

Surety Process: What To Do When Construction Projects Go Bad

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GREYHAWK North America



Our Goal

- Explore and explain the particulars of Bonded Projects that get into trouble
- Outline the responsibilities of all parties to the Bonds
- Outline the options available when the project gets in trouble
- Review the consequences of a Default/Termination
- Explain the options after a Termination

Project Participants

Owner

[For purposes of this presentation also known as the Obligee]

- Private
 - Person
 - ✓ Developer
 - ✓ Philanthropist
 - ✓ Licensed Operator
 - Corporation
 - Institution
 - ✓ Church
 - ✓ Fund
 - ✓ Association
- Public or Municipal
 - Federal Gov't or one of its component agencies
 - State Gov't or one of its component Agencies
 - City Gov't or one of it's component Agencies
 - Local – Town, Village, Hamlet, etc.
 - Any Subsidiary or component entity governed by public procurement policy

Architect/Engineer

- An Individual Group or Company
 - Selected by the Owner [Public or Private] for its expertise to prepare the necessary design documents that describe, in detail, the tasks necessary to construct the Project. The written description(s) (including drawings) are designated as the Contract Documents.

Construction Manager

- An individual, Group, or Company selected by the Owner, for its expertise to oversee the Owner's interests and manage the various activities of the participants to complete the project in accordance with the Contract Documents.

Contractor

[For purposes of this presentation also known as the Bond Principal]

- The entity responsible for construction of the project, or the entity who performs the work
- Responsible for obtaining the Bonds
- Must be fiscally responsible [History or Track Record]
- May be the low bidder or lowest responsible bidder
- May be chosen via competition
- Generally satisfies some criteria of responsibility
- May be one of several to satisfy the bidding requirements for “Co-Prime” Contractors [Wicks Law]

Subcontractor

[For Purposes of this Presentation also know as a subtier or tier 2 contractor]

Performs Specialty Work or Part of the Project Scope

- | | |
|---------------|-------------------------------|
| a) Roofing | d) Concrete Work |
| b) Painting | e) Carpentry/Siding |
| c) Excavation | f) Drywall – Acoustic Ceiling |

- Engaged via an Agreement with the Contractor which generally identifies specific Specification Sections
- May or may not be bonded
- Performs its work during a particular duration during the Contract Period
- Generally responsible for all work within a particular Specification Section
- Purchases own materials

Vendor/Supplier

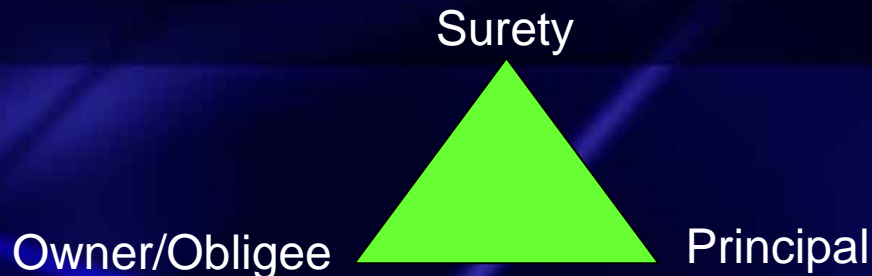
- Furnishes specified material for the Project
- May be a direct supplier to Contractor [Tier 1]
- May be a supplier to a Subcontractor [Tier 3]
- Generally qualifies as a Claimant under the Payment Bond
- Any vendor lower than Tier 3 may not be covered under the Bond

Surety

- The Bonding Company or Bond Producer
- Must meet rating qualifications
- Asserts the Fiscal Guaranty
- Third-party to the Tri-partite Agreement
- Pre-qualifier of Contractors
- “Conscience” of the Project

Bond [What is it?]

- It is not an insurance policy!
- It is a financial guaranty of sorts
 - It establishes a financial criteria
 - But also establishes a financial limit
- It is a Tri-partite Contract
- The project is the beneficiary of the Bond



GLOSSARY OF SURETY TERMS

The following is GREYHAWK's attempt at producing a useful, practical definition, not necessarily precise, and, therefore, indecipherable, but one that is technically correct and easily understood.

Glossary of Surety Terms - Index

- Surety Bond
- Contract Documents
- Obligee
- Co-Obligee, Dual Obligee, Multiple Obligees
- Principal or Bond Principal
- Surety or Bonding Company
- Types of Bonds
- Performance Bond
- Payment Bond
- Penal Sum of the Bond
- Statutory Bond
- Common Law Bond
- A-312 Bond
- Bond Rating
- Default
- Breach
- Termination
- Default/Termination
- Available Contract Balance
- Retainage
- Contract Sum or Contract Price
- Adjusted Contract Price
- Schedule of Values
- Earned Work
- Earned & Unpaid Funds
- Liquidated Damages
- Indemnity/Indemnitors
- General Indemnity Agreement
- Escrow
- Consent of Surety
- Notice
- Limitations – Time Barred

Glossary of Surety Terms - Index (cont.)

- Lien
- Lien Bond
- Claimant
- Underwriter
- Reinsurance/Reinsurers
- Reserve
- Proof of Claim
- Good Faith/Bad Faith
- Ratification or Hold Agreement
- Demand Under the Bond
- Consultant
- Surety Outside Counsel
- Surety Adjuster or Surety Claims Counsel
- Notice to Cure
- Surety Financing
- Takeover Agreement
- Tender Agreement
- Completion Agreement
- Subrogation, equitable subrogation
- Recovery
- Reservation of Rights
- Waiver
- Collateral
- Contract Defenses
- Quia Timet

Surety Bond

- It is not an insurance policy!!!
- It is a tripartite agreement.
- It becomes a fiscal guaranty, based on a specific set of circumstances.
- The circumstances are defined by the Contract Documents and the bond language itself.

Contract Documents

- All of the relevant documents required to define the construction of the project:
 - drawings
 - specifications
 - soil borings
 - photographs
 - funding requirements
 - wage rates etc.
- The key word is all of them!!!

Obligee

- The entity specifically responsible for the project, including the following:
 - funding
 - erection
 - design
 - approval of work in place
 - disbursement of funds for work performed
- The Obligee may be public, private, or government entity or it may be the financial guarantor (HUD).

Co-Obligee, Dual Obligee, Multiple Obligees

- (Sometimes there are more than one)
- It could be one of the following:
 - construction manager
 - Developer
 - financial guarantor
 - multiple government agencies
 - It means that they are all equally responsible for fulfilling their duties and obligations under the bond.

Principal or Bond Principal

- Generally, this is the Contractor who will physically perform the work.
- It can be one of the following:
 - the Construction Manager
 - the General Contractor
 - one of several Co-Primes, or
 - a subcontractor.
- It is the entity specifically responsible for obtaining the bond, based on its previous track record of completed projects.

Surety or Bonding Company

- The entity who provides the fiscal guaranty and who actually issues or provides the bond(s).
- It is usually a specific division or group within an insurance company.
- REMEMBER, THE BOND IS NOT AN INSURANCE POLICY!!!!
- Provider may be a private or public source who underwrites the project, or who provides a specific fiscal guarantee equal to the surety bond.

Types of Bonds

- Contract Bonds
 - Performance Bonds
 - Payment Bonds
- Generally, these two bonds are issued together.
- Required on all public projects
- Optional on private projects

Performance Bond

- A specific guaranty that is used by governmental entities to assure the completion of a construction project.
- The obligations are spelled out specifically in the Bond.
- The obligations may, or may not be, the same as the contract terms.

Payment Bond

- A payment bond is specifically issued to protect those parties who provide:
 - material
 - labor
 - rental equipment
 - certain services for the project.
- The project must be the beneficiary of those services.
- (also known as “incorporated in the project”).
- Obligations are always subject to the terms & provisions of the bond.
- The definition of a “claimant” can be specific. Otherwise, the interpretation is open to the Statutes.

Penal Sum of the Bond

- Generally this is the amount of the bid or the cost of construction as stated on the performance bond.
- But there are exceptions:
 - where the penal sum is increased by the terms of the contract
 - for example, 125% of the contract price
- Payment bond limitations are rarely set for more than the contract price, but can be less than the contract price.
 - Usually expressed as a percentage
 - e.g. 100% payment bond or 50% payment bond
 - sometimes even lower
- Typically, HUD housing projects have combined limit bonds or Payment Bond limits as low as 15%.

Statutory Bond

- Most payment and performance bonds are mandated by state statutes.
- The concept is to protect the greater public interest.
- Therefore, statutes generally dictate the minimum requirements only for the obligation of the bonds.
- Many Obligees use their own bond form or accept the form of the surety.

Common Law Bond

- Where there are no bond statutes, or where the bond is for private work
- also where the bid process has violated the statutes
- or where the language of the bond exceeds the statutes
- the express language of the bond prevails.

A-312 Bond

- This is the bond form provided by the AIA
- The most commonly used bond form
- The surety has three choices:
 1. Complete the project itself
 2. Arrange for another contractor to complete the project for the surety
 3. Tender an amount of money to the Obligee to satisfy the obligations under the bond

Bond Rating

- Most governments, municipalities or government entities are mandated to use U.S. Treasury rated sureties
- With a rating no less than “A-”
- Occasionally, but rarely, “B+” is acceptable for minority contractors.
- The rating defines the fiscal strength of the surety.

Default

- Occurs when one of the parties fails to perform according to the Contract Documents or per the terms of the bonds.

Breach

- Occurs when one of the parties performs an action that is contrary, or in violation of, the Contract Documents or the Bond.
- A breach by the Owner/Obligee could render the bonds to be null and void, thereby stopping the project.

Termination

- Can occur under several circumstances or for many reasons:
 - mutual agreement among the parties
 - for the convenience of one, or both of, the parties
 - lack of continued funding
 - project cancellation by the end user or the finance group
 - for cause.

Default/Termination

- When the termination is “for cause”
(a cause of action which generally leads to a declaration of default)
it is then called a “Default –Termination”.
- The common assumption is that is always the Contractor who is terminated for cause, but this can occur as result of the actions of the Obligee as well.

Available Contract Balance

- This is the Adjusted Contract Price
(including the value of executed change orders)
- less the actual amount paid to the Contractor.
- The Available Contract Balance generally includes the amount of money retained.

Retainage

- That portion (a percentage) of the earned value of work in place that is held back from the contractor according to the terms of the Contract Documents.
- Can be anywhere from 2% - 10% of the work in place.
- Can be a sliding or adjusted scale based of the total value or percentage of work completed.
- Option: a Retention Bond may be obtained to replace the cash retainage.

Contract Sum or Contract Price

- The original price agreed upon by the parties, and as stated on both the contract and the face of the performance bond.

Adjusted Contract Price

- The value of the contract as adjusted by:
 - executed change orders
 - Constructive Change Directives (“CCD’s”),
 - or similar acceptable methods pursuant to the contract documents.
- This value is generally not reflected on the bonds, but is covered via language within the bond or within the contract documents,
- so as to increase the penal sum of the bond accordingly.
- This can be a problem on unit price contracts or a contract with Alternates or Options.

Schedule of Values

- A payment schedule mutually acceptable to the Obligee and to the Principal.
- this is the basis of progress payments,
- they are processed at specified intervals (usually monthly).
- Significant under the payment bond.

Earned Work

- Percentage of Completion agreed to by Obligee and Contractor on individual scope items and then aggregately during the processing of the progress payment.
- Significant under the payment bond.

Earned & Unpaid Funds

- The value, or percentage, of work that has been certified, or accepted as complete, but which has not yet been paid.
- Applies to contractors subcontractors, vendors-all parties.
- Significant under the payment bond.

Liquidated Damages

- Specified amount indicated in the contract documents which can be assessed against the contract balance for failure of either party to perform according to pre-determined milestone dates.
- The liquidated damage amount is not supposed to be a penalty.
- The amount is supposed to represent the actual amount that either party would be damaged if the project is not completed on schedule.

Indemnity/Indemnitors

- These are the individuals or corporations, or both, who pledge cash or assets to the surety, to be used in the event that the surety sustains a loss under the bonds.
- A potential surety loss is triggered by a demand made against the surety by the Obligee due to an action of the Bond Principal.

General Indemnity Agreement (GIA) or (GAI)

- This is the promissory agreement that is signed by the indemnitors whereby they agree to repay the surety for any losses it sustains on their behalf.
- This is a separate document from the bonds.

Escrow

- A special bank account that holds funds for a specific purpose(s).
- A place that money can be placed for safekeeping pursuant to an event.
- This is money that is:
 - earned
 - money withheld
 - monies advanced pending an event.

Consent of Surety

- The surety's consent-given when an event occurs that significantly affects the penal sum of the bond or the manner of disbursement of contract funds.
- The Obligee and the Principal must remember that it is a tri-partite agreement, and the surety must be notified.
- The surety may have to give written consent for:
 - two-party checks to subcontractors or vendors
 - delayed or advanced payment
 - increase or reduction of retention
 - payment of liens, etc.
 - final payment

Notice

- The general term used for advising parties in writing (according to the "Notice Provision" of the Contract Documents) that an event has occurred which requires a formal response.
- Notice may be of:
 - failure to perform
 - a modification of the contract period
 - a delay
 - other events to which a verbal response is inadequate.

Limitations-Time Barred

- Usually applies to claims made under the payment bond.
- There is a specified period, either via the bond or via a statute, within which a payment bond claim must be filed.
- Failure to make a timely claim may result in the claim being disallowed or denied.

Lien

- A claim asserted against an asset by a party who performed an action whereby the value of the asset was affected.
- Generally stops or drastically affects the disbursement of contract funds.

Lien Bond

- A fiscal guaranty made by a surety at the request of a third party to permit the project and the payments to continue.
- Utilized where there is a dispute in the amount owed, or a lien filed for an unjustified amount.
- There are advantages and disadvantages to the use of a Lien Bond.

Claimant

- Anyone who provides materials, labor, or otherwise performs a task on a project whereby the project value is improved and who has not been paid for such materials or services.
- Must be eligible either under the bond or under the statute.

Underwriter

- The person or agency who assesses the risk associated with a surety bond,
- generally works for the surety or is an agent or broker of surety bonds,
- is experienced in reviewing:
 - fiscal records
 - assets
 - contractor capabilities
 - recommending whether a bond should be issued to a particular contractor for a particular project.

Reinsurance/Reinsurers

- An insurance company, or group of companies, who insure the insurers.
- They underwrite sureties and other insurance companies.
- They spread the risk around among different companies.
- Essentially this is an insurance company for sureties.
- However, the entire loss cannot be underwritten:
 - only a portion can be underwritten
 - and that portion is dependent upon many factors.

Reserve, Set a Reserve or Reserved Loss

- Following a demand under a bond, and subsequent to the surety's investigation and determination of its options, it must estimate the amount of the loss it anticipates it will sustain.
- This amount is then "reserved".
- The reinsurers are advised, and a number of checks and balances are set in motion, all related to the estimated amount.

Proof of Claim

- Form used by surety when it has been notified of a potential claim by a vendor or subcontractor who performed on the bonded project.
- It requires specific information from the claimant.
- Must be submitted with substantiating documents that prove its claim.
- Burden of proof always rests with the claimant.

Good Faith/Bad Faith

- Terms used to describe the actions of parties to the bond, or parties seeking to make a demand under the bond.
- “Good Faith” is defined by an expedient investigation and response or reply, proper notice, and behavior in accordance with the "Fair & Reasonable" principals defined by Federal, State and Local purchasing agreements. (FAR)
- “Bad Faith” is the improper conduct of any of the parties.
- A false, or indiscriminate accusation of Bad Faith has been dealt with by court imposed penalties or assessments against the culprits in recent years.

Ratification or Hold Agreement

- In the event of a default termination of the bond Principal and a proper demand made under the bond by the Obligee, the surety would move to investigate its options by first investigating all Purchase Agreements/Subcontracts in place between the Principal and its suppliers and Subcontractors.
- This Agreement serves many purposes:
 - pay the earned and unpaid amounts
 - ratify the existing Agreement to perform/complete the work
 - allows assignment to another party.

Demand Under the Bond

- In the event that an Obligee properly Default-Terminates a Principal, it must then make a proper demand under the bond to the surety to fulfill its obligations.
- Most performance bonds have several options for consideration.
- There is usually a time frame within which the surety must act.

Consultant

- Persons or companies hired by the obligee, the surety or the principal (and sometimes by all three) to assist it in determining its rights, costs to complete, and many other functions towards fulfilling each party's obligations.

Surety Outside Counsel

- Attorney(s) engaged by the Surety.
- Usually geographically situated within short traveling distance of the project.
- Not directly employed by the Surety.

Surety Adjuster or Surety Claims Counsel

- Once the project has been let and the bonds issued, the broker, agent or underwriter will have minimal duties, if any, during the remaining life of the bond.
- The bonds are kept on file until a claim is asserted, at which time the Surety Claims Group is informed, and then they assign a full time adjuster or Claims Counsel to the file.
- It is that person who conducts all future correspondence with the Obligee.

