فرآیند جامع آنالیز تاخیرات در پروژه

بخش یازدهم:
آنالیز مالی تاخیرات

آنالیز خسارت وارده به پیمانکار (Compensation)

ارائه دهنده:

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What we will learn?

- Delay damages to the contractors
- Types of delay damages to the contractors
  1. Extended field costs
  2. General overhead (home office overhead)
  3. Inefficiency or lost productivity costs caused by delay (Disruption Analysis)
  4. Acceleration costs
  5. Other categories of delay damages

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Delay Damages To the Contractors

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Introduction

- Most contracts deal with 3 types of delays:
  1. Un-excusable
  2. Excusable – Non-compensable
  3. Excusable – Compensable

!!The contractor could only recover delay damages that is on the critical path!

How much this sentence is true?

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Introduction

- Most contracts deal with 3 types of delays:
  1. Un-excusable
  2. Excusable – Non-compensable
  3. Excusable – Compensable

Remember:
1. ***Critical path delays***
2. ***Non-critical path delays***

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Critical path delays

ASCE Standard ANSI/ASCE/CI 67-17 (Schedule Delay Analysis)

4.7 FOR A DELAY TO BE COMPENSABLE, IT SHOULD BE THE SOLE CAUSE OF DELAY

1. For compensable delay, the delaying event should be the **sole cause** of **longest path delay** **(no concurrent delays compensable)**
   - **Typically**, a delay solely **caused by the owner** is required to qualify as **compensable**.
   - **However**, **third party delay** may be compensable depending on the **provisions of the contract.**
2. For compensable delay, the delay should **extend the scheduled completion date** of the project.
   - *Activities with **float can fall on the longest path** because of schedule **constraints and multiple calendars** (e.g., weekend non-work restrictions),*
   - ***Critical activities** can fall on paths of work that are **not the longest path** (again because of constraints and multiple calendars).*

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Critical path delays

ASCE Standard ANSI/ASCE/CI 67-17 (Schedule Delay Analysis)

4.7 FOR A DELAY TO BE COMPENSABLE, IT SHOULD BE THE SOLE CAUSE OF DELAY

- Delay to **intermediary contract milestones** typically do **not result in additional delay costs**,

  because the contractor would have **been on-site until completion of the project**,

  and as a result, delays to **intermediary milestones are not typically** compensable to the contractor, **even if excusable**.

  - However, **liquidated damages** attached to intermediary milestones by **contract** may be **assessed for failure** to meet each milestone and may be **cumulative**.

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Critical path delays

ASCE Standard ANSI/ASCE/CI 67-17 (Schedule Delay Analysis)

4.7 FOR A DELAY TO BE COMPENSABLE, IT SHOULD BE THE SOLE CAUSE OF DELAY

- In some cases where **multiple subcontractors or multiple prime contractors** are **simultaneously responsible** for delay,

  the **contractor or owner** may **still be able to recover** its costs **split** between the responsible parties ===== *Because this is not a concurrent delay*

  as long as the **claiming party had no fault** or responsibility for delay during the **period claimed**.

  NO CONCURRENT EXISTS

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Non-Critical path delays

- Most contracts deal with 3 types of delays:
  1. Un-excusable
  2. Excusable – Non-compensable
  3. Excusable – Compensable

If <u>excusable delays</u> occur on the projects
And
Even if the delays are <u>not on the critical path</u>

The owner may still need to pay financial ramifications to the contractor
Unless the contract says otherwise!

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خسارت تاخیر مجاز در قانون مدنی

❑ خسارت تاخیر مجاز

- ❖ به صورت کلی و طبق **قانون مدنی (ماده ۷۲۸ آئین دادرسی) عدم اجرای تعهدات طرفین**، در شرایطی که **باعث ضرر (از جنس از بین رفتن مال یا فوت شدن منفعت)** به طرف دیگر گردد، باید **جبران** شود.
- ❖ پس **تاخیری** که به سبب عدم اجرای تعهدات یکی از طرفین اتفاق افتاده باشد، در صورتی که بر روی **مسیربحرانی** بوده و باعث **تغییر زمان پروژه** گردد، هم بحث **زمانی** و هم **مالی** را به همراه دارد و باید جبران گردد.
- ❖ حتی اگر تاخیر **روی مسیر بحرانی نبوده** و **باعث تغییر زمان پروژه نشود** هم میتواند **خسارت مالی** از جنس بهره وری را به همراه داشته باشد.

صرف نظر از مبانی نشریه ۴۳۱۱، آیا قانون مدنی اجازه ادعای خسارت مالی برای تاخیراتی مانند آب و هوا را میدهد؟

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خسارت تاخیر مجاز در قانون مدنی

❑ خسارت تاخیر مجاز

- ❖ در قانون مدنی کشور، **یکی از شروط جبران خسارت** آنست که **خسارت ناشی از عدم انجام تعهد** در شرایطی باشد که **عدم اجرای تعهد مستند به خود متعهد** بوده و **ناشی از علت خارجی نباشد** (برای خارجی بودن باید دو شرط غیرقابل پیشبینی و غیر قابل دفع را داشته باشد).
- ❖ به همین دلیل، **فورس ماژور** که حادثه **ای غیرقابل دفع** و **غیر قابل پیش بینی** است در ۴۳۱۱ شامل خسارت نمیگردد.

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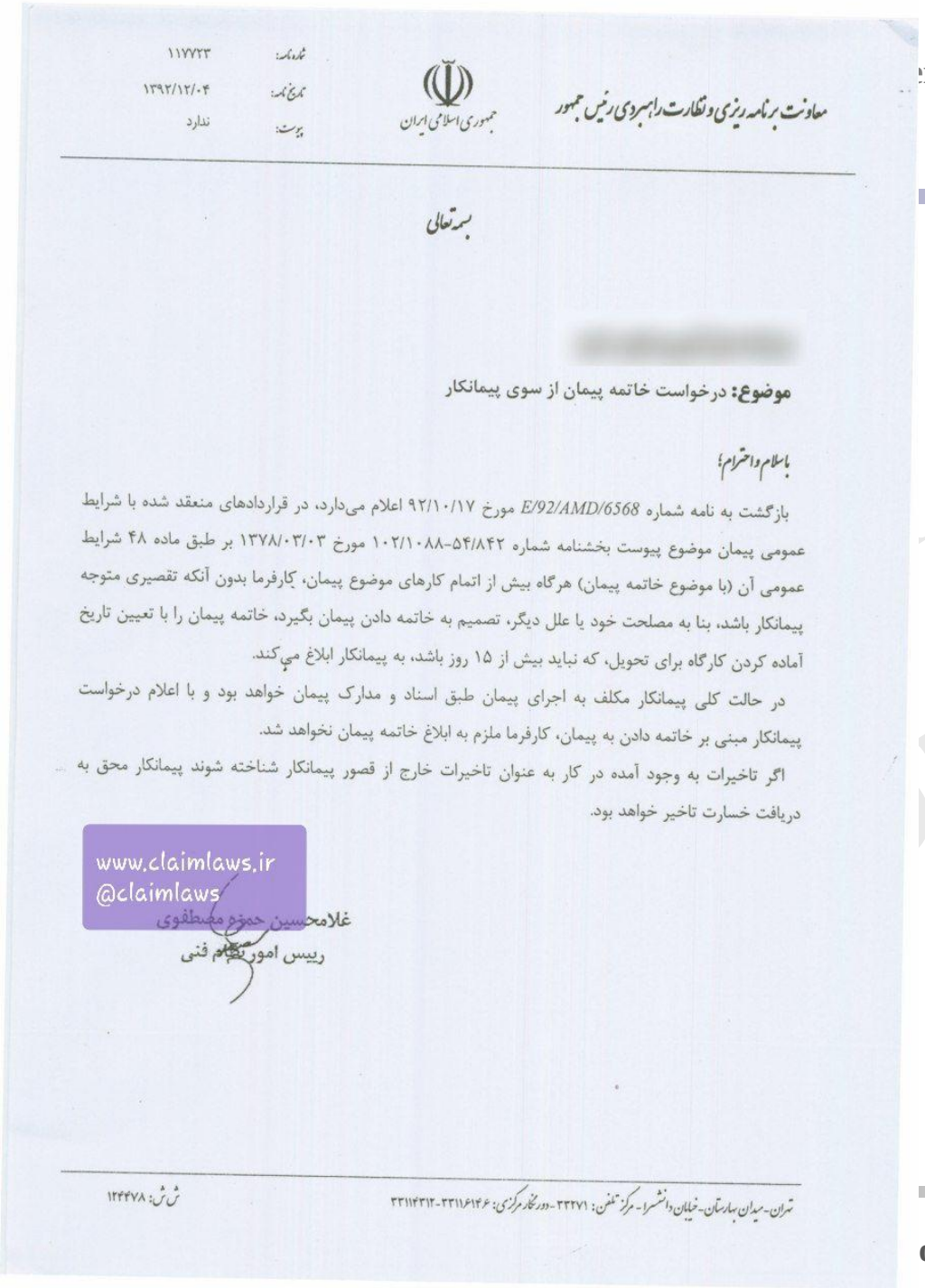

معاونت برنامه ریزی و نظارت راهبردی رئیس جمهور
جمهوری اسلامی ایران

شماره: ۱۱۷۷۲۳
تاریخ: ۱۳۹۲/۱۲/۰۴
پیوست: ندارد

بسمه تعالی

موضوع: درخواست خاتمه پیمان از سوی پیمانکار

باسلام واحترام؛

بازگشت به نامه شماره E/92/AMD/6568 مورخ ۹۲/۱۰/۱۷ اعلام می‌دارد، در قراردادهای منعقد شده با شرایط عمومی پیمان موضوع پیوست بخشنامه شماره ۵۴/۸۴۲-۱۰۲/۱۰۸۸ مورخ ۱۳۷۸/۰۳/۰۳ بر طبق ماده ۴۸ شرایط عمومی آن (با موضوع خاتمه پیمان) هرگاه بیش از اتمام کارهای موضوع پیمان، کارفرما بدون آنکه تقصیری متوجه پیمانکار باشد، بنا به مصلحت خود یا علل دیگر، تصمیم به خاتمه دادن پیمان بگیرد، خاتمه پیمان را با تعیین تاریخ آماده کردن کارگاه برای تحویل، که نباید بیش از ۱۵ روز باشد، به پیمانکار ابلاغ می‌کند.

در حالت کلی پیمانکار مکلف به اجرای پیمان طبق اسناد و مدارک پیمان خواهد بود و با اعلام درخواست پیمانکار مبنی بر خاتمه دادن به پیمان، کارفرما ملزم به ابلاغ خاتمه پیمان نخواهد شد.

اگر تاخیرات به وجود آمده در کار به عنوان تاخیرات خارج از قصور پیمانکار شناخته شوند پیمانکار محق به دریافت خسارت تاخیر خواهد بود.

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ش ش: ۱۴۴۴۷۸

❑ خسارت تاخیر مجاز

❖ چنانچه تاخیرات به وجود آمده در کار به عنوان تاخیرات خارج از قصور پیمانکار باشد، پیمانکار محق به دریافت خسارت تاخیر خواهد بود.

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Calculation of damages

- In the **following sections** we explore the proper use of **several methods** used to compile delay damages.

- **Before** we cover some of the **specific damage components** (material, equipment, and labor costs; labor and equipment inefficiency; etc.), it is important to **better understand** the **basic principles** underlying the recovery of damages.

The calculation of damages must be properly supported by the pertinent Contract provisions and the applicable facts supporting the claim (whether they come from the documents, cost records, testimony, etc.).

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

1. **Carefully review and closely follow the Contract provisions.**
   - A certain measure of risk or loss should be considered if the requirements are not satisfied.

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General guidelines for the presentation and recovery of damages

❑ **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

2. **Avoid frivolous claim items and overstated claim amounts.**

- ❖ Although **some parties believe** you must **start high** and **negotiate down**, **frivolous claim items** and inflated claim amounts cause a Contractor to **lose credibility** and ultimately **delay the process of resolution**.
- ❖ **Contracts often now include clauses** that **classify overstated claim amounts** as false claims, with **harsh consequences**.
- ❖ A **well-documented damage claim** should **satisfy any audit requirements** of the Contract.

