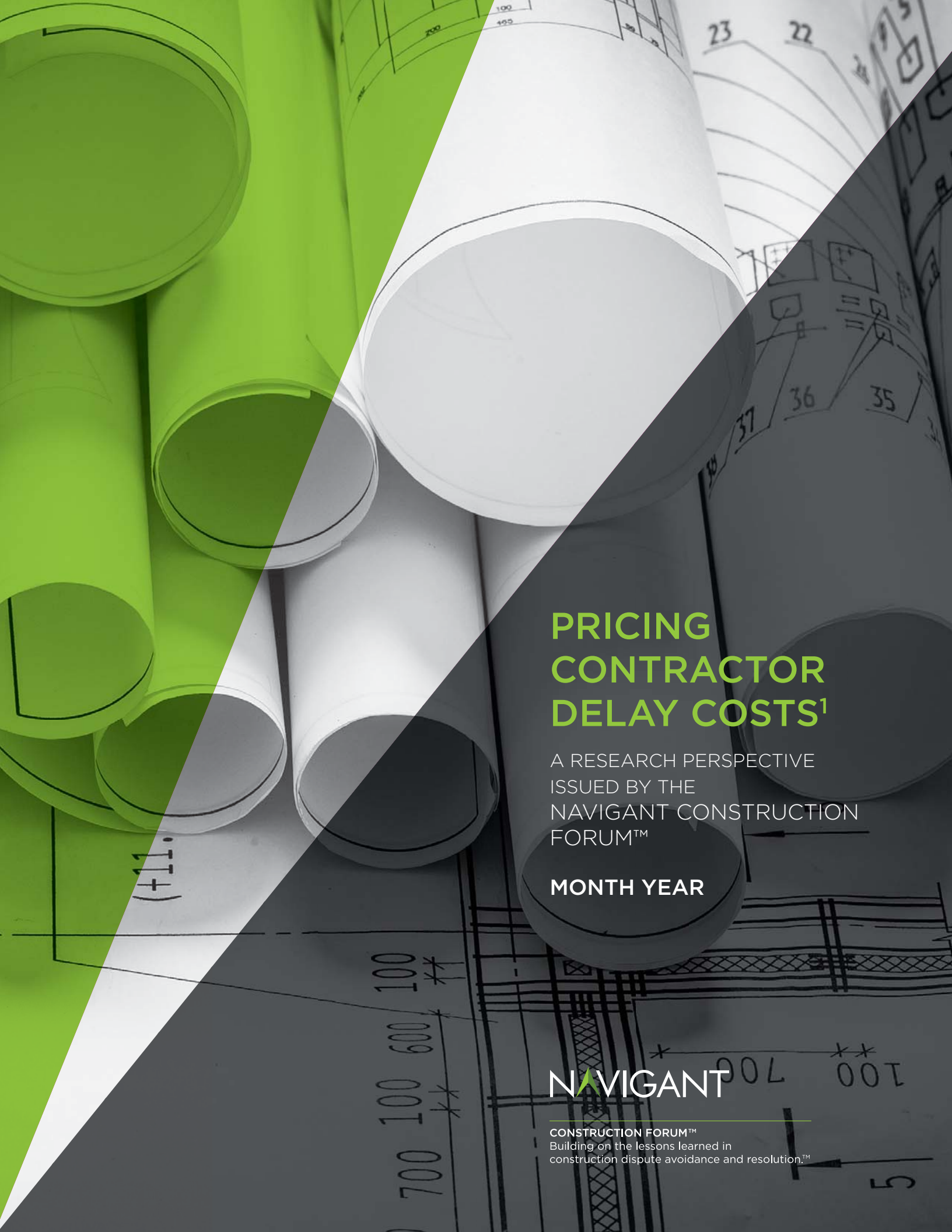

PRICING CONTRACTOR DELAY COSTS[1]

A RESEARCH PERSPECTIVE
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PRICING CONTRACTOR DELAY COSTS[1]

CONSTRUCTION

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Abstract – When contractors encounter owner caused (excusable/compensable) delay they are typically entitled under the contract to recover both the time resulting from the delay as well as delay damages. Idled equipment/labor and material escalation costs are fairly easily calculated in such situations. Typically, contractors also seek to recover their delay costs (extended field office overhead or general conditions costs) also. Calculating this cost is more complex than dealing with delayed direct costs. There are, at least, eight methods of calculating extended field office overhead costs. None of the calculations arrive at the same daily delay cost. This paper discusses all eight methods – offering commentary on the strong and weak points of each. The paper also offers a recommendation on how project owners can resolve this dilemma in advance of delays, thus making the issue less contentious should a contractor encounter an owner-caused delay.