Notice to Cure

- This is a specific notice given in writing by the Obligee or its agent, to the Principal, indicating in detail those issues of poor performance, non conforming work, etc., which must be resolved or "cured" within the time frame outlined in the contract or bond.
- Failure to "cure" or resolve within that period could lead to a declaration of default.
- Further ignorance or failures may result in a default termination.

Surety Financing

- Sometimes the reason a Principal is performing inadequately on a particular bonded project may be the result of a funding situation on another project.
- Following the surety's investigation, it may determine that the best method of solving the problem at issue is to "finance" the work under very specific circumstances.
- The co-operation of the Obligee would be a condition precedent for this to happen, since there are very specific guidelines.
- This is an option, not popular among sureties, since it exposes the surety to costs or losses beyond the penal sum of the bond.

Takeover Agreement

- One option under the bond is for the surety to complete the project.
- This is a method under that option where it enters into an agreement with the Obligee to "takeover" and complete the project.
- This can be accomplished in a number of ways:
 - with consultant acting as a construction manager
 - with another contractor
 - with the original contractor re-instated, subject to the Obligee's approval
- Sometimes the contract documents preclude the use of a Takeover Agreement = consequences

Tender Agreement

- Another option available to the Surety and the Obligee is a Tender Agreement.
- This presents a new completion contractor with its own, new surety.
- Usually requires the original surety to make a cash payment to the Obligee for the difference between the available contract balance and the actual cost to complete.
- This is usually accompanied by a Release of the original surety from its obligations.

Completion Agreement

- This is a special agreement that can be utilized in several ways.
- Most frequent use in conjunction with Takeover Agreement, whereby the surety engages a completion contractor to finish the project.
- Another way is the use, (or choice by the Obligee) of a specific contractor to complete, whereby the surety agrees to use the same and fashions a completion agreement.
- There are other similar circumstances.

Subrogation, Equitable Subrogation or Equitable Right of Subrogation

- The right of one party to assume the rights of another, or to "step into the shoes" of that party.
- Most commonly used when a surety assumes the right to assert the same claims which its principal may have asserted regarding change orders, delays, damages payments time extensions, etc.

Recovery

- Monies received in resolution of, or in restitution for, a loss. This can happen in many ways, and is most common on environmental projects. This applies to all three parties (Obligee, Principal & Surety) under the bond.

Reservation of Rights

- When there is a default, and /or a termination, and there is a dispute among the parties, this is a way for the parties to progress the work without prejudice or without giving up their rights.
- Most importantly, it allows the parties to mitigate losses, legal fees and other consequential costs associated with a project in default, termination or dispute by allowing continued actions by all with an agreement to resolve or litigate later on when damages might be quantified and ancillary costs of delay mitigated or eliminated.

Waiver

- This is an assertion by one or more parties to "give up" something (usually a right of defense or a right of refusal) in a particular circumstance, to accomplish something more favorable in the bigger picture.

Collateral

- Cash or assets pledged against an obligation or a liability:
 - in exchange for surety financing of the contractor, the contractor uses or pledges certain equipment, property or cash deposits to offset the loan or to guaranty the loan.

Contract Defenses

- This is a common term used to describe the reasons a party to the bond undertook a certain action.
- Each of the parties under the bond must dutifully and faithfully perform its obligations.
- This statement or assertion is generally made by a bond party who feels either of the other failed to act properly, therefore, "it asserts" its defenses.
- Essentially, this is a justification for:
 - the principal to claim improper default or termination
 - the surety not to fulfill its obligations under the bond
 - for the Obligee to justify its actions.

Quia Timet

- Latin term meaning “Fearful Surety”.
- This is the surety’s right to investigate its bonded project when it has received a claim, lien or litigation, or becomes aware of a dispute that creates the fear of a loss or failure of one of the parties to the bond to perform according to their obligations under the bond.

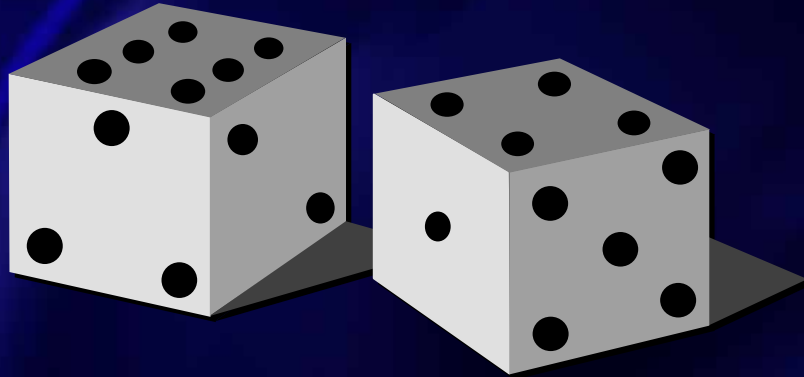
CONTRACTS AND PROJECT IMPACTS

Kenneth F. Haines, Jr.

GREYHAWK North America



TYPES OF CONTRACTS



- LUMP SUM
- UNIT PRICE
- COST PLUS (T & M)

CONTRACT RISK

SCOPE
DEFINITION

OWNER'S
RISK

CONTRACTOR'S
RISK

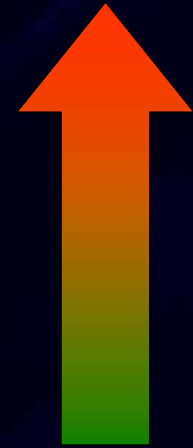
LUMP SUM

High

Low

High

UNIT PRICE



COST PLUS
(T & M)

Low

High

Low

COST OVERRUNS

Managing the Risks of Construction



KEY CHALLENGES in CONSTRUCTION

- **Changes**

- Design Errors & Omissions
- Differing Site Conditions
- Site Access
- Work Sequence Changes
- **Major Disputes**
- Delays
- Acceleration & Disruption
- Defective Work
- Termination



COMMON PROBLEM

Design Errors and Omissions



DESIGN PROBLEMS



- Lack of Coordination
- Conflicting and Ambiguous Contract Language

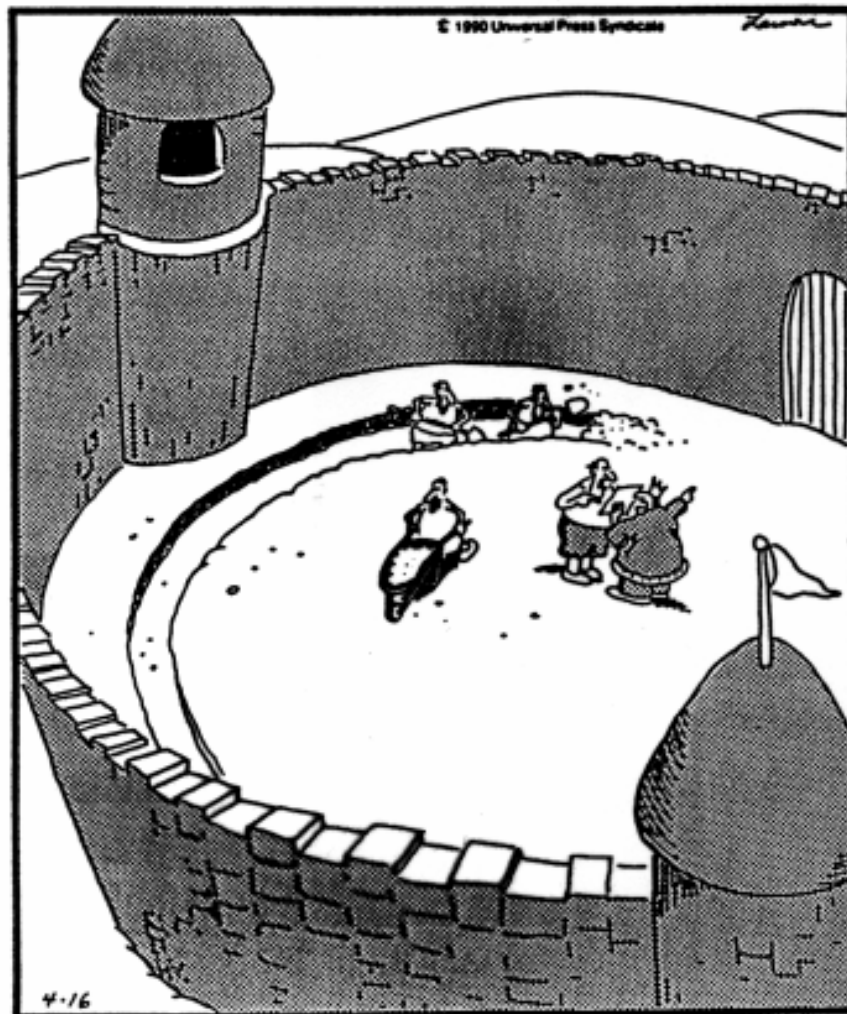
AMBIGUOUS/CONFLICTING CONTRACTS

- CAN BE REDUCED THROUGH A THOROUGH REVIEW OF THE CONTRACT PRIOR TO BID
- AVOID “TIMELY”, “REASONABLE”
- LOOK FOR ORDER OF PRECEDENCE CLAUSE
- CONSIDER INDUSTRY STANDARDS
- AMBIGUOUS CLAUSES ARE USUALLY DECIDED AGAINST THE DRAFTER

Ventilation shall be above the minimum level required by the latest ASHRAE standards, Smith City Building Code and the Smith City School Design Standards.

THE FAR SIDE

By GARY LARSON



**Suddenly, a heated exchange took place
between the king and the moat contractor.**

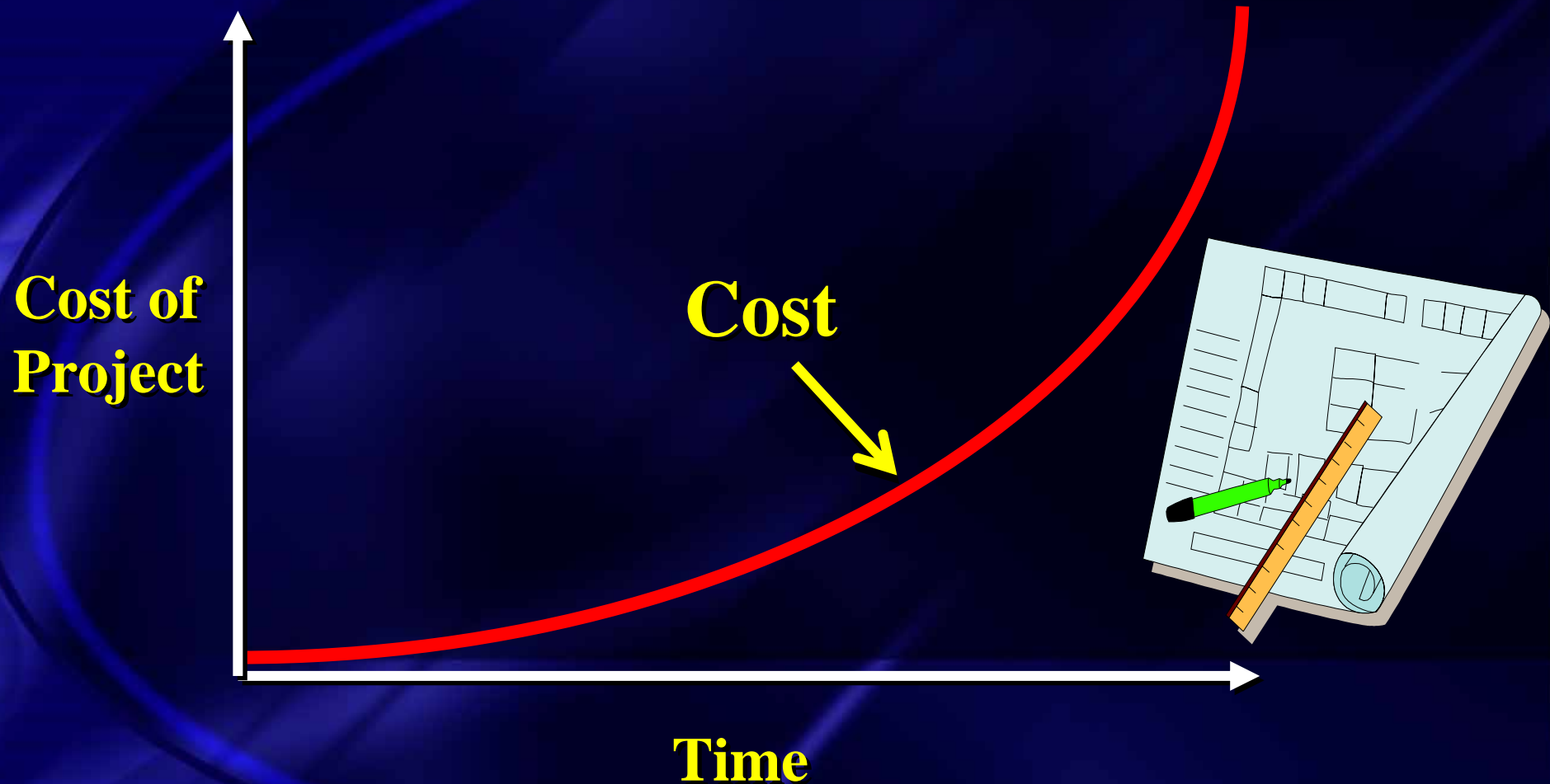
THE FAR SIDE COPYRIGHT 1990 UNIVERSAL PRESS SYNDICATE.
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DESIGN PROBLEMS



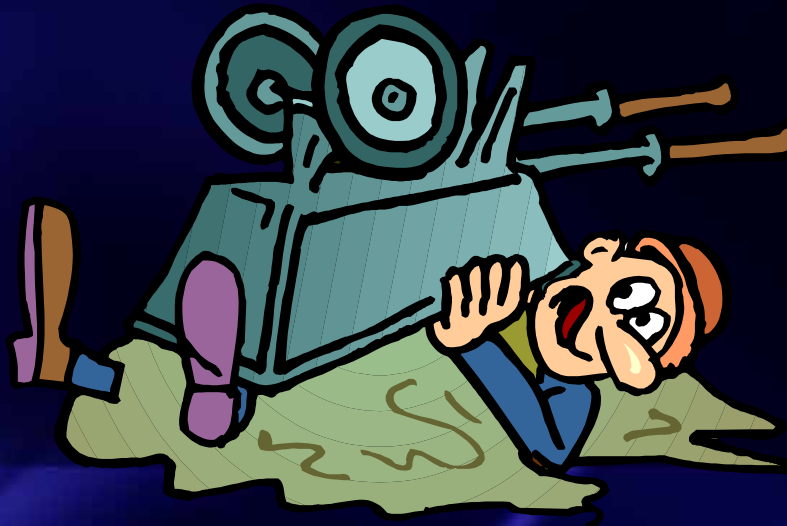
- Lack of Coordination
- Conflicting and Ambiguous Contract Language
- Unreasonable Clauses
- Late Design
- Inadequate Design Budget

PROJECT COST OVER TIME



COMMON PROBLEM

Differing Site Conditions



Differing Site Conditions

Common Problems

- Renovations: Pre-existing Conditions
- Subsurface Conditions

Differing Site Conditions

Differing Site Condition Clauses

- Relief for unusual situations
- Relief for situations not in contract documents
- Found in most contracts
- Intent of clause:
 - ✓ Shift risk to owner
 - ✓ Decrease bid contingency



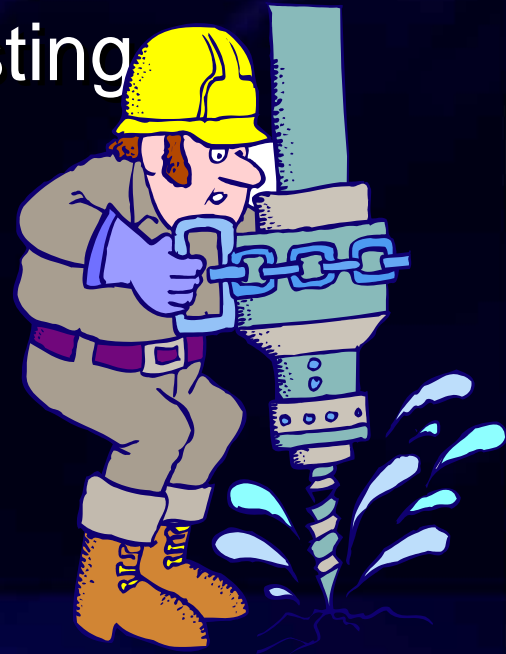
Differing Site Conditions

Type One

- Materially different than indicated in contract
- Examples: soils, utility lines, existing materials

Type Two

- Contract is silent
- Could not be anticipated
- Examples: buried obstructions, layers of demolition





Differing Site Condition Claims

- Prompt notice to owner
 - Notice clauses upheld
 - Verify conditions
 - Avoid Constructive Notice



- Withholding information: “Superior Knowledge”

CHANGES TO THE WORK

OWNER REQUESTED CHANGES

- Expansion of Work Scope
- Change in Nature or Criteria of Work
- Deductive Change
- Unanticipated Conditions
- Want Forward Pricing of Change

CONTRACTOR REQUESTED CHANGES

- Perceived Design Problems
- Recover Poor Estimate
- Increase Profit Margin

CHANGE ORDER PERCEPTIONS

- Excessive Changes Can Delay/Disrupt Project
- A/E's are Uncomfortable with CO Requests
- Tendency is to Blame “The Other Guy”

Minimizing Owner Change Orders

Causes

- Unknown Conditions
- Design Deficiencies
- Facility User Changes

Remedies

- *Add'l Investigations*
- *Design Reviews*
- *Early User Involvement*

Change Order Pricing Methodologies



Unit Prices

- Adjustment If More Than 15% Variation

Fixed Price

- “Aggressive” Itemizing
- “Beat the Price” Motivation

Time & Material

- Lose Cost Control
- Lose Motivation: “T&M Mentality”

HURDLES TO COLLECTING CHANGE ORDER COSTS



- Demonstrate Entitlement
- Contract Provisions
- Records to Support Occurrence of Events
- Records to Support Increased Costs

REQUIRED FINANCIAL RECORDS

- Cost Reports
- Productivity Reports
- Labor Reports
- Payroll Records
- Timesheets
- Invoices

PROJECT DOCUMENTATION

- Correspondence
- Meeting Minutes
- Daily Reports
- Photos/Videotapes
- Submittals
- RFI's
- Logs
- Diaries/Journals
- E-mails

DOCUMENTATION GUIDELINES



- MAKE A RECORD OF PROJECT HISTORY
- STICK TO THE FACTS
- DOCUMENT YOUR POSITION
- AVOID PERSONAL ATTACKS
- YOUR AUDIENCE MAY BE MORE THAN JUST THE RECIPIENT
- DO YOU WANT THE DOCUMENT READ BACK TO YOU IN COURT?