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General guidelines for the presentation and recovery of damages

❑ **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

3. **Be prepared to negotiate and compromise.**

   ❖ Just about **any unresolved dispute** involves **shades of gray** and is **not** a case of **black and white**, **settlement** is **seldom reached** **unless** each party is willing and able to **compromise**.

The more supporting documentation accompanying the claim, the more likely a settlement may be negotiated.

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

4. **Carefully evaluate your opponent's ability to settle.**
   - **Many public agencies** are **not in a position** to **negotiate** due to the **need to justify any settlement amount** to others, such as **taxpayers or other agencies**.

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

5. **Support damages based on the verifiable facts, and not one's expectations anticipated prior to the award of the Contract.**
   - **If a Project incurs a loss**, it is the **reasons** for the loss that are being **claimed** with appropriate support and measurement, **not the bottom-line loss**.

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

6. **Summarize your damages within a format that will allow subsequent updates or revisions.**
   - **Especially** if the **quantitative measure** is **not fully available** until a future date.

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

7. **Avoid duplication of claimed costs and calculation or posting errors.**
   - **Cross-check** and **double-check** the calculation as it **evolves over time**.

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

8. <u>Remember the burden of proof is borne by the party submitting the claim.</u>

- The **claimant must produce facts** to **establish** that the damages were incurred as a result of actions of the other party, along with the **measure of the damages**.

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

9. **There is always an obligation to mitigate damages.**
   - **If** certain **damages** could have been **mitigated**, these costs are **unlikely** to be **recoverable**.

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

10. **Generally a claimant's actual costs are considered reasonable when measuring damages, unless proven differently.**
    - However, **actual costs** do **not automatically prove** that damages were incurred as a **result** of the action of the **other party**.

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

11. **The evidence used in supporting damages must be admissible under the jurisdictional rules governing the case.**

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

12. **The evidence supporting your damages is generally more persuasive if it is prepared contemporaneously with the actual progress of the Project, as compared to documents prepared after the fact.**

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General guidelines for the presentation and recovery of damages

❑ **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

13. **Remember to establish a cause-and-effect relationship to the extent possible for each component of damages being claimed.**

❖ You need to show **how you were damaged** as a **result** of the **other parties' actions or inactions**.

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General guidelines for the presentation and recovery of damages

- **Basic guidelines** for the **Contractor** in preparing its **statement of damages:**

14. When feasible, submit your claim for damages using the suggested format of the Owner.

- This process will **lessen** the areas of **disagreement** with the **Owner** about the format and structure of the claim and **keep the discussion focused** on the **content of the claim**.

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General guidelines for the presentation and recovery of damages

Keep in mind that it is a Contractor's responsibility to mitigate damages whenever practical in order to not create damages greater than those reasonably justified under the circumstances.

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Calculation of damages

DISCLAIMER

Although this session pertains to delay damages and actual costs, you should be aware that other methods of recovery may be applicable under varying circumstances.

These methods are usually specified by the Contract, and legal counsel should be used to pursue items such as wrongful termination, total cost claims, modified total cost claims, and jury verdict methods.

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Types of delay damages to the contractors

Types of delay damages to the contractors

- Delay damages are summarized here, although not all may be recoverable.

Extended and Increased Field Costs	These damages include the additional labor, material, and equipment costs resulting from project delays. These costs are typically quantified and supported by actual measurements of increased units and/or rates.
Home Office Overhead	When a project is delayed, the Contractor may experience unabsorbed and unrecovered overhead costs. Generally, the Contactor's home office costs that support all projects are allocated to the delayed project and recovered based on a daily rate applied to compensable days of delay.
Inefficiency or Lost Productivity Costs	Depending on the nature of the delay, a contractor may also experience some measure of inefficiency. The resulting increased labor and equipment costs may be included within the damage claim.
Acceleration Costs	When the labor force is accelerated to mitigate delays, the resulting increased labor and equipment costs may also be included within the damage claim.
Other Categories of Delay Damages	A delay claim may include other related damages such as Noncritical Delays, Legal and Consulting Costs, Lost Profits, Lost Opportunity Costs/Bonding Impairment, Constructive Acceleration, Interest, and Other Impacts.

Types of delay damages to the contractors

DISCLAIMER

The next few sections deal separately with various kinds of delay-related damages that Contractors may be entitled to recover as the result of an excusable, compensable delay.

Not all categories will be addressed in every detail, as the possibilities are virtually unlimited.

Rather, an example of the general methodology is presented so you may apply the same principles to your specific situation.

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Extended Field Costs
(Direct Costs + Project Overhead Costs)

Extended field costs

- This type is **not difficult** to calculate if the contractor maintains reasonably good **job cost records.**

- Common types:
  - Labor costs
  - Equipment costs
  - Material costs
  - Extended Project (field) overhead costs

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Labor costs

- Labor costs are incurred either
  1. As **field overhead** to support the work ***(extended field overhead labor costs)***
  2. **More labor** is required to produce the **same amount of work** ***(labor productivity loss)***
  3. In the **performance** of the work ***(direct labor costs)***

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Labor costs – Extended field labor & labor productivity loss

- **Delays** generally **increase** the **time of performance** rather than the **amount of work**
- Delay costs related to labor are **usually in the form of**
  1. Extended field overhead labor
     - This labor is typically associated with **project management and superintendence** and general support.
       - ✓ **Extended field costs** are addressed in more **detail later in this Section.**
  2. Labor productivity loss
     - **More labor** is required to **produce the same amount of work**, typically defined
       - i. As a **loss of productivity** or inefficiency, or
       - ii. When **additional labor** becomes necessary to complete the work faster, which may result in additional charges for overtime, shift work, or travel costs to add labor in a limited labor environment
     - Delay costs arising from **inefficiency** addressed in **disruption costs**

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Labor costs – Performance of the work

- A contractor may also incur **additional labor costs** due to a delay when **additional tasks** become necessary to **accomplish the work**,

  when the **hourly cost** of the **labor increases** due to either

  - ✓ Labor is forced to be idle, or
  - ✓ Skill level or escalation

    1. Idle labor
    2. Escalation of labor costs

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Labor costs – Idle labor

- If a Project is **delayed or suspended**, the **Contractor's workers** may be at the **Project site but** may be **unable to productively work**.
- For potential recovery of this type of cost, the **Project daily reports** need to **show** that
  1. **Contractor's workers** were on the site
  2. **But** were **unable to perform their work**
  - The **Owner** would appropriately question **why** the Contractor was **unable or unwilling to shift** those workers to other tasks or **other jobs or lay them off**.

Why?

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Labor costs – Idle labor

It should be noted that the Contractor has an obligation under most contracts to mitigate the damages when a delay occurs;

therefore, if possible, the Contractor needs to look at shifting its labor to other work during a delay.

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Labor costs – Idle labor

Both the Owner and the Contractor should diligently maintain documentation of labor activity on each day throughout the Project.

Why both?

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Labor costs – Idle labor

If the **owner** does not retain such daily reports,

there may be **no basis for a challenge** to the **contractor's documented claim**.

"time card labor"

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Labor costs – Idle labor

Labor Time Reporting

Daily Labor Time Card

Project: Highway Bridge | Project No.: 200808-05 | Weather: Cloudy-windy
Date: July 20 | Prepared by: G.A.S.

Employee Number	Name	Craft	Time Classification	Hourly Rate	Cost Code 03157.10.3	Cost Code 03157.20.3	Cost Code	Cost Code	Cost Code	Total Hours	Gross Amount
132	Winnowich, N.	F	ST	34.00		8				8	$272.00
			OT								
221	Clouten, S.	C	ST	$31.00		8				8	$248.00
			OT								
248	Schluder, L.	C	ST	$31.00		8				8	$248.00
			OT								
319	Mills, R.	O	ST	$33.00		2				2	$66.00
			OT	0							
143	Gibson, E.	L	ST	$22.00		8				8	$176.00
			OT								
417	Sears, K.	L	ST	$22.00		8				8	$176.00
			OT								
176	Sibanda, M.	L	ST	$22.00	2	6				8	$176.00
			OT								
Total Hours					2	48				50	
Total Cost					$44.00	$1,318.00					$1,362.00

Highway bridge, daily labor time card

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Labor costs – Idle labor: Example

A contractor is installing concrete pipe for a new storm sewer. While the crew is installing the sewer piping, it comes across a buried foundation from a structure that previously occupied the site. The existence of this structure was not known by the owner or the contractor and the contract provided that the owner would take responsibility for such unknown obstructions. The contractor's installation crew immediately stopped work and asked for direction as to how to proceed. There was no other sewer piping to be installed. The owner's engineer came to the site immediately and directed the piping installation around the obstruction. Within a few hours of stopping, the owner's pipe installation crew recommenced installation. The crew had been idle for four hours.

But the delay reduced? Is there still any compensation?

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Labor costs – Idle labor: Example

- **Even if** the crew had **not been idle**,

  but had instead **moved to another location** on the site,

  - **Delay** may have been **reduced or eliminated**, but the contractor may have incurred

  1. Additional costs to **move** equipment and materials.
  2. Additional costs might also be incurred when the **contactor returns to the original location** to **recommence** the work that **was stopped**.

Disruption compensation claim is still valid!

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Labor costs – Idle labor: Conclusion

- **Some construction contracts** specifically address instances **when the owner** would **agree to pay** for idle labor.
  - However, in **those instances**, recognition and payment of idle labor costs are **triggered** by
    1. **Owner's issuance** of a **stop** work order or
    2. **Other direction approving** the **need** for the contractor to **maintain its crew on the project site** to resume work when directed to do so.

*Understanding the requirements and limitations in the **contract** regarding the contractor's **recovery of idle labor costs is essential**.*

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Labor costs – Escalation of labor costs

- Some delays can cause the Contractor to experience **escalation of its labor costs**.
- This may occur if the **delay shifts labor** into a **more expensive time period** than that **originally scheduled**.
  - This situation is sometimes referred to as **extended labor**, but it should **more appropriately** be considered **labor cost escalation**.

Let's illustrates the difference between idle and escalated labor costs.