INTRODUCTION

Virtually all construction contracts provide for changes to the Time of Performance of the work of the contract. Each contract provides for a number of types of delay which may or may not qualify for a time extension. Some of these delay types provide for time only whereas others mandate both a time extension was well as compensation to the contractor for delay damages. When compensable delay arises, contractors look to the owner to compensate them for their delay damages. There are, generally, two types of delay damages – direct and indirect. Direct delay damages include such costs as idled and extended labor and equipment costs, extended storage costs, extended bond costs, material inflation costs, etc. Indirect delay costs include loss of efficiency, extended or unabsorbed home office overhead costs and extended field office overhead costs. Provided that the contractor has maintained reasonably good cost records during the performance of the work, proving the direct delay costs should not be a monumental task. Demonstrating their extended home office overhead, likewise, is not all that difficult once the duration of the delay has been calculated as home office overhead recovery is generally done on a formulaic basis; the Eichleay Formula in the U.S. and the Emden or Hudson's Formula in Canada and the U.K., for example. Proving loss of efficiency is more difficult and is beyond the scope of this paper.

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This paper focuses on recovery of a contractor's extended field office overhead. Proving extended field office overhead costs used to be a relatively straight forward calculation. The contractor would sum up the total field office overhead costs expended on the project, divide by the number of days spent on the project and multiply times the number of days of compensable delay documented through forensic schedule analysis. It was simple and straight forward. It was, however, not always simple to recover such delay costs. Between 1942 and 1968 contractors on U.S. government contracts could not recover delay costs for government caused delay to the work arising from changed work. This rule was known as the *Rice Doctrine* which arose from a U.S. Supreme Court case, *United States v. Rice*.[4] During this period a contractor could only recover time but no delay damages.[5]

In 1968 this inequity was remedied by a rewording of the Changes clause mandated by the Federal Acquisition Regulations ("FAR").[6] By insertion of only a few words the Federal agencies' drafting committees removed the ambiguous language the Supreme Court based their ruling on and effectively reversed the *Rice Doctrine*.[7] Contractors could now recover delay costs for government caused delay. However, starting in the 1990's the Armed Services Board of Contract Appeals, the U.S. Court of Appeals for the Federal Circuit and the U.S. Supreme Court began to shift back to the concept of limiting a contractor's right to collect delay damages for government caused delay.[8] Courts now hold contractors to a higher standard of proof of damages related to delay. Recent court decisions in the U.S. have required contractors prove delay damages with actual costs.[9] With this as a backdrop, this paper discusses eight potential methods of calculating extended field office overhead costs.

TYPES OF DELAY

Most contracts deal specifically with three basic types of delay – each type of delay yielding a different recovery. The basic types of delay are the following.

- **Inexcusable Delay** – Inexcusable delay is delay caused by the contractor or any of their subcontractors, suppliers or materialmen, at any tier. Examples of this type of delay are failure to provide sufficient labor or late delivery of equipment or materials. As this is self-imposed delay the contractor is typically entitled to recover no time and no delay costs. Under most contracts, the contractor is exposed to potential liquidated damages or may be directed to accelerate their work, at their own expense, to recover the lost time.
- **Excusable Delay** – Excusable delay is typically third party caused or a force majeure delay. In essence, this is the type of delay which was not foreseeable, not under the control of, nor caused by either the owner or the contractor or any party for whom they are responsible, at any tier. Examples of this type of delay include abnormally severe weather, earthquakes, tsunamis, labor actions or acts of terrorism. Under most contracts, as neither the contractor nor the owner caused the delay, the contractor is entitled to recover the time but no delay costs, while the owner is required to grant an extension of time and forego late completion damages for this period of time.
- **Compensable Delay** – Compensable delay is generally described as owner caused delay but also includes delay caused by events or circumstances for which the owner has assumed liability under the terms of the contract. Examples of owner caused delay include suspensions of work; delays caused by owner issued changes to the work or delayed return of contractor submittals. Examples of owner assumed liabilities leading to delay include differing site conditions or late delivery of owner furnished equipment or materials. In such situations, as the owner is responsible for the delay most contracts provide for recovery of the time resulting from the delay and for delay damages from the owner.

It is beyond the scope of this paper to discuss how compensable delay is determined. But, suffice it to say that once compensable delay is proven the contractor is typically owed delay damages; provided that the contract does not contain an enforceable No Damages for Delay[10] or Limitation on Delay Damages[11] clause and the Consequential Damages clause does not preclude recovery of various forms of delay damages.

4. 317 U.S. 61 (1942).
5. Gold, Harold, The Changes Clause in Government Construction Contracts, Government Contracts Monograph No. 3, (1975).
6. FAR § 52.243-4(d) (1968).
7. Background and Nature of Revisions to Contract Clauses, 32 Fed. Reg. 16,268, 16,269 (November 29, 1967).
8. Kelleher, Thomas J. Jr., Eric L. Nelson and Garrett E. Miller, The Resurrection of Rice? The Evolution (and De-Evolution) of the Ability of Contractors to Recover Delay Damages on Federal Government Construction Contracts, Public Contract Law Journal, Winter, 2010, American Bar Association, Washington, D.C.
9. Lee, James M., Prove Your Damages with Actual Costs: The United States District Court for the District of New Jersey Rejects Both the Cumulative Impact theory of Causation and the Total Cost Method to Prove Delay Damages in a Tort Action, www.GibbonsLaw.com/news_publications/articles, 2011.
10. See Josh M. Leavitt and Joseph C. Wylie, Recent Trends in Exceptions to Enforceability of No Damages for Delay Clauses, Real Estate Law and Practice Course Handbook, Practising Law Institute, New York, 2005. See also Carl S. Beattie, Apportioning the Risk of Delay in Construction Projects: A Proposed Alternative to the Inadequate "No Damages for Delay" Clause, William and Mary Law Review, March, 2005.
11. Bruner, Philip L. and Patrick J. O'Connor, Jr., Risks of Construction Time: Delay, Suspension, Acceleration and Disruption, Bruner and O'Connor on Construction Law, October, 2010.

