the project in accordance as if there had been no delay and
5) An actual acceleration effort and expense must have been incurred.

Delay Damages

When a contractor is delayed and spends more time completing a project than planned and additional expenses are incurred due to the added time, those expenses are said to be delay damages. What follows is a description of three common types of delay damages, how they are calculated, what to look for and what standards are typically applied to proving them.

Unabsorbed Home Office Overhead – Contractors typically divide their costs into two general parts, job related costs and general and administrative overhead expense. Job related expenses are those costs that have been incurred for the direct benefit of a specific project. Those costs are not part of home office overhead. Home office overhead costs are the general and administrative costs that cannot be allocated to a specific project, but are incurred as a benefit to all projects in general. Costs that fall into the home office overhead pool include items like executive salaries, main office rent and utilities, accounting fees, etc.

Contractor's typically account for home office overhead costs in their prices by including a markup on the direct job related costs. Typical markups can be in the range of between 10 and 25%. The markups typically also include the contractor's expected profit.

The theory behind unabsorbed home office overhead claims is that when a project is delayed and the contractor's time spent on the project increases, the home office activity and expense (i.e. executives, payrolls, etc.) continues on at a steady state despite the fact that there is one less active project generating revenue to pay

for this expense, and payments for home office overhead that were included in its price do not cover the additional costs.

The Eichleay Formula is the most common method used by contractor's to compute unabsorbed home office overhead. The Eichleay Formula is as follows:

$$\text{Unabsorbed Home Office Overhead} = \text{Compensable Delay Days} \times \frac{\text{Delayed Contract Billings for Actual Period}}{\text{All Contract Billings for Actual Period}} \times \text{Total Home Office Expense for Actual Period}$$

The formula, in effect, allocates the cost for home office overhead on a particular job in proportion to the project billings.

Since the formula was first employed by the Eichleay Corporation in a 1960 case, problems with the formula have come to light including that the formula does not relate to the contractor's bid, and the contractor may have been able to work on other areas of the project or to have found replacement work thereby producing a replacement for the lost revenue of the delayed project. As a result of these issues, the Eichleay formula is not recognized in some states. Where it is accepted, the bar for allowing its use has been raised. Contractors that employ the formula must generally prove the following:

1) There was a compensable delay
2) That it was placed on standby and
3) It was unable to take on replacement work during the suspension or standby period.

In evaluating an Eichleay claim and whether the standards of proof are met, contractors and owners can review the project billings and daily reports to evaluate whether or not or to what extent the project was on standby, review the contractor's company wide billings to determine whether they decreased during the period of delay, review the contractor's bidding records, job schedules and project change orders to determine whether or not or to what extent replacement work was secured.

When employing the formula, it is important to make sure it's done correctly, using the correct figures. The figures for billings, overhead and days should be used for the actual contract period, which includes all delays. Some claimants have used the original contract period, which is incorrect. Since the actual contract period start and end dates will likely not be in sync with year end or quarter end dates for accounting reports that record billings and overhead amounts, the nearest year end or quarter end figures can be used and prorated so

that the amounts correspond to the contract period dates. The costs that make up the overhead pool should also be reviewed for possible unallowable costs. A construction accountant or consultant will know the guidelines as far as which costs are allowable and which are not, and may be able to reduce the pool for items like excessive executive salaries and entertainment expenses.

In addition to the Eichleay formula, there are several other methods that have been used to calculate unabsorbed home office overhead. These include figuring a planned daily rate using the contractor's estimate and applying that rate to the number of days of delay, applying a markup to any claimed direct job costs amounts and using the so called Manshul Formula, which essentially computes the damages as a percentage markup to the cost of the work completed after the original contract period.

Owner's that have been "around the block" on home office claims have found that stating up front in the contract how home office overhead delay damages will be handled is helpful to avoiding disputes. One simple and effective way is for contracts to state that a markup of a given percentage on valid direct job cost claims (project labor, material, equipment) will be given for all home office overhead costs associated with project delay and that no additional compensation will be granted for this type of claim.

Field Office Overhead - Field office overhead is another frequently claimed delay cost. Field office overhead costs are direct job costs that are allocated to a specific project, but which cannot be allocated to a specific item of work. Typical field office overhead costs include the project superintendent, project engineer, field trailer, water cooler, phones, sanitation, trash collection, job utilities, job office supplies, and dumpsters. Contractors typically figure out how much to include in their pricing for the field office costs by estimating how many field trailers, superintendents, etc. will be required for the planned duration and then estimating the cost for those resources. Contractor's typically track their actual field office costs as separate cost accounts within their job cost accounting system.

When a project is delayed and the field trailer and project superintendent are employed for a longer period of time, additional costs are incurred. Claimants have computed field office damages in a variety of manners. One way that is sometimes used is to compute the actual average daily field office overhead rate by dividing the total actual field office cost by the actual number of days. The average daily rate is then multiplied by the number of compensable delay days to yield the claim amount. Another method claimants sometimes use is to claim the actual field office costs expended during the period of delay. For example, if the job experienced a compensable delay from June through October of a particular year, the actual field office costs for that period of time are tallied and claimed. Another method uses the contractor's estimated field office costs from its bid to

compute a daily or monthly cost that gets multiplied by the period of compensable delay.

The best method is one that best represents what happened out in the field as a result of the delay. There are a whole host of questions that should be considered in figuring out how to compute these damages or to evaluate the claimed amount: Has the owner already paid for some of the claimed field office costs as a result of issuing extra work during the period of delay? Was the contractor able to reduce and mitigate its field office expense during the delay period? Do the claimed costs include non-time related one time charges such as the set up and removal of the field trailer? Are the claimed costs relatively constant or are there periods when particular cost categories surge or decrease? Are there claimed costs that are not time related and belong in cost accounts for the items of work? Are some of the claimed costs part of the home office cost pool rather than the field office cost pool?

A good way to help answer these questions and to evaluate additional field office costs is to schedule out for the entire job, the actual monthly field office costs for each category (trailer, superintendent, etc.) being claimed. The monthly costs can usually be found by studying the contractor's job cost reports. Cost categories that do not have relatively constant cost amounts from month to month can be investigated further to see why the amounts fluctuate and whether or not certain costs are non-time related. The monthly cost schedule can also be used to select the best period from which to determine an actual average daily rate that best represents the contractors uncompensated field office cost.

Material and labor escalation are two other common delay related claims. The theory behind these claims is that when a project is delayed, the contractor may be forced to purchase material and employ labor at a later date then planned, and if material costs or wages have risen, the contractor will have to pay more than planned for those resources.

Escalation claims are calculated in different manners, depending upon the unique circumstances of the project and of the allocation of delay. Escalation claim calculations essentially compare what the contractor would have spent on base contract material and/or labor to what it actually had to spend due to the compensable delay.

To evaluate such claims, the bid estimate work papers, purchase orders, wage agreements, and labor burden calculations can be reviewed to determine what unit increases occurred and when they occurred. In addition, there are usually a host of circumstances that can complicate the accounting of an escalation claim. These include items such as non-compensable delay, extra work priced with or without full knowledge of the delay, unreasonable plans or schedules, work that could have been done but that was paced, and different periods of wage increases

for different trades. Each project is unique and will have to be reexamined to determine the best way to estimate the effects of the given circumstances.