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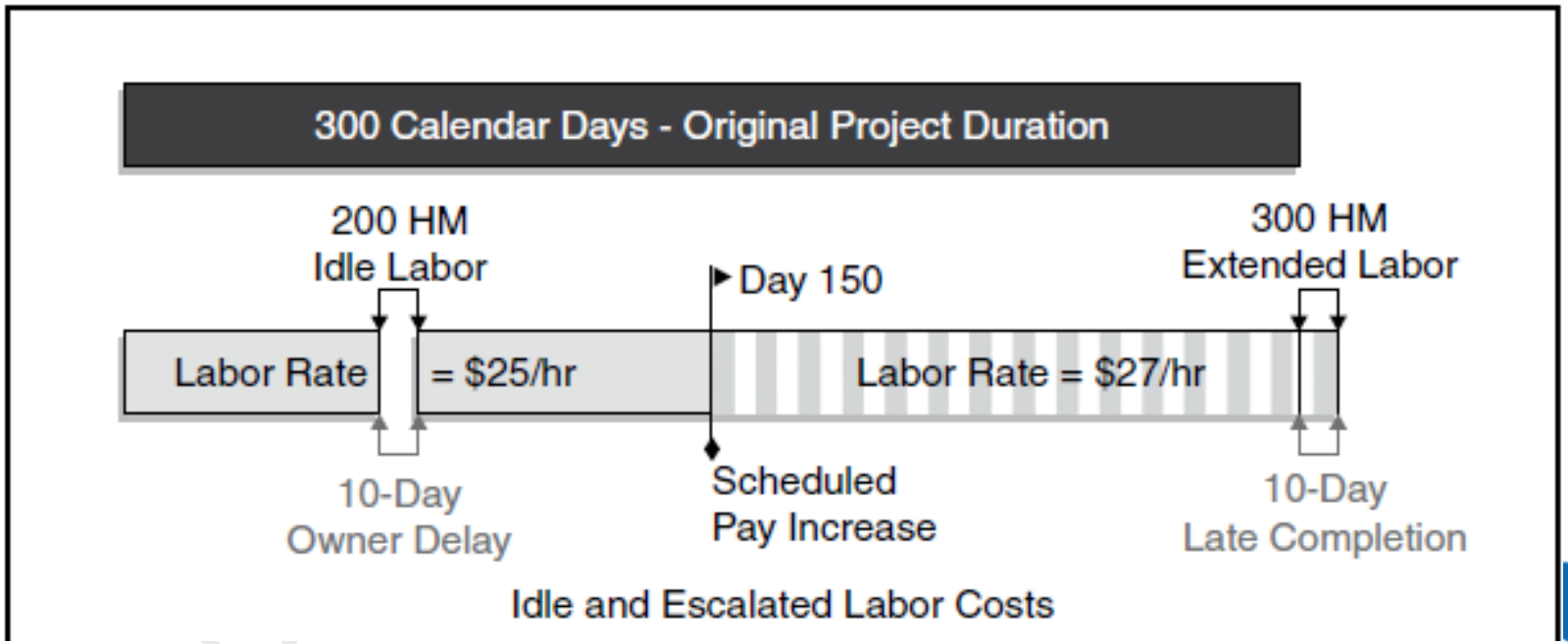
Labor costs – Idle and Escalation of labor costs: Example

- In the **third month** of the Project, the **Owner causes a ten-day delay** to the Project.
- The **Owner accepts responsibility** for the delay, so there is no question of liability or the magnitude of the delay.
- The **Project is extended** by **change order** an **additional ten days.**



Idle and Escalated Labor Costs

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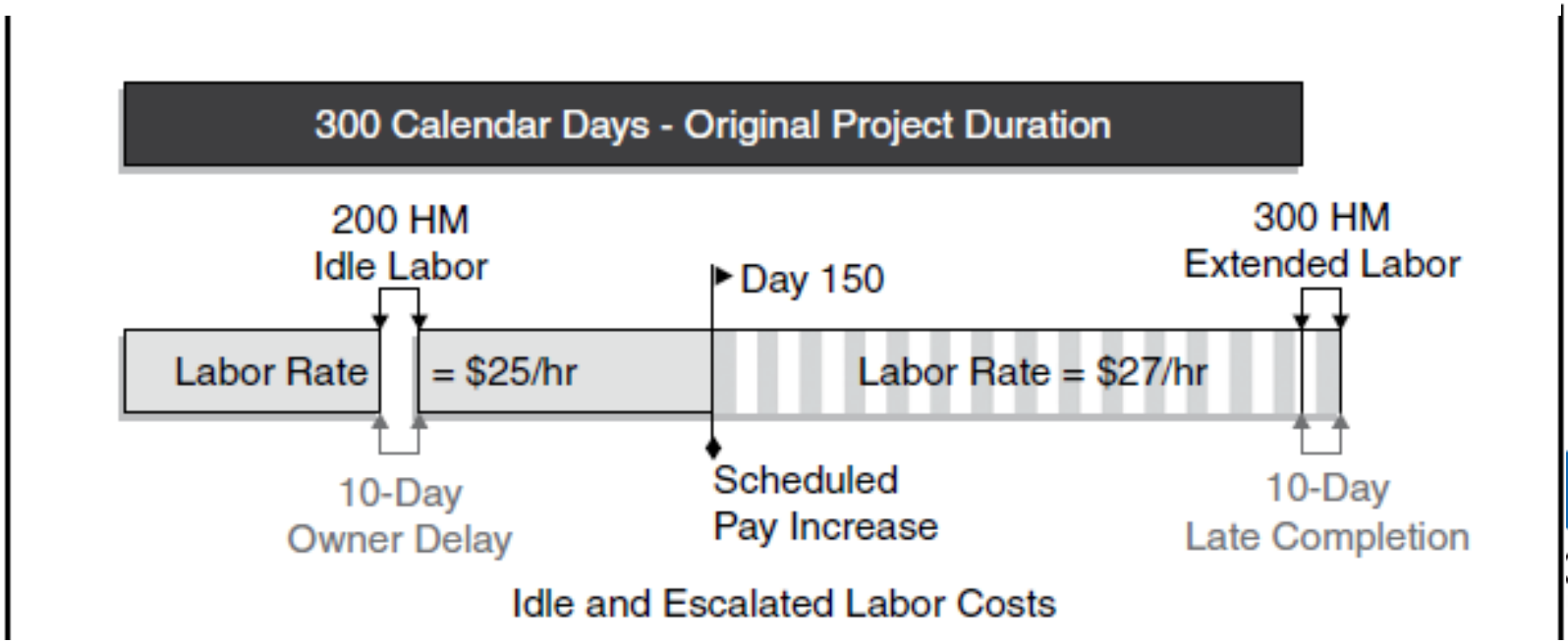
Labor costs – Idle and Escalation of labor costs: Example

- The Contractor presented a claim of **200 hrs * $25 per hr = $5,000 for idle labor**.

The Contractor's records also show 300 labor hours for common laborers during the last ten days on the job, which occurred in a time frame later than that originally planned. The Contractor seeks compensation for the additional $2 per hour ($27.00 – $25.00) for the 300 labor hours.

$2/hour × 300 labor hours = $600



Idle and Escalated Labor Costs

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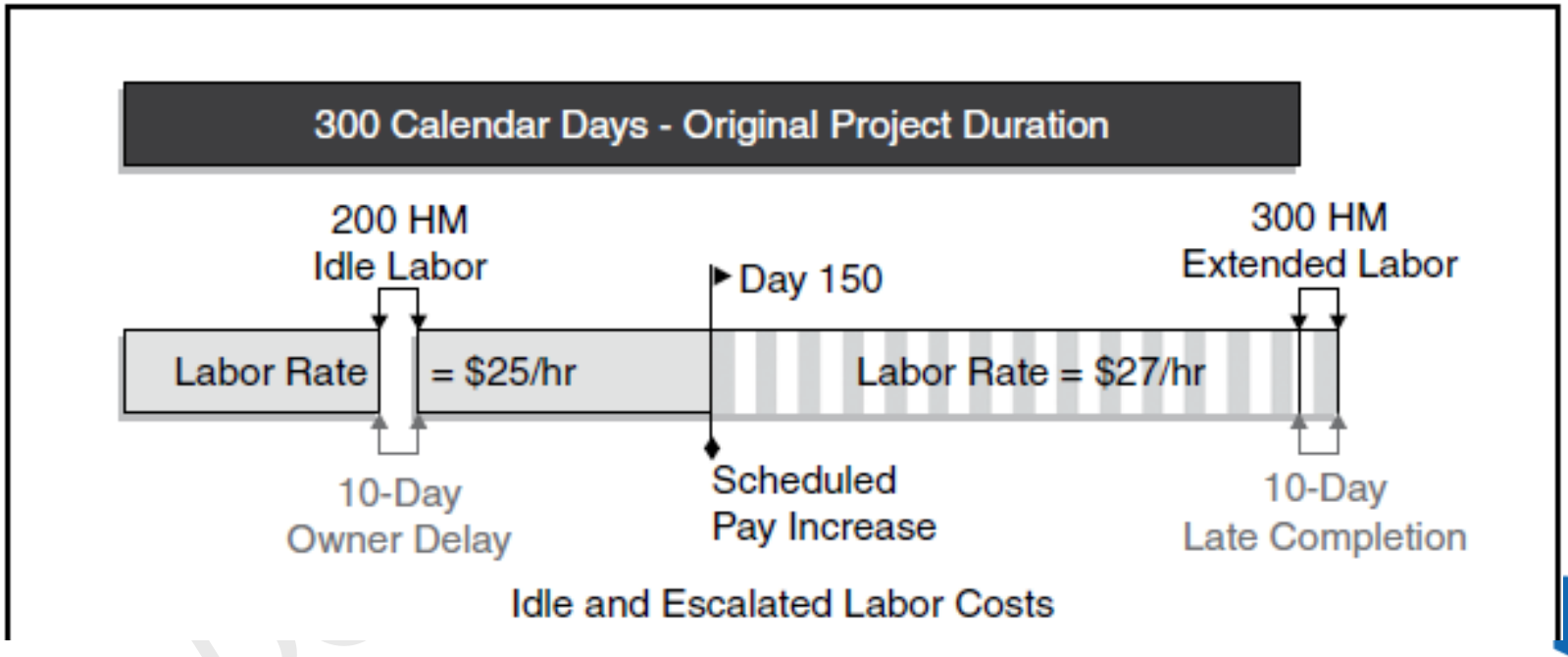
Labor costs – Idle and Escalation of labor costs: Example

- The Contractor presented a total claim of **$5,600**, with
  1. $5,000 for **idle** labor
  2. $600 for **extended** labor

The Contractor's approach, however, is incorrect.

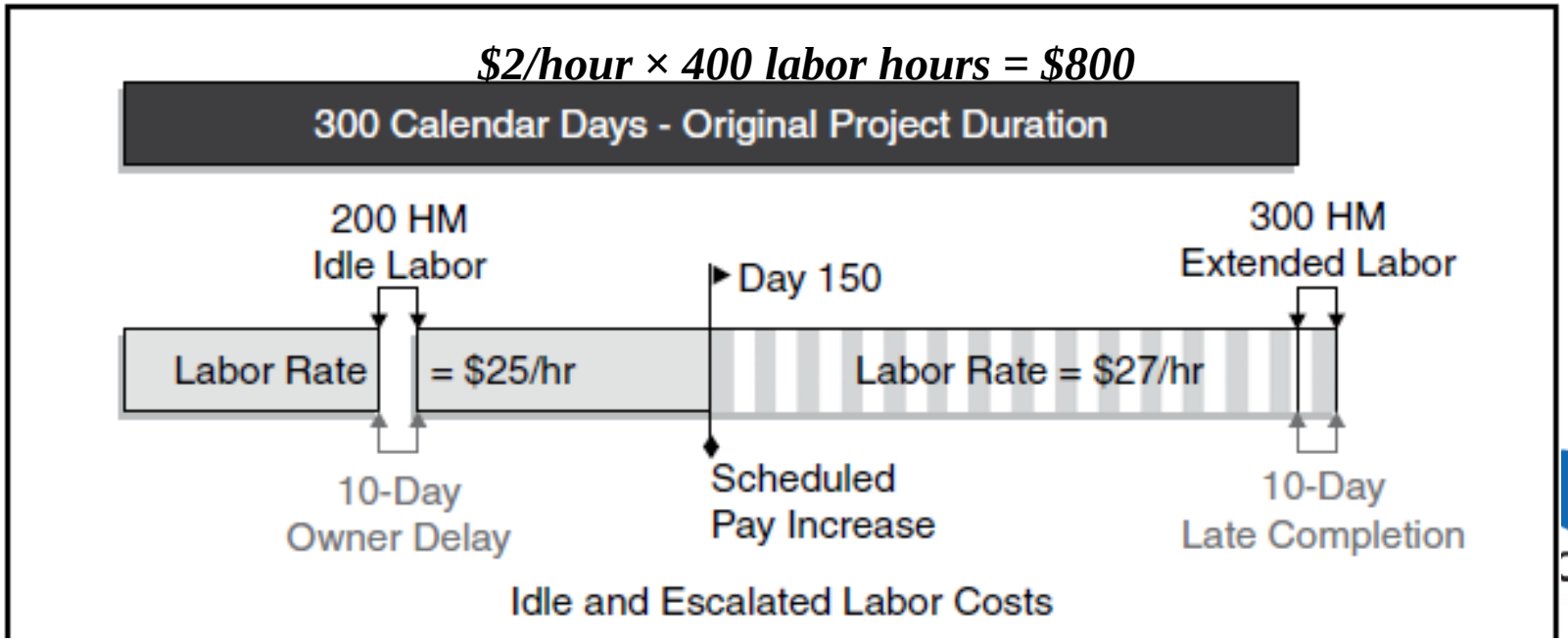


Idle and Escalated Labor Costs

Labor costs – Idle and Escalation of labor costs: Example

- **300HM was planned if there had not been a delay.**
- The **Contractor's certified payrolls** showed that **400 labor hours were worked during the ten-day period (maybe because it was winter)** immediately after the wage increase. Therefore, the Contractor would be entitled to an **additional $800** for **escalated cost** of its labor due to the delay.