WHAT ARE DELAY COSTS?

The simplest description of the term delay damages is those costs that increase as a sole result of a delaying event on a project. Such increased cost may be direct or indirect costs. Put into the context of basic contract law these are damages that are the direct result of a breach of contract; that were within the contemplation of the parties at the time the contract was bid and executed; and can be documented or proven within reasonable certainty.[12] In the case of delay damages, the breach of contract giving rise to damages is an owner caused delay.

There are no strict accounting rules on how delay damages are calculated. A general list of damages resulting from a project delay includes the following –

Labor Costs

- Additional labor hours
- Overtime and premium pay
- Loss of efficiency or loss of productivity
- Increased Wage rates

Equipment Costs

- Increased rental or ownership costs
- Inefficient use
- Added equipment
- More expensive equipment

Material Costs

- Additional material
- More expensive material
- Material cost increases
- Increased material storage

Subcontractor Costs

- Extended labor, equipment and material costs
- Extended jobsite overhead costs
- Extended home office overhead costs

Jobsite Overhead Costs

- Added supervision and project management
- Extended supervision and projecct management
- Increased and extended jobsite resources (office trailers, site utilities, etc.

Home Office Overhead Costs

- Additional home office overhead costs
- Extended/unabsorbed home office overhead

Certainly the list can be longer and much more detailed but this is a basic outline of the costs likely to be impacted in the event of a project delay.

WHAT IS FIELD OFFICE OVERHEAD?

In the construction industry "overhead" is defined as "That portion of the contractor's cost which cannot properly and accurately be allocated to a specific operation on any project."[13] This general term is modified by the addition of the words "field office" to distinguish overhead on a single project or set of projects incurred by a field office from "home office" overhead which are costs incurred in the contractor's home office for the benefit of all projects.

Like the term "delay damages" there is no standard method of accounting for field office overhead costs applicable industry wide. Likewise, there are no government regulations in the U.S. mandating how such costs should be gathered and accounted for. The one rule applicable to the issue of field office overhead costs is Cost Accounting Standard 401 – Consistency in Estimating, Accumulating and Reporting Costs.[14] In simple terms, this standard requires that a contractor estimate, accumulate and report on all costs on all projects in the same manner and at all times. Basically, a contractor cannot calculate field office overhead costs one way on a privately funded project and a different way on a government contract.

Although not exhaustive, following is a list of costs typically found in a contractor's field office overhead account.

12. Lankenau, Matthew James, Owner Caused Delay – Field Overhead Damages, Cost Engineering, Vol. 45, No. 9, September 2003.
13. Construction Dictionary, 8th Edition, The National Association of Women in Construction, 1991.
14. Cost Accounting Standard 401 – Consistency in Estimating, Accumulating and Reporting Costs, DCAA Contract Audit Manual, DCAAM 7640.1, January 1997, Department of Defense – Defense Contract Audit Agency, Washington, D.C. Azure v. United States, 129 F.3d 136 (Fed. Cir. 1997).

Field Office Facilities

- Office trailer(s)
- Office furniture
- Office equipment (e.g. telephone system, fax, cpoying and computers)
- Communications (e.g., telephone, fax, Internet and radio costs)
- Office utilities (including electrical, gas, water [potable and dust control])
- Office Supplies
- Janitorial and trash services
- Jobsite photography and videography
- Printing and blueprinting

Field Office Facilities

- Storage trailers on site
- Portable toilets
- Safety equipment (e.g., signage, K-rail, fencing, firefighting equipment)
- Site cleanup and supplies (e.g., trash dumpsters, street cleaning, truck washing, site watering)
- Jobsite equipment (e.g., forklifts, yard cranes and other equipment used exclusively at the field office for loading/unloading materials, etc.
- Water storage and trucks
- Dewatering facilities and equipment
- Winterizing, snow removal, heaters, etc.
- Air conditioning
- Vehicles for project management team use (e.g., pickups, vans, cars, flatbeds, etc.)
- Fuel, oil, maintenance for equipment
- Equipment and field office
- Project signage
- Generators
- Survey equipment

Field Supervision

- Project manager
- Assistant project manager(s)
- Project engineer(s)
- Project scheduler(s)
- Superintendent(s)
- General foremen
- Field office clerical
- Document control personnel
- Cost engineer(s) and/or timekeeper(s)
- Payroll and social taxes
- Fring benefits
- Worker's compensation insurance
- Subsistence costs for travelers