CHANGE ORDER MANAGEMENT/ADMINISTRATION

- Create Separate File for Each CO
- Ensure Written Directive or Proper Notice
- Create CO Log
- Determine Scope, Get Agreement
- Keep Cost Records

Change Order Impacts

- Acceleration
- Loss of Productivity
- Delays

CALCULATING LOST PRODUCTIVITY

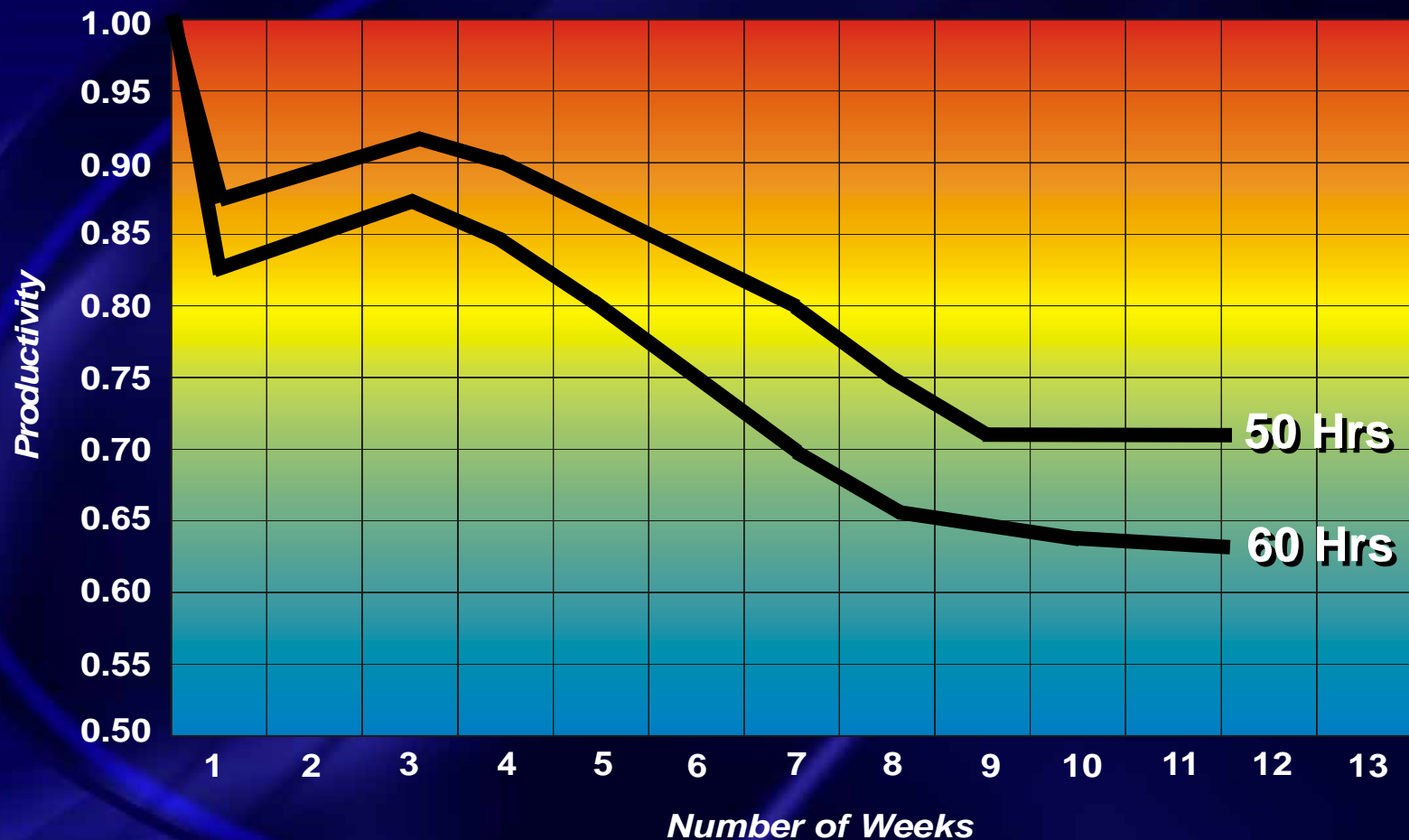
- Expert Testimony
- Studies
- Historical Productivity
- Project Specific/Measured Mile

MCAA LOSS OF PRODUCTIVITY

	<u>Minor</u>	<u>Average</u>	<u>Severe</u>
• Stacking of Trades	10%	20%	30%
• Morale and Attitude	5%	15%	30%
• Reassignment of Manp	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%
• Errors and Omissions	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%

Cumulative Effect of Overtime on Productivity

50 & 60 Hour Workweeks



DELAY DAMAGES

CONTRACTOR DAMAGES

- Extended Home Office Overhead
- Extended Field Office Costs
- Wage Escalation
- Material Escalation
- Storage Fees
- Extended Equipment Usage
- Finance/Interest Costs
- Decreased Bonding Capacity

OWNER DAMAGES

- Liquidated Damages
- CM/Engineering/Inspection Costs

NO DAMAGE FOR DELAY

- CONTRACTOR GETS TIME, NO \$, POSSIBLE SYMPATHY
- SOME CLAUSES ALLOW TIME AND FOH
- NEED TO FALL INTO JUDICIAL EXCEPTIONS TO COLLECT FOR DELAY DAMAGES

JUDICIAL EXCEPTIONS TO NO DAMAGE FOR DELAY



- Delays caused by bad faith; willful, malicious behavior; gross, negligent conduct

Ex.: Concealment, Active Interference

- Uncontemplated Delays Ex. : Failure to Obtain Promised ROW, Default of Other Contractors
- Unreasonable Delays Amounting to an Abandonment of the Contract Ex. : 7 years to Complete a 3 Year Project
- Delays Resulting from a Fundamental Breach of the Contract Ex. : Failure to Provide Site Access, Failure to Make Payment

EICHLEAY FORMULA

- $\frac{\text{Contract Billings}}{\text{Total Billings}} \times \text{OH} = \text{Allocable Overhead}$
- $\text{Allocable OH} / \text{Project Duration} = \text{Overhead Rate}$
- $\text{OH Rate} \times \text{Period of Delay} = \text{Extended Overhead}$
- Need to Subtract Overhead Associated with Change Orders in Delay Period

NEW YORK STATE LAW ON EICHLEAY

- “ The damages computed under the the ‘Eichleay formula’ would be the same whether the plaintiff had completed only 1% or 99% of the job on the scheduled completion date of May 7, 1971. This rather bizarre result is caused by the fact that the ‘Eichleay formula’ focuses on the length of the delay to the exclusion of many other important factors bearing on actual damages. ... I can only conclude that the mathematical computation under the ‘Eichleay formula’ produce a figure with, at best, a chance relationship to actual damages, and at worst, no relationship at all.”
- Berley Industries, Inc. v. City of New York Nov 1978

MANSHUL FORMULA

- Deduct an Allowance for Overhead and Profit from Contract Work Payments in Delay Period to Calculate Direct Costs of Contract Work
- Allocate a Percentage of the Calculated Direct Costs for Overhead
- Add a Profit Percentage to the Overhead

MANSHUL FORMULA

- Contract Work Payments in Delay Period \$121,000
- Overhead and Profit 21% (10% and 10%)
- $\$121,000 / 1.21 = \$100,000$ Calculated Direct Costs
- $\$100,000 \times 10\% = \$10,000$ Overhead
- $\$10,000 \times 10\% = \$1,000$ Profit
- Extended Overhead = $\$10,000 + \$1,000 = \$11,000$

Dealing with Project Impacts

Strategies

- Minimize the potential for problems
- Recognize problems as they arise
- Address the problems
- Notify as required
- Document the facts
- Find solutions everyone can live with



CONCLUSIONS

- Prove Entitlement First, Then Costs
- Keep Accurate Cost Records to Prove Costs
- Construction is a Business, Approach It That Way
- Know the Contract and Adhere to its Provisions
- Consult With Legal Counsel for Legal Restrictions

When the Project Starts to Turn Bad – What to Do?

Richard P. Anastasio

GREYHAWK North America



When the Project Starts to Turn Bad – What to Do?

- Signs
- Notice
- Involving the Surety
- Default
- Termination
- Reserving & Preserving Rights - Defenses
- Completion Options
- Engaging a Completion Contractor
- Managing the Completion Contractor
- Traps to Avoid

Signs

- Learn to read the “Good Signs” and the “Bad Signs” – They say a lot about a Project
- Visual Signs
- Administrative Signs
- Personnel Signs
- Personality Signs
- Learn to read the Signs

Visual Signs

- Project Appearance – “you can always tell a good journeyman by his toolbox”
- Safety Issues
- Organization
 - Is the ongoing work coordinated?
 - Was the sequence of the work in place practical?
- General Condition
 - Project?
 - Site?
- Dumpsters
 - Adequate?
- Inventory
 - Organized?

Administrative Signs (1 of 2)

- Field office condition, organization & function
- Files – How well organized and useful are they?
- Drawings & Specifications
- Submittals & Approvals-up to date?
- Subcontractor – Vendor Information
- Safety Information & Equipment

Administrative Signs (2 of 2)

- Schedule of Values – How descriptive?
- Payment Requisitions – Organized, useful?
- Project Financial Data - Up to date, useful or propaganda?
- As built condition – drawings, progress photographs
- Schedule – functional, updated, useful or just a pretty, colorful picture?
- Daily Reports – functional, useful, descriptive, or just “Rote”?

Personnel Signs

- Contractor CM or PM Staffing – adequate, knowledgeable?
- Meetings – Held regularly, minutes, useful or just paper?
- Craft Manpower – coordinated, adequately staffed, busy?
- Owner's Staff – adequate, knowledgeable, who are they – titles?

Chain of Command

- Is it clearly defined and operating as defined? Consistent?
- What function does the Architect perform?
- Written Directives or Instructions? By Whom?
- Are there “Political or Influence” Concerns or Interferences?
- Verbal Directives?

Notice (1 of 3)

- What is it? And why do it?
- How important is it?
- What purpose does it serve?
- When do you do it?
- Who do you notify?
- What do you tell them? How?

Notice (2 of 3)

- The general term used for advising parties in writing (according to the "Notice Provision" of the Contract Documents) that an event has occurred which requires a formal response.
- Notice may be for:
 - failure to perform
 - a modification of the contract period
 - a delay
 - other events to which a verbal response is inadequate.

Significance of Notice (3 of 3)

- Failure to do it properly has serious consequences
- Failure - can result in a release of the bond
- Failure - can result in a loss of one's rights
- Notice applies equally to all parties to the Bond

Why Notice?

- Notice to Cure
- Notice of Default
- Notice of Default-Termination
- Notice of Demand
- Change in Payment Terms
- Change in Contract Price (+/-)
- Consent of Surety
- Change in Surety Status
- Change in Obligee Status
- Change in Principal Status
- Change of Insurers
- Change in Funding
- Change of Agents

Communicate! It preserves your rights

Involving the Surety (1 of 2)

- Performance Issue
 - Direct
 - Indirect
 - Schedule Issue
 - Safety Issue
 - Coordination – Cooperation Issue
 - Personnel or Personality Issue
- By the way this works two ways!
- Yes
- No

Involving the Surety (2 of 2)

[Performance or Payment Issues]

- Always in writing – Notice
- The issues must be clearly stated
- The expected action, response and time of response must be clearly defined
- The cure, resolution, dismissal or consequence must also be clearly defined.

Again – this can be applied two ways!

Default

- Occurs when one of the parties fails to perform according to the Contract Documents or per the terms of the bonds.
- There can be a Default without a Termination. A Default may be able to be cured, unless the failure to perform is egregious, or definitive [without a practical or timely method to “cure”]

American Institute of Architects (AIA) (1 of 5)

14.2 Termination by the owner for cause

14.2.1 The owner may terminate the Contract if the Contractor:

1. persistently or repeatedly refuses to supply enough properly skilled workers or proper materials;
2. fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
3. persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or
4. otherwise is guilty of substantial breach of a provision of the Contract Documents.

What Constitutes Default Leading to Termination (2 of 5)

14.2.2 the Owner upon certification by the Architect that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

1. take possession of the site and of all materials, equipment tools, and construction equipment and machinery thereon owned by the Contractor;
2. accept assignment of subcontracts pursuant to Paragraph 5.4; and
3. finish the Work by whatever reasonable method the Owner may deem expedient.

What Constitutes Default Leading to Termination (3 of 5)

Federal Government (FAR)

Default (Fixed-Price Construction) (April 1984)35

- (a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extensions, or fails to complete the work within this time, the Government may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the Government may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing work. The Contractor and its sureties shall be liable for any damage to the Government resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Government in completing the work.

What Constitutes Default Leading to Termination (4 of 5)

Federal Government (FAR)

Default (Fixed-Price Construction) (April 1984)35

(b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if -

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor.

(2) The Contractor, within 10 days from the beginning of any delay (unless extended by the Contracting Officer), notifies the Contracting Officer in writing of the causes of delay.

What Constitutes Default Leading to Termination (5 of 5)

- Termination clauses are carefully scrutinized by courts to ensure their enforceability. Clauses found to be against public policy or the “common good” will generally be deemed to be unenforceable
 - ✓ No windfalls
 - ✓ No incentives to breach

Termination Provisions

- Termination by the Contractor
- Termination by the Owner
- Termination for Convenience

The Road to Termination

- Disputes
- Deficiencies
- Delays
- Disruption
- Differing Conditions
- Dollars

Also applicable to both parties!!!!

Termination by the Owner for Cause

- The Owner may terminate the Contractor:
 - persistent refusal to perform
 - failure to pay subcontractors and vendors
 - persistent disregard of laws, ordinances, rules & regulations of public authorities
 - substantial breach of contract provisions

The Contractor's Risk In Default Termination

- Loss of control over completion costs
- Loss of revenue
- Damage to reputation
- Potential loss of future work
- Impact on future bonding
- Impact on line of credit
- Liability under Indemnification Agreement

Before You Terminate, Ask These Questions (1 of 3)

1. Is it more costly to terminate than to mitigate?
2. Will the schedule improve or slip further?
3. Will quality truly improve?
4. Are other forces or issues driving the termination outside of the contractual responsibilities of the contractor?
5. Have all contract requirements necessary for termination been satisfied?

Before You Terminate, Ask these Questions (2 of 3)

6. Has the contractor been given proper notice with the proper reasons for termination?
7. Has the surety been notified?
8. Has the surety been enlisted as part of the solution prior to termination?
9. Can resolution of outstanding change orders, claims, and delays resolve the issues driving termination?
10. Can portions of the work be “extracted” and performed by others to prevent termination?

Before You Terminate, Ask These Questions (3 of 3)

11. Has a pre-termination meeting with all parties been held?

- Counsel for the Oblige
- Project management of the Oblige
- Field management or agent for the owner
- Contractor [Principal]
- Contractor's counsel
- Surety and surety counsel

Contractor Defenses Against Default Termination

- Owner failed to grant time extension to which Contractor is entitled for:
 - Excusable delays
 - ✓ unusually severe weather
 - ✓ acts of God
 - ✓ public emergencies
 - ✓ strikes
 - Changes to the scope of work
 - Design deficiencies
 - Differing site conditions
 - Suspensions
 - Impossibility of performance
 - Interference
 - Bad faith

What Happens when the Surety is informed of a Default/Termination?