Remember we talked about actual costs if you don't have pre-agreed contract?



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Labor costs – Idle and Escalation of labor costs: Example

This simple example illustrates that

analyst should not estimate damages without first clearly understanding the nature of the delays

A more realistic and complex project example might involve several trades under different collective bargaining agreements,

each with different wage increases occurring on different dates.

A wage increase might extend over a period of more than a year for some trades.

The updated labor agreements may make new and different requirements for apprentices or supervisory labor.

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Labor costs – Idle and Escalation of labor costs: Example

What happens when a delay alters the work sequence, or when a delay combines with other changes to affect the actual labor distribution on the job?

In these situations, the contractor must substantiate the original planned distribution of labor compared with the actual distribution.

Let's see an example!

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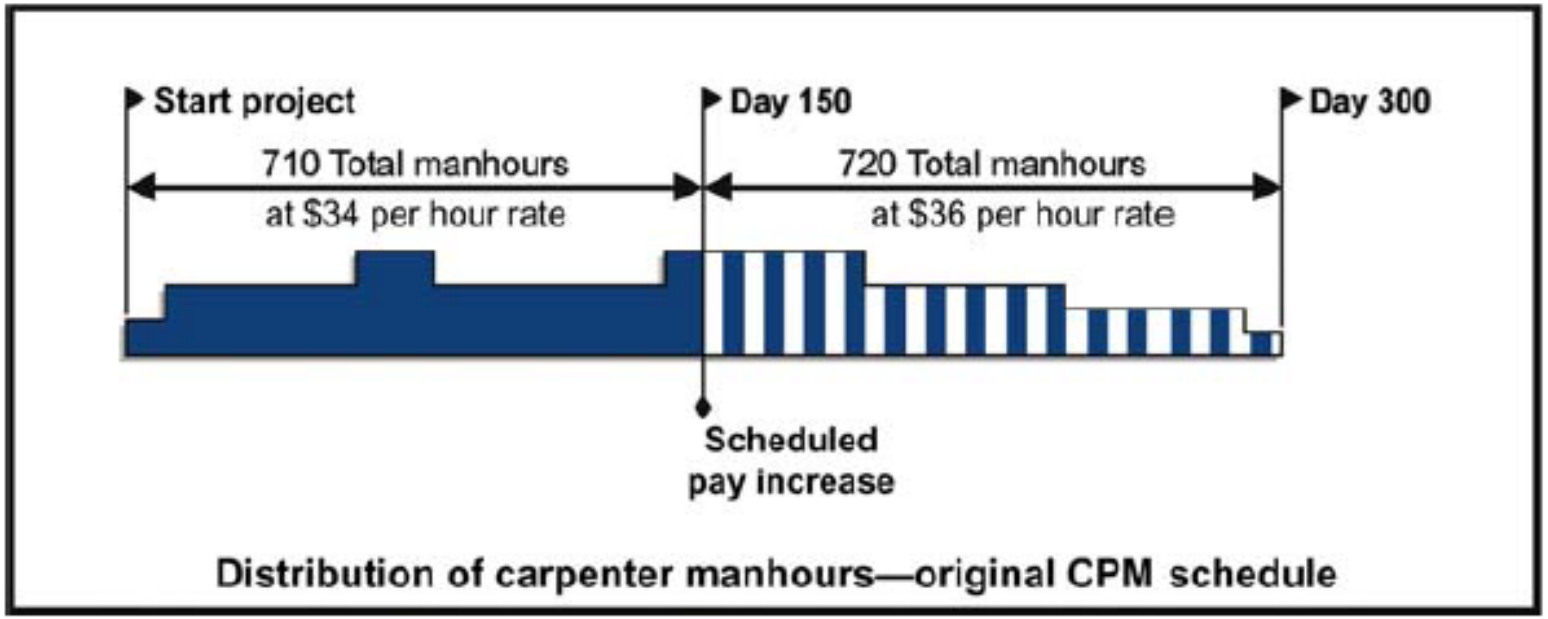
Labor costs – Idle and Escalation of labor costs: Example

- **During the Project**, the **Contractor** maintains a **resource-loaded CPM schedule** to show the **distribution of manpower planned over time**.
- A Project is scheduled for a duration of **300 calendar days**.
- Figure shows the **distribution of planned carpenter hours** for the Project taken from the **original CPM schedule.**



Distribution of carpenter manhours—original CPM schedule

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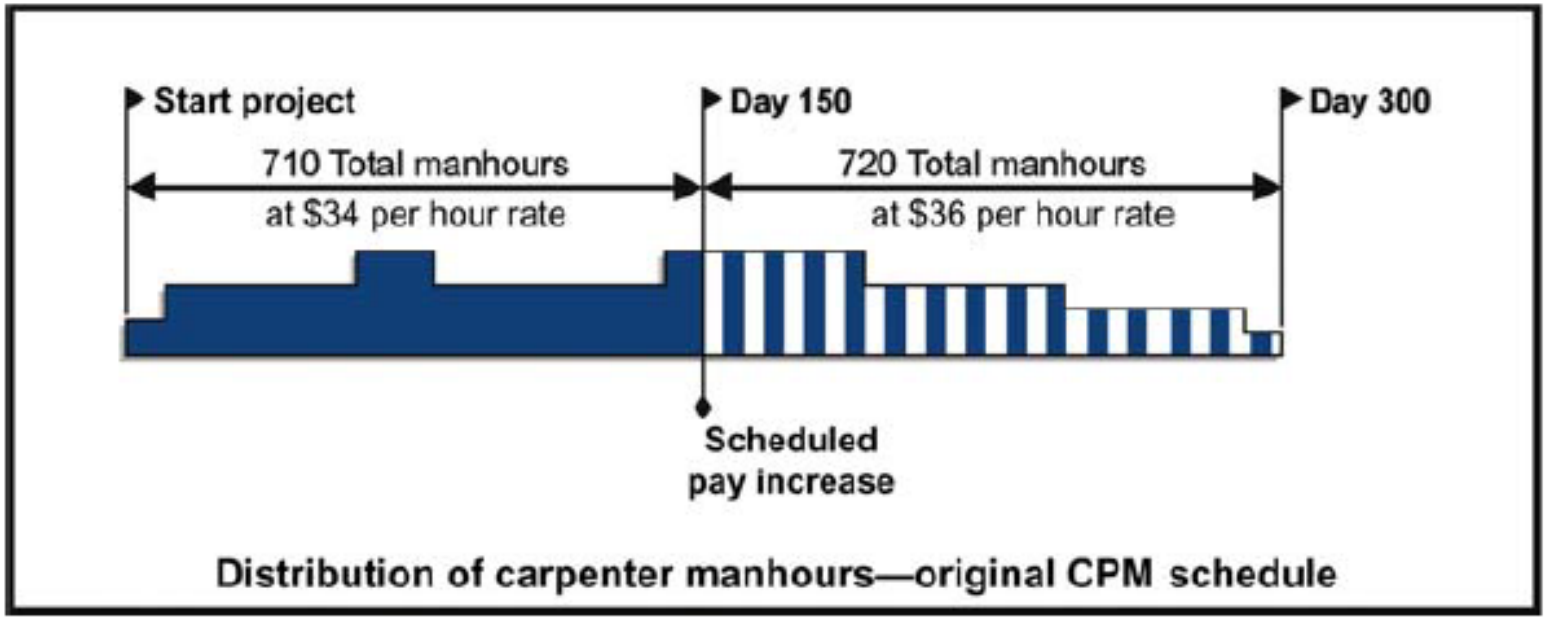
Labor costs – Idle and Escalation of labor costs: Example

Here it seems that there is no idle cost because the contractor uses the labors somewhere else.



Distribution of carpenter manhours—original CPM schedule

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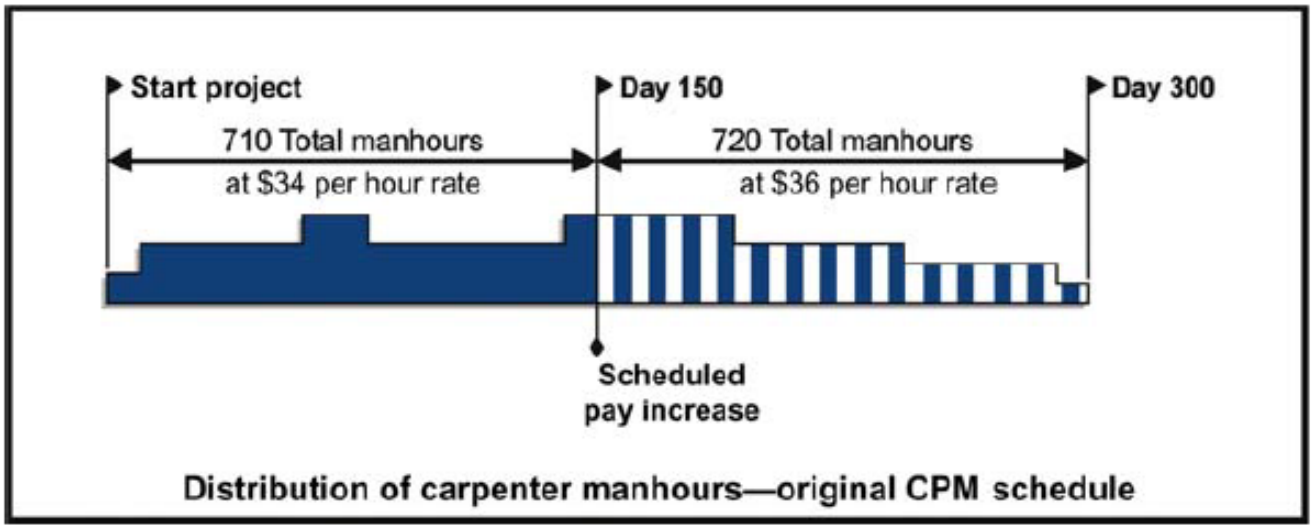
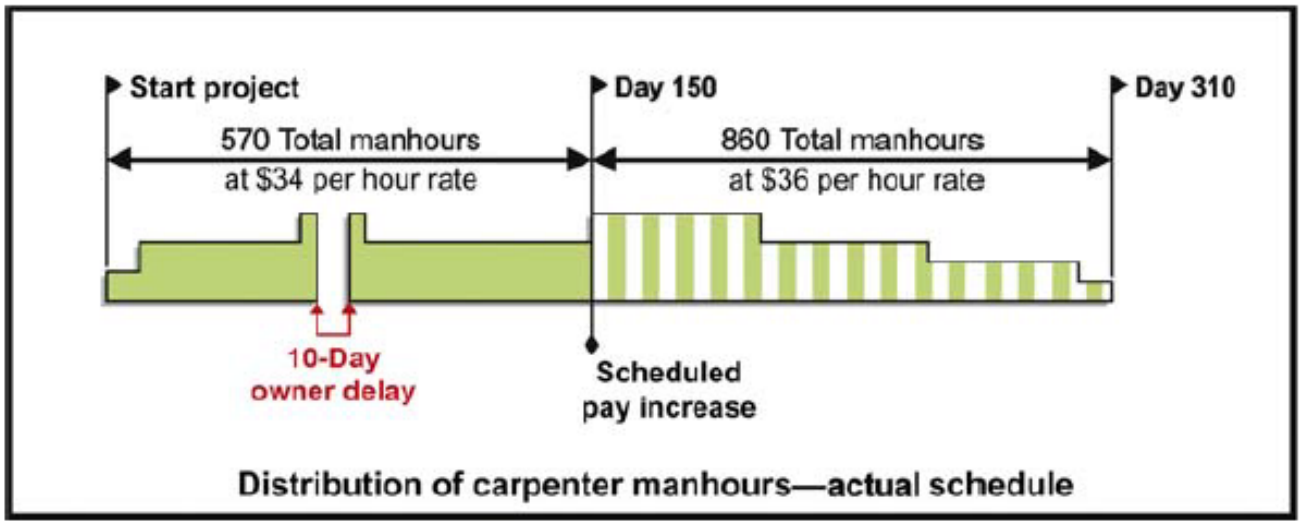
Labor costs – Idle and Escalation of labor costs: Example

860 actual hours – 720 planned hours = 140 labor hours

140 hours × $2/hour wage increase = $280.00



Distribution of carpenter manhours—original CPM schedule



Distribution of carpenter manhours—actual schedule

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Labor costs – Idle and Escalation of labor costs: Example

In this example, the actual distribution of carpenter labor was caused solely by the Owner's delay.