Field Office Labor

- Safety teams (e.g., safety engineer(s), flaggers, cone and K-rail and fence maintenance)
- Security personnel
- Site and street cleanup personnel
- Survey and staking crews
- Equipment maintenance personnel
- Storage yard/laydown area personnel
- Payroll and social taxes
- Fringe benefits
- Worker's compensation insurance
- Subsistence costs for travelers

Miscellaneous Field Office Costs

- First aid, fall protection, hard hats, safety glasses, etc.
- Travel
- Entertainment
- Mobilization
- Demobilization and final clean up
- Scaffolding
- Project insurance
- Permits and licenses
- Project legal costs
- Small tools and consumables

There may be other costs included in project field office overhead accounts but all of the above costs fit the general definition as they are costs incurred at the jobsite in support of just one project and cannot be allocated to any specific pay item on the project's Schedule of Values.

HOW IS EXTENDED FIELD OFFICE OVERHEAD CALCULATED?

There are three general or basic methods of calculating extended field office overhead costs. They are

- Actual cost method
- Total cost method
- Jury verdict (or "fair and reasonable approximation" of the damages.[15]

A fourth method, which owner can mandate if they include it into the contract documents before bidding is generally referred to as the

- Stipulated contract method

Actual Cost Methods

The first thing one has to do when calculating extended field office overhead costs in support of a delay claim is to review the field office cost account for the project to (1) classify each cost account as time related or non-time related and (2) remove the non-time related cost accounts. Why? Because by definition, non-time related costs are not impacted by a project delay as these costs are not temporal in nature. They are one time costs or fixed costs which do not change when the project is delayed. As they are not impacted by a delay these costs should not be included in a delay damage calculation. Some examples of non-time related costs are set forth below.

- Mobilization and demobilization costs – The contractor is required to move onto the project site once at the beginning of the project and demobilize once at the end of the project. These are one time costs not typically impacted by a project delay. However, if the project is suspended for a lengthy period of time and the contractor is directed to demobilize from the site and later remobilize once the suspension issue is resolved, these costs would probably be recoverable.
- Site Utility Costs – The cost to install electrical, telephone, water, gas, etc. on the site at the beginning of the project is likewise a non-time related cost. However, the monthly costs of using the utilities is a time related cost which will continue

15. Azure v. United States, 129 F.3d 136 (Fed. Cir. 1997).

monthly until the project is complete. These accounts will have to be disaggregated to sort out the purchase and/or installation cost from the operating costs.

- Office furniture, copiers, scanners, fax machines and computer costs – If these items are purchased for the project then they too are non-time related costs and should be removed from a delay calculation. However, the operating costs (such as paper, toner, printer ink cartridges, etc.) are time related since the longer the field office is in operation the more of these materials the project will consume.

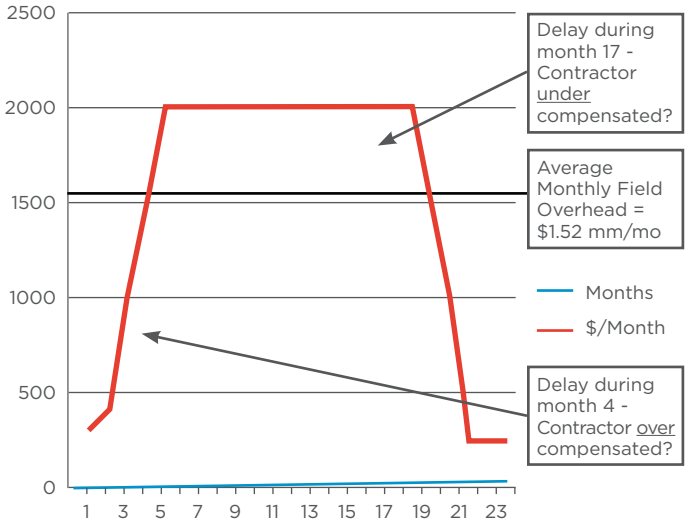
Once the non-time related costs are removed the calculation of extended field office overhead costs can begin in earnest. Experience with preparing or analyzing delay damage claims has taught the authors that there are at least eight different methods of calculating extended field office overhead costs. Each method is described below followed by a discussion of the apparent strengths and issues related to each method.

- ***Average Field Office Overhead Cost For The Project*** – This is one of the more common techniques used when calculating field office overhead costs. The contractor using this technique adds up all field office overhead costs expended on the entire project. They should then remove the non-time related portions of the field office overhead cost account as discussed above. The contractor then divides the remaining time related costs by the duration of the project to arrive at a daily field office cost. The contractor then multiplies this daily rate by the number of days of compensable delay determined from their forensic schedule analysis to determine the extended field office overhead costs owed as a result of the owner caused delay.

  Strength of Method – This is a simple and straight forward cost engineering or cost accounting exercise which does not typically require spending a lot of money on outside legal counsel or forensic accountants. Ordinarily, this can be done by the onsite project staff.

