

## PRICING

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### General

This section will deal with the approach to pricing for changes, delays, labor impact (loss of productivity). It will discuss discrete pricing, as well as other methods such as total and modified total cost, jury verdict, measured mile (and earned value), and the various industry studies which are used to support the contractor's claim for additional cost. At the outset, two major points to be made, one to the owner and the other to the contractor:

- **To the Owner.** The concept of an equitable adjustment in pricing changes and delay damages for which the owner is responsible is that the contractor is entitled to be made whole, meaning to be in no better or worse profit position after the change as before. The contractor's price must be fair and reasonable, but if it is, it is a terrible practice with very negative consequences on a project for the owner to just try to beat down the contractor's price for the sake of doing so or getting something for nothing. The owner has a duty to be fair and reasonable and change order pricing is often the litmus test as to whether he meets that standard.
- **To the Contractor.** You have a duty to provide fair and reasonable pricing to the owner and not overinflate your price. But remember this as well. *You have the duty to prove your costs, to document your costs through accurate field and labor cost records. The owner doesn't have to accept your price without an adequate testing of the basis for it. And certain contracts, such as Federal or cost reimbursement type, may have audit clauses which provide that you can withstand an audit of those costs maybe years after they were incurred.*

And another point to be made when it comes to disputes regarding labor productivity claims, for example: the owner will normally challenge the validity of the contractor's original price. And the contractor **must be able to defend its estimate**. This will be discussed in more detail subsequently.

### Agreement on Pricing Methods

It is helpful to have agreements on pricing methods in advance. For example, the use of units prices eliminates time and conflicts. Agreement on pricing guides, such as NECA and MCAA, or RS Means will also facilitate the pricing process. These agreements can be reached in the job set up phase (Partnering or Pre-Construction Conference) and even include factors for impact due to overtime or other interferences with the prosecution of the work.

Many studies have shown that Trust is a key element of successful projects and the sock turned inside out - Distrust- is the formula for an unsuccessful project. **In so many instances trust is eroded because of conflicts involved in the change order process, where the owner feels the contractor is screwing him and the contractor feels the owner is trying to get something for nothing. So change order pricing is more than just getting to a number – it can actually frame the quality of the relationship between the parties.** My guess is that the owner’s perception that he is being “gouged” on change order pricing is one of top three reasons for distrust of contractors.

### **Read the Contract.**

The contract may (and usually does) have various constraints or requirements regarding pricing and so it is important to **RTC**. These will be more fully detailed, but to illustrate the contract may have a No Damages for Delay Clause, or cost limitations or unallowability such as home office overhead (Eichleay). A frequent dispute concerns pricing field supervision in delay damages claims caused by change orders: the owner will claim that these costs are included in the markups on the change orders and the contractor will claim that the factor was only to manage the change order and not the additional time on the project caused by the change orders. In cost reimbursement contracts, make sure your costs are consistent with the Allowable Costs section and are auditable.

If this is a negotiated contract or one in which you can amend through your proposal, you may very well have identified exclusions or conditions, such as who provides hoisting, or storage areas, or limitations of working overtime, etc. The scope letter, if incorporated into the contract, is another very important document to review and consider as a prerequisite to pricing a change both from the standpoint of scope, exclusions, and pricing approaches.

### **Pricing Change Orders**

The first order of business in pricing change orders is to develop a *statement of work* to accomplish the changed work, and to obtain agreement on what is required to perform that work. Many negotiations break down because of a lack of common understanding (and proof) of what activities are actually involved in accomplishing the work. So our recommended best practice is to develop a “*planned versus actual*” scenario of the steps involved in the performance of the change order.

<b>Activity</b>	<b>Planned</b>	<b>Actual</b>
<b>Changed Work</b>		

Status of existing work at time of change      Describe

Describe

Space

Interferences

Congestion

Weather

Site access

Attempting to comply with drawing deficiency

Equipment (installed)

Equipment (rolling stock, needed to install)

Tools

Material (Installed)

Availability

Material (expendable, fungible)

Material Handling

Work Force Size

Other Labor Issues

Degree of difficulty

Means and Methods Affected

Change of composition

Learning Curve

Labor escalation

Overtime

Shift work

Manpower availability Factor

MCAA Labor Factors

Work Force Movement

Stop and Go

Stand-by

Integration with other crews

Supervisory Ratio

Additional field support (schedule, etc)

Duration to perform work

Work flow or sequence

Contract schedule impact

Rework Required

ROP or Earned Value

Material / Equipment cost

Escalation

Restocking

Inspections

Clean up

## **Unchanged Work**

Other Trades Affected

Nature of Effect

Congestion

Material Handling

Delays/stop and go

Duration of task

Work Flow

Interferences

Learning Curve

Crew Size

Delay to contract schedule

Variance in degree of difficulty

Inspections

Clean up

Subcontractor Quotes (Analyzed by the general contractor)

## **Pricing Labor Impact or Loss of Productivity**

**1. Sources of Labor Impact Claims.** Most labor impact claims result from:

- a. Constructive Acceleration.** A constructive acceleration is where the contractor is entitled to and proves it is entitled to a time extension due to an act or

omission of the Owner which has affected the critical path, and that request is denied by the owner who holds the contractor to the original contract schedule, and then the contractor responds by adding manpower, overtime, etc. This is the most common reason for a labor productivity claim.