In a different situation, if the Owner can demonstrate that this was not the case, then the delay damages would not include the escalated labor calculation.

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Labor costs – Idle and Escalation of labor costs: Example

Many projects do not have a resource-loaded CPM schedule to allow a reasonably precise comparison between the planned and the actual distribution of labor.

Without the CPM schedule, the analyst can **estimate** the **planned labor distribution** from the **Project bar chart**.

The analyst can **compare**

1. **Labor hours actually expended** on the job (taken from the **project daily reports**)
2. **Planned labor hour distribution** (taken from **bar chart**)

Let's see!

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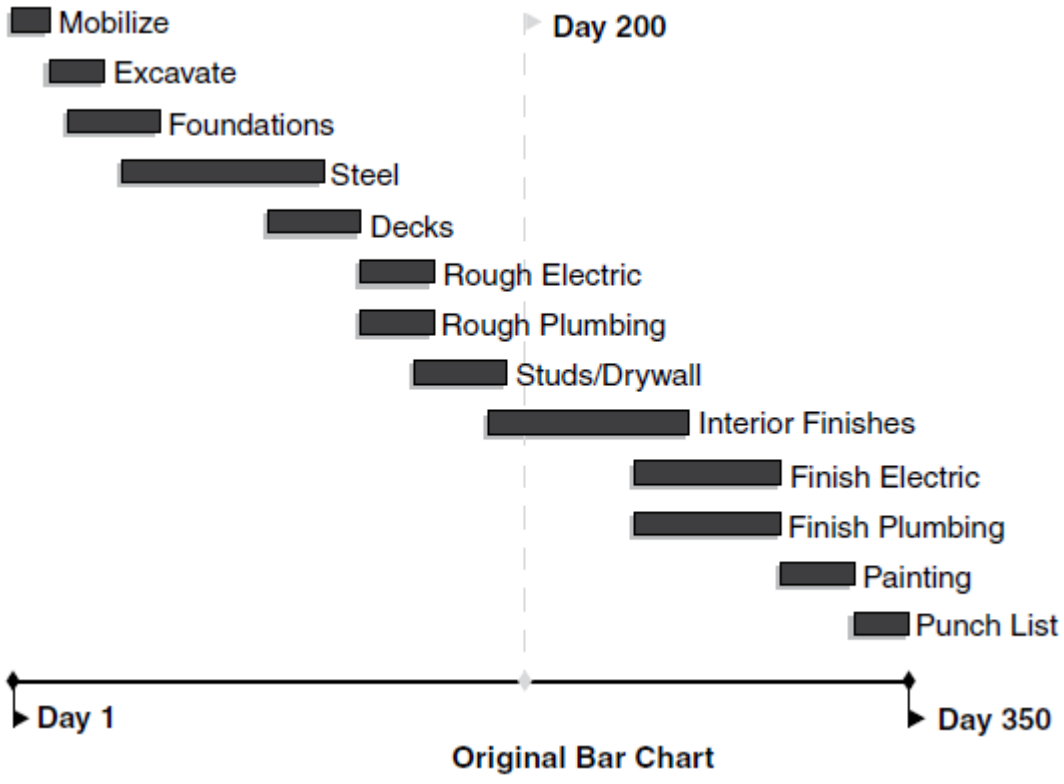
Labor costs – Idle and Escalation of labor costs: Example

- This Chart is the **Contractor's bar chart** for the work as **originally**.
- **No labor hours** are shown in the **bar chart**.
- Due to an **Owner-caused delay**, the Contractor experiences **escalated labor cost** on the Project, after a **rate increase** (from **$35 per hour to $36 per hour**) went into **effect on day 200 of the project**.



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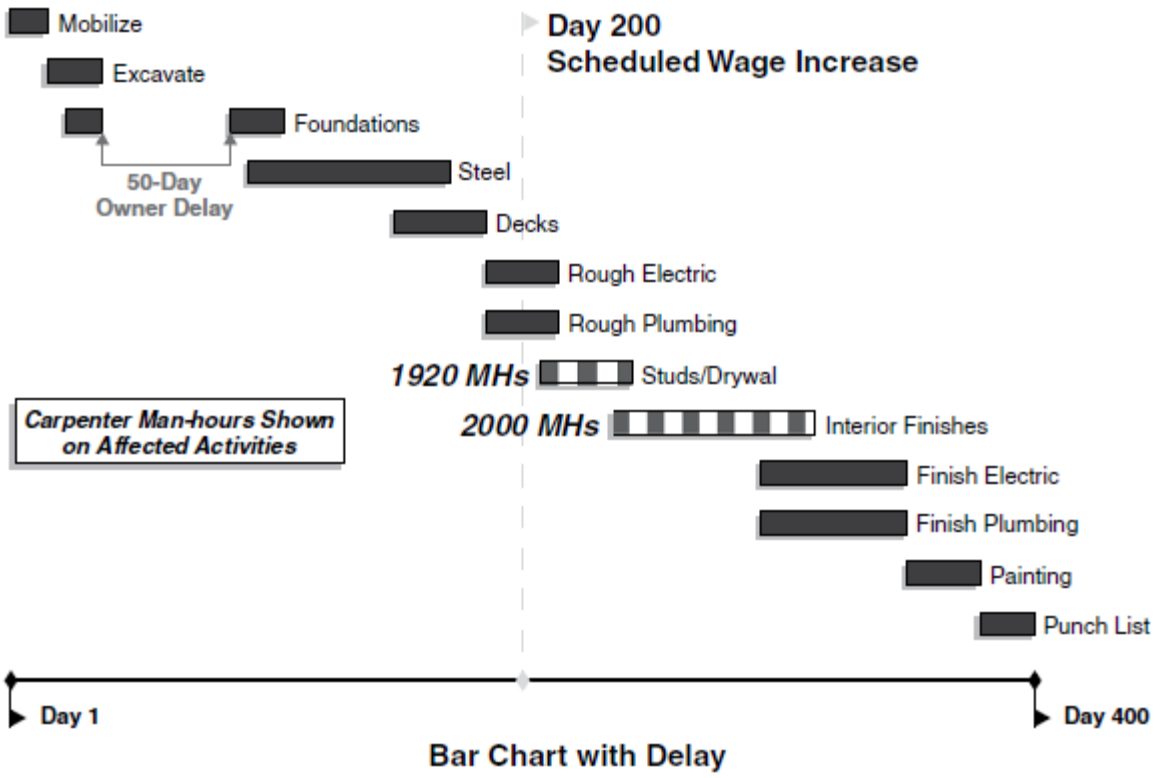
Labor costs – Idle and Escalation of labor costs: Example

- **This chart** shows the **actual bar chart** for the project, **reflecting the delays**.
- It also shows the **actual carpenter labor hours worked** on **each shaded activity**.
- These **labor hours** were **taken** from the **contemporaneously recorded Project daily**



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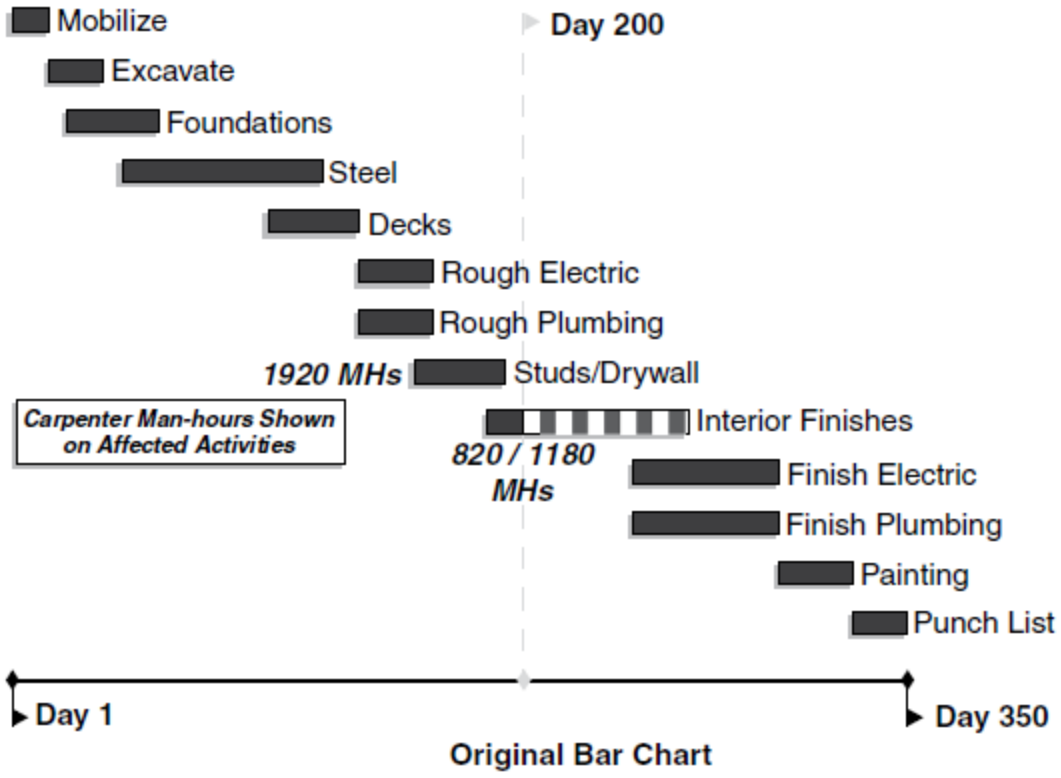
Labor costs – Idle and Escalation of labor costs: Example

$1/hour × (1,920 hours + 820 hours) = $2,740

- It should be noted that **this conclusion assumes** the delay **only shifts the work into** the **more costly time period** and that **no labor inefficiency resulted**.



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Equipment costs

- Delays may cause the **equipment** to be **idle**.
- The **amount of damages** that can be claimed for idle equipment **depends** on the **contract provisions**.
- In some cases, the **contract** may address **idle** or **standby equipment** and allow **only a reduced rate or no compensation at all**.
  - If the **contract** is **silent** on this issue, the **contractor would likely claim** damages at the **full rates** of the **equipment during the idle time**.

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کارفرما و پیمانکار در مورد ماشین‌آلاتی که پیمانکار مایل است در مدت تعلیق از کارگاه خارج نماید، بدون پرداخت هیچ نوع هزینه‌ای، توافق می‌کنند اجاره مربوط به دوران توقف آن تعداد از ماشین‌آلات که در کارگاه باقی می‌مانند، براساس توافق طرفین به پیمانکار پرداخت می‌شود.

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Equipment costs

- As in the case of idle labor,

  the **contractor** would need to **identify specific equipment** on the project in the **daily reports** to show **exactly**

  1. **When this equipment** was **idle**
  2. **Duration** of the idle time.

What forms you should use for this?

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Equipment costs

- **Owner** should **verify** the **Contractor's use of equipment**
  1. **Prior to delay**
  2. **During the delay**
  3. **Following the period of the delay**

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Why is this really important for owner?