(1 of 4)

- Investigation

- 1) Is the default in question?
- 2) Has the Obligee performed?
- 3) What is the condition and status of the work in place?
- 4) What is the financial health of the principal?
- 5) What does the bond say?
- 6) What are the governing statutes?

What Happens when the Surety is informed of a Default/Termination/?

(2 of 4)

- Analysis
- Surety Questions
 - 1) To perform or not to perform
 - 2) If the default is proper, how does the Surety perform?

What Happens when the Surety is informed of a Default/Termination?

(3 of 4)

- Investigation -

- What documents must be reviewed?

- Documents

- Contract between principal and Oblige
- Plans & Specs
- Change orders
- Progress payments
- Construction schedules
- Submittals
- Purchase orders
- Subcontracts
- Principal's receivables and payables

What Happens when the Surety is informed of a Default/Termination?

(4 of 4)

Documents (cont'd)

- Retainage
- Job cost analysis
- Cost to complete
- Insurance policy
- Original bid
summary (estimate)
- Anything else which
has a financial
impact

All other current
projects by Principal
Bonded/Not Bonded

What are the Surety's Defenses when there is a Termination/Default? (1 of 5)

- Contract defenses
- Bond defenses
- Statutory defenses

AIA A-312 Bond

The Surety's obligation to perform does not arise until after

1. Obligee has notified Surety and principal of its intent to declare a default
2. The Obligee has declared the principal to be in default and has terminated the Principal's right under the contract
3. Obligee has agreed to pay the contract balances to the Surety
4. No breach of contract by the Obligee

Surety has five options

1. Arrange for principal w/consent of Obligee to complete
2. Complete the contract itself
3. Arrange for another contractor to complete the work
4. Tender an amount of money to Obligee to satisfy Obligee
5. Deny liability in whole or in part

Contract Defenses (2 of 5)

- Substantial performance
- The Owner/Obligee duties relative to project design
 - the implied warranty of design adequacy
 - Owner's implied duty of disclosure
 - Owner's approval of contractor work plan
- Owner's implied duty of Cooperation
- Owner's responsibility for differing site conditions
- Owner's failure to properly administer the contract
 - change orders
 - owner nonpayment
 - cardinal changes
 - failure to give direction

Contract Defenses (3 of 5)

- Impracticality of performance
- Owner's implied waiver of contract requirements
- Owner's insistence upon strict compliance in the face of economic waste
- Hypertechnical inspection
- Contractors dispute resolution rights against the owner

Bond Defenses (4 of 5)

- Alteration of the Contract
- Changes in the Obligee or the Principal
- Improper payment of contract funds by the Obligee
- Improper Notice
- Fraud

Statutory Defenses (5 of 5)

- Certain statutory rights may protect the surety or exonerate it from performance bond obligations - particularly in bankruptcy situations
- Most performance bonds contain language specifying the period of time within which an Obligee must commence suit against surety

Termination By the Contractor

(1 of 2)

- Period of work stoppage caused by
 - Court or Jurisdiction action
 - Government action
 - Lack of payment
 - Lack of reasonable evidence of financial arrangements for payment

Termination By the Contractor

(2 of 2)

- Repeated suspensions, delays and interruptions
- Period of work stoppage due to Owner failure to fulfill obligations under the contract:
 - Material breach

Termination by the Owner for Convenience

- The Owner may terminate the contract for the Owner's convenience and without cause

Contractor's Actions Termination for Convenience

- Cease operations as directed
- Protect the work
- Terminate all subcontracts and purchase orders

Contractor's Recovery Under a Termination for Convenience

- Cost of work completed
- Administrative costs associated with the
 - termination
 - accounting
 - legal
- Overhead and Profit on work executed
- Overhead and profit on work not executed.....maybe!

Completion Options (1 of 4)

- Completion Options are defined by the terms of the Bond or the terms of the Bond in conjunction with the Contract Terms and/or the Statutes.
- The language of the Performance Bond generally prevails unless it violates the Statutes.
- If the language of the Bond is more generous than the Statutes – the more generous terms are applicable.

Completion Options (2 of 4)

[Common Options]

- Completion by the Owner/Obligee
 - Mitigation
 - It is not a “blank check”
- Completion by Surety
 - Financing the Principal
 - Takeover
- Tender
- Buy Back

Completion Options (3 of 4)

Things to Consider

- Which option best fits the circumstances?
- What is the fiscal status of the Principal?
- What is the fiscal status of the Obligee?
- What is the quality of the work in place?
- What is the relationship between Owner, Obligee and the Principal?
- What is the Status of Payments?
 - From the Obligee – Principal
 - From the Principal – Subcontractors & Vendors
- What is the true percentage of Completion?

Completion Options (4 of 4)

Things to Consider

- What is the Change Order status?
- Location of Project
- Type of Project
- Status of Original Bidders
- Availability of Labor
- Cooperation among Parties
- Litigation

Completion by Owner/Obligee

- Subject to maximum scrutiny by other parties
- Must be an option under the Performance Bond
- Requires documented mitigation of costs
- May expose Obligee to costs beyond contract value
- Could expose Obligee to liabilities beyond the project scope

Tender

- Early stages of a project or at a convenient milestone or activity
- Full & final settlement of all claims
- Cash settlement may benefit Obligee
- Ends original Surety's obligations at a fixed cost
- Expensive: Surety risks indemnity fight with Principal
- Consent of Principal reduces risks to all

Buy Back

- Surety Buys Back its bond & liability with cash payment to Obligee
- Ends liability to Surety
- Usually executed with reservation of rights by Surety (subrogation)
- Specific circumstances
- Utilized for mutual benefit of parties to avoid prolonged litigation(s)

Financing the Principal by Surety (1 of 2)

- Assignment of contract funds
- Subrogation rights to claims
- Assert rights and defenses by reservation
- Loss of protection of penal sum
- Majority of work has been completed
- Quality of work is not an issue

Financing the Principal by Surety (2 of 2)

- Default caused by temporary cash flow problems
- Lowest cost option-....sometimes!!!
- Surety liability no longer limited to penal sum of bond
- Other exposures for Surety via expanded liability beyond scope of project
- Determination of Principal's integrity and competence is paramount

Takeover - Engaging a Completion Contractor

- Determine a scope of work to complete-define via an RFP
- Determine the cost to complete the project
- Assemble competent completion contractors to bid the RFP
- Develop a reasonable schedule to complete the work
- Execute a Takeover Agreement with Obligee with a reservation of rights

Managing the Completion Contractor

- Figuratively, completion is by the Surety who is not a contractor
- Practically, it's the Completion Contractor who was engaged by the Surety
- Takeover Agreement should address issues:
 - Communication
 - Payment
 - Certain waivers of procedure
 - Certain Waivers of claims
 - Method to handle change order
- Reservation of rights to expedite completion in event of ongoing disputes

Traps to Avoid (1 of 2)

- Default-Termination wipes the problem slate clean- The Do-over wish!!!!
- After a default, the Surety is totally responsible for all costs to complete the project
- When the Principal defaults-the Obligee has no responsibilities

Traps to Avoid (2 of 2)

- Once there is a default-termination, everything becomes a legal issue
- If the Principal causes problems—we will just hold back payment (Golden Rule Fallacy)
- The architect is always right!
- The attorneys are always right!!

Conclusions (1 of 3)

- Construction is complex, when the technical complexities are considered along with the collective and several rights of the Surety, Obligee and principal, identification of material breaches of contract require careful analysis. The consequences can lead to “high stakes” mistakes.
- A decision to terminate requires careful consideration and must be a measure of last resort

Conclusions (2 of 3)

- If the decision is to terminate, it must be done right, “by the book”
 - Obligees motive(s) must be pure
 - Notice of Default must be crystal clear
 - The grounds for default must be specific
 - The afforded opportunity to “cure” must be fair and reasonable
 - The Obligee’s right to terminate must withstand the scrutiny of its prior conduct. e.g. non waiver or breach
- Upon receipt of an obligee’s notice of default the Surety must investigate promptly and decide which option to choose in a timely fashion

Conclusions (3 of 3)

- Good faith, fair dealing, expediency and cooperation among all parties is the only way to minimize the tragedy of termination.
- Expediency, expediency, expediency
- Cooperation, Cooperation, Cooperation

Final Word

- When you are dealing with a surety issue(s), whether you are the Surety, the Bond Principal or the Obligatee-the consequences of the errors of omission or procrastination are far greater than the consequences of errors of commission or expediency!!!!
- A bad deal for all parties is far better than litigation.....

Project Status - Estimating the Cost to Complete

Presented by:

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Topics

- Cost Estimating
- Determining the Cost to Complete
- Completion of the Project

Basics of Cost Estimating

COST ESTIMATING

- **Cost Estimating** - A compilation of the costs of all the elements of a Project within an agreed Upon Scope.

COST ESTIMATING

- The purpose of a cost estimate varies depending on the stage of a project and who is doing it.

Contractor

- Usually a contractor performs a cost estimate only on bid documents. It is a definitive estimate that should have a clear scope and be based on hard costs. A contractor would also estimate change order work

Owner

- May do a number of cost estimates at various stages of the work. The Owner may actually perform the estimate or have an Architect, Construction Manager, or an outside consultant perform the work on their behalf.

Costing

- *Costing* – the determination of the material, labor and equipment charges for any specific item of the project. Costing does not reflect business concerns.

Pricing

- *Pricing* – The amount of money that a contractor seeks to charge for any specific item of the project. Pricing does reflect business concerns.
- We'll Talk about Risk – Contingency – Profit Later

Indirect Costs

- *Indirect Costs* – All costs which do not become a final part of the installation, costs for items that are not physically incorporated into the work.

Direct Costs

- *Direct Costs* – cost of installed equipment, material and labor directly involved in the physical construction, costs for items incorporated into the work.

Mechanics of Estimating

- Labor
- Material
- Construction Equipment
- General Conditions
- Special Conditions
- OH&P
- Escalation

Material, Labor & Equipment

- Direct Cost
- Starts with a Quantity Take-off

Performing a Take-off

The units that are used in a take-off have to fit normal conventions. Floor tile may come in 25 lb boxes but it is priced by the Square foot.

Examples of take-off units

- Earthwork – CY
- Clearing/grading – SF
- Fencing – LF (Linear Ft)
- Paving - SY
- Concrete – CY
- Formwork – SF
- Rebar – lbs
- Masonry – SF
- Steel – lb or Ton
- Lumber – Board Foot
- Roofing – SF
(sometimes for residential a Square – 10 x10 – is used.)
- Painting – sf
- Windows/Doors – each
- Ductwork - LBS
- Pipe – LF (but valves and fittings are - each)

Performing a Take-off

- A take-off is quantity development, determining the scope of the work to be performed. It is more than just a materials list. It is a story of how to build the job.
- You have to build the job in your head,
- Imagine yourself at the job site, in the building; you have to build the job. What do you do???
- The take-off tells a story! It is more than just a list of quantities it is a description of all the steps.

For example, the drawings may show replacing a door, but simply listing - 1 door, is not the whole story.

- What about the frame?
- Does the wall need to be patched after the frame is changed?
- How about painting the wall after it is patched?
- Do you need to put a temporary barrier up?
- Does the floor need to be patched?
- How do you get the door and frame in the building?
- Did you dispose of the old door?
- Paint the door?

Material Costing

- Direct Cost
- Remember the definition of Costing.
- The material list comes from the take-off. As said about take-offs, you have to use the units as the material is sold.
- The issue with material costing is “waste”.

Labor Productivity

- What is productivity? In simple terms it is the labor effort needed to accomplish a given quantity of work.
- How do we come up with numbers like .016 m-hrs/sf? Well if you have a task that a man can do 500 sf per day then the productivity is 8 hours divided by 500 sf = .016
- Try multiplying .016 by 500, it equals 8, as in 8 hours.
- $\text{Productivity} \times \text{Quantity} \times \text{Labor Rate} = \text{Labor Cost (Direct Cost)}$

Construction Equipment

- As needed to perform the work/Labor
- Productivity similar to Labor
- $\text{Equipment Productivity} \times \text{Quantity} \times \text{Equipment Rate} = \text{Equipment Cost (Direct Cost)}$

General Conditions

What are they? (Indirect Costs)

- Contractor's office trailer
- Insurances
- Bonds
- Job Superintendent and Staff
- Phone/Copy Machine/fax
- Toilets
- Temporary Fencing
- Job signs
- Manuals
- As-built Drawings
- Temporary Utilities (for Contractor's office)
- Temporary Utilities (for Construction use)

How to Estimate GC's

- Well the traditional accepted method is 10 % of the direct cost
- $(\text{Material} + \text{Labor} + \text{Equipment}) * 10\%$
- The 10 % generally works however; it really should not be used across the board.
- For a small job, say \$1 million dollars, the actual GC's cost for the typical Public Works project runs closer to 15% to 18% of the direct costs.
- As a job approaches \$100 Million the GC's are closer to 5%.
- As the project size grows to say \$500 million, the GC's would be more in the area of 3%.

How to Estimate GC's

- Use Percentages for Conceptual Estimates or Design Development Estimates
- List all the General Conditions cost items and assigning a cost to each.
- For Firm Price Estimates (Bids) assign a cost to each item

Owner's Special Conditions

- First, they are an Indirect Cost
- These are the elements that are specific to a job and the owner. Examples of Special Conditions are; Phasing, Guard Services, Owner's office, photos, job computers, temporary facilities, etc.
- There is no % rule for owner requirements.

Issues Affecting the Cost of the Work

- Quantity of work – small or large
- Location/Access to the work
- Protection of existing work
- Effects on remaining work
- Overtime
- Additional Supervision
- Extended field costs

Overhead

- Overhead is a business issue for a contractor
- The fixed costs such as office rent, secretaries, estimating expenses, insurance, etc have to be distributed over the total number of projects a contractor will perform in a year
- A contractor has to have a target for volume of work to be performed for a given year
- A Contractor who anticipates a \$50 million volume with fixed expenses of \$5 million needs an overhead rate of 10%
- Convention for budgeting purposes says to use 10% for Overhead.

Profit

- Profit is a Good Thing!
- If a contractor weren't making a profit he would not be in business.
- A contractor who is making money is a lot easier to deal with than one who is not
- Financial and market conditions affect Profit
- See Pricing

Other Considerations

- Escalation
- Phasing
- Overtime
- Job Size

Contingency

- What is contingency?
- Contingency in the pre-construction phase (design)
- Bid contingency (Contractor)
- Construction contingency (Owner)

Bid Contingency

- What is contingency in a Contractor's bid?
- What are the elements of a bid?
- Can you virtually eliminate contingency from the Contractor's bid?
- RISK

The Contractor's Bid

- Labor + material + construction equipment + general requirements + overhead + profit (risk <> contingency) = Price
- Remember the Definition of Pricing

What Affects Contractor Contingency

- Perceived and actual risk
- Quality of documents
- Clarity of scope
- Owner
- Market conditions

Construction Phase Contingency

- Owners budget for
 - ✓ Owner initiated changes
 - ✓ Scope additions
 - ✓ Fund for change orders
 - ✓ Unforeseen Conditions
 - ✓ Errors and Omissions

The background is a deep blue with several bright, glowing blue lines that curve and flow across the frame, creating a sense of motion and depth. The lines are more prominent on the left side and fade towards the right.

Determining the Cost to Complete

Completion Costs

- What is the Cost to Complete?
- Determining the Cost to Complete
- What stage is the project?
- Punchlist
- Early stages
- Work in Progress

Options

- Punchlist
 - ✓ Use defaulted Contactor and/or subcontractors

Options

- Early Stages
 - ✓ 2nd Bidder
 - ✓ Definitely more costly – they already bid higher

Options

- Work in Progress
 - ✓ Use defaulted Contactor and/or subcontractors
 - ✓ 2nd Bidder
 - ✓ Completion Contractor
 - ✓ For each you still need to know the right cost to complete the work

Estimating Cost to Complete

- Perform a complete estimate of the project documents as if bidding a new project
- Account for
 - Labor, Material & equipment
 - General Conditions
 - Special Conditions
 - Phasing

Estimate of the Work

- Bid verification

if the estimate exceeds (by a large margin) the contract amount, it indicates that the problem in the project is likely related to a “bad” bid.

- problem for Surety
- problem for Contractor

If the Estimate confirms the bid, the problem lies elsewhere

Reasonable Bid – Cost to Complete

- If the estimate confirms the bid is reasonable
 - ✓ Account for change orders
 - ✓ Changed Conditions
 - ✓ Pending Changes / Claims
 - ✓ Other problems/issues
 - ✓ Doesn't change even if there is a "bad" bid. Just complicates things

Status the Project

- Need jobsite visit
- Use estimate to status the project
- Estimate becomes a check list of the required work

Value of Work in Place

- Determine what work is in place
- % of work items in progress
- Use the information with the estimate to establish a value of the work in place

Value of Work in Place

- Compare to payments
- Has the Contractor been overpaid?
- Have his payments from the owner not reflected the value of the work in place.