- b. Work Flow Changes.** The schedule will show a given sequence or work flow to building the project. For example, assume that there are three buildings on a site, each with three stories, and the schedule shows that the layout, rough-in and finish crews move from Building one to Building Two to Building Three; that is that the layout crew completes all three floors and then moves to Building two followed by the rough-in and then the finish crews, and then on to Building Three. Because of changes to the buildings, the layout crew cannot complete floor 2 of Building One and proceeds to Building Two where it can only go as far as half way through floor one and then back to Building One to complete layout of floor 2 and then goes to building three to begin layout of floor one. (Yes, an actual project and it got worse.) So instead of a planned flow of work which would be productive because of learning curve and other advantages, the job became a checkerboard with crews hop, skip and jumping back and forth all over the place. We often see this in large projects where the planned sequence goes to hell and the craft contractors hopping all over the place depending upon what area is available to them. And then general contractors or owners will tell the subcontractors: “Well, always have place to work, so what is the big deal?” Sure, but at what price?
- c. Suspension of Work** which can be directed or constructive. If a work activity cannot be started while the owner takes an unreasonable time to issue a directive in response to an RFI or to proceed in response to changed work, then that is a “constructive suspension” and is compensable assuming the contractor has complied with the notice requirements of the contract. Often, where there is a suspension of work, the contractor may be faced with holding onto a crew instead of laying it off or sending it to another project. Or moving it to another work activity where it will integrate into another crew, which within itself is non-productivity. The decision to hold on to a crew or to use it in such a manner which may reduce productivity is a business one belonging to the contractor, but it must be a reasonable one under the specific circumstances.
- d. Multiplicity of changes** where the accumulation of changes results in a major alteration of the flow of work, or any change which has a substantial impact on the flow of work on a project.
- e. Substantial project delays** which in effect cause the contractor to “**rubberband**” its work force, or to stand by for lengthy periods awaiting decisions from the owner.

- f. **Differing site conditions.** These occur at the front end of the project, and often time extensions are not granted or even requested for some period of time, and the contractor is faced with trying to make up the lost time associated with dealing with the changed condition. Because these are often front end delays, the finishing crafts (MEP) are sometimes not aware of the delays and by the time they mobilize the project is already significantly behind schedule and the subs blindly work to the original baseline schedule with the contract completion schedule and so they begin in an accelerated mode day one. A reason for the subcontractors to check and double check those CPMs to make sure they have reasonable durations and real logic, not manipulated logic.
- g. **Late start and no contract extension is the perfect storm.**

2. **Methods of Pricing.** Loss of productivity is one of the most difficult pricing elements to negotiate or to succeed in fully collecting in a negotiation, mediation or judicial proceeding. *The following are approaches which are used with varying degrees of success and will apply to labor impact pricing of change orders or schedule impact claims due to acceleration or any other reason.* **At the outset, it should be stressed that there is direct correlation between the quality of field documentation (daily reports, schedule updates, labor cost reports with earned value), the ability to defend the quality of the contractor's estimate for the project to show that the or the work in question is not just underbid or due to poor management and a successful outcome of a negotiation.**

- a. **The contractor's estimate should be able to demonstrate that *areas of difficulty* have been taken into consideration, such as (using the NECA checklist is recommended):**
  - i. **Building height (ten story buildings have a lower productivity rate than three story buildings, for example)**
  - ii. **Ceiling height**
  - iii. **Space issues**
  - iv. **Site access and other material handling problems (both side and movement into structures)**
  - v. **Availability of competent supervision and manpower**
  - vi. **Consideration for tightness of schedule (with the trend of schedules becoming more compressed, this is a very important consideration)**
  - vii. **Concurrent operations; doing work in existing functioning facility**
  - viii. **Completeness of drawings at time of contract**
  - ix. **Contract clauses moving risks to the contractor**
- b. **Proof of required pre-bid site investigation and that reasonably discoverable conditions were noted and taken into consideration in contractor's estimate.**

**3. Actual Cost.** Actual, auditable (but reasonable) costs are always preferred over estimates or factors. For example, if small tools are presented as a factor of labor, don't be surprised if those costs are challenged and perhaps disallowed without further proof of the actual costs of small tools. But also remember, although you may be able to prove actual costs, you must also be able to prove those costs were **reasonably incurred.** *This is the reason to establish a cost code for changed work even if it is disputed. In the event of a dispute, have time sheets signed by the representative of the owner or general contractor if you are a subcontractor (not that there is an agreement that you are owed the money, but that you spent it for this particular item of work.)*

a. **NOTE:** In computing field productivity impact, make sure that only field labor is included in the computation. For example:

- i. Do not include off site costs such as a sheet metal or piping shop (unless somehow those operations have been affected)
- ii. Do not include general condition costs, such as secretary or other administrative personnel, unless it can be demonstrated they have been affected and "time carded" to the project.
- iii. Other personnel such as quality and safety personnel may or may not be affected by the events which caused the impact to field personnel and should be careful consideration before being included in the labor computation for productivity impact.
- iv. It may be that the contractor can claim the impact to the project has affected the productivity of the field supervisory personnel and occasionally such claims are pursued successfully, but these personnel should be extracted from the field labor for purpose of calculating a productivity impact claim, and priced separately

b. **Accuracy and Credibility.** And when I speak of accuracy, let's make sure also that work is *properly cost coded, that re-work can be tracked.* And when there is no correlation between schedule of values and payment requests, and actual cost, there is a problem. And check and double check your mathematical calculations; the other side is just looking for such errors so it can say: "Well, if you can't get those simple numbers correct, then how can I place any credibility on the rest of your figures?" In a multi-million dollar claim involving a pumps storage project, the contractor's attorney began making a presentation with a list of unpaid changes. As he enumerated each change, the owner's representative would say: "Pardon me, but that change has already been paid, and here is the documentation". After about four such instances, the attorney's client "just lost it" and asked to have a recess. After the recess the attorney was not present and the claims were settled quickly at an amount much reduced from that which had been claimed. And yet those

first few items on the attorney's list only amount to a few thousand dollars versus the multi-millions being claimed on other issues which had validity. But the mistakes and failures to check his facts by the attorney (and one with an excellent reputation at that) just sucked the oxygen out of the contractor's side of the negotiation table, created a real embarrassment and a self-defeat.

4. **Cause and Effect.** This will be repeated, but it is worth doing so. The contractor must always demonstrate the causal relationship between the act or omission of the owner and the cost that is being claimed. It is another way of saying **BUT FOR** what the owner did or failed to do, this consequence would not have occurred. That is the essence of causation which the contractor has the burden of demonstrating in any claim.
  
5. **Discrete Approach.** The discrete approach basically prices labor and labor impact on something of a **quantitative basis**, instead of using industry studies and more subjective approaches. The following are examples:
  - a. **Isolating the factors which have caused a decrease in labor productivity and pricing them. To illustrate:**
    - i. **Let your daily records tell the story.** Daily reports can capture: when a crew is stopped, where it is stopped, for how long, when it was demobilized and where it remobilized. And then later when it demobilized from the new location and returned to the previous one. So one can get crew size, times involved in stopping and movement, standing by, the crew(s) into which they may have been integrated or the new work they were performing. List the factors being encountered which affect productivity (such as overtime, congestion, crew sizing, temperature and weather, movement, work flow and sequence, factors which affect learning curve, etc.)
    - ii. Using an **earned value** approach, the contractor can demonstrate the unit cost before and after the demobilization of the work the change affected and the work activity it then performed while waiting for a change order to be issued or an RFI to be answered. If an earned value system is not in place, the contractor can still, if it has adequate daily reports, determine all of the factors indicated above, determine crew size in the applicable duration, and develop quantities installed in that duration and accurately back into an earned value actually incurred after the change order or event which created the impact to labor productivity.



- a. **Earned value alone is not adequate, however.** The contractor must still demonstrate the reasonableness of its bid or estimated unit price upon which earned value is measured, and then that the reasons for the impact to the earned value is the change order or other act of the owner for which it is responsible. **The contractor always has the duty to prove cause and effect, that is, that the cause of the contractor's additional cost is due to the act or omission of the owner and not an estimate underrun or a management problem the responsibility of the contractor.**
- b. **So the calculus for earned value is: my bid price was reasonable and took into consideration risks of difficulties; when there were not interferences or disruptions on the project, we met pretty closely our estimated units; there were events which then occurred which were the responsibility of the owner and as a result of those events (and nothing we did improperly), our performance as negatively affected, all as demonstrated by our daily records.**

**b. Measured Mile.** Earned value is really a measured mile approach. Normally, the earned value is associated with a given cost code or work activity. In the case of the measured mile, it is often that due to a change order or a multitude of them or other interferences that many of even most of the labor activities are adversely affected. In these cases, the use of the measured mile is appropriate. The contractor will determine an area of the project or duration in which the work was not negatively impacted by the change order or other interference. It will then measure the rate of productivity for that duration (for example, it may determine that it achieved a one percent gain for every 1000 manhours); then it evaluates the duration in which the change orders or other interferences were occurring to determine the extent of change in productivity. For example, in the impacted area, he may determine that for every one percent gain in progress, that it now took 1500 hours, or a 150% impact to productivity. Although this is accepted and often used, it is fraught with difficulties:

- First, the contractor must still prove the accuracy and reasonableness of its estimate
- Second, it must prove causal relationship, that is that the reason for the increase in cost of production is due to factors the responsibility of only the owner. In all claims, the contractor has a

duty to **have clean hands**, to be able to prove that **I did it right** that I did not contribute to these problems. **Causal relationship is the name of the game, to prove the increased cost was caused by the owner. That is the essential offer of proof by the contractor. The role of field documentation is not diminished by using an earned value approach.**

- And then, what tool does the contractor use to prove the measured mile? If he uses the progress billings, each pay period has a different mix: you may find a great deal of equipment in earlier pay periods and higher labor in the middle and latter part of the project. So to have apples and apples, the contractor must analyze equipment and material and extract those items of cost to be able to compare labor to labor. But then what if the contractor has significantly overbilled in the front end? Does he have a credible tool for developing the measured mile? The updated CPM can also be used to demonstrate measured mile if, and that is big IF, the baseline schedule was adequate, it was updated prudently and the logic has not been manipulated.