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Equipment costs

- If the equipment was **idle** **both before and after the delay period**, then the **Owner** may appropriately **question**
  1. Whether the Contractor actually **sustained any damages** from the delay
     - Use the **equipment somewhere else**, so there would be no damage
  2. Whether **idle time occurred due to another reason**
     - Concurrent delay

How about escalation costs here?

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Equipment costs

- As with labor costs, a **Contractor's equipment costs** may also be subject to **escalation**.
  - If a Contractor is using **rental equipment**, the delay could **shift** the Contractor's equipment into a **time period with a higher rental rate**.
    - ✓ This situation should be **documented with invoices**.

Let's see an example!

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Equipment costs – Example

- If a **significant delay occurs** to a portion of a Project, **specialized equipment** originally **planned** for the work may **no longer be available**.
  1. The Contractor's own paving machine may have been assigned to a Project for a particular period of time, but it is no longer available after the delay period. The Contractor is **forced to replace the owned equipment** with **more expensive rental equipment** in order to **meet the Project's revised schedule**.
  2. In another case, the **Contractor originally planned** to perform mass excavation work **using scrapers**. Because of the delay, the Contractor now finds it **must use loaders and trucks** to excavate the material.

What do you think if in the second case the rental cost does not change?

Are you still entitled to the damages?

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Equipment costs – Example

- It should also be noted that when the **performance of work** on the **project's critical path** is
  1. **Less productive or inefficient**
  2. Takes **longer than planned** to complete

  the **extended duration of this work** could cause delays to the project that result in **additional delay-related costs**.

  Project overhead costs + home office overhead costs (in the case of suspension)

You may be entitled to claim for:

1. **Escalation costs (rental)**
2. **Disruption costs**
3. **Project overhead costs**
4. **Home office overhead**

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Equipment costs

- The **damages to the Contractor** would be measured by comparing the **cost** of the **originally planned** versus the **actual**.
  - In the **case of disruption**, you may need other **supportive measurements**!

Next Example illustrates **both** **cost escalation** and **inefficiency** in equipment use caused by a delay.

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Equipment costs – Example

- An Owner is constructing a waste water treatment plant addition. The Project site is an inactive landfill.
- The excavation Subcontractor is required to excavate approximately 200,000 cubic yards of material and dispose of it at a nearby active landfill.
- Prior to beginning excavation, the Owner is advised that the site may contain hazardous waste materials.
- Consequently, the Owner stops the Contractor's excavation activity in order to perform toxicity testing.
- The testing takes three months to complete, at which time the excavation Subcontractor is allowed to again proceed with the work as originally specified.
- Because of the delay, however, the Subcontractor experiences changes in its equipment cost and availability.

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Equipment costs – Example

- Originally, the Subcontractor planned to excavate 170,000 cubic yards with scrapers and the remaining 30,000 cubic yards with a hydraulic excavator and a 20-ton dump truck.
- Due to the delay, the scrapers are no longer available because they have been committed to another Project.
- Consequently, the Subcontractor must now perform all of the excavation work without the use of scrapers.

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Equipment costs – Example

- The Subcontractor experiences **two problems** because of the delay.
  - First, the excavators it intended to rent have increased in cost.
  - Second, the unit cost for the excavation work is higher using the dump trucks than it would have been using the scrapers.

Based on these factors, it calculates the **increased costs.**

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Equipment costs – Example

1. **Escalation of rental equipment cost:**
   - **Cat hydraulic excavator rates**
     - ✓ Quoted rate: $2,800/week (quote attached)
     - ✓ New rate: $2,900/week (invoice attached)
       - o Difference of $100/week.
   - **Planned equipment time was 10 weeks (2 excavators for 5 weeks).**

Extra cost: $100/week × 10 weeks = $1,000

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Equipment costs – Example

2. **Increased excavation cost (productivity loss):**

- **Excavation with scrapers:**
  - ✓ $4.50/cubic yard (calculations attached).
- **Excavation with dump truck:**
  - ✓ $7.20/cubic yard (calculations attached).

Difference of $2.70/cubic yard

Extra cost: $2.70/cubic yard × 170,000 cubic yard = $459,000

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Equipment costs – Example

Total cost from delay: $460,000 = $459,000 + $1,000

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Equipment costs – Example

Of course, the Contractor must always show that it complied with its obligation to mitigate damages.

In this case, the Subcontractor may need to demonstrate that the premium to rent scrapers over and above the cost of the planned scrapers was greater than the damages that resulted from the change in work methods.

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Material costs

- The most common added **material cost** caused by a delay is **price escalation**.

- The calculation of escalation cost for materials can be performed in the **same manner** as that for the **escalation of labor cost**.

- A **comparison** must be made between the **price** of each material that would **have been purchased** in the **original schedule** and the **price** of each material **purchased** later **under the delayed schedule**.

Let's see the example!

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Material costs – Example

- A Project was originally scheduled to take 300 calendar days.
- The Project experienced a 90-day, Owner-caused delay.
- The delay occurred at the beginning of the Project and forced the Contractor to pay more for concrete.
- The Contractor can demonstrate it had a purchase order for concrete at $80 per cubic yard from the beginning of the Project until day 100.
- After day 100, by the terms of the purchase order, the cost of concrete increased to $85 per cubic yard.

Due to the delay, the Contractor purchased more concrete material at $85 per cubic yard than it originally planned.

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Material costs – Example

- A review of the schedule shows that the Contractor planned to have placed concrete on six of eight floors before the price increase took effect.
- A quantity takeoff establishes this as 2,000 cubic yards of concrete.
- In the actual performance of the work, the Contractor placed only 1,200 cubic yards of concrete before the price increase took effect.
- The material cost increase is directly attributable to the excusable delay.
- Therefore, the associated damages will be at least $4,000 (**$5 per cubic yard × 800 cubic yards**) due to the escalated price of

2,000 cubic yards planned – 1,200 cubic yards actual = 800 cubic yards

Additional cost of $5/yard × 800 yards = $4,000 damages due to delay

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Material cost – Storage

- **Contractor** may be **forced** to store **materials** either **on or off the site** as a **result of a delay**.

- The Contractor must **support claims** for these costs **with invoices**.

- In some cases, the **Contractor** may be able to **purchase materials before** they are **required for installation** and **store them**, as this may be **less expensive** than the escalated cost of the materials purchased at a later date.
  - The Contractor should **notify the Owner** in **advance** of this course of action.

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Extended Project (field) overhead costs – Field labor costs

- When a Project experiences a delay, the **Contractor's field staff** and **field equipment** may be **on site longer than originally scheduled**.
- **Depending** on the **Project-specific circumstances**, when a Project encounters a delay, the Contractor would typically retain its **supervisory team at the job site**.
  - **Personnel** such as the Project Manager, Project engineer, superintendent, assistant superintendent, and administrative support positions:
    1. **If they can be allocated to the delayed activity:**
       - ✓ These personnel represent a **direct labor cost** to the **contracting firm**.
    2. **If they cannot be allocated to the delayed activity (more than one delayed activity):**
       - ✓ These personnel represent a **extended filed labor cost** (**project overhead cost**).

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Extended Project (field) overhead costs – Field labor costs

- To calculate the **delay-related direct labor cost** to maintain these people on site:

(Aggregate of each daily salary + burden) × Number of days of compensable delay = Damages for extended field labor (supervisory personnel)

- Make sure that if the **delay** is expressed in **calendar days** that the **costs** are also expressed in **cost per calendar day**.

While this calculation is straightforward, it is important to note that the analyst also needs to address the propriety of the Contractor's claim to recover extended field costs for supervisory personnel.

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Extended Project (field) overhead costs – Filed labor costs

- In order to address the **propriety of claiming damages** for extended **field supervisory labor**, the analyst should start with a review of the **Contractor's normal accounting procedures** for these costs.

✓ *If the **Contractor routinely charges** the **Project Manager** to the **activity**, then claiming damages would be **appropriate** but **subject to the Contract requirements**.*

✓ *If the **Contractor routinely charges** the **Project Manager** for the **Project overhead**, then claiming damages would be **appropriate** but **should be considered as a project overhead**.*

✓ *If the **Contractor routinely charges** the **Project Manager** to **home office overhead**, then claiming this cost as a **direct field cost** may **not be appropriate**.*

The same principle applies to the salary of any other field supervisory personnel extended on the Project because of the delay.

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Extended Project (field) overhead costs – Office costs

- **Extended field office costs** will also consist of the **daily cost** of all of the support equipment and services that are necessary to **maintain the project site**.
  1. **Equipment:** Typically include **office** and **storage trailers**, **portable sanitary facilities**, **office equipment**, and **security fencing**, etc.
  2. **Services:** Typically include phone service, electrical services, drinking water supply, and security.
     - The key to determining which costs are included in the **daily rate** is the **time-related nature** of the expenditure.

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Extended Project (field) overhead costs – Other costs

- Delays on a construction Project may cause a number of different increased costs to the Contractor, such as the following:
  - Temporary utility and facility costs
  - Extended warranties
  - Maintaining and protecting work during delays
  - Increased bond costs

Normally, all of these items fit into one of the general cost categories, such as field overhead, project overhead, and so forth.

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Example

This Example shows a Contractor's damage calculations considering items mentioned in this section

It is intended to help present a clear picture of the procedures to use for calculating delay damages for an excusable delay

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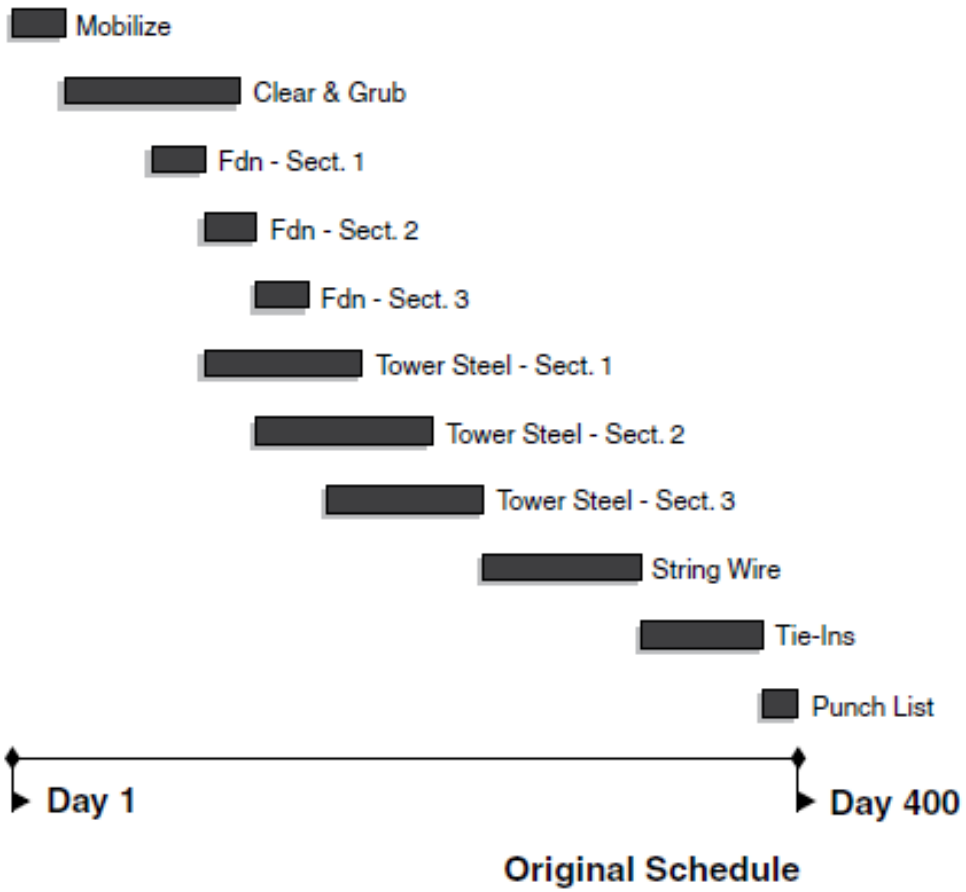
Example – As-planned schedule

- A Project has a Contract duration of 400 calendar days. The Contractor estimates the construction schedule to last the full 400 calendar days.