Value vs Payments

- If the value of the work exceeds the payments, job problems may be due to cash flow
- Cash flow may be caused by the owners failure to pay in a timely manner
- May be due to an ill conceived Schedule of Values
- Could the payment schedule be “rear end” Loaded – by accident , or by design

Value vs Payments

- If the value of the work is less than the payments – Overpayment
- “Front Loaded” payment schedule
- Less contract money available to complete the work
- Has the work been accepted?????

\$\$\$\$\$'s to Complete

- The value of the uncompleted work is also determined by the estimate and the corresponding field inspection
- The remaining \$'s in the estimate indicate the likely amount required for a Completion Contractor
- Is there enough money in the remaining Contract funds to complete the scope of work

Adjustments to the Estimate

- Has work been performed that is to be paid for by the owner through a change order that is not yet executed
- Are there any disputed work items that the owner has not recognized as “Extra”
- Work in place identified during the inspection that is not within the original contract scope

Adjustments to the Estimate

- Executed change orders must be accounted for in determining the remaining contract funds
- Pending T&M change orders for which work has been performed
- Work performed as an Allowance
- Unit Price work performed

Subs, Suppliers, Labor

- The contractor may have been paid for work performed – but was the subcontractor paid
- The contractor may have been paid for materials in place – but was the supplier paid
- Subs and suppliers may have been paid but have all the labor costs such as taxes and fringe benefits been paid

Subs, Suppliers, Labor

- Surveyors
- Testing Laboratories
- Rentals
- Trailers, consumables
- Are there any potential liens (Bond Claims) against the project due to the contractor

Subs, Suppliers, Labor

Positives

- Material paid for and stored off site
- Deposits
- Advance payments for long term rentals (trailer) – (Purchases too!)
- Salvage value of demolition or renovation debris
- Salvage value of temporary facilities

Other Issues

- Improproprieties

Re-work

- Work that must be removed and replaced or be repaired in some form, adds to the cost to complete
- Work that must be removed and replaced or be repaired in some form, decreases the value of the work in place

“Buying out” the Completion

- Take over agreements with Subcontractors
- Take over purchase orders with suppliers
- Estimate can determine the value of their remaining work or scope of supply

“Buying out” the Completion

- Replacement Contractors
- Bid to a specific scope of work
- A contractor does not have the time to spend doing an assessment of the project. The estimate and analysis of payments, subs, suppliers, etc. can be used to define the scope of the remaining work to the Replacement Contractor

“Buying out” the Completion

- The estimate, using the evaluation of the work in place can be used to provide Replacement Contractors with a scope of work on which to bid
- Bidding to a specific scope of work reduces bid prices (definition of Pricing) due to less risk and need for Contingency (see – The Contractors Bid)

Factors Affecting Bids

- Is the scope clearly defined
- How much time will be lost on site assessing the detail status of the work, getting the crew, foreman, subcontractors up to speed and knowledgeable about the project
- Perceived Risk due to a “bad job”
- Perceived Risk due to a problem owner

Factors Affecting Bids

- Perceived Risk due to a problem Architect or Engineer
- Perceived Risk due to pending changes, possible rework
- Escalation

Benefits of the Analysis Owner/Contractor/Surety

- Compete picture of the project
- Overpayment / underpayment – Cash flow
- Validity of Original Bid
- Affects of disputed work
- Available Funds to Complete the work
- Scope of Remaining Work
- Risk Mitigation

Benefits of the Estimate

- Scope of Remaining Work
- Man-hours for Remaining Work
- Man-hours with knowledge of scope and required crews yields “Time”
- Time = Duration
- Duration used for Schedule to determine anticipated completion date
- Time = Money

General Discussion of CPM Scheduling

Presented by:

Ian A. Street, CCE

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In General...

- A project is a one time event with a budget, a task list, resources, deliverables and an end date.
- Successful project management is the process of planning, organizing, directing and controlling to meet the project needs.
- Poor scheduling and estimating are two of the root causes of project failures

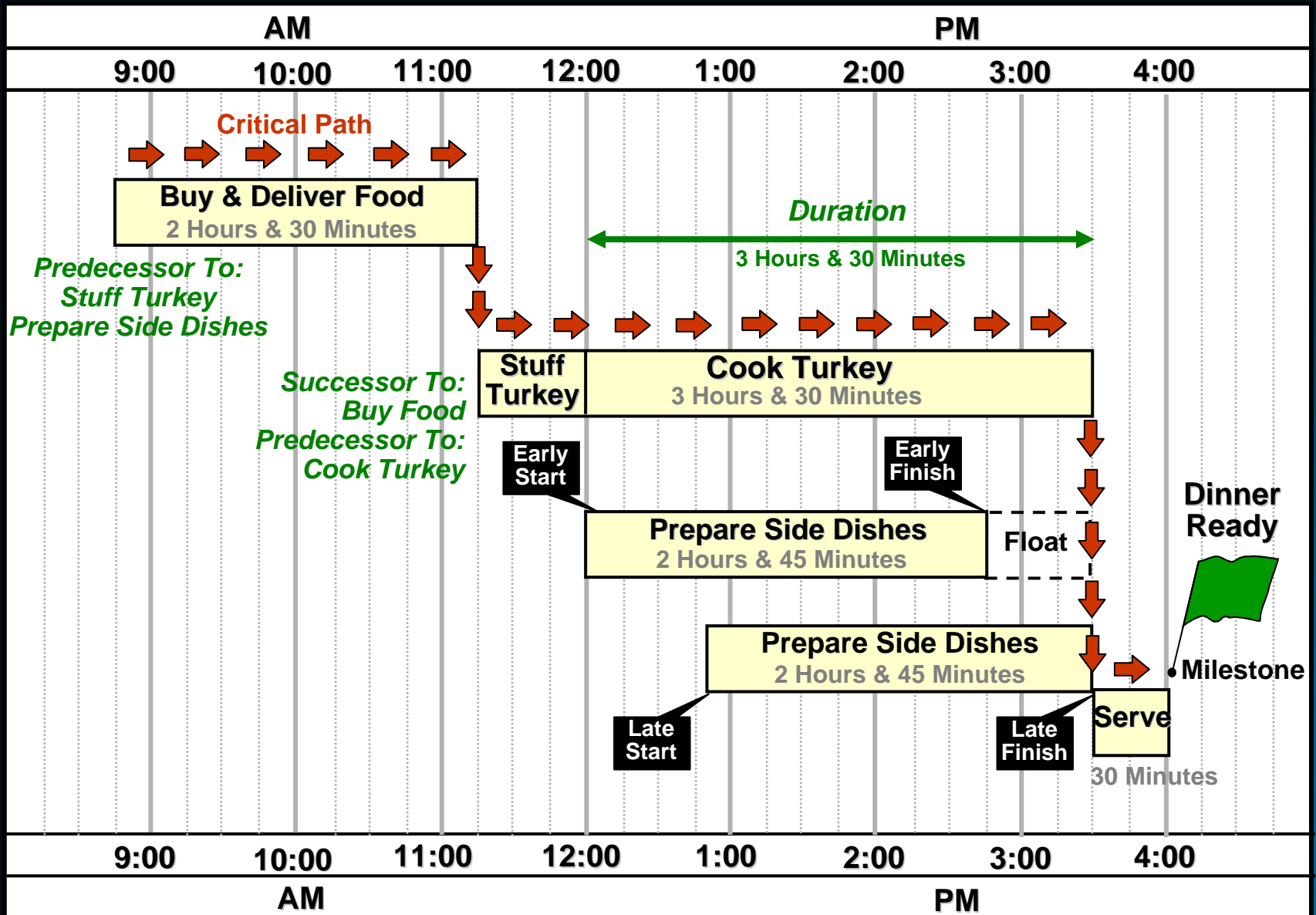
Scheduling Philosophy

“Methods used on other projects
only work on other projects”

What is CPM Scheduling?

- Critical Path Method
- Planned activities in a logical order
- A network with proper relationships
- A tool to identify and monitor the critical path
 - the longest chain of sequential activities to complete the project

As-Planned Family Dinner CPM



When Do You Need CPM Scheduling?

- Primary consideration is complexity
- Not dependent on project cost
- Not dependent on project duration
- May be dependent on number of contracts
- Rule of thumb
 - If you can remember all the activities and sequences, then you do not need a CPM schedule

What Do You Get By Having A CPM Schedule?

- A record of the designers & contractors plan
- A tool for analyzing time related issues
- A record of project progress
- A map of interrelationships
- A technique accepted in courts to defend against and claim delays

What Do You Get By Having A CPM Schedule?

(Continued)

- Provides detail without losing perspective
- More complete planning is accomplished
- Far outstrips other methods for monitoring, replanning or evaluating new factors

Cost of CPM

- Roughly .2 to .5% of overall project costs in the range of \$10 to \$50 million
- For larger projects, CPM costs decrease slightly
- For smaller projects, CPM costs increase or are eliminated

Advantages of CPM

- Cost savings ~3% for changes – understand the impact of changes
- Determine if LD's or bonus/penalty provision should be applied
- Cash flows can be accurately predicted
- Time extension requests can be evaluated
- Monitor progress and coordinate owner move-in
- Provide a level of protection should litigation become necessary

Disadvantages of CPM

- Requires someone knowledgeable in CPM techniques, able to apply intellectual rigor and honesty
- Must be updated and maintained regularly to ensure work is accurately represented
- Garbage-in/garbage-out

Baseline Schedule Creation

Basic Scheduling Mechanics

- Activity Coding
- Project Calendars
- Schedule Logic

1. Activity Coding

Activity ID Codes – for individual activities that will not likely change.

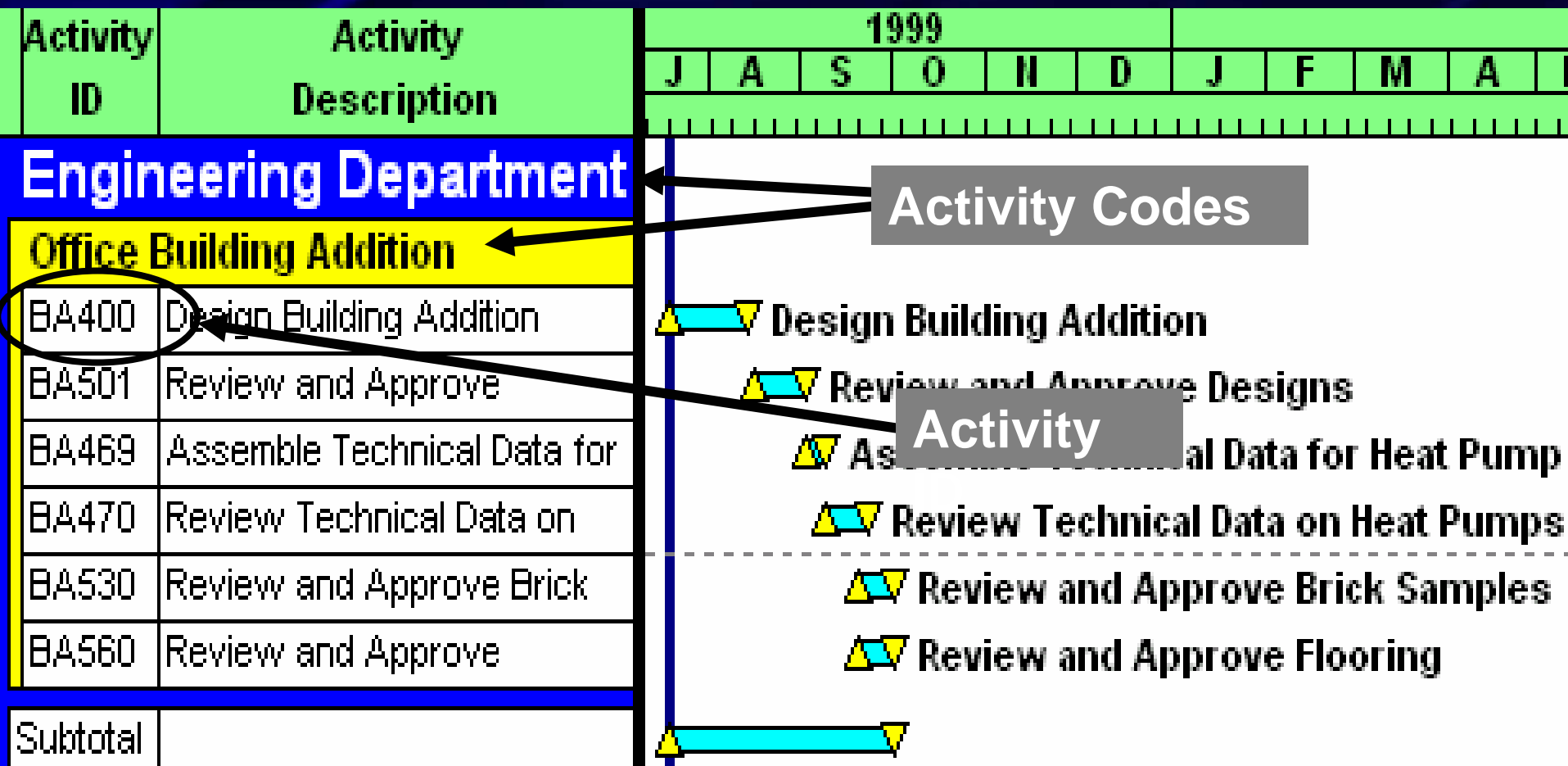
Example: An activity of work, such as electrical rough-in.

Activity Codes – for groups of activities that may need to change during the project.

Example: a group of activities that is coded by responsibility, such as supervisor or subcontractor.

Coding the Activities

Sample Project



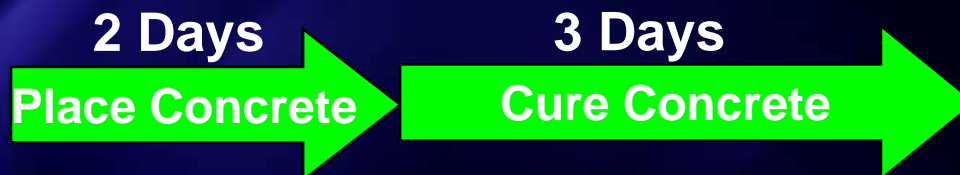
2. Project Calendars

- Hourly, Daily, Weekly, or Monthly
- Multiple Project Calendars
 - Assign 5-day workweek
 - Assign 6-day workweek
 - What-if Scenarios
- Include Holidays!!!!
- Account for Scheduled Non-Work Time

2. Project Calendars

Multiple Project Calendars

Example: 2-day concrete pour with 3-days of cure time.



The Scheduling of the Activities Above May be Mis-Represented Depending on What Day of the Week They Occur.

2. Project Calendars

Multiple Project Calendars

Example: 2-day concrete pour with 3-days of cure time.

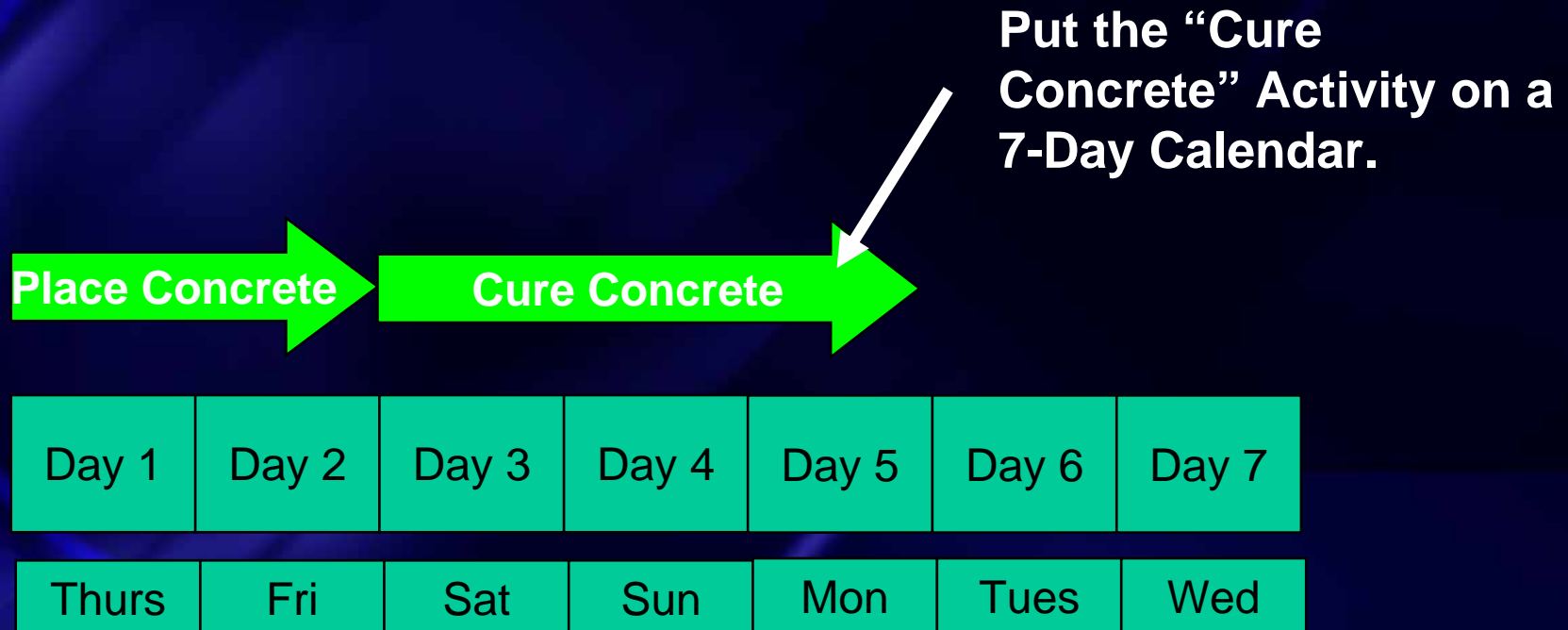
Using a 5-day calendar



2. Project Calendars

Multiple Project Calendars

Example: 2-day concrete pour with 3-days of cure time.