**6. MCAA Manual.** The MCAA Manual has 16 labor factors which have been recognized as having validity by various Government Boards and venues. Several cautions: in the private sector, owners don't give great credence to these; second unless supported by field documentation (daily reports which support the fact that these factors actually occurred with some indication of the effect), the use of them is often a waste of time, except as one other utensil in the kitchen sink to add to your claim. It gets back to field documentation: the contractor will seldom win just on the basis of an industry study without field support. It is best to provide the field documentation as the main thrust of your claim and use these studies and pricing guides as simply a supplement to provide some level of credibility: "See, MCAA studies also show that crew size can affect productivity." To me that is the main value the MCAA study has, but it is frequently used, so here goes. This is the MCAA list of factors and their potential impact:

<b>Factor</b>	<b>Minor</b>	<b>Average</b>	<b>Severe</b>
Stacking of Trades	10%	20%	30%
Morale and Attitude	5%	15%	30%
Manpower reassignment	5%	10%	15%
Crew size inefficiency	10%	20%	30%
Concurrent operations	5%	15%	25%
Dilution of supervision	10%	15%	25%

Learning curve	5%	15%	30%
E&Os	1%	3%	6%
Beneficial Occupancy	15%	25%	40%
Joint Occupancy	5%	12%	20%
Site Access	5%	12%	30%
Logistics	10%	25%	50%
Fatigue	8%	10%	12%
Ripple	10%	15%	20%
Overtime	10%	15%	20%
Season and Weather change	10%	20%	30%

There are so many other factors which may be affecting productivity that must also be considered, for example:

- Personnel turnover
- Personnel absenteeism
- Inadequate planning and scheduling
- Workmanship
- Competency of work force
- Competency of supervision
- Adequacy of tools and equipment

And unless taken into consideration, and defended against, the MCAA list above is rather meaningless. Factors such as the MCAA guide may be of great supportive value, but one should be very wary of giving too much credibility to them as a real basis of proving labor impact in a vacuum. That is, the contractor must still prove entitlement and through field documentation the relationship between the cause of the resultant labor impact. Just alleging it may not be a basis for recover. For example, we have many situations in which selected overtime actually improves productivity instead of having a negative impact. And in some areas, the fall of the year means hunting season, resulting often in greater turnover and absenteeism, which are the death knell of productivity. So if a contractor is claiming lost productivity in that season, it may be called upon to defend against the Owner's defense that his losses were due to deer season and not those changes as depicted by the contractor.

## 7. Total Cost Approaches. Two cost approaches are used

- **Total Cost Approach.** This is the most disfavored of all approaches. Basically, the contractor says: My contract price was \$1,000,000; my budget was \$850,000; I spent \$1,200,000 so I want \$ 350,000 or the difference between my budget and my actual cost. One of the quickest ways of having a claim denied is to use the total cost approach. The reason is because, as contractors themselves will tell you, it is rare that everything they do is the way it should be done, mistakes are made, there may be turnover or absenteeism, workmanship problems, et al, that have affected the job and not the responsibility of the owner. **However**, in spite of the fact that owners may not honor a total cost claim, in a major impact claim, one of the first things an owner will do (and always the federal government) is to audit the total cost of the contractor and compare with the estimated cost. So, it is not an accepted method of proving a claim, especially a labor productivity claim but just remember: the probability is that the owner itself will begin by evaluating it on a total cost basis. I have seen it used with 100% success on one occasion: the contractor's consultant stood up at a mediation and said simply "My contractor did it right. He did everything he had a contract duty to do and he did it right. There is not one document that says anything different. The owner issued a ton of changes, was late in responding to most of the RFIs and many of the submittals. My contractor did it right. The owner didn't. We expect to be paid every cent we have claimed." And sure enough that was the outcome! But the operative words were "did it right" which is a statement so few contractors can make at the end of a project.
- **Modified Total Cost.** This is the same concept except that the contractor analyzes all of its goofs (including bid mistakes, workmanship errors, et al), prices them and deducts from its total cost. The theory is that using this approach protects the owner from paying the contractor for costs which are not his responsibility. However, for this dog to hunt:
  - **The contractor still must prove the accuracy and reasonableness of its estimate.**
  - **The contractor still must prove that the owner has done or failed to do things which have contributed to the additional cost incurred by the contractor; in other words just subtracting the cost of its own goofs is not adequate. The contractor has the burden of proving through field documentation, daily reports, photographs, meeting minutes, schedule updates, and everything else in the kitchen sink**