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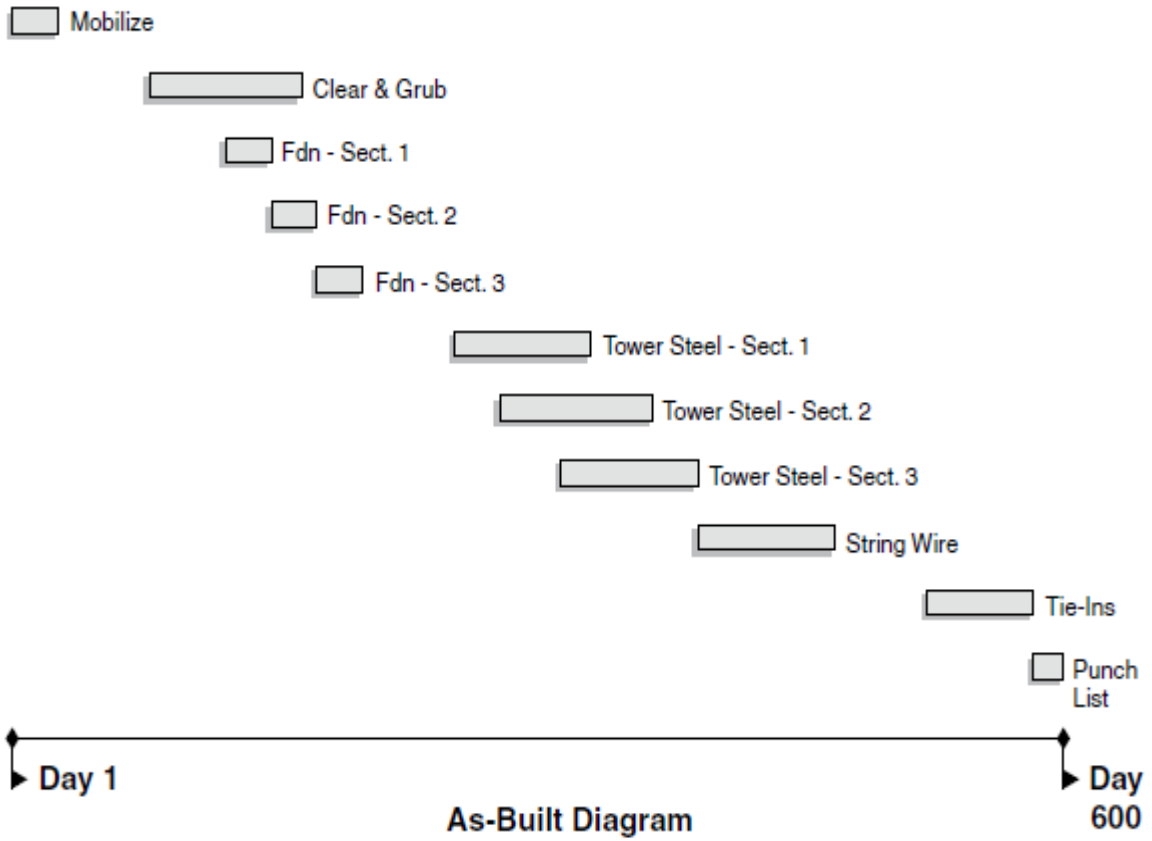
Example – As-built schedule

- The Project has a delay of **200 calendar days**.
- It was determined that the **Owner caused 150 days of delay**, and the **Contractor** was responsible for the remaining **50 days**.
- The Owner has issued a **two-part change order** for its delays.
- The Owner is now in **negotiation** with the Contractor over the **compensation for the delay**



As-Built Diagram

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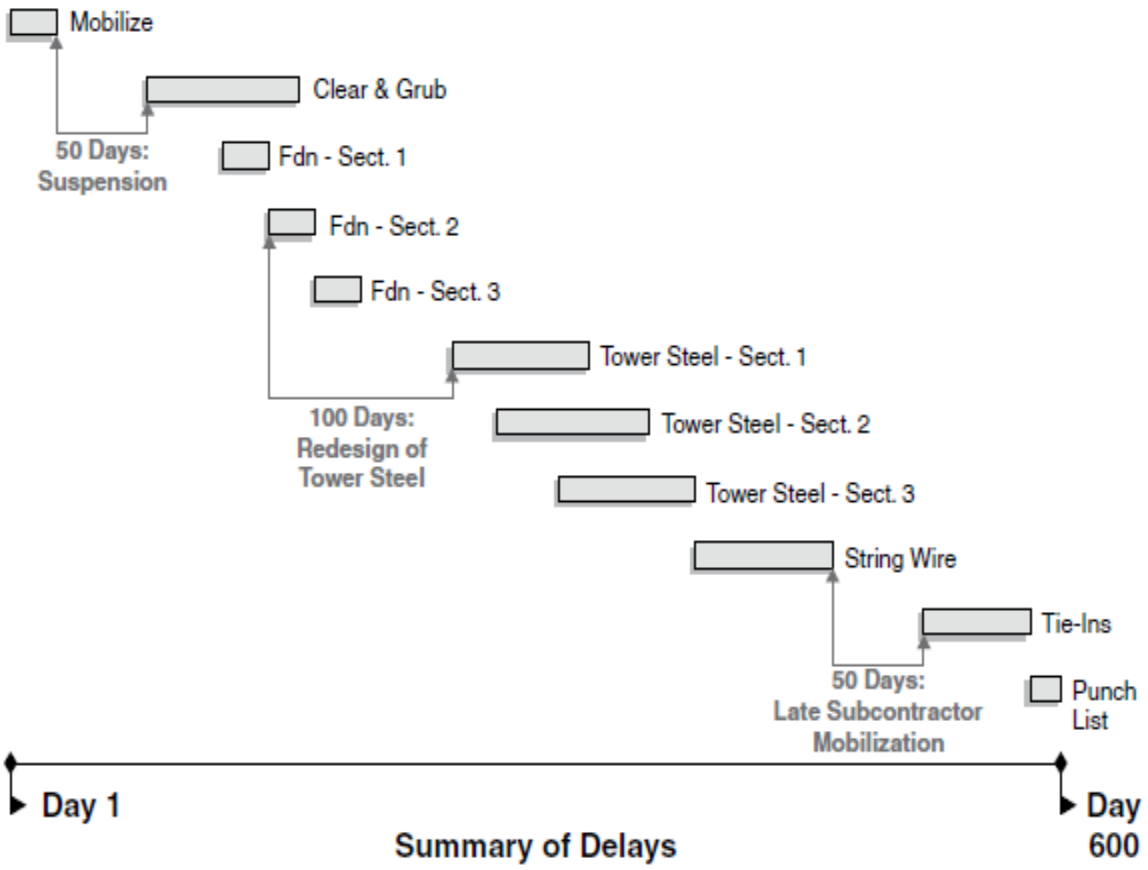
Example – Summary of delays

- A **summary of delays** to the schedule, shows that:
- **Owner** delayed the **start of the Project** by **suspending the work** for **50 days**.
- The next delay was also caused by the **Owner**, who, by **requesting design revisions**, delayed the Project an additional **100 days**.
- The **final delay** was **50 days**, attributable to the Contractor for **failing to mobilize** a **Subcontractor** to perform work.



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Example – Contractor's additional compensation presentation

Request for Equitable Adjustment

Ace Construction Company hereby requests the following compensation for the 150 days of delay caused by factors beyond our control. In Part 1 of Change Order No. 7, the owner has granted a time extension of 150 calendar days. Because of this 150-day delay, Ace Construction accrued the following extra costs.

Extended Field Overhead

Labor				
Project Manager	150 days @ $600/day for 25% of time	=	$22,500	*Note: Certified payrolls attached. Project Manager is a direct job charge.*
Superintendent	150 days @ $520/day	=	$78,000	
Clerk	150 days @ $200/day	=	$30,000	
Master Mechanic	150 days @ $480/day	=	$72,000	
Subtotal Labor			$202,500	
Equipment				
Superintendent's truck	150 days @ $25/day	=	$3,750	*Note: Invoices for equipment attached. Superintendent's truck costed by normal company accounting practices.*
Portable toilet	5 mos. @ $150/month	=	$750	
Project trailer	5 mos. @ $160/month	=	$800	
Tool trailer	5 mos. @ $120/month	=	$600	
Subtotal Equipment			$5,900	
General Conditions				
Utilities	Electricity: 5 mos. @ $150/month	=	$750	
	Water/Sewer: 5 mos. @ $100/month	=	$500	
Dumpsters	2 dumpsters: 5 mos. @ $150 ea/month	=	$1,500	
Copy machine	5 mos. @ $120/month	=	$600	
Office supplies	5 mos. @ $80/month	=	$400	
Scheduling updates	5 mos. @ $1,000/month	=	$5,000	
Subtotal General Conditions			$8,750	
Total Extended Field Overhead			**$217,150**	

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Example – Contractor's additional compensation presentation

Construction Equipment Costs:

Extended Equipment:				
100-ton crane:	3 extra mos. @ $6,000/month	=	$18,000	Note: Applicable timesheets and certified payrolls attached.
Escalation of Equipment:				
D-7 dozer:	2 mos. @ increased rental rate of $400/month	=	$800	Union agreement and calculation of rates to include burden and overhead attached.
Idle Equipment:				
Scrapers:	327 hours @ $70/hour	=	$22,890	
D-7 dozer:	240 hours @ $75/hour	=	$18,000	
Total Construction Equipment Costs		:	**$59,690**	

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Example – Contractor's additional compensation presentation

Idle Labor:				
Carpenters:	725 hours @ $37/hour	=	$26,825	
Laborers:	816 hours @ $25.50/hour	=	$20,808	
Ironworkers:	420 hours @ $37/hour	=	$15,540	
Subtotal Idle Labor:			$63,173	
Escalation of Labor:				
Carpenters	Escalation: 700 hours @ $1.60/hour	=	$1,120	
Laborers:	Escalation: 250 hours @ $1.50/hour	=	$375	Note: Applicable timesheets and certified payrolls attached.
Ironworkers	(1st increase) escalation: 320 hours @ $1.20/hour	=	$384	
	(2nd increase) escalation: 650 hours @ $1.50/hour	=	$975	Union agreement and calculation of rates to include burden and overhead attached.
Subtotal Labor Escalation:			$2,854	
Total Labor Costs:			**$66,027**	

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Example – Contractor's additional compensation presentation

Material Costs:			
Escalation of Concrete:	1200 yards @ $3.00/yard	=	$3,600
Storage of rebar:	Supplier Charge	=	$650
Total Material Costs:			**$4,250**
Grand Total:			**$347,117**

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GENERAL OVERHEAD
(Home office overhead)

(HOOH)

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Introduction

- Since the contractor adds a **percentage for markup** to the **direct cost bid amount** to **recover** home office costs,
  - If this **Project** were to then **experience a delay**, **Project revenues** may be **earned** over a **longer period of time**,

    disrupting the basis under which the Contractor **originally allocated** its home office overhead costs.
  - Usually, the **Contractor** calculates the **final bid price** by adding a **percentage for markup** to the **direct cost bid amount** to **recover** home office costs, but unable to recover those costs.

This is called **home office overhead (HOOH)** costs

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Home office overhead (HOOH)

What included in HOOH?

There is a debate here!