  Issues – There are two general issues related to this method. First, this is an end of the job calculation requiring the owner and the contractor to wait until the project is completed because the total cost of the field office overhead and the total duration of the project are not known until the project is completed. For owners and contractors striving to settle delay claims as they arise on the project, this technique doesn't work. The second issue is that this method calculates an "average daily field office overhead rate", pricing each day on the project the same as every other day. But, this is not accurate in the strict cost accounting sense. Field office overhead costs are typically like a bell shaped curve – low at the outset of the work, climbing fairly rapidly and leveling off at the high rate for a lengthy period of time, later dropping off with a long but low tail off while the project is being closed out. But by dividing the total field office cost expended by every day spent on the project an average cost is created with each day costing the same as all others. If a delay occurs on the project during one of the periods which are below the average cost line, the contractor may be overcompensated when the average field office daily rate is applied. Conversely, if the delay occurs when the field office cost is above the average cost line, the contractor may be undercompensated.

Example 1 - Average Total Project Field Office Overhead Cost/Month



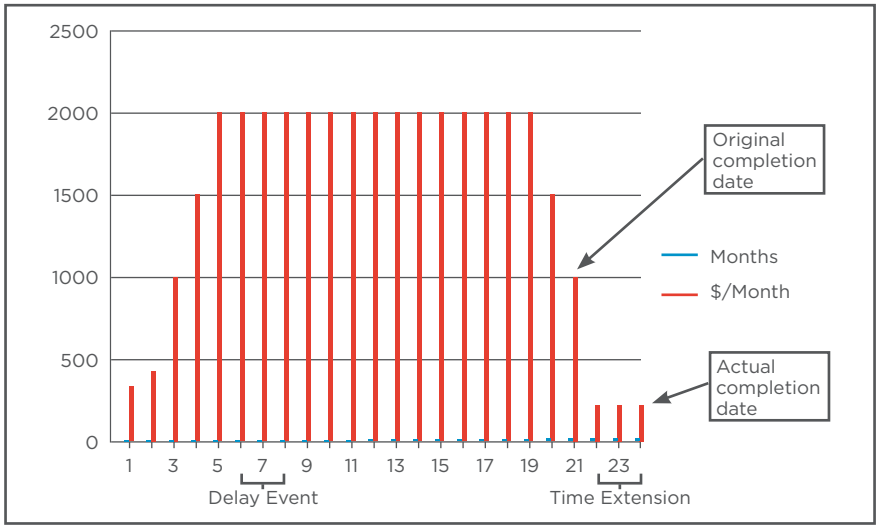
- ***Average Field Office Overhead Cost For The Period Of The Delay*** – This method is employed when owners and contractors are attempting to resolve delay issues as they arise on the project. This method is not an end of the project method. Instead, this method is a contemporaneous field office overhead rate calculation that determines the field office overhead rate only during the period of the delay. The method starts with the forensic schedule analysis. This analysis identifies the total amount of compensable delay owed and, more specifically, identifies the start and completion dates of the delay. Once these dates are known the cost engineer or cost accountant will determine what period(s) the delay fell in.

For example, if the delay started on January 13, 2011 and ended on March 22, 2011 the periods for calculating the field office overhead would be January, February and March 2011. The contractor then sums up the total amount of field office overhead cost incurred in this three month period and divides by the total number of days during this period. Assuming each accounting period starts on the first of the month and ends on the last day of the month, this period equals 89 calendar days. The contractor divides the field office cost for this three month period by 89 days to derive a daily rate. The contractor then multiplies the daily rate by 68 days (the number of days of delay identified earlier by the forensic schedule analysis) to determine the delay damage owed.

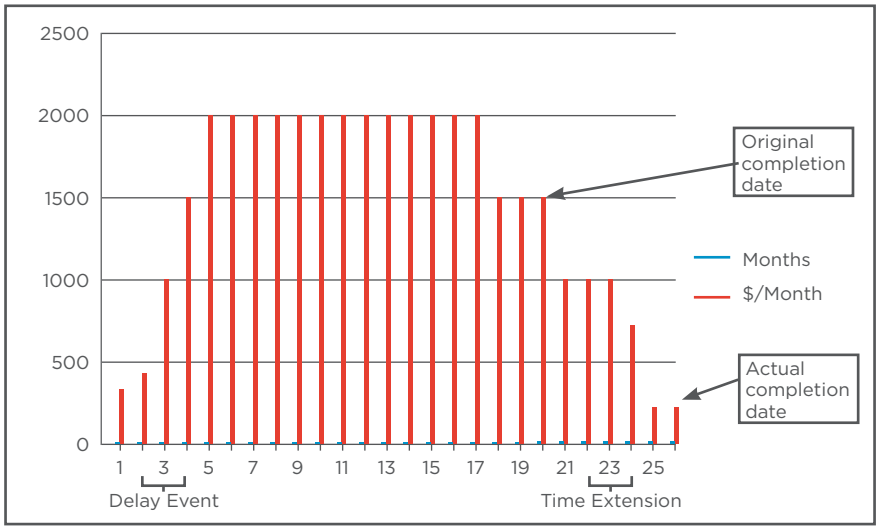
Strength of Method – The strengths of the method are twofold. First, this method can be used at any time during the project thus allowing the contractor and the owner to resolve delay claims as they arise. Second, this method avoids the issue of over or under compensation common to the average project cost method discussed above.