**that the owner has caused the balance of the problems which created the cost overrun.**

- **And being able to withstand a scrutinous examination of its cost records if audited.**

**8. Expert Witness.** Expert testimony is gaining favor in proving impact claims, both the schedule analysis and the productivity loss issues. It is imperative to obtain the services of one is competent and credible. When a so-called expert manipulates the CPM logic, or otherwise takes liberties with the facts and the truth, for the most part the chinks in his armor will be found by a competent construction attorney representing the opposing side. Chinks in the armor like failing to comply with the scheduling specification, manipulation of logic, failing to properly update the schedule. This can be devastating to his client who might have at least some level of validity to a claim but when his expert is exposed, everything goes down the sink. In a federal case under the Disputes Act, this might constitute a False Claim with very serious sanctions. The real role of an expert is to be able to objectively and explain to the trier of fact (Judge, arbitrators) the issues, cause and effect so that the trier of fact can have a clear understanding of the issues when making a decision.

**9. Jury Verdict.** A jury verdict is an approach in which the trier of fact listens to all of the facts presented, and then makes up its own mind as to a reasonable figure. The contractor might present its daily and cost records, and an estimate of its damages; the opposing party may counter with its own facts and then the jury or trier of facts just uses common sense and reasonableness to come up with a figure it feels is fair and reasonable. The concept of a jury verdict is accepted but like a total cost claim, the contractor should not rely on this approach as a first resort approach to presenting a claim. In fact, it is the approach of last resort.

**10. The Use of Industry Studies.** There are countless studies involving various impacts to productivity. Many, such as NECA and MCAA are from associations which are largely advocacy group. Many, such as the Corps of Engineers Modification Impact Guide are both ancient and based on projects basing no similarity to most of the structures a commercial contractor would be building (for example, the studies by the COE are based on the development of launch facilities at Cape Kennedy during the 1960 period when we were rushing to beat the Russians to the Moon.) These studies are not dismissed out of hand, but as the MCAA guidelines above, are just that. They provide credibility in that certain events can indeed have a negative impact on productivity, but each project is different, by different contractors and labor forces. We know that adversarial projects will tend to escalate the impact of factors which have a negative impact on productivity and that collaborative projects have a tendency to mitigate against those

factors. So, to be successful, it is **this project** which must be evaluated, the facts and circumstances associated with **this project**. Contractors which take a cavalier approach to maintaining adequate field documentation, updating schedules on a timely basis, and having mechanisms for identifying and measuring impacts to their performance will generally pay a price for failing to do so.

**11. What Can You Throw on the Barn Door and Make Stick?** So many articles on proving lost productivity are either very scholarly or present dozens of studies on the subject by university professors or consulting groups. And these studies are very interesting and yet so many owners and their representatives are not moved by them. Lawyers may be successful using them in court, but that is not where we want to end up. We want to try our best to negotiate and resolve things by the principals and not a judge, jury or arbitrator. Our approach is to be able to substantiate with hard data the basis of the impact to labor productivity. It may not be 100% but enough accurate and credible field data to support your position. Then you can supplement with the studies. ***The contractor's estimate does not have to be mathematically certain or precise. (Ask your lawyer to pull out the Wunderlich case). It must be based on factual and legal data which proves you are entitled to damages, and that the cost you claim is a reasonable consequence, based again on field documentation, of that entitlement issue. The more you build that foundation with facts, the closer you come to a reasonable resolution. And here is where you must be able to defend your own actions, your own project management and supervisory competence, quality workmanship, supply chain management.*** The strategic question is: do you want to have the excitement of litigation or do you prefer doing your job right, documenting and giving timely written notice enhancing the probability of resolving things among the parties by a huge percentage. It is really a leadership decision, a strategic decision. When the field is failing to perform is project management duties on a proper and prudent basis, I start looking at the leadership of the company before I come down on the field.

**12. Impact on Other Projects.** If interferences and delays are very substantial on a given project, and ultimately requires moving resources from a second job to it to be able to perform, that second job's productivity may be affected adversely. But normally, the impact to other work is not compensable. Nor is loss business opportunity, although there are cases in which these damages have been awarded. In a breach of contract scenario, these are more likely to be considered valid damages, but you really need to discuss with an experienced attorney before you make the claim or get your hopes up. If the contractor is claiming these category of damages, it normally means it is headed to court.