2. Project Calendars

Example: Account for Non-Work Time!!!!

- ✓ Assume 2-weather workdays/month for 8 months.
- ✓ Assume 1-week off during winter holiday season
- ✓ Assume 9 days for other holidays

Total Non-Work Time: $16+5+9 = 30$ days

How Does This Effect the Completion Date???

2. Project Calendars

- Account for Non-Work Time!!!

Schedule Without Non-Work Time
One Year Duration

1/01/02

1/01/03

43 Days Late

Schedule With 30 days of Non-Work Time

1/02/02

2/13/03



3. Schedule Logic

There Are Two Types of Logic:

1. The Relationship Between Activities.

and

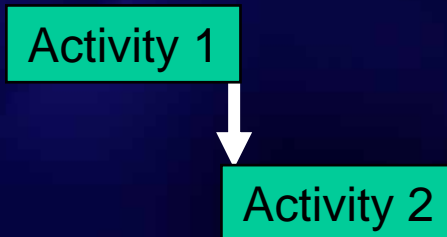
2. The Imposed Constraints on Activities.

3. Schedule Logic

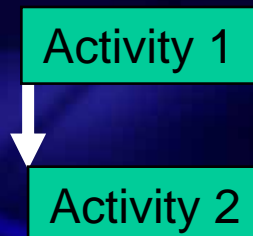
The Relationship Between Activities

Four Types of Relationships:

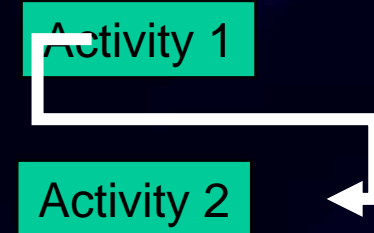
1. Finish-to-Start



2. Start-to-Start



3. Start-to-Finish



4. Finish-to-Finish



3. Schedule Logic

The Relationship Between Activities

Lags:

1. Finish-to-Start with Positive Lag:



2. Finish-to-Start with Negative Lag:



Scheduling Objectives

General Discussion

- Show interference of separate contracts/contractors.
- Integration of subcontractors plan into overall project plan (rarely done right).
- Determine responsibility for delays to project schedule.
- Determine if LD's should be applied.
- Determine if bonus/penalty provision should be applied.

Benefits for the Owner

- Cash flows can be accurately predicted
- Time extension requests can be evaluated
- Owner-supplied equipment can be coordinated with contractor installation
- Monitor progress and project move-in
- Coordinate move-in activities well in advance
- Predict and avoid late finish - mitigate delay
- Provide a level of protection should litigation become necessary

Benefits for the Designer

- Knows consequence of time sensitive reviews of RFIs
- Can plan submittals
- Can understand impact of changes
- Can help manage the design effort in terms of manpower and accountability

Benefits for the Contractor

- Buy in of Subcontractors to the Schedule
- Buy in of Suppliers to the Schedule
- Provides Notice to Subs/Suppliers of Schedule Requirements
- Provides Notice to Owner of Schedule Requirements

Notice to Subs

- When do they need to start and complete work
- Submittals
- Deliveries
- Buy in is important to prevent Sub delays and Claims

Notice to Suppliers

- Submittals
- Fabrication
- Deliveries
- Start-up, Training, Manuals
- Notice is important to prevent delays due to suppliers

Notice to Owner/Architect-Engineer

- A good schedule tracks the owner's responsibilities
- A good schedule tracks the A/E's responsibilities
- The schedule should point to who has to take an action no matter whether it is Owner, Designer, Contractor, or Subcontractor

Cost Integration/Control

- Cost Load the schedule for cash flow and/or payments
- Keep track of subs progress vs payment requests
- Demonstrate Contractors entitlement to monthly partial payment.
- Track Progress vs Budget

Time Extensions

- Delays can be due to acts of the
 - Owner
 - A/E
 - Prime Contractor
 - Subcontractor
 - Suppliers
 - Other (Weather, Strikes, Regulatory Issues)

Time Extensions

- Accurate schedule that reflects the progress of the work indicates sources of delay
- Contemporaneous Analysis is more accurate and allows opportunity to mitigate delays
- Reduces Legal/Consultant Costs
- Can point the delay in either direction

Updating The Schedule

Why Update?

- Contract Requirement
- Initial CPM is a Plan, Not a Schedule
- For Payment
- Identifies Progress or Lack There of
- Forecasts Completion Date
- Identify New Critical Path (often shifts)

Updating The Schedule

Why Update? (continued)

- CPM Update Applies Steady Pressure
- Provides an Objective Look at the Project
- Becomes a Dynamic Management Tool
- Provides a Cut-off Point with Which to Measure Progress
- Updating Frequency

Updating The Schedule

Updating Frequency

- No Single Rule
- Fast Track Projects Very Often
- Typical Projects are Updated Monthly
- Job Meetings and Updates Should be Tied Together
- Unexpected Event Could be Cause for New Update

Updating The Schedule

Establishing Target Schedules

- Comparison to Baseline or Past Update
- Track Performance Indices
- Monitors Changes in the Critical Path (Near Critical)
- Calculate Variances (Start Dates, Finish Dates, Float, Duration)
- Identifies Trends

Dealing with Change Orders in the Schedule

Common Contractual Change Order Life Cycle

- Discovery
- Notice
- Request [Estimate/Proposal/Quoting]
- Submittal
- Negotiation
- Approval
- Performing
- Include in *Payment Application*
- Get paid

**Wouldn't life be sweet if
this is the way it really
happens**

What Really Happens

(Contractors perspective)

- Somebody runs up to you and says “Oh Crap!”
- “Time is of the essence” so you negotiate over coffee in the field
- You get the verbal go-ahead and the proverbial “don’t worry – you can trust me”
- Work gets done
- You start the change order request process
- “They” don’t seem to remember “the deal”
- “They” now blame you for the change
- You have trouble getting paid
- The change gets bundled with other changes
- You collect, if you’re lucky, cents on the dollar

Incorporation of Changes

- Owner and contractor will seldom fully agree on
 - the total effect a change will have on the project schedule
 - how to properly account for the time impact of a change
- Contract defines updating frequency
 - however the following analysis may need to be performed for each occurrence of a substantive CO (*or any other significant out-of-scope event*)

Incorporation of Changes

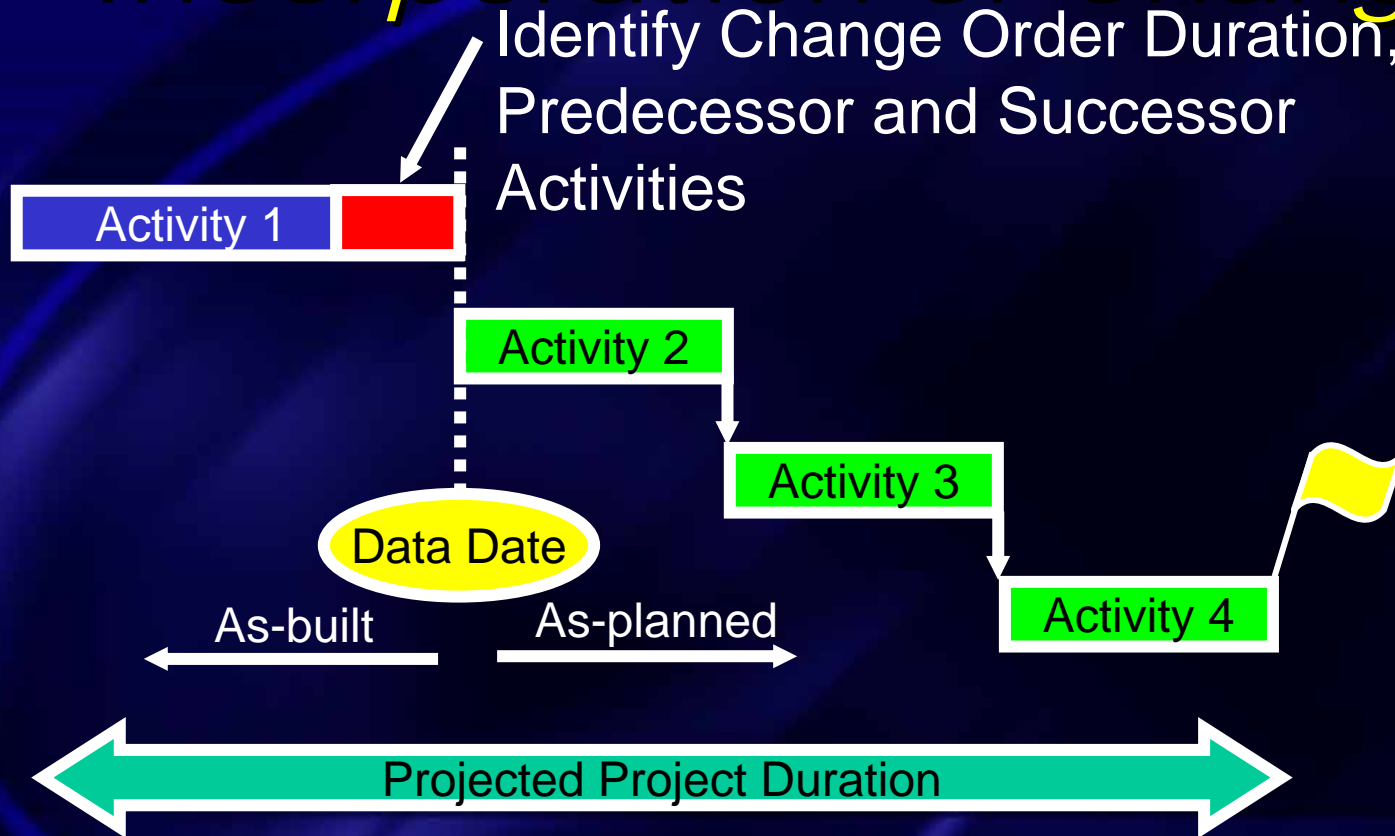
(cont'd)

Schedule Impact Analysis –

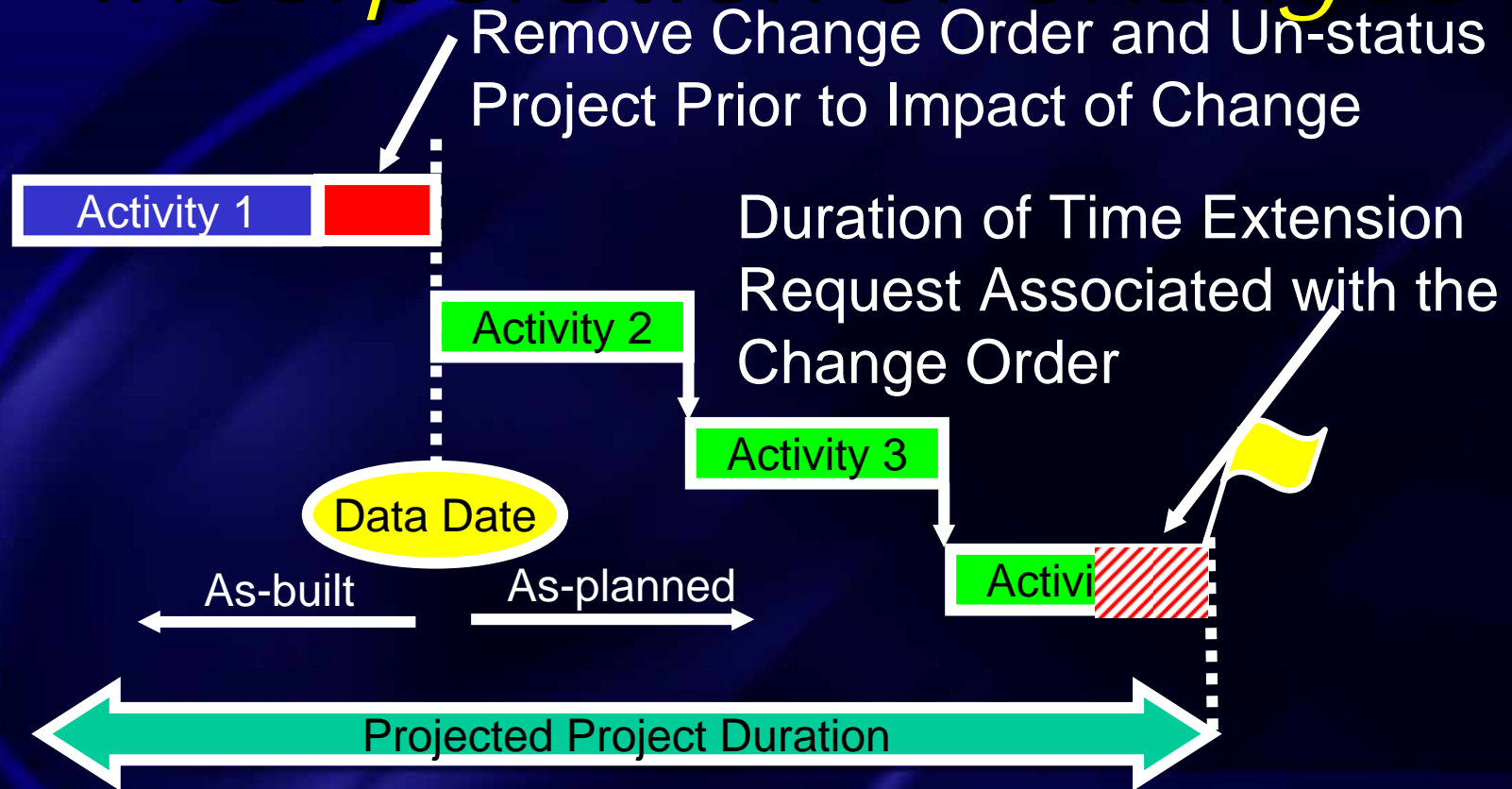
Steps to validate a time extension

1. Identify changed condition
2. Quantify the duration of the change
3. Represent the change order as an activity in the schedule update
4. Run/Update the schedule
5. Remove change order activity
6. Analyze the result to identify time extension
7. Notify owner of CO impact, both for time & cost

Updating The Schedule Incorporation of Changes



Updating The Schedule Incorporation of Changes



Incorporation of Changes

What to Submit?