Issues – The issues related to this method lie in the difference between the actual delay period (in this case the 68 days between January 13 and March 22, 2011) and the time extension period (68 days added to the end of the project). That is, the project is delayed 68 days in the early part of 2011. But the extended period of time will take place for 68 days at the end of the project which may be September of 2013. If the cost during the delay period was very high but the field office overhead cost at the end of the project is very low, some argue that the contractor is being over compensated. (See Example 2 below.) Conversely, if the delay period occurred when the field office cost was very low and the extended period takes place when the field office cost is very high, contractors will surely argue that they are being under compensated. (See Example 3 below.)

Example 2 - Contractor Overcompensated?



Example 3 - Contractor Undercompensated?



Total Cost Methods

- ***Total Cost Method*** – In a situation where a contractor has not segregated their field office overhead costs sufficiently, they may be able to employ the total cost method. In the case of extended field office overhead, the total costs method is calculated as the difference between the field office overhead cost contained in the contractor's bid and the total amount of field office overhead costs incurred on the project.

  Strength of Method – The simplicity of making this calculation has to be the strength of this method. No external legal counsel or accounting assistance is required and the math of the method can typically be applied in a matter of a few minutes.

  Issues – The issues related to this method lay in the difficulty the contractor faces in order to get an owner, an arbitration panel or a court to accept the results of this method. Typically, for a contractor to get an arbitration panel or court to accept such an approach, the contractor must demonstrate the following.

  1. There is no other way to document the damages;
  2. The as-bid field office overhead cost was reasonable at the time of bidding;
  3. The contractor mitigated damages to the maximum extent practical;
  4. And, the contractor was not responsible for any of the delaying events on the project.

This is a difficult challenge to meet on almost any project.

- ***Modified Total Cost Method*** – The modified total cost method is calculated in the same manner as the total cost method. However, the contractor then deducts certain self-imposed damages from the calculated difference between the as-bid and the actual field office overhead cost. It is up to the contractor attempting to use this method (1) identify contractor caused issues which impacted the field office overhead costs and (2) calculate the value of the impact to the field office overhead cost

  Strength of Method – Again, the relative simplicity of the method and the low cost of using the method are the apparent strengths of the method.

  Issues – The contractor using this method not only has to meet the four proofs identified above but, in addition, must

1. Prove that the self-imposed events the contractor has admitted to are the only self-imposed impacts on the project;
2. Calculate the damages to be deducted from the total cost calculation and prove that these damages are a fair and reasonable cost to be deducted.

Jury Verdict Methods

A jury verdict requires that the arbitration panel or court arrive at a reasonable "equitable adjustment" after receiving sufficient evidence to reach such a decision. This method may be used where

1. There is clear proof of injury;
2. There is no more reliable method for computing damages;
3. And, the evidence presented is sufficient for the court or arbitration panel to make a fair and reasonable approximation of the damages.[16]

A contractor seeking a jury verdict award for delay damages, as the claimant, is required to present a calculation of the damages to the court or the panel in order from them to reach a decision as to how much is owed. One method for calculating field office overhead and seeking a jury verdict decision is set forth below.

- ***Comparative Field Office Overhead Cost Method*** – In situations where the contractor cannot prove the delay damages (extended field office overhead) by an actual damage method, it may be possible to present a comparison of the field office overhead cost incurred on this project with the field office overhead cost incurred on another, very similar project. The contractor, as claimant, bears the burden of proving that the projects are, in fact, similar in scope, cost, duration, location and time. If the contractor can demonstrate this then they may be able to compare the difference in cost incurred on each and use the calculated cost difference as the measure of damages.

  Strength of Method – Once the similarity of projects is demonstrated, the calculation of the delay damages is simple.

  Issues – It appears that proving the similarity of the projects is the biggest problem facing a contractor seeking to use this method. There are so many variables with every construction project (other than, perhaps, track housing) that to argue that any two projects are virtually identical will be difficult at best.

Stipulated Contract Methods

There are various methods to calculate field office overhead that may be included in the contract documents prior to bidding. By including a specific method in the contract documents the owner has mandated the method to be used to calculate extended field office overhead costs in the event of an owner caused delay.