**13. Duty to Mitigate Damages.** Actually, in the concept of fairness, each party has a duty to mitigate damages. Let's look at some for instances:

- The Owner's failure to select the equipment for the OR and ER rooms causes a two month delay to the crews performing that work. So the contractor, in order to maintain the experienced crews and fearful that if he lays them off or sends them to another project, he will not get them to return, holds onto the crews who have little else to work on. Is the contractor entitled to be recompensed for the lost productivity of the crew? Obviously, this is one which might go either way. Let's take extremes: what if the delay is one week? Obviously, it is prudent to keep the crew available. What if the delay is six months? Obviously, that would be excessive. The contractor is entitled to make a reasonable business judgment based on the facts of the case, including the size of its labor pool, other work on this project these people could have been assigned to, the ability to get the crew back or other resources of similar competence. The same reasoning applies for the contractor's on site equipment.
- The use of overtime can be non-productive . . . or not, or not so much. The foremen and superintendents, through effective planning and positive attitudes can influence the impact of overtime on productivity to a considerable degree. So when it is necessary to add overtime it normally means the job is in trouble. Instead of just throwing manpower at the project or adding countless hours of premium time, the first step is to develop a sound recovery schedule, and then effectively plan each day's work to overtime is used judiciously. One of the reasons that we see overtime having such an erosive effect on productivity is that the planning has gone out of the window, work flow has become work explosion with manpower running everywhere there is something that can be done. The disciplined, well planned recovery schedule can significantly benefit the project and the contractor's productivity.
- The Owner refuses to conduct an inspection for substantial completion because the contractor's punch list has not been completed, and includes such things as repainting several walls which have been damaged by other trades, several as-builts which have not been submitted, and the completion of TAB in a small area of the project. Obviously, the contractor has an obligation to complete its work, but as substantial completion is defined being able to use the facility for the purpose intended, the question is do these open items affect the ability of the owner to use the facility as intended? If not, the owner should mitigate the contractor's potential damages (liquidated damages, and delay to general conditions). However, the doctrine of mitigation of damages does

not mean that the owner must waive explicit contractual requirements .For example, if the contract requires duct to be high pressure and the installed duct is less than 2500 fpm (low pressure), the contractor can not beg off its duty to provide high pressure duct on the basis that the Owner should mitigate its damages.

## **DELAY DAMAGES**

The causes of delays and proof thereof, together with compensability, are discussed in a separate article.

- a. **Read the Contract (RTC).** The first step is to read the contract to determine what **limitations of cost** may be set forth, such as:
  - i. **Home office overhead**
  - ii. **No Damages for Delay or Loss of Productivity**
  - iii. **Interest**
  - iv. **Attorney fees**
  - v. **Consequential damages (such as impact to other projects, or loss of business opportunity)**
- b. **Do Not Include costs which are your responsibility or which are not allowable under the contract. It affects your credibility and could be a crime on federal and state contracts.**
- c. **Remember that your obligation is to prove a delay to the critical path that was caused by a compensable act or omission by the owner.**
- d. **And remember further that a delay damages claim is for “time sensitive” activities, not one shot activities. The following categories of cost should normally be excluded from the calculation of delay damages, as an example:**
  - i. **Permits**
  - ii. **Job set up (initial mobilization) and final demobilization**
  - iii. **Preparation of initial plans, schedules. Updating would be time sensitive**
  - iv. **Temporary facilities**
  - v. **Hook up of services (electrical, etc)**

**14. The categories** of delay damage cost are set forth below. Generally, delay damage costs are related to those field costs which are treated as such in the contractor’s generally accounting system. **And the contractor must be consistent in its practices.** For example, if the contractor typically treats project managers as overhead cost, then just for the purpose of this claim, it cannot successfully treat such costs as direct costs for which it may be remunerated as a component of delay damages. If the cost of tools and equipment are typically collected in a home office account, then the same is true. For purpose of this one claim, the contractor is normally not allowed to switch those



costs to a field cost account. If the contractor has a system which provides for time sheeting or coding of the project manager or other typically overhead costs to a project when actually performing work on that project, then the cost may be taken into consideration in a delay damage claim.

- a. **On site supervisory and clerical costs.** (Note again, if the project manager time sheets for his/her time when working on that project, and that is the generally accepted accounting practice of this company, then it may be appropriate to include in the delay damage calculation). This would include quality and safety personnel, engineering and scheduling personnel; job site security; on site warehousemen janitorial and trash pick up services. But if foremen are charged to labor, then normally their calculation goes into the labor pool, to be discussed.)
- b. **Job site facilities,** such as trailers, office equipment, mobile phones, computers, and so forth.
- c. **Pick-ups other on site support equipment** (to be discussed)
- d. **On going utilities (for the contractor's facilities and if the contractor is providing temporary utilities and heat for the facility while under construction.)**
- e. **Small tools and consumables**