Item	Annual Cash Flow From Operations												
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Revenues	768,000	712,000	785,000	769,000	560,000	545,000	500,000	391,000	342,000	460,000	492,000	516,000	6,840,000
Overhead:													
Advertising	7,680	7,120	7,850	7,690	5,600	5,450	5,000	3,910	3,420	4,600	4,920	5,160	68,400
Promotion	—	—	—	—	—	—	8,000	—	—	—	—	15,000	23,000
Car and Truck Expenses	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	13,200
Computer and Office Furniture	—	—	—	—	—	—	18,000	—	—	—	—	—	18,000
Employee Wages and Salaries	22,618	22,618	22,618	22,618	22,618	22,618	22,618	22,618	22,618	22,618	22,618	22,618	271,416
Employee Benefits	750	750	750	750	750	750	750	750	750	750	750	750	9,000
Employee Retirement	679	679	679	679	679	679	679	679	679	679	679	679	8,142
Employee Taxes	2,300	2,238	2,046	1,994	1,924	1,878	1,809	1,809	1,809	1,801	1,565	1,144	22,317
Insurance	4,366	4,086	4,451	4,371	3,326	3,251	3,026	2,481	2,236	2,826	2,986	3,106	40,514
Taxes & Licenses	100	—	—	—	—	—	—	—	—	—	—	—	100
Office Supplies	500	500	500	500	500	500	500	500	500	500	500	500	6,000
Office Rent	500	500	500	500	500	500	500	500	500	500	500	500	6,000
Office Utilities	350	350	250	250	250	350	350	350	250	250	350	350	3,700
Postage and Delivery	100	100	100	100	100	100	100	100	100	100	100	100	1,200
Janitorial and Cleaning	433	433	433	433	433	433	433	433	433	433	433	433	5,200
Telephone	440	440	440	440	440	440	440	440	440	440	440	440	5,280
Charitable Contributions	—	—	—	—	—	—	—	—	—	—	—	3,000	3,000
Dues and Memberships	—	—	—	1,500	—	—	—	—	—	—	—	—	1,500
Legal and Professional Services	1,000	—	—	3,000	—	—	1,000	—	—	1,000	—	—	6,000
Meals and Entertainment	867	867	867	867	867	867	867	867	867	867	867	867	10,400
Bank Fees	50	50	50	50	50	50	50	50	50	50	50	50	600
Miscellaneous	100	100	100	100	100	100	100	100	100	100	100	100	1,200
Total Overhead	43,933	41,931	42,734	46,942	39,237	39,066	65,321	36,686	35,851	38,614	37,958	55,897	524,170

General Overhead Budget

Could owner restrict this?

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Home office overhead (HOOH)

- The **auditing or accounting standards** employed by the owner can **further restrict** the **definition of home office overhead**.
  - For example, under contracts governed by **Federal Acquisition Regulation (FAR)** cost principles,

    certain costs, such as those **expended for marketing and entertainment** may **not be recoverable** as home office overhead costs.

    *As a result, on Federal projects, or on projects that rely on the FAR for the purposes of cost accounting, these marketing and entertainment costs **end up being covered** by whatever amounts the contractor is able to mark up its costs for profit, if at all.*

How delays could affect on HOOH?

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Effects of delays on general (home office) overhead costs

- There is a distinction between:
  1. *Extended home office overhead:* Project was **formally suspended**
     - **Additional expenses** incurred **over time** due to a delay that **prevents** a contractor from **taking on additional work in a same project**.
  2. *Unabsorbed home office overhead:* Project was **partially or informally suspended**
     - The **portion of home office overhead costs** that are **not contributed** to **a project** as a result of **delay, suspension, or other reason**.
- The **calculation** of damages for **each may differ**, but **in practice**, **most courts** and boards have **not always maintained** this clear **distinction** in terms.

Regardless of the nature of the delay, the analyst should establish the damages the Contractor actually experiences.

Let's look at "unabsorbed home office overhead!

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Effects of delays on general (home office) overhead costs

- ***Generally, there are two situations:***
  1. One project at a time
  2. Multiple projects

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Unabsorbed home office overhead – One project at a time - Example

- Relatively **straightforward**
- The **difference** between delays caused by a **suspension** and those that result from **extra work** are explained later.

A contractor has home office costs of $48,000 per year and has a one-year contract for $1,000,000. The project experiences a one-month delay, during which time home office costs of $4,000 accrue. If the delay were the result of a compensable suspension of work, the contract amount of $1,000,000 would remain the same, but the contractor would now have to cover a total home office cost of $52,000 over the term of the contract, an increase of $4,000.

Contract amount: $1,000,000
Yearly home office costs: $48,000
New home office expense, including extending the project one month: $52,000
Increase in home office costs to be covered by this project: $52,000 — $48,000 = $4,000

Therefore, the contractor may be entitled to receive $4,000 in damages to cover home office costs for the delay.

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Unabsorbed home office overhead – Multiple projects - Example

- Clearly, as the number of projects increases, the calculations become more difficult.

This contractor has home office overhead costs of $1,000,000 per year. The contractor normally has four projects in progress at any one time, for a total yearly volume of $20,000,000. The contractor allocates home office costs by adding a 5 percent markup to each bid. Each of the four projects is valued at $5,000,000. What would happen if one project were to experience a delay?

Originally, each project absorbed $250,000 of home office costs, or about $21,000 per month. If one project experiences a one-month delay, then the contractor would receive no additional revenue to cover home office costs from that project and would therefore suffer a net loss in recovered home office overhead costs of $21,000. If the delay were attributable to extra work, the contractor might receive compensation from the markup on a change order. However, in the absence of extra work, the project experiencing the delay would underabsorb its share of the home office costs, leaving the other projects to overabsorb these costs.

Is there any debate on this?

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Unabsorbed home office overhead – Debates

- In **principle**, **home office overheads are recoverable**, however **difficult to ascertain** in **practice**.
  - **Despite** being a commonly **sought element** of delay damages, **home office overhead** remains a **contentious issue**.

Why?

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Unabsorbed home office overhead – Debates

- There is **no standard method** of calculating HOOH!
  - Most contractors want to use formulas
  - Most owners want to see "Real damage"
    - Some **disagree with the formulas** that are **often used to calculate** home office overhead costs.
- Some **do not agree** that there is a home office overhead cost incurred by the contractor as a **result of a delay** or that any cost incurred is **the contractor's risk and not the owner's responsibility.**
- Some believe that the **home office costs associated** with a delay are **fully compensated by the markup** for overhead provided on the **cost of the change** that caused the delay or on the other delay costs being sought.

We will see whether the courts agree or not later!
What are the least requirements to recover these costs?

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Unabsorbed home office overhead – Least requirements

- **Before** it can **recover unabsorbed overheads**, the **contractor must** be able to **demonstrate** that it has:
  - a) **Failed** to **recover** the overheads it could reasonably have expected during the **period of prolongation**
  - b) **Been unable** to **recover** such overheads **because** its **resources were tied up** by delay

In order to succeed in such a claim, the Contractor must demonstrate that there was other revenue and profit earning work available which, in the absence of the Employer Delay, would have been secured by the Contractor.

What do you need?

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Unabsorbed home office overhead – Least requirements

4. Cost records

- If the **contractor** wants to **use a formula** for the **assessment** of **lost profits** and **general overheads (unabsorbed overheads)**, it will need to **produce evidence** that the **delay caused by owner** **avoid** **contractor** to take a **new project**.
- To **prove**, you **need the following**:
  1. **Business plans** prior to delay **caused by employer**
  2. Contractor's **bidding history**
  3. Records of **acceptance** or **rejection of bidding**
  4. Records that **support** the **inputs into the formula** used, in particular **contractor's company accounts** for:
     a) **Periods** immediately **preceding and succeeding** the **employer delay**
     b) **Period** when the **employer delay occurred**

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Unabsorbed home office overhead – Calculation

The remainder of this section presents some methods for calculating delay damages associated with unabsorbed home office overhead costs.

The contractor should make all reasonable efforts to demonstrate through records the home office overheads that it has failed to recover.

If not feasible then the following formulae may be used with caution.

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- ماده ۶ شرایط عمومی پیمان قراردادهای مهندسی، تامین کالا و تجهیزات، ساختمان و نصب به صورت توام برای کارهای صنعتی (EPC – نشریه ۵۴۹۰) اشاره کرده:

"در موارد مسکوت در پیمان از آخرین نگارش استانداردها و مدهای معتبر خارجی هماهنگ با دیگر استانداردهای پیش بینی شده در پیمان با تایید مشاور کارفرما استفاده میشود."

البته تعمیم و تسری مورد بحث، با ملحوظ نمودن محدودیتهای حقوق موضوعه بایستی صورت گیرد.

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ماده ۶ – استانداردها، مقررات و مراجع

کلیهٔ کارهای موضوع پیمان باید طبق آخرین ویرایش استانداردها، مجموعهٔ مقررات و آیین‌نامه‌های اجرایی (کدها) و مراجع فنی در زمان تاریخ ارائهٔ پیشنهاد قیمت از طرف پیمانکار صورت پذیرد، مگر آنکه به نحو دیگری در پیمان تصریح شده باشد.

در موارد مسکوت در پیمان، پیمانکار باید تا قبل از صحه‌گذاری اسناد فنی پایهٔ منضم به پیمان، استانداردها و کدهای معتبر پیشنهادی خود را به کارفرما ارائه و تأییدیهٔ نهایی را اخذ نماید، در غیراین‌صورت از آخرین ویرایش استانداردها و کدهای معتبر و هماهنگ با دیگر استانداردهای پیش‌بینی شده در زمان تاریخ ارائهٔ پیشنهاد قیمت از طرف پیمانکار، با تأیید مشاور کارفرما، استفاده می‌شود.

چنانچه پس از تاریخ ارائهٔ پیشنهاد قیمت از طرف پیمانکار، ویرایش جدیدی از استانداردها، مجموعهٔ مقررات و آیین‌نامه‌های اجرایی (کدها) و مراجع فنی مورد نیاز اجرای کار (مصرّح در اسناد پیمان) تدوین شده باشد، دستور کارفرما مبنی بر استفادهٔ پیمانکار از آخرین ویرایش این اسناد، باید مطابق ماده ۴۹ صورت پذیرد.

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ماده ۴۹ - تغییر در کارها

۴۹-۱ کارفرما در چارچوب کلی موضوع پیمان، در طول مدت پیمان تا پیش از تحویل موقت، می‌تواند افزایش و یا کاهش مقادیر، حذف برخی از کارها، تغییر در مشخصات کارها و یا انجام کار جدید را از پیمانکار بخواهد و پیمانکار موظف است با رعایت سایر بندهای این ماده و مفاد پیمان، اقدام نماید.

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ادعای پیمانکار در بندهای ۱ و ۲ و ۳ و ۴ و ۵ و ۷ در این بخش از قرارداد اول، جملگی ذیل بند ۷-ق.۱. می‌باشد؛ فلذا با امعان نظر به ماهیت این ادعا و با تجویز رجوع به عرف در «ماده ۲۲۰» قانون مدنی، و قابلیت بهره‌مندی از روش‌های رایج در مدیریت ادعا، ادعای پیمانکار در بندهای یک تا پنج این بخش از قرارداد اول، صفر، منظور شده و با اِعمال ضابطهٔ ایچلی اصلاح‌شدهٔ یک به جهت تناسب حاکثری با ماهیت پروژه - به تجویز عرف موضوعی «ذیل ماده ۲۲۵» قانون مدنی -و تخصیص آن به ردیف هفت، به میزان ۱۰،۲۳۴،۵۴۹،۱۷۲ ریال، وارد است.

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Eichleay formula

- **In 1960** the **ASBCA (** دادگاه استیناف قراردادهای نیروهای مسلح آمریکا) **heard the appeal of the Eichleay Corporation** from a **Corps of Engineers** determination concerning **home office expense** allocable as a result of delays encountered during the construction of a **Nike Missile Base in** Pennsylvania.
- **ASBCA** recognized that when a contractor encounters government caused delays of an unknown duration, the contractor's **HOOH continues to accrue** but is **no longer supported** by revenue from the delayed project.
- **ASBCA** acknowledged previous Court findings that there is **no exact way** to calculate unabsorbed HOOH in order to determine the compensation owed the contractor.
- The **appellant** in this case, the **Eichleay Corporation**, **offered a formula** to proportionately allocate their HOOH from the corporate level.
- The **ASBCA** in their decision **adopted** the appellant's proposed method of computing unabsorbed HOOH delay costs – and thus the **Eichleay Formula was born!**

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موسسه مهندسی و مدیریت ساخت علوی پور (ACEMI)

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