- Develop submittal format
 - Written description of change
 - Written explanation of schedule impact
 - Fragnet of schedule change due to CO
 - Document CPM changes
 - ✓ logic, durations, additions, deletions, etc.
- Do the above for every substantive change event on the project

Incorporation of Changes (Things to Check)

- Multiple change orders
 - Check for concurrent delay
 - Driving or controlling change will be critical delay
- Changes to means & methods
 - No change to scope
 - ✓ Should not impact final completion
 - ✓ Be watchful for schedule abuses
 - Groundwork for future claim?
- Float belongs to the project

Impacts of a Change

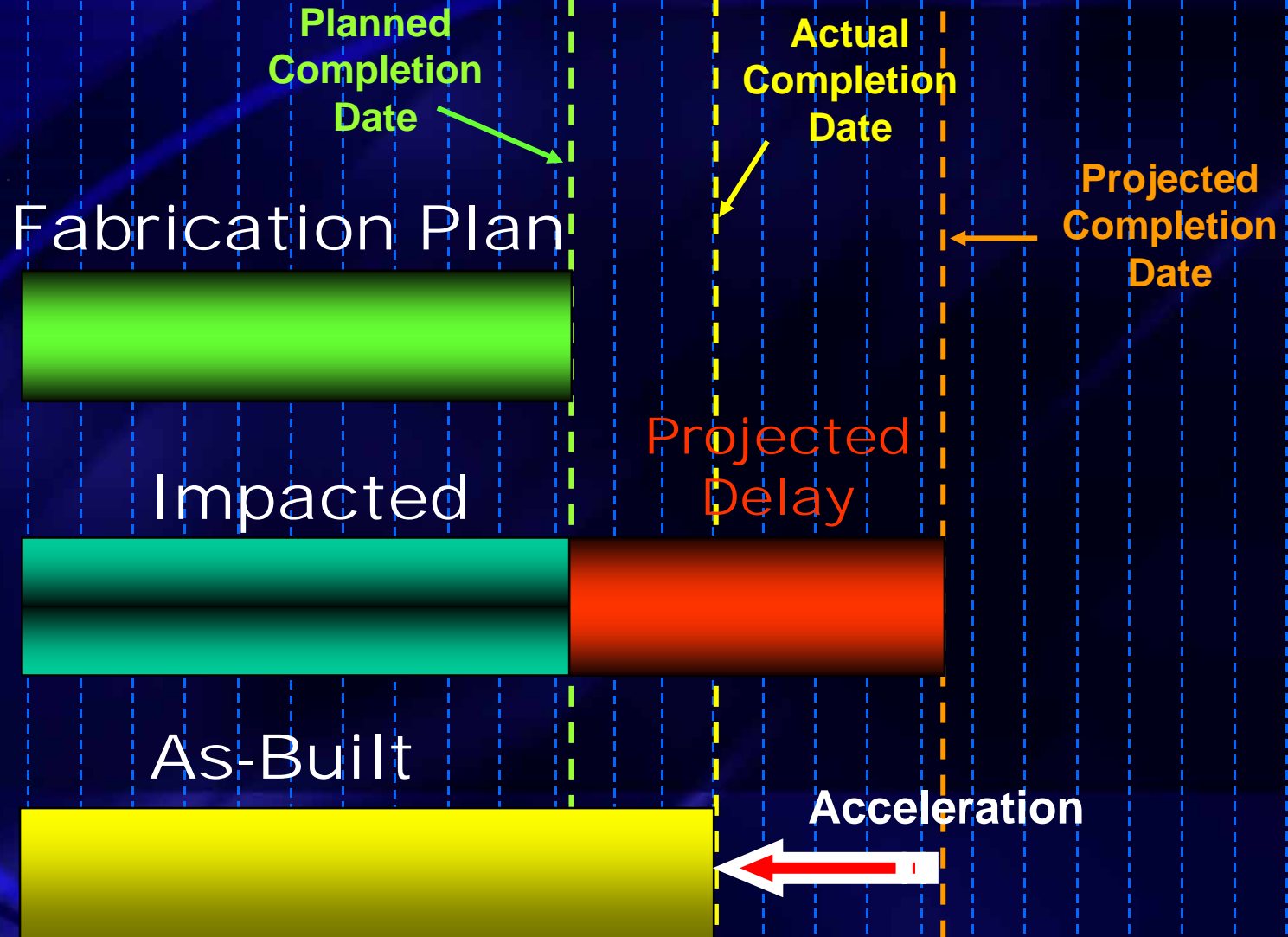
- Direct impact of changes to the **project**
 - Productivity reduction
 - ✓ *Example follows*
 - Time delay
 - Additional labor required
 - Additional material & equipment
 - Acceleration to recover lost time
 - ✓ associated productivity impacts

Incorporation of Changes

Summary of Key Points

- Duty to mitigate the time impact due to changes
- Fully document the changed condition
- Quantify time extension if warranted by producing schedule fragnet
- Quantify costs due to time impact
- Be consistent in format of time extension requests
- Timely (contemporaneous) resolution
- Float belongs to the project

Acceleration to Recover Delay



Acceleration

Required Linkage Between Event and Extra Cost

- #1 - Contractor must encounter **delay** beyond its control
- #2 - Contractor must submit proper **time extension** request to justify delay
- #3 - Owner must wrongfully **deny** time extension request
- #4 - Contractor must incur additional **cost**
- #5 - Contractor must **accelerate** to overcome owner-caused delay

Managing Acceleration

- Do not accelerate on an **Ad Hoc** basis
- Determine what **must and can** be accelerated
- Evaluate the effectiveness and cost of each potential acceleration **technique**
- Determine up front if the acceleration **goal** can be achieved
- Select the most **cost effective** technique or combination
- **Document** all acceleration costs as incurred
- **Manage** the acceleration effort to avoid losses of efficiency resulting in finishing later than if the acceleration effort had not occurred

Schedule Manipulation & Abuse

Inherent Dangers

- Software has become very user friendly
- Skill no longer required to produce a visually appealing schedule
- Dangers Include:
 - Failure in analyzing the critical path
 - Unrealistic activity durations
 - Poor management of the schedule
 - Accepting reports without electronic review
 - Failure to provide timely updates

Failure to Analyze the Critical Path

- Dynamic
- Cannot assume baseline schedule will hold true throughout project
- Useful in alerting PM to potential problems
- Essential in determining responsibility for delay and assignment of contract time extensions

Unrealistic Activity Durations

- Often resulting from wild guesses
- Often based on time available to complete
- Estimate should be examined
 - Accounts for productivity changes for similar work elements in differing conditions

Poor Management of the Schedule

- Level of Detail
- Baseline Development
- Manage and control of the schedule

CPM Level of Detail

- Matter of judgement
- Too little detail - not meaningful
- Too much detail - conceals significant factors
- Should be compatible with the WBS
- Hard logic vs. soft logic

Baseline Schedule Development

- Should be a contractual requirement to be supplied by each contractor
- Avoid adversarial relationship with contractor
- Keep it the contractors' schedule

Steps to Control the Schedule

- Require a schedule from the Architect and the Contractor – Secure Contractor “Buy-in”
- Use scheduling expert to integrate and manage the schedule and subsequent updates
- Update frequency should be appropriate for the project
- Don't let schedule become nothing more than a list of activities

Failure to Perform Electronic Review

- Printout may look great but schedule may be worthless as a CPM
- Very easy to hide flawed logic
- Very easy to hide activities
- Very easy to misrepresent project status
- PM could be misled until it's too late to react
- Insist on electronic files for expert review

Lack of Timely Updating

- Regular updates are essential for useful monitoring of the critical path
- Change logic as appropriate
- Distribute reports quickly to provide PM with time to react

How to Quickly Spot a Bad Schedule (Summary)

- Look for asterisks in duration or date columns – indication of constraint vs. logic
- Look for very large float values – indication of missing successor activities
- Check for inappropriate lags
- Use comparison software to compare changes made from one update to the next
- Unexpectedly large activity durations are an indication of sequestered float

Determining the Remaining Time to Complete

- Too little time:
 - Contractor may nickel & dime the project with respect to time extension requests
 - May increase unit bid prices
- Too much time:
 - Obvious detriment to owner
 - Contractor may focus on more urgent projects
- The answer is:
 - Create a schedule commensurate with the complexity and size of the project

The Completion Schedule

- Since we're talking surety, it's safe to assume existing schedules will be useless or non-existent
 - Remember root cause
- Understand the remaining scope of work and required sequence
- Use revised estimate for
 - Remaining quantities
 - Estimated Productivity

Productivity Considerations

- Productivity factors to be considered in scheduling the remaining work
 - Time restraints
 - Material availability
 - Seasonal considerations

Schedule Development

- How many activities?
 - Each project is unique
 - Key is to include enough detail to adequately model the project w/o getting bogged down in too much detail
 - Determine quantity of work for each activity
 - $\text{Duration} = \text{Quantity} / \text{Productivity}$

Activity Detail

- Description should contain enough information to determine what the work represents
- Duration is based on quantity and productivity (from the estimate)
 - Duration should not exceed 20 WD's
 - Calc's can be done in excel or P3
 - ✓ Excel is simplest method

Choose Calendars

- Reasonable to assume that standard work week to be 5 days
- Add holidays
- Add estimated 'bad weather days'
 - Use historical data and account for this with non-work days
- Goal is to get as close to reality as possible

Activity Coding

- Essential for grouping and reporting
- Failure to properly code can be one of the biggest setbacks to getting the full benefit of the schedule
- Code by phase, area responsibility, etc.....

Add Relationships

- Model the order in which activities can be done given the physical, resource and contractual restraints
- All activities (except start and finish activities) must have at least one predecessor and one successor

Run the Schedule & Troubleshoot

- Check for loops
- Check for excessive project duration
 - “Crash” the schedule
 - Increase productivity
 - Revise logic

Software Requirements

- Low End

- ✓ Suitable for small projects
- ✓ Requires rudimentary knowledge
- ✓ costs approximately \$400

- High End

- ✓ Essential for larger projects
- ✓ Requires extensive experience
- ✓ Necessary for program management
- ✓ Effective in forensic analysis
- ✓ costs upwards of \$4000

CASE STUDY

Presented by:

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Case Study: Premise

- Existing K-8 School – Outmoded
- Single Story, Sprawling, Brick & Curtain Wall Fascia
- New construction – Add two story addition w/gymnasium, new classrooms, new laboratories
- New wing is attached to existing school at a Transition Area
- Transition Area was a Cafeteria/Gymnasium also housed Boiler Room – Mechanical – Electrical Rooms & the Kitchen

Case Study: Premise 2

- The interior of Transition Area is to be demolished and converted to serve the new wing and the existing school building
- MEP Rooms to be reworked to service both buildings
- Old Cafeteria/Gym is to become an All-Purpose Room with a stage
- New Kitchen w/new equipment to be added
- New school & Transition Area are to be fully completed to allow occupancy in Sept. [14 months after NTP]
- School district has no alternatives to place students if new building is not ready. There are liquidated damages to reflect this.

Case Study: Premise 3

- 2 sessions AM/PM – All students to occupy new building and transition facility before demolition of existing building
- Demolition & Renovation of South Half of existing building to be completed for occupancy after Christmas vacation, [18 months after NTP]
- Demolition & Renovation of North Half of existing building to be completed for occupancy of total facility by Sept. [26 months after NTP]

Case Study: Premise 4

- General Contractor – Responsible for all demolition, civil construction, scheduling & the coordination of all other prime contractors' work:
 - HVAC
 - Plumbing
 - Electrical
- All submittals required within 30 days of NTP
- As planned schedule within 30 days of NTP
- Time is of the essence – LD's are conditional [an estimated daily amount of \$3,500 to be adjusted by actual costs of providing alternative solutions].

Actual Events

- It is July 25, [13 months after NTP] approximately 13 months after NTP
- Contractor has completed new building structure but has not completed his work to permit Tie-in of the MEP systems
- Demolished the Transition Area but is behind schedule on work for the new MEP systems
- Has already commenced demolition of existing building w/o permission
- Subcontractors redeployed craft personnel to other school projects
- Following several notices to contractor, School Board assesses situation & concludes:
 - No chance to finish by September as required
 - Declares the Contractor to be in default and asserts a default-termination & simultaneously advises Surety
- A meeting of all parties is scheduled on August 1.

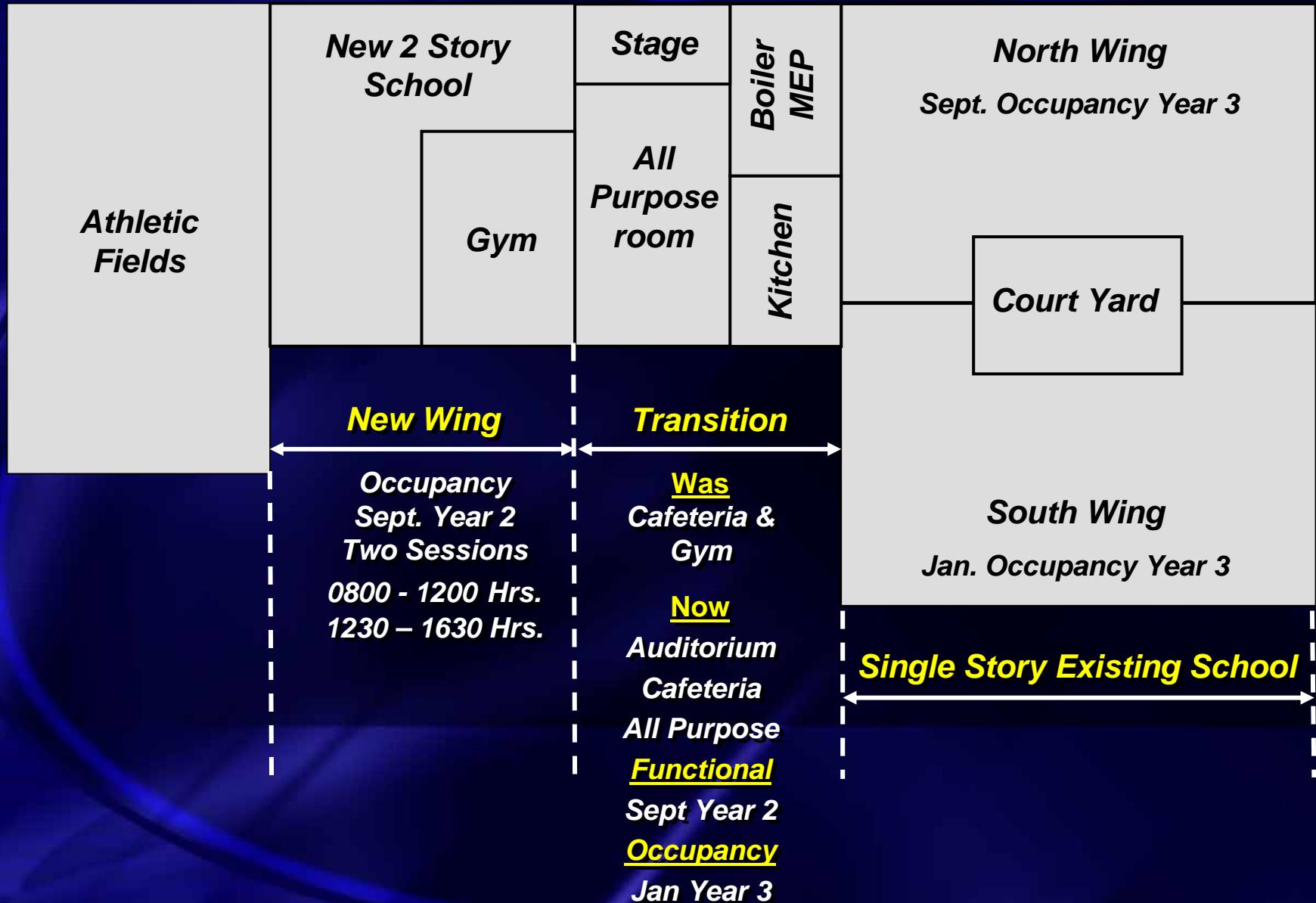
Results of Meeting

- School board makes demand to Surety under Bond in writing to fulfill its obligation
- Principal declares Termination to be improper & requests Surety not to interfere or proceed
- Surety requests full cooperation of Obligee & Architect to obtain Contract Documents
- Surety & Obligee proceed with each party reserving its rights pursuant to Principal's assertions.

What Happens Next?

- Surety engages a consultant and outside counsel
- Surety reviews its options and defenses
- Surety makes a decision based on advice of counsel & consultant
- Principal engages counsel, files a complaint against School Board, Architect & the Surety
- School Board [& Architect] must make a decision how to proceed
- There are multiple combinations & possibilities how the parties interact & proceed – We will explore them with you – and we urge you to participate.