## 15. Special Issues

- a. **Duration to which the contractor is entitled to delay damages.** When there is a delay to the critical path, extending the completion date of the project, the contractor is entitled to those damages permitted under the contract for the delay. The question is, what is the period of delay? Often, the position is taken that the duration of the delay is the period after the original contract completion date. However, normally the contractor's site overhead will be higher in the middle regimes of the project and taper off at the end of the project, so this method would shortchange the contractor. The following methods of calculation are used:
  - i. **Daily Rate.** In this method, the total job site expenses are added up and divided by the number of days expended, resulting in a daily rate to be applied to the number of additional days added to the contract schedule. So, if the daily rate is \$1000 and the contract is extended 30 days, the contractor is entitled to \$30,000.
  - ii. **Period of disruption or delay.** Using this method, the contractor is able to isolate the period of delay (let's assume that the MEPs are not able to perform layout and installation work inside the building for 30 days due to the roof being incomplete and water infiltration issues. This time zone can be pinpointed, and the job site overhead expenses incurred for that duration. This would be cause and effect pricing for delay damages: the

cause being the issue which delayed the closing in of the building and the effect the job site expenses that kept running during that period. And on the other hand, if the project is delayed 30 days at the tail end because of some minor issues the responsibility of the owner, then it again would be easy to allocate the expenses incurred during that discrete period. The problems arise when there are multiple causes of a delay and they occur sporadically throughout the project. This is the reason that updating the schedule on a routine basis as previously discussed, is important to be able to determine not only the impact to the critical path, but when the delay(s) were occurring.

- iii. **Concurrent Delays.** The schedule analysis should be able to demonstrate those delays which are concurrent or parallel so the contractor will not include in its delay damage price the job site expenses occurring in a block of time for which the contractor is responsible.
- b. **Contractor's Owned Equipment.** The contractor is entitled to be reimbursed for equipment it owns or rents for the prosecution of the work as a part of its delay damage claim. **It is recommended that the contractor maintain a log of rented and owned equipment listing the description and usage and a notation for down time (standby) with a note as to reason (repair, owner issues, job conditions). And if equipment is added, the log should make note of the reasons therefor.** The availability and condition of equipment can have a real effect on productivity. **An owner defense often to a productivity impact claim is that the contractor's equipment was in such bad repair that it resulted in the productivity issues encountered by the contractor.**
  - i. **Rental Equipment.** The rental agreement, invoices, payment evidence should be sufficient. However, as most equipment is rented "dry", the contractor should maintain a code for operation, including fuel and oil, maintenance, and operation.
  - ii. **Contractor Owned.** It is wise to obtain agreement (often in the contract documents or in the contractor's scope proposal) as to the method of demonstrating the cost of contractor owned equipment. For example, the Federal Government requires proof of actual costs in claims, and there is a similar requirement in cost reimbursement contracts or T&M changes. Yet the contractor's equipment rate sheet, if it has one, may well contain rates in excess of its actual costs. For example, the rates may contain an overhead and profit component, an ownership cost (depreciation) Thus, to avoid conflicts and controversy, agreements as to the source of rates to be used is most helpful, such as **Blue Book** (not favorably looked upon by most owners); **AED** (usually not looked upon favorably by the contractors); **Cost Reference Code**;

**Contractor Equipment Cost Guide; COE Manual** broken down into various regions; are some of the cost guides which are used in the industry.

- c. **Has the Overhead and Profit Percentage (Rate) on Change Orders Recompensed the Contractor for Delay Damages.** On most construction contracts, there is an agreed OHP rate to be applied for change orders. Often the owner takes the position that this is full settlement for general conditions as to the change order and any delay it may have caused. The contractor argues that the percentage only includes general conditions necessary to manage the change order, not a delay of the entire project. As a matter of practice, when the contractor charges a daily rate and then deducts the amount of overhead paid on change orders, it would seem that this is pretty fair all the way around. Remember, if the contractor's delay is the responsibility of the owner, he should be made whole, as to direct costs which includes general conditions. As long as the amount claimed, by whatever formula, does not exceed this amount, should be given reasonable consideration.
- d. **Escalation.**
- i. **Material.** Prove the budgeted material cost from estimate, quotes and purchase orders. Then prove that the purchase of the material was delayed which resulted in increased cost, and that the owner is responsible for the delay. And that the contractor was prudent in not purchasing the material earlier before the escalation of price.
  - ii. **Labor.** To calculate wage escalation (assuming that it exists on a project – this is more often than not found on union projects where union security agreements specify wage hikes at given points in time, but it also occurs on non-union projects of durations of a year or more) the contractor first prepares a manhour curve based on its estimate and/or schedule of values. It then develops an average wage rate which it applies to the different durations where that rate applies; for example, the first year the AWR may be \$25.00 and hour and 10,000 hours were scheduled to be performed during that period. The second year the AWR jumped to \$30.00 and hour and 10,000 hours were scheduled to be performed (and of course, the contractor must document those wage rates through an internal company document if a union security agreement is not the basis). Now, we find that in the first year, there were significant delays, resulting in 5,000 hours being shifted into the second year. The contractor, if it can demonstrate through a schedule analysis the validity of this position, is entitled to claim a \$5 an hour escalation for 5000 hours. And all change order hours after the first year would bear a wage rate of \$30 and hour, of course.

- e. **Home Office Overhead:** Many contracts do not allow home office overhead (G&A) as an allowable cost items. And the Eichleay formula is a tough one to succeed on. The Eichleay formula is a calculation for recovering unabsorbed or underabsorbed overhead due to a suspension of work (possibly a delay but the original concept was a suspension) when the contract was not absorbing its share of overhead. The Eichleay formula will be the subject of a separate article.