- *As-Bid Field Office Overhead Rate* – The California Department of Transportation ("Caltrans") has employed a

16. 1 Construction Contracts Deskbook § 6.3, Contractor's Rights and Responsibilities as a Result of Delays – Contractor's Right to Recover for Excusable Delay, May, 2010.

unique mechanism on some of their larger projects (the San Francisco – Oakland Bay Bridge replacement project, for example). They use a Time Related Overhead ("TRO") bid item and specification to implement the approach.[17] One of the line items in the Caltrans bid form requires the contractor to fill in their daily time related cost and multiply this daily rate times the number of working days in the Time of Performance clause[18] The cost is stipulated to include both the field office overhead costs as well as the home office overhead cost.[19] The contractor is paid monthly as the project progresses based upon the number of work days consumed each month. If delays arise during the performance of the work, the TRO number is used to price the delay once agreement is reached on delay causation and liability. The TRO number is only subject to unit price adjustment if delay exceeds 149% of the original number of work days stipulated in the contract.

Strength of Method – This specification avoids the need for an audit concerning delay costs and makes settlement of delay claims easier both during and at the end of the project. Further, Caltrans has tied this requirement to their Escrow Bid Documents requirement such that the work sheets used to calculate and bid the daily delay costs are preserved in a secure neutral location for examination in the event the owner has a need to review the calculation in order to settle a delay claim.

Issues – The only perceived issue with this method is that there is nothing to prevent a contractor from unbalancing their bid and making their daily delay cost artificially high, counting on the owner to cause a lot of delay on the project. If this happens, the TRO specification would prevent the owner from modifying the daily rate until the total delay exceeds 149% of the original number of days stipulated in the contract documents.

- ***Specified Mark Up Rates Stipulated In The Contract Documents*** – Owners may include a fixed markup rate in the contract documents which specifically covers field office overhead rates. Should an owner decide to do this, they will have to specify clearly in the contract documents that this fixed rate includes extended field office overhead costs and/or unabsorbed or extended home office overhead costs. In the U.S. the General Services Administration, the Veteran's Administration and the U.S. Postal Service have all adopted contractually fixed overhead rates which have, to date, withstood court challenges.[20] To see the Veteran's Administration overhead limitation clause see FAR § 8-7.650-21, Contract Changes.[21] The General Services Administration overhead limitation clause may be found at FAR § 552.243-71, Equitable Adjustments.[22] Numerous State highway agencies and professional associations in the U.S. also specify change order markups that include field office overhead costs. The table below summarizes 8 state agencies, 2 regional transportation agencies and 3 professional associations.[23]

ORGANIZATION	LABOR	MATERIALS	EQUIPMENT	SUBCONTRACT
Alabama	20%	15%	0%	1-3%
Georgai	15%	10%	0%	0%
Kentucky	25%	15%	15%	0%
Mississippi	15%	15%	0%	0%
N Carolina	35%, 6%[24]	15%	0%	1-10%
S Carolina	30%	15%	0%	0%
Tennessee	20%	15%	0%	0%
Virginia	45%, 25%[25]	15%	0%	0%
Maryland Transit Authority	35%	10%	10%	5%
Washington Metro Transit Authority	10%	5%	5%	--
AASHTO[26]	35%	15%	0%	5%
EJCDC[27]	15%	15%	0%	5%
CMAA[28]	15%	15%	15%	5%

17. Caltrans Program Procedure Bulletin CPB 00-8, Contract Administration - Time-Related Overhead (TRO), December 15, 2000.
18. California Department of Transportation contracts are all work day contracts. Should an owner want to employ this method but stay with a calendar day contract they need only change the wording of the specification to calendar days.
19. An owner can choose to use the same procedure or modify it to include only the field office overhead cost.
20. Santa Fe Engineers v. United States, 801 F.2d 379 (C.A.F.C. 1986); West Land Builders, VABCA 1664, 83-1 B.C.A. 16325.
21. 34 FR 15470, October 4, 1969, as amended at 38 FR 5478, March 1, 1973; 39 FR 13263, April 12, 1974; 41 FR 48519, November 4, 1976; 45 FR 15930, March 12, 1980.
22. 48 CFR 552.243-71.
23. Saunders, Herbert, Survey of Change Order Markups, Practice Periodical on Structural Design and Construction, American Society of Civil Engineers, February, 1996.
24. North Carolina provides a fixed 35% of labor cost for overhead, benefits and profit. Insurance and taxes are paid at actual cost plus an additional 6% markup for administration.
25. Virginia allows 45% of labor cost for labor overhead, benefits and profit. A tax and insurance allowance of 25% is paid separately.
26. AASHTO – American Association of State Highway and Transportation Officials.
27. EJCDC – Engineers Joint Contract Documents Committee.
28. CMAA – Construction Management Association of America.

Strength of Method – The apparent strength of this method is its simplicity. Once the cost elements of a change order have been agreed to between the owner and the contractor the fixed markup rates from the contract are applied appropriately. No negotiations, no audits are required.

Issues – The method requires the owner to determine what changed costs they are willing to mark up and then they must determine what the markup percentages are "reasonable". Additionally, the owner must craft the contract very carefully, with the assistance of experienced legal counsel, to the effect that these markup rates include field office overhead costs of any type. In order to make certain this contract requirement is enforceable the owner may need to include a No Damages for Delay or a Limitation on Delay Damages clause in order to make the method legally enforceable.