School Site Plan - Case Study



Project Schedule & Milestones

Year 1								Year 2								Year 3													
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
NTP	★																												
Milestone #1 – Finish New School Bldg.								★																					
Milestone #2 – Transition Area Demo & Complete MEP																★													
Milestone #3 – Complete Renovation – Occupy S. Wing Existing School																★													
Milestone #4 – Complete Renovation – Occupy N. Wing Existing School																								★					
Milestone #5 – Complete New Athletic Fields																												★	

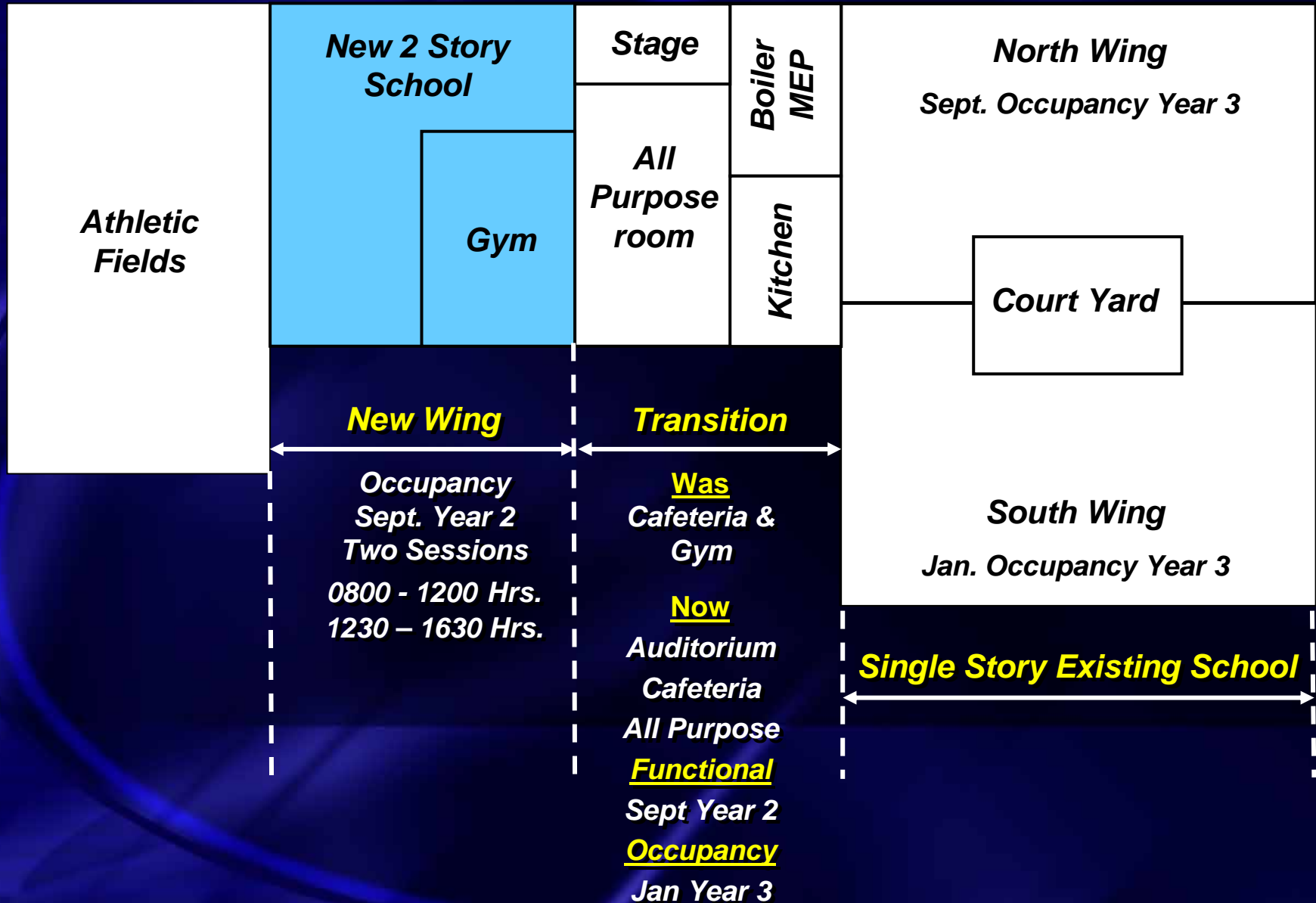
Issues To Be Resolved That Are Discovered During Investigation

Surety issues	School Board/Architect issues
What are it's obligations under the Contract & Performance Bond, re: LD's and/or the School's ability to function	How does it conduct classes?
How does it proceed with completion despite Principal's objection?	How does it defend against Principal yet proceed without prejudice & assist the surety?
How does Surety enlist the cooperation of other Prime Contractors?	What are its obligations to the Surety?
What is its exposure to claims by other Prime Contractors?	What is its exposure to claims by other Prime Contractors?
What if the Surety discovers some of the Principals claims have merit as well as uncovering add'l. claims?	How does it handle claims asserted by the Surety directly during completion and/or claims it may assert on behalf of the (Contractor/Principal)?
To what extent does the Surety Indemnify the Oblige re: payment issues to S/C & Vendors of the Principal?	How does it handle Liens, Claims or Litigation asserted by Vendors or S/C of the Principal?

Project Schedule & Milestones

Year 1								Year 2										Year 3													
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
NTP	★																														
Milestone #1 – Finish New School Bldg.													★																		
Milestone #2 – Transition Area Demo & Complete MEP																		★													
Milestone #3 – Complete Renovation – Occupy S. Wing Existing School																		★													
Milestone #4 – Complete Renovation – Occupy N. Wing Existing School																												★			
Milestone #5 – Complete New Athletic Fields																												★			
New Building Construction	Fdn's. & Bldg.																														
	New HVAC.																														
	New Piping																														
	New Electrical																														
	Windows																														
	Finishes																														

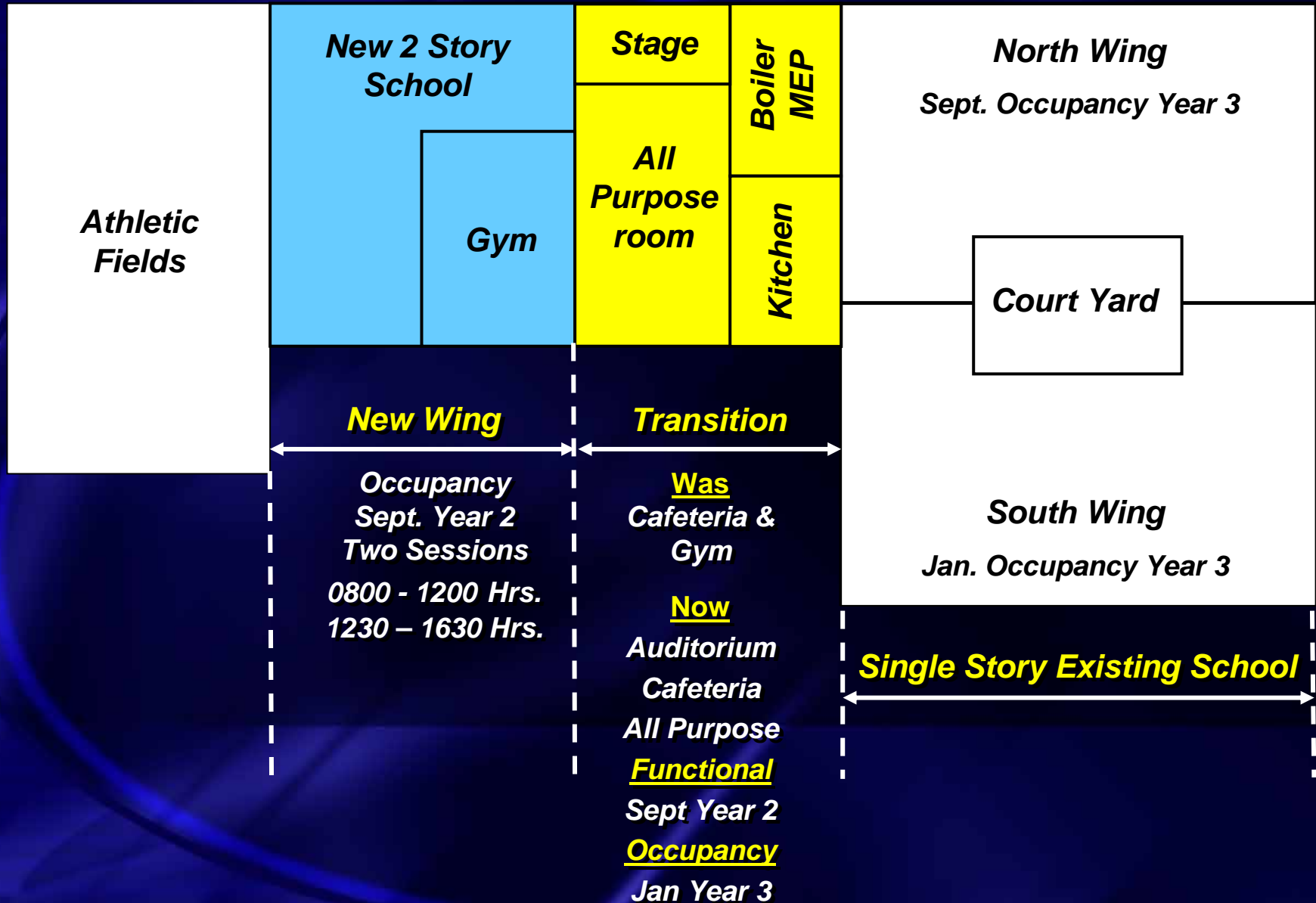
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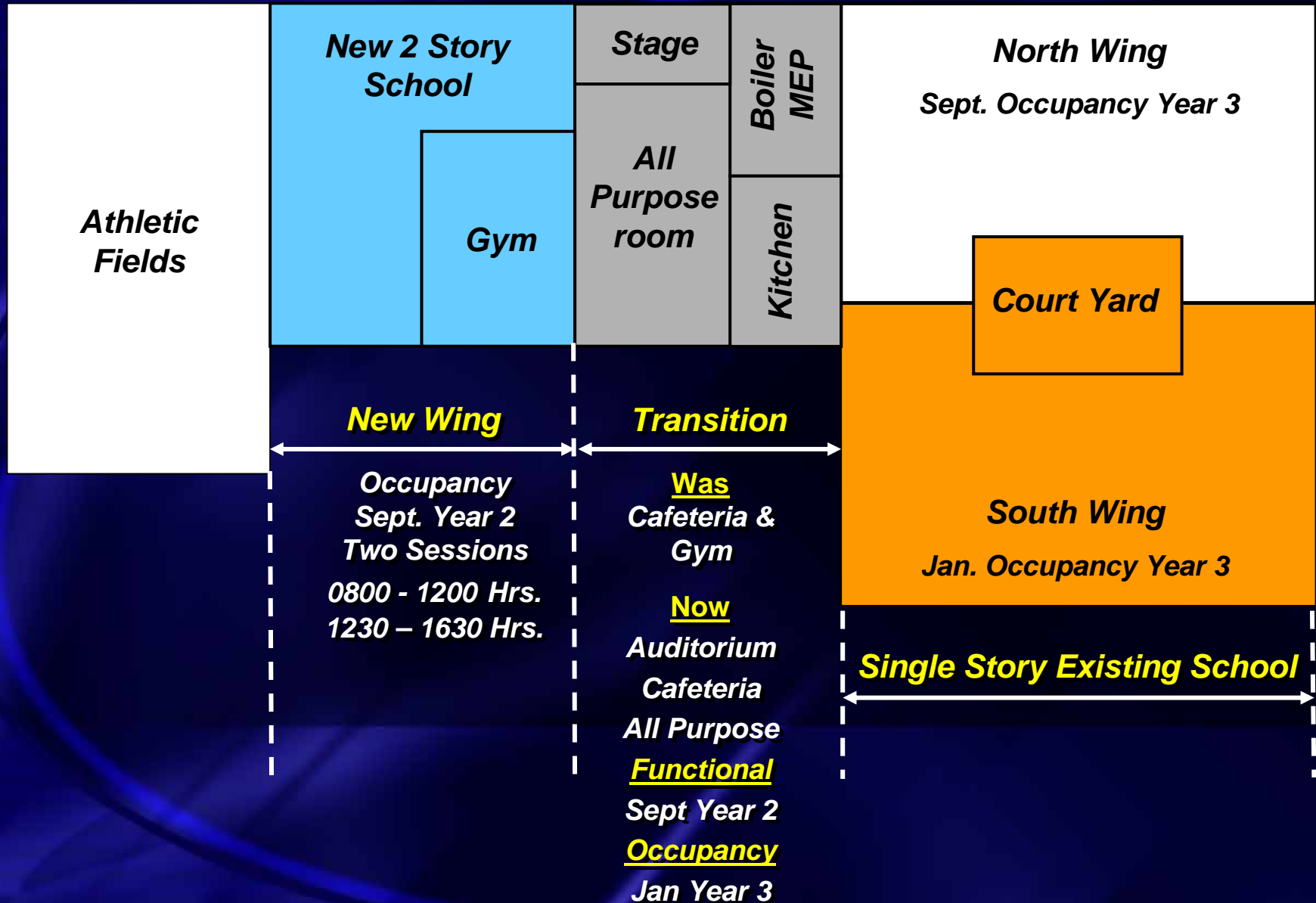
Project Schedule & Milestones

Year 1								Year 2								Year 3													
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
NTP	★																												
Milestone #1 – Finish New School Bldg.								★																					
Milestone #2 – Transition Area Demo & Complete MEP																★													
Milestone #3 – Complete Renovation – Occupy S. Wing Existing School																		★											
Milestone #4 – Complete Renovation – Occupy N. Wing Existing School																										★			
Milestone #5 – Complete New Athletic Fields																												★	
New Building Construction	Fdn's. & Bldg.																												
	New HVAC.																												
	New Piping																												
	New Electrical																												
	Windows																												
	Finishes																												
Trans. Area									Demo & Prep.																				
													MEP																

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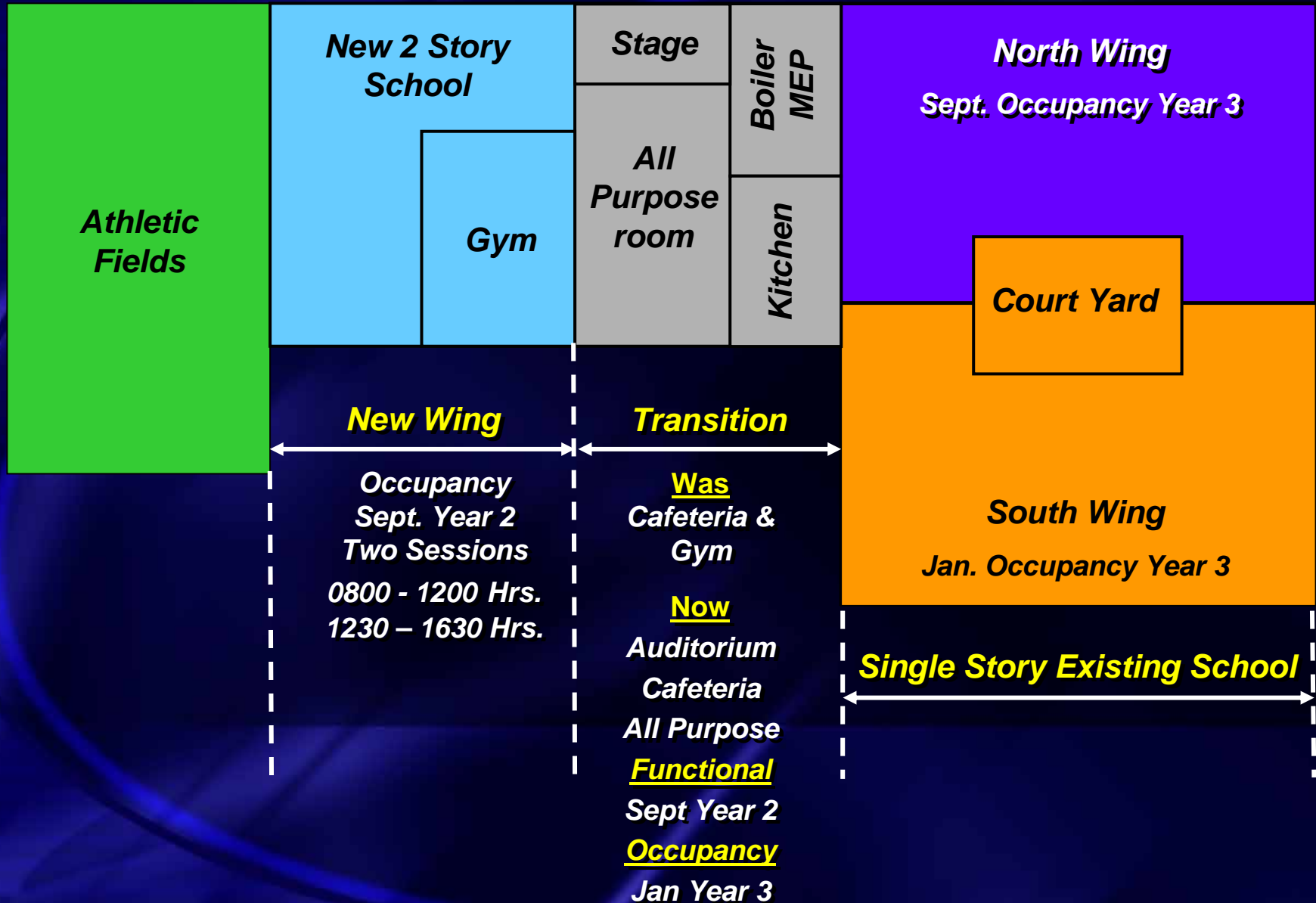
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Project Schedule & Milestones

Year 1								Year 2										Year 3											
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
NTP	✱																												
Milestone #1 – Finish New School Bldg.								✱																					
Milestone #2 – Transition Area Demo & Complete MEP								✱																					
Milestone #3 – Complete Renovation – Occupy S. Wing Existing School																		✱											
Milestone #4 – Complete Renovation – Occupy N. Wing Existing School																		✱											
Milestone #5 – Complete New Athletic Fields																												✱	
New Building Construction	Fdn's. & Bldg.																												
	New HVAC.																												
	New Piping																												
	New Electrical																												
	Windows																												
	Finishes																												
Trans. Area											Demo & Prep.																		
											MEP																		
Existing Building											Demo.																		
											South Wing Renovation																		
											South Wing MEP																		
											South Wing Finishes																		

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Project Schedule & Milestones