### **Variations in Estimated Quantities**

Often contracts will have unit prices which enable the contractor to be paid simply by multiplying the unit price against the actual quantity. The unit price is based on a learning curve theory, that is, the more you produce, the cheaper the price, the fewer you produce, the higher the price. So most contracts, including the Federal Government, provide for an adjustment to the unit price based on the quantities being more or less than the estimated quantity in the contract. The Federal Government's clause provides for a 15% swing either way. As a note, if the quantity change is due to a differing site condition, the contractor may use that as a vehicle for pricing the quantities. And another note, even if the actual quantities remain within the 15% swing, but the owner's acts or omissions impacts the contractor's productivity in a negative way, the contractor is entitled to an adjustment in the unit price.

## **OWNER DEFENSES**

The Owner has two categories of defenses: **contractual clauses and legal defenses**, and **performance defenses**. These are itemized below:

### **Contractual clauses and Legal Defenses:**

- Failure to provide timely, written notice
- Failure to demonstrate that change is out of scope of contract
- Failure to demonstrate entitlement (that the owner has liability for act which caused damage to contractor)
  - Failure to demonstrate delays are compensable under the contract.
- Accord and satisfaction
- Disclaimer and exculpatory clauses
- No damages for delay clause
- Cost limitation clauses
- Failure to demonstrate cause and effect
- Failure to demonstrate impact to critical path in delay damage claim
- Concurrency of delay
- Parallel delays
- Release of claim in payment request
- Waiver

### **Performance Defense**

- Estimate too low; failed to consider degree of difficulty
- Failure to perform effective baseline schedule as required by contract
- Failure to update appropriately as required by contract
- Failure to plan
- Failure to coordinate
- Failure to be cooperative
- Incompetent project management personnel

- Incompetent supervisory personnel
- Work force issues
  - Competency
  - Quantity
  - Absenteeism
  - Turn over
- Safety issues
- Workmanship Issues, including meeting required tolerances.
- Tools and installation equipment in disrepair
- Supply chain issues (submittals, late deliveries, incorrect equipment)
  - Ineffective material handling
  - Failure to comply with manufacturer's recommendations
- Timely response to change order pricing and negotiation
- Failure to maintain progress
- Failure to meet contractual milestones
- Inadequate safety program
- Failure to perform contractor inspections on a timely and competent basis; failure to complete punch lists on a timely basis.
- Failure to submit close out information on a complete and timely basis
- Failure to keep site clean and safe
- **Special Issues Relating to Subcontractors (to be discussed fully in separate article on Subcontractors)**
  - Flow down clauses
  - "As Directed" clauses
  - Overreaching Indemnity clauses
  - No damages for delay
  - Ambiguous and incomplete specifications
    - Ambiguity as to duty of subcontractors who have no design responsibilities but where the general contractor is a design build contractor.
  - Protection of its work
  - Clause providing GC not responsible for damages caused by another subcontractor

- Clause providing that subcontractor has a duty to work overtime to catch up (even if the sub is not responsible for the delay)
- Pay when paid
- Allocation of backcharges
- Allocation of liquidated damages
- Pay request waivers of claims
- Timely notice (and where often there is a shorter duration for providing written notice in the subcontract than in the general conditions)

### **HONESTY AS NOT ONLY THE BEST POLICY BUT THE ONLY POLICY**

**Let's begin with the Federal Government. The Federal Government has several laws which discourage contractors from filing false claims. One is appropriately named the False Claims Act and the other is the Contract Disputes Act of 1978. Under the CDA a contractor filing a claim for more than a given amount (say \$100,000) must certify – that is swear- that the claim is made in good faith, and that its supporting data are accurate and that the contractor feels reasonably that the amount is owed by the Government. If that claim is false, the contractor does not pass go or collect \$200; he may actually not only forfeit his right a claim but his freedom as well. Many states have similar laws. So, just don't even think about playing games with those claims, either as to entitlement or cost. There have even been lawyers and claims consultants barred from presenting claims on behalf of their clients because they "played games" on behalf of their clients. Just don't do it!**

**In the private sector, there may not be such laws and a contractor may be able to get away with such game playing in negotiations. However, when claims goes further, often even at the mediation phase, the owner often has experienced consultants and attorneys who have the expertise to determine whether or not the entitlement issues are real, and whether the supporting pricing data is accurate. There is nothing more embarrassing than to have this pointed out in a mediation or in court. So, just don't do it. It is one thing to have reasonable men differ about interpretations but another things to**

**intentionally present inaccurate or incorrect information, or to knowingly submit a claim which has no justification.**

**And as an after thought, your attorney and consultant must play the hand they are dealt. Don't expect that they are going to recover for you more than you are entitled to and are able to demonstrate through your job site records and credible testimony of your witnesses. In a separate article, entitled Alpha to Omega, every step of the claims process will be set forth. It is a guideline for putting together a claim, working with and managing your construction attorney and consultant. (Yes, "*managing* your construction attorney and consultant". A patient needs to learn how to manage his own physician, through knowledge and questions and the same is true for managing all professionals.)**