- ***Activity Specific Field Office Overhead Allocation Process (ASAP Method)*** – Each of the methods present above calculate extended field office overhead at the project level and then allocate it to a daily, weekly or monthly cost. A theoretical alternative to these methods has been identified at the Activity Specific Field Office Overhead Allocation Process Method.[29] This method differs in approach, in that the time related overhead is allocated to each on site activity in accordance with the activity's
    - Labor hours
    - Labor costs
    - Direct costs, or
    - Whatever cost driver the owner and contractor agree upon.

  If compensable delay arises, an analysis of which activities were delayed and for how long is performed. Field office cost is then allocated to each impacted activity in accordance with the following formula.

$$\text{Time Related Field Office Overhead for Activity} = \frac{\text{Time Related Field Office Overhead x Cost Driver for Activity i}}{\text{Cost Driver Value of Project}}$$

Strength of Method – One obvious benefit of this method is that it can be applied both prospectively and retroactively. That is, should the owner want to use this method to settle change orders and delays as they arise, the can write a specification requiring that the contractor has to calculate this cost for each on site activity on the basis of whatever cost driver the owner wants to use, within 30 days after award of the contract and prior to receiving a Notice to Proceed. Once this submittal is made, reviewed and approved, it would be used for all future compensable delays.

Issues – First, implementing this method may be difficult. While the contractor should be able to perform such a calculation and submit it, the owner during review will have to agree that each activity's proposed labor hours (if that is the cost driver the owner specifies for use) are reasonable. This will be difficult for most owners to do. Second, while this method may work for delays to base scope work, it adds an additional dimension of difficulty when negotiating changes which add work not contained in the original scope of work.

CREDIT FOR OVERHEAD PAID ON OTHER CHANGE ORDERS

Some contracts have clauses which reduce the extended field office overhead costs by the amount of field office overhead paid on other change orders ongoing during the period of compensable delay. The intent of such clauses is to prevent double payment of extended field office overhead costs during the same period of time.

COSTS TO BE ADDED TO EXTENDED FIELD OFFICE OVERHEAD COSTS

Assuming agreement on an extension of time can be reached and a method for calculating the cost of the extended field office overhead resulting from the compensable delay, delay damages are still subject to two additional markups. The first markup is profit. "... [A] contractor would be entitled to profit as an element of its quantum recovery if delays are compensable."[30] The second markup applies if the owner has required

29. Ibbs, William and Long D. Nguyen, Analysis of Delay Damages for Site Overhead, Cost Engineering, Vol. 50, No. 3, March, 2008. The method is considered "theoretical" by the authors. In a recent exchange of e-mail between the authors of this article and Dr. Ibbs and Mr. Nguyen it was learned that no project to date has employed this method.
30. Owen L. Schwam Construction Co., Inc., ASBCA No. 22407, 79-2 BCA 13919.

Performance and Payment Bonds on the project. If so, the sum of the delay damages plus profit is subject to bond cost markup as this is now an added cost to the project and the bond cost is based on total actual project costs.

CONTRACTOR'S OBLIGATION TO MITIGATE DELAY

Before concluding this paper, one caveat is in order. A contractor facing an owner caused delay has an affirmative obligation to mitigate the owner's damages to the extent practical.

> "It is a general principal of law that the aggrieved party must make a reasonable effort not to unduly increase the damages it suffers. To the extent it can be proved that the aggrieved party did not mitigate, awarded damages may be reduced. It is not, however, necessary for the injured party to actually mitigate the damages; it need only make a reasonable effort not to unduly increase the damages. Failure to minimize one's losses does not bar the remedy but affects only the amount of damages recoverable." (Citations removed.)[31]

A contractor facing an owner caused delay is obligated to mitigate damages. They should look at mitigating damages and document their decisions and actions appropriately. In determining what damage mitigation is reasonable, courts generally consider the following.

1. Whether the delay was of a reasonably known length to allow for planning for mitigation activities;
2. Whether the contractor has other ongoing projects that could use the resources impacted by the delay effectively;
3. What costs would be incurred by the contractor in redeploying these resources;
4. Would it be possible to partially or totally demobilize the project for the period of the delay;
5. How would subcontractors and suppliers be affected by the delay;
6. How can the impact of the delay on the subcontractors and suppliers best be managed;
7. Can the remaining non-delayed work be resequenced to allow progress to be made on other portions of the project; and,
8. What is the cost of demobilizing, remobilizing and/or resequencing the work?

CONCLUSION

Almost all projects encounter compensable delay at some point during the performance of the work. Few contracts set forth any specific method for calculating the cost of a day of delay in the contract documents. As has been discussed, there are at least eight different methods of calculating extended field office overhead, a typical element of delay damages. It is recommended that the owner, their design professionals and their legal counsel consider this issue during the design period select a method and carefully craft and include the method in the contract documents prior to bid.

31. Bramble, Barry B. and Michael T. Callahan, Construction Delay Claims, 3rd Edition, Aspen Publishers, New York, 